

**INTERPRETATION IC 15-1989-1 OF
ANSI/ASHRAE 15-1989
SAFETY CODE FOR MECHANICAL REFRIGERATION**

March 20, 1990

Request from: Mr. Art Fovargue, Senior Project Engineer, Dunham-Bush, 101 Burgess Road, Harrisonburg, VA 22801

Introduction: Dunham-Bush requested interpretation regarding Standard 15-1989 requirements for low-side pressure relief on packaged chillers, especially whether pressure relief is required when a shell-and-tube, direct-expansion heat exchanger is used on the low pressure side.

Standard 15-1989 provisions for relief valves on a direct expansion shell-and-tube evaporator are given in paragraphs 9.4.4, 9.1.1, 9.1.2 and 7.4.1.1; and in definitions of **piping, pressure vessel** and **evaporator**.

Question: Do direct expansion (DX) shell-and-tube evaporators require relief device protection on the tube side?

Answer: No.

Comments: The tubes form the evaporator and are excluded from the definitions of pressure vessels and piping. The refrigerant containing heads of direct expansion shell-and-tube evaporators can be considered part of the piping (even though covered by an ASME pressure vessel data sheet), and as such are subject to the provisions of paragraphs 7.4.1.1 and 9.1.2.

DX shell-and-tube evaporators with the refrigerant on the tube side, require heads for distributing the inlet flow and collecting or mixing the outlet flow. These heads may be bolted-flange construction or may be attached to the shell with patented clamps or welded or brazed connections. Since there is no refrigeration produced in the heads, the definitions of **evaporator, pressure vessel**, and **piping** suggest that the heads can be considered part of the piping. This interpretation is therefore independent of the inside diameter of the liquid-refrigerant containing head and the volume of the head, which would apply if the heads were classed as pressure vessels.