

Forum 15, Chicago, 1/24/06

What are the Barriers to Using Air-to-Air Energy Recovery for Sustainable HVAC Systems?

Approximately 50 attendees came to the forum, including a good mix of TC members and non-members. There was good participation throughout the forum. 25 evaluations were received and were universally positive; ratings were good to excellent.

The introduction mentioned the TC's desire to have the guidance of the members to inform our activities and pave the way for progress and a greater application of the technology in the interest of increasing the sustainability of systems and buildings. It also mentioned ASHRAE's desire to lead and the role of AAERVE as low-hanging fruit and mainstream technology in the pursuit of AAERVE.

A rollup of the raw notes from the forum follows:

- Design challenges – how to retrofit into an existing system where there is no original provision for AAERVE. A school example was given. Challenged by code changes for ventilation and increasing energy costs.
- ? are we blowing smoke? How can we confirm savings? Savings versus costs?
- Are there weaknesses in the models for simulating energy use and savings of AAERVE? DOE 2.2 and Energy Plus do model AAERVE.
- ? relationship between effectiveness and CFM?
- This leads to complexity of control and modeling with VAV and variable outside air.
- ? on whether the models handle unbalanced flow impacts.
- 90.1 requirements and LEED / Energy Design Guide? / Where is AAERVE in the Advanced Energy Design Guide?
- Apparently related to this comments were made to a DOD meeting to the effect that AAERVE is
 - Too expensive
 - Adds maintenance
 - Has problems
- A specific request was made that the TC respond to what was characterized as prejudicial comments by a representative of ASHRAE
- Engineers do not trust the technology and do not downsize.
- Recommendation to ensure that the next Advanced Energy Design Guides specifically include AAERVE. The 50% small office design guide and the retail guide and the schools guide.
- Tech transfer is a huge need. Progress needs to be promoted.
- Engineers who are using the technology were not aware of the existence of the ASHRAE 84 standard, ARI 1060, ARI Guideline V or ARI Guideline W
- There is a need for a 5.5 White Paper

- Need long term success stories to make engineers more comfortable; need operational data for technology “in-service”
- There is ignorance of the technology at the level of the field installation engineers
- Discussion of the 50% effectiveness requirement in 90.1. This was clarified by several attendees.
- ? what are the added maintenance costs?
- Need for fan data to do design and energy modeling.
- What are the problems you see?
 - Frosting
 - Lack of maintenance
 - Operator education is lacking
 - Sizing of the device and of the heating and cooling plant
 - Installer education
 - Code barriers
- Hospital applications?
- Success stories
 - Intellectual
 - Gut
 - Ask the supply chain for case studies
 - Seminar
 - Journal article
 - Review past programs and articles for summary of successful applications
- John’s Hopkins study and cross contamination concern, 3 angstrom controversy