

The Better Buildings Alliance is a U.S. Department of Energy (DOE) effort to promote energy efficiency in U.S. commercial buildings through collaboration with building owners, operators, and managers.

DOE first began working with market partners in 2008 to further energy efficiency goals through the Better Buildings Alliance, and the program now plays a crucial role in helping move our country closer to the Administration’s Better Buildings Initiative target of 20% energy savings by 2020. The Better Buildings Alliance is a key part of DOE’s efforts to develop innovative, replicable solutions that transform the way the U.S. commercial building market achieves energy savings. Cutting U.S. building energy use by 20% from current levels would save approximately \$80 billion annually on energy bills, reduce greenhouse gas emissions, and create thousands of jobs.

As of 2014, more than 180 leading organizations representing approximately 10 billion square feet of building space have joined the Better Buildings Alliance and are taking steps to unlock energy efficiency savings. Members are committed to addressing energy efficiency needs in their buildings by setting energy savings goals, developing innovative energy efficiency resources, and adopting cost-effective technologies and market practices. Each building sector is led by a steering committee, which enables members to provide feedback on upcoming initiatives.

The Better Buildings Alliance continues to grow—14 new members joined in 2014. Participation in Better Buildings Alliance activities increased by more than 20%, with more members than ever pursuing energy savings solutions. Members report annually on energy savings towards their goals and have reported savings of more than 2% per year.

### Better Buildings Initiative 2015 Updates:

- ▶ **Better Buildings Alliance** — Winter 2015  
Latest from sector, technology, and market solutions leaders
- Better Buildings CHALLENGE** — Spring 2015  
Public and private sector leaders share strategies, solutions, and results
- Better Plants** — Fall 2015  
Leading manufacturers share progress toward ambitious energy savings goals

### Better Buildings Alliance 2014 Snapshot

(Figure 1)

Membership	
Number of Member Organizations	185
Square Feet Represented	10 billion
Percent of U.S. Commercial Buildings	11%
New Members in 2014	14
Activities	
Energy Savings Activities Available to Members	50+
Results	
Increase in Member Activity in 2014	More than 20%
Average Annual Energy Savings Reported	More than 2%



## Innovative Solutions Through Teamwork

The Better Buildings Alliance promotes a wide array of energy savings activities to help building owners and operators advance their energy management goals. Members collaborate within one of four sector groups—commercial real estate and hospitality; healthcare; higher education; and retail, food service, and grocery—to share successful strategies with their peers. Members also participate in one or more Solutions Teams, led by DOE's exceptional network of research and technical experts, to accelerate the adoption of advanced energy management practices. Technology Solutions Teams encourage

the development of efficient products and operating practices, and Market Solutions initiatives tackle persistent market barriers to efficiency.

A key goal of the Better Buildings Alliance is to leverage the market power and best practices of building owners and operators to accelerate uptake of new, energy-efficient, cost-effective products and services. Members manage thousands of properties located in every U.S. State, and have headquarters located in every region of the country as shown in Figure 3 below.

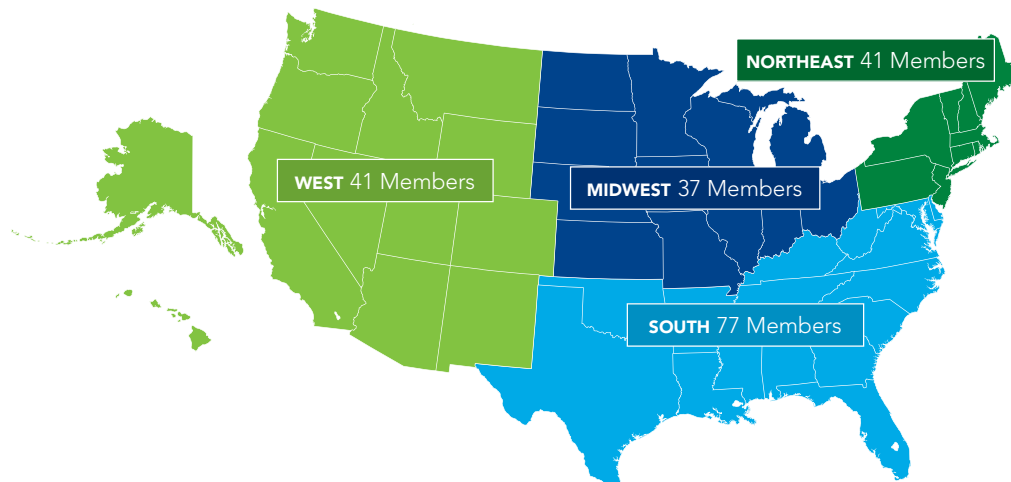
### Better Buildings Alliance Program Organization

(Figure 2)



### Better Buildings Alliance Members Own or Manage Facilities in Every U.S. State and Have Headquarters in Every Region

(Figure 3)



Regions based on U.S. Census Bureau designations.

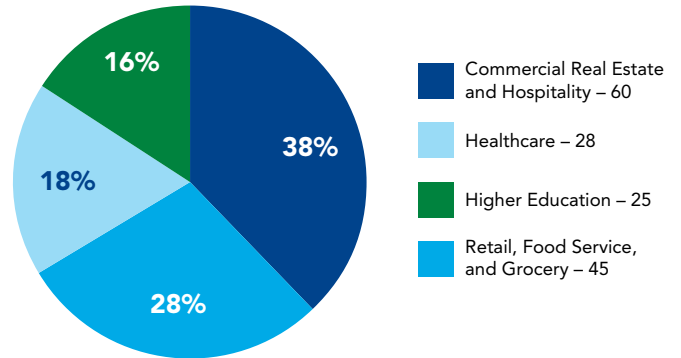
## Sector Groups

Better Buildings Alliance members represent seven sectors, organized into four groups: commercial real estate and hospitality; healthcare; higher education; and retail, food service, and grocery. The number of members is similar across sectors. However, many commercial real estate sector members control large portfolios and represent the largest portion of the floor area represented by members.

Each sector group met twice in 2014 to review Better Buildings Alliance activities that offered the greatest potential. Each sector group is represented by a steering committee, which is comprised of members nominated by their peers. In 2014, the steering committees helped to identify priority areas for each sector, such as challenging technology applications, innovative approaches to market barriers, and peer exchange/learning opportunities. DOE provides an account manager for each sector group to help all members identify activities to pursue and find solutions that meet each organization’s individual needs.

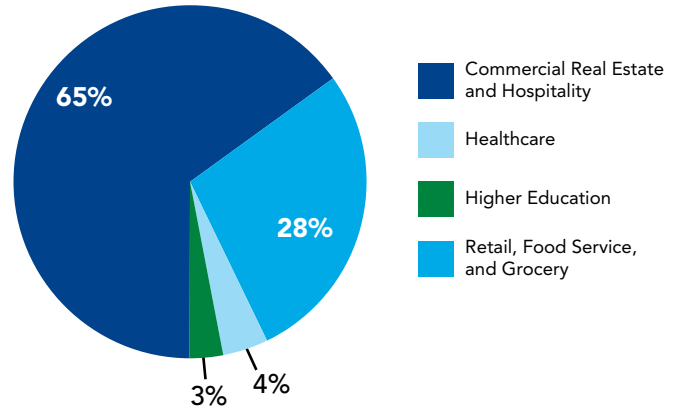
**Members by Sector Group**

(Figure 4)



**Percent of Floorspace by Sector Group**

(Figure 5)



### Better Buildings Alliance Steering Committee Chairs, 2014–2016



**Chris Magee**  
MGM Resorts International  
COMMERCIAL REAL ESTATE & HOSPITALITY



**Marla Thalheimer**  
Liberty Property Trust  
COMMERCIAL REAL ESTATE & HOSPITALITY



**Corey Zarecki**  
Gundersen Health System  
HEALTHCARE



**Susan Corry**  
University of Maryland  
HIGHER EDUCATION



**Kyle Wilkes**  
JCPenney  
RETAIL, FOOD SERVICE & GROCERY

Each Better Buildings Alliance sector group is represented by a steering committee. The individuals above were elected as Steering Committee Chairs for 2014 to 2016.



## Commercial Real Estate and Hospitality

The U.S. commercial real estate and hospitality sectors account for more than 20% of commercial building energy use and collectively this sector spends more than \$30 billion on energy every year.<sup>1</sup> Energy consumption typically comprises a property's single largest operating expense, representing up to 30% of an average building's costs. The Better Buildings Alliance commercial real estate and hospitality sector group includes 60 members who own, lease, or manage more than 6 billion square feet of space.

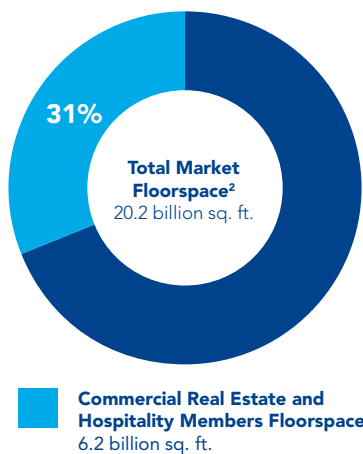
Despite key challenges such as split incentives, short payback requirements, and navigating complex owner/manager/franchisee relationships, these sectors hold tremendous opportunities to capitalize on proven best practices in energy efficiency. Members tackle topics such as improving the efficiency of parking lot lighting and laundry facilities, acquiring energy consumption data from tenants and utilities, and driving the adoption of green leasing. In the next year, sector members will build upon these successes and work together on additional topics such as real-time energy monitoring and deep energy retrofits.

### 2014 Member Priorities

- ▶ Increase membership, particularly for hospitality sector
- ▶ Stakeholder engagement
- ▶ Making energy/building data actionable for operators

### Commercial Real Estate and Hospitality Members as a Percent of Market Floorspace

(Figure 6)



## Retail, Food Service, and Grocery

Building owners and operators across the U.S. retail, food service, and grocery sectors collectively spend more than \$42 billion on energy each year. Retail buildings (including stand-alone stores, malls, and shopping centers) make up nearly 16% of commercial building space nationwide and use more than \$27 billion on energy each year. Operations dedicated to food sales and food service represent another 4% of commercial building space and use more than \$15 billion on energy annually.<sup>1</sup> There are 45 Better Buildings Alliance member organizations in this sector (grocery chains, restaurants, and retailers), which control close to 2.7 billion square feet of owned and managed building space. Collectively, members represent 18% of retail floorspace nationwide.

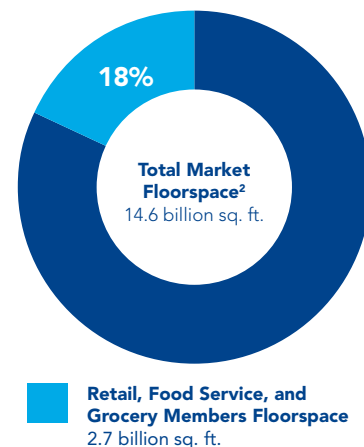
While representing a smaller portion of all U.S. buildings, facilities with commercial kitchens consume roughly 5–7 times more energy per square foot than other commercial buildings—and high-volume, quick-service restaurants may use up to 10 times more.<sup>3</sup> In fact, a single commercial kitchen appliance can consume more energy than an average U.S. home.<sup>4</sup>

### 2014 Member Priorities

- ▶ EMIS needs for retail, food service, and grocery
- ▶ Rooftop unit replacement/retrofit decision-making

### Retail, Food Service, and Grocery Members as a Percent of Market Floorspace

(Figure 7)





## Healthcare

Hospitals and other healthcare facilities are among the most energy-intensive buildings in the country, using more than \$9 billion on energy every year.<sup>1</sup> According to the U.S. Energy Information Administration, U.S. healthcare facilities are the third most energy-intensive facility type across the nation; only buildings used for food service and food sales use more energy per square foot. With increasing costs and tighter budgets, many healthcare facilities are seeking ways to cut costs without compromising the quality of patient care. Energy efficiency improvements present one such opportunity.

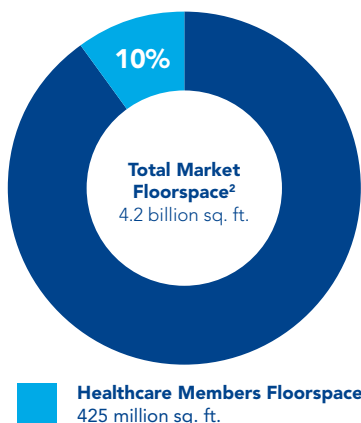
Over the past year, the Better Buildings Alliance healthcare members have implemented technologies and operational practices to increase the energy efficiency of their facilities. These healthcare organizations are focusing on energy efficiency as a win-win solution to improve facilities, reduce environmental impacts, and save healthcare systems' needed resources—resources that can be used to hire staff, invest in medical equipment, and improve patient experience. The Better Buildings Alliance healthcare sector members represent nearly 500 million square feet of space.

### 2014 Member Priorities

- ▶ HVAC and air exchange reductions for healthcare
- ▶ Lighting for improved environment of care
- ▶ Green revolving loan funds

### Healthcare Members as a Percent of Market Floorspace

(Figure 8)



## Higher Education

Each year, the nation's higher education sector spends nearly \$4 billion in energy costs<sup>5</sup>—the equivalent of tuition for about 200,000 students.<sup>6</sup> Colleges, universities, and other post-secondary institutions across the United States hold a unique position as thought leaders, innovators, and educators of the next generation's leaders. The higher education sector enrolls 20 million students (more than 6% of the U.S. population) every year, and 57% of adults over the age of 25 have received some college education.<sup>7</sup> This sector represents an opportunity to drive progress on energy efficiency by demonstrating leadership, deploying innovative technologies, and equipping future professionals with the skills to make efficiency happen.

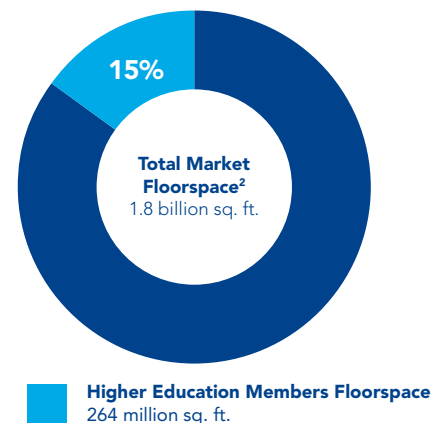
At the same time, higher education faces an array of barriers to energy efficiency—including accessing low-cost capital, engaging stakeholders, reducing consumption in energy-intensive laboratories, and attracting top-tier technical staff. Proven energy efficiency measures represent an opportunity to reduce annual energy expenditures, protect against cost volatility, and exhibit leadership.

### 2014 Member Priorities

- ▶ Recruiting and retaining skilled staff
- ▶ Green revolving loan funds

### Higher Education Members as a Percent of Market Floorspace

(Figure 9)



## New Better Buildings Alliance Members in 2014



**Dunkin' Brands Group, Inc.** is one of the world's leading franchisors of quick-service restaurants. The company has nearly 10,500 Dunkin' Donuts and Baskin-Robbins locations in the United States that are owned and operated by approximately 1,700 franchisees.



**Kelco Management & Development, Inc.** is a team of hospitality industry professionals offering more than 95 combined years of experience in hotel and resort management. The company owns/operates five hotels totaling more than 375,000 square feet.



**Emory University** is an internationally recognized private research university in Atlanta, GA with more than 14,000 students and its facilities cover more than 8 million square feet of building space. Emory recently exceeded its 25% energy-reduction goal by reducing energy use intensity 26% over 2005—1 year early.



**Equity One Inc.** is a real estate investment trust (REIT) and leading owner of retail real estate, specializing in grocery anchored centers. Equity One owns 144 properties totaling more than 18 million square feet and concentrates on urban areas, notably New York, San Francisco, Los Angeles, and South Florida.



**FloorQuest** is a flooring and cabinetry retail/service company with stores in Wisconsin serving the residential and commercial sectors, with a portfolio of six retail and warehouse facilities.



**Kessinger Hunter** is a full-service commercial real estate firm offering management, brokerage, development, and consulting services across the United States. Headquartered in Kansas City, MO, Kessinger Hunter manages more than 23 million square feet of floorspace.



**Lincoln Harris** is a commercial property management company headquartered in Charlotte, NC. The Healthcare Group of Lincoln Harris manages more than 21 million square feet of healthcare real estate across 17 States.



**MC Realty** is a property and facility management firm headquartered in Kansas City, MO. They work with more than 13 million square feet across 140 buildings. MC Realty was recognized by the Lighting Energy Efficiency in Parking (LEEP) campaign for achieving the highest absolute annual energy savings in a retrofit at a single parking structure.



**Principal Real Estate Investors** has more than 60 years of commercial real estate experience and currently manages or advises \$52.6 billion in commercial real estate assets, including a U.S. portfolio with more than 140 million square feet of office, retail, and multifamily properties.



**Retail Properties of America, Inc. (RPAI)** is a self-managed REIT focused on the acquisition, development, and management of strategically located retail assets. As one of the largest owners and operators of shopping centers in the United States, RPAI has a diversified mix of assets, including power centers, community centers, and lifestyle centers.



**Saunders Hotel Group**

**Saunders Hotel Group (SHG)** is a fourth-generation, family-owned owner/operator that helped pioneer sustainable hospitality in 1989. The Boston-based organization currently maintains a portfolio of four properties totaling over 450,000 square feet, two of which hold the ENERGY STAR® designation. SHG prides itself on seamlessly integrating sustainability into an extraordinary guest experience, improving service while decreasing its environmental footprint.



**The Kessler Collection** of 12 bold and distinctive hotels, restaurants, spas, and galleries consists of more than 1.5 million square feet that provide inspiring experiences to meet, travel, dine, and unwind.

**UNIVERSITY OF MIAMI**



**The University of Miami** is a private research university in Coral Gables, FL educating more than 15,000 students in nearly 5.7 million square feet of campus building space. The university's 11 schools and colleges serve undergraduate and graduate students in more than 180 majors and programs.



**University of Massachusetts Medical School** is one of five campuses in the University of Massachusetts system and home to schools of nursing, biomedical sciences, and medicine. The school educates more than 1,000 students in 2.5 million square feet of building space.

## Members That Committed to the Better Buildings Challenge in 2014



Arby's Restaurant Group, Inc.



CKE Restaurants Holdings, LLC



Hilton Worldwide



THE JBG COMPANIES®

The JBG Companies

## Technology Solutions Teams

Deploying currently available, cost-effective technologies could reduce annual commercial and industrial building energy consumption by nearly 6.0 quads—a 20% end-use energy savings—by 2020 as compared to business as usual projections.<sup>8</sup> These significant energy and cost savings could instead be put toward growing businesses and creating jobs. The Better Buildings Alliance Technology Solutions Teams are designed to help commercial building owners realize these opportunities.

### Technology Solutions Snapshot

(Figure 10)

Accomplishments	
Equipment Procurement Specifications Published	12
Technology Adoption Campaigns Launched	2
Technology Demonstration Opportunities	10
Technology Solutions Challenges	2

**Lighting & Electrical:** The [Lighting Energy Efficiency in Parking \(LEEP\) Campaign](#) was a highly successful effort for the Lighting & Electrical Team in 2014 and is on its way to surpassing the goal of having members of campaign supporters commit 500 million square feet of parking space by March 2015. Future activities include integrating lighting controls into lighting specifications and planning the upcoming Interior Lighting Campaign. Learn more at: [eere.energy.gov/betterbuildingsalliance/lighting](http://eere.energy.gov/betterbuildingsalliance/lighting).

**Space Conditioning:** Several new resources were published for the [Advanced Rooftop Unit \(RTU\) Campaign](#) in 2014, which surpassed 30,000 high-efficiency RTU installations and control retrofits. The team also published new resources on the [evaluation, analysis, and specification of new RTUs and control retrofits](#). The campaign will continue into 2015, when the team plans to develop resources for HVAC system mapping and a financial guide for estimating RTU performance. Learn more at: [eere.energy.gov/betterbuildingsalliance/spaceconditioning](http://eere.energy.gov/betterbuildingsalliance/spaceconditioning).

### Campaigns, Challenges, and More

The Better Buildings Alliance introduced the **Advanced RTU Campaign**, led by the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) and the Retail Industry Leaders Association, which encourages building owners to upgrade to more efficient RTU technology. The campaign provides access to information that can lower operating costs while maintaining or improving building occupant comfort.

The **LEEP Campaign** offers guidance and recognition to facility owners interested in implementing energy efficient lighting solutions in their parking facilities. The campaign is supported by leading trade and professional associations; their members own or operate the vast majority of commercial parking spaces in the United States and have extraordinary potential to drive energy savings in the parking market. Participants have committed more than 430 million square feet; 43 of these organizations are Alliance members.

**Demonstration opportunities** for each of the technology areas are available for organizations interested in hosting a demonstration at their facilities. The host site receives technical assistance from DOE national laboratory experts and recognition in DOE literature for their participation.

The **Wireless Meter Challenge** performance specification challenges manufacturers to develop a low-cost wireless metering system (less than \$100 per point), that meets essential requirements for electrical energy measurement and transmits data wirelessly to an onsite collection point.

The **Rooftop Unit Challenge** urges manufacturers to develop units that reduce electricity use by up to 50% compared to existing stock and 44% compared to ASHRAE Std. 90.1-2010, depending on facility location and type.



## Energy Management & Information Systems

**(EMIS):** The EMIS Team developed a suite of introductory products to educate users on the basics of EMIS. These included a webinar crash course on critical aspects of EMIS, a synthesis of existing EMIS resources, and a regional guide to EMIS incentives. In 2015, the EMIS Team also will include a guide to holistic integration of EMIS data into building operations. Learn more at: [eere.energy.gov/betterbuildingsalliance/EMIS](http://eere.energy.gov/betterbuildingsalliance/EMIS).

**Food Service:** 2014 accomplishments include completing the [ENERGY STAR Food Service Buildings Survey](#) and releasing the [Energy Management System Guidance for Food Service](#). In 2015, the team will continue to work on the Demand Control Kitchen Ventilation Guidance Series. The team will also undertake a walk-in coolers/freezers advanced control demonstration opportunity and will develop a restaurant resource assessment. Learn more at: [eere.energy.gov/betterbuildingsalliance/foodservice](http://eere.energy.gov/betterbuildingsalliance/foodservice).

**Refrigeration:** The team supported the [ASHRAE refrigeration system commissioning guide](#) released in the spring and drafted a case study on energy efficient alternative refrigerants with Hannaford Supermarkets. The team is currently finalizing that case study and drafting another on alternative refrigerants. Based on member feedback, the Refrigeration Team formed three working groups to address the most pressing issues facing refrigeration: utility incentive programs, performance metrics, and integrating refrigeration into building systems. Learn more at: [eere.energy.gov/betterbuildingsalliance/refrigeration](http://eere.energy.gov/betterbuildingsalliance/refrigeration).

**Plug & Process Loads:** In 2014, the team completed a [plug load study](#) for the healthcare market that demonstrates the savings potential of nighttime “idle” modes. They also drafted a procurement specification on advanced power strips, which will be deployed and promoted in 2015. In addition to promoting the use of advanced power strips, the team plans to conduct a market and technology assessment of plug load controls and metering strategies. Learn more at: [eere.energy.gov/betterbuildingsalliance/plugloads](http://eere.energy.gov/betterbuildingsalliance/plugloads).

**Laboratories:** This team drafted three best-practice guides with case studies on building and fire codes, ventilation management, and collaborating with environmental health and safety staff, facilities, and lab users. The team is preparing a scoping study for a lab retrocommissioning guide. Some upcoming activities include increased collaboration with the International Institute for Sustainable Laboratories (I2SL) to make more resources available to members and to reach a larger group of stakeholders, and developing a specification for safe, low-energy labs. Learn more at: [eere.energy.gov/betterbuildingsalliance/labs](http://eere.energy.gov/betterbuildingsalliance/labs).

**Renewables Integration:** The Alliance’s newest team published a [commercial PV solar decision guide](#) this year and is currently developing a series of sector-specific solar decision guides for commercial real estate, hospitality, and healthcare. They are also helping develop solutions to the challenges of installing solar PV on leased buildings. In the coming year, they will continue to focus on helping overcome market and information barriers to PV adoption and identify Alliance members for case studies. Learn more at: [eere.energy.gov/betterbuildingsalliance/renewables](http://eere.energy.gov/betterbuildingsalliance/renewables).

## Technical Procurement Specifications

In total, the Better Buildings Alliance offers 10 procurement specifications to help building operators select efficient commercial lighting, space conditioning, water heating, plug load, and submetering technologies. The Better Buildings Alliance has also supported two technology challenges to accelerate development of low-cost wireless submeters and more efficient RTUs. If commercial buildings in the United States switched today to technologies that met these specifications, more than 2.0 quads per year of source energy would be saved. That is roughly 12% of total annual U.S. commercial building energy use and more than the total energy consumed by South Carolina.<sup>9</sup> The following customizable specifications can be used in requests for proposals and in procurement documents. Find them online at [eere.energy.gov/betterbuildingsalliance/specs](http://eere.energy.gov/betterbuildingsalliance/specs).

## Procurement Specifications

Specification	Savings Opportunity
<b>High-Efficiency Troffer Lighting</b>	<p><b>Save 15%–45%</b> on lighting energy costs on a one-for-one basis and up to <b>75%</b> with the use of controls. <a href="#">View spec.</a></p> <hr/> <p>A <b>Walmart Neighborhood Market</b> in Wichita, KS installed an LED system with bi-level controls that reduced power usage over typical linear fluorescents by 29%. <a href="#">View the case study.</a></p>
<b>LED Site Lighting (for Parking Lots)</b>	<p><b>Save 40%</b> or more on energy costs with the use of controls; additional benefits include long life, reduced maintenance costs, and improved lighting uniformity. <a href="#">View spec.</a></p> <hr/> <p><b>T.J.Maxx</b> realized a 3-year payback by replacing high-pressure sodium and metal halide luminaires with LED technology. <a href="#">View the case study.</a></p>
<b>High-Efficiency Parking Structure Lighting</b>	<p><b>Save nearly 15%</b> on energy savings compared to current code; additional energy savings are possible with lighting controls and day-lighting techniques. <a href="#">View spec.</a></p> <hr/> <p><b>Cleveland Clinic Foundation</b> in Cleveland, OH installed a LED system in a 970,250-square-foot garage that utilizes sensors to operate in low states, and saved 82% on energy use. <a href="#">View the case study.</a></p>
<b>High-Efficiency Wallpack Lighting</b>	<p><b>Save approximately 40%</b> on a one-for-one basis and <b>70%</b> if controls are utilized. Additional benefits include longer life and lower maintenance costs. <a href="#">View spec.</a></p> <hr/> <p>If a hotel of 185 rooms applied the specification at 1,200 sites across its building portfolio, it would save an estimated 12.7 million kWh and \$1.3 million in energy savings annually.</p>
<b>Gas Heaters</b>	<p><b>Save more than 10%–20%</b> over standard models. <a href="#">View spec.</a></p> <hr/> <p><b>Langendorf Supply Co.</b> in Bridgeton, MO installed high-efficiency, 100% outside air, direct-fired gas heaters in a 42,000-square-foot warehouse and saved 15% on utility costs. <a href="#">View the case study.</a></p>

*continued on next page*

## Procurement Specifications

Specification	Savings Opportunity
<b>Fume Hoods</b>	<p><b>Save up to 50%</b> per unit in labs with fume-hood dominated ventilation system airflows. <a href="#">View spec.</a></p> <hr/> <p>The <b>University of California, Irvine</b> implemented a suite of energy conservation measures in 10 laboratory retrofits, including installing and operating high-performance, low-flow fume hoods at a face velocity of 70 feet per minute. The average energy savings across the retrofitted laboratories was 61%. <a href="#">View the field demonstration study.</a></p>
<b>Ultra-Low Temperature Freezers (ULT)</b>	<p><b>Save 6%–60%</b> over typical units. <a href="#">View spec.</a></p> <hr/> <p><b>Michigan State University</b> and the <b>University of Colorado at Boulder</b> installed high-efficiency ULTs in their laboratories. The ULTs generated between 20% and 66% electricity savings over typical units. <a href="#">View the field demonstration study.</a></p>
<b>Commercial Heat Pump Water Heater</b>	<p>Heat pump water heaters can reduce water heating energy by <b>70%</b> compared to electric storage water heaters. <a href="#">View spec.</a></p> <hr/> <p>A <b>commercial kitchen</b> with a daily hot water usage of 1,000 gallons installed a heat pump water heater with a heating capacity of around 32,000 British thermal units per hour and a coefficient of performance of 3.5. The heat pump water heater saved the facility more than \$6,000 per year with additional space conditioning impacts.<sup>10</sup></p>
<b>Low-Voltage Distribution Transformer</b>	<p>High-efficiency distribution transformers can reduce energy use by <b>more than 40%</b> over typical transformers. <a href="#">View spec.</a></p> <hr/> <p>The <b>University of California, Merced</b> replaced two existing distribution transformers at an off-campus office building with high-efficiency models, and reduced related energy losses by 85%. <a href="#">View the case study.</a></p>
<b>High-Efficiency Rooftop Unit</b>	<p><b>Save 35%</b> when replacing a 15-year-old rooftop unit. <a href="#">View spec.</a></p> <hr/> <p><b>adidas</b> installed new high-efficiency RTUs and lowered energy consumption by approximately 20%–40%. They also saw a reduction in HVAC service calls and total repair spending. <a href="#">View the case study.</a></p>



### Mission Accomplished: LED Refrigerated Display Case Lighting

The Better Buildings Alliance procurement specification for LED refrigerated display case lighting, most recently updated in 2010, successfully assisted in boosting market penetration. The specification is being retired, since current best practices in the market are more advanced than the original specification.

## Market Solutions Teams

Building owners, managers, and tenants are frequently unable to take full advantage of energy efficiency benefits due to market barriers. The Better Buildings Alliance Market Solutions Teams work to identify non-technical, market-based barriers to energy efficiency and develop tools and resources to help Better Buildings Alliance members deploy proven solutions in their portfolios, quickly and at scale. Based on member feedback on the most pressing market needs, the activities are currently focused on the following topics:

**Leasing and the Split Incentive:** In 2014, in conjunction with the Institute for Market Transformation and support from a steering committee of more than 20 industry practitioners, the Better Buildings Alliance launched the [Green Lease Leaders](#) recognition program to highlight those in the market who are successfully using the commercial lease to create sustainable tenant/landlord relationships. The [2015 application](#) is now available, including an expanded set of requirements for commercial brokers to earn the award.

The team also developed several resources to help organizations implement green leasing in their portfolio, including tips for energy efficient office build-outs, best practices for green leasing, and case studies profiling winners of the Green Lease Leaders award. In 2015, the group will continue to promote Green Lease Leaders and increase engagement with tenants/occupiers of commercial space, seeking to further build demand for energy efficient space.

**Improving the Value of Energy Efficiency:** In 2014, DOE commissioned a review of more than 50 studies to explore the impact of green labels (e.g., LEED, ENERGY STAR) and investment in energy efficiency on building financial performance. The studies support a positive correlation between green-labeled buildings and high rental rates, higher occupancy rates, lower utility costs, and increased sales prices. This review summarized the expanding evidence that green-certified buildings can improve net operating income and asset value.

### The Green Lease Leaders Recognition Program

Landlords and tenants have split incentives to enhance a building's energy performance. But there is a growing body of lease language — also known as green, energy-aligned, high-performance, or energy-efficient leases — that is helping bridge the landlord-tenant divide on sustainability. As a result, many organizations interested in improving the energy performance of leased space are turning to the Green Lease Library for sample language, case studies, and guidance to implement green leasing.

The [Green Lease Leaders](#) recognition program, developed by the Institute for Market Transformation and the Better Buildings Alliance with support from leading real estate practitioners, is helping to promote best practices for commercial leasing and recognizes organizations and brokers that are successfully incorporating green lease language into new or existing leases to reduce energy consumption and costs.

In 2014, Better Buildings Alliance members Liberty Property Trust, Kilroy Realty Corp., Kimco Realty Corp., Regency Centers, and the Tower Companies were part of the inaugural class of Green Lease Leaders.

View these resources to learn more:

- ▶ [2014 Green Lease Leaders](#)
- ▶ [Green Lease Library](#)
- ▶ [2015 Green Lease Leaders Application](#)

To help encourage commercial appraisers to incorporate energy efficiency benefits into the appraisal and valuation of commercial buildings, DOE engaged with the Appraisal Foundation to contribute to and encourage feedback on three exposure drafts entitled “Valuation of Green Buildings: Background and Core Competency.” The Appraisal Foundation is leveraging industry feedback to provide commercial appraisers with the knowledge, tools, and resources to adequately value green buildings. DOE is also funding the development of a training program for commercial appraisers that includes information on DOE’s Buildings Performance Database and Building Energy Asset Score as well as the U.S. Environmental Protection Agency’s ENERGY STAR Portfolio Manager®.

**Workforce Development:** The Market Solutions Team supports the Better Buildings Workforce Initiative, which seeks to develop a skilled and certified clean energy workforce. There are numerous existing certifications available related to energy performance and commercial building operation, but they have disparate and varied requirements, resulting in a lack of clear evidence of a qualified professional. The Workforce Initiative is collaborating with industry practitioners and the National Institute of Building Sciences to address this barrier. They are developing voluntary national guidelines that improve the quality and consistency of commercial buildings workforce credentials for energy-related jobs. For more information please visit: [eere.energy.gov/betterbuildings/workforce](http://eere.energy.gov/betterbuildings/workforce).

Through the Workforce Initiative, DOE has hosted building re-tuning training in 6 cities for more than 130 building engineers. Attendees receive the knowledge and skills to identify and correct operational problems that lead to energy waste. This “train-the-trainer” model encourages attendees to spread best practices throughout their own organizations. For online re-tuning resources and a listing of upcoming in-person trainings, visit: [eere.energy.gov/workforce/projects/buildings-retuning-training](http://eere.energy.gov/workforce/projects/buildings-retuning-training).

### The Building Energy Asset Score

To help provide clarity on energy efficient building systems, DOE developed the Building Energy Asset Score, a 10-point scale to evaluate the energy efficiency of a commercial or residential building’s physical characteristics and major energy-related systems. Using that information, the tool predicts energy use intensity according to energy simulation results, generates a score on the 10-point scale to signify the building’s energy efficiency, and provides the user with recommended upgrades to improve the score. The score enables comparison among buildings’ physical and structural energy efficiency, independent of operations and occupancy. DOE is currently seeking organizations to pilot the Asset Score, for more information, please contact Andrew Burr at [Andrew.Burr@ee.doe.gov](mailto:Andrew.Burr@ee.doe.gov).

**Data Access:** In 2014, utilities and local governments partnered through the Better Buildings Energy Data Accelerator and committed to providing whole-building data to assist commercial building owners in meeting energy disclosure and mandatory benchmarking legislation. To help cities and utilities understand the importance of whole-building aggregated data, the Market Solutions Team worked with Better Buildings Alliance members to send a letter of support for the accelerator, articulating the market need for aggregate, monthly energy consumption data. In 2015, the team will continue to work with Alliance members to encourage cities and utilities to provide access to whole-building energy consumption data and develop best practices to share on utility engagement.

## Achieving Savings Through Alliance Activities

Better Buildings Alliance members are committed to implementing strategies that improve energy efficiency and demonstrate success in the marketplace across all sectors. In 2014, members used tools and resources from Alliance activities to reduce their organizations' energy consumption and make progress towards portfolio-wide energy savings goals. These organizations exemplify the leadership and dedication of Alliance members in pursuing innovative solutions to market barriers.



**Hilton Worldwide** partnered with the Better Buildings Alliance to demonstrate the energy savings and light quality that can be achieved with LED downlights. The organization recently partnered with the BBA Lighting & Electrical Project Team in a demonstration project at the Hilton Columbus Downtown, a 450,000-square-foot hotel in Columbus, OH. Hilton installed 3,700 LED [Next Generation Luminaire Downlights](#) in 532 guest rooms and suites. As a result, electricity usage at the hotel was reduced by 20%, resulting in a savings of more than 145,000 kWh. Additional savings are expected after reductions in operating hours and light levels due to dimming. Across its portfolio of 91 million square feet of hotels, Hilton has a goal of reducing energy use by 20% from 2010 levels by 2024.



**Walmart** was the most awarded participant of the program's LEEP campaign in 2014, winning three awards for savings in single parking areas, as well as the award for largest portfolio-wide annual absolute energy savings. A Better Buildings Alliance member since 2008, Walmart has leveraged program specifications related to parking light and parking structure lighting, and LED refrigerated display case lighting, as the basis to develop bid specifications. Walmart joined the Better Buildings Challenge in 2013, committing to reduce the energy intensity of its nearly 750 million-square-foot portfolio by 20% by 2020. The company showcases what's possible at its new [South Euclid, OH](#) store. This project is expected to reduce energy consumption by 40% below ASHRAE 90.1-2007 standards, in part through the application of Walmart's proven interior and parking LED approach.



**Liberty Property Trust** was recognized in 2014 as one of the 14 inaugural Green Lease Leaders, a designation developed by the Better Buildings Alliance and the Institute for Market Transformation to accelerate the adoption of green lease language in commercial leases. Recognizing the importance of collaborating with tenants on energy performance, the company worked with senior management to incorporate a number of green provisions into the standard lease form, including access to energy bills for benchmarking, green cleaning, and expansion of the definition of operating expenses to include projects to improve energy performance. In 2013, Liberty conducted an audit of leasing practices to determine if the new green clauses had been successfully incorporated into executed leases. The analysis determined that these clauses remained in the lease through negotiations 89% of the time. Green lease language helps to enable the company to achieve a high level of energy performance across its portfolio, including 124 ENERGY STAR certified properties and more than 81 LEED projects completed or under construction.



**Cleveland Clinic Foundation (CCF)** is a Better Buildings Challenge partner aiming to reduce energy use per square foot by 20% by 2020 across 20 million square feet. The organization recognized that a barrier to organizational energy efficiency was a general lack of information and buy-in regarding resource conservation among clinicians. The hospital system formed an enterprise-wide Greening the Operating Room (OR) committee in 2013 to engage clinicians as partners in energy efficiency. CCF has implemented targeted energy initiatives in the OR, such as upgrading halogen lamps to LEDs, which resulted in lowered demand on the HVAC system and is expected to reduce OR energy use by 54%. See more information on CCF's implementation model "[Engaging Clinicians to Reduce Resource Use in the OR.](#)"

CCF is also piloting HVAC setbacks to explore an enterprise-wide rollout of new air exchange and setback standards, reducing air exchanges in occupied ORs to the ASHRAE standard of 20 air exchanges per hour (ACH), with unoccupied setbacks to 6 exchanges per hour. Cleveland Clinic Foundation's Energy Team is working with clinicians to alleviate concerns about surgery safety and readiness by installing monitors showing temperature, humidity, pressurization, and air exchange rates. Activation of the setbacks will be tied into the OR management system outputs with override capabilities to force the system to 20 ACH if emergent cases require this action. If these pilots are successful, the strategies may also be included in updated construction standards for new and renovated ORs.



**The University of Colorado, Boulder** partnered with the Better Buildings Alliance to demonstrate the energy savings that can be achieved with high-efficiency, ultra-low temperature (ULT) freezers. CU Boulder participated in a demonstration project at two sites on campus—the Molecular, Cellular, and Developmental Biology laboratory and the Integrative Physiology laboratory—to install Stirling Ultracold and New Brunswick model ULT freezers. As a result, the freezers' electricity usage were 66% and 28% lower than the average baseline ULT freezer, respectively, and overall energy savings of 68% and 32% were achieved when taking into account space conditioning impacts in the laboratories. This equates to an annual savings of 1.6 to 5.5 MWh with an associated cost savings of \$170 to \$570. CU Boulder has achieved its goal of reducing energy use by 20% per square foot by 2012 from 2005 levels over 10 million square feet of campus space, and is working to develop new goals for the future.



**Walgreens** has implemented a program to proactively replace rooftop air conditioning units (RTUs) on its stores before emergency replacement is needed, leading to reduced energy, material, and labor costs. In 150 stores, Walgreens saved more than \$1 million through the planned RTU replacement process, which included right-sizing equipment and taking advantage of bulk orders and installations. Walgreens' new units are also highly energy efficient, exceeding CEE Tier 2 with rated 12.6 EER and 15+ IEER. In just one store, RTU energy consumption was reduced by more than 50% and energy costs were reduced by more than \$14,000 annually. The organization has set a goal to implement RTU replacements at 500 stores per year. Through its partnership in the Better Buildings Challenge, Walgreens is committed to reducing energy use by 20% by 2020 across its portfolio of 125 million square feet. Walgreens is also a participant in the Advanced RTU Campaign, which provides resources to organizations pledging to implement RTU replacements and retrofits. For more information see the [Walgreens RTU Planned Replacement Case Study](#).

## Better Buildings Alliance Members

### Commercial Real Estate and Hospitality

AtSite  
Bank of America  
Cassidy Turley  
CBRE\*  
CC Frost Properties  
Colliers International\*  
Community Services Agency & Development Corporation  
Cox Enterprises  
Cushman & Wakefield\*  
Dacra Development  
Denver West  
Deutsche Asset & Wealth Management\*  
Equity One Inc.  
First Potomac Realty Trust

### Forest City Enterprises

Glenborough\*

### Hilton Worldwide

Hines  
Hyatt Hotels Corporation  
IBM

### IHG (InterContinental Hotels Group)

JLL\*  
Kelco Management & Development  
Kessinger Hunter  
Kilroy Realty Corporation  
Kimco Realty Corporation\*  
Liberty Property Trust\*  
Living City Block  
Marriott International  
MC Realty Group  
Mesa Lane Partners

### MGM Resorts International\*

Newmark Grubb Knight Frank

### Parmenter Realty Partners

Principal Real Estate Investors\*

### Prologis

Prudential Financial

Regency Centers  
Retail Properties of America  
Ryan Companies US  
Saunders Hotel Group  
Sharpe Properties Group\*  
Stream Realty Partners  
Studley

### The JBG Companies

The Kessler Collection  
The Malcolm Bryant Corp.\*

### The PNC Financial Services Group

The Related Companies  
The Walt Disney Co.  
The Westfield Group  
Tishman Speyer Properties

### Transwestern

U.S. Department of Energy  
U.S. General Services Administration\*  
U.S. Navy CNIC Facilities and Acquisitions

### USAA Real Estate Co.

Vornado Realty Trust

### Wyndham Worldwide\*

### Retail, Food Service, and Grocery

Arby's Restaurant Group, Inc.  
Army & Air Force Exchange Service  
Belk, Inc.

### Best Buy

BJ's Wholesale Club, Inc.  
Boston Market  
Chipotle Mexican Grill  
CKE Restaurants Holdings, LLC  
Costco Wholesale Corporation  
Crate & Barrel  
Dunkin' Brands  
Einstein Noah Restaurant Group, Inc.  
Floorquest

Food Lion

Food Lion

### Ford Motor Company

Fresh & Easy Neighborhood Market  
Hannaford Bros. Co.

Harris Teeter

JCPenney\*

### Kohl's Department Stores

Lamey-Wellehan Shoes

Lowe's

### Macy's

McDonald's Corporation\*  
Panda Restaurant Group, Inc.  
PETCO Animal Supplies, Inc.  
PetSmart  
Publix  
Red Robin Gourmet Burgers  
REI

Safeway

Sears

### Staples\*

### Starbucks Coffee Company

SUPERVALU

Target

The Home Depot\*

Ulta Inc.

### Walgreens Co.

### Wal-mart Stores, Inc.\*

Wawa\*

Weis Markets

Wendy's\*

### Whole Foods Market\*

Yum! Brands\*

### Key

Members in **bold** have taken the Better Buildings Challenge.

Asterisk (\*) indicates 2014–2016 sector steering committee representative.



## Healthcare

### Ascension Health

Beaumont Health System\*  
 Bon Secours Health System  
 Broward Health North  
 Catholic Health Initiatives (CHI)  
 CentraCare Health  
**Cleveland Clinic Foundation\***  
 Defense Health Agency (DHA)  
 Gundersen Health System\*  
 Health Care REIT  
 HealthSouth  
 Hospital Corporation of America (HCA)  
 Inova Health System  
 Kaiser Permanente  
 Legacy Health\*  
 Lincoln Harris  
 Mayo Clinic

### New York-Presbyterian Hospital\*

North Shore-Long Island Jewish Health System  
 Providence Health & Services  
 Southwestern Vermont Health Care  
 Summa Health System  
 U.S. Department of Veterans Affairs  
 University of Maryland Medical Center\*

### University of Pittsburgh Medical Center\*

University of South Alabama Medical Center  
 Veterans Health Administration  
 Westchester Medical Center

## Higher Education

Arizona State University  
 Clark Atlanta University  
 Cornell University  
 Duke University  
 Emory University\*  
 Grand Valley State University

Loyola University  
 Massachusetts Institute of Technology  
 Portland State University  
 San Mateo Community College District  
 Stanford University\*  
 Tulane University  
 University of California, Berkeley\*  
 University of California, Davis  
**University of California, Irvine**  
 University of California, Merced  
 University of Colorado, Boulder\*  
**University of Hawaii at Manoa**  
 University of Maryland\*  
 University of Massachusetts Medical School  
 University of Miami\*  
 University of South Carolina  
**University of Utah\***  
 University of Wisconsin\*  
 Washtenaw Community College

## Affiliates

American Hotel & Lodging Association\*  
 American Institute of Architects  
 American Society for Healthcare Engineering (ASHE)  
 American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)\*  
 Biomass Thermal Energy Council (BTEC)  
 Building Owners and Managers Association (BOMA) International\*  
 Consortium for Building Energy Innovation (CBEI)  
 Green Parking Council  
 Green Sports Alliance  
 Health Care Without Harm  
 Illuminating Engineering Society of North America (IES)  
 International Council of Shopping Centers

International Facility Management Association (IFMA)  
 NAIOP (Commercial Real Estate Development Association)  
 National Association of Convenience Stores  
 National Association of Real Estate Investment Trusts (NAREIT)  
 National Multi Housing Council  
 Professional Retail Store Maintenance Association  
 Retail Industry Leaders Association\*  
 Second Nature  
 Sustainability Roundtable Inc.  
 Sustainable Endowments Institute  
 The Bullitt Foundation  
 The Real Estate Roundtable  
 Unified Foodservice Purchasing Co-op, LLC  
 VHA Inc.

### Key

Members in **bold** have taken the Better Buildings Challenge.

Asterisk (\*) indicates 2014–2016 sector steering committee representative.

---

## Endnotes

- <sup>1</sup> U.S. Energy Information Administration, Commercial Buildings Energy Consumption Survey (CBECS) 2003.
- <sup>2</sup> U.S. Energy Information Administration, Commercial Buildings Energy Consumption Survey (CBECS) 2012. Preliminary data released in December 2014.
- <sup>3</sup> U.S. Environmental Protection Agency, ENERGY STAR, Guide for Restaurants: Putting Energy into Profit, 2012.
- <sup>4</sup> U.S. Energy Information Administration, 2009 Residential Energy Consumption Survey.
- <sup>5</sup> American School & University's 34th Annual Maintenance and Operations Cost Study for School Districts and American School & University's 11th Annual Maintenance and Operations Cost Study for Colleges, 2005.
- <sup>6</sup> U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics, Table 349, 2011.
- <sup>7</sup> U.S. Department of Treasury and Department of Education, Economics of Higher Education, 2012.
- <sup>8</sup> McKinsey & Company, Unlocking Energy Efficiency in the U.S. Economy, 2009.
- <sup>9</sup> U.S. Energy Information Administration, State Energy Data, 2009.
- <sup>10</sup> Wilson, Greg. 2010. "Heat Pump Water Heaters Applied to Commercial Kitchens." Presentation given at 2010 ACEEE Hot Water Forum, Ontario, CA.