

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 (2,120 sq. meters)
- Project scope: a single building
- Retail setting
- Completed November 2008

The dealership is currently under construction as of August 2008.

- Rating: U.S.GBC LEED-NC v2.2-1 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 retail 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 staff using 12 daylight in the service shop and 12 indoor daylighting devices in the retail space. Well insulated wall panels have an assembly R-value of R-20 and minimize thermal breaks typically seen in retail building construction. The high bay overhead doors include R-14 insulated panels, R-38 roof insulation (non-toxic thermal breaks to minimize the thermal breaks at the roof structure). A high efficiency 24,000 BTU gas boiler heating, cooling, and outdoor air in 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 hot floor open and close cycles. Two solar hotwater (1.2 kW and 1.5 kW) provide electricity to the facility, offsetting the natural gas use of the hotwater boiler.

Photo credit: Photo courtesy of NREL

Project Topics

- Overview
- Process
- Energy
- Design

Greensburg GreenTown
GreenTown Home
Building Case Studies
Department of Energy in Greensburg

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

For Additional Information, Please Contact:

Energy Efficiency and Renewable Energy Information
Center 1-877-EERE-INF (1-877-337-3463)

www.eere.energy.gov

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NREL
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Innovation for Our Energy Future

How would you rebuild a town – green?



Greensburg, Kansas:
Building a Model Green Community

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Cover photo courtesy of Lynn Billman, NREL

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Why Greensburg?

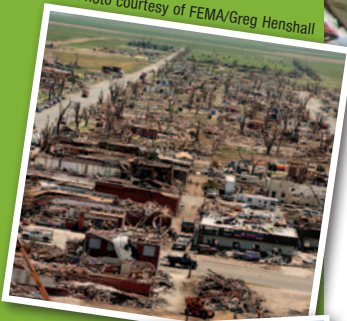
On May 4th, 2007, an EF-5 tornado tore through Greensburg, Kansas, destroying or damaging 95% of the town's homes and businesses. With the help of many partners, including the U.S. Department of Energy and the National Renewable Energy Laboratory, Greensburg is rebuilding as a model green community for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

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



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

Photo courtesy of BNIM Architects

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