

PROJECT PROFILE



Marshall Space Flight Center
Office Building 4601
Huntsville, Alabama

LEED for New Construction

31% Reduced Potable Water Use

42% Less Energy

44% Recycled Content

74% Construction Waste Diverted

86% Local Materials

92% Sustainable FSC Forest Wood

LEED® Facts

Marshall Space Flight Center
Office Building 4601
Huntsville, AL

LEED® for New Construction – Version 2.1
Certification Awarded December 2, 2009

Gold 40*

Sustainable Sites 5/14

Water Efficiency 4/5

Energy & Atmosphere 8/17

Materials & Resources 6/13

Indoor Environmental Quality 12/15

Innovation & Design 5/5

*Out of a possible 69 points

PROJECT PROFILE

Marshall Space Flight Center Building 4601 "Green" in Every Aspect



PROJECT DESCRIPTION

Located on the Redstone Arsenal military base, Building 4601 is an office building with "green elements" incorporated into every aspect of its planning, design, construction, and operation. "Green elements" include the building site and orientation of the building, recycled content of concrete, drywall, carpet, glass, steel and other metals. The building envelope has a high insulation value due to the glass curtain wall system and the roof. Interior lighting consists of Energy Star rated fixtures coupled with space occupancy sensors to turn off lights in unoccupied areas and daylight harvest sensors to turn off lights when adequate lighting levels are achieved.

SUSTAINABLE SITES (5/14)

There is 144,616 square feet of open space adjacent to the building, which will be conserved for the life of the facility. The customized stormwater management plan reduces runoff rate and volume over the pre-project condition by using a stormwater capture and infiltration strategy. 100% of the roof is made of highly reflective materials to reduce heat island effect and the exterior lighting is angled to reduced light pollution.

WATER EFFICIENCY (4/5)

The site utilizes a water efficient landscaping that does not require potable water. Inside, potable water usage has been reduced by 31% through the installation of low-flow faucets, toilets, and urinals.

ENERGY & ATMOSPHERE (8/17)

The facility reduced energy consumption by 42% from the ASHRAE 90.1-1999 requirements through an improved thermal envelope, high-efficiency glazing, shading, occupancy and daylighting sensors for lighting, and a variable air volume HVAC system with a heat recovery ventilator. Sunshades on the south side of the building provide shade when the sun is highest during the summer and allows solar heating during the winter when the sun is lower. The facility also underwent an enhanced commissioning process.

MATERIALS & RESOURCES (6/13)

The project diverted 334 tons of on-site generated construction waste from landfills – 74% of the total construction waste – and 44% of the total construction materials contain recycled content. 86% of all building materials consist of local materials made less than 500 miles from the site and 94% of these local materials were also extracted locally. Of all the wood used in construction, 92% came from FSC-Certified forests.

INDOOR ENVIRONMENTAL QUALITY (12/15)

The facility incorporates carbon dioxide monitoring in internal zones to ensure proper ventilation. Temperature and humidity sensors were installed and commissioned permitting control of individual building zones to maintain thermal comfort within the ranges defined in ASHRAE 55-1992. The facility provides daylighting at 42% of critical task areas and views of the outdoors to 91% of the occupied spaces.

INNOVATION IN DESIGN (5/5)

The building was awarded points for innovative design by providing ample open space adjacent to the building and using a large amount of recycled and local materials in the project.

"Today it costs about \$450,000 a year for power usage at the four decade old main office building 4200. This building is expected to cost about \$140,000 a year."

CEDRECK DAVIS, NASA MARSHALL SPACE FLIGHT CENTER, FACILITIES ENERGY MANAGER



Exterior shading devices installed on the exterior of the facility reduces glare and heat absorption from the sun.



Office Building 4601 utilizes an open office cubicle arrangement with maximized natural daylight.

Owner: NASA Marshall Space Flight Center
Architect: HOK Architects
Designer of Record: HOK Architects
Commissioning Authority: R.W. Beck
Contractor: GSC, Inc.
Project Size: 144,616 SF
Project Cost: \$28,500,000
Completion: July 2008
Photography: NASA

ABOUT LEED

The LEED Green Building Rating System is the national benchmark for the design, construction, and operations of high-performance green buildings. Visit the U.S. Green Building Council's Web site at www.usgbc.org and the Alabama Chapter of USGBC at www.usgbcocal.org to learn more about how you can make LEED work for you.