

Indoor Air Quality

You can live 21 days without food, seven days without water, but only a few minutes without air. Every day we take 21,600 breaths; that's nearly 8 million breaths of air a year. By weight, we take in more air than food: 4,500 times our own weight in an average lifetime.

On average, we spend 90% of our lives indoors, and approximately $\frac{2}{3}$ of that time is spent at home. Today's health-conscious consumers will pay a premium for healthy, natural foods, but often give less thought to indoor air quality or the overall healthiness of their homes.

However, homebuyers are increasingly concerned about the Indoor Air Quality (IAQ) of their homes. Pollutants like mold, radon, carbon monoxide and toxic chemicals are receiving greater attention than ever as poor IAQ is linked to a multitude of health issues. Some pollutants cause health problems such as sore eyes, burning in the nose and throat, headaches or fatigue. Other pollutants cause or worsen allergies, respiratory illnesses, heart disease, cancer, and other severe long-term health issues. At high concentrations, pollutants such as carbon monoxide, can be fatal.

Given how important air is to life, let's examine perhaps the most important attribute of Unity Homes, and properly built high-performance homes in general, which is how they can help you breathe easier and live healthier.

Air Pohoda's Ultima 240E i-ERV uses an Enthalpy heat exchange core



To start, only low VOC (Volatile Organic Compounds) materials and finishes are used in the construction of Unity's highly-insulated, tightly-sealed, energy-efficient homes, resulting in exceptional levels of indoor air quality. Because of their extraordinary air-tightness, the indoor air is continuously replenished with fresh and conditioned air, reducing the energy losses that typically come from whole house ventilation. This is accomplished by the use of a standard Heat Recovery Ventilator (HRV) or optional Energy Recovery Ventilator (ERV) with adjustable humidification and dehumidification controls.

Regardless of which ventilation system is chosen, Unity homes come standard with air-source heat pumps (for heating and cooling). When properly installed, an air-source heat pump can deliver one-and-a-half to three times more heat energy to a home than the electrical energy it consumes, according to the U.S. Department of

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Energy. This technology loses less humidity in the winter than with forced hot air/furnace systems that scorch the air at high temperature—driving off its moisture, often making it necessary to incorporate a humidifier into the heating system. Finally through filtration, allergens and other pollutants can be removed, making indoor air considerably healthier than outside air.

Why build tight houses that require sophisticated ventilation systems, you ask? There are many myths held by the public (and by many builders as well) surrounding the false notion that houses need to breathe. This bogus theory holds that houses can be too tight and that air leakage or “natural ventilation” dries everything out and keeps the air quality healthy. But as [Green Building Advisor.com](http://GreenBuildingAdvisor.com) points out, “...air leaks mean you’ve lost control of air movement...air and moisture can be forced into wall and ceiling cavities where water vapor condenses and fosters the growth of mold.”

Additionally, according to Green Building Advisor.com:

“Warm air exiting the top of the house can draw in cold air to replace it, wasting heat and energy. In many ways, uncontrolled air movement wastes energy and increases the risk of long-term damage to building components. Effective air and moisture barriers reduce those problems, but they come with a few caveats: Tight houses need mechanical ventilation to ensure a supply of fresh air to keep people healthy.”

And while we’re on the subject, what exactly is “fresh air?” Most would assume outside air is fresh air, but whether you live in the city or the country, outdoor air carries pollutants in the form of gasses, droplets, and particles. This includes pollution from cars, trucks, airplanes, industry, tractors plowing fields, wood and crop fires, ground level ozone, and allergens like pollen. Indoor air, too, can contain a host of pollutants from combustion sources like stoves and furnaces, to high VOC building materials and furnishings, to household cleaning products and radon, to name a few. All of these pollution sources can cause health problems if not mitigated through green building practices and sophisticated air handling technology.

Unity Homes, and other high-performance homes, help you breathe easier and live healthier by using only green materials and finishes, by sealing out unwanted moisture, dirt, dust, insects and allergens that can lead to health problems and costly repairs, as well as by conditioning and filtering incoming air. At the same time, Unity’s well insulated and tight building envelope reduces overall heating and cooling costs, and adds comfort by eliminating drafts and temperature variations.



A Better Way to Build

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Moreover, while a Unity Home conditions your indoor air, its low-waste, precision off-site fabrication and super-efficient energy performance thereafter works to lower its impact on the outside air—which we all share—as well.

Read more about what steps to take both to reduce the risk from existing sources of indoor air pollution and how to prevent new problems from occurring in EPA's [*"Care For Your Air: A Guide to Indoor Air Quality."*](#)

*Source: <http://minkukel.com/visualize-it/every-breath-you-take/>