
Name Nick Allen-Sandoz and Christina LaPerle

Email nickallensandoz@gmail.com, christinalaperle@gmail.com

Request for Official Interpretation

Thank you for your official interpretation request concerning 90.1-2007 through 90.1 2022

I. Section/Figure/Table Numbers (90.1 2022)

Section 12.5.2 HVAC Systems (a) Budget Building Systems Not Listed

Section 12.5.2 HVAC Systems (j) Determining the HVAC System

Figure 12.5.2 HVAC systems map

Table 12.5.2-1 Budget System Descriptions

HVAC System Definition

II. Background Information

This interpretation request applies to centralized 100% outdoor air systems that serve multiple thermal zones by delivering ventilation air to conditioned spaces either through dedicated outdoor-air ductwork or by supplying outdoor air directly to the terminal air-handling units serving those spaces. These centralized systems may precondition the outdoor air using an enthalpy wheel, sensible wheel, desiccant wheel, plate heat exchanger, heat pipes, other heat- or mass-transfer apparatus, and/or heating or cooling coils. Throughout this request, such a system is referred to as a dedicated outdoor air system (DOAS). A terminal air-handling system (e.g., fan-coil unit, variable refrigerant flow indoor unit, ductless mini-split heat pump in door unit, packaged terminal heat pump, etc.) provides the remaining space heating and cooling loads. This configuration will be referred to as DOAS+terminal-unit throughout this interpretation request.

A DOAS paired with terminal systems has historically been a relatively uncommon air-distribution strategy, though it is becoming more widespread. Its defining characteristic is that the centralized DOAS provides ventilation air, often preconditioned, while the terminal systems serving each thermal zone meet the zone's space-conditioning loads. However, when using the ECB Method in Chapter 12, it is unclear how the DOAS+terminal unit system maps to a budget building design. This is the key issue addressed by this interpretation.

Figure 12.5.2 and Table 12.5.2-1 have remained largely unchanged since their debut in ASHRAE Standard 90.1-2004. Since then, DOAS air distribution systems have gained market share relative to other systems.

An "official" interpretation is defined as a written explanation of the meaning of a specific provision of a standard or guideline, as determined by an existing cognizant Project Committee or an Interpretation Committee (IC), in response to a written request. See StdC Reference Manual 10.2 for requests not covered. No provision is included for responding to requests for interpretation of superseded standards or guidelines. See StdC Reference Manual 10.3.2 for a request for "unofficial" interpretation.

III. Interpretation

DOAS + terminal-unit systems fall under Section 12.5.2(a):

“Budget Building Systems Not Listed. Components and parameters not listed in Figure 12.5.2 and Table 12.5.2-1 or otherwise specifically addressed in this subsection shall be identical to those in the proposed design.”

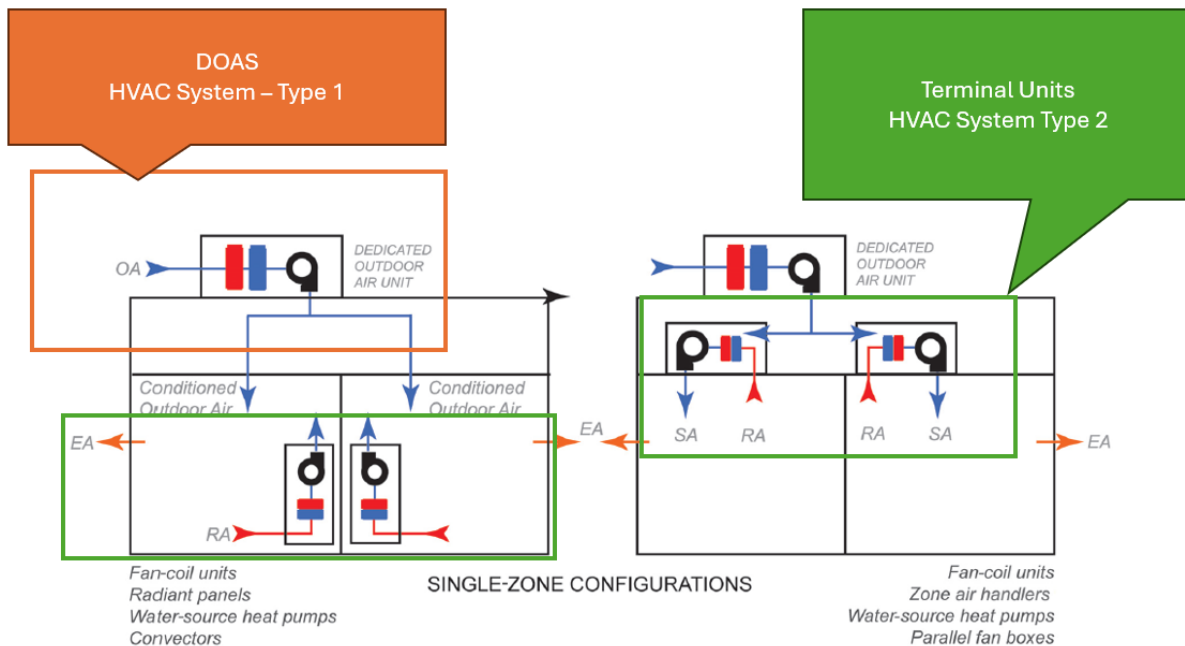
Exception: Where Sections 6.4 or 6.5 apply, the budget component efficiency shall be set to the lowest efficiency level allowed for that component type.”

Under this interpretation:

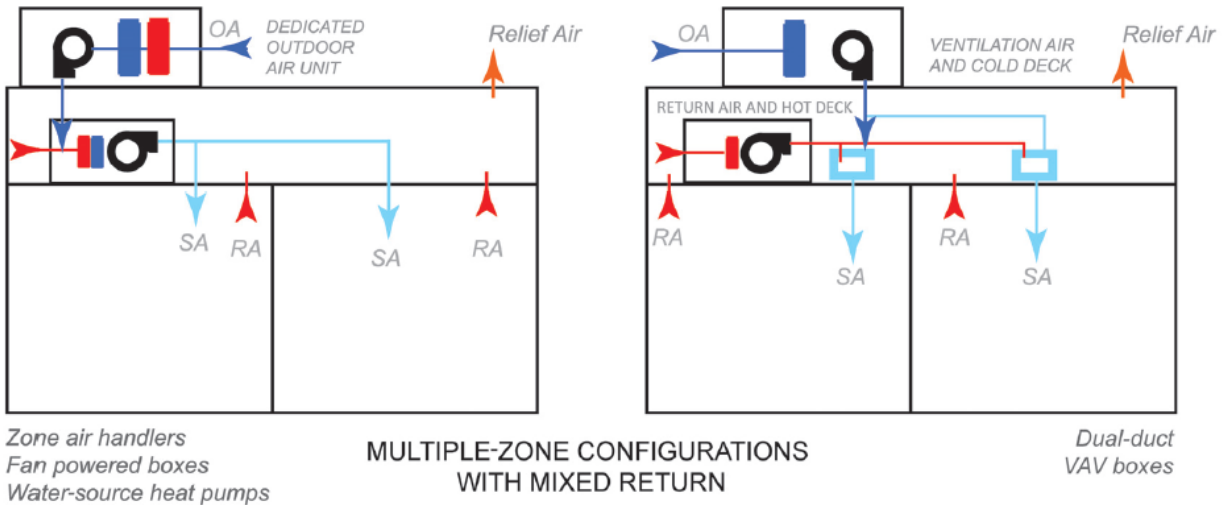
- The budget model uses the same system types as the proposed design.
- Equipment and component efficiencies are adjusted to the minimum mandatory and prescriptive levels in Sections 6.4 and 6.5.

IV. Supplementary information

The following are excerpts from the Advanced Energy Design Guideline by ASHRAE to illustrate the variety of potential DOAS plus terminal air handling system arrangements.



An “official” interpretation is defined as a written explanation of the meaning of a specific provision of a standard or guideline, as determined by an existing cognizant Project Committee or an Interpretation Committee (IC), in response to a written request. See StdC Reference Manual 10.2 for requests not covered. No provision is included for responding to requests for interpretation of superseded standards or guidelines. See StdC Reference Manual 10.3.2 for a request for “unofficial” interpretation.



V. Question: Is this interpretation correct?

VI. Answer:

The cognizant Project Committee or Interpretation Committee will provide a yes or no answer.

No

VII. Comments:

The cognizant Project Committee or Interpretation Committee may provide additional comments.

The DOAS falls under Section 12.5.2(a) but the non-DOAS system providing heating and cooling does not.

Section 12.5.2(a):

“Budget Building Systems Not Listed. Components and parameters not listed in Figure 12.5.2 and Table 12.5.2-1 or otherwise specifically addressed in this subsection shall be identical to those in the proposed design.

Exception: Where Sections 6.4 or 6.5 apply, the budget component efficiency shall be set to the lowest efficiency level allowed for that component type.”

Under this interpretation:

- The budget model shall have DOAS of the same type and configuration as the DOAS in the proposed design.
- DOAS equipment and component efficiencies are adjusted to the minimum mandatory and prescriptive levels in Sections 6.4 and 6.5.

An “official” interpretation is defined as a written explanation of the meaning of a specific provision of a standard or guideline, as determined by an existing cognizant Project Committee or an Interpretation Committee (IC), in response to a written request. See StdC Reference Manual 10.2 for requests not covered. No provision is included for responding to requests for interpretation of superseded standards or guidelines. See StdC Reference Manual 10.3.2 for a request for “unofficial” interpretation.

IC 90.1-2022-13

Approved on May 14, 2026

- The space conditioning equipment, other than the DOAS, serving zones that are also served by the DOAS shall be mapped using Section 12.5.2(j) and modeled following the requirements in Section 12.5.2.

An “official” interpretation is defined as a written explanation of the meaning of a specific provision of a standard or guideline, as determined by an existing cognizant Project Committee or an Interpretation Committee (IC), in response to a written request. See StdC Reference Manual 10.2 for requests not covered. No provision is included for responding to requests for interpretation of superseded standards or guidelines. See StdC Reference Manual 10.3.2 for a request for “unofficial” interpretation.