

ENERGY EFFICIENCY IN GOVERNMENT BUILDINGS



Government buildings can be improved to operate more efficiently. Most office buildings use the majority of their energy for HVAC pumps and fans, lighting, heating and cooling. By updating or changing the way these systems operate, money can be saved and less energy can be used.

Ventilation

Provide healthy indoor air quality by ensuring ventilation complies with building code. Make sure outside air dampers function properly to save up to 9% in HVAC energy by free cooling through economizers.***

Lighting

Interior LED Lighting

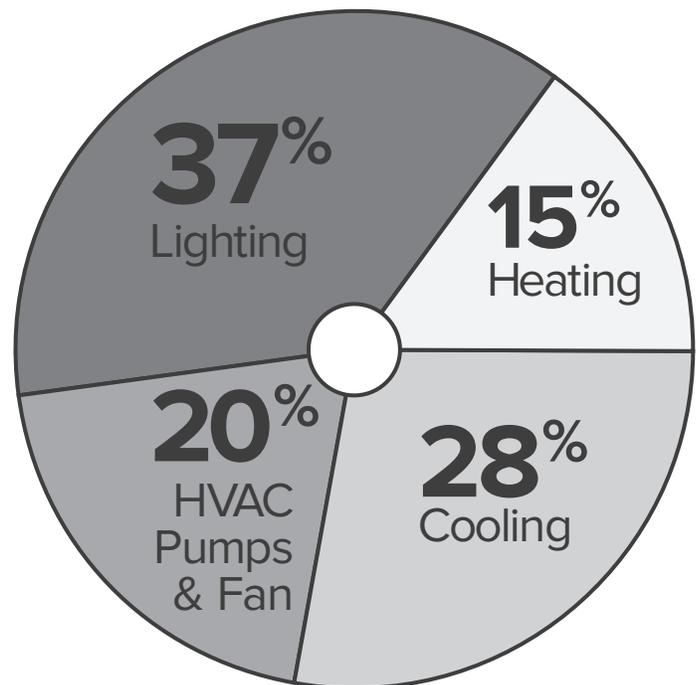
Consider LEDs for offices and meeting rooms. Interior LED fixtures compete with top performing fluorescent lights in terms of quality and energy efficiency. Superior lamp life, maintenance savings and dimmability can offset the higher initial cost.

Exterior LED Lighting

Reduce energy consumption by as much as 40% with LEDs for exterior lighting. Other benefits include reduced light pollution and reliable operation at low temperatures.***

Occupancy Sensors

Save 40% to 46% on lighting energy in meeting and work rooms with occupancy sensors. Choose spaces that are intermittently occupied and carefully select the right type of sensor for the space.***



The chart shows the energy end-use in a typical office building located in a metropolitan area of the Carolinas.



Kitchen

Cooking Equipment

Upgrade to ENERGY STAR® commercial ovens and improve energy efficiency by 20%.*

Refrigeration Retrofit

Switch to an Electronically Commutated Motor (ECM) and/or an automatic door closer and save up to 23%.**

Refrigeration Replacement

Replace refrigerators and freezers with ENERGY STAR models and enjoy 40% savings compared to standard models.*

Vending Machines

Specify ENERGY STAR refrigerated beverage vending machines to save 50% on energy costs. Retrofit existing vending machines with controllers to save 30% to 40%.

Cooling

Cool Roofs

Choose a roof with a high solar reflectance to reduce cooling load - this may not have additional cost if a roof replacement is already planned.***

Green Roofs

Reduce cooling by integrating a green roof with vegetative plantings.

Window Film

Apply window films to reduce heat gain and light in areas where occupants complain of overheating and glare.***

IT Equipment

Computers and Servers

Choose ENERGY STAR computers and servers to save 30% to 40% on operating costs.

Computer Power Management

Power down computers and monitors when not in use to save \$10 to \$30 per computer per year.

HVAC

Energy Management Systems

Save between 5% and 15% of overall energy usage in buildings when HVAC systems are optimized and recommissioned properly.***

Equipment Replacement

Specify equipment that is more efficient than required by code to maximize energy savings and the investment in HVAC equipment.

Roof and Wall Sealing

Seal the joints at the roof and wall to reduce air leakage in the building envelope and improve HVAC performance, comfort and moisture control.

Programmable Thermostats

Save between 5% and 15% on HVAC costs with thermostats programmed to setback at night and on weekends.***

Window Replacement or Retrofit

Consider window replacement when you are doing a comprehensive retrofit. Savings are best determined with an energy model.***

Variable Frequency Drives (VFDs): Pumps & Fans

Save between 10% and 50% on the energy for the controlled pump or fan.

When planning a high performance building, some additional energy saving opportunities to consider include:

- ① Minimizing the surface area of the building envelope with a multi-story footprint
- ② Using high efficiency HVAC systems, such as geothermal heat pumps or thermal storage
- ③ Including proper daylighting design

* www.energystar.gov

** Energy Savings Potential and R&D Opportunities for Commercial Refrigeration. Navigant Consulting. 2009.

*** Articles from E-Source Business Energy Advisor accessed at www.bizenergyadvisor.com



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