PROJECT PROFILE

LEED® Facts

Goddard Space Flight Center
Building 34 Exploration Sciences Building
Greenbelt, MD

LEED® for New Construction – Version 2.1
Certification Awarded January 5, 2010

Gold 40*

Sustainable Sites	9/14
Water Efficiency	3/5
Energy & Atmosphere	6/17
Materials & Resources	7/13
Indoor Environmental Quality	10/15
Innovation & Design	5/5

*Out of a possible 69 points

Goddard Space Flight Center

Building 34 Exploration Sciences Building
Greenbelt, Maryland

LEED for New Construction

16% Recycled Content

19% Less Energy

21% Reduced Potable Water Use

38% Materials Manufactured Locally

65% FSC Certified Wood Products

87% Construction Waste Diverted

PROJECT PROFILE

Building 34 Exploration Sciences Building

A New Dimension in Laboratory Design

PROJECT DESCRIPTION

Building 34 is the Goddard Space Flight Center's first LEED facility and the Agency's largest LEED NC facility. The building serves as both a research laboratory and office building, and features a highly reflective white roof and concrete pavement to reduce the heat island effect. It reduces energy through use of oversized ducts, reduction of once through air in the laboratories as feasible, and use of landfill gas for renewable energy credits. The project recycled 87% of construction waste and procured 38% of materials within 500 miles of the project site.

SUSTAINABLE SITES (9/14)

The Exploration Sciences Building advocates walking and has access to two city bus lines within 0.25 miles and also provides 26 bicycle stalls and 4 shower facilities for the occupants. Thirty-eight preferred parking spaces are provided for carpool parking. The facility is adjacent to nearly 200,00 square feet of open space (equal to the facility footprint). Nearly all of the roof area (97%) and most of the site's hardscape surfaces (64%) are covered with highly reflective materials. Stormwater treatment is optimized by removing over 80% of total suspended solids and total runoff does not exceed pre-development conditions.

WATER EFFICIENCY (3/5)

Potable water usage in the facility has been reduced by 21% through the installation of low-flow faucets, toilets, urinals. Outside, the landscape design utilizes native plants which do not require a permanent irrigations system, therefore reducing potable irrigation water usage by 100%.

ENERGY & ATMOSPHERE (6/17)

The facility reduced energy consumption by 19% from the ASHRAE 90.1-1999 requirements through an improved thermal envelope, efficient lighting, and demand control ventilation. The facility also underwent a fundamental commissioning process. None of the HVAC components contain CFCs. Additionally, 13% of the facility's energy cost is offset by landfill gas renewable energy.

MATERIALS & RESOURCES (7/13)

The project diverted 6,008 tons of on-site generated construction waste from landfills, 86.9% of the total construction waste. Over 16% of construction materials contain recycled content and 38% of all building materials were manufactured from raw local materials located less than 500 miles from the site. Rapidly renewable resources accounted for 1% of the total building materials and all of the wood used on construction, 65% came from FSC-Certified forests.

INDOOR ENVIRONMENTAL QUALITY (10/15)

The facility incorporates carbon dioxide monitoring systems within selected densely occupied zones which ensures proper ventilation is provided. Low-emitting paints, carpets, and adhesives are used throughout the building. Additionally, a permanent temperature and humidity monitoring system permits control of individual building zones to maintain thermal comfort within the ranges defined in ASHRAE 55-1991 – and this system was commissioned as part of the Fundamental Building Systems Commissioning.

INNOVATION IN DESIGN (5/5)

The facility received innovation credits for designing the exhaust system to reduce environmental impact, providing open space when not required, incorporating maximum recycled content for building materials, and for designing an Energy Efficient Convertible Laboratory system. The laboratory system consists of a hood exhaust design utilizing up to four separate exhaust fans. The use of this system has resulted in nearly $30,000 in energy cost savings annually and represents a 5% energy cost reduction in comparison to the regulated design energy cost.

"The Exploration Sciences Building serves as the first major step to "Greening Goddard". Using sustainable best practices, the building provides energy efficiency without sacrificing the performance needed in a laboratory facility. The building provides numerous collaboration and teaming areas and employee benefits such as showers and bike racks to improve morale and overall well-being."

DAVID LARSEN, PROJECT MANAGER
BUILDING 34, NASA GSFC

Exterior view of one of the many research laboratories located within the Exploration Sciences Building 34.

Owner: NASA Goddard Space Flight Center
Architect: Ewing Cole
Structural Engineer: Ewing Cole
MEP Engineer: Ewing Cole
Commissioning Authority: CPM Scheduling LLC
Contractor: Manhattan Construction
Project Size: 196,826 SF
Project Cost: $64,306,055
Completion: August 2009
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 National Capital Region Chapter of USGBC at www.usgbcncr.org to learn more about how you can make LEED work for you.