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SAFETY HANDBOOK
OF
HARDIN-SIMMONS UNIVERSITY

Abilene, Texas

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The HSU Safety Handbook has been developed and published for the primary purpose of providing all University personnel with a statement of policies and procedures. Each person is urged to become familiar with the contents of the manual, particularly that portion which pertains to his/her actual responsibilities. Suggestions for revisions to the manual should be made in writing and sent to the Safety Office or to a member of the Safety, Health, and Accessibility Committee. Revisions to the manual will be submitted to the Administrative Council and other appropriate committees for review and action. The policies, procedures and benefits described in this handbook are subject to change by the University at any time. All revisions to the handbook are subject to the final approval of the President.

Revisions to the manual will be distributed in a manner that will allow ease of updating.

The Safety Handbook is reviewed annually by the Safety, Health and Accessibility Committee. The handbook should be used in conjunction with the safety information on University Safety web site:

http://www.hsutx.edu/admin/hr/Employees/safety/safety_page1.htm

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PART I — GENERAL

Chapter 1 Injury and Illness Prevention Program

General

The HSU safety manual is prepared for the purpose of attempting to help keep students (and student workers), faculty, staff, and visitors safe. While it provides no guarantee that everyone will be free from accidents, following the guidelines in this manual attempts to make the campus a safer place. The manual is divided into three parts. Part I (Chapters 1-3) is general safety and health information for all employees. Part II (Chapters 4-15) is more detailed guidance which should be read by employees and others on a need-to-know basis. Part III (Chapter 16) is information for faculty, staff, and students who drive HSU vehicles or rental vehicles. An index of specific topics addressed in all parts of this manual is located at the end of Part I. If you have any questions concerning the material in this manual, ask your supervisor or contact the Safety Officer. Please read it carefully.

You are requested to do the following: (1) study and understand the policies, procedures, and guidelines contained in this manual; (2) follow the code of safe work-practices contained herein; (3) discuss work-place safety problems and opportunities with the Safety Officer; (4) attend announced safety training, read posters and warnings, and listen to instructions carefully; (5) participate in accident investigations as requested; (6) accept responsibility for the safety of others; (7) and maintain required documentation.

Safety Program Goal

The goal of Hardin-Simmons University's safety and health program is to reduce the number of injuries and illnesses to an absolute minimum.

Safety Policy Statement

Hardin-Simmons University attempts to make the safety and health of our students, general faculty, and staff a high priority in operating this institution. Hardin-Simmons University's management strives to provide safe and healthy conditions and to establish and insist upon safe practices at all times by all faculty, staff, and students.

Endeavoring to prevent accidents is an objective which will affect all levels of our University and its operations. It is, therefore, a basic requirement that each supervisor make the safety of all employees an integral part of his or her regular management function. No employee or student is required to work at a job or in an area known to be unsafe or dangerous to his/her health. It is equally the duty of each employee and student to accept and follow established safety regulations and procedures. Efforts will be made to provide adequate training to employees. However, if an employee or student is ever in doubt about how to do a job or task safely, it is his/her duty to ask a qualified person for assistance. Employees are expected to assist management in accident prevention activities. Unsafe conditions should be reported immediately to supervisors or the Safety Officer. If a person is injured, positive action needs to be taken promptly to see that he/she receives adequate treatment. Everyone is responsible for the housekeeping duties that pertain to their jobs. Every injury that occurs on the job, even a slight cut or strain, should be reported to management and/or the Safety Officer as soon as possible. Under no circumstances, except emergency trips to the hospital, should an employee leave the work site without reporting an injury. Please work safely. Safety is everyone's business and requires the cooperation of all persons on campus--administrators, faculty, staff, and students.

Safety Officer

The Safety Officer is the person who has been delegated the authority to develop and administer Hardin-Simmons University's health and safety program. The Safety Officer for coordinating health and safety matters is the Human Resources Director.

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Duties

By law, the Safety Officer is the person designated by the University with the duty and authority to implement and maintain Hardin-Simmons University's Injury and Illness Prevention Program. The Safety Officer is assigned the responsibility of providing technical guidance and services in the field of health and safety needed by Hardin-Simmons University management. To fulfill this objective the Safety Officer is required to:

1. Provide management at all levels with the information, advice, and assistance needed to formulate Hardin-Simmons University's health and safety policy, directives, procedures, and standards.
2. Assist management at all levels in establishing and maintaining a healthful and safe working environment free from unacceptable risks, in conformance with OSHA health and safety guidelines and in compliance with applicable standards, codes, and regulations.
3. Monitor operations within Hardin-Simmons University and, where appropriate, at off-site facilities, provide supervisors with the information needed to maintain a healthful and safe working environment, free from unacceptable risks.
4. Promote general safety education and training programs. Assist in the development of specific job safety training programs.
5. Develop plans and train response personnel to help them control emergency situations (earthquake, radiation, injury, fire, etc.).
6. Provide health and safety support services.
7. Identify consultants knowledgeable in all areas of safety.
8. Prepare and maintain Hardin-Simmons University's Health and Safety Manual and other documents that relate to safety.
9. Assist with identifying protective equipment for employees. Check plans of all new projects for construction safety, industrial safety, and other safety reviews as required by OSHA and Hardin-Simmons University regulations.
10. Manage the Workers' Compensation program.

Five Functions:

The functions of the Safety Officer are divided into five areas:

1. Operations
2. Safety Administration
3. Occupational Safety
4. Industrial Hygiene
5. Environmental Protection

Designated

The Safety Officer has the responsibility and authority to manage the Injury and Illness Prevention Program of Hardin-Simmons University. In managing the program, the duties include, but are not limited to, the following:

1. Oversee the development and implementation of safety rules for the University.
2. Oversee the development and implementation of safe operating rules for use of electrical and mechanical equipment consistent with manufacturer's recommendations and specifications.
3. Oversee the development and implementation of a system to encourage students and employees to report unsafe conditions immediately.
4. Conduct an investigation of each accident, whether or not it results in an injury, to determine the cause of the accident and to prevent recurrence.
5. Oversee the instruction of supervisors regarding their safety responsibilities.
6. Oversee the development and implementation of a program of employee safety education.
7. Conduct scheduled and unscheduled inspections to try and identify and correct unsafe working conditions. Work place safety inspections may also occur from time-to-time by the Fire Department, insurance carriers, and the Texas Workers' Compensation Commission. (During these inspections, our safety records and injury and illness prevention policy and work practices may be reviewed).
8. Maintain records of training, periodic inspections, corrective actions and investigations as required by law.

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Safety, Health, and Accessibility Committee

Safety, Health, and Accessibility Committee has been established to help implement Hardin-Simmons University's safety and injury prevention program by functioning in an advisory capacity to the University Safety Officer. The committee shall meet regularly, but not less than quarterly. Written notes of all Safety, Health, and Accessibility Committee meetings are available for review and posted on the Human Resources bulletin board. The Committee encourages and reviews employee safety suggestions.

Safety Rules for All Employees (includes student workers).

To carry out the University safety program, the following rules apply:

1. Employees should follow the safe practices and rules contained in this manual and such other rules and practices communicated on the job. All employees should report unsafe conditions or practices to their supervisor. If corrective action is not taken report the situation to the Safety Officer.
2. The Safety Officer shall be responsible for implementing these policies by insisting that employees be conscientious in observing and obeying all rules and regulations necessary to maintain a safe work place and safe work habits and practices.
3. Employees should practice good housekeeping by keeping their work areas clean and eliminating dangers in the work area.
4. Employees should wear suitable clothing and footwear. Personal protection equipment should be worn whenever needed.
5. Employees should participate in safety meetings conducted by their supervisors.
6. Anyone under the influence of intoxicating liquor or drugs, including prescription drugs which might impair motor skills and judgment, shall not be allowed on the job.
7. Horseplay, scuffling, and other acts which tend to have an adverse influence on the safety or well-being of others should be avoided.
8. Employees should plan and supervise work with a view to avoiding injuries in the handling of heavy materials and while using equipment.
9. No one should be permitted to work if his/her ability or alertness is so impaired by fatigue, illness, or other causes that it might expose the employee or others to injury.
10. Consumption of alcohol on the campus is a violation of University rules.
11. Special efforts should be made to insure that all guards and other protective devices or equipment are in their proper places and are properly adjusted. Any deficiencies should be reported to supervisors or the Safety Officer.
12. Employees should not handle or tamper with any electrical equipment, machinery, or air or water lines beyond the scope of their duties, unless they have received specific instructions from their supervisor.
13. Employees should report all injuries to their supervisor and the Safety Officer so that arrangements can be made for medical or first aid treatment.
14. When lifting heavy objects, employees should use the large muscles of the leg instead of the smaller muscles of the back.
15. Do not throw things, especially material and equipment. Employees should dispose of all waste properly and carefully. Employees should bend exposed nails so they do not hurt anyone removing the waste. Also, render harmless items such as broken glass and other sharp objects so they do not injure anyone removing the material.
16. Employees should avoid wearing shoes with thin or torn soles.
17. No employee should undertake a job until he/she has received adequate safety instructions, and is authorized to perform the task.
18. No employee should use chemicals without fully understanding their toxic properties and without the knowledge required to work with these chemicals safely.
19. Disciplinary action may result if safety rules are violated.

Employee Responsibility

All Hardin-Simmons University personnel are responsible for all aspects of safety within their own groups. The Safety Officer is responsible for providing information, instruction, and assistance, as appropriate, concerning Hardin-Simmons University electrical safety requirements and procedures.

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Individual employees are responsible for their own and their co-workers' safety. This means they should: become acquainted with all potential hazards in the area in which they work; learn and follow the appropriate standards, procedures, and hazard-control methods; never undertake a potentially hazardous operation without consulting with appropriate supervision; stop any operation you believe to be hazardous; notify a supervisor of any condition or behavior that poses a potential hazard; wear and use appropriate protective equipment; immediately report any occupational injury or illness to the Safety Officer, the appropriate medical personnel, and your supervisor.

Supervisor Safety Responsibilities

Each employee acting in a supervisory capacity has specific safety responsibilities. Each supervisor should strive to: develop an attitude and awareness of safety in the people supervised and seeing that individual safety responsibilities are fully carried out; maintain a safe work environment and taking corrective action on any potentially hazardous operation or condition; strive to ensure that the personnel he/she directs are knowledgeable and trained in the tasks they are asked to perform; try to ensure that safe conditions prevail in the area and that everyone is properly informed of the area's safety regulations and procedures; try to ensure that contract personnel are properly protected by means of instructions, signs, barriers, or other appropriate resources; ensure that no employee assigned to potentially hazardous work appears to be fatigued, ill, emotionally disturbed, or under the influence of alcohol or drugs (prescription, over the counter medicinal or otherwise). All supervisors have the responsibility for maintaining the work environment at a minimal level of risk throughout all areas of control. Each supervisor:

- Is responsible for the awareness of potentially hazardous activities within the area of responsibility.
- May assign responsibility or delegate authority for performance of any function, but - remains accountable to higher management for any oversight or error that leads to injury, illness, or damage to property.

Agreement to Participate

Faculty and staff of Hardin-Simmons University need to be safety conscious. You are requested to do the following: (1) Study the guidelines contained in this manual; (2) Discuss the workplace situation with your supervisor or the Safety Officer, and make sure you understand the policy and procedures; (3) Read posters and warnings; (4) Listen to instructions carefully; (5) Try to follow the instructions in this manual; (6) Participate in accident investigations as requested; (7) Accept responsibility for the safety of others; (8) Maintain required documentation.

Safety and Health Training

Training is one of the most important elements of any injury and illness prevention program. Such training is designed to enable employees to learn their jobs properly, bring new ideas to the workplace, reinforce existing safety policies and put the injury and illness prevention program into action. All employees should start their safety training by reading this manual and discussing any problems or safety concerns with their supervisor. Training is required for both supervisors and employees. The content of training sessions will vary, but each session attempts to teach the following:

1. The success of Hardin-Simmons University's injury and illness prevention program depends on the actions of individual employees as well as a commitment by the University.
2. Each employee's immediate supervisor should review the safe work procedures unique to that employee's job, and how these safe work procedures protect against risk and danger. Any procedures which have the potential for reducing risk or eliminating danger should become a part of the employees' job descriptions.
3. Each employee should learn when personal protective equipment is required or necessary, and how to use and maintain the equipment in good condition.
4. Each employee should learn what to do in case of emergencies occurring in the workplace. Supervisors should try to train all their employees so they will know how to respond in an emergency.

Supervisors are also vested with special duties concerning the safety of employees. The supervisors are key figures in the success of Hardin-Simmons University's injury and illness prevention program. They have primary responsibility for actually implementing the injury and illness prevention program, especially as it relates to the workplace. Supervisors should become familiar with safety and health hazards to which employees are exposed, how to recognize them, the potential effects of these hazards, and the rules and procedures for maintaining a safe workplace. Supervisors shall convey this information to the employees at the workplace, and shall investigate accidents according to the accident investigation policies contained in this manual.

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Hardin-Simmons University policy requires that Hardin-Simmons University faculty, staff, and students receive appropriate health and safety training in areas where they will be working. Faculty and staff (supervisors) should provide safety information to all students and employees concerning hazards in their area of responsibility. The Safety Officer can arrange health and safety training courses. Educational resources such as fact sheets, hazard summaries, and other written materials, as well as videos may be requested from the Safety Officer. Supervisors can get a catalog from Safety Officer describing audio-visual materials that may be used to supplement safety training programs.

Employee health and safety training should be documented. Supervisors should note the participants' names and employee numbers, topics discussed, instructor(s), and date. Supervisors are responsible for maintaining training records. A copy of this information should be sent to the Safety Officer for University training files.

Accident Reports

A primary tool to identify and correct problems in areas where accidents occur is a thorough and properly completed accident investigation report. A satisfactory accident report will answer the following questions:

1. What happened? The investigation report should begin by describing the accident, the injury sustained, the eyewitnesses, the date, time and location of the incident and the date and time of the report. Remember: who, what, when, where and how are the questions that the report must answer.
2. Why did the accident occur? The ultimate cause of the accident may not be known for several days until all the data are analyzed. However, if an obvious cause suggests itself, include your conclusions as a hypothesis at the time you provide information to the person completing the report, normally your supervisor or Safety Officer.
3. What should be done? Once the cause of an accident has been determined, the report should suggest methods for avoiding future accidents of a similar character. The option to be taken will be decided by the Safety Officer or the supervisor on the project or University leadership as required. Once a solution has been adopted, it is everyone's responsibility to implement it.
4. What has been done? A follow up report may be issued after a reasonable amount of time to determine if the suggested solution was implemented, and if so, whether the likelihood of accident has been reduced

Records

The Hardin-Simmons University Safety Officer maintains records of employee training, hazard identification and abatement, and accident investigation. These records are maintained in the Human Resources Office.

OSHA Records Required

Copies of required accident investigations and certification of employee safety training shall be maintained by the Safety Officer. A written report should be maintained on each accident, injury or on-the-job illness requiring medical treatment. A record of each such injury or illness is transposed to OSHA Log and Summary of Occupational Injuries Form 200 according to its instructions. Supplemental records of each injury are maintained on forms provided by the Texas Workers' Compensation Commission. Every year, a summary of all reported injuries or illnesses is posted on the Human Resources Bulletin Board no later than February 1, for one month, until March 1, on OSHA Form 200. These records are maintained for five years from the date of preparation.

Reporting

All serious accidents will be reported to OSHA. This report is prepared by the Safety Officer. In cases of hospitalization or death, a full investigation with copies to governmental authorities will be required. In less serious cases, an accident report must be completed and is prepared by the Safety Officer for further coordination with Texas Workers' Compensation.

Safety Equipment

- Proper safety equipment is necessary for your protection. The University attempts to use the proper equipment to help prevent injuries. Employees should use safeguards, safety appliances, or devices furnished for protection and comply with regulations that may affect safety. If protective equipment is required, use it properly. Your supervisor should advise you as to what protective equipment is required. Certain jobs require standard safety apparel and appliances for the protection of the employee. These items shall be used and effectively maintained as a condition of your continued employment and part of our mutual obligation to comply with OSHA. Safety

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goggles, glasses and face shields shall correspond to the degree of hazard, i.e., chemical splashes, welding flashes, impact hazard, dust, etc. Do not alter or replace an approved appliance without permission from your supervisor. Rubber gloves and rubber aprons shall be worn when working with acids, caustics or other corrosive materials. Specified footwear should be worn. No jewelry shall be worn around power equipment. Hearing protection appliances (approved muffs or plugs) shall be worn by all employees working within any area identified as having excess noise levels. Notify your supervisor for instruction in the proper use of the appliance if you have not been trained.

- For further information, refer to Part II, Chapter 11.

Housekeeping

Good housekeeping not only improves the appearance of the work place, it also helps prevent fires, accidents and personal injuries. Clean work areas also enable you to maintain a high standard of quality in your work. For your safety, do not leave tools, scrap, or materials piled on the floor where someone may stumble over them, or overhead where there is danger of them falling. When piling material, be careful not to exceed a safe height. Do not pile anything in front of or against fire fighting apparatus, electrical equipment or drinking fountains. If you are a machine operator, give your machine the best possible care and be alert for signs of wear or faulty operations. Handle tools carefully and store them so that they cannot cause accidents. All work surfaces should be kept dry or appropriate means taken to assure that surfaces are slip-resistant. All spill materials or liquids should be cleaned up immediately and combustible scrap, debris and waste stored safely and removed from the work site promptly. Accumulations of combustible dust should be routinely removed from elevated surfaces.

Maintenance

Maintenance is essential to safe and efficient operation. A maintenance crew is employed full-time to keep the University in order. However, they cannot keep the campus up to the required standard of cleanliness without the cooperation of everyone. If you notice a situation that requires maintenance, report it to your supervisor.

Fire Safety and Smoking

- An area evacuation diagram showing the most logical exits must be prepared. Building Chairpersons are responsible for preparing this diagram, posting it in their building, and providing a copy to the Safety Officer. You should familiarize yourself with the diagram. It is a violation to lock fire doors from the inside. Fire doors and dampers are provided at strategic points to close and block the spread of smoke and fire when these are sensed by automatic detectors. Fire doors should never be blocked or left in disrepair so that they cannot be closed as intended in the event of a fire. Report any obstruction to exit routes to your supervisor immediately. If the obstruction is not cleared, send a written report to the Safety Officer. Fire is one of the worst enemies of any facility. Learn the location of fire extinguishers and learn how to use them. You can help prevent fires by observing the smoking rules: Smoking is not allowed in any campus building.
- Fire/exit corridors may not be used for storage. The Life Safety Code, NFPA 101, requires that buildings designed for human occupancy have continuous and unobstructed exits to permit prompt evacuation of the occupants and allow necessary access for responding emergency personnel. The intent of the Code is to keep exits free from obstructions and clear of combustible materials. Attention to housekeeping, therefore, is very important. "Temporary" storage of furniture, equipment, supplies, or anything else is not permitted in exit ways. Combustibles, including recyclable waste paper, are not permitted in exit ways. Liquids and chemicals are not to be stored in corridor lockers.
- Cabinets should be kept locked, with one key being retained by the Building Chairperson. Cabinets should be labeled with the contents and the name, address, and telephone number of the assigned user.
- For further information, refer to Part II, Chapter 9.

First Aid Station/Emergencies

If a fixed establishment employs more than 200 employees at one central location, first-aid stations shall be located as close as practicable to the highest concentration of personnel. First-aid stations shall be well marked and available to personnel during all working hours. The HSU University Nurse is responsible for the First Aid Station in Moody Center, Room 208. The HSU Athletic Trainer located in the Field House also maintains a supply of medical supplies. If routine medical assistance is required, contact the University Nurse at extension 1314 or go

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directly to Moody Center, Room 208. If the emergency is life threatening, call 911. If assisting another employee, provide whatever assistance you can until medical help arrives.

Special Rules

No employee shall work alone on high-voltage electrical lines. It is a violation for an employee to work bare handed with dangerous wire or electricity at all. Rubber or other insulated gloves are required. When in doubt about electricity, call for assistance from the HSU Maintenance Department.

Ergonomics

With the introduction of computers into the workplace, new areas of physical debilitation have been recognized. These new potential hazards have required a redesigning of both the workplace and how employees work. Attempts will be made to provide furniture which is adjustable, positioned and arranged to minimize strain on all parts of the body. The glare of a computer screen should be minimized by a glare screen to prevent eye strain. Repetitive motions can harm, back, shoulders, neck, wrists and other parts of the body, so employees should not proceed with a task when they are physically feeling an impairment. Each employee will be entitled to a rest break as prescribed by the Personnel Handbook. All employees will react in different ways to body strains. Consequently, it is important for employees to bring their individual situations to their supervisor.

Walkways

All aisles and passageways should be kept clear. Wet surfaces should be covered with non-slip material and all holes properly covered or marked with warning guards. Clean spills up immediately and place a caution sign on all wet or drying surfaces. Equipment should be properly stored so that sharp edges do not protrude into walkways. If there is a low ceiling, a warning sign should be posted. If the walkway or stairway is more than thirty inches above the floor or ground, it should have a guardrail. If you are aware of any problem, notify the area supervisor or Building Chairperson.

Floor and Wall Openings

Be careful when working near floor and wall openings. All floor openings (holes) should be guarded by a cover, guardrail or equivalent barrier on all sides except at the entrance to stairways and ladders. Skylights should be able to withstand at least 200 pounds pressure. Glass used in windows, doors, and walls (including glass block) should be able to withstand a human impact, and if required by code, be shatterproof "safety glass." Before beginning work at a new location, inspect it to insure that all floor openings which remain open, such as floor drains, are covered with grates or similar covers. Be sure that there are at least two fire emergency exits accessible from your location at all times.

Work Area

Fire extinguishers should remain accessible at all times. Means of exit should be kept unblocked, well-lighted and unlocked during work hours. Excessive combustibles (paper) may be not stored in work areas. Aisles and hallways should kept clear. Some employees may know how to respond to a fire or other emergency. Workplaces are to be kept free of debris, floor storage and electrical cords. Adequate aisle space is to be maintained. File cabinet drawers should be opened one at a time and closed when work is finished. Proper lifting techniques are to be used by employees to avoid over exertion and strain when carrying loads.

Ladders

- Check ladders each and every time before you climb. Ladders should be maintained in good condition: joints between steps and side rails should be tight; hardware and fittings securely attached; and movable parts operating freely without binding or undue play. Non-slip safety feet are provided on each ladder. Ladder rungs and steps should be free of grease and oil.
- Employees are prohibited from using ladders that are broken, missing steps, rungs, or cleats, or that have broken side rails or other faulty equipment. It is prohibited to place a ladder in front of doors opening toward the ladder except when the door is blocked open, locked or guarded. It is prohibited to place ladders on boxes, barrels, or other unstable bases to obtain additional height. Face the ladder when ascending or descending. Be careful when you climb a ladder. Do not use the top step of ordinary stepladders as a step.

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- When portable rung ladders are used to gain access to elevated platforms, roofs, etc., the ladder should always extend at least 3 feet above the elevated surface. It is required that when portable rung or cleat type ladders are used, the base should be so placed that slipping will not occur, unless it is lashed or otherwise held in place.
- All portable metal ladders should be legibly marked with signs reading "CAUTION" - "Do Not Use Around Electrical Equipment." Employees are prohibited from using ladders as guys, braces, skids, gin poles, or for other than their intended purposes. Only adjust extension ladders while standing at a base (not while standing on the ladder or from a position above the ladder). Metal ladders should be inspected for tears and signs of corrosion. Rungs of ladders should be uniformly spaced at 12 inches, center to center.
- For further information, refer to Part II, Chapter 12.

Procedures

It is the desire of Hardin-Simmons University to follow the fundamental principles of safety, which are described below. A clear understanding of these principles will improve the safety of working with or around electrical equipment. Practice proper housekeeping and cleanliness. Poor housekeeping is a major factor in many accidents. A cluttered area is likely to be both unsafe and inefficient. Every employee is responsible for keeping a clean area and every supervisor is responsible for ensuring that his or her areas of responsibility remain clean. Identify hazards and anticipate problems. Think through what might go wrong and what the consequences would be. Do not hesitate to discuss any situation or question with your supervisor and coworkers. Resist "hurry-up" pressure. Program pressures should not cause you to bypass thoughtful consideration and planned procedures.

Design for safety. Consider safety to be an integral part of the design process. Protective devices, warning signs, and administrative procedures are supplements to good design but can never fully compensate for its absence. Completed designs should include provisions for safe maintenance. Maintain for safety.

Good maintenance is essential to safe operations. Maintenance procedures and schedules for servicing and maintaining equipment and facilities, including documentation of repairs, removals, replacements, and disposal, should be established. Document your work. An up-to-date set of documentation adequate for operation, maintenance, testing, and safety should be available to anyone working on potentially hazardous equipment. All persons working in areas of high hazard (with high-voltage power supplies, capacitor banks, etc.) should be trained in emergency response procedures, including cardiopulmonary resuscitation (CPR) certification.

Portable Heaters

The use of these devices, whether privately or University owned, is allowed only where there is no chance of causing injury to personnel or of creating a fire hazard and should be used only with the knowledge and permission of the Safety Officer. This provision obviously requires common sense in safely locating such devices and ensuring that they do not operate when they are unattended. These devices may not be used in locations where flammable or explosive vapors or dusts may be present.

The following practices should be carried out when operating portable heating appliances:

1. Do not place the appliance on unstable or readily combustible materials.
2. Maintain a clearance of at least 12 inches between the appliance and combustible materials.
3. Ensure that the appliance is approved by either Underwriters Laboratories, Inc., or Factory Mutual Research Corporation.
4. Connect the appliance directly to a proper electrical outlet using only the cord with which it was originally equipped. Do not use extension cords in lieu of permanent wiring.
5. Do not operate appliances during off hours if they are unattended.

Medical Services

The objectives of the employee health program are:

1. To provide emergency treatment of serious illnesses or injuries.
2. To encourage students and employees to maintain their physical and mental health.
3. To assist in maintaining a healthful and safe educational/work environment.

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Emergency Procedures

In the event of an emergency, correct and rapid assessment of what should be done is crucial.

1. If the emergency appears life-threatening, DIAL 911 emergency medical system immediately. In some cases, dial 9 to get an outside line.
Life-threatening situations are defined as:
 - a. absence of or severe difficulty in breathing
 - b. extreme or uncontrolled blood loss
 - c. absence of heartbeat or possible heart attack
 - d. unconsciousness
2. Only employees properly trained and certified in first aid should render first aid.
3. If the emergency is not life-threatening, the following persons could provide assistance:
 - a. On-campus: University Nurse, Extension 1314, 8:30 a.m. - 2:00 p.m.
University Police, Extension 1461, 24 hours
University Athletic Trainer, Extension 1378, 9:00 a.m. - 5:00 p.m.
 - b. Off-campus: personal physician
Hendrick Medical Center emergency room, 670-2151
4. For additional information concerning work related emergencies, see Texas Workers Compensation Insurance and the HSU Personnel Handbook.
5. If there is a spill of any body fluids, contact American Building Maintenance at 670-1509.

Pregnancy & Workplace Hazards

As soon as an employee learns that she is pregnant, she must inform her supervisor of the expected date of childbirth. There will be a discussion about whether or not changes need to be considered to her work environment to ensure her good health and that of her baby. If necessary, contact the Human Resources Director/Safety Officer for assistance or medical advice may be sought.

Occupational Injury/Illness

- Treatment is coordinated with outside specialists in accordance with the provisions and requirements of Texas Workers' Compensation laws.
- Every injury sustained while performing Hardin-Simmons University assigned tasks, no matter how minor, must be reported to the employee's supervisor and to the Safety Officer. If an employee goes to a private off-site doctor about a job-incurred injury or illness, the physician consulted should be informed that the injury or illness is job related. Inform the physician (or the person completing the billing information) that all billings should be coordinated with the Hardin-Simmons Safety Officer/Human Resources Director, 670-1507. Unless time does not permit, the employee should contact the Safety Officer for instructions before going to a local physician. It is the employee's responsibility to notify the Safety Officer and his/her supervisor of the injury or illness and the treatment received. An occupational injury or illness is one which results from a work accident or from an exposure involving an incident in the work environment. In most cases, the employee will be referred to his/her private physician, a selected specialist, or a hospital emergency room. Standard procedures for ingestion of poisons, eye injuries, burns, cardiac arrest, coma, etc., are followed. In the event that a patient cannot be moved from the site of the injury, primary aid will be rendered by nurses, fire fighters, or ambulance personnel. A physician should be notified of any major accident that occurs at any time at the workplace.
- If care by a specialist is required, the patient is referred to his/her personal physician or the University physician. Treatment such as splinting, dressing, and analgesia are given routinely when appropriate by the University Nurse. Minor injuries and illnesses not associated with work frequently are treated by the University Nurse. Patients who present themselves with more severe or chronic health problems are consulted with and referred to their personal physician or transported, if necessary by ambulance, to nearby hospitals for emergency care.
- No injured or ill persons, regardless of employment status, are denied first aid or referral to medical resources in the community. Employees who are injured severely or become seriously ill at work are transported to medical services by ambulance if required. If necessary, the ambulance is used to transport patients to nearby hospitals or clinics.

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Blood Exposure

- All employees and students exposed to human blood and blood products should report to the Safety Officer for information and possible inclusion in the Hepatitis B Immunization Program. Report blood spills in HSU facilities to American Building Maintenance, 670-1509.
- For further information, refer to Part II, Chapter 5.

Alarm System

In some buildings, evacuation alarm bells are automatically activated when fire is detected. They can also be activated manually at strategically located pull boxes. The emergency actions of personnel and the evacuation procedures for each building or operating area are usually set forth in the Operational Safety Procedures for each building and posted near the main entrance or fire exit or elevator. Never use the elevator in case of a fire.

Lifting and Moving

Lifting and moving of objects should be done by mechanical devices rather than by manual effort whenever this is practical. The equipment used should be appropriate for the lifting or moving task. Lifting and moving devices should be operated only by personnel trained and authorized to operate them. Employees are not required to lift heavy or bulky objects that overtax their physical condition or capability.

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Chapter 2 Emergencies

Organization

Hardin-Simmons University requires that during an emergency an organized effort be made to protect personnel from further injury and to minimize property damage. Each supervisor should know what to do during an emergency in his or her area and should be certain that his or her employees understand their roles.

Master Emergency Response Plan

Hardin-Simmons University's Master Emergency Response Plan delineates lines of authority and responsibility for emergency response. In this context, a major emergency may be one of the following: a potential major loss to a building or facility; an emergency that involves more than one building or facility; a situation in which a choice should be made in the assignment of relative levels of authority among emergency-response groups; a potential hazard to the surrounding community; threat; civil disturbances or alerts; natural disasters such as earthquakes, floods, and landslides; and site wide electrical power or other utility failure.

During response to such major events, if deemed necessary by Hardin-Simmons University, fire or police personnel may be summoned, and a predesignated succession of HSU supervisory personnel would assume leadership. The primary responsibility person designated to be in charge is to ensure that priorities are established, that the response is appropriate and adequately implemented, and that the proper notifications are made. In most cases, the direct involvement of local supervision and remedial action will be necessary. Adequate emergency response will be made at the group, department, and building levels, with support from fire, medical, protective services, and other support organizations. As a practical matter, it must be recognized that most supervisory personnel are normally on campus only 40 of the 168 hours per week. Thus, there may be considerable delay before supervisory personnel can assume on-site direction of major emergencies. This highlights the importance of local initiative, at least at the onset of an emergency. The underlying philosophy of the emergency response plan is the recognition that each employee has a vital role and a basic responsibility in the area of safety and emergency action. The only reasonable expectation is that at the onset of an emergency the initial response should be at the individual level. Immediate and knowledgeable action is vital. The emergency plans for individual buildings and facilities set forth the responses to be taken by employees following the discovery of an emergency. Following the immediate measures taken by the individual, the responsibility for action normally proceeds upward through normal organizational lines of authority to the Building Chairpersons. Involvement of individuals at a higher level of responsibility depends on the particular situation.

To reiterate, levels of responsibility proceed downward from the President and Vice Presidents while action and response levels proceed upward from the first person involved. Don't be afraid to call outside assistance like police and fire fighters (Dial 911). When the police, fire fighters or paramedics arrive, surrender command to an qualified emergency specialist. Notify management as soon as practical, which means after all immediate responses have been exercised. The operator at 911 will tell you who is the person in charge of the specialized personnel assigned to respond to the emergency. An orderly transfer of responsibility is then made from the local building or facility organization to this responding unit. The examples listed below identify the most likely outside incident commander for the following types of emergencies:

1. Injury: Ranking Fire Officer or Physician
2. Fire: Ranking Fire Officer
3. Bomb Threat: Ranking Police Officer
4. Civil Disturbance: Ranking Police Officer
5. Radioactive or Chemical Spills: Ranking Fire Officer; Safety Officer; Special Toxic Clean Up crew or alternate
6. Power Outage: Maintenance Department Director
7. Utility Failures: Maintenance Department Director

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Hazardous Substances Communication

- When hazardous substances are used in the workplace, a hazard communication program dealing with Material Safety Data Sheets (MSDS), labeling and employee training should be in operation. MSDS's should be readily available for each hazardous substance used. Proper training by supervisors plus question and answer sessions on dealing with hazardous materials will help keep employees and students informed. The training should include an explanation of what an MSDS is and how to use and obtain one; MSDS contents for each hazardous substance or class of substances; explanation of the "Right to Know," identification of where employees can see the employer's written hazard communication program and where hazardous substances are present in their work area; the health hazards of substances in the work area, how to detect their presence, and specific protective measures to be used; as well as informing them of hazards of non-routine tasks and unlabeled pipes.
- For further information, refer to Part II, Chapter 6.

Building Emergency Plan

A specific emergency plan for each building or facility should be prepared under the direction of the Building Chairperson. A copy of the plan will be provided to the Safety Officer. A Building Chairperson and Alternate Building Chairperson (as needed) should be appointed and oriented for each building or complex. Generally, the Building Chairperson is the person in charge of a building or facility. The Building Chairperson has specific responsibility for the preparation, updating, and implementation of the emergency plan for this area. Specifically, each plan has the following information and procedures as appropriate for each building:

1. The names of the Building Chairperson and Alternate(s).
2. A list of people with specific duties during an emergency and a description of their duties. For example, specific people should be assigned to supervise evacuation and to carry out a rapid search of the area (assuming this can be done safely). Also, specific individuals and alternates should be assigned to assist handicapped students/employees.
3. Floor plans showing evacuation routes, the location of shutoff switches and valves for the utility systems (water, gas, electricity), and the locations of emergency equipment and supplies (including medical). Indications on the floor plans of areas where specific hazards (i.e., toxic, flammable, and/or radioactive materials) exist.
4. Location and description of special hazards or hazardous devices should be included in the text together with shutdown procedures if applicable.
5. Designation of a primary assembly point for evacuees, well away from the building. An alternate site should also be designated in case the first choice cannot be used.
6. Reentry procedures. (No one should reenter an evacuated building or area without specific instructions from the Building Chairperson or other person in charge.)
7. Department Head and Supervisor responsibilities regarding emergency preparedness and action procedures.
8. Emergency plans for facilities or equipment requiring an Operational Safety Procedure (OSP).

Supervisors' Responsibilities

During an emergency:

1. Ensure that those under his or her supervision are familiar with the plan for the building, particularly the recommended exit routes and how to report an emergency.
2. Render assistance to the person in charge during an emergency, as required.
3. Maintain familiarity with the shutdown procedures for all equipment used by those under his or her supervision.
4. Know the location and use of all safety equipment on his or her floor.
5. Keep employees from reentering an evacuated area until reentry is safe.

Late Night Crime Prevention

The University operates a 24 hour per day, 7 days per week police force. In the event of an emergency, call 670-1461.

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No Loitering Policy

Employees and students not involved in the emergency should stay away from the scene and follow the instructions issued over the public address system or directly from the person in charge. The sounding of a fire bell means immediate evacuation by the nearest exit. Employees may not reenter an area that they have evacuated until notified that it is safe to return.

Employee Responsibilities

Employees, other than emergency-response groups, involved in any emergency greater than a minor incident are expected to act as follows:

1. If there is threat of further injury or further exposure to hazardous material, remove all injured persons, if possible, and leave the immediate vicinity.
2. If there is no threat of further injury or exposure, leave seriously injured personnel where they are. Report the emergency immediately by phone. State what happened, the specific location, whether anyone was injured, and your name and phone number.
3. Proceed with first aid or attempt to control the incident only if you can do so safely and have been trained in first aid or the emergency response necessary to control the incident.
4. Show the ranking emergency-response officer where the incident occurred, inform him or her of the hazards associated with the area, provide any other information that will help avoid injuries, and do as he or she requests.

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Chapter 3 Traffic and Transportation

Driving

Drive safely. If vehicles are used during the work day, seat belts and shoulder harnesses are to be worn at all times. Please lock unattended vehicles to avoid criminal misconduct. Do not exceed the speed limit on campus which is 15 MPH. Park vehicles in legal spaces and do not obstruct traffic. When vehicles should be parked in roadways or fire lanes for short periods of time for purposes of loading or off-loading tools or materials, avoid blocking or obstructing wheel-chair ramps. Defensive driving should be practiced by all employees and students. Vehicles should be parked in well-lighted areas at/or near entrances to avoid criminal misconduct.

Official Vehicle Use

The Hardin-Simmons University requires that an operator hold a valid driver's license for the class of vehicle that he/she is authorized to operate. For further information, refer to Part III, Chapter 16.

Responsibility

Each Director and Department Head is responsible for restricting the use of University-furnished vehicles (including rentals) to official University business only. They are also responsible for limiting use of such vehicles to properly authorized personnel. Use of an official vehicle for an employee's personal convenience or benefit constitutes misuse and is prohibited. Employees who misuse University vehicles are subject to disciplinary action and financial responsibility for any accident. All drivers of University vehicles are responsible for reporting any damage or deficiency to their supervisor or the Human Resources Office. Repairs, adjustments, and maintenance can only be accomplished if the driver adequately documents and reports these items. Failure to report unsafe vehicle conditions can result in an accident.

Safety Belts

Employees operating or riding in University-furnished vehicles, or personal vehicles on official University business, are required to wear safety belts at all times. The driver should instruct the passengers to fasten their safety belts before operating the vehicle.

Accidents

- Any accident involving University vehicles (included private, rented, or leased vehicles used on official University business) should be reported to the driver's supervisor and the Safety Officer. If the driver is unable to make a report, another employee who knows the details of the accident may make the report.
- It is Hardin-Simmons University's policy that employees should not admit to responsibility for vehicle accidents occurring while on official business. It is important that such admissions, when appropriate, be reserved for the University and its insurance carrier.
- The law requires that each driver involved in a vehicle accident show his/her license on request by the other party. Be sure to obtain adequate information on the drivers involved as well as on the owner of the vehicles. Names, addresses, driver's license numbers, vehicle descriptions, and registration information are essential. In addition, a description of damages is needed for completion of accident reports.
- If the accident is investigated by off-site police agencies, request that a copy of the police report be sent to Hardin-Simmons University, or obtain the name and department of the investigating officer. A printed card titled "In Case of Accident" is kept in each official vehicle to assist in collecting required information. In case of collision with an unattended vehicle (or other property), the driver of the moving vehicle is required by law to notify the other party and to exchange information pertaining to the collision. If unable to locate the other party, leave a note in, or attached to, the vehicle (or other property) giving the driver's name, address, and vehicle license number. The driver of any Hardin-Simmons University vehicle involved in an accident should also complete a University Motor Vehicle Accident Report and submit it to his/her supervisor within one work day of the accident. The supervisor should interview the driver and complete the supervisor's portion of the report. Within two work days

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of the accident, the completed form and vehicle should be taken to the Safety Officer so that damages may be estimated and repairs scheduled.

Warnings and Citations

Any operator of a vehicle at Hardin-Simmons University who violates the State Vehicle Code may be issued a written warning or citation. A warning will include a description of the violation and cite the relevant code section, date, time, location, and the name of the officer issuing the warning. Serious offenses may result in revocation of privileges and may include termination of employment.

Safety Hazards Correction

The Safety, Health, and Accessibility Committee reviews all accidents involving University-furnished vehicles, whether on site or off site, and makes recommendations to have safety hazards corrected. The committee meets periodically to review accidents or to review and consider other issues relating to traffic safety.

PART II — TECHNICAL

Chapter 4 Code of Safe Work Practices

General Fire Safety

Our local fire department is well acquainted with our facility, its location and specific hazards. All fire doors and shutters need to be maintained in good operating condition. Fire doors and shutters should be unobstructed and protected against obstructions, including their counterweights. Fire door and shutter fusible links need to be in place. All automatic sprinkler water control valves, (if available), air and water pressures should be checked routinely. The maintenance of automatic sprinkler systems is assigned to the HSU Maintenance Department. Sprinkler heads should be protected by metal guards if they could possibly be exposed to damage. Proper clearance (18 inches) needs to be maintained below sprinkler heads. Portable fire extinguishers are provided in adequate number and type and are located throughout the facility. Fire extinguishers are mounted in readily accessible locations. Fire extinguishers are recharged regularly and the date of last inspection noted on their tags. Periodic training is provided in the use of extinguisher and fire protection procedures. Notify your Building Chairperson or Safety Officer of any damage to fire protection equipment or if fire extinguishers need to be recharged.

Machine Guarding

- Before operating any machine, every employee needs to be trained on the safe methods of machine operations. It is the primary purpose of supervision to ensure that employees are following safe machine operating procedures.
- All machinery and equipment should be kept clean and properly maintained. There should be sufficient clearance provided around and between machines to allow for safe operations, set up, servicing, material handling and waste removal.
- All equipment and machinery should be securely placed, and anchored when necessary, to prevent tipping or other movement that could result in personal injury. Most of the time, machinery should be bolted to the floor to prevent falling and the electrical cord to the machinery fixed with a breaker or other shut-off device to stop power in case of machine movement. A power shut-off switch should be within reach of the operator's position at each machine.
- Electrical power to each machine shall be capable of being locked out for maintenance, repair or security. The non-current carrying metal parts of electrically operated machines should be bonded and grounded. The foot-operated switches are guarded and/or arranged to prevent accidental actuation by personnel or falling objects. All manually operated valves and switches controlling the operation of equipment and machines should be clearly identified and readily accessible.
- All EMERGENCY stop buttons are colored RED. Pulleys and belts should be within 7 feet of the floor or working level. All moving chains and gears should be properly guarded. All splash guards mounted on machines that use coolant should be positioned to prevent coolant from splashing the employees.
- Supervisors should instruct employees in the work area on the methods provided to protect the operator and other employees in the machine area from hazards created by the operation of a machine, such as nip points, rotating parts, flying chips and sparks. The machinery guards should be secure and arranged so they do not present a hazard.
- Special hand tools used for placing and removing material should protect the operator's hands. All revolving drums, barrels and containers should be guarded by an enclosure that is interlocked with the drive mechanisms, so that revolution cannot occur unless the guard enclosure is in place. All arbors and mandrels should have firm and secure bearings and be free of play. A protective mechanism has been installed to prevent machines from automatically starting when power is restored after a power failure or shutdown.
- Machines should be constructed to be free from excessive vibration. If the machinery is cleaned with compressed air, the air should be pressure controlled and personal protective equipment or other safeguards used to protect operators and other workers from eye and bodily injury.
- All fan blades should be protected by a guard having openings no larger than ½ inch when operating within 7 feet of the floor. Saws used for ripping equipment should be installed with anti-kickback devices and spreaders. All radial arm saws should be arranged so that the cutting head will gently return to the back of the table when released.

PART II — TECHNICAL

Welding, Cutting & Brazing

Only authorized and trained personnel are permitted to use welding, cutting or brazing equipment. Employees should review the appropriate operating instructions before using the equipment.

1. Compressed gas cylinders should be regularly examined for obvious signs of defects, deep rusting, or leakage. Use care in handling and storing cylinders, safety valves, relief valves and the like, to prevent damage.
2. Precaution should be taken to prevent mixture of air or oxygen with flammable gases, except at a burner or in a standard torch. Only approved apparatus (torches, regulators, pressure-reducing valves, acetylene generators, manifolds) may be used.
3. Cylinders should be kept away from sources of heat.
4. It is prohibited to use cylinders as rollers or supports. Empty cylinders should be appropriately marked, their valves closed and valve-protection caps on.
5. Signs reading: DANGER-NO SMOKING, MATCHES, OR OPEN LIGHTS, or equivalent should be posted.
6. Cylinders, cylinder valves, couplings, regulators, hoses and apparatus should be kept free of oily or greasy substances.
7. Care should be taken not to drop or strike cylinders. Unless secured on special trucks, all regulators should be removed and valve-protection caps put in place before moving cylinders. All cylinders without fixed hand wheels should have keys, handles, or non-adjustable wrenches on stem valves when in service.
8. Liquefied gases should be stored and shipped valve-end up with valve covers in place. Before a regulator is removed, the valve should be closed and gas released from the regulator.
9. All employees are instructed never to crack a fuel-gas cylinder valve near sources of ignition.
10. Red is used to identify the acetylene (and other fuel-gas) hose, green for oxygen hose, and black for inert gas and air hose.
11. All pressure-reducing regulators should be used only for the gas and pressures for which they are intended. The open circuit (No Load) voltage of arc welding and cutting machines should be as low as possible and not in excess of the recommended limits.
12. Under wet conditions, automatic controls for reducing no-load voltage should be used. Grounding of the machine frame and safety ground connections of portable machines should be checked periodically.
13. Electrodes should be removed from the holders when not in use.
14. All electric power to the welder should be shut off when no one is in attendance.
15. Suitable fire extinguishing equipment should be available for immediate use before starting to ignite the welding torch.
16. The welder is strictly forbidden to coil or loop welding electrode cable around his/her body. All work and electrode lead cables should be frequently inspected for wear and damage, and replaced when needed. All connecting cable lengths should have adequate insulation.
17. When the object to be welded cannot be moved and fire hazards cannot be removed, shields should be used to confine heat, sparks and slag. Fire watchers should be assigned when welding or cutting is performed in locations where a serious fire might develop.
18. All combustible floors should be kept wet, covered by damp sand, or protected by fire-resistant shields. When floors are wet down, personnel should be protected from possible electrical shock. When welding is done on metal walls, precautions should be taken to protect combustibles on the other side. Before hot work is begun, used drums, barrels, tanks and other containers should be so thoroughly cleaned that no substances remain that could explode, ignite or produce toxic vapors.
19. It is required that eye protection helmets, hand shields and goggles meet appropriate standards. Employees exposed to the hazards created by welding, cutting or brazing operations should be protected with personal protective equipment and clothing.
20. Check for adequate ventilation where welding or cutting is performed. When working in confined spaces, environmental monitoring tests should be taken and means provided for quick removal of welders in case of emergency.

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Compressors & Compressed Air

All compressors should be equipped with pressure relief valves and pressure gauges. All compressor air intakes should be installed and equipped to ensure that only clean, uncontaminated air enters the compressor. Every air receiver should be provided with a drain pipe and valve at the lowest point for the removal of accumulated oil and water. Compressed air receivers should be periodically drained of moisture and oil. All safety valves should be tested at regular/frequent intervals to determine whether they are in good operating condition. A current operating permit shall be maintained. The inlet of air receivers and piping systems should be kept free of accumulated oil and carbonaceous materials.

Compressed Gas & Cylinders

Cylinders with a water weight capacity over 30 pounds should be equipped with means for connecting a valve protector device, or with a collar or recess to protect the valve. Cylinders should be legibly marked to identify clearly the gas contained. Compressed gas cylinders should be stored only in areas which are protected from external heat sources such as flame impingement, intense radiant heat, electric arcs or high temperature lines. Cylinders should not be located or stored in areas where they will be damaged by passing or falling objects, or subject to tampering by unauthorized persons. Cylinders should be stored or transported in a manner to prevent them from creating a hazard by tipping, falling or rolling. All cylinders containing liquefied fuel gas should be stored or transported in a position so that the safety relief device is always in direct contact with the vapor space in the cylinder. Valve protectors should be placed on cylinders when the cylinders are not in use or connected for use. All valves should be closed off before a cylinder is moved, when the cylinder is empty, and at the completion of each job. Low pressure fuel-gas cylinders should be checked periodically for corrosion, general distortion, cracks, or any other defect that might indicate a weakness or render them unfit for service. The periodic check of low pressure fuel-gas cylinders includes a close inspection of the cylinder's bottom.

Spraying Operations

There should be adequate ventilation before starting any spraying job. The conditions of the area to be sprayed should be considered before starting. If the area is enclosed, does it require mechanical ventilation? Before working, make sure that the area is free of combustible materials, and that there are "No Smoking" signs adequately posted and easily seen. If mechanical ventilation is provided when spraying in enclosed areas, air should not be recirculated to avoid contamination. There should be adequate space and ventilation for all drying areas. Also, in an enclosed area, spray operations should be at least 20 feet from flames, sparks, operating electrical motors and other ignition sources. The spray area should be free of any hot surfaces.

Any solvent used in the cleaning process should not have a flash point of 100 degrees or less. If portable lamps are used to illuminate the spray areas they should be approved for the location and should be suitable for use in a hazardous area. Approved respiratory equipment should be used when appropriate during spraying operations. If a sprinkler system is within the confines of the spraying area operation, it should be in working order and inspected semi-annually to make sure that it is in operating condition. If a spraying booth is used for the spraying operation, it should be made of metal, masonry or other noncombustible material.

The spray booth should be completely ventilated. Booth floors and baffles should be easily cleaned and noncombustible. Ducts and access doors should be easily cleaned. Lighting fixtures for both outside and inside the spray booth should be enclosed in clear see-through sealed panels. Electric motors for exhaust fans should be placed outside the booth. Belts and pulleys should be completely enclosed. Drying apparatus should be located in a well ventilated area in the booth and properly grounded. Infrared drying apparatus should be kept out of the spray area during a spraying operation.

Confined Spaces

Before entry into a confined space, all impellers, agitators, or other moving equipment contained in the confined space should be locked-out. Ventilation should be either natural or mechanically provided into the confined space. All hazardous or corrosive substances that contain inert, toxic, flammable or corrosive materials should be valved off, blanked, disconnected and separated. Adequate lighting should be provided within the space. If the confined area is located below the ground or near where motor vehicles are operating, care should be taken that vehicle

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exhaust or carbon monoxide does not enter the space. When personnel enter a confined area, assigned safety standby employees who are alert to the work being done, are able to sound an alarm if necessary and to render assistance, should be in the area.

Environmental Controls

All employees and students using designated facilities should be aware of the hazards involved when working with chemicals and the remedies that need to be used when an accident does occur. Students working with or around hazardous materials should be supervised by a faculty or staff member. First aid and caution signs should be conspicuously posted so as to alert individuals on a constant basis. Charts identifying the chemicals utilized in the workplace, their symptoms and effects should also be posted. The workers (and students as appropriate) should know what the acceptable level of exposure to a chemical is and what safety systems should be in place when working with a chemical. Information about chemicals used in a building must be obtained from Building Chairpersons. Faculty should also be aware of new chemical products which may be available that are less harmful, and they should ensure that facilities are adequately ventilated when using chemicals on the premises.

Spray painting operations done in spray rooms or booths should be equipped with an appropriate exhaust system. Periodic inspections should be made of the booth and noted on an inspection tag posted on the booth. If welding is done, the welder should be certified. The welder should be aware of the ventilation available and the type respirator needed in the area where welding is taking place. The welder should determine whether exposure time or other means will be an adequate measure to be protected from fumes emitted by welding. Welders should also be supplied with protective clothing and a flash shield during welding operations.

When fibrous materials such as asbestos are being handled, the necessary precautions should be taken to protect the employee from the material. The material should be labeled, along with signs conspicuously posted that these materials are being used in the area. Employees should be aware of effective methods used to prevent emission of airborne asbestos fibers, silica dust and other similar hazardous materials. Some of the recommended methods of controlling the emission of these materials are by using water and vacuuming, rather than blowing and sweeping, the materials. Machinery such as grinders, saws and other tools that produce a fine airborne dust should be vented to an industrial collector or central exhaust system. Any ventilation system should be designed and operated at an airflow and volume necessary for proper application and effectiveness. All questions concerning asbestos should be referred to the HSU Maintenance Department. Testing of fibrous materials for asbestos is provided (without charge) by the Texas Workers' Compensation Insurance Fund.

In the design of the ventilation system the ducts and belts should be free of obstructions and slippage. As with all operations, there should be written standards on the procedures for the equipment, description of the job task, usage of the protective equipment provided, such as the selection and use of respirators, and when they are needed.

1. Any water that is provided to an employee throughout the facility should be clearly identified as to whether it is for drinking, washing or cooking.
2. All restrooms should be kept clean and sanitary.
3. If a work assignment involves dealing with equipment that produces ultra-violet radiation, the employee (or student, as appropriate) should be properly protected or given the correct protective clothing.

Electrical

Employees working with electricity should be familiar with OSHA Electrical Safety Orders. Employees should report any hazard to life or property that is observed in connection with a job, electrical equipment or lines. Employees should make preliminary inspections or appropriate tests to determine conditions before starting work. When equipment or lines are to be serviced, maintained or adjusted, employees should be aware of open switches. Lockouts should be tagged whenever possible. Equipment such as electrical tools or appliance should be grounded or of the double insulated type. Extension cords being used should have a grounding conductor. The workplace supervisor should be aware if multiple plug adapters are prohibited. If ground-fault circuit interrupters are installed on each temporary 15 or 20 ampere, 120 volt AC circuit at locations where construction, demolition, modifications, alterations or excavations are being performed, temporary circuits should be protected by suitable disconnecting switches or plug connectors with permanent wiring at the junction.

Electricians should be aware of the following:

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1. Exposed wiring and cords with frayed or deteriorated insulation should be repaired or replaced; flexible cords and cables should be free of splices or taps; clamps or other securing means should be provided on flexible cords or cables at plugs, receptacles, tools, equipment; cord jackets should be held securely in place.
2. All cord, cable and raceway connections should be intact and secure.
3. In wet or damp locations, electrical tools and equipment should be appropriate for the use or location, or otherwise protected.
4. The location of electrical power lines and cables (overhead, underground, under floor, other side of walls) should be determined before digging, drilling or similar work is begun.
5. All metal measuring tapes, ropes, hand lines or similar devices with metallic thread woven into the fabric are prohibited for use where they could come in contact with energized parts of equipment or circuit conductors.
6. The use of metal ladders is prohibited in areas where the ladder or the person using the ladder could come in contact with energized parts of equipment, fixtures or conductors.
7. All disconnecting switches and circuit breakers should be labeled to indicate their use or equipment served.
8. A means for disconnecting equipment should always be opened before fuses are replaced.
9. All interior wiring systems should include provisions for grounding metal parts or electrical raceways, equipment and enclosures.
10. All electrical raceways and enclosures should be fastened securely in place.
11. All energized parts of electrical circuits and equipment should be guarded against accidental contact by approved cabinets or enclosures. Sufficient access and working space should be provided and maintained around all electrical equipment to permit ready and safe operations and maintenance.
12. All unused openings (including conduit knockouts) in electrical enclosures and fittings should be closed with appropriate covers, plugs or plates. Electrical enclosures such as switches, receptacles, and junction boxes should be provided with tight-fitting covers or plates.
13. Disconnecting switches for electrical motors in excess of two horsepower should be capable of opening the circuit when the motor is in a stalled condition without exploding. (Switches should be horsepower rated equal to or in excess of the motor hp rating.)
14. Low voltage protection should be provided in the control device of motor driven machines or equipment which could cause injury from inadvertent starting. A motor disconnecting switch or circuit breaker should be located within sight of the motor control device.

Motors should: (1) be located within sight of their controller; (2) have their controller disconnecting means capable of being locked in the open position; (3) or have separate disconnecting means installed in the circuit within sight of the motor. A controller for a motor in excess of two horsepower should be rated equal to but not in excess of the motor it services. Employees who regularly work on or around energized electrical equipment or lines should be instructed in cardiopulmonary resuscitation (CPR) methods. Special training is required to work on energized lines or equipment over 600 volts. Supervisors should review these rules to determine the specific applications for their area of responsibility.

Personal Protective Equipment Clothing

1. Where there is a danger of flying particles or corrosive materials, employees should wear protective goggles and/or face shields provided [or approved] by Hardin-Simmons University.
2. Employees/students should wear safety glasses in areas where there is a risk of eye injuries such as punctures, contusions or burns.
3. Employees/students who need corrective lenses should wear only approved safety glasses, protective goggles, or other medically approved precautionary procedures when working in areas with harmful exposures, or risk of eye injury. Do not attempt to work if your vision is distorted.
4. Employees/students should wear protective gloves, aprons, shields and other means provided in areas where they may be subject to cuts, corrosive liquids and/or harmful chemicals.
5. Hard hats should be worn in areas subject to falling objects.
6. Appropriate footwear including steel toed shoes should be worn in an area where there is any risk of foot injuries from hot, corrosive, poisonous substances, falling objects, crushing or penetrating action.
7. When necessary employees/students should use the approved respirators which are provided for regular and emergency use.

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8. All safety equipment should be maintained in sanitary condition and ready for use. Report defective equipment to supervisors immediately.
9. If any irritant gets into an employee's eyes, call for medical assistance immediately and flush the eye out with clean water.
10. Food may not be eaten in places where there is any danger of exposure to toxic materials or other health hazards.
11. In cases of cleaning toxic or hazardous materials, protective clothing provided should be worn.

Tool Maintenance

Faulty or improperly used hand tools are a safety hazard. All employees shall be responsible for ensuring that tools and equipment (both University and employee-owned) used by them or other employees at their workplace are in good condition. Hand tools such as chisels, punches, etc., which develop mushroom heads during use, should be reconditioned or replaced as necessary. Broken or fractured handles on hammers, axes and similar equipment should be replaced promptly. Worn or bent wrenches should be replaced regularly. Appropriate handles should be used on files and similar tools. Appropriate safety glasses, face shields, etc., should be worn while using hand tools or equipment which might produce flying materials or be subject to breakage. Eye and face protection should be worn when driving in tempered spuds or nails. Check your tools often for wear or defect. Jacks should be checked periodically to assure they are in good operating condition. Tool handles should be wedged tightly into the heads of tools. Tool cutting edges should be kept sharp enough so the tool will move smoothly without binding or skipping. When not in use, tools should be stored in a dry, secure location.

Portable Power Tools

Portable power tools pose a special danger to employees because they are deceptively small and light, yet they can do great bodily harm if used improperly or poorly maintained. These rules apply to all power tools, but are especially important when handling portable saws, drills and power screw drivers.

- Check your equipment before you use it. All grinders, saws and similar equipment should be equipped with appropriate safety guards. Power tools should not be used without the correct shield, guard, or attachment, recommended by the manufacturer. Portable circular saws should be equipped with guards above and below the base shoe.
- Circular saw guards should be checked periodically and before each use to assure they are not wedged up, thus leaving the lower portion of the blade unguarded. All rotating or moving parts of equipment should be guarded to prevent physical contact. All cord-connected, electrically-operated tools and equipment should be effectively grounded or of the approved double insulated type.
- Effective guards should be in place over belts, pulleys, chains, sprockets, on equipment such as concrete mixers, air compressors, etc. If portable fans are provided, they should be equipped with full guards or screens having openings 1/2 inch or less.
- Do not attempt to lift heavy objects without proper equipment. Hoisting equipment can be made available for lifting heavy objects, with hoist ratings and characteristics appropriate for the task. Power tools are either battery operated or wired. If battery operated, don't under-estimate their power. A small electric drill or power screw driver can cause a severe injury if it lands in the wrong place. While not usually a shock hazard, the battery pack contains toxic chemicals and does emit a low voltage electric current. Don't drop or incinerate the battery pack, or a tool with a self-contained power source.
- Hard wired equipment can be portable or fixed. Typically used with extension cords, the more powerful hard wired equipment presents a double safety problem: the actual equipment plus its electrical power source.
- Ground-fault circuit interrupters should be provided on all temporary electrical 15 and 20 ampere circuits used during periods of construction. Pneumatic and hydraulic hoses on power-operated tools should be checked regularly for deterioration or damage.

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Abrasive Wheel Equipment (Grinders)

The work rest used should be kept adjusted to within 1/8 inch of the wheel. The adjustable tongue on the top side of the grinder should be kept adjusted to within 1/4 inch of the wheel. The side guards should cover the spindle, nut and flange and 75 percent of the wheel diameter. Bench and pedestal grinders should be permanently mounted. Goggles or face shields should be worn when grinding. The maximum RPM rating of each abrasive wheel should be compatible with the RPM rating of the grinder motor. Fixed or permanently mounted grinders should be connected to their electrical supply system with metallic conduit or by other permanent wiring method. Each grinder should have an individual on and off control switch. The switch should be easily accessible anytime you operate the machine. Each electrically operated grinder is effectively grounded. Do not defeat the grounding mechanism, especially by using non-three prong plug adapters. Note the method by which new abrasive wheels are mounted. Visually inspect and ring test new abrasive wheels. The dust collectors and powered exhausts provided on grinders should be used in operations that produce large amounts of dust. The splash guards mounted on grinders that use a coolant should be mounted so that no one is ever splashed with the coolant. The work area around a grinder should be kept clean at all times. It is your responsibility as operator of any machine to ensure the necessary safety precautions are taken before using the machine.

Combustible Materials

All combustible scrap, debris and waste materials (oily rags, etc.) should be stored in covered metal receptacles and removed from the work site promptly. Proper storage to minimize the risk of fire, including spontaneous combustion, should be practiced. Only approved containers and tanks are to be used for the storage and handling of flammable and combustible liquids. All connections on drums and combustible liquid piping, vapor and liquid should be kept tight. All flammable liquids should be kept in closed containers when not in use (e.g., parts-cleaning tanks, pans, etc.). Bulk drums of flammable liquids should be grounded and bonded to containers during dispensing. Storage rooms for flammable and combustible liquids should have explosion-proof lights. Storage rooms for flammable and combustible liquids should have mechanical or gravity ventilation. Liquefied petroleum gas should be stored, handled, and used in accordance with safe practices and standards. NO SMOKING signs should be posted on liquefied petroleum gas tanks. Liquefied petroleum storage tanks should be guarded to prevent damage from vehicles. All solvent wastes and flammable liquids should be kept in fire-resistant, covered containers until they are removed from the work site. Vacuuming should be used whenever possible rather than blowing or sweeping combustible dust. Fire separators should be placed between containers of combustibles or flammables when stacked one upon another to assure their support and stability. Fuel gas cylinders and oxygen cylinders should be separated by distance, fire resistant barriers, etc., while in storage. Fire extinguishers are selected for the types of materials and placed in areas where they are to be used. These fire extinguisher classification are:

- Class A - Ordinary combustible materials fires.
- Class B - Flammable liquid, gas or grease fires.
- Class C - Energized-electrical equipment fires.

Appropriate fire extinguishers should be mounted within 75 ft. of outside areas containing flammable liquids, and within 10 ft. of any inside storage area for such materials. All extinguishers should be serviced, maintained and tagged at intervals not to exceed one year. Extinguishers should be placed free from obstructions or blockage. All extinguishers should be fully charged and in their designated places unless in use. Where sprinkler systems are permanently installed, the nozzle heads should be arranged so that water will not be sprayed into operating electrical switch boards and equipment. Check to see that heads have not been bent or twisted from their original position. "NO SMOKING" rules will be enforced in areas involving storage and use of hazardous materials. "NO SMOKING" signs have been posted where appropriate in areas where flammable or combustible materials are used and/or stored. Safety cans should be used for dispensing flammable or combustible liquids at point of use. All spills of flammable or combustible liquids should be cleaned up promptly. Storage tanks should be adequately vented to prevent the development of excessive vacuum or pressure as a result of filling, emptying, or atmosphere temperature changes. Storage tanks are equipped with emergency venting that will relieve excessive internal pressure caused by fire exposure.

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Chapter 5 Biological Hazards

Definitions

By law, an infection control plan must be prepared by every person that handles, stores, uses, processes, or disposes of infectious medical wastes. This infection control plan complies with OSHA requirement, 29 CFR 1910.1030, Blood Borne Pathogens. The plan includes requirements for personal protective equipment, housekeeping, training, and a procedure for reporting exposures.

Biological Hazard. The term biological hazard or bio-hazard is taken to mean any viable infectious agent (etiologic agent) that presents a risk, or a potential risk, to the well being of humans. Each supervisor has identified the specific biological hazard associated with your job, and the supervisor will arrange for your training if necessary.

Etiologic Agents. The United States Department of Health and Human Services, Public Health Service, Classification of Etiologic Agents on the Basis of Hazard, is the classification system used at Hardin-Simmons University for etiologic agents.

Medical Wastes/Infectious Wastes. All laboratory waste emanating from human or animal tissues, blood or blood products or fluids; all cultures of tissues or cells of human origin or cultures of etiologic agents; specimens of human or animal parts or tissues removed by surgery, autopsy, or necropsy.

Universal Precautions. Refers to a system of infectious disease control that assumes that every direct contact with body fluids is infectious and requires every employee exposed to be protected as though such body fluids were infected with blood-borne pathogens. Refer to Universal Precautions (OSHA Instruction CPL 2-2.44A) for instructions on how to handle infectious/medical material.

General Procedures

The following procedures should be followed by personnel when in medical or biological rooms or laboratories. All supervisors should try to ensure that their staff is trained in proper work practices, the concept of universal precautions, personal protective equipment, and in proper clean-up and disposal techniques.

1. Resuscitation equipment, pocket masks, resuscitation bags, or other ventilation equipment should be provided to eliminate the need for direct mouth-to-mouth contact in groups where resuscitation is a part of their responsibilities.
2. Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a potential for exposure to any health hazard.
3. Food and drink should not be stored in refrigerators, freezers, or cabinets where blood or other potentially infectious material is stored or in other areas of possible contamination.
4. In infectious disease laboratories, the following requirements apply to utility rooms and attics serving these laboratories:
 - Only employees, participating guests, students, and visitors who are properly authorized are permitted to enter.
 - Surplus materials and equipment should be kept out of these rooms.
 - Drinking fountains should be the sole source of drinking water for humans.
 - Masks and eye protection are required when contact of mucosal membranes (eyes, mouth or nose) with body fluids is likely to occur (e.g., splashes or aerosolization).
 - According to the level of risk, wearing laboratory or protective clothing may be required for persons entering infectious disease laboratories. Likewise, showers with a germicidal soap may be required before exit.
 - Gowns, aprons, or lab coats should be worn whenever there is a possibility that body fluids could splash on skin or clothing.
 - Gloves should be made of appropriate disposable material, usually intact latex or vinyl. They should be used when the employee has cuts, abraded skin, chapped hands, dermatitis, or similar conditions; when examining abraded or non-intact skin of a patient with active bleeding; while handling blood or blood products or other body secretions during routine laboratory procedures.

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5. Employees should wash their hands immediately, or as soon as possible, after removal of gloves or other personal protective equipment and after hand contact with blood or other potentially infectious materials.
6. All personal protective equipment should be removed immediately upon leaving the work area, and if this equipment is overtly contaminated, it should be placed in an appropriate area or container for storage, washing, decontamination, or disposal. Contaminated laboratory clothing should not be worn in clean areas or outside the building.
7. Only disposable Luer-lok syringes and needles may be used. Special efforts will be made to ensure that procedures involving blood or other potentially infectious agents is performed in a manner that will minimize splashing, spraying, and aerosolization. Individuals should not work alone on any hazardous operation. All employees working with radiation or radioactive materials are required to receive training.

Cuts

If an employee or student has a needle stick, cut, or mucous membrane exposure to body fluids he/she should report the incident immediately to the University Nurse.

Blood Exposure/Exposure Determination

All employees and students exposed to human blood and blood products must report to the Safety Officer for information and possible inclusion in the Hepatitis B Immunization Program. Blood spills in HSU facilities should be reported to American Building Maintenance, 670-1509.

1. Occupational exposure. All employees in these categories have an occupational exposure to blood borne pathogens: University Nurse, police/security officers, HSU Athletic Trainer, and lifeguards.
2. It is possible that the following may also be exposed: Residence Hall Directors and assistants, HSU Maintenance employees, and graduate assistants working with the athletic program.

Infection Control Plan

The purpose of the Infection Control Plan is to protect the health and safety of the persons directly involved in handling the materials, Hardin-Simmons University personnel and the general public by ensuring the safe handling, storage, use, processing, and disposal of infectious medical waste. This plan complies with OSHA requirement proposed for 29 CFR 1910.1030, Blood Borne Pathogens.

Medical wastes/Infectious wastes: All laboratory waste emanating from human or animal tissues, blood or blood products or fluids; all cultures of tissues or cells of human origin or cultures of etiologic agents; specimens of human or animal parts or tissues removed by surgery, autopsy, or necropsy.

Universal precautions: Refers to a system of infectious disease control which assumes that every direct contact with body fluids is infectious and requires every employee exposed to be protected as though such body fluids were infected with blood-borne pathogens. Infectious/medical material should be handled according to Universal Precautions (OSHA Instruction CPL 2-2.44A). The following universal precautions should be taken.

1. Gloves must be made of appropriate disposable material, usually intact latex or vinyl. They should be used:
 - a. when the employee has cuts, abraded skin, chapped hands, dermatitis, or the like.
 - b. when examining abraded or non-intact skin of a patient with active bleeding.
 - c. while handling blood or blood products or other body secretions during routine laboratory procedures.
2. Gowns, aprons, or lab coats should be worn when splashes of body fluid on skin or clothing are possible.
3. Mask and eye protection are required when contact of mucosal membranes (eyes, mouth or nose) with body fluids is likely to occur (e.g. splashes or aerosolization).
4. Resuscitation equipment, pocket masks, resuscitation bags, or other ventilation equipment should be provided to eliminate the need for direct mouth to mouth contact. (This is required for employees where resuscitation is a part of their responsibility such as a Police or Medical Emergency Services).
5. Pipetting: All pipetting should be carried out with the aid of a rubber bulb or other vacuum assist device. Mouth pipetting is strictly forbidden.

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Hepatitis B Vaccination: Hardin-Simmons University will make the hepatitis B vaccine and vaccination series available to all employees who have an occupational exposure to blood or other potentially infectious material. Vaccinations will be provided to such employees at no charge, made available at a reasonable time and place, performed by or under the supervision of licensed health care professionals, and provided according to the recommendations of the U.S. Public Health Service. Any laboratory tests necessitated by potential occupational exposure shall be conducted by an accredited laboratory at no cost to the employee.

Vaccinations will be made available after the employee receives training and within 10 days of initial assignment. Employees who decline vaccination will be asked to sign a declination form. Employees may revoke this declination and secure vaccination at any time.

Post-Exposure Evaluation and Follow-up: Following exposure the University will make immediately available to the exposed employee a confidential medical evaluation and follow-up. The employee will be asked to document the route of exposure, the circumstances under which exposure occurred and to identify the source individual. Following consent, the University will have the blood of the source individual tested. The results of the test shall be provided to the exposed employee with a caution against disclosing the identity and infectious status of the source individual tested. The results of the test shall be provided to the exposed employee with a caution against disclosing the identity and infectious status of the source individual. Hardin-Simmons University shall, with consent, collect and test the exposed employee's blood for hepatitis B virus and HIV. If no consent to testing for HIV is secured, the University will keep the sample for 90 days. Hardin-Simmons will make counseling and evaluation of any reported illnesses available to the exposed employee.

The University will provide the health care professional who vaccinates and treats the exposed employee with a copy of OSHA regulations, a description of the exposed employee's job duties as related to the incident of exposure, documentation of the route of exposure, the results of testing on the source individual's blood, and all medical records relevant to the treatment of the exposed employee including the employee's vaccination status.

The University will provide to the exposed employee a copy of an opinion by the health care professional which includes whether a vaccination is needed and if the employee has received it and an opinion for evaluation and follow-up which includes: a statement that the exposed employee has been informed of the results of the evaluation and that the employee has been told of medical conditions which might result from exposure which require further evaluation and treatment.

Information and Training: Hardin-Simmons University will provide training to its employees who have a risk of exposure to blood and bodily fluid. The training will be conducted by a person(s) who is knowledgeable in the subject matter covered by the elements of the training program as those elements relate to the University. Training will be provided during work hours upon initial assignment to a position with a risk of occupational exposure. In addition, training will be conducted for all at-risk employees on an annual basis.

So that you might effectively plan the training seminars, please take note of the following requirements related to the seminars. Training seminars must include an explanation of the following:

1. The content of OSHA's blood borne pathogens regulations (Copies of the regulations should be made available for review);
2. The epidemiology and symptoms of blood borne diseases;
3. The modes of transmission of blood borne pathogens;
4. The exposure control plan adopted by the University (Copies of the plan should be made available for review);
5. Methods for recognizing tasks that might involve exposure to blood and other potentially infectious material;
6. The uses and limitations of methods to prevent exposure such as appropriate work practices and engineering controls as well as personal protective equipment;
7. The proper use, location, removal, handling, decontamination and disposal of personal protective equipment;
8. The basis for selection of personal protective equipment;
9. Actions to take and persons to contact in an emergency involving blood or other potentially infectious materials; and
10. Procedures to follow if an exposure incident occurs including the method of reporting the incident and the medical follow-up that will be made available.

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In addition, the training seminar must include:

1. Information on the HBV vaccine, its efficacy, safety, method of administration, benefits of being vaccinated and that the vaccine will be provided free of charge;
2. Information on post-exposure evaluation and follow-up required to be provided to the employee by the University; and
3. An opportunity for questions and answers.

Record keeping: As required by federal regulations, the University maintains records on each employee who has occupational exposure to blood and other potentially infectious material. In addition, the University maintains records regarding its training activities. These records are available for inspection by the employee to whom they pertain in the office of the University.

To be in compliance with the record keeping requirements, the University should include the following information with respect to each employee with occupational exposure:

1. Name and social security number;
2. Copy of employee's hepatitis B vaccination status including dates of vaccination and any medical records relative to the employee's ability to receive vaccination;
3. Copy of all results of examinations, medical testing and follow-up procedures;
4. Employer's copy of the health care professional's written opinion described above under section five; and
5. A copy of the information provided to the health care professional as described above under section five. Records must be kept confidential and not disclosed without the employee's written consent. Records must be maintained for the duration of employment plus thirty years.

Training records must be maintained for three years from the date of training. Employees and their representatives have the right to inspect training records. The following information must be included in training records:

1. The dates of training sessions;
2. The contents or a summary of the training sessions;
3. The names and qualifications of all persons conducting the training; and
4. The names and job titles of all persons attending the training sessions. Upon request, all records must be made available to officials of the Department of Labor.

Waste Disposal Plan

1. Medical/Infectious waste should be segregated from other waste at the point of origin.
2. Medical/Infectious waste, except for sharps (e.g. razor blades, broken glass, needles, etc.) capable of puncturing or cutting should be contained in double disposable red bags conspicuously labeled with the words, "INFECTIOUS WASTE -- BIO-HAZARD."
3. Infectious sharps should be contained for disposal in leak-proof, rigid puncture resistant containers.
4. Infectious waste thus contained as described in procedures 2 and 3 above should be placed in reusable or disposable leak-proof bins or barrels which should be conspicuously labeled with the words, "INFECTIOUS WASTE -- BIO-HAZARD." These waste barrels are to be picked up by an outside University licensed to handle infectious wastes.
5. Mixed waste that includes biological/infectious waste and radioactive waste should be disinfected by a person trained in radioisotope safety and waste disposal procedures. After disinfection call the Safety Officer for disposal.
6. Spills/Disinfectants: a solution of sodium hypochlorite (household bleach) diluted 1:9 with water should be used to disinfect, following initial clean-up of a spill with a chemical germicide approved as a hospital disinfectant. Spills should be cleaned up immediately.
7. After removing gloves, and/or after contact with body fluids, hands and other skin surfaces should be washed thoroughly and immediately with soap or other disinfectant in hot water.
8. Other biological wastes that do not contain radioactive or hazardous substances may be disinfected by steam sterilization (autoclave) and then disposed of in the regular trash.
9. Liquid bio-hazard waste may be disposed of in the sewage system following chemical decontamination.
10. Reusable glassware should be decontaminated in sodium hyper chlorite (household bleach) solution (1:9) prior to rinsing and acid washing. Then the glassware should be sterilized in an autoclave. All supervisors

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should ensure that their staff is trained in proper work practices, the concept of universal precautions, personal protective equipment, and in proper clean-up and disposal techniques.

Responsibilities

The University Nurse and the University Athletic Trainer should prepare and maintain their own plan for their area of responsibility. A copy of these plans should be provided to the Safety Officer.

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Chapter 6 Chemical Safety

Introduction

The objective of this chapter is to provide guidance to all Hardin-Simmons University students and employees who use hazardous materials so that they may perform their work safely. Many of these materials are explosive, corrosive, flammable, or toxic; they may have properties that combine these hazards. Some chemicals are relatively non-hazardous by themselves but become dangerous when they interact with other substances, either in planned experiments or by accidental contact. To avoid injury and/or property damage, persons who handle chemicals in any area of the University should understand the hazardous properties of the chemicals with which they will be working. Before using a specific chemical, safe handling methods should be reviewed. Supervisors/department heads should make special efforts to obtain the required MSDS sheets. Supervisors should ensure that the equipment needed to work safely with chemicals is provided.

Hazcom Plan

On May 25, 1986 the Occupational Safety and Health Administration (OSHA) placed in effect the requirements of a new standard called Hazard Communication (29 CFR 1910.1200). This standard establishes requirements to ensure that chemical hazards in the workplace are identified and that this information, along with information on protective measures, is transmitted to all affected employees and individuals using a building. This section describes how Hardin-Simmons University employees are informed of the potential chemical hazards in their work area so they can avoid harmful exposures and safeguard their health. Components of this program include labeling, preparing a material safety data sheet (MSDS), and training.

Responsibilities of Supervisors/Management: Identify hazards for respective work areas. Ensure hazards are properly labeled. Obtain/maintain copies of material safety data sheets, as required, of each hazardous material used in the work area and make them accessible to employees during each work shift. Have the written Hazard Communication Program available to all employees. Provide hazard-specific training for employees. Identify hazardous materials in the hazard review section of the Hardin-Simmons University purchase requisition form.

Employees should:

- Attend safety training meetings.
- Perform operations in safe manner.
- Notify management immediately of any safety hazards or injuries.
- When ordering materials, identify hazardous chemicals on the Hardin-Simmons University purchase requisition form.

The Safety Officer should develop a written Hazard Communication Program; provide for a central file of material safety data sheets; review and update Hardin-Simmons University stock safety labels; provide generic training programs; assist supervisors in developing hazard-specific training programs; oversee the Hazard Communication Standard written policy and implementation plans; alert on-site contractors to hazardous materials in work areas; alert on-site contractors that they should provide information to their employees on hazardous materials they bring to the work site.

The number of hazardous chemicals and the number of reactions between them is so large that prior knowledge of all potential hazards cannot be assumed. Therefore, when the chemical properties of a material are not fully known, it should be assumed hazardous and used in as small quantities as possible to minimize exposure and thus reduce the magnitude of unexpected events.

The following general safety precautions should be observed when working with chemicals:

1. Keep the work area clean and orderly.
2. Use the necessary safety equipment.
3. Carefully label every container with the identity of its contents and appropriate hazard warnings.
4. Store incompatible chemicals in separate areas.
5. Substitute less toxic materials whenever possible.
6. Limit the volume of volatile or flammable material to the minimum needed for short operation periods.

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7. Provide means of containing the material if equipment or containers should break or spill their contents.
8. Follow the requirements of this manual, if systems that can generate pressure or are operated under pressure are involved.
9. Provide a back-up method of shutting off power to a heat source if any hazard is involved. Obtain and read the Material Safety Data Sheets.
10. Wear/use the appropriate safety equipment/clothing

Task Evaluation

Each task that requires the use of chemicals should be evaluated by the responsible Department Head to determine the potential hazards associated with the work. This hazard evaluation should include the chemical or combination of chemicals that are used in the work, as well as other materials that are used near the work. If a malfunction during the operation has the potential to cause serious injury or property damage, an Operational Safety Procedure (OSP) should be prepared and followed. Operations should be planned to minimize the generation of hazardous wastes. Additionally, unused chemicals should be recycled.

Supervisory Responsibility

Supervisors are responsible for establishing safe procedures and for ensuring that the protective equipment needed to work with the chemicals is available. Supervisors should instruct their students and other faculty/staff about possible hazards, safety precautions that should be observed, possible consequences of an accident, and procedures to follow if an accident does occur. The supervisor is required to enforce the proper use of protective equipment and the established safety practices. It is the responsibility of employees and all who use Hardin-Simmons University facilities to understand the properties of the chemicals with which they will work and to follow all precautions that apply to each specific task. When faced with an unexpected threat of malfunction, injury, or damage, employees are expected to choose a course of action that provides the most protection to themselves and to others in the area. Every employee is expected to report to the supervisor any unsafe condition seen in the area that would not permit him/her to work safely. The Safety Officer assists employees and supervisors to work safely by researching and providing information on the hazardous properties of materials, recommending methods for controlling the hazards of specific operations, and by monitoring the work environment. Supervisors should instruct their employees and students about the potential hazards involved in the work, proper safety precautions to follow, and emergency procedures to use if an accident should occur.

Effects on Reproduction

Both men and women may be exposed to hazardous agents that can cause infertility or result in genetic damage that is passed on to offspring. These agents include ionizing radiation, alcohol, cigarette smoke, pharmaceuticals, and some of the thousands of different chemicals that are used in the home or workplace. Although many of these have been tested to determine whether they cause acute (immediate) effects on the body, few have been studied to see if they cause cancer (carcinogens), birth defects (teratogens), or genetic defects (mutagens). Even fewer have been studied to see if they can cause infertility, menstrual disorders, or other disorders relating to reproduction. The primary path for hazardous substances to reach an unborn child is through the placenta. Scientists now believe that most chemical substances or drugs can cross this barrier with varying degrees of ease and enter the system of the developing fetus. Thus, many chemicals and drugs that enter a pregnant woman's body (through breathing, swallowing, absorption through the skin, etc.) will eventually enter the mother's blood circulation and find their way into the unborn child. In general, the important questions of exactly how much of the toxic substance that enters the mother's body will reach the fetus or what concentration the fetus can tolerate without harmful effects are not yet answered. The fetus may be most vulnerable in the early weeks of pregnancy, but it is also at risk later in pregnancy.

In light of the potential harm of workplace exposures to both a pregnant woman and her developing fetus, it is very important and required by Hardin-Simmons University policy for the woman (employee or student) to inform her supervisor, Safety Officer, or faculty member of her pregnancy.

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Airborne Contaminants

Exposures by inhalation of airborne contaminants (gases, vapors, fumes, dusts, and mists) should not exceed the levels listed in the latest edition of Threshold Limit Values of Airborne Contaminants (TLV) published by the American Conference of Governmental Industrial Hygienists. These TLV levels refer to airborne concentrations of substances and represent conditions under which it is believed that workers may be repeatedly exposed without adverse effect. In all cases of potentially harmful exposure, feasible engineering or administrative controls should first be established. Refer any concerns concerning airborne contaminants to the HSU Maintenance Department or the Safety Officer.

Safety Equipment

Eyewash fountains are required if the substance in use presents an eye hazard. The eyewash fountain should provide a soft stream or spray of aerated water. In areas where a corrosive chemical or rapid fire hazard exists, safety showers should be provided for immediate first aid treatment of chemical splashes and for extinguishing clothing fires. The shower should be capable of drenching the victim immediately in the event of an emergency. Eyewash fountains and safety showers should be located close to each other so that, if necessary, the eyes can be washed while the body is showered. Access to these facilities should always remain open. In case of accident, flush the affected part for at least 15 minutes. Report the accident to the Safety Officer immediately. A special first aid treatment kit for fluorine and hydrofluoric acid burns should be available. Safety shields should be used for protection against possible explosions or splash hazards. University equipment should be shielded on all sides so that there is no line-of-sight exposure of personnel. The sash on a chemical fume hood is a readily available partial shield. However, a portable shield should also be used, particularly with hoods that have vertical-rising sashes rather than horizontal-sliding sashes.

Labels

All containers (including glassware, safety cans, plastic squeeze bottles) should have labels that identify their chemical contents. Labels should also contain information on the hazards associated with the use of the chemical.

Chemical Storage

The separation of chemicals (solids or liquids) during storage is necessary to reduce the possibility of unwanted chemical reactions caused by accidental mixing. Explosives such as picric acid should be stored separately outdoors. Use either distance or barriers (e.g., trays) to isolate chemicals into the following groups:

1. Flammable liquids (e.g., acetone, benzene, ethers, alcohols). Place in approved fire lockers.
2. Other liquids (e.g., chloroform, trichloroethane).
3. Acids (e.g., nitric, sulfuric, hydrochloric, perchloric). Treat acetic acid as a flammable liquid.
4. Bases (e.g., sodium hydroxide, ammonium hydroxide).

Chemicals should not be stored in the same refrigerator used for food storage. Refrigerators used for storing chemicals should be appropriately identified by placing a label on the door.

Hazardous Chemical Exposures

In any university which utilizes chemical substances, a training program on the handling, hazards, storage, exposure risks, symptoms of chemical exposure, and first aid needs to be part of any faculty and student training. There should also be follow-up training sessions as to any new chemical or processes that may be initiated by the University. Follow-up training sessions act as a reinforcement of safety standards that need to be followed on a daily basis. Training should be provided for employees and students (who have a need to know because of contact) to learn acceptable levels of chemical exposure, proper storage and labeling of chemicals, and usage of protective clothing and equipment for handling chemicals. They should also be trained about potential fire and toxicity hazards, when not to have a chemical in a confined area, or to store in closed containers, usage of eye wash fountains and safety showers, and the necessary posting of open, and dangerous areas.

It is important that employees (and students as appropriate) understand that there is a Threshold Limit Values or Permissible Exposure Limits of airborne contaminants and physical agents in the workplace. Building

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Chairpersons are responsible for coordinating this training. Questions concerning procedures should be referred to supervisors.

- Chemical spills should be reported immediately to Building Chairpersons or the Safety Officer.
- Building Chairpersons who have chemicals in their buildings should post notification instructions in prominent places.
- Attempts will be made to provide the appropriate first aid training and equipment in any facility where chemicals are used.
- Faculty should know how to handle equipment in emergency situations, what equipment needs to be used and whether the equipment is adequate for the situation.
- Respirators may be used either as protective safety equipment or for emergency usage. Therefore, the employees (and students as appropriate) should recognize that respirators need to be stored in a clean, sanitary and convenient location and inspected on a regular basis, and they should recognize which respirators are approved by NIOSH for their particular applications. With a first aid program an employee will recognize when a problem may be occurring by exposure to a chemical ranging from headaches, nausea, dermatitis problems to other factors of discomfort when they use solvents or chemicals.
- Ventilation is another major factor in the design of any facility. Whether by natural means or mechanical, the system should be designed to control dust, fumes, solvents, gases, smoke or vapors which may be generated in the workplace. It is also important that a medical or biological monitoring system be in operation as part of the safety standards. If internal combustion engines are used in the facility, or if there is a chance of leakage or mixture with a chemical that could create a toxic gas, atmospheric gas levels should be monitored. If toxic chemicals are used and stored in the facility they should be located in an isolated area to guarantee safety.

Emergencies

In case of an emergency, consider any of the following actions if appropriate:

1. Evacuate people from the area.
2. Isolate the area.
3. If the material is flammable, turn off ignition and heat sources.
4. Call the Fire Department or 911 for assistance; also, call the HSU Police Department at extension 1000.
5. Wear appropriate personal protective equipment.
6. Pour Sorb-all or appropriate neutralizing agent on spill.
7. Clean up; place waste in plastic bag for disposal. Chemical spill cleanup materials are available from the HSU Maintenance Department.
8. Notify the HSU Safety Officer at extension 1507.

Disposal of Chemicals

All Hardin-Simmons University employees using hazardous chemicals are responsible for disposing of these chemicals safely. Federal and state regulations mandate strict disposal procedures for chemicals. To comply with these regulations all persons using University facilities should observe these procedures.

Routine Disposal of Chemicals. In general the disposal of hazardous chemicals to the sanitary sewer is not permitted. The Safety Officer advises on the proper disposal of chemical wastes. Some chemicals require commercial disposal and this is arranged by the Safety Officer.

In using chemical waste storage containers, certain procedures should be observed, as listed below:

1. Incompatible chemicals may not be mixed in the same container (e.g., acids should not be mixed with bases; organic liquids should not be mixed with strong oxidizing agents).
2. Collect waste oils in 55-gallon drums.
3. Store disposal solids and explosive materials in separate containers.

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The following requirements should be met as a condition for pickup and disposal of chemicals:

1. Separate chemicals into compatible groups. Leaking containers of any sort cannot be accepted.
2. Dry materials (gloves, wipes, pipettes, etc.) should be securely contained in plastic bags and over packed in a cardboard box. Packages that are wet or have sharp protruding objects may not be accepted for pickup.
3. Unknown chemicals requires special handling. The responsible department should make every effort to identify the material that is to be disposed. For more information call the Safety Officer.
4. Each breakable container should be properly boxed. Place all bottles in plastic bags, then place in a sturdy container and use an absorbent cushioning material that is compatible with the chemicals. Each primary container should be labeled with content, amount, physical state, and the percentage breakdown of a mixture. Each box should have a complete list of contents or description written on an official Safety Officer hazardous materials packing list. For safety purposes, boxes should be of a size and weight so that one person can handle them. Boxes that exceed 45 pounds or 18 inches on a side cannot be safely handled by one person and will not be acceptable for pick up.

General Housekeeping Rules:

1. Maintain the smallest possible inventory of chemicals to meet your immediate needs.
2. Periodically review your stock of chemicals on hand.
3. Ensure that storage areas, or equipment containing large quantities of chemicals, are secure from accidental spills.
4. Rinse emptied bottles that contain acids or inflammable solvents before disposal.
5. Recycle unused laboratory chemicals wherever possible.
6. **DO NOT:**
 - Place hazardous chemicals in salvage or garbage receptacles.
 - Pour chemicals onto the ground.
 - Dispose of chemicals through the storm drain system.
 - Dispose of highly toxic, malodorous, or lachrymatory chemicals down sinks or sewer drains.

Cadmium

The greatest exposure potential is probably from welding or burning cadmium-plated parts and brazing or silver soldering with cadmium-containing rods and wires. These brazing alloys contain 15 to 19% cadmium. Finely divided cadmium metal and cadmium oxide fumes are highly toxic and should not be inhaled or ingested.

- A single exposure to high levels of cadmium in the air can cause severe lung irritation, which may be fatal. Symptoms usually appear 4 to 10 hours after exposure when cough, labored breathing, and commonly a feeling of constriction or a burning sensation in the chest develop. Generalized flu-like symptoms characterized by shaky chills, sweating, aching in the extremities and back, headache, and dizziness may develop.
- Continued exposure to low levels of cadmium in the air can result in chronic poisoning characterized by irreversible lung injury and kidney damage.
- Cadmium is suspected of causing cancer in humans.
- Symptoms of the cumulative effects of cadmium may appear after exposure has terminated.

Cadmium metal dust will burn with the evolution of a very hazardous brownish-yellow fume.

- Remove all cadmium from plated parts before welding or burning. Substitute cadmium-free silver solder whenever possible. When cadmium is melted, temperatures should be kept as low as possible, consistent with the requirement of the operation, to prevent excessive fume generation.
- Indoor work or continuous outdoor work that involves the generation of airborne cadmium should be enclosed to the maximum extent practical and be provided with a good exhaust system that collects and removes the fumes as they are formed.
- If the work is outdoor and intermittent, a properly fitted fume respirator should be used. In confined spaces where an exhaust system is not practical, a supplied-air respirator should be worn. Evaluation of exhaust systems and work situations and supply of respiratory protective equipment are available from the Safety Officer. Cadmium-containing and cadmium-plated parts should be kept separate from parts not containing cadmium and marked appropriately so accidental exposures resulting from cutting and welding will not occur.
- When there is cadmium dust, cleaning should be performed by vacuum pickup or wet mopping. No dry sweeping or blowing is permitted.

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Chapter 7 Electrical Safety

Policy

Hardin-Simmons University tries to take every reasonable precaution in the performance of work to protect the health and safety of employees and the public and to minimize the probability of damage to property.

Working with Energized Equipment

This section contains safety requirements for constructing electrical equipment and in working on energized electrical equipment. Special emphasis is placed on problems associated with personnel working on hazardous electrical equipment in an energized condition. Such work is permissible, but only after extensive effort to perform the necessary tasks with the equipment in a securely de-energized condition has proven unsuccessful, or if the equipment is so enclosed and protected that contact with hazardous voltages is essentially impossible. Definitions: The following definitions are used in this discussion of electrical safety.

1. **Authorized Person:** An individual recognized by management as having the responsibility for and expertise to perform electrical procedures in the course of normal duties.
2. **Backup Protection:** A secondary, redundant, protective system provided to de-energize a device, system, or facility to permit safe physical contact by assigned personnel. A backup protective system should be totally independent of the first-line protection and should be capable of functioning in the event of total failure of the first-line protective system.
3. **Companion:** A co-worker who is cognizant of potential danger and occasionally checks the other worker.
4. **Electrical Hazard:** A potential source of personnel injury involving, either directly or indirectly, the use of electricity.
5. **Direct Electrical Hazard:** A potential source of personnel injury resulting from the flow of electrical energy through a person (electrical shocks and burns).
6. **Indirect Electrical Hazard:** A potential source of personnel injury resulting from electrical energy that is transformed into other forms of energy (e.g., radiant energy, such as light, heat, or energetic particles; magnetic fields; chemical reactions, such as fire, explosions, the production of noxious gases and compounds; and involuntary muscular reactions).
7. **First Line Protection:** The primary protective system and/or operational procedure provided to prevent physical contact with energized equipment.
8. **General Supervision:** The condition that exists when an individual works under a supervisor's direction but not necessarily in the continuous presence of the supervisor.
9. **Grounding Point:** The most direct connection to the source of a potential electrical hazard such as the terminals of a capacitor. Such a point should be indicated by a yellow circular marker.
10. **Grounds, Electrical:** Any designated point with adequate capacity to carry any potential currents to earth. Designated points may be building columns or specially designed ground-network cabling, rack, or chassis ground. Cold water pipes, wire ways, and conduits should not be considered electrical grounds.
11. **Grounds, Massive:** Large areas of metal, concrete, or wet ground that make electrical isolation difficult or impossible.
12. **Implied Approval:** Approval is implied when a supervisor, knowing the qualifications of an individual, assigns that individual a task, or responsibility for, a device, system, or project.
13. **Qualified Person:** An individual recognized by management as having sufficient understanding of a device, system, or facility to be able to positively control any hazards it may present.
14. **Safety Watch:** An individual whose sole task is to observe the operator and to quickly de-energize the equipment, using a crash button or circuit breaker control in case of an emergency, and to alert emergency personnel. This person should have basic CPR training.

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Type of Hazards

The degree of hazard associated with electrical shock is a function of the duration, magnitude, and frequency of the current passed by the portion of the body incorporated in the circuit. The current that can flow through the human body with contacts at the extremities, such as between the hand or head and one or both feet, depends largely on the voltage. Body circuit resistance, even with liquid contacts (barring broken skin) will probably be not less than 500 ohms. The current flow at this resistance at 120 volts is 240 milliamperes. Recognition of the hazards associated with various types of electrical equipment is of paramount importance in developing and applying safety guidelines for working on energized equipment. Three classes (in order of increasing severity) of electrical hazards have evolved.

Class A Hazard

Class A electrical hazard exists when all the following conditions prevail:

1. The primary AC potential does not exceed 130 volts rms.
2. The available primary AC current is limited to 30 amperes rms.
3. The stored energy available in a capacitor or inductor is less than 5 joules ($J=CV^2/2=LI^2/2$).
4. The DC or secondary AC potentials are less than 50 volts line-to-line and/or to ground or the DC or secondary AC power is 150 volt-amperes (V-A) or less. Although the voltages and currents may be considered nominal, a "Class A" electrical hazard is potentially lethal. This class is particularly dangerous because of everyday familiarity with such sources, an assumed ability to cope with them, and their common occurrence in less guarded exposures.

Class B Hazard

A Class B electrical hazard has the same conditions as a Class A hazard except that the primary AC potential is greater than 130 volts rms, but does not exceed 300 volts rms.

Class C Hazard

Class C electrical hazard classifications prevail for all situations when one or more of the limitations set in Class B is exceeded.

Employee Attitude

The attitudes and habits of personnel and the precautions they routinely take when working on energized equipment are extremely important. There are three modes of working on electrical equipment.

Mode 1: Turn Off the Power — All operations are to be conducted with the equipment in a positively de-energized state. All external sources of electrical energy should be disconnected by some positive action (e.g., locked-out breaker) and with all internal energy sources rendered safe. "Mode 1" is a minimum hazard situation.

Mode 2: Latent Danger — All manipulative operations (such as making connections or alterations to or near normally energized components) are to be conducted with the equipment in the positively de-energized state. Measurements and observations of equipment functions may then be conducted with the equipment energized and with normal protective barriers removed. "Mode 2" is a moderate-to-severe hazard situation, depending on the operating voltages and energy capabilities of the equipment.

Mode 3: Hot Wiring — "Mode 3" exists when manipulative, measurement, and observational operations are to be conducted with the equipment fully energized and with the normal protective barriers removed. "Mode 3" is a severe hazard situation that should be permitted only when fully justified and should be conducted under the closest supervision and control. One knowledgeable person should be involved in addition to the worker(s). Written permission may be required. Work on Class B or Class C energized circuitry should only be done when it is absolutely necessary.

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Safety Glasses

Wear either safety glasses or a face shield when working on electrical equipment.

Personal Protective Devices

For work on any energized circuitry with a Class B or Class C hazard, the use of personal protective devices (e.g., face shields, blast jackets, gloves, and insulated floor mats) is encouraged, even if not required.

Elevated Locations

Any person working on electrical equipment on a crane or other elevated location should take necessary precautions to prevent a fall from reaction to electrical shock or other causes. A second person, knowledgeable as a safety watch, should assume the best possible position to assist the worker in case of an accident.

Chain of Command

Training sessions and drills should be conducted periodically to help prevent accidents and to train personnel to cope with any accidents that may occur. CPR instruction should be included. An emergency-OFF switch, clearly identified and within easy reach of all high-hazard equipment, should be provided. Also, this switch may be used to initiate a call for help. Resetting an Emergency-OFF switch should not be automatic but should require an easily understandable overt act. Automatic safety interlocks should be provided for all access to high-hazard equipment. Any bypass of such an interlock should have an automatic reset, display conspicuously the condition of the interlocks, and ensure that barriers cannot be closed without enabling the interlock. All equipment should have convenient, comfortable, and dry access. Communication equipment (e.g., fire alarm box, telephone) should be provided near any hazardous equipment. Its location should be clearly marked to ensure that the person requesting assistance can direct the people responding to a call for help to the emergency site quickly. Any component that in its common use is non-hazardous, but in its actual use may be hazardous, should be distinctively colored and/or labeled. (An example might be a copper pipe carrying high voltage or high current.) Periodic tests of interlocks to ensure operability should be performed and documented at least yearly.

Protective Systems

Equipment should be designed and constructed to provide personnel protection. First-line and backup safeguards should be provided to prevent personnel access to energized circuits. Periodic tests should be established to verify that these protective systems are operative.

Safety Design

Proper philosophy is vital to the safe design of most control applications. The following check list should be used as a guide.

1. Checkout. Interlock chains should be checked for proper operation after installation, after any modification, and during periodic routine testing.
2. Fail-safe design. All control circuits should be designed to be "fail-safe." Starting with a breaker or fuse, the circuit should go through all the interlocks in series to momentary on-off switches that energize and "seal in" a control relay. Any open circuit or short circuit will de-energize the control circuit and must be reset by overt act.
3. Interlock Bypass Safeguards. A systematic procedure for temporarily bypassing interlocks should be established. Follow-up procedures should be included to ensure removal of the bypass as soon as possible. When many control-circuit points are available at one location, the bypassing should be made through the normally open contacts of relays provided for this purpose. In an emergency, these relays can be opened from a remote control area.
4. Isolation. Control power should be isolated from higher power circuits by transformers, contactors, or other means. Control power should be not more than 120 volts, ac, or dc. All circuits should use the same phase or polarity so that no additive voltages (Class B or Class C hazard) are present between control circuits or in any interconnect system. Control-circuit currents should not exceed 5 amperes.

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5. Lock-out. A keyed switch should be used in interlock chains to provide positive control of circuit use. To ensure power removal before anyone enters the enclosure, this same key should also be used to gain access to the controlled equipment.
6. Motor Control Circuits (Class B or Class C Hazards). All Class B or Class C motor circuits should have a positive disconnect within view of the motor or, if this is not practical, a disconnect that can be locked open by the person working on these motor circuits is acceptable.
7. Over voltage Protection. Control and instrumentation circuits used with high-voltage equipment should have provision for shorting fault-induced high voltages to ground. High-voltage fuses with a high-current, low-voltage spark gap downstream from the high-voltage source are recommended. This also applies to all circuits penetrating high-voltage enclosures.
8. Voltage Divider Protection. The output of voltage dividers used with high voltages should be protected from over voltage-to-ground within the high-voltage area by spark gaps, neon bulbs, or other appropriate means.
9. Current Monitors. Currents should be measured with a shunt that has one side grounded or with current transformers that should be either loaded or shorted at all times.
10. Instrument Accuracy. Instrumentation should be checked for function and calibration on a routine basis.

High Voltage

To work on high voltage power supplies and enclosures use Class B or Class C hazard procedure specified in the safety requirements. Access should always be by permissive key that interrupts input power when key is removed from control panel. Grounding of power supply output should occur either automatically when key is removed from control panel or manually before access door can be opened.

High Current

To work on high current power supplies (normally for magnets), treat system as a high voltage power supply, if energy storage is 5 joules or more when system is off. If not, then requirements for working on magnet are as follows: If power supply is equipped with Kirk (trademark) or equivalent interlock, turn key and remove. This locks the input breaker in "off" position until key is reinserted and turned. If power supply is not equipped with a Kirk (trademark) or equivalent interlock, turn off and tag input circuit breaker.

Working on Power Supplies

The minimum requirements for working on any power supply is to turn power off and properly tag feeder circuit breaker external to power supply.

Electrical Lock-out/Tag-out Procedures

When you have to do maintenance work on a machine, take these four steps to protect yourself and your co-workers from injury:

1. De-energize the machine if possible. Positively disconnect the machine from the power source. If there is more than one source of power, then disconnect them all.
 2. If possible, lock out all disconnect switches. You should be given a lock and a key for each disconnect before you begin working on the machine.
 3. Tag all disconnect switches. Use the yellow or Red safety tags which state in large letters -- "Danger...Do Not Operate," or "Danger...Do Not Energize" and which give the name of the individual who locked out the equipment, date and time. The tag should also state "DO NOT REMOVE THIS TAG". (The person who placed the tag may remove it only after the machinery maintenance has been completed.)
 4. Test the equipment to insure it is de-energized before working on it. First, attempt to operate the equipment by turning it on normally. Next, check all electrical lines and exposed areas with test equipment or a "lamp".
 5. Finally, short to ground any exposed connections using insulated grounding. This test should be done even if the electrical connection is physically broken, such as pulling out a plug, because of the chance of discharging components.
- A TAG OUT ONLY PROCEDURE MAY BE USED IF THE MACHINE CANNOT BE LOCKED OUT. IF THE MACHINE IS SUPPLIED ELECTRICAL POWER FROM A SINGLE

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SOURCE, WHICH IS UNDER THE EXCLUSIVE CONTROL OF A TRAINED AND QUALIFIED REPAIR PERSON AT ALL TIMES AND THERE ARE NOT ANY OTHER PERSONS IN THE REPAIR AREA WHO COULD BE HARMED BY THE ACCIDENTAL ENERGIZING OF THE MACHINERY, THEN TAG OUT MAY BE USED INSTEAD OF LOCK-OUT/TAG OUT.

- Be aware that many accidents occur at the moment of re-energizing. If the machinery is to be re-energized, all persons should be kept at a safe distance away from the machinery. The re-energization can be performed only by a person who either performed the lock-out/tag out, a person acting under the immediate and direct commands of the original lock-out/tag out person, or in the event of a shift change, or other unavailability of the original person, then the original shall, before leaving, appoint a surrogate original person and show him or her all steps taken to lock-out/tag out the equipment.

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Chapter 8 Building Management and Construction

Introduction

Hardin-Simmons University attempts to have buildings and equipment which meet legal standards for safety, fire prevention, sanitation, architectural barriers, health protection. Safeguards should provide built-in protection against injury to personnel or damage to property and include methods for limiting the consequences of accidents.

Structural Alterations

Plant alterations that are necessary for safety or to improve safety should be carried out quickly. Requests for such alterations or additions, and job orders for such projects, should be clearly marked as safety projects.

Hazardous Materials

Hazardous materials should be handled and stored in enclosures that (1) protect the worker by means appropriate to the hazard and (2) protect the casual or unwitting passerby from hazards or access to hazards. These aims are achieved by work enclosures such as hoods, glove boxes, fire safes, and fenced areas. Applicable construction criteria for such work enclosures are given below.

Barriers/Fences

Barriers/fences of suitable type should be provided wherever unauthorized access can lead to personnel injury or property damage. Protection from such serious hazards as high level radiation, high pressure, or exposed high voltage requires special considerations.

Contractors

In addition to the full- and part-time employees on the Hardin-Simmons University payroll, important work is performed by personnel through contract arrangements. These non-Hardin-Simmons University persons are sometimes referred to as contract or subcontract personnel. Nevertheless, the safety obligations of subcontractor personnel are the same as those of the Hardin-Simmons University employees. Those Hardin-Simmons University supervisors assigned to direct work of contractor and/or subcontractor employees should instruct and otherwise require safety equipment and conditions equivalent to those provided to payroll employees. This is an attempt to ensure that Hardin-Simmons University property is protected from damage and that all employees, payroll or non-payroll, students and visitors are protected from work injury and illness. Hardin-Simmons University should exercise reasonable care for the safety of persons on the facilities as safe as possible for the protection of the employees of its contractors and subcontractors, as well as any other visitor.

Construction Safety

Construction safety is monitored by the various on-site construction supervisors, job site coordinators, superintendents, architects, engineers, government and private inspectors, contractor's and subcontractor's safety officials and Hardin-Simmons University's Safety Officer, all of whom should work closely together.

Serious Accidents On Site

In the event of a serious accident on a construction site, the Construction Inspector, Architect/Engineer, or Safety Officer should determine if all work is to be immediately stopped. If work is stopped, all workmen in the immediate area are to be assembled by the Subcontractor until the Safety Officer has conducted an initial investigation, collected applicable information from witnesses, and determined whether work may resume. The person stopping work should initiate notification of Safety Officer.

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Chapter 9 Fire Safety

Introduction

Policy and planning for fire safety at Hardin-Simmons University takes into account the special fire hazards for specific operating areas, the protection of high-value property, and the safety of employees. These ends are met by:

1. Non-combustible or fire-rated materials and construction practices suitable to the assigned uses of buildings and facilities.
2. Alarm systems and automatic extinguishing systems.
3. Availability of suitable hand extinguisher and local hose lines for use before fire fighters arrive.
4. Access to professional fire department, always staffed and trained in the control of emergencies that could occur at the University. (The Fire Department makes the initial response to all requests for emergency aid received on the emergency telephone number, 911.)

This chapter covers the fire safety responsibilities of employees and supervisors and sets forth the fire safety rules and procedures.

Fire Department

The Abilene Fire Department is responsible for protecting people and property from fires, explosions, and other hazards through prevention and expeditious control of such events. In addition, the fire department provides first-response rescue and transportation services in medical emergencies. The Fire Department's inspection staff is responsible for ensuring University-wide compliance with fire safety and protection requirements and for reviewing all plans and procedures for compliance with these requirements; for inspecting and testing automatic fire protection and alarm systems and ensuring their maintenance and repair; for conducting fire safety and protection inspections; and for providing fire prevention recommendations. Other responsibilities include training employees in fire safety equipment, practices, and procedures. All these fire protection and response functions are performed in conformance with OSHA regulations, state law, Hardin-Simmons University policies, and nationally recognized standards and guidelines for fire and life safety.

The Fire Chief and the Fire Marshal have the authority to enforce applicable requirements of the Uniform Building Code; the Uniform Fire Code; National Fire Protection Association Codes (including the Life Safety Code), Standards, and Recommended Practices; and the fire protection provisions of OSHA Orders. Employees should immediately report fires to the Fire Department (dial 911). Hazards which have the potential to start a fire should be reported to supervisors or the Safety Officer. Employees should conduct their operations in such a way as to minimize the possibility of fire. This means applying rules such as keeping combustibles separated from ignition sources, being careful about smoking, and avoiding needless accumulations of combustible materials. Supervisors are responsible for keeping their operating areas safe from fire. The Safety Officer and the fire department will provide guidance and constructive criteria with respect to fire and life safety as well as inspections. The provision and maintenance of fire detection systems and both automatic and manual fire extinguishing equipment is the responsibility of the Safety Officer. But the supervisor, who best knows the day-to-day nature of his/her operations, is responsible for notifying the Safety Officer of operations that change the degree of fire risk and will therefore require a change in the planned fire protection provisions.

Supervisor Responsibilities

Supervisors should ensure that their personnel are properly instructed regarding potential fire hazards involved in their work and around their workplaces, the proper precautions to minimize fires, and the procedures in case of fire. The local Fire Department and our insurance carriers offer formal courses and training materials on fire prevention and response:

- Fire Safety
- Fire-Extinguisher Operation
- Self-Contained Breathing Apparatus

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Class A Combustibles

Class A combustibles are common materials such as wood, paper, cloth, rubber, plastics, etc. Fires in any of these fuels can be extinguished with water as well as other agents specified for Class A fires. They are the most common fuels to be found in non-specialized operating areas of the work place such as offices.

Safe handling of Class A combustibles means:

- Dispose of waste daily.
- Keep work area clean and free of fuel paths, which can spread a fire, once started.
- Keep combustibles away from accidental ignition sources such as hot plates, soldering irons, or other heat or spark-producing devices.
- Keep rubbish, trash, or other waste in metal or metal-lined receptacles with tight-fitting covers when in or adjacent to buildings. (Exception: wastebaskets of metal or of other material and design approved for such use, which are emptied each day, need not be covered.)
- Plan the use of combustibles in any operation so that excessive amounts need not be stored.
- Store paper stock in metal cabinets and rags in metal bins with automatically closing lids.
- Make frequent inspections/checks for noncompliance with these rules to prevent fires.

Class B Combustibles

Class B combustibles are flammable and combustible liquids (including oils, greases, tars, oil-base paints, lacquers) and flammable gases. Flammable aerosols (spray cans) are treated here. The use of water to extinguish Class B fires (by other than trained fire fighters) can cause the burning liquid to spread carrying the fire with it. Flammable-liquid fires are usually best extinguished by excluding the air around the burning liquid. Generally, this is accomplished by using one of several approved types of fire-extinguishing agents, such as the following: Carbon dioxide ABC multipurpose dry chemical Halon 1301 (used in built-in, total-flood systems).

Fires involving flammable gases are usually controlled by eliminating the source of fuel, i.e., closing a valve. Technically, flammable and combustible liquids do not burn. However, under appropriate conditions, they generate sufficient quantities of vapors to form ignitable vapor-air mixtures. As a general rule, the lower the flash point of a liquid, the greater the fire and explosion hazard. It should be noted that many flammable and combustible liquids also pose health hazards. NOTE: The flash point of a liquid is the minimum temperature at which it gives off sufficient vapor to form an ignitable mixture with the air near the surface of the liquid or within the vessel used. It is the responsibility of the user to ensure that all Class B combustibles are properly identified, labeled, handled, and stored. If assistance is required, contact the Safety Office.

Safe handling of Class B combustibles means:

- Use approved containers, tanks, equipment, and apparatus for the storage and handling.
- Make sure that containers are conspicuously and accurately labeled as to their contents.
- Dispense liquids from tanks, drums, barrels, or similar containers only through approved pumps taking suction from the top or through approved self-closing valves or faucets.
- Store, handle, and use Class B combustibles only in approved locations, where vapors cannot reach any source of ignition, including heating equipment, electrical equipment, oven flame, mechanical or electrical sparks, etc.
- Never clean with flammable liquids within a building except in a closed machine approved for the purpose.
- Never store, handle, or use Class B combustibles in or near exists, stairways, or other areas normally used for egress. In rooms or buildings, storing flammable liquids in excess of 10 gallons in approved storage cabinets or special rooms approved for the purpose.
- Know the locations of the nearest portable fire extinguisher rated for Class B fires and how to use them.
- Never smoke, weld, cut, grind, use an open flame or unsafe electrical appliance or equipment, or otherwise create heat that could ignite vapors near any Class B combustibles.

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Electrical Fires

There are many combustible materials, including electrical equipment, oxidizing chemicals, fast-reacting or explosive compounds, and flammable metals, which present specialized fire safety and extinguishing problems. Refer to other appropriate chapters of this manual for safe handling advice. If in doubt, request advice from your supervisor or the Safety Officer.

Fire Fighting Equipment

This section describes the fixed and portable equipment that is provided in working areas for fire protection. The fixed equipment includes automatic sprinklers, detectors and alarms, fire doors, etc. The portable equipment consists of fire extinguisher and hoses to be operated by employees before the arrival of the local Fire Department.

Fire Detectors

Several types of automatic fire detectors are used throughout Hardin-Simmons University, according to particular needs and purposes. All of them will detect fire (by one of several means) and transmit an alarm to the fire station. In the buildings equipped with evacuation alarm bells, the automatic detectors activate those alarms, as do the manual pull boxes. In some cases, automatic extinguishing systems are activated by automatic detectors. The fire department always dispatches fire fighters and apparatus to the scene of many automatically actuated alarm.

Sprinkler Systems

Some buildings are provided with automatic sprinkler systems. The sprinkler heads contain a fusible element (most commonly fused at 212 degrees F) which, on melting, opens the head and starts a spray of water. The resulting flow of water in the piping activates an alarm at the fire station, and fire fighters are dispatched. Automatic sprinkler heads can be damaged if they are subjected to mechanical abuse. A protective cage should be installed where such damage is possible. Heat inadvertently applied to the sprinkler head can also activate the sprinkler when no actual fire is present. Normal heat sources should therefore be kept away from sprinkler heads. To avoid decreasing the flow or spread of water or altering the spray pattern, do not allow material or furniture to be located too near the sprinkler head. Allow at least 18 inches of clearance around sprinkler heads. Sprinkler system control valves must be kept accessible for Fire Department use. Allow at least 3 feet of clearance (enough for a man to pass through easily) around such valves.

Alarm System

In some buildings, evacuation alarm bells are automatically activated when fire is detected. They can also be activated manually at strategically located pull boxes. The emergency actions of personnel and the evacuation procedures for each building or operating area are usually set forth in the Operational Safety Procedures for each building and posted near the main entrance or fire exit or elevator. Never use the elevator in case of a fire.

Fire Doors

Fire doors and dampers are provided at strategic points to close and block the spread of smoke and fire when these are sensed by automatic detectors. Fire doors should never be blocked or left in disrepair so that they cannot be closed as intended in the event of a fire.

Fire Exits

Exit corridors should not be used for storage. The Life Safety Code, NFPA 101, requires that buildings designed for human occupancy have continuous and unobstructed exits to permit prompt evacuation of the occupants and allow necessary access for responding emergency personnel. The intent of the Code is to keep exits free from obstructions and clear of combustible materials. Attention to housekeeping, therefore, is very important. "Temporary" storage of furniture, equipment, supplies, or anything else is not permitted in exit ways. Combustibles, including recyclable waste paper, are not permitted in exit ways. Liquids and chemicals are not to be stored in corridor lockers. Cabinets should be kept locked, with one key being retained by the Building Chairperson. Cabinets should be labeled with the contents and the name, address, and telephone number of the assigned user. Any deviation from the above requirements should be approved by Safety Officer.

Fire Hydrants

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Fire hydrants are maintained for emergency use by the Fire Department. They should be kept accessible and in good working condition.

Mechanical Equipment Rooms

Mechanical equipment rooms contain boilers, blowers, compressors, filters, electrical equipment, etc. Such rooms should be separated from other areas of a building by fire-resistant walls and doors. To maintain the integrity of these separations, the fire doors should never be left open. Fan rooms house ventilation equipment which often includes automatic shut down and dampers activated by interlocking with the building smoke and fire detectors. Fire dampers and other automatic shut-down provisions should not be disabled without Fire Department approval (as for temporary maintenance procedures). Mechanical equipment rooms and fan rooms should not be used for storage of any kind.

Construction Areas

Construction areas under control of either Hardin-Simmons University or outside contractors should be maintained in a fire-safe condition and accessible to emergency response forces.

Life Safety Code

The Life Safety Code of the National Fire Protection Association, NFPA 101, requires that emergency lighting be provided for means of egress in certain areas. The Code states emergency lighting is required in exit corridors in any office-type building where the building is two or more stories in height above the level of exit discharge. Emergency lighting may be installed in areas where not required by the Code when such areas present an egress hazard during a power failure. Although elevators are not considered a means of egress within the jurisdiction of the Life Safety Code, they do require emergency lighting. (Titles 8 and 24 require that emergency lighting be maintained in an elevator for a period of at least four hours.) Several types of emergency lights that satisfy the specifications of the Life Safety Code are: Battery Type - Only rechargeable batteries may be used. The rating of the battery should be such that it provides power for illumination for one and one-half hours in the event of a failure of normal lighting. Generator Type - When emergency lighting is provided by an electric generator, a delay of not more than 10 seconds is permitted. Exit sign lights, when burned out, should be reported to Maintenance for service.

No Smoking

Smoking is forbidden in all HSU indoor areas. Additionally, smoking is not permitted in outdoor areas where flammables are used.

PART II — TECHNICAL

Chapter 10 Materials Handling

Introduction

Hardin-Simmons University requires that safety planning and practices for commonplace tasks be as thorough as for operations with unusual hazards. Commonplace tasks make up the greater part of the daily activities of most employees and, not unexpectedly, offer more potential sources of accidents with injuries and property damage. Every operation or work assignment begins and ends with handling of materials. Whether the material is a sheet of paper (paper cuts are painful) or a cylinder of toxic gas, accident risks can be reduced with thorough planning. Identifying obvious and hidden hazards should be the first step in planning work methods and job practices. Thorough planning should include all the steps associated with good management from job conception through crew and equipment decommissioning. Most of the material presented in this chapter is related to the commonplace and obvious. Nevertheless, a majority of the incidents leading to injury, occupational illness, and property damage stem from failure to observe the principles associated with safe materials handling and storage. A less obvious hazard is potential failure of used or excessive motorized handling or lifting equipment.

Lifting and Moving

Lifting and moving of objects should be done by mechanical devices rather than by manual effort whenever this is practical. The equipment used should be appropriate for the lifting or moving task. Lifting and moving devices should be operated only by personnel trained and authorized to operate them. Employees should not be required to lift heavy or bulky objects that overtax their physical condition or capability.

Manual Lifting Rules

Manual lifting and handling of material should be done by methods that ensure the safety of both the employee and the material. It is Hardin-Simmons University policy that employees whose work assignments require heavy lifting be properly trained and physically qualified, by medical examination if deemed necessary. The following are rules for manual lifting:

1. Inspect the load to be lifted for sharp edges, splinters, and wet or greasy spots. Wear gloves when lifting or handling objects with sharp or splintered edges. These gloves should be free of oil, grease, or other agents that may cause a poor grip. Inspect the route over which the load is to be carried. It should be in plain view and free of obstructions or spillage that could cause tripping or slipping.
2. Consider the distance the load is to be carried. Recognize the fact your gripping power may weaken over long distances.
3. Size up the load and make a preliminary "heft" to be sure the load is easily within your lifting capacity. If it is not, get help. If team lifting is required, personnel should be similar in size and physique. One person should act as leader and give the commands to lift, lower, etc. Two persons carrying a long piece of pipe or lumber should carry it on the same shoulder and walk in step. Shoulder pads should be used to prevent cutting shoulders and help reduce fatigue. To lift an object off the ground, the following are manual lifting steps: Make sure of good footing and set your feet about 10 to 15 inches apart. It may help to set one foot forward of the other. Assume a knee-bend or squatting position, keeping your back straight and upright. Get a firm grip and lift the object by straightening your knees - not your back. Carry the load close to your body (not on extended arms). To turn or change your position, shift your feet - don't twist your back. The steps for setting an object on the ground are the same as above, but in reverse.

Mechanical Lifting

Mechanical devices should be used for lifting and moving objects that are too heavy or bulky for safe manual handling by employees. Employees who have not been trained should not operate power-driven mechanical devices to lift or move objects of any weight.

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Load Path Safety

Loads moved with any material handling equipment should not pass over any personnel. The load path should be selected and controlled to eliminate the possibility of injury to employees should the material handling equipment fail. Equipment worked on while supported by material handling equipment should have a redundant supporting system capable of supporting all loads that could be imposed by failure of the mechanical handling equipment. A suspended load should never be left unattended but should be lowered to the working surface and the material handling equipment secured before leaving the load unattended.

Clean Work Areas

All areas controlled by Hardin-Simmons University should be kept in orderly and clean condition and used only for activities or operations for which they have been approved. The following specific rules apply:

- Keep stairs, corridors, and aisles clear.
- Traffic lanes and loading areas should be kept clear and marked appropriately.
- Store materials in work rooms or designated storage areas only.
- Do not use hallways, fan lofts, or boiler and equipment rooms as storage areas.
- Do not allow exits, passageways, or access to equipment to become obstructed by either stored materials or materials and equipment that is being used.
- Arrange stored materials safely to prevent tipping, falling, collapsing, rolling, or spreading - that is, any undesired and unsafe motion.
- Do not exceed the rated floor capacity of stored material for the area. The load limit and the maximum height to which material may be stacked should be posted. Place materials such as cartons, boxes, drums, lumber, pipe, and bar stock in racks or in stable piles as appropriate for the type of material.
- Store materials that are radioactive, fissile, flammable, explosive, oxidizing, corrosive, or pyrophoric only under conditions approved for the specific use by the Safety Officer.
- Segregate and store incompatible materials in separate locations.
- Remove items that will not be required for extended periods from work areas and put them in warehouse storage. Call for assistance.
- Temporary equipment required for special projects or support activities should be installed so that it will not constitute a hazard.
- A minimum clearance of 36 inches should be maintained around electrical power panels. Wiring and cables should be installed in a safe and orderly manner, preferably in cable trays.
- Machinery and possible contact points with electrical power should have appropriate guarding. The controls for temporary equipment should be located to prevent inadvertent actuation or awkward manipulation.
- When heat-producing equipment is installed, avoid accidental ignition of combustible materials or touching of surfaces above 60 degrees C (140 F).
- The supervisor of an area is responsible for obtaining and maintaining suitable illumination. Areas without natural lighting and areas where hazardous operations are conducted should be provided with enough automatically activated emergency lighting to permit exit or entry of personnel if the primary lighting fails.

PART II — TECHNICAL

Chapter 11 Protective Equipment

Introduction

Hardin-Simmons University attempts to provide suitable equipment to protect employees from hazards in the workplace. Supervisors should obtain this equipment and see that it is used. Protective clothing is not a substitute for adequate engineering controls.

Protective Shoes

Hardin-Simmons University encourages the wearing of safety shoes.

Protective Gloves

Hardin-Simmons University provides proper hand protection to employees exposed to known hand hazards. The supervisor should obtain the suitable hand protection and ensure that it is used. The individual department should maintain a supply of special or infrequently used hand protection.

Head Protection

Hardin-Simmons University provides appropriate head protection devices for employees in positions requiring protection to protect them from head or other injuries that could result from their working environment.

Eye and Ear Protection

Appropriate eye and ear protection devices should be worn when employees are assigned to tasks in which the possibility an eye/ear-injury hazard exists. The supervisor of the operation is responsible for determining the need for suitable eye-protection devices and for ensuring that the employees use them.

Eye-protection devices are classified in several categories: personal safety glasses; goggles, face shields, etc. Temporary safety glasses should be provided to visitors in eye-hazard areas. Laser safety eye wear should be provided as needed. Ear protection devices may consist of foam ear plugs, various qualities of ear muffs, etc.

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Chapter 12 Ladders and Scaffolds

Ladders

- Ladders should be in good condition, made of suitable material, of proper length, and of the correct type for the use intended.
- Damaged ladders should not be used; they should be repaired or destroyed.
- Ladders used near electrical equipment should be made of a nonconducting material.
- Stored ladders should be easily accessible for inspection and service, kept out of the weather and away from excessive heat, and well supported when stored horizontally.
- A portable ladder should not be used in a horizontal position as a platform or runway or by more than one person at a time. A portable ladder should not be placed in front of doors that open toward the ladder or on boxes, barrels, or other unstable bases.
- Ladders should not be used as guys, braces, or skids.
- The height of a stepladder should be sufficient to reach the work station without using the top or next to the top steps.
- Bracing on the back legs of stepladders should not be used for climbing.
- The proper angle (75-1/2 degrees) for a portable straight ladder can be obtained by placing the base of the ladder a distance from the vertical wall equal to one quarter of the vertical distance from base to top of ladder's resting point.
- Ladders should be ascended or descended facing the ladder with both hands free to grasp the ladder.
- Tools should be carried in a tool belt or raised with a hand line attached to the top of the ladder.
- Extension ladders should be tied in place to prevent side slip.

Scaffolds

Scaffolds, whether fabricated on site, purchased, or rented should conform with the specifications found in ANSI A10.8, Safety Requirements for Scaffolding. Rolling scaffolds should maintain a 3:1 height to base ratio (use smaller dimension of base). The footing or anchorage for a scaffold should be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks should not be used to support scaffolds or planks. No scaffold may be erected, moved, dismantled, or altered unless supervised by competent persons. Scaffolds and their components should be capable of supporting at least four times the maximum intended load without failure. Guard rails and toe boards should be installed on all open sides and ends of scaffolds and platforms more than 10 feet above the ground or floor. Scaffolds 4 feet to 10 feet in height having a minimum horizontal dimension in either direction of less than 45 inches should have standards installed on all open sides and ends of the platform. Wire, synthetic, or fiber rope used for suspended scaffolds should be capable of supporting at least 6 times the rated load. No riveting, welding, burning, or open flame work may be performed on any staging suspended by means of fiber or synthetic rope. Treated fiber or approved synthetic ropes should be used for or near any work involving the use of corrosive substances. All scaffolds, boatswain chairs, and other work access platforms should conform with the requirements set forth in the Federal Occupational Safety and Health Regulations for Construction, 29 CFR 1926.451, except where the specifications in ANSI A10.8 are more rigorous.

Floors

Workroom floors should be in a clean and, as much as possible, dry condition. Drainage mats, platforms, or false floors should be used where wet processes are performed. Floors should be free from protruding nails, splinters, holes, and loose boards or tiles. Permanent aisles or passageways should be marked. Floor holes should be protected by covers that leave no openings more than one inch wide. Floor openings into which persons can accidentally walk should be guarded by standard railings and toe boards. Open-sided floors, platforms, and runways higher than four feet should be guarded by standard railings. Toe boards should be used wherever people can pass below or hazardous equipment or materials are below.

PART II — TECHNICAL

Chapter 13 Sanitation

Drinking Water

The drinking water supply must not contain impurities in concentrations that may be hazardous to the health of the employees or that would be offensive to the senses of sight, taste, or smell. The drinking water supply system must be installed according to the National Plumbing Code and be maintained in good condition. The drinking water system must be protected against backflow with approved connections and plumbing devices.

Sanitary Facilities

Adequate restrooms and other essential sanitary facilities must be readily accessible for employees and students. These facilities must be maintained in a clean and sanitary condition. Soap in a dispenser and apparatus for drying of hands must be provided at each wash place.

PART II — TECHNICAL

Chapter 14 Tools

University-Provided Tools

The University attempts to provide the proper hand and powered portable tools that meet accepted safety standards. A damaged or malfunctioning tool should not be used; it should be turned in to supervisors for servicing and a tool in good condition obtained to complete the job. Employees should use the correct tool for the work to be performed; if they are unfamiliar with the operation of the tool, they should request instruction from their supervisor before starting the job. Supervisors are responsible for ensuring that their subordinates are properly trained in the operation of any tool that they are expected to operate.

Grounding

Tools that are not double-insulated should be effectively grounded and tested. Testing should be accomplished before initial issue, after repairs, and after any incident that could cause damage, such as dropping or exposure to a wet environment. Grounded tools should be used with an effectively grounded circuit. Any extension cord used with a grounded tool should be a three-wire, grounded type. Electric-powered hand tools used on construction sites, on temporary wired circuits, or in wet environments should be used in conjunction with an approved ground fault circuit interrupter (GFCI). The responsibility for implementing and maintaining this program rests with the individual supervisors involved. Documentation of tool testing should be maintained by the group owning powered hand tools. Tools maintained in a tool crib and tested prior to issue are exempted from this requirement. Repairs of defective tools should only be made by qualified electrical personnel.

Shop Rules

Any Hardin-Simmons University facility housing shop tools is defined by OSHA as a shop. It is the responsibility of the person in charge of each shop to ensure compliance with the following practices:

1. Shop machines and tools are to be used only by qualified personnel. It is the responsibility of the person in charge of the shop to render a judgment as to who is qualified.
2. The person in charge tries to take whatever action is deemed necessary to prevent a personal injury or damage to equipment.
3. Equipment guards and protective devices should be used and should not be compromised.
4. Approved eye protection (visitor's glasses) should be worn by anyone entering and/or passing through shop areas.
5. Approved industrial safety eye and ear protection should be worn by anyone working in a posted shop area.
6. Shoes or boots covering the whole foot should be worn in shop areas. Persons using machine tools should not wear clothing, jewelry, or long hair in such a way as to represent a safety hazard.

PART II — TECHNICAL

Chapter 15 Pesticides

Pesticide Usage

Each person performing pest control shall:

- Use only pest control equipment which is in good repair and safe to operate.
- Perform all pest control in a careful and effective manner.
- Use only methods and equipment suitable to insure proper application of pesticides.
- Perform all pest control under climatic conditions suitable to insure proper application of pesticides.
- Exercise reasonable precautions to avoid contamination of the environment. A copy of the registered labeling that allows the manner in which the pesticide is being used shall be available at each use site.
- Concentrate pesticides shall be weighed or measured accurately using devices which are calibrated to the smallest unit in which the pesticide is being weighed or measured. A uniform mixture shall be maintained in both application and service rigs.

Pest control equipment shall be thoroughly cleaned when necessary to prevent illness or damage to persons, plants or animals from residues of pesticides previously used in the equipment.

Each service rig and piece of application equipment that handles pesticides and draws water from an outside source shall be equipped with an air-gas separations, reduced pressure principle backflow prevention device or double check valve assembly. Backflow protection should be acceptable to both the water purveyor and the local health department.

Protection From Pesticides

An applicator prior to and while applying a pesticide shall evaluate the equipment to be used, meteorological conditions, the property to be treated, and surrounding properties to determine the likelihood of harm or damage. No pesticide application shall be made or continued when there is a reasonable possibility of either: Contamination of the bodies or clothing of persons not involved in the application process; Damage to nontarget crops, animals, or other public or private property; or, Contamination of nontarget public or private property, including the creation of a health hazard, preventing normal use of such property.

Notice Of Pesticide Application

Each person performing pest control should give notice to the owner or operator of the property to be treated before any pesticide is applied. The operator of the property shall give notice to all persons known to be on such property or likely to enter. Such notice shall be adequate to advise of the nature of the pesticide and the precautions to be observed as printed on the registered label or included in applicable laws or regulations.

License

Each employee applying commercial amounts of pesticides on the University grounds should be licensed.

PART III — DRIVER SAFETY

Chapter 16 Safety Risks/Managing Safety Risks

The Drivers

Staff/Faculty drivers create the most common liability exposures for colleges and universities. Not only do employees frequently operate motor vehicles on university business, but they often carry passengers. Employees run errands for their departments, transport themselves and colleagues to meetings and conferences, drive students on field trips, and host prospective students and employees visiting the campus.

Student drivers present a difficult risk management problem given their youth and relative lack of driving experience. Some of the most serious and significant losses incurred by higher education involve students driving school-owned vans with multiple occupants going to and from out-of-town activities.

Student drivers using personal vehicles to transport fellow students on field trips create another serious exposure. Faculty will frequently recruit student drivers for special activities in an effort to save money within tight departmental budgets. This creates a situation in which the student drivers and their vehicles become an institutionally-approved or endorsed form of transportation. Should a student's poor driving or unsafe vehicle result in an accident, the institution may be held liable.

Special Concerns

Licensing and Testing Requirements. A driver is required to obtain a commercial driver's license (CDL) with the proper endorsements if he or she drives a vehicle designed to transport 16 or more persons (the driver and 15 passengers), or with a gross weight of 26,001 lbs. or more. This rule applies whether or not the driver is carrying passengers in the vehicle. Under the final rules of the Omnibus Transportation Employee Testing Act of 1991 published in February of 1994, colleges and universities are required to conduct pre-employment/pre-duty, reasonable suspicion, random, and post-accident alcohol and controlled substances testing of each applicant for employment or employee who must have a CDL. Institutions with 50 or more drivers with CDLs as of March 17, 1995, had a compliance date of January 1, 1996. To avoid liability concerns related to privacy, the University has the option of drug testing conducted by a third party.

Alcohol Use. Over 45 percent of all traffic fatalities in 1992 involved an intoxicated or alcohol-impaired driver or pedestrian, according to studies of the National Highway Safety Administration's Fatal Accident Reporting System. With the exception of Massachusetts and South Carolina, as of July 1, 1995, all states had laws defining it as a crime to drive with a blood alcohol concentration at or above a proscribed level, usually .10 percent. In a 1994 study conducted by the Harvard School of Public Health, a large proportion of the student population surveyed reported driving under the influence of alcohol. Binge drinkers, particularly frequent binge drinkers, reported significantly higher frequencies of dangerous driving behaviors than non-binge drinkers. The University strictly prohibits anyone from operating a vehicle on college-related activity if he or she has been drinking, or if he or she has had a DUI (driving under the influence) conviction within the last 18 months.

Drowsiness. The U.S. Department of Transportation estimates that 240,000 accidents are caused by drowsy drivers every year, and falling asleep behind the wheel may cause up to 10,000 fatalities annually. The average driver is most likely to feel drowsy between 2 a.m. and 6 a.m., according the AAA Foundation for Traffic Safety. Other contributors to drowsy-driving include vehicle comforts such as cruise control, cushioned seats, and quiet, temperature-regulated environments; straight roads; dull landscapes; repetitive patterns; and overeating before driving. For colleges and universities, accidents caused by drowsiness are a significant concern in the context of club sports in which competitions are frequently scheduled late in the day when facilities are available. To avoid accidents caused by drowsy drivers, departments should limit the number of hours or the number of miles that can be driven in 24-hour period for a university-sponsored activity.

Pollution and Hazardous Wastes. Under the Motor Carrier Act of 1980 (49 USCS §.10101), an institution is liable for any pollution-related incident that occurs during the transportation of a hazardous material. For example, if a professor picks up chemicals at a supply store for a class and is involved in an accident causing the chemicals to spill

PART III — DRIVER SAFETY

into the roadway, the institution is responsible for the pollution created. Universities with research components are likely to generate hazardous wastes such as radioactive materials, explosive compounds, chemicals, carcinogens, and reproductive toxins. The largest exposure in dealing with hazardous wastes is transporting the materials. Whether a university chooses to transport hazardous waste in its own vehicles or through an outside contractor, as the owner/generator of the hazardous material the institution will be liable for any such waste released during an accident. If using an outside contractor, the institution should satisfy itself that the company instructs its drivers how to minimize damage resulting from a spill if there is an accident. The institution should ask to be added as an additional insured to the transportation company's liability policy.

Driver Qualifications

The following policy outlines the overall University qualifications for drivers of passenger vehicles, vans, and special equipment. Individual departments may add their own special unique requirements. For example, the Athletic Department might require that no team member, whether a qualified driver or not, drive the team to or from an event in which that person is a participant.

Driver Obligations

All drivers should be informed of their obligations when driving university or personal vehicles on university business. This information can be disseminated through a variety of channels, including the driver application form (which should be signed as an agreement), driving classes, the vehicle handbook, and the staff, faculty, and student handbooks.

PART III — DRIVER SAFETY

The driver agrees that he/she will:

1. Have a valid driver's license.
2. Use school vehicles for authorized business only.
3. Not permit any unauthorized person to drive the vehicle.
4. Use seat belts or other available occupant restraints and require all occupants to do likewise in accordance with state laws. (The number of passengers should not exceed the number of seat belts.)
5. Operate the university vehicle in accordance with university regulations, know and observe all applicable traffic laws, ordinances and regulations, and use safe driving practices at all times.
6. Assume all responsibility for any and all fines or traffic violations associated with his/her use of a university vehicle or privately owned vehicle on university business.
7. Not drive under the influence of drugs or alcohol.
8. Not transport unauthorized passengers such as hitchhikers, family members, or friends.
9. File a travel plan with their department if taking an out-of-town trip.
10. Turn off the vehicle, remove the keys, and lock the vehicle when it is left unattended.
11. Drive the vehicle at speeds appropriate for road conditions.
12. Not drive the vehicle "off road" unless it is made for that use.
13. Before leaving the parking area or garage, inspect the vehicle for safety concerns, checking tires, wipers, lights, and other safety equipment for observable defects. Report any defects to sponsors/supervisors/rental agencies to determine if the vehicle is safe to operate.
14. Immediately report all accidents or violations to the prescribed authority.
15. Be subject to applicable university disciplinary procedures for violations of university policy or rules.

PART III — DRIVER SAFETY

Each department with a vehicle shall institute a quarterly review of all maintenance and service records to assure their appropriate and schedule regular routine maintenance, including inspections and registrations.

Preventive Maintenance Policy. A well-defined and consistently applied preventive maintenance program will result in the lowest total maintenance cost. The basis for any good preventive maintenance program is the manufacturer's recommended program based on a time or mileage basis.

Inspections. A good maintenance program requires frequent, documented inspection of all vehicles, prompt transmittal of the inspection results to the vehicle maintenance department if work is required, and a commitment on the part of everyone not to use an unsafe vehicle. All persons driving university vehicles should be trained in inspection procedures, and every vehicle should be inspected by the driver before it is used. A post-use inspection is very useful but frequently overlooked by many institutions. The driver can identify any problems experienced in the trip (such as "car pulls to left") in the post-use inspection report, as well as identify any broken components.

Vehicle Records

The University maintains a centralized list of all vehicles owned by the institution in the Personnel Office. Primary users of each vehicle are responsible for state inspections, having accident report forms, and keeping a copy of the insurance card.

Managing Accidents

Reporting Accidents. The individual driver is responsible for immediately reporting any accident to the Safety Officer. The Safety Officer notifies the Personnel Office for insurance purposes. Insurance information and an accident report form should be kept in the vehicle. The accident report form includes the title and phone number of the person at the institution the driver should contact if an accident occurs. Basic facts about the accident should be collected on the accident report form, provided for each vehicle and all necessary state reporting forms must be completed. (The institution should get a copy of the police report.)

Accident reports should be retained until the statute of limitations expires for auto liability claims for bodily injury or property damage under the Texas State Law. (It is helpful to maintain records for five to ten years, as proper analysis of loss trends requires this amount of data, and keeping accident records for that period will also be useful in analyzing the effectiveness of safety training programs.)

Accident Investigation and Record Keeping. All accidents should be investigated to determine the cause of the accident. If the driver of the university vehicle was at fault, clear documentation should be made of the findings, and disciplinary proceedings should be evaluated. The Safety Officer and the Chief of the University Police Department should review accident information to identify loss trends and determine appropriate loss prevention measures. For example, if several accidents occur at a particular location on campus, the institution should consider changes in traffic controls (stop signs, traffic lights) for the intersection. Centralized records also facilitate updating the information.

In addition to institutional records, useful accident information can be obtained from other sources. Many institutions can obtain loss runs from their auto insurers that will serve to track all insured accidents. Worker's compensation loss records and OSHA 200 logs can also be useful in determining an institution's accident profile.

Disciplinary Procedures. Disciplinary actions for not following specific policies or for having a specific number of accidents can range from requiring the driver to take a defensive driving course to suspending university driving privileges. Other options may also be considered.

PART III — DRIVER SAFETY

Consistency is Important. It cannot be over-emphasized that once policies are determined and published, they should be implemented and enforced consistently throughout the institution. If exceptions and inconsistencies prevail, then the institution increases its risk for claims.

A. **University-owned Private Passenger Vehicles**

1. Should have a valid driver's license in effect for at least two years.
2. Should have driven at least 2,000 miles within the last two years.
3. Should complete a driver history questionnaire form annually.
4. Should complete a vehicle use and regulation form annually.
5. Should not have exceeded two at-fault accidents/violations within the last 18 months or have any violation in the last 18 months for drunk driving, driving under the influence of drugs, or reckless driving, or have a reinstated license in effect less than one year after revocation.
6. If required by the institution, a driver should obtain an abstract of his/her driving history record from the Division of Motor Vehicles and submit it with the forms in steps 3 and 4 for review.
7. Should have successfully completed a defensive driver training course.
8. Should sign a statement agreeing not to drink and drive.

Note: State regulations on use of publicly owned vehicles apply for public institutions.

B. **Vans (capable of carrying 15 or fewer persons only)**

Should satisfy all operator conditions listed above, and

1. Be at least 18 years old.
2. Show evidence of ability to drive a van:
 - a. Have driven a 12-15 passenger van or motor coach a minimum of 2,500 miles or at least once a week in the past year, or
 - b. Have taken a university-approved training course including classroom and behind the wheel training.

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