



LP 4.32

Effective:
3/4/2026

Revised:

Policy Owner:
Board of Trustees

Policy Administrator:
Vice President for
Finance and
Administration

Affected Parties:
Employees

Table of Contents:

- 1 Purpose
- 2 Scope
- 3 Responsibilities
- 4 Definitions
- 5 Boiler Design, Installation, and Registration
- 6 Boiler Operation Procedures
- 7 Inspections
- 8 Routine Maintenance
- 9 Emergency Procedures
- 10 Training
- 11 Recordkeeping
- 12 Policy Revision History

Boiler Safety

References: South Carolina LLR 41-14-10; 71-9104; ASME Boiler and Pressure Vessel Code

1 Purpose

- 1.1 This policy has been established to ensure a safe and healthy working environment and to act as a performance standard for all employees.
- 1.2 This policy outlines procedures to ensure the safe operation, inspection, and maintenance of all boilers at Lander University.

2 Scope

- 2.1 This policy applies to all personnel involved in the operation, maintenance, inspection, and supervision of boilers at the university, including employees, contractors, and visitors.
- 2.2 The policy covers all boilers on the Lander University campus that fall under the jurisdiction of the South Carolina Boiler Safety Act.

3 Responsibilities

- 3.1 Safety and Regulatory Compliance Officer
 - Responsibilities include:
 - 3.1.1 Administering and maintaining the Boiler Safety Policy.
 - 3.1.2 Ensuring compliance with the South Carolina Boiler Safety Act and all applicable laws and regulations.

3.2 Managers and Supervisors

Managers and Supervisors are responsible for:

- 3.2.1 Ensuring that the policy is implemented as applicable in their areas.

3.3 Facility Services

Facility Services must:

- 3.3.1 Appoint qualified personnel to oversee boiler operations and maintenance.
- 3.3.2 Adhere to all procedures outlined in this policy and manufacturer's instructions.
- 3.3.3 Perform routine checks, inspections, and maintenance as scheduled.
- 3.3.4 Ensure that repairs are completed when needed.
- 3.3.5 Maintain accurate records of boiler operation, maintenance, and repairs.
- 3.3.6 Operate boilers within safe operating limits.
- 3.3.7 Perform routine checks.
- 3.3.8 Promptly notify the Safety and Regulatory Compliance Officer of any unsafe conditions or boiler accident.
- 3.3.9 Ensure that proper clearances are maintained around boilers for inspection, servicing, and repair (i.e., minimum 18 inches unobstructed width around all sides, unless otherwise approved, and specific top clearances as per the South Carolina Mechanical Code).
- 3.3.10 Ensure that shutoff valves are present in supply and return piping for each boiler.

4 Definitions

- 4.1 API-ASME: The American Petroleum Institute-American Society of Mechanical Engineers.
- 4.2 ASME: The American Society of Mechanical Engineers.

- 4.3 ASME Code: American Society of Mechanical Engineers Boiler and Pressure Vessel Code. A set of standards and guidelines for the design, construction, inspection, and testing of boilers and pressure vessels.
- 4.4 Board: The South Carolina Contractor's Licensing Board.
- 4.5 Boiler (as it applies to Lander University): A closed vessel in which water is heated under pressure or vacuum, for use externally to itself, by the direct application of energy from the combustion of fuels or from electrical, solar, or nuclear energy.
- 4.6 Certificate Inspection: A mandatory, periodic assessment to ensure safety and compliance with the South Carolina Boiler Safety Program. This inspection involves both internal and external evaluations and is performed by a certified special inspector.
- 4.7 Chief Boiler Administrator: An administrator who is employed by the State of South Carolina within the Department of Labor, Licensing and Regulation (LLR) and is responsible for overseeing the safety and regulation of boilers within the state.
- 4.8 Code of Construction: Either the ASME Code or another recognized code that is a set of standards and guidelines for the design, construction, inspection, and testing of boilers and pressure vessels.
- 4.9 Combustion Air: The oxygen-rich air needed for the proper and safe burning of fuel in appliances like furnaces, water heaters, and boilers.
- 4.10 Department: The Department of Labor, Licensing and Regulation.
- 4.11 Director: The Director of the Department of Labor, Licensing and Regulation.
- 4.12 Internal Inspection: A thorough examination of all tubes, seams, rivets, drums, stay bolts, and other parts to ensure that the boiler is in safe operating condition and able to carry the pressure allowed.
- 4.13 LLR: South Carolina Department of Labor, Licensing and Regulation – Boiler Section. A state agency responsible for regulating, licensing, enforcing, training, and educating the public on various issues related to labor, health, and safety.
- 4.14 Owner: The person or persons who own(s) or operate(s) any business operating a boiler required to be registered. For this policy, the Owner is Lander University.
- 4.15 Special Inspector: An individual holding a valid National Board of Boiler and Pressure Vessel Inspectors (“National Board”) commission and certified by the Department to perform boiler inspections in South Carolina.

5 Boiler Design, Installation, and Registration

- 5.1 All new boilers installed and operated in South Carolina must be designed and constructed in accordance with the ASME Boiler and Pressure Vessel Code (Section I or IV) or a nationally recognized Code of Construction.
- 5.2 New boilers must be marked in accordance with the Code of Construction and registered with the National Board of Boiler and Pressure Vessel Inspectors.
- 5.3 Copies of registration documents must be provided to the Department upon request.
- 5.4 Controls and safety devices for boilers must meet the requirements of ASME CSD-1 (for fuel input ratings less than 12,500,000 Btu/hour) or NFPA 85 (for inputs greater than or equal to 12,500,000 Btu/hour).
- 5.5 Operating instructions of a permanent type must be attached to the boiler.
- 5.6 Boilers must have all controls set, adjusted, and tested by the installer.
- 5.7 A complete control diagram and operating instructions must be furnished by the installer.
- 5.8 Before a used or secondhand boiler is shipped for installation in South Carolina, an inspection by a National Board-commissioned inspector is required, and data must be filed with the Chief Boiler Administrator and local building officials.
- 5.9 Hot water boilers must be protected with a safety relief valve.
- 5.10 Safety and safety relief valves must be listed and labeled, have a minimum rated capacity for the equipment, and be set at not greater than the nameplate pressure rating.
- 5.11 Discharge Piping Requirements
 - 5.11.1 The discharge piping must:
 - 5.11.1.1 Discharge through an air break in the same room,
 - 5.11.1.2 serve a single relief device,
 - 5.11.1.3 flow by gravity,
 - 5.11.1.4 discharge to the floor/pan/waste receptor/outdoor,

5.11.1.5 and terminate observably.

5.11.2 Discharge piping must not:

5.11.2.1 Be directly connected to the drainage system,

5.11.2.2 be smaller than the valve outlet,

5.11.2.3 cause injury/damage,

5.11.2.4 be trapped,

5.11.2.5 terminate more than six inches above floor/receptor,

5.11.2.6 and have threaded connections or valves/tee fittings at the end.

5.12 Adequate combustion air must be provided for solid and liquid fuel-burning boilers.

5.13 Boiler rooms with a floor area exceeding 500 square feet and containing one or more boilers with a fuel-burning capacity of 1,000,000 Btu or equivalent electrical heat input must have at least two means of exit, remotely located from each other.

6 Boiler Operation Procedures

6.1 Startup and Shutdown: Follow manufacturer's specific procedures for safe startup and shutdown.

6.2 Monitoring: Continuously monitor boiler gauges, controls, and safety devices (e.g., pressure, temperature, water level).

6.3 Water Level: Maintain proper water levels at all times. Automatically fired steam or vapor system boilers must be equipped with an automatic low-water fuel cutoff.

6.4 Safety Devices: Never tamper with, alter, or remove safety appliances (e.g., safety valves, pressure relief valves) while the boiler is under pressure.

6.4.1 If removed for repair during an outage, safety devices must be reinstalled and in proper working order before the boiler is returned to service.

7 Inspections

- 7.1 Lander University must file with the Department evidence of timely boiler inspections as provided in this section.
 - 7.1.1 Evidence of timely inspection may be in the form of a certification of insurance, which contains evidence that the boiler was inspected and approved, or an inspection report from a certified special inspector.
- 7.2 The director or the Chief Boiler Administrator must give 24 hours' notice to enter any premises in the state where a boiler is being installed or repaired for the purpose of ascertaining whether the boiler is being installed or repaired in accordance with the regulatory requirements.
- 7.3 Each boiler used, or proposed to be used in South Carolina must be thoroughly inspected as to their installation and condition as follows:
 - 7.3.1 Annually, a certificate inspection must be conducted on high temperature water boilers. The inspection must be an internal inspection. However, if it is not possible to perform an internal inspection, the inspection must be as complete an inspection as possible. The boilers must also be externally inspected while under pressure, if possible.
 - 7.3.2 Every two years, a certificate inspection must be conducted on hot water heating and hot water supply boilers, and an internal inspection must be conducted at the discretion of the inspector.
 - 7.3.3 A grace period of two months beyond the last inspection performed may elapse between certificate inspections.
 - 7.3.4 The Department may provide for longer periods between certificate inspections in its regulations.
- 7.4 All deficiencies discovered during inspections must be corrected as soon as possible.
 - 7.4.1 Boilers must be shut down and locked out if deficiencies are discovered during inspections that have been determined to be hazardous or unsafe.
 - 7.4.1.1 Operations must not resume until the hazardous or unsafe conditions have been corrected and boiler operation has been determined to be safe by the inspector.
- 7.5 Preparing for Internal Inspection (SC Reg. 71-9104)
 - 7.5.1 The Owner or user must prepare each boiler for internal inspection by:
 - 7.5.1.1 Drawing off water and thoroughly washing the boiler.

- 7.5.1.2 Removing manhole and hand hole plates, washout plugs, and inspection plugs as required by the inspector.
- 7.5.1.3 Cooling and thoroughly cleaning the furnace and combustion chambers.
- 7.5.1.4 Removing the grates of internally fired boilers if required.
- 7.5.1.5 Removing insulation or brickwork as required to determine boiler condition.
- 7.5.1.6 Removing the pressure gauge for testing as required.
- 7.5.1.7 Preventing any leakage of steam or hot water into the boiler by disconnecting pipes/valves or other approved means.
- 7.5.1.8 Before opening manhole/hand hole covers and entering parts connected to a common header with other boilers:
 - 7.5.1.8.1 Non-return and steam stop valves must be closed, tagged, and padlocked, and drain valves/cocks between the two valves opened.
 - 7.5.1.8.2 Feed valves must be closed, tagged, and padlocked, and drain valves/cocks between the two valves opened.
 - 7.5.1.8.3 After draining, blow-off valves must be closed, tagged, and padlocked.
 - 7.5.1.8.4 Blow-off lines, where practicable, must be disconnected between pressure parts and valves.
 - 7.5.1.8.5 All drains and vent lines must be opened.

8 Routine Maintenance

- 8.1 A preventive maintenance program must be implemented based on manufacturer recommendations and industry best practices.
- 8.2 Gauges, controls, and safety devices must be checked and calibrated regularly.
- 8.3 Boiler surfaces, tubes, and combustion areas must be cleaned as needed to maintain efficiency and safety.

- 8.4 Boiler water chemistry must be monitored, and appropriate water treatment programs must be implemented to prevent corrosion and scaling.
- 8.5 Deficiencies or needed repairs must be addressed promptly.
- 8.6 Good housekeeping must be maintained with all necessary clearances for proper operation, inspection, maintenance, and repair.

9 Emergency Procedures

- 9.1 Accident Notification: In the event of a boiler accident resulting in personal injury or emergency shutdown, the Chief Boiler Administrator at the South Carolina Department of Labor, Licensing and Regulation must be notified and a detailed report must be submitted.
- 9.2 Emergency Shutdown: Personnel must be properly trained on emergency shutdown procedures for all boilers.
- 9.3 Evacuation: Clear evacuation routes and assembly points must be established and maintained as documented in Lander University's Emergency Action Plan.
- 9.4 First Aid/Medical Attention: First aid supplies and access to emergency medical services must be readily accessible to employees, contractors, and visitors.
- 9.5 Fire Safety: Appropriate fire suppression equipment must be maintained and personnel must be trained in its use.

10 Training

- 10.1 All personnel involved in boiler operations and maintenance must receive initial and periodic refresher training on:
 - 10.1.1 This Boiler Safety policy.
 - 10.1.2 Manufacturer's operating and maintenance instructions for the specific boiler types at the university.
 - 10.1.3 Recognition of unsafe conditions.
 - 10.1.4 Emergency procedures, including shutdown and accident reporting.
 - 10.1.5 Proper use of personal protective equipment (PPE).

10.2 Training records must be maintained.

11 Recordkeeping

11.1 Comprehensive records must be maintained for each boiler, including, but not limited to, the following:

11.1.1 Installation and registration documents.

11.1.2 Inspection reports from Special Inspectors.

11.1.3 Maintenance logs (i.e., routine, preventive, and repair).

11.1.4 Water treatment records.

11.1.5 Operator training records.

11.1.6 Accident and incident reports.

11.1.7 Evidence of timely inspection (e.g., certificate of insurance).

11.1.8 Information required by LLR (e.g., boiler type, dimensions, maximum allowable working pressure, age, last inspection date).

12 Policy Revision History

- First draft of policy prepared for review by the Vice President for Finance and Administration on 6/5/2025.
- Reviewed and prepared by the Policy Coordinator on 2/12/2025.
- Reviewed by Vice President for Finance and Administration on 2/14/2026.
- Reviewed by Board of Trustees Policy Committee on 2/18/2026.
- Initial draft prepared for full board review by Policy Coordinator 2/18/2026.
- Additional revisions to draft coordinated by Vice President for Finance and Administration on 2/26/2026.
- Approved by the Lander University Board on 3/4/2026.