



# BATTLE OF THE BUILDINGS

EPA's NATIONAL BUILDING COMPETITION



2012 WRAP-UP REPORT

# EPA's 2012 NATIONAL BUILDING COMPETITION

## A bigger battle than ever in 2012

EPA's 2012 ENERGY STAR National Building Competition: Battle of the Buildings marked the largest participant field yet in the competition's 3-year history. More than 3,000 buildings battled the scale and each other as they competed to find out who would become the nation's biggest energy loser. Teams represented more than 30 different types of commercial buildings and hailed from all 50 states, two U.S. territories, and the District of Columbia, making it a truly nationwide competition.

## The ground rules

As in past years, this diverse set of buildings competed to save energy, save money, and fight climate change. Competitors worked off the waste through improvements in energy efficiency with help from EPA's ENERGY STAR program. But with so many teams working hard to improve efficiency, how would a winner be picked?

All competitors tracked their monthly energy consumption using EPA's online energy tracking tool, ENERGY STAR Portfolio Manager. At competition launch, midpoint, and final, they reported their progress. At the end, the winner was the building that demonstrated the largest percentage reduction in energy use, adjusted for weather and the size of the building, during the competition, compared to a 2011 calendar year baseline. The energy use reductions for each top finisher were required to be verified by a licensed Professional Engineer or Registered Architect at the end of the competition.

## Many were winners...but only one was the biggest energy loser

So, just how much did the biggest energy loser save? Demarest Elementary School in Bloomfield, NJ, emerged victorious by cutting its energy use by more than half and achieved a whopping 52 percent in one year. But they weren't alone at the finish line. More than 85 buildings in the competition demonstrated energy use reductions of 20 percent or greater.

In addition to energy reductions, nearly 400 competitors also tracked and reduced their water consumption with help from EPA's WaterSense program. Leading the pack was a branch of Webster Bank in Brockton, MA, which logged an impressive 80 percent reduction in water use.

Altogether, competitors saved a combined total of more than 3 billion kBtus of energy and \$50 million on utility bills. These energy savings are having a significant, positive impact on the environment. Buildings and plants contribute 50 percent of U.S. greenhouse gas emissions and these competitors demonstrate that teamwork, better practices, and new technologies can deliver real reductions. In fact, this year's competitors reduced annual greenhouse gas emissions equal to the electricity used by more than 43,000 homes.

## Learn from this talented field

From improvements in operations and maintenance to upgrades in equipment and technology, competitors pulled all the stops to improve efficiency. Get their best energy-saving advice and check out their successful strategies in the following pages.

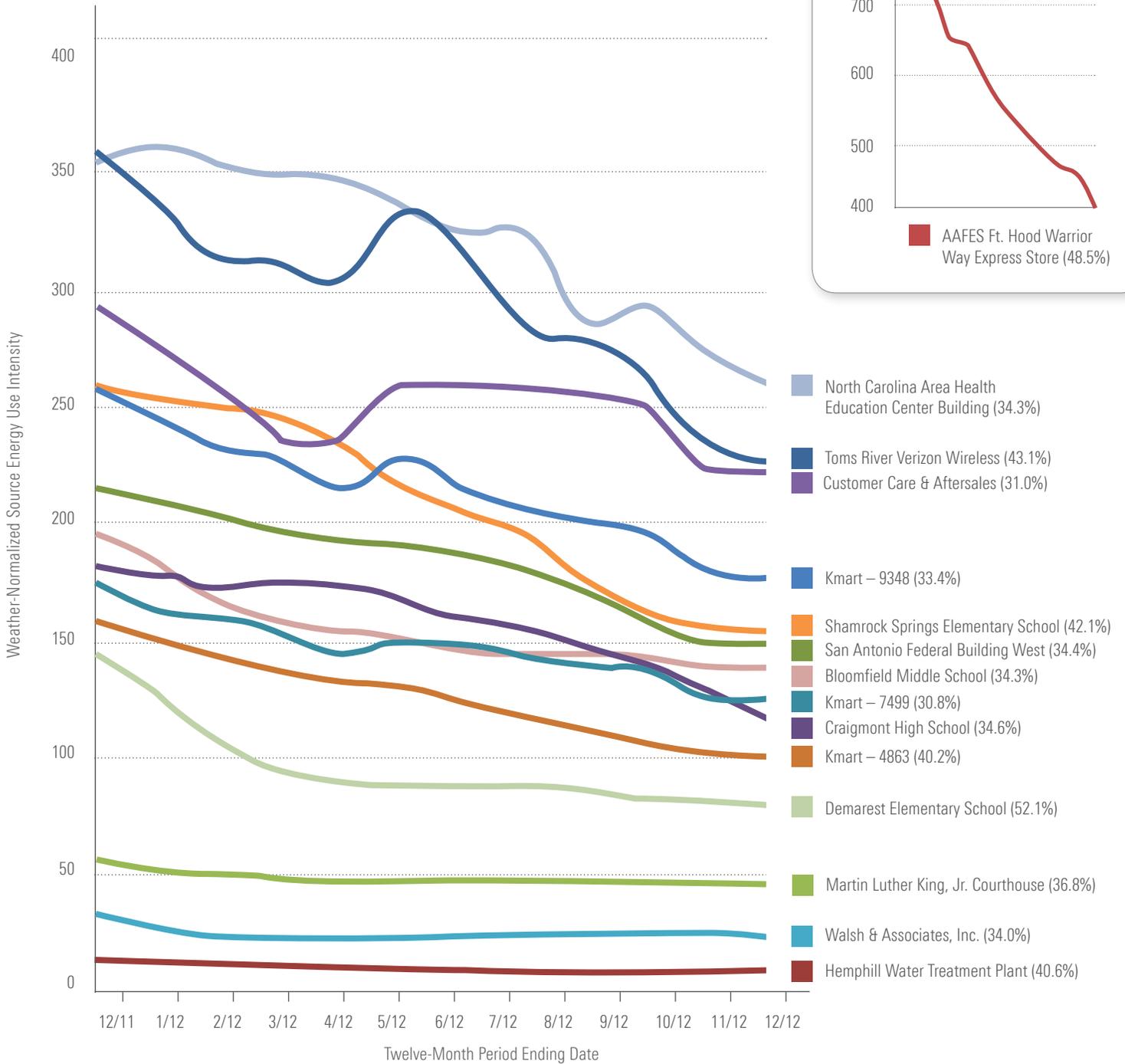
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# BATTLE TO THE FINISH

The 12-month path to energy savings for the competition's top 15 finishers.



## How were competitors judged?

Buildings were judged on their percentage-based reduction in weather-normalized source energy use intensity. The competition period ran from January 1, 2012 – December 31, 2012

## What is energy use intensity?

EUI is calculated as annual kBtu/square footage. (In the case of Hemphill Water Treatment Plant, EUI is calculated as annual kBtu/gallons per day.) Generally, a low EUI signifies good energy performance, although certain building types will always use more energy than others.

# AND THE WINNER IS...

## Demarest Elementary School

Bloomfield Public School District  
Bloomfield, N.J.



### RECOGNITION:

- #1 Overall Winner
- #1 Winner, K-12 Schools Category
- 20% Energy Use Reduction

### SAVINGS:

- 52% Energy Savings
- \$75,900 Estimated Cost Savings
- 267 MtCO<sub>2e</sub> Greenhouse Gas Emissions Prevented



## TOP 15 FINISHERS

Building	Location	Type	Reduction
1 Demarest Elementary School	Bloomfield, N.J.	K-12 School	52.1%
2 AAFES Ft. Hood Warrior Way Express Store B85001	Ft. Hood, Tex.	Other	48.5%
3 Toms River Verizon Wireless	Toms River, N.J.	Retail store	43.1%
4 Shamrock Springs Elementary School	Westfield, Ind.	K-12 school	42.1%
5 Hemphill Water Treatment Plant & Pumping Station	Atlanta, Ga.	Other building type	40.6%
6 Kmart store #4863	Gillette, Wyo.	Retail store	40.2%
7 Martin Luther King Jr. Federal Courthouse	Newark, N.J.	Courthouse	36.8%
8 Craigmont High School	Memphis, Tenn.	K-12 school	34.6%
9 San Antonio Federal Building	San Antonio, Tex.	Office	34.4%
10 Bloomfield Middle School	Bloomfield, N.J.	K-12 school	34.3%
11 North Carolina Area Health Education Center Building	Chapel Hill, N.C.	Office	34.3%
12 Walsh & Associates, Inc.	St. Louis, Mo.	Warehouse	34.0%
13 Kmart store #9348	Norridge, Ill.	Retail store	33.4%
14 Customer Care and Aftersales	Ypsilanti, Mich.	Warehouse	31.0%
15 Kmart store #7499	Mt. Vernon, Ohio	Retail store	30.8%

# STORIES BEHIND THE BATTLE



## Demarest Elementary School

Bloomfield Public School District  
Bloomfield, N.J.

### RECOGNITION:

#1 overall winner  
#1 winner, K-12 schools category  
20% energy use reduction

### SAVINGS:

52% Energy Savings  
\$75,900 Estimated Cost Savings  
267 MtCO<sub>2e</sub> Greenhouse Gas Emissions Prevented

### BUILDING STATS:

Type: K-12 school  
Ending EUI: 79 kBtu/Sq. Ft.

For additional information, contact:

Scott Collins  
scollins@bloomfield.k12.nj.us  
(973) 680-8501 x 2002

“Don’t try to tackle everything at once; it’s a process. Listen to your buildings, learn your buildings. Then you can begin to implement your program.”

### Saving energy starts at the top

In 2011, Bloomfield Public School District hired ENERGY STAR partner Cenergistic to help identify and capture energy savings. Under the leadership of Principal Mary Todaro, the school has been able to engage its entire staff in saving energy. Once staff members had bought into the Energy Savings Program, they took control of their immediate areas by turning off and unplugging... whether it was equipment, accessories, or anything else that was using up energy needlessly.

### Take your building’s temperature

Before the energy team could program the building to run on a normal schedule, they first had to learn how to operate its antiquated energy management system (EMS) and replace a heat timer. Once that was done, they were able to get the building to run on a normal schedule. The head custodian watches the weather daily for high and low temperatures and will shut down boilers when the building reaches temperature—a practice they refer to as “toast and coast.” Monitoring outside air temperature, especially in the spring and fall shoulder seasons, will save big dollars!

### But don’t forget, it takes time

Now that the biggest problems have been handled, the team is beginning to address normal maintenance. Through Cenergistic’s program, they’ve been able to identify many mechanical issues that have been overlooked for years. But it’s a process that takes time.

Know what else takes time? Changing bad behaviors. But there’s already evidence of progress at Demarest. The school has committed staff members who continue to become more conscientious of turning off, unplugging, and taking ownership of the Energy Savings Program.

# STORIES BEHIND THE BATTLE



## AAFES Ft. Hood Warrior Way Express Store B85001

Army & Air Force Exchange Service  
Ft. Hood, Tex.

### RECOGNITION:

#2 overall winner  
#1 winner, "other" category  
20% energy use reduction

### SAVINGS:

48.5% Energy Savings  
\$17,300 Estimated Cost Savings  
155 MtCO<sub>2</sub>e Greenhouse Gas Emissions  
Prevented

### BUILDING STATS:

Type: Convenience store  
Ending EUI: 398 kBtu/Sq. Ft.

### For additional information, contact:

Mel Hendricks  
(214) 725-0078  
HendricksMel@aafes.com

"First, select a vendor that has experience with all project parts needed, as well as experience doing equipment upgrades. Second, perfect upgrades on a pilot, then duplicate those successes to others. And lastly, avoid 'cherry picking' only the best upgrades. Instead, use bundling to achieve your payback goal and maximize your energy reduction."

### Taking a nuts and bolts approach

The energy team at Express Store B85001 cut its energy use in half by taking a nuts and bolts approach. First, they got all equipment in prime working order. For instance, building HVAC units were made completely operational by cleaning coils, re-commissioning units, and installing controls to use setbacks and an economizer.

### Turning yellow floors white with better lighting

Lighting also played a big role in the store's huge energy reduction. Lighting retrofit kits increased light levels and quality while reducing energy use by 50 percent. To achieve this, the team:

- Replaced 4-lamp, 50-percent reflectors with high-efficiency 2-lamp reflectors
- Replaced four 3500K lamps with two new 4100K long-life lamps (yellow floors turned white!)
- Cleaned lenses and replaced ballasts

Even better, each fixture retrofit required only 10 minutes for one experienced installer!

The team also installed occupancy sensor lighting controls in office, stock room, and break room spaces. And outside parking lot pole and wall pack light fixtures were upgraded to lower energy, higher output induction lights.

### Helping systems work smarter, not harder

Walk-in cooler upgrades substantially reduced the amount of heat the HVAC systems had to remove. The team upgraded the evaporator motors to electronically commutative motors (ECMs). They also installed 2-speed controllers to run new motors more efficiently, and upgraded the reach-in cooler door lighting to LED lights controlled by motion sensors. And lastly, anti-sweat heater controls were installed to only heat doors and mullions when needed.

Controls with energy monitoring allowed the team to immediately verify savings on a daily basis. When a new ice cream freezer affected the operation of a thermostat, they were able to detect it and move it quickly.

# STORIES BEHIND THE BATTLE



## TOMS RIVER VERIZON WIRELESS

Verizon Wireless  
Toms River, N.J.

### RECOGNITION:

#3 overall winner  
#1 winner, retail category  
20% energy use reduction

### SAVINGS:

43% energy savings  
\$7,400 estimated cost savings  
56 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Retail  
Ending EUI: 226 kBtu/Sq. Ft.

### For additional information, contact:

Patrick Moffatt  
Patrick.moffatt@verizonwireless.com  
(215) 378-4943

“Team up with other energy champions in your company. At Verizon Wireless, we take energy conservation seriously and have a group of dedicated people nationwide who help improve efficiency. Don’t worry if you have to start small; doing the right thing tends to gain momentum!”

### Shine brighter for less with LED technology

During the conversion remodel performed in November 2011, Verizon Wireless replaced several lighting components within this project. The team greatly reduced the watts being consumed at this location by replacing a total of 90 fixtures that once used 7,050 watts daily. These heavy consumption fixtures were replaced with a total of 142 LED-based fixtures that now only use 1,700 watts on a daily basis. Furthermore, Verizon Wireless replaced three exterior neon signs with LED versions that saved an additional 3,800 watts on a daily basis. This location is now consuming, on average, over 9,000 fewer watts per day, which is mainly due to installing these LED, energy-efficient lighting fixtures.

### Keep heat in during the winter and out during the summer

In addition to replacing the lighting fixtures within the space, the team added two inches of drivet / foam along 40 feet of the south side of the building, which has increased the overall insulation value of the space. Finally, they’ve installed 1,550 linear feet of solar control window film (3M PR 70), which has assisted in keeping the heat loads down within the building. By reducing the demand on the mechanical units, the team has achieved an even greater energy reduction.

### Automate savings with an EMS and motion sensors

The Hooper Avenue location in Toms River New Jersey has had several “green initiatives” put in place to cut energy costs at this large facility. One of these initiatives is an energy management system (EMS) that controls lighting and HVAC for the building. The EMS system allows Verizon Wireless to automatically turn interior lighting on and off based on the operating hours of the business. The exterior building lights and signage incorporate both lumen sensors for activation in the evening and a timing circuit for middle of the night deactivation. In addition to the EMS system, the team has set up motion sensors in private offices, closets, restrooms, the break room, and the conference room, so lighting is only on when these spaces are occupied.

# STORIES BEHIND THE BATTLE



## SHAMROCK SPRINGS ELEMENTARY SCHOOL

Westfield Washington Schools  
Westfield, Ind.

### RECOGNITION:

#4 overall winner  
20% energy use reduction

### SAVINGS:

42% energy savings  
\$63,200 estimated cost savings  
794 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: K-12 school  
Ending EUI: 155 kBtu/Sq. Ft.

### For additional information, contact:

Matt Kettlebar  
kettlebarm@wws.k12.in.us  
(317) 910.2568

“Focus on minimizing HVAC run times and temperature settings during unoccupied hours. Use ASHRAE guidelines to identify boundaries for temperature and humidity conditions inside your buildings during off hours. Also, communicate the financial impact of your successes across your organization to promote a positive attitude towards energy conservation.”

### Summer changes save a bundle

As a K-12 school building, the vast majority of Shamrock Springs Elementary School’s savings came from the reduction in HVAC during vacations – especially summer. In addition, the team has worked to increase the efficiency of the HVAC system to minimize energy consumption and demand.

### So do better habits

In addition to HVAC, they’ve also strived to create a culture of energy conservation. The school’s faculty and staff members have made a tremendous effort to minimize their energy footprint, which has helped lower energy costs. So what’s the effect of those energy-saving practices? More dollars in the classroom. And as the team says, “we want each member of our school to feel they are a part of those savings.”

# STORIES BEHIND THE BATTLE

Steve Swieter, 2013



## City of Atlanta's Hemphill Water Treatment Plant

City of Atlanta, Department of Watershed Management  
Atlanta, Ga.

### RECOGNITION:

#5 overall winner  
20% energy use reduction

### SAVINGS:

41% energy savings  
\$3,608,000 estimated cost savings  
11,190 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Water treatment plant  
Ending EUI: 7 kBtu/gpd\*

*\*gallons per day*

### For additional information, contact:

Cameo Garrett, City of Atlanta Department of Watershed Management  
Senior Public Information Manager  
CGarrett@AtlantaGa.Gov | (404) 546-3207

“The success of Hemphill Water Treatment Plant’s energy management program is largely due to focused efforts of a committed team consisting of representatives from all facility functions: administration, operations, engineering, and maintenance, with program support by City leaders. This team-based approach has resulted in outstanding results that will ensure optimum efficiency of water treatment operations while improving overall system reliability.”

### Modernize to save

The Hemphill Water Treatment Plant (WTP) operates 24 hours a day, 7 days per week, and has a maximum capacity of 136.5 million gallons per day. The Hemphill WTP is one of three water treatment plants in the City’s water treatment system that provides potable water for the City of Atlanta and parts of Fulton County. In the summer of 2011, the City of Atlanta completed the construction and commissioning of a finished water pumping station that replaced a pumping station that was built in the 1880s and powered by steam boilers installed in the 1940s. The finished water pumping station includes eight new electric pumps; half of these are equipped with variable-frequency drives that reduce system pumping power over the full range of operating loads.

### Shine a light on the basics

Because the City’s water treatment facilities operate 24/7, there is significant potential for energy savings in lighting systems through retrofits, replacements, and occupancy-based controls. The City’s internal revolving loan fund (created with seed funding from the City’s Energy Efficiency and Block Grant from the U.S. Department of Energy through the American Recovery and Reinvestment Act of 2009) provided \$489,000 in 2012 to replace obsolete lighting with high-performance systems. A total of 1,675 new LED and fluorescent fixtures were installed. Peak lighting power was reduced by 64 percent. Through the addition of occupancy-based controls, total lighting energy savings are projected to be 2 million kWh per year, or 88 percent of previous lighting energy. Annual energy cost savings estimates from lighting are \$118,000. With an additional \$70,000 in projected maintenance cost savings, the simple payback period is an estimated 2.6 years. Cost savings from this project are being returned to the internal loan fund for future deployment on additional municipal energy and water efficiency projects.

The Hemphill WTP is also a savings leader in the Atlanta Better Buildings Challenge.

# STORIES BEHIND THE BATTLE



## Kmart 4863 – Gillette, Wyoming

Sears Holdings Corporation  
Gillette, Wyo.

### RECOGNITION:

#6 overall winner  
20% energy use reduction

### SAVINGS:

40% energy savings  
\$37,800 estimated cost savings  
466 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Retail  
Ending EUI: 99 kBtu/Sq. Ft.

For additional information, contact:

Keith Klug  
keith.klug@searshc.com  
(262) 689-4151

“Do the basics right; get on base. You can’t score if you don’t get on base first. You don’t have to solve problems the same way everyone else does.”

### Pick the low-hanging fruit

At Kmart, lighting guided the way to energy savings. The largest savings initiative was upgrading the lighting from inefficient T12 to T8 systems. T8 is proven and inexpensive, and allows for many years of cost-effective lighting in the building.

A side benefit to the lighting retrofit is the reduced heat load on the system. This helps save energy during the cooling season by not having to overcome the heat produced by the T12 systems.

The store team also took advantage of the new brighter lighting in other ways. For instance, when it’s hot outside, they can curtail interior lighting to reduce peak loads and overall consumption without having a negative impact on the store’s appearance. The new lighting has allowed a reduction of lamps near exterior windows, which lets team members use more daylighting without negative effects at night.

Lastly, the facility maintenance team installed occupancy sensors in stockrooms and restrooms, which automatically turn off lighting when not in use.

### Attention to detail matters too

The store and local maintenance teams performed numerous night audits to identify lights and equipment that were able to be turned off overnight. These systems may have been left on in the past, so the appropriate corrections were made. The local maintenance teams also increased their efforts to ensure that the facility equipment was running at its top performance. After all, properly operating equipment typically consumes less energy than poorly maintained equipment.

Kmart’s members appreciated the store’s efforts to conserve energy. The local store team rallied around the competition. By increasing their energy awareness, behaviors started to change, including associates more readily turning off lights and equipment when not in use.

# STORIES BEHIND THE BATTLE



## Martin Luther King, Jr. Courthouse

U.S. General Services Administration  
Newark, N.J.

### RECOGNITION:

#7 overall winner  
#1 winner, courthouse category  
20% energy use reduction

### SAVINGS:

37% energy savings  
\$51,400 estimated cost savings  
442 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Courthouse  
Ending EUI: 47 kBtu/Sq. Ft.

For additional information, contact:

Mark Dremel  
(973) 645-4657  
mark.dremel@gsa.gov

“The cliché ‘if you can’t measure it, you can’t manage it’ applies to conserving energy too. You need to spend time and review and oversee the issue if you expect to reduce energy.”

### Seal the envelope

At Martin Luther King, Jr. Courthouse, the building envelope played the biggest role in saving energy. Why? Because thick insulation encased by fiber reinforced concrete provides better insulation than other alternatives. To help drive further energy savings, the energy team also completed a project to seal the structure and fix leaky windows.

### Keep saving with operations and maintenance

Operations helped drive further savings by doing an excellent job in trimming the facilities equipment and in operating it on a timely schedule. They’re even vigilant about manually adjusting window shades. Additionally, the primary domestic hot water heaters are slowly being replaced by localized instantaneous small hot water heaters, and the building automation system was enhanced with some additional space thermostats in troubled zones.

# STORIES BEHIND THE BATTLE



## Bloomfield Middle School

Bloomfield Public School District  
Bloomfield, N.J.

### RECOGNITION:

#10 overall winner  
20% energy use reduction

### SAVINGS:

34% energy savings  
\$85,600 estimated cost savings  
341 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: K-12 school  
Ending EUI: 137 kBtu/Sq. Ft.

### For additional information, contact:

Scott Collins  
scollins@bloomfield.k12.nj.us  
(973) 680-8501 x 2002

“Understand what should and should not be running during occupied and unoccupied times. Develop a relationship with your head custodians. Team work!”

### Three steps to an energy makeover

At Bloomfield Middle School, the energy team focused on three areas to get the building’s energy use under control. First, they focused on getting exhaust fans shut down everyday; previously, they were running 24/7. Next, they looked at the boiler set points and loop temperature. The boilers at Bloomfield Middle School were set at 195 degrees. . . appropriate for a “doomsday scenario” of several weeks of 0 degree weather, but not necessary for normal operating conditions. The boilers are now set at 170 degrees. Every degree equals a 1-percent savings in natural gas, so these savings add up quickly! And lastly, the building wasn’t going into night setback (or unoccupied mode), so the team worked to align the building’s schedule with the operating schedule. While they were making these adjustments, they also adjusted all of the pneumatic controls to create a better learning and working environment.

### Keep slimming down by changing behaviors

The custodial staff has taken charge of implementing half lighting in hallways in the early morning and late afternoon, once students have been dismissed. In addition to the custodial staff, the school has committed faculty members who continue to change and become more conscientious to turn off, unplug, and take ownership of the energy savings program. As all these changes are put in place, the team is finally able to begin doing some normal maintenance! Using Cenergistic’s program, they’ve been able to identify many mechanical issues that have been overlooked for years.

*Pictured from left to right: Anthony Todaro; Alla Vayda-Manzo, Assistant Principal; Barry Jacquin; Scott Collins, Energy Specialist; Everton Thomas; Robert Weaver; Martin Reillo, Head Custodian; Sal Goncalves, Principal.*

# STORIES BEHIND THE BATTLE



## North Carolina Area Health Education Center Building

University of North Carolina at Chapel Hill  
Chapel Hill, N.C.

### RECOGNITION:

#11 overall winner  
20% energy use reduction

### SAVINGS:

34% energy savings  
\$36,100 estimated cost savings  
133 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Office  
Ending EUI: 258 kBtu/Sq. Ft.

### For additional information, contact:

Jessica O'Hara  
johara@email.unc.edu  
(919) 843-9151

“The best advice in starting an energy management program is to establish an energy team that works together to implement (and maintain!) energy conservation measures while improving building comfort.”

### Seven steps to success

UNC-Chapel Hill, the winner of EPA's first-ever National Building Competition in 2010, was back again with a different building this year. The team identified seven low-cost energy conservation measures (ECMs) that can be implemented immediately to start saving energy. They once again proved the effectiveness of their program at the North Carolina Area Health Education Center Building. Their ECM program is fundamentally an in-house retro commissioning program in which they implement seven energy conservation measures:

- Implement air handler discharge reset to vary temperature between 58° F – 70° F
- Implement HVAC unoccupied setback/shutdown
- Change minimum cooling airflow set points
- Identify and eliminate simultaneous heating and cooling
- Implement temperature standards: Summer 76-78° F, Winter 69-71° F
- Enable all heat recovery loops and economizers
- Enlist campus community to shut off lights and equipment

To help achieve the final measure, getting the campus community to pitch in, the team established an education and outreach program. They met with the building occupants to explain what the energy team would be doing in the building. They also provided an Extreme Energy Packet with flyers and energy-saving tips to be posted in the building.

### Refine. Repeat.

The energy team implemented programming modifications to the building air relief system to minimize unwanted air infiltration. This stopped the infiltration of outside air and decreased the fan energy on that system. They also tuned the cooling and heating system to use free cooling when the temperature outside is cold. They implemented discharge reset strategies based on zone temperature and return humidity on the air handling units and implemented a hot water reset strategy based on outside air temperature. This, in conjunction with correcting the negative building pressure issue, helped reduce steam usage on the reheat system. The team also did basic cooling and heating system maintenance to ensure optimal performance on the systems. Lastly, they optimized the building schedules.

*Pictured from left to right: Andrew Hutchins, Lane Adams, Artie Neese, Jessica O'Hara, Gene Bober. Back Row: RJ Turner, Chris Martin and Todd Freeman. Not pictured: Steve England and Dion Long.*

# STORIES BEHIND THE BATTLE



## Walsh & Associates, Inc. Warehouse

Walsh & Associates, Inc.  
Saint Louis, Mo.

### RECOGNITION:

#12 overall winner  
#1 winner, warehouse category  
20% energy use reduction

### SAVINGS:

34% energy savings  
\$13,500 estimated cost savings  
43 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Warehouse  
Ending EUI: 23 kBtu/Sq. Ft.

For additional information, contact:

Randall Lewis  
rdl1@walsh-assoc.com

“The best and first thing to do is track one’s energy usage with Portfolio Manager.”

### Solar shines in hot conditions

At Walsh & Associates’ warehouse, the 100kW solar array had an outstanding production year due to the drought in the Midwest. It helped them to reduce electricity usage even during an extremely hot summer.

In addition to the solar array, LED outdoor lighting, a ventilation retrofit, and water misters on the HVAC units all played an important role in reducing the building’s overall energy usage in 2012.

### Did You Know?

Looking for a quick win in energy savings? Why not try your warehouses? Warehouses are one of the easiest buildings to make large energy savings in because small measures can mean a big difference. Heating and lighting are the two largest energy uses for warehouses, accounting for over 70% of total energy use on average. Heating and lighting improvements are your best strategies for lowering your operating costs and environmental impacts. Consider these strategies for your warehouse:

- Confirm that wall and roof insulation meets the recommendations for your climate zone to reduce wasted energy used to heat and cool the warehouse.
- Insulate loading docks to retain heat in the winter and cool air in the summer.
- Add seals around loading docks to minimize air infiltration when loading trucks.
- Segment areas of the warehouse with doors or partition walls that do not need temperature control to reduce heating and cooling costs.
- Replace electrical lighting with skylights and windows to provide natural light throughout the year.
- Use lighting control strategies such as occupancy sensing, scheduling, daylight dimming, timers, and demand response to minimize or control lighting when not needed.

# STORIES BEHIND THE BATTLE



## Kmart 9348

Sears Holdings Corporation  
Norridge, Ill.

### RECOGNITION:

#13 overall winner  
20% energy use reduction

### SAVINGS:

33% energy savings  
\$47,900 estimated cost savings  
610 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Retail  
Ending EUI: 177 kBtu/Sq. Ft.

#### For additional information, contact:

Keith Klug  
keith.klug@searshc.com  
(262) 689-4151

“There’s a lot of money to be saved by improving what you already have. Continuously adapt your program to squeeze out additional savings.”

#### Seeing energy savings in a new light

When it comes to saving energy, Sears Holding Corporation understands how important it is to get the basics right. They started at Kmart 9348 with addressing lighting comprehensively.

The energy team upgraded the lighting from 4-lamp, T8 fixtures with prismatic lenses to 2-lamp, high-efficiency fixtures with white louver doors. T8 fixtures are proven and inexpensive, and they’ll provide many years of cost-effective lighting in the facility. A side benefit to the lighting retrofit is that the lighting systems are producing significantly less heat waste, which reduces the overall heat load on the system.

Because of the brighter light from the retrofit and some work to rewire the lighting grids, the team was also able to reduce the interior lighting at night, which saves energy during overnight replenishment. In addition, the local facility team replaced inoperable lighting relays so lights would turn on and off on schedule. Lastly, the facility maintenance team installed occupancy sensors in stockrooms and restrooms, automatically turning of lighting when not in use.

#### Getting employees energized to save

The local store team rallied around the competition. Increasing their energy awareness resulted in new energy-saving habits, like keeping receiving doors closed when not in use, which prevented excessive air infiltration.

Another perk for employees? The team installed additional programming in the store’s energy management system (EMS) to overcome inherent issues with factory controllers. This prevented the systems from unnecessarily blowing in cold, unconditioned air in winter months, which had been making the store feel cold and drafty. The change resulted in a more comfortable shopping environment for members and associates while still saving energy.

Lastly, the local maintenance teams pitched in and also increased their efforts to ensure that the equipment was running at its top performance. In general, properly operating equipment typically consumes less energy than poorly maintained equipment.

# STORIES BEHIND THE BATTLE



## Kmart 7499 Mount Vernon

Sears Holdings Corporation  
Mount Vernon, Ohio

### RECOGNITION:

#14 overall winner  
20% energy use reduction

### SAVINGS:

31% energy savings  
\$28,200 estimated cost savings  
287 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Retail  
Ending EUI: 125 kBtu/Sq. Ft.

For additional information, contact:

Keith Klug  
keith.klug@searshc.com  
(262) 689-4151

“It takes a team to achieve a win. All players must be engaged to be successful. Keep improving as a team and continuously revisit the low-hanging fruit because low-hanging fruit always grows back if not maintained.”

### Shedding light on the basics

The largest savings at Kmart 7499 resulted from upgrading the existing T12 technology and replacing it with T8 lighting, which is a cost-effective solution. As a result, the store had lower consumption, a reduced peak demand, and less internal heat gain. By reducing heat gain, the team was also able to reduce cooling operation during warmer temperatures.

This site also benefitted from upgraded thermostats, which allowed the team to have tighter control on zone temperatures. With tighter control came reduced heating and cooling demands. The team also spent significant time cleaning and making necessary repairs to the HVAC systems for efficient operation.

Because the store doesn't have an energy management system (EMS), the team also mapped out the circuit breakers for different levels of lighting operation. The facility team then trained the staff on how to use this color coding to reduce consumption during different stages of operation, such as stocking. These efforts were supported by the store staff, and the Store Manager is also now more aware of energy use and communicating any known issue to the facility team on a timely basis.

# STORIES BEHIND THE BATTLE



## Vons Credit Union

Vons Credit Union  
El Monte, Calif.

### RECOGNITION:

#1 winner, bank/financial institution category  
20% energy use reduction

### SAVINGS:

27% energy savings  
\$1,400 estimated cost savings  
23 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Bank/financial institution  
Ending EUI: 133 kBtu/Sq. Ft.

### For additional information, contact:

Nelly Gomez  
ngomez@vonscu.com  
(626) 444-1972, extension 258

“Start today! Our biggest struggle, throughout the course of the project, was getting the project off the ground. However, once we started making small initial changes, everything started to snowball, and we began making noticeable strides toward our energy conservation goals.”

### Combining solar with efficiency to make a big impact

The Vons Credit Union team is committed to their membership and the planet. They believe that they should work to make California, where they're located, a better and cleaner place to live while being a responsible corporate partner. In 2009, they decided to put this principle into practice. They installed a cool roof and 280-panel roof-top solar power system to reduce their building's energy consumption and draw power from a more sustainable source.

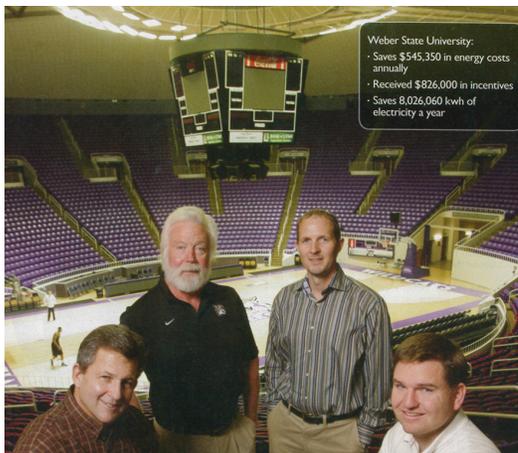
The results were phenomenal; the system instantly cut their energy bill by 40 percent. When they realized the cost savings in real dollars, and the positive environmental effect in saved kilowatt hours, they decided to take their initiative a step further and added a 144-panel solar carport. Together, solar power and cool roofs are cost-beneficial steps that they recommend should be seriously considered by all California businesses.

### Teaming up to save even more

In addition to their solar-powered system, they took additional steps to promote the company's energy conservation goals. First, they started an energy czar program with employees. They broke up each department into teams and challenged each team to reduce their energy consumption. Everyday before closing, employees turned off their monitors and any appliance that didn't need to be left on overnight. In addition, they made a conscious effort to only purchase ENERGY STAR certified appliances. As of the end of the competition, 80 percent of the appliances met EPA criteria for superior energy performance.

By working together to conserve energy and purchasing only energy-efficient equipment, the energy team bolstered the savings already produced by the solar system. But they're not stopping to rest on their laurels. They're currently retrofitting the lighting in the building to continue working toward greater energy efficiency.

# STORIES BEHIND THE BATTLE



## Dee Events Center

Weber State University  
Ogden, Utah

### RECOGNITION:

#1 winner, entertainment/culture category  
20% energy use reduction

### SAVINGS:

22% energy savings  
\$52,400 estimated cost savings  
337 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Entertainment/culture  
Ending EUI: 151 kBtu/Sq. Ft.

### For additional information, contact:

Jacob Cain	Jennifer Bodine
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(801) 626-6311	(801) 626-6421

“Have a predetermined financial method for financing energy projects that incentivizes those that manage the projects.”

### Scoring big energy savings with LED lighting

The energy team at Dee Events Center converted the lighting system for the arena from metal halide to LED...and in the process just may have become the first NCAA arena in the nation to have 100 percent LED lighting. To augment these savings, they also installed new high efficiency chillers and updated controls from old pneumatics to modern direct digital control (DDC).

### Helping occupants become energy champions

The energy team also met with building occupants and implemented some best practices for reducing energy consumption. To help spur them on, the team also offered them incentives for future building upgrades based on building performance.

# STORIES BEHIND THE BATTLE



## Elk County Jail

County of Elk  
Ridgway, Penn.

### RECOGNITION:

#1 winner, public order and safety category

### SAVINGS:

12% energy savings

\$5,600 estimated cost savings

50 MtCO<sub>2</sub>e greenhouse gas emissions prevented

### BUILDING STATS:

Type: Public order and safety

Ending EUI: 222 kBtu/Sq. Ft.

### For additional information, contact:

Bekki Titchner or Jodi Foster

(814) 776-5304

[btitchner@countyofelkpa.com](mailto:btitchner@countyofelkpa.com)

[jfoster@countyofelkpa.com](mailto:jfoster@countyofelkpa.com)

“Implement a comprehensive and consistent energy policy and partner with a reputable company for any major project.”

### Partner for success

The county implemented a comprehensive project with a smaller energy services company to retrofit the lighting, HVAC equipment, and building controls in its facilities. The reduction in lighting energy, coupled with the enhanced control of the facilities, has provided the greatest energy savings over the competition period.

### Help employees help you

The county also implemented a facility-wide comprehensive energy policy that was clearly defined in a handbook distributed to the employees. This eliminated redundant electronic items such as printers, and set limits on personal refrigerators, heaters, and other energy-consuming devices.



## Bryce Building

THG Energy  
Tulsa, Okla.

### RECOGNITION:

#2 top water use reduction

### SAVINGS:

79% water savings  
\$7,600 estimated cost savings

### BUILDING STATS:

Type: Bank/Financial institution

“Take a look at your building equipment by conducting a thorough facility audit.”

### Employing a comprehensive approach

At Bryce Building, the number one water saver wasn't a repaired leak or new water-efficient equipment. It was changing the HVAC system to a ductless mini split system. Likewise, the energy team at Bryce kept water in mind when retrofitting for energy efficiency, to maximize savings in both areas. During a recent remodel of the Bryce Building that increased capacity in the space by 76 percent, the energy team identified areas in which they could leverage advances in technology to assist in controlling the building's resource usage. Even after finishing the remodel, “continual efforts are in place to identify ways to reduce energy consumption through team best practices,” according to Chris Magnum, Director of Operations at Arthur J. Gallagher Insurance Brokerage and Risk Management Services.

But the team also took a targeted approach to saving water where it made sense. They converted to high efficiency toilets during the bathroom remodel. They also reprogrammed the irrigation system to water less frequently.

For additional information, contact:

Chris Mangum  
chris\_mangum@ajg.com  
(918) 584-1433



## High Springs Community School

Alachua County Public Schools  
High Springs, Fla.

### RECOGNITION:

#3 top water use reduction

### SAVINGS:

70% water savings  
\$13,400 estimated cost savings

### BUILDING STATS:

Type: K-12 school

### For additional information, contact:

Jeffrey A. Means, MEd, Principal  
meansja@gm.sbac.edu  
(386) 454-1958

*Photo: Students at High Springs Community School read *A Long Walk to Water*, by Linda Sue Parks, and learn about the sacrifices children in Africa make to get water.*

“First, identify one major problem to focus on, and create a partnership team consisting of faculty, staff, and students to implement a program to solve that problem. Second, make sure you also educate the school community on water issues. And lastly, implement solutions and celebrate your successes involving the entire partnership at the school.”

### Plug leaks and make commonsense upgrades

The team at High Springs Community School started with the basics by looking for possible leaks. The school’s Green Club pitched in and helped survey the campus for opportunities. Together, they succeeded in finding and repairing leaks, including a chronic leak that had existed for years.

District facilities personnel also installed water-saving flush valves on toilets and faucets throughout the school, which included renovating the school’s original bathrooms. And building-level administration rescheduled automatic irrigation to halt overwatering times and days.

### Flood students with knowledge

Spearheaded by Ms. Weaver, along with several other middle-grade teachers, the team at High Springs Community School also worked actively to get students and the community involved. Green Club and Future Farmers of America Club members educated students and sponsored activities that addressed valuing water as a resource. Five students competed in the Water Tower Engineering Competition, which was sponsored by a local regional utility company. And 250 students visited the water exhibit at the University of Florida’s Natural History Museum.

### Learn that water is a precious resource

More than 400 students in grades 4-8 read *A Long Walk to Water*, a book written by Linda Sue Parks that details how children in Africa walk for water and must give up school and other activities to walk for up to 6 hours a day. This project was funded through grants from the Alachua County Public Schools Foundation, Ice River Springs, the schools’ Advisory council, and the local Rotary Club.

To help bring their studies to life, the school held a Long Walk to Water service project, which included approximately 350 students who volunteered to raise money for a well in a third-world country. Altogether, the students successfully raised \$2,200 toward wells for the Rotary International Project.

# TOP 15 OVERALL FINISHERS

These buildings were verified to have reduced their weather-normalized source energy use intensity (EUI) the most, on a percentage basis, over course of the year-long competition.

Competitor	Location	Building type	% Reduction	Cost Savings	GHG reduction (MtCO2e)
1 Demarest Elementary School	Bloomfield, N.J.	K-12 School	52.1%	\$75,800	267
2 AAFES Ft. Hood Warrior Way Express Store B85001	Ft. Hood, Tex.	Other	48.5%	\$17,300	155
3 Toms River Verizon Wireless	Toms River, N.J.	Retail store	43.1%	\$7,400	56
4 Shamrock Springs Elementary School	Westfield, Ind.	K-12 school	42.1%	\$63,200	794
5 Hemphill Water Treatment Plant & Pumping Station	Atlanta, Ga.	Other	40.6%	\$3,608,100	11,190
6 Kmart store #4863	Gillette, Wyo.	Retail store	40.2%	\$37,800	466
7 Martin Luther King Jr. Federal Courthouse	Newark, N.J.	Courthouse	36.8%	\$51,400	442
8 Craigmont High School	Memphis, Tenn.	K-12 school	34.6%	\$199,700	1,259
9 San Antonio Federal Building West	San Antonio, Tex.	Office	34.4%	\$186,500	n/a*
10 Bloomfield Middle School	Bloomfield, N.J.	K-12 school	34.3%	\$85,600	341
11 North Carolina Area Health Education Center Building	Chapel Hill, N.C.	Office	34.3%	\$36,100	133
12 Walsh & Associates, Inc.	St. Louis, Mo.	Warehouse	34.0%	\$13,500	43
13 Kmart store #9348	Norridge, Ill.	Retail store	33.4%	\$47,900	610
14 Customer Care and Aftersales	Ypsilanti, Mich.	Warehouse	31.0%	\$4,504,300	14,769
15 Kmart store #7499	Mt. Vernon, Ohio	Retail store	30.8%	\$28,200	287

\* The emissions for this building cannot be calculated by EPA's online energy management and tracking tool, Portfolio Manager, because the building uses chilled water as a fuel source, and the method of chilled water generation is not known.

# TOP CATEGORY FINISHERS

These buildings were verified to have reduced their weather-normalized source energy use intensity (EUI) more than any other building in their respective categories, on a percentage basis, over course of the year-long competition.

Category	Competitor	Location	% Reduction	Cost Savings	GHG reduction (MtCO2e)
Bank	Vons Credit Union	El Monte, Calif.	26.9%	\$1,395	23
Courthouse	Martin Luther King, Jr. Federal Courthouse	Newark, N.J.	36.8%	\$51,401	442
Entertainment	Dee Events Center	Ogden, Utah	22.1%	\$52,381	337
Fire/Police Station	Fire Station #3	Cary, N.C.	9.4%	\$1,212	8
Hospital	Aurora Medical Center-Washington County	Hartford, Wis.	13.1%	\$65,018	679
Hotel	Sheraton North Dallas	Dallas, Tex.	21.0%	\$56,427	468
K-12 School	Demarest Elementary School	Bloomfield, N.J.	52.1%	\$75,833	267
Medical Office Building	Digestive Healthcare Center	Hillsborough, N.J.	24.9%	\$7,476	44
Office	San Antonio Federal Building West	San Antonio, Tex.	34.4%	\$186,500	n/a*
Other	AAFES Ft. Hood Warrior Way Express Store B85001	Ft. Hood, Tex.	48.5%	\$17,345	155
Public Safety	Elk County Jail	Ridgway, Penn.	12.0%	\$5,609	50
Retail	Toms River Verizon Wireless	Toms River, N.J.	43.1%	\$7,394	56
Senior Care	63001-Sunrise of Edmonds	Edmonds, Wash.	21.8%	\$14,421	91
Warehouse	Walsh & Associates, Inc.	St. Louis, Mo.	34.0%	\$13,504	43

# TOP WATER SAVERS

These buildings were verified to have reduced their water consumption the most, on a percentage basis, over course of the year-long competition.

Competitor	Building Type	Location	% Reduction	Cost Savings
Webster Bank Oak St. Office	Bank/Financial Institution	Brockton, Mass.	80%	\$200
Bryce Building	Bank/Financial Institution	Tulsa, Okla.	79%	\$7,600
High Springs Community School	K-12 School	High Springs, Fla.	70%	\$13,400
Webster Bank Rocky Hill South Office	Bank/Financial Institution	Rocky Hill, Conn.	63%	\$300
Webster Bank Broad St. Windsor Office	Bank/Financial Institution	Windsor, Conn.	62%	\$2,200
Sunrise of Bexley	Senior Care Facility	Bexley, Ohio	60%	\$60,400
Webster Bank Cranston Office	Bank/Financial Institution	Cranston, R.I.	58%	\$800
20 Broad Street	Office	New York, N.Y.	56%	\$48,200
Sunrise of Flossmoor	Senior Care Facility	Flossmoor, Ill.	53%	\$11,700
GM Customer Care and Aftersales	Warehouse (Unrefrigerated)	Martinsburg, W.Va.	51%	\$10,700

# REDUCTIONS OF 20 PERCENT OR MORE

These buildings were verified to have reduced their weather-normalized source energy use intensity (EUI) by 20 percent or more over course of the year-long competition.

Competitor	Building Type	City	State	% Reduction	Cost Savings	GHG reduction (MtCO2e)
Demarest Elementary School	K-12 School	Bloomfield	New Jersey	52.1%	\$75,800	267
AAFES Ft. Hood Warrior Way Express Store B85001	Other	Ft. Hood	Texas	48.5%	\$17,300	155
Toms River	Retail	Toms River	New Jersey	43.1%	\$7,400	56
Shamrock Springs Elementary School	K-12 School	Westfield	Indiana	42.1%	\$63,200	794
Hemphill Water Treatment Plant & Pumping Station	Water Treatment	Atlanta	Georgia	40.6%	\$3,608,100	11,190
Kmart - 4863 - Gillette, WY	Retail	Gillette	Wyoming	40.2%	\$37,800	466
Martin Luther King, Jr. Federal Courthouse	Courthouse	Newark	New Jersey	36.8%	\$51,400	442
Craigmont High School	K-12 School	Memphis	Tennessee	34.6%	\$199,700	1,259
San Antonio Federal Building West	Office	San Antonio	Texas	34.4%	\$186,500	n/a*
Bloomfield Middle School	K-12 School	Bloomfield	New Jersey	34.3%	\$85,600	341
North Carolina Area Health Education Center Building	Office	Chapel Hill	North Carolina	34.3%	\$36,100	133
Walsh & Associates, Inc.	Warehouse	St. Louis	Missouri	34.0%	\$13,500	43
Kmart - 9348	Retail	Norridge	Illinois	33.4%	\$47,900	610
Customer Care and Aftersales	Warehouse	Ypsilanti	Michigan	31.0%	\$4,504,300	14,769
Kmart - 7499	Retail	MT Vernon	Ohio	30.8%	\$28,200	287
Customer Care & Aftersales	Warehouse	Fontana	California	30.8%	\$49,800	236
IRS Building	Office	Provo	Utah	30.8%	\$3,800	22
Forum III	Office	Louisville	Kentucky	29.8%	\$18,200	225
Pierre Federal Building Courthouse	Courthouse	Pierre	South Dakota	28.9%	\$59,000	247
Fairview Elementary School	K-12 School	Bloomfield	New Jersey	28.3%	\$18,500	82
1900 K Street	Office	Washington	D.C.	28.0%	\$96,600	829
Kmart - 3720	Retail	Williamsburg	Michigan	27.9%	\$30,300	305
Raritan CDC	K-12 School	Raritan	New Jersey	27.9%	\$3,600	3
Ellender Federal Building Post Office	Service	Houma	Louisiana	27.4%	\$20,800	151
Vons Credit Union	Bank	El Monte	California	26.9%	\$1,400	23
Watsessing Elementary School	K-12 School	Bloomfield	New Jersey	26.9%	\$23,400	89
Brookdale Elementary School	K-12 School	Bloomfield	New Jersey	26.7%	\$15,800	55
Kmart - 7139	Retail	Jackson	Wyoming	26.7%	\$26,400	183
Metzenbaum U.S. Courthouse	Courthouse	Cleveland	Ohio	26.7%	\$132,900	775
Oak View Elementary School	K-12 School	Bloomfield	New Jersey	26.6%	\$18,700	70
00228-Darien Office	Bank	Darien	Connecticut	26.2%	\$2,000	11

# REDUCTIONS OF 20 PERCENT OR MORE (continued)

Competitor	Building Type	City	State	% Reduction	Cost Savings	GHG reduction (MtCO2e)
01425-Phoenix, AZ	Retail	Phoenix	Arizona	25.9%	\$4,800	50
Regents Square I	Office	La Jolla	California	25.5%	\$68,400	322
Kmart - 3750	Retail	Waupaca	Wisconsin	25.1%	\$15,000	216
Raymour & Flanigan Waterbury - C6	Retail	Waterbury	Connecticut	25.1%	\$12,000	77
Forest Glens Alternative School	Education	Bloomfield	New Jersey	25.0%	\$7,700	37
Digestive Healthcare Center	Medical Office	Hillsborough	New Jersey	24.9%	\$7,476	44
Sears - 1554	Retail	Mays Landing	New Jersey	24.8%	\$37,100	256
Madison Lakes	Office	Dayton	Ohio	24.7%	\$1,900	23
PEABODY, MA-2647	Retail	Peabody	Massachusetts	24.7%	\$31,600	212
Hickory Grove Elem. Pre-K and K	K-12 School	Charlotte	North Carolina	24.3%	\$28,500	149
Kmart - 4747	Retail	Springboro	Ohio	24.3%	\$19,700	258
North	K-12 School	Des Moines	Iowa	24.3%	\$98,700	258
Finley	K-12 School	Gainesville	Florida	24.1%	\$18,100	170
Elijah Barrett Prettyman Coursehouse	Office	Washington	D.C.	21.9%	\$178,500	1,249
Kmart - 7397	Retail	Grove City	Ohio	23.9%	\$13,500	159
Kmart - 7645	Retail	Zanesville	Ohio	23.9%	\$17,800	224
12029 Highland Court	Office	Centennial	Colorado	23.6%	\$13,000	201
WA0064ZZ - T S FOLEY US COURTHO	Courthouse	Spokane	Washington	23.4%	\$100,100	392
IA0112ZZ - DES MOINES FED BLDG	Office	Des Moines	Iowa	23.4%	\$103,000	938
Raymour & Flanigan Yonkers - I2	Retail	Yonkers	New York	23.3%	\$21,800	77
Shell	K-12 School	Hawthorne	Florida	23.2%	\$10,700	108
00155-Main St. Manchester Office	Bank	Manchester	Connecticut	23.2%	\$2,000	14
WAXAHACHIE, TX-2949	Retail	Waxahachie	Texas	23.0%	\$15,700	160
251 Causeway Street	Office	Boston	Massachusetts	22.8%	\$65,900	306
Ridgeway Middle School	K-12 School	Memphis	Tennessee	22.8%	\$49,600	395
G3MW>5000SA/ROCHESTER HILLS/MI/Site #13979	Retail	Rochester Hills	Michigan	22.6%	\$5,900	57
AOL - Kimsey Center (44900 Prentice)	Office	Sterling	Virginia	22.5%	\$118,800	785
LA0034ZZ - F EDWARD HEBERT FB	Office	New Orleans	Louisiana	22.5%	\$58,000	721
Kmart - 4054	Retail	New Kensington	Pennsylvania	22.5%	\$25,300	216
TX0185ZZ - ML KING JR FEDERAL BLDG	Other	Victoria	Texas	22.5%	\$13,700	140
00215-Park St. Office	Bank	Hartford	Connecticut	22.5%	\$5,900	24
Kmart - 4253	Retail	Tacoma	Washington	22.4%	\$21,200	147
Sustainable Properties	Office	Little Rock	Arkansas	22.4%	\$600	7
MAPLEWOOD, MN-2864	Retail	Maplewood	Minnesota	22.2%	\$30,700	317
AVON, OH-2530	Retail	Avon	Ohio	22.2%	\$27,600	231

## REDUCTIONS OF 20 PERCENT OR MORE (continued)

Competitor	Building Type	City	State	% Reduction	Cost Savings	GHG reduction (MtCO2e)
Dee Events Center	Entertainment	Ogden	Utah	22.1%	\$52,400	337
VT0000BT - USBS NORTH TROY	Public Order/Safety	North Troy	Vermont	22.0%	\$1,300	6
63001-Sunrise of Edmonds	Senior Care Facility	Edmonds	Washington	21.8%	\$14,400	91
Dryden One	Office	Dayton	Ohio	21.6%	\$11,400	145
NE0018ZZ - GRAND ISLAND FED BLD	Office	Grand Island	Nebraska	21.5%	\$10,500	44
Giant Eagle's HBC Service Company	Warehouse	Washington	Pennsylvania	21.5%	\$81,500	625
Kmart - 7648	Retail	Mauston	Wisconsin	21.4%	\$9,800	148
Kmart - 7437	Retail	Dalton	Georgia	21.3%	\$14,600	183
63041-Sunrise of Annapolis	Senior Care Facility	Annapolis	Maryland	21.3%	\$23,000	129
62013-Brighton Gardens of Florham Park	Senior Care Facility	Florham Park	New Jersey	21.1%	\$29,800	208
Kmart - 7649	Retail	Ripon	Wisconsin	21.1%	\$12,000	193
Sheraton North Dallas	Hotel	Dallas	Texas	21.0%	\$56,400	468
Arch 1650 Partners LP	Office	Philadelphia	Pennsylvania	20.9%	\$295,700	1,513
Merrill	K-12 School	Des Moines	Iowa	20.7%	\$32,800	104
Kmart - 9647	Retail	Leavenworth	Kansas	20.7%	\$14,500	173
Sears - 1033	Retail	N Attleboro	Massachusetts	20.5%	\$25,900	156
OH0302ZZ - N R JONES FED BLDG	Courthouse	Youngstown	Ohio	20.4%	\$23,700	159
Kmart - 4054	Warehouse	Warren	Ohio	20.4%	\$188,700	1,747
00643-Westside Office	Bank	Brockton	Massachusetts	20.4%	\$4,000	16
Hamilton Elem/Mid School	K-12 School	Memphis	Tennessee	20.4%	\$59,500	431
Kmart - 9611	Retail	Xenia	Ohio	20.3%	\$12,300	144
Kmart - 7209	Retail	East Liverpool	Ohio	20.2%	\$16,000	201
AR0079ZZ - BATESVILLE FB PO CT	Other	Batesville	Arkansas	20.1%	\$18,300	87

\* The emissions for this building cannot be calculated by EPA's online energy management and tracking tool, Portfolio Manager, because the building uses chilled water as a fuel source, and the method of chilled water generation is not known.