

## Walmart is Building Better Stores

At Walmart, we believe being a profitable and efficient business goes hand-in-hand with being a good steward of the environment. Two of our company-wide environmental goals are to be supplied 100 percent by renewable energy and to create zero waste. To move our company toward these goals, we created the Buildings Sustainable Value Network, which helps design and build more energy- and water-efficient stores and clubs in our U.S. operations.

### Network Goals:

- Design and open a viable store prototype in the U.S. that is up to 25 to 30 percent more efficient and will produce up to 30 percent fewer greenhouse gas emissions by 2009 (2005 Baseline).
- Reduce greenhouse gases associated with our existing store, club and distribution center base around the world by 20 percent by 2012 (2005 Baseline).

### Energy Conservation

#### Lighting

- More than 95 percent of newly constructed Walmart stores and Sam's Club facilities include a daylight harvesting system.
  - By integrating more efficient lighting, electronic continuous dimming ballasts, computer-controlled daylight sensors, and skylights, Walmart takes full advantage of natural daylight.
  - Daylight harvesting can reduce up to 75 percent of the electric lighting energy used in a Walmart store during daylight hours. Each system can save up to an average of 800,000 kWh annually, enough energy to power 73 single family homes (11,020 kWh average annual use) for an entire year.
- Walmart installs occupancy sensors in most non-sales areas as part of its standard prototype. The sensors automatically turn the lights off when the space is unoccupied. These areas include: restrooms, break rooms and offices.
- Walmart illuminates exterior building signage and many refrigerated food cases with light emitting diodes (LEDs). LED technology is up to 52 percent more energy efficient than fluorescent lights. Total estimated energy savings for LED lighting in an average Walmart grocery section is more than 59,000 kWh per year, enough energy to power five single family homes.
  - LED lights are projected to last at least six years beyond conventional lighting, reducing maintenance costs.
  - In refrigerated food cases, LEDs perform well in the cold and produce less heat than fluorescent bulbs – heat which must be compensated for by the refrigeration equipment.

#### Energy Management System

- Walmart utilizes a centralized Energy Management System (EMS) to monitor and control the heating, air conditioning, refrigeration and lighting systems for all stores and Sam's Club locations in its U.S. operations, from Walmart's corporate headquarters in Arkansas.

#### HVAC

- Walmart uses one of the industry's most efficient heating, ventilating and air-conditioning (HVAC) units available.

#### Dehumidification

- Walmart actively dehumidifies its newly constructed stores and Sam's Clubs. Lower humidity allows the refrigeration system to operate more efficiently and mitigates condensation on refrigerated glass doors.

#### White Roofs

- Walmart uses "white" membrane roofs on its newly constructed stores and Sam's Clubs. With a higher reflectivity, white roofs help reduce building energy consumption in most climate zones and have a lower heat island effect than a darker roofing color.

## Refrigeration

- Walmart uses non-ozone-depleting refrigerant in new facilities. Refrigeration equipment is typically roof-mounted close to the refrigerated cases. This reduces the amount of copper refrigerant piping, insulation, potential for leaks and refrigerant charge needed.

## Heat Reclamation

- Walmart reclaims waste heat from on-site refrigeration equipment to supply 100 percent of the hot water needs for newly constructed Neighborhood Markets and 70 percent for stores and Sam's Clubs.

## Water Conservation

- In newly remodeled and constructed stores and Sam's Club facilities, Walmart installs high-efficient urinals that use only 1/8 gallon (one pint) of water per flush.
  - This fixture reduces water use by 87 percent compared to the conventional one gallon per flush urinal.
  - The 1/8 gallon urinal also requires less maintenance than waterless urinals, making this the better option for Walmart.
- The restroom sinks in newly constructed Walmart stores and Sam's Clubs use sensor-activated 1/2 gallon per minute high-efficiency faucets.
  - These faucets reduce water usage by 75 percent compared to mandated 1992 EPA Standards.
  - During use, water flows through turbines built into the faucets to generate the electricity needed to operate the motion sensors.
- The restroom toilets in newly constructed Walmart stores and Sam's Clubs are highly efficient and reduce water use.
  - The fixture uses 20 percent less water compared to mandated EPA Standards, of 1.6 gallon per flush fixtures.
  - The toilets utilize built-in water turbines to generate the power required to activate the flush mechanism.
    - These turbines save energy and material by eliminating electrical conduits required to power automatic flush valve sensors.
- It is estimated Walmart's water conservation measures could save up to 530,000 gallons of water annually at each Walmart store and approximately 220,000 gallons annually at each Sam's Club.

## Materials and Finishes

- Newly constructed Walmart stores require 15-20 percent replacement of cement with fly ash, a waste product of coal-fired electrical generation, or a 25-30 percent replacement with slag, a waste product of steel manufacturing, in its concrete mixes. By incorporating these materials, Walmart offsets the greenhouse gases emitted in the cement manufacturing process.
- Walmart uses Non-Reinforced Thermoplastic Panel (NRP) in lieu of Fiber Reinforced Plastic (FRP) sheets on the walls of its kitchen areas. NRP can be recycled, has better impact resistance and, like FRP, is easy to keep clean.
- Walmart uses exposed concrete floors in newly constructed stores and Sam's Clubs to reduce surface applied flooring materials. This eliminates the need for most chemical cleaners, wax strippers and propane-powered buffing.
- Walmart uses a plant based oil extracted from a renewable resource as a concrete form release agent (a product sprayed on concrete forms to allow ease of removal after the concrete has set). This release agent is non-petroleum based non-toxic and a biodegradable agent.
- Walmart has reduced the volatile organic compounds (VOCs) of exterior and interior field paint coatings by approximately 40 percent by using better performing standard paint products with lower VOC content limits.
- As part of our waste reduction pilot initiative, paint products for our buildings are primarily purchased in 55 gallon drums and 275 gallon totes, reducing the number of one gallon and five gallon buckets needed. These plastic buckets are filled from the drums and totes and then returned to the paint supplier for cleaning and reuse.

## Construction and Demolition (C & D) Recycling

- The goal of the Construction and Demolition (C&D) program is to capture and recycle as much of the metals, woods, floor and ceiling tiles, concretes, asphalts and other materials generated as part of Walmart's demolition and construction process as possible. Walmart works with a waste management company to fully research all available C&D recycling facilities in the area where construction activities occur and provide a system designed to capture the widest possible range of materials recovery options for that particular location and type of construction.

Walmart is working diligently toward achieving its sustainability goals. We are striving to build more energy-efficient buildings while reducing our environmental footprint, and helping our customers save money and live better. For information about Walmart's sustainability initiatives, please visit: [www.walmartstores.com/sustainability](http://www.walmartstores.com/sustainability).