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Achieving the Benefits of Custom Green House Plans

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Few decisions in life are bigger than deciding to build a new house, not least of which is whether to go with stock house plans or an original custom home design. Besides the flexibility custom green home designs offer to make a unique home that meets your needs and desires, they also open up the possibility for incorporating many features that will make your new house environmentally friendly. This can save homeowners money as well as greatly reduce any negative impact on planet Earth.

Environmental and Financial Impacts of Homeownership

There are many factors that influence your happiness with your home, with energy consumption being one of the biggest on people's minds. According to the US Environmental Protection Agency (EPA), the typical single family household spends about \$2,200 each year on energy costs. Nearly one-third of that (29%) goes to heating, while 17% goes to cooling. Heating water accounts for another 14%. Another 13% goes to appliances while 12% goes to lighting. Electronics account for another 4% while the remaining 11% goes to a variety of miscellaneous uses.^[i] Whether its electricity, oil, natural gas or propane, custom green home plans can cut these costs substantially, not to mention reduce serious environmental impacts.

Beyond the energy consumption, home's also gobble up a lot of water. The EPA's water stats reveal that the average family of four in the US consumes upwards of 400 gallons of water per day, with 70% of the being used indoors for toilets, showers/baths, sinks, laundry and leaky fixtures.^[ii] That means the remaining 30% gets used in outside the house for watering lawns and gardens.^[iii] With the severe drought of 2012 fresh in people's minds, eco-conscious homebuilders have an opportunity to conserve this precious resource and save money as well.

So does it cost more to build a custom home? Usually a custom home plan costs more than a stock plan, but just how much more is a figure that's hard to come by. When you take the time to look at various custom home design websites, you'll see rates that range from \$1.00-\$2.50 per square foot of designed space. This can

result in the design costing anywhere from 2-15% of the total construction cost.[iv]

The Benefits of Custom Green House Plans

With all of that in mind, is it worth it to build a custom home? You bet. Check out these financial and environmental benefits of custom home designs.

1. **Flexibility:** You work with the designers to create the exact home you want, laid out the way you want it. You're in control of all essential decisions, including what to spend. That also means you're free to incorporate all manner of eco-friendly design options.
2. **Passive Heating and Cooling:** Custom green home designs offer the opportunity to design your house to work with the sun instead of against it, taking advantage of the warming rays in winter while minimizing their entry during the summer for a cooler indoor environment. A [passive design](#) pays attention to siting, angles, overhangs and windows in relation to the sun. This can greatly reduce what you spend on heating and cooling.
3. **Natural Daylighting:** The same principals mentioned above can also allow you to take the greatest advantage of the sun's light through daylighting to reduce your need for artificial lighting, another money-saving and earth-friendly proposition.
4. **Renewable Energy Systems:** Active solar systems can also be installed to generate electricity (using [solar photovoltaic panels](#)) or to heat water ([solar thermal systems](#)). Regarding hot water heating, solar systems can reduce those costs by as much as 75-90%. In some places, if you generate a surplus of electricity beyond what you need, most power companies are required to buy it from you. Of course, you can also incorporate wind or micro-hydro to help generate electricity as well. Even if you aren't ready at the time of building your custom home to install renewable energy systems, you can at least have the home wired in such a way as to make it easy to install such systems when you decide the time is right.
5. **Natural Ventilation:** Good custom green house plans will allow hot air to easily rise to the top of the house and be vented outside through dormer windows and other [passive cooling techniques](#). Properly placed first-floor windows will draw in heavier cooler air, creating a stacked effect for maximum energy efficiency.
6. **Home Energy Management System:** Companies like Toshiba, Panasonic, Intel and Samsung are developing integrated [home energy management](#)

[systems](#) to carefully manage whole-house energy use to make the most of energy resources to keep you comfortable in as planet-friendly a way as possible, not to mention a lighter hit to your wallet. These systems are capable of integrating across smart appliances and solar systems. It's the wave of the future arriving in the here and now.

7. **Water Efficiency:** Drinktap.org notes that indoor per capita water usage in the US is about 70 gallons per person per day. By installing water efficient fixtures and stopping leaks, that can easily be reduced by 35% to just 45 gallons per day.^[v] Learning how to efficiently handle your lawn and garden watering needs or [installing a greywater system](#) can hugely reduce your outside water use. If you pay for water, this can result in significant savings.
8. **Greener Construction Materials:** Construction materials often involve VOCs – volatile organic compounds – that can make people sick by polluting indoor air. Most custom green house plans are designed to minimize the use of such materials, opting instead for more [low-VOC sealants and materials](#). Options here also include highly efficient windows and super-insulated building envelopes as well as [low-VOC furnishings](#).

More Resources on Custom Green House Plans

- The US Green Building Council's [Green Home Guide](#) is a great site that will connect you to ideas, advice and green home professionals.

- The US Green Building Council also maintains a great page about LEED (leadership in energy and environmental design) certification for homes at [LEED for Homes](#).

Image via Flickr: [army.arch](#)

[i] Where does my money go? US Environmental Protection Agency. Retrieved from http://www.energystar.gov/index.cfm?c=products.pr_pie

[ii] Indoor water use in the United States. US Environmental Protection Agency. Retrieved from <http://www.epa.gov/WaterSense/pubs/indoor.html>

[iii] Outdoor water use in the United States. US Environmental Protection Agency. Retrieved from US Environmental Protection Agency. Retrieved from

[iv] Building a custom home cost. Costhelper. Retrieved from <http://home.costhelper.com/build-custom-home.html>

[v] Water use statistics. Drinktap.org. Retrieved from <http://www.drinktap.org/consumerdnn/Home/WaterInformation/Conservation/WaterUseStatistics/tabid/85/Default.aspx>



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