

HIGH-PERFORMANCE HVAC CAN REDUCE ENERGY USE IN COMMERCIAL BUILDINGS BY AN AVERAGE OF 36%

ADVANCES IN HVAC IMPROVE INDOOR AIR QUALITY AND REDUCE ENERGY USE

Dedicated outside air systems (DOAS) separate heating and cooling from the ventilation system to allow for optimal control of each of these critical building functions. Building on the DOAS concept, a very high efficiency DOAS includes heat recovery ventilation and focuses on increased equipment efficiency and optimized system design. This approach has been proven to yield significant energy and cost savings in new and existing commercial buildings while providing better indoor air quality and improved occupant comfort.

PROVEN SAVINGS POTENTIAL IN THE PACIFIC NORTHWEST

In partnership with local utilities and energy efficiency programs, BetterBricks conducted a pilot of very high efficiency DOAS conversions in eight small-to-medium commercial buildings to validate energy savings assumptions and gain a better understanding of the design and installation process. Participants of the pilot saw an average 70% reduction of their actual HVAC energy use and a 42% reduction in actual whole-building energy use. Even if these pilot buildings had started with standard code-minimum equipment prior to the conversion, modeling still shows significant average energy savings of 65% for HVAC and 36% for the entire building.



SYSTEM BENEFITS

- **Substantially lowers energy use in commercial buildings**

- **Improves indoor air quality by using filtered 100% outside air**

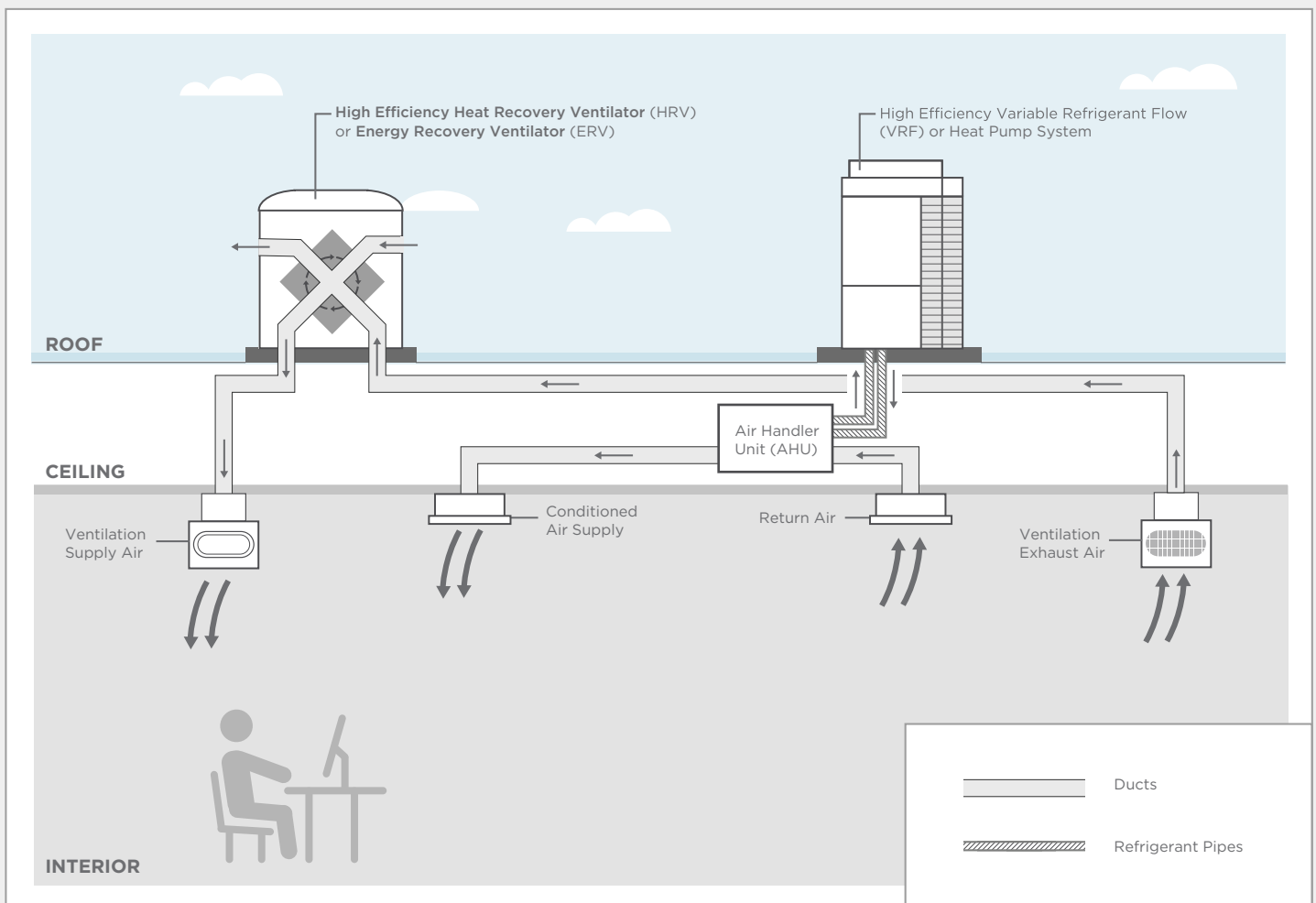
- **Increases occupant comfort**

- **Saves roof space through system downsizing and reduced ductwork**

- **Meets 2017 Washington code requirements for new construction or retrofit HVAC installations, which require DOAS**

HOW IT WORKS

The illustration below demonstrates how the components of this system, installed on the roof of a commercial building, work together to maintain fresh air and consistent temperatures. In the winter, the HRV pre-heats incoming supply air by recovering heat from the outgoing exhaust air. In the summer, the HRV pre-cools incoming supply air by rejecting heat to the outgoing exhaust air. This process eliminates or significantly reduces the need for post-conditioning of the ventilation air. This system approach allows for downsizing of the heating and cooling system and decreased run-time, resulting in a smaller heating and cooling system that consumes less energy and reduces energy cost.



Note: This drawing is for quick-reference only and does not represent the sizing or depth of the system or frame for all manufacturers' products. Please check with manufacturer for exact measurements and specifications.



To learn more about efficient commercial HVAC solutions, visit BetterBricks at betterbricks.com/solutions/hvac.