



The Interdependency of Envelope and Ventilation in Healthy Buildings

How mechanical ventilation practice in colder climates can act as a canary in a coal mine.

The more efficient we make buildings, the more the fate of the indoor air quality is inextricably linked to the ventilation strategy. In order to limit and avoid health issues related to moisture and condensation, we must learn how ventilation schemes interact with the other components of the building's thermal envelope.

Code compartmentalization results in disjointed goals

Current North American codes address buildings and services by their individual components, instead of as integrated, complex systems. In insulated, airtight buildings, however, these silos are inevitably interdependent.

Ventilation strategies weigh in favor of energy over IAQ

The substantial use of intermittent operating ventilation systems in cold climate zones (to protect the ventilation units from frost), leaves the actual delivery of indoor air quality by these appliances in real buildings poorly documented.

More data monitoring of IAQ needed

To supplement standard laboratory testing, recorded data from ventilation systems installed in occupied buildings is helpful in demonstrating performance and resilience of a system under typical as well as extreme conditions.

Changes suggested to equipment testing conditions and practices

More relevant data regarding heat recovery should be acquired by testing units at intermediate temperatures and ventilation rates.

Our current building market values a gadget driven culture, where more attention is given to easily measurable concepts such as energy balances, renewable energy sources, smart meters, and IoT. The challenge is remembering that buildings are for people, and the indoor environment should reflect that.

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