SECTION 12.0 | ELECTRICAL SAFETY

Hindsight Electric, LLC has developed the following procedures to protect our employees and reduce the risk of accidents. Hindsight Electric, LLC will also conduct a periodic review of electrical safety, energy control procedures, and lock-out / tag-out, at least annually, to ensure that the procedure and the requirements of this section are being followed.

This procedure is binding upon all employees. All employees will be instructed in the significance of electrical safety, energy control procedures, and lock-out / tag-out. Each new employee shall be instructed by their supervisor in the purpose and use of these procedures.

12.1 | All Equipment and Installations

1. Only trained, qualified, and authorized employees will be allowed to make electrical repairs or work on electrical equipment or installations.
2. All electrical equipment and systems shall be treated as energized until tested or otherwise proven to be de-energized.
3. All energized equipment and installations will be de-energized prior to the commencement of any work. If the equipment or installation must be energized for test or other purposes, special precautions will be taken to protect against the hazards of electric shock.
4. All equipment shall be locked out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device bearing a lock.
5. Safety grounds shall always be used where there is a danger of shock from back feeding or other hazards.
6. Polyester clothing or other flammable types of clothing shall not be worn near electrical circuits. Cotton clothing is much less likely to ignite from arc blast. Employees working on live circuits shall be provided Nomex or equivalent fire-resistant clothing.
7. Suitable eye protection must always be worn while working on electrical equipment.
8. Always exercise caution when energizing electrical equipment or installations. Take steps to protect employees from arc blast and exploding equipment in the event of a fault.
9. All power tools will be grounded or double insulated. Tools with defective cords or wiring shall not be used.
10. Suitable temporary barriers or barricades shall be installed when access to open enclosures containing exposed energized equipment is not under the control of an authorized person.

12.2 | Energized Equipment or Systems

Work shall not be performed on exposed energized parts of equipment or systems until the following conditions are met:

1. Responsible supervision has determined that the work is to be performed while the equipment or systems are energized.
2. Involved personnel have received instructions on the work techniques and hazards involved in working on energized equipment and appropriate equipment to perform the job has been provided.
3. Suitable personal protective equipment has been provided and is used. Suitable insulated gloves shall be worn for voltages in excess of 300 volts, nominal.
4. Suitable eye protection, including face shield and safety glasses or goggles, has been provided and is used.
5. Fire resistant clothing such as Nomex suits is worn.
6. Where required, suitable barriers, barricades, tags, or signs are in place for personnel protection.

After the required work on an energized system or equipment has been completed, an authorized person shall be responsible for:

1. Removing from the work area any personnel and protective equipment.
2. Reinstalling all permanent barriers or covers.

12.3 | De-energized Equipment or Systems

A qualified person shall be responsible for completing the following before working on de-energized electrical equipment or systems, unless the equipment is physically removed from the wiring system:

1. Notifying all involved personnel.
2. Locking the disconnecting means in the "open" position with the use of lockable devices, such as padlocks, combination locks or disconnecting of the conductor(s) or other positive methods or procedures which will effectively prevent unexpected or inadvertent energizing of a designated circuit, equipment, or appliance.
3. Tagging the disconnecting means with suitable accident prevention tags.
4. Effectively blocking the operation or dissipating the energy of all stored energy devices which present a hazard, such as capacitors or pneumatic, spring-loaded and like mechanisms. This may require the installation of safety grounds.
5. Testing the equipment to ensure it is de-energized.

12.4 | Energizing (or Re-energizing) Equipment or Systems

A qualified and authorized person shall be responsible for completing the following before energizing equipment or systems that have been de-energized:

1. Determining that all persons are clear from hazards which might result from the equipment or systems being energized including arc blast or explosions caused by unexpected faults.
2. Removing locking devices and tags. Only the employee who placed them may remove locking devices and tags. Locking devices and tags shall be removed upon completion of the work and after the installation of the protective guards and/or safety interlock systems.

12.5 | Accident Prevention Tags

Suitable accident prevention tags shall be used to control a specific hazard. Such tags shall provide the following minimum information:

1. Reason for placing tag.
2. Name of person placing the tag and how that person may be contacted.
3. Date tag was placed.

12.6 | Lock-out / Tag-out

Machinery or equipment capable of movement shall be stopped and the power source de-energized or disengaged and locked out. If necessary, the moveable parts shall be mechanically blocked or secured to prevent inadvertent movement during cleaning, servicing, or adjusting operations unless the machinery or equipment must be capable of movement during this period in order to perform the specific task. If so, the hazard of movement shall be minimized.

Equipment or power-driven machines equipped with lockable controls, or readily adaptable to lockable controls, shall be locked out or positively sealed in the "off" position during repair work and setting-up operations. In all cases, accident prevention signs and/or tags shall be placed on the controls of the equipment or machines during repair work.

Hindsight Electric, LLC will provide a sufficient number of accident prevention signs or tags and padlocks, seals or other similarly effective means that may be required by any reasonably foreseeable repair.

Sequence of Lock-out Procedure

1. Notify all affected employees that a lockout is required and the reason, therefore.
2. If the equipment is operating, shut it down by the normal stopping procedure (such as: depress stop button, open toggle switch).
3. Operate the switch, valve, or other energy isolating devices so that the energy source(s) (electrical, mechanical, hydraulic, & other) is disconnected or isolated from the equipment.

4. Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, must also be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down.
5. Lockout energy isolating devices with an assigned individual lock.
6. After ensuring that no personnel are exposed and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate. CAUTION: Return operating controls to neutral position after the test.

Procedure Involving More Than One Person

If more than one individual is required to lock-out equipment, each shall place his/her own personal lock on the energy isolating device(s). One designated individual of a work crew or a supervisor, with the knowledge of the crew, may lock-out equipment for the whole crew. In such cases, it may be the responsibility of the individual to carry out all steps of the lock-out procedure and inform the crew when it is safe to work on the equipment. Additionally, the designated individual shall not remove a crew lock until it has been verified that all individuals are clear.

Testing Equipment during Lockout

In many maintenance and repair operations, machinery may need to be tested, and for that purpose energized, before additional maintenance work can be performed. This procedure must be followed:

1. Clear all personnel to safety.
2. Clear away tools and materials from equipment.
3. Remove lock-out devices and re-energize systems, following the established safe procedure.
4. Proceed with a tryout or test.
5. Neutralize all energy sources once again, purge all systems, and lock-out prior to continuing work.
6. Equipment design and performance limitations may dictate that effective alternative worker protection be provided when the established lock-out procedure is not feasible.

Restoring Equipment to Service

After the work is completed and the equipment is ready to be returned to normal operation, this procedure must be followed:

1. Remove all non-essential items.
2. See that all equipment components are operationally intact, including guards and safety devices. Repair or replace defective guards before removing lockouts.
3. Remove each lockout device using the correct removal sequence.
4. Make a visual check before restoring energy to ensure that everyone is physically clear of the equipment.