

DOCKETED

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Description:	Comment from Mike Moore, Newport Ventures regarding Multifamily IAQ. Referenced slide from the 6-6-17 Pre-rulemaking workshop is included with the comment.
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From: Mike Moore [<mailto:mmoore@newportventures.net>]
Sent: Thursday, June 08, 2017 5:50 AM
To: Miller, Jeff@Energy; Goebes, Marian
Cc: Bozorgchami, Payam@Energy; Alatorre, Mark@Energy
Subject: Re: Minnesota code requirements

Hi Jeff,

I once lived in a small, multifamily dwelling unit that had exhaust-only ventilation. In the winter, when I took a shower, I'd get condensation on the front door, leading to mold growth. When I ran my bathroom exhaust fan to get rid of the humidity from the shower, I'd get exposed to environmental tobacco smoke from my neighbor's unit. I could have pressurized the unit, but that wouldn't have solved my condensation problem, and would have shifted odors to my neighbor.

What I learned from this experience is that balanced is a far superior solution to unbalanced in multifamily. Studies like the one by [SWA/Building America](#) have shown that unbalanced ventilation exacerbates transfer air, even with trickle vents. I'm in favor of whatever measures California can take to encourage balanced ventilation in multifamily over unbalanced. I agree with the approach of ensuring that unbalanced systems meet some acceptable level of performance with respect to minimizing transfer air driven by the ventilation system and maximizing the outdoor air delivery.

There are two primary options for this verification. The first is compartmentalization to some minimum level (0.1 cfm/sqft at 50 Pa is recommended based on the SWA study, which found that even at this tightness, significant transfer air still occurred); the second is verification of flow through the passive inlets/outlets during operation of the unbalanced dwelling unit ventilation system. Of course, unless a dwelling unit is perfectly compartmentalized, this verification of flow rates at the passive inlet/outlets would require oversizing the unbalanced DUV system, resulting in excessive fan and conditioning energy use and potentially comfort problems - not a good solution. To avoid this outcome, the best solution would be to require balanced dwelling unit ventilation across all MF dwelling units. If we must have an interim solution that's not as aggressive as a balanced requirement, perhaps the second best solution would be to require a minimum compartmentalization of 0.1 cfm/sqft at 50 Pascals for unbalanced units and to require verification of the dwelling unit ventilation system in accordance with ASHRAE 62.2 (but not require confirmation of the flow rate at the passive inlets/outlets at this time to avoid the oversizing of the unbalanced systems). As the industry improves its ability to reliably compartmentalize units, this target leakage rate should decrease when an unbalanced dwelling unit ventilation system is specified.

Thanks again for the opportunity to comment,

Mike

Mike Moore, P.E.

NEWPORT VENTURES

303.408.7015



Multifamily Ventilation Systems and Compartmentalization Verification

Proposed Requirements for all Multifamily Dwellings

Compliance with either Option A or Option B is required for compliance with the dwelling-unit ventilation airflow rate requirement in section 4 of ASHRAE 62.2-2016 (with CA Amendments).

- **Option A:** Allow use of unbalanced ventilation systems (e.g. exhaust-only or supply-only) with passive make-up/relief air vents only if HERS blower door test verifies the dwelling unit envelope leakage is less than $0.30 \text{ cfm}_{50}/\text{ft}^2$ of dwelling envelope area according to ASHRAE 62.2-2016 Section 6.1.1.
- **Option B:**
 - Require use of a balanced ventilation system (e.g. dwelling HRV, ERV or paired standalone supply and standalone exhaust, or balanced MF building central system).
- Additional guidance for best practices to assist with improved compartmentalization sealing will be provided in the Residential Compliance Manual.