

**INTERPRETATION IC 90.1-2010-19 OF
ANSI/ASHRAE/IES STANDARD 90.1-2010
Energy Standard for Buildings Except Low-Rise Residential Buildings**

Date Approved: October 18, 2013

Request from: Travis English (Travis.R.English@kp.org), Kaiser Permanente, 1800 Harrison Street, Oakland, CA 94612.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IES Standard 90.1-2010, Section 6.5.2 relating to simultaneous heating and cooling.

Background: Reheat systems, such as constant air-volume with zone reheat (CAV-R), are energy-wasteful. They may be the single most inefficient HVAC system type [1]. This is long recognized. And, reheat, as a design practice, is prohibited by the energy Standard ASHRAE Standard 90.1 (S90.1), Section 6.5.2 “*Simultaneous Heating and Cooling Limitation*”.

However, S90.1 grants some limited exceptions to the ban on reheat.

S90.1 grants a specific exemption in Section 6.5.2.1, Exception a.4, for “*The air flow rate required to comply with applicable codes or accreditation standards, such as pressure relationships or minimum air change rates.*”

For healthcare facilities, where ASHRAE Standard 170 (S170) has been adopted or adapted into jurisdictional regulation, Table 7-1 is the source of the “*minimum air change rates*” in those “*codes and accreditation standards*”.

As such, any space with a “*Total Air ACH*” value listed in S170 Table 7-1, column4, is exempt from S90.1 Section 6.5.2. Those zones may use reheat.

Please Note: A substantively similar RFI has been submitted to S90.1.

[1] – Doty SP. 2009. Simultaneous Heating and Cooling – the HVAC Blight. Energy Engineering, 106(2):42-74

Interpretation: Standard 90.1 asserts that each space with a “Total Air ACH” entry listed in ASHRAE Standard 170 Table 7-1 has been considered, and warrants an exception to the otherwise prohibited and energy-wasteful practice of simultaneous heating and cooling.

Question: Is this interpretation correct?

Answer: No.

Comments: The ASHRAE 90.1 committee did not separately evaluate each of the space types listed in Standard 170 to affirm that they warranted exception. Indeed there are many other current and future Standards like this that make it impossible for the ASHRAE 90.1 committee to separately consider each and every case.

It was and is presumed that ASHRAE/ ASHE Standard 170 had a good reason and that proper procedures were followed when setting specified minimum air change rates for certain areas of a healthcare facility that are much higher than necessary for adequate cooling. It is outside of our scope, via section 2.4, "...to circumvent other safety health or environmental requirements." We expect that occupant comfort could not be achieved without reheating this higher airflow, and did not wish to exempt healthcare facilities from the Standard in its entirety.

Reheat is limited to the airflow rate that is required to comply with code or accreditation standard, whether that code is derived from ASHRAE Standard 62.1 or ASHRAE/ASHE Standard 170, or some other standard.