Chapter Ind 41

BOILER AND UNFIRED PRESSURE VESSEL CODE

History: Chapters Ind 41 and 42 as they existed on April 30, 1961 were repealed and new chapters Ind 41 and 42 are created effective May 1, 1961.

PART I

SCOPE

Ind 41.01 Scope. (1) The provisions of this code apply to boilers and unfired pressure vessels in use at places of employment and in public buildings.

Note. Section 101.01 (1), Wis. Stats., provides that the phrase "place of employment" means and 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 shall not include any place where persons are employed in (a) private domestic service which does not involve the use of mechanical power or, (b) farming. The term "farming" includes those activities specified in section 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 his 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.

(2) Vessels used for the storage and transportation of liquefied petroleum gas, anhydrous ammonia, and refrigerants shall be subject only to the provisions of this code found under Part V "New Installations", Part VII "Repairs, Additions, Alterations, and Special Rules", and Part VIII "Second Hand Boilers and Second Hand Unfired Pressure Vessels."

(3) The provisions of this code do not apply to air eliminators, scraper traps, and similar devices on the pumping and dispensing equipment or systems used in the transportation, storage, or distribution of flammable liquids.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61.

PART II

DEFINITIONS

Ind 41.02 Definitions. (1) A.S.M.E. BOILER AND UNFIRED PRESSURE VESSEL CODES are those published by the American Society of Mechanical Engineers.

(2) BOILER. A closed vessel intended for use in heating water or for the application of heat to generate steam or other vapor to be used externally to itself.

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

(b) *Miniature boiler.* A boiler on which the safety valve is set at over 15 psig and that does not exceed the following limits:

16 inch inside diameter of shell;
5 cubic feet gross volume;
100 psi maximum allowable working pressure.

(c) *Portable boiler.* An internally fired boiler primarily intended for temporary location and whose construction and usage is obviously of a portable nature.

(d) *Power boiler.* A boiler on which the safety valves are set at a pressure of more than 15 psig and that exceeds the dimensions of a miniature boiler.

(3) CERTIFICATE OF COMPETENCY. A certificate issued to a boiler or pressure vessel inspector by the department of industry, labor and human relations.

(4) EXISTING INSTALLATION. Boiler and pressure vessels placed in operation or contracted for prior to January 1, 1957. (See part VI)

(5) EXTERNAL INSPECTION. One made while boiler or vessel is in operation.

(6) FUSION WELDING. The melting together of filler metal and base metal, or of base metal only, which results in coalescence.

(7) HOT WATER HEATING BOILER AND HOT WATER SUPPLY. 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. (A boiler exceeding either of these limits shall be classified as a power boiler.)

(8) INSPECTOR, AUTHORIZED OR QUALIFIED. (a) *Field inspector.* A boiler or pressure vessel inspector who holds a valid certificate of competency.

(b) *Shop inspector.* A boiler or pressure vessel inspector who is holding the necessary commissions and employed by a city or a state which has adopted the A.S.M.E. boiler and pressure vessel code, or who is employed by an insurance company, and who when performing shop inspections in Wisconsin holds a Wisconsin certificate of competency.

(9) INTERNAL INSPECTION. One 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.

(10) MAJOR REPAIR. A riveted or welded repair to a boiler drum, pressure vessel drum, or boiler water leg.

(11) NEW INSTALLATION, BOILER OR PRESSURE VESSEL. One placed in operation or contracted for after January 1, 1957.

(12) NON-STANDARD BOILER OR NON-STANDARD PRESSURE VESSEL. One not bearing a valid Wisconsin stamping, nor the A.S.M.E. stamping, nor the National Board stamping, nor the U. S. Department of Transportation stamping, nor the stamping of the A.P.I.–A.S.M.E., nor any stamping authorized by other applicable codes.

(13) OWNER OR USER. Any person, firm, or corporation owning or operating a boiler or pressure vessel.

(14) SECOND HAND VESSEL. A boiler or pressure vessel when both location and ownership have been changed subsequent to the original installation.

(15) PRESSURE VESSEL. A vessel that obtains its pressure from an external source or from an indirect application of heat.

(16) CONDEMNED. A boiler or pressure vessel declared to be unsafe and has an applied stamping designating its condemnation.

Note: For further explanation of definitions see the current edition of the A.S.M.E. Code—Section VIII—Scope.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; am. (2) (b), (7), (10), Register, January, 1966, No. 121, eff. 2–1–66; am. (3), (4), (8) (a) and (b), (9), (10), (11), (12), (13), (14), (15), and cr. (16), Register, October, 1970, No. 178, eff. 11–1–70.

PART III

GENERAL RULES

Ind 41.03 Safety regulations. (1) No boiler or pressure vessel shall be operated at a pressure in excess of the maximum operating pressure stated on its current certificate of operation.

(2) No unauthorized person shall remove or tamper with any connected safety device nor shall any person adjust a connected safety valve to a greater relieving pressure than that allowed for the vessel as stated on its current certificate of operation.

(3) Boiler 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.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; a.m. (3), Register, January, 1966, No. 121, eff. 2–1–66; am., Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.04 Reporting accidents and major repairs. (1) Whenever a boiler or pressure vessel fails and causes injury to any person, the owner or user shall report the facts involved to the Department of Industry, Labor and Human Relations within the following 24 hours. The owner or user shall not remove or disturb the vessel or any of its parts nor permit any such removal or disturbance prior to receiving authorization from the Department of Industry, Labor and Human Relations, except for the purpose of saving human life or further property damage.

(2) The owner shall report any major repairs of a boiler or pressure vessel as provided in Part VII "Repairs, Additions, Alterations and Special Rules."

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; am., Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.05 Reporting boiler and pressure vessel locations. (1) The owner or user of any boiler or pressure vessel shall report the location of such vessels unless either of the following conditions are met:

(a) The vessels are exempt from periodic inspections. See section Ind 41.21 by the Department of Industry, Labor and Human Relations.

(b) The vessels are subjected to periodic inspection by the Department of Industry, Labor and Human Relations, a city, an insurance company, or a company authorized to make its own inspections.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; am. Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.06 Identification of boilers and pressure vessels. (1) The owner or user of a boiler or pressure vessel shall number each vessel in some permanent manner and in an accessible location.

(2) Boilers and pressure vessels subject to periodic inspections (see Ind 41.20) shall be identified by a registration number supplied by the Department of Industry, Labor and Human Relations. The registration number shall be affixed by an authorized inspector. The state tag shall be attached to the vessel at a location which can be easily viewed.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; r. and recr. Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.08 Certificate of competency as inspector. (1) CERTIFICATE REQUIRED. An inspection report covering a boiler or pressure vessel may be recognized and accepted only when the inspector holds a valid certificate of competency issued by the Department of Industry, Labor and Human Relations.

(2) ELIGIBILITY. (a) The applicant for a certificate of competency as a boiler or pressure vessel inspector shall be an employe of the state, a municipality, an insurance company, or a corporation or company authorized to make its own inspections.

(b) The applicant shall be at least 25 years of age. He shall have had at least 3 years of experience in one or more of the following endeavors: construction, repairing, inspecting, or operating engineer in charge of high pressure steam boilers or pressure vessels.

(c) A degree in mechanical engineering may be accepted as the equivalent of 2 years practical experience.

(d) The appplicant's employer shall certify that applicant's statement of experience is correct.

(3) APPLICATIONS AND RENEWALS. (a) Fees for examination and reciprocal certificates of competency shall be submitted with applications and in the amount specified in Wis. Adm. Code chapter Ind 69.

(b) Renewal fees shall be submitted with the request for renewal and in the amount specified in chapter Ind 69.

(c) A request for renewal shall be filed with the Department of Industry, Labor and Human Relations on or before January 1 of the calendar year for which the certificate is to be valid.

(d) Applications for examinations and applications for renewals by employes of the state and employes of the city of Milwaukee require no fee.

(4) EXAMINATIONS. (a) Certificates of competency for a boiler or pressure vessel inspector may be issued by the Department of Industry, Labor and Human Relations to eligible applicants passing the examinations prescribed by and conducted by the department.

(b) Holders of certificates, who do not apply for renewal in any 3 year period may be required to pass a scheduled examination.

(5) ANNULMENTS AND REVOCATIONS. (a) A certificate becomes invalid when the holder terminates his employment with the employer of record at the time of issue. A renewal may be obtained under the provisions of this section provided applicant meets eligibility requirements.

(b) A certificate may be annulled or revoked when incompetency or negligence is determined after investigation.

(6) RECIPROCAL COMMISSIONS. (a) A reciprocal certificate of competency may be granted by the Department of Industry, Labor and Human Relations to a boiler or pressure vessel inspector under the following conditions:

1. The inspector shall be employed by a boiler insurance company licensed to do business in Wisconsin. The boiler insurance company shall make the application for a reciprocal commission to the Department of Industry, Labor and Human Relations.

2. The inspector shall hold a commission issued by the National Board of Boiler and Pressure Vessel Inspectors or a certificate of

competency from a city or state which has adopted the A.S.M.E. Boiler and Pressure Vessel Code and which holds a written examination similar to that required by Wisconsin.

3. The inspector shall appear before an examining board appointed by the Department of Industry, Labor and Human Relations to review his qualifications as an inspector

History: Cr. Register, April, 1961, No. 64, eff. 5-1-61; r. and recr. Register, February, 1971, No. 182, eff. 3-1-71.

Ind 41.11 Boiler blow-down equipment. (1) The blow-down from a boiler or boilers that enters a sewer system or blow-down which is considered a hazard to life or property shall pass through some form of blow-off equipment that will reduce pressure and temperature as required hereinafter.

(2) The temperature of the water leaving the blow-off equipment shall not exceed 140 F.

(3) The pressure of the blow-down leaving any type of blow-off equipment shall not exceed 5 psi.

(4) The blow-off piping and fittings between the boiler and the blow-off tank shall comply with sections Ind 41.50 and Ind 41.51 of this code.

(5) The tank shall be designed in accordance with sections Ind 41.50 and Ind 41.51 of this code for a working pressure of at least one-fourth the maximum working pressure of the boiler to which it is connected.

(6) All blow-off equipment, except centrifugal blow-down separators, shall be fitted with openings to facilitate cleaning and inspection.

Note: Blow-off equipment designed in accordance with the boiler blow-off equipment code issued by the National Board of Boiler and Pressure Vessel Inspectors, 1968 edition, will meet the requirements of this section. Other methods of designing blow-off equipment may be used if approved by the Department of Industry, Labor and Human Relations.

(Available for inspection at the office of the Department of Industry, Labor and Human Relations and the secretary of state's office and the office of the revisor of statutes or may be procured for personal use from the National Board of Boiler and Pressure Vessel Inspectors, 1155 North High Street, Columbus, Ohio.)

History: Cr. Register, April, 1961, No. 64, eff. 5-1-61.

Ind 41.12 Vessels supplied through pressure reducing valves. (1) The following formula shall be used for determining the sizes of safety and relief valves on pressure vessels such as pressure cookers, indirect hot water heaters, equipment in heating systems, etc., which are supplied through pressure reducing valves from boilers carrying a higher steam pressure. Where a pressure reducing valve is supplied by a boiler, the capacity of the safety valve or valves on the low pressure side of the system need not exceed the capacity of the boiler.

$RVC = \frac{1}{3} \times OC \times VSPA$

Where RVC = relief valve capacity, lbs. of steam per hour.

OC = orifice capacity, lbs. of steam per hour per sq. in. (See Table 1.)

VSPA = valve size pipe area, sq. in. (See Table 2.)

TABLE 1.—ORIFICE RELIEVING CAPACITIES, POUNDS PER SQUARE INCH

Outlet pres., psig	Pressure-reducing valve inlet pressure, psig															
	400	350	300	250	200	175	150	125	100	85	75	60	50	40	30	25
250	21000	17100	10800	----	----	----	----	----	----	----	----	----	----	----	----	----
200	21350	18250	15350	10900	----	----	----	----	----	----	----	----	----	----	----	----
175	21350	18250	16000	12600	7250	----	----	----	----	----	----	----	----	----	----	----
150	21350	18250	16200	13400	9540	6750	----	----	----	----	----	----	----	----	----	----
125	21350	18250	16200	13600	10800	8780	6220	----	----	----	----	----	----	----	----	----
110	21350	18250	16200	13600	11000	9460	7420	4550	----	----	----	----	----	----	----	----
100	21350	18250	16200	13600	11000	9760	7970	5630	----	----	----	----	----	----	----	----
85	21350	18250	16200	13600	11000	9760	8480	6640	4070	----	----	----	----	----	----	----
75	21350	18250	16200	13600	11000	9760	8480	7050	4980	3150	----	----	----	----	----	----
60	21350	18250	16200	13600	11000	9760	8480	7200	5750	4540	3520	----	----	----	----	----
50	21350	18250	16200	13600	11000	9760	8480	7200	5920	5000	4230	2680	----	----	----	----
40	21350	18250	16200	13600	11000	9760	8480	7200	5920	5140	4630	3480	2470	----	----	----
30	21350	18250	16200	13600	11000	9760	8480	7200	5920	5140	4630	3860	3140	2210	----	----
25	21350	18250	16200	13600	11000	9760	8480	7200	5920	5140	4630	3860	3340	2580	1485	----
15	21350	18250	16200	13600	11000	9760	8480	7200	5920	5140	4630	3860	3340	2830	2320	1800
10	21350	18250	16200	13600	11000	9760	8480	7200	5920	5140	4630	3860	3340	2830	2320	2060
5	21350	18250	16200	13600	11000	9760	8480	7200	5920	5140	4630	3860	3340	2830	2320	2060

NOTE: The following formulas shall be used in connection with this table to calculate the required relieving capacity of safety valves installed on the low-pressure side of pressure-reducing valves. Use the formula that requires the larger relieving capacity.

$$W = \frac{1}{3} AC \text{ or } W = \frac{1}{2} A^1C$$

where: W = required safety valve relieving capacity.
A = internal area of the pipe size of the pressure-reducing valve (use pipe areas of Table 2).
A^1 = Internal area of the pipe size of the by-pass line around the pressure-reducing valve.
C = orifice relieving capacity, pounds of steam per hour per square inch, for the given inlet and outlet pressures of the pressure-reducing valve (from this Table).

TABLE 2.—INTERNAL PIPE AREA

Nominal pipe size, inches	STANDARD		
	Actual internal diameter, inches	Approx. internal diameter, inches	Approx. internal area, square inches
⅜	0.675	0.49	0.19
½	0.840	0.62	0.30
¾	1.050	0.82	0.53
1	1.315	1.05	0.86
1¼	1.660	1.38	1.50
1½	1.900	1.61	2.04
2	2.375	2.07	3.36
2½	2.875	2.47	4.78
3	3.5	3.07	7.39
3½	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	10.750	10.19	81.55
12	12.750	12.09	114.80

Note: In applying these rules, the area of the pipe is always based upon standard weight pipe and the inlet size of the pressure-reducing valve.

Note: Most pressure reducing valves are arranged with a valved bypass which also acts as a potential steam source hazard in case the bypass is left open. Where such valved bypass is used, the following formula shall be used to determine the steam flow rate through the bypass.

RVC = ½ XOCXBPA

Where REVC = relief valve capacity, lbs. of steam per hour.

OC = orifice capacity, lbs. of steam per hour per square inch. (See Table 1.)

BPA = Bypass pipe area, sq. inch. (See Table 2.)

The larger of the relief valve capacities calculated by the above 2 formulas shall be used for selecting the relief valve for the vessel.

Example: Suppose a high pressure boiler operating at 125 psi distributes steam to a series of 40 psi A.S.M.E. constructed retorts through a 1½ inch size pressure reducing valve provided with a glove-valved 1 inch bypass. Determine the proper A.S.M.E. relief valve protection for the retorts. Utilizing data in tables and the first of the 2 formulas above:

W = ⅛ × 7200 × 2.04 = 4896 lbs. steam per hour.

Checking the bypass steam flow according to the second formula gives:

W = ½ × 7200 × 0.86—3100 lbs. steam per hour.

The potential steam flow through the pressure reducing valve is 4896 lbs. per hour rated capacity or

4896 × 1000 or 4,896,000 BTU per hour.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; am. Register, January, 1966, No. 121, eff. 2–1–66; r. and recr. (1) and Table 1, Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.13 Maintenance. (1) All boilers shall be installed and maintained in such a manner as to prevent excessive corrosion and deterioration.

(2) The inspector shall note conditions during internal inspection,

external inspection, or hydrostatic pressure test and shall order such changes or repairs as will place the boiler in a safe working condition.

Note: Section VII, A.S.M.E. Boiler and Pressure Vessel Code "Recommended Rules for Care of Boilers" is an excellent guide for boiler owners and operators.

History: Cr. Register, February, 1971, No. 182, eff. 3–1–71.

PART IV

INSPECTIONS

Ind 41.20 Periodic inspections required. (1) INSPECTION OF BOILERS. Except as regulated in section Ind 41.21, boilers shall be subjected to either a regular internal or external inspection at least once every 12 months by a qualified inspector.

(2) INSPECTION OF PRESSURE VESSELS. Except as regulated in section Ind 41.21, pressure vessels shall be subjected to a regular internal or external inspection at least once every 24 months by a qualified inspector.

(3) WHEN INTERNAL INSPECTION IS NOT POSSIBLE. Where an internal inspection is not possible because of the construction of the boiler, an external inspection will be acceptable.

(4) EXTENSION OF PERIOD BETWEEN INSPECTIONS. If operating conditions require, longer periods between inspections of boilers may be approved by the department of industry, labor and human relations upon a written request for an extension.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; am. (2), (3), (4), Register, October, 1970, No. 178, eff. 11–1–70.

Ind 41.21 Vessels exempt from periodic inspections. (1) The following boilers and pressure vessels will not be subject to periodic inspection, but in individual cases any such vessel will be subject to inspection by or on order of the department upon complaint of any person or upon 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 code:

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

(b) Steam boilers or pressure vessels having an internal or external operating pressure not exceeding 15 psi with no limitations to size. Hot water boilers and their expansion tanks having an internal operating pressure not exceeding 30 psi with no limitations to size.

(c) Boilers used exclusively for agricultural purposes.

(d) Miniature boilers.

(e) Pressure vessels having an inside diameter not exceeding 6 inches with no limitation to pressure.

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

(g) Pressure vessels with a volume of less than 1½ cubic feet with no limit on pressure.

(h) Pressure vessels which are used in accordance with the regulations of the U.S. Department of Transportation.

(i) Air receivers having a volume not to exceed 12 cubic feet and an operating pressure of less than 225 psi.

(j) Hot water supply boilers and hot water storage tanks.

(k) Vessels used for the storage or processing of cold water including those with air cushions.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; r. and recr. Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.22 Preparation for internal inspection. 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 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.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; r. and recr. Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.23 Insurance company inspections. (1) Periodic inspections of boilers and pressure vessels by insurance companies may be accepted by the Department of Industry, Labor and Human Relations under the following conditions:

(a) The boiler and pressure vessel inspectors employed by the insurance company shall hold certificates of competency issued by the Department of Industry, Labor and Human Relations.

(b) The insurance company shall report inspections of boilers and pressure vessels to the Department of Industry, Labor and Human Relations as required in section Ind 41.26.

(c) The inspection procedures used by the insurance company shall conform to the regulations of this code.

(d) The insurance company shall report to the Department of Industry, Labor and Human Relations within 30 days when insurance coverage is started or discontinued on a boiler or pressure vessel. The reason for discontinuing the coverage shall be given on the report.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; r. and recr Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.24 Inspections by cities. (1) Periodic inspections of boiler and pressure vessels by cities of the first class may be accepted by the Department of Industry, Labor and Human Relations under the following conditions:

(a) The boiler and pressure vessel inspectors employed by the city shall hold certificates of competency issued by the Department of Industry, Labor and Human Relations.

(b) The city shall keep a record of such periodic inspections.

(c) The inspection procedures used by the city shall conform to the regulations of this code.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; r. and recr. Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.25 Companies or corporations allowed to make inspections. (1) Periodic inspections by companies or corporations of boilers or pressure vessels which they own or operate may be accepted by the

Department of Industry, Labor and Human Relations under the following conditions:

(a) The boiler and pressure vessel inspectors employed by the company or corporation shall hold certificates of competency issued by the Department of Industry, Labor and Human Relations.

(b) The company or corporation shall report inspections of boilers and pressure vessels to the Department of Industry, Labor and Human Relations as required in section Ind 41.26.

(c) The inspection procedures used by the company or corporation shall conform to the regulations of this code.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; r. and recr. Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.26 Reporting of inspections. (1) Reports of periodic internal or external inspections of boilers and pressure vessels shall be sent to the Department of Industry, Labor and Human Relations within 30 days from the date of the inspection.

(2) 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 such cases the first inspection shall be reported to the commission 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.

(b) When violations of this code or unsafe conditions involving the safety of the vessel are found. This report shall be made on A.S.M.E. Form P-6 and shall explain the violation or unsafe condition with references to code section numbers. A copy of the recommendations to the owner or user of the vessel shall accompany the report to the commission.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; am. (1), Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.27 Inspection report forms. (1) An internal or external boiler inspection that conforms to periodic inspection requirements (Ind 41.20) shall be reported to the Department of Industry, Labor and Human Relations on inspection form SB 210 or National Board of Boiler and Pressure Vessel Inspectors standard form.

(2) A pressure vessel inspection that conforms to periodic inspection requirements (Ind 41.20) shall be reported to the Department of Industry, Labor and Human Relations on inspection form SB 209 or National Board of Boiler and Pressure Vessel Inspectors standard form.

(a) Multiple Vessels on a Single Report. 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 report. The report shall contain the number, description, and use of the vessel and shall be reported to the Department of Industry, Labor and Human Relations on inspection form SB 209 or National Board of Boiler and Pressure Vessel Inspectors standard form.

(3) The inspection report shall be legible and complete as possible. A manufacturer's data report of boiler or pressure vessel shall be available to inspector for first inspection.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; r. and recr Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.28 Certificates of operation. (1) After each periodic internal or external inspection a certificate of operation shall be issued to the owner or user of the boiler or pressure vessel by the department of industry, labor and human relations or by the city authorized by that agency.

(2) The certificate of operation shall give the maximum operating pressure as determined using the regulations of the code.

(3) The certificate of operation shall be valid until the next required periodic inspection.

(4) The certificate of operation shall be kept on file on the premises by the owner or user of the boiler or pressure vessel and shall be available when called for by a deputy of the department of industry, labor and human relations.

NOTE: A fee in the amount set in chapter Ind 69, Fee Schedule, shall be paid to the Department of Industry, Labor and Human Relations for all Certificates of Operation.

History: Cr. Register, April, 1961, No. 64 eff. 5–1–61; am. (1), (4) and (5), Register, January, 1966, No. 121, eff. 2–1–66; am. (1), (2), (3) and (4) and r. (5), Register, October, 1970, No. 178, eff. 11–1–70.

Ind 41.29 Condemnation. (1) The condemnation of a boiler or pressure vessel shall be a function of the department of industry, labor and human relations only. Any boiler or pressure vessel declared by an authorized inspector to be unsafe and beyond repair shall be referred to the department of industry, labor and human relations for condemnation proceedings.

(2) Any boiler or pressure vessel confirmed by the department of industry, labor and human relations to be unsafe for further use shall be stamped as follows:

"CONDEMNED"

"Arrowhead Stamp x Wisconsin x Arrowhead Stamp"

Letters shall be at least ⅜" high and arrowheads shall be ½" wide.

(3) 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: Cr. Register, October, 1970, No. 178, eff. 11–1–70.

PART V

NEW INSTALLATIONS

ORIGINAL CONSTRUCTION

Ind 41.50 A.S.M.E. code vessels. (1) Except as regulated in Wis. Adm. Code sections Ind 41.51, Ind 41.52, and Ind 41.53, boilers and pressure vessels installed after the date effective of this section, shall

be constructed and installed in accordance with the following sections of the A.S.M.E. Boiler and Pressure Vessel code:

				As Amended by Summer and Winter Addenda
(a) Section	I	Power Boilers	1968 Edition	1968 and 1969
(b) Section	II	Material Specifications	"	"
(c) Section	III	Nuclear Vessels	"	"
(d) Section	IV	Low Pressure Heating Boilers	"	"
(e) Section	VIII	Pressure Vessels—Div. 1	"	"
(f) Section	VIII	Pressure Vessels—Div. 2	"	"
(g) Section	IX	Welding Qualifications	"	"
(h) Nuclear Power Piping (U.S.A.S. B31.7)			1969 Edition	

Note 1. The department of industry, labor and human relations will recognize the applicable "case interpretations" of A.S.M.E. boiler and pressure vessel code published by A.S.M.E. as being acceptable.

Note 2. Copies of the above publication are available for inspection at the office of the department of industry, labor and human relations, secretary of state's office, and the office of the revisor of statutes, or they may be procured for personal use from the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th Street, New York, New York 10017.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; r. and recr. Register, December, 1962, No. 84, eff. 1–1–63; am. Register, August, 1964, No. 104, eff. 9–1–64; am. Register, January, 1966, No. 121, eff. 2–1–66; am. Register, March, 1966, No. 123, eff. 4–1–66; r. and recr., Register, November, 1970, No. 179, eff. 12–1–70.

Ind 41.51 Wisconsin special vessels. (1) Where it is not possible or practical to construct a boiler or pressure vessel in strict compliance with the A.S.M.E. codes listed in section Ind 41.50, the Department of Industry, Labor and Human Relations may grant a modification to the owner or user to permit the installation of the vessel as a Wisconsin special within the State of Wisconsin under the following conditions:

(a) When the method of designing or constructing the vessel is not covered by the A.S.M.E. codes, the department may approve the installation of the vessel if adequate proof of comparable safety of the design or construction is shown.

1. Complete plans, calculations, and specifications in duplicate shall be submitted to and approved by the department before the vessel is installed.

(b) When the vessel is to be built by an owner for his own use, the department may waive the stamping required by the A.S.M.E. codes listed in section Ind 41.50.

1. Complete plans, calculations, and specifications in duplicate shall be submitted to and approved by the department before the vessel is installed.

(c) When a small number of vessels is to be built by a manufacturer, the department may waive the stamping required by the A.S.M.E. codes listed in section Ind 41.50.

1. Complete plans, calculations and specifications in duplicate shall be submitted to and approved by the department before the vessel is installed.

(2) The provisions of this section shall not apply to Wisconsin special vessels accepted by the Department of Industry, Labor and Human Relations before the effective date of this section.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; r. and recr. Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.52 U.S. Department of Transportation—Federal Highway Division. Pressure vessels carrying the stamping of the D.O.T. will be considered comparable to a vessel meeting the requirements of section Ind 41.50. When such vessels are used in the State of Wisconsin, it shall be the responsibility of the owner of the vessels to have the construction records of the vessels available for inspection by the Department of Industry, Labor and Human Relations.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61; am. Register, February, 1971, No. 182, eff. 3–1–71.

Ind 41.53 Non-Code vessels. (1) The following vessels will only be required to meet the pressure-relief device requirements of the A.S.M.E. codes listed in section Ind 41.50.

(a) Water heating apparatus, such as range boilers or tanks having a self-contained gas, oil, or electric heating unit used exclusively for hot water service provided such apparatus carries a seal of approval from a testing agency recognized nationally and by the commission. The term "hot water service" shall be construed to mean a system in which the hot water is used for general cleaning purposes as in the bath, the laundry, and in the kitchen.

1. This exception shall not apply when the apparatus is used as a hot water heating boiler.

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

(c) Hot water storage tanks, when heated indirectly by circulating either steam at or below 15 psig, or by hot water at or below 30 psig through a coil or heat exchanger, and the storage water temperature does not exceed 200 F.

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

(e) The vessels listed in paragraphs (b), (c) and (d) of this section shall be identified by stamping showing the manufacturer's name, a serial number, the allowable working pressure, and the year fabricated.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61.

Ind 41.54 Low water fuel cut-off for hot water heating boilers. Every automatically fired hot water heating boiler installed after the effective date of this section with a heat input of more than 200,000 Btu per hour shall be provided with an automatic low-water fuel cut-off so located as to automatically cut off the fuel supply when the surface of the water falls to the lowest safe water line. The lowest safe water line shall be at or above the height required on a corresponding steam boiler.

History: Cr. Register, April, 1961, No. 64, eff. 5–1–61.