

# Introducing a Net Zero Energy Home

## What does net zero energy mean?

Simply put, a zero net energy building is a building that produces as much energy as it consumes.

## How do we accomplish this?

First, we generate energy through the use of solar panels and thermal collectors.

Secondly, we conserve energy in a number of different ways which are discussed inside this brochure.

Take a minute and look at all of the methods we have incorporated into this house to reach our goal of net zero energy.

**Meditch Murphey Architects**  
Marcie Meditch & John Murphey

Eco-Effectiveness Label	
Project : Hyatt Residence - Bethesda MD	
Living area	4500 sq. ft.
Bedrooms	5
Baths	4.5
Site	
Size	12,148 sq. ft.
Distance to Public Transportation	0.35 miles
Impervious area (%)	22 %
Energy	
Net Energy Consumed (avg annual)	0 Kwh
Photovoltaic power output (peak)	9.12kW
Photovoltaic produced (annual)	11,200 kWh
Solar Hot Water produced (annual)	5.46M Btu
Wall Insulation	R-33
Roof Insulation	R-50
Window Thermal Performance (U-value)	0.30
Solar Heat Gain Coefficient	0.28
Water	
Potable Water Used for Irrigation (annual)	0 gal
Drought Resistant Plantings	100%
Water Efficient Fixtures	100%
Pervious area (allows water absorption)	78%
Materials	
Waste material sent to landfill	4 tons
Recycled materials	15%
Certified Wood used	75%
Indoor Air Quality	
Low-VOC Formaldehyde-free mat'l	90 %
Ingredients: FSC certified wood, high-fly-ash, concrete, recycled gypsum, recycled glass, recycled plastic, recycled aluminum, soy-foam insulation, extruded polystyrene foam insulation, PVC-free PEX-tube plumbing, TPO white roof membrane, fiberglass batting, low-VOC paints/finishes, low-VOC adhesives, native drought-tolerant plants.	

Basement	
Au Pair Suite:	20'x17'
Au Pair Lounge:	14'x14'
Bath:	9'x7'
Closet:	17'x3'
Kitchenette:	7'x3'
Utility Room:	16'x8'
HVAC Closet:	9'x3'
First Floor	
Living Room:	20'x18'
Dining Room:	18' x 14'
Kitchen:	18'x18'
Foyer:	9'x8'
Mud Room:	10'x8'
Powder Room:	7'x5'
Master Bath:	13'x6'
Master Bedroom:	19'x15'
Garage:	20'x18'
Second Floor	
Bedroom 1:	18'x12'
Bath 1:	8'x6'
Closet:	6'x6'
Bedroom 2:	14'x12'
Bath 2:	11'x8'
Bedroom 3:	14'x12'
Laundry:	8'x4'
Study:	18'x13'

## Why is net zero energy important?

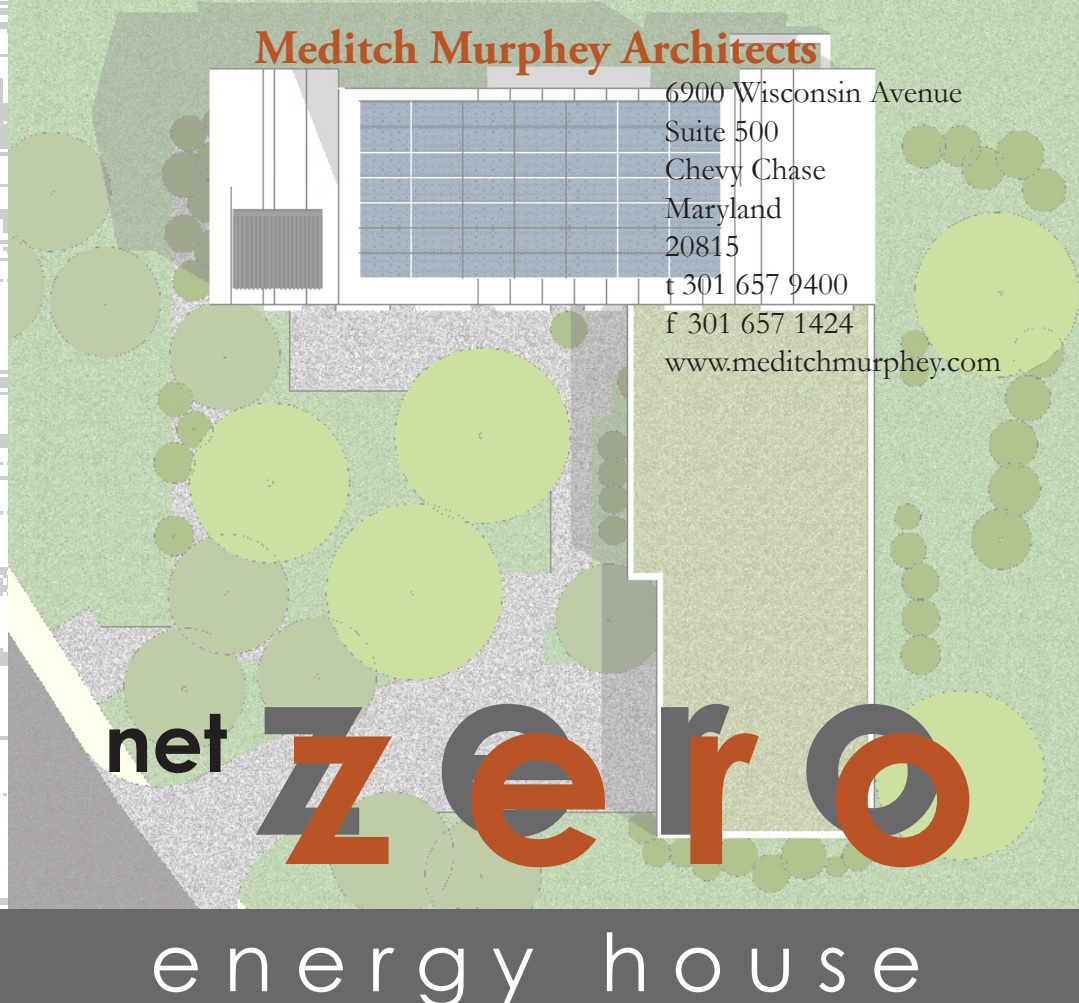
We are concerned about high home energy costs just as you are. High energy usage translates into our greater dependence on fossil fuels. Meditch Murphey Architects is committed to providing well designed competitively priced houses that don't contribute to global warming and are respectful of our environment.

## How can I find out more?

For inquiries about purchasing this 5 bedroom, 4.5 bathroom net zero energy house with a two car garage, please contact:

Diana Keeling, Coldwell Banker  
301 537 3703 or 301 718 0010  
dkeeling@cbmove.com  
www.dianakeeling.com

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# net zero energy house

### Long Life Home

Inhabitants of this house will be able to live here throughout their lives. The house is designed to accommodate a family of four. However, the first floor, including the first floor bedroom, is handicap adaptable for a senior inhabitant.

### Photovoltaic Solar Array

This roof mounted array converts the sun's energy into electricity. Requiring little maintenance, this system will supply 90% of domestic energy needs. When the sun doesn't shine, the house will be powered by electricity from the grid.

### Solar Thermal Collectors

Hot water heating demands 20% of the house's total energy budget. Half of this will be met by these thermal collectors and the other half will be supplied by the solar panels. These thermal collectors also require little maintenance.

### Solar Screens and Awnings

We have designed operable screens and awnings to cover each of the windows and doors on the south facing walls to reduce heat gain during the summer months and allow the warmth of the sun to heat the interior during the winter months.

### Solar Shading and Landscaping

Trees and shrubs near the house will be sized and placed to provide shade during the hottest months. During the winter these plantings will lose their leaves allowing the sun to warm the spaces naturally.

### Zoned Conditioning

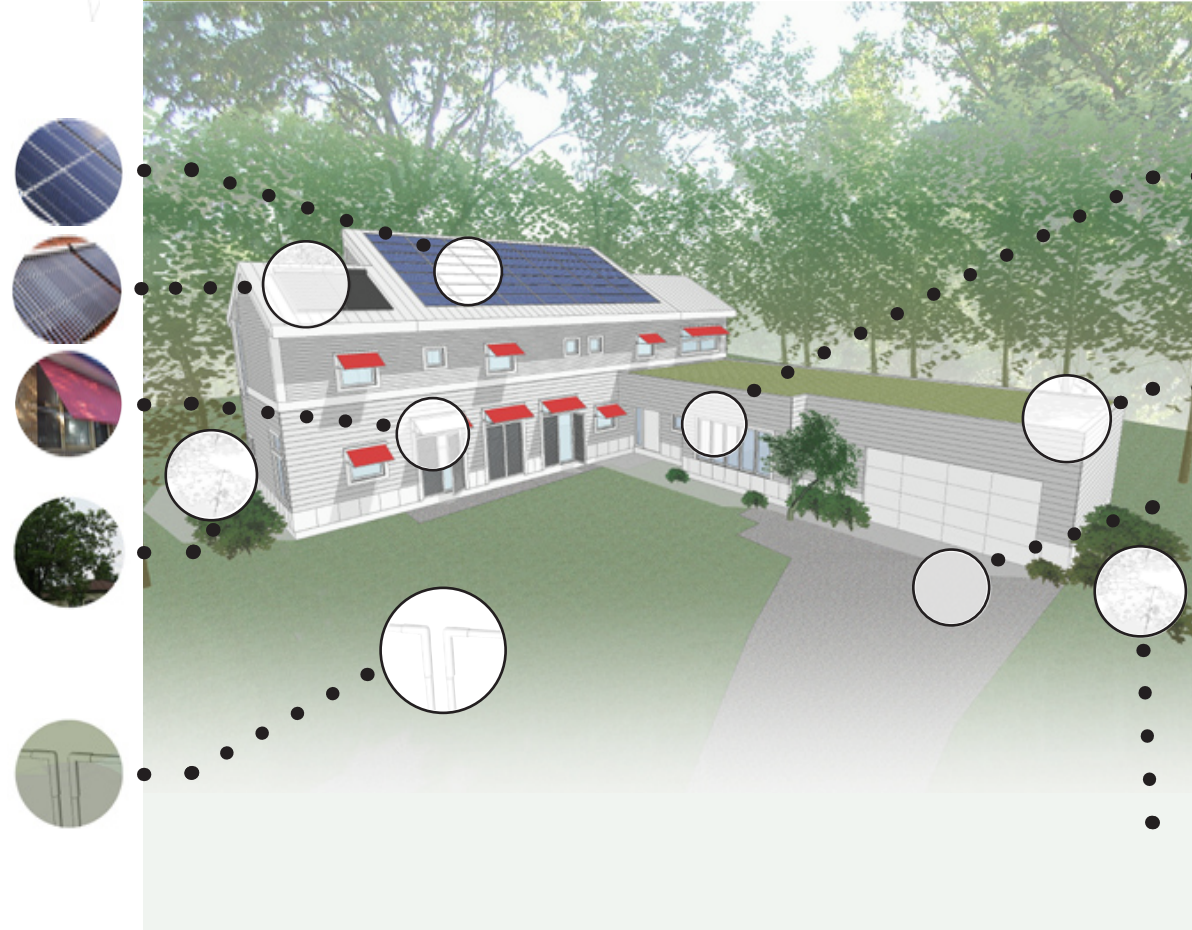
To reduce the load on the heating and cooling system, zones have been established, each with their own thermostat. This system allows the user to turn on the system only in the zone they are occupying.

### Geothermal Heat Pump

These pumps provide domestic heating and cooling by transferring the earth's constant 55° temperature through buried pipes along the west side of the house. Powered by the solar panels (and the grid when there is no sun) this system requires no more maintenance than a conventional heat pump.

### Natural Ventilation and Ceiling Fans

Windows and doors are consistently placed opposite each other to promote natural air flow across spaces. Along with ceiling fans, this natural ventilation will promote more efficient heating and cooling throughout the year and will eliminate the need for mechanical cooling during the swing seasons of spring and fall.



### Water Efficient Fixtures

Toilets, washing machines, and showers account for three-quarters of indoor residential water use. Installing water efficient fixtures is a great way to reduce a house's total water consumption.

### Sustainable Materials

The materials used include salvaged products, products with post consumer recycled content, products that reduce material use, certified wood products and rapidly renewable products.

### Energy Star Appliances

We have selected Energy Star appliances throughout the house. These appliances are recognized by the federal government for their low energy use.

### Future Green Roof

The house has been designed to accept a green roof to reduce the heat island effect of the building mass, increase the insulation of the roof and to reduce stormwater runoff.

### Pervious Hardscapes

Pervious paving and driveway areas allow stormwater to percolate through the surface to the ground below, reducing the amount of stormwater and associated pollutants that ultimately run into the Chesapeake Bay.

### Energy Efficient Lighting

Throughout the house we are using ultra low energy fixtures - LED and fluorescent light fixtures - which use only a fraction of the energy conventional incandescent bulbs use and have an extremely long lamp life.

### High Performance Windows

We've selected one of the best energy efficient insulated windows in the industry.

### Drought Resistant Plantings

To reduce the need for supplemental irrigation of the landscaping, and ultimately reduce the demand for water, drought resistant plantings have been selected for the plantings around the house.

### Insulate, Insulate, Insulate!

The biggest difference between this house and a conventional one is that this house is much better insulated. A typical house has an insulation value (or R-value) of R-19 in the walls and R-38 in the roof. Our insulation values are R-33 for the walls and R-50 for the roof.

This project has been designed to qualify for LEED certification by the United States Green Building Council (USGBC).

