



How it works. An ERV (enthalpy recovery ventilator) transfers moisture as well as heat. Instead of a metal or polypropylene panel dividing the two chambers of the heat exchanger, an ERV uses a fabric akin to Gore-Tex that allows vapor to pass through, but not air, gasses, or bulk moisture. The Zehnder unit in the ProHOME has proprietary 3-in.-inside-diameter tubes that can fit inside 2x4 interior walls. The inside of the tubes are smooth for unrestricted airflow. At right, Tim Biebel runs the first of the three ducts through the TJIs.



HIGH-PERFORMANCE ERV

In a house targeting 1.0 ACH50, mechanical ventilation is necessary. And the ventilation system's efficiency is important both to help the house reach net zero and to keep occupants comfortable. Because the ventilation system is always running in the background, it has to use very little electricity and the system should be efficient at transferring energy between incoming and outgoing airstreams.

The Zehnder ComfoAir 350 ERV satisfies both of these needs. The unit transfers heat from the hot airstream to the cold airstream in its heat exchanger, tempering incoming fresh air. In winter it warms incoming cool air, and in summer it cools incoming hot air. The Zehnder's ability to do this so

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efficiently means greater comfort for people in the house and less load on the minisplit system. The fresh, tempered air is supplied to the bedrooms and great room and the exhaust registers are located in the bathrooms and kitchen, constantly moving air through the house at a low volume. The Zehnder ComfoAir system is sized to handle the ventilation needs of the house when running at less than 50% capacity so that the rate can be increased—say when people are showering or cooking—to quickly evacuate stale, humid air.

Because an ERV transfers moisture as well as heat, it will reduce the humidity of incoming air during the air-conditioning season, and will also help retain moisture in

the house during the winter. This is an important comfort consideration in homes aimed at empty nesters, because one or two people won't generate the same humidity levels as an active family.

Although the Zehnder ERV components are installed early in the build while the walls are still open, the system won't be ready for operation until it's commissioned. Once the house is complete and ready for occupancy, it's important to verify the flow rates at each register with a flow hood. By turning the center of the Zehnder registers, airflow can be increased or decreased to the target amount, and the system balanced.



ELEVATING THE STANDARD

Titebond

The ProHOME won't meet its lofty airtightness and performance targets without careful air-sealing. And air-sealing requires a selection of caulks and sealants to bridge gaps at penetrations and seams. The ProHOME uses Titebond caulks, sealants, and glues. Titebond's X-treme Foam is used to seal and insulate gaps in the subslab insulation and around windows and doors, and in other framing intersections where air can leak through. There are three formulations of X-Treme Foam canned spray foam and all have a role to play in the house: the Multi-purpose formulation is used on the subslab insulation and at framing intersections, the low-expanding Window & Door formulation is used in those locations so that jambs aren't bowed by expanding foam, and the Fireblock formulation is used where required by code.



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