



# Wall Insulation Retrofit—Commercial Building

## Sample Scenario

The DOE Buildings Performance Database is a decision-support platform comprised of a database and data analysis tools that enables financial and engineering practitioners to evaluate energy efficiency products and services in commercial and residential buildings.

The scenario described below highlights the Database's ability to evaluate commercial energy efficiency projects. It is based on the commercial building data currently contained in the Database and will demonstrate the capabilities of the energy performance tool. As more building performance data is added to the Database, additional sample scenarios will be developed to demonstrate how the Database can inform investment decisions in energy efficiency projects.

### Retrofit Inputs

Select the following input parameters to generate an energy usage forecast for a small commercial office building wall insulation efficiency retrofit.

#### Classification Screen Selection

Energy Usage Forecast

#### Location Screen Selection

Zone: 3B (1931)

#### Building Information Selection

Square Footage

Facility Type Select All Office Types (Multi-Select)  
Square Footage (Sq. Ft.) Min. 1,000 Max 50,000

#### Retrofits Page Selection

Wall Insulation R-Val

Pre-Retrofit Characteristics Min. 0 Max 3  
Post-Retrofit Characteristics Min. 15 Max 30

For more information visit:  
<http://www.commercialbuildings.energy.gov/bpd.html>

### Retrofit Results

After selecting the designated inputs, the Results tab displays a series of helpful charts based on your search parameters and building specifications. Here we examine Annual Gas Usage.

#### Energy Savings—Annual Gas Usage

The charts below show the annual gas savings. The top chart shows the probability distribution of the energy use intensity (kBtu/sf/year) for the pre-retrofit consumption (blue line) and post-retrofit consumption (green line). The bottom chart shows the net savings—the difference between the pre- and post-consumption probability distributions. The results show a mean savings of about 10 kBtu/sf/year and a relatively large standard deviation of about 16 kBtu/sf/year. The wide range is likely because the analysis is based on very few parameters – just climate, building type, and size. The energy use of each building is affected by a number of other parameters such as HVAC system type, window type, etc. If the analysis controlled for these additional parameters, the savings estimates will become more accurate and have lower uncertainty. This will be possible as more and richer datasets are added to the Database over time.

#### Energy Savings—Annual Gas Usage

