

## CHAPTER 11

# REFRIGERATION

### SECTION 1101 GENERAL

**1101.1 Scope.** This chapter shall govern the design, installation, construction and repair of refrigeration systems that vaporize and liquefy a fluid during the refrigerating cycle. Refrigerant piping design and installation, including pressure vessels and pressure relief devices, shall conform to this code. Permanently installed refrigerant storage systems and other components shall be considered as part of the refrigeration system to which they are attached.

**1101.2 Factory-built equipment and appliances.** *Listed and labeled* self-contained, factory-built *equipment* and appliances shall be tested in accordance with UL 207, 412, 471 or 1995. Such *equipment* and appliances are deemed to meet the design, manufacture and factory test requirements of this code if installed in accordance with their listing and the manufacturer's installation instructions.

**1101.3 Protection.** Any portion of a refrigeration system that is subject to physical damage shall be protected in an *approved* manner.

**1101.4 Water connection.** Water supply and discharge connections associated with refrigeration systems shall be made in accordance with this code and the *International Plumbing Code*.

**1101.5 Fuel gas connection.** Fuel gas devices, *equipment* and appliances used with refrigeration systems shall be installed in accordance with the *International Fuel Gas Code*.

**1101.6 General.** Refrigeration systems shall comply with the requirements of this code and, except as modified by this code, ASHRAE 15. Ammonia-refrigerating systems shall comply with this code and, except as modified by this code, ASHRAE 15 and IIAR 2.

**1101.7 Maintenance.** Mechanical refrigeration systems shall be maintained in proper operating condition, free from accumulations of oil, dirt, waste, excessive corrosion, other debris and leaks.

**1101.8 Change in refrigerant type.** The type of refrigerant in refrigeration systems having a refrigerant circuit containing more than 220 pounds (99.8 kg) of Group A1 or 30 pounds (13.6 kg) of any other group refrigerant shall not be changed without prior notification to the code official and compliance with the applicable code provisions for the new refrigerant type.

[F] **1101.9 Refrigerant discharge.** Notification of refrigerant discharge shall be provided in accordance with the *International Fire Code*.

**1101.10 Locking access port caps.** Refrigerant circuit access ports located outdoors shall be fitted with locking-type tamper-resistant caps.

### SECTION 1102 SYSTEM REQUIREMENTS

**1102.1 General.** The system classification, allowable refrigerants, maximum quantity, enclosure requirements, location limitations, and field pressure test requirements shall be determined as follows:

1. Determine the refrigeration system's classification, in accordance with [Section 1103.3](#).
2. Determine the refrigerant classification in accordance with [Section 1103.1](#).
3. Determine the maximum allowable quantity of refrigerant in accordance with [Section 1104](#), based on type of refrigerant, system classification and *occupancy*.
4. Determine the system enclosure requirements in accordance with [Section 1104](#).
5. Refrigeration *equipment* and *appliance* location and installation shall be subject to the limitations of Chapter 3.
6. Nonfactory-tested, field-erected *equipment* and appliances shall be pressure tested in accordance with [Section 1108](#).

**1102.2 Refrigerants.** The refrigerant shall be that which the *equipment* or *appliance* was designed to utilize or converted to utilize. Refrigerants not identified in [Table 1103.1](#) shall be *approved* before use.

**1102.2.1 Mixing.** Refrigerants, including refrigerant blends, with different designations in ASHRAE 34 shall not be mixed in a system.

**Exception:** Addition of a second refrigerant is allowed where permitted by the *equipment* or *appliance* manufacturer to improve oil return at low temperatures. The refrigerant and amount added shall be in accordance with the manufacturer's instructions.

**1102.2.2 Purity.** Refrigerants used in refrigeration systems shall be new, recovered or *reclaimed refrigerants* in accordance with [Section 1102.2.2.1](#), [1102.2.2.2](#) or [1102.2.2.3](#). Where required by the *equipment* or *appliance* owner or the code official, the installer shall furnish a signed declaration that the refrigerant used meets the requirements of [Section 1102.2.2.1](#), [1102.2.2.2](#) or [1102.2.2.3](#).

**Exception:** The refrigerant used shall meet the purity specifications set by the manufacturer of the *equipment* or *appliance* in which such refrigerant is used where such specifications are different from that specified in [Sections 1102.2.2.1](#), [1102.2.2.2](#) and [1102.2.2.3](#).

**1102.2.2.1 New refrigerants.** Refrigerants shall be of a purity level specified by the *equipment* or *appliance* manufacturer.