

10 lessons for building a green house



Wendy Koch's green home uses passive solar design to maximize solar gain and well-insulated walls and windows to minimize energy needs. It will also have recycled materials, Energy Star appliances, CFL/LED light fixtures, dual-flush toilets, low-flow faucets, xeriscaping and a cistern for reusing water. "We have seven sofas," my husband, Alex, said nearly two years ago during spring cleaning. He sounded unnerved.

"Seven sofas? No, we don't," I said dismissively, sitting at the breakfast table eating Kashi GoLean cereal and reading the newspaper.

He counted each one: the bedroom loveseat, the futon in the exercise room, the two in the living room, the one in the family room, the two in the play room.

"Seven sofas," I repeated, stunned. How did our life get so big? How did I, who grew up in a thrifty, blue-collar family wearing hand-me-down clothes until my three older sisters stopped growing, end up with so much stuff?

Our contemporary, though six-bedroom, home in the upscale Washington suburb of McLean, Va., never seemed extravagant, or stuffed. For good reason.

At 4,500 square feet — not to mention the 500 square feet of unfinished storage space and a two-car garage — it was nearly twice the size of an average U.S. home, three times the size of the home in which we had started our family. It was so big that seven sofas didn't crowd it, nor did the six TVs, exercise equipment or the arcade-sized air hockey table.

So began the journey to our green home, now only semi-complete. We expect to get our building permit and break ground early next month.

Our quixotic quest to right-size our life and reduce our carbon footprint has had more gut-wrenching twists and turns than San Francisco's Lombard Street. It could have been smoother, had we known then what we know now, and it could have been cheaper, had we taken a simpler road.

We've learned the hard way about the "Wild West" of green building — a frontier of pricey "eco-consultants," fraudulent claims and more than 100 certification programs, some with mind-numbing rules. At times, the details have been overwhelming. The red tape, frustrating. The costs, alarming.

Our biggest concern in up-ending our life was the impact on our daughters: Mary, then 11, and Grace, 7. They loved the big house. They had good friends and excellent public schools. I felt guilty about moving them, but figured if we made a change, we should do it before Mary entered middle school. We told them we wanted a greener life, that it was important to become stewards of nature. We also offered them a dog.

We set a plan. We'd build an ultra-efficient right-sized home, or renovate an existing one, in a walkable community with top schools. But first, we'd need to sell our BAH (Alex's shorthand for "big-ass house"). We made last-minute upgrades and tidied it to near perfection. Shortly after we listed it in September 2008, the economy collapsed.

Ten lessons I've learned that may help others considering a green home:

1. Don't do what we did.

Obviously, selling a house in a horrific market is not a capital idea. I also wouldn't recommend building a custom green-certified home unless you have time, money and patience.

Building green is not necessarily more expensive, but doing it on a budget requires thorough research and planning. Since Alex and I both work full time, the project has made our lives crazy-busy, especially mine, since I've taken the lead role.

Unless you plan to sell the home quickly, and thus want marketing cachet, I wouldn't recommend getting it certified by the U.S. Green Building Council (USGBC). I'm writing about the process and learning a lot, so it's worthwhile for me. But it's likely to add \$10,000.

2. Consider your goals.

If you want a greener home, look at retrofitting rather than building new. That's probably more eco-friendly, because you're not tearing down a house. (We're disassembling, piece by piece, the old rambler that stood on the lot we bought in Falls Church, Va. We'll salvage whatever possible.)

You can save a lot of energy and water with simple, low-cost changes: programmable thermostats, low-flow shower/faucet fixtures, dual-flush toilets, compact fluorescent or LED lighting.

You can get tax credits for bigger fixes such as Energy Star appliances, high-performance windows, efficient furnaces, solar panels, geothermal heat pumps and windmills.

If you're not happy with your home's layout, consider reshaping it rather than expanding it. Sarah Susanka's Not So Big House books offer great tips for making smaller spaces live large.

"Perhaps surprisingly, we'll save almost as much energy as we would have with geothermal by switching from double-pane Jeld-Wen windows to super-efficient SeriousWindows, which have an insulating film."

3. Look at production and pre-fab homes.

If you're still intent on a new home, there's good news. An increasing number of major builders such as Pulte and KB Homes are offering eco-friendly houses at competitive prices, many of which carry the U.S. Energy Star efficiency label and some even a USGBC certification.

Their models can offer good value without the hassle of building a totally custom house.

There's also a widening array of attractive factory-built or pre-fab green homes, from the chic LivingHomes to more affordable BluHomes and Clayton Homes.

4. Buy a flat, sunny lot in a walkable neighborhood.

Building green isn't just about efficiency and recycled materials. It's also walkability. If you're close to stores and public transportation, you can drive less. Before buying a lot, check its rating on walkscore.com.

Our property is rated as a "walker's paradise," because it's within blocks of a library, farmers market, community center, shops, restaurants and bike trail.

It is, alas, shady, so solar panels won't make sense, and it's sloped, so pre-fab options became too problematic.

5. Hire architects you like and builders who know green.

Want a distinctive house, one that stands out from the crowd? Then spend the money and hire an architect. Good design, which can obviate the need for bigger spaces, is worth the cost.

Ralph Cunningham and colleague Michael Day of Cunningham/Quill Architects were the first architects I interviewed. I liked them right away. Alex was impressed with their work and wanted to hire them.

As much as it pains me to admit, my husband was right. I didn't think we could afford the D.C.-based firm, so I interviewed other architects and picked one who worked 50 miles away and had green building experience. After three months, he turned in a lackluster design. We fired him and hired Ralph's creative team.

Liking your architect is vital, because you spend a lot of time with him or her. My project's main architect, Heather Daley, has been incredibly patient, calming me when snafus occur.

We also made the mistake of initially working with a builder who was enthusiastic but hadn't yet built a green home. After six months, we switched to Arjay West of West Properties, who leads a local green building group of the National Association of Home Builders.

6. Be prepared for change.

If you build a seriously green house, and you're hip-deep in the process, you'll change.

I've always been eco-minded (my Depression-era dad made us take short, military-type showers), but I've shifted into high gear. We now buy only recycled toilet paper and no longer use paper plates or bottled water (except Propel for Mary's soccer games). We eat less meat, the production of which is carbon-intensive, and lower our rental home's thermostat to 65 degrees in winter. We recycle almost everything, and I haven't bought anything new, aside from groceries and one book, in four months.

Using cloth bags for shopping, I admit to looking askance at people stuffing food into disposable plastic bags. Our girls also have become eco-conscious. In second grade, Grace said she liked a boy because he was "smart, kind, and cared about the environment."

The epitome came a couple of months ago at 11 p.m., after I finished blogging about a new \$6,000 home windmill. "I really want it!" I told Alex, as he finished brushing his teeth. "We could go net zero!" I gushed, meaning our house could produce as much energy as it uses.

He was too tired to discuss the matter but suggested I look at our utility bills in the morning to see how much money — and power — a windmill could really save.

7. Not all green makes sense.

Turns out, as Alex surmised, the windmill wasn't a cost-effective idea. Given our area's wind speed and our utility's relatively low price per kilowatt, the windmill probably would never have paid for itself, or even produced much electricity.

I was more disappointed to find that geothermal heat pumps didn't make economic sense. I got three bids, two for about \$70,000 and a hybrid version for \$50,000. Since we're building a tight envelope (exterior), our energy modeling showed geothermal would save us only a few hundred dollars a year at current rates.

If our house were bigger, less efficient and had higher electric rates, geothermal might have been worthwhile. Instead, we'll use a high-efficiency gas furnace.

Perhaps surprisingly, we'll save almost as much energy as we would have with geothermal by switching from double-pane Jeld-Wen windows to super-efficient Serious Windows, which have an insulating film.

So our green home, modeled to earn top ratings, won't have any chic green features such as solar panels, windmills or geothermal heat pumps.

8. Think passive.

New to the USA, but common in Germany, are "passive" homes that need almost no energy, because they are so well insulated. They use mechanical ventilation to

circulate air and avoid sick-building syndrome. If we were just starting, I'd want a completely passive home. We're making ours as passive as possible.

9. Be ready for delays and cost overruns.

We naively thought we'd be in our new house by now. We were told getting permits would take four to six weeks, but after three months, we're still waiting. Also, we budgeted what seemed like a hefty amount, \$600,000, for design and construction. The final cost could run one-third higher. Building in the Washington area is expensive, even in a weak economy.

Our house is likely to cost less than \$200 per square foot, not bad for custom in this area. We've focused our pennies on energy efficiency rather than high-end finishes. We plan, for example, to use Ikea kitchen cabinetry.

We'll have 2,500 square feet of living space, plus a screened-in porch and, since we'll have no garage, 350 square feet in the basement for storage and exercise/mechanical equipment. Our lot slopes downward, so the basement's walk-out part will have an 1,100-square-foot in-law suite.

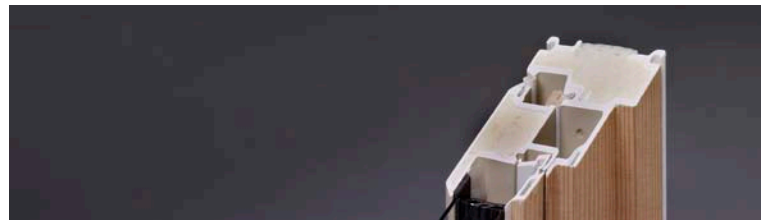
10. Life goes on.

When we started down this road, Grace was a little girl sounding out words in Dr. Seuss' *Cat in the Hat*. Now she reads Harry Potter and likes to discuss Greek mythology.

Mary is now taller than I am, stronger and much faster. When she became a teenager in October, I grew wistful. Life has been moving so fast that I want to savor every moment. I took a deep breath and smiled as she blew out her 13 candles.

I never doubt our decision to right-size our life. But sometimes, as the project gets bogged down, I question our decision to build a custom home. In those moments, I pull out the sketches and picture myself sipping tea at the breakfast bar and writing in my cozy, light-filled office. Would we do it again? Time will tell.

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