## Case Study Database

The Greensburg High Performance Buildings Database highlights building case studies that include design details and energy information for the town's new commercial and residential green buildings. The database provides a standardized format for displaying performance information as well as a system for collecting data on topics including energy, materials, indoor environmental quality, and land use.


GREENSBURG GreenTown

In Depth Case Studies

BTI-Greensburg John Deere Dealership, Greensburg Kansas (BTI-Greensburg John Deere)

Overview

- Location: Greensburg, KS
- Building type(s): Retail
- New construction
- 27,000 sq. feet (2,510 sq. meters)
- Project scope: a single building
- Rural setting
- Completed November 2008
  The dealership is currently under construction as of August 2008.
- Rating: USGBC LEED-NC 2.2—Level: Goal of Platinum with 38% Energy Cost Savings

BTI-Greensburg is rebuilding a new John Deere Dealership and Service shop in Greensburg, Kansas. 95% of the town was destroyed in a tornado in May of 2007. The metal building is attempting to achieve LEED Platinum and 38% energy cost savings. Completion is expected in late 2008.

Environmental Aspects

The dealership is designed to be fully daylit using 24 skylights in the service shop and 12 tubular daylighting devices in the retail space. Well insulated wall panels have an assembly R-value of R-26 and minimize thermal breaks typically seen in metal building construction. The high bay overhead doors include R-24 insulated panels. R-38 roof insulation incorporates thermal blocks to minimize the thermal breaks at the roof structure. A high efficiency 16 SEER VAV provides heating, cooling, and outdoor air to the retail space, combined with CO2 demand controlled ventilation. Hot water is provided with a combination of a waste oil boiler and natural gas boiler. Waste oil from oil changes in the service shop is stored onsite and used during the winter to offset natural gas use. Radiant slab heating minimizes heat loss during the frequent bay door open and close cycles. Two wind turbines (4.2 kW and 1.9 kw) provide electricity to the facility, offsetting an estimated 8% of the building load.

*BTI-Greensburg, the local John Deere dealership, is designed to meet the requirements of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) Platinum designation while saving greater than 38% in energy costs, and will be used as the model for future John Deere dealerships.*

## Stay Tuned…

Greensburg is in the early stages of rebuilding, and the Greensburg High Performance Buildings Database will continue to grow as the town does. If you are constructing a green, energy-efficient building in Greensburg, we'd love to hear about it. Visit greensburg.buildinggreen.com and click "submit a project."

To see the Greensburg case studies, visit:
**greensburg.buildinggreen.com**

## A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

### For Additional Information, Please Contact:

Energy Efficiency and Renewable Energy Information Center
1-877-EERE-INF (1-877-337-3463)
***www.eere.energy.gov***

Produced for the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy by the National Renewable Energy Laboratory

U.S. Department of Energy
**Energy Efficiency and Renewable Energy**
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

GREENSBURG GreenTown™

NREL National Renewable Energy Laboratory
*Innovation for Our Energy Future*

For more information about Greensburg, contact
(620) 549-3752 or (620) 723-2790
info@greensburggreentown.org
204 West Florida
Greensburg, KS 67054

DOE/GO-102008-2664
October 2008

Cover photo courtesy of Lynn Billman, NREL

Printed with a renewable source ink on paper containing at least 50% wastepaper, including 10% postconsumer waste.

# How would you rebuild a town – *green*?

## Greensburg, Kansas: Building a Model Green Community

U.S. Department of Energy
**Energy Efficiency and Renewable Energy**
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

# Why Greensburg?

On May 4th, 2007, an EF-5 tornado tore through Greensburg, Kansas, destroying or damaging 95% of the town's homes and businesses. With the help of many partners, including the U.S. Department of Energy and the National Renewable Energy Laboratory, Greensburg is rebuilding as a model green community for rural America.

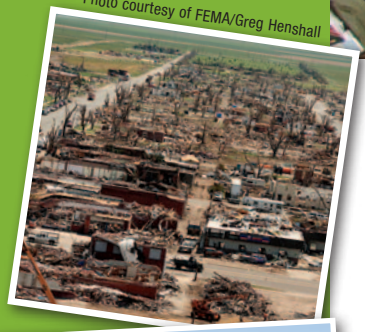

Photo courtesy of FEMA/Greg Henshall

Photo courtesy of FEMA/John Shea

Before the tornado, Greensburg was a typical Midwestern farming town of about 1,400 people. After the tornado, Greensburg recognized the opportunity to remake their devastated town in ways that could attract new residents of all ages. Because Greensburg is a small town with limited financial resources, they wanted this new green community to be affordable.

What they lack in financial resources, Greensburg residents more than make up for in resourcefulness and ingenuity. The town has gathered a diverse group of experts and enthusiasts to help make their vision of a green community a reality.

To expedite the process, residents formed Greensburg GreenTown™, a grassroots, community-based nonprofit organization established to provide resources and support as Greensburg rebuilds. For more information, visit:

**www.greensburggreentown.org**

Photo courtesy of BNIM Architects

Residents of Greensburg are turning a disaster into an opportunity, both for their town and for other rural American communities.

## Greensburg's Green Goals

**Greensburg's city leaders and residents are working to create a community that is:**

- **Economically, environmentally, and culturally sustainable**
- **Walkable and mixed-use**
- **Supporting families, fostering business, and working together to spur economic growth**
- **A model for other rural towns**

## How Greensburg Is Achieving Its Goals

### Build an Effective Team

Combine residents' passion and knowledge of place with resources and technical expertise from industry and government partners

### Put Efficiency First!

Reduce energy use by building high-performance homes, businesses, and public buildings, and renovating to high efficiency standards

### 100% Renewable, 100% of the Time

Use renewable energy to generate electricity, primarily community-scale wind and distributed-scale wind or solar photovoltaics with hydropower and biofuels when needed

### Rethink Local Transportation

Reduce gasoline and diesel use through alternative transportation and careful community planning

### Make it Easy and Cost-Effective

Encourage residents and businesses to go green by offering incentives, technical assistance, information, training, fundraising, and other support

## Set Specific Energy Goals

### LEED® Platinum Buildings

Greensburg is serious about energy efficiency. It is the only city in the country that requires all city-owned buildings to meet the U.S. Green Building Council's LEED Platinum standards. In addition, city buildings will earn the maximum number of LEED energy efficiency points, resulting in a 42% energy savings compared with buildings built to current code. Many of Greensburg's commercial and institutional buildings are following suit.

### Greensburg's Master Plan

The Greensburg Master Plan includes other ambitious energy goals:

- New homes to use 40% to 50% less energy than current code
- Renovated homes to use 25% less energy than before
- Electricity to come from renewable resources such as wind and solar
- Transportation system to minimize fossil fuel consumption through careful planning and alternative transportation options

Photo courtesy of NREL/Lynn Billman