

**INTERPRETATION IC 90.1-2004-3 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 6.5.6.1 Exhaust Air Energy Recovery, specifically relating to Exception (i) to 6.5.6.1, ventilation air treatment for systems requiring dehumidification.

Background: Standard 90.1-2004, Section 6.5.6.1 requires the use of energy recovery from exhaust air to pre-treat ventilation air in systems larger than 5,000 cfm. However, Exception (i) to Section 6.5.6.1 exempts systems which require dehumidification from this requirement, provided that they use energy recovery in series with the cooling coil.

The attachment to this request describes a system which uses a desiccant component to boost the dehumidification capacity of a cooling coil. Similar to the more traditional system allowed under exception (i) this particular desiccant-assisted system uses recovered energy for desiccant reactivation, and all of that energy is recovered from within the system itself.

Although the system recovers energy internally, it does so in a manner less familiar to many designers than more traditional heat recovery methods, which leads to confusion as to whether such a desiccant-assisted cooling coil is allowed under exception (i). Ironically, this system actually uses much less energy on an annual basis than either the baseline system, or the other systems allowed by exception (i), as shown by calculations on the attachment.

We believe that exception (i) covers the desiccant-assisted system described on the attachment, and ask that the committee provide an interpretation which clarifies this issue.

Interpretation: Exception (i) to Section 6.5.6.1 allows the use of dehumidification devices for ventilation air streams, provided that the system requires dehumidification, and provided that the system uses energy recovery in series with the cooling coil.

A system which uses a desiccant-assisted cooling coil is also allowed under exception (i), provided that all of the energy it uses for desiccant reactivation is recovered from within that same system.

Question: Is this interpretation correct?

Answer:

Yes, your interpretation is correct and the desiccant wheel with regeneration obtained from site recovered heat which in your design is from the refrigeration condenser will meet the requirements of exception 6.5.6.1 (i). It should also be noted that there are other means for

recovering heat like the heat pipe system shown in your diagram as well as condenser heat rejection coils placed downstream from a conventional evaporator coil.

Comments:

This section of the code is currently being evaluated for other changes and we will discuss additional changes to help clarify the issues that you have raised.