

Passive House: Stories from experience (Part 3)

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The Construction Institute's November article highlighted two inspirational leaders in the passive house design world: Laura Nettleton and Steve Bluestone. In December, we learned more about Steve's experience building his own passive house in upstate New York. Now, we continue with Laura's story which illustrates the power of healthy indoor air quality:

"One of the things we've been looking at in passive house is air quality. I became interested in air quality when I did my first LEED project. I did it for a group of sisters whose average age was 77, and there were 75 of them. They had 'out-aged' their space. They had a gang bathroom that was 100 feet down the hall. At age 77, when you get up three times in the middle of the night, that was causing problems with sleep so they decided that they needed to refurbish their mother house. Long story short, after they moved in, their nurse came up to me and said, 'What did you do to this building?' And I said, 'What do you mean?' And she said, 'Well, it's flu season and I usually have at least a dozen sisters who are hospitalized this time of year and I have none! I know it's something with the building.' And I said to myself maybe we got lucky with flu season—it didn't really dawn on me that it was the building. It was LEED, so we had done several things. We had lowered the amounts of volatile organic compounds, we'd added ventilation air which they never had before, and I think this was probably the most impactful, we introduced them to green cleaning protocols. We totally changed the way they cleaned the facility. The second year came around and they said the same thing happened—there was no hospitalization for flu season. At that point I became kind of intrigued and I sent around a questionnaire. I said, 'Has your pulmonary health improved since you moved into the facility?' The response was amazing! 'I've gone from 3 inhalers to 1'. 'I used to sleep in my chair sitting up because I couldn't lie down, I had so much fluid in my lungs. Now I can lie down in my bed.' These anecdotes were overwhelming! They were pointing to the fact that we'd actually impacted the health and quality of life of the sisters through the choices we made in the building. That was a big light bulb moment for me and a big light bulb moment for air quality.

I have no great affinity for building science or insulation or air tightness. I got into architecture for the beauty of it, to protect places and make beautiful places. So I'm an unlikely champion for passive house, but I see it as an opportunity. I don't think that architects understand the value that they can suddenly offer their clients. I put sensors in some of my passive house projects. We can pull the interface up on our cell phones and track data. When you're looking at the benefits of passive house, you really want to be able to prove them to the owner. You can prove the energy just through the energy usage on the bills and the bottom line, but you can prove the air quality through these monitoring devices that are very simple, elegant to use and cost effective. Owners can look at how their buildings are performing and feel confident about the results.

My big frustration with passive house is that it hasn't been more rapidly adopted. It's not as if passive house is the only thing you can do in buildings, but it is the most effective thing you can do to save energy in buildings. And it's not that hard."

The Construction Institute thanks Laura Nettleton and James Geppner for bringing the Passive House experience to life.

Laura Nettleton is a licensed architect with over 30 years' experience in development, sustainable design and community engagement. Her firm, Thoughtful Balance, is dedicated to people-focused resilient design. James Geppner is the founder and executive director at Erase40, an organization that uses behavioral science to speed the adoption of climate safe buildings.

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