Building Green in Wyoming: A Guide for Homebuilders

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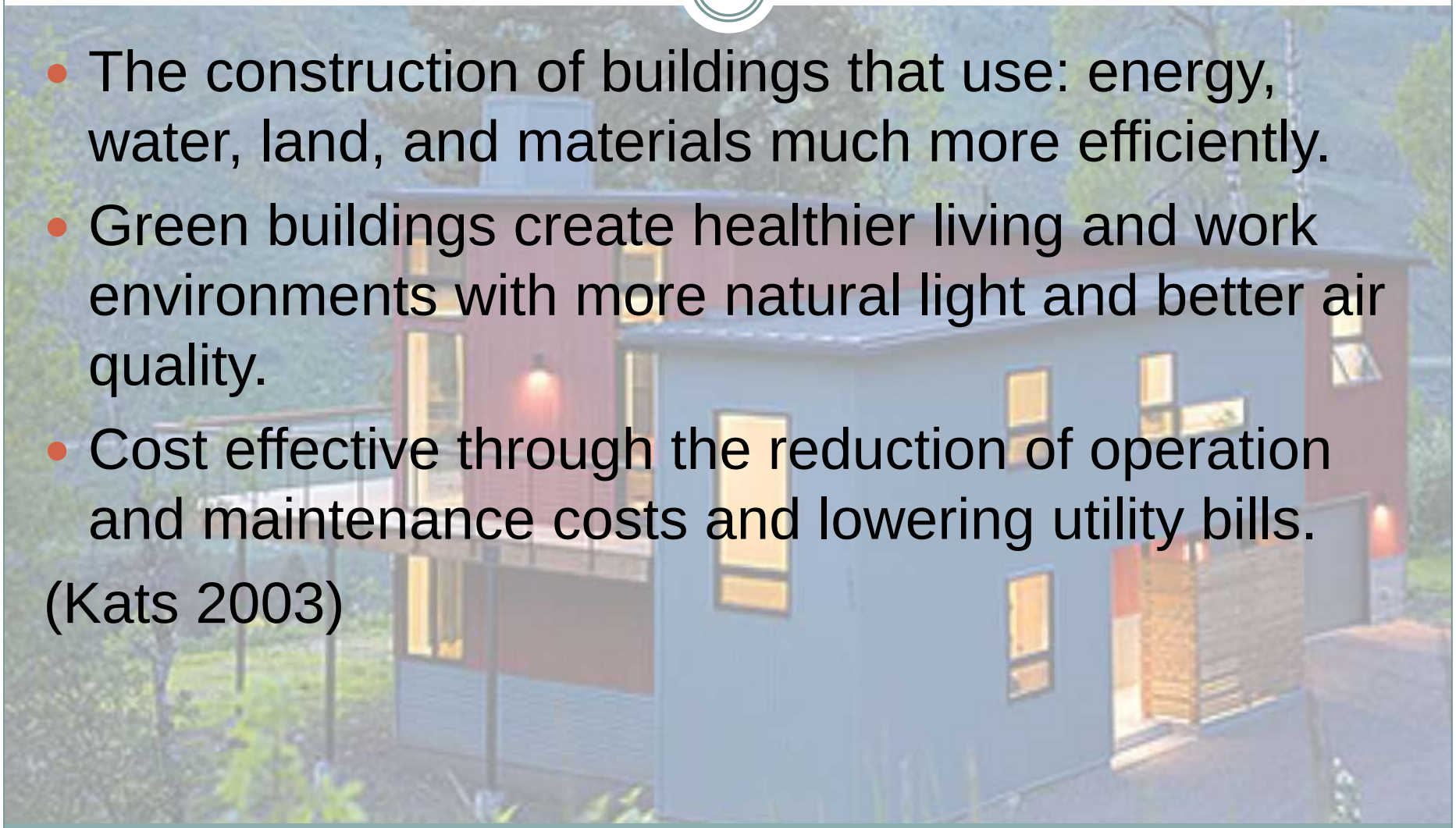
Overview

- Definition of green building
- Perceived issues associated with green building
- Explore the root of these issues
- Show how eliminating these roots reveals true cost
- Why green building?
  - 6 reasons
- Tips to keep in mind
- LEED
  - What it is
  - How to achieve accreditation
- Questions

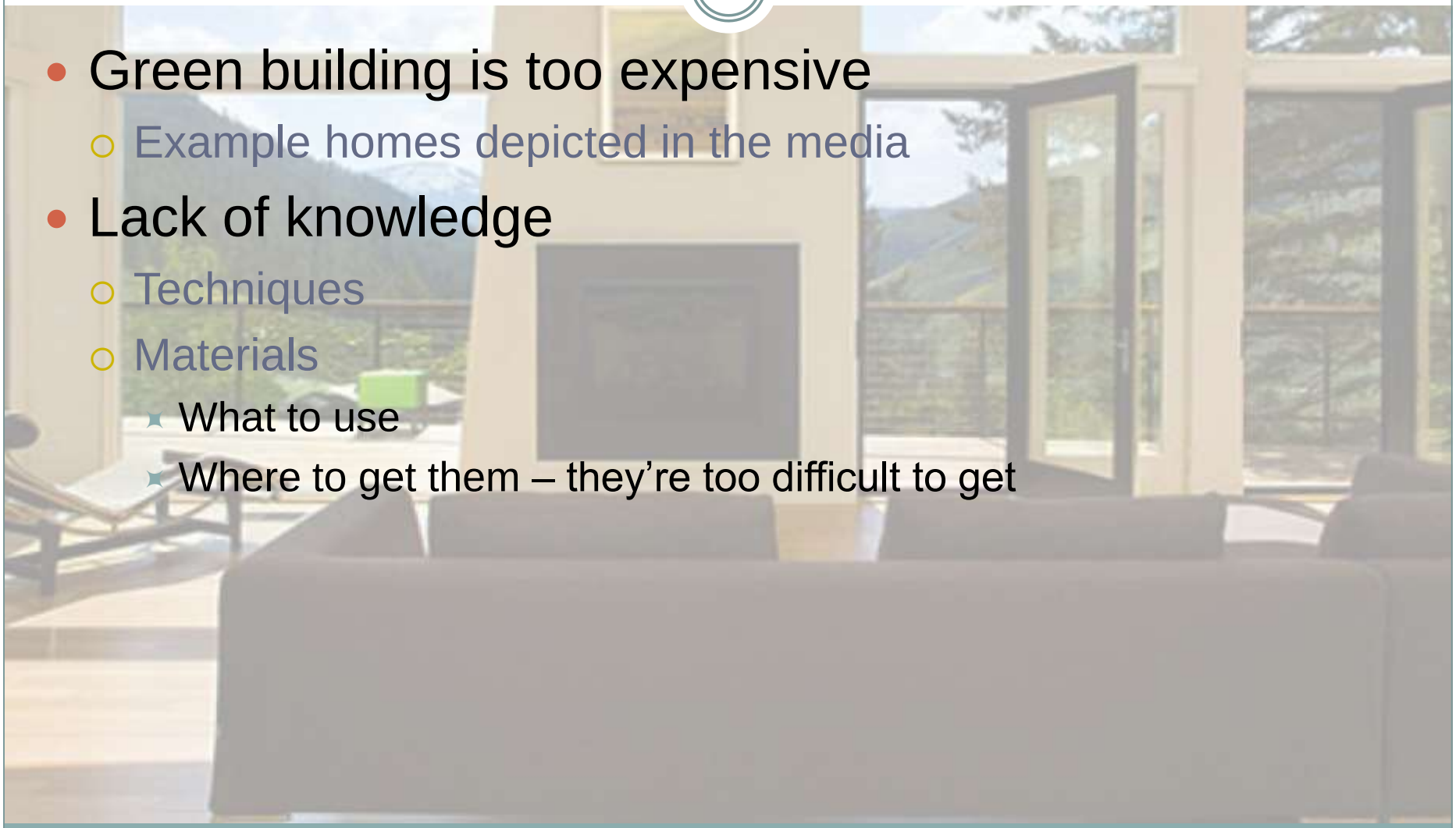
What is Green Building?



- The construction of buildings that use: energy, water, land, and materials much more efficiently.
- Green buildings create healthier living and work environments with more natural light and better air quality.
- Cost effective through the reduction of operation and maintenance costs and lowering utility bills.

(Kats 2003)

Perceived Issues



- Green building is too expensive
  - Example homes depicted in the media
- Lack of knowledge
  - Techniques
  - Materials
    - What to use
    - Where to get them – they're too difficult to get

Roots of These Misperceptions

- High cost, whether perceived or real:
  - Low demand=higher price="green premium"
  - Use of expensive and unnecessary land and materials (marble countertops)
  - Lack of Life Cycle Costing (LCC)
  - Lack of abundant data depicting the LCC of the same building both green and conventional
  - Undereducated and/or inexperienced builders

Eliminate the Root of the Problem

The REAL Cost of Green Building

- Investing in green will pay for itself
- Avoiding unnecessary, expensive materials will reveal a more budget-friendly cost
- LEED Accreditation – minimize cost of mistakes (less time, and change orders)
  - Or at least taking the time to learn about green building

Why Green Building?

Specific considerations for the builder:

1.) Green building becoming increasingly more prevalent
   - Value of green building $12 billion in 2007 (Syal 2007)

2.) Designers and homeowners

3.) Wyoming's Carbon emissions – carbon credits/compensation.

Other reasons…

4.) Energy and Water Efficiency

Green buildings use 20-30% less energy on average than conventional buildings

- Lighting and Heating
  - CFL v. Incandescent
  - Natural Lighting
  - Orientation
  - Masonry
  - Thermostat Control
  - Solar Heating
  - Insulation
- Fixtures and Appliances
  - Low-flow faucets
  - Tankless or Solar Water Heaters
  - Energy Star Appliances
  - Solar and/or wind electricity generation

CFL vs. Incandescent

60W incandescent bulb (IB) vs. 60 W equivalent Compact Fluorescent (CFL)

- **Energy input**: 60W (IB) vs. 13W (CFL)
- **Light Output**: 830 lumens (IB) vs. 810 lumens (CFL)
- **Useful Life**: 1,500 hrs (IB) vs. 10,000 hrs (CFL)
- **# Bulbs per 10,000 hrs**: 6.7 (IB) vs. 1 (CFL)
- **Bulb Costs**: 6.7 @ ~$1.00 = $6.70 (IB), 1 @ ~$4.00 = $4.00 (CFL)
- **Electricity Used**: 600 kwH (IB) vs. 130 kwH (CFL)
- **Electricity cost at $0.06/kwH**: $36.00 (IB) vs. $7.80 (CFL)
- **Total Cost (Electricity + Bulb)**: $42.70 (IB) vs. $11.80 (CFL)
- ***Total Savings of: $30.90 just for one light fixture***

5.) Addresses Morality

- Sets Example for Society
- Green building addresses the growing environmental concerns faced by our society (Kats 2003)
  - Global climate change and water scarcity
  - Reduces what goes into the landfill
    - Recycled and/or biodegradable materials
    - Recycle old, unwanted, or toxic materials
      - e.g. Non Energy-Star refrigerators

6.) Healthier Living Space

- Americans spend an average of 80-90% of their time inside buildings (Reis 2006)
- Improved indoor air quality
  - Low VOC paints
  - Non-synthetic, low-pile carpeting
- Natural Lighting

Some Things to Keep in Mind

- Purchase materials that are as local, renewable, and non-toxic as possible.
  - Pine vs. redwood vs. bamboo
- Use Nature to your advantage
  - Sun: Orientation, lighting, heating/cooling, electricity (solar)
  - Wind: electricity
  - Ground: heating/cooling (gravel pits)
  - Water: capture rain/snow and use for irrigation

Some Things to Keep in Mind

- Minimize what goes into the landfill
  - Reuse and recycle (old brick walls, appliances etc.)
- Be Creative
  - Biomimicry

What is LEED?

"LEED is an internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO_2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts…

…Developed by the U.S. Green Building Council (USGBC), LEED provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.” (usgbc.org)

How to Earn the LEED AP Homes Credential

- Take the LEED AP Homes Exam
  - Prepare with online courses:
    - “HOMES 251: LEED for Homes Program Review Series”
    - “HOMES 301: Implementing the LEED for Homes Rating System”
- LEED AP Homes credential holders are required to complete and report 30 Continuing Education (CE) hrs each reporting period
  - 6 of these hours must be LEED-specific

How to Earn the LEED AP Homes Credential Continued…

- Fulfill LEED-specific requirements with any of the following:
  - 401: Green Rater Training
  - 201: Regreen Revolution Series
- For more information, visit: http://www.usgbc.org/

Questions?

References

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