

CR 10-011

ORDER OF THE DEPARTMENT OF COMMERCE

CREATING RULES

The Wisconsin Department of Commerce adopts an order to repeal Comm 45.02 (3) and (4); 45.05 (3), (5) and (6); 45.08 (1) and (2); and 45.20;

to renumber Comm 2.13 (1); 41.02 (1) (b); 45.01 Note [1]; 45.02 (1) (b) and (2); 45.03; 45.05 (1), (2), (4) and (7) to (9); 45.07 (title) and (1) (title), (a) and (b); 45.09 (title); 45.12 to 45.14; and 45.21 (title), (1), (3) and (5);

to renumber and amend Comm 45.01 (title) and 45.01 and Note [2]; 45.02 (title) and 45.02 (1) (title), (intro.), (a), (c) and (d); 45.07 (1) (intro.), (2) and Note, (3) (title), (3) and Note and (4) and Note; 45.08 (3); 45.09 (1) to (4); 45.10; 45.11; and 45.21 (2) and (4);

to amend Comm 45 subchapter I (title);

to repeal and recreate 45 subchapter V;

and to create Comm 2.13 (1) (b); 41.02 (1) (b) 2.; 45.10 Note [3]; 45.11 (1) (d) Notes and (e) to (g) and (3) to (5); 45.20 (1), (4) and (9); 45.30 (1) (c), (d) and Note; 45.31 (title), (1), (2) and (3) Note; 45.32 (5) and Note; 45.35; 45.40; 45 subchapter VI and subchapter VII (title); and 45.70 (5) Note, relating to mechanical refrigeration, and affecting small businesses.

Rule Summary

1. Statutes Interpreted

Sections 101.02 (1) and (15) (h) to (j), 101.17, 101.177 and 101.19.

2. Statutory Authority

Sections 101.02 (1) and (15) (h) to (j), 101.177, 101.19 and 227.11 (2) (a).

3. Explanation of Agency Authority

Under sections 101.02 (15) (h) to (j) and 101.17 of the Statutes, the Department is required to establish rules and prescribe safeguards for protecting the life, health, safety and welfare of employees and frequenters of public buildings and places of employment. Under section 101.177 of the Statutes, the Department is required to establish rules relating to proper handling and use of ozone-depleting refrigerants and associated equipment. Section 101.19 of the Statutes authorizes the Department to assess fees for providing services.

The Department also has authority under section 227.11 (2) (a) of the Statutes to promulgate rules interpreting any statute that is enforced or administered by the Department, if the rule is considered necessary to effectuate the purpose of the statute.

4. Related Statute or Rule

Some of the mechanical refrigeration systems addressed by the rules include pressure vessel components that are regulated by chapter Comm 41.

5. Plain Language Analysis

The rule changes primarily consist of updating chapter Comm 45 to have it directly reference the latest editions of two applicable national standards, and to make it consistent with current industry and regulatory practices for mechanical refrigeration systems. The primary referenced national standard is ANSI/ASHRAE 15-2007, including its addenda a to i – and ANSI/IIAR 2-2008 is referenced for closed-circuit ammonia mechanical refrigeration systems. Comm 45 currently instead references ANSI/ASHRAE 15 indirectly by incorporating chapter 11 of the 2000 edition of the *International Mechanical Code*[®] (IMC), which in turn references a previous version of ANSI/ASHRAE 15. No substantive changes to administrative requirements are included.

6. Summary of, and Comparison With, Existing or Proposed Federal Regulations

The US Environmental Protection Agency has regulations relating to production or release of various ozone-depleting refrigerants, but the rule changes do not directly address the topics covered by those regulations.

7. Comparison With Rules in Adjacent States

Michigan regulates the design and installation of mechanical refrigeration systems by adopting the 2006 edition of the IMC. The IMC in turn references the 2001 and 1999 editions of the ASHRAE 15 and IIAR 2 standards, respectively.

Minnesota's regulation is the same as Michigan – except closed-circuit ammonia refrigeration systems must comply with the 2008 edition of IIAR 2, and with the 2006 edition of B31.5 and the welding and welder criteria in section IX of the 2007 edition of the *ASME Boiler and Pressure Vessel Code*.

Illinois does not regulate mechanical refrigeration systems, and no corresponding Iowa regulations were found.

8. Summary of Factual Data and Analytical Methodologies

In considering the latest editions of ANSI/ASHRAE 15 and ANSI/IIAR 2, Department staff compared these standards to the requirements currently in Comm 45, and concluded that these standards are clearer and provide more detail than the current requirements and standards included in Comm 45, and would not impose significant costs or other impacts on a substantial number of businesses.

The rules were also developed with assistance from the Department's advisory council for mechanical refrigeration. The organizations represented on that advisory council are as follows:

Central Storage and Warehouse Company
City of Milwaukee
Mechanical Contractors Association of Wisconsin
Sheet Metal and Air Conditioning Contractors Association of Milwaukee, Inc.
University of Wisconsin – Madison
Vilter Manufacturing Corporation
Wisconsin Pipe Trades Association

9. Analysis and Supporting Documents Used to Determine Effect on Small Business or in Preparation of Economic Impact Report

An economic impact report was not prepared. Consideration of the potential effects on small business was based on guidelines produced by the federal Small Business Administration's Office of Advocacy. The advisory council referenced above did not identify any significant impacts relative to compliance with the revisions updating chapter Comm 45.

10. Effect on Small Business.

The rules are not expected to impose significant costs or other impacts on a substantial number of businesses because the primary effect of the changes is to make chapter Comm 45 consistent with current regional and national standards for mechanical refrigeration, and with current industry and regulatory practices.

11. Agency Contact Information

Sam Rockweiler, Wisconsin Department of Commerce, Division of Environmental and Regulatory Services, P.O. Box 14427, Madison, WI, 53708-0427; telephone (608) 266-0797; e-mail sam.rockweiler@wi.gov.

File reference: Comm 45/rule analysis Ad

SECTION 1. Comm 2.13 (1) is renumbered Comm 2.13 (1) (a).

SECTION 2. Comm 2.13 (1) (b) is created to read:

Comm 2.13 (1) (b) Fees related to steel-piping inspections performed by the department shall be determined in accordance with s. Comm 2.04 (2).

SECTION 3. Comm 41.02 (1) (b) is renumbered Comm 41.02 (1) (b) 1.

SECTION 4. Comm 41.02 (1) (b) 2. is created to read:

Comm 41.02 (1) (b) 2. Only subch. VI applies to a pressure vessel in a mechanical refrigeration system.

Note: Chapter Comm 45 contains additional requirements for pressure vessels in mechanical refrigeration systems.

SECTION 5. Subchapter I of chapter Comm 45 (title) is amended to read:

Subchapter I --- Purpose, ~~and~~ scope and application

SECTION 6. Comm 45.10 is renumbered Comm 45.33 in subchapter III and amended to read:

Comm 45.33 Reporting of accidents. ~~Whenever~~ If a mechanical refrigeration equipment or refrigeration system components fail component fails and cause injury causes injuries to any person that require more than first aid treatment, the owner or user shall report the facts involved to the department within the following 24 hours. The owner or user may not remove or disturb the mechanical refrigeration equipment system or any of its parts components nor permit any such removal or disturbance prior to receiving authorization from the authorized agent or the department, except for the purpose of saving human life or preventing ~~further~~ property damage.

Note: ~~Accidents are to be reported.~~ The address for reporting accidents to the department at Department is the Safety and Buildings Division, Inspection Support Unit, P.O. Box 7302, Madison, WI 53707-7302; and the fax number is 608-283-7499.

Note: The Department can be contacted at 608-266-7548 during normal business hours. The State Division of Emergency Management can be contacted at 800-943-0003 during non-business hours.

SECTION 7. Comm 45.01 is renumbered Comm 45.10, and Comm 45.10 (title) and 45.10 and Note [2], as renumbered, are amended to read:

Comm 45.10 (title) Purpose and scope. Pursuant to ss. 101.17 and 101.177, Stats., the purpose of this chapter is to establish ~~minimum~~ all of the following:

(1) Minimum safety standards for the design, construction, installation, operation, testing, maintenance, repairs and inspection of mechanical refrigerating refrigeration systems installed in public buildings and places of employment, and.

(2) Minimum standards for preventing the release of ozone-depleting refrigerants to the atmosphere. The provisions of this chapter are not retroactive unless specifically stated in the administrative rule.

Note [2]: ~~Chapters Comm 61 to 65 contain~~ The Department and other state agencies may have additional requirements pertaining to rules that affect the design, construction, installation, operation, testing, maintenance and inspection of mechanical refrigerating refrigeration systems in public buildings and places of employment, including chapters Comm 14, Fire Prevention; Comm

16, Electrical; Comm 41, Boilers and Pressure Vessels; Comm 61 to 66, Wisconsin Commercial Building Code; and Comm 81 to 87, Plumbing.

SECTION 8. Comm 45.11 is renumbered Comm 45.34 in subchapter III and amended to read:

Comm 45.34 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 a position statement from the fire department having jurisdiction over the affected property, and from any authorized agent having jurisdiction.

SECTION 9. Comm 45.02 (1) and (2) are renumbered Comm 45.11 (1) and (2), and Comm 45.11 (title) and 45.11 (1) (title), (intro.), (a), (c) and (d), as renumbered, are amended to read:

Comm 45.11 (title) ~~Scope~~ Application. (1) (title) ~~APPLICATION GENERAL~~. This chapter applies to all of the following except as provided in sub. (2):

(a) ~~The installation of~~ All mechanical refrigerating refrigeration systems and heat pumps that are installed or constructed on or after [the effective date of this rule...LEGISLATIVE REFERENCE BUREAU TO INSERT DATE].

(c) ~~Parts Replacement parts or components replaced only if they are not identical in function for any mechanical refrigeration system that exists on or after [the effective date of this rule...LEGISLATIVE REFERENCE BUREAU TO INSERT DATE].~~

(d) ~~Additions or alterations~~ Alterations to any refrigerating mechanical refrigeration system that exceeds the registration criteria in s. Comm 45.07 exists on or after [the effective date of this rule...LEGISLATIVE REFERENCE BUREAU TO INSERT DATE].

SECTION 10. Comm 45.02 (3) and (4) are repealed.

SECTION 11. Comm 45.12 is renumbered Comm 45.36 in subchapter III.

SECTION 12. Comm 45.03 is renumbered Comm 45.12.

SECTION 13. Comm 45.20 is repealed.

SECTION 14. Comm 45.05 (1), (2), (4) and (7) to (9) are renumbered Comm 45.20 (2), (3) and (5) to (8) in subchapter II.

SECTION 15. Comm 45.05 (3), (5) and (6) are repealed.

SECTION 16. Comm 45.07 (title) and (1) to (3) are renumbered Comm 45.30 (title) and (1) to (3) in subchapter III, and Comm 45.30 (1) (intro.), (2) and Note and (3) (title), (3) and Note, as renumbered, are amended to read:

Comm 45.30 (1) CLASSIFICATIONS. ~~The installer shall register with the department the~~ any Any installation of ~~new, used or additional~~ the following mechanical ~~refrigerating~~ refrigeration systems or components thereof shall be registered with the department ~~of the following~~ classifications:

(2) FORMS. Registration information shall be submitted on form SBD-34 ~~obtainable from~~ the department.

Note: ~~The department~~ Department forms required in this chapter are available ~~from the Division of Safety and Buildings, Material Orders, P.O. Box 2509, Madison, WI 53701-2509;~~ for a nominal fee at telephone 800-DOC-SALES or Contact Through Relay 608/266-3151 or 608/264-8777 (TTY), or at no charge at the Safety and Buildings web Department's Web site at www.commerce.state.wi.us www.commerce.wi.gov, through links to Safety and Buildings Division forms.

(3) (title) SUBMITTAL DEADLINE. (a) The registration form shall be submitted to the department at least 20 business days before the system is initially placed in operation.

(b) A registration form shall be submitted to the department at least 20 business days before a system is reactivated after an alteration, repair or replacement.

Note: ~~The purpose of the registration is so that inspections can be made as to inform the Department of the pending activation of the refrigeration system and thereby enable performance of the inspection specified in s. section~~ Comm 45.31 (2). Under that section, this inspection must be performed within 45 business days after completion of construction or installation.

SECTION 17. Comm 45.07 (4) and Note are renumbered Comm 45.32 (6) and Note and amended to read:

Comm 45.32 (6) REACTIVATION. ~~The owner or user shall notify the authorized agent or~~ the department at least 20 business days before reactivating a mechanical ~~refrigerating~~ refrigeration system at any time after the expiration date on the permit to operate. The system shall be re-inspected by the authorized agent or the department and a new permit to operate shall be obtained before the system may be reactivated.

Note: ~~The department~~ Department can be notified by writing to the Division of Safety and Buildings, Inspection Support Unit, P.O. Box 7302, Madison, WI 53707-7302; ~~or by telephone at 608/266-3454~~ 7548 or Contact Through Relay; ~~or by using the contact information available through the following Web site:~~ http://commerce.wi.gov/SB/docs/SB-BoilerInspectorsMap.pdf.

SECTION 18. Comm 45.08 (1) and (2) are repealed.

SECTION 19. Comm 45.08 (3) is renumbered Comm 45.31 (3) and amended to read:

Comm 45.31 (3) PERIODIC INSPECTIONS. (a) 1. Except as provided in subd. 2., any mechanical ~~refrigerating~~ refrigeration system using a Group A1 or B1 refrigerant and having a capacity rated at or greater than 50 horsepower, 50 tons or 50,000 volt-amperes shall be ~~subject to inspection~~ inspected by the authorized agent or the department at least once every 36 months.

2. a. ~~Groups~~ Mechanical refrigeration systems containing a Group A1 and or B1 systems refrigerant which are used only for air conditioning for human occupancy and which have their mechanical components located outdoors with the discharge from any relief valve located at least 20 feet from any building opening and used only for air conditioning for human comfort are exempt from periodic inspections.

b. An air intake opening that is part of an outdoor self-contained system under subd. 2. a. is not considered a building opening for the purposes of this subdivision.

(b) Any mechanical ~~refrigerating~~ refrigeration system using a Group A2, B2, A3 or B3 refrigerant and having a capacity rated at or greater than 10 horsepower, 10 tons or 10,000 volt-amperes shall be ~~subject to inspection~~ inspected by the authorized agent or the department at least once every 12 months.

SECTION 20. Comm 45.09 (title) and (1) to (4) are renumbered Comm 45.32 (title), (4) and (1) to (3), and Comm 45.32 (1) to (4), as renumbered, are amended to read:

Comm 45.32 (1) (a) 1. ~~After the initial~~ Within 5 business days after completing an inspection or after each periodic inspection, a permit to operate shall be issued by the authorized agent or the department upon determination that shall determine whether the mechanical refrigeration system meets complies with the applicable requirements of this chapter.

2. For each inspection performed by an authorized agent, a report shall be sent to the department in accordance with the department's electronic data interchange transfer guidelines, within 5 business days after completing the inspection, unless additional time is authorized by the department.

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 <http://commerce.wi.gov/SB/docs/SB-BoilerEdiGuidelines.pdf>.

(b) Within 10 business days after making or receiving the determination under par. (a), the department shall issue a permit to operate if it has been determined that the mechanical refrigeration system complies with the applicable requirements of this chapter. The department shall make that determination and issue a permit to operate within 15 business days of the initial or periodic inspection.

(2) The permit to operate shall indicate list the maximum allowable working operating pressure permitted allowed under the requirements of this chapter.

~~(3) The permit~~ Permits to operate shall be valid until 20 days after the next periodic inspection. for one of the following periods:

(a) Three years, for systems inspected under s. Comm 45.31 (3) (a).

(b) One year, for systems inspected under s. Comm 45.31 (3) (b).

~~(4) (a) The owner or user of a mechanical refrigerating~~ refrigeration system which requires that is required to have periodic inspections under s. Comm 45.08 45.31 (3) shall be responsible for obtaining all of the following:

1. Obtaining and maintaining a valid permit to operate each system.

2. Notifying the authorized agent or the department, within 20 business days thereof, if the system is placed in an inactive status, as specified in sub. (5).

(b) 1. a. The permit to operate shall be posted in the machinery room or adjacent to the entrance to the machinery room except as provided in subs. 1. b. and 1. c.

b. If there is no machinery room and the machinery is located within the building, the permit shall be posted in a conspicuous location on or near the machinery.

c. If there is no machinery room and the machinery is located outside the building, the permit shall be posted in a conspicuous location near the access opening for the machinery unless otherwise approved by the authorized agent or the department.

2. The posted permit shall be maintained in a legible state.

SECTION 21. Comm 45.10 Note [3] is created to read:

Comm 45.10 Note [3]: Under chapters Comm 14 and 61, neither NFPA® 1 nor the *International Fire Code*® are applied by the Department to mechanical refrigeration systems.

SECTION 22. Comm 45.11 (1) (d) Notes and (e) to (g) and (3) to (5) are created to read:

Comm 45.11 (1) (d) Note: A proposed alteration for an existing system may necessitate modifying other components of the system in order to make the proposed alteration comply with this chapter – and some alterations may necessitate modifying other features of a building, such as an automatic fire sprinkler system, that must comply with requirements in chapters Comm 61 to 66, the Wisconsin Commercial Building Code.

Note: As referenced in section Comm 45.40 (2) (c), see subchapter VI of chapter Comm 41 for additional requirements relating to alterations and repairs for pressure vessels and their fittings, settings or appurtenances.

Note: Designers, contractors and owners are encouraged to contact the Department to discuss their intentions for alterations and to determine, on a case-by-case basis, any upgrades that are needed. See the Note under section Comm 45.31 (2) (b) 2. for the corresponding telephone number or address.

(e) Repaired portions or components of any mechanical refrigeration system that exists on or after [the effective date of this rule...LEGISLATIVE REFERENCE BUREAU TO INSERT DATE]

Note: Under this paragraph, any portions of a system that are being repaired must comply with the rules of this chapter which exist on the date of the repair. See paragraph (f) and section Comm 45.11 (3) for the applicability of this chapter to any other portions of the system.

(f) Operation, testing, maintenance and inspection of all mechanical refrigeration systems that exist on or after [the effective date of this rule...LEGISLATIVE REFERENCE BUREAU TO INSERT DATE].

(g) Any removal, transfer, storage, release, recovery, charging or other use of ~~All~~ any ozone-depleting refrigerants that exists in Wisconsin on or after [the effective date of this rule...LEGISLATIVE REFERENCE BUREAU TO INSERT DATE].

(3) RETROACTIVITY. A design, construction or installation rule in subchapters III to VI does not apply retroactively to mechanical refrigeration systems or components existing prior to the effective date of the rule unless specifically stated in the rule.

(4) DIFFERING RULES. (a) Where any department-written rule in this chapter differs from a requirement within a standard referenced in this chapter, the department-written rule shall govern.

(b) Where a provision of this chapter prescribes a general requirement and another provision of this chapter prescribes a specific or more detailed requirement regarding the same subject, the specific or more detailed requirement shall govern, except as provided in par. (a).

(c) Where different sections of this chapter specify conflicting requirements, the most restrictive requirement, as determined by the department, shall govern, except as provided in pars. (a) and (b).

(5) INTERPRETATIONS. Under s. 101.02 (1), Stats., the department reserves the right to interpret the requirements in this chapter and in all adopted codes and standards.

Note: Section 101.02 (1) of the Statutes reads as follows: “The department shall adopt reasonable and proper rules and regulations relative to the exercise of its powers and authorities and proper rules to govern its proceedings and to regulate the mode and manner of all investigations and hearings.”

SECTION 23. Comm 45.13 and 45.14 are renumbered Comm 45.37 and 45.38 in subchapter III.

SECTION 24. Comm 45.20 (1), (4) and (9) are created to read:

Comm 45.20 (1) “Alteration” means any of the following:

(a) A change in a mechanical refrigeration system that involves an extension, addition or change to the arrangement, type or purpose of the existing installation or component.

(b) A change in the type of refrigerant for a mechanical refrigeration system.

(4) “Authorized agent” means any of the following or their authorized representatives:

(a) A boiler-pressure vessel inspector who is so certified under ch. Comm 5 and is addressed in a written contract with the department as enforcing this chapter.

(b) A local governmental unit that has been authorized in writing by the department to administer and enforce this chapter.

(c) A first class city that has accepted the responsibility to administer and enforce this chapter.

Note: As of [the effective date of this rule...LEGISLATIVE REFERENCE BUREAU TO INSERT DATE] only the City of Milwaukee had become a first class city.

(9) “Repair” means the restoration of any portion or component of a mechanical refrigeration system to a safe operating condition.

SECTION 25. Comm 45.21 is renumbered Comm 45.70 in subchapter VII, and Comm 45.70 (2) and (4), as renumbered, are amended to read:

Comm 45.70 (2) CLEANING OF EQUIPMENT. Ozone-depleting refrigerant ~~shall~~ may not be used for cleaning purposes, including the cleaning of interior or exterior surfaces of refrigeration equipment.

(4) **RELEASING REFRIGERANT.** Ozone-depleting refrigerant ~~shall~~ may not be knowingly or negligently released to the environment, except for minimal releases that occur as a result of efforts to recover, reclaim or recycle ozone-depleting refrigerant removed from refrigeration equipment.

SECTION 26. Comm 45.30 (1) (c), (d) and Note are created to read:

Comm 45.30 (1) (c) Any alteration of a mechanical refrigeration system, that causes the system to have or exceed the capacity in par. (a) or (b).

(d) Any alteration or repair of a currently registered mechanical refrigeration system.

Note: See normative appendix C in ANSI/ASHRAE standard 15, as adopted in subchapter IV, for characteristics of the refrigerant safety groups listed in paragraphs (a) and (b). For characteristics of individual refrigerants, such as the safety groups they are assigned to, see Tables 1 and 2 in ANSI/ASHRAE standard 34, as referenced in appendix E of ANSI/ASHRAE standard 15.

SECTION 27. Comm 45.31 (title), (1), (2) and (3) Note are created to read:

Comm 45.31 (title) Enforcement and inspections. (1) ENFORCEMENT. (a) This chapter shall be enforced by the department and its authorized agents.

Note: Section 101.02 (15) (g) of the Statutes authorizes the Department and its authorized agents to enter any building, facility or premises and examine any mechanical refrigeration system or component and associated records for the purpose of enforcing this chapter.

(b) Where an authorized agent administers and enforces this chapter in conjunction with the department, the authorized agent's administration and enforcement shall be exercised in advance of the department's administration and enforcement.

Note: Under section Comm 45.11 (5), the department reserves the right to interpret the requirements in this chapter and in all adopted codes and standards.

(2) INSTALLATION INSPECTION. (a) The authorized agent or the department shall inspect a mechanical refrigeration system that is required to be registered under s. Comm 45.30 (1), within 45 business days after completion of the initial construction or installation, and within 45 business days after completion of construction or installation relating to any alteration, repair or replacement.

(b) 1. All refrigerant steel piping that will employ welded joints shall be inspected by the authorized agent or the department after the piping material is delivered to the job site and prior to installation of the piping.

2. The authorized agent or the department shall be given a minimum of 5 business days notice prior to the start of construction to arrange for inspections under this paragraph.

Note: The Department can be notified by writing to the Division of Safety and Buildings, Inspection Support Unit, P.O. Box 7302, Madison, WI 53707-7302; or by telephone at 608/266-7548 or Contact Through Relay; or by using the contact information available through the following Web site: <http://commerce.wi.gov/SB/docs/SB-BoilerInspectorsMap.pdf>.

3. If applicable and if required by the authorized agent or the department, the following documents shall be made available for review during inspections under this paragraph:

- a. Welding procedure specification.
- b. Procedure qualification record.
- c. Welder performance qualification.
- d. Welder continuity record.
- e. Design calculations.

- f. Design plans for the piping system.
- g. Material test reports.
- h. Certificates of compliance.

Note: For further information relating to the welding documentation listed in subdivision 3. a. to d., see section IX of the ASME Boiler and Pressure Vessel Code, as referenced in section Comm 45.550 (1).

4. Form SBD-5204 shall be completed and be retained at the job site for reference during inspections under this paragraph. If the design of the piping is acceptable, the authorized agent or the department shall sign the form.

(c) Welded, prefabricated steel piping that is part of a mechanical refrigeration system to be erected on a job site shall be inspected at the fabrication shop by the authorized agent or the department – or, for out-of-state fabricators, by an inspector commissioned by the national board of boiler and pressure vessel inspectors. The fabricator shall make a copy of the inspection report or a copy of the completed form SBD-5204 available to the installer at the job site verifying that the prefabricated piping complies with ASME B31.5. Design calculations for the prefabricated piping shall be provided to the authorized agent or the department if so requested.

Note: ASME B31.5 is a mandatory reference for designers, fabricators and producers of refrigeration equipment, and is referenced in appendix E of ANSI/ASHRAE standard 15, which is adopted in subchapter IV.

Note: It is recommended that out-of-state installers contact the Department prior to any fabrication or installation of prefabricated piping, to expedite compliance with the Department's requirements.

Note: The National Board of Boiler and Pressure Vessel Inspectors can be contacted at 1055 Crupper Avenue, Columbus, OH 43229; or at telephone 614.888.8320; or at www.nationalboard.com.

Note: The Department forms required in this chapter are available for a nominal fee at telephone 800-DOC-SALES or Contact Through Relay, or at no charge at the Department's Web site at www.commerce.wi.gov, through links to Safety and Buildings Division forms.

(3) Note: See Table 1 and normative appendix C in ANSI/ASHRAE standard 15, as adopted in subchapter IV, for characteristics of the refrigerant groups listed in paragraphs (a) and (b).

SECTION 28. Comm 45.32 (5) and Note are created to read:

Comm 45.32 (5) (a) A mechanical refrigeration system may be placed in an inactive status if acceptable documentation is provided to the authorized agent or the department showing that the entire refrigerant charge has been removed from the system.

(b) Within 5 business days after an authorized agent receives the documentation under par. (a), the agent shall verify the inactive status and report that verification to the department.

Note: Shutdown of a system for repair, alteration, replacement or seasonal use is not considered to be placing it in an inactive status.

SECTION 29. Comm 45.35 is created to read:

Comm 45.35 Compliance responsibilities. (1) Any inspection report describing any noncompliance with this chapter shall be provided to the owner of the mechanical refrigeration system.

(2) The owner of a mechanical refrigeration system shall correct any aspects of the system that do not comply with applicable requirements of this chapter, within any time period prescribed by the authorized agent or the department.

SECTION 30. Comm 45.40 is created in subchapter IV to read:

Comm 45.40 Design, construction and operation. (1) ADOPTION. (a) ANSI/ASHRAE standard 15-2007 and its addenda a to i, subject to the modifications specified in subch. V, are hereby incorporated by reference into this chapter.

(b) ANSI/IIAR 2-2008, subject to the modifications specified in subch. VI, is hereby incorporated by reference into this chapter.

(2) GENERAL. (a) All mechanical refrigeration systems shall be designed, constructed, installed, operated, maintained, tested and inspected in accordance with ANSI/ASHRAE standard 15, except as otherwise provided in this chapter.

(b) Closed-circuit ammonia mechanical refrigeration systems may be designed, constructed, installed and tested in accordance with subch. VI and ANSI/IIAR 2, in combination with ANSI/ASHRAE standard 15 sections 10.2 and 11.

(c) Any repair or alteration to a pressure vessel in a mechanical refrigeration system shall comply with ss. Comm 41.60 to 41.64.

Note: Copies of the adopted standards are on file in the offices of the Department and the Legislative Reference Bureau, and may be purchased as follows: For ANSI/ASHRAE Standard 15-2007, contact the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., at 1791 Tullie Circle NE, Atlanta, GA 30329; or at www.ashrae.org. For ANSI/IIAR 2-2008, contact the International Institute of Ammonia Refrigeration at 1110 North Glebe Road, Arlington, VA 22201; or at www.iira.org.

(3) SECONDARY REFERENCES. Any codes or standards referenced in the standards adopted in sub. (1) shall apply to the prescribed extent of each such reference, except as modified by this chapter.

(4) ALTERNATE STANDARDS. Any alternate standard that is equivalent to or more stringent than a standard incorporated by reference or otherwise referenced under this chapter may be used in lieu of the incorporated or referenced standard if the alternate standard is accepted in writing by the department.

(5) **RELEASING REFRIGERANT.** Release of any refrigerant to the environment shall be minimized as fully as practical.

SECTION 31. Subchapter V of Comm 45 is repealed and recreated to read:

Subchapter V --- Changes, additions or omissions to ANSI/ASHRAE standard 15

Comm 45.500 General. Changes, additions or omissions to ANSI/ASHRAE standard 15 are specified in this subchapter and are rules of the department and are not requirements of ANSI/ASHRAE standard 15.

Comm 45.501 Scope. The requirements of ANSI/ASHRAE standard 15 sections 1 and 2 are not included as part of this chapter.

Note: The sections in this subchapter are generally numbered to correspond with both the numbering of the subchapter and the section numbering in ANSI/ASHRAE standard 15. For example, section Comm 45.511 corresponds to subchapter 5 and to section 11 in ANSI/ASHRAE standard 15.

Comm 45.503 Definitions. This is a department definition for this chapter in addition to the definitions in ANSI/ASHRAE standard 15 section 3: “Authority having jurisdiction” or “jurisdiction having authority” means the department or authorized agent.

Comm 45.508 Eye wash and shower. This is a department rule and informational note in addition to the requirements in ANSI/ASHRAE standard 15 section 8.12: An eye wash and body shower unit shall be located external to the machinery room and be readily accessible.

Note: It is recommended that additional such units be located accessibly within the machinery room such that no unit is further than 50 feet from any point in the room.

Comm 45.509 Design and construction. (1) MATERIALS. This is an additional, department exception to the requirements in ANSI/ASHRAE standard 15 section 9.1.5: Discharge piping for mechanical refrigeration safety relief valves that discharges outside a building may consist of plastic materials and joint primers and adhesives which the department has approved specifically for this purpose, provided all of the following conditions are met:

- (a) The design pressure in the refrigeration system does not exceed 15 psi.
- (b) The refrigeration system does not contain a refrigerant other than Group A1 or B1.
- (c) The piping is noncombustible when tested in accordance with ASTM E 136 or is self-extinguishing with a rating of 5V-A, V-O or V-1 when tested in accordance with UL 94.

Note: As of [the effective date of this rule...LEGISLATIVE REFERENCE BUREAU TO INSERT DATE], the plastic materials approved under this subsection include polyvinyl chloride piping.

(2) ASME B31.3 PIPING. This is a department informational note to be used under ANSI/ASHRAE standard 15 section 9.10.1:

Note: Process piping complying with ASME B31.3 is an example of piping that complies with this section by being appropriately listed rather than by complying with ASME B31.5.

Comm 45.511 General requirements. (1) PRESSURE RELIEF VALVE REPLACEMENT. This is a department rule in addition to the requirements in ANSI/ASHRAE standard 15 section 11.6:

(a) All pressure relief valves for any ammonia mechanical refrigeration system that exists on or after [the effective date of this rule...LEGISLATIVE REFERENCE BUREAU TO INSERT DATE] shall be replaced in accordance with the manufacturer's recommendations and all of the following, except as provided in par. (b):

1. Each valve shall be replaced within 5 years after the date of installation.
2. Each valve may not be over 2 years old at the time of installation.
3. A record of the valve's installation shall be maintained until the valve is replaced.

(b) This subsection does not apply to relief devices that discharge internally to another part of a closed-loop refrigeration system.

(2) PERIODIC TESTS. This is a department rule in addition to the requirements in ANSI/ASHRAE standard 15 section 11.6.3: Each of the following emergency devices and systems that exist on or after [the effective date of this rule...LEGISLATIVE REFERENCE BUREAU TO INSERT DATE] shall be tested at least annually, and documentation of the testing shall be available onsite for inspection by the authorized agent or the department:

- (a) Treatment and flaring systems.
- (b) Valves and appurtenances necessary to the operation of emergency refrigeration control boxes.
- (c) Fans and associated equipment intended to operate emergency ventilation systems.
- (d) Refrigerant detection and alarm systems.
- (e) Remote controls for shutdown of compressors and refrigerant pumps.

(3) REPORTABLE INCIDENTS. This is a department informational note to be used under ANSI/ASHRAE standard 15 section 11.7, paragraph c:

Note: Refrigerants typically should not be discharged except in an emergency. The Department of Natural Resources, federal agencies and local fire departments may have requirements relating to being immediately notified upon the automatic or manual discharge of specified amounts of any refrigerant.

Notification may not be necessary for any of the following conditions:

1. Refrigeration systems operating at pressures below atmospheric and incorporating automatic purge systems.
2. Incidental operation of automatic pressure relief valves resulting in minor release of the refrigerant charge.

3. Incidental minor releases associated with service operations after system pump-down has been accomplished.

Comm 45.550 ANSI/ASME B31.5. (1) Substitute the following wording for the requirements in ANSI/ASHRAE standard 15 normative appendix E citation 5: *ASME Boiler and Pressure Vessel Code*, Section VIII, Rules for Construction of Pressure Vessels, Division 1, 2007, The American Society of Mechanical Engineers (ASME), 3 Park Avenue, New York, NY 10016-5990.

(2) Substitute the following wording for the requirements in ANSI/ASHRAE standard 15 normative appendix E citation 6: *ASME B31.5-2006, Refrigeration Piping and Heat Transfer Components*, The American Society of Mechanical Engineers (ASME), 3 Park Avenue, New York, NY 10016-5990.

SECTION 32. Subchapter VI and subchapter VII (title) of Comm 45 are created to read:

Subchapter VI --- Changes, additions or omissions to ANSI/IIAR 2

Comm 45.600 General. Changes, additions or omissions to ANSI/IIAR 2 are specified in this subchapter and are rules of the department and are not requirements of ANSI/IIAR 2.

Note: Under section Comm 45.40 (2) (b), closed-circuit ammonia mechanical refrigeration systems may be designed, constructed, installed and tested in accordance with ANSI/IIAR 2 and this subchapter, in combination with ANSI/ASHRAE standard 15 sections 10.2 and 11.

Comm 45.601 Scope. The requirements of ANSI/IIAR 2 sections 1 and 2 are not included as part of this chapter.

Note: The sections in this subchapter are generally numbered to correspond with both the numbering of the subchapter and the section numbering in ANSI/IIAR 2. For example, section Comm 45.613 corresponds to subchapter 6 and to section 13 in ANSI/IIAR 2.

Comm 45.611 Overpressure protection. (1) DISCHARGE CAPACITY OF PLATE HEAT EXCHANGERS. This is a department alternative to the requirements in ANSI/IIAR 2 section 11.2.7: The minimum required relief device capacity for a plate heat exchanger based on an external heat addition scenario may be calculated in accordance with the following equation:

$$C_{r,plate\ HX} = f \cdot \sqrt{L^2 + W^2} \cdot H$$

where:

$C_{r,plate\ HX}$ = minimum required relief device capacity for the plate heat exchanger (lb_m/min of air)
 f = relief device capacity factor
 L = length of the plate pack (ft)
 W = width of the plate pack (ft)
 H = height of the plate pack (ft)

(2) DISCHARGE PIPING FOR ATMOSPHERIC PRESSURE RELIEF. This is a department rule in addition to the requirements in ANSI/IIAR 2 section 11.3.6.1: Appendix A Tables A-3 may not be used for schedule 80 piping.

Comm 45.613 Machinery room. (1) EMERGENCY REMOTE CONTROLS. (a) *Ventilation.* Substitute the following wording for the requirements in ANSI/IIAR 2 section 13.2.1.4: Emergency remote controls for the mechanical means of ventilation shall be provided and be located immediately outside the machinery room, at the principal entrance to the room.

(b) *Compressors.* Substitute the following wording for the requirements in ANSI/IIAR 2 section 13.3.1.6: Emergency remote controls to stop the action of the refrigeration compressors shall be provided and be located immediately outside the machinery room, at the principal entrance to the room.

(2) SIGNAGE. This is a department rule in addition to the requirements in ANSI/IIAR-2 section 13.3: A legible, easily accessible, permanent sign shall be securely attached to the mechanical refrigeration system, showing that the system was designed in accordance with ANSI/IIAR-2.

Subchapter VII (title) --- Ozone-depleting refrigerants

SECTION 33. Comm 45.70 (5) Note is created to read:

Comm 45.70 (5) Note: See subpart F of part 82 in title 40 of the Code of Federal Regulations for further requirements relating to ozone-depleting refrigerants.

(END)

EFFECTIVE DATE

Pursuant to s. 227.22 (2) (intro.), Stats., these rules shall become effective on the first day of the month commencing after the date of publication in the Wisconsin administrative register.

File reference: Comm 45/rules 2009 LR2ac