CR 83-130

RULES CERTIFICATE

STATE OF WISCONSIN)
) SS
DEPT. OF INDUSTRY,)
LABOR & HUMAN RELATIONS)

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, Howard S. Bellman, Secretary of the Department of Industry, Labor and Human Relations, and custodian of the official records of said department, do hereby certify that the annexed rule(s) relating to Boilers and Pressure Vessels (Subject) were duly approved and adopted by this department on 1/10/84 (Date).

I further certify that said copy has been compared by me with the original on file in this department and that the same is a true copy thereof, and of the whole of such original.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the department at 9:30 a.m. in the city of Madison, this 9th day of January A.D. 1984.

Howard S. Bellman
Secretary

3-84

ORDER OF ADOPTION

Pursuant to authority vested in the Department of Industry, Labor and Human Relations by section(s) 101.02 (1) and 101.17, Stats., the Department of Industry, Labor and Human Relations hereby [X] creates; [X] amends; [X] repeals and recreates; and [X] repeals and adopts rules of Wisconsin Administrative Code chapter(s):

Ind. 41-42 *(Number)* Boiler and Pressure Vessel Code *(Title)*

The attached rules shall take effect on the dates as indicated at the end of the rule draft, pursuant to section 227.026, Stats.

Adopted at Madison, Wisconsin, this 9th day of January, A.D., 1984.

DEPARTMENT OF INDUSTRY, LABOR AND HUMAN RELATIONS

Howard S. Bellman

Secretary

State of Wisconsin \ Department of Industry, Labor and Human Relations

RULES in FINAL DRAFT FORM

Rule: Chapters Ind 41-42

Relating to: Boilers and Pressure Vessels

Clearinghouse Rule No.: 83-130

Administrative rules to repeal Ind 41.12 (1) (b) Note, Ind 41.21 (1) (b) and (f); to renumber Ind 41.12 (1) (a), Ind 41.21 (1) (d) and (e), Ind 41.21 (1) (g) to (m), Ind 41.28 (1) to (4), Ind 42.13, chs. Ind 41-42; to renumber and amend Ind 41.12 (1) (b), Ind 41.21 (1) (c); to renumber and repeal and recreate Ind 41.14; to amend Ind 41.01 (1), Ind 41.02 (13p), Ind 41.05 (1) (a), Ind 41.05 (1) (b) 1., Ind 41.06 (2), Ind 41.08 (3) (a) and (b), Ind 41.08 (5) (b), Ind 41.10 (Title), Ind 41.10 Table 41.10-A, Ind 41.12 (Title), Ind 41.12 (1) Table 1 Note, Ind 41.12 (1) Table 2, Ind 41.20 (5) and (6), Ind 41.23 (1) (d), Ind 41.30 (2), Ind 41.50, Ind 41.51 (1) (intro.), Ind 41.56, Ind 41.71, Ind 41.78 (2) (d), Ind 41.99 (1), Ind 42.01 (5), Ind 42.07 (intro.) Note; to repeal and recreate Ind 41.03 (3) Note, Ind 41.05 (2) (a) 3., Ind 41.53, Ind 41.78 (2) Table 5, Ind 42.01 (2) (b); and to create Ind 41.015, Ind 41.016, Ind 41.02 (2m), Ind 42.05 (2) (a) 4., Ind 41.07, Ind 41.09, Ind 41.105, Ind 41.12 (1) (a) and (b), Ind 41.28 (1), Ind 41.57, Ind 42.01 (4) (f) and (g), Ind 42.11, Ind 42.13, relating to boilers and pressure vessels.

* *

ANALYSIS OF PROPOSED RULES

The Division of Safety and Buildings within the department is responsible for adopting and enforcing rules relative to the safety requirements of machines and boilers in places of employment and public buildings under section 101.17 of the Wisconsin Statutes. The proposed rules contain various revisions and additions to chapters Ind 41-42 pertaining to the installation, operation, repair and inspection of boilers, pressure vessels, power piping and safety valves. The following is a summary of the major changes contained in the proposed rules:

1. The current code exemption for the registration and inspection of heating boilers under 500,000 Btu/hr input capacity is eliminated. Registration and inspection are required for all new heating boilers, and periodic inspection every 3 years is required for all existing heating boilers, regardless of size. The cost of the inspection and the certificate of operation to the heating boiler owner will be $36 per boiler every 3 years.

2. Initial inspections are required for all power piping system installations greater than 2-inch nominal pipe size and exceeding 50 feet in length.

3. Specific rules are added covering the repair of safety and safety relief valves.

4. The qualifications for a certificate of competency as an inspector are modified and new rules are created for in-service field inspectors.

5. The 1982 ASME Summer and Winter Addenda are adopted by reference.

6. Construction, installation and pressure-relief requirements for water heaters and hot water storage tanks are updated, including adoption by reference of applicable UL and ANSI standards.

7. Requirements are clarified for the protection of pressure vessels supplied through pressure-reducing valves.

8. A new requirement is added making the owner or user responsible for obtaining a valid certificate of operation.

9. Rules are added covering boilers which utilize organic thermal fluids as the heat transfer media.

10. The steam generating capacity values for low pressure steam and miniature boilers are revised.

11. Clarifications are made in the reporting requirements for repairs and alterations.

12. New rules are added covering the classification of replacement parts and preheating.

The proposed rules were developed with the assistance of the Boiler and Pressure Vessel Advisory Committee. The following is a listing of the current membership of this citizen committee:

- Kim E. Aslaksen, Boiler and Pressure Vessel Repairers Association
- Norman Benz, Mechanical Contractors Association of Wisconsin
- Robert L. Bock, Gas Appliance Manufacturers Association and Wisconsin Petroleum Association
- Robert C. Harder, Wisconsin Manufacturers and Commerce
- Frank M. Johanek, Associated Public Works Contractors
- Al H. Lautenschlager, Alliance of American Insurers
- David J. Lehtola, Uniform Boiler and Pressure Vessel Laws Society
- Philip J. Lord, Wisconsin Boiler Inspectors Association
- F. E. (Mike) Marsh, Wisconsin State Association of the National Association of Power Engineers
- Gary Miller, City of Milwaukee
- Raymond A. Switzer, Wisconsin Utilities Association

* *

Pursuant to the authority vested in the state of Wisconsin, Department of Industry, Labor and Human Relations, by ss. 101.02 (1), 101.02 (15) (h) to (j) and 101.17, Stats., the Department of Industry, Labor and Human Relations hereby repeals, renumbers, renumbers and amends, renumbers and repeals and recreates, amends, repeals and recreates, and creates rules interpreting s. 101.17, Stats., as follows:

SECTION 1. Ind 41.01 (1) is amended to read:

Ind 41.01 SCOPE. (1) The provisions of chs. Ind 41 and 42 shall apply to boilers and piping components associated with boilers, pressure vessels and power piping in use at places of employment and in public buildings. The provisions of these chapters are not retroactive unless specifically stated in the administrative rule.

SECTION 2. Ind 41.015 is created to read:

Ind 41.015 PETITION FOR MODIFICATION. The department will consider and may grant modification to any administrative rule upon receipt of a fee and a completed petition for modification form from the owner, provided an equivalency is established in the petition for modification which meets the intent of the rule being petitioned. The department may impose specific conditions in the petition for modification to promote the protection of the health, safety and welfare of the employes or the public. Violation of those conditions under which the petition for modification is granted constitutes a violation of these rules.

Note #1: Copies of the petition for modification form (SB-8) are available at no charge from the Division of Safety and Buildings, P.O. Box 7969, Madison, Wisconsin 53707.

Note #2: Section 101.02 (6), Stats., outlines the procedure for submitting petitions to the department and the department's procedures for hearing petitions.

Note #3: See ch. Ind 69 for fee requirements.

SECTION 3. Ind 41.016 is created to read:

Ind 41.016 PENALTIES. Penalties for violations of these rules shall be assessed in accordance with s. 101.02, Stats.

Note #1: Section 101.02 (13) (a), Stats., indicates penalties will be assessed against any employer, employe, 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, failure or refusal, such employe, 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 #2: Section 101.02 (12), Stats., indicates that every day during which any person, persons, corporation or any officer, agent or employe thereof, fails to observe and comply with an order of the department will constitute a separate and distinct violation of such order.

SECTION 4. Ind 41.02 (2m) is created to read:

Ind 41.02 (2m) "Boiler external piping" means piping within the scope of ASME code section I and which requires ASME code stamping as specified in section I.

SECTION 5. Ind 41.02 (13p) is amended to read:

Ind 41.02 (13p) ~~POWER PIPING.~~ "Power piping" means any steam piping system beyond the scope of ASME code section I and having an operating pressure in excess of 15 psig or any hot water piping system beyond the scope of ASME code section I and subject to temperatures in excess of 250° F.

SECTION 6. Ind 41.03 (3) Note is repealed and recreated to read:

Ind 41.03 (3) Note: To assure proper installation, alteration or repair of a boiler or pressure vessel, it may be necessary to comply with other applicable Wisconsin Administrative Code sections in addition to the Wisconsin Boiler and Pressure Vessel Code. Some of the Wisconsin Administrative Code sections to be considered are as follows:

Sections Ind 54.14, 55.29, 56.15, 57.14, 58.24, 58.62, 59.21, 60.25, 60.37, 62.32 and 62.78 (boiler room requirements).

Section Ind 64.09 (combustion air intake requirements).

Section Ind 64.20 (installation and safety control requirements).

Sections Ind 64.45 to 64.50 (chimney and smokestack requirements).

Section Ind 64.51 (equipment location and protection requirements).

Wisconsin Administrative Codes may be obtained by contacting the State Department of Administration, Document Sales and Distribution, 202 So. Thornton Avenue, Madison, Wisconsin 53702.

SECTION 7. Ind 41.05 (1) (a) is amended to read:

Ind 41.05 (1) (a) Installing contractors* shall register with the department the installation of any ~~new or used~~ boiler or pressure vessel before the operation of the boiler or vessel. Registration shall be in writing on form DILHR SBD-6314. Owners or users making their own installations shall be considered installing contractors.

SECTION 8. Ind 41.05 (1) (b) 1. is amended to read:

Ind 41.05 (1) (b) 1. ~~New or used boilers or pressure~~ Pressure vessels exempted from periodic inspections in s. Ind 41.21.

SECTION 9. Ind 41.05 (2) (a) 3. is repealed and recreated to read:

Ind 41.05 (2) (a) 3. Registration is not required for underground power piping systems which are not located in a walk-in tunnel.

SECTION 10. Ind 41.05 (2) (a) 4. is created to read:

Ind 41.05 (2) (a) 4. Registration is not required for replacements, modifications and alterations to existing systems and for new installations which do not exceed 50 feet in length.

SECTION 11. Ind 41.06 (2) is amended to read:

Ind 41.06 (2) ~~Boilers and pressure~~ Pressure vessels subject to periodic inspections ~~(see Ind 41.20)~~ and all heating and power boilers as defined in s. Ind 41.02 shall be identified by a registration number supplied by the department. The registration number shall be affixed to the vessel by an authorized inspector. ~~The state tag shall be attached to the vessel~~ at a location which can be easily viewed.

SECTION 12. Ind 41.07 is created to read:

Ind 41.07 SAFETY AND SAFETY RELIEF VALVE REPAIRS. (1) DEFINITIONS. (a) Repair of a safety valve or safety relief valve means the replacement, remachining 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, reassembly and adjustments which affect the safety valve or safety relief valve function.

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

(c) The initial installation, testing and adjustments of a new safety valve or safety relief valve on a boiler or pressure vessel are not considered a repair if made by the manufacturer or assembler of the valve.

(2) 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; or

(c) An owner's program of maintenance and repair performed by trained and qualified people and authorized by the department.

(3) AUTHORIZED ADJUSTMENTS. The department may authorize properly trained and qualified employes of boiler or pressure vessel users to make adjustments to set pressure and blowdown to safety valves and safety relief valves owned by them provided the adjusted settings and capacities and the date of the adjustment are recorded on a metal tag secured to the seal wire. All external adjustments shall be resealed showing the identification of the organization making the adjustments.

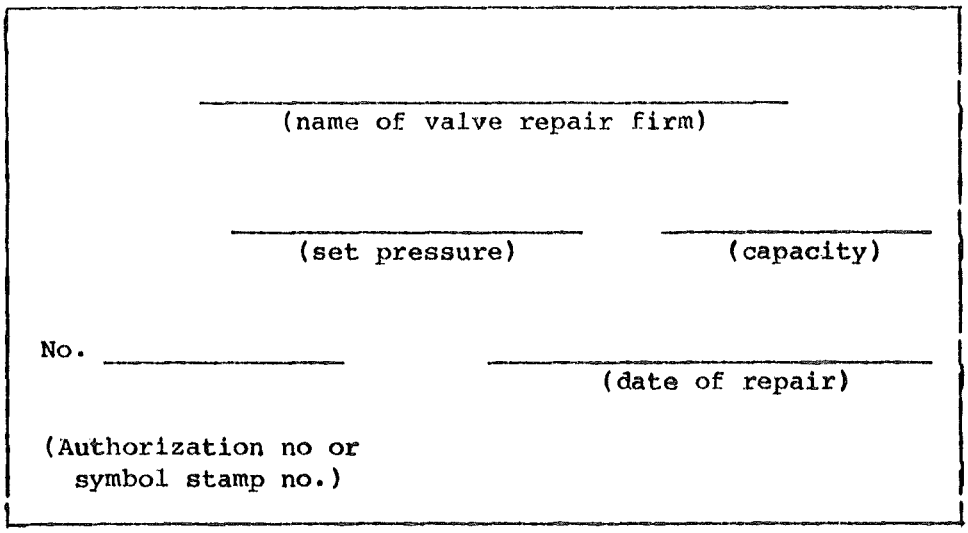
(4) NAMEPLATES. (a) Except as provided in sub. (3), when a safety valve or safety relief valve is repaired, a metal repair nameplate stamped with the information required by par. (b) shall be welded or otherwise permanently attached to the valve either above, adjacent to or below the original stamping. 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 repair nameplate shall include the name of the repair organization, its department authorization number or symbol stamp number, and the date of repair. The nameplate shall be as shown in Figure 41.07. If the set pressure has been changed, it as well as the new capacity, shall be indicated and the set pressure and capacity marked out but left legible on the original nameplate or stamping. 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.

(5) ILLEGIBLE OR MISSING NAMEPLATES. (a) When the information on the original manufacturer's nameplate or stamping is illegible, the manufacturer's nameplate or stamping shall be augmented by a nameplate stamped "duplicate" which contains all information required by the applicable section of the ASME Code, except the "V" or "UV" symbol and the NB mark. The repair organization nameplate, with the serialized "VR" stamp and other required data specified in sub. (4) (b), shall make the repairer responsible to the owner and the department that the information on the duplicate nameplate data is correct. If the owner specifies a set pressure or blowdown change, these new parameters and new capacity shall be stamped on the duplicate nameplate in addition to appearing on the valve repairer's nameplate.

(b) When the original valve manufacturer's nameplate is missing, the repair organization shall not be authorized to perform repairs to the valve under the "VR" program unless the valve can be positively identified and original nameplate data can be obtained from the original valve manufacturer, the repairer's inhouse sources or the National Board capacity certification. Valves that can be positively identified shall be equipped with a duplicate nameplate as described in par. (a) as well as the repairer's "VR" stamped nameplate. The repairer's responsibilities for data accuracy as identified in par. (a) shall apply.

Figure 41.07
VALVE REPAIR NAMEPLATE



Note #1: The nameplate should be stamped with the valve repair symbol stamp.

Note #2: Capacity should be indicated only when set pressure has been changed.

SECTION 13. Ind 41.08 (3) (a) and (b) are amended to read:

Ind 41.08 (3) (a) A degree in ~~mechanical~~ engineering plus one year experience in design, construction, operation or inspection of high pressure boilers and pressure vessels; or

(b) ~~A degree in a branch of engineering other than mechanical engineering, or an~~ An associate degree in mechanical technology, plus 2 years experience in design, construction, operation or inspection of high pressure boilers and pressure vessels; or

SECTION 14. Ind 41.08 (5) (b) is amended to read:

Ind 41.08 (5) (b) Holders of certificates who do not apply for renewal in any ~~3-year~~ 5-year period may be required to pass a scheduled examination.

SECTION 15. Ind 41.09 is created to read:

Ind 41.09 IN-SERVICE FIELD INSPECTORS. (1) ELIGIBILITY. The applicant for an in-service field inspector authorization shall be an employee of the department, a municipality or an insurance company; or owners or operators of boilers and pressure vessels authorized to make their own inspections.

(2) QUALIFICATIONS. The applicant shall have one of the following education and experience qualifications:

(a) A bachelor's degree in engineering from an accredited college or university, which is deemed to be the equivalent of 2 years experience in design, construction, operation or inspection of high pressure boilers and pressure vessels; or

(b) An associate degree in mechanical technology plus one year of actual experience in design, construction, operation or inspection of high pressure boilers and pressure vessels; or

(c) A high school diploma or equivalent plus 2 years of practical experience in the construction, installation, repair, operation, maintenance or inspection of high pressure boilers and pressure vessels.

(3) APPLICATION. (a) All applications for an in-service field inspector authorization shall be made to the department together with the payment of the application and examination fees.

(b) Upon receipt of the application form, the department shall review and evaluate the application and make all necessary notifications to the applicant.

(4) ISSUANCE OF AUTHORIZATION. In-service field inspector authorizations will be issued by the department to eligible appliants successfully passing the examination prescribed by and conducted by the department. The authorization shall bear the name of the applicant, authorization number and expiration date. The authorization shall be valid for a period of 15 months from the date of issue.

(a) Applicants failing the examination may apply to retake the examination.

(b) The authorization shall be nonrenewable.

(5) INSPECTION WORK. (a) The in-service field inspector authorization may be utilized by the holder only while in the continuous employ of the authorized inspection agency by whom employed at the time of application.

(b) The authorized in-service field inspector may perform only field inspection work and such work shall be performed while accompanied by an authorized field inspector during the first 90 days of employment and under the direct supervision of an authorized field inspector for the following 12 months.

(c) If the authorized inspection agency specified in par. (a) is an insurance company, then the authorized in-service field inspector may perform field inspection work only upon objects covered by such insurance company.

(d) Inspection of repairs and alterations shall be performed by an authorized inspector in possession of a certificate of competency.

(6) APPLICATION FOR CERTIFICATE OF COMPETENCY. Upon completion of one year of experience as an authorized in-service field inspector while in the continuous employ of the authorized inspection agency by whom employed at the time of application, the holder of a valid authorization, through such employer, may apply for a certificate of competency.

SECTION 16. Ind 41.10 (title) is amended to read:

Ind 41.10 (title) ADOPTION OF ASME STANDARDS.

SECTION 17. Table 41.10-A is amended to read:

TABLE 41.10-A

As amended by Summer Addenda issued June 30th and Winter Addenda issued December 31st of each respective year: S-Summer; W-Winter

		ASME	1980		1981		1982	
1. Section	I	Power Boilers, 1980 Edition	S	W	S	W	S	W
2. Section	II	Material Specifications, 1980 Edition						
	a.	Part A--Ferrous Material	S	W	S	W	S	W
	b.	Part B--Nonferrous Material	S	W	S	W	S	W
	c.	Part C--Welding Rods, Electrodes and Filler Metals	S	-	S	W	S	W
3. Section	III	Nuclear Power Plant Components, 1980 Edition						
	a.	Division 1 and Division 2 General Requirements Subsection NCA	S	W	S	W	S	W
		Division 1						
	a.	Subsection NB--Class 1 Components	S	W	S	W	S	W
	b.	Subsection NC--Class 2 Components	S	W	S	W	S	W
	c.	Subsection ND--Class 3 Components	S	W	S	W	S	W
	d.	Subsection NE--Class MC Components	S	W	S	W	S	W
	e.	Subsection NF--Component Supports	S	W	S	W	S	W
	f.	Subsection NG--Core Support Structures	S	W	S	W	S	W
	g.	Appendices	S	W	S	W	S	W
		Division 2						
	a.	Concrete Reactor Vessels and Containments	S	W	S	W	S	W
4. Section	IV	Heating Boilers, 1980 Edition	S	W	S	W	S	W
5. Section	V	Nondestructive Examination, 1980 Edition	S	W	S	W	S	W
6. Section	VIII	Pressure Vessels, 1980 Edition						
	a.	Division 1 - Pressure Vessels	S	W	S	W	S	W
	b.	Division 2 - Alternative Rules	S	W	S	W	S	W
7. Section	IX	Welding and Brazing Qualifications, 1980 Edition	S	W	S	W	S	W
8. Section	X	Fiberglass-Reinforced Plastic Pressure Vessels, 1980 Edition	-	W	S	W	S	-
9. Section	XI	Rules for Inservice Inspection of Nuclear Power Plant Components, Division 1, 1980 Edition	-	W	S	W	S	W
		ANSI						
10. Power Piping (ANSI B31.1, 1980 edition)								

SECTION 18. Ind 41.105 is created to read:

Ind 41.105 ADOPTION OF MISCELLANEOUS STANDARDS. (1) CONSENT TO INCORPORATE. Pursuant to s. 227.025, Stats., the attorney general and the revisor of statutes have consented to the incorporation by reference of the following standards:

(a) ANSI Z21.10.1-1981 Gas Water Heaters, Volume I Automatic Storage Water Heaters with Inputs of 75,000 Btu per Hour or Less, with Addenda Z21.10.1a-1982.

(b) ANSI Z21.10.3-1981 Gas Water Heaters, Volume III Circulating Tank, Instantaneous and Large Automatic Storage Water Heaters, with Addenda Z21.10.3a-1982.

(c) ANSI Z21.56-1979 Gas-Fired Swimming Pool Heaters, with Addenda Z21.56a-1981 and Z21.56b-1982.

(d) UL 174-1977 Household Electric Storage Tank Water Heaters.

(e) UL 732-1974 Oil-Fired Water Heaters.

(f) UL 795-1982 Commercial-Industrial Gas-Heating Equipment, with revisions dated March 25, 1982.

(g) UL 1453-1982 Electric Booster and Commercial Storage Tank Water Heaters, with revisions dated July 27, 1982.

(2) INTERIM AMENDMENTS. Interim amendments of the standards listed in sub. (1) shall have no effect in the state until such time as this section is correspondingly revised to reflect those changes.

(3) AVAILABILITY OF STANDARDS. The standards in reference may be obtained at a reasonable cost by writing to the following addresses:

(a) American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.

(b) Underwriters' Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062.

(4) FILING OF STANDARDS. Copies of the standards in reference are on file in the offices of the department, the secretary of state and the revisor of statutes.

SECTION 19. Ind 41.12 (title) is amended to read:

Ind 41.12 (title) PROTECTION OF VESSELS SUPPLIED THROUGH PRESSURE-REDUCING VALVES.

SECTION 20. Ind 41.12 (1) (a) is renumbered 41.12 (2).

SECTION 21. Ind 41.12 (1) (b) is renumbered 41.12 (3) and amended to read:

Ind 41.12 (3) The larger of the relief valve capacities calculated by the formulas in ~~s. Ind 41.12 (1)~~ subs. (1) and (2) shall be used for selecting the relief valve for the vessel.

SECTION 22. Ind 41.12 (1) (a) and (b) are created to read:

Ind 41.12 (1) (a) The actual flow coefficient provided by the pressure-reducing valve manufacturer may be used in place of the coefficient 1/3 in the above formula. The coefficient used shall be the largest obtainable by internal trim change of the valve.

(b) In using Table 1, the pressure-reducing valve inlet pressure is the maximum allowable working pressure of the piping system to the inlet side of the pressure-reducing valve.

SECTION 23. Ind 41.12 (1) Table 1 Note is amended to read:

Ind 41.12 Table 1 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. The actual flow coefficient provided by the pressure-reducing valve manufacturer may be used in place of the coefficient 1/3 in the following formula.

$W = 1/3\ AC$ or $W = 1/2\ A_1C$

where
- W = required safety valve relieving capacity in pounds of steam per hour
- A = internal area in square inches of the pipe size of the pressure-reducing valve (use pipe areas of Table 2)
- A_1 = internal area in square inches 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)

SECTION 24. Ind 41.12 (1) Table 2 is amended to read:

TABLE 2 - INTERNAL PIPE AREA
(Partial Table)

	STANDARD WEIGHT PIPE		
Nominal pipe size, inches	Actual ~~internal~~ external diameter, inches	Approx. internal diameter, inches	Approx. internal area, square inches

SECTION 25. Ind 41.12 (1) (b) Note is repealed.

SECTION 26. Ind 41.14 is renumbered 41.19 and repealed and recreated to read:

Ind 41.19 INITIAL INSPECTIONS REQUIRED. (1) BOILER AND PRESSURE VESSEL INSPECTIONS. (a) Except as provided in par. (b), boilers and pressure vessels shall be inspected by an authorized inspector before they are placed in operation.

(b) The inspections specified in par. (a) are not required for pressure vessels exempted from periodic inspections in s. Ind 41.21.

(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, such 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 an authorized inspector other than a department inspector, such authorized inspector shall file an inspection report with the department and shall affix the Wisconsin registration number as required in s. Ind 41.06.

(2) POWER PIPING INSPECTIONS. (a) Except as provided in pars. (b), (c) and (d), all power piping systems beyond the scope of ASME code section I and required to be constructed in accordance with the ANSI standard for power piping as listed in Table 41.10-A, shall be inspected by an authorized inspector employed by the department or by the city if installed in a city of the first class.

(b) The inspections specified in par. (a) are not required for power piping of 2 inches nominal pipe size and smaller.

(c) The inspections specified in par. (a) are not required for power piping replacements, modifications and alterations to existing systems and for new installations which do not exceed 50 feet in length.

(d) The inspections specified in par. (a) are not required for underground power piping systems which are not located in a walk-in tunnel.

(e) It shall be the responsibility of the installing contractor to notify the department or the city of the first class at the start of construction so that inspections may be arranged. The department or the city shall be given a minimum of 48 hours notice to arrange for inspection.

(f) Power piping inspections shall be made after the piping material is delivered to the job site and prior to the start of the installation. Power piping systems shall not be insulated or placed in service without receiving an inspection.

(g) Evidence shall be provided to the authorized inspector that all prefabricated piping complies with the ANSI standard for power piping as listed in Table 41.10-A.

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

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

SECTION 27. Ind 41.20 (6) is amended to read:

Ind 41.20 (6) INSPECTION OF SAFETY VALVES AND SAFETY RELIEF VALVES. The inspectors shall satisfy themselves that safety valves and safety relief valves have been ~~manually~~ tested at least once per year.

SECTION 28. Ind 41.21 (1) (b) is repealed.

SECTION 29. Ind 41.21 (1) (c) is renumbered (b) and amended to read:

Ind 41.21 (1) (b) Heating boilers~~, which are either steam boilers having an internal or external operating pressure not exceeding 15 psig or hot water heating boilers having an operating pressure not exceeding 30 psig and~~ located in private residences or in apartment buildings having less than ~~6~~ 3 living units.

~~Note: The department does not require periodic inspections of steam and hot water heating boilers installed in apartment buildings of 6 or more units prior to June 1, 1978.~~

SECTION 30. Ind 41.21 (1) (d) and (e) are renumbered (c) and (d).

SECTION 31. Ind 41.21 (1) (f) is repealed.

SECTION 32. Ind 41.21 (1) (g) to (m) are renumbered (e) to (k).

SECTION 33. Ind 41.23 (1) (d) is amended to read:

Ind 41.23 (1) (d) The insurance company shall report to the department 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. If the boiler or pressure vessel is installed in a city of the first class and inspections are made by the city, the report shall also be provided to the city.

SECTION 34. Ind 41.28 (1) to (4) are renumbered (2) to (5).

SECTION 35. Ind 41.28 (1) is created to read:

Ind 41.28 (1) The owner or user of the boiler or pressure vessel shall be responsible for obtaining and maintaining a valid certificate of operation.

SECTION 36. Ind 41.30 (2) is amended to read:

Ind 41.30 (2) REGISTRATION OF BOILERS, PRESSURE VESSELS~~, BOILERS~~ AND POWER PIPING. All other boilers, pressure vessels~~, boilers~~ and power piping at nuclear power plants ~~must~~ shall be registered with the department as required by s. Ind 41.06. The installation inspection shall meet the requirements of s. Ind ~~41.14~~ 41.19.

SECTION 37. Ind 41.50 is amended to read:

Ind 41.50 ASME CODE VESSELS. Except as regulated in ~~Wis. Adm. Code~~ ss. Ind 41.51, 41.52 and 41.53, boilers and pressure vessels installed after the effective date of this section shall be constructed and installed in accordance with the ASME standards adopted under s. Ind 41.10 ~~(1) (a)~~. Electric boilers shall be constructed and installed in accordance with ASME section I or IV as applicable.

SECTION 38. Ind 41.51 (1) (intro.) is amended to read:

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 s. Ind 41.50, the department 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:~~ The department will consider a modification request upon receipt of a completed petition for modification form and the required fee. The modification may be granted under the following conditions:

SECTION 39. Ind 41.53 is repealed and recreated to read:

Ind 41.53 NONCODE VESSELS. (1) EXEMPTED VESSELS. The following vessels are not required to be constructed and installed in accordance with the codes listed in Table 41.10-A:

(a) Water heaters used exclusively for hot water service and hot water storage tanks, provided such apparatus meets the requirements of the applicable standards listed in s. Ind 41.105. Water heaters or hot water storage tanks bearing the stamp, monogram or other evidence of approval of the applicable standard, or bearing the ASME stamp, shall be considered as conforming with the provisions of this chapter. Water heaters or hot water storage tanks not so identified shall:

1. Have their design submitted to the department for approval;

2. Withstand a hydrostatic test pressure of 300 psig or their rated hydrostatic test pressure if greater than this amount without developing leakage or permanent distortion; and

3. Be equipped with suitable primary flame safeguard, safety controls, limit switches and burners, or electric elements as required by the applicable standards listed in s. Ind 41.105;

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

(c) Pressure vessels used for the storage of water at water temperatures not exceeding 210° F. Such 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; and

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

(2) VESSEL IDENTIFICATION. The vessels listed in sub. (1) (b), (c) and (d) 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 codes listed in Table 41.10-A.

(b) Water heaters and hot water storage tanks shall be equipped with pressure-temperature relief devices:

1. Listed by AGA, UL or ASME when heat inputs are less than or equal to 200,000 Btu per hour and temperatures do not exceed 210° F; and

2. Listed by ASME when heat inputs exceed 200,000 Btu per hour.

SECTION 40. Ind 41.56 is amended to read:

Ind 41.56 POWER PIPING. Power piping, as defined in s. Ind 41.02 (13p), and boiler external piping within the scope of section I of the ASME code listed in Table 41.10-A, shall be installed in accordance with the ANSI standard for power piping, including addenda, listed in Table 41.10-A. This section applies to new systems as well as all replacements, modifications and alterations to existing systems.

SECTION 41. Ind 41.57 is created to read:

Ind 41.57 ORGANIC FLUID HEAT TRANSFER SYSTEMS. Boilers and coil type heaters which utilize organic thermal fluids as a heat transfer media shall be designed, constructed and installed in accordance with the ASME standards adopted under s. Ind 41.10.

SECTION 42. Ind 41.71 is amended to read:

Ind 41.71 STRENGTH OF MATERIALS. When the tensile strength of materials is not known, it shall be taken as 55,000 pounds per square inch for steel and 45,000 pounds per square inch for wrought iron, 30,000 pounds per square inch for copper and ~~10,000~~ 10,000 pounds per square inch for cast iron. The resistance to crushing of mild steel shall be taken as 95,000 pounds per square inch of cross sectional area.

SECTION 43. Ind 41.78 (2) (d) is amended to read:

Ind 41.78 (2) (d) ~~On~~ For power boilers, heating boilers and miniature boilers on the basis of boiler heating surface or waterwall heating surface as given in Table 5.

SECTION 44. Ind 41.78 (2) Table 5 is repealed and recreated to read:

Table 5
MINIMUM POUNDS OF STEAM PER HOUR
PER SQUARE FOOT OF SURFACE[1]

Surface	Firetube Boilers	Watertube Boilers
Boiler heating surface		
Hand-fired[2]	5	6
Stoker-fired	7	8
Oil, gas, or pulverized fuel fired	8	10
Waterwall heating surface		
Hand-fired[2]	8	8
Stoker-fired	10	12
Oil, gas, or pulverized fuel fired	14	16

1. The minimum safety valve or safety relief valve relieving capacity for electric boilers shall be 3-1/2 lb/hr/kW input.

2. When a boiler is fired only by a gas having a heat value not in excess of 200 Btu/cu ft, the minimum safety valve or safety relief valve relieving capacity may be based on the values given for hand-fired boilers.

SECTION 45. Ind 41.99 (1) is amended to read:

Ind 41.99 (1) Every unfired pressure vessel shall be provided with or protected by a pressure relief device set to relieve at or below the maximum allowable working pressure of the vessel.

SECTION 46. Ind 42.01 (2) (b) is repealed and recreated to read:

Ind 42.01 (2) (b) 1. The organization responsible for the preparation of the report of alteration shall also be responsible for adding a nameplate to the boiler or pressure vessel.

2. The stamping or nameplate shall be applied adjacent to the original manufacturer's stamping or nameplate in letters at least 5/32 inch high.

3. The nameplate for rerating when no physical change is made in the boiler or pressure vessel shall be as follows:

_____

RERATED BY _____

_____ PSI AT _____ F
(MAWP) (Temp)

_____
(Date Rerated)

_____

4. The nameplate for all other alterations to a boiler or pressure vessel shall be as follows:

_____

ALTERED BY _____

_____ PSI AT _____ F
(MAWP) (Temp)

_____
(Manufacturer's Alteration Number, if used)

_____
(Date Altered)

_____

SECTION 47. Ind 42.01 (4) (f) and (g) are created to read:

Ind 42.01 (4) (f) Replacement of a pressure retaining part in a pressure vessel or a boiler with a material of different nominal strength or nominal composition from that used in the original design.

(g) A decrease in the minimum temperature such that additional mechanical tests are required as specified in ASME code section VIII.

SECTION 48. Ind 42.01 (5) is amended to read:

Ind 42.01 (5) ~~INSPECTION REPORTS~~ RECORD OF REPAIR OR ALTERATION. (a) ~~Anyone~~ Except as provided in par. (b), anyone making welded repairs or alterations in accordance with these rules shall furnish the department with a report of every welded repair or alteration. The report shall be signed by the authorized inspector who inspected or approved the repair or alteration. The owner of the equipment shall retain a copy of the report for review by an authorized inspector. The report shall contain the information indicated on form SB-190.

~~(a) Exceptions.~~ (b) The following items are exempt only from the reporting requirements of ~~s. Ind 42.01 (5)~~ par. (a):

1. The welded repair ~~of tubes, or the alteration~~ or replacement of tubes in boilers or pressure vessels; and

2. ~~Piping~~ The welded repair or replacement of piping, nozzles, valves and fittings of 2-inch nominal pipe sizes and smaller.

(c) All other requirements of ss. Ind 42.01 to 42.17 shall apply.

SECTION 49. Ind 42.07 (intro) Note is amended to read:

Ind 42.07 (intro) Note: Before repairing a cracked area, care should be taken to investigate its cause and to determine its extent. Where circumstances indicate that the crack is likely to recur, consideration should be given to removing the cracked area and installing a patch or other corrective measures.

SECTION 50. Ind 42.11 is created to read:

Ind 42.11 REPLACEMENT PRESSURE PARTS. Replacement parts shall be classified as follows:

(1) PARTS ASSEMBLED BY FORMING. Replacement parts which will be subject to internal or external pressure and that consist of materials which may be formed or assembled to the required shape by bending, forging or other forming methods, but on which no shop fabrication welding is performed, may be supplied as material. Material and part identification shall be supplied in the form of bills of materials and drawings with ASME code compliance certified in a statement by the parts supplier.

Note: Examples include seamless or welded tubes or pipe supplied separately or in bundles; forged nozzles; heads or tube sheets forged or machined from a single piece of material; subassemblies of tubes or pipe attached together mechanically.

(2) WELDED PARTS NOT REQUIRING INSPECTION. Replacement parts which will be subject to internal or external pressure and that are preassembled by welding, but on which shop inspection is not required by the ASME code, shall have the welding performed in accordance with section IX and other applicable sections of the ASME code. The replacement part assembly identification shall be supplied in the form of bills of material and drawings. The supplier or manufacturer shall certify that the material, design and fabrication are in accordance with the applicable section of the ASME code.

Note: Examples include boiler furnace panel wall or floor assemblies; prefabricated openings in boiler furnace walls such as burner openings, air ports, inspection openings or soot blower openings.

(3) WELDED PARTS REQUIRING INSPECTION. Replacement parts which will be subject to internal or external pressure and that are fabricated by welding and which require shop inspection by an authorized inspector, shall be fabricated by a manufacturer having an ASME certificate of authorization and the appropriate code symbol stamp. The item shall be inspected, and stamped with the applicable code symbol and the word "PART". A completed manufacturer's partial data report shall be supplied by the manufacturer. When the part is added to the vessel, the partial data report is to be attached to Form SB190 "Report of Welded Repair or Alteration".

SECTION 51. Ind 42.13 is renumbered 42.14.

SECTION 52. Ind 42.13 is created to read:

Ind 42.13 PREHEATING. (1) GENERAL. Preheating may be required during welding to assist in completion of the welded joint. Where deemed necessary, advice shall be sought from a qualified source.

Note: See ASME code section VIII Appendix R for further explanatory information.

(2) PREHEAT AND INTERPASS TEMPERATURES. The welding procedure specification and qualification for the material being welded shall specify the preheat and interpass temperature requirements.

SECTION 53. Chapters Ind 41-42 are renumbered ILHR 41-42.

[Note to Revisor: Please change all applicable Ind prefixes in chapters Ind 41-42 to ILHR.]

(END)

* *

EFFECTIVE DATE

Pursuant to s. 227.026 (1) (b), Stats., s. Ind 41.07 shall take effect on the first day of the month, 9 months following publication in the Wisconsin Administrative Register and s. Ind 41.19 (2) shall take effect on the first day of the month, 6 months following publication in the Wisconsin Administrative Register. Pursuant to s. 227.026 (1) (intro), Stats., the remainder of these rules shall take effect on the first day of the month following publication in the Wisconsin Administrative Register.

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