

# **SUSTAINABLE RENOVATION PROVIDES VIABLE ALTERNATIVE TO NEW CONSTRUCTION**

## WOOLPERT WHITE PAPER

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January 2012

**When implemented with specific goals in mind, sustainable renovation projects are becoming a popular and environmentally friendly solution to the funding issues associated with new construction.**

U.S. buildings account for:

- 68% of all electricity consumed
- 39% of all energy used
- 38% of carbon dioxide emissions
- 12% of the total water consumption

And building-related waste from construction and demolition accounts for nearly 60% of all non-industrial waste, which amounts to about 136 million tons annually. [1]

With these numbers expected to grow as we continue to build new greenfield structures, we need to understand the huge and immediate impact renovating existing buildings can have on sustainability. We have to ask what approach will impact the built environment the most.

Our pattern for corporate America in the past was to tear down and build new, but with economic uncertainty still present and construction funding and project financing terms and conditions becoming more stringent, renovation of existing facilities is becoming a more viable alternative for projects. Renovation also presents many benefits associated with sustainability in design.



Sustainable design in a renovation project follows a prescriptive process that takes the existing structure through a building's lifecycle in an environmentally responsible and resource-efficient manner—from site design, construction techniques and materials, and operation and maintenance to the completed renovation. This practice expands and complements the classical building design

concerns of economy, utility, durability, energy efficiency and comfort. [2] With a sustainable process, a green building should meet the following goals:

1. Higher value than new construction in current market[3]
  - High-performance buildings are obtained at lower cost
  - Demand for new and expensive building materials is reduced
  - Environmental burden of building is eliminated and modern needs are met through adaptive reuse strategies
2. Sustainable design goals in building renovations
  - Integrated design
  - Energy efficient
  - Water efficient

- Improved indoor air quality
  - Reduced waste
  - Recycled materials used
3. Operations and maintenance
- Operated and maintained in a manner consistent with the principles of sustainability to maximize green principles [3]
  - Building operating plan includes everyday maintenance and seasonal procedures
  - Optimized building operations and maintenance as part of total process through advanced green building design/construction features and practices (enabled through continued research)

As designers, we need to optimize concepts and solutions that provide energy efficiency, minimize lifecycle costs, promote occupant productivity and health, and utilize construction techniques and materials that promote resource conservation and environmental sustainability.

Providing sustainable design within renovation projects is our responsibility as design professionals, and we need to be sympathetic to the way we address our impact on the environment for the future. Maintaining continuity from one sustainable design project to another, along with shared lessons learned and new ways to reduce our impact on the build environment can benefit our future.

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1 Sustainability Matters-U.S. General Services Administration 2008

2 From Wikipedia,

3 U.S. Environmental Protection Agency. (October 28, 2009). Green Building Basic Information. Retrieved December 10, 2009