

Doing Good and Building Better Green & Healthy Homes

Advancing the Dialogue on What is a Green & Healthy Home: An EPA Perspective

Jaslyn Dobrahner, US EPA, Region 8



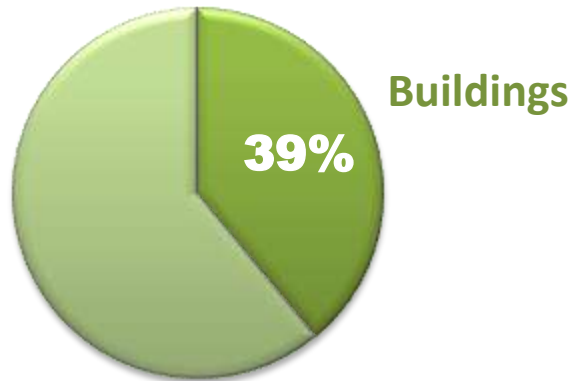
Overview

- **Environmental impacts** of buildings and residences
- EPA's **definition** of a green building
- EPA's **role** in the green building movement
- **Information** EPA offers on green homes
- **Intersection** between **green & healthy** homes
- Looking ahead...

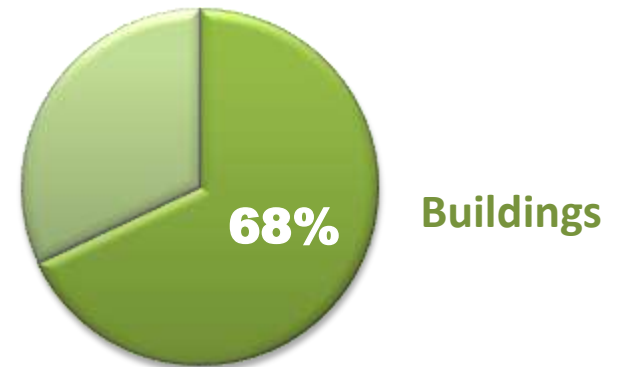


U.S. Building-related Impacts

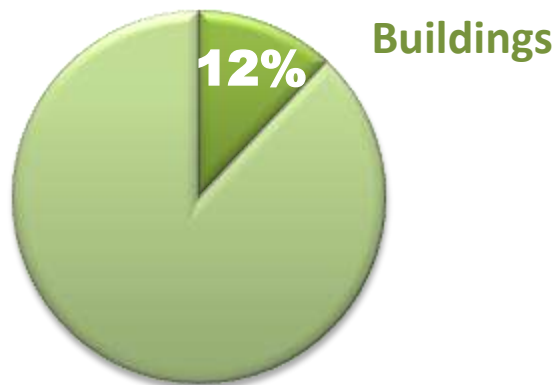
Total Energy Use



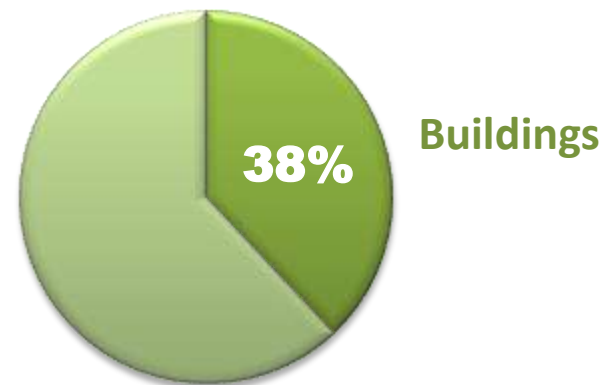
Total Electricity Consumption



Total Water Consumption



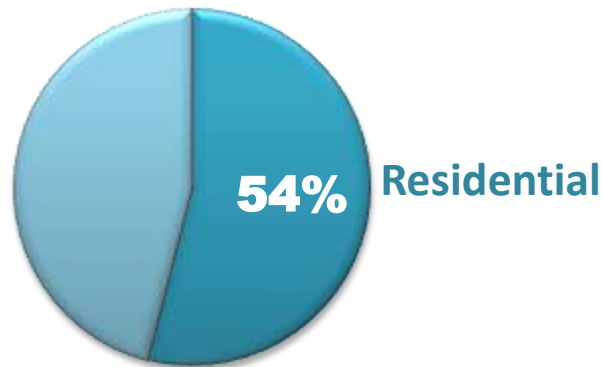
Carbon Dioxide Emissions



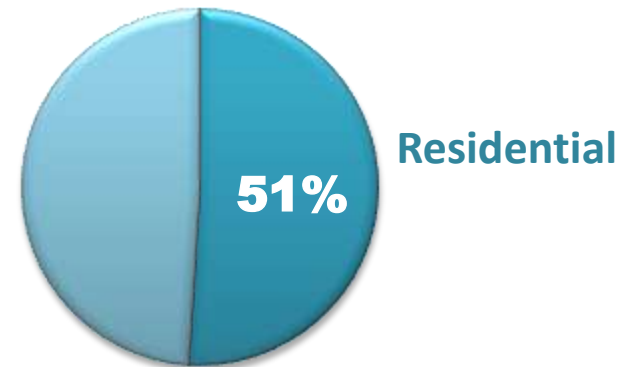
U.S. Residential-related Impacts

(as % of total building-related impacts)

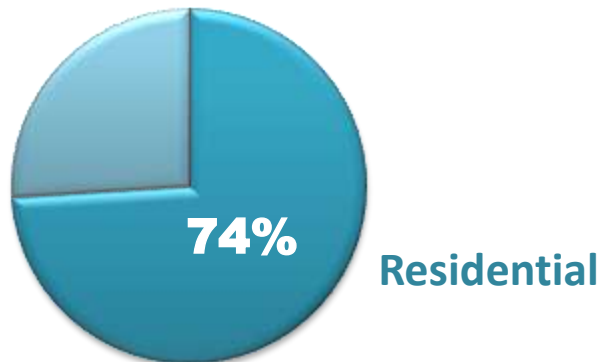
Building Energy Use



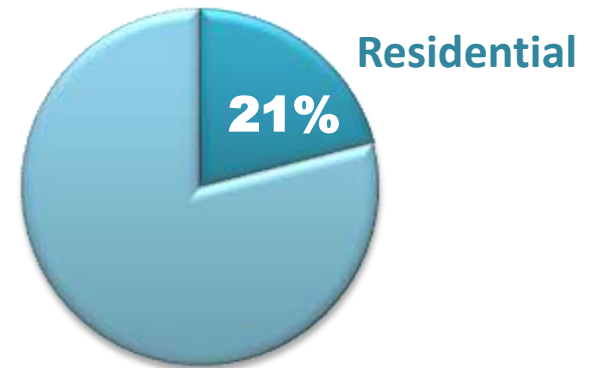
Building Electricity Consumption



Building Water Consumption



Carbon Dioxide Emissions



What is Green Building?



The practice of creating structures and using processes that are **environmentally responsible** and **resource-efficient** throughout a **building's life-cycle** from siting to design, construction, operation, maintenance, renovation and deconstruction.

What is a Green Building?

- Designed to **reduce impact** of the built environment on **human health & natural environment**



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What is EPA's Role in Green Building?

1. Strengthening the Scientific and Technical Foundation of Green Building
2. Raising Public Awareness of Building-related Impacts & Opportunities

What is EPA's Role in Green Building?

1. Strengthening the Scientific and Technical Foundation of Green Building

- Brings **technical expertise** to many aspects
- Supports **research & development** through grants
- Developed **key green building principles and practices** to engage codes and standard setting organizations

What is EPA's Role in Green Building?

EPA's Green Building Principles

1. Protect Ecosystems & Enhance Communities
2. Protect Climate and Ambient Air Quality while Conserving Energy Resources
3. Protect and Conserve Water
4. Conserve Materials and Resources
5. Use Environmentally Preferable and Safer Building Products and Services
6. Promote Healthy Indoor Environments

What is EPA's Role in Green Building?

2. Raising Public Awareness of Building-related Impacts & Opportunities

- **Communicating** with the public and **raising awareness** of impacts & opportunities
- Increased focus on **existing buildings and homes** with increased communication to homeowners

What information does EPA offer on green homes?

U.S. ENVIRONMENTAL PROTECTION AGENCY



Green Building

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Green Homes



Click on a room of the house to link to information on greening that room. Or use the links at top right to go directly to each section. You can also click on the attic and on the outdoor areas. For information on whole-house issues such as heating and cooling, lighting, insulation, and windows and doors, go to the [whole-house section](#).

Whether you are a homeowner or a renter, in the market for a new home, or making home improvements, this Web site identifies the key environmental and energy issues at hand, and suggests solutions that will add value to your home, reduce energy use and energy costs, fight climate change, and help protect your health. See the [Overview](#) page for information on this site, or use the house graphic above or [green home solutions](#) links to navigate to topics of interest.

↑ Top of page

Green Home Solutions

- Overview
- Reducing Energy Use
- Conserving Water
- Choosing Green Materials & Products
- Reducing Waste
- Protecting Your Health
- Home Selection/Site Selection

Rooms of the House

- Kitchen
- Bathroom
- Living Room & Office
- Bedroom
- Laundry Room & Basement
- Garage
- Attic & Roof
- Outdoor Area
- Whole House

Tools

- Top Green Home Terms
- Renters Checklist
- Water Use Checklist

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<http://www.epa.gov/greenhomes/>

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Green Homes



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What information does EPA offer on green homes?

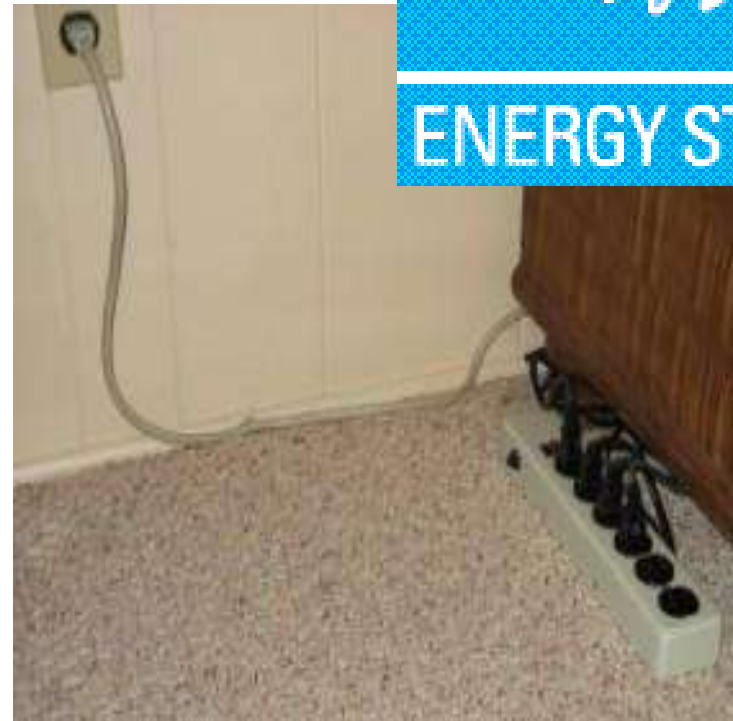
- Living Room & Office:

- *Components*

- Home Electronics
 - Green Furnishings
 - Flooring

- *Practices*

- Reducing Energy Use
 - Shopping
 - Cleaning



Choosing a Green Product

Consider...

- Energy used to make, ship, and use a product
- Product's content & raw material source(s)
- Emissions during manufacturing
- Level and type of toxins in final product
- The products durability & lifespan



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What information does EPA offer on green homes?

- Kitchen Components

- *Kitchen Green Practices*

- *Kitchen Healthy Home Considerations*

- Moisture & Mold
 - Combustion Pollutants & Ventilation
 - Safer Pest Management

What is the intersection of Green & Healthy?



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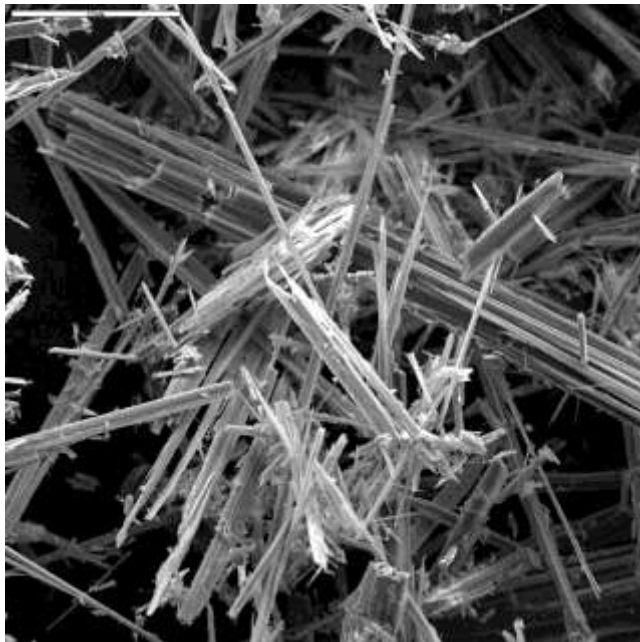
- **Weatherization & indoor air quality**
 - Sealing and tightening can:
 - Increase **moisture/mold**
 - Alter **radon gas** concentrations
 - Increase **volatile organic compound** & other pollutant levels



What is the intersection of Green & Healthy?

- **Home energy upgrades & healthy indoor environments**

Asbestos hazards



Lead hazards



What is the intersection of Green & Healthy?

- **Use of salvaged/reclaimed building materials**
 - *May* contain lead and asbestos



Taking it home...

- **Environmental impacts** of buildings & homes
- **EPA's role** in the green building movement
- **Information EPA offers** on green homes
- **Intersection** between green & healthy homes



Looking Ahead

- **Significant opportunities** for improving environmental and public health protection
- **External collaborations and internal EPA coordination** = widespread adoption of effective, high-performance green homes



Contacts & Websites

www.epa.gov/greenbuilding

www.epa.gov/greenhomes

- **Jaslyn Dobrahner, US EPA, Denver, CO**
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- **Nicole Villamizar, US EPA, Washington, D.C.**
703-347-8952; villamizar.nicole@epa.gov



Affordably Healthy by Design

Mike Haigh
Dallas Area Habitat for Humanity



Background

- Who We Are
 - 25 Years in Operation
 - 840 Families; \$95M Investment
 - Largest Single Family Homebuilder in Dallas
- Who We Serve
 - 43% AMI
 - 3.4 persons per household
 - 79% single parents

Features of Habitat Program

- 0% mortgage
- No cash down payment – sweat equity program
- Subsidized sales price
 - Donations (cash and in-kind)
 - Volunteers
 - Public sector funding
 - HUD – typically through state, city, county
 - City/County
 - State Housing Trust Fund
 - Habitat Restore (retail outlets)
 - Mortgages



What Is An Affordably Healthy Home?

- Affordable to buyers <60% AMI
- Green Building standard – Energy Star / LEED
- Emphasis on high durability and low maintenance
- Focus on indoor air quality
- Designed for aging in place

Existing Conditions

Re-habilitate or start fresh?





EXISTING INFRASTRUCTURE AND COMMUNITY RESOURCES

Basic design features

- 3 bedroom, 2 bath, 1 car garage, 1200 sq ft
 - National average > 2400 sq ft
- **3rd party verified** green standard
- ADA visitable
- High durability / low maintenance materials and finishes

Energy-saving features

- Compact design
- Tight building envelope
- Natural lighting
 - compact fluorescent light fixtures
- Centrally located mechanical and plumbing systems
- High efficiency HVAC
 - tight ducts
- Energy Star appliances

Durable Materials

- Cement fiber siding, masonry, composite trim
 - James Hardie
- Best practices approach to sealing and flashing building envelope
 - Dow
- 30-year shingles
 - GAF
- Quality paints and finishes
 - Valspar
- Quality windows and doors

Water-saving features

- Low-flow water fixtures and toilets
 - Kohler
- Water heater located close to demand
- Drought-tolerant landscaping
- Energy Star dishwasher

Improved Indoor Air Quality

- Low VOC paints and finishes
 - Valspar
- Bathroom, kitchen and garage exhaust fans
- Regulated fresh air intake and exchange
- Ductwork sealed during construction
- Premium air filters

Homeowner Education

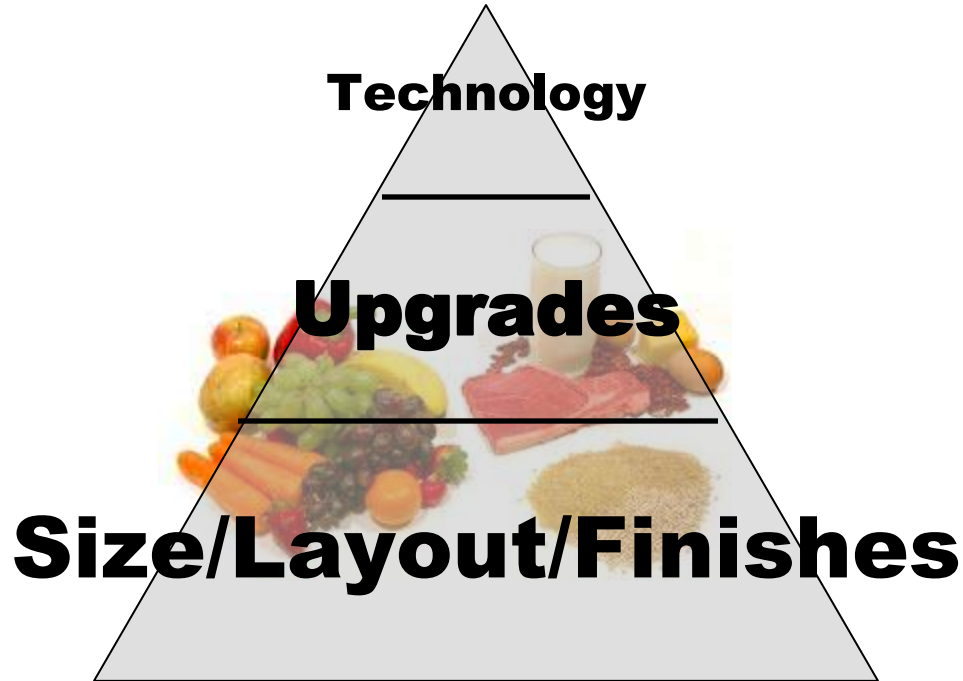
(key to a healthy home)

- Family walk-through of house
- Homeowner education classes
- Homeowner Manual
- Sweat equity

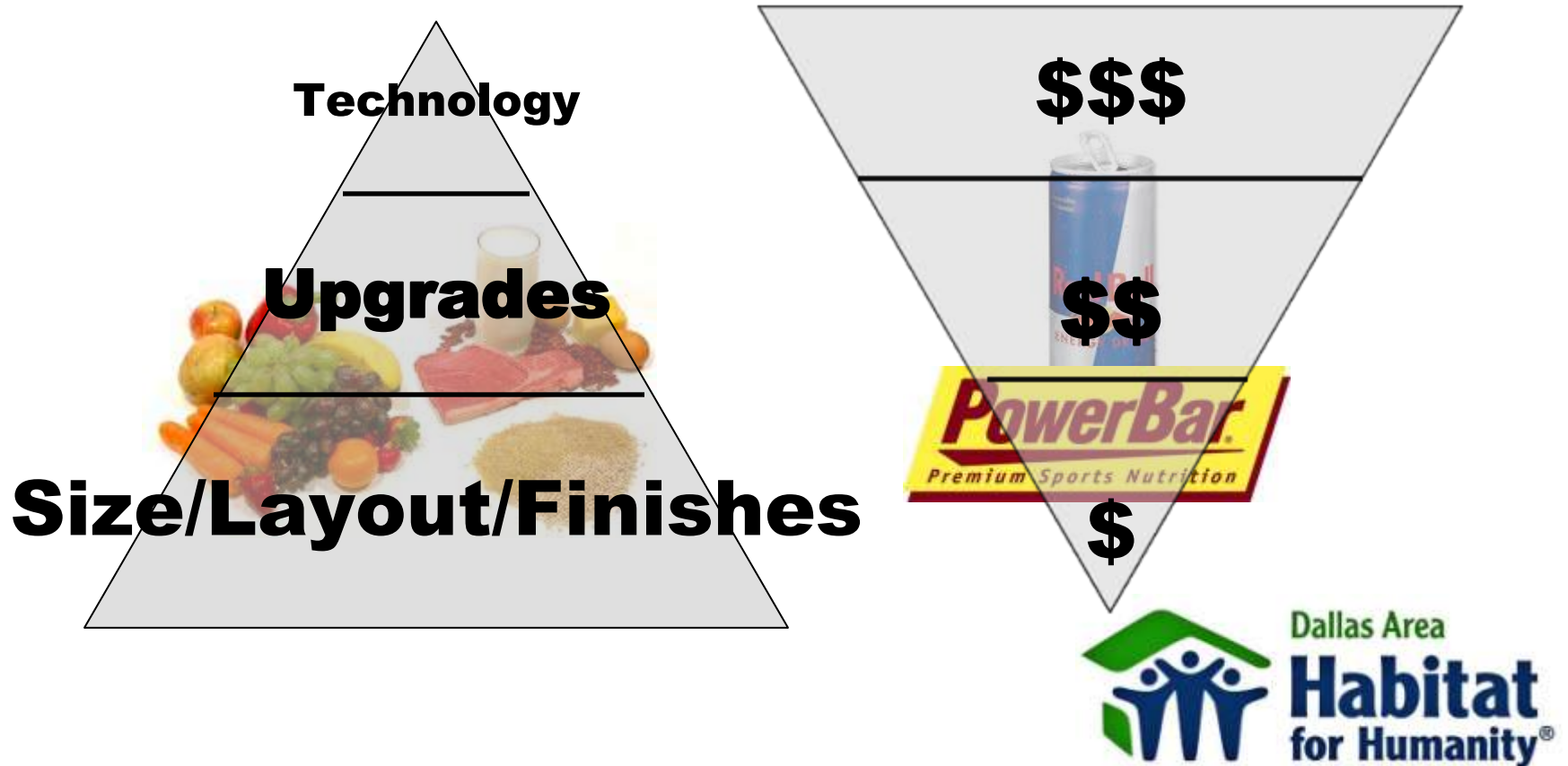
Good Design is like good nutrition



Start with the basics



Technology supplements good design



Healthy Homes Require Healthy Neighborhoods

- Neighborhood Engagement
- Community Partners
- Overcoming decades of disinvestment

