

**INTERPRETATION IC 90.1-2004-10 OF
ANSI/ASHRAE/IESNA STANDARD 90.1-2004
Energy Standard for Buildings Except Low-Rise Residential Buildings**

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Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IESNA Standard 90.1-2004, Section 11, Figure 11.3.2 and Table 11.3.2A, related to the Energy Cost Budget Method and determination of the Budget System Type for geothermal water to water heat pumps.

Background: Our office has several projects that are using geothermal heat pumps. These systems use water to water heat pumps. For energy code and cost payback purposes we have been asked to model these systems and compare them to the ASHRAE 90.1 Budget System Type. The projects are multizone, non-residential buildings. Using Figure 11.3.2 and Table 11.3.2A the Base System Type maps to be System 6 (Water Source heat pump with constant volume fans, DX with Electric heat pump and boiler). This does not seem to be a reasonable comparison to a geothermal water to water heat pump for a multizone non-residential building.

Interpretation: In order to provide a reasonable comparison to a geothermal water to water heat pump for a multizone, non-residential building we modeled System 2 (VAV with chilled water and boiler) as the budget system type. This system seems a more reasonable comparison as it accounts for plant efficiencies typical for a multizone non-residential system.

Question: Is this interpretation correct?

Answer: No

Comments: Figure 11.3.2 shows that a condenser source of water/ground which uses heat pumps will be modeled as System 6. It would be incorrect to model the budget system as System Type 2.