

DEPT. OF INDUSTRY, LABOR & HUMAN RELATIONS 7

(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 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.

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 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; am. (1), (3) (c), (4) (a), (6) (a) 1. and 3., Register, May, 1974, No. 221, eff. 6-1-74.

**Ind 41.10 Adoption of standards.** (1) The standards, amendments and errata issued by the American Society of Mechanical Engineers as listed in table 41.10-A are hereby incorporated by reference into this code.

(2) Pursuant to section 227.025, Wisconsin Statutes, consent has been granted to incorporate by reference the rules contained in the standards, amendments and errata listed in Table 41.10-A.

(a) Copies are on file in the offices of the department, the secretary of state and the revisor of statutes.

(b) Copies may be procured for personal use from the American Society of Mechanical Engineers, United Engineering Center, 345 East 47th St., New York, New York 10017.

TABLE 41.10-A

		As amended by Summer Addenda issued June 30th and Winter Addenda issued December 31st of each respective year.
1. Section	I Power Boilers, 1971 Edition	1971, 1972, 1973
2. Section	II Material Specifications, 1971 Edition, Parts A, B & C	1971, 1972 (parts A & B only), 1973 (parts A & B only) *
3. Section	III Nuclear Power Plant Components, 1971 Edition	1971, 1972, 1973
4. Section	IV Heating Boilers, 1971 Edition	1971, 1972, 1973
5. Section	V Nondestructive Examination, 1971 Edition	1971 (Winter only), 1972, 1973
6. Section	VIII Pressure Vessels, 1971 Edition Division 1 and 2	1971, 1972, 1973
7. Section	IX Welding Qualifications, 1971 Edition	1971, 1972, 1973
8. Section	X Fiberglass-Reinforced Plastic Pressure Vessels, 1971 Edition	1971 (Summer Only), 1972 (Winter only), 1973 (Summer only)
9. Section	XI Rules for Inservice Inspection of Nuclear Reactor Coolant Systems, 1971 Edition	1971, 1972, 1973
10. Nuclear Power Piping (ANSI B31.7), 1969 Edition, including Addendas 1970 B31.7a-1971, B31.7b-1971 and 1971 Addenda B31.7c-1971		

\*Includes Separate Errata—Summer only

**History:** Cr. Register, May, 1974, No. 221, eff. 6-1-74; r. and recr. Register, April, 1975, No. 232, eff. 5-1-75.

**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 and shall have:

(a) A pressure gauge graduated from 0-25 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. The lower connection to the glass shall be at a point about 6 inches below the water line; the upper connection about 6 inches above,

(d) A drain connection at least 2-inch standard pipe size,

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

(f) Vent piping, full size, piped to the outside atmosphere and discharged to a safe location.

**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.

**History:** Cr. Register, April, 1961, No. 64, eff. 5-1-61; r. and recr. (6), Register, May, 1974, No. 221, eff. 6-1-74.

**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.

$$RVC = \frac{1}{2} \times OC \times VSPA$$

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	8750	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
125.....	21350	18250	16200	13600	10800	8780	6226	-----	-----	-----	-----	-----	-----	-----	-----	-----
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.

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

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<sup>1</sup> = 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).