

Facilities Operations & Services

SAFETY MANUAL 2006

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Part I: Introduction

A. Forward

The purpose of this manual is to establish a guide to promote safe working practices within the Division of Facilities Maintenance and Operations at Rutgers University.

The Facilities Maintenance and Operations Administration hold in high regard the safety, welfare and health of all persons on Rutgers University property, and will work toward maintaining a safe and healthful working environment.

Many believe that accidents just happen, but accidents are caused by unsafe acts or conditions and can be prevented by using good judgment. Workers are urged to be familiar with the contents of this manual, as it pertains to their particular work.

This manual contains common sense rules to help learn safe work practices. It is recommended that you practice them at all times until they become automatic. Only a diligent effort on everyone's part will prevent accidents and injuries.

B. Application

This manual is available to all employees of Facilities Maintenance and Operations (both management and hourly). Our goal is to create and maintain a continuing interest in safety and to establish procedures and guidelines that will assist the employees in maintaining a safety-conscious environment.

C. Reporting Unsafe Working Conditions

1. Reporting unsafe working conditions is every employee's responsibility.

2. If an emergency situation exists, such as a fire, release of toxic gases or other conditions requiring the use of police, fire or emergency services, the employee must immediately contact campus police at extension 6-911 from a university phone or 911 from a pay phone or cellular phone.
3. If an immediately dangerous working condition, a condition that is likely to cause serious injury or death, exists, the employee shall secure the area, notify other affected employee(s) or student(s), and immediately report the condition to his/her immediate supervisor. If the supervisor is unavailable, the employee must contact the next level supervisor within the employee must report the condition to REHS at extension 5-2550.
4. Custodians or other employees working off-hours or shift work must contact campus police, if his/her immediate supervisor is unavailable, at extension 2-7211 from a university phone if an immediately dangerous working condition exists.
5. Employees must immediately report all other unsafe or potentially unsafe working conditions to his/her immediate supervisor.
6. Supervisors are responsible for investigating, evaluating and taking appropriate, corrective measure(s) to eliminate unsafe working conditions. If the employee disagrees with the corrective measure(s) that were taken by his/her immediate supervisor or believes the unsafe-working condition is still present, he/she should notify the next level supervisor within his/her department. If the unsafe working condition is not corrected or the employee disagrees with the corrective measure(s) that was implemented by his/her department, the employee should report the condition to REHS at extension 5-2550.

Part II: Responsibilities

A. Department Responsibilities

1. Providing a healthy and safe working environment.
2. Ensuring required equipment, tools, personal protective equipment and training are provided.
3. Providing for pre-employment physical and placement for new employees.
4. Ensuring supervisors follow and enforce uniform safe work practices and procedures.
5. Resolving safety grievances impartially and fairly.

B. Supervisor's Responsibilities

The responsibility for a safety program rests with the department. The implementation of the department procedures is the responsibility of the department's supervisory personnel. Supervisors are directly responsible for:

1. Making sure each employee understands and accepts his/her personal responsibility for safety.
2. Instructing employees on the rules of safety that apply to the work you supervise.

3. Anticipating the risks that may arise from changes in equipment or methods and adjusting safety procedures accordingly.
4. Encouraging staff to discuss the hazards of their work.
5. Following up on safety instructions consistently, to be sure safety procedures are used. If necessary, enforcing safety rules by disciplinary actions.
6. Cooperating fully with those organizations concerned with safety and requesting assistance from REHS when necessary.
7. Correcting all equipment, machines or conditions found to be defective and a potential safety hazard to employees.
8. Investigating all accidents and near misses and completing detailed incident/accident reports.
9. Taking into consideration physician's advice to accommodate employee's work restriction(s) when issuing job assignment(s).
10. Scheduling mandatory safety meetings in the work unit.
11. Valuing staff ideas. They are a first-hand source of knowledge that will benefit any safety program.

C. Employee Responsibilities

1. Reporting all unsafe condition's, equipment and practices immediately, to your supervisor.
2. Reporting all unsafe working conditions is every employee's responsibility.
3. Reporting all Near Misses and Accident immediately.
4. Understanding your supervisor's instructions. If you do not know how to do the job safely, ask questions.
5. Do not begin tasks until all unsafe conditions have been corrected.
6. Using common sense rules to avoid accidents and injuries.
7. Never disconnect safety devices.
8. Obeying all posted safety signs.
9. Wearing proper safety equipment at all times.
10. Posting appropriate signage.
11. Knowing the chemical substance you are working with and, review the Material Safety Data Sheet.
12. Keeping your mind on your work and avoid daydreaming or horseplay. Lack of attention can cause accidents and injuries.

13. Informing supervision of any restrictions, (not cause of) that would interfere with job performance.

Part III: Personal Protection

A. Injury and First Aid

1. In an emergency, call RUPD at 6-911 for help and notify your department supervisor immediately. They have been trained on how to best handle various situations.
2. If the situation is life threatening, call for help immediately at 6-911. Stay with the injured person until help arrives. Talk with the person calmly and reassure them. Cover them to keep them warm.
3. If there is a chemical splash to the eyes or skin – rinse immediately with water and call the supervisor for assistance. Continue flushing the eyes and/or rinsing the skin for 30 minutes by the clock. A supervisor or co-worker should call Occupational Health at (732) 932-8254, for assistance while employee is flushing.
4. Non-emergency injuries at work are handled in the Occupational Health Department at the Hurtado Health Center on the College Avenue Campus. Inform your supervisor and call Occupational Health immediately at (732) 932-8254.
5. If the Health Center is not open, injured employees are referred to a local emergency department.
6. Know where the first aid kits are located for your department. Always keep them well supplied.
7. Training courses are available for first aid and CPR. Check with your department to see when they are held.

B. Fire Prevention and Safety

Under the authority of the New Jersey Division of Fire Safety, the Rutgers University Department of Emergency Services' Fire Safety Division is charged with the responsibility of enforcing the provisions of the New Jersey Fire Code. This Division has authority in the areas of fire safety regulations, policies and procedures. The Fire Safety Division is staffed with state certified fire inspectors who regularly inspect all university premises to assure compliance with fire safety regulations, test fire protection systems and equipment, and conduct employee training programs to familiarize staff with fire hazards and procedures to be followed in an emergency. Furthermore, employees are apprised of the fire hazards of the materials and processes with which they work during state-mandated Right-To-Know training.

Fire safety is an important part of our daily routine. During an emergency, proper action saves lives. For your safety, please familiarize yourself with these basic steps that pertain to employees on all university campuses, Marine Field Stations, Agricultural Field Experiment Stations and other facilities.

1. If you discover a fire or smell smoke, sound the building fire alarm. Know the location of fire stations and how they operate. Do not attempt to fight a fire due to the hazards associated with the products of combustion and the threat of a spreading fire.
2. Upon hearing a building fire alarm signal, which may be a bell, horn or voice message depending on the building you are occupying, immediately begin evacuation. Close the doors behind you. Use the nearest safe exit, but do not use elevators.
3. Leave the building and assemble in an area established by your supervisor, where you will not hinder the approaching firefighter and apparatus.
4. If caught in smoke or heat, stay low where the air is better and attempt to reach a safe exit or area of refuge.
5. Know the location of all exits from your building. All exits in university facilities are properly marked with illuminated exit signs and directional arrows.
6. If unable to leave your room or office due to heat or heavy smoke in the hallway, or due to physical disability, call University Police and give your exact location so firefighters can be directed to you.
7. Always use the universal emergency access number when contacting University Police in an emergency. Call 6-911 for emergencies.

Evacuation routes are posted in all resident halls, health centers, high-rise buildings in accordance with the provisions of the New Jersey Uniform Fire Code. All employees should be familiar with all exits from the building so that the *nearest safe exit* will be properly chosen in an emergency.

C. Personal Protective Equipment (PPE)

1. Supervisors are responsible for providing appropriate personal protective equipment (PPE), as required. Supervisors should contact REHS regarding any questions or concerns about the proper selection, use and maintenance of PPE.
2. Employees are responsible for the proper use, care and maintenance of PPE.
3. All PPE must be properly maintained, used, stored and inspected to manufacturer's specifications. All damaged, defective or worn PPE must be repaired or replaced by a qualified person.
4. Eye protection must be worn when exposed to eye or face hazards from flying particles, liquid chemicals, acids or caustic liquids, gases or vapors or potentially injurious light radiation. Choosing and using the correct eye protection is essential. Safety glasses are used to protect you from flying particles and should be equipped with side shields. Safety goggles provide additional protection for the entire eye area. Safety goggles can also be used for flying particles and are required when using wet chemicals. Face shields are not in themselves protective eyewear, but are used in conjunction with safety glasses or goggles. Face shields provide additional protection when exposed to chemicals, heat or glare hazards. If you are uncertain as to which type of protection is required, contact your supervisor or REHS. All eye protection must comply with ANSI Z-87.1-1989. Your regular glasses do not offer protection from eye hazards.

5. Hand protection must be worn when exposed to hazards such as those from chemicals, cuts or lacerations, abrasions, punctures or harmful temperature extremes. The correct type of gloves must be selected. Contact your supervisor or REHS if you are uncertain as to which type of glove is required. Gloves should fit properly, should not be loose and should be comfortable to wear.
6. Foot protection is required in areas where there is a danger of foot injuries due to falling or rolling objects, objects piercing the sole, exposure to chemicals or where an employee's feet are exposed to electrical hazards. Employees issued protective footwear must wear them at all times while on the job. Protective footwear must comply with ANSI Z-41-1991.
7. Typically, FMS employees are not required to wear respirators to perform their routine work. When working with materials or in location where employees may be overexposed to harmful concentrations of dusts, fumes, mists, gases, smokes or vapors, other means of protection, such as proper exhaust ventilation, should be implemented. REHS must be contacted prior to working in any area that may have harmful concentrations. If respiratory protection is required, employees must receive medical clearance, be trained, be fit-tested and be included in the University Respiratory Protection Program prior to receiving or wearing a respirator. REHS will determine the type and selection of the respiratory protection. Contact your supervisor if you have any questions regarding respirators.
8. Head protection is required in areas where there is a potential for injury to the head from falling objects or when working near electrical conductors which could contact the head. All protective headwear must comply with ANSI Z-89.1-1986.
9. Hearing protection is required in high noise areas or when using machines or equipment that generated loud noise levels. If you are concerned about high noise levels in an area, contact your supervisor or REHS. There are many types of hearing protection, such as ear plug, ear muffs and helmets. If you have questions as to which type of hearing protection to wear, contact your supervisor or REHS.
10. Other types of protective clothing are available, such as chemical aprons, tyvex suits and rubber sleeves. If additional protective clothing is needed, contact your supervisor.
11. Other electrical protective equipment is available depending on the type of work that is performed. Contact your supervisor or REHS regarding any question on electrical protective equipment.

Part IV: General Rules

A. General Work Housekeeping Environment (Elevators and Stairways)

1. Keep your work area clean and orderly.
2. Clean up work areas at the end of every day.
3. Do not obstruct stairways, aisles, or passageways.
4. Keep equipment rooms clear at all times.
5. Dispose of all scrap material at the end of each day in proper containers.

6. Keep all floor surfaces clean and dry.
7. Change burned out bulbs in emergency exit signs immediately.
8. Horseplay is prohibited.
9. The possession, use or being under the influence of alcoholic beverages, intoxicants, narcotics or other controlled dangerous substances is prohibited on university property.
10. Smoking is prohibited in all university buildings and automobiles.

Stairway Safety

1. Use the stair railing to avoid falls.
2. Keep to the right and avoid running or hurrying.
3. Keep stairs clear and free of debris and stored items.
4. Avoid carrying material up/down stairs when elevators are available.

Elevators

1. Never exceed the posted gross weight on an elevator.
2. Do not enter an elevator during a fire.
3. Report all defects immediately to supervisor.
4. Do not misuse the emergency stop button.

B. Equipment Care and Use

1. Inspect all tools and equipment before using them to see if there are any defects that need repairing. Report all safety defects immediately to your supervisor or mechanic. Do not use defective equipment.
2. Use all tools for intended purposes.
3. Only authorized personnel may operate machinery. Supervisory approval may be required.
4. Do not disconnect any safety device for the sake of convenience. When it is necessary to work on equipment, make sure the power is shut off.
5. Never exceed manufacturer's recommendations for the use of equipment and tools.
6. Electrical equipment should always be grounded.
7. Keep your work area clean and free of safety hazards.

C. Electrical Safety

1. Lockout and Tag-out procedures must be used prior to any servicing or maintenance work on equipment or machines. All equipment, machines or appliances must be unplugged or the power source disconnected prior to any maintenance or servicing work.
2. Only trained and authorized employees may perform work on electrical wiring, circuits or panels.
3. Report any damaged or exposed electrical wiring, sparking light switches, broken plugs, damaged outlets or missing box covers or faceplates to your supervisor.
4. Maintain the work area around electrical equipment, electrical panels and electrical boxes free of obstructions, storage and debris. Oil, dust, paper debris and flammable materials around electrical equipment and panels can create a fire hazard.
5. Ensure electrical cords are in good condition. Do not use damaged cords.
6. Do not defeat grounds on plugs.
7. In wet or damp locations, use outlets that have ground fault circuit interrupters (GFCI).
8. If necessary, use only "C" rated fire extinguishers on electrical fires. Never use a water-fire extinguisher on an electrical fire.
9. Never use extension cords as permanent equipment.
10. Use appropriate tools and equipment when working on electrical equipment or wiring. Never use a metal ladder when working on electrical equipment or wiring.
11. Do not work on electrical equipment or wiring while standing in water or touching anything wet.

D. Moving and Lifting

1. Always lift gradually and smoothly without jerking and keep the load close to your body without twisting. Also, set an object down close to your body.
2. Do not attempt to carry a load that is too heavy for one person; get help from another person.
3. Do not try to lift heavy items higher than waist level.
4. Lift with your leg and arm muscles rather than your back muscles to guard against sprains.
5. Always have clear vision over the load.
6. Get help if the load interferes with normal walking.
7. Use mechanical equipment when manual lifting is unsafe.
8. When two or more people are handling the same object, one should call the signals. Everyone should know who this is and warn the caller if they are about to relax their grip.

9. Attach a red warning sign to materials that extend beyond the bed when transporting materials by truck.
10. When carrying an object, check the route for distance, floor condition, turning room and proper lighting.
11. Wipe off all greasy, wet, slippery or dirty objects before handling. Keep hands clean and dry.

E. Material Handling (Receiving and Storage)

1. Use proper lifting techniques when manually lifting materials. Use mechanical aids, such as carts, hand trucks or forklift truck, whenever possible, especially when handling heavy or awkward loads. Ensure that your feet are always facing in the same direction as the material you are handling.
2. Ensure mechanical aids are in good condition. Do not use damaged mechanical aids. Use, load and handle the mechanical aids properly. Secure the load in place and push the load when using mechanical aids.
3. Ensure that your path is free of obstruction or impediments, the floor is dry and the floor is in good condition prior to moving the load.
4. Store chemicals in well-ventilated areas with no temperature extremes. All chemicals should be properly labeled. Obtain a Material Safety Data Sheet (MSDS) for additional information for storage and handling of specific chemicals. Contact REHS if an unlabelled or unknown substance is discovered.
5. Store heavy materials at waist level. Lighter materials should be stored on higher shelves. Use a step stool or ladder to obtain materials stored at higher levels. Anchor shelving to the wall, and do not exceed the recommended weight capacities of the shelves.
6. Do not stack materials too high so that they become unstable or block exit signs, emergency equipment or sprinkler heads.
7. Use proper personal protective equipment (PPE), when required. Gloves should be used when handling slippery or dirty items. Foot protection should be used when there is a danger of falling or rolling objects.
8. Use work gloves and proper tools when opening boxes and crates with metal fasteners.
9. Ensure lighting in the area is adequate. Ensure all burned out light bulbs are replaced and damaged light fixtures are repaired.

F. Material Handling (Receiving and Storage)

Ladders

1. Use the proper ladder to facilitate safe work practices for every job.
2. All ladders must be kept in good condition.
3. Broken ladders should be tagged for repairs or destroyed.

4. Ladders should be free from grease and oil.
5. Inspect all ladders before each use.
6. Position ladders to prevent slipping. Tie off when possible.
7. Do not use a ladder for anything other than its intended use.
8. Do not use boxes or other objects to raise a ladder higher.
9. Do not place ladders in front of doors opening toward the ladder unless the door is blocked or guarded.
10. Position the base of an extension ladder one foot away from the top support point for every four feet of ladder length.
11. Before climbing onto a roof, be sure the ladder extends three feet above the roofline.

Scaffolds

1. Scaffolds and any related ropes and lines should be in good repair and equipped with operable brakes.
2. When working above persons, furniture, equipment or machinery, have them moved, if possible, or appropriately protected.
3. Where a scaffold is over ten feet high, guardrails and toe boards should be installed on any open side or end.
4. Scaffolds should not be moved horizontally while in use. Do not work on a scaffold or ladder during a storm or high wind condition.
5. Inspect wire ropes frequently and assure they are adequately lubricated. Prevent wire ropes from becoming kinked. The scaffold must be inspected each time the scaffold is re-rigged. Be sure the cable end is free to turn.
6. Do not install the scaffold in the vicinity of power lines.
7. The capacity of the hook must be at least equal to the capacity of the hoist.
8. Weight must not exceed the manufacturers rated load. Impose loads on the scaffold gradually and without impact. Two or more scaffolds must not be combined into one except for multi-point scaffolding. The connection of wire ropes to the rigging must be made with proper fittings designed for that purpose. Never use makeshift devices. All overhead connections must be prevented from movement in any direction. Tiebacks shall be secured to a structurally sound portion of the building. Window opening eyelet's can never be used for this purpose. Make sure that guard rails and mid rails are properly secured.
9. Periodically check and retighten the fastenings. The wire rope will stretch causing the clamps to loosen. The wire rope should be clear of all building projections under all conditions.
10. Each worker must wear an approved safety life belt attached to a lifeline. The lifeline must be attached to a structurally sound part of the building or securely rigged lines. Never attach the lifeline to the scaffold.

G. Vehicle Safety

1. Make sure there are no obstructions in your way when backing up. When possible, have another employee guide you out.
2. Obey all traffic and parking regulations.
3. Do not park vehicles on sidewalks and lawns when it is not part of performing your assignment.
4. Make daily checks for such items as tires, steering, brakes, lights, windshield wipers, horn, rear-view mirror and lenses. Report any defects to your supervisor.
5. Do not drive any vehicle that is unsafe.
6. Do not carry any unauthorized passengers. Riding on tailgates or in the bed of a truck is prohibited.
7. Engines must be turned off when refueling, or not in use.
8. Always wear your seat belt.
9. Only properly licensed drivers may drive vehicles. Check to make sure your license is current and that you have completed a defensive driving course.
10. Be aware of pedestrians and bicyclists. Stop at crosswalks to allow pedestrians to cross.
11. Use caution when passing buses stopped at the bus stops.
12. If there is any question about transporting hazardous materials, contact REHS at 445-2550.
13. All vehicles should have back-up alarms. If your vehicle does not, contact your supervisor to have one installed.
14. When transporting equipment, make sure it is safely secured to the vehicle. All racks should be secured to the walls of the vehicles.

H. Cylinder Use and Storage

Some general precautions for handling, storing and using compressed gases are as follows:

1. Never drop cylinder or permit them to strike each other violently.
2. Cylinders may be stored in the open, but should be protected from the ground beneath to prevent rusting. Cylinders may be stored in the sun, and where needed, the supplier's recommendation for shading should be observed. If ice or snow accumulates on a cylinder, thaw at room temperature or with water at a temperature not exceeding 125 degrees F.
3. The valve protection cap should be left on each cylinder until it has been secured against a wall or bench. Once the cylinder is placed in a cylinder stand, it will be ready for use.

4. Avoid dragging, rolling or sliding cylinders, even for a short distance. They should be moved using a suitable hand truck.
5. Never tamper with safety devices in valves or cylinders.
6. Do not store empty and full cylinders together. Serious suck-back can occur when an empty cylinder is attached to a pressurized system.
7. No part of a cylinder should be subjected to a temperature higher than 125 degrees F. A flame should never be permitted to come in contact with any part of a compressed gas cylinder.
8. Cylinders should not be subjected to artificially created low temperatures (20 degrees F or lower), since many types of steel will lose their ductility and impact strength at low temperatures. Special stainless steel cylinders are available for low temperature use.
9. Do not place cylinders where they may become part of an electric circuit. When electric arc-welding, precautions must be taken to prevent striking an arc against the cylinder.
10. Bond and ground all cylinders, lines and equipment used with flammable compressed gases.
11. Use compressed gases only in a well-ventilated area. Toxic, flammable and corrosive gases should be handled in a hood. Only small cylinders of toxic gases should be used.
12. Cylinders should be used in rotation as received from the supplier. Storage areas should be set up to permit proper inventory rotation.
13. When discharging gas into a liquid, a trap or suitable check valve should be used to prevent liquid from getting back into the cylinder or regulator.
14. When using compressed gases, wear appropriate protective equipment, such as safety goggles or face shield, rubber gloves and safety shoes.
15. When returning empty cylinders, close the valve before shipment, leaving some positive pressure in the cylinder. Replace any valve outlet and protective caps originally shipped with the cylinder.
16. Before using cylinders, read all label information and data sheets associated with the gas being used. Observe all applicable safety practices.

I. Storage and Handling of Chemicals

1. Read all container labels and the Material Safety Data Sheets (MSDS) prior to using chemicals. The label and MSDS will give information on the chemical, its ingredients, health hazards, PPE required and proper procedures for its use, handling and storage.
2. Use and wear appropriate personal protective equipment (PPE) when handling chemicals. Safety goggles are required when handling liquid chemicals. Use the appropriate gloves for the chemicals that you are using. Contact your supervisor or REHS if you have questions regarding the selection and use of PPE.
3. Ensure all containers are properly labeled. Notify your supervisor if you discover unlabelled chemicals.

4. Always add chemicals to water to prevent splashing when diluting chemicals. Never add water to chemicals.
5. Never mix chemicals unless instructed to do so. Read the MSDS and the container label prior to mixing chemicals. Contact your supervisor or REHS if unsure of proper safety procedures.
6. Know the location of spill kits, safety showers and eyewash stations. Report all spills to your supervisor immediately. If a large spill occurs or the chemical is particularly hazardous, notify campus police immediately. If a chemical comes into contact with your body, wash the affected area immediately and remove all contaminated clothing. If you splash a chemical into your eyes, flush your eyes immediately with water for at least 15 minutes. All employees must report to the Occupational Health Department immediately after flushing or washing the affected area.
7. Use proper personal hygiene after handling chemicals. Always wash your hands after using chemicals.
8. Never smell chemicals as a means of identification. Ensure all bottle caps are tightly sealed.
9. Store chemicals properly. Follow storage instructions on the MSDS or label. Store incompatible chemicals, i.e., flammable, oxidizers and corrosives separately. Store chemicals in well-ventilated areas with no temperature extremes. Do not store glass chemical containers on the floor. Do not store harsh chemicals, i.e., acids and solvents, above waist level.
10. Dispose of all chemicals properly. If you have questions regarding appropriate disposal procedures, contact your supervisor or REHS.
11. Do not handle or move chemicals in laboratories. Contact the principal investigator or other laboratory personnel to handle or move chemicals. If a spill is discovered in a laboratory, contact laboratory personnel or your supervisor. Do not clean up spilled chemicals in laboratories.
12. Do not eat or drink in areas where chemicals are used or stored.
13. Participate in annual Right-To-Know Training.

Part V: Safety Procedures for Specific Work Units

A. Custodian Safety Procedures

1. Always use original containers to store chemicals. Never place chemical in unlabelled containers. Always wear safety goggles when handling, using or mixing chemicals.
2. Divide the load into smaller bundles when lifting trash or recyclable materials that are too heavy.
3. Never reach into trash or recycling containers or try to compress the load with your hands. Use “nabbers” to remove commingled trash and recyclable.

4. Remove the liners to dispose of trash in laboratories. Never dispose of radioactive, biohazard or chemically labeled trash. Use gloves when working in laboratories. Remove and dispose of your gloves before leaving each laboratory. Never clean up unidentified or hazardous spills in laboratories.
5. Wear safety glasses or goggles when changing overhead lights. Do not remove light bulbs if the neck of the lamp or pin or the tube breaks off in the socket. Notify your supervisor immediately of any damaged light fixture or light bulb. Do not wash or wipe with a wet cloth any light bulb. Do not attempt to change a light bulb while hot.
6. Use proper lifting/handling techniques when moving materials, supplies or trash. Use mechanical aides, whenever possible. Always push the mechanical aides or garbage containers. Use proper techniques when shoveling or pushing snow. Ensure that the shovel and other equipment are in good condition. Do not attempt to carry or lift floor buckets full of water up or down stairs.
7. Use elevators, when possible, when carrying materials, equipment and supplies to another floor. If using stairs, make as many trips as necessary to safely carry the load.
8. Dress appropriately to protect yourself from the elements when working in inclement weather or extreme temperatures. This may include wearing proper shoes, clothes, gloves and hats.
9. Follow appropriate department procedures when washing, waxing and stripping floors. Ensure all appropriate signs are posted.
10. Do not run electrical cords from vacuum cleaners or other equipment through aisles.
11. When handling blood or other biological material, refer to Part VI, Section D: Infection Control Guidelines.

B. Grounds

1. When weed whacking and grass cutting, make sure you are wearing long pants and safety glasses or goggles.
2. When working around loud equipment, wear earmuffs.
3. Never disconnect safety devices from your equipment.
4. Make sure you use proper moving and lifting techniques. Refer to Part IV: Section D: Moving and Lifting.
5. When mowing grass, make sure the area is clear of any objects that can become a projectile.
6. Wear the proper clothing for the weather conditions.
7. Use the proper signs when working on or along roadways.
8. When using ice melt, wear a dust mask.
9. When shoveling snow, be aware of others around you. Don't swing the shovel around.

10. NJ 1 CALL notification regulations must be followed prior to any excavations. For questions concerning the NJ 1 CALL procedure, contact your immediate supervisor or the Utilities department.
11. Proper disposal procedures must be followed at all times. For questions, contact your immediate supervisor or REHS.
12. All lawn and tree pesticide applications are performed by State Licensed and Certified Pesticide Applicators. FMS Supervisory Personnel has the responsibility of coordinating all pesticide applications. All treated areas are marked and identified by flag markers. All pesticides used are in accordance with Rutgers Cooperative Extension recommendations. For questions, contact your immediate supervisor.

C. Mechanical Safety

Plumbing/Pipe Fitting

1. Always ventilate the work area when brazing, soldering or welding.
2. Never check for gas leaks with open flames.
3. Always use personal protective equipment when working on machinery.
4. Never push on hand wrenches, always pull.
5. Store all glues, primers and any flammable agents in an approved storage cabinet.
6. Secure all air, water or steam before removing and replacing piping systems. Follow proper Lockout/Tagout procedures.
7. Secure pipe runs properly with the correct hangers.
8. Do not use pipe runs for ladders.
9. Always follow codes that apply to your area.
10. Keep pipe and materials off of floor area and store in approved racks.
11. Secure all gas cylinders while in use, storage or transportation.
12. Have proper fire extinguishers available when using a torch.
13. Keep all machinery and equipment in proper working order.
14. Obtain hot work permit anytime welding, cutting or any open flame is used outside of designated shop areas.

Electrical Safety

1. Lockout and Tag-out equipment prior to servicing.

2. Follow all codes that apply to your area.
3. Ensure that all electrical test equipment is in proper operating order.
4. Do not use metal ladders while performing electrical work.
5. Only qualified technicians should work on electrical circuits.
6. Ensure that all electrical equipment is properly grounded before servicing system.
7. Do not bypass any electrical safety devices.
8. Use GFCI protection when working in damp locations.
9. Know first aid procedures for electrical shock.
10. Follow manufacturer's instructions when working on electrical equipment.
11. Use insulated hand tools when working on electrical systems.
12. Keep all hand-tools, extension cords and equipment in proper condition.
13. Remove jewelry, watches, etc. before working in electrical panels.

Carpentry Safety

1. Use Lockout and Tag-out procedures prior to servicing or setting up equipment.
2. Follow all codes that apply to your area.
3. Avoid loose clothing and jewelry when working around machinery.
4. Use proper lifting techniques at all times. Refer to Part IV: Section D: Moving and Lifting.
5. Follow proper ladder safety when working off of ladders.
6. Always use the PPE required for the specific job.
7. Never remove the safety guards from saws and equipment.
8. Use caution and care when handling long pieces of material.
9. Keep the work area neat and clean.
10. Take care in working with and the storage of flammable and toxic materials.
11. Be careful with and always use sharp cutting tools.

HVAC Safety

1. Never fill refrigerant cylinders over 85% of capacity.
2. Do not interchange cylinders for different refrigerants.
3. Always ventilate the area when brazing or soldering.

4. Always crack service valve before fully opening refrigerant systems under pressure.
5. Never use oxygen to pressure test system for leaks. Oxygen and oil will explode, use carbon dioxide.
6. Always wear eye protection when working on a system.
7. Never use a torch or flame to raise refrigerant pressure in cylinders or refrigerant systems.
8. Use Lockout and Tag-out procedures when working on any system.
9. Always check your testing equipment for proper operation.
10. Discharge all capacitors before removing from system.
11. Always use insulated tools when working on electrical systems.
12. Store all refrigerants in a cool and dry area.
13. Always secure cylinders when transporting refrigerants.
14. Avoid putting hands near revolving fans or moving parts.
15. Never bypass any safety devices.
16. Make sure all systems are properly grounded before working on them.
17. Ensure that you are a certified technician (EPA approved) prior to servicing equipment with refrigerants, and that you retain a copy of your certification and provide a copy to your department. Additionally do not knowingly vent ozone-depleting chemicals to the atmosphere. Recycle or properly dispose of the chemicals, and properly label the chemicals.

Painting Safety

1. Store all paints, thinners or reducers in proper storage receptacles.
2. Use proper ladders, scaffold and extensions when painting overhead.
3. Paint in well ventilated areas only.
4. Use personal protection equipment when working with toxic materials.
5. Use Lockout and Tag-out procedures when painting equipment with moving parts.
6. Clean all paint spills immediately.
7. Use caution/warning signs around areas being painted.
8. Use eye protection when painting ceilings and overhead.
9. Remove and dispose of all used rags properly.

Locksmith/Key Shop

1. Eye protection is to be used when setting lock/cylinders, cutting keys or working on key machine.
2. Proper tools and equipment must be used at all times.
3. Use Lockout and Tag-out procedures when working on equipment, as per training.
4. Follow code and procedures for fire rated parts, equipment and installations.
5. Follow proper ladder safety when working on/with ladders
6. Properly dispose of unusable parts and equipment. Place all oil-based rags in metal encapsulated cans emersed in water.
7. Clean up work area when job is completed.
8. Report all unsafe acts and conditions.

D. Utilities Safety

General

1. Follow standard notification procedures for curtailment of any utilities. Give building occupants as much prior notification as possible.
2. When working on roadways, a traffic control person must be deployed and barricades and/or cones must be used.

Excavation

- 1 Follow standard notification procedures prior to excavating on university property.
- 2 Follow OSHA/PEOSHA guidelines for shoring up excavations.
- 3 NJ 1 CALL notification regulations must be followed prior to any excavations. For questions concerning the NJ 1 CALL procedure, contact your immediate supervisor or the Utilities department.

High Temperature Heating Line

1. When isolating high temperature heating line, shut return line valve first then supply line.
2. Allow sufficient time for lines to cool prior to draining.
3. When draining lines and/or manholes, do not drain directly onto the ground. Use a pump and hose to drain water into sanitary or storm drain manhole.
4. When energizing a line, use the bypass line to fill and equalize pressure, then open the return line valve first and then slowly open the supply valve.
5. When entering manholes or vaults, confined space procedures must be followed.

High Voltage

1. Only qualified individuals may enter high voltage substations or areas with high voltage equipment.
2. Follow N.E.C. and OSHA/PEOSHA safety procedures when working with high voltage equipment.

Part VI: Specific Safety Procedures

A. Lockout/Tagout Procedures

1. Lockout and Tag-out procedures must be used when performing servicing or maintenance work on machines, equipment or processes where the unexpected start up or release of stored energy could cause injury to employee(s).
2. Only trained authorized employees may perform Lockout and Tag-out work.
3. The following Lockout and Tag-out procedure must be followed by all employees before performing service or maintenance work on machines, equipment or processes:
 - a. Determine if Lockout and Tag-out procedures are required. If the employee does not know if Lockout and Tag-out procedures are required, he/she must contact his/her supervisor prior to performing any work.
 - b. Identify all energy sources, determine how to isolate the energy sources and determine how to safely release all stored or residual energy.
 - c. Notify all impacted employees or departments about the purpose and use of Lockout and Tag-out procedures and the effects it will have to their work operations.
 - d. Turn off the equipment or machine, if possible.
 - e. Isolate the machine, equipment or process from its energy source by the appropriate energy-isolating device, such as circuit breakers. Disconnect switches or line valves.
 - f. Place your lock (Lockout) and tag (Tagout) on the energy-isolating device. All employees working on the machine, equipment or process must place their individual lock and tag on the energy-isolating device.
 - g. Release all stored or residual energy by accepted procedures, such as bleeding, draining, discharging, disconnecting, etc. The employees must know what to expect and the effects of releasing the residual or stored energy.
 - h. Verify that the machine, equipment or process is isolated from its energy source by checking switches, valves, gauges, etc.
 - i. Continue to verify that the machine, equipment or process is isolated from its energy source if energy can still accumulate.
 - j. Perform any additional procedures that may be required for a specific machine, equipment or process.

- k. Perform required work.
 - l. Place the machine, equipment or process back into service by ensuring that the machine, equipment or process is operationally intact, employees are safely positioned, the machine or equipment is clear of all tools and materials and each employee removes his/her own lock and tag.
 - m. Notify affected employees or departments that the work was completed.
4. Under no circumstance should an employee remove another employee's Lockout and Tag-out. Specific procedures must be followed to remove another employee's lock or tag. Please refer to the Lockout and Tag-out Program for these procedures. Your supervisor should have a copy of the program or contact REHS.
 5. All Lockout and Tag-out materials and hardware must be provided to the employees. Lockout and Tag-out materials and devices must be durable, substantial, standardized, identifying and must not be used for any other purpose.
 6. If you have any questions regarding the use, requirements and equipment required for Lockout and Tag-out work, contact your supervisor or REHS.

B. Confined Space Procedures

1. Confined space procedures must be followed when entering into any confined spaces. A confined space is any space which by design has limited opening for entry or egress, has unfavorable natural ventilation, could contain or produce dangerous air contaminants, could contain a hazardous atmosphere and is not intended for continuous human occupancy. A confined space includes, but is not limited to, a tank, ventilation ductwork, a boiler or an underground utility vault.
2. Only trained and authorized employees may enter into confined spaces. Note: An action resulting in any part of the employee's body breaking the plane of the opening into the confined space constitutes an entry.
3. The following procedures must be used prior to entering into any confined space:
 - a. Obtain a written permit from your supervisor. The permit will specify the location of the confined space, the type of work to be performed, identify all known hazards and the means by which the hazards will be controlled. A permit is required for all confined space entries and must be posted at the job location.
 - b. Provision of an attendant for the duration of the job. An attendant monitors the activities of all authorized entrants, but under no circumstances ever enters into the confined space.
 - c. Ventilate the confined space for at least ½ hour prior to entry and for the duration of the entry.
 - d. Monitor the air for hazardous atmospheres. The space must be monitored before ventilating the space, before each entry, at least every ½ hour or continuous monitoring if circumstances require continuous monitoring. All levels (top, middle and bottom) of the confined space and the ambient air must be monitored. At a minimum, you must monitor for oxygen concentration, flammability and carbon monoxide with a direct

reading instrument. You must also monitor for any other known contaminant and combustible dust.

- e. Ensure that communication is readily available so that Campus Police can be notified of an emergency. Rescue equipment, such as a tripod with a harness and other personal protective equipment must be made able.
 - f. Perform all work if the above requirements are met and there is no detection of a hazardous situation. Under no circumstance should anyone enter a confined space harboring hazardous substances.
4. The above are minimum requirements for confined space entry, but does not encompass all requirements. If you have questions regarding the determination as to whether a space is considered a confined space or entry requirements, contact your supervisor or REHS.

C. Hot Work Permit Procedures

1. A hot work permit must be obtained prior to performing work that produces heat and/or sparks or involves the use of open flames. This includes, but is not limited to, brazing, cutting, grinding, soldering, thawing pipes, torch applied roofing or welding.
2. The hot work permit may be obtained by calling University Police at 2-7211 and request that they notify the Emergency Services Sergeant on duty that a hot work permit is needed. The sergeant will report to the location of the hot work, inspect the area, review safety procedures and issue the hot work permit.
3. All precautions on the hot work permit must be met prior to any work. The hot work permit is only good for the date(s) and time(s) specified on the permit. A copy of the permit must remain at the hot work location.
4. All personnel (employees, contractors, building occupants and visitors) must be suitably protected against hazards generated by the work, i.e. heat, sparks, fumes, welding rays, etc. This may include, but is not limited to, the use of personal protective equipment, shields, screens and local exhaust ventilation.
5. A hot work permit is not required for areas specifically designed for this type of operation, i.e. maintenance shop areas.

D. Ergonomics

1. The goal of ergonomics is to adapt the work environment, the equipment, environment and the process, to the people, rather than the people to the work environment.
2. In general, proper body posture is combined with the proper set up of equipment or the proper use and design of tools.
3. The following should be used for employees working with sides. Thighs should be parallel to the floor, with knees at computers:
 - a. Maintain proper body posture by keeping your wrists in a neutral position, not bent upwards or downwards. Sit in a back-supporting chair, with elbows bent at approximately a 90-degree angle comfortably at your bent at approximately a 90-degree angle and feet resting flat on the floor or on a footrest.

- b. Place the screen directly in front of you at a distance of 18-30 inches. You should look down to view the screen at an angle of 5-20 degrees. As a general rule, the top of the screen should be no higher than eye level. Employees who wear bifocals should place the screen at a lower height.
 - c. Obtain a workstation that has an adjustable keyboard shelf or an attachment that allows the keyboard to be raised or lowered. The keyboard should be between 23-28 inches above the floor. You should adjust the height of your chair, and then adjust the height of your keyboard tray so that the tray is approximately at the same height as your elbows with your arms at your side while seated. If you do not have an adjustable keyboard tray, you should adjust the height of the chair so that your elbows with your arms at your sides while seated are approximately at the same height as the keyboard.
 - d. Place the mouse at the same height and adjacent to the keyboard.
 - e. Obtain a chair that has at least a 13 inch, preferably a 16-20 inch, backrest that is concave horizontally and is adjustable in height, distance and tilt, has a downward rounded sloping front edge (“waterfall” type) seat, has five legs, swivels, is adjustable and is upholstered.
 - f. Obtain a document holder. The document holder should be placed to either side of the screen at the same height and distance as the screen.
4. The following should be used for trade employees:
- a. Use proper material handling and lifting techniques. Use mechanical aids to move materials. Install work stations at an appropriate height so those employees do not have to twist or lift heavy materials from the floor level.
 - b. Avoid using too much torque or pressure when using hand tools. Use the proper tool for the job and use the tools correctly.
 - c. Maintain proper body posture by keeping your wrists in a neutral position. Avoid bending your wrist upwards (wrist extension) or downward (wrist flexion), avoid hyper-extending your elbows, avoid bending at your waist, avoid turning or twisting your back and avoid working with your arms or elbows above shoulder height for extended period of time.
 - d. Ensure there is adequate lighting levels and work space for you to perform your tasks.
5. These are general recommendations. Specific tasks, work areas and equipment may require an evaluation. If you have concerns over the set up or placement of your workstation, proper design and use of tools or proper body posture, contact your supervisor or REHS.

E. Infection Control Guidelines

1. FMS custodial workers who discover a minor spill (blood, urine, feces, vomit, semen, etc.) while performing their assigned duties, must immediately contact their supervisor to report the spill. A minor spill of blood or other biological material constitutes several drops or slightly larger amounts of spill/dried blood or material that is easily cleaned by mop/sponge.
2. After notifying the supervisor, custodians may clean the area by using the disinfectant normally present in the mop bucket or a bleach solution (1 part bleach to 10 parts water). The custodians must wear safety glasses and gloves when cleaning the area.

3. FMS custodial workers who discover a major spill (blood, urine, feces, vomit, semen, etc.) must immediately notify the supervisor and secure the area to prevent anyone from entering the area. The supervisor will arrange for clean up of the area through a specifically trained Facilities team or REHS.
4. FMS custodial workers who receive a splash of blood or other biological material to the face must wash the area immediately with soap and a large amount of water. The incident must be reported to the supervisor immediately who will arrange a visit to the Occupational Health Department, if necessary.
5. FMS custodial workers who receive a needle stick or other puncture wound must wash the affected area immediately with soap and a large amount of water. The incident must be reported to the supervisor immediately who will arrange a visit to the Occupational Health Department.
6. REHS can train all custodial staff & supervisors.
7. If you have questions or need information regarding a spill, contact your supervisor or REHS at (732) 445-2550.