



- **Expanded Polystyrene in various densities for wall and under-slab insulation**



- **Cellulose dense pack insulation (40 times lower embodied energy than fiberglass)**



- **High-density spray-in fiberglass insulation**



- **Mineral Wool (Rock Wool)**

- **Vacuum Insulation**



# INSULATION







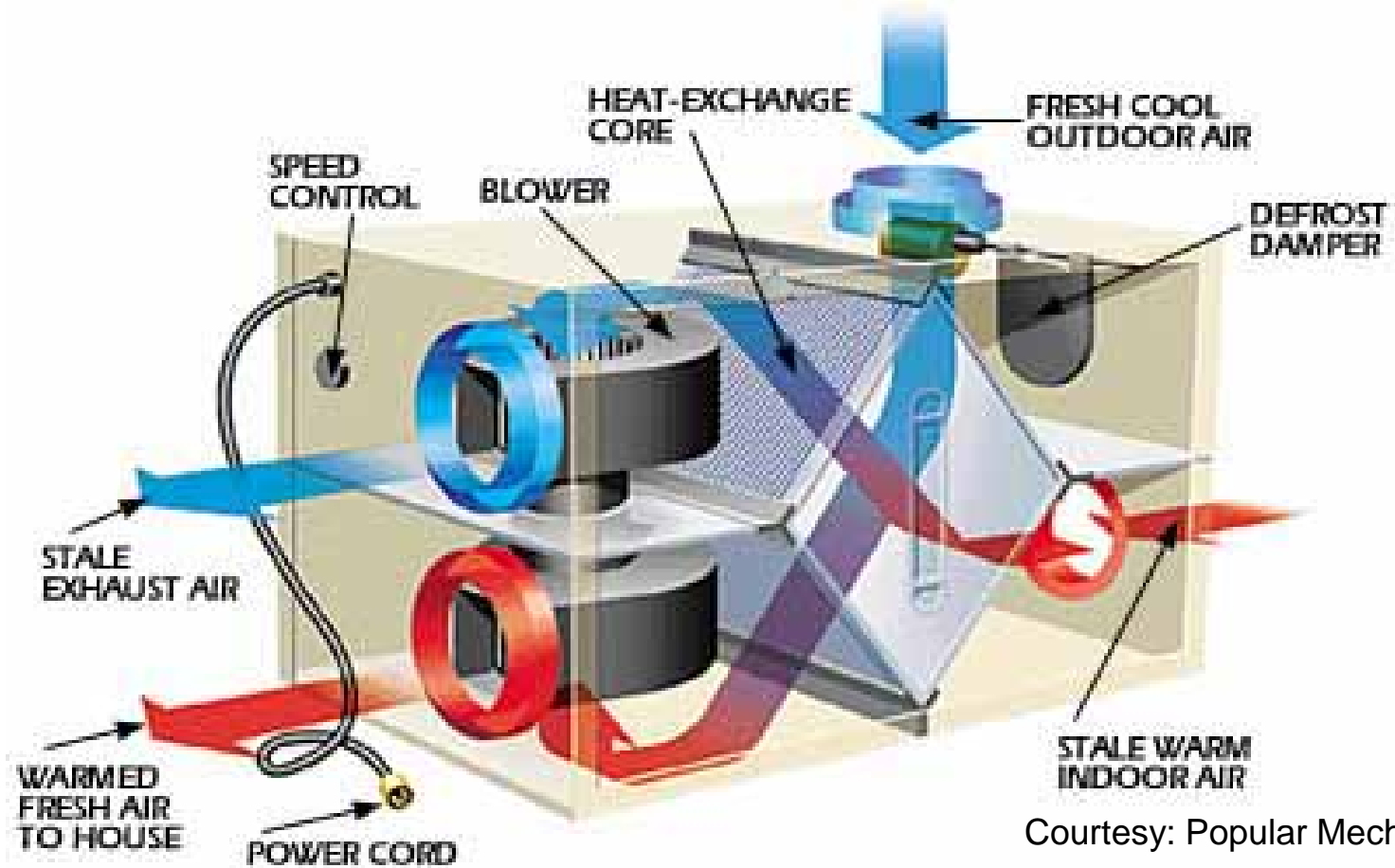




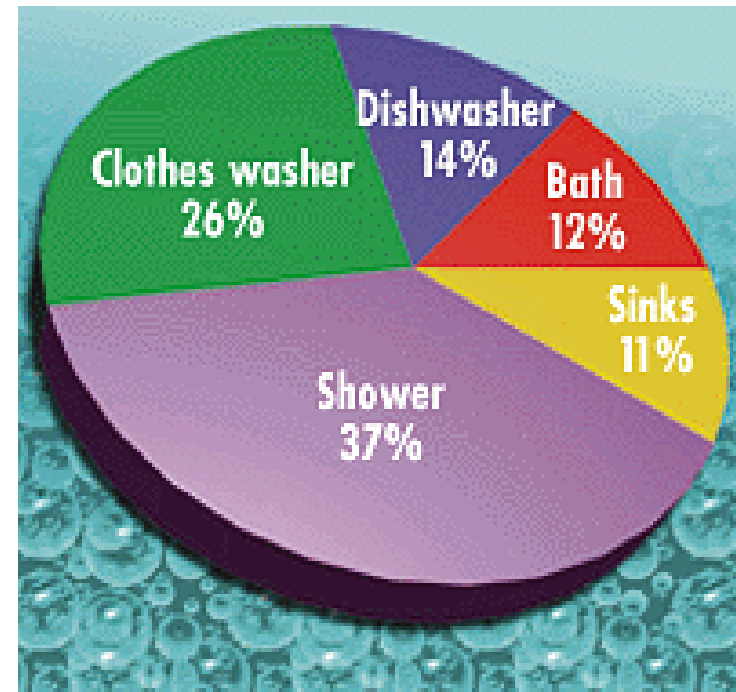
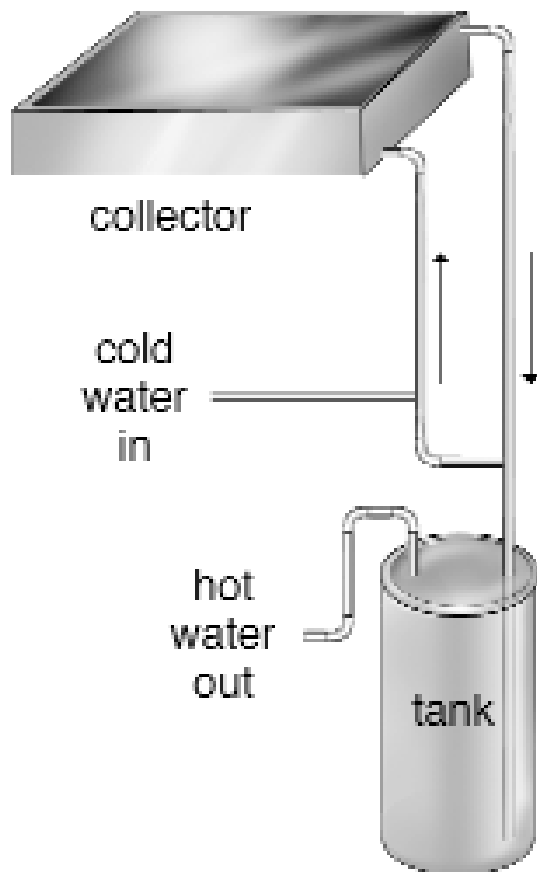




# Heat recovery



Courtesy: Popular Mechanics



### Hot Water Usage

(based on national averages)

The typical U.S. homeowner's water consumption by place of use.

# Wind Power

- US has more than three times as many small wind manufacturing companies as the next closest competitor, Japan.



Courtesy: <http://londonist.com>



## The 'Dutch Windmill Tree'



Dutch company One Architecture, Ton Matton and NL Architects were commissioned by the Dutch government for a next generation windmill. The proposed mill is shaped like a tree and can hold up to 8 turbines and be as high as 120 meters! The Dutch government feels that tree shaped mills are less intrusive in the flat Dutch landscape than the mill-parks they use.

## The Highway Turbine



**The 'Bahrain World Trade Centre' Turbines**



**The Anara Tower – Dubai**

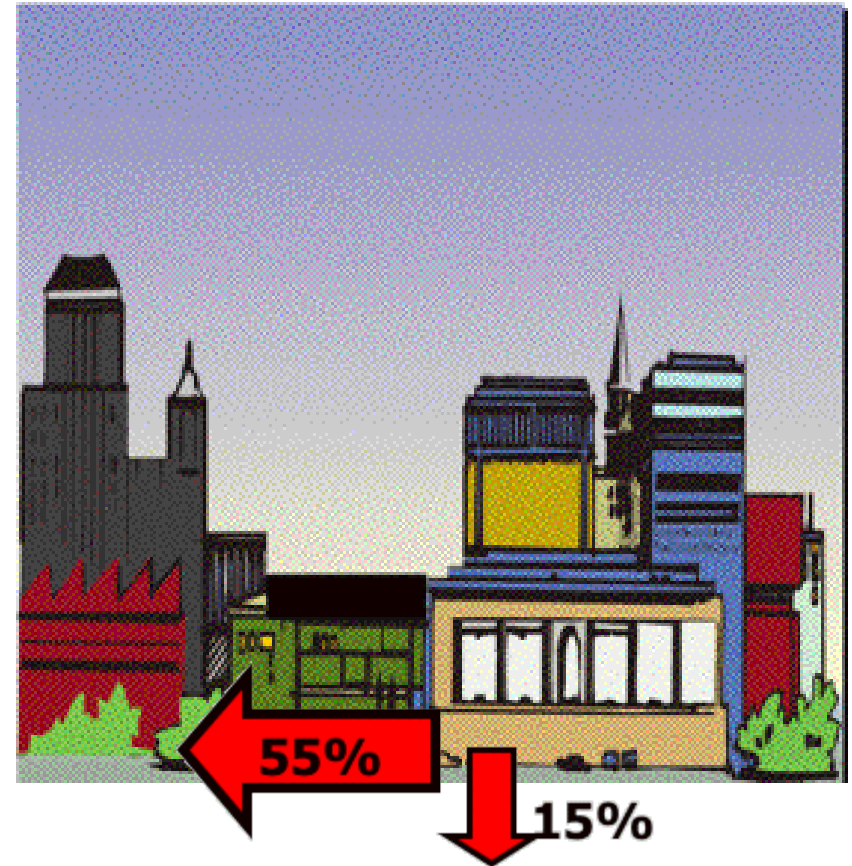
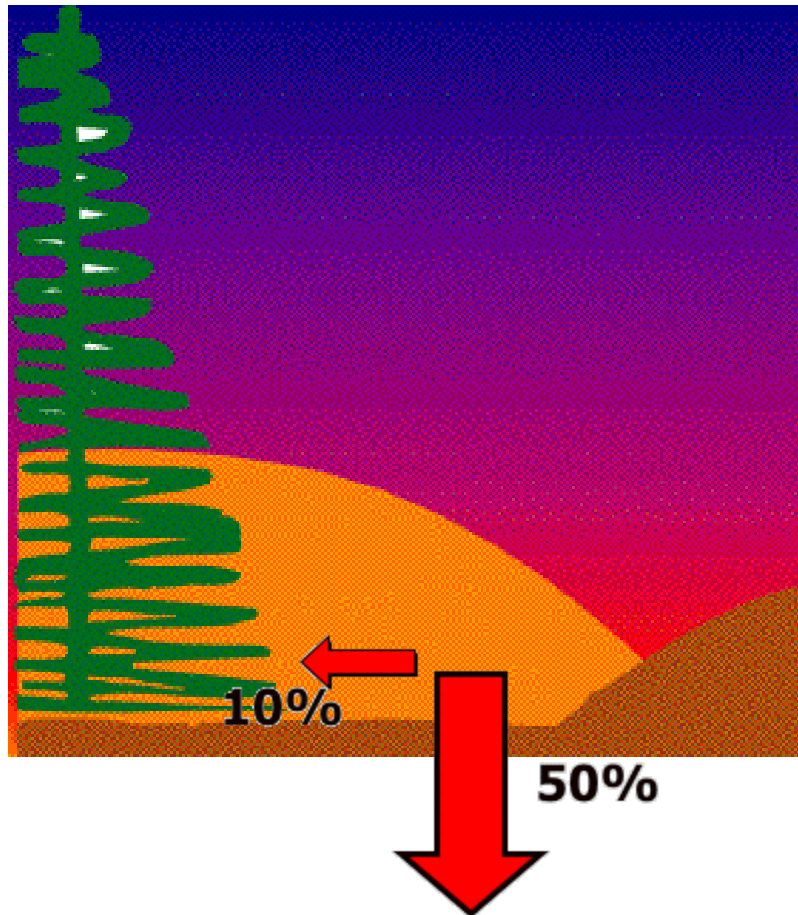






Photo courtesy of the City of  
Columbus Stormwater Management

# Development Impacts on the Water Cycle





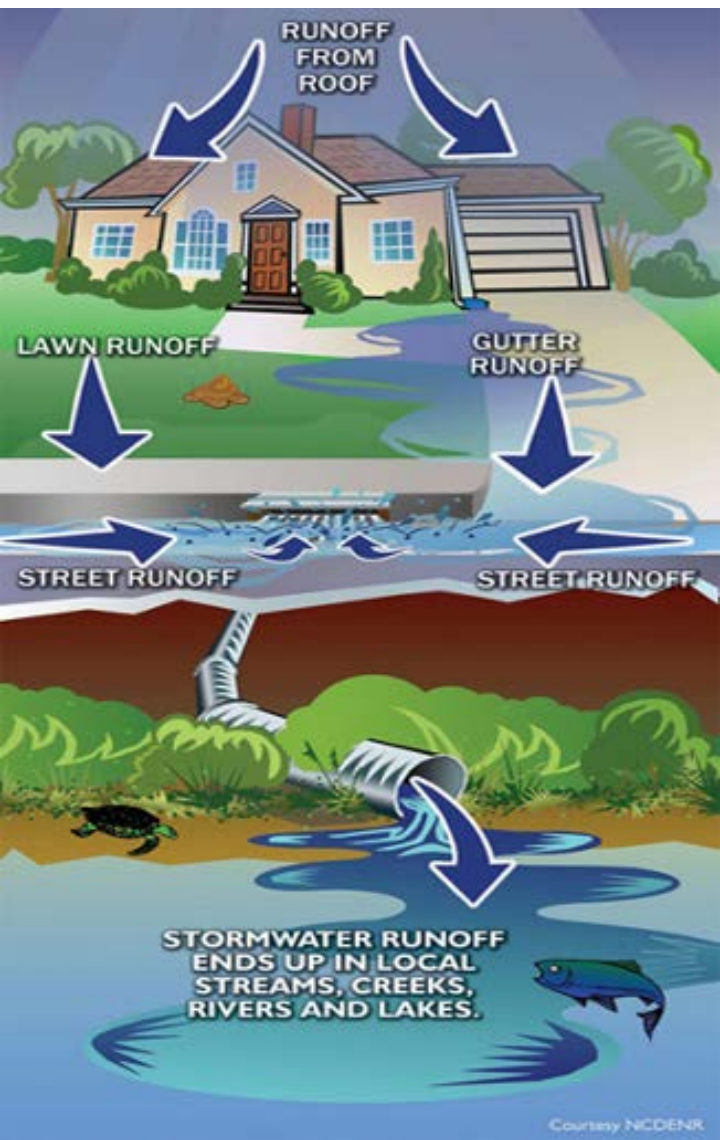


Photo courtesy of the City of  
Columbus Stormwater Management

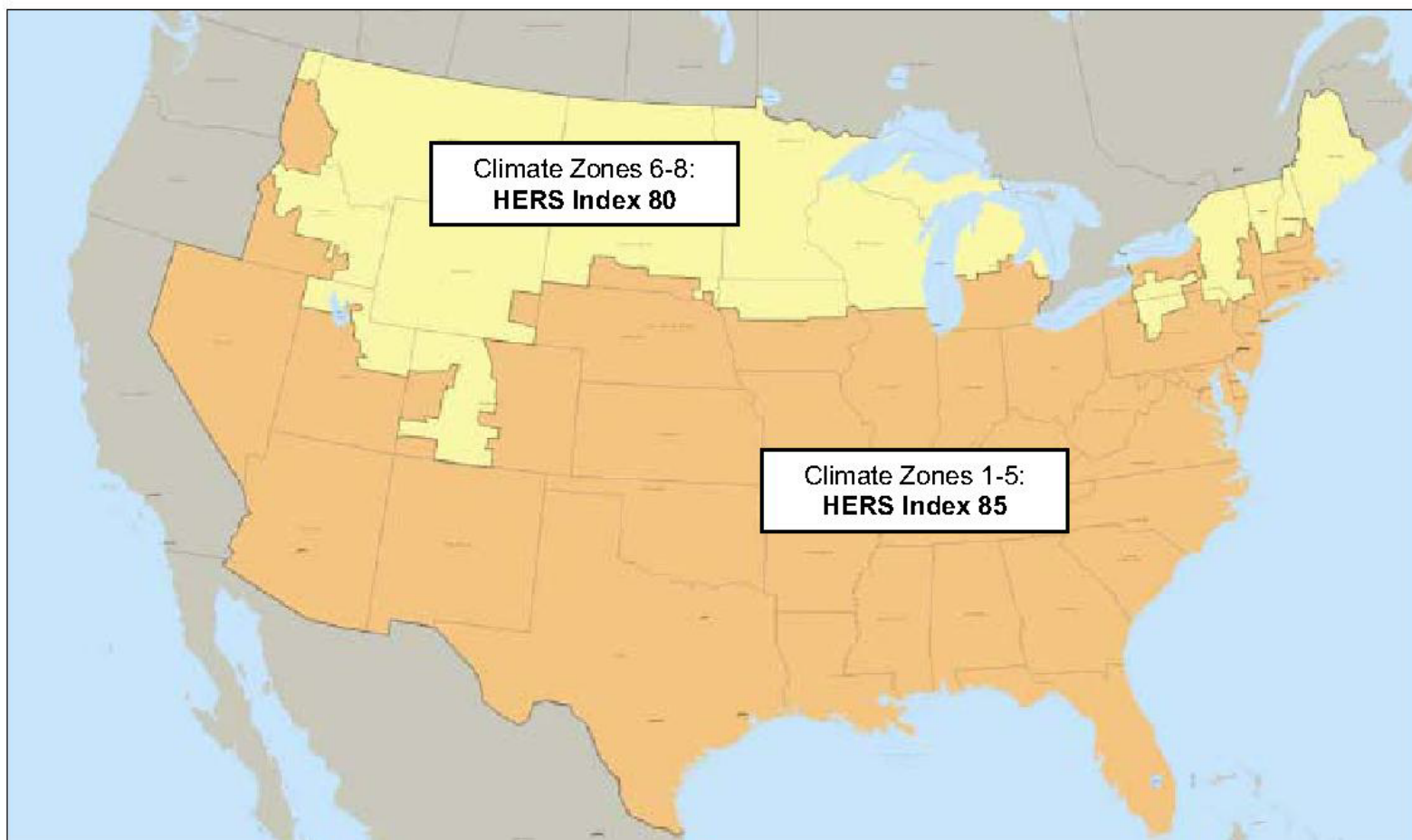


# ENERGY STAR Qualified Homes National Performance Path Requirements

## ENERGY STAR Performance Requirements:

To qualify as ENERGY STAR, a home must meet the minimum requirements specified below, be verified and field-tested in accordance with the RESNET Standards by a RESNET-accredited Provider, and meet all applicable codes.

Maximum HERS Index Required to Earn the ENERGY STAR<sup>1</sup>





## O'Neil Residence – 2010, Sonoma California – Jarrod Denton



**1<sup>st</sup> fully certified Retrofit Project**

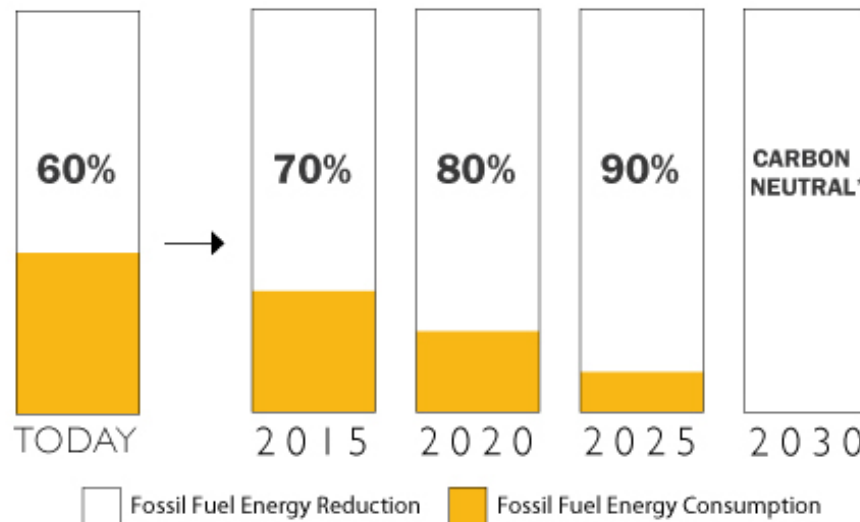
# ULI 2050 Initiative: The City in 2050

Addressing:

- Exploding Populations
- Rising Energy Costs
- Increased Urban Infrastructure
- Climate Change
- Responsible use of Land



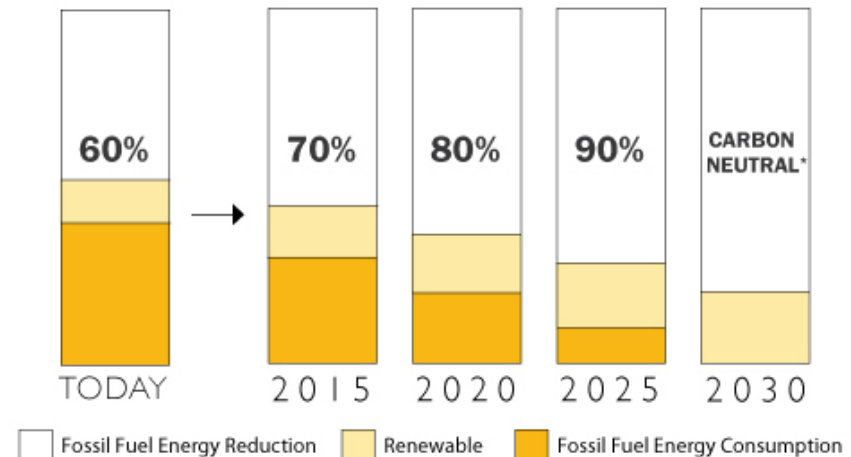
# AIA's 2030 Challenge



## The 2030 Challenge

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 \*Using no fossil fuel GHG-emitting energy to operate.

[http://www.architecture2030.org/2030\\_challenge/the\\_2030\\_challenge](http://www.architecture2030.org/2030_challenge/the_2030_challenge)



## The 2030 Challenge

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Columbus

**greenbuilding**

f o r u m



we must be the *change we wish to see* in the world  
- Mahatma Gandhi

# Thank You!

Contact: [meera@green-bldg.com](mailto:meera@green-bldg.com)