SEDAC

The Smart Energy Design Assistance Center (SEDAC) provides advice and analyses, enabling small businesses in the State of Illinois to increase their profitability through the efficient use of energy resources. SEDAC is sponsored by the Illinois Department of Commerce and Economic Opportunity’s Small Business Smart Energy Program (SB$E) and provides valuable services at no cost to small businesses. SEDAC is managed by the University of Illinois at Urbana-Champaign.

EDUCATION

January 25, 2008
LUNCH and LEARN
11:30 am - 1 pm

Lighting Controls
Don Brown of WATT STOPPER
Location: Waste Management and Research Center
1 Hazelwood Drive
Champaign, IL 61820.
Limited to first 50 registrants.
Box Lunch provided.
Register ONLINE
Questions:
lunchandlearn@sedac.org

CLASSES

January 11, 2008: 9:30 am – 12:30 pm: Beyond Code: Energy Efficient Commercial Buildings 3 HSW LUs in AIA/CES, $40, Multi-University Center, 1010 Jorie Blvd., Oak Brook. Techniques for reducing energy usage in commercial buildings (new designs and retrofits). Integrated design, modeling, methods, and code implications will be covered.

SEDAC NEWS

SEDAC Restaurant Conservation Tips

Of all types of commercial buildings, restaurants are among the most intensive users of energy. As a result, they have some of the highest energy costs. Fortunately, restaurants also have some of the greatest opportunity for energy savings.

Different types of restaurants, from sit down dining to fast food, have different energy consumption patterns. Location will also influence consumption patterns. The following should help restaurant owners identify potential savings opportunities. Some of these opportunities would be particularly simple to incorporate in the planning stages of a new restaurant or when replacing existing equipment with new; others are more appropriate as retrofit options.

Food preparation and Heating, Ventilation, and Air Conditioning (HVAC) equipment are usually the greatest energy consumers in a restaurant. Kitchens usually have large vent hoods above stoves and fryers that exhaust large volumes of conditioned air. Hood design and how makeup air is provided impact effectiveness and energy consumption of the hood. Hood retrofit options include: a) install a 2-speed motor or variable flow rate controls, b) install side panels to mitigate the effect of cross drafts and, 3) install demand control ventilation. Demand Control Ventilation systems respond to changes in stove usage. When stoves are idle or only a few elements are in use, the exhaust fans will reduce speed. When stoves are operating at full capacity, the fans will run at maximum speed.

A low-flow, high-pressure pre-rinse spray valve is one of the easiest and most cost effective energy saving devices available to the food service operator. In addition to minimizing water consumption, water heating energy and sewer charges are also reduced. Replacing a typical spray valve that flows up to three gallons of water per minute (gpm) with a low-flow unit of 1.6 gallons per minute can save over a thousand dollars per year.

Retrofitting lighting fixtures with energy efficient lamps or changing the entire fixture is a common energy saving practice in restaurants. Lighting retrofits save significant energy and have rapid paybacks. Other lighting conservation opportunities include installing occupancy sensors in bathrooms, using daylight dimming controls for lights near windows, and LED lighting for exit signs or for exterior illuminated fascia bands. Reducing heat produced by lights has the additional benefit of reducing the cooling load on the HVAC system.
The ENERGY STAR web page [http://www.energystar.gov/index.cfm?c=small_business.sb_restaurants](http://www.energystar.gov/index.cfm?c=small_business.sb_restaurants) provides good information on energy-saving, food-preparation appliances and operational strategies that can help restaurants save energy and increase profits. Following are some examples from ENERGY STAR’S GUIDE FOR RESTAURANTS:

<table>
<thead>
<tr>
<th>Technology</th>
<th>Standard Equipment ($/yr)</th>
<th>Energy Efficient Equipment ($/yr)</th>
<th>Savings ($/yr)</th>
<th>Energy Savings (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot-Food Holding Cabinet</td>
<td>767</td>
<td>438</td>
<td>329</td>
<td>43</td>
</tr>
<tr>
<td>Fryer</td>
<td>1,169</td>
<td>806</td>
<td>364</td>
<td>31</td>
</tr>
<tr>
<td>Steamer</td>
<td>2,700</td>
<td>508</td>
<td>2,191</td>
<td>73</td>
</tr>
<tr>
<td>Convection Oven</td>
<td>1,051</td>
<td>731</td>
<td>320</td>
<td>30</td>
</tr>
<tr>
<td>Toaster</td>
<td>964</td>
<td>128</td>
<td>836</td>
<td>87</td>
</tr>
<tr>
<td>Broiler</td>
<td>3,539</td>
<td>2,882</td>
<td>657</td>
<td>19</td>
</tr>
<tr>
<td>Hot Water Heater</td>
<td>11,354</td>
<td>10,358</td>
<td>996</td>
<td>15</td>
</tr>
<tr>
<td>Combination Oven</td>
<td>4,163</td>
<td>2,596</td>
<td>1,567</td>
<td>39</td>
</tr>
<tr>
<td>Pre-rinse sprayer</td>
<td>1,973</td>
<td>1,052</td>
<td>921</td>
<td>47</td>
</tr>
<tr>
<td>Ware washer</td>
<td>7,657</td>
<td>6,432</td>
<td>1,226</td>
<td>34</td>
</tr>
<tr>
<td>Ice Machine</td>
<td>3,650</td>
<td>2,940</td>
<td>710</td>
<td>20</td>
</tr>
<tr>
<td>Demand Control Exhaust Hood</td>
<td>7,500</td>
<td>5,000</td>
<td>2,500</td>
<td>33</td>
</tr>
</tbody>
</table>

Similar opportunities exist for fast food restaurants. Due to the plethora of energy consuming equipment in restaurants and the fact that most of this equipment produces heat which impacts cooling loads and ventilation requirements, the list of energy savings opportunities is extensive. Furthermore, savings do not have to stem from the installation of new equipment. Savings can also be achieved through operational modifications such as: a) turning equipment off when not needed, b) maintaining and repairing equipment, and c) recalibrating equipment for more efficient operation.

Other sources for information are:
The Food Service Technology Center at: [http://www.fishnick.com](http://www.fishnick.com)
SEDAC fact sheet: Energy Smart Tips for Restaurants will be posted soon and also available upon request.

In existing facilities SEDAC performs an energy audit that identifies where and how a restaurant is using energy. The energy audit can help focus efforts on those areas that would reap the greatest savings for the least cost. In addition, SEDAC’s examination of savings opportunities includes an economic analysis to determine anticipated rates of return. In new construction, careful selection of the most energy efficient equipment can result in significant savings over standard equipment.

The bottom line is that energy savings can increase profit margins. If a restaurant is operating on a 5% profit margin, $100 in energy savings is the equivalent to providing $2,000 in additional food service. Sometimes increasing profits is far easier to achieve by operating more efficiently than attempting to increase sales. Isn’t it time you called SEDAC?