



# LEADING BY EXAMPLE

*How state government is saving energy and money— while helping the climate – for all Vermonters*

## The Waterbury State Office Complex A Model for Green, Climate Resilient Building

The State Office Complex in Waterbury, Vermont was hit hard by Tropical Storm Irene in 2011. Water levels rose above the first floor of many buildings, and agencies were forced to relocate their employees to temporary locations scattered across the state.

When Vermont’s Governor Peter Shumlin decided to rebuild state offices at the site, the Vermont Department of Buildings and General Services (BGS) saw a rare opportunity to design and build a complex that would save state government tens of thousands of dollars annually and model green building for other organizations – with energy and climate smart features throughout.

### Description and Financing

The property loss at the Waterbury State Office Complex was extensive. Complicating this challenge was the fact that many of the original buildings were located in floodplain areas at high risk for future flooding. New buildings would have to be highly cost effective to operate, and resilient to the more severe weather events and flooding that scientists are expecting in the northeast due to a changing climate.

The State funded the project with a combination of insurance, federal disaster recovery funds, and state bond revenues. BGS and the Agency of Natural Resources established close partnerships with the Federal Emergency Management Agency, the Town of Waterbury, and local community and business organizations to make the complete redevelopment of the historic complex possible.

The project includes the restoration of the site’s “historic core,” a collection of 13 historically significant buildings that face Main Street. It also includes a biomass heat plant, restored floodplain, a new energy efficient office building that can be heated and cooled at low cost to the state’s budget, green stormwater infrastructure and enhanced pedestrian circulation.

### Doing More Work with Less Energy

🌀 **Energy efficient heating and cooling.** The new and retrofitted buildings include efficiency measures that will dramatically reduce the costs of operating office buildings. Integrated “building envelope systems” will protect historic exteriors while air sealing and insulating to reduce unwanted and costly heat transfer. New energy management systems will control HVAC and lighting to maximize occupant comfort and minimize building energy usage, for example by automatically shutting down heating and cooling systems when windows are open.



The Complex is on track to become the State’s first LEED Gold Certified Campus, a renowned, internationally recognized green building accreditation.

- 🔗 **Heat from Vermont-grown wood chips.** The new central heating plant has a highly efficient woodchip-fired boiler with back-up propane. With this new heating system in place, the state will no longer burn the higher greenhouse gas emitting #6 fuel oil for heating state government owned buildings anywhere in Vermont
- 🔗 **Conservation.** The complex will reduce water consumption with widespread use of low flow fixtures, which save energy too.

## Preparing for Future Storms

The site plan integrates flood resilient site locations and designs to minimize the risk of future flood damage and restore a healthy floodplain that helps protect Waterbury's downtown. For example:

- **Moving Away from the River.** 22 buildings totaling 300,000 square feet located closest to the river were demolished, and fill was removed to lower the floodplain and reconnect it to the river. The removed fill was used to elevate the new office building and central heat plant above the 500 year flood elevation.
- **Flood-proofing.** All of the mechanical, electrical and plumbing in the historic building was removed from the basement areas, and the basement areas were filled and structurally reinforced, so that the lowest floor elevation of those historic buildings is also above the 500 year flood level.
- **Greening-up.** Almost 1000' of river frontage was replanted with vegetation to create healthy riparian buffers that can slow floodwaters. Green stormwater infrastructure, such as swales and plantings, were installed to help absorb and clean stormwater from rain events that can pollute the river.

## Clean Energy On Site

- 🔗 **A new solar roof.** The state has entered into a group net-metering agreement with a private solar developer to finance and install a 100 kW rooftop solar photovoltaic system on the new office building. The solar panels will save money and help Vermont achieve it's renewable energy goals with no upfront cost to taxpayers.
- 🔗 **EV-ready parking.** The state's Fleet motorpool is going electric. The Waterbury State Office Complex will have two dual port charging stations to serve the all-electric and plug-in hybrid fleet vehicles, and capacity to host an additional five stations when demand increases.

## Looking Ahead

The new Waterbury State Office Complex, due for full occupation in 2016, marks an exceptional achievement of state government and exemplifies construction practices for the future.

Energy smart investments will reduce the Complex's greenhouse gas emissions by 5,000 metric tons (CO2E) – the emissions from heating and powering over 450 homes.

