Request from: Christopher Williams, Trane Technologies, 530 Knox Rd., Chapmansboro, TN 37035.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE Standard 15-2022, Sections 3.1 and 9.1, regarding evaporators less than or equal to 0.5 ft³ (0.014 m³).

Background: When AHJs are reviewing projects, they must determine whether or not a device meets the definition of a pressure vessel and is subject to the requirements of Section 9.3 Refrigerant-Containing Pressure Vessels.

To help the user understand what a pressure vessel is, ASHRAE Standard 15-2022, Section 3.1 Defined Terms states the following:

pressure vessel: any refrigerant-containing receptacle in a refrigerating system. This does not include evaporators where each separate evaporator section does not exceed 0.5 ft³ (0.014 m³) of refrigerant-containing volume, regardless of the maximum inside dimension. This also does not include evaporator coils, compressors, condenser coils, controls, headers, pumps, and piping.

The second sentence of this definition intentionally excludes “evaporators where each separate section does not exceed 0.5 ft³ (0.014 m³) of refrigerant-containing volume, regardless of the maximum inside dimension.”

Standard 15-2022 3.1 Defined Terms also states the following:

evaporator: that part of the refrigerating system designed to vaporize liquid refrigerant to produce refrigeration.

Examples of devices used to vaporize refrigerant for refrigeration include but are not limited to microchannel heat exchangers, fin tube evaporator coils, plate-type heat exchangers, and more.

Finally, Section 9.3 defines the requirements for refrigerant-containing pressure vessels:

9.3 Refrigerant-Containing Pressure Vessels
9.3.1 Inside Dimensions 6 in. (152 mm) or Less. These vessels have an inside diameter, width, height, or cross-sectional diagonal not exceeding 6 in. (152 mm), with no limitation on length of vessel.

9.3.1.1 Pressure vessels having inside dimensions of 6 in. (152 mm) or less shall be

a. listed either individually or as part of an assembly by a nationally recognized testing laboratory;
b. marked directly on the vessel or on a nameplate attached to the vessel with a “U” or “UM” symbol signifying compliance with ASME Boiler and Pressure Vessel Code, Section VIII; or

c. when requested by the authority having jurisdiction (AHJ), the manufacturer shall provide documentation to confirm that the vessel meets the design, fabrication, and testing requirements of ASME Boiler and Pressure Vessel Code, Section VIII.

Pressure vessels having inside dimensions of 6 in. (152 mm) or less shall be protected by either a pressure relief device or a fusible plug.

**Exception to 9.3.1.1:** Vessels having an internal or external design pressure of 15 psig (103.4 kPa gage) or less.

**9.3.1.2** If a pressure relief device is used to protect a pressure vessel having an inside dimension of 6 in. (152 mm) or less, the ultimate strength of the pressure vessel so protected shall be sufficient to withstand a pressure at least 3.0 times the design pressure.

**9.3.1.3** If a fusible plug is used to protect a pressure vessel having an inside diameter of 6 in. (152 mm) or less, the ultimate strength of the pressure vessel so protected shall be sufficient to withstand a pressure 2.5 times the saturation pressure of the refrigerant used at the temperature stamped on the fusible plug, or 2.5 times the critical pressure of the refrigerant used, whichever is less.

**9.3.2 Inside Dimensions Greater than 6 in. (152 mm).** Pressure vessels having an inside diameter exceeding 6 in. (152 mm) and having an internal or external design pressure greater than 15 psig (103.4 kPa gage) shall be directly marked, or marked on a nameplate, with a “U” or “UM” symbol signifying compliance with the rules of ASME Boiler and Pressure Vessel Code, Section VIII.

**9.3.3 Pressure Vessels for 15 psig (103.4 kPa gage) or Less.** Pressure vessels having an internal or external design pressure of 15 psig (103.4 kPa gage) or less shall have an ultimate strength to withstand at least 3.0 times the design pressure and shall be tested with a pneumatic test pressure no less than 1.25 times the design pressure or a hydrostatic test pressure no less than 1.50 times the design pressure.

**Interpretation:** If a plate-type heat exchanger vaporizes refrigerant for refrigeration purposes, it meets the definition of an evaporator. If this evaporator does not have a marking indicating compliance with a pressure vessel code (e.g., ASME BPVC) and does not exceed 0.5 ft³ (0.014 m³) of refrigerant-containing volume, regardless of piping connection size, it fails the definition of a pressure vessel. Therefore, “Section 9.3 Refrigerant-Containing Pressure Vessels” and its subsections do not apply.

**Question:** Is this Interpretation correct?

**Answer:** Yes