

## ENERGY STAR Building Design Profile

High Performance Research Computing Center  
at Princeton University  
Princeton, NJ



As a major research university, Princeton has a strong sense of responsibility to shape the national sustainability agenda and promote environmental leadership on its campus. The University is committed to considerably reducing their carbon footprint, having the campus serve as both a model for advanced practices and as a laboratory to test new approaches. To support their commitment, Princeton University's High Performance Computing Center was designed to support state-of-the-art research while using as little energy as possible. Once completed, this building received the "Designed to Earn Energy Star Certificate," awarding their commitment to yield significant energy savings each year.

Situated on Princeton's Forrestal campus, the 47,000-square-foot High Performance Research Computing Center is the new home to powerful research computers that are capable of generating models of galaxy formation, tracking the motion of a single molecule and simulating the seismic forces of an earthquake, among other highly technical tasks.

The new High Performance Computing Center at Princeton University was designed to provide power to the computers while using as little energy as possible. During winter, the air conditioning system can be switched off, and giant louvers can be opened to let in cold outside air. Other sustainability measures include cooling towers that enable the chillers to be turned off when the outside temperature is near freezing. A second backup generator, gas-powered, has a co-generation feature that harnesses waste heat as energy to chill the water. It runs on natural gas and has a lower carbon footprint than the electricity provided by the power utility. These energy efficient features helped the High Performance Data Center at Princeton University achieve an estimated total annual energy use of 152,970,130 kBtu/yr, saving an average of 147,976,990 kBtu each year.



**Architect of Record:**  
Gensler

**Engineering Firm:**  
AFK Group

**Building Owner:**  
Princeton University

**Design Energy Rating:** 98

**Percent Energy and CO<sub>2</sub> Reduction:** 27%

**Design Year/ Estimated Occupancy Date:**

December 2011

**Space Type:**  
Data Center

**Floor Space:**  
47,116 sq ft

**Estimated Energy Use Intensity:**  
8,586 kBtu/sf/yr

**Estimated Total Annual Energy Use:**  
152,970,130 kBtu/yr

**Estimated Annual Energy Cost:**  
\$ 5,203,037

### For More Information

Contact Jan L. Gross at  
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\*Percent Energy and CO<sub>2</sub> Reductions are based on comparison to a median building of similar type.