Healthy Buildings

“We shape our dwellings, and afterward our dwellings shape our lives.”

Sir Winston Churchill
British Prime Minister 1960
Workshop Topics:

1. Common problems in existing structures
2. Remediation techniques
3. New construction
4. Air quality
5. Sound quality
6. Energy consumption and reduction
7. Location & transportation
8. Water efficiency
9. Sustainable sites
10. Green building materials
11. Operation and maintenance
Sick Building Syndrome (SBS)

- Air Quality and Ventilation
  - Mold and Mildew (Humidity Control)
  - Chlorofluorocarbons (CFCs)
  - Volatile Organic Compounds (VOCs)
  - HVAC Systems and Equipment
  - Chemically Formulated Products and Techniques
  - Building Tightness

- Hazardous Materials and Systems
  - Asbestos, Lead Paint
  - Non Compliant Structural, Mechanical, Electrical, and Plumbing
Remediation Techniques

- Remediation is generally subject to an array of regulatory requirements, and also can be based on assessments of human health and ecological risks where no legislated standards exist or where standards are advisory.

- CONTACT A PROFESSIONAL
USA Building Consumption

- 35 to 40% of total primary energy use in U.S.
- 73% of total US electricity consumption
- 40% of the US wood & other raw materials
- 14% of potable water in US
- 38% of CO2 emissions
- 32 to 40% to the US municipal solid waste stream
  - (136 million tons of C&D waste in US = ~2.8 lbs per person/ day)
Indoor air pollution and urban air quality are listed as two of the world’s worst toxic pollution problems in the 2008 Blacksmith Institute World's Worst Polluted Places report.

EPA has developed a new voluntary guidance document, Healthy Indoor Environment Protocols for Home Energy Upgrades, that provides a set of best practices for improving indoor air quality in conjunction with energy retrofit work in homes.
**Sound Quality**

- **Noise pollution** is the disturbing or excessive noise that may harm the activity or balance of human or animal life.

- Poor urban planning may give rise to noise pollution, since side-by-side industrial and residential buildings can result in noise pollution in the residential areas.
Energy and Atmosphere

- Global Energy Usage
  - Effects

- Global Energy Production
  - Effects
Energy Reduction

Energy Awareness:
- Utility Metering
- Peak Demand
- Programmable Systems
- Energy Audit

Energy Rating Programs:
- Net Zero Buildings
- Energy Star
- RESNET (Residential Energy Services Network)
- Alternative Energy Sources
Why Save Water?

- Each American uses an average of 100 gallons of water a day at home.
- We can all use 30 percent less water by installing water-efficient fixtures and appliances.
- The average household spends as much as $500 per year on their water and sewer bill and can save about $170 per year by installing water-efficient fixtures and appliances.
- 18 States are currently facing droughts, according to the US Drought Monitor.
Location and Transportation

- Site Selection
- Compact Development
- Community Resources
- Access to Transit
- Walkability
Sustainable Sites

- Brown Field
- Green Field
- Water Retention
- Urban Heat Island Effect
Materials and Resources

- Forest Stewardship Council (FSC)
- Durability Management
- Durability Management Verification
- Material Efficient Framing
- Environmentally Preferable Products
- Construction Waste Management
- Recycled Content
- Rapidly renewable resources
- Recycled content (postindustrial/ post-consumer)
- Low/ No VOCs
Operation and Maintenance

- Green cleaning
- Cleaning practices that counteract "green" materials
acknowledgements