

What Makes a Building Green?

The Green House

What is the best way to make a white house or any house green? It's not by painting it green, but by doing things to make it a healthier, more environmentally friendly house to be in! When we make buildings and homes environmentally friendly, this is called Green Building.

What is it Made From?

The first thing to consider when designing a green building is what materials will be used to build it. Will it be made from wood that comes from endangered, old growth forests that are in danger of disappearing around the world, or will it be made from wood that was salvaged, or reused, from an old farmhouse that is falling down? A green building would never be made using new wood from an old growth forest, because this would destroy the ancient forest and harm the animals that live there. Since green buildings are environmentally friendly, they are made using different materials that don't harm the environment. For instance, we can use straw bales, or bundles, to build a home, or we can follow the example of the Native Americans and build our homes using earth, or adobe. This is called earth architecture and is a very sturdy way to build a home. In fact, buildings made from earth architecture thousands of years ago in ancient Persia are still standing today!

Natural Light

Our sun is an amazing star. Not only does it provide energy for plants to grow, and life on Earth

to survive, but it's also our planet's light bulb! Studies show that whenever buildings let the natural light of the sun in, people feel better and are happier in that building. As a matter of fact, when classrooms get a lot of natural light from the sun, students find it easier to study and learn more!

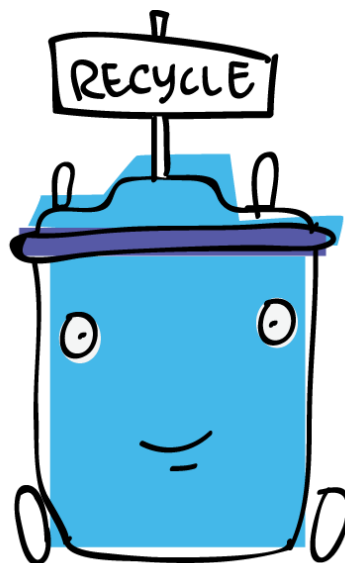


Green buildings incorporate, or use, different ways to bring in natural light. This includes adding lots of windows and putting in skylights that are like windows in the ceiling. Some buildings even put in light shelves that help bring light in by bouncing it up to the ceiling and deeper into a room. This diffuses, or softens, the bright glare that can come from direct sunlight.

Clean Energy

Every building needs electricity and other kinds of energy, or power, in order to be useful. Energy is what allows us to turn on the lights, use a

computer, or bake chocolate chip cookies. Green buildings are smart about the way they use and conserve, or save, energy. There are many clean sources of energy that don't pollute our environment the way burning fossil fuels like oil, coal and gas do. These alternative, or different, sources of energy come from the sun as solar power, the wind as wind power, and the ocean tides as tidal power. Green buildings often have solar panels on their rooftops. These panels collect energy from the sun and use it to make electricity for use in the



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building. Other solar panels directly heat water that can be used to wash clothes or heat radiators to keep us warm.

Healthy Inside

While it's very important to consider the kinds of materials used in a green building, the amount of natural light that is being let in, and its source of energy, it's also very important to make sure the inside of the building is healthy for people to be in. Many of the items we find in our buildings today are full of synthetic or human-made materials that are not natural. These synthetic materials can be very useful, but they can also create problems for our health and the environment.

The Problem with PVC

Things like plastic and vinyl are synthetic materials people have created to help make or manufacture thousands of different items like furniture, flooring, pipes and paint. Even though these synthetic materials can be useful, they also create problems. Vinyl for instance, is a type of plastic called PVC (polyvinyl chloride) that can be made soft and flexible or easy to bend. PVC gives off poisonous gases or toxic fumes when it's being made or burned. Whenever vinyl or PVC is in our furniture, computers or carpets, tiny toxic particles or bits are released into the air in small doses. Over time, these poisons can gather in our body and create sickness. Because of this, some companies are now choosing to stop using PVC in the products that they manufacture. When building a green building, careful choices are always made to prevent or stop PVC from being used to make or furnish it. This helps keep the inside of the building healthy.

Green Paint

Another thing that keeps the inside of a green building healthy is the type of paint that is used. Some paints contain toxic or poisonous chemicals that create fumes. These fumes can be unhealthy for us to breathe. Safer paints, called non-VOC

(Volatile Organic Compounds) paints, are a lot less toxic and much better for us to use. These paints don't give off dangerous, chemical fumes and they are safer for the environment.

Saving Water

People who build green buildings understand how important it is to conserve or save our fresh water. They install or put in special low-flow toilets, showerheads and faucets that use less water and save money on the water bill. Some green buildings even have a system that recycles water! For instance, instead of letting water go down the shower or kitchen drain to be carried away by city pipes, the used water or gray water gets collected and used to water the garden.

Our Green Future

Every day, more and more people are learning how green buildings are better for our health and the health of the environment. Maybe one day, you'll live in a green house or help design even better green buildings!



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National Science Standards Addressed:

- Grades 9-12: Environmental quality (12FSPSP4)
Abilities of technological design (12EST1)
Natural resources (12FSPSP3)
Understanding the basics of science and technology should precede debate about related practical and ethical challenges (12FSPSP6.2)
Progress in science and technology can relate to social issues/challenges (12FSPSP6.3)
- Grades 5-8: Abilities of technological design (8EST1)
Technological solutions have intended benefits and unintended consequences (8EST2.6)
Characteristic properties (8BPS1.1)
Environments may contain substances that are harmful to human beings (8FSPSP1.7)
Natural hazards (8FSPSP3)
Risks and benefits (8FSPSP4)
- Grades K-4: Materials and their properties (4BPS1.2)
Identify a simple problem (4EST1.1)
Different substances can damage the body and how it functions (4FSPSP1.4)
Changes in environments can be natural or influenced by humans (4FSPSP4.2)
Some environmental changes occur slowly, others occur rapidly (4FSPSP4.3)

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