

November 20, 2001

TO: INTERESTED PARTIES

FROM: MIKE D. EWERT F. RAY ANDRUS
MECHANICAL CODE SPECIALIST ACTING BOILER CHIEF

SUBJECT: REQUIREMENTS FOR REFRIGERATION CONTRACTORS

The Division has received numerous questions on the licensing and certification requirements for refrigeration piping installation. The following information should clarify the issues.

Two Building Codes Division programs (Boiler and Mechanical) created new administrative rules that became effective July 1, 2001. The new rules describe the scope of the Boiler and Mechanical Specialty Codes as they pertain to refrigeration systems, and the requirements for persons in the business of installing, repairing or inspecting refrigeration-piping systems under each code. The requirements for installation of refrigeration piping are contained in the individual specialty codes. This narrative explains what is required of persons working under each of these codes and the corresponding inspector certification requirements. Generally, piping that is 2½ inch diameter or larger, containing refrigerant chemicals other than A-1 or B-1, are regulated by the Boiler Law and Code and everything else, other than one- and two-family dwelling installations, is covered by the Mechanical Specialty Code. Installations in one- and two-family dwellings are regulated by Chapter 24 of the One- and Two-Family Dwelling Specialty Code and ASHRAE 15 and 34, and are exempt from the licensing and certification requirements of the new rules.

OREGON MECHANICAL SPECIALTY CODE, OAR 918-440-0015

Oregon adopted the 1998 International Mechanical Code with Oregon amendments to create the 1999 Oregon Mechanical Specialty Code (OMSC). OMSC, Chapter 11 Refrigeration, details the requirements for installation, operation and testing of refrigeration systems in multi-family dwellings, commercial and industrial buildings. OMSC Section 1101.6 adopts additional requirements of ASHRAE 15 and IIAR 2 by reference. OMSC Table 1103.1 provides a partial list of refrigerants and their hazard classification. This table is a condensed version taken from ASHRAE 34 and is an important source of information, listing the toxicity and flammability of refrigerant chemicals. The safest refrigerants are those listed as either A-1 or B-1. The table is

used to help determine which specialty code regulates the piping system. Chemicals not listed in Table 1103.1 are identified using ASHRAE 34.

The OMSC places responsibility for the quality of workmanship on the individual tradesperson. Individuals welding or brazing refrigeration piping under the OMSC rules must be able to show an inspector they are qualified to perform the work. The OMSC requires each person engaged in welding or brazing for the installation, alteration or repair of refrigeration piping systems of 2-inch nominal pipe size (NPS) or smaller, containing any of the refrigerant classifications listed in ASHRAE 34 or OMSC Table 1103.1, and piping systems larger than 2-inch NPS containing either A-1 or B-1 refrigerants, to attend an approved training class and be certified as qualified to perform the work.

Companies performing work spanning both the OMSC and the Boiler Code may qualify under the boiler licensing law and not be required to take the added OMSC training or obtain the additional certification. However, an approved in-house brazing procedure is required as an alternate to the OMSC requirement for a training class (OAR 918-440-0015). Those companies performing work regulated only by the OMSC may attend a class based on either Section IX, Welding and Brazing Qualifications of the ANSI/ASME Boiler and Pressure Vessel Code, or AWS B2.2, Standard for Brazing Procedure and Performance Qualification. As an alternate to attending the training class, they may develop an in-house AWS B2.2 brazing procedure. In these cases, the company or shop is responsible for training and certifying their employees, which requires them to develop and maintain a quality control program and a brazing procedure that is available upon request to the inspecting jurisdiction.

OREGON BOILER SPECIALTY CODE, OAR 918-225-0310 and 918-225-0430(5)

This Boiler Code adopts the ANSI/ASME B31.5 standard for piping systems fabricated of 2½-inch NPS or larger pipe, containing refrigerant chemicals other than those listed as A-1 or B-1 chemicals. To find out if the piping system is subject to the Boiler Law and Code, simply determine the pipe size and the classification of the refrigerant chemical using ASHRAE 34 or OMSC Table 1103.1.

The Boiler Law and Code apply to welded, brazed or mechanically assembled refrigeration piping systems and contain specific requirements for contractors and individual tradespersons. ANSI/ASME B31.5 requires a contractor to certify welding or brazing procedures used by their company in accordance with either of two national welding standards. The contractor may use either ANSI/ASME Section IX, Welding and Brazing Qualifications, or AWS B2.2, Standard for Brazing Procedure and Performance Qualification. Pre-qualified specifications for arc welding procedures may be purchased from AWS or, like brazing specifications, may be developed in-house by the contractor. The employer's qualified procedure is used to qualify the individual tradespersons.

The Boiler Specialty Code places responsibility for workmanship on the contractor, requiring only that the individual tradespersons be qualified and appropriately licensed. Please visit the Oregon boiler program web site at www.cbs.state.or.us/bcd/sws/boilerhome.htm for more information regarding boiler licensing.

Following are the Boiler Law requirements for refrigeration piping contractors:

- ✧ Registration with the Oregon Construction Contractors Board
- ✧ A current boiler business license from the Building Codes Division
- ✧ Either a National Board “R” Symbol Stamp, or a State of Oregon “O” Certificate of Authorization as a piping installer
- ✧ Licensing of individual tradesperson through the Boiler Safety Program
- ✧ A valid installation permit from the Division to perform the proposed work

Most piping contractors who have established welding procedures will have little difficulty in preparing and qualifying brazing procedures, as they are quite similar. Contractors who only occasionally perform piping work regulated by the Boiler Law may need some assistance in meeting the requirements of the referenced standards. The Boiler Safety Program is one of several organizations providing advice on how to meet the requirements.

BUILDING CODES DIVISION CERTIFICATION RULES, OAR 918-098-0900

Rules for certification of persons engaged in the inspection of refrigeration piping, as regulated by the OMSC, require certification as an A- or B-Level Mechanical Inspector, and successful completion of a Division-approved training program in welding and/or brazing standards. It is very important that the inspector have a basic understanding of the processes involved in piping system fabrication, assembly and support as well as an understanding of the applicable code requirements. Nationally certified boiler inspectors perform inspections of piping regulated by the boiler program. A mechanical permit and inspection by a State of Oregon Certified A- or B-Level Mechanical Inspector is also required for those refrigeration piping systems that are under purview of the Board of Boiler Rules.

For more information on Division-approved training courses or for further clarification concerning these new rules, contact Mike Ewert at (503) 373-7529 or Ray Andrus at (503) 373-1216.