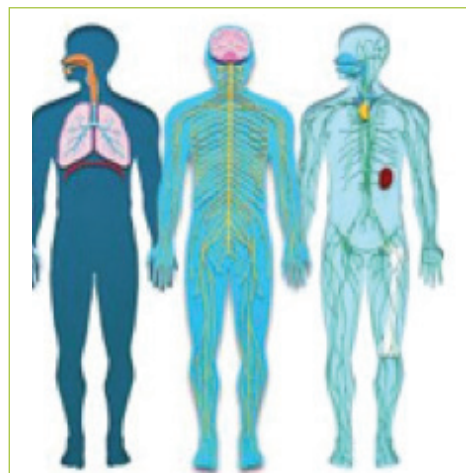




Thinking Green?

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Then Think Differently.



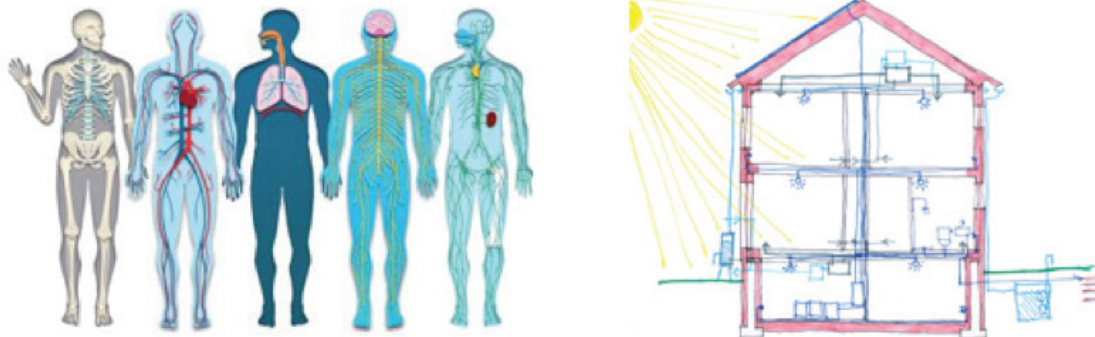
**Elizabeth DiSalvo, AIA, Principal**  
*Trillium Architects*

**D**uring Earth Month, all of us think of going ‘green,’ but when building green it also means thinking differently, and designing differently.

When we think about green building, we think first about innovation. Being innovative requires setting our priorities differently than when we used to do ‘normal’ construction. Since every home we design is now ‘green,’ our thinking is always focused on a few different and key priorities:

### **We look at the entire project holistically.**

We like to think of a building like a body. The systems in your body all work together. None of them can function individually and the health of one will greatly affect the condition of the other. If your lungs are in poor health, the rest of the body will be stressed and have to work harder. The same is true of a house. All of the systems work together, and you can’t sacrifice one without injuring the others.



**1. The framing** of the house is like the skeleton. We frame differently for strength and endurance.

**2. The envelope** of the house (the insulation, siding and roof) is like the skin of your body. It protects, warms, keeps weather out and keeps your most important possessions in. If you are having skin trouble it is generally the sign of some underlying disease. The same is true of your house. If you are getting leaks or mold or rot — you know there is a problem within. Our houses don't have those problems because we start from within and build holistically to ensure a lifetime of clear skin!

**3. The electrical system** is like your brain and nervous system. Constant communication and low energy use make the system perform optimally and alert you instantly to any other system failures. We use the most cutting-edge tools as 'nootropics' for your house!

**4. The HVAC system** is like your lungs. Using the most up-to-date, efficient technologies for tons of fresh air supply and temperature modulation is like biohacking your respiratory system to result in peak physical performance!

**5. The plumbing** is like your alimentary tract. Seamless supply of healthy water in, and effortless systems to get waste out — with no leaks and no clogs — causes the least stress on the other systems, like a well-oiled machine.

**6. The heart?** The circulatory system? I think it's the people. The people who live in the house complete the package. Without its heart, the house ceases to operate.

## We look at the impact a building will have on the earth and the community

I have a vision of some day every single house on this beautiful planet being its own off-the-grid biosphere. It wouldn't have a dome or anything, but it would be self-sufficient!



Imagine your own home on its own plot of land needing nothing from its neighbors or from the town, city or state to operate. If the national grid goes down — you don't even notice. If it does not rain for a while, you have full water collection tanks. You have zero dependence on fossil fuels. All waste is taken care of on site, and you might even grow your own food.

Sound like a lot of work? Not at all. With our current technologies and the way we (green architects and builders) build, we are all but there. And, if you want, a house like this could look like a 'normal house' of today and have all of the modern conveniences – only better!

- 1.** We build super-insulated buildings that need very little heating and cooling to maintain temperature. The better you insulate and air seal your home, the smaller your HVAC system needs to be and the less fuel you will need to heat or cool. (And when you use less fuel, it almost doesn't matter what type of fuel you use...but we like renewables!)
- 2.** We use 100% electric systems (in the form of Heat Pumps) for the heating and cooling, ventilation and domestic water use. Why? Because the renewable energy sources we use will eventually BE the electric grid. Someday—in the hopefully not too distant future—all electricity will be supplied by solar, hydropower, wind, or hydrogen. We are slowly getting there but the pressure is on. If we want to stave off the climate emergency, we have to move NOW. Having every house we build ready for renewables is part of that prep.
- 3.** Even if you run out of power to heat and cool your house, our houses are so well insulated that it takes days for them to attain outside temperatures. And a heat source like a fire box will have the house toasty in moments. (Our clients have to be careful because it's easy to overheat such a well-insulated home!)
- 4.** We use all LED lights, low energy use equipment and fixtures, and Energy Star appliances.
- 5.** Most of our houses get PV solar arrays in the form of panels or roof top shingles (or they will get them in the near future.) Many of our clients also get batteries, and we are all waiting for the new Lithium-Ion and Lithium-Sulfur batteries that are coming.



**6.** We collect water and reuse it for irrigating the landscaping. In theory we could use it for household use, but it is expensive to create the water filtration and duplicate plumbing systems required. However, all captured water is kept on site in underground storage tanks that could be used in emergency situations. Also, most of our houses have their own well and don't need to depend on water from the utility. In an emergency, a well sill works as long as the pump still has power (thank you solar panels and battery back up!)

**7.** We focus on keeping your house from 'hurting' your neighbor's property. No water runoff, no pesticides, no fossil fuel burning pollutants, low maintenance materials that limit the use of chemical cleaners and paints that can seep into the ground, and super- insulated walls and windows keep your noise in and the neighbor's noise out.

**8.** We keep your house from stressing the grid. More houses and modern technology mean that the draw load on the national grid is becoming an issue. If each house doesn't need the grid, that problem disappears. The same holds true of sewage and water treatment. If your house takes care of these things itself, the weight on the local infrastructure is greatly reduced.



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## **We Innovate constantly to find the best ways to solve the same old problems**

Trillium Architects is a firm solely dedicated to sustainable design and building. After 18 years we have honed our craft and have never stopped honing it. Our firm has dedicated itself to finding new ways to advance building science, and every house we design involves a new advancement that we are excited to try out. Some of our recent innovations include:

- An innovation on the 'slab-less slab' foundation in which we use no concrete slab whatsoever under our house. We use a combination of insulation boards and vapor barrier and floating floors that have zero need for a slab. This saves yards and yards of concrete.
- No foam houses. We are currently building a house in Westchester that will involve zero spray foam and an incredibly small amount of recycled (reused) EPS foam in the form of Insulated Concrete Forms. The rest of the insulation comes in the form of recycled glass 'gravel' as the high insulation crawlspace floor and cellulose insulation in extra thick walls and roof. We expect this to be our lowest carbon footprint house to-date.
- We developed super creative details to tackle the problems of air sealing the thermal envelope in existing houses for Deep Energy Retrofits.
- We started phasing out all spray foams years ago. There are still places we find it very hard not to use foams, but we have reduced our spray foam use by approximately 90% in the last 8 years.
- We outlawed Vinyl use in our house designs 15 years ago.

We do not have to build things the way everyone else does. We determine the goal, see what materials are locally available and also sustainable, and then we 'Get Creative' and make something out of that. That's what our ancestors did before we had global shipping and modern technology. And guess what? It was super sustainable!

Walking backwards into the future, is a Māori proverb and one of my favorites. It means looking back to the way things used to be done to inform the future.



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## Building Green means thinking differently.

At Trillium, we look at the idea of building with materials that are local and natural. (Like the slow food movement, we try to use plant-based and locally grown). We try to avoid plastics and foams and we absolutely avoid all toxins, formaldehydes and overly processed materials.

We build to suit the local climate. We look at the land, the wind, the sun, rain fall and temperature norms and then we think about the form of the house. We orient the house to work with this understanding.

Modern technologies integrated with the building wisdom of the past help us achieve the perfect solution. Modern living, functional spaces, a house that works seamlessly with the environment, and protects and shelters in low maintenance ways. All the while providing beautiful spaces that embrace us in modern comforts, quiet and ease.

We love our job, and we love designing cutting-edge houses for people that allow them to live in worry-free comfort, health and beauty while saving thousands of dollars a year in operations and maintenance.

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Please contact us with any questions – or to start discussing your new home.



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