

**INTERPRETATION IC 15-1992-11 OF
SAFETY CODE FOR MECHANICAL REFRIGERATION**

January 28, 1994

Request from: David Guckelberger, Applications Engineer, The Trane Company, 3600 Pammel Creek Road, La Crosse, WI 54601-7599

References. This request refers to Standard 15-1992, specifically the type of sensor required by 11.13.2.1 for machinery rooms enclosing equipment using Group A1 refrigerants. This issue was first addressed in interpretation IC 15-1989-1 which was superseded when ASHRAE 15-1992 was published.

Background. Subsection 11.13.2.1 states in part:

"11.13.2.1 For Group A1 refrigerants, machinery rooms shall be equipped with an oxygen sensor to warn of oxygen levels below 19.5 volume percent since there is insufficient odor warning. . . ."

Mr. Guckelberger opines that, "An oxygen sensor set to alarm at 19.5 percent oxygen may allow a considerable amount of refrigerant to be lost from the refrigeration circuit before the alarm sounds. Using a refrigerant vapor detector in place of the oxygen sensor would provide equal or better safety protection for occupants of the equipment room, and may allow early detection of a leak. Early detection prevents the loss of refrigerant to the atmosphere and reduces the cost of refrigerant replacement."

Mr. Guckelberger's letter poses the following example case and question:

Example Case. Assume a machinery room designed in accordance with Section 11.13 Machinery Room General Requirements. The machinery room contains a refrigeration unit using a Group A1 refrigerant.

Question. Would use of a refrigerant vapor detector, installed according to Subsection 11.13.2.2 and located according to 11.13.2.2, be considered to comply with the requirements of 11.13.2.1?

Answer. No

Comment. We believe the requirement for an oxygen sensor in ASHRAE 15-1992, Subsection 11.13.2.1, is clear. The project committee has, however, proposed a change to the standard to delete reference to an oxygen sensor by substituting 8.13.2 of the First Public Review Draft of ASHRAE 15-1992R for the current wording in 11.13.2.1 and 11.13.2.2. Several comments on 8.13.2, both supportive and negative, resulted from the first public review of 15-1992R. In New Orleans, public review was approved for proposed 15a Addendum to ANSI/ASHRAE 15-1992. The following wording of the proposed addendum is worded slightly different but consistent with the proposed revision.

11.13.2.1 Each machinery room shall contain a detector, located in an area where refrigerant from a leak is likely to concentrate, and an alarm shall be employed. The alarm shall be actuated and the mechanical ventilation started in accordance with 11.13.4 at a value not greater than the corresponding refrigerant TLV-TWA (or toxicity measure consistent therewith).

Exception: For ammonia refer to 11.14(g).

11.13.2.2 Deliberately left blank. See 11.13.2.1.

(Editors note: TLV: Threshold Limit Value. TWA: Time Weighted Average)