

# **Actual effectiveness of energy/heat recovery ventilators in buildings: how is it influenced by key design factors and testing results (airflow, airflow ratio, unit exhaust air transfer ratio)?**

Tetsutoshi Kan, Ph.D., Center for Better Living  
Satoru Mineno, M. Eng., AE-Solutions Inc.  
Takao Sawachi, Dr. Eng., Building Research Institute

## **ABSTRACT**

To fully utilize the energy-saving potential of energy/heat recovery ventilators, it is critical to consider not only the characteristics of products to be adopted but also the appropriate design of the airflow rate of outdoor air and exhaust air through the energy/heat recovery ventilators. The mechanisms of the variation of the energy recovery effectiveness will be described on the basis of test results according to relevant international standards for testing. In addition, an example of energy use calculation for energy/heat recovery ventilators with different design conditions will be introduced to show how the design conditions are influential on the energy use by HVAC systems.

## **KEYWORDS**

Energy recovery ventilator, Recovery effectiveness, Airflow ratio, Unit exhaust air transfer ratio