



Green Building Materials & Methods:

How, Where, What, Why and When

How

★ Green Building involves using a variety of different approaches and materials to make a structure that is healthy for the occupants, for the local area and globally. but there are two basic subcategories

- ★ Location
- ★ Materials

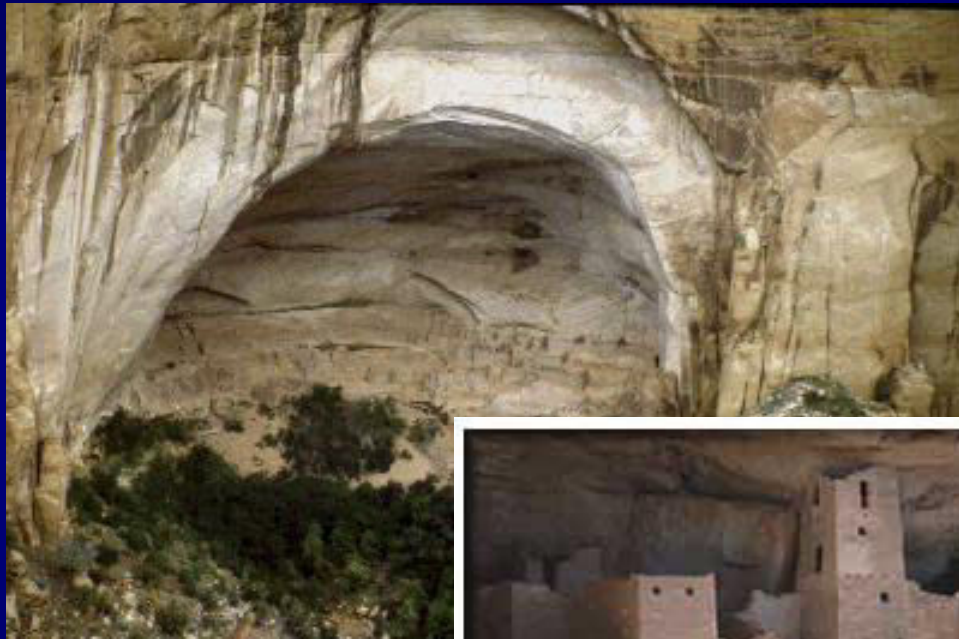
Where

- ★ Site location is one of the most important single factor. For millennia people have known that location can make all the difference in the world for comfort. Here are just a few examples.

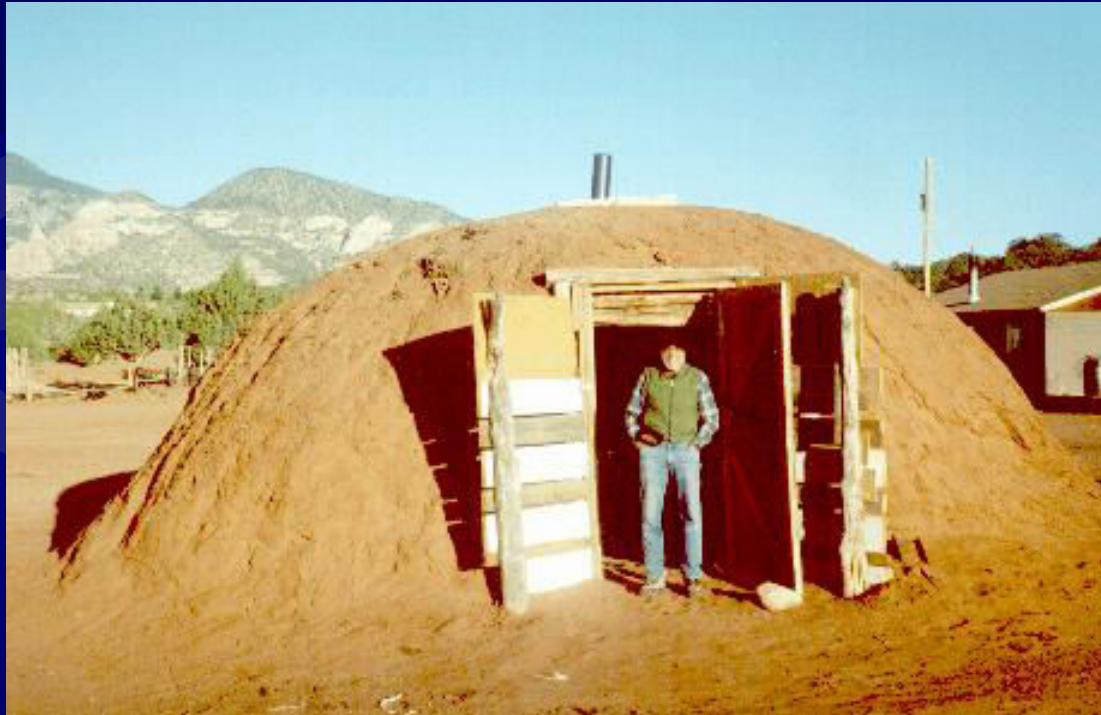
Ancient China



Ancient Navajo



Navajo Hogan



Ancient Maya



Ancient Uzbekistan



Ancient Incas



A detailed black and white map of the city of Tenochtitlan, showing its complex network of canals, streets, and various buildings, including the Great Pyramid and the Temples of the Sun and War. The map is oriented with North at the top. The city is built on a series of islands in a lake, with canals providing access to the mainland. The Great Pyramid is located in the center of the city, and the Temples of the Sun and War are also prominent features. The map is surrounded by a border containing various labels and symbols, including a compass rose in the top left corner. The overall style is that of a historical woodcut or engraving.

Orientation

- ★ Southern Exposure is the most important and easiest way to address green building and sustainability issues.



Materials

- ✱ Reclaim
- ✱ Non-toxic
- ✱ Local
- ✱ Organic
- ✱ Native Species in Landscaping

Reclaim

- ✴ Reclaiming is basically recycling.

Bricks



Red Wire cut bricks



Blue Engineering bricks

Lumber



Wooden Parquet floor blocks



Specialists in building and garden materials



Oak flooring

Appliances and Fixtures



Why reclaim?

- ✱ Reduces extraction of natural resources
- ✱ Keeps useful materials out of landfills
- ✱ Eliminates the cost of extracting, refining, manufacturing, and delivering these goods



Construction

- ✦ What are some construction styles?

Adobe



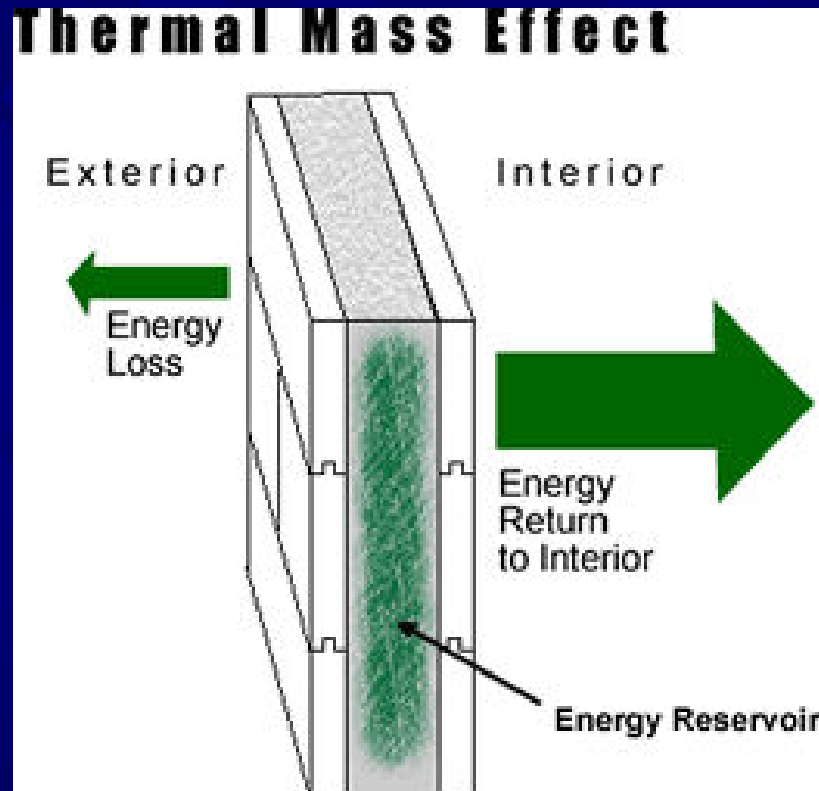
Straw-Bale



Rammed Earth



Insulated Concrete Panels



Why not use these conventional materials?



- ✦ VOCs
- ✦ Health Effects from these compounds

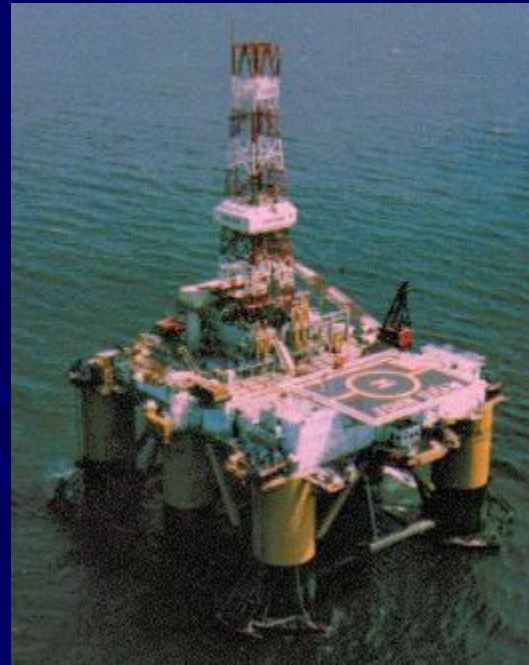
Design

✱ What features besides the materials used make a home green?

- ✱ Energy costs
- ✱ Safety

Energy Use for Comfort

☀ We want to use less of these...



☀ And more of these



The background of the slide is a dark blue field filled with several large, stylized gears in various shades of blue. On the far left, there is a vertical strip of colorful, abstract, and pixelated patterns in shades of orange, yellow, and red. The text "How do we do this?" is centered in a yellow, sans-serif font.

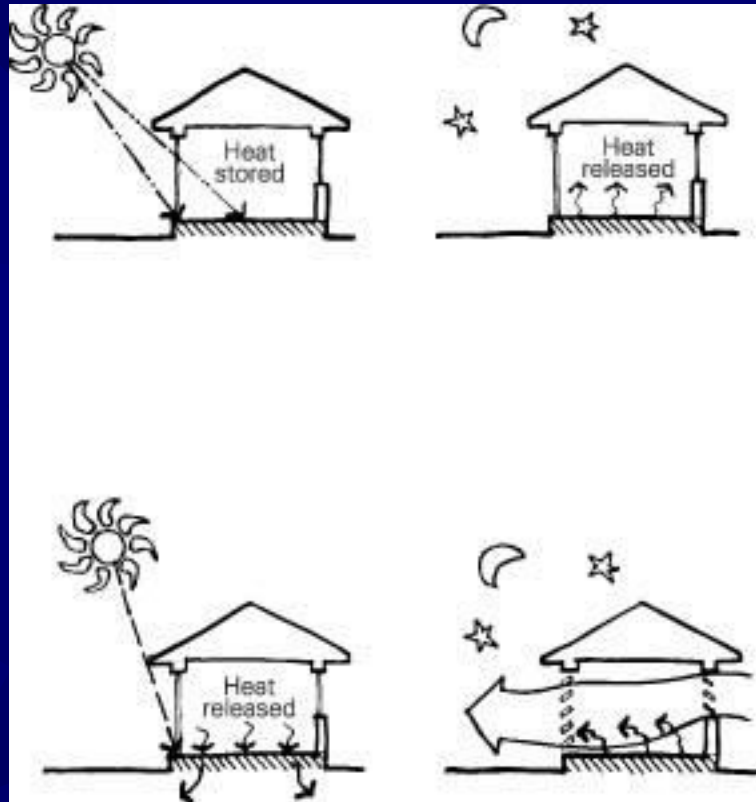
How do we do this?

Overhangs



photo credit: National Renewable Energy Laboratory

Thermal Mass



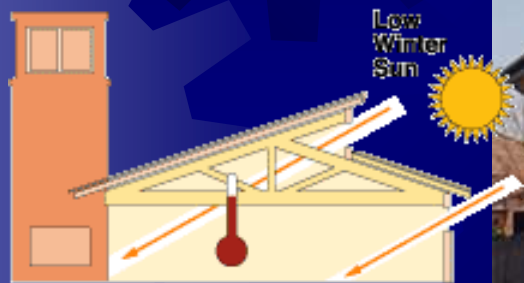
Water Capture



Triple Pane Windows



Clerestory Windows



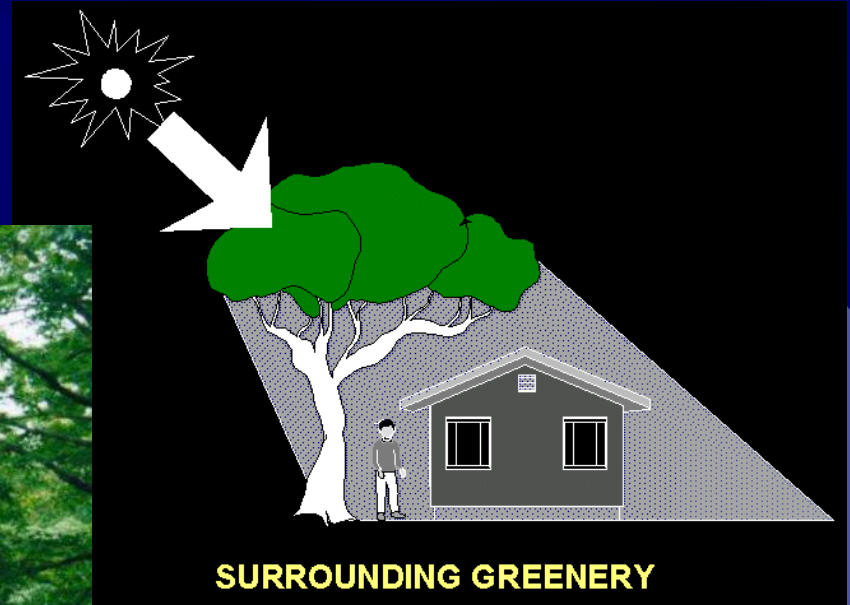
South windows accept direct sunlight to light and warm the building interior



Indirect sunlight lights the building interior without warming it



Good Landscaping

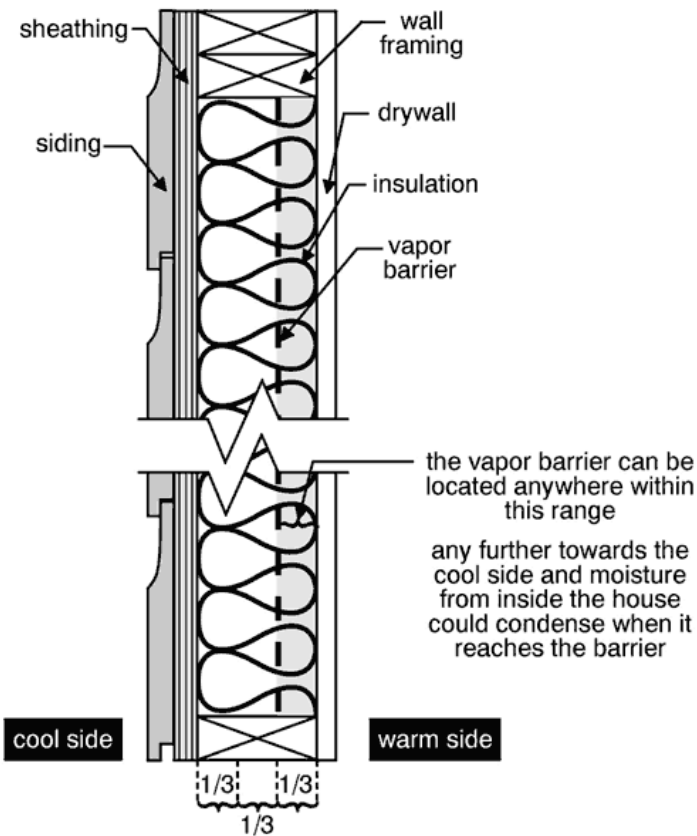


Natural Light



Vapor Barrier

Vapor barrier location

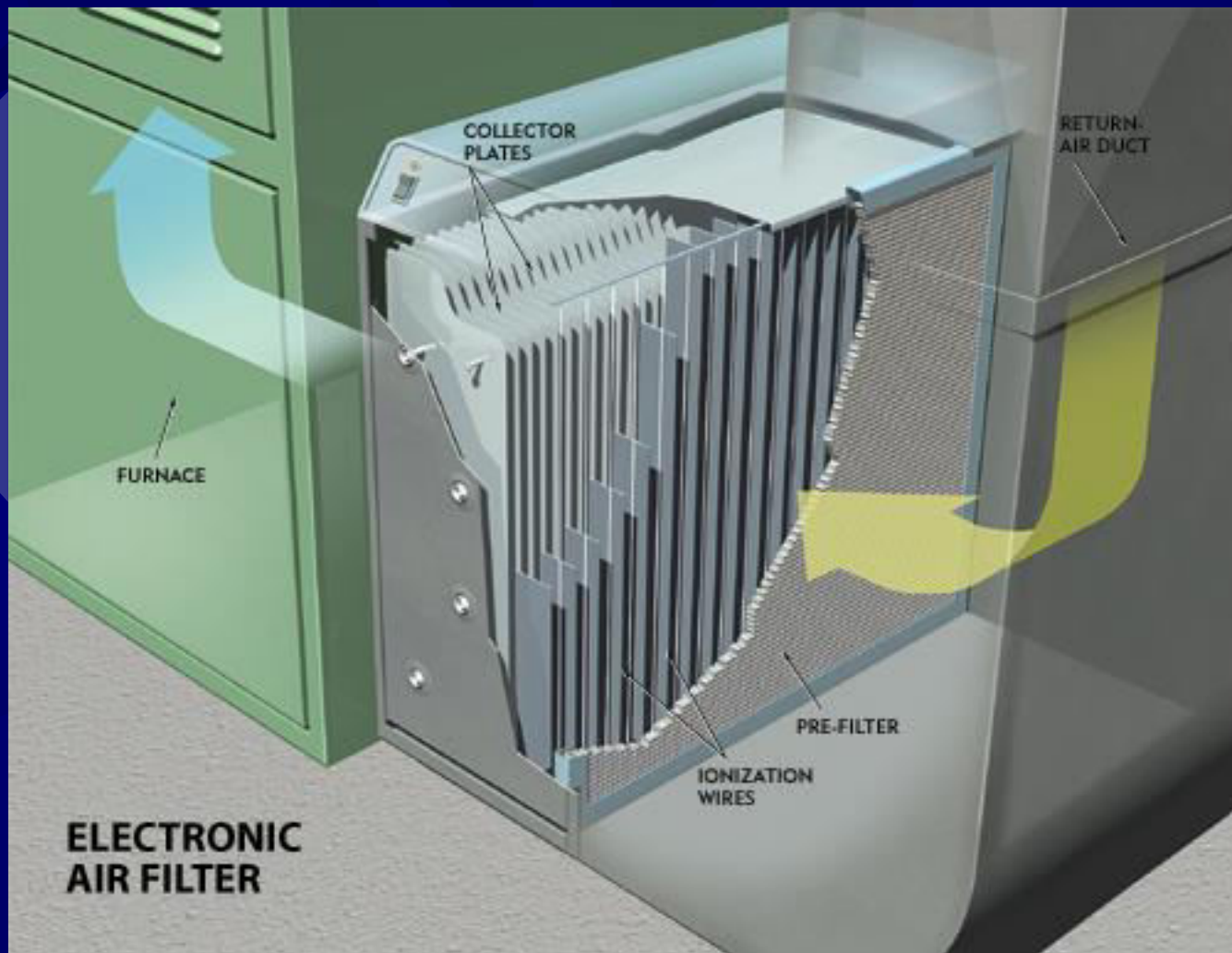


cross
section

Sustainable Lumber



Air Filters Insure Indoor Air Quality



Living Machines



Why is this important?

- ✱ More Money in Pockets
- ✱ Save Humanity – the planet will be here long after we are gone
- ✱ Comfort
- ✱ Bragging rights on how smart you are
- ✱ Neat gizmos