

**INTERPRETATION IC 15-1989-2 OF
ANSI/ASHRAE STANDARD 15-1989
SAFETY CODE FOR MECHANICAL REFRIGERATION**

August 23, 1990

Request from: Mr. Kevin J. Sulzberger, Chairman/CEO, Tui Industries, 1640 Miraloma Avenue, Placentia, CA 92670

References: This request refers to Standard 15-1989 definitions for piping, pressure vessel, evaporator, evaporator coil, condenser, and condenser coil. It also refers to paragraph 7.5.1 concerning strength of miscellaneous pressure containing parts and paragraph 9.4.1 concerning pressure vessel relief.

Background: Evaporator coils and condenser coils are components that are not specifically controlled by design or fabrication standards. The Underwriters Safety Standard¹, where applicable, requires a pressure test five times design pressure, and paragraph 7.5.1 in ASHRAE 15-1989, calls for an ultimate strength sufficient to withstand three times the design pressure. However, these safety specifications are not design specifications. What are the design specifications for these components? Evaporators that are defrosted by reverse cycle may be subjected to the highside pressure, which has become a safety issue as these coils can be subjected to hydraulic shock. Both evaporator coils and condenser coils in large systems can be valved off from the rest of the system which may subject them to hydrostatic expansion.

The headers or distributors on evaporator coils and condenser coils serve the purpose of either distributing or mixing (combining) the flow, and are not directly for the purpose of producing refrigeration or removing heat, which could class them under the definition of piping rather than as evaporators, condensers or pressure vessels. Nevertheless, some manufacturers have been requested to build their coils to ASME Boiler and Pressure Vessel Codes (BPVC).

Questions:

1. Can the headers or distributors, which form an integral attachment to evaporator coils and condenser coils but are separated from the evaporating or condensing functions, be considered part of the piping?
2. Is a relief valve required on evaporator or condenser coils with integral headers attached when the internal diameter of the headers are 6 inches or less?
3. If the headers for evaporator coils or condenser coils are manufactured under the rules of the ASME BPVC, Section VIII, Division 1 with either "U" or "UM" requirements, does this change the answer to question 2?

Answers: 1. Yes.
2. No, unless 9.1.2 applies.
3. No.

Comments: The headers and distributors on evaporator coils and condenser coils are part of the piping. Evaporator coils and condenser coils may be manufactured under the requirements of an approved nationally recognized laboratory, the ASME B31.5 Code² or under the ASME Boiler and Pressure Vessel Codes. While the ASME BPVC is not intended to apply to evaporator or condenser coils, it may be used for coil construction. Manufacturing coils with headers under the ASME BPVC does not change the fact that the headers are part of the piping.

¹ UL 207-86 Standard for Safety -- Refrigerant-Containing Components and Accessories, Non-electrical, Underwriters Laboratory, Northbrook, IL

² ANSI/ASME B31.5-1987 Pressure Code for Piping -- Refrigerant Piping, American Society of Mechanical Engineers, New York, NY