



Combination Heat Pump Washer Dryers in Multifamily Buildings

Webinar – July 30, 2025

nbi new buildings institute

1



This webinar was developed in partnership with the LEARN Program.

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2

Combination Heat Pump Washer Dryers in Multifamily Buildings

In today's webinar we'll discuss

- Combination clothes washers and heat pump dryers
- What needs to be known about this relatively new appliance in the American market
- How this technology is impacting multifamily building design

3

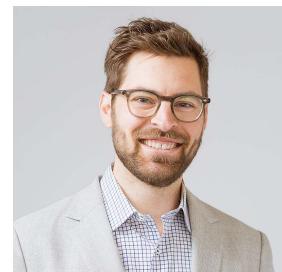
Today's Panelists



Chris Naber
GE Appliances



Steve Kemp
RDH Building
Science



Anders Meyer
Ethos Development

4

Moderator



Susan Harris
New Buildings Institute



5



6

Washer/Dryer Combo Options

Condenser Washer/Dryer Combo



- Compact 24" wide
- 2.4cuft capacity
- Water condenser
- Variable dry cycle length: dependent on environmental conditions (incoming water temp)

Heat Pump Washer/Dryer Combo



- Full size 28" wide
- 4.8cuft capacity (2x)
- Heat Pump condenser
- Consistent performance

7

The Owner's/User's Advantage

Unmatched Convenience:



- In-unit laundry is a top-tier amenity
- Eliminates the need to transfer wet clothes or used a shared laundry facility
- Launder clothes any time of the day

Lower Utility Bills & a Greener Footprint:



- Heat pump technology uses 50% less energy for drying = lower more predictable expenses for residents
- Gentler on clothes, extending their lifespan

A Modern, High-Tech Amenity:



- Positions the property as a premium, modern place to live.
- Gets better with time (connected software updates)

8

The Developer's Advantage

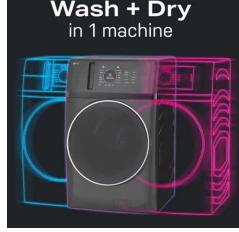
Simplified Construction, Compounded Savings:



Easy Installation
Plugs into standard 120v outlet and no need for a dryer exhaust vent.

- No dryer vent required
- Standard 120v 15amp electrical
- Improved building performance with tighter building envelope

Design Flexibility & Maximized ROI:



Wash + Dry in 1 machine

- $\frac{1}{2}$ the footprint. Add laundry to smaller spaces
- Free up space in every unit which converts to rentable/sellable space

Energy Efficient



- Dry cycle is 50% more energy efficient than traditional electric dryers
- Appeals to a growing market of environmentally conscious renters/buyers

9

Common Questions

Does the take longer to do my laundry?



2 hrs Complete Cycle
No load transfer

- Wash + Dry in under 2 hours
- On average, traditional laundry remains in a washer for 2 hours before being moved to the dryer.
- Lower temperature =gentler on clothes

Is it suitable for a family?



- Yes! We have some owners who run an average of 3 cycles per day.
- Laundry behavior (time of day) is shifting. Cycles are now run at all times of the day because no load transfer is required.

Reliability & Maintenance?

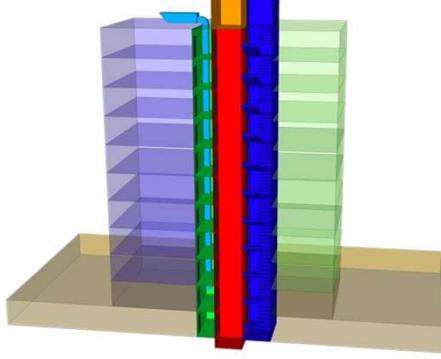


- Heat pump technology is mature and well proven.
- Maintenance is different than traditional laundry but not difficult.

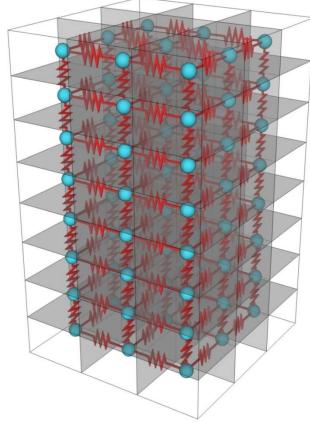
10

Heat Pump Dryer

How they enable compartmentalization and other benefits



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RDH BUILDING SCIENCE

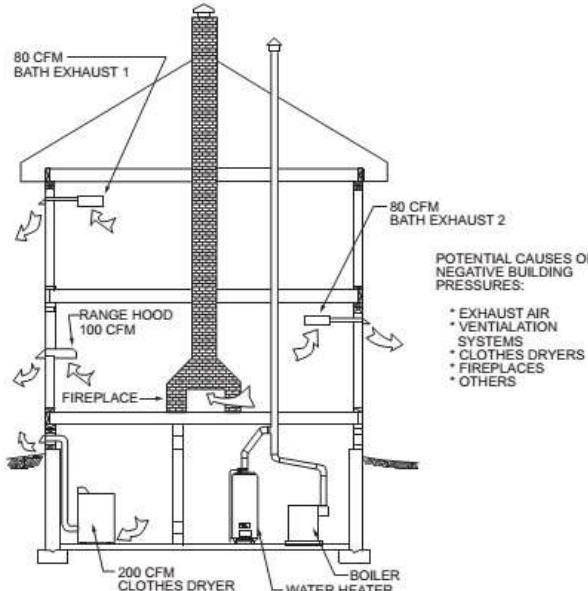
11

Vented dryer use a lot of energy and can cause air quality problems

Vented dryers in single family homes create a negative pressure in your home.

This negative pressure draws air, typically from outside. This air must be heated and cooled, using energy from your furnace and A/C.

In multi-family buildings, the make-up air comes from outside and/or your neighbors! **Their air quality become your problem!**



- EXHAUST AIR
- VENTILATION SYSTEMS
- CLOTHES DRYERS
- FIREPLACES
- OTHERS

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12

Buildings are becoming more airtight!

This is a good thing!

Airtight building reduce energy consumption and can improve air quality.

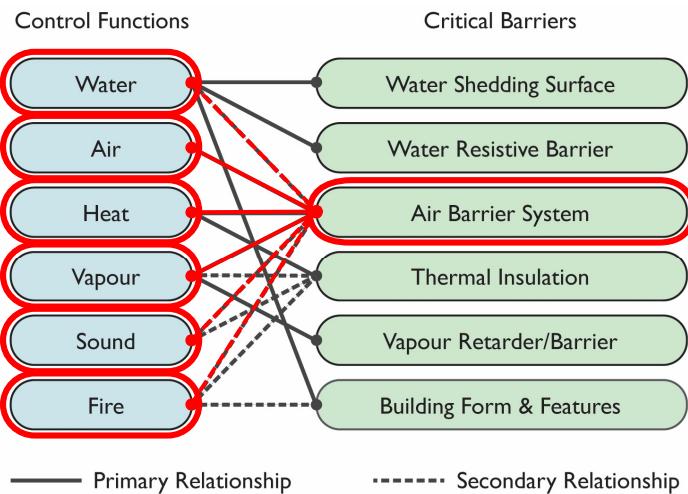
Continuous air barriers are a part of building codes.

Mechanical ventilation ensures air quality.

Mandatory air leakage testing required in more jurisdictions.

In residential applications, whole building air tightness AND dwelling unit compartmentalization (the dwelling unit is "air tight") are desired.

Where does the replacement or "make-up" air come from when the building is airtight?



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| 13

13

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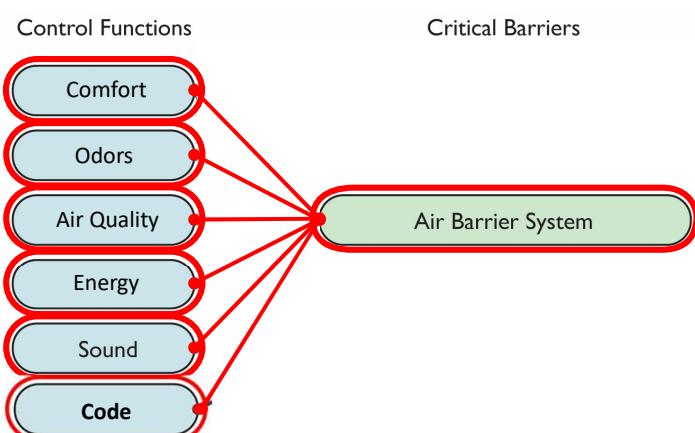
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| 14

14

Tall building technical challenge

Why compartmentalization?

Buildings experience air pressure from both wind and cold outdoor temperatures.

Stack Effect

Cold outdoor temperatures want to pushes from the bottom of the building to the top.

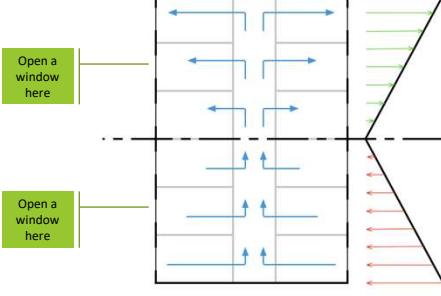
Wind Effect

Wind pushes air from upwind to downwind side of the building.

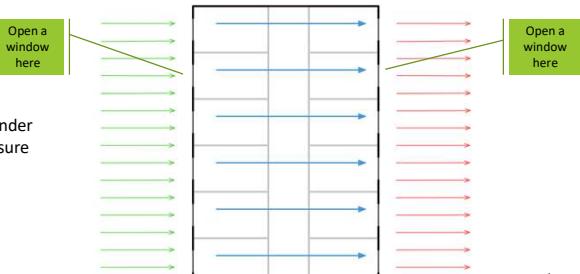
The results...

- I can smell what my neighbors are cooling and smoking!
- Vented dryers draw air from the hallway and your neighbours

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Building under cold weather stack effect



Building under wind pressure

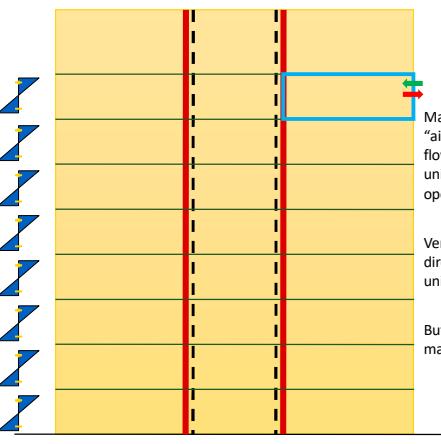
| 15

15

Compartmentalization



Tall building with operable windows....
Designed and built 1929-1931



Make each dwelling unit "airtight" to minimize air flow between dwelling units when windows are opened.

Ventilation is provided directly to each dwelling unit.

But where does the make-up air come from?

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| 16

16

Compartmentalization is now required in Ventilation Standard ASHRAE 62

62.1-2016 (and later version) and later no longer address dwelling units in multi-family buildings, it refers to 62.2-2016 (and later versions) which says:

4.1 Ventilation Rate. A mechanical exhaust system, supply system, or combination thereof shall be installed to operate for each dwelling unit to provide continuous dwelling-unit ventilation with outdoor air at a rate not less than specified in Section 4.1.1.

6.1 Adjacent Spaces and Transfer Air. Measures shall be taken to minimize air movement across envelope components to dwelling units from adjacent spaces such as garages, unconditioned crawlspaces, unconditioned attics, and other dwelling units. Pressure boundary wall, ceiling, and floor penetrations shall be sealed, as shall any vertical chases adjacent to dwelling units. Doors between dwelling units and common hallways shall be gasketed or made substantially airtight.

Supply and balanced ventilation systems shall be designed and constructed to provide ventilation air directly from the outdoors.

17

Testing vented and non-vented dryers for IAQ Impact

If the dwelling unit is compartmentalized and “airtight”, where does a vented dryer get its make-up air from?

Make-up air measurements:

Some additional make-up air from the mechanical ventilation and some from your neighbors and the common corridor (airtight is never ‘perfect’).

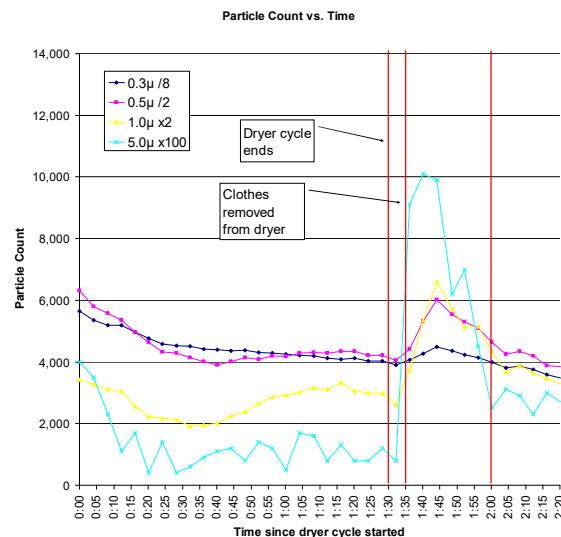
Vented dryers draw air from your neighbors and the corridor

However, some potential to “starve” dryer of air if dwelling unit is very airtight.

Other measurements:

Less than half the energy consumption of vented electric dryers.

No significant detrimental impact on measured air quality due to non-vented dryer operation.



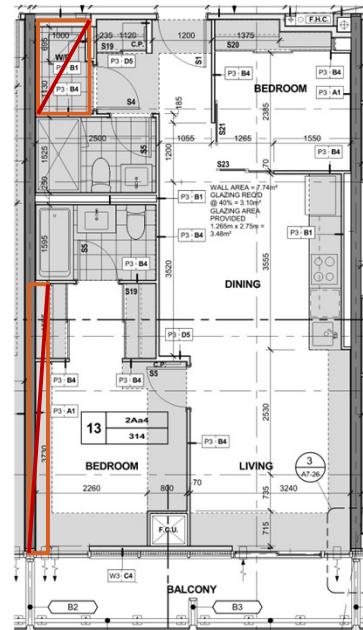
18

Additional Benefits of Non-venting dryers in Buildings

- Removal of:
 - Bulkheads for accommodate dryer exhaust duct
 - Ceiling lint filter, occupant don't know this needs regular cleaning and become a fire hazard!
 - Through the wall exhaust vent
- No longer depressurizes dwelling unit, drawing in air from neighbors
- Any air drawn from outside needs to be heated/cooled
- Less energy consumption for space conditioning and for drying clothes

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MORAINE

[Case Study](#)

- 160-unit apartment; Tacoma, WA
- 2024 Co-Star Impact Award Winner
- Sustainability focused investment partner
- Reduced duct runs, mechanical complexity, and maintenance
- Reduced facade penetration and air exchange
- Future design considerations for efficient units





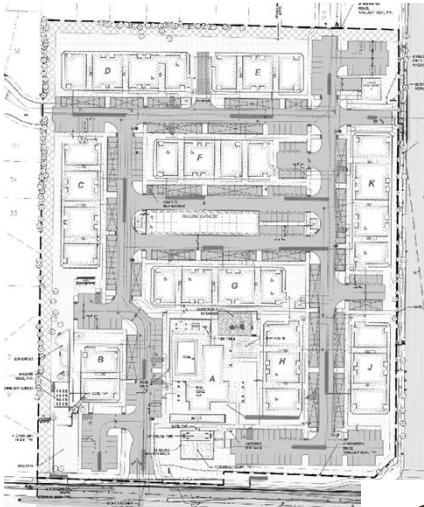
21





ELLISON RIDGE

- All-in-one provided solution for ADA units



- HP-Dryers were best budget outcome to meet WA energy code



22

Questions?

Thank you for your interest and
joining us today!

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