Chapter Comm 41

BOILERS AND PRESSURE VESSELS

Note: Chapter ILHR 41 as it existed on February 29, 1988 was repealed and a new chapter ILHR 41 was created effective March 1, 1988. Chapter ILHR 41 was renumbered chapter Comm 41 under s. 13.93 (2m) (b) 1., Stats., and corrections made under s. 13.93 (2m) (b) 6. and 7., Stats., Register, March, 1999, No. 519.

Subchapter I — Scope, Definitions and Administration

Comm 41.01 Purpose. Pursuant to s. 101.17, Stats., the purpose of this chapter is to protect the health, safety and welfare of the public and employees by establishing minimum standards for the design, construction, installation, operation, inspection, testing, maintenance, alteration and repair of boilers and pressure vessels installed in all public buildings and places of employment.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.02 Scope. (1) BOILERS AND PRESSURE VESSELS. The provisions of this chapter apply to boilers and piping components associated with boilers, and to pressure vessels and power piping, in use at places of employment and in public buildings. The provisions of this chapter are not retroactive unless specifically stated in this chapter. Where different sections of this chapter specify different requirements, the most restrictive requirement shall govern.

Note: Section 101.01 (11), Stats., provides that the phrase "place of employment" includes every place, whether indoors or out or underground and the premises appurtenant thereto where either temporarily or permanently any industry, trade or business is carried on, or where any process or operation, directly or indirectly related to any industry, trade or business, is carried on, and where any person is, directly or indirectly employed by another for direct or indirect gain or profit, but does not include any place where persons are employed in private domestic service which does not involve the use of mechanical power or in farming. "Farming" includes those activities specified in s. 102.04 (3), and also includes the transportation of farm products, supplies or equipment directly to the farm by the operator of said farm or employees for use thereon, if such activities are directly or indirectly for the purpose of producing commodities for market, or as an accessory to such production. When used with relation to building codes, "place of employment" does not include an adult family home, as defined in s. 50.01 (1), or, except for the purposes of s. 101.11, a previously constructed building used as a community−based residential facility, as defined in s. 50.01 (1g), which serves 20 or fewer residents who are not related to the operator or administrator.

(2) OTHER VESSELS. The provisions of this chapter shall apply to vessels used for the storage and transportation of flammable liquids, liquefied petroleum gas, liquefied natural gas, compressed natural gas, anhydrous ammonia and refrigerants, unless these vessels are covered by other Wisconsin administrative codes or federal codes.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.04 Definitions. The definitions contained in this section shall be applicable throughout this chapter.

(1) "Alteration" means a change in a boiler or pressure vessel that substantially alters the original design and that requires consideration of the effect of the change on the original design. Alteration does not include the addition to a boiler or pressure vessel of nozzles smaller than an unreinforced opening size.

(2) "Approved" means acceptable to the department.

(3) "ASME code" means the boiler and pressure vessel code published by the American society of mechanical engineers.

(5) "Boiler" means a vessel intended for use in heating water or other fluids or for generating steam or other vapors by the application of heat.

(6) "Boiler external piping" means piping within the scope of ASME code section I and which requires ASME code stamping as specified in section I.

(7) "Certified inspector" means a person who holds a valid credential issued by the department under ch. Comm 5 as a certified boiler−pressure vessel inspector.

(8) "Condemned" means a boiler or pressure vessel declared to be unsafe and which has an applied stamping designating its condemnation.

(9) "Department" means the department of commerce.

(10) "Enforcement authority" means the department.

(11) "External inspection" means an inspection made while the boiler or pressure vessel is in operation.

(12) "Fusion welding" means the melting together of filler metal and base metal, or of base metal only, which results in coalescence.

(13) "High temperature water boiler" means a boiler completely filled with water intended for operation at pressures in excess of 160 psig or temperatures in excess of 250° F.

(13m) "Historical boiler" means a steam boiler that is typically of riveted construction and which is preserved, restored or maintained for hobby or demonstration use.

Note: Steam locomotives, traction engines, hobby boilers and steam cars are examples of historical boilers.

(14) "Hot water heating boiler" means a boiler in which no steam is generated, from which hot water is circulated for heating purposes and then returned to the boiler, and which operates at a pressure not exceeding 160 psig or a temperature of 250° F at or near the boiler outlet.

(15) "Hot water storage tank" means a tank used to store water that is heated indirectly by a circulating water heater, by steam or hot water circulating through coils, or by other heat exchange methods internal or external to the tank.

(16) "Hot water supply boiler" means a boiler completely filled with water that furnishes hot water to be used externally to itself at pressures not exceeding 160 psig or at temperatures not exceeding 250° F at or near the boiler outlet.

(18) "Insurance company" means a company which has been licensed in this state to write boiler and pressure vessel insurance and which is actively engaged in writing such insurance for the general public.

(19) "Internal inspection" means an inspection made when the boiler or pressure vessel is shut down and handholes and manholes or other inspection openings are opened or removed for inspection of the interior as required by the inspector.

(20) "Low pressure boiler" means a boiler on which the safety valves are set at pressures not exceeding 15 psig.

(21) "Maximum allowable working pressure" means the maximum gage pressure permissible at the top of a completed vessel in its operating position for a designated temperature.

(22) "Miniature boiler" means a power boiler or high temperature water boiler which does not exceed any of the following limits:

(a) 16 inches inside diameter of shell;

(b) 20 square feet of heating surface, except for electric boilers;

(c) 5 cubic feet gross volume exclusive of casing and insulation; and

(d) 100 psig maximum allowable working pressure.

(24) "National board" means the national board of boiler and pressure vessel inspectors.

(26) "Owner or user" means any person, firm or corporation legally responsible for the safe operation of a boiler or pressure vessel.

(27) "Portable boiler" means an internally fired boiler primarily intended for temporary location and whose construction and usage is of a movable nature.

(28) "Power boiler" means a boiler in which steam or other vapor is generated at a pressure of more than 15 psig.

(29) "Power piping" means any steam piping system beyond the scope of ASME code section I and having a maximum allowable working pressure in excess of 15 psig, any hot water piping system beyond the scope of ASME code section I and subject to temperatures in excess of 250° F, or any piping system using an organic thermal fluid as a heat transfer media and subject to temperatures in excess of 250° F.

(30) "Pressure−temperature relief valve" means an automatic pressure relieving device actuated by the static pressure upstream of the valve which opens further with the increase in pressure over the opening pressure, or activated by the temperature of the fluid.

Note: A pressure−temperature relief valve is used primarily for liquid service.

(31) "Pressure vessel" means a container for the containment of internal or external pressure which may be obtained from an external source or by the application of heat from a direct or indirect source, or any combination thereof.

(32) "Relief valve" means an automatic pressure relieving device actuated by the static pressure upstream of the valve which opens further with the increase in pressure over the opening pressure.

Note: A relief valve is used primarily for liquid service.

(33) "Repair" means work necessary to restore a boiler or pressure vessel to a safe operating condition.

(34) "Rupture disk" means a nonmechanical overpressure relief device that releases pressure when its preestablished rating is attained.

(35) "Safety relief valve" means an automatic pressure−actuated relieving device suitable for use either as a safety valve or relief valve, depending upon application.

(36) "Safety valve" means an automatic pressure relieving device actuated by the static pressure upstream of the valve and characterized by full−opening pop action.

Note: A safety valve is used for gas or vapor service.

(37) "Secondhand vessel" means a boiler or pressure vessel that has changed location subsequent to the original installation.

(38) "Water heater" means a closed vessel in which water is heated by the combustion of fuels, electricity or other energy source, and withdrawn for use external to the system at pressures not exceeding 160 psig, including the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210° F.

Note: For further explanation of definitions, see the ASME code section VIII, scope and appendix 3.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (37), Register, February, 1990, No. 410, eff. 3−1−90; am. (29), Register, May, 1994, No. 461, eff. 6−1−94; r. (4), (17), (23), (25), r. and recr. (7), Register, October, 1996, No. 490, eff. 11−1−96; am. (intro.) and (29), Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: cr. (13m) Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.05 Petition for variance. The department shall consider and may grant a variance to a provision of this chapter in accordance with ch. Comm 3. The petition for variance shall include, where applicable, a position statement from the fire department having jurisdiction.

Note: Chapter Comm 3 requires the submittal of a petition for variance form (SBD−9890) and a fee, and that an equivalency is established in the petition for variance that meets the intent of the rule being petitioned. Chapter Comm 3 also requires the department to process regular petitions within 30 business days and priority petitions within 10 business days.

Note: Form SBD−9890 is available at no charge from the department at the Safety and Buildings Division, P.O. Box 2509, Madison, WI 53701, telephone 608/266−1818, or on the Internet at www.commerce.wi.gov/SB.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; r. and recr. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.06 Penalties. Penalties for violations of this chapter shall be assessed in accordance with s. 101.02, Stats.

Note: Section 101.02 (13) (a), Stats., indicates penalties will be assessed against any employer, employee, owner or other person who fails or refuses to perform any duty lawfully enjoined, within the time prescribed by the department, for which no penalty has been specifically provided, or who fails, neglects or refuses to comply with any lawful order made by the department, or any judgment or decree made by any court in connection with ss. 101.01 to 101.25, Stats. For each such violation, fail-

ure or refusal, such employee, owner or other person must forfeit and pay into the state treasury a sum not less than $10 nor more than $100 for each violation.

Note: Section 101.02 (12), Stats., indicates that every day during which any person, persons, corporation or any officer, agent or employee thereof, fails to observe and comply with an order of the department will constitute a separate and distinct violation of such order.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.07 Appeals. (1) APPEAL OF LOCAL ORDER. Any person affected by a local order which may be in conflict with a rule of the department may petition the department for a hearing on the grounds that the local order is unreasonable and in conflict with the rule of the department.

Note: Section 101.01 (8), Stats., defines local order as any ordinance, order, rule or determination of any common council, board of alderperson, board of trustees or the village board, of any village or city, or the board of health of any municipality, or an order or direction of any official of such municipality, upon any matter over which the department has jurisdiction.

(2) PETITION OF ADMINISTRATIVE RULE. Pursuant to s. 227.12, Stats., any municipality, corporation or any 5 or more persons having an interest in an administrative rule may petition the department requesting the adoption, amendment or repeal of that rule.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88.

Comm 41.08 Fees. Fees for the inspection, certificate of operation and other services performed by the department pertaining to boilers and pressure vessels shall be submitted as specified in ch. Comm 2. The owner shall be responsible for the payment of fees.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. Register, December,1992, No. 444, eff. 1−1−93**;** correction made under s. 13.93 (2m) (b) 7., Stats., Register, October, 1996, No. 490**.**

Comm 41.10 Adoption of standards by reference. (1) CONSENT TO INCORPORATE. Pursuant to s. 227.21, Stats., the attorney general and the revisor of statutes have consented to the incorporation by reference of the standards listed in sub. (2).

Note: Copies of the listed standards are on file in the offices of the department, the secretary of state and the revisor of statutes. Copies for personal use may be obtained, at a cost, from the organizations listed.

Note: See the Appendix for a reprint of portions of some of the adopted standards.

(2) STANDARDS. The following standards are hereby incorporated by reference into this chapter:

(a) American Society of Mechanical Engineers (ASME), Order Department, P.O. Box 2300, Fairfield, NJ 07007−2300, telephone 800/843−2763 Ext. 555.

1. ASME Boiler and Pressure Vessel Code, 2004 edition, Section I – Power Boilers, Section II – Material Specifications, Section III – Nuclear Power Plant Components, Section IV – Heating Boilers, Section V – Nondestructive Examination, Section VIII – Pressure Vessels, Section IX – Welding and Brazing Qualifications, Section X – Fiber−Reinforced Plastic Pressure Vessels, Section XI – In−service Inspection of Nuclear Power Plant Components.

2. Power Piping, ANSI/ASME B31.1 – 2004.

3. Pressure Vessels for Human Occupancy, ANSI/ASME PVHO−1−2002.

(b) National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229−1183, telephone 614/888−8320. National Board Inspection Code, ANSI/NB−23, 2004 edition.

(c) American Petroleum Institute, 1220 L Street, Northwest, Washington, D.C. 20005, telephone 202/682−8375. Pressure Vessel Inspection Code, API 510, 8th edition, June 1997 with Addendum 4, August 2003.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; r. and recr. Table 41.10, Register, February, 1990, No. 410, eff. 3−1−90; am. Table 41.10, Register, May, 1994, No. 461, eff. 6−1−94; am. Table 41.10, Register, June, 1996, No. 486, eff. 7−1−96; r. and recr. Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: am. (2) (a), (b) and (c) Register October 2005 No. 598, eff. 11−1−05.**

Subchapter II — Inspections

Comm 41.15 General inspection requirements. (1) ALL INSPECTIONS. The certified inspectors of the department, upon presenting appropriate credentials to the owner, operator, or agent in charge, may:

(a) Enter without delay and at reasonable times any factory, plant, establishment, construction site, or other area, workplace or environment where work is performed by an employee of an employer; and

(b) Inspect and investigate during regular working hours and at other reasonable times, and within reasonable limits and in a reasonable manner, any place of employment and all pertinent conditions, structures, machines, apparatus, devices, equipment, and materials therein, and to question privately any employer, owner, operator, agent or employee.

(2) REPRESENTATION. The certified inspector, before making an inspection, shall contact the employer or employer's representative who shall be given an opportunity to accompany the inspector during the physical inspection of any workplace under sub. (1).

Note: The department procedure is not to give advance notice, but in the scheduling and in the act of inspecting it may not always be possible to avoid advance notice or to obtain accompaniment, but otherwise these rules will be diligently observed.

(3) REPORTING CHANGES. (a) The certified inspector's employer shall report to the department not later than 30 calendar days after inspection service is started or discontinued on a boiler or pressure vessel. The reason for discontinuing the service shall be given on the report. If the boiler or pressure vessel is installed in a city of the first class that provides boiler and pressure vessel inspections, the report shall also be provided to the city.

(b) The certified inspector's employer shall report to the department after a boiler or pressure vessel under a service contract becomes inactive or non−existent. Failure to make this report may result in assessment of a fee in accordance with s. Comm 2.04.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (1) (intro.), (2), Register, October, 1996, No. 490, eff. 11−1−96; cr. (3), Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: renum. (3) to be (3) (a), cr. (3) (b) Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.16 Initial inspections. (1) BOILER AND PRESSURE VESSEL INSPECTIONS. (a) Except as provided in par. (b), boilers and pressure vessels shall be inspected by a certified inspector before they are placed in operation.

Note: See s. Comm 41.41 for installation registration requirements.

(b) The inspections specified in par. (a) are not required for boilers and pressure vessels exempted from periodic inspections in s. Comm 41.18.

(c) Where the boilers or pressure vessels specified in par. (a) are installed in a city of the first class and inspections are made by the city, the city shall keep a record of the inspections and shall submit a copy to the department.

(d) Where the inspections specified in par. (a) are performed by a certified inspector other than a department inspector, the certified inspector shall file an inspection report with the department and shall affix the Wisconsin registration number as required in s. Comm 41.36. The inspection report shall be filed with the department within 30 calendar days after completion of the boiler or pressure vessel installation. If the report is not filed within the 30−day period, the department shall perform the inspection.

(e) Required initial inspections shall be reported to the department on form SBD−10633.

Note: Copies of form SBD−10633 are available at no charge from the Safety and Buildings Division, P.O. Box 2509, Madison, WI 53701−2509, telephone 608/266−1818, or on the Internet at www.commerce.wi.gov/SB.

(2) POWER PIPING INSPECTIONS. (a) Except as provided in par. (b), all power piping systems not covered by ASME code section I and required to be constructed in accordance with ANSI/ASME B31.1, shall receive an initial inspection by a certified inspector.

(b) The inspections specified in par. (a) are not required for any of the following:

1. Power piping of 2 inches nominal pipe size and smaller.

2. Power piping replacements, modifications and alterations to existing systems and for new installations, any of which do not exceed 50 feet in length.

3. Underground power piping systems which are not located in a walk−in tunnel.

(c) The installer shall notify the certified inspector prior to the start of construction of the power piping system so that inspections may be arranged. The certified inspector shall be given a minimum of 2 business days notice to arrange for inspection.

(d) A power piping inspection shall be made after the piping material is delivered to the job site and prior to the start of construction of the power piping system. The installer shall complete form SBD−5204 and retain it at the job site prior to the power piping inspection. The certified inspector shall indicate acceptance of the power piping system design by signing form SBD−5204. Power piping systems may not be insulated or placed in service without receiving an inspection.

Note: Copies of form SBD−5204 are available at no charge from the Safety and Buildings Division, P.O. Box 2509, Madison, WI 53701−2509, telephone 608/266−1818.

(e) Prefabricated piping that is part of a power piping system shall be inspected by a certified inspector at the fabrication shop. The shop fabricator shall provide a copy of the certified inspector's report to the installer at the job site verifying that the prefabricated piping complies with ANSI/ASME B31.1.

(f) The owner of the power piping system may request power piping inspections in addition to the minimum inspections.

(g) Inspection fees for the power piping inspections shall be assessed by the department or by the city of the first class.

Note: For inspection fees, see ch. Comm 2.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (1) (d) and (2) (c),cr. (1) (e), Register, December, 1992, No. 444, eff. 1−1−93; am. (2) (d),r. and recr. (2) (e), Register, May, 1994, No. 461, eff. 6−1−94; am. (1) (a), (d), (2) (a), (c) to (e), Register, October, 1996, No. 490, eff. 11−1−96; am. (2) (c), Register, March, 1998, No. 507, eff. 4−1−98; am. (2) (a) and (e), Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: am. (1) (e) and (2) (b) Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.17 Periodic inspections. (1) INSPECTION OF POWER BOILERS. (a) Except as provided in s. Comm 41.18, power boilers and organic fluid heat transfer boilers shall be subjected to either a regular internal or external inspection at least once every 12 months by a certified inspector.

(b) Where an internal inspection of a power boiler is not possible because of the construction of the boiler, an external inspection shall be acceptable.

(2) INSPECTION OF PRESSURE VESSELS. Except as provided in s. Comm 41.18, pressure vessels shall be subjected to a regular internal or external inspection at least once every 36 months by a certified inspector.

(3) INSPECTION OF LOW PRESSURE STEAM AND HOT WATER HEATING BOILERS. Except as provided in s. Comm 41.18, low pressure steam boilers and hot water heating boilers shall be subjected to a regular internal or external inspection at least once every 36 months by a certified inspector.

(4) INSPECTION OF SAFETY VALVES AND SAFETY RELIEF VALVES. The certified inspectors shall satisfy themselves that safety valves and safety relief valves have been operated or tested at least once every 12 months.

(5) EXTENSION OF PERIOD BETWEEN INSPECTIONS. If operating conditions require, an extension of periods not to exceed 6 months between inspections of boilers, pressure vessels, safety valves and safety relief valves may be approved by the department upon a written request from the owner or user for an extension. Concurrence with the owner's or user's request for an extension shall be obtained from the certified inspector in writing to the department.

Note: For inspection fees, see ch. Comm 2.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (1) (a), Register,December, 1992, No. 444, eff. 1−1−93; am. (5), Register, May, 1994, No. 461, eff. 6−1−94; am. (1) (a), (2) to (5), Register, October, 1996, No. 490, eff. 11−1−96; am. (4) and (5), Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.18 Exemptions from periodic inspections. (1) EXEMPTED EQUIPMENT. Except as provided in sub. (2), periodic inspections are not required for:

(a) Boilers or pressure vessels which receive regular inspections by United States government inspectors;

(b) Heating boilers located in private residences or in apartment buildings having less than 3 living units;

(c) Expansion tanks for hot water heating boilers;

(d) Boilers used exclusively for agricultural purposes;

(e) Pressure vessels having an inside diameter not exceeding 6 inches with no limit on pressure;

(f) Pressure vessels having a volume of less than 5 cubic feet and an operating pressure of less than 250 psig;

(g) Pressure vessels with a volume of less than 1−1/2 cubic feet with no limit on pressure;

(h) Pressure vessels having an internal or external operating pressure of not more than 15 psig with no limitations on size;

(i) Hot water supply boilers and water heaters, and hot water storage tanks in which the temperature does not exceed 210° F;

(j) Vessels used for the storage or processing of cold water, including those with air cushions;

(k) Pressure vessels which are used in accordance with the regulations of the United States department of transportation;

(L) Air receivers having a volume of less than 12 cubic feet and an operating pressure of less than 250 psig; and

(m) Pressure vessels used in processing and storing of fermented beverages at temperatures not exceeding 140° F.

(n) Any pressure vessel used as an integral part of an electrical circuit breaker.

(2) EXCEPTIONS. In individual cases, the boilers and pressure vessels exempted in sub. (1) shall be subject to inspection by or on order of the department upon the complaint of any person or upon the initiative of the department when there is reasonable cause to suspect that the construction, installation, maintenance or operation of the vessel is not in keeping with the general purpose and intent of this chapter.

(3) EXEMPTED POWER BOILERS. A power boiler, excluding a chemical recovery boiler, with a rated steam output capacity of 100,000 pounds per hour or greater may be exempted from internal inspection each 12 months, but not to exceed 24 months, provided all the following conditions are met:

(a) A documented boiler maintenance program is available.

(b) A documented boiler water treatment program is available.

(c) The certified inspector has verified in writing to the department that the maintenance and treatment programs are adequate for the boiler.

(d) If the internal inspection is completed during the 12 to 24 month period, the boiler shall be subjected to an external inspection at 12 months.

History: Register, February, 1988, No. 386, eff. 3−1−88; cr. (3), Register, June, 1996, No. 486, eff. 7−1−96; am. (2) and (3) (c), Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: cr. (1) (n) Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.19 Preparation for internal inspection. (1) GENERAL REQUIREMENTS. The owner or user of a boiler or a pressure vessel subject to inspection shall prepare the vessel for internal inspection after due notice from the certified inspector. To prepare a vessel for an internal inspection all manhole plates, all wash−out plugs, and a sufficient number of handhole plates to permit a satisfactory inspection shall be removed. The shell and heads shall be thoroughly cleaned and exposed when so requested. Each

steam boiler shall be thoroughly drained of water and all fire side surfaces cleaned before an internal inspection is made.

(2) PREPARATION PROCEDURE. The following procedure shall be required for preparation for inspection:

(a) Before entering any part of a boiler which is connected to a common header with other boilers, the required steam or water system stop valves shall be closed, tagged and preferably padlocked, and drain valves or cocks between the 2 closed stop valves shall be opened. The feed valves shall be closed, tagged, and preferably padlocked, and drain valves or cocks located between the 2 valves shall be opened.

(b) After draining the boiler, the blowoff valves shall be closed, tagged and preferably padlocked. Blowoff lines, where practicable, shall be disconnected between pressure parts and valves. All drains and vent lines shall be opened.

(3) RIGHT TO REFUSE ENTRY. The certified inspector shall have the right to refuse to enter a boiler or pressure vessel if in the inspector's judgement it is unsafe to do so.

Note: Confined space rules are contained in ch. Comm 32 for public sector employees and in section 29 CFR 1910.146 of the federal Occupational Safety and Health Administration for private sector employees.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (1), (3), Register, October, 1996, No. 490, eff. 11−1−96**.**

Comm 41.23 Reporting of periodic inspections. (1) REPORTING PROCESSING TIME. Reports of periodic internal or external inspections of boilers and pressure vessels shall be sent to the department within 30 calendar days from the date of inspection. A verification that an inspection has been performed shall be posted on or near the inspected object. A copy of the report shall be provided to the owner or user of the boiler or pressure vessel within 5 business days if a code violation is indicated. A copy of the report shall be left on site if a life safety violation is indicated.

(2) INSPECTION REPORT FORMS. (a) 1. Except as provided in subd. 2., required periodic inspections shall be reported to the department on form SBD−10633 or other approved forms.

Note: Copies of form SBD−10633 are available at no charge from the Safety and Buildings Division, P.O. Box 2509, Madison, WI 53701−2509, telephone 608/266−1818, or on the Internet at www.commerce.wi.gov/SB.

2. After November 1, 2006, reporting of periodic inspections shall be sent to the department in accordance with the department's electronic data interchange transfer guidelines.

Note: The department will provide assistance at no charge regarding the use of the electronic data interchange system. The guidelines are available on the Internet at www.commerce.wi.gov/SB.

(b) A group of pressure vessels of the same design and use that are interconnected or are operated so as to form a unit, machine or apparatus may be included in a single inspection report. The report shall contain the number, description and use of the vessel.

(c) The inspection report shall explain any violation or unsafe condition with references to code section numbers. Recommendations to the owner or user of the vessel, relating to code violations, shall be included in the report to the department.

(d) The inspection report shall be legible and complete.

(3) EXTERNAL INSPECTIONS. External inspections shall be reported only when either of the following conditions is found:

(a) An internal inspection is not possible because of the construction of the vessel. In these cases the external inspection shall be reported to the department in the same manner as an internal inspection. The report shall be marked external and the reason for making an external inspection instead of an internal shall be given; or

(b) When violations of this chapter or unsafe conditions involving the safety of the vessel are found.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (1), (2) (a) and (3) (b), Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: am. (1) and (2) (a), cr. (2) (a) 2. Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.24 Permit to operate. (1) RESPONSIBILITY. (a) The owner or user of the boiler or pressure vessel shall be responsible for obtaining and maintaining a valid permit to operate.

(b) The permit to operate shall be posted near the boiler or pressure vessel by the owner or user of the boiler or pressure vessel.

(2) ISSUANCE. After each initial or periodic inspection for boilers and pressure vessels found to be in compliance with this chapter, a permit to operate shall be issued by the department to the owner or user of the boiler or pressure vessel. The department shall issue the permit within 30 business days of determination of compliance.

(3) INFORMATION. The permit to operate shall give the maximum allowable working pressure as determined using the regulations of this chapter, the certified inspector's name and telephone number, and the expiration date.

(4) EXPIRATION. The permit to operate shall be valid until the next required periodic inspection or until rescinded due to code violations.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: am. (1) (b) and (4) Register October 2005 No. 598, eff. 11−1−05.**

Subchapter III — All Installations

Comm 41.27 Application. The provisions of ss. Comm 41.27 to 41.39 shall apply to all boilers and pressure vessels existing prior to, or installed after March 1, 1988.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; correction made under s. 13.93 (2m) (b) 14, Stats., Register, May, 1994, No. 461.

Comm 41.28 Safety rules. (1) MAXIMUM ALLOWABLE WORKING PRESSURE. No boiler or pressure vessel may be operated at a pressure in excess of the maximum allowable working pressure stated on its current permit to operate.

(2) ALTERATION TO SAFETY DEVICES. No unauthorized person may remove or tamper with any connected safety device.

(3) INSTALLATION LOCATION. Boilers and pressure vessels shall be so installed that there will be sufficient room between the vessel and any ceiling, wall, partition or floor to facilitate the connection and operation of valves, pipes and other appurtenances, and shall be installed in a manner that will not block any inspection opening.

Note: Chapters Comm 61 to 65 may have other requirements relating to the installation, alteration or repair of a boiler or pressure vessel, such as requirements relating to enclosures, location, safety controls, combustion air, and venting.

Note: Wisconsin Administrative Codes may be obtained by contacting the State Department of Administration, Document Sales and Distribution, P.O. Box 7840, Madison, Wisconsin 53707, telephone 608/266−3358, or on the Internet at www.legis.state.wi.us/rsb/code/.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (1), Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.29 Safety controls. (1) GENERAL. Oil−fired, gas−fired and electrically−heated boilers shall be equipped with primary safety controls, safety limit switches, and burners or electric elements that bear the stamp, monogram or other evidence of compliance with a nationally recognized standard.

Note: Typical acceptable stamps are the American Gas Association (AGA) and the Underwriters Laboratories (UL).

(2) PRESSURE AND TEMPERATURE CONTROLS. Boilers installed prior to January 1, 1957, shall have at least one pressure control for steam boilers or one temperature control for hot water boilers or organic fluid heat transfer systems. Compliance with the following requirements is optional for boilers installed prior to January 1, 1957:

(a) *Pressure controls.* Each automatically−fired steam boiler or system of commonly connected steam boilers shall have at least one steam pressure control device that will shut off the fuel supply to each boiler or system of commonly connected boilers when the steam pressure reaches a preset maximum operating pressure. In addition to the operating pressure control, each individual automatically−fired steam boiler shall have a high steam pressure limit control that will prevent generation of steam pressure in excess of the maximum allowable working pressure. Each limit control and

operating control shall be clearly separated, and have its own sensing element and operating switch. No shut−off valve of any type may be placed in the steam pressure connection between the boiler and the high pressure limit control device.

(b) *Temperature controls.* Each automatically−fired hot water boiler or system of commonly connected hot water boilers shall have at least one temperature actuated control to shut off the fuel supply when the system water reaches a preset operating temperature. In addition to the operating temperature control, each individual automatically−fired hot water boiler unit shall have a high temperature limit control that will prevent the water temperature from exceeding the maximum allowable temperature. Each limit control and operating control shall be clearly separated, and have its own sensing element and operating switch.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (2) (a), Register, June, 1996, No. 486, eff. 7−1−96; am. (2) (intro.), Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.30 Low−water cutoff, water feeder and fusible plug. (1) GENERAL REQUIREMENTS. (a) Every automatically−fired power boiler which does not have a full−time attendant and every automatically−fired low−pressure steam boiler shall be equipped with an automatic low−water fuel cutoff or other device which will perform a similar function, so located as to automatically cut off the fuel supply when the surface of the water falls to the lowest safe water line.

(b) If a water−feeding device is installed, it shall be so constructed that the water inlet valve cannot feed water into the boiler through the float chamber and so located as to supply requisite feed water. The lowest safe water line shall be not lower than the lowest visible part of the water glass.

(c) Boilers which are manually fired and have a residual heat source shall have a fusible plug installed which will extinguish the fire in the event of low water. Fire doors shall be provided with secure latches on manually fired boilers having fusible plugs.

(2) BOWL DESIGNS. Designs embodying a float and float bowl, or probe control installed in a bowl or chamber externally to the boiler, shall have a vertical straightway valved drain pipe at the lowest point in the water equalizing pipe connections by which the bowl or chamber and the equalizing pipe can be flushed and the device tested.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; cr. (1) (c), Register, June, 1996, No. 486, eff. 7−1−96; am. (1) (c), Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.31 Boiler blowoff equipment. (1) PRESSURE−TEMPERATURE LIMITS. The blowdown from a boiler that enters a sewer system or blowdown which is considered a hazard to life or property shall pass through some form of blowoff equipment that will reduce pressure and temperature as specified in pars. (a) and (b).

(a) The temperature of the water leaving the blowoff equipment may not exceed 160° F.

(b) The pressure of the blowdown leaving the blowoff equipment may not exceed 5 psi.

(2) PIPING AND FITTINGS. The blowoff piping and fittings between the boiler and the blowoff tank shall comply with ANSI/ASME B31.1 or the code in effect at the time of construction.

(3) TANKS AND SEPARATORS. The blowoff tank or separator shall be designed in accordance with s. Comm 41.42 or the code in effect at the time of construction for a maximum allowable working pressure of at least 50 psig.

(4) GENERAL REQUIREMENTS. All blowoff equipment, except centrifugal blowdown separators, shall be fitted with openings to facilitate cleaning and inspection and shall have:

(a) A pressure gage graduated from 0−50 psi;

(b) A thermometer well located near the water outlet connection and in contact with the retained water in the tank;

(c) A gauge glass at least ½−inch in diameter with the lower connection to the glass at a point about 6 inches below the water line and the upper connection at a point about 6 inches above the water line;

(d) A drain connection of at least 2−inch standard pipe size; and

(e) Connections designed so that freezing will not close the inlet, the outlet or the vent.

(5) VENT PIPING. All blowoff equipment shall have vent piping, full size, piped to the outside atmosphere and discharged to a safe location.

Note: Blowoff equipment designed in accordance with the boiler blowoff equipment rules issued by the National Board of Boiler and Pressure Vessel Inspectors will meet the requirements of this section. Other methods of designing blowoff equipment may be used if approved by the department.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (4) (d) and (e), r. (4) (f), cr. (5), Register, December, 1992, No. 444, eff. 1−1−93; am. (2), (3), (4) (a), Register, June, 1996, No. 486, eff. 7−1−96; am. (2), Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: am. (1) (a) Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.32 Pressure gages for air receivers. (1) GAGE LOCATION. Air receivers shall be equipped with an indicating pressure gage so located as to be readily visible.

(2) GAGE DIAL. The dial of the pressure gage shall be graduated to approximately double the pressure at which the safety valve is set, but may not be less than one and one−half times that pressure.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88.

Comm 41.33 Protection of vessels supplied through pressure reducing stations. The following requirements shall be used for determining the sizes of safety valves on pressure vessels such as, but not limited to pressure cookers, indirect hot water heaters and equipment in heating systems, which are supplied through pressure reducing stations from boilers carrying a higher steam pressure. Where a pressure reducing station is supplied from a boiler, the capacity of the safety valves on the low pressure side of the system need not exceed the capacity of the boiler.

(1) REDUCING STATION CAPACITY. The following formula shall be used to determine the steam flow rate through the pressure reducing station.

$$W = 1/3 \times OC \times VSPA$$

Where:

W= steam flow in pounds of steam per hour through the pressure reducing valve

OC= orifice capacity in pounds of steam per hour per square inch from Table 41.33−1

VSPA= reducing valve size pipe area in square inches from Table 41.33−2

(a) The critical flow capacity data supplied by the reducing valve manufacturer may be used in place of the above formula to select the required safety valve capacity. The capacity calculations shall be the largest obtainable by internal trim change of the reducing valve.

(b) In using Table 41.33−1, the pressure reducing station inlet pressure is the lowest set pressure of any safety valve on the high pressure side of the pressure reducing station.

(2) BYPASS CAPACITY. The following formula shall be used to determine the steam flow rate through the bypass when pressure reducing stations are arranged with a valved bypass which also acts as a potential steam source hazard in case the bypass is left open.

$$W = 1/2 \times OC \times BPA$$

Where:

W= steam flow in pounds of steam per hour through the bypass valve

OC= orifice capacity in pounds of steam per hour per square inch from Table 41.33−1

BPA= bypass pipe area in square inches from Table 41.33−2

(3) SELECTING SAFETY VALVE. The larger of the steam flow rates calculated by the formulas in subs. (1) and (2) shall be used for selecting the safety valve on the low pressure side of the system.

TABLE 41.33−1

ORIFICE RELIEVING CAPACITIES
(Pounds per hour per square inch)

OUTLET PRESSURE	PRESSURE REDUCING VALVE INLET PRESSURE, PSIG											
PSIG	1500	1450	1400	1350	1300	1250	1200	1150	1100	1050	1000	950
1000	76560	72970	69170	64950	60540	55570	49930	43930	35230	25500	——	——
950	77430	74180	70760	67000	63100	58770	53920	48610	42380	34890	24910	——
900	77750	74810	71720	68340	64870	61040	56820	52260	47050	41050	33490	23960
850	77830	74950	72160	69130	66020	62610	58900	54930	50480	45470	39660	29080
800	——	75070	72330	69490	66700	63680	60390	56910	53060	48800	43980	38340
750	——	——	——	69610	66880	64270	61260	58200	54840	51170	47080	42420
700	——	——	——	——	66900	64270	61520	58820	55870	52670	49170	45230
650	——	——	——	——	——	——	61550	58860	56260	53480	50440	47070
600	——	——	——	——	——	——	——	58980	56270	53660	51020	48470
550	——	——	——	——	——	——	——	——	——	53810	51040	48470
500	——	——	——	——	——	——	——	——	——	——	——	——
450	——	——	——	——	——	——	——	——	——	——	——	——
400	——	——	——	——	——	——	——	——	——	——	——	——
350	——	——	——	——	——	——	——	——	——	——	——	——
300	——	——	——	——	——	——	——	——	——	——	——	——
250	——	——	——	——	——	——	——	——	——	——	——	——
200	——	——	——	——	——	——	——	——	——	——	——	——
175	——	——	——	——	——	——	——	——	——	——	——	——
150	——	——	——	——	——	——	——	——	——	——	——	——
125	——	——	——	——	——	——	——	——	——	——	——	——
110	——	——	——	——	——	——	——	——	——	——	——	——
100	——	——	——	——	——	——	——	——	——	——	——	——
85	——	——	——	——	——	——	——	——	——	——	——	——
75	——	——	——	——	——	——	——	——	——	——	——	——
60	——	——	——	——	——	——	——	——	——	——	——	——
50	——	——	——	——	——	——	——	——	——	——	——	——
40	——	——	——	——	——	——	——	——	——	——	——	——
30	——	——	——	——	——	——	——	——	——	——	——	——
25	——	——	——	——	——	——	——	——	——	——	——	——
15	——	——	——	——	——	——	——	——	——	——	——	——
10	——	——	——	——	——	——	——	——	——	——	——	——
5	——	——	——	——	——	——	——	——	——	——	——	——

Where capacities are not shown for inlet and outlet conditions, use the highest capacity shown under the applicable inlet pressure column.

TABLE 41.33−1 (continued)

ORIFICE RELIEVING CAPACITIES
(Pounds per hour per square inch)

OUTLET PRES., PSIG	PRESSURE REDUCING VALVE INLET PRESSURE, PSIG												
	900	850	800	750	700	650	600	550	500	450	400	350	300
1000	——	——	——	——	——	——	——	——	——	——	——	——	——
950	——	——	——	——	——	——	——	——	——	——	——	——	——
900	——	——	——	——	——	——	——	——	——	——	——	——	——
850	23190	——	——	——	——	——	——	——	——	——	——	——	——
800	31610	22550	——	——	——	——	——	——	——	——	——	——	——
750	37110	30600	21800	——	——	——	——	——	——	——	——	——	——
700	40860	35730	29420	21020	——	——	——	——	——	——	——	——	——
650	43400	39200	34250	28260	20190	——	——	——	——	——	——	——	——
600	45010	41500	37470	32800	27090	19480	——	——	——	——	——	——	——
550	45800	42840	39850	35730	31310	25940	18620	——	——	——	——	——	——
500	45850	43330	40530	37610	33880	29760	24630	17720	——	——	——	——	——
450	45870	43330	40730	38150	35260	31980	28080	23290	16680	——	——	——	——
400	——	——	40760	38220	35680	33050	29980	26380	21870	15760	——	——	——
350	——	——	——	——	——	33120	30690	27910	24570	20460	14790	——	——
300	——	——	——	——	——	33240	——	28140	25610	22620	18860	13630	——
250	——	——	——	——	——	——	——	28150	25650	23200	21000	17100	10800
200	——	——	——	——	——	——	——	——	——	——	21350	18250	15350
175	——	——	——	——	——	——	——	——	——	——	——	18250	16000
150	——	——	——	——	——	——	——	——	——	——	——	18250	16200
125	——	——	——	——	——	——	——	——	——	——	——	18780	——
110	——	——	——	——	——	——	——	——	——	——	——	——	——
100	——	——	——	——	——	——	——	——	——	——	——	——	——
85	——	——	——	——	——	——	——	——	——	——	——	——	——
75	——	——	——	——	——	——	——	——	——	——	——	——	——
60	——	——	——	——	——	——	——	——	——	——	——	——	——
50	——	——	——	——	——	——	——	——	——	——	——	——	——
40	——	——	——	——	——	——	——	——	——	——	——	——	——
30	——	——	——	——	——	——	——	——	——	——	——	——	——
25	——	——	——	——	——	——	——	——	——	——	——	——	——
15	——	——	——	——	——	——	——	——	——	——	——	——	——
10	——	——	——	——	——	——	——	——	——	——	——	——	——
5	——	——	——	——	——	——	——	——	——	——	——	——	——

Where capacities are not shown for inlet and outlet conditions, use the highest capacity shown under the applicable inlet pressure column.

TABLE 41.33−1 (continued)

ORIFICE RELIEVING CAPACITIES
(Pounds per hour per square inch)

OUTLET PRES., PSIG	PRESSURE REDUCING VALVE INLET PRESSURE, PSIG												
	250	200	175	150	125	100	85	75	60	50	40	30	25
1000	——	——	——	——	——	——	——	——	——	——	——	——	——
950	——	——	——	——	——	——	——	——	——	——	——	——	——
900	——	——	——	——	——	——	——	——	——	——	——	——	——
850	——	——	——	——	——	——	——	——	——	——	——	——	——
800	——	——	——	——	——	——	——	——	——	——	——	——	——
750	——	——	——	——	——	——	——	——	——	——	——	——	——
700	——	——	——	——	——	——	——	——	——	——	——	——	——
650	——	——	——	——	——	——	——	——	——	——	——	——	——
600	——	——	——	——	——	——	——	——	——	——	——	——	——
550	——	——	——	——	——	——	——	——	——	——	——	——	——
500	——	——	——	——	——	——	——	——	——	——	——	——	——
450	——	——	——	——	——	——	——	——	——	——	——	——	——
400	——	——	——	——	——	——	——	——	——	——	——	——	——
350	——	——	——	——	——	——	——	——	——	——	——	——	——
300	——	——	——	——	——	——	——	——	——	——	——	——	——
250	——	——	——	——	——	——	——	——	——	——	——	——	——
200	10900	——	——	——	——	——	——	——	——	——	——	——	——
175	12600	7250	——	——	——	——	——	——	——	——	——	——	——
150	13400	9540	6750	——	——	——	——	——	——	——	——	——	——
125	13600	10800	8780	6220	——	——	——	——	——	——	——	——	——
110	13600	11000	9460	7420	4550	——	——	——	——	——	——	——	——
100	13600	11000	9760	7970	5630	——	——	——	——	——	——	——	——
85	13600	11000	——	8480	6640	4070	——	——	——	——	——	——	——
75	13600	11000	——	——	7050	4980	3150	——	——	——	——	——	——
60	13630	11000	——	——	7200	5750	4540	3520	——	——	——	——	——
50	——	11000	——	——	——	5920	5000	4230	2680	——	——	——	——
40	——	11000	——	——	——	——	5140	4630	3480	2470	——	——	——
30	——	11050	——	——	——	——	——	——	3860	3140	2210	——	——
25	——	——	——	——	——	——	——	——	——	3340	2580	1485	——
15	——	——	——	——	——	——	——	——	——	——	2830	2320	1800
10	——	——	——	——	——	——	——	——	——	——	——	——	2060
5	——	——	——	——	——	——	——	——	——	——	——	——	——

Where capacities are not shown for inlet and outlet conditions, use the highest capacity shown under the applicable inlet pressure column.

TABLE 41.33−2
INTERNAL PIPE AREA

Nominal pipe size, inches	STANDARD WEIGHT PIPE Actual External Diameter, Inches	Approx. Internal Diameter, Inches	Approx. Internal Area, Square Inches
3/8	0.675	0.49	0.19
1/2	0.840	0.62	0.30
3/4	1.050	0.82	0.53
1	1.315	1.05	0.86
1−1/4	1.660	1.38	1.50
1−1/2	1.900	1.61	2.04
2	2.375	2.07	3.36
2−1/2	2.875	2.47	4.78
3	3.5	3.07	7.39
3−1/2	4.0	3.55	9.89
4	4.5	4.03	12.73
5	5.563	5.05	19.99
6	6.625	6.07	28.89
8	8.625	8.07	51.15
10	1.750	10.19	81.55
12	12.750	12.09	114.80

Note: In applying Table 41.33−2, the area of the pipe is always based upon standard weight pipe and the inlet size of the pressure reducing valve.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. intro., (1)(intro.), (2), r. and recr. (1) (a) and (b), Register, May, 1994, No. 461, eff.6−1−94; am. (1) (a), Register, June, 1996, No. 486, eff. 7−1−96.

Comm 41.34 Portable boilers. (1) PERMIT REQUIRED. The owner or user of a portable boiler located in Wisconsin or brought into Wisconsin for use, shall possess a permit to operate issued by the department prior to use.

(2) BOILER REQUIREMENTS. The permit to operate shall be issued only after all of the following requirements are met:

(a) The boiler complies with s. Comm 41.42.

(b) The boiler is installed according to the applicable requirements of this chapter.

(c) An internal or external inspection of the boiler has been made which is acceptable to the department.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.35 Interconnected boilers. When boilers of different maximum allowable working pressures with minimum safety valve settings varying more than 6% are so connected that steam can flow toward the lower pressure units, the latter shall be protected by additional safety valve capacity, if necessary, on the lower pressure side of the system. The additional safety valve capacity shall be based upon the maximum amount of steam which can flow into the lower pressure system. The additional safety valves shall have at least one valve set at a pressure not to exceed the lowest allowable pressure and the other valves shall be set within a range not to exceed 3% above that pressure.

History: History: Cr. Register, February, 1988, No. 386, eff. 3−1−88.

Comm 41.36 Identification of boilers and pressure vessels. (2) REGISTRATION NUMBER. Boilers and pressure vessels subject to periodic inspections shall be identified by a registration number supplied by the department. The registration number shall be affixed to the vessel by a certified inspector at a location which can be easily viewed.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (2), Register, October, 1996, No. 490, eff. 11−1−96; r. (1), Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.37 Maintenance. (1) CORROSION PREVENTION. All boilers and pressure vessels shall be installed and maintained in such a manner as to prevent excessive corrosion and deterioration.

(2) SAFE CONDITIONS. The certified inspector shall note conditions during internal inspection, external inspection, or hydrostatic pressure test and shall order changes or repairs which will place the boiler or pressure vessel in a safe working condition.

Note: Sections VI and VII of the ASME boiler and pressure vessel code, Recommended Rules for Care and Operation of Heating Boilers and Recommended Rules for Care of Power Boilers, are excellent guides for boiler owners and operators.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (2), Register, October, 1996, No. 490, eff. 11−1−96.

Comm 41.38 Reporting accidents, repairs and alterations. (1) ACCIDENTS. Whenever a boiler or pressure vessel fails and causes injury to any person, the owner or user shall report in writing the facts involved to the department within the following 24 hours. The owner or user may not remove or disturb the boiler or pressure vessel or any of its parts nor permit any such removal or disturbance prior to receiving authorization from the department, except for the purpose of saving human life or further property damage.

(2) REPAIRS AND ALTERATIONS. The owner or user shall report to the department any repairs or alterations of a boiler or pressure vessel as required in subch. VI.

(3) FUEL CONVERSIONS. The owner or user shall report to the department conversions of boilers to other fuels.

(4) HEAT INPUT. The owner or user shall report to the department any modification that increases the heat input capacity of the boiler.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (1) to (3), cr. (4), Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.39 Condemnation. (1) AUTHORITY. Only the department may condemn a boiler or pressure vessel. Any boiler or pressure vessel declared by a certified inspector to be unsafe and beyond repair shall be referred to the department for condemnation proceedings.

(2) SYMBOL. (a) Any boiler or pressure vessel confirmed by the department to be unsafe for further use shall be stamped as follows:

"CONDEMNED"

"Arrowhead Stamp x Wisconsin x Arrowhead Stamp"

(b) Letters used for the stamp shall be at least 3/8−inch high and arrowheads shall be at least 1/2−inch wide.

(3) UNLAWFUL USE. It shall be unlawful for any person, firm, partnership or corporation to use, operate, or offer for sale for operation within the state any condemned boiler or pressure vessel.

History: Register, February, 1988, No. 386, eff. 3−1−88; am. (1), Register, October, 1996, No. 490, eff. 11−1−96.

Subchapter IV — New Installations

Comm 41.40 Application. The provisions of ss. Comm 41.40 to 41.48 shall apply to all boilers and pressure vessels installed after the effective date of this section.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88.

Comm 41.41 Installation registration. (1) BOILER OR PRESSURE VESSEL INSTALLATION REGISTRATION. (a) Except as provided in par. (b), the installation of any boiler or pressure vessel shall be registered with the department by the installer before the operation of the boiler or pressure vessel. Registration shall be in writing on form SBD−6314.

Note: Copies of form SBD−6314 are available at no charge from the Safety and Buildings Division, P.O. Box 2509, Madison, WI 53701−2509, telephone 608/266−1818.

(b) Registration with the department is not required for:

1. Boilers and pressure vessels exempted from periodic inspections in s. Comm 41.18; and

2. Installations in cities of the first class if an installation registration form has been filed with the appropriate city official.

(2) POWER PIPING INSTALLATION REGISTRATION. (a) Except as provided in par. (b), the installation of any power piping system shall be registered with the department by the installer before the operation of the piping system. Registration shall be in writing on form SB−5204.

Note: Copies of form SBD−5204 are available at no charge from the Safety and Buildings Division, P.O. Box 2509, Madison, WI 53701−2509, telephone 608/266−1818.

(b) Registration is not required for any of the following:

1. Power piping of 2 inches nominal pipe size and smaller.

2. Installations in cities of the first class if an installation registration form has been filed with the appropriate city official.

3. Underground power piping systems which are not located in a walk−in tunnel.

4. Power piping replacements, modifications and alterations to existing systems and for new installations, any of which do not exceed 50 feet in length.

(3) PIPING ON SINGLE POWER BOILERS. ASME form P−4B is not required to be completed for boiler piping on any single ASME "S", "M" or "E" stamped boiler rated at 50 boiler horsepower or less and 150 psig or less maximum allowable working pressure, if applicable pressure and temperature rated valves and at least schedule 80 pipe and fittings are used.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (1) (a) and (2) (a), Register, December, 1992, No. 444, eff. 1−1−93; **CR 05−025: am. (2) (b), cr. (3) Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.42 ASME code vessels. (1) ASME CODE COMPLIANCE. Except as provided in ss. Comm 41.43, 41.44 and 41.45, boilers and pressure vessels shall be constructed and installed in accordance with the ASME code. Boilers and pressure vessels designed to other national or international standards may be approved if the design has been accepted by a nationally recognized independent third party.

Note: The department will recognize the applicable case interpretations of the ASME boiler and pressure vessel code as being acceptable.

Note: The ASME code specifies that persons installing boiler external piping by welding are required to possess the appropriate ASME credentials.

(2) REGISTERING WITH NATIONAL BOARD. (a) Except as provided in par. (b), boilers and pressure vessels constructed and installed in accordance with the ASME code shall have the manufacturer's data report registered with the National Board and shall bear a National Board number. Copies of the registration shall be provided to the department when requested.

(b) Cast iron sectional boilers stamped "H" and pressure vessels stamped "UM" are exempt from National Board registration.

(3) HUMAN OCCUPANCY. Pressure vessels for human occupancy shall be constructed and installed in accordance with ANSI/ASME PVHO−1.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (1), Register, June, 1996, No. 486, eff. 7−1−96; am. (1) and (2), cr. (3), Register, February, 2000, No. 530, eff. 3−1−00: **CR 05−025: renum. (2) to be (2) (a) and am., cr. (2) (b) Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.43 Wisconsin special vessels. Where it is not possible or practical to construct a boiler or pressure vessel in strict compliance with s. Comm 41.42, the department may grant a variance to the owner or user to permit the installation of the boiler or pressure vessel as a Wisconsin special within the state of Wisconsin. The department shall consider a variance request upon receipt of a completed petition for variance form and the required fee. The variance may be granted under the following conditions:

Note: See s. Comm 41.05 for further explanatory information.

(1) COMPARABLE SAFETY. (a) When the method of designing or constructing the boiler or pressure vessel is not covered by the ASME code, the department may approve the installation provided adequate proof of comparable safety of the design or construction is shown.

(b) Complete plans, calculations and specifications in duplicate shall be submitted to and approved by the department before installation.

(c) The boiler or pressure vessel shall be stamped "Wisconsin Special" if approved by the department.

(d) All other applicable requirements of the ASME code shall be met.

(2) OWNER−BUILT. (a) When the boiler or pressure vessel is to be built by an owner for the owner's use, the department may waive the stamping required by the ASME code.

(b) Complete plans, calculations and specifications in duplicate shall be submitted to and approved by the department before installation.

(c) The boiler or pressure vessel shall be stamped "Wisconsin Special" if approved by the department.

(d) All other applicable requirements of the ASME code shall be met.

(3) LIMITED QUANTITY. (a) When a small number of boilers or pressure vessels is to be built by a manufacturer, the department may waive the stamping required by the ASME code.

(b) Complete plans, calculations and specifications in duplicate shall be submitted to and approved by the department before installation.

(c) The boiler or pressure vessel shall be stamped "Wisconsin Special" if approved by the department.

(d) All other applicable requirements of the ASME code shall be met.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (1) (a), (d), (2) (a), (d), (3) (a) and (d), Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.44 U.S. department of transportation vessels. Pressure vessels bearing the stamping of the United States department of transportation are not permitted as permanent storage containers, but may be used as replaceable service cylinders and as cylinders for storage of compressed natural gas.

Note: Complete requirements for storage of compressed natural gas are contained in the National Fire Protection Association (NFPA) standard number NFPA 52, available from the NFPA, Batterymarch Park, Quincy, MA 02269.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88.

Comm 41.45 Noncode vessels. (1) EXEMPTED VESSELS. The following vessels are not required to be constructed and installed in accordance with the ASME code:

(a) Water heaters and hot water storage tanks, provided water temperatures do not exceed 210° F;

Note: See ch. Comm 84 for requirements relating to water heaters and hot water storage tanks.

(b) Vessels for containing water under pressure for domestic supply, including those having an air space for expansion;

(c) Pressure vessels used for the processing or storage of water at water temperatures not exceeding 210° F. These vessels may contain a steam or hot water coil or heat exchanger, provided the steam is at or below a pressure of 15 psig and the hot water is at or below a pressure of 160 psig and a temperature of 250° F;

(d) Pressure vessels used for water conditioning and filtration; and

(e) Pressure vessels used in processing and storing of fermented beverages at temperatures not exceeding 140° F.

(2) VESSEL IDENTIFICATION. The vessels listed in sub. (1) (b) to (e) shall be identified with the manufacturer's name, a serial number, the allowable working pressure, and the year fabricated.

(3) PRESSURE RELIEF REQUIREMENTS. (a) Except as provided in par. (b), the vessels listed in sub. (1) shall meet the pressure relief device requirements of the ASME code.

Note: Pressure relief devices are not required on each vessel of a system if the system is properly equipped with pressure relief devices. For systems containing unheated water storage tanks, a pressure relief device is needed when the pressure−

inducing source is capable of imposing a pressure greater than the design pressure of the tanks.

(b) Water heaters and hot water storage tanks shall be equipped with pressure−temperature relief devices in accordance with ch. Comm 84.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; r. and recr. (1) (a) and(3) (b), Register, December, 1992, No. 444, eff. 1−1−93; correction in (3) (b) made under s. 13.93 (2m) (b) 7., Stats., Register, March, 1998, No. 507; am. (1) (intro.) and (3) (a), Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.46 Power piping. (1) GENERAL. Power piping shall be installed in accordance with ANSI/ASME B31.1. The use of slip−on flanges shall be limited in applications to no higher than Class 300 primary pressure service rating. Slip−on flanges shall be installed with double fillet welds in accordance with ANSI/ASME B31.1.

(2) BOILER EXTERNAL PIPING. Boiler external piping within the scope of section I of the ASME code shall be installed in accordance with ANSI/ASME B31.1.

(3) APPLICATION. This section applies to new systems as well as all replacements, modifications, and alterations to existing systems.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; r. and recr. Register, February, 1990, No. 410, eff. 3−1−90; am. (1) and (2), Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.47 Multi−boiler installations. When hot water heating boilers are installed in multiples with a common header and a common return, isolation valves may be eliminated between units and the units may be considered as one boiler provided:

(1) OUTPUT LIMIT. No single unit exceeds 500,000 Btu per hour output;

(2) PRESSURE RELIEF. Each unit has a pressure relief device as required by the ASME code, or the common header has a pressure relief device with sufficient relieving capacity for all units in the installation;

(3) CONTROLS. Each unit has operating controls and safety controls acceptable to the department; and

(4) LOW−WATER CUTOFF. The fuel supply to each unit is shut off by a low−water cutoff in the event of low water in the system.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88.

Comm 41.48 Organic or synthetic fluid heat transfer systems. Boilers and coil type heaters which utilize organic or synthetic thermal fluids as a heat transfer media shall be designed, constructed and installed in accordance with the ASME code. Piping for organic or synthetic thermal fluids used as a heat transfer media and subject to temperatures in excess of 250° F shall be installed in accordance with ANSI/ASME B31.1.

Note: Copies of form SBD−6314 are available at no charge from the Safety and Buildings Division, P.O. Box 2509, Madison, WI 53701−2509, telephone 608/266−1818.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. Register, May, 1994,No. 461, eff. 6−1−94; am. Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: am. Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.49 Wood−burning boilers. This section applies to hand−fired wood−burning boilers that are used for space heating and that are not constructed and installed in accordance with the ASME code.

(1) DESIGN. (a) The boiler shall be constructed with self−contained weatherproofing with no additional structure enclosing the fired unit.

(b) The boiler shall be listed by a nationally recognized testing laboratory acceptable to the department.

Note: Examples of acceptable testing laboratories include, but are not limited to, PFS Corporation, UL and Factory Mutual.

(c) The boiler shall be designed for operation at atmospheric pressure and be properly vented to prevent a positive pressure condition.

(2) INSTALLATION REGISTRATION. The installation of the boiler shall be registered with the department by the installer using form SBD−6314.

Note: Copies of form SBD−6314 are available at no charge from the Safety and Buildings Division, P.O. Box 2509, Madison, WI 53701−2509, telephone 608/266−1818.

(3) INSTALLATION. (a) The boiler shall be located away from other structures in accordance with the manufacturer's recommendation.

(b) The boiler shall be enclosed by fencing or other barriers to prevent access by unauthorized persons.

(c) The boiler shall be manually fired and shall be limited to using wood or other solid fuels as the source of energy.

(d) The installation shall be provided with means to prevent freezing of the water supply and return lines.

(4) INSPECTION. (a) The installation shall be inspected by the department for compliance with this section before the boiler is placed in operation.

Note: Periodic inspections will not be performed on wood−burning boilers.

(b) Fees for the installation inspection shall be charged in accordance with s. Comm 2.04.

(5) REPAIRS. (a) Repairs to the boiler shall be made in accordance with the manufacturer's recommendations.

(b) Welded repairs to the boiler shall be made by welders qualified in accordance with s. Comm 5.34 or the ASME Code section IX.

(c) The department shall be notified by the contractor of any welded repairs to the boiler.

History: Cr. Register, December, 1992, No. 444, eff. 1−1−93; r. and recr. (2), (3) (a), am. (4) (a), Register, June, 1996, No. 486, eff. 7−1−96; correction in (4) (b) made under s. 13.93 (2m) (b) 7., Stats., Register, October, 1996, No. 490; correction in (4) (b) made under s. 13.93 (2m) (b) 7., Stats., Register, May, 2001, No. 545; CR 01−139: am. (5) (b) Register June 2002 No. 558, eff. 7−1−02.

Subchapter V — Nuclear Power Plants

Comm 41.53 Application. The provisions of ss. Comm 41.53 to 41.57 shall apply to all existing nuclear power plants and to all nuclear power plants constructed after March 1, 1988.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88.

Comm 41.54 Installation registration. (1) OWNER REPORT FILING BEFORE OPERATION. The owner of any nuclear class pressure vessel within the scope of ASME code section III, except those vessels exempted from periodic inspections in s. Comm 41.18, shall file a copy of form N−3, ASME data report, with the department before operating the pressure vessel.

Note: Form N−3 is available from the American Society of Mechanical Engineers.

(2) REGISTRATION OF BOILERS, PRESSURE VESSELS AND POWER PIPING. All non−nuclear class boilers, pressure vessels and power piping at nuclear power plants shall be registered with the department as required by s. Comm 41.41. The installation inspection shall meet the requirements of s. Comm 41.16.

Note: Large groups of vessels may be reported in summary form in lieu of individual reports for each vessel.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88.

Comm 41.55 Periodic inspections. (1) IN−SERVICE INSPECTION PROGRAM. The owner or user shall file with the department an in−service inspection plan as required by section XI of the ASME code. The department shall be notified at least 10 business days prior to all planned shutdowns which include in−service inspections.

Note: A copy of the in−service inspection plan accepted by the nuclear regulatory commission will be acceptable to the department in satisfying the filing of an in−service inspection plan.

(2) STATEMENT OF INSPECTION SERVICE CONTRACT. The owner or user shall file a statement with the department indicating possession of an arrangement with a certified inspector to provide inspection services under section XI of the ASME code. The statement shall include the name and address of the certified inspector.

(3) IN−SERVICE INSPECTION REPORT. Within 90 calendar days after each in−service inspection, the owner or user shall submit to the department a copy of form NIS−1, owner's data report for in−service inspection, describing the inspections performed under section XI of the ASME code.

Note: Form NIS−1 is available from the American Society of Mechanical Engineers.

(4) FREQUENCY OF INSPECTION. Pressure vessels located within a nuclear containment may be inspected as part of the in−service inspection. The vessels shall be inspected at least once every 36 months. If operating conditions require, longer periods not to exceed 3 months between inspections may be approved by the department upon receipt of a written request for an extension.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; am. (2), (4), Register, October, 1996, No. 490, eff. 11−1−96; am. (2), Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.56 Welded repairs and alterations. Anyone performing welded repairs or alterations on any component within the scope of ASME code section XI shall register the repairs and alterations with the National Board on the appropriate "R" forms.

Note: Copies of the "R" forms are available from the National Board. See s. Comm 41.10 for the National Board address.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88; **CR 05−025: r. and recr. Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.57 Report of incidents. The owner or the owner's agent shall report to the department any incident involving pressure−retaining components within the scope of section XI of the ASME code which requires notification to the U.S. nuclear regulatory commission. The report shall be filed coincident with the report to the U.S. nuclear regulatory commission.

Note: It is the intent of the department to avoid conflicts with the requirements of the U.S. nuclear regulatory commission.

History: Cr. Register, February, 1988, No. 386, eff. 3−1−88.

Subchapter VI — Repairs and Alterations

Comm 41.60 General requirements. Welded repairs, repair parts or alterations to any boiler or pressure vessel or their fittings, settings or appurtenances shall comply with the requirements of ANSI/NB−23.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: am. Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.61 General rules for repairs and alterations. (1) AUTHORIZATION. Repairs and alterations to boilers and pressure vessels shall be performed by an organization in possession of a valid National Board repair "R" certificate of authorization for the intended scope of work.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: am. (1), r. (2) Register October 2005 No. 598, eff. 11−1−05.**

Comm 41.62 Reports. (1) NATIONAL BOARD PROGRAM. Anyone performing repairs or alterations under the National Board "R" stamp program shall register the repairs and alterations with the National Board on the appropriate "R" forms.

Note: See s. Comm 41.10 for the National Board address.

(2) ADDITIONAL REPORTING REQUIREMENTS. (a) Anyone performing routine repairs as defined in ANSI/NB−23 shall register the repairs with the National Board on form R−1 and shall attach a nameplate to the repaired object.

(b) Anyone performing seal welding of 6 or more boiler tubes shall register the repair with the National Board on form R−1.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00; **CR 05−025: r. and recr. (2) October 2005 No. 598, eff. 11−1−05.**

Comm 41.63 Riveted repairs. (1) GENERAL. When riveted patches are used, they shall be designed and applied using methods acceptable to the department.

Note: Information regarding the use of riveted patches is available from the department and may be found in Wisconsin Administrative Code chapters Ind 41−42, Boiler and Pressure Vessel Code, Register, May 1974, No. 221.

(2) MATERIALS FOR RIVETED PATCHES. Patch material shall meet the applicable requirements of ANSI/NB−23.

(3) PRESSURE TEST. The certified inspector may require a pressure test, as specified in ANSI/NB−23, after completion of a riveted repair.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.64 Safety and safety relief valve repairs. (1) DEFINITIONS. In this section:

(a) "Repair of a safety valve or safety relief valve" means the replacement, re−machining or cleaning of any critical part; lapping of seat and disc or any other operation which may affect the flow passage, capacity, function or pressure retaining integrity; and disassembly, re−assembly and adjustments which affect the safety valve or safety relief valve function.

(b) "Repair of a safety valve or safety relief valve" does not include the initial adjustments of a new safety valve or safety relief valve on a boiler or pressure vessel if made by the manufacturer or assembler of the valve.

(2) BROKEN SEALS. Safety valves and safety relief valves on which the seals have been broken shall be subject to the requirements for repairs.

(3) AUTHORIZED REPAIRS. Repairs to safety valves and safety relief valves shall be performed by an organization in possession of one or more of the following:

(a) ASME V, HV or UV code symbol stamp.

(b) National Board VR stamp covering the work to be performed.

(4) NAMEPLATES. (a) When a safety valve or safety relief valve is repaired, a metal repair nameplate stamped with the information required by par. (b) shall be welded or otherwise permanently attached to the valve either above, adjacent to or below the original stamping. On small valves, a metal tag showing the repair nameplate information may be securely attached to the repaired valve.

(b) The information on the valve nameplate shall include the name of the repair organization, the symbol stamp and symbol stamp number, and the date of repair. If the set pressure has been changed, the new set pressure and capacity shall be indicated and the original nameplate or stamping shall be modified by marking out, although leaving legible, the prior set pressure and capacity. The new capacity shall be based on that for which the valve was originally certified. Only the current repair nameplate need be attached to the valve with the original or duplicate nameplate.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00.

Subchapter VII — Secondhand Vessels

Comm 41.70 Application. Sections Comm 41.70 to 41.76 apply to secondhand boilers and secondhand pressure vessels.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.71 Existing vessels. Secondhand boilers and secondhand pressure vessels, originally installed in Wisconsin and not constructed and stamped according to some edition of the ASME code, may be reinstalled if the maximum allowable working pressure is recalculated with a factor of safety of 6.

Note: The pressure calculation formula for shells is as follows:

$$P = (T.S. \times t \times E)/(R \times F.S.)$$

where P = maximum allowable working pressure, pounds per square inch

T.S. = tensile strength of shell plate, pounds per square inch

t = minimum thickness of shell plates, inches

E = efficiency of longitudinal joint

R = inside radius of the outside course of the shell, inches

F.S. = factor of safety

Note: The pressure calculation formula for flat heads and flat surfaces is as follows:

$$P = (T.S. \times t^2)/(0.5 \times d^2 \times F.S.)$$

where P = maximum allowable working pressure, pounds per square inch
T.S. = tensile strength of shell plate, pounds per square inch
t = thickness of plate, inches
d = diameter of head or shortest unsupported span of head or maximum pitch between stays, inches
F.S. = factor of safety

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.72 Vessels from out−of−state. Secondhand boilers and secondhand pressure vessels, from out−of−state, shall be constructed and stamped according to some edition of the ASME code. A copy of the manufacturer's data report shall be furnished to the department for each vessel indicating that it was manufactured originally to the requirements of an earlier edition of the applicable ASME code. If a vessel has been repaired or altered since its fabrication, a copy of the manufacturer's data report, welded repair report or alteration report shall be furnished to the department.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.73 Lap seam boilers. Secondhand boilers which have lap seam construction and which are larger than 36 inches in diameter shall be limited to a maximum allowable working pressure of not more than 15 pounds per square inch.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.74 Prohibited boilers. The installation of secondhand boilers which have the longitudinal joint exposed to the intense heat of the furnace is prohibited. The locomotive or inside butt strap may not be considered as strengthening or changing the original type of boiler joint.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.75 Inspection and testing. (1) HYDROSTATIC PRESSURE TEST. Every secondhand vessel shall be inspected and given a hydrostatic pressure test at one and one−half times the maximum allowable working pressure at its new point of installation location before it is placed in operation. The test shall be witnessed by a certified inspector.

(2) ALTERNATIVE TESTS. When the certified inspector determines that a hydrostatic test at one and one−half times the maximum allowable working pressure is not possible or desirable, the certified inspector may accept alternative means to determine if the vessel is safe for its intended use.

Note: Where water is used in a hydrostatic test, the temperature of the water should not be less than 70° F and the maximum temperature during inspection should not exceed 120° F. If a test is conducted at 1−1/2 times the maximum allowable working pressure (MAWP) and the owner specifies a temperature higher than 120° F, the pressure should be reduced to the MAWP and the temperature should be reduced to 120° F for the close examination.

(3) EXEMPT VESSELS. Boilers and pressure vessels used for portable or emergency use shall be exempt from secondhand vessel test requirements.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00.

Comm 41.76 Installation. Except for vessels exempted in s. Comm 41.18, all secondhand vessels when reinstalled, shall comply with the ASME code in regard to fittings, appliances, valves, connections, settings and supports. These vessels shall also comply with the installation and permit to operate requirements in this chapter.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00.

Subchapter VIII — Pressure Vessels in Petroleum Refineries

Comm 41.80 General requirements. Pressure vessels in petroleum refineries shall comply with the standards specified in API 510.

History: Cr. Register, February, 2000, No. 530, eff. 3−1−00.

Subchapter IX – Historical Boilers

Comm 41.90 Application. The provisions of ss. Comm 41.90 to 41.92 apply to all historical boilers in operation for demonstration purposes at fairs, museums, steam shows, historical attractions or any other locations frequented by the public.

History: CR 05−025: cr. Register October 2005 No. 598, eff. 11−1−05.

Comm 41.91 General requirements. (1) Historical boilers shall be inspected in accordance with the requirements of ANSI/NB−23, Appendix C – Historical Boilers.

(2) An annual internal inspection shall alternate every other year with either an in−service inspection or a hydrostatic pressure test in accordance with ANSI/NB−23, Appendix C−2020 c.

(3) Except as provided in s. Comm 41.92 (3) (d), ultrasonic thickness testing and pressure calculations shall be completed every 5 years by the owner or user or a qualified organization as designated by the owner or user.

(4) The owner or user shall obtain and maintain a valid permit to operate in accordance with s. Comm 41.24.

(5) The permit to operate shall be displayed on the historical boiler near the controls during operation at any public location.

(6) Welded repairs or alterations shall comply with subch. VI.

History: CR 05−025: cr. Register October 2005 No. 598, eff. 11−1−05.

Comm 41.92 Inspection and tests. (1) INTERNAL INSPECTION. The owner or user of an historical boiler that is subject to an internal inspection shall prepare the boiler in accordance with all of the following:

(a) Firesides shall be opened and grates removed. The fireside furnace, flues and tubesheets shall be wire brushed, scraped and thoroughly cleaned of soot and ash.

(b) Watersides shall be drained and handholes, plugs and inspection openings removed. Sediment, scale and mud shall be flushed clean from the boiler.

(c) Fusible plugs shall be removed.

(2) HYDROSTATIC PRESSURE TESTS. The owner or user of an historical boiler that is subject to a hydrostatic pressure test shall prepare the boiler in accordance with all of the following:

(a) Boiler firesides and watersides shall be opened and properly cleaned prior to filling completely with water at ambient temperature.

(b) Pressure gages shall be calibrated prior to the test or documentation shall be provided at the time of the hydrostatic pressure test for the inspector to verify that pressure gage calibration was completed.

(c) Safety valves shall be removed and openings plugged prior to applying pressure.

(d) The hydrostatic pressure shall be slowly raised to a test pressure acceptable to the inspector and shall be at least equal to the maximum allowable working pressure.

(3) ULTRASONIC TESTING AND PRESSURE CALCULATIONS. (a) Except as provided in par. (d), ultrasonic thickness tests shall be completed every 5 years in accordance with ANSI/NB−23, Appendix C−2020 d on a mapped grid system. To obtain meaningful ultrasonic thickness test results, the owner or user shall utilize a maximum of a 16−inch grid on full size boilers, an 8−inch grid on $^1/_2$ scale boilers and a 4−inch grid on $^1/_4$ scale boilers to document material thickness.

(b) Pressure calculations shall be completed based on the minimum ultrasonic thickness test data gathered and documentation shall be made available to the inspector for review and acceptance.

Note: The owner or user may use the Hobby Boiler Inspection Checklist form SBD−10759 that includes equations, formulae and nomenclature for calculations. The form is available on the Internet at www.commerce.wi.gov/SB.

(c) The owner or user shall maintain the initial and subsequent ultrasonic thickness test grid map and pressure calculations in per-

manent boiler records to verify fitness for service and to be utilized as a reference for future repair analysis.

(d) Historical boilers bearing an ASME "S" stamp and Wisconsin specials where the owner can provide documentation of conditional approval are exempt from the 5−year ultrasonic testing and calculations requirement. However, the certified inspector may require ultrasonic testing and calculations for any historical boiler based on conditions observed during visual or hydrostatic examination.

(4) RECIPROCITY WITH OTHER STATES. (a) The owner or user of an out−of−state historical boiler shall provide ultrasonic thickness test and pressure calculation documentation in accordance with ANSI/NB−23, Appendix C, Section C−4000.

(b) The owner or user of an out−of−state historical boiler shall provide copies of welded repair or alteration documentation as required in s. Comm 41.38 (2).

(c) The owner or user of an out−of−state historical boiler shall provide a copy of the valid jurisdictional certificate of operation or permit to operate from another state

(d) The owner or user of an out−of−state historical boiler shall arrange for an inspection after the certified inspector receives, reviews and accepts the documentation as required in pars. (a) and (b). Inspectors shall be given at least 5 business days advance notice to arrange for the inspection.

(e) Upon satisfactory inspection, the owner or user of the out−of−state historical boiler shall obtain a valid permit to operate and post the permit as required in s. Comm 41.91 (5) prior to operation.

History: CR 05−025: cr. Register October 2005 No. 598, eff. 11−1−05.