

**INTERPRETATION IC 90.1-2007-17 OF  
ANSI/ASHRAE/IESNA STANDARD 90.1-2007  
Energy Standard for Buildings Except Low-Rise Residential Buildings**

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**Request from:** Bo Li ([boli@sterlingcooper.com](mailto:boli@sterlingcooper.com)), Sterling Cooper Consultants Inc., 608-1166 Alberni Street, Vancouver, B.C. V6E 3Z3.

**Reference:** This request for interpretation refers to the requirements presented in ANSI/ASHRAE/IESNA Standard 90.1-2007, Sections G1.2, G3.1.1 and G3.1.2.10, regarding the modeling of HRV in Baseline HVAC Systems.

**Background:** The project that brought about this interpretation request is a mixed use school building which is proposed to have a water to air heat pump system serving 16,000 square feet of classrooms at ground floor, and an in-floor radiant heating system serving the 33,000 square feet three-story student dormitories on top of classrooms. The classroom portion is proposed to be ventilated through a HRV make-up air handling unit (around 5,600 cfm @ 100% OA). The outside air is ducted to the return plenum of the water to air heat pump located in each individual zone. ASHRAE/IESNA 90.1-2007 Section G3.1.2.10 states: "Individual fan systems that have both a design supply air capacity of 5000 cfm or greater and have a minimum outdoor air supply of 70% or greater of the design supply air quantity shall have an energy recovery system with at least 50% recovery effectiveness." Also, ASHRAE/IESNA 90.1-2007 Section G3.1.1 states: "...For systems 1, 2, 3, and 4, each thermal block shall be modeled with its own HVAC system..." Furthermore, the User's Manual at Page G-2 states: "...In the baseline building design, which is a variant of the proposed building, all mandatory and prescriptive requirements of the Standard are applied. In other words, the baseline building represents the building as if it were upgraded or downgraded to exactly comply with the Standard."

Our baseline for the school portion is assumed to be System 3- PSZ-AC in Table G3.1.1.A.

**Interpretation:** Since the mandatory and prescriptive requirements are applied to the baseline HVAC system selected based on the building type and the heating fuel, the statement of 5,000 cfm and 70% outside air in Section G3.1.2.10 shall have the same interpretation as the clause-6.5.6.1 Exhaust Air Energy Recovery in Section 6 of the standard. That means IN THE PROPOSED DESIGN (not from baseline system), if there is individual fan systems with both 5,000 cfm or greater and 70% or greater of the design supply air, the baseline HVAC system shall have the corresponding HRV no matter whether each individual fan systems in baseline has less than 5,000 cfm and 70% or smaller of baseline design supply air.

**Question:** Is this interpretation correct?

**Answer:** No. Inclusion of heat recovery in the proposed building has no bearing on its inclusion on the baseline building. Only the baseline building systems meeting the requirements of Section G3.1.2.10 shall include heat recovery.