

ENERGY STAR Building Design Profile

Kroger Store #R-555
Tabb, VA 23693



Kroger Store #R-555 follows the company's standard design criteria and equipment plan to create an efficient, affordable, and sustainable grocery store. Remodeled from half of an existing Kmart store, Kroger worked with Robertson Loia Roof to create the 92,306 square foot store so that it incorporated a large number of energy saving and sustainable features. The features help to reduce operating costs allowing Kroger to offer competitive prices for their goods and services. Efforts also come from customer data in which consumers expect their shopping centers to be designed for their best interest so it's not only an exciting place to shop but a healthy and environmentally conscious one too.

Both Kroger and Robertson Loia Roof wanted to participate for the Designed to Earn the ENERGY STAR mark to help substantiate the value of design measures in both absolute terms as well as in the eyes of customers. Robertson Loia Roof used simulated models and Target Finder to ensure that each and every store is efficient to a rate of 75 or higher. This store's rate is actually 88 (out of 100) and will reduce energy and CO₂ emissions by 27.44 percent.

The design of this structure incorporates energy efficiency measures from a number of areas. Daylighting the sales area, installing insulating materials, use of high efficiency HVAC equipment and water heating equipment, and reclaiming cooler/freezer refrigerant heat help to qualify this building to earn the Designed to Earn the ENERGY STAR mark.

Approximately 4% of the roof area is installed with skylights. Skylights assist in lowering light levels throughout the store. Lights are controlled to 1/3 and 2/3 levels when light sensors detected abundant sunlight from the roof. Roofing insulation and reflectance allow for sunlight absorption to be minimized, while an R-21 TPO roofing system helps to minimize heat transfer through the roof structure.

HVAC equipment installed on this building is high efficiency using variable speed motors and building energy management systems provide for optimal start and stop of equipment over the course of the shopping day. Occupancy ventilation is used to supplement exhaust only cooking hoods and equipment, keeping wasted conditioned air to a minimum. Refrigerants used to keep coolers and freezers cold also expel heat. This heat is reclaimed and used to heat both conditioned air and domestic water systems. This minimizes the use of fossil fuels for the same purpose.



Architect of Record:
Robertson Loia Roof, P.C.

Engineering Firm:
Robertson Loia Roof, P.C.

Building Owner:
Kroger – Mid-Atlantic Division

Design Energy Rating:
88

Percent Energy and CO₂ Reduction*:
-27.44

Design Year/ Estimated Occupancy Date:
2014/April 1, 2015

Space Type:
Supermarket/Grocery

Floor Space:
92,306 sq ft

Estimated Energy Use Intensity:
442 kBtu/sf/yr

Estimated Total Annual Energy Use:
40,878,366kBtu/yr

Estimated Annual Energy Cost:
\$311,372

Technologies Specified:

Daylighting through the use of skylights, efficient HVAC systems, reclaiming of heat from refrigerated equipment, roof materials

For More Information

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