



MAINTENANCE MANUAL

A guide to maintaining facilities safely
Revised 10/12/15

Bastrop • Lake Providence • Monroe • Ruston • Tallulah • West Monroe • Winnsboro

Member of Louisiana Community and Technical College System

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INTRODUCTION

LDCC campuses have unique facilities, building structures, and equipment inventories. The Facilities Department is responsible for the day to day operation of the buildings and grounds of the Louisiana Delta Community College. This Department is responsible for establishing and maintaining custodial and preventative maintenance programs.

The goal of this maintenance plan is to maintain campuses within the region that effectively represent the quality of the programs housed in its buildings. Safety, comfort, functionality, efficiency, and aesthetics are the guiding principles.

Maintenance in LDCC covers all structures housed on the various campuses. The location, size, and architectural layout of the campuses are adequate to meet current and near future needs. Expansion required to meet long range needs will be attained through the state's Capital Outlay program as they are identified.

Utilizing the approved budget, Facilities Managers and college maintenance staff are expected to take a proactive role in the upkeep and maintenance of their particular campuses and areas.

All LDCC Campuses are a smoke free/tobacco free environment including all owned or leased College buildings.

Ongoing Emphasis-

1. Safety and security for all employees, students and guests.
2. Maintain compliance with local, state, and federal guidelines for safety.
3. Assist with routine evaluations by the various campus safety personnel and Office of Risk Management (ORM) evaluators.
4. Continuously evaluate the effectiveness of maintenance and upkeep activities.
5. Implement equipment and facilities upgrades as funds are made available.

The maintenance staff will cooperate closely with the campus safety personnel to assure the health and safety of employees, students, and guests. Accident/Incident Reports that result from unsafe conditions will be addressed immediately by the Facilities and Safety Manager, maintenance personnel, and contractors if required. Copies of the most recent LDCC Health and Safety Plan will be available online to assure complete access and compliance with all regulations.

The policies and procedures outlined in the LDCC Safety and Maintenance Manuals will be reviewed by the various campus safety personnel, maintenance personnel, and other interested parties as needed, and will be updated as necessary. Any procedural changes made that affect safety or plant maintenance will be put into effect immediately.

EVALUATION

This plan shall be evaluated as needed. It is the responsibility of the Facilities and Safety Manager to ensure that appropriate personnel on each campus have evaluated this manual, and have submitted any recommendations for changes, additions or deletions. The Facilities Manager is also charged with ensuring that any policy or procedure changes initiated are implemented within 90 days of the change.

Faculty and staff are required to make the maintenance staff and administration aware of any safety or security concerns and in specific are to report any maintenance related equipment problems using the college's work request helpdesk.

Personnel

The division of Facilities, Safety, and Property Management is responsible for the coordination of non-instructional support services such as custodial, grounds, and facility maintenance. This division includes a Director of Facilities, a Facility & Safety Manager, and an HVAC manager whose main functions in this capacity are to develop, organize, and coordinate the following for all campuses in our region:

- Facility and Grounds Maintenance
- Safety and Risk Management
- Keep maintenance records on all designated equipment
- Adhere to safety procedures
- Implement an effective equipment maintenance management program

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Preventive Maintenance For Mechanical Equipment

The mission of this guide is to provide procedures designed to preclude failures and assist in establishing a plan for proper periodic maintenance and overhauling in accordance with manufacturer's specifications. All equipment must be maintained in a condition of readiness.

Preventive maintenance will be scheduled by a service report detailing exactly what it takes to perform, time of performance, skill levels required, and special tools and instruments used to maintain the system at optimum comfort & efficiency levels.

Maintenance intervals will be determined by equipment run time, application, location, and manufacturer's specifications.

After each service call is signed off, details from the completed service report will be reentered into the work order and/or maintenance system to assure closed-loop performance control and continuous program updating.

The following tasks should be done at the indicated intervals:

Air filters shall be inspected and replaced if necessary:

AHU – Quarterly

MAU –Quarterly

Water analysis:

Chilled water system (closed loop) – Yearly

Water analysis (Cooling Tower) – Monthly

Hot water system (closed loop) - Yearly

Master Maintenance Procedures And Records For Hvac Equipment

MAINTENANCE SCHEDULE FOR PACKAGE AIR-COOLED SCREW CHILLER

Annual Inspections

Check the general operation of the unit.

Log the operating temperatures, pressures, voltages and amperages.

Check the operation of the control circuit.

Check the operation of the control circuit.

Check the operation of the lubrication system.

Check the operation of the motor and starter.

Analyze the recorded data. Compare the data to the original design conditions.

Review operating procedures with operating personnel.

Provide a written report of completed work, operation log and indicate any uncorrected deficiencies detected.

Test oil pressure safety device (as required). Calibrate and record setting.

Test the operation of the chilled water pump starter auxiliary contacts.

Verify the operation of the oil heaters.

Clean the starter cabinet and starter components.

Inspect wiring and connections for tightness and signs of overheating and discoloration.

Check the condition of the contacts for wear and pitting.

Check contactors for free and smooth operation.

Check all mechanical linkages for wear, security and clearances.

Verify tightness of the motor terminal connections.

Meg the motor and record readings.

Verify the operation of the electrical interlocks.

Measure voltage and record. Voltage should be nominal voltage $\pm 10\%$.

Pull oil sample for spectroscopic analysis

Operating Inspection (Three Required)

Adjust operating and safety controls. Record settings.

Complete operating log of temperatures, pressures, voltages and amperages.

Check operation of control circuit.

Check operation of lubrication system.

Check operation of motor and starter.

MAINTENANCE SCHEDULE FOR PACKAGE, AIR-COOLED RECIP. CHILLER

Annual Inspection

Inspect for leaks and report results.

Calculate refrigerant loss rate and report to the customer.

Repair minor leaks as required (e.g. valve packing, flare nuts).

Clean Condensers

Inspect the control panel for cleanliness.

Inspect wiring and connections for tightness and signs of overheating and discoloration.

Verify the working condition of all indicator/alarm lights, if applicable.

Test the low water temperature control device. Calibrate and record setting.

Test the low evaporator pressure safety device. Calibrate and record setting.

Test the oil pressure safety device. Calibrate and record setting, if applicable.

Check programmed parameters of RCM control, if applicable.

Check oil level in compressors.

Verify the operation of the oil heater. Measure amps and compare reading with the watt rating of the heater.

Clean the starter and cabinet.

Inspect wiring and connections for tightness and signs of overheating and discoloration.

Check condition of the contacts for wear and pitting.

Check the contactors for free and smooth operation.

Check the tightness of motor terminal connections.

Meg the motor and record readings.

Verify the operation of the electrical interlocks.

Measure voltage and record. Voltage should be nominal voltage $\pm 10\%$.

Pull oil sample for spectroscopic analysis

Operating Inspection (Three Required)

Adjust operating and safety controls. Record settings.

Complete operating log of temperatures, pressures, voltages and amperages.

Check operation of control circuit.

Check operation of lubrication system.

Check operation of motor and starter.

MAINTENANCE SCHEDULE FOR WATER COOLED COMMERCIAL SELF CONTAINED AIR HANDLERS

Annual Inspection

Inspect for leaks and report leak check result.

Repair minor leaks as required (e.g. valve packing, flare nuts).

Calculate the refrigerant loss rate

Check the condenser fans for clearances and free operation.

Check tightness of condenser fan motor mounting brackets.

Check the set screws on the fan shafts.

Clean condenser coils

Verify the performance of the fan control inverter VFD, if applicable.

Grease bearings as required.

Inspect the control panel for cleanliness

Inspect wiring and connections for tightness and signs of overheating and discoloration.

Verify the working condition of all indicator/alarm lights and LED/LCD displays.

MAINTENANCE SCHEDULE FOR CENTRAL STATION AIR HANDLING UNITS

Annual Maintenance

Inspect coil.

Inspect drain pan and drain line. Blow out condensate drain.

Inspect fan wheels.

Inspect drive sheaves.

Inspect belt alignment and tension. Adjust as needed.

Lubricate as required.

Check bearing and motor mounting.

Check motor operating voltage and amperages.

Check dampers and adjust if necessary.

Provide a comprehensive and detailed final inspection to the LDCC Facility Supervisor, upon completion of each inspection, on each and every piece of equipment.

Operating Inspection (Three Required)

Check belt tension. Adjust as needed.

Lubricate as required.

Check bearing and motor mounting.

Check any excessive vibration or noise and correct if required.

MAINTENANCE SCHEDULE FOR EXHAUST FANS

Annual Maintenance

Inspect fan housing.

Inspect blades.

Inspect bearings and lubricate.

Inspect Blade pitch control mechanism.

Check motor operating voltage and amperage.

Lubricate as required.

Check any excessive vibration or noise and correct if required.

Clean as necessary.

Provide a comprehensive and detailed final inspection report to LDCC Facility Supervisor, upon completion of each inspection, on each and every piece of equipment.

MAINTENANCE SCHEDULE COOLING TOWER

Annual Inspection

Clean debris from platform and surrounding area.
Clean water sump and check condition.
Clean float valve assembly and adjust for proper operation.
Check and clean bleed off line and overflow.
Clean tower strainers.
Clean tower spray nozzles and eliminators.
Flush cooling tower after cleaning.
Check sump heaters and thermostats for calibration and operation.
Check and adjust fan belts.
Fill system after cooling tower has been cleaned.
Check for leaks.
Lubricate fan and motor bearings per manufacturer's recommendation.
Check amperage on motors.
Inspect electrical connections, contactors, relays and operating/safety controls.
Check and adjust condenser water temperature regulator system.

Operating Inspections (Three Required)

Inspect fan, motor and belts.
Check oil level in gear reducer. Add oil as required.
Check intake strainer, bleed and overflow.
Check operating conditions. Adjust as required.

MAINTENANCE SCHEDULE FOR PUMPS

Annual Inspection

Lubricate motor/pump bearings per manufacturer's recommendations.
Check motor mounts and vibration pads.
Visually check pump alignment and coupling.
Check motor operating conditions.
Inspect electrical connections and contactors.
Check hand valve positions.
Inspect mechanical seals or pump packing.
Operate pumps and check efficiency.

Operating Inspection (Three Required)

Check suction and discharge pressures
Visually inspect packing or mechanical seal.
Check motor voltage and amperage.

MAINTENANCE SCHEDULE FOR VARIABLE FREQUENCY DRIVE MOTOR SPEED CONTROLLERS

Preventative Maintenance (Four Required)

- Visually inspect for loose or damaged parts or connections.
- Verify correct input voltage/amperage.
- Check that drive ramps up & down properly.
- Run factory self-diagnostics (when units are so equipped)
- Record run time from U-11 & 12.
- Clean unit cabinetry & check for source of unusual dirt or moisture.

MAINTENANCE SCHEDULE FOR UNIT HEATERS

Annual Preventative Maintenance

- Check the general condition of the unit.
- Verify tightness of the fan, fan guards, louvers, etc.
- Inspect the flue for holes and/or stoppage.
- Verify clean burner assembly.
- Lubricate the fan motor, if applicable.
- Verify proper operation of the temperature control device.
- Verify proper operation of the pilot safety device, if applicable.
- Verify proper operation of the high temperature control device.
- Verify proper operation of the fan switch.
- Inspect wiring and connections for tightness and signs of overheating and discoloration.
- Light the pilot and start the unit.
- Verify proper combustion air to the burner.
- Verify proper operation of the flue.

MAINTENANCE SCHEDULE FOR FAN COIL UNITS

Preventative Maintenance (Four Required)

- Check belt tension, if applicable.
- Lubricate as required.
- Verify clean water coil.
- Verify tightness of fan set screws.
- Verify smooth fan operation.
- Verify clean condensate pan.
- Verify proper operation of the temperature control and fan control device.
- Verify proper operation of the changeover valve, if applicable.

MAINTENANCE SCHEDULE FOR VARIABLE AIR VOLUME BOXES

Preventative Maintenance

- Verify proper operation of the controls.
- Verify proper operation of the VAV dampers.
- Verify the program.

MAINTENANCE SCHEDULE FOR PACKAGE UNITS / ROOF TOP UNITS

Annual Inspection

- Inspect for leaks and report results.
- Repair minor leaks as required (e.g. valve packing, flare nuts).
- Check pulleys and sheaves for wear and alignment. Check belts for tension, wear, cracks, and glazing.
- Clean evaporator coil, blower wheel, and condensate pan.
- Verify clean air filters.
- Verify proper operation of the condensate drain.
- Inspect wiring and connections for tightness and signs of overheating and discoloration.
- Lubricate the fan bearings as required.
- Lubricate the fan motor bearings as required.
- Clean the starter and cabinet.
- Inspect wiring and connections for tightness and signs of overheating and discoloration.
- Check the condition of the contacts for wear and pitting.
- Check the contactors for free and smooth operation.
- Verify the operation of the electrical interlocks.
- Clean Condenser

Operating Inspection (3 Required)

- Check the general condition of the unit.
- Verify the operation of the motor and starter.
- Verify the operation of the control circuit.
- Log the unit after the system has stabilized.
- Analyze the recorded data. Compare the data to the original design conditions.

MAINTENANCE SCHEDULE FOR BOILERS

Annual Inspection

Secure and drain boiler.
Open fire side and water side for cleaning and inspection.
Check heating surfaces and water side for corrosion, pitting, scale, blisters, bulges, soot.
Clean fire inspection glass.
Disassemble, clean and inspect low water cutoff control(s).
Reassemble boiler and low water cutoff control(s).
Clean burner fan wheel and air dampers.
Clean and adjust ignition electrodes.
Check all burner linkage for excessive wear.
Check gas valves against leakage (where test cocks are provided).
Check operation of flame safeguard control.
Check operation of modulating motor.
Check operation of low water cutoff and feed control(s).
Check settings and test all operating and limit controls.
Review manufacturer's recommendations for boiler and burner startup.
Check fuel supply.
Inspect burner boiler and controls prior to startup.
Start burner and check operating controls. Test safety controls
Perform combustion tests and adjust burner for maximum efficiency.
Log all operating conditions.

Operating Inspection (1 Required)

Check the general condition of the unit.
Inspect the burner.
Adjust the burner controls to obtain proper combustion.
Check the operation of the pressure relief valve.
Check the operation of the low water cutoff and feed controls.
Check the setting and test the operation of the operating and limit controls.
Check the operation of the modulating motor.
Check and test boiler blow down valve.
Log operating conditions after the system has stabilized.

MAINTENANCE SCHEDULE FOR SPLIT SYSTEM CONDENSERS

Annual Inspection

Check the general condition of the unit.

Verify the operation of the motor and starter.

Verify the operation of the control circuit.

Clean condenser

Inspect for leaks and report results.

Calculate refrigerant loss rate and report to the customer.

Repair minor leaks as required (e.g. valve packing, flare nuts).

Visually inspect the condenser for cleanliness.

Lubricate the fan motor(s), if applicable.

Verify the operation of the crankcase oil heater, if applicable.

Verify the operation of the switchover valve.

Provide a written report of completed work, operating log, and indicate any deficiencies detected.

Inspect the control panel for cleanliness.

Inspect wiring and connections for tightness and signs of overheating

Inspect wiring and connections for tightness and signs of overheating

Check the condition of the contacts for wear and pitting.

Check the contactors for free and smooth operation.

Check the tightness of the motor terminal connections.

Meg the motor(s) and record readings.

Operating Inspection

Check the general condition of the unit.

Verify the operation of the motor and starter.

Verify the operation of the control circuit.

Verify smooth operation of the unit.

FILTERS

Due to various filter requirements, filters are replaced on an "as needed" basis.

End of Section

Preventive Maintenance For Emergency Generator

Suggested preventive maintenance to be scheduled for the emergency generator using the following schedules:

- o Oil Change – yearly
- o Oil filter change – yearly
- o Air Filter change – yearly
- o Battery replacement – every two years
- o Additional inspections – twice yearly
- o Radiator flush – every three years
- o Fuel service – as needed basis
- o Load test – yearly

Provide minimum one visit per year

Quarterly Hot Water Heater Inspection

- Check for Leaks
- Check pop-off valve
- Drain 2 quarts of water or until clear
- Check and clear drain and drain pan
- Check water temperature

Preventative Maintenance For Electrical Panels And Electrical Rooms

General: Quarterly check all electrical rooms for cleanliness, and check for unusual noises fault interruptions. Check for moisture or water infiltration: Check that rooms are not used for storing unacceptable materials.

Infrared scanning is required once every **5 years** to detect hot spots, loose connections, and overloaded circuits. Louisiana Delta Community College shall have these tests conducted by qualified personnel. These tests shall be conducted during the "high load" season, typically at a time of year with the highest utility charges during scheduled classes.

Annual Fire Pump Performance Test

This test shall meet or exceed the requirements set forth in NFPA 20, NFPA 25, the State Fire Marshal's Office, and all city and local parishes Fire Departments. This test and visual inspection shall include the following:

1. General condition of the pump bearing and packing glands.
2. Actual pressure drop start.
3. Record suction, discharge and net pressures at different flows.
4. Record voltage, amperage and RPM's at each flow.
5. Check proper operation of any relief valves.
6. Perform the required Standpipe flow test.
7. Provide a Performance Report.
8. Provide a listing of any recommendations and improvements.

Annual Sprinkler Inspection

Perform a sprinkler inspection, which meets or exceeds the requirements set forth in NFPA 25, the State Fire Marshal's Office, and all city and local parish fire departments.

This inspection shall include the following:

1. Visual inspection of the main sprinkler riser to insure that all valves, gauges, and related components are in proper working order.
2. Operating and testing all control valves tamper switches on the sprinkler system.
3. Operating the water motor gong, if equipped, and the 2" residual drain test.
4. Flowing water from the inspector's test, utilizing the jockey pump, to insure the water flow switch activates all alarms.
5. Provide a Report of Inspection and a listing of any recommendations and improvements.

Personal Protection Program (PPE)

OSHA requires the use of personal protective equipment (PPE) to reduce employee exposure to hazards when engineering and administrative controls are not feasible or effective in reducing these exposures to acceptable levels. **Employers are required to determine if PPE should be used to protect their workers.**

I. POLICY STATEMENT

A. Purpose

This Personal Protective Equipment (PPE) Program has been developed to provide our college community with the necessary information to identify work situations that require the use of PPE, the proper selection and use of PPE, and documentation of this information. This information is important to help ensure the safety and health of all employees at Louisiana Delta Community College.

B. Scope

College employees who currently utilize PPE or have the potential to encounter hazards to the eyes, face, head, feet, hands, or who conduct work involving electrical or fall hazards, as identified during the Hazard Assessment of the workplace, will be required to participate in this PPE Program. PPE will be selected and used to protect employees from the hazards and potential hazards that are likely to be encountered. PPE includes all clothing and work accessories designed to protect employees from workplace hazards. PPE should not be used as a substitute for engineering, work practices, and/or administrative controls to protect employees from workplace hazards. PPE should be used in conjunction with permanent protective measures, such as engineered guards, substitutions of less hazardous chemicals, and prudent work practices.

C. Applicable Regulation

OSHA Regulation 29 CFR Part 1910 Subpart I - Personal Protective Equipment.

II. GLOSSARY OF TERMS

ANSI: American National Standard Institute, a nonprofit, voluntary membership organization that coordinates the U.S. Voluntary Consensus Standard System. Their standards have been adopted throughout government and industry for various types of personal protective equipment.

Competent Person: A person who, because of training and experience, is capable of identifying hazardous or dangerous conditions.

Hazard Assessment: Investigating the work environment for potential dangers which could result in injury or illness.

Personal Protective Equipment (PPE): Devices worn by the employees to protect against hazards in the environment. Examples include safety glasses, face shields, respirators, gloves, hard hats, steel-toe shoes, and hearing protection.

Permissible Exposure Limit (PEL): The PEL for a substance is the 8-hour time-weighted average or ceiling concentration above which workers may not be exposed.

Qualified Person: A person designated by the employer who is knowledgeable about and familiar with all relevant manufactures' specifications and recommendations; is capable of identifying existing or potential hazards in specific surroundings or working conditions which may be hazardous or dangerous to employees; and has been trained for the specific task assigned. When work is to be supervised by a qualified person, the qualified person shall have the necessary authority to carry out the assigned work responsibilities.

III. RESPONSIBILITY

A. Supervisors

Implement all aspects of this program, including documentation of the hazard assessment and training. The supervisor has been designated this responsibility, as he/she is involved with employees on a daily basis.

Conduct hazard assessments and ensure that employees are informed, trained, and provided with appropriate PPE to be protected from potential hazards associated with job tasks.

Be familiar with the applicable government regulations, safety standards, and prudent safety practices to protect themselves and their fellow employees.

B. Employees

Comply with these guidelines and any further safety recommendations provided by supervisors.

Conduct assigned tasks in a safe manner and wear all assigned PPE.

Report any unsafe or unhealthy work conditions and job related injuries or illnesses to the supervisor immediately.

The Facilities, Safety, or HVAC manager will assess our workplace to determine if hazards are present or likely to be present which requires the use of Personal Protective Equipment (PPE).

If hazards are present or likely to be present, the Facilities, Safety, or HVAC manager shall:

- Select the type of PPE that will protect the employee.
- Require the employee to use the PPE.
- Communicate selection decisions to each affected employee.

(Reference: 29 CFR 1910.132 (d) (1) (i - iii))

The Facilities department shall verify the hazard assessment has been performed through a **written** certification. The certification shall:

- Identify the workplace where assessment was performed.
- Name the person certifying that the assessment was performed.
- Give the date(s) that the hazard assessment was performed.
- Be identifiable as a document of certification of hazard assessment.

(Reference: 29 CFR 1910.132 (d) (2))

Assure that defective or damaged PPE not be used. ***(Reference: 29 CFR 1910.132(e))***

The Facilities Department will provide training to each employee who is required by this section to use PPE. Each employee shall be trained to know at least the following:

- When PPE is necessary;
- What PPE is necessary;
- How to put on, take off, adjust, and wear PPE;
- Limitations of PPE; and
- Proper care, maintenance, useful life, and disposal of the PPE.

(Reference: 29 CFR 1910.132 (f)(1)(i-v))

Before being allowed to perform work that requires the use of PPE, each employee shall:

- Demonstrate an understanding of training provided;
- Demonstrate ability to properly use PPE.

When any member of the Facilities Department has reason to believe that an employee does not understand the training or possess the skill required to wear the PPE, the employee shall be retrained. Other circumstances where retraining is required include, but is not limited to:

- Changes in the workplace that render previous training obsolete.
- Changes in PPE that render previous training obsolete.
- Employee does not retain understanding or skill to use PPE.

The Facilities, Safety, or HVAC manager shall verify that each affected employee receives and understands the required training. The verification shall:

- Be a written certification.
- Show the name of the employee trained.
- Show the date(s) of training.
- Identify the subject of certification.

PPE will be issued to LDCC maintenance and facilities staff at no cost to them for their use in the various activities that warrant it. The HVAC manager monitor this PPE program to ensure its ongoing effectiveness. The Facilities and Safety Manager will train employees on the maintenance, use, and limitations of PPE.

Refer to Personal Protection Equipment content in the LDCC Health and Safety Plan for more guidelines.

Confined Spaces

Definition - A confined space is any space:

- 1) that has limited or restricted means of entry or exit
- 2) is large enough for a person to enter to perform tasks
- 3) and is not designed or configured for continuous occupancy.

According to the [Occupational Safety and Health Administration](#), a permit-required confined space (permit space) has the three characteristics listed above (which define a confined space) and one or more of the following:

1. Contains or has the potential to contain a hazardous atmosphere
2. Contains a material that has the potential for engulfing the entrant
3. Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section
4. Contains any other recognized serious safety or health hazards.

In addition to the hazards posed by the design of the space, work activities can also pose serious safety hazards (heat, noise, vapors, etc.) that must be taken into account when identifying safety measures that must be taken. An example of a confined space is given below:

Note: After reviewing the above definitions, it is determined by the Facility Director that Louisiana Delta Community College, Monroe campus, does have (2) elevator pits in the Louisiana Purchase Building and (1) elevator pit in the Advanced Technology Building which could be construed to be a confined space. The Facility Director does not feel that these pits are either confined spaces or a "permit-required confined space". However, should any persons be required to enter the elevator pit for routine maintenance or cleaning, the contractor will provide a capable person and follow the contractors "Confined Space Program" and provide a copy of it.

The Facility Director or representative will be in view of the activities performed in the pit as an observer to ensure compliance and safety and be "on standby" in case of an emergency.

No LDCC Employee will enter the pit under any circumstances.

Controls of Hazardous Energy Policy (lockout tagout)

Purpose:

The purpose of this procedure is to protect employees from the serious injuries that could result from the unexpected release of hazardous energy while servicing or maintaining if performed on machinery or equipment.

Applicability:

Applies to all employees

Definitions:

Types of Hazardous Energy

- Electrical
- Gas and Liquids
- Mechanical
- Hydraulic
- Pneumatic
- Thermal
- Radiation
- Stored Energy
- Gravity
- Chemical

Types of Employees

Authorized Employee- A knowledgeable trained individual to whom the authority and responsibility for performing lockout and tag out procedures has been given

Affected Employee-An employee who operates or uses a machine or equipment on which service or maintenance is performed under lockout/tag out, or who works in an area in which such servicing or maintenance takes place

Other Employee- An employee whose job is, or may be in an area where lockout and tag out procedures may be used.

Types of Devices

Energy Isolating Device- A mechanical device that physically prevents the transmission or release of energy. Examples: electrical circuit breakers disconnect switches. Line valves or blocks [Note: controls such as push buttons and selector switches are not energy isolating devices].

Lockout Device- A device that utilizes a positive means such as a lock, either key or combination type to hold an energy isolating device in the safe position and prevent the energization of a machine or equipment.

Tag out Device- A prominent warning device, such as a tag and a means of attachment which can be securely fastened to an energy isolating device, consistent with an established procedure. This Tag indicates that the energy isolating device and the equipment being controlled must not be operated until the tag out device is removed.

Types of Work Operation

Normal production operations-The use of a machine or equipment to perform its intended job function.

Service and/or maintenance- Work place activities such as constructing, installing, setting up, adjusting, inspection, modifying, cleaning, maintaining, and/or servicing machines or equipment

Requirements of Locks and Tags:

Lockout and tag out devices must meet the following requirements:

1 Durability-Lockout and tag out devices must withstand the environment to which they are exposed for the maximum duration of the expected exposure. Tag out devices must be constructed and printed so that they do not deteriorate or become illegible, especially when used in corrosive (acid and alkali chemicals) or wet environment

2 Standardized-Both lockout and tag out devices must be standardized according to color, shape or size. Tag out devices must also be standardized according to print and format.

3 Substantial-Lockout and tag out devices must be substantial enough to minimize early or accidental removal. Locks must be substantial to prevent removal except by excessive force of special tools such as bolt cutters or other metal cutting tools.

4 Identifiable-Locks and tags must clearly identify the "authorized" employee who applies them. Tags must also warn against hazardous conditions such as: DO NOT START, DO NOT OPEN, DO NOT CLOSE, DO NOT ENERGIZE, or DO NOT OPERATE.

5 Keys- Each lock will have only one key

SEQUENCE OF LOCKOUT:

The following sequence of Lockout must always be used when working on equipment where Hazardous Energy is present.

1 Notify- The "authorized" employee will notify all "affected" employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance. Give an estimated time of service, downtime, if applicable.

2 Identify- The "authorized" employee will identify the type of energy that the machine or equipment utilizes, analyze the hazards of all energy sources, and understand the methods to control the energy, as well as apply the tags and locks

3 Shut Down- If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).

4 Isolate- After the machine or equipment is turned off; isolate the machine or equipment from its energy source(s) Lock and tag out the energy isolating device(s) with assigned individual lock(s) and tag(s).

5 Dissipate- Stored or residual energy such as in capacitors, springs, rotating flywheels, hydraulic systems, and air gas, steam or water pressure lines must be dissipated or restrained by methods such as grounding, repositioning, blocking, vesting, etc.

6 Check/Verify- the "authorized" employee will ensure that the equipment is completely disconnected from all energy sources by operating the push button or other normal operating controls or by otherwise testing to make certain the machine or equipment will not operate.

7 Neutralize-Return operating control(s) to neutral or "OFF" position after verifying the isolation of the equipment.

8 State of Zero- Inspect to assure that all sources of potential hazardous energy has been reduced to a zero energy state. When working on electrical circuits, the circuit is to be tested for residual energy by using a voltage meter. The machine is now locked and tagged out, and service or repairs can safely begin.

RESTORING EQUIPMENT TO SERVICE

The following sequence of Lockout must always be used when working on equipment where Hazardous Energy is present.

1 Visually inspect the work area to ensure that all employees have been safely positioned or removed from the area.

2 Verify that the controls are in neutral

3 Remove each lock and/or tag (Must be done by the person who originally applied it)

4 Reenergize the machine or equipment [NOTE removal of some forms of blocking may require re-energization of the machine before safe removal. Follow the specific Machine/Equipment procedures.]

Lock and/or tag removal:

1. Each lock and/or tag device must be removed by the "authorized" person who originally applied it.
2. Removal of a safety lockout or tag out device by any other person other than the "authorized" employee who applied it, may only be done under the direction of the supervisor, under the following procedure.
 - a. A thorough inspection of the equipment is to be made by the supervisor responsible for the area
 - b. The supervisor must personally confirm that the "authorized" employee who applied the lockout device is NOT in the area
3. The supervisor shall remove the lock providing he/she has determined starting up the equipment will not endanger all other personnel.
4. Each time it is necessary to remove/cut a safety lock, a written report must be prepared by the person "authorized" to remove the lock and a copy to be sent to the safety coordinator.

5. The supervisor shall make a reasonable effort to contact the employee who originally applied the lock to inform him/her that the device has been removed. This contact is necessary so that the employee would be informed that this has occurred prior to resuming work at this facility. When this procedure has occurred, documentation should be done and include the supervisor who carried it out: signature and date.

Procedures Involving More Than One Person

Group Lockout or Tag out: When servicing and/or maintenance will be performed by a crew, team, department or other group, they will utilize the same level of protection equivalent to that provided by the implementation of a personal lockout device. Group lockout or tag out devices shall be used in accordance with the procedures of section 8 of this policy. An authorized associate will be designated to take primary responsibility for a set number of associates working under the protection of a group lockout/tag out device. The following are the specific requirements that must be followed if a group lockout or tag out is to be performed and the designated associate's responsibilities are:

- To document on the Group Lockout/Tag out form the name of each individual who will be involved in the group lockout/tag out before the work is performed
- To assure that all the steps of the appropriate written lockout/tag out are followed
- To assure that all members of the work crew affix their personal locks.
- To inform the work crew when it is safe to work on the equipment
- To inform the work crew when the lockout/tag out is being removed

If more than one crew is involved, a designated associate will be assigned overall job-associated lockout or tag out control responsibility to coordinate affected work forces to ensure continuity of protection.

TRAINING:

Each "authorized" employee must receive training in the recognition of applicable hazardous energy source(s), the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.

Each "Affected" employee must be instructed in the purpose, and use of the energy control procedure.

All "other employees" whose work operations are, or may be in an area where energy control procedures may be utilized, must be instructed about the procedures and about the importance of not restarting or reenergizing machines or equipment that are locked and/or tagged out

"Authorized" and "affected" employees must be retrained whenever there is a change in their job assignments that could affect their lockout and tag out responsibilities, a change in the machines that present a hazard, or when there is a change in energy control procedures. Training dates and content should be documented and signed off by the safety coordinator.

Periodic inspections of the energy control procedure must be conducted at least annually to ensure that the procedure is being followed. The program should address who performs the inspection (it must be someone other than those actually using the lockout/tag out in progress). A certified review of the inspection including date, equipment, employees and the inspector should be documented.

Additional re-training must be conducted whenever a periodic inspection / audit reveal that there are deviations from or inadequacies in the employee's knowledge or use of energy control procedures. Dates and content should be documented and signed off by the safety coordinator.

PROGRAM REVIEW:

"Authorized" employees performance is randomly audited at work sites by the Field Technical Supervisor. Specific Machine/Equipment procedures are reviewed annually and updated as requires. Procedure effectiveness is evaluated at least annually by the safety coordinator and updated as needed.

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FACILITIES PROCEDURES

Building Use Policy Statement

The facilities of Louisiana Delta Community College are made available for use by faculty, staff and students for College-related internal functions and events. Off-campus organizations, as appropriate, may also use designated campus facilities for external events and functions in accordance with established policy by LDCC and Louisiana Community and Technical College System (Policy #4.005).

All official College functions are conducted in a professional manner so as to reflect favorably on the institution. Requesting the use of campus facilities and coordination of events and functions must be handled in accordance with the specific procedures and responsibilities as outlined further in this memorandum. Political activities, religious worship services, wedding receptions, reunions, and dances are not consistent with the college mission and will be not permitted.

Guidelines for *Internal* & External Events and Functions Held on Campus

- A. *Internal* events and functions are those College-related events and functions that are requested and coordinated by faculty, staff and students of the College. Generally internal requests for use of facilities must be submitted at least two weeks in advance and are subject to availability.
- B. All media services must be handled directly by the requestor and coordinated with the campus/site Public Relations office.
- C. All police services must be coordinated with the Campus Police to arrange general security services, if deemed necessary.
- D. All building services (housekeeping, clean-up, event set-up) must be coordinated with the Director of Facility.
- E. Student organizations will not be permitted to serve alcohol.

Appendix



_____ **Date Submitted**

Event/Function Request

Name of Event: _____

Date of Event: _____

Start Time: _____ End Time: _____

Room Requested: _____

Organization/Group: _____

Description of Internal Event: _____

Room Configuration: _____

(Attach diagram of set-up on separate page)

Media Services Needed: _____

Deposit Required: _____



Louisiana Delta Community College

**Personal Protective Equipment Guideline
Certification Of Hazard Assessment Form**

Job Title:	Date:
Department:	Analysis by:
Location:	Supervisor:
Employee(s):	Signature:

Tasks	Potential Hazard	PPE	Opt	Req

Opt. - Wearing the personal protective equipment indicated is an option of the employee

Req. - Wearing the personal protective equipment indicated is a requirement of employment.

Personal Protective Equipment Training Certification

I certify that I have received and understand Personal Protective Equipment (PPE) Training on the equipment listed in the Hazard Assessment. I understand the types of PPE to be worn, when the PPE is necessary, how to properly don, doff, adjust and wear PPE, the limitation of PPE and the proper care, maintenance, useful life and disposal of the PPE.

Employee Signature: _____ Date: _____

I certify that Personal Protective Equipment (PPE) Training has been provided and that the employee has demonstrated an understanding of the above and an ability to use the PPE properly.

Supervisor Signature: _____ Date: _____