# GREEN HOUSING IS FAIR AND HEALTHY HOUSING

U.S. GREEN BUILDING COUNCIL
## IDAHO CHAPTER

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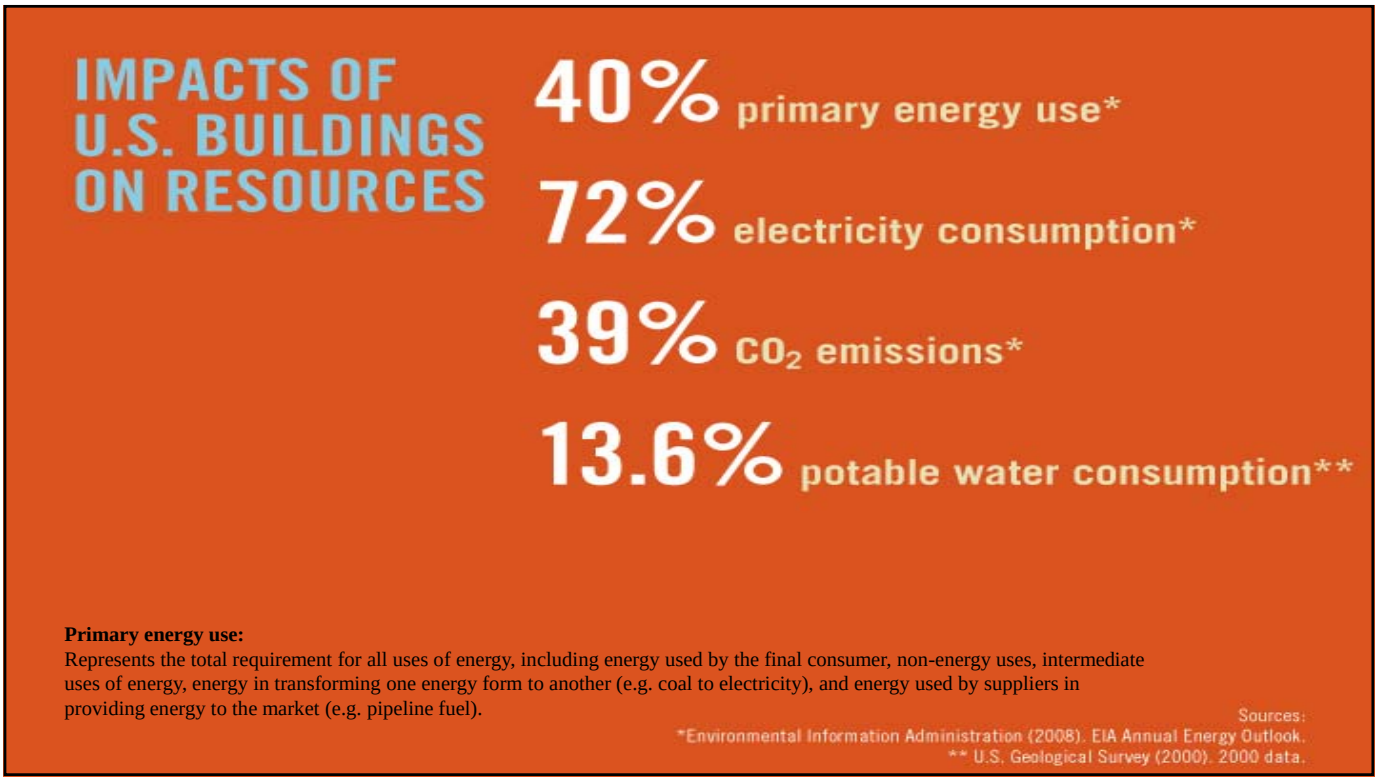
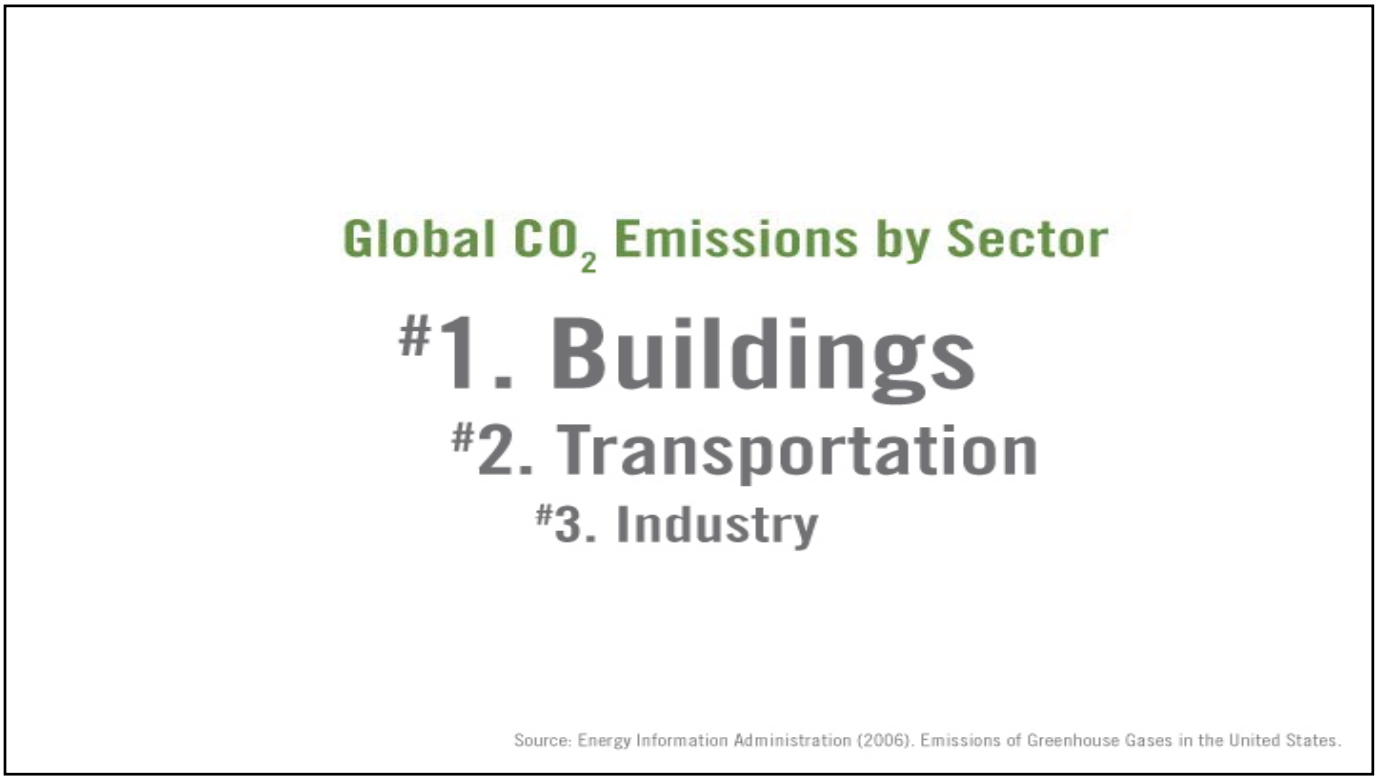
***Transforming the built Environment***

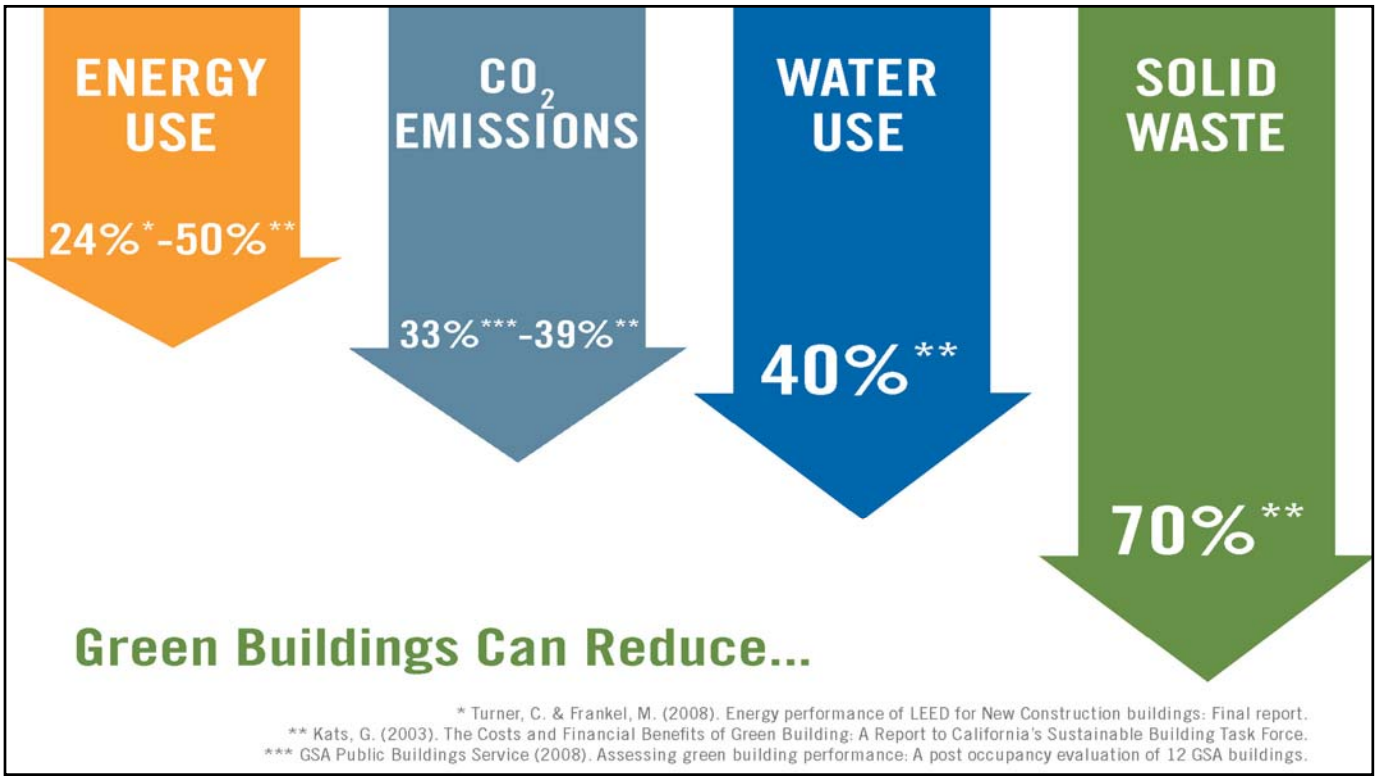
ACCELERATE THE IMPLEMENTATION OF SUSTAINABLE BUILDING CONCEPTS, TECHNOLOGIES AND PRACTICES THROUGH EDUCATION AND ADVOCACY.

## Three Main Topics for Sustainability and how relates to fair and affordable housing

- How Does Sustainability or Green Housing impact energy and water consumption?
- What are the Aspects of a Healthy, Affordable Home?
- How can Multi Family Housing Benefit from the implementation of sustainable practices?


IMPACTS OF U.S. BUILDINGS ON RESOURCES
40% primary energy use*
72% electricity consumption*
39% $CO_2$ emissions*
13.6% potable water consumption**
Primary energy use:
Represents the total requirement for all uses of energy, including energy used by the final consumer, non-energy uses, intermediate uses of energy, energy in transforming one energy form to another (e.g. coal to electricity), and energy used by suppliers in providing energy to the market (e.g. pipeline fuel).
Sources:
*Environmental Information Administration (2008). EIA Annual Energy Outlook.
** U.S. Geological Survey (2000). 2000 data.


Global $CO_2$ Emissions by Sector
#1. Buildings
#2. Transportation
#3. Industry
Source: Energy Information Administration (2006). Emissions of Greenhouse Gases in the United States.




## Green Building Occupants Are Healthier & More Productive

- In the U.S., people spend, on average, 90% or more of their time indoors*
- Green buildings typically have better indoor air quality and lighting

* Source: The Total Exposure Assessment Methodology (TEAM) Study. EPA 600/S6-87/002. U.S. Environmental Protection Agency. 1987.

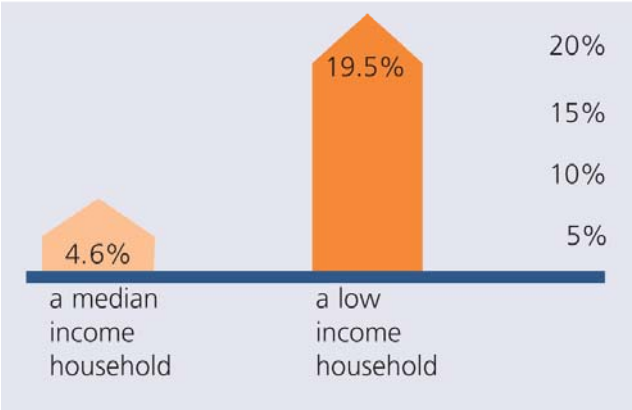
## Valuing Healthy and Efficient Housing for All Is Fair Housing

- Everyone deserves to live in a truly affordable and healthy home
- USGBC is focused on attaining green buildings for all within this generation by expanding access to the benefits of healthy, efficient, and affordable housing

## Operating Costs and Health

- An unhealthy home with high operating costs due to inefficiency in energy and water consumption is not fair, affordable or healthy housing
- These basic outcomes of the green building process should be accessible to all

# High Utility Costs in Affordable Housing




- Currently, high utility bills are pervasive in the affordable housing
- Low-income households spend on average 19.5% of annual income on home energy costs
- The average for median-income households is just 4.6%

Courtesy: "The Cold Facts: The First Annual Report on the Effect of Home Energy Costs on Low-income Americans." National Fuel Funds Network, National Low-income Energy Consortium, National Energy Assistance Directors' Association. 2002. http://www.nliec.org/facts.pdf

# Vulnerable Households

**Households Comprised of:**

- Children
- Seniors
- Persons with chronic disabilities

**For this demographic, high utility bills are a serious problem, but asthma, allergies, and other chronic problems that can be exacerbated by exposure to toxins in the built environment can be matters of life and death.**

# Indoor Environmental Quality

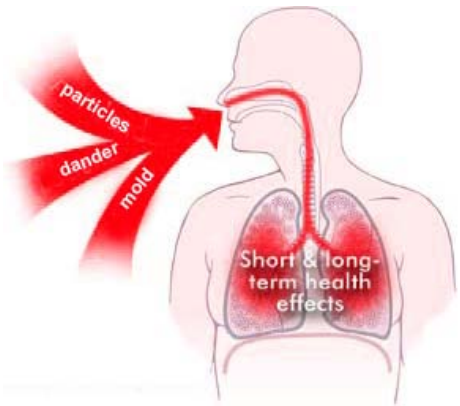
Elements of having good IEQ:

- Avoiding indoor pollutants
- Adequate Ventilation Strategies
- Physical Comfort – Depends on:
  - Ergonomic Comfort
  - Thermal Comfort
  - Visual Comfort
  - Acoustical Comfort
- Biophilia – describes the innate human connection and need to experience natural habitats
- Planning for Health and Well-Being

# Barriers to Indoor Air Quality

Pollutants of Concern:

- Chemicals (gases, volatile organic compounds)
- Particles and attached chemicals (dust, contaminants in the dust, pesticides, ect.)
- Biological (microbes/mold, bacteria, animal dander, plant pollens, dust mite antigen)
- Radiation (radon, electromagnetic fields)



# Extending the benefits of efficient healthy homes

**Benefits to residents:**

- Improved long term health
- Decreased physical symptom and associated health care costs
- Improved cognitive function
- Improved mood
- Increased productivity

**Benefits to building Owners:**

- Reduced insurance and liability costs
- Reduced regulatory inspection load
- Less churn
- Improved community livability
- Improved stakeholder relationships
- Better market position with "pro-green" consumers
- Improved business profile

# How does Sustainability Relate to Multi Family Single Family Housing

**Table 1. U.S. Residential Energy Consumption by Unit Type**

| | Total energy consumption (quadrillion BTUs) | Percentage of total | Consumption per household (mBTUs) | Consumption per household member (mBTUs) |
|---|---|---|---|---|
| Single-family dwellings* | 8.49 | 84.4% | 106.58 | 39.36 |
| Multifamily dwellings | 1.57 | 15.6% | 64.14 | 29.37 |

Note: BTUs = British thermal units; mBTUs = millions of British thermal units.
*Source*: Energy Information Administration 2005 Residential Energy Consumption Survey, table US 1.
*Excluding mobile homes

# Opportunities for Multi Family Housing

- 85 Percent of multifamily units were built before 1990
- substantial savings can be recognized — anywhere from 30 to 75 percent [1]

1. Matthew Brown and Mark Wolfe. 2007. "Energy Efficiency in Multi-Family Housing: A Profile and Analysis," 3, iv.

# Multifamily Household Resources

- Most multifamily households (88%) are renters, whose average annual income ($31,000)
- Homeowners average annual income ($61,000)

## Extending the benefits of fair, efficient, healthy homes should not be an option.

# Thank You

U.S. GREEN BUILDING COUNCIL

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