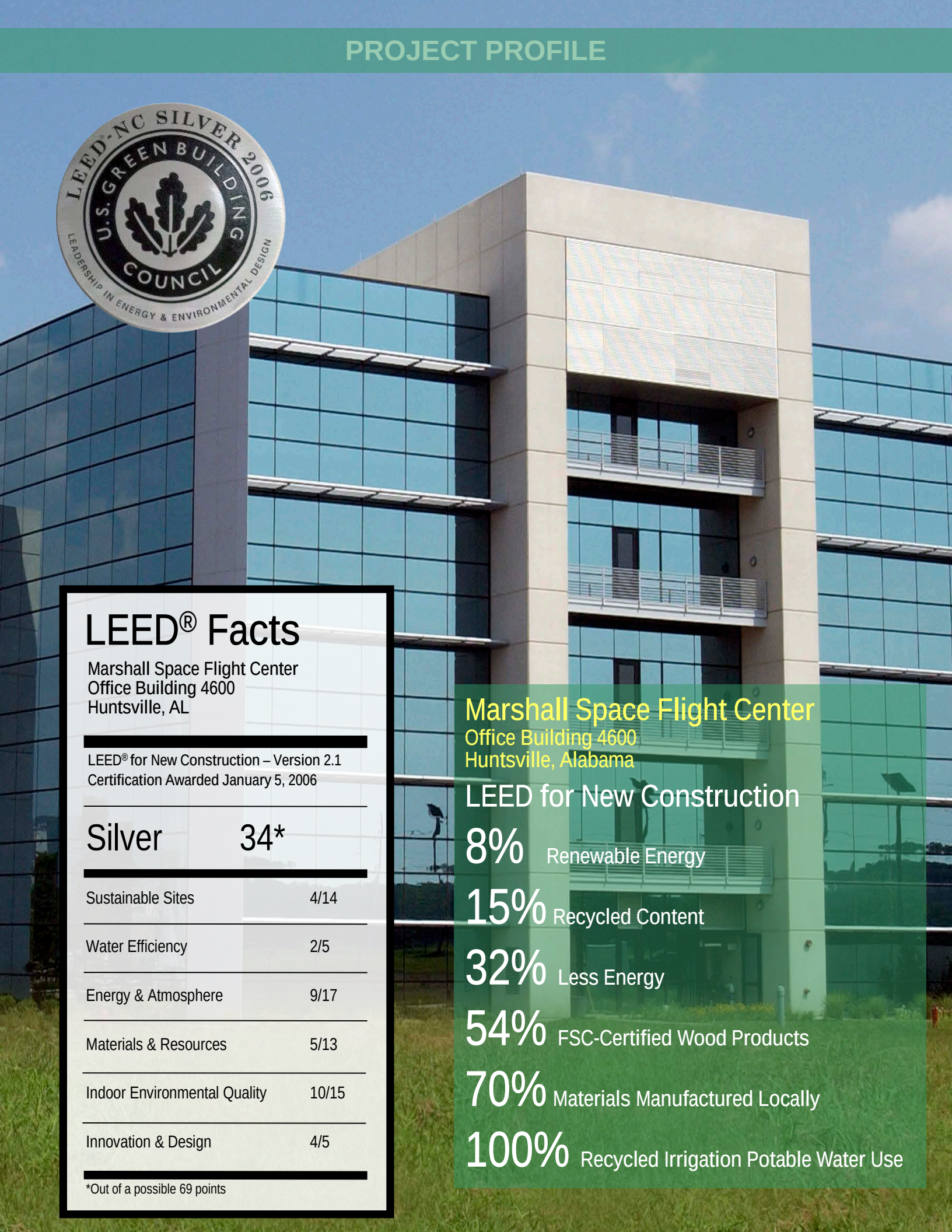

LEED® Facts

Marshall Space Flight Center
Office Building 4600
Huntsville, AL

LEED® for New Construction – Version 2.1
Certification Awarded January 5, 2006

Silver **34***

Sustainable Sites	4/14
Water Efficiency	2/5
Energy & Atmosphere	9/17
Materials & Resources	5/13
Indoor Environmental Quality	10/15
Innovation & Design	4/5

*Out of a possible 69 points

Marshall Space Flight Center

Office Building 4600
Huntsville, Alabama

LEED for New Construction

8% Renewable Energy

15% Recycled Content

32% Less Energy

54% FSC-Certified Wood Products

70% Materials Manufactured Locally

100% Recycled Irrigation Potable Water Use

PROJECT PROFILE

Office Building 4600

NASA Goes Green with First LEED Certified Facility

PROJECT DESCRIPTION

Office Building 4600 was NASA's first facility to be LEED certified. It achieved a rating of LEED Silver and was designed to maximize energy and water efficiency. Orientation of the building maximizes daylighting and solar exposure for the 34.7 kW photovoltaic system on the roof. The landscape is irrigated with blow-down water from the chilled water plant and rainwater collected in a membrane-lined retention pond. Between this and indoor water conservation measures, the building uses 3.6 million fewer gallons of potable water than a conventional building. Over 15%, by cost, of the material used in the building is recycled. During the construction process, over 83% of the waste was re-used or recycled, thus diverting the material from the landfill.

SUSTAINABLE SITES (4/14)

The facility is adjacent to over 70,000 square feet of open space – or five times the square footage of the facility – which will be conserved for the life of the facility. The majority of the roof area (96%) is covered with materials that meet emissivity and reflectivity requirements. Additionally, the exterior lighting was designed with full cut-off fixtures to minimize light pollution.

WATER EFFICIENCY (2/5)

The landscaping is irrigated by water discharged from the central air conditioning chiller plant or rain water collected in a retention pond, thereby removing the need for potable water for landscape irrigation.

ENERGY & ATMOSPHERE (9/17)

The facility reduced energy consumption by 32% from the ASHRAE 90.1-1999 requirements through an improved thermal envelope, high-efficiency glazing, external shading devices, heat recovery, daylight dimming, lower lighting power density, premium efficiency motors, and a photovoltaic array. The PV array accounts for over 8% of the building's energy cost.

MATERIALS & RESOURCES (5/13)

The project diverted 41% of on-site generated construction waste from landfills. Additionally, 15% total materials by cost consisted of recycled content and 70% of all building materials consist of local materials made less than 500 miles from the site. Of all the wood used in construction, 54% came from FSC-Certified forests.

INDOOR ENVIRONMENTAL QUALITY (10/15)

The facility incorporates carbon dioxide monitoring of internal workspaces to control ventilation. An open office floor plan maximizes views for employees – with nearly 91% of task areas having views of the outdoors. Low-emitting paints, carpets, and adhesives were used throughout the building. Furniture with low levels of volatile organic compounds was specified, and all workstations and seating are Greenguard certified.

INNOVATION IN DESIGN (4/5)

The project has received exemplary ratings and recognition for its reduced site disturbance by leaving open space 5 times the building footprint and use of local and regional materials in construction.

"By automatically adjusting heating and cooling based on changing environmental conditions, the 4600 Building is able to maximize efficiency. The system is cutting water consumption by roughly half of what an older building might use, and is consuming approximately 40 percent less energy."

NELSON OLINGER, MECHANICAL AND ELECTRICAL TEAM LEAD, NASA MSFC

AWARDS

► Federal Energy Showcase Award, Department of Energy, 2005

Building 4600 generates 8% of total energy through the use of this photovoltaic system.

Owner: NASA Marshall Space Flight Center
Architect: Thomas, Miller & Partners, LLC
Structural Engineer: Stanley D. Lindsey and Associates
MEP Engineer: I.C. Thomasson Associates, Inc.
Commissioning Authority: R.W. Beck
Contractor: GSC Contractors
Project Size: 139,074 SF
Project Cost: $20,000,000
Completion: January 2006
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.usgbcofal.org to learn more about how you can make LEED work for you.