

522 CMR: BOARD OF BOILER RULES

522 CMR 4.00: HEATING BOILERS AND OTHER HEAT STORAGE SOURCES

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4.01: Scope and Application

(1) In accordance with the provisions of M.G.L. c. 146, § 2, the Board adopts the 2015 *ASME Boiler and Pressure Vessel Code Section IV, Rules for Construction of Heating Boilers*.

(2) Requirements. 522 CMR 4.00 shall apply to Boilers exceeding three horsepower and restricted to the following services:

(a) Steam Low Pressure/Heating Boilers having a minimum safety relief valve capacity greater than 103.5 pounds per hour for operation at pressures not exceeding 15 PSIG (100 kPa).

(b) Hot water Low Pressure/Heating Boilers and hot water supply Boilers having a minimum safety relief valve capacity greater than 100,425 BTU/hr for operation at pressures not exceeding 160 PSIG (1,100 kPa).

(c) Hot water Low Pressure/Heating Boilers and hot water supply Boilers having a minimum safety relief valve capacity greater than 100,425 BTU/hr for operation at temperatures not exceeding 250°F (120°C), at or near the Boiler outlet, except that when some of the wrought materials permitted by 2015 *ASME Boiler and Pressure Vessel Code Section IV, Rules for Construction of Heating Boilers* are used, a lower temperature is specified.

(d) Potable water heaters and water storage tanks for operation at pressures not exceeding 160 PSIG (1,100 kPa) and water temperatures not exceeding 210°F (99°C). 522 CMR 4.01(2)(d) shall not apply to units in this category when none of the following limitations is exceeded:

1. Heat input of 200,000 BTU/hr;
2. A water temperature of 210°F (99°C);
3. A nominal water-containing capacity of 120 gallons, except that they shall be equipped with safety devices in accordance with the requirements of the 2015 *ASME Boiler and Pressure Vessel Code Section IV, Rules for Construction of Heating Boilers* paragraph HLW-100.

The minimum safety valve relieving capacity for Low Pressure/Heating Boilers and other heat storage sources shall be determined in accordance with the 2015 *ASME Boiler and Pressure Vessel Code Section IV, Rules for Construction of Heating Boilers*.

For services exceeding these limits, the rules of the 2015 *ASME Boiler and Pressure Vessel Code Section I, Rules for Construction of Power Boilers* and 522 CMR 16.00: *Controls and Safety Devices for Automatically Fired Boilers (ASME Code CSD-1-2015), Part CW: Steam and Waterside Control* apply.

Boilers within the scope of 522 CMR 4.00 which were legally operating in the Commonwealth prior to January 1, 1978 and which conformed to the existing installation rules may continue in such service.

4.02: Construction (Effective 2/25/17)

All Low Pressure/Heating Boilers under the scope of 522 CMR 4.02 shall be initially constructed in accordance with the 2015 *ASME Boiler and Pressure Vessel Code*.

4.03: Reconstruction Including Welded Repairs, Major Repairs, Alterations

All reconstruction including Repairs and Alterations performed to bring the vessel to the original code of construction, as stamped on the Boiler, shall be done in accordance with the provisions of M.G.L. c. 146, § 2, 2015 *NBIC Part 3*, and the 2015 *ASME Boiler and Pressure Vessel Code Section IV, Rules for Construction of Heating Boilers*.

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4.04: Installation

In accordance with the provisions of M.G.L. c. 146, § 2, the Board adopts 2015 *NBIC Part 1*.

4.05: Inspection

In accordance with the provisions of M.G.L. c. 146, § 2, the Board adopts 2015 *NBIC Part 2*.

(1) Field Inspection. All Low Pressure/Heating Boilers and heat storage sources constructed with manholes or hand holes under 522 CMR 4.05, except those listed as exempt in 522 CMR 4.05(2), shall be thoroughly inspected externally at least once a year and as follows:

(a) Low Pressure/Heating Boilers constructed with manholes or hand holes shall be inspected internally at least once every three years;

(b) Steam Low Pressure/Heating Boilers constructed with manholes and hand holes shall be inspected internally at least once a year.

The First Inspection for the installation of a water Boiler or heat storage source covered by 522 CMR 4.05 may be made by either a District Engineering Inspector or by an Authorized Inspector. The first part of the inspection on steel field erected Boilers shall be completed before the system is filled with the fluid to be heated.

The First Inspection for the installation of a steam Boiler covered by 522 CMR 4.05 shall be made by a District Engineering Inspector.

(2) Exempt from Inspection. The following Low Pressure/Heating Boilers shall be constructed in accordance with 522 CMR 4.00, but are exempt from required inspections:

(a) Boilers of railroad locomotives, motor vehicles or steam fire engines brought into the Commonwealth for temporary use in times of emergency;

(b) Boilers used in private residences;

(c) Boilers used for heating purposes which carry pressures not exceeding 15 PSI and have less than four square feet of grate surface;

(d) Boilers of not more than three horsepower (100,425 BTU/hr) used for heating purposes;

(e) Boilers under the jurisdiction of the United States;

(f) Boilers used exclusively for horticultural or agricultural purposes.

(3) Certificate to Be Posted.

(a) The Department shall issue to the Owner/User of a Boiler compliant with 522 CMR a Certificate, provided the appropriate fees have been paid. The Certificate shall be protected from dirt, moisture, and contamination and shall be posted in a conspicuous place near where the Boiler specified is located and shall be kept with said Boiler and shall be always accessible to the District Engineering Inspector or Authorized Inspector.

(b) The Certificate shall include the name of the insurance company, the national board number, the Mass Tag number, the name of the manufacturer, model number, and the following in accordance with M.G.L. c. 146, § 27: the name of the Owner/User; the location, size, pounds per hour of steam and pressure or BTU per hour output; fuel; the date of inspection; the maximum pressure at which the Boiler may be operated; the expiration date; and the name and signature of the District Engineering Inspector or Authorized Inspector.

(c) The Certificate shall remain posted while the Certificate is in force, unless a District Engineering Inspector or an Authorized Inspector deems the Boiler or its Appurtenances unsafe or dangerous. If a Boiler is determined to be unsafe or dangerous, the District Engineering Inspector or Authorized Inspector shall remove the Certificate, and the Boiler or Pressure Vessel shall not be operated until such time that a valid Certificate is issued.

(4) Application. Whoever owns or uses or causes to be used a Low Pressure/Heating Boiler that comes within the scope of M.G.L. c. 146, § 6, shall make application for inspection to the Chief in a format approved by the Department.

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(5) Preparation of Inspection. The Owner/User of a Boiler which requires an Internal Inspection by a District Engineering Inspector or an Authorized Inspector shall prepare the Boiler for inspection by cooling (blanking off connections to adjacent Boilers, if necessary); removing all soot and ashes from tubes, heads, shell, furnace, and combustion chamber; drawing off the water; removing the handhole and manhole plates; removing grate bars from internally fired Boilers; and removing the steam gauge for testing as well as following 2015 *NBIC, Part 2*.

If a Boiler has not been properly cooled or otherwise prepared for inspection, the District Engineering Inspector or Authorized Inspector shall decline to inspect the Boiler until the Boiler has been properly prepared.

(6) Inspection Reporting. Whoever owns or uses or causes to be used any Boiler requiring inspection pursuant to M.G.L. c. 146, § 6, shall report to the Chief the location of such Boiler which is to be operated. Inspection reports shall be submitted to the Department in a format approved by the Department.

(7) Reporting by Insurance Companies. Every insurance company shall forward to the Chief, within 14 days after each inspection, reports of all Boilers inspected by Authorized Inspectors. Such reports shall be made in a format approved by the Department and shall contain all orders made by the company regarding such systems.

All insurance companies shall notify the Chief, within 14 days, on the appropriate NBIC form, approved by the Chief, of all Boiler new business or discontinuation of business. All insurance companies shall report immediately to the Chief the name of the Owner/User and the location of every Boiler required to be inspected by M.G.L. c. 146, upon which they have cancelled or refused insurance, giving the reasons therefor.

The Authorized Inspector shall notify the Chief or his or her designee immediately if the Authorized Inspector finds that an unsafe and dangerous condition exists resulting in the removal of the Certificate.

(8) Massachusetts Heat Boilers, Inspection and Stamping. Massachusetts Heat Boilers shall be inspected during construction by a National Board Commissioned Inspector. Each Boiler shall be stamped MASS. HEAT and shall display the following data:

- (a) Manufacturer's name;
- (b) Maximum allowable working pressure;
- (c) Safety valve relieving capacity (minimum) in pounds per hour;
- (d) MASS. HEAT number; and
- (e) Year built.

(9) Frequency of Inspection. Low Pressure/Heating Boilers constructed with manholes or hand holes shall be inspected as follows:

- (a) Steam Low Pressure/Heating Boilers. Annual External Inspection which shall include an Internal Inspection.
- (b) Hot Water Boilers. Annual external with an internal once each three years. The External Inspection may be made in conjunction with the Internal Inspection.

(10) Installation of Used Boilers in the Commonwealth. Whoever owns and operates a Boiler not in the Commonwealth which was not shop inspected and stamped in accordance with the 2015 *ASME Boiler and Pressure Vessel Code Section IV, Rules for Construction of Heating Boilers*, but bears the stamping of another state or political subdivision which has adopted a standard of construction equivalent to that of Massachusetts, and wishes to operate said steam Boiler within the Commonwealth, may petition the Chief for permission to do so. Such petition shall be accompanied by the following:

- (a) a copy of the original data report of the manufacturer of the Boiler, signed by an inspector with the appropriate commission who made the original shop inspection; and
- (b) the field inspection data sheet and report covering the inspection of the Boiler, signed by an inspector with the appropriate commission.

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If upon review of this information, the Chief or his or her designee finds that the Boiler complies with the Massachusetts requirements with regard to material, construction, and workmanship, and further finds that the Boiler is in safe working condition and equipped with all necessary appendages, the Chief or his or her designee shall issue a Certificate establishing the safe working pressure.

(11) Atmospheric Boilers. Boilers that are vented directly to the atmosphere, where it is not possible for the Boiler to build up any pressure above atmospheric pressure, shall be exempt from 522 CMR 4.00 provided they do not have any valves, flaps, louvers or dampers in the vent line which could have the capacity to freeze in place, thereby causing the Boiler to build pressure. Effective 2/25/17, any atmospheric boiler that has such valve, flap, louvers, dampers or any Appurtenance that can result in a blockage of the vent line shall be constructed in accordance with 2015 *ASME Boiler and Pressure Vessel Code Section IV, Rules for Construction of Heating Boilers.*

(12) Shutdown Switches and Circuit Breakers. A manually operated remote heating plant automatic shutdown device, including but not limited to, a shutdown switch or circuit breaker, shall be located adjacent to the Boiler room door, marked for easy identification. Consideration should also be given to the type and location of the switch to safeguard against tampering. In the event that the Boiler room door is located on the building exterior, the shutdown device shall be located adjacent to the interior of the door. Where entrance may be gained to the Boiler room through two or more separate doors, each door shall be outfitted with a shutdown device adjacent to the door. Alternate locations of remote emergency switch(es) may be approved by the Board through the variance process in 522 CMR 1.04: *Department Jurisdiction.*

REGULATORY AUTHORITY

522 CMR 4.00: M.G.L. c. 146, §§ 1 through 51, 56 through 64 and 66 through 80.

(PAGES 17 AND 18 ARE RESERVED FOR FUTURE USE.)