



Chicago can be greener Here's what you can do

John Porterfield is co-founder of Informed Energy Decisions LLC, a Chicago consulting firm that helps developers, builders and homeowners improve the energy performance of buildings. For 30 years, Mr. Porterfield has been trying to convince people of the financial and environmental benefits of energy efficiency. It's been an uphill battle, even for Mr. Porterfield, 60, who helped develop the Chicago Energy Conservation Code. But global warming and rising energy prices are changing that, and Mr. Porterfield is optimistic that his message is finally getting through.



Losing steam: The average house loses 10% of its heat because developers aren't following the building code and sealing ductwork properly, John Porterfield says.

Photo: John R. Boehm

CRAIN'S: Why don't energy efficiency techniques flourish in Chicago, given the city's extremes in temperature and the energy required to cope with them?

MR. PORTERFIELD: One of the obstacles to high-energy performance is many people believe they are getting state-of-the-art equipment and performance by virtue of the fact that their building is new and built to code. That's not always the case. Half of the new construction we see has what I would call a substantial deficiency, either in its planning or its execution. Some of it is due to lack of compliance to code. Some of it is just bad construction practices.

What defects are you seeing?

The most frequent is a problem with airtightness, which is a function of some new designs in construction. These designs are more expressive, almost sculptural. With that, we're seeing lots of hidden pathways that create openings for air to pass. There's a lot of leakage. We also see a lack of compliance with air duct design and sizing. We have a requirement in the energy code to seal ductwork, because the average house loses 10% of its heat that way. But we don't have thorough enforcement of that code.

How much energy is lost due to such defects?

The energy loss can be quite significant. A study by the Florida Solar Energy Center, a state-supported energy research organization, found gaps in ductwork accounted for 10% of heat and 15% of air conditioning loss, as well as 20% of peak demand on average. The figures would be around the same here. If local buildings were built properly, I estimate there'd be a 20% reduction in energy use. Often, by the time the mistake in design or construction is realized, it is extremely costly to fix.

Why is this happening?

The primary reason is builders don't have a reason to comply with code. Buyers don't demand it. Ideally, the first question from a buyer would be, "Does this comply with Energy Star (the U.S. Environmental Protection Agency's rating system for energy efficiency)?" If not, the buyer would spin on his or her heels and find the next house that does. Forty-three percent of new homes built in Nevada in 2005 were Energy Star-rated. Less than 3% of new homes in Illinois were, yet we have more to benefit from complying with Energy Star than any other state.

Why don't buyers know this?

Good information is not widely available. Energy efficiency tips are often put together by people who are not familiar with building science. They try to simplify things. You can't blame them; they're trying to help. They tend to focus on things like windows and doors and say nothing about indirect energy loss, which is actually easier to fix. The greatest heat loss in residential and commercial real estate is from air leakage through faulty insulation and ductwork. Even though it accounts for 33% of the energy loss, people aren't aware of it, because it is invisible. They tend to focus on areas where they feel a draft.

Sarah A. Klein