



- INTERPRETATION: IIAR SC 2019-1
- SUBJECT: Evaporators with Surge Drums in Areas Other than a Machinery Room
- QUESTION 1: Are there any exclusions to the types of evaporator that can be located in areas other than a machinery room?
- ANSWER 1: No. However, this interpretation response is limited to evaporators in industrial occupancies, and is based on IIAR 2-2014, section 4.2.3, item 1.
- QUESTION 2: Given the definition of “Evaporator” in IIAR I-2017, is there any possible type of evaporator that is NOT used for refrigeration or dehumidification and cannot be used outside a machinery room?
- ANSWER 2: The Standards Committee cannot speculate on all possible evaporator or heat exchanger designs that may exist either now or in the future. However, low-side evaporators common to the industrial refrigeration industry are acceptable. These types include forced air (coil-and- fin), plate-and-frame, plate-and-shell, shell-and-tube, scraped surface, tube-in-tube, and jacketed tanks.
- QUESTION 3: Is any portion of an evaporator that does not completely enclose the space in which the refrigerant evaporates allowed in an industrial occupancy that is not a machinery room or the outdoors?
- ANSWER 3: Yes.
- QUESTION 4: Is a surge drum or other separation vessel into which liquid warmer than the saturated temperature in the vessel flows and is expected to have its excess heat (i.e. temperature above local saturation) absorbed by the refrigerant in the vessel via evaporation considered an evaporator, and therefore locatable inside an industrial occupancy that is neither a machinery room nor outdoors?



ANSWER 4: A surge drum (vessel) that is used for circulation and liquid/vapor separation of refrigerant in gravity-fed evaporators, and dedicated solely to the operation of the evaporators, is considered part of the total evaporator, and thus is permitted. The surge drum must not be used as a storage, distribution, or transfer vessel for other portions of the refrigeration system. Surge drums that are incorporated into evaporator designs must nonetheless be designed and maintained according to IIAR standards related to ASME and Non-ASME vessels.

QUESTION 5: Follow-up – Would such a separation vessel fed by liquid colder than the local saturation temperature not be considered an evaporator since the refrigerant in such a vessel is not intended to absorb heat from the incoming refrigerant?

ANSWER 5: No. The temperature of the make-up liquid feeding a surge drum has no bearing on the function of the surge drum and its consideration as part of the evaporator.

COMMITTEE ACTION: Clarify normative language in IIAR 2-2020.