Kroger is a national supermarket and retail company with locations across the Midwestern and Southern United States. The company is committed to designing and operating its portfolio of grocery stores with superior energy performance.

Kroger has achieved Designed to Earn the ENERGY STAR recognition for more than 200 grocery stores since 2010, with 20% of those attaining ENERGY STAR Certification once built and operating. Kroger has successfully implemented a process to refine and replicate high-performance designs informed by the lessons learned from previous projects.

**Integrated Design Process**
Kroger has developed a strong and trusted partnership with its architectural and engineering teams along with a team of in-house staff to drive energy performance initiatives. Together, Kroger and its design team follow an integrated design process to achieve energy goals (see Figure 1). They start by setting energy performance goals and developing energy models early in the design process and continually assess energy design strategies to ensure that goals are met.

Kroger also leverages the value of repetition by creating prototypical designs and energy models for every climate zone in their business territory. Then, when a project is built and operational, they benchmark performance to make continuous improvements to their designs.

**Lessons Learned**
- Model energy performance early in design
- Establish accountability and commitment to success across the entire design team
- Use operational outcomes to inform future design decisions
- Continue making efficiency improvements in operations, such as LED lighting retrofits

**Technologies Deployed**
Kroger improved its prototype designs between 2015 and 2017 by successively implementing refrigerated case controls, Dedicated Outdoor Air Systems (DOAS) and LED lighting. Figure 2 highlights three projects incorporating these technologies which increased the ENERGY STAR design scores from 82 – 99; and subsequently increased the operational scores from 95 – 99.

**Figure 1**

**Figure 2**

<table>
<thead>
<tr>
<th>Design Improvement</th>
<th>ENERGY STAR Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>75</td>
</tr>
<tr>
<td>Upgraded</td>
<td>90</td>
</tr>
<tr>
<td>Advanced</td>
<td>100</td>
</tr>
</tbody>
</table>

**Technologies Specified:**
- LED lighting; case controls; DOAS

**For More Information**
Aaron Leow, aaron.leow@kroger.com

*Percent energy and CO2 reductions are based on comparison to a median building of similar type.*