

Architects: Energy Efficiency Strategies for Commercial Building Design



Designing Commercial Buildings to Use Less Energy

By 2035, 75 percent of the buildings in the United States will be either new or renovated. As an architect, you have a unique opportunity to change the way buildings use energy and contribute to carbon emissions. How can you design buildings that use less energy, reduce the need to burn fossil fuels, and have a smaller carbon footprint? How can you prove your goals for reduced energy use? ENERGY STAR® resources, such as the online Target Finder tool, provide the metrics you need to show that your projects are designed to use less energy. These resources help you enhance the performance, value, and comfort of the buildings where we work, shop, play, worship, and educate our children. They help you position your firm as a leader in sustainable architecture and environmental responsibility.

Energy Efficiency Opportunities in Building Design

Use ENERGY STAR Building Design Guidance, a strategic management approach, to help reduce energy use—and carbon emissions—in the buildings your firm designs:

Plan

- > Conduct a charette with the design team, key stakeholders, and building owners.
- > Set an energy performance goal by using Target Finder.
- > Use an integrated design approach, and educate the project team on the goals, cost savings, and other benefits of energy efficiency to reduce carbon emissions.
- > Include energy efficiency goals in your project's scope of work.

Design

- > Document your energy performance estimates by including a Statement of Energy Design Intent from Target Finder in your firm's final construction documents and bid package.

Build

- > Select a qualified construction team that can execute the specified energy efficiency strategies to meet your design target.
- > Include an approval process for change orders to methods and materials, or require design team supervision during construction.
- > Communicate your energy performance and operational goals during commissioning to ensure the finished building meets the energy design target.

How to Talk to Clients about the Benefits of Energy Efficiency

By using ENERGY STAR resources, you can show your clients measurable savings. You can compare your design's estimated energy use and costs to the average actual energy use and costs for comparable, operating buildings in your area. Your clients can see the financial benefits—reduced energy costs over the life of the building—of energy-efficient buildings. For commercial real estate, the savings can be impressive: A 30 percent reduction in energy use is equivalent to an increase in net operating income and building asset value of 5 percent. ENERGY STAR can also help you and your clients fulfill requirements for the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) rating. While LEED helps you identify strategies for meeting superior energy performance, ENERGY STAR provides the metrics.

Architects Making a Difference:

RB+B Architects, Inc., CO, designed Kinard Junior High School, and the design achieved Designed to Earn the ENERGY STAR in 2005 with a rating of 91 in Target Finder. Once the school was built and occupied, its actual energy use was benchmarked in a separate ENERGY STAR tool called Portfolio Manager, and the school outperformed its energy use target with a rating of 95. The combination of a superior building envelope, high-performance windows, lighting improvements, and high-efficiency heat pumps helped Kinard become the most energy-efficient school in Colorado's Poudre School District.

ENERGY STAR® is a government-backed program helping businesses and individuals protect the environment through superior energy efficiency.



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ENERGY STAR Resources

Target Finder: This easy-to-use, no-cost online tool helps you set realistic energy goals and receive an EPA rating for your design's estimated energy use. It also shows the difference in energy costs and carbon emissions associated with varying energy performance levels. The Energy Use Intensity generated by Target Finder reflects the distribution of energy performance in commercial buildings derived from data in the U.S. Department of Energy's Energy Information Administration's Commercial Buildings Energy Consumption Survey (CBECS).

Building Design Guidance: These suggested best practices help you and your clients set and achieve energy goals by incorporating energy design strategies in the building design process.

Training Sessions: EPA offers no-cost online training to help you set and achieve energy performance goals using ENERGY STAR resources. These sessions can also enhance your professional development: You can earn Continuing Education Credits from the American Institute of Architects (AIA).

Portfolio Manager: Once your project is built, ask your clients to use this no-cost online tool to benchmark the building's actual energy use to see if the building is performing as intended. Top-performing buildings can earn the prestigious ENERGY STAR.

Recognition for Achievements

Become a Partner: As an ENERGY STAR partner, your firm will be associated with a powerful brand that is recognized by more than 70 percent of Americans. You can use ENERGY STAR to help your clients understand the value of improved energy performance. Visit www.energystar.gov/join to join more than 14,000 organizations, including many of the nation's leading architecture firms, that are ENERGY STAR partners.

Achieve Designed to Earn the ENERGY STAR: EPA's ongoing ENERGY STAR Challenge is a national call-to-action to reduce the nation's carbon footprint by improving the energy efficiency of our commercial and industrial buildings. By taking the ENERGY STAR Challenge, you can achieve "Designed to Earn the ENERGY STAR" for your project if it rates 75 or higher in Target Finder. You can display "Designed to Earn the ENERGY STAR" on your plans and marketing materials, such as display boards. In addition, award-winning projects have been featured at the AIA National Convention, in trade publications, and in a public service announcement published by "The Architect's Newspaper."

For more information on ENERGY STAR tools, resources, and recognition for architecture firms, visit www.energystar.gov/commercialbuildingdesign

ENERGY STAR Offers

- Energy efficiency guidance
- Training
- Technical support
- Emissions calculations
- Recognition

Other Resources for Architects:

The American Institute of Architects (www.aia.org): EPA and AIA share common goals for reducing carbon emissions from the nation's building inventory.

Architecture 2030 (www.architecture2030.org): Architecture 2030 encourages new buildings and renovations to be designed to use 50 percent less fossil fuel energy than the national average.

Accomplishments

Since 2004, 94 projects from 49 firms have achieved Designed to Earn the ENERGY STAR. They represent a total of more than 13 million square feet of space. Collectively, these projects were designed to achieve the following results:

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|---|-----------------------|
| Estimated average CO ₂ reduction | 42% |
| Estimated CO ₂ prevented | 178 million lbs./year |
| Estimated energy saved | 1.5 billion kBtu/year |
| Estimated cost savings | \$6 million/year |

Figures are based on averages for comparable existing buildings.

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