

Johnson Space Center Building 27, Astronaut Quarantine Facility Houston, Texas

LEED for New Construction

16% energy savings

57% construction waste diverted

69% of the non roof areas have a reflectance
of at least 30%

80% potable water reduction

LEED® Facts

NASA-JSC Building 27 AQF
Houston, Texas

LEED for New Construction – Ver. 2.0

Certification awarded Feb. 24, 2006

Certified 28*

Sustainable Sites 6/14

Water Efficiency 1/5

Energy & Atmosphere 4/17

Materials & Resources 5/13

Indoor Environmental
Quality 7/15

Innovation & Design 5/5

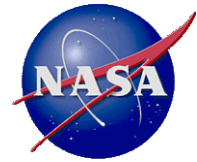
*Out of a possible 69 points



PROJECT PROFILE

NASA Johnson Space Center – Building 27 Astronaut Quarantine Facility

Minimizing Risks, Before & After Spaceflight



PROJECT DESCRIPTION

NASA's 12,300 SF Astronaut Quarantine Facility (AQF) at Johnson Space Center in Houston opened in May 2005 as an isolation facility to accommodate Space Shuttle flight crews before and after space missions, and to provide rehabilitation after long-term exposure to zero gravity. The building protects the integrity of the Space mission by limiting the exposure of the Space Shuttle crew to the general population, thereby reducing their likelihood of contracting viruses or other contagious illnesses. The crew of STS-114 was the first to occupy the new building, prior to the July 2005 launch of Space Shuttle Discovery.

SUSTAINABLE SITES (6/14)

One bicycle stall is provided within 200 yards of the building for ~17 occupants. Showers will be available at all times for non-astronaut occupants of the building for cycling to work. The parking area is a permeable gravel paving allowing water to return back to the ground, and 68.9% of the non-roof areas have a reflectance of at least 30%. Emittance testing of the roof itself demonstrates a 0.94 emittance based on ASTM E408-71.

WATER EFFICIENCY (1/5)

Potable water use is reduced by 80% through use of native plants and reduction in turf areas. The calculations demonstrate a 52% water use reduction, without accounting for the additional savings provided by the drip irrigation system.

ENERGY & ATMOSPHERE (4/17)

The project has achieved an energy savings of 16% using the ASHRAE 90.1-1999. The project's HVAC&R systems do not contain HCFCs or Halon. 100% of the building's regulated electric usage is supplied by renewable power that meets the definition of Green-e.

MATERIALS & RESOURCES (5/13)

The project has diverted 57% of construction waste from landfill, and the project has achieved a combined recycled content value of 11.46% of the total materials by cost. 27% of the total project's materials by cost were manufactured within 500 miles of the project site, and 11% of the materials by cost used raw materials harvested within 500 miles of the project site.

INDOOR ENVIRONMENTAL QUALITY (7/15)

Low emitting materials, adhesives, sealants, paints and carpets were used throughout the project. No smoking is allowed in the building and outdoor smoking areas are located away from operable windows and entryways. A permanent temperature and humidity monitoring system has been installed.

INNOVATION IN DESIGN (5/5)

The project received exemplary performance for supplying 100% of the building's regulated electric usage with renewable power. Additionally, the building's envelope received innovative credit for including window systems that support occupant comfort and performance.

The AQF consists of 12 bedrooms with private baths, a large conference room, laundry facilities, a kitchen and dining facility, computer workstations, a workout room to maintain crew health, a medical exam room for pre- and post-flight evaluations, and a lounge area with deck for meetings with medically approved visitors and family. Flight crews typically spend seven days in isolation before flight, the time split between Johnson Space Center and Kennedy Space Center. Russian crews spend five days in post-flight isolation at Johnson Space Center.

This state-of-the-art facility was designed and constructed to achieve LEED™ certification by the United States Green Building Council. This is the first building at Johnson Space Center to receive LEED™ certification, and only the second NASA project agency-wide to receive certification.



Owner: NASA Johnson Space Center
Architect: Morris Architects
MEP Engineer: Shah Smith & Associates
Commissioning Agent: NASA
Contractor: D.E. Harvey Builders
Project Size: 12,300 SF
Total Project Cost: \$3,500,000
Cost PSF: \$285.00
Completion: May 2005
Photography:
Aker/Zvonkovic Photography LLP

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 TX Gulf Coast Chapter of USGBC at www.usgbc-texasgulfcoast.org to learn more about how you can make LEED work for you.