# HEALTH & SAFETY MANUAL

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CHAPTER 1 - INTRODUCTION

HEALTH AND SAFETY PLAN

Purpose

Each State agency is to have a written health and safety program for State employees, based on clearly stated goals or objectives that promote safe and healthful working conditions. The program is intended to provide managers, supervisors, and employees with a clear and firm understanding of the State's and the school's concern for protecting employees from job-related injuries and illnesses; preventing accidents and fires; planning for emergencies and emergency medical procedures; identifying and controlling physical, chemical, and biological hazards in the workplace; communicating potential hazards to employees; and maintaining a sanitary environment.

POLICY

The North Carolina School of Science and Math is committed to providing a safe and healthful environment for all persons associated with the school, including faculty, staff, students, visitors, and members of the community.

The school emphasizes safety education and training as the primary means of achieving this goal. While the Safety Resource Center, the department primarily responsible for health and safety functions at the school, performs various periodic inspections, department heads, faculty members, and supervisors are considered directly responsible for maintaining full compliance with State and federal regulations and school safety policies and procedures.

RESPONSIBILITIES

NCSSM

NCSSM has established a written State Employee Workplace Requirements Program for Safety and Health, which contains the following information:

1. Methods to be used to identify, analyze, and control new or existing hazards, conditions, and operations.

2. Responsibilities of managers, supervisors, and employees for implementing the program, controlling accident-related expenditures, and methods to establish, measure, and maintain continued participation of management and employees.
3. Methods to communicate the plan to all affected employees so that they are informed of work-related physical, chemical, or biological hazards, and controls necessary to prevent injury or illness.

4. Programs for training managers, supervisors, and employees in avoidance of job-related injuries and health impairments.

5. Methods for reporting and investigating workplace accidents and implementing corrective actions.

6. Methods to communicate and enforce safe work practices and rules.

7. Types of safety and health training programs that will be made available to employees.

8. Methods for employees to make complaints concerning safety and health problems without fear of retaliation.

9. Methods for employees to receive medical attention following a work-related injury or illness.

10. Establishment of Safety Committees to perform workplace inspections, review injury and illness records, make advisory recommendations to the Director, and perform other functions necessary for the effective implementation of the Employee Workplace Safety Program.

SAFETY RESOURCE CENTER

The Safety Resource Center is responsible for implementation of the NCSSM Safety Program and the development of additional safety procedures necessary to meet the special situations that are unique to NCSSM.

Specific responsibilities include:

1. Development of a risk assessment based methodology for use in correcting workplace hazards on a priority basis throughout the school.

2. Development of a safety documentation system for review of effectiveness.

3. Establishment of long-range safety goals. Submission of an annual report to the Director of Facilities Management, with a copy to the Office of State Personnel, indicating achievements and identifying major problem areas, annual goals and objectives, long-range plans, and funding needs.

SUPERVISORS
Each supervisor is responsible for providing safe working conditions for those being supervised and for following up on reports of violations of safe working conditions. Each supervisor is also responsible for knowing the safety guidelines, investigating accidents, reporting accidents, and properly advising higher management of appropriate situations.

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

**EMPLOYEES**

Each employee is to place safety requirements as first in importance in the performance of his or her work duties for NCSSM. The protection of fellow employees and the public on school 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 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.

Specific responsibilities stated in the school's Safety Program, which are included in the NCSSM Employee Safety Handbook are:

1. NCSSM conducts a Safety Program for the purpose of preventing injuries to employees, protecting the health of its employees and damage to property.

2. Every employee is required to participate in the school's program.

3. Quality service, which is the cornerstone of the school's program.

4. Safety instructions and rules are to be obeyed. Safety devices installed and safety equipment provided is to be used. Defective tools and other equipment without proper guarding are not to be used.

5. Unsafe conditions or practices are to be reported to the immediate supervisor.

6. All injuries occurring on the job and any illnesses associated with the job are to be reported promptly and in writing to the supervisor. Questions concerning medical treatment of these injuries/illnesses should also be addressed to the supervisor.

7. All employees or escorted visitors entering a designated hazardous, caution, or restricted area are required to use personal protective equipment and adhere to safety procedures immediately upon access to the area.

8. Good conduct is expected - "horseplay" or "fooling around" will not be tolerated.
9. All fires, accidental damage to property, hazardous material spills and other emergency occurrences no matter how slight must be reported to the Safety Resource Center.

10. All hazardous materials are to be disposed of according to school procedures, in compliance with State and federal regulations. Supervisors and/or the Safety Resource Center can provide advice regarding proper disposal method and practices.

11. Working under the influence of alcohol or illegal drugs is specifically forbidden. Use of prescription drugs which may affect alertness or work abilities must be reported to the supervisor.

12. Failure to comply with or enforce health and safety rules and regulations may result in disciplinary action up to and including dismissal. Violation of work rules is a job performance issue and is to be dealt with through the job performance disciplinary process.

13. The rules in the Safety Handbook are designed for the protection and benefit of employees. Additionally, the Handbook should be kept at the workplace for ready or immediate access. If confronted with a situation not covered in the Handbook, employees should consult their supervisor before going ahead.

HEALTH AND SAFETY PROGRAM GOALS AND OBJECTIVES

INTRODUCTION

The mission of the Safety Program is to provide a safe and healthful environment for all persons associated with the school, including faculty, staff, students, visitors, and members of the NCSSM community. Introduction of new workplace safety program requirements by the North Carolina General Assembly provides an opportunity to renew that commitment.

The following goals and objectives are intended to provide full compliance with the State rules and regulations.

GENERAL

1. Establish NCSSM Safety Committees for work environments to assist in implementing the new workplace safety requirements.

2. Provide staff support to the new "work environment" committees.

3. Implement a self-inspection program to provide an annual inspection of each workplace and to supplement inspections performed by committee members and Safety Office staff.
4. Develop a database of work units within each work environment to provide a communication network of supervisors.

5. Identify the training required for each work unit and, where practicable, the training requirements for each employee.


8. Distribute an Employee Safety Handbook to all new employees.

**TRAINING PROGRAMS**

1. Revise current safety orientation programs to provide programs for each of the work environments.

2. Require mandatory attendance at the safety orientation programs.

3. Develop and offer safety-training course for supervisors.

4. Provide training for safety committee members.

**EFFICIENCY IMPROVEMENT MEASURES**

1. Maintain computer and network system for the Safety Resource Center to enable convenient access to databases.

2. Provide the installation of the computer connection to the State Information Processing System to provide automated approval of Workers' Compensation medical bills.

3. Establish a modem interface with the CD-ROM Chemical MSDS database for access by NCSSM to assist in treatment of chemical exposures.

4. Develop automated inspection report generator to enable inspectors to input data directly rather than drafting reports for the clerical staff.

5. Obtain programming assistance to implement a fire extinguisher bar code inspection system.

6. Develop on-line MSDS system to enable users to obtain copies of MSDSs directly, 24-hours per day, rather than by hard copies generated in the Safety Resource Center.
OFFICE ENVIRONMENT
1. Develop and implement an ergonomics program for evaluation of computer workstations.
2. Train Office Environment committee members to perform ergonomic evaluations of schoolwork stations.

CLINIC ENVIRONMENT
1. Identify clinic work units and health and safety requirements of units.
2. Develop safety plans and procedures for all clinic work units.
3. Provide annual training required for employees subject to the OSHA Blood borne Pathogens Standard.

LABORATORY ENVIRONMENT
1. Assist laboratory work units in completing Laboratory Safety Plans to achieve full compliance with the OSHA Laboratory Standard.
2. Develop a purchase control and inventory system for chemicals to comply with State Workplace Safety Program requirements.
3. Compile chemical storage information from Laboratory Safety Plans to provide information for emergency personnel.

INDUSTRIAL ENVIRONMENT
1. Assist industrial work units in completing Safety Plans for using hazardous materials and equipment.
2. Develop record keeping systems to assure compliance with OSHA training requirements.

MAINTENANCE AND CONSTRUCTION ENVIRONMENT
1. Assist maintenance and construction work units in completing Safety Plans for using hazardous materials and equipment.
2. Evaluate systems to minimize injuries to personnel emptying trash containers and conveying to dumpsters.

3. Develop and implement an ergonomics program for evaluating tasks involving frequent and/or heavy lifting.

**SUPPORT SERVICES ENVIRONMENT**

1. Assist support services work units in completing Safety Plans for using hazardous materials and equipment.

2. Develop and implement an ergonomics program for evaluating tasks involving frequent and/or heavy lifting.

**SAFETY RESOURCE CENTER**

The NCSSM Safety Resource Center is responsible for developing a comprehensive program to comply with the provisions of the Occupational Safety and Health Act of North Carolina (OSHANC). A part of the school's operational division, Safety Resource Center reports to the Director of Operations.

The goal of the school is to provide a safe and healthful environment for all persons associated with the institution, including staff, students, visitors, and the community.

The school endorses the concept of "voluntary compliance" which emphasizes safety education and training rather than enforcement as the means of achieving this goal. Nevertheless, department heads and faculty members are considered to be directly responsible for maintaining full compliance with school safety policies and procedures. Each department is responsible for the training of its employees and students in safe practices and for compliance with State and Federal regulations for maintaining a safe and healthful work environment.

The Safety Resource Center performs periodic inspections of school facilities to identify problem areas and to assist departments in identifying needs. The Safety Resource Center staff is available for consultation on recognized or suspected hazardous conditions and for assistance in developing safety-training programs.

The Safety Resource Center is located in the Plant Facilities building. Any questions, which are not answered within this document, may be referred to the school Safety Resource Center.
SAFETY RESOURCE CENTER

Co-Managers – Chris Taylor and Rick Hess

- Responsible for overall safety program for the school

BIOLOGICAL SAFETY AND INDUSTRIAL HYGIENE

- Responsible for developing safety guidelines, standards, and recommended practices for personnel engaged in work with biohazardous agents such as infectious organisms, oncogenic viruses, recombinant DNA’s, and chemical carcinogens

- Responsible for educating laboratory personnel working with biohazardous agents and hazardous chemicals

- Responsible for coordinating certification tests for biological safety cabinets and reviewing requisitions for containment equipment such as Class II (laminar flow) biological safety cabinets and chemical hoods

- Responsible for investigating complaints of unsanitary conditions involving biohazards, animal care facilities, insect and rodent infestations, food handling, and solid waste disposal

- Responsible for inspecting laboratories using toxic and hazardous chemicals and biological agents

- Responsible for monitoring and evaluating personnel exposure to chemical and physical hazards such as noise, toxic vapors, and particulates

- Responsible for responding to requests for investigation of fumes, inadequate flow rates in hoods, and other potential health hazards

FIRE SAFETY

- Responsible for inspecting physical facilities, offices, laboratories, classrooms, shops, and industrial operations to identify safety deficiencies and potential hazards

- Responsible for inspecting construction, renovation, and maintenance projects to insure compliance with safety standards

- Responsible for responding to requests for investigation of potential safety hazards

- Responsible for investigating work-related injuries
– Responsible for investigating all fire calls and complaints regarding safety for public gatherings at school facilities

– Responsible for reviewing renovation plans for conformity to the Life Safety standards of the National Fire Protection Association Codes and the North Carolina State Building Code

– Responsible for developing and coordinating procedures and standards for occupational safety and fire prevention

HAZARDOUS WASTE PROGRAM

– Responsible for management of the school's hazardous waste facilities

– Responsible for responding to emergencies involving chemical spills to coordinate containment and cleanup operations

– Responsible for treatment of wastes generated on campus to reduce toxicity and/or render them non-toxic

– Responsible for preparation of wastes that cannot be treated on-site for off-site disposal

– Responsible for collection of radioactive and hazardous wastes from the school's laboratories and transfer to Safety Resource Center storage/treatment facilities

– Responsible for consultation with laboratory personnel regarding proper preparation of wastes for transfer for disposal

SAFETY ADMINISTRATIVE SERVICES

– Responsible for investigation and processing of Workers' Compensation claims

– Responsible for keeping and managing health and safety records

– Responsible for scheduling physical examinations for targeted occupations

– Responsible for arranging for fitting of safety glasses for school employees
RADIATION SAFETY

Safety Resource Center Officers – Chris Taylor and Rick Hess

- Responsible for reviewing applications for the use of radiation sources and for evaluating laboratory space and personnel

- Responsible for approving all Purchase Requisitions for radioactive material and radiation-producing devices

- Responsible for monitoring all persons exposed to ionizing radiation resulting from materials or devices possessed by NCSSM.

- Responsible for receipt of all radioactive material

- Responsible for implementing policies established by the school's Radiation Safety Committee and State and Federal regulations relating to the receipt, possession, transportation, use, and transfer of radiation sources

- Responsible for providing consultation, assistance, and training on radiation safety procedures

- Responsible for inspecting facilities using radiation sources

- Responsible for inspecting all electromagnetic radiation-producing devices such as x-ray, microwave, electron microscopes, and diffraction units

SAFETY COMMITTEES FOR WORK ENVIRONMENTS

REQUIREMENT

State regulations require each State agency to create health and safety committees to perform workplace inspections, review injury and illness records, make advisory recommendations to the administration, and perform other functions determined by the State Personnel Commission to be necessary for the effective implementation of the State Workplace Requirement Program. This section provides an overview of how NCSSM has implemented this requirement.

NCSSM ADMINISTRATIVE SAFETY COMMITTEE

The NCSSM Administrative Safety Committee is composed of seven members of the school's faculty and staff as appointed by the Executive Director. One of these members acts as the committee chair. The Safety Co-Managers serve on the committee as an ex-officio member.
COMMITTEE RESPONSIBILITIES

Basic committee operations are as follows:

1. Conduct quarterly meetings. Maintain written minutes of each meeting and send copy to each committee member.

2. Review health and safety policies and procedure and recommend changes to the NCSSM Administrative Safety Committee.

3. Review incidents involving work-related fatalities, injuries, and illnesses.

4. Review employee complaints, request investigations by Safety staff, and accompany Safety staff in conducting investigations, as the committee feels appropriate.

5. Analyze work injury and illness statistics.

6. Conduct routine inspections of worksites, including interviews with employees.

7. Review training records to insure compliance with regulatory requirements and make recommendations to the NCSSM Administrative Safety Committee.

8. Make recommendations for safety improvements to the School's Administrative Safety Committee.

WORK ENVIRONMENTS - WORKPLACE SAFETY COMMITTEE

NCSSM has a variety of occupations and workplaces, which support the school's mission of education, research and public service. To ensure that appropriate attention is given to the unique nature of the workforce, the health and safety committees are organized around "work environments". It is recognized that many employees work in more than one environment and that some work units have tasks that fall into two or more work environments.

OFFICE ENVIRONMENT

Essentially every department has an office environment. Administrative and clerical workers in Plant Facilities and Student Health Clinic for example, work in the office environment. Employees in these departments may also work in other environments, such as Maintenance and Construction, Clinic, Industrial, or Support Services.
CLINIC ENVIRONMENT

The Clinic Environment is primarily characterized by activities involving patient contact and exposure to blood or other potentially infectious materials. The Clinic Environment frequently has additional health and safety requirements imposed by accreditation organizations, e.g., Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

LABORATORY ENVIRONMENT

The Laboratory Environment consists of those work units that are subject to the OSHA Laboratory Standard. The school's Chemical Hygiene Plan is described in the NCSSM Laboratory Safety Manual, which is available from the Safety Resource Center.

INDUSTRIAL ENVIRONMENT

The Industrial Environment consists of those work units that are characterized by a fixed location and use of industrial-type machines and equipment. These units are generally subject to specific provisions of the OSHA General Industry Standards involving hand and portable powered tools, welding, electrical lockout and tag out procedures, confined space entry procedures, and machinery and machine guarding requirements.

MAINTENANCE AND CONSTRUCTION ENVIRONMENT

The Maintenance and Construction Environment consists of those work units whose primary activities are performed at various locations around campus. These units are generally subject to the OSHA General Industry Standards involving hand and portable powered tools, welding, and electrical lockout and tagout procedures. Examples include: Electrical, Plumbing, and HVAC Shops, as well as Grounds and Housekeeping.

SUPPORT SERVICES ENVIRONMENT

The Support Services Environment consists of activities that are conducted outside of the office environment, usually involve public contact, may involve hazardous materials, and are not included in one of the other environments.
COMMITTEE ORGANIZATION

The Work Environments - Work Place Safety Committee is composed of seven employees, who are non-supervisory employees. The non-supervisory employee representatives are referred to as "Employee Health and Safety Representatives" (EHSR). The Safety Co-Manager, or designee, serves as an ex-officio member with voting rights on the committee.

APPOINTMENTS

Members of the work environment committees are appointed by the Administrative Safety Committee. Terms of the initial appointees are staggered to provide for two of the committee members being replaced each year. Terms are for three years and EHSR members will normally not serve consecutive terms although members initially appointed to less than a three-year term may be reappointed to a full term.

COMMITTEE SERVICE

Time spent at committee meetings and committee activities is considered to be normal work time and will not result in any loss of pay or benefits. It is anticipated that work schedules can be adjusted to avoid committee service resulting in over-time pay. Committee membership will be limited to full-time, permanent NCSSM employees.

SAFETY COMMITTEE

The Safety Committee is responsible for establishing policies governing the procurement, use, storage, and disposal of radioactive materials and radiation-producing devices. The Committee includes individuals experienced in the use or application of radioactive materials and radiation devices and provides a peer review of these uses among researchers at the school. The Committee meets at least quarterly to review reports on the receipt and disposal of radioactive materials/radiation-producing devices, and to act on applications for authorization to use these sources. The Committee, along with its chairman, is appointed by the Safety Resource Center Co-Managers. It makes an annual report of activities to the Executive Director.

WORK UNITS

DEFINITION

A work unit is a subdivision of a department in which the employees are involved in a common function(s). The work unit has a supervisor or manager that is responsible for the operations, including safety, of the unit. Although a work unit may be involved in more than one work environment, the safety issues and training requirements will be considered for the entire unit,
i.e., the work unit will not be further subdivided into the work environment categories into which departments are subdivided.

HEALTH AND SAFETY LIAISONS

Each work unit is to have a work unit health and safety liaison (WUHSL) to serve as the contact for health and safety matters within the work unit. The chair or director of each department will be designated as the WUHSL for the Office Environment Work Unit for the department unless the department head assigns this responsibility to another staff person. For large departments, or departments with office work units in satellite locations, a WUHSL may be appointed for each location.

In the Laboratory Environment, each faculty member (Principal Investigator) responsible for laboratory activity is designated as the work unit and the WUHSL.

Unless otherwise specified, the clinic manager will be the WUHSL for work units in the Clinic Environment.

Unless otherwise specified, the shop supervisor will be the WUHSL for work units in the Maintenance and Construction and Industrial Environments.

Unless otherwise specified, the manager or shift supervisor will be the WUHSL for work units in the Support Services Environment.

A notebook containing the school's Health and Safety Plan (HSP) will be issued to each WUHSL. These liaisons will be the contact within departments for questions regarding health and safety policies. Additions and periodic updates to the HSP will be mailed to the liaisons for maintenance of the notebooks.

ENFORCEMENT OF SAFETY STANDARDS

GENERAL

Safety and health policies and procedures are established and enforced to protect employees from injury and illness as well as to provide for a safe and healthful place of employment.

Violations of health and safety policies and procedures are considered to be among the most serious violations of school policy. All NCSSM employees, SPA, EPA Faculty, and EPA Non-
Faculty, are required, as a condition of their employment, to abide by all school safety policies and to follow all required safety procedures.

Adherence to health and safety policies and procedures is enforced in a consistent manner according to the personnel policies in effect for the particular employee. Disciplinary policies for SPA employees are found in the Human Resources Manual for SPA Employees. Disciplinary policies for EPA Non-Faculty employees are found in the Employment Policies for EPA Non-Faculty Employees of NCSSM. Disciplinary policies for EPA Faculty employees are found in the Trustee Policies and Regulations Governing Academic Tenure.

TRAINING REQUIREMENTS

ORIENTATION OF NEW EMPLOYEES

All new employees are required to attend a Health and Safety Orientation program appropriate to their work environment. Orientation programs are offered in the following areas:

- Safety in the Office Environment
- Safety in the Laboratory Environment
- Safety in the Clinic Environment and the Bloodborne Pathogens Standard
- Safety in the Industrial and the Maintenance and Construction Environments
- Safety in the Support Services Environment
- Hazard Communication Standard
- Bloodborne Pathogen Standard
- Radiation Safety
- Hazard Recognition for Housekeepers

Some employees will need to attend more than one program. For example, laboratory workers involved in handling blood or other potentially infectious materials will need to attend the programs on Laboratory Safety and the Bloodborne Pathogen Standard.

The purpose of the orientation programs is to identify hazards inherent to the job, explain hazard assessment procedures, inspection requirements, reporting procedures, availability of personal protective equipment, and availability of medical treatment in the event of an on-the-job injury or illness.

WORK UNIT SUPERVISOR TRAINING

Special workplace safety training for supervisors in the Industrial, Maintenance and Construction and Support Services environments is provided by the Safety Resource Center.

SPECIALIZED TRAINING
The Safety Resource Center will assist supervisors in identifying specialized training required by State and school policies and regulations. Employees are not to be permitted to perform duties unsupervised until appropriate training has been provided and documented. In some instances only "competent persons" or those "certified" or "qualified" can legally perform certain key tasks. If in doubt about specific job training requirements, supervisors are encouraged to consult with the Safety Office.

When contracting for or purchasing specialized equipment or systems that require special training to ensure safe operation, provisions for the training should be included in the purchase agreement. When provided, such training is to be documented and provided to the Safety Resource Center.

TRAINING RECORDS

Required safety training must be documented. As a minimum, training records must consist of:

1. Name of training and course outline;
2. Location, date and time the training was conducted; and
3. Names of all employees in attendance. Use Appendix A.

Required safety training documents are to be sent to the Safety Office.

EVALUATION OF TRAINING

An "exam" will be given to program participants to reinforce course content and demonstrate knowledge of key principles.

A "course evaluation" form will be filled out by course participants to provide feedback to improve course content and instructional skills. An evaluation form is included as Appendix B.
TRAINING PROGRAM OUTLINES

Titles of training programs available through the Safety Office can be requested by contacting the Safety Office.

Appendix A

ATTENDANCE RECORD
Date:
Topic of Discussion:
Presenter:
Department/Group/Area Represented:

ATTENDANTS
1.
2.
3.
4.
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20.

NOTES:
Appendix B
COURSE EVALUATION

Program Title: ________________________________

Date: ______________

Speaker: ____________________________

1. Were the major objective(s) (purpose) of the course made clear at the beginning?  
   - Yes ___  
   - Somewhat ___  
   - No ___

2. Is the information that was presented useful to you in your job?  
   - Yes ___  
   - Somewhat ___  
   - No ___

3. Were you already familiar with the information covered by this speaker?  
   - Yes ___  
   - Somewhat ___  
   - No ___

4. Was the information presented in a clear and well-organized manner?  
   - Yes ___  
   - Somewhat ___  
   - No ___

5. If provided, were the handouts/supplementary materials used in class helpful?  
   - Yes ___  
   - Somewhat ___  
   - No ___

6. If used, were the audiovisuals used helpful in reinforcing the content of the class?  
   - Yes ___  
   - Somewhat ___  
   - No ___

7. Was the overall level of content?  
   - Too basic ___  
   - Appropriate ___  
   - Too advanced ___

8. Should any part of the program have been covered in more detail?

9. Are there other topics that should have been included in the program?
10. Please feel free to make any comments about the class on the back of this sheet.
HAZARD ASSESSMENT

Safety hazards are defined as conditions, which could result in accidental injury to personnel or passersby. Hazards also include lack of safety-related equipment such as machine guards, protective clothing, and fire fighting equipment and warning signs.

1. Safety hazards shall be assessed and defined for each work area and operation.
   a) Hazards shall be defined by surveys conducted by the safety manager or his/her designees and by the supervisor of the area of operation being reviewed.
   b) Hazards, potential hazards, and required on-site safety warning signs shall be identified and defined in the form of audit-check lists.
   c) Existing potential hazards or missing safety equipment shall be identified; required corrective action shall be defined in writing and forwarded to the appropriate actionee.
   d) Job safety analysis will be conducted to determine the optimum method by which to accomplish the task and determine if personal protective equipment is necessary to perform the task safely.

2. Safety audits shall be conducted at the direction of the safety manager at intervals not exceeding one year. All areas and operations shall be audited on a periodic basis.
   a) Safety audits shall be performed by personnel designated by the Safety Manager. Auditors shall consist of people not normally working in the audited work area of operations.
   b) The audit checklist developed by the hazard assessment survey shall be used for the auditing process. Additional safety departures shall also be recorded.

3. The audit reports shall be reviewed by the Safety Manager and the person in charge of the work area of operations.
   a) Items requiring corrective action shall be clearly defined and documented.
   b) Corrective actions not requiring significant expenditures shall be implemented and a follow-up audit shall be performed to verify completion.
   c) Where corrective action requires beyond-budget expenditures, the required action shall be presented in writing to the appropriate Director with recommendations pertaining to priority. Status of such requests shall be checked by the Safety Manager
at reasonable intervals, and a follow-up audit shall be performed when the work has been completed.

4. All audit reports shall be maintained on file for periodic historical review.

FUNDING OF SAFETY DEFICIENCIES

IDENTIFICATION

Safety deficiencies may be identified by employees, department administrators, safety committees, Plant Facilities employees, Safety employees, state and/or federal inspectors, insurance underwriters, or anonymous reporters.

EVALUATION

Safety deficiencies will be investigated and evaluated by Safety Office personnel. If a deficiency is confirmed by inspection, it will be categorized according to severity and responsibility for correction.

RESPONSIBILITY CATEGORIES

1. Facility deficiency resulting from major structural deterioration, construction oversight, or code change. Items in this category generally involve significant expenditure of funds and require scheduling under the school’s Capital Improvement Program.

2. Maintenance problem resulting from normal wear and tear or functional obsolescence. Items in this category related to the facility, fixed equipment, or grounds are the responsibility of Plant Facilities and will be funded through its maintenance budget.

3. Deficiency created by inappropriate occupancy or practices by occupants. Correction is the responsibility of the occupants.

4. Repairs to equipment purchased and maintained by the using department, as well as replacement of stolen or missing equipment, are the responsibility of the department.

Severity Categories

1. Imminent Danger.

2. Serious violation.

3. Non-serious violation
4.  The minimum violation.

5.  Non-conforming use/condition.

**CORRECTION**

The investigating personnel who determines that a safety deficiency poses imminent danger or is a serious violation shall have the power to stop work, order evacuations, or take other such emergency measures as he/she deems appropriate under the circumstances. An emergency work order will be placed with the Safety Resource Center to begin corrective action.

The investigating personnel who determine that a safety deficiency is a non-serious violation, a de minimum violation, or a non-conforming use/condition shall issue an order for correction to the party responsible for correction. Such orders shall contain deadlines for correction of the violation. The investigating personnel who initiated the correction will follow-up to insure that the correction has been made.

The Head of Plant Facilities (Safety Manager) will annually meet to prioritize safety deficiencies in the facility deficiency category. Noted deficiencies will be reported to the Director of Operations.

**HEALTH AND SAFETY COMMUNICATIONS**

**EMPLOYEE HANDBOOK**

Each employee is to be issued an Employee Health and Safety Handbook, which include State and school safety policies and rules. The employee must sign a document acknowledging that he/she received the handbook and understands the school’s safety rules. The document is to be placed in the employee's departmental personnel file.

**RADIATION SAFETY MANUAL**

This manual describes school policies and procedures for the use of radioactive materials and radiation-producing devices. It is available on request from the Safety Manager and is required to be present and available to employees who work with radioactive materials or radiation-producing devices.

**LABORATORY SAFETY MANUAL**
This manual contains policies, procedures, and safety practices for laboratories. The manual constitutes the school's Chemical Hygiene Plan and is required to be present and available in laboratories using hazardous materials. It is available on request from the Laboratory Manager or the Safety Office.

**CONTINGENCY PLAN**

This manual contains procedures to follow in the event hazardous chemicals are released on school property, containment and control procedures, emergency response procedures, and required reports. All departments generating hazardous wastes are required to keep a copy of the plan present and available for emergency use. It is available on request from the Safety Resource Center.

**HEALTH AND SAFETY MANUAL FOR DEPARTMENT CHAIRS AND DIRECTORS**

Department chairs and directors are provided with a Health and Safety Manual describing health and safety policies and procedures in detail. Training sessions are provided to familiarize department chairs, directors, and supervisors with the school's Safety Plan.

**SAFETY AND HEALTH AWARENESS AND PROMOTION EFFORTS**

The Safety Resource Committee will hold quarterly meetings. All committee members are required to attend.

Department chairs, directors and supervisors will hold regular meetings, quarterly at a minimum. All personnel are required to attend.

**WORKPLACE INSPECTIONS**

**REQUIREMENT**

Physical facilities are to be inspected at least annually to ensure that workplaces are free from recognized safety hazards.

To achieve full compliance with the requirement, inspections will be performed by one or more of the following: self-inspection, i.e., inspection by the employee(s) occupying the area; Safety Committee members; Safety Office personnel; State and federal agency personnel; insurance underwriter personnel; or a combination of these.
REPORTS, NOTIFICATION OF VIOLATIONS, AND CORRECTIVE ACTION

Each inspection report is to include observed health and safety violations, non-compliance items, and deficiencies. Inspection findings are to be forwarded to the Safety Office for preparation of a written inspection report.

The Safety Office will send the written report to the person in charge of the facility or function being inspected, the appropriate Safety Work Environment Committee, and Plant Facilities, if the corrective action involves maintenance or capital improvement items.

The person responsible for the area is to respond to the Safety Office by the designated date, indicating the corrective action accomplished with regard to each reported violation or deficiency.

IMMINENT DANGER ACTION

In the event that any manipulation, process, action or condition is discovered which in the opinion of the Safety Manager or his/her designee constitutes an immediate threat to the life of an employee or the public, the manager or his/her designee may order the immediate cessation or modification of such manipulation, action or condition.

EMPLOYEE PARTICIPATION

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

REQUEST FOR SPECIAL SAFETY INVESTIGATION

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. School employees are encouraged to request a "Special Investigation" into the need for corrective action.

The Safety Office will respond to any request or complaint. NCSSM employees who are aware of a health hazard or unsafe condition should notify the Safety Office.
EMPLOYEE RIGHTS

Employees are encouraged to seek resolution of hazardous conditions through the Safety Office but, under Section II(d)(1) 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 (919-733-3332, or 1-800- LABOR NC, 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.

The rights of an employee in reporting complaints of matters affecting occupation health and safety shall be exercised without retaliation on the part of any other person.

CONFIDENTIALITY

Persons requesting an inspection by the Safety Office (or the 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 the immediate supervisor or department head.

NOTIFICATION OF FINDINGS

If the Safety Office 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.

After the Safety Office has concluded its investigation, the results will be communicated to the party requesting the investigation and to other appropriate NCSSM 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, and so forth, recommendations will be made to the proper departments.

CONDITIONS THAT SHOULD BE REPORTED

The types of hazardous conditions that should 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 materials
- Presence of irritating or noxious odors
- Fire hazards
- Interference with safe egress
- Natural gas odors
- Chemical spills, mercury spills
- Petroleum or gasoline spills
- Compressed gas release
- Radiation exposure or contamination

HEALTH AND SAFETY SELF-INSPECTION CHECKLISTS

PURPOSE

Maintaining a safe and healthful environment is the responsibility of all employees. To augment the inspection efforts of health and safety committees and the Safety Office, each work unit is required to perform a self-inspection annually.

USE OF INSPECTION CHECKLISTS

Checklists have been prepared to assist personnel in conducting inspections of their workplaces. Although many of the items on the checklists may seem trite, the fact remains that if these simple rules are observed by all NCSSM employees, many accidents and worker's compensation claims can be prevented.

The checklists are not all-inclusive, but are intended to guide the inspector in assessing major safety areas. Be sure to list deficiencies that are found that are not included on the checklists.
CORRECTION OF DEFICIENCIES

Upon receipt of self-inspection reports, the Safety Office will review them to determine if any follow up is needed. Any serious safety problems should be reported to the Safety Office for immediate response and evaluation.

ASSISTANCE

If you have any questions regarding the checklists or findings, call the Safety Office for assistance.

CHECKLISTS

Clinic Environment
Industrial Environment
Laboratory Environment
Maintenance and Construction Environment
Office Environment
Support Services Environment
NCSSM SAFETY INSPECTION CHECKLIST
CLINIC ENVIRONMENT

WORKUNIT: ___________________________ SUPERVISOR: ________________________

__ DEPARTMENT: ______________________ BLDG __________ ROOM#(s) __________

During the inspection of the designated area, circle the correct answer at the end of each question. If the question does not apply, circle (NA).

BASIC LIFE SAFETY

1. Is the Fire Emergency plan posted?
   Yes No NA
2. Are corridors and exits free from obstructions?
   Yes No NA
3. Are exit signs illuminated and visible?
   Yes No NA
4. Are emergency instructions and telephone numbers at telephone?
   Yes No NA

GENERAL

5. Is good housekeeping maintained?
   Yes No NA
6. Is the workplace free of trip hazards?
   Yes No NA
7. Are electrical cords and wires free of burns and fraying?
   Yes No NA
8. Are electrical outlets free of overloading?
   Yes No NA

CLINIC FACILITIES

9. Are lab coats and gloves worn as appropriate?
   Yes No NA
10. Are glass, sharps and needles properly handled and contained?
    Yes No NA
11. Is eating, drinking, etc. prohibited?
    Yes No NA
12. Are handwash facilities available?
    Yes No NA
13. Are infectious, medical and hazardous wastes properly handled?
    Yes No NA
14. Are informational and caution signs posted and legible?
    Yes No NA
15. Are appropriate splash shields provided?
    Yes No NA
16. Is eye protection provided?
    Yes No NA
17. Are safety showers and eye wash stations provided where hazardous chemicals may be splashed?
    Yes No NA
18. Are gas cylinders secured?
    Yes No NA

TRAINING

19. Have employees received required immunization reviews?
    Yes No NA
20. Have guidelines on lifting and moving been provided?
    Yes No NA
21. Has hazardous chemical training been provided?
    Yes No NA
22. Have employees attended required bloodborne pathogen training within the past 12 months?
    Yes No NA
23. Are Material Safety Data Sheets (MSDS) available?
    Yes No NA
NCSSM SAFETY INSPECTION CHECKLIST
INDUSTRIAL ENVIRONMENT

WORKUNIT: ______________________________ SUPERVISOR: ________________
DEPARTMENT: ______________ BLDG: ___________ ROOM#(s): _________

During the inspection of the designated area, circle the correct answer at the end of each question. If the question does not apply, circle (NA).

### BASIC LIFE SAFETY

**Finding (circle one)**

1. Is the fire emergency plan posted?  
   - Yes  
   - No  
   - NA

2. Are corridors and exits free from obstruction?  
   - Yes  
   - No  
   - NA

3. Are exit signs illuminated and visible?  
   - Yes  
   - No  
   - NA

4. Are emergency instructions and telephone numbers at telephone?  
   - Yes  
   - No  
   - NA

### SAFETY

5. Are the moving parts of machines properly guarded?  
   - Yes  
   - No  
   - NA

6. Are lock out - tag out procedures followed?  
   - Yes  
   - No  
   - NA

7. Are motor driven instruments and machines grounded?  
   - Yes  
   - No  
   - NA

8. Are electrical cords and wires free of burns and fraying?  
   - Yes  
   - No  
   - NA

9. Are gas cylinders secured from falling?  
   - Yes  
   - No  
   - NA

10. Are oxygen cylinders separated from fuel gases or combustible material by 20 feet or more?  
    - Yes  
    - No  
    - NA

11. Is excavation and overhead work properly barricaded?  
    - Yes  
    - No  
    - NA

### HAZARDOUS CHEMICALS

12. Are Material Safety Data Sheets (MSDS) available for hazardous chemicals used in the workplace?  
    - Yes  
    - No  
    - NA

13. Is there documentation that all employees have received hazard communication training?  
    - Yes  
    - No  
    - NA

14. Is eye wash/safety shower within 75 ft of hazards?  
    - Yes  
    - No  
    - NA

15. Are "EYE WASH" and "SAFETY SHOWER" signs posted?  
    - Yes  
    - No  
    - NA

16. Are chemical containers properly labeled?  
    - Yes  
    - No  
    - NA

17. Is protective clothing provided?  
    - Yes  
    - No  
    - NA

18. Is eye protection provided?  
    - Yes  
    - No  
    - NA

19. Are respirators provided?  
    - Yes  
    - No  
    - NA

20. Have respirator users been trained?  
    - Yes  
    - No  
    - NA

### HEARING CONSERVATION
20. Do employees wear hearing protectors? | Yes | No | NA
21. Have employees received annual audiometric testing? | Yes | No | NA

COMMENTS:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

__________________________
INSPECTOR: ____________________________
DATE: ____________________________
NCSSM SAFETY INSPECTION CHECKLIST
LABORATORY ENVIRONMENT

PRINCIPAL INVESTIGATOR: _________________  DEPARTMENT: _____________
LOCATION: BLDG: ________________________  ROOM#: ___________________

During the inspection of the designated area, circle the correct answer at the end of each question. If the question does not apply, circle (NA).

BASIC LIFE SAFETY  Finding (circle one)

1. Is the fire emergency plan posted?  Yes  No  NA
2. Are corridors and exits free from obstruction?  Yes  No  NA
3. Are exit signs illuminated and visible?  Yes  No  NA
4. Are emergency instructions and telephone numbers at telephone?  Yes  No  NA

GENERAL

5. Is eye protection equipment available?  Yes  No  NA
6. Are gloves available for work with chemicals?  Yes  No  NA
7. Are laboratory coats worn when handling chemicals?  Yes  No  NA
8. Are closed shoes (no open or canvas shoes) worn?  Yes  No  NA
9. Are glass and sharps disposed of properly?  Yes  No  NA
10. Is eating, drinking, etc. in lab prohibited?  Yes  No  NA
11. Are safety precautions taken for physical hazards, such as high voltage equipment and lasers?  Yes  No  NA

LABORATORY FACILITIES

12. Are laboratory hoods free of storage and obstructions?  Yes  No  NA
13. Do hoods have a 100 fpm minimum face velocity?  Yes  No  NA
14. Is eye wash/safety shower within 75 ft of hazards?  Yes  No  NA
15. Are "EYE WASH" and "SAFETY SHOWER" signs posted?  Yes  No  NA
16. Are wires and plugs not frayed or otherwise damaged?  Yes  No  NA
17. Are electrical outlets not overloaded?  Yes  No  NA
18. Is a handwash facility available?  Yes  No  NA
19. Are safety refrigerators used for flammables?  Yes  No  NA
20. Are fire extinguishers inspected annually?  Yes  No  NA
21. Are compressed gas cylinders supported?  Yes  No  NA
<table>
<thead>
<tr>
<th></th>
<th>Question</th>
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</thead>
<tbody>
<tr>
<td>22.</td>
<td>Are storage of flammables within limits (&lt;10 gal. outside a flammable storage cabinet)?</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>23.</td>
<td>Are containers of hazardous waste labeled properly?</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>24.</td>
<td>Are chemical wastes stored in secondary containers?</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
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<tr>
<td>25.</td>
<td>Has the &quot;Hazard Identification&quot; section of the Laboratory Safety Plan been updated within the past 12 months?</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>26.</td>
<td>Are MSDSs available?</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>27.</td>
<td>Have all employees received required training?</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
</tr>
<tr>
<td>28.</td>
<td>Is there a written Laboratory Safety Plan?</td>
<td>Yes</td>
<td>No</td>
<td>NA</td>
</tr>
</tbody>
</table>

**COMMENTS:**

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**INSPECTOR:** _________________________________________________

**DATE:** ______________________________________________________
NCSSM SAFETY INSPECTION CHECKLIST
MAINTENANCE AND CONSTRUCTION ENVIRONMENT

WORK UNIT: ______________________________ SUPERVISOR: _______________________
DEPARTMENT: ___________________ BLDG: _____________ ROOM#(s): __________

During the inspection of the designated area, circle the correct answer at the end of each question. If the question does not apply, circle (NA).

BASIC LIFE SAFETY

1. Is the fire emergency plan posted? Yes No NA
2. Are corridors and exits free from obstruction? Yes No NA
3. Are exit signs illuminated and visible? Yes No NA
4. Are emergency instructions and telephone numbers at telephone? Yes No NA

SAFETY

5. Are the moving parts of machines properly guarded? Yes No NA
6. Are lock out - tag out procedures followed? Yes No NA
7. Are motor driven instruments and machines grounded? Yes No NA
8. Are electrical cords and wires free of burns and fraying? Yes No NA
9. Are gas cylinders secured from falling? Yes No NA
10. Are oxygen cylinders separated from fuel gases or combustible material by 20 feet or more? Yes No NA
11. Is excavation and overhead work properly barricaded? Yes No NA

HAZARDOUS CHEMICALS

12. Are Material Safety Data Sheets (MSDS) available for hazardous chemicals used in the workplace? Yes No NA
13. Is there documentation that all employees have received
hazard communication training? | Yes | No | NA  
---|---|---|---  
14. Is eye wash/safety shower within 75 ft of hazards? | Yes | No | NA  
15. Are "EYE WASH" and "SAFETY SHOWER" signs posted? | Yes | No | NA  
16. Are chemical containers properly labeled? | Yes | No | NA  
17. Is protective clothing provided? | Yes | No | NA  
18. Are safety glasses and safety shoes provided and worn? | Yes | No | NA  
19. Have respirator users been trained? | Yes | No | NA  
20. Have asbestos containing materials been identified for each job site? | Yes | No | NA  

**HEARING CONSERVATION**

21. Is there documentation that employees exposed to sound levels above 85dBA receive annual training? | Yes | No | NA  
22. Do employees wear hearing protectors? | Yes | No | NA  
23. Have employees received annual audiometric testing? | Yes | No | NA  

**COMMENTS:**

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

**INSPECTOR:** _________________________________________________  
**DATE:** ______________________________________________________
NCSSM SAFETY INSPECTION CHECKLIST
OFFICE ENVIRONMENT

DEPARTMENT: ___________________________ DEPT NUMBER: _______________________

HUMAN RESOURCE FACILITATOR ______________________ TELE # _________________
LOCATION: BLDG _____________________ ROOM#(s) __________________________

During the inspection of the designated area, circle the correct answer at the end of each question. If the question does not apply, circle (NA).

BASIC LIFE SAFETY

Finding (circle one)

1. Is the Fire Emergency plan posted? Yes No NA
2. Are corridors and exits free from obstruction? Yes No NA
3. Are exit signs illuminated and visible? Yes No NA
4. Are emergency instructions and telephone numbers at telephone? Yes No NA

GENERAL OFFICE SAFETY

5. Are aisles, doorways and corners free of obstructions to permit visibility and movement? Yes No NA
6. Are chairs in safe condition and are casters, rungs and legs sturdy? Yes No NA
7. Are all equipment and supplies in their proper places? Yes No NA
8. Are machines that "creep" secured away from table edges? Yes No NA
9. Are filing cabinets and other heavy equipment placed against the wall or columns and bolted to the floor or wall?  
   Yes  No  NA

10. Are carts, dollies, etc. available for use in transporting heavy objects and boxes?  
    Yes  No  NA

TRIPPING/FALLING

11. Are floor surfaces secure and free of hazards or posted "wet floor" if wet?  
    Yes  No  NA

12. Are carpeted areas clean, carpets secured to floor and free of worn or frayed seams?  
    Yes  No  NA

13. Is a step stool or ladder available to minimize the temptation to use chairs for reaching high objects?  
    Yes  No  NA

ELECTRICAL

14. Are all electrical appliances and equipment properly grounded or double insulated?  
    Yes  No  NA

15. Is all electrical equipment in proper working order?  
    Yes  No  NA

16. Are extension cords taped to the floor to avoid creating a tripping hazard?  
    Yes  No  NA

17. Are permanent use cords covered by runners when crossing walk-ways?  
    Yes  No  NA

COMMENTS:
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

INSPECTOR: ________________________________________________________________
DATE: ________________________________________________________________
NCSSM SAFETY INSPECTION CHECKLIST
SUPPORT SERVICES ENVIRONMENT

WORKUNIT SUPERVISOR: __________________ DEPARTMENT: _______________
LOCATION: BLDG: _________________________ ROOM#(s): __________________

During the inspection of the designated area, circle the correct answer at the end of each question. If the question does not apply, circle (NA).

<table>
<thead>
<tr>
<th>BASIC LIFE SAFETY</th>
<th>Finding (circle one)</th>
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</thead>
<tbody>
<tr>
<td>1. Is the fire emergency plan posted?</td>
<td>Yes      No      NA</td>
</tr>
<tr>
<td>2. Are corridors and exits free from obstruction?</td>
<td>Yes      No      NA</td>
</tr>
<tr>
<td>3. Are exit signs illuminated and visible?</td>
<td>Yes      No      NA</td>
</tr>
<tr>
<td>4. Are stairwell doors held open by means other than electromagnetic devices?</td>
<td>Yes      No      NA</td>
</tr>
<tr>
<td>5. Are emergency instructions and telephone numbers posted?</td>
<td>Yes      No      NA</td>
</tr>
</tbody>
</table>
## HAZARDOUS MATERIALS

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<tbody>
<tr>
<td>5.</td>
<td>Are eye protection devices available?</td>
<td>Yes</td>
</tr>
<tr>
<td>6.</td>
<td>Are gas cylinders secured against falling?</td>
<td>Yes</td>
</tr>
<tr>
<td>7.</td>
<td>Are chemicals properly labeled and stored?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

## EMPLOYEE TRAINING

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>8.</td>
<td>Have Powered Industrial Truck Operators been trained?</td>
<td>Yes</td>
</tr>
<tr>
<td>9.</td>
<td>Have employees been trained in proper lifting techniques?</td>
<td>Yes</td>
</tr>
<tr>
<td>10.</td>
<td>Have employees been trained on operating equipment?</td>
<td>Yes</td>
</tr>
<tr>
<td>11.</td>
<td>Have employees received Hazard Communication Training?</td>
<td>Yes</td>
</tr>
<tr>
<td>12.</td>
<td>Have employees received personal protective equipment training?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

## FIRE PREVENTION

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>13.</td>
<td>Is storage permitted within 18-inches of sprinkler heads?</td>
<td>Yes</td>
</tr>
<tr>
<td>14.</td>
<td>Is smoking prohibited in storerooms and storage areas?</td>
<td>Yes</td>
</tr>
<tr>
<td>15.</td>
<td>Is housekeeping in order?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

## ELECTRICAL SAFETY

<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>16.</td>
<td>Are electrical cords worn and frayed?</td>
<td>Yes</td>
</tr>
<tr>
<td>17.</td>
<td>Are extension cords used in place of permanent wiring?</td>
<td>Yes</td>
</tr>
<tr>
<td>18.</td>
<td>Are a sufficient number of outlets available?</td>
<td>Yes</td>
</tr>
<tr>
<td>19.</td>
<td>Do power cords have grounding prongs intact?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

## COMMENTS:

__________________________
__________________________
__________________________
__________________________

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INSPECTOR: ________________________
DATE: ________________________
CHAPTER 2 - EMERGENCY AND FIRE PREVENTION

EMERGENCY PLANNING

SCOPE

It is the responsibility of every department and work unit to establish emergency plans in the event of fire, chemical spill, or personal injury. For additional information refer to Emergency Response procedures.

RESPONSIBILITIES

Employees: Employees are responsible for following the procedures outlined in the Emergency Response policy.

Work Units: Develop site-specific emergency plans for workplaces in the event of an emergency and/or evacuation alarm. Laboratory units are to incorporate the emergency plans in their Laboratory Safety Plan.

Department: Develop department-specific emergency plan or use the generic emergency plan provided by the Safety Office.

Campus Resource Office: Carry out responsibilities described in the Emergency Response Plan. Campus Resource Officers serve as first responders to emergency calls reported to Public Safety or Durham/Durham County Emergency Response Center (9-911). Designate Incident Commander for bomb threat calls and other emergencies as appropriate.

Safety Office: Carry out responsibilities described in the Emergency Response policy. Respond to small chemical spills upon request of the school's work unit as outlined in the Safety Office Laboratory Safety Manual, and/or Hazardous Materials Facility Contingency Plan. Report to Incident Commander for emergencies reported to Public Safety or Durham/Durham County Emergency Response Center. Provide first responder support to the Durham Fire Department and Durham County HazMat Team in the event of an incident involving hazardous materials. Designate Incident Commander for hazardous materials incidents in which the Durham Fire Department does not assume command.

EMERGENCY RESPONSE

It is the purpose of this policy to establish a consistent procedure for all employees and students to follow in the event of any emergency, especially medical and fire responses, at NCSSM. This policy will detail what pertinent departments must be notified and their responsibilities as they pertain to the specific emergency situation.
The City of Durham and Durham County have installed a city and countywide "911" emergency telephone number to request any emergency service.

If an emergency should arise on campus:

1) dial "911" only contact in cases of critical or life threatening situations if not call campus resource first to report the situation; and  
2) contact a Campus Resource Officer at extension 2711.

If for any reason the person reporting the incident cannot contact the Campus Resource Officer, he/she is responsible for contacting and directing responding agency.

Campus Resource Officer: Extension: 2711

The Campus Resource Officer should be contacted in all emergency situations. This is the only department at NCCSM, which operates twenty-four hours a day. The Campus Resource Officer will coordinate directions and be responsible for the following information:

1. Meet emergency personnel at the main campus entrance and direct them to the scene;
2. Provide crowd control should the situation warrant it;
3. Contact the Safety Office;
4. Contact Health Services (for life-threatening medical emergencies only); and
5. Contact the Executive Director's Office - 2700, 2702

Safety Officers:  
Chris Taylor Extension: 2669  
Rick Hess 2910

The Safety Resource Center must be contacted for any emergency situation. This position can assist and coordinate activities between all pertinent departments on campus, in addition to outside agencies. Certain legal and regulatory responsibilities can result from emergency situations, requiring notifications and forms to be completed and submitted to appropriate agencies. Clean up activities must be scheduled in some cases. In all situations, an investigation must be performed to determine the cause and recommend corrective actions to be taken to eliminate the reoccurrence of a similar emergency. It is also the Safety Office's responsibility to document statements provided by witnesses and work with the Attorney General's office in the event of a liability suit.

Health Clinic Services: Extension: 2891

Health Services is the closest medical help available for people on the campus of NCSSM. The primary goal of the health center is to provide medical attention to students; however, the
competent medical staff can provide critical medical attention to victims within minutes of a life-threatening emergency. It is important that medical attention be provided promptly and by qualified professionals. For non-life-threatening situations, refer to Hillandale Medical Center Hillandale Road Durham, NC 27705

Campus Receptionist: Extension: 2600
A genuine concern for campus activities in addition to human curiosity can lead many people to ask "What is happening?" or "Why is this fire truck on campus?" However, many times these questions may be answered by people who are not informed or by those who are only speculating. In any emergency situation it is important that concerned employees be given the correct information. In many ways, the campus receptionist is the heart of this information. This position can also act as a back up in coordinating activities with outside agencies should the Campus Resource Safety Office need additional assistance.

Press Releases:

In the event local news media reporters should arrive on the campus of NCSSM seeking information concerning emergency situations - direct all inquiries to the Executive Director or designated representative in the Executive Director's absence.

EVACUATION PROCEDURE

EVACUATION PLAN

1. NCSSM personnel will be evacuated if the Head of Campus Resources, Safety Resource Center Manager or Executive Director or designee, decides personal safety is in danger.

2. If evacuation becomes necessary, the fire alarm system in each affected building will be activated to notify personnel in the immediate area.

3. Evacuation will take place via the main access road(s).

4. If, for any reason, one of the main access arteries is blocked, Campus Resource and/or Durham Police personnel will direct traffic away from the hazardous area.

An Evacuation Plan will be posted in the main lobby of every floor of every building on campus. This plan will detail egress from the building, and a designated gathering spot for that building. First evacuation locations are:

Assembly Point 1. Bryan Lawn (corner of Club & Maryland Avenue)
Assembly Point 2. Athletic Field (Bleachers & Recreation Fields)
Assembly Point 3. Intramural Field (along Broad Street)
Assembly Point 4. Lower end of main parking lot at the corner of Club Boulevard & Broad Street.

If additional evacuation becomes necessary, all first level locations will proceed to a secondary location identified by the Campus Resource Office. The athletic fields will be the staging area should a major section or whole campus requires evacuation.

**EMERGENCY PROCEDURES**

**FIRE**

In the event a fire should erupt in either a laboratory or classroom, attempt to extinguish the blaze only, if it is small enough to use a portable fire extinguisher effectively. Examples would be fires in trashcans or chemical containers one gallon or less in size (see Procedures for the Proper Use of Portable Fire Extinguishers).

Do not attempt to use a portable fire extinguisher on a blaze that is spreading rapidly or liberating toxic fumes or vapors. In these instances, evacuate the area, closing all windows and doors that are accessible, exit the building by using the stairs. Warn others in the building that there is an emergency by activating the alarm system "pull station" on the exit route.

**REPORT THE LOCATION AND MAGNITUDE OF THE FIRE TO 911 ANY CAMPUS RESOURCE OFFICE (EXTENSION 2711)**

NOTE: During such situations as fire or power failure, the elevators will return to the ground floor and shut down. All occupants must exit by the stairs, which are located throughout the building. Faculty/Staff should provide aid to all occupants who are not physically able to exit the building without assistance (due to the use of crutches, walkers, wheelchairs, etc.). Faculty/Staff may ask for additional assistance from students and/or visitors should it be necessary.

**FIRE SYSTEMS AND EQUIPMENT**

NCSSM will maintain and enforce regulations established by the Occupational Safety and Health Act, the National Fire Code, and the North Carolina Building Code, as they pertain to the installation, inspection and servicing of fire alarm systems, emergency lighting, and portable fire extinguishers. Each building is equipped with a fire warning system composed of pull stations, which manually activate the alarm system, emergency lighting fixtures, portable fire extinguishers, marked exits, and posted evacuation routes.
Manual alarm activation "pull stations" are located enroute to outside exits. These stations can be accessed by breaking the protective glass cover by using either a shoe, book or other rigid object. To activate the alarm system, simply pull the lever in a downward motion.

Emergency lighting fixtures are located at distances as approved by the State Building code along all corridors, in stair towers, and include lighted exit signs. This system is designed to automatically come on in the event of a power outage.

There are four classifications of fire hazards as defined by NFPA 10-1984:

- **Class A**: Combustibles, like trash, rubber, wood, plastics, paper or cloth.
- **Class B**: Flammable liquids, oil, grease, tars, oil paints, lacquers, flammable gases.
- **Class C**: Energized electrical equipment (when electrical equipment is de-energized, extinguishers for Class A or Class B hazards can be used safely).
- **Class D**: Combustible metals such as magnesium, titanium, sodium, lithium, and potassium.

In all instances involving fires, the extinguishers must match the hazard. For this reason, NFPA has four classifications of portable fire extinguisher, each identified by the corresponding symbol:

CLASS A  CLASS B  CLASS C  CLASS D

For ease of recognition, every fire extinguisher will be marked with the appropriate classification on the nameplate. The only exception to this rule is carbon dioxide extinguishers, which are characterized by a large funneled discharge horn, and the absence of a pressure gauge. Carbon dioxide extinguishers can be used in laboratories since the agent has a limited range of three to eight feet. The carbon dioxide cloud leaves no residue, which is a distinct advantage; however, it is extremely important that the person activating the extinguisher hold the horn without touching any metal parts, since these areas will become extremely cold, once the contents are expelled.

To aid in equipping multiple hazard areas, the NFPA has accepted combinations of extinguisher classifications. These multiple-rated extinguishers are:

- **Class AB**: For use on combustible and flammable materials
- **Class BC**: Includes carbon dioxide, dry chemical, Halon 1211 and Halon 1301, which can be used on flammable liquids, grease and electrical hazards.
Class ABC: Can be used on combustible, flammable, and electrical fires by using Halon 1211 or multipurpose dry chemical extinguishers.

The Safety Resource Center will be responsible for insuring that all buildings are properly equipped with the appropriate classification of portable fire extinguishers during building construction or renovation projects. Due to the nature of reactions performed, at least one portable fire extinguisher will be required in every laboratory. The individual Department will be responsible for the expense to fulfill this requirement. The Campus Resource Office will assume responsibility for the inspection, servicing, and recharging expenses after installation.

**PROPER USE OF FIRE EXTINGUISHERS**

1. Be familiar with the locations of all portable fire extinguishers in the immediate area.

2. Remove the extinguisher from its cabinet or bracket.

3. Pull the ring pin from the handle.

4. Quickly test the extinguisher's operation by releasing a small amount of expellant.

5. Carry the extinguisher by the handle to the hazardous area.

6. Standing approximately ten (10) feet away from the fire, begin releasing the extinguishing agent in the direction of the blaze.

7. While slowly advancing toward the fire, begin moving the nozzle in a back-and-forth motion, aiming at the base of the flames.

8. Continue this repetitive motion, aiming at the base of the flames until the fire is completely out or the contents of the extinguisher have been completely exhausted. In either instance, back away from the area. NEVER TURN YOUR BACK TO AN EXTINGUISHED BLAZE; IT COULD RE-IGNITE!

9. Fire blanket will be located at emergency stations. Extract the blanket from the container, wrap it around the body, lie down on the floor, and roll to extinguish any clothing, which is on fire.

10. Notify proper authorities: 911, Campus Resource Office, Safety, etc.

**FIRE EMERGENCY PROCEDURE**
PURPOSE

How you react in the event of fire depends on how well you have prepared for a fire emergency. Therefore departments should ensure that all employees are familiar with the procedure to follow in the event of an emergency as outlined in the school's Emergency Response procedure.

PROCEDURE TO FOLLOW

Departments which need a special fire emergency procedure to cover your operations should contact the Safety Office for assistance.

Most departments can follow the basic building evacuation procedure outlined below. The building evacuation procedure for your department should be posted on the office bulletin board.

BASIC PROCEDURE

I. In the event of an alarm, CARE.
   - Close doors to confine the fire.
   - Alert others, activate building alarm if provided.
   - Report the fire, call 2711.
   - Evacuate, leave the building.

II. How to Survive a Building Fire
   - Crawl If There's Smoke.
   - Feel Doors Before Opening - Don't Open a HOT Door
   - Go To The Nearest Exit.
   - Always Use An Exit Stair - Not An Elevator
   - Close Doors.
   - Use a fire extinguisher if the fire is very small and you know how to use it safely.
   - If you are on fire - Stop, Drop and Roll.
   - If You Get Trapped:
     o Close the door
     o Seal cracks
     o Open the windows if safe
     o Signal for help or phone 9-911
     o Don't Jump. The fire department will reach you.

III. If You are Physically Impaired

   A. If you are disabled (even temporarily), you should do the following:
      - Learn about fire safety.
– Plan ahead for fire emergencies.

– Be aware of your own capabilities and limitations.

B. Look for "areas of refuge" like stair enclosures or other side of corridor fire doors. Elevators are not safe during fires. Sometimes it may be safer to stay in your room. Follow the advice for being trapped.

C. If there is an immediate threat to safety, ask others near you for assistance. If no help is available, seek refuge in a room with a window or stairway. If possible, call (9-911) to report your location and receive instructions from the Emergency Operator.
IV. NCSSM RESPONSE PLAN

NCSSM- Emergency Plan - Departmental Responsibilities:

A. Notify The Campus Resource Office
B. Assist in evacuation procedures
C. Keep building occupants advised of the situation
D. Assist and advise Plant Facilities in clean-up operations
E. Develop a plan for carrying out assigned responsibilities.

REPORTING FIRES

DEFINITION

For the purpose of this policy, fire is defined as the accidental ignition of any material or substance, which requires the use of a fire extinguisher or other significant effort to extinguish.

EMERGENCY ASSISTANCE

Requests for Fire Department assistance should be made by telephoning "911" and the Campus Resource Office, extension 2711 (the numbers to be used for all emergencies), and following the procedures outlined in the Emergency Response procedure.

THE CAMPUS RESOURCE OFFICE

The Campus Resource Office will notify the Safety Resource Center immediately of fire calls which occur during normal working hours, and on the next business day following incidents that occur at night or weekends.

For incidents involving significant property damage, injuries, or a suspected fatality, the Campus Resource Office will notify the following persons immediately:

- Executive Director
- Director of Student Life
- Head of Plant Facilities
- Safety Resource Center Office
DEPARTMENTAL REPORTING RESPONSIBILITY

Once the fire has been extinguished, the incident must be reported to the Safety Office and the Campus Resource Office. Even minor fires, which may not require emergency assistance, must be reported.

FOLLOW-UP INVESTIGATION

The Campus Resource Office and Safety Office investigate all fires to determine unsafe physical conditions and/or human practices which may have contributed to the accident and make recommendations for the correction of these discrepancies.

FIRE EXTINGUISHERS

If portable fire extinguishers are used, they must be serviced by the Campus Resource Office. (See section on Fire Extinguishers.)

INSURANCE

The Operations office coordinates fire insurance claims. (See school's Policy and Procedures Manual.)

INJURIES

If school personnel are injured, a separate report must be filed. (See School's Policy and Procedures Manual - Reporting Accidents and Injuries.)

DEPARTMENTAL FOLLOW-UP

The department in which the fire occurs is responsible for the initiation of corrective action for fire safety discrepancies reported in the Fire Investigation Report.

EMERGENCY EQUIPMENT
The Campus Resource Office must be notified by telephone when an alarm sounds. Campus Resource and the Head of Plant Facilities must be notified prior to conducting fire drills or performing maintenance on fire alarm systems.

Fire extinguisher maintenance is provided by the Campus Resource Office.

**LIFE SAFETY - EXIT WAYS**

**GENERAL**

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

**STANDARDS**

NCSSM uses Occupational Safety and Health Regulations and recommendations of the NFPA Life Safety Code and American Insurance Association 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.

Furniture, permanently attached lockers, bulletin boards, display cabinets, copiers, etc. may be permitted in some locations, subject to approval of the Safety Resource Center. 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 that are equipped with self-closing mechanisms or automatic release hold-open devices and must be maintained in working order. Fire/smoke doors not equipped with self-closing mechanisms or automatic release hold-open devices must be kept in the normally closed position. Fire/smoke doors will not be 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 that 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 Resource Center.

**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, stairwell, or on sidewalks immediately adjacent to exits.

LIFE SAFETY - PUBLIC ASSEMBLIES

GENERAL

This policy applies to all school buildings or portions of buildings used for gatherings of 75 or more persons for such activities as entertainment, dining, amusement, lectures, seminars, etc. Described minimum criteria are for emergency planning and fire prevention practices to be employed by departments responsible for such gathering places.

EMERGENCY PLANNING

The employees or attendants at places of assembly should be trained in the duties they are to perform in case of fire, panic, or other emergency, to be of greatest service in effecting orderly exit of assemblages.

- Attendants should know the location of fire exits and portable fire extinguishers.
- Attendants should know how to use fire extinguishers. If evacuation is necessary, an announcement should be made. The wording of the announcement should be established prior to the event and a specific person should be designated to make the announcement.
- It is preferable that the fire alarms in the assembly area not be suddenly sounded as this may cause panic.

NOTE: In some buildings the fire alarms may automatically activate. In this situation, consideration should be given to making an announcement concerning this possibility before the event.

OPEN FLAME DEVICES

No open flame devices are to be used for ceremonies, theatrical performances, and the like, without prior approval from the Safety Office. (Exception: portable cooking equipment, Special Food Service Devices below.)
SPECIAL FOOD SERVICE DEVICES

Portable cooking devices not flue-connected are to be used only with prior approval from the Safety Office. Candles may be used on tables for 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.

SMOKING

Smoking in places of assembly is not permitted. Signs to this effect should be mounted in conspicuous locations.

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

- Plywood, wood, particle board, mineral and fiber board, hardboard, etc. must be flame treated or otherwise be UL listed with a flame spread of 75 or less (class B).
- Fabrics such as draperies and curtains must be flame treated or non-combustible.
- Plastics must be UL labeled with flame spread of 75 or less and must not exceed 10% of the wall or ceiling area. Pyroxylin plastics are prohibited.
- Cardboard should be flame treated or painted with fire retardant paint and must not exceed 10% of the wall/ceiling area.
- Carpet must meet Federal Flammability Standard FF-1-70.

SEATING

Non-fixed seating arrangements for gatherings of 75 or more persons require prior approval by the Safety Office. Any increase in the seating capacity of assembly rooms with fixed seats requires approval from the Safety Office.
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.
PORTABLE FIRE EXTINGUISHERS

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.

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 combustible 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 combustible 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 nationally recognized 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. Maximum travel distance of 75 feet will be maintained.

MAINTENANCE

Extinguishers needing to be recharged due to use or pressure leakage will be recharged by the Campus Resource Office at no cost to the department or building to which the extinguisher was assigned.

INSPECTIONS

Extinguishers are to be visually inspected every 2 months by the NCSSM Campus Resource Office.

NEW BUILDINGS

The Safety Office 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 Office will designate the locations where extinguishers are to be installed and will install the extinguishers on request.
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 Office 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. The Safety Office will replace missing extinguishers, billing them to the department responsible for the area.

SIGN AND TAG REQUIREMENTS FOR ACCIDENT PREVENTION

GENERAL

The American National Standards Institute (ANSI) Standard Z53.1, Safety Color Code for Marking Physical Hazards, and the identification of certain equipment specifies standard colors and signs to be used in a safety and health program. The State's Work Place Requirements Program for Safety and Health adopts ANSI Z53.1 in order to provide uniformity throughout the school.

Requirement

A. COLOR CODE

Red is recommended for identifying fire protection equipment, danger and emergency stops on machines.

Yellow because of its high visibility is the standard color for marking hazards that may result in accidents from slipping, falling, striking against, etc.

Green in combination with white, such as the green cross on a white background, designates the location of first aid and safety equipment.

Black and White and combinations of the two in strips or checks are used for housekeeping and traffic markings.
Orange is the standard color to highlight hazardous parts of machines or electrical equipment, such as exposed edges of cutting devices, the inside of removed guards, and the doors and covers of switch boxes.

Magenta identifies radiation hazards, such as radioactive materials, in rooms and containers.

B. SIGNS AND TAGS

Signs are not to be considered as the final step to be taken against hazards. Whenever possible, the hazards are to be eliminated.

1. General

   Signs and symbols required by this section must be visible at all times when work is being performed and shall be removed or covered promptly when the hazards no longer exist.

2. Danger Signs

   Danger signs must be used only where an immediate hazard exists.

   Danger signs must have red as the predominant color for the upper panel, black outline on the borders and a white lower panel for additional sign wording.

3. Caution Signs

   Caution signs shall be used only to warn against potential hazards or to caution against unsafe practices.

   Caution signs shall have yellow as the predominant color, black upper panel and borders, yellow lettering or "caution" on the black panel, and the lower yellow panel for additional sign wording. Black lettering shall be used for additional wording.

4. Safety Instruction Signs

   Safety instruction signs, when used, must be white with green upper panel and white letters to convey the principal message. Any additional wording on the sign shall be black letters on the white background.

5. Directional Signs

   Directional signs, other than automotive traffic signs, must be white with a black panel and white directional symbol. Any additional wording on the sign shall be black letters on the white background.
6. Exit Signs

Exit signs, when required, must be lettered in legible red letters not less than 6 inches high on a white field and the principal stroke of the letters must be at least three-fourths of an inch wide.

7. Traffic Signs

Construction areas shall be posted with legible traffic signs at points of hazard.

All traffic control signs or devices used for protection of State employees and the public shall conform to the American National Standards Institute D6 current Manual on Uniform Traffic Control Devices for Streets and Highways. Available from ANSI, 1430 Broadway, NY, NY 10018.

8. Laser Beam Warning Signs

A warning sign should be attached to laser equipment in a conspicuous location indicating the potential eye hazard associated with the laser and warning against looking into the primary beam and at specular reflections. Such a warning sign might read:

DANGER - LASER LIGHT
DO NOT LOOK INTO PRIMARY LASER BEAM

9. Biological Hazard Symbol

The biological hazard-warning symbol must be used to signify the actual or potential presence of a biohazard and to identify equipment, containers, rooms, materials or combinations thereof, which contain or are contaminated with viable hazardous agents.

For the purpose of this standard the term "Biological Hazard" or biohazard shall include only those infectious agents presenting a risk or potential risk to the well being of man.

This symbol may be a fluorescent orange or orange-red color with the background color optional. Each sign shall have the appropriate wording identifying the nature of the hazard involved, name of individual responsible for its control and precautionary information.

10. Asbestos Signs

Caution labels are to be affixed to all raw materials, mixtures, scrap, waste, debris and other products containing asbestos fibers, or to their containers, except that no label is required where asbestos fibers have been modified by a bonding agent,
coating, binder or other material so that during any reasonably foreseeable use, handling, storage, disposal, processing or transportation, no airborne concentrations of asbestos fibers in excess of the exposure limits prescribed by OSHA Standards 29CFR Part 1910, Subpart Z.

The label shall state:
CAUTION
Contains Asbestos Fibers
Breathing Asbestos Dust May Cause Serious Bodily Harm

11. Chemical Carcinogen Signs

Entrances to regulated areas as defined in OSHA Standard 29 CFR Part 1910, Subpart Z shall be posted with signs bearing the legend:

CANCER - SUSPECT AGENT
AUTHORIZED PERSONNEL ONLY

Containers shall have the warning words "CANCER - SUSPECT AGENT" displayed immediately under the contents identification.

C. ACCIDENT PREVENTION TAGS

The tags are a temporary means of warning all concerned of a hazardous condition, defective equipment, radiation hazards, etc. The tags are not to be considered as a complete warning method but should be used until a positive means can be employed to eliminate the hazard; for example, a "DO NOT START" tag on power equipment shall be used for a very short time until the switch in the system can be locked out.
CHAPTER 3 - ACCIDENT AND INJURY

REPORTING ACCIDENTS AND PERSONAL INJURIES

Accidents resulting in personal injuries to students, staff, faculty, and visitors while on campus, or in the course of NCSSM employment or activity, are to be reported to the Safety Office.

Accidents resulting in lost work-time are to be reported to the Safety Office as soon as practical, during regular work hours. Any accident on the NCSSM campus resulting in death or hospitalization is to be reported immediately to the Safety Resource Center during normal business hours and Campus Resources after business hours.

Accidents that result in injuries are to be reported to the Safety Resource Center for investigation of potential unsafe conditions and initiation of corrective action as appropriate. Campus Resources will notify the Safety Resource Center of accidents to which they respond.

Note: Any incident, near miss or potentially hazardous condition must be reported immediately to the Safety Resource Center for investigation, regardless of whether it has resulted in injury.

NOTIFICATION OF PERSONAL INJURIES - EMPLOYEE

Injuries which result in hospitalization, lost work-time, or which require medical treatment beyond first aid, will be investigated by the Safety Office for the purpose of analyzing the circumstances surrounding the injury, the possible need for corrective action, and whether it is compensable under the North Carolina Workers' Compensation Act.

The employee is responsible for notifying his or her supervisor immediately of any job-related injury or illness. If the employee is not able to do so, a fellow employee should notify the supervisor as soon as practical.

The supervisor is responsible for ensuring that the employee receives prompt treatment of the injury by obtaining first aid or medical treatment. If the treatment requires more than first aid, the supervisor or another person must accompany the injured to the appropriate medical facility for treatment. Injured employees are not to be sent unescorted to seek medical attention. The supervisor is also to notify the Health and Safety Office by telephone for follow-up.

REPORTS

The employee completes the first report of injury, and notifies his/her supervisor for transmittal to the Safety Office.

The supervisor must complete the Supervisor's Accident Investigation Report to be submitted to the Safety Office.
The supervisor completes the IC Form 19, Employer's Report of Injury to Employee, and forwards it to the Health and Safety Office for any injury resulting in lost time of eight hours or more, or prolonged medical treatment.

Note: Industrial Commission regulations require that the notification form be filed with the Industrial Commission within five days after the occurrence and knowledge of an injury; however, OSHA regulations require that injuries requiring medical treatment be recorded by the Safety Resource Center within 24 hours. Therefore, it is imperative that injuries be reported to the Safety Resource Center as soon as possible.

The Safety Resource Center will use the information from these reports to prepare the OSHA Form 200 and Employee Safety and Health Statistical Report of Injuries/Illnesses and WC Expenditures. The OSHA Form 200 is required by Public Law 91-596 and must be kept for a period of five years. This document summarizes information regarding Recordable Cases. Recordable Cases are defined as those workers compensation cases involving death, occupational illness, and occupational injuries involving one or more of the following conditions: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment other than first aid.

Employee Safety and Health Statistical Report of Injuries/Illnesses and WC Expenditures, Form 6.20.1, is a quarterly report required by the Office of State Personnel Employee Risk Control Services Division. It must be submitted within 20 days following the end of each calendar quarter. Information to be included in this report include:

- employment information,
- occupational injuries/illnesses,
- total reportable cases,
- total number of lost and restricted work days,
- workers' compensation claims,
- total recordable workers' compensation claims,
- expenditures,
- total dollar loss,
- subrogation,
- nature of injury,
- part of body affected by injuries, and
- types of accidents resulting in injuries.
MEDICAL TREATMENT OF WORK-RELATED - INJURIES AND ILLNESSES

LOCATION OF TREATMENT

Treatment of work-related injuries and illnesses is to be sought at the following locations:

- Treatment of non-life threatening injuries or illnesses: Hillandale Medical Center, Hillandale Road, Durham, NC 27705
- Serious and/or life-threatening injuries or illnesses: Nearest hospital facility
- Occupational Exposure to Blood, Body Fluids, HIV or Other Infectious Agents: Nearest Hospital Facility

All employees occupationally exposed to blood, body fluids, HIV or other infectious agents (tuberculosis, for example) are to contact the Safety Office for appropriate medical referral.

WORKER'S COMPENSATION BENEFITS

GENERAL

Workers' Compensation benefits are available to any employee who suffers disability through accident 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.

ELIGIBILITY

All employees, whether full-time, part-time, or temporary, 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.
WORKERS' COMPENSATION LEAVE BENEFITS

Employees who suffer lost work-time injuries or illnesses are eligible to receive Workers' Compensation leave pay, equivalent to two-thirds of their average weekly wage, with a maximum equal to the average wage in North Carolina. The maximum compensation rate is established by the N.C. Industrial Commission and is adjusted annually.

LIMITATIONS BASED ON LENGTH OF DISABILITY

Lost Work-Time 7 Days or Less: Workers’ Compensation Leave benefits are not payable if the lost work-time is seven calendar days or less. For payroll purposes, the lost work-time must be charged to Vacation Leave, Sick Leave, or Leave Without Pay.

Lost Work-Time More Than 7 Days, Less Than 28 Days: If the lost work-time exceeds seven days, but is less than twenty-eight calendar days, the days in excess of seven days must be charged to Workers' Compensation Leave.

Lost Work-Time 28 Days or More: If the lost work-time exceeds twenty-eight days, the seven-day waiting period is waived and Workers' Compensation Leave payments begin from the first day of disability, or the employee is reimbursed at the end of the twenty-eight days.

Note: If the employee has used Vacation or Sick Leave for the seven-day waiting period, that leave can be reinstated to his/her leave record.

PAYMENT

The Workers' Compensation Act of NC provides for payment of medical expenses and lost wages for injuries by accident or occupational disease arising out of and in the course of employment. The medical care provider should be informed that the illness or injury is work-related at the time of treatment; however, if it is subsequently determined that the injury or illness was not in fact work-related, the employee will be responsible for payment of the medical fees to the care provider.

LEAVE SUPPLEMENT

An employee may choose to supplement the Workers' Compensation weekly benefit with Vacation or Sick Leave. The Vacation or Sick Leave supplement may not exceed a maximum weekly total based on annual salary. To obtain the Workers’ Compensation supplement, the employee must notify the Workers' Compensation Administrator. Election may not exceed the employee's earned leave balance prior to injury.
Short-Term Disability

Generally, short-term disability benefits are offset by Workers' Compensation benefits, however, if the employee is out of work for more than 60 days, short-term eligibility will be determined by the Office of Human Resources, Benefits Department.

LONG-TERM DISABILITY

An employee who is receiving Workers' Compensation Leave pay or weekly payments from a settlement agreement is not eligible for long-term disability benefits until all Workers' Compensation payments have been exhausted.

RETIREMENT

Workers' Compensation Leave pay ceases when an employee retires, but weekly payments from a settlement agreement do not affect retirement benefits.

LOST-TIME INJURIES AND ILLNESSES

EFFECT ON PERMANENT EMPLOYMENT

The employee's Total State Service and employment anniversary dates are not affected while on Workers' Compensation Leave. Retirement System membership continues but service credit does not. The employee may file an application to buy back his/her retirement service credits after he/she returns to work from Workers' Compensation Leave.

Payroll deductions are not made from Workers' Compensation weekly benefits with the exception of court-ordered child support.

Employees continue to earn Vacation and Sick Leave while drawing Workers' Compensation payments. If the employee accrues more than 240 hours of Vacation Leave while on Workers' Compensation Leave, the 240 hour maximum plus all vacation leave earned during Workers' Compensation Leave is carried forward to the next calendar year to be used when the employee returns to work or paid to the employee in a lump sum if the employee terminates employment.

Payment of the school's contributions for health insurance is continued while an employee is on Workers' Compensation Leave. Employees should contact Human Resources to make arrangements to continue the employee's contribution to these insurance coverage's.

Other insurance benefits, if any, such as dental, life, accident and disability, already in effect may be continued by personal check through the Office of Human Resources.
For Credit Union loan payments, homeowners and automobile insurance, United Way, etc., the employee should arrange for continuation of payment through the company or carrier.

Upon return to work, if the employee continues to require medical or therapy treatments during regular working hours, neither Vacation nor Sick Leave will be charged. A reasonable amount of time for treatment will be recorded as work time by the employee and the supervisor may request a note from the employee that is signed by the medical facility verifying time charged to medical visit.

**SUPERVISOR - EMPLOYEE CONTACT**

The immediate supervisor or designee is required to maintain regular contact with the employee who is out of work on Workers' Compensation Leave. This contact should be made once a week to keep the employee informed about activities in his or her department and to anticipate when the employee may return to work.

Note: If the employee does not have a telephone or easy access to one, arrangements should be made for the employee to call the supervisor or the supervisor should arrange a personal visit with the employee at a convenient location and time.

**RETURN TO WORK PROGRAM**

After an employee has been on Workers’ Compensation Leave, a physician's statement authorizing return to work must be submitted to the Human Resources Office and the employee's supervisor prior to reinstatement to work status.

If the employee's physician recommends return to work on a part-time basis, Workers' Compensation Leave will continue, on a prorated basis, for the time not worked. Employees working part-time are not eligible for Vacation or Sick Leave supplements.

Priority is given to permanent employees on Workers' Compensation Leave to affect an early return to work. In addition to medical and rehabilitation services provided through the Workers’ Compensation program, departments are encouraged to make modifications in job duties to reasonably accommodate temporary physical limitations. If the duration of modified duties exceeds 90 days, approvals from the Human Resource Office and the Safety Office are required.

Return to work may involve a temporary reassignment in a different position commensurate with the employee's skills and abilities or the former position with limited duties, or the former position on a part-time (less than 40 hours a week) basis.
PERMANENT DISABILITIES

Upon reaching maximum medical improvement, if a permanent disability exists, a settlement is made based on a schedule adopted by the NC Industrial Commission. The amount of the settlement is dependent on the employee's salary at the time of injury and the percentage of disability determined by the physician.

To facilitate an early return to work, and to identify potential rehabilitation and/or training needs, the Human Resource Office will request regular updates from the physician regarding the length of temporary disability, the potential for return to work with modified duties, and the prognosis for full recovery or any permanent disabilities that may impair work performance in the employee's present position.

As the employee reaches maximum medical improvement, if the physician concludes the permanent employee will have a permanent disability, the Safety Office and the Human Resource Office in consultation with the employee's department, will evaluate the following options:

- securing rehabilitative services from the NC Division of Vocational Rehabilitation or consultants as appropriate. These services include assessment and testing, counseling and training and are arranged by referral from the physician, the Safety Resource Center or the Human Resources Office.
- arranging for training by or through the Human Resources Office.
- returning the employee to the former position if the employee is capable of performing all of the duties or a majority of the essential duties;
- assigning the employee to a position commensurate with the employee's skills and abilities and the same appointment type, full- or part-time, as feasible. Whenever possible, the re-employment placement will attempt to maintain the employee's annual salary rate held when the on-the-job or occupational injury or illness occurred;
- re-employing in the same department or a different department;
- providing reasonable accommodation for the returning employee.

If the treating physician determines that the permanent employee will not be able to return in his/her position, the employee will stay in the position on Leave Without Pay, Workers' Compensation status, and continue to earn Vacation and Sick Leave and Total State Service. However, the department will be allowed to recruit for the position on a permanent time-limited basis.
Note: The incoming employee must be informed that this is a time-limited appointment until the employee in Workers’ Compensation pay status changes from Leave Without Pay status.

When the determination is made to re-employ the permanent employee in a different department, the Human Resources Office arranges such placement in consultation with the department heads involved and, as appropriate, other principal administrative officers.

If no re-employment opportunities exist at NCSSM, the Human Resources Office will refer the employee to the Office of State Personnel for assistance towards available work in another State agency.

When the employee reaches maximum medical improvement, and re-employment is not readily available, the employee is placed on leave without pay.

Re-employment activities continue for twelve months from the date the physician releases the employee from further treatment.

When an employee returning from Workers’ Compensation refuses re-employment or training for re-employment, the School has the right to terminate the employee.

FIRST AID

OSHA REGULATIONS

The OSHA General Industry Standard, CFR 1910.151, requires:

a. employers must ensure the ready availability of medical personnel for advice and consultation on matters of occupational health;

b. in the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid. First aid supplies must be approved by the consulting physician.

c. where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate use.

POLICY

NCSSM encourages departments to make first aid kits available to employees for treatment of minor cuts and scratches. The availability of first aid supplies is not to be used as a substitute for obtaining medical treatment.

Work units on the campus have readily available access to medical treatment through Hillandale Medical Center during regular work hours, or at the nearest emergency facility after-hours.
Work units outside of the Durham area should contact the Safety Office regarding medical coverage for their work unit.

**FIRST AID REQUIREMENTS**

For work units that designate first aid personnel the following State Personnel Commission rules apply:

Training: the employee must possess a current American Red Cross Standard First Aid Card or higher certification such as the American Red Cross Advanced First Aid Card or be certified as an Emergency Medical Technician through the North Carolina Office of Emergency Medical Services (919-733-2285). A copy of the certification, and subsequent renewals, must be sent to the Office of Human Resources. This training requirement does not apply to licensed medical personnel.

Job Description: the first aid responsibilities must be included in the employee's job description.

Bloodborne Pathogens Training: employees with first aid responsibilities must comply with the OSHA Bloodborne Pathogens Standard, including attendance at a Safety Office training program on the subject.

First Aid Log: employees providing first aid must maintain a record of first aid administrations using the First Aid Log (Appendix A). A copy of the First Aid Log is to be submitted to the Safety Office quarterly, or upon termination, change of job description eliminating first aid responsibilities, or upon expiration of the employee's certification.

APPENDIX A
CHAPTER 4 - GENERAL HEALTH AND SAFETY POLICIES

COMPUTER WORKSTATION RECOMMENDATIONS

INTRODUCTION

North Carolina School of Science and Math is becoming increasingly dependent upon computers, which have the potential to increase workplace productivity and efficiency. Yet computers have often been introduced without a plan to ensure comfort, safety and knowledge of good work practices among computer workers. Studies have shown that improvements in computer workstations can increase productivity dramatically. Productivity can decrease however, if computers are introduced without self-design workstations, training and attention to conditions of work.

There are ways to solve, or at least alleviate, most of the problems associated with computers. Solutions include adjusting and controlling the physical environment, the design of the desk and chair, the placement of the screen and keyboard, the position of the document and the placement and intensity of office lighting. Alleviation of health problems utilizes ergonomic principles, which entail the planning and adapting of equipment, tasks and office procedures to promote well-being and efficiency of workers.

SCOPE OF THE GUIDELINES

In carrying out the Guidelines, the school will give priority to the needs of heavy users of computers. However, the school recognizes that all computer workstations should be correctly designed. Thus, the recommendations for computers and computer equipment apply not to a specified group of workers, but to all newly purchased equipment and to existing workstations on a prioritized basis. Recommendations requiring specific services for computer workers (training and vision examinations) include all workers who do constant computer work for 4 or more or hours per day. However, work conditions and individual needs vary considerably in each department or office, therefore, managers retain flexibility in determining how problems are addressed and in deciding the most appropriate means of implementing this guideline.

DEFINITIONS

1) Computers are comprised of a typewriter-like keyboard and television-like display screen. Information is fed into a computer or memory system via the keyboard, and the image is displayed on a monitor.

2) The following computer workload definitions have been established to provide a basis for the development and implementation of these Guidelines.
(a) Heavy computer workloads shall be defined as those workloads requiring more than an average of four (4) hours of constant computer operations per workday.

(b) Moderate computer workloads shall be defined as those workloads requiring more than an average of two (2) and less than four (4) hours of constant computer operation per workday.

(c) Light computer workloads shall be defined as those workloads requiring less than an average of two (2) hours of constant computer operations per workday.

RESPONSIBILITY

The Safety Resource Center is responsible for evaluating and monitoring the office ergonomic program including equipment and workstation design and employee requirements.

Supervisors are responsible for assessing workstations and employee's work practices to ensure compliance with computer workstation policy and guidelines as well as employee training.

COMPUTER GUIDELINES

VISUAL

Concerns:

Visual problems are the most frequently reported problems by computer workers. Complaints include eye discomfort, eyestrain, burning, itching, irritation, and aching. Other less frequent symptoms include blurred vision, color fringes, and reported deterioration of visual acuity. Severe optical discomforts (eye irritations, soreness, and tiredness) may not go away within a short period of time following work and may even be present at the start of the next day's shift. Data suggests that some types of computer work produce greater levels of visual complaints than traditional office or visually demanding inside work.

Prolonged attention to visual detail with reduced eye movement in a restricted visual field can cause eyestrain and other problems. In addition, eyestrain is caused by high light levels and glare from outside light sources and/or reflections from surfaces in the environment. Finally, air temperature and humidity can lead to sore eyes.

Recommended Action:

1) Room lighting shall be maintained at a level that reduces eyestrain and glare. Generally room lighting should be dimmer that ordinary office illumination and should neither be less than 500 lux nor more than 700 lux as measured at the multiple use (i.e., use of the computer
and paper copy) workstation. Room lighting should neither be less than 300 nor more than 500 lux as measured at the workstation where users only view computers. These levels may need to be adjusted for specific computer operations or other workstation considerations.

2) Directional lamps for hard copy shall be provided at worker’s request where both the computer and paper copy are necessary for normal work activities.

3) Effective glare control can be maintained through one or more of the following measures:
   - Use recessed, indirect and baffled lighting
   - Provide windows with curtains or blinds
   - Design workstations to allow monitor orientation to avoid harsh light sources
   - If a workstation is located near a window, place the monitor at a right angle to the window
   - Locate the worker so that light comes from the side or behind the worker to avoid shining directly onto the screen and into the worker's eyes
   - Provide screen hoods at worker's request to block angular reflections and glare sources
   - Provide detachable anti-glare filters at worker’s request
   - Use full spectrum lighting
   - Use furnishings with a matte, non-reflective finish
   - Paint walls in a matte, non-reflective coating
   - Insure room and task lighting is free of flicker.

4) Between the ages of 20 and 60, it is common for the focusing capacity of a normally sighted person to be reduced by almost 25 percent as the lens in the eye becomes less flexible. Researchers note that because of the natural deterioration of a person’s eyesight, the majority of computer workers over 40 wear glasses or contact lenses. They may cause additional eye fatigue if not properly fitted, therefore, failure to accommodate the computer worker's visual needs may result in increased eyestrain and stress. In order to maintain optimum work performance, it is recommended that computer workers obtain preplacement eye examinations. Thereafter, it is recommended that workers receive an eye examination when symptoms of eye deterioration or excessive eye fatigue occur. These examinations shall be made by a licensed optometrist or ophthalmologist, who is familiar with the visual problems related to computer work. At this time, eye exams shall continue to be at the worker's expense.

**MUSCULOSKELETAL ISSUES**

**Concerns:**

Musculoskeletal problems are common to many sedentary jobs. Because the body is designed for movement, a fixed position is more tiring than a dynamic one. Computer worker complaints are most often related to the neck, shoulders, back and wrists. Complaints mentioned less often
involve the arms, hands, and legs. Researchers indicate musculoskeletal symptoms are more frequently reported by computer workers than workers in traditional office jobs.

According to scientific and medical information, serious musculoskeletal health symptoms are most often associated with computer jobs requiring constrained working positions for an entire work shift. In a seated position, the computer worker is subject to continuous stress on almost all postural muscles. The amount of stress is dependent upon the position of various parts of the worker's body. Holding the head to the side or forward may lead to neck and shoulder fatigue and pain. Other neck and shoulder complaints result from the use or position of the worker's arms. For example, elevation of the arms will add to neck and shoulder strain. Prolonged, constrained postures required by the job will make this condition worse.

There are several common characteristics of computer jobs that have been related to increased musculoskeletal complaints. These include the design of the computer and workstation equipment, the nature of the task, work pace, repetitiveness of the job, work and rest break schedules, and personal attributes of workers.

**Recommended Action:**

In order to provide a workstation, which takes ergonomic principles into consideration, the worker must have flexible equipment, which allows each individual to perform his or her work in a manner which alleviates musculoskeletal problems. Consequently, the following can be provided to achieve the proper flexibility in workstation design.

1) Display screen and keyboard should be positioned in front of the worker to avoid placing the body in a position where the back and neck must be twisted in order to use the keyboard.

2) Display screens shall be placed at a height appropriate to and determined by the worker. The top of the screen shall be no higher than worker's eye level and the bottom of the screen no lower than forty degrees below the worker's eye level. Worker distance from the screen shall be a matter of worker preference.

3) The keyboard shall be placed so that the upper arm can hang vertically and forearm/wrist shall be close to a horizontal position.

4) Chairs shall be flexible and easily adjustable.
   - All chairs shall be easily adjustable for seat and backrest height.
   - Backrests shall have sufficient tension to provide adequate lumbar support.
   - Backrests shall allow for the worker to lean back to a comfortable resting position.
   - Seats shall be gently rounded on the front to avoid interference with blood flow to the lower legs.
   - All chairs shall be provided with casters to provide ease of glide without hazard. Poor chair design can be one of the most significant causes of musculoskeletal stresses and strains. Therefore, offices shall make every effort within budgetary
constraints to comply with the provisions for the chair design when purchasing new chairs.

5) Tables should be adjustable when needed for proper screen and keyboard heights and adequate legroom. Where appropriate, proper screen and keyboard heights may be accomplished by using writing pads.

6) Footrests should be provided at worker's request to ensure that the worker's thighs are parallel to the floor. Improper seat height and design can restrict blood circulation.

7) Document holders should be provided and should be adjustable to the height, distance, and angle of the screen to avoid possible glare and unnecessary worker movement which can cause neck, shoulder or back aches.

8) Furniture should be arranged to provide adequate amount of legroom to allow freedom of motion.

9) An adequate work area for paper work, etc., should be provided on one side of the computer. The side this work area will be on shall be determined by the worker.

**STRESS**

**Concerns:**

Job stress as reported by computer workers is often described in terms of psychological and physical strains such as frustration, anxiety, irritability, anger, depression, stomach or gastrointestinal disturbances, muscle and physiological tension. As is true with visual and musculoskeletal health complaints, the primary cause of job stress is lack of consideration of the relationship between the worker and the work environment, including eyestrain and musculoskeletal problems. Some of the factors, which can contribute to job stress, include poor working conditions, excessive noise, excessive job demands and work pace, lack of control, and lack of participation in the implementation of computer use.

**Recommended Action:**

In order to alleviate stress, attention shall be addressed to those areas, which contribute to stressful conditions.

1) Excessive and/or annoying noise creates stress, which can have an adverse effect upon workers' health, safety and productivity.
   - Acoustic pads shall be installed under keyboards and printers at worker’s request.
   - Impact printers shall be provided with acoustic covers where necessary to reduce sound levels to 65 dBA as measured at the workstations.
– All noise sources in the surrounding environment should be controlled to ensure that the total sound level measured at the workstation does not exceed 70 dBA.

2) Because of the heat generated by computers and other concerns, which affect stress, the following are recommended:
– Every effort shall be made to locate workstations at a reasonable distance from heating and cooling vents. Vents shall be ducted and shielded to divert airflow away from computer workers.
– Because of the heat generated by some machines and the effect of heat on eyestrain and working conditions, office temperatures shall be kept between 68 and 74 degrees F.
– Because cigarette smoke affects eyestrain, working conditions, and the functioning of some machines, cigarette smoking is prohibited in all academic facilities per school policy.

COMBINED HEALTH EFFECTS

Concerns:

Prolonged and continuous use of computers affects stress level, eyestrain and musculoskeletal problems. Occasional changes in any work will provide an opportunity to flex the body, adjust eyes to different sight conditions, and relieve the tedium of repetitious work. Breaks, therefore, alleviate or prevent visual, muscular and psychological fatigue and may improve overall performance.

Recommended Action:

Managers are directed to meet with computer workers to work out a schedule of alternative work breaks to alleviate problems with eyestrain, musculoskeletal problems and stress. Managers shall take into account the following in working out a schedule:

– The National Institute for Occupational Safety and Health recommends breaks of fifteen minutes for every hour for jobs that require more than two (2) hours of constant viewing time, constant rapid muscular action, fixed positions for extended periods of time, or for jobs that are highly repetitive and boring.
– To alleviate eyestrain and musculoskeletal problems, computer workers need to be given an opportunity to relax the eyes by looking at distant objects and to move the body. This will require alternative work assignments during some part of the day for heavy and moderate users.
– Workers whose workstations do not substantially comply with these guidelines may require additional non-computer work to alleviate the problems caused by non-compliance.
Those computer workers who experience difficulty adjusting the eyes to long distances when driving home should meet with their supervisors to work out an alternative work schedule for the last one-half hour of each day of heavy computer use, allowing a period for the eyes to adjust.

**ELECTRICAL SAFETY**

All electrical cords and cables shall be installed and routed in accordance with National Electric Codes.

**ELECTROMAGNETIC RADIATION (EMR)**

Greg Smith, M.D., M.P.H., Medical Epidemiology Section, N.C. Department of Environment, Health and Natural Resources states in a report dated November 14, 1989, "Since VDTs closely resemble television receivers, early VDT users became concerned about possible adverse health effects due to x-ray emissions from VDTs. Subsequent studies, including VDT x-ray surveys conducted by the N.C. Division of Radiation Protection, essentially have verified that there are no significant x-ray hazards associated with VDTs used in the office work environment."

In the past some concerns have been raised about possible adverse health effect from exposure to electromagnetic radiation associated with computer use. Most frequently these concerns have centered around female computer users who have experienced problem pregnancies such as spontaneous abortion, still birth, premature birth, low birth weight and congenital defects.

A study recently completed by NIOSH and published in the New England Journal of Medicine concluded: "The use of video display terminals and exposure to the accompanying electromagnetic fields were not associated with an increased risk of spontaneous abortion".

The findings of this major study should be considered the most important to date in addressing concerns related to the potential for adverse reproductive outcomes as a result of working with computer's. Nevertheless, in absence of a published measurement survey which defines EMR fields generated from the back of a computer unit, we recommend that workstations be situated in a manner so that employees are not seated near (within 5 or 6 feet) or in line with the back of adjacent computers.

It is important to note that basic research and epidemiological studies continue with a view toward further clarification of computer health issues. The School will require departments to implement additional recommendations, which may result from future studies.

**INFORMATION AND TRAINING**

Supervisors have the responsibility of ensuring that computers and associated work practices comply with these recommendations. In order to provide proper assistance to employees and
information on the health problem associated with computer use, the Safety Office has training available for supervisors and/or computer workers.

Managers shall cooperate to permit their employees to attend scheduled computer training sessions. Technical assistance will be provided by the Safety Office. Minimum training requirement for supervisors and computer workers are as follows:

**SUPERVISOR TRAINING**

Supervisors from each workplace where computers are used receive awareness training before they undertake implementation of these recommendations. Topics include:

Known and suspected health effects of computer work, including musculoskeletal strain, repetitive strain, repetitive strain injuries, such as carpal tunnel syndrome (including early symptoms), vision effects, possible reproductive effects and psychological stress.

Relevant ergonomic principles, including the effects of prolonged sitting in a fixed posture and the benefits of good posture and postural change.

Workstation elements, which optimize posture and allow for postural change.

Room illumination and glare, including the importance of decreasing the total amount of light and/or reducing reflections in the screen, and accepted methods of glare control.

**WORKER TRAINING**

Computer workers receive training within the following guidelines:

Initial training is conducted during paid work time by an instructor who because of education, training or experience, understands the potential hazards associated with the use of computers.

Each scheduled group for training is limited to 20 people. Additionally, employees working full time (4 hrs. or more) on a computer receive training first.

Employees working for 2 hours or more per day on a regular basis (but less than full time) are the next group to receive training. The training includes:

1. Known and suspected health effects of computer work, including musculoskeletal strain, repetitive strain injuries such as carpal tunnel syndrome (including early symptoms), vision effects, possible reproductive effect and psychological stress.
2. Relevant ergonomic principles, including the effects of prolonged sitting in a fixed posture and the benefits of good posture and postural change.

3. Workstation elements, which optimize posture and allow for postural change.


5. Room illumination and glare, including the importance of decreasing the total amount of light and of reducing reflections in the screen, and accepted methods of glare control.

6. Overview of the electromagnetic spectrum and computer emissions.

7. Non-ionizing radiation, including international standards and guidelines for extremely low, very low, and radio frequency radiation, and commonly found computer electric and magnetic emissions in the very low and extremely low frequency ranges; fall off of emissions with distance; and possible remedies for case and screen emissions.

8. Worker posture and work practices to minimize musculoskeletal and visual strain.

9. Hands on training in furniture adjustment.

10. Eye and body exercises to alleviate musculoskeletal and visual strain.

11. Information on the need for visual examinations.

REFERENCES:

1989 New Jersey Department of Health, Public Employees Occupational Safety and Health Program, "Guidelines for the Use and Functioning of Computers, Part I".

American Society of Safety Engineers, "Workstation Design for Current Office Environments".

Dayne H. Brown, Director, Division of Radiation Protection, Department of Environment, Health & Natural Resources.

State of New Mexico, Executive Order covering "Use of Computers by State Employees".

SAFETY RESOURCE CENTER

PURPOSE

To provide a safe and healthful environment throughout the school facilities in the general office setting.
SCOPE

These requirements shall apply to all office work units as a minimum standard of general office safety.

GENERAL

This policy prescribes safety precautions to be observed by employees in office areas.

FLOORS, DOORS, AND PASSAGEWAYS

1. Walk, don't run or slide, when crossing floor.

2. When floors are being waxed or washed, observe signs and proceed cautiously.

3. If water or other substance is found on the floor, remove it or report it to housekeeping at once.

4. Pick up small objects, such as rubber bands, paper clips, pencils, etc. These objects can create tripping hazards.

5. When approaching a hall or passageway hidden by a corner, keep to the right and go slowly in order to avoid bumping into someone who may be coming from behind the corner.

6. Shoes with broad heels take the corners more safely.

7. Chairs, footstools, wastebaskets, and other articles are not to be placed in aisles.

8. Telephones, office machines and computers are to be placed so that the cord will not obstruct aisles and passageways.

9. Approach doors with caution and open slowly. Someone may be on the other side. Stand and walk clear of exits ways. Someone coming through the other side may not know you are there. When double doors are involved, use the door on the right.

10. Hallways are to be kept clear to prevent injury and obstructions during emergency evacuation.

STAIRWAYS

1. Pause before starting down stairs. Never hurry when going either up or down stairs. Proceed deliberately and cautiously.
2. Keep to the right with the hand on the handrail. Make sure you have completely ascended or descended the stairs before releasing your hold on the handrail.

3. Keep your eyes on the steps ahead and refrain from doing anything, which distracts attention, such as searching in your handbag for a key, turning your head to talk with a fellow employee, etc.

4. Keep stairways free of debris and unobstructed.

5. Defective handrails and stair treads as well as inadequate illumination are to be reported immediately for correction.

**WASHROOMS**

1. Keep the floor free of water, soap, and other objects that can cause someone to fall.

2. Waste towel containers are not to be used for disposing of useless glass, pins, needles, or any other articles that may cause injury to housekeeping personnel.

3. Do not place drinking glasses, cups, or other items on towel dispensers.

**WINDOWS**

1. Employees should not lean out of windows nor are they to sit on the sill or casing of a window, even when the window is closed.

2. Articles are not to be placed on windowsills.

3. No object is to be thrown out of a window.

**OFFICE FURNITURE**

1. Drawers and doors are not to be left open; someone may fall over or knock against them.

2. Place objects on desks and tables in such a manner that they will not fall or easily be displaced.

3. When opening desk drawers, care is to be exercised to prevent them from falling out.

4. Place materials in cabinets so that when doors are opened the contents will not fall out.
5. When a sheet of glass has been used to cover desktops, counters, or cabinets, the edges and corners should be rounded and smooth. Broken or chipped glass is to be removed immediately.

6. Chairs are to be inspected periodically to be sure there are no broken rollers, nuts, bolts, supports, etc.

7. Office furniture is to be kept free of splinters, rough edges, loose and defective parts at all times.

8. Office furniture is not be used as a ladder. Obtain a ladder that meets the needs of your operations.

9. Supply cabinets, filing cabinets, and other such equipment, which may become overbalanced, are to be secured by bolting together, to a wall, or to a floor where possible.

10. Do not open more than one file drawer at a time, particularly the top drawer. Distribute materials evenly through files.

11. It is a "falling object hazard" to use top of cabinets as a "gather all". Keep them clear.

**ELECTRICAL CORDS AND OUTLETS**

1. Household type extension cords are not be to used. Extension cords are not to be run through doorways or openings in the ceiling, floor or walls.

2. Electrical cords, which have become frayed, and plugs that are broken are to be replaced immediately. Plugs are to be replaced with closed front type. Do not attempt to tape a broken plug.

3. Place equipment near an outlet to avoid cords running across the floor, aisles, and through doorways. If necessary to have a cord running across a walkway, tape the cord in place or provide a cord enclosure guard to avoid creating a tripping hazard.

4. Machines must have ground wire connections and be connected to grounded outlets. Do not alter plugs to eliminate the grounding connection.

5. Defective outlets are to be repaired immediately. Prior to repair, such outlets are to be isolated or covered so they cannot be used.

6. Raised outlets (pedestal type) are not to be located in aisle ways or under the desk in the footrest region.

7. Unused floor outlets, which are flush with the floor, must have a protective cover in place at all times.
8. Portable equipment such as fans and heaters are to be equipped with three wire grounding connections. Heaters must be equipped with approved automatic cut-off devices to prevent fire if the unit is accidentally turned over.

OFFICE MACHINES AND EQUIPMENT

1. Office machines, particularly data processing machines, have many hazards such as moving belts, rollers, gears, etc., which are to be adequately guarded before being placed in service. Normally guards are installed by the manufacturer as standard equipment. If not, they are to be installed locally before the machine is placed in operation.

2. Electrically operated machines, if not double insulated, are to be equipped with a three-conductor cord and grounded. Do not modify plugs to connect them to an ungrounded circuit.

3. Unplug all electrically operated equipment prior to attempting to clear a jam, to make an adjustment, or to alter a malfunctioning part.

4. When changing paper on a printer connected to a computer, when changing the ribbon, adjusting the belt, or making any other adjustments to the printer, it is to be turned off.

5. Do not remove protective guards, open protective hoods, open side doors, or remove side panels from machines while they are in operation.

6. Ensure through periodic maintenance checks that hinges and latches, which hold protective guards, hoods, doors, and panels in place are in safe working condition. If such guards are found defective have them repaired immediately.

7. When machines have certain moving parts exposed, due to necessity, do not wear dangling jewelry and loose clothing that could become entangled in the moving parts.

8. Do not place objects on top of machines. Vibration from the machine during operation could cause the object to fall off and hit someone.

9. When maintenance personnel are working on equipment, do not attempt to help move the machine. Engaging in such activity could cause a muscle strain.

(Computer hazards are enumerated in a separate guide.)

MISCELLANEOUS PRECAUTIONS

1. Sharp or pointed objects, such as knives, pens, pencils, scissors, and envelope openers are not to be left on the edge of a desk or in any place where they may cause injury. They are to be carried in a manner to avoid accident.

2. Handle paper in a manner that can avoid cutting the hands on the edges.
3. Avoid possible injury to the eyes by not throwing pens, pencils, paper clips, and rubber bands.

4. Avoid pinching or puncturing the fingers by carefully loading or clearing jammed staplers.

5. Employees whose duties involve the handling of money should wash their hands frequently to reduce the possibility of infection.

6. Electric fans are not to be handled while in operation. They are not to be placed on the floor in locations where they are likely to injure employees. Fans are to have blade guards with openings not larger than one-half (1/2) inch.

**EMERGENCY RESPONSE**

1. Each employee is to be familiar with the location of emergency exits and fire extinguishers. They are, also, to be familiar with the emergency information located in the work unit’s safety and health plan.

2. Each employee is to be familiar with the hazards associated with the use of printing and duplicating fluids and machine cleaning fluids.

3. Each employee is to be familiar with the procedures for reporting on-the-job accidents and injuries. One should know where to obtain medical care.

**SANITATION**

**HOUSEKEEPING**

1. All offices, hallways and common areas are cleaned regularly by Housekeeping.

2. Floors in work areas are maintained, so far as practicable, in a dry condition. Where wet processes are used, drainage shall be maintained and false floors, platforms, mats, or other dry standing places shall be provided, where practicable, or appropriate waterproof footgear shall be provided.

3. To facilitate cleaning, every floor, working place and passageway is to be kept free from protruding nails, splinters, loose boards and unnecessary holes and openings.

**WASTE DISPOSAL**

1. Waste receptacles used for decaying solid or liquid waste or refuse are constructed so that they do not leak and may be thoroughly cleaned and maintained in a sanitary condition. Such a receptacle is to be equipped with a solid tight-fitting cover, unless it can be maintained in a sanitary condition without a cover. Waste receptacles for ordinary office
waste are to be provided by the department. Special waste containers for hazardous chemical, radioactive, biohazardous and other such waste must meet specifications of the Safety Office.

2. All sweepings, solid or liquid wastes, refuse and garbage are removed according to a schedule developed by the Plant Facilities Department in such a manner as to avoid creating a menace to health and to maintain the place of employment in a sanitary condition.

VERMIN CONTROL

1. Every enclosed workplace is constructed, equipped and maintained, so far as reasonably practicable, so as to prevent the entrance of and harboring of rodents, insects and other vermin.

2. The Plant Facilities Department conducts a continuing extermination program to prevent the presence of vermin.

WATER SUPPLY

1. Potable water is to be provided in all places of employment for drinking, washing of the person, cooking, washing of foods, washing of cooking or eating utensils, washing of food preparation or processing premises, and personal service rooms.

2. Potable drinking water dispensers are to be designed, constructed and serviced so that sanitary conditions are maintained, shall be capable of being closed and shall be equipped with a tap. Open containers for drinking water from which water must be dipped or poured, whether or not they are fitted with a cover, are prohibited.

3. A common drinking cup and other common utensils are prohibited.

TOILET FACILITIES

1. Toilet facilities, in toilet rooms separate for each sex, are provided in all places of employment in accordance Table J-1, NC-OSHA CFR 29 1910.141.

2. The number of facilities provided for each sex is based on the number of employees of that sex for whom the facilities are furnished. Where toilet rooms occupied by no more than one person at a time can be locked from the inside and contain at least one water closet, separate toilet rooms for each sex need not be provided.

3. The requirements under #1 do not apply to mobile crews or to normally unattended work locations. Supervisors must ensure that employees have transportation immediately available to nearby toilet facilities, which meet the requirements.

4. Sewage disposal methods do not endanger the health of employees.
5. Each water closet is to occupy a separate compartment with a door and walls or partitions between fixtures sufficiently high to assure privacy.

**WASHING FACILITIES**

1. Lavatories are made available in all places of employment. This does not apply to mobile crews or to normally unattended work locations. Supervisors must ensure that employees working at these locations have transportation readily available to nearby washing facilities.

2. Each lavatory is to be provided with hot, cold or tepid running water.

3. Hand soap or similar cleansing agent is to be provided.

4. Individual hand towels or sections thereof, of cloth or paper, warm air blowers or clean individual sections of continuous cloth toweling convenient to the lavatories, is to be provided.

**SHOWERS**

1. Whenever showers are required, one shower is to be provided for each 10 employees of each sex, or numerical fraction thereof, who are required to shower during the same shift.

2. Body soap or other appropriate cleaning agents convenient to the shower is to be provided.

3. Showers are to be provided with hot and cold running water feeding a common discharge line.

4. Employees who use showers are to be provided with individual clean towels.

**CLOTHES DRYING FACILITIES**

Where working clothes are provided by the employer and become wet or are washed between shifts, provisions are to be made to insure that such clothing is dry before reuse.

**CONSUMPTION OF FOOD AND BEVERAGE ON PREMISES**

1. No employee is to be allowed to consume food or beverages in a toilet room nor in any area exposed to toxic material or infectious agents.

2. Disposal containers constructed of smooth, corrosive resistant, easily cleanable or disposable material, are to be provided and used for the disposal of waste food.
a. Number, size and location of such receptacles are to encourage their use and not result in overfilling.

b. They are to be emptied not less frequently than once each working day, unless unused, and are to be maintained in a clean and sanitary condition.

c. They are to be provided with solid tight-fitting covers unless sanitary conditions can be maintained without use of a cover.

3. No food or beverage is to be stored in toilet rooms or in an area exposed to a toxic material or infectious agents.

4. In all places of employment where all or part of the food service is provided, the food is to be wholesome, free from spoilage and is to be processed, prepared, handled and stored in such a manner as to be protected against contamination.

   a. All food service employees are to practice good personal hygiene and wear appropriate clothing such as caps, coats, aprons, etc., while on duty. No employee is to use tobacco in any form while engaged in the preparation and handling of food. The hands of all employees handling food, utensils or equipment are to be kept clean and be washed before beginning work and after each visit to the toilet.

   b. No person who has a contagious or infectious disease is to be allowed to work in food service.

   c. Persons handling money are not to handle food without washing hands prior to coming in contact with food or using disposable gloves.

**DISEASE TRANSMITTED THROUGH THE FOOD SUPPLY**

Background:

The Center for Disease Control, Department of Health and Human Services (HHS) published a final list of infectious and communicable diseases transmitted through handling the food supply. The CDC has published two lists in conjunction with this standard. Both lists are given below:

Pathogens Often Transmitted by Food Contaminated by Infected Persons:

Some pathogens are frequently transmitted by food contaminated by infected persons. The presence of any one of the following signs or symptoms in persons who handle food may indicate infection by one of these pathogens:

   - diarrhea
   - vomiting
   - open skin sores
   - fever
The failure of food employees to wash hands (in situations such as after using the toilet, handling raw chicken, cleaning spills, or carrying garbage, for example), wear clean gloves, or use clean utensils is responsible for the food borne transmission of these pathogens. Nonfood borne routes of transmission, such as from one person to another, are also important in the spread of these pathogens. Pathogens that can cause diseases after an infected person handles food are the following:

- **Hepatitis A virus**
- **Salmonella typhi**
- **Shigella species**
- **Norwalk and Narwalk-like viruses**
- **Staphylococcus aurous**
- **Streptococcus pyogenes**

**Pathogens Occasionally Transmitted by Food Contaminated by Infected Persons:**

Other pathogens are occasionally transmitted by infected persons who handle food, but usually cause disease when food is intrinsically contaminated or cross-contaminated during processing or preparation. Bacterial pathogens in this category often require a period of temperature abuse to permit their multiplication to an infectious dose before they will cause disease in consumers. Preventing food contact by persons who have an acute diarrheal illness will decrease the risk of transmitting pathogens.

**General Procedures:**

Since many federal, state and local agencies establish and enforce regulations governing the food industry it is very important to perform any food handling activity in the most sanitary means possible. In addition to the sanitary standards established for physical facilities, trained personnel must be responsible for the methods in which food is stored, handled and prepared. Employees who are ill or exhibit any of the symptoms given above should, in severe cases use sick or annual leave, or in minor cases be reassigned to non-food handling tasks, until symptoms are no longer present.

**ANIMALS ON CAMPUS**

**PURPOSE**

This policy is intended to minimize the occurrence of offensive odors, excrement, fleas, biological agents, etc., on the campus and in campus buildings where these may result in health hazards to personnel or be detrimental to instructional or research objectives.

**APPLICATION**

This policy is primarily intended to apply to dogs, but is also applicable to other animals, which are likely to create similar health hazards and/or nuisances.

**VACCINATIONS**
Animals must have current rabies tags as evidence of rabies vaccination.

**BUILDINGS**

Animals are not permitted in any campus buildings except in the following cases:

- Animals providing assistance to handicapped persons.

- Special circumstances or events, subject to approval from the Safety Resource Center.

**CAMPUS**

The laws and ordinances of the City of Durham shall apply to the control of animals on campus. Animals brought onto the campus must be restrained as provided for in the City's Code of Ordinances, i.e., on a leash, inside a vehicle, or within a secure enclosure.

**Impoundment**

Animals on campus in violation of this policy are subject to being picked up and turned over to the Animal Control Officer of the City of Durham for impoundment. Violations should be reported to Security, which will coordinate enforcement efforts with the City's Animal Control Officer.

**PERSONAL SECURITY AND CRIME PREVENTION AWARENESS**

**GENERAL**

The Campus Resource Department at NCSSM has the primary responsibility for promoting crime prevention and personal security awareness among all school employees. Security prepares and conducts informational and education programs on crime prevention and personal safety as well as conducting facility and operational security surveys. Employees or supervisors who have security concerns or who desire to arrange programs on personal security or other aspects of crime prevention should contact the Head of Campus Resources.

The school also publishes annually a special publication on campus security designed to highlight campus security procedures and recommended precautions for increasing personal safety.

**PURCHASE REVIEW BY SAFETY RESOURCE CENTER**

**PURPOSE**

The State Workplace Safety Program requires the Safety Office review of hazardous materials and selected safety-related equipment and supplies. The purpose of the review is to:
1. assure that specifications for applicable safety design features are considered when purchasing equipment and machinery;

2. regulate the storage and use of highly toxic, carcinogenic, explosive or reactive chemicals; and

3. assure proper design specifications for equipment used for safety, health protection, and fire prevention and protection purposes.

ITEMS REQUIRING APPROVAL PRIOR TO PURCHASE

The following items require review and approval by the Safety Resource Center prior to submission of a purchase order:

1. *Compressed gases in non-returnable cylinders (except O2 and "inert" gases)
2. *Chemical carcinogens
3. Mobile portable scaffolds
4. Man lifts
5. Biological safety cabinets
6. *Chemicals that exhibit the characteristic of a hazardous waste or are "P-listed" or "U-listed" waste
7. Explosives
8. Lasers
9. Microwave devices
10. Industrial trucks
11. Personal protective equipment: respirators, safety belts, eye protection, hearing protection, eyewashes, safety showers, etc.
12. Fire extinguishers, fire suppression devices, hoses, etc.
13. Processing equipment: woodworking machinery, welders, power presses, printing presses, mechanical cutters, or metal forming machinery.
14. Ventilation systems

*A Laboratory Safety Plan or a Chemical Safety Plan covering the use and disposal of the restricted items on file with the Safety Office constitutes approval for purchase.

UNAUTHORIZED PURCHASES

State General Statute 143-58 provides that purchases not made in accordance with school policies will be the responsibility of the individual placing the order.
CHAPTER 5 - SPECIFIC HEALTH AND SAFETY POLICIES

EYE AND FACE PROTECTION

REQUIRED FOR STUDENTS AND INSTRUCTORS

GENERAL

NCSSM policy on eye and face protection is derived from two items of legislation enacted by the North Carolina General Assembly. The first act: "Policy for Eye and Face Protection," passed in 1969, requires that eye protective devices be worn by students and instructors in shops and laboratories where work involves:

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

Eye protective devices are to be worn at all times while participating in any of the above programs and shall be furnished free of charge to the student and instructor.

REQUIRED FOR VISITORS

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

REQUIRED FOR EMPLOYEES

The second item of legislation, the Occupational Safety and Health Act of North Carolina (OSHANC) became applicable to the school as of August 1, 1974. 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. A hazard assessment shall be made by the supervisor to ensure appropriate personal protective equipment is used in any area where machines or operations present the hazards of flying objects, glare, liquids, injurious radiation, or a combination of these hazards.
RULES FOR WEARING EYE PROTECTION

LABORATORY RULES

1. Eye protective devices must be worn in all laboratories at all times.

2. Goggles, or safety glasses plus face shield, must be worn in all laboratories when work involving splash hazard is in progress (when hot liquids, or flammable, corrosive or caustic chemicals are being used).

3. The responsibility for the decision not to require the wearing of eye protection during a particular laboratory session lies with the faculty member in charge of the laboratory operation. But a declaration of a "no splash hazard" period is not "continuing."

4. Where there is an explosive (or implosive) hazard, eye and face protective devices must be worn.

5. The above rules apply equally to employees, students, and visitors.

RULES FOR SHOPS

Eye protective devices must be worn when hazardous operations, including operation of power tools, pouring of molten metal, welding, soldering, etc., are in progress. The wearing of safety glasses in shops at all times is encouraged. This rule applies to employees, students, and visitors.

RULES FOR MAINTENANCE & CONSTRUCTION

Eye protective devices must be worn by all employees operating power tools and during hammering, chipping, and cutting operations. Eye protection is also required for other persons exposed within the area of these operations.

EQUIPMENT STANDARDS

The North Carolina legislation specifies that eye and face protective devices, which include spectacles, goggles, and face shields, shall comply with American National Standards Institute (ANSI) F87.1-1979 and later revisions thereof. All eye and face protective devices currently on State Contract meet ANSI standards. Only devices meeting these standards will be purchased by the School.

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 school maintenance, shop, and laboratory requirements. These are: safety spectacles (with side shields), dust goggles, and chemical or splash 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 if 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 dust goggles, will provide this protection. Clip-on side shields do not meet ANSI standards.

**SPLASH GOGGLES**

Safety splash goggles are required to provide protection against corrosive or hot liquids or fine particles capable of penetrating the ventilation holes in dust goggles. (See recommended Laboratory Rules covered in this statement for additional information.)

**SELECTION BASED ON FREQUENCY OF USE - DUST GOGGLES**

Dust goggles are the least expensive approved eye protection devices available, fit most head sizes 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).

**SAFETY GLASSES**

Safety glasses are generally more comfortable than goggles and are therefore recommended for employees and students who require eye protection frequently and/or for long durations (more than two hours per day).

**ADJUSTABLE GLASSES**

Three dimensions that are important in providing a comfortable fit include temple length, nose bridge width, and lens diameter. Safety glasses with side shields, bendable temples, and universal nose bridges are available in various lens diameters through state purchasing contracts. These adjustable glasses are recommended for loaning to students and staff who require eye protection for instructional activities of one semester or less. (See Eye Protection Program for Laboratories, for more details.)

**FITTED GLASSES**
Safety glasses, which are professionally measured and fitted to the individual, are recommended for permanent employees whose job duties require frequent eye protection.

**PRESCRIPTION SAFETY GLASSES**

Several years ago the Federal Food and Drug Administration passed regulations requiring impact-resistant lenses for all eye wear. Although these lenses are a marked improvement over the old style lenses, which were likely to splinter on impact, they do not meet ANSI standards for industrial quality safety spectacles. Therefore, prescription safety glasses are recommended for employees wearing glasses who require eye protection frequently and/or for long durations (more than two hours per day). Prescription glasses with side shields are available.

**SPECIAL EYE PROTECTION**

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

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

**PHOTOGRAY LENSES**

Photogray lenses are not approved for indoor use because the percentage of light transmitted under normal room light conditions is below ANSI standards. Photogray lenses will only be provided for employees needing eye protection whose job assignments are largely out-of-doors.

**CONTACT LENSES**

The National Society for the Prevention of Blindness strongly advises that the use of contact lenses of any type by industrial employees while at work be prohibited, except in rare instances. The Society recommends that any exceptions be verified in writing by the physician or optometrist who sanctions such use in a specific industrial environment. Contact lenses do not protect the portion of the cornea they cover; furthermore, dissolved vapors, liquids, and dust particles tend to creep behind the lens.

**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

NCSSM is committed to a policy of providing eye and face protective devices without cost to employees, students, and visitors. Each department is responsible for the funding of its eye and face protection program.

EYE EXAMINATIONS

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

RETURN OF PROTECTIVE DEVICES

Eye protective devices issued to employees, students, and visitors remain the property of the school 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. The disposition of prescription glasses shall be determined by the department.

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 MATERIALS

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 available and 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 Resource Center.

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 then 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.

SELECTION OF EYE AND FACE PROTECTION EQUIPMENT

Care must be taken to select the eye and face protection appropriate for the job. The following is a general guide in selecting appropriate protective devices. If your requirement is not listed, contact the Safety Resource Center for more detailed information.

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<tr>
<td>Grinding – heavy</td>
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<td>Eye protection as specified in ANSI Z49.1-1973</td>
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</table>
OBTAINING PRESCRIPTION SAFETY GLASSES

PROCEDURE REFERENCES

Refer to Eye and Face Protection, for the types of hazards and frequency of use for which fitted safety glasses are recommended.

PROCEDURE DESCRIPTION

Arrangements have been made with state contract and/or local opticians to provide fitting services for prescription safety glasses. These services are coordinated by the Safety Resource Center. Requests for these services must be sent to the Safety Office and not directly to the optician.

PROCEDURE STEPS

MAKE WRITTEN REQUEST

Send a written request to the Safety Office with the following information:
- Name of employee(s)
- Social Security Number (for identification purposes)
- Account number to be billed

If prescription glasses are required, include the above information, and:

- Type of prescription (single, bifocal, trifocal)
- Whether the employee has a current prescription, or a pair of prescription glasses, which can be copied by the optician. If the employee has not had his prescription checked within the past year, this should be done prior to scheduling an appointment with the optician. Scheduling and payment of eye examinations are the employee's responsibility.

**WAIT FOR WORD FROM THE SAFETY RESOURCE CENTER**

- Non-prescription safety glasses are normally available from stock and will be issued at the time of the request.
- Prescription safety glasses must be ordered. Upon receipt of the request for service, the Safety Office will forward the appropriate form to the employee. The employee will need to take the form to his/her eye doctor to be completed. The completed formed is returned to the Safety Office and processed.

**EYE PROTECTION PROGRAM FOR LABORATORIES**

**CHEMISTRY DEPARTMENT**

Several years ago the Chemistry Department instituted a safety glass program for its students and staff. Because of the success of the program, it is recommended that other departments institute a similar program.

**INITIAL SUPPLY AND REISSUE OF EQUIPMENT**

The Chemistry Department purchased an initial inventory of safety spectacles (with side shields) and splash goggles slightly greater than their enrollment in laboratory courses. A pair of safety spectacles or splash goggles is issued to each student along with other laboratory equipment required for the course. At the end of the semester all equipment, including eye protective devices, is turned in by the students for credit. The eye protective devices are then sterilized and returned to stock, ready to be reissued the following semester.
FACE SHIELDS

The Chemistry Department requires that eye protection be worn in laboratories at all times. Face shields must be worn over the eye protection when caustic or corrosive chemicals are being handled or used. Chemistry maintains a supply of face shields in each laboratory for general use, thus the number of face shields required is considerably less than the number of spectacles and splash goggles, which are assigned to individuals.

PROPER EQUIPMENT

Before ordering an initial inventory refer to Eye and Face Protection, and Selection of Eye and Face Protection Equipment, to determine the appropriate types of devices for your laboratory.

QUESTIONS

If you have any questions, call the Safety Office for assistance.

FOOT PROTECTION

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 or during activities, which would require the use of eye protection devices. (See Eye and Face Protection.)

SAFETY SHOES

Safety shoes are used to protect the feet against injuries from heavy falling objects, against crushing by rolling objects, or against lacerations from sharp edges.

WHEN REQUIRED

Safety shoes are required for employees whose routine job duties require the lifting, carrying, or moving, etc., of objects which, if dropped, would likely result in foot or toe injury. Examples of job classifications likely to require safety shoes or boots include, but are not limited to, carpenters, welders, electricians, plumbers, maintenance mechanics, laborers, grounds workers operating power machinery or tools, and power plant maintenance 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 rubbers or boots are required in addition to the safety footwear recommendations listed above. Rubber boots with toe and metatarsal 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 must 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.

COST REIMBURSEMENT

When safety shoes are required, the cost of one pair per year, not to exceed the State subsidy, will be paid by the school. Employees are to purchase the shoes and submit receipt to their department for reimbursement.

ENFORCEMENT

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

STANDARDS
Safety footwear shall conform to ANSI Z41.1-1967 Class 75, and subsequent revisions.

HAND PROTECTION

GENERAL REQUIREMENTS

There are many products available that can minimize or eliminate skin problems associated with abrasive tasks or chemical exposure. The most common types of prevention involve the use of barrier creams, gloves or a combination of both. NCSSM will rely on gloves rather than barrier creams for most circumstances due to current tasks and economics.

It is important to realize that one type of glove will not protect the wearer from all types of hazards. For example, cloth and leather gloves are perfectly acceptable for abrasive work, but offer absolutely no protection against exposure to corrosive liquids. Based on this principle, employees in certain areas will need to wear work gloves while others need chemical resistant gloves.

Personnel will be provided with the necessary type of hand protection before being assigned work that may result in injury. The type of glove will be compatible for the type of work being performed. Normally, nitrile, neoprene or polyvinylchloride gloves offer good chemical resistance to most chemicals. Chemical/glove compatibility charts are available from the manufacturer for reference.

Individual departments are responsible to purchase required hand protection and maintain an adequate supply of replacements. Because glove life will vary depending on the care, nature and frequency of use, replacement will be made by exchanging worn, ineffective gloves for a new pair on an as needed basis after initial pair is issued. Issuance/ replacement log sheets will be maintained by the person responsible for this function in each department. If gloves are lost or stolen, replacement will be at the expense of the employee.

HEARING CONSERVATION

GENERAL REQUIREMENTS

The Occupational Safety & Health Act (OSHA) and the American Industrial Hygiene Association (AIHA) have established specific levels of occupational noise, which can impair and deteriorate an individual's hearing capability. The purpose of this policy is to identify specific areas/operations which pose a threat to an employee's hearing, methods used to determine these hazardous areas/operations, and steps to be taken to protect the employee from hearing loss. This policy is based on Section 1910.95 by OSHA and AIHA's TLV booklet.

The Safety Office will determine if a specific area or operation is deemed hazardous to employees based on representative noise surveys and established criteria from the two resources given above. In order to obtain representative noise surveys the Safety Office must measure personal, and in some instances, area employee exposure levels during the course of normal
work activities. Measurements must be obtained by using equipment approved by the American National Standard Specification for Sound Level Meters and accepted industrial hygiene procedures.

Employees on whom personal samples are taken will be told their exposure level within five working days once the results are obtained. When area exposure levels are taken the affected employees within the pertinent area will be informed of the test results with five working days after receiving results.

During periods after a hazardous area or operation has been identified, but has not yet subjected to a complete noise survey, the Safety Office can require the affected employee(s) to wear hearing protection until appropriate documentation can be collected. Once the documentation has been reviewed the Safety Office will determine if the wearing of hearing protection is necessary. Appropriate personnel will be advised of this decision.

TRAINING AND EQUIPMENT

The Safety Office will provide affected employees with training should a hearing conservation program be implemented. Individual departments will be responsible to procure, issue and enforce the wearing of hearing protection of affected personnel as identified by the Safety Office. The Safety Office will identify a suitable type and level of hearing protection device to be purchased based on the noise level documented and the environment in which the device will be worn.

MEDICAL SURVEILLANCE

Regulating agencies require that all employees identified as having an eight-hour noise exposure level of 85 decibels must be entered into a hearing conservation program, which includes medical surveillance. At a minimum the medical surveillance program must include the following:

(a) An initial baseline audiogram performed within the first six months after an employee has been identified as working within an environment in excess of 85 decibels.

(b) An annual audiogram.

The required audiometric testing must be at no cost to the employee. NCSSM will obtain audiometric testing services from the licensed or certified professional. All audiometric test results will be reviewed by Campus Resources and forwarded to Human Resources for placement in the employee's permanent record.

RESPIRATORY PROTECTION

SCOPE
Many diseases have been associated with the inhalation of hazardous air-borne contaminants in the form of dust, fume, mist, gas, fog, smoke, vapor or spray. In most cases the control of these contaminants will be through the proper design, construction and installation of adequate engineering controls. In some instances where feasible engineering controls are not available, or when occupational exposure to a hazardous component must be kept to the lowest possible level, respiratory protection equipment may be used.

All respiratory protection equipment must be approved and accepted by Mine Safety and Health Administration, MSA, and National Institute for Occupational Safety and Health, NIOSH. This policy extends to air-purifying respirators such as disposable respirators, half-face respirators, full-face respirators, and self-contained breathing apparatus.

**PROCUREMENT**

All respiratory protection equipment must be approved for type and use by the Safety Office prior to purchase. Individual departments will be responsible for the expenses associated for the procurement and maintenance of respiratory protection equipment. The Safety Office is the only authorized area at NCSSM, which can issue respiratory protection equipment. Only school employees will be issued respiratory protection with the extreme exception of students doing special projects.

**PROGRAM REQUIREMENTS**

1. This policy will serve as the standard operating procedure governing the selection and use of respirators.

2. The user will be properly trained in the operation and limitations of the specific respirator. Prior to use the person must pass a qualitative fit test given by the Safety Office.

3. Respirators will be assigned to a specific individual for a specific task. Once a person has completed the assigned task the respirator will be returned to the Safety Office. An exception to this rule is disposable respirators, which would be properly disposed of at the end of each use.

4. Respirators will be cleaned and disinfected after each use.

5. The Safety Office will inspect all respirators for cleanliness, proper operation and deteriorating parts.

6. Respirators will be stored in a clean and sanitary location. All respirators will be stored in clean plastic bags and in a position that will not damage the face piece or parts.
7. Persons will not be assigned to tasks requiring the use of respirators unless it has been determined that they are physically able to perform the work and use the equipment correctly.

NC HAZARDOUS CHEMICALS RIGHT TO KNOW ACT

PURPOSE

The use and storage of hazardous chemicals potentially pose threats to the health and safety of employees and citizens at large as evidenced by events such as the methyl isocyanate gas release in Bhopal, India. The threat is especially great for fire and emergency response workers and potentially severe for employees and citizens in the vicinity of bulk storage facilities.

In response to the perceived danger, the NC General Assembly passed the Hazardous Chemicals Right to Know Act, which became effective May 25, 1986. Sponsors of the Act seek to inform firefighters and citizens of potential hazards, thereby assuring a better-planned response in the event of an accident. An informed citizenry is also better able to assess the relative safety or danger of workplaces in their neighborhoods.

The purposes of the Act are to ensure that fire chiefs have access to all information about hazardous chemicals necessary for emergency responses and to ensure that citizens have access to sufficient information about hazardous chemicals for them to assess any hazards posed by local workplaces.

SCOPE

The requirements of the Hazardous Chemicals Right-to-Know Act apply to all employers and any subdivision thereof who have hazardous chemicals in amounts as noted under Requirements 1 below.

REQUIREMENTS

1. All employers who use or store 55 gallons or 500 pounds or more of any single hazardous chemical as defined by the Occupational Safety and Health Act (OSHA), must prepare a Hazardous Substance List which contains the chemical or common names, the quantity of each chemical (within specified ranges), the areas in which the chemicals are stored, and to what extent the chemicals may be stored at altered temperature or pressure. The Hazardous Substance List shall be updated quarterly if necessary, but not less often than annually.

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<th>CLASS</th>
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2. NCSSM must maintain material safety data sheets (MSDSs) on hazardous chemicals. Chemical manufacturers and distributors must provide MSDSs to all purchasers of their products. If an MSDS is not provided by the manufacturer or distributor and the Safety Resource Center does not have it, the Safety Office will make a written request for one within 30 days of receipt of the request from the department purchasing the chemical.

3. All containers (except pipelines) of hazardous substances must be clearly marked as hazardous, and labels on containers shall not be removed or defaced.

4. Employers with 55 gallons or 500 pounds or more of any single hazardous substance must provide to their fire chief a copy of the Hazardous Substance List and the name and telephone number of someone to contact in the event of an emergency. The Hazardous Substance List is maintained by the Safety Office.

5. The fire chief is given authority to conduct inspections of workplaces to ensure the accuracy of the list and to pre-plan emergency response activities.

6. The fire chief may share information with other State or local government officials responsible for pre-planning emergency response, police, medical, or fire activities. Distribution of any information (trade secrets) not otherwise available to the public is punishable as a misdemeanor.

7. Any person in North Carolina may request in writing from an agency the names of chemicals on the hazardous substance list, the quantity (within ranges), and an MSDS for each chemical. The request must include the citizen's name, address, the reason for the request, the name and address of any organization on whose behalf the request is being made, and, at the option of the agency, a statement that the information will be used only for the purpose stated. The agency shall provide the information within 10 days. A fee not to exceed the cost of reproducing the materials may be charged.

8. Any complaints regarding violations of the Act are to be investigated by the Commissioner of Labor. Civil penalties of up to $1,000 per violation per day may be assessed by the Commissioner, if compliance is not achieved in 14 days.

9. Employers may withhold trade secret information from information otherwise released. Anyone may challenge such a trade secret claim, in which case the Commissioner of Labor shall determine whether or not the claim is valid and if so, whether or not sufficient hazard information has been released to enable the fire chief to carry out his responsibilities. Unauthorized disclosure of trade secret information is a Class J felony with a maximum punishment of up to 3 years or a fine or both.
10. In medical emergency and non-emergency situations, trade secret data must be released to health professionals with certain assurances provided to employers regarding confidentiality.

11. Localities are prohibited from enforcing local ordinances requiring disclosure of information regarding the use or storage of hazardous chemicals.

12. The Act does not apply to the following: chemicals while being transported in interstate commerce; retail establishments except for processing and repair areas; food or drugs; farms with 10 or fewer employees; distilled spirits; and medicines.

13. The Act also provides a limited exemption for laboratories under the direct supervision of a technically qualified person, if the laboratory is not used primarily to produce hazardous chemicals in bulk for commercial purpose. The limited exemption does not include number 2 and 3 of this requirement.

USE OF CHEMICAL CARCINOGENS

CONTROL PRACTICES

Planning and implementation of control practices for the prevention of occupationally acquired cancer and for the protection of the general environment is to be included in all research programs involving known or suspected chemical carcinogens.

DEFINITION

Chemical carcinogens are chemicals which have been demonstrated to cause tumors in mammalian species by induction of a tumor type not usually observed, by induction of an increased incidence of a tumor type normally seen, by the appearance of such tumors at an earlier time than would be otherwise expected, or by promotion of tumors initiated from exposure to other chemicals.

APPLICABILITY

These policies apply to known or suspected chemical carcinogens. The OSHA Laboratory Standard 29 CFR 1910:1450 defines select carcinogens as those chemicals which are: regulated by OSHA as carcinogens; listed by the National Toxicology Program (NTP) as "known to be carcinogens"; listed by the International Agency for Research on Cancer Monographs (IARC) in Group 1 (carcinogenic to humans); listed by NTP as reasonably anticipated to be carcinogens or by IARC in Group 2A (probably carcinogenic to humans); and listed by IARC in Group 2B (possibly carcinogenic to humans) and causing statistically significant tumor incidence in experimental animals. The Health and Safety Office is to be consulted when questions arise about the carcinogenic potential of certain chemicals handled in laboratories.

PRINCIPAL INVESTIGATOR
Principal Investigators are responsible for assuring that laboratory personnel are trained in safe practices, for reporting exposures or potential exposures to chemical carcinogens to the Health and Safety Office, and for the submission of a Safety Plan for the research under their direction to the Health and Safety Office.

SAFETY PLAN

The Safety Plan is to describe the procedures that will be used to insure the safe handling of chemical carcinogens, an assessment of the potential risks, the need for medical surveillance, procedures for handling accidental spills, and waste disposal methods. The Laboratory Safety Manual describes safety procedures for working with chemical carcinogens.

GRANT APPLICATION

Proposed research projects involving chemical carcinogens are to be reviewed with the Safety Office to insure that the budget considers the specialized needs required to insure the safe conduct of the research.

ACCIDENTAL EXPOSURES

All overt accidental exposures of personnel to chemical carcinogens, such as exposure to a concentrated contaminated aerosol through research procedures, accidental spills, or accidental inoculation with a contaminated needle, are to be reported to the Safety Office.

SAFETY STANDARDS

Detailed standards governing the use of chemical carcinogens are available from the Safety Office on request.

CHEMICAL WASTE DISPOSAL

NCSSM is required to comply with federal standards promulgated under the Resource Conservation and Recovery Act (RCRA). These regulations require documentation of the transfer of hazardous waste from the point of generation to final disposal. Each principal investigator is responsible for identifying the hazardous waste generated in his/her laboratory, and ensuring its proper disposal.

The Safety Office assists principal investigators by picking up the waste from individual laboratories and preparing the waste for shipment to a hazardous waste disposal site. Laboratories are to notify the Safety Office when waste is ready for pick up. They are to complete a Hazardous Material Transfer form for each waste container. (Note: Forms are not required for chemicals in their original containers.) The form is to be attached to the container and the top copy pulled and sent to the Safety Office. The Safety Office transports the waste to
the UNCA Hazardous Material Facility (HMF) where it is segregated into compatibility groups according to Department of Transportation (DOT) hazard classifications. Wastes that cannot be treated on-site are prepared for shipment as follows:

Liquid Wastes - Compatible flammable solvent wastes are poured into 55-gallon barrels to await transfer to an incinerator where they are used as fuel. Other compatible liquid wastes are packed in vermiculite in 55-gallon barrels for shipment to a hazardous waste incinerator.

Solid Wastes - Leftover reagents in their original containers are set aside for possible recycling or distribution to other laboratories. If reuse is not practicable, compatible chemicals are packed in barrels with vermiculite for shipment to a hazardous waste incinerator.

**CHARACTERISTICS**

Current EPA regulations apply to wastes having the following characteristics:

Ignitability - liquids with a flash point of less than 60 oC (140 oF); oxidizers, solids capable of burning vigorously and persistently after ignition through friction, absorption of moisture, or spontaneous chemical changes at standard temperature and pressure.

Corrosivity - aqueous solutions with a pH less than or equal to 2 or greater than or equal to 12.5; liquids which corrode steel at a rate greater than 6.35 mm per year at 55 oC.

Reactivity - chemicals normally unstable that undergo violent change, react violently with water, form potentially explosive mixtures with water, emit toxic vapors when mixed with water, capable of detonation or explosive reaction.

Toxicity - heavy metals and certain pesticides.

The most significant way that individual laboratories can assist in the management of hazardous waste is to reduce the volume of waste required to be handled by the Safety Office. Principal investigators are encouraged to consider ways of reducing the volume of waste or preserving the usability of the materials through the redesign of experiments. Recyclable materials should be kept separate from other waste. Efforts should be made to decontaminate, detoxify, neutralize, or otherwise render the waste non-hazardous. The Safety Office welcomes ideas and suggestions about how production of hazardous waste can be reduced through source reduction, recycling, redesign of experiments, or decontamination.

**DISPOSAL GUIDELINES**

Procedures for segregation, labeling and disposal of various types of wastes are contained in the NCSSM Laboratory Safety Manual. Call the Safety Resource Center to obtain a copy.

**BLOODBORNE PATHOGENS STANDARD**

**PURPOSE**
The OSHA Bloodborne Pathogens Standard requires that all employees who have occupational exposures to blood or other potentially infectious materials receive training, which must be documented, on the requirements of the standard and be offered hepatitis B vaccine.

**EXPOSURE CONTROL PLAN**

The Exposure Control Plan, available by request from the Safety Office, describes the procedures designed to minimize or eliminate exposures to employees. A copy of the Plan is provided to attendees of the Safety Resource Center's bloodborne pathogens training session and contains the forms for requesting or declining hepatitis B vaccine.

**TRAINING**

Attendance at a Blood Borne Pathogen training session is required of all new employees occupationally exposed to blood or other potentially infectious materials. Refresher training will be provided annually.

**OSHA LABORATORY STANDARD**

**LEGAL REQUIREMENTS**

OSHA 1910:1450, "Occupational Exposures to Hazardous Chemicals in Laboratories" (henceforth referred to as the Laboratory Standard) dictates that employers limit employees' exposure to hazardous chemicals to below the permissible exposure limit (PEL) (or action level, if applicable) for a specific chemical. This Laboratory Standard requires that employees be apprised of the hazards of chemicals present in their work area through information and training. It also requires that a written "Chemical Hygiene Plan" be developed, implemented, and made available to employees. The Laboratory Standard applies only to laboratories, and, in general, supersedes other OSHA health standards.

**RESPONSIBILITIES**

The Safety Office is responsible for development and implementation of the Chemical Hygiene Plan and will assist Principal Investigators in developing their Laboratory Safety Plans, and obtaining chemical hazard information including material safety data sheets (MSDSs). The Safety Office provides training for employees on the Laboratory Standard and on general chemical safety. In addition, the Safety Office is available to offer advice on chemical hazards in the laboratory and will monitor employee exposures upon request.
The Principal Investigator or laboratory supervisor is responsible for developing and implementing a Laboratory Safety Plan for his/her laboratory, providing training and information on chemical hazards, and enforcing safety procedures in the laboratory.

CHEMICAL HYGIENE PLAN

The Chemical Hygiene Plan is a written program developed and implemented by the employer which sets forth procedures, equipment, personal protective equipment and work practices that are capable of protecting employees from the health hazards presented by hazardous chemicals used in that particular workplace. At NCSSM the Chemical Hygiene Plan is a Laboratory Safety Manual plus a Laboratory Safety Plan developed by the Principal Investigator. The Chemical Hygiene Plan is to be readily available to employees.

LABORATORY SAFETY PLAN

The laboratory safety plan is given to all employees to communicate the investigators, and School's, expectations of safety in the laboratory. The safety plan also serves as written documentation of how hazardous materials are handled. The laboratory safety plan is to be reviewed and updated annually, and a copy sent to the Safety Office. The following areas should be addressed in the safety plan:

- Laboratory Personnel - names of personnel working in the laboratory with their social security number and employment status;
- Employee Information and Training - documentation of employee training programs, including the content of training sessions, location of material safety data sheets, and signs and symptoms of exposures to the agents with the most highly acute toxicity;
- Laboratory Safety Rules and Procedures - identification of special safety rules and procedures not described in the Laboratory Safety Manual;
- Particularly Hazardous Substances - additional precautions including identification of the designated area for handling chemical carcinogens, reproductive toxins, or chemicals with a high degree of acute toxicity;
- Hazard Identification - list the hazard classification and quantity of hazardous materials that are present, or may be present, in the laboratory;
- Waste Disposal - identification of the hazardous waste streams generated and instructions for the disposal of various types of hazardous waste;
Emergency Procedures - spill control procedures including prevention, containment, cleanup, evacuation, and procedures for emergencies occurring outside the laboratory, such as fires. A floor plan of the laboratory showing location of hazardous materials and safety equipment should be included.

EMPLOYEE INFORMATION TRAINING

Employees shall be apprised of the hazards and of chemicals present at the time of initial assignment and whenever a new hazard is introduced in the laboratory. Training of employees must be documented with an outline of the content, signatures of attendees, and dates given. A training session covering the items listed below is required for all laboratory personnel.

- The contents of the Laboratory Standard and Chemical Hygiene Plan
- The location of the Laboratory Safety Plan for the laboratory, chemical references, and Material Safety Data Sheets covering the safe handling, storage, and disposal of chemicals used in the laboratory
- Current recommended threshold limit values (TLVs) and the OSHA regulated permissible exposure limits (PELs) (available from the MSDS for a chemical)
- The physical and health hazards, including signs and symptoms of overexposure, of the chemicals used in the laboratory
- Measures employees can take to protect themselves from hazardous chemicals in the laboratory
- How to detect a release and/or leak of hazardous chemicals in the lab

EMPLOYEE EXPOSURE DETERMINATION

For laboratory uses of OSHA regulated substances, employees’ exposures must not exceed permissible exposure limits for such substances as specified in 29 CFR part 1910, subpart Z. If employees believe that exposure levels to a regulated substance routinely exceed PELs (or action level, if applicable) they should contact the Safety Office to measure exposure levels.

LABORATORY HOODS

Laboratory hoods are used for operations, which might result in release of toxic chemical vapors or dust. Hoods are inspected by the Safety Office annually. A minimum average face velocity of 100 feet per minute is required for all laboratory hoods on campus. A continuous monitoring device is required for all new fume hoods and is recommended for all existing hoods.
Information on obtaining continuous monitoring devices is available from the Safety Office. Questions concerning hood efficiency should be directed to the Safety Office.

**PARTICULARLY HAZARDOUS SUBSTANCES**

Additional precautions must be taken to protect employees when particularly hazardous substances, such as chemical carcinogens or highly toxic materials, are handled in the laboratory. Handling precautions for chemical carcinogens are described in the NCSSM Laboratory Safety Manual. These additional precautions are also to be considered when handling chemicals with a high degree of acute toxicity or reproductive toxins.

Experiments involving chemical carcinogens, as defined below, must be approved by the Safety Office. The approval process involves sending a copy of the laboratory safety plan for those substances requiring approval to the Safety Office. The Safety Office will review the plan, and then send written approval and/or recommendations to the principal investigator. Chemical carcinogens are defined as chemicals, which are:

- regulated by OSHA as carcinogens
- listed by the National Toxicology Program (NTP) as "known to be carcinogens"
- listed by the International Agency for Research on Cancer Monographs (IARC) in Group 1 (carcinogenic to humans)
- Listed by NTP as reasonably anticipated to be carcinogens or by IARC in Group 2A (probably carcinogenic to humans) or in Group 2B (possibly carcinogenic to humans) and causing statistically significant tumor incidence in experimental animals

**MEDICAL SURVEILLANCE**

Employees who work with hazardous chemicals are provided an opportunity for medical consultation and/or medical examinations under the following circumstances:

- whenever an employee develops signs or symptoms associated with a hazardous chemical to which the employee may have been exposed in the laboratory;
- where exposure monitoring reveals an exposure level routinely above the PEL (or action level, if applicable) for an OSHA regulated substance, as prescribed by the regulations for that particular substance;
- whenever there is a likelihood that an employee was exposed to a hazardous chemical as a result of a spill, leak, explosion, or other release.
USE OF BIOHAZARDOUS AGENTS

CONTROL PRACTICES

Planning and implementation of control practices for the prevention of laboratory-acquired infections and for the protection of the general environment are to be included in all research programs involving biohazardous agents.

DEFINITIONS

Biohazardous agents are infectious microorganisms, or their toxins, which cause or may cause human disease.

APPLICABILITY

These requirements apply to microorganisms and viruses listed by the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories Manual. These agents are listed in the Biological Safety Manual available from the Safety Office.

REGISTRATION

Prior to initiation of work with a biohazardous agent, the principal investigator is to notify the Safety Office of the agent to be used and the location of the laboratory.

CLASS 4 VIRUSES

There are no facilities on campus appropriate for working with dangerous class 4 viruses, so work involving these agents is prohibited.

PRINCIPAL INVESTIGATOR

Each principal investigator is responsible for: ensuring that laboratory personnel are trained in safe practices; reporting exposures and potential exposures to these biohazardous agents to the Safety Office; and submitting a Safety Plan for research under his/her direction to the Safety Office.
SAFETY PLAN

The Safety Plan is to describe the procedures that will be used to insure the safe handling of biohazardous agents, an assessment of the potential risks, the need for medical surveillance, and procedures for handling accidental spills and waste disposal methods.

GRANT APPLICATIONS

Proposed research projects involving biohazardous agents should be reviewed with the Safety Office to ensure that the budget includes consideration of any specialized requirements to insure the safe conduct of the research.

ACCIDENTAL EXPOSURES

All overt accidental exposures of personnel to biohazardous agents, such as exposure to a concentrated contaminated aerosol from research procedures, accidental spills, or accidental inoculation with a contaminated needle, should be reported to the Safety Office.

SAFETY STANDARDS

Recommended safety practices and facilities for the use of biohazardous agents are given in the Biological Safety Manual available from the Safety Office.

INDUSTRIAL HYGIENE PROGRAM REQUIREMENTS

INTRODUCTION

The School is committed to protecting its employees from environmental hazards that arise out of or during the course of employment.

The industrial hygiene program deals with the recognition, evaluation, and control of environmental health hazards. Environmental health hazards may include conditions which cause legally compensable illnesses, or any conditions in the work environment that impair the health of employees to the extent that they lose work and/or efficiency.

The program provides industrial hygiene surveys and monitoring to identify hazards, inspections, and other information necessary to control the recognized health hazards.

ENVIRONMENTAL HEALTH HAZARDS

Measures are provided for the control of stress producing hazards such as:
1. Chemical (NC OSHA 29 CFR 1910.1000) - Liquids, dusts, fumes, mists, vapors, or gases. The three routes of entry into the body being inhalation, skin absorption, and ingestion.

2. Physical - Non-ionizing radiation, noise, pressure, vibration, illumination, and temperature extremes.


RECORD KEEPING

Records of all survey results and employee exposures are maintained. Record keeping is particularly important in the area of environmental health hazards where the effects of exposure may not be apparent for several years, and delayed litigation results. Records of environmental monitoring, employee training programs, and medical examinations are maintained.

COMPRESSED GAS

GOVERNING REQUIREMENTS

The handling, storage, and utilization of all compressed gases in cylinders shall be in accord with the provisions of the Compressed Gas Association as set forth in Pamphlet P-1 "Safe Handling of Compressed Gases."

1. GENERAL GUIDES FOR HANDLING CYLINDERS

   a. If as a result of a visual inspection a cylinder is obviously damaged, it should be immediately returned to the supplier without attempting any usage.

   b. Cylinders should not be subjected to a temperature above 1250F, nor should a flame ever be permitted to come in contact with any part of a compressed gas cylinder.

   c. Individual cylinders or small groups of cylinders must be chained to a fixed object whether in use or in storage unless they are chained in a cylinder cart.

   d. Store cylinders in definitely assigned places where they will not be knocked over or damaged by passing of falling objects. Where cylinders are stored in the open, they should be protected from accumulations of ice and snow and from the direct rays of the sun. Full cylinders should be used in rotation as received from the supplier.

   e. Do not drop cylinders or permit them to strike each other violently. Only cylinders approved for use in interstate commerce shall be used for the transportation of compressed gases.
f. Cylinders must not be filled except by, or with the consent of the owner and then only in accordance with the regulations of the Interstate Commerce Commission.

g. It is illegal to remove or change the numbers or marks stamped on cylinders.

h. Do not use a lifting magnet or a sling (rope of chain) when handling cylinders. A crane may be used when a safe cradle or platform carrier is provided to hold cylinders securely in place.

i. Do not use cylinders for rollers, supports, or for any purpose other than to carry gas.

j. Cylinders should stand upright. Caps should always be on cylinders when being transported.

k. Make sure that the threads on regulators or other unions are the same as those on cylinder valve outlets (CGA Valve Connection System). Never force connections that do not fit.

l. Regulators and pressure gauges provided for use with a particular gas must not be used on cylinders containing different gases.

m. Open cylinder valves slowly. Never use wrenches or tools except those provided or approved by the gas manufacturer.

n. Oxygen must be stored at least 20 feet from fuel gases such as acetylene, HPG, propane, etc., or a fire-resistant partition must separate the classes of gases.

o. The wrench used for opening the cylinder valve should always be kept on the valve stem when cylinder is in use.

p. Caps are provided for valve protection. Such caps are to be kept on cylinders except when cylinder is in use.

q. Do not tamper with the safety devices in valves or cylinders. Never attempt to repair or alter cylinders of valves.

r. Do not attempt to mix gases in cylinders. Close all cylinder valves when the cylinders are discarded as empty. This rule should be strictly enforced, including replacement of cylinder valve caps and marking or otherwise indicating that the cylinders are empty. Empty cylinders should be segregated from full cylinders and promptly returned to the supplier.
s. Pressure regulators and gauges must be compatible with the cylinder valves, CGA Valve Connection System, i.e., the use of adapters is prohibited.

Note: All oxygen valves, gauges, regulators, pipes, and fittings must be scrupulously free of oil, grease, graphite, or any other oxidizable substance. Such pipes, gauges, fittings, etc., must at no time be allowed to come to an elevated temperature due to proximity to welding operations, burners, or other heat sources.

Although oxygen is quite safe under normal temperature and pressures, elevated temperature and/or pressures or contamination may result in the rapid and violent oxidation of normally non-reactive materials. For example, a regulator used on oil-pumped nitrogen could produce a serious explosion if subsequently used for oxygen due to the oil residue.

2. FLAMMABLE GASES -- ACETYLENE

   a. Cylinders containing flammable gases are not to be stored near highly flammable solvents, combustible waste material, and similar substances, or near unprotected electrical connections, gas flames, or other sources of ignition.

   b. Reserve stocks of cylinders containing flammable gases are not to be stored with cylinders containing oxygen. Within buildings, stored oxygen and fuel cylinders shall be separated by a minimum of 20 feet or there must be a fire-resistant partition between the oxygen and fuel gas cylinders.

3. TOXIC AND POISON GASES

   a. Personnel handling and using poison gases shall have available for immediate use gas masks or self-contained breathing apparatus of a design approved by the U.S. Bureau of Mines for the particular service desired. Such equipment should be located convenient to the place of work but shall be kept out of the area most likely to be contaminated.

   b. The Interstate Commerce Commission requires the poison gas label on cylinders containing the following materials:

      Bromo-acetone
      Cyanogen
      Cyanogen Chloride (containing less than 0.9% water)
      Diphosgene
      Ethyldichloroarsine
      Hydrocyanic Acid
      Lewisite
      Methylidichloroarsine
      Mustard Gas
      Nitric Oxide
      Nitrogen Peroxide (Nitrogen Tetroxide)
Phenylcarbylamine Chloride
Phosgene

c. Persons using these or other poison gases are advised to seek and secure pertinent information for proper handling from the manufacturer.

d. Toxic and poisonous gases must be used only in fume hoods or gas cabinets vented directly outdoors. Appropriate first aid and antidote information and supplies must be provided and clearly marked at room entrances.

e. Piping systems for flammable gases, toxic gases, and oxygen must be approved by the Safety Office.

4. Liquid Gases

Large vacuum insulated containers of pressurized liquid oxygen, nitrogen, argon, or helium must be transported, stored, and used in an upright position. The extreme low temperature of the contents necessitates an upright position of the cylinders to permit venting of vapors periodically to maintain safe internal pressures. The instructions of the supplier with regard to handling and use of these cylinders should be followed.

**TRANSPORTATION AND HANDLING**

1. STANDARD

The handling and transportation of compressed gases will be in accordance with Department of Transportation regulations and recommendations published by the Compressed Gas Association which have been incorporated by reference in the Occupational Safety and Health Act.

2. TRANSPORTING

   a. Gas cylinders must have the valve protection cover cylinder cap in place while being transported (inter- and intra-building transport).

   b. Motor vehicles used to haul compressed gas cylinders shall be equipped with racks or other means of securing the cylinders.

   c. Cylinders (or dewars) containing liquefied hydrogen or toxic gases shall be transported in vehicles that are not enclosed.

3. HANDLING

   a. Vehicles must have the hand brakes set and precautions taken to prevent movement of the vehicle during loading and unloading of compressed gas cylinders.
b. Smoking is prohibited during loading, unloading, and hand transportation of flammable gases.

c. Dollies or specially designed hand trucks (equipped with safety straps or chains) shall be used for transfer of compressed gas cylinders from loading area to shop or laboratory or other within-building transfers.

d. Compressed gas cylinders must be securely supported at all times. Cylinders must not be left "free-standing" at anytime, e.g., cylinders unloaded from truck to loading dock must be secured until placed on a hand truck for delivery within the building.

e. Empty cylinders may contain appreciable residual gas and in any event are likely to cause injury if knocked over; therefore, empty cylinders shall be handled and transported in the same manner as charged (full) cylinders.

(Questions not answered in this section should be directed to the Safety Office.)

Use and Storage

1. STANDARDS

The use of compressed gases on campus will be in accordance with recommendations published by the Compressed Gas Association. The following rules summarize a few of the basic guidelines for the use and storage of compressed gases.

2. SUPPORT REQUIRED

Compressed gas cylinders must be supported at all times, whether full or empty. Acceptable methods of support include:

   a. Wall mounted or bench mounted gas cylinder brackets;

   b. Chains or belts anchored to walls or benches;

   c. Freestanding dollies or carts designed for gas cylinders and equipped with safety chains or belts.

1. VALVE PROTECTIVE COVER

Gas cylinders must have the valve protection cover in place except when in use.

   a. A cylinder connected to a piece of equipment and properly supported is considered to be in use.
b. The pressure regulators must be removed and valve protection covers replaced before moving cylinders even though the cylinders are secured to a dolly or hand truck, e.g., acetylene and oxygen cylinders used for cutting, brazing, etc., may not be transported with any regulators attached to the cylinders.

2. SMOKING

Smoking is not permitted in the area where flammable gases are used or stored.

3. UPRIGHT

Gas cylinders must be used in an upright position and clamped securely at all times. Due to the extreme hazards created by using certain cylinders in a horizontal position (e.g., acetylene), approval must be obtained from the Safety Office for use of cylinders in any position other than vertical, with the valve up.

4. MOVEMENT OF CYLINDERS

Appropriate dollies or hand trucks must be used to move cylinders weighing more than 50 pounds. Movement by spinning, sliding, rolling, etc., is prohibited. For movement within shops and laboratories, cylinders weighing less than 50 pounds may be carried if desired.

FLAMMABLE AND COMBUSTIBLE LIQUIDS

A. DEFINITIONS

1. Boiling Point: Boiling point of a liquid at 14.7 psi.

2. Container: Any can, barrel, or drum.

3. Closed Container: A container sealed by a lid or other device so that neither vapor nor liquid can escape from it at ordinary temperatures.

4. Fire Area: Area of a building separated from the remainder of the building by construction having a fire resistance of at least one hour.

5. Flashpoint: The minimum temperature at which a liquid gives off a vapor within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid.
6. Combustible Liquid: Any liquid having a flashpoint above 100 deg. F. Combustible liquids shall be divided into two classes:
   a) Class II: Liquids with flashpoints at or above 100 deg. F and below 140 deg. F.
   b) Class III: Liquids with flashpoints at or above 140 deg. F. Class III liquids are further subdivided into two subclasses but only Class IIIA is covered in these standards.
      Class IIIA: Liquids with flashpoints above 140 deg. F. and below 200 deg. F.

7. Flammable Liquid: Any liquid with a flashpoint below 100 deg F. Flammable liquids are divided into 3 classes:
   a) Class IA: Liquids having a flashpoint below 73 deg. F. and a boiling point below 100 deg. F.
   b) Class IB: Liquids having a flashpoint below 73 deg. F. and a boiling point above 100 deg. F.
   c) Class IC: Liquids having a flashpoint above 73 deg. F. and a boiling point below 100 deg. F.

8. Portable Tank: A closed container having a liquid capacity over 60 US gallons and not intended for a fixed installation. The maximum capacity shall not be over 660 gallons for flammable and combustible liquids.

9. Safety Can: An approved container of not more than 5 gallon capacity with a spring closing lid and spout cover and so designed that it will relieve internal pressure when subjected to fire exposure.

B. TANK STORAGE

1. The minimum separation between a liquefied petroleum gas container and a flammable or combustible liquid storage tank shall be 20 feet.

2. Every above ground storage tank shall have some sort of construction or device that relieves excessive internal pressure caused by exposure to fire.

3. The area surrounding a tank shall be provided with a drainage system terminating in vacant land or other area or impounding basin. The termination area and the route of drainage shall be located so that, if ignited the fire, it will not seriously expose tanks or adjoining property.

C. CONTAINER AND PORTABLE TANK STORAGE
1. Only DOT approved containers and portable tanks shall be used.

2. Each portable tank shall be provided with one or more devices installed in the top for emergency venting in case of fire.

3. Flammable and combustible liquid containers shall be in accordance with the following table (OSHA 1910.106 Table H-12):

<table>
<thead>
<tr>
<th>Container Type</th>
<th>Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass or approved plastic</td>
<td>1 pt, 1 qt, 1 gal, 1 gal, 1 gal</td>
</tr>
<tr>
<td>Metal (other than DOT drums)</td>
<td>1 gal, 5 gal, 5 gal, 5 gal, 5 gal</td>
</tr>
<tr>
<td>Safety Cans</td>
<td>2 gal, 5 gal, 5 gal, 5 gal, 5 gal</td>
</tr>
<tr>
<td>Metal Drums (DOT approved)</td>
<td>60 gal, 60 gal, 60 gal, 60 gal, 60 gal</td>
</tr>
<tr>
<td>Approved Portable Tanks</td>
<td>660 gal, 660 gal, 660 gal, 660 gal, 660 gal</td>
</tr>
</tbody>
</table>

4. Storage cabinets shall be labeled in conspicuous lettering, "Flammable - Keep Fire Away."

5. The design and construction of storage cabinets shall meet the requirements of OSHA Standard 1910.106(d)(3).

6. Not more than 60 gallons of Class I or Class II liquid, not more than 120 gallons of a Class III liquid may be stored in a storage cabinet.

7. The maximum quantity of flammable or combustible liquids that may be stored for incidental use outside of an approved storage cabinet or an inside storage room in a building or fire area is as follows:

   a) 25 gallons of a Class IA liquid in containers.
   b) 120 gallons of IB, IC, II, or III liquids in containers.
   c) 660 gallons of IB, IC, II, or III liquids in a single portable tank.

   NOTE 1: This standard does not apply to paints, varnishes, and similar mixtures used for painting and maintenance when not kept in excess of 30 days.

   NOTE 2: An inside storage room must meet the requirements of OSHA Standard 1910.106(d)(4).

8. Storage of flammables and combustibles in buildings used for classrooms and offices is prohibited except where required for maintenance, equipment operation, or laboratory use. Such storage shall be kept in closed metal containers stored in a storage cabinet or in safety cans.

9. Storage of Class I liquids in a building basement is not permitted.

D. INCIDENTAL USE OF FLAMMABLE AND COMBUSTIBLE LIQUIDS
1. Flammable liquids shall be kept in covered containers when not actually in use.

2. Where flammable or combustible liquids are used, means shall be provided to dispose of spills and leakage promptly and safely. Contact Safety Office for specific instructions.

3. Class I liquids may be used only where there are no open flames or other sources of ignition within the possible path of vapor travel.

4. Flammable or combustible liquids shall be transferred from one container to another only by a closed piping system, from safety cans, or by gravity through an approved self-closing valve.

5. Precautions shall be taken to prevent the ignition of flammable vapors when transferring flammable liquids. Sources of ignition include open flame, smoking, hot surfaces, frictional heat, sparks, etc. Flammable and Combustible Liquids

6. Class I liquids shall not be dispensed into containers unless the nozzle and container are electrically interconnected. When the fill stem is bonded to the container by a means of a bond wire, the requirements of this standard are met.

E. SERVICE STATION

1. No delivery of any Class I liquids shall be made into any portable container unless the container is made of metal or other approved material, has a tight closure with a screwed cover or spring cover, and is fitted with a spout or is so designed that the contents can be poured without spilling. A safety can is recommended for this purpose.

2. A clearly identified and easily accessible switch or circuit breaker shall be located at a location remote from the dispensing devices to shut off power to all dispensing units in the event of an emergency.

3. Only listed devices shall be used for dispensing Class I liquids. No such device shall be used if it shows evidence of having been dismantled. Devices installed after 1978 must contain evidence of listing so located that any attempt to dismantle the device will result in visible damage to the listing evidence.

4. Class I liquids shall not be dispensed by pressure from drums, barrels, or similar containers. Approved pumps taking suction through the top of the container or approved self-closing faucets shall be used.

5. Dispensing units, except those attached to containers shall be mounted on a concrete island or protected against collision damage.
6. Vent pipes from underground tanks storing Class I liquids shall be so located that the discharge point is outside of buildings, higher than the fill pipe opening, and not less than 12 feet above the adjacent ground level.

HAZARD COMMUNICATION STANDARD

LEGAL REQUIREMENTS

The provisions of the NC OSHA Hazard Communication Standard require employers to provide employees with information concerning the hazards associated with the chemicals in their workplace. This standard requires a written hazard communication program, container labels, and inventory of chemicals, area warning signs, material safety data sheets, and chemical safety training and information sessions.

RESPONSIBILITIES

For Plant Facilities shops, instrument shops, chemical storerooms, and other department functions that use or store hazardous chemicals, the Department Head or his/her designee has responsibility to ensure that labels are proper, that material safety data sheets are obtained and maintained, that chemical safety training is provided, and that the inventory of the hazardous chemicals used or stored in the work area is readily available to employees.

The Safety Office will coordinate implementation of the Hazard Communication Standard and will assist Departments in obtaining material safety data sheets and in conducting general safety training and workplace hazard communication inspections.

CHEMICAL HAZARD COMMUNICATION PROGRAM

This document shall serve as the written Chemical Hazard Communication Program for the School. It is to be readily available to employees upon request.

DEFINITION OF HAZARDOUS CHEMICALS

The requirements of the Chemical Hazard Communication Program apply to chemicals with one or more of the following hazardous properties: Physical Hazards: combustible, flammable, explosive, reactive, pressurized (compressed gases); Health Hazards: toxic, carcinogenic, or corrosive, irritant, and sensitizing. A chemical is considered to be carcinogenic if (a) it has been
evaluated by the International Agency for Research on Cancer (IARC), and found to be a carcinogen or potential carcinogen; or (b) it is listed as carcinogen or potential carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP); or, (c) it is regulated by OSHA as a carcinogen.

**LABELS AND OTHER FORMS OF WARNING**

Chemical manufacturers, importers, or distributors are required to ensure that each container for hazardous chemicals is labeled with the identity of the hazardous chemical(s); appropriate hazardous warnings; and the name and address of the chemical manufacturer, importer or other responsible party. Departments are to ensure that chemicals they receive are labeled with the identity of the hazardous chemicals(s) and appropriate hazard warnings. This includes chemicals received from the or other campus storerooms.

Warning signs are to be displayed in areas where there may be airborne hazardous chemicals. This would include areas such as welding; operation of internal combustion engines, indoor application of paint, or adhesives; grinding and sanding operations; and removal of asbestos containing materials. The person responsible for producing the above potentially hazardous environments is responsible for posting the area warning signs. All pipes containing hazardous chemicals are to be labeled.

**CHEMICAL INVENTORY**

A current inventory of all hazardous chemicals present in the workplace is to be maintained. The inventory should be kept with the MSDS file.

**MATERIAL SAFETY DATA SHEETS (MSDS)**

Chemical manufacturers are required to send a Material Safety Data Sheet (MSDS) with the initial shipment of a chemical. The MSDS contains detailed information about physical and chemical properties of the chemical, the physical and health hazards, safe handling precautions, spill clean-up procedures, emergency and first aid procedures.

Departments are to maintain all MSDSs received and to make them readily available to their employees in a file or notebook. If an MSDS for a chemical is not received, the chemical manufacturer or distributor should be contacted to obtain the MSDS. Efforts to obtain the MSDS are to be documented by either a telephone log or with copies of correspondence. Assistance in obtaining MSDSs is available from the Safety Office.

**INFORMATION AND TRAINING**
All employees who work in areas where there are hazardous chemicals are to receive documented chemical safety training. This training is to be done at the time of initial employment and before a new hazard is introduced in the workplace.

Hazardous chemical safety training is to include the following essential information:

- Interpreting information on labels and MSDSs
- 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
- First Aid
- Spill clean-up and emergency procedures
- Waste disposal

The Safety Office has developed training programs including first aid, blood borne pathogens, fire safety, safety orientation and evacuation procedures. The Safety Office should be contacted to schedule these programs.

In addition to general chemical safety training it is the responsibility of the supervisor to provide training for the specific chemicals used or stored in the work area and whenever a new hazard is introduced. Training should be documented by keeping records of when training sessions were held, who attended, and the contents/outline of the training.

**NON-ROUTINE TASKS**

All jobs or projects involving hazardous chemicals that are being done for the first time or done periodically shall be considered non-routine tasks.

**CONTRACTORS**
Contractor employees are to be informed of hazardous chemicals that they may encounter at their work location on campus and provided with the name of the person(s) from whom chemicals safety information is available. Contractors who use hazardous chemicals are to maintain a list of the chemicals and the MSDSs at the work location on campus.

**TRADE SECRETS**

In some cases, the chemical manufacturer may withhold the complete chemical identity from the MSDS if it is a trade secret. However, the chemical and physical properties must be disclosed on the MSDSs. Trade secret information will be available to health professionals for medical treatment of exposed personnel, assessment of hazards and employee exposures, and selection of appropriate safety precautions.

**MATERIALS HANDLING AND STORAGE REQUIREMENTS**

**PURPOSE**

The following requirements are designed to eliminate or reduce injuries involving material handling, whether performed manually or through automation.

**SCOPE**

These requirements shall apply to all schoolwork areas where materials are handled or stored in the workplace. Nothing in these requirements shall relieve the school from the compliance requirements of other regulatory agencies whether federal, state or local.

**MATERIALS HANDLING METHODS**

1. Inspect materials for slivers, jagged edges, burrs, rough or slippery surfaces.

2. Get a firm grip on the object.

3. Keep fingers away from pinch points, especially when setting down materials.

4. When handling lumber, pipe, or other long objects, keep hands away from the ends to prevent them from being pinched.

5. Wipe off greasy, wet, slippery, or dirty objects before trying to handle them.
6. Keep hands free of oil and grease.

In most cases, gloves, or other hand protectors must be used to prevent hand injuries.

When opening a wire-bound bale or box, employees must wear eye protection as well as stout gloves, and take special care to prevent the ends of the bindings from flying loose and striking their face or body. The same precaution applies to coils of wire, strapping, or cable. Use cutters that clamp ends when cut.

If material is dusty or toxic, follow School guidelines for hazardous substances.

**LIFTING AND CARRYING**

Before employees are assigned to jobs requiring heavy and/or frequent lifting, make sure they are physically suited for the job.

If a load is thought to be more than one employee can handle, assign two employees to the operation or supply materials handling equipment. Instruct all employees in the proper way to lift.

**PROPER WAY TO LIFT**

Here are six steps to safe lifting:

1. Keep feet parted - one alongside, one behind the object;
2. Keep back straight, nearly vertical; bend at the knees instead of the waist.
3. Tuck your chin in;
4. Grip the object with the whole hand;
5. Tuck elbows and arms in;
6. Keep body weight directly over feet.

When bulky objects are to be handled or when objects are to be carried on the shoulder, employees shall be trained in these techniques for special situations.

**HANDLING BARRELS AND DRUMS**

When possible when moving barrels and drums they should be moved by using a dolly or other mechanical devices.
If two employees are assigned to up-end a full drum, they should use the following procedures:

1. Stand on opposite sides of the drum and face each other;

2. Grasp both chimes (rolled edges at both ends of the barrel) near their high points, lift one end; press down on the other;

3. As the drum is up-ended and brought to balance on the bottom chime, release the grip on the bottom chime and straighten the drum.

When two employees are to overturn a full drum, they should use this procedure:

1. Make sure they have enough room. Cramped quarters can result in badly injured hands.

2. Both stand near each other, facing the drum. They grip the closest point of the top chime with both hands. Resting their palms against the side of the drum, they push until the drum balances on the lower chime.

3. They step forward a short distance, and each employee releases one hand from the top chime in order to grip the bottom chime. They ease the drum down to a horizontal position until it rests solidly on its side.

To roll a barrel or drum, an employee should push against the sides with his/her hands. To change direction of the roll, he/she should grip the chime, not kick the drum with his/her feet.

To lower a drum or barrel down a skid, turn it and slide it end-wise. Do not roll it. To raise a drum or barrel up a skid, two employees stand on opposite sides of the skid (outside the rails, not inside, and not below the object being raised). They roll the object up the incline. Handling drums and barrels can be hazardous, even when using utmost care. Special handling equipment and tools must be made available to make the job safer and easier.

**EQUIPMENT AND HANDLING**

1. **HAND TRUCKS**

A truck designed for a specific purpose should be used only for that purpose; a curved bed truck should be used only for handling drums or other circular materials.

Foot brakes can be installed on wheels of two-wheeled trucks so that operators need not place their feet on the wheel or axle to hold the truck.
Handles should have knuckle guards.

Four-wheeled truck operations follow rules similar to those for two-wheeled trucks. Extra emphasis must be placed on proper loading. Four-wheeled trucks must be evenly loaded to prevent tipping. They are to be pushed rather than pulled, except for a truck that has a fifth wheel and a handle for pulling. Trucks shall not be loaded so high that operators cannot see where they are going.

2. POWERED HAND TRUCKS

The truck should be equipped with a dead-man control, wheel guards, and an ignition key that can be taken out when the operator leaves the truck. No employees are to use powered hand trucks unless they have been trained. Training should include the operating instructions given in the truck manufacturer’s manual. General instruction include:

a. Do not operate the truck with wet or greasy hands.

b. Lead the truck from right or left of the handle. Face direction of travel. Keep one hand on the handle.

c. When entering an elevator, back the truck in to keep from getting caught between the handles and elevator walls. Operate the truck in reverse whenever it must be run close to a wall or other obstruction.

d. Always give pedestrians the right of way.

e. Stop at blind corners, doorways, and aisle intersections to prevent collisions.

f. Never operate the truck faster than normal walking pace.

g. Only handle flammable or corrosive liquids when they are in approved containers.

h. Never allow additional employees to ride the truck, unless it is specifically designed to accommodate an additional person besides the driver.

i. Do not indulge in horseplay.

3. POWER TRUCKS (FORKLIFTS)

Only qualified operators who have received training in safe operation and who are duly authorized are permitted to drive power trucks. According to OSHA requirements, training programs should include safe operating practices, as well as actual supervised experience driving over a training course. Emphasis must be on safety awareness. Trained and authorized drivers should have badges or other visual identification or authorization to drive, and they should display these at all times.
Trucks must be maintained according to their manufacturer's recommendations.

All Trucks fabricated on or after February 15, 1972, must meet the design and construction requirements established in the American National Standard for Powered Industrial Trucks. Modifications and additions which affect capacity and safe operation shall not be performed by the owner or user without the manufacturer's prior written approval. All nameplates and markings must be accurate, in place, and legible.

a. Battery-charging installations must be located in areas designated for that purpose. They must have facilities for flushing and neutralizing spilled electrolyte, for fire protection, protecting charging apparatus from damage by trucks, and for adequate ventilation for dispersal of gases or vapors from gassing batteries. Racks used for supporting batteries must be made of materials non-conductive to spark generation or be coated or covered to achieve this objective.

An overhead hoist, or equivalent equipment, must be used for handling batteries. Reinstalled batteries must be properly positioned and secured in the truck.

A carboy tilter or siphon must be used for handling electrolyte. Acid must always be poured into water; water must NOT be poured into acid (it overheats and splatters).

During charging operations, vent caps must be removed to avoid electrolyte spray. Make sure that vent caps are functioning. Battery or compartment cover or covers must be open to dissipate heat.

Precautions must be taken to prevent open flames, sparks, or electric arc in battery-charging areas and tools and other metallic objects must be kept away from the tops of uncovered batteries.

Employees charging and changing batteries shall be authorized to do the work, trained in the proper handling, and required to wear protective clothing, including face shields, long sleeves, rubber boots, aprons, and gloves.

Smoking is prohibited in the charging area. "No Smoking" signs must be posted.

b. Internal Combustion Engines

All internal combustion engines must be turned off before refueling. Refueling should be in the open or in specifically designated areas, where ventilation is adequate to carry fuel vapors away.

Smoking must not be permitted in the service areas and signs must be posted to that effect.
c. Hazardous Atmospheres

When trucks are operated in enclosures, the concentration of carbon monoxide must not exceed the permissible exposure limits specified by local or State laws, and in no case should the time-weighted average concentration ever exceed 35 ppm (part per million) for an 8-hour exposure.

Some power trucks are designed for use in locations where flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures, or which are hazardous because of the presence of combustible dust or easily ignitable fibers. Only trucks approved and marked for such areas are to be permitted in these areas.

d. General Rules for Driving Power Trucks (Forklifts)

1) All traffic regulations must be observed, including site speed limits.

2) Safe distances must be maintained. Approximately three truck lengths from the truck ahead must be maintained so that an emergency stop, if necessary, can be made in the clear distance ahead. Trucks must be kept under control at all times.

3) Drivers are required to slow down and sound horns at cross aisles and other locations where vision is obstructed.

4) Railroad tracks must be crossed diagonally whenever possible, and parking within 8 feet of the center of the railroad track bed is prohibited.

5) Drivers are required to look in the direction of travel, and to keep a clear view of the path of travel at all times. Never back up without looking.

6) Grades are to be ascended or descended slowly and loaded trucks must be driven with the load upgrade on grades in excess of 10 percent. Unloaded trucks must be operated on all grades with load engaging means downgrade. On all grades, load and load-engaging means shall be tilted back if applicable and raised only as far as necessary to clear the road surface.

7) Under all travel conditions, a truck must be operated at a speed that will permit it to be brought to a stop in a safe manner.

8) Dockboards or bridgeplates are to be driven over carefully and slowly and only after they have been properly secured. Their rated weight capacity must never be exceeded. When loading or unloading highway trucks, be sure the brakes are preset and wheel chocks placed under the rear wheels to prevent the trucks from rolling when they are boarded by power trucks.
9) Approach elevators slowly and stop at least 5 feet from gate. Once on the elevator, neutralize the controls, set the brakes, shut off power, and then step off the truck.

10) While negotiating turns, speed must be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. When maneuvering at a very low speed, the hand steering wheel must be turned at a moderate even rate.

11) Never run over loose objects on the roadway surface.

12) Only stable or safely arranged loads shall be handled and caution must be exercised when handling off-center loads which cannot be centered.

13) Only loads within the rated load capacity of the truck shall be handled, and long or high (including multiple tiered) loads which may affect capacity must be adjusted.

14) Load-engaging means must be placed under the load as far as possible and the mast shall be carefully tilted backward to stabilize the load.

15) Extreme care must be exercised when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated is not permitted except to pick up a load. Elevated loads must not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.

16) When operating in close quarters, keep hands where they cannot be pinched between steering controls and projecting stationary objects. Keep legs and feet inside the guard or the operating stations of the truck.

17) Do not use the reverse control on electric trucks for braking.

18) Park trucks only in designated areas—never in an aisle or doorway, or obstructing equipment or material. Fully lower the load engaging means, neutralize the controls, shut off the power, and set the brakes. Remove the key (or connector plug) when leaving a truck unattended. If the truck is parked on an incline, block the wheels.

MATERIALS STORAGE

1. WAREHOUSE STORAGE
When planning materials storage, make sure that materials do not obstruct fire alarm boxes, sprinkler system controls, fire extinguishers, first-aid equipment, lights, and electric switches. All exits and aisles must be kept clear at all times and shall be appropriately marked.

No Smoking signs must be posted where necessary throughout the warehouses.

Maximum safe load limits of floors within buildings and structures, in pounds per square foot, shall be conspicuously posted in all storage areas, except for floors or slabs on grade. Maximum safe loads shall not be exceeded.

2. OPEN YARD STORAGE

Plan open yard storage to have driveways between and around combustible storage piles at least 15 feet wide and maintained free from accumulation of rubbish, equipment, or other materials. Driveways should be spaced so that a maximum grip system unit of 50 feet is produces. Combustible materials must be piled with due regard to the stability of piles and in no case higher than 20 feet.

3. LUMBER

For outdoor storage of lumber, firm ground, without yielding soil, must be selected. The area must be well drained to remove surface water and prevent softening of the ground. A periodic check should be made to determine if there is any shifting of material.

For long-time piling, substantial bearings or dunnage is recommended. Concrete with spread footing extending below the frost line is a good method.

For temporary piling, heavy timbers may be used to support the crosspieces. This type of support must be inspected periodically for deterioration which may cause the pile to list dangerously.

If lumber must be handled manually to or from a higher pile, the pile must be not more than 16 feet high, and safe means of access to the top, such as a ladder, must be provided. Tie pieces are needed not only to stabilize the pile, but also to provide air circulation. Tie pieces must not extend into walkways, but are to be cut flush with the pile.

4. BAGGED MATERIAL

Bagged material must be cross-tied with the mouths of the bags toward the inside of the pile. When the pile is 5 feet high, it must be stepped back one row for each additional 3 feet of height. A pile of sacks must never be undermined by the removal of sacks from lower rows.
5. **PIPE AND BAR STOCK**

Pipes and bar stock must be stored on specially designed sills or racks, and shall be safety blocked to prevent rolling or spreading. When moving these materials, employees should work from the end of the pile as much as possible. Employees must be instructed to never try to stop rolling or sliding pipes or bar stock with their hands or feet.

6. **SHEET METAL**

Sheet metal must be handled with leather gloves or gloves with metal inserts. All bundles must be separated by strips of wood to facilitate handling when the material is needed for production and to lessen chances of shifting or sliding of the piles of material.

7. **BRICK AND MASONRY BLOCKS**

Brick stacks shall not be more than 7 feet in height. When a loose brick stack reaches a height of 4 feet, it must be tapered back 2 inches in every foot of height above the 4-foot level.

Brick must never be stacked for storage purposes on scaffolds or runways. This does not prohibit normal supplies on bricklayers’ scaffolds during actual bricklaying operations.

Masonry blocks should be limited to a stacked pile height of 6 feet. If blocks are stacked higher than 6 feet, the stack shall be tapered back one-half block per tier above the 6-foot level.

**VEHICLE OPERATION**

**SCOPE**

The school requires that all state owned vehicles be safely operated and maintained in good condition. Adequate documented driver training will be required of all school personnel who operate state vehicles. All motor vehicles and operators will adhere to the North Carolina Motor Vehicles Laws, NC Motor Fleet Management Rules & Regulations, NCSSM Traffic & Parking Rules & Regulations, Occupational Safety & Health Act, and the School Safety Manual.

**REMINDER**

In 1985, North Carolina passed a law, which requires that all front seat passengers of a motor vehicle wear seat belts. This law will be in effect when state vehicles are used either on or off campus.
USE OF SCHOOL VEHICLES

Individual departments are responsible for insuring that state vehicles are operated by state employees for only those duties and functions within the scope of their employment. Every operator of a motor vehicle will possess a valid North Carolina driver's license at all times. It is the supervisor's and/or individual issuing assigned vehicles to insure that this requirement is followed, and that all restrictions stated on the driver's license are followed. It is also this supervisor's responsibility to notify the Safety Officer if a vehicle operator's driver's license is not valid, or of any restrictions that cannot be successfully accomplished. School personnel who operate a state-owned vehicle will be required to provide documentation of possessing a valid North Carolina driver's license by supplying a photocopy of their driver's license to their supervisor who will forward it to the campus receptionist.

School owned vehicles are strictly forbidden to be used to conduct personal business or other activity, which lies outside the scope of employment.

OPERATION OF SCHOOL VEHICLES

Individual departments are responsible for insuring that all vehicle operators receive adequate training in the safe operation of their motorized vehicle. A valid North Carolina driver's license will be sufficient for operation cars and vans with the appropriate classification. In cases where the driver will be operating such vehicles as heavy machinery, tractors, golf carts, lawn mowers, etc., the proposed driver will demonstrate a proficiency in safely operating the assigned vehicle. Documentation of this certification will be filed with the photocopy of their driver's license with the supervisor. Training will be provided by the supervisor or other responsible party.

It is the responsibility of all vehicle operators to drive in a safe manner and to conform to all applicable laws and regulations. Additionally, operators are responsible for the conduct and actions of their passengers. The following guidelines should be used to facilitate safe driving practices:

1. USE SEAT BELTS AND OBEY THE CAMPUS-WIDE SPEED LIMIT OF 20 MPH.
2. Utilize mechanical or proper hand signals at all times to inform others (pedestrians and other vehicles) of your intentions.
3. Do not engage in any activity involving the use of your hands, which are not necessary to operate the vehicle (eating, drinking, reading, etc.).
4. The wearing of radio headsets are forbidden and vehicles equipped with radios will not be played at a volume which would prevent the operator from hearing alarms, sirens, or other warning devices.
5. Do not engage in horseplay while in a motor vehicle.

6. Follow guidelines for backing as given elsewhere in this standard.

7. Securely park the vehicle by parking properly in designated areas only, turning the wheels toward the curb if parked on an incline, making sure the transmission is in "park" (automatic) or "in gear" (standard), turning the ignition off and removing the key, and finally setting the brake.

8. Securely fasten all doors and tailgate, when applicable, when vehicle is in operation.

9. Affix a red flag to the end of any load that extends four feet or more beyond the hauling bed of a vehicle.

10. All loads will be secure and should not exceed the vehicle's width.

11. Utilize proper loading docks.

12. Utilize traffic cones and/or signs, if the vehicle must be parked in a travel lane for a special purpose. Cones and signs must be placed at a sufficient distance preceding the vehicle to warn oncoming traffic, and provide a smooth flow around and beyond the restricted area.

13. Ensure that installed barriers between the passenger and cargo areas are secure in the event that the load shifts during transport.

14. Report all road hazards such as missing grates or manhole covers, potholes, or defective traffic signs to the Campus Resource Office or the Head of Plant Facilities.

15. Always be aware of and yield to pedestrians, bicyclists, joggers, etc.

SPECIAL PRECAUTIONS FOR PASSENGERS

1. Absolutely only one passenger per seat. Do not have passengers sitting on another person's lap or have two or more people in a seat designed for one.

2. Prohibit any passenger to ride in a truck bed or trailer being towed with legs hanging over the edge.

3. Require each passenger in the bed on a truck to be seated at all times. Passengers are not allowed to sit on the tailgate or sides of the bed nor extend their arms or legs beyond the vehicle while moving.
4. Prohibit any passenger from sitting between "bucket" seats, on the engine cowling, or placing a chair between seats while vehicle is moving.

**MAINTENANCE**

**ROUTINE MAINTENANCE**

Drivers of assigned vehicles will check the following items routinely to insure reliable operation: proper oil level, water and antifreeze for radiator, battery, belt wear, proper tire inflation, and windshield washer fluid. This inspection should be performed at least weekly or when filling vehicle with fuel.

Other items, which should be inspected on a daily basis, are lights, turn signals, mirrors, windshield wipers, brakes, horn, and steering system. All deficiencies shall be reported immediately to the Campus Resource Office.

**PREVENTION MAINTENANCE**

The Campus Resource Office will schedule vehicles for preventive maintenance. If scheduled maintenance is not performed within plus or minus 500 miles, the vehicle assignment to the school is subject to termination.

**ANNUAL SAFETY INSPECTION**

State law requires that all motor vehicles be annually inspected for safety. The permanently assigned driver or department is responsible to insure that all vehicles display a valid inspection sticker.

**ACCIDENT REPORTING**

General procedure to follow when involved in an accident:

1. Contact all applicable departments given above; however, do not leave the scene or move the vehicle until the law enforcement officer arrives. If necessary, have a passerby notify the local law enforcement agency for you.

2. If accident obstructs traffic flow, direct traffic around immediate area until help arrives.
3. Assist injured persons but DO NOT attempt to move them unless there is a clear and immediate life-threatening danger. Carelessly moving an injured person could cause additional bodily harm.

4. Contact your supervisor as soon as possible.

5. Obtain the names of any witnesses and identify these persons to the officer in charge.

6. Notify Security if you hit an unattended vehicle, and remain at the scene until dismissed by attending officer.

**ENFORCEMENT**

Enforcement of this policy is the responsibility of each department having assigned motor vehicles, the motor fleet management representative, the Campus Resource Office, supervisor's having employees with vehicle assignments and all operators. Violations of this policy will result in disciplinary action.

**DRIVING HISTORY**

A driving history of all persons will be conducted prior to employment, transfer or promotion into positions that require the operation of a school vehicle. Those persons whose state driving history or prior school record reveal the following will NOT be considered for positions which require an operator's license:

1. A conviction for driving while impaired (DWI) or a suspension or revocation of a driver's license within the past two years.

2. Conviction for traffic offenses totaling more than seven points based on the NC Division of Motor Vehicle Point System within the past two years.

3. Violation for traffic offenses at the school within the past two years, which resulted in a suspension or revocation of driving privileges.

**HOW TO AVOID BACKING ACCIDENTS**

The following is a reprint from the National Safety Council - 6th Edition, Defensive Driving Course. If the advice is followed, backing accidents would become as extinct as the brontosaurus.

"Backing accidents are preventable, and because of the hazards of backing, the defensive driver avoids backing wherever possible by planning his route to eliminate the need for it."

The defensive driver never backs around a corner; if necessary, he will drive around a block to avoid such danger. He does not back out of driveways or alleys when he can avoid it. Instead, he drives in and turns around so he can come out headfirst. When this is not possible, he backs in so that can head out. He knows it is safer to back out of traffic into a quiet area than to back into the traffic stream.

The defensive driver also is alert to the problems of backing when he parks, and finds backing out of traffic preferable to backing into traffic.

When backing is unavoidable, follow these rules:

1. Get the complete picture before you back, even if you have to get out and walk around your vehicle to do it. After getting the complete picture, start backing immediately, before the situation has a chance to change.

2. Back slowly.

3. Check both sides as you back. Use your outside mirrors, both left and right, as often as is necessary during the entire backing movement.

4. Do not depend entirely on mirrors to judge distance to the rear. Mirrors help you check clearances and enable you to spot pedestrians who may unexpectedly move into the path of your vehicle as you back, but they can be deceiving in measuring distance to the rear.

5. Before beginning to back a vehicle, blow the horn. This will alert other vehicles and pedestrians, bicyclists, jogger, etc., in the immediate area of your intentions.

One last comment concerning backing involves passengers. If you have one, ask him to exit the vehicle and assist you in guiding it backward. Many large companies apply this technique and have gotten super results from it. You will too but you have to practice it.

"Spotters" will be utilized in backing whenever visibility is impaired by vehicle, weather, physical conditions, load, etc. The "spotter" does not have to be a Plant Facilities employee.