



# Reuben H. Fleet Science Center



## A leading institution in energy efficiency and sustainability at Balboa Park

### Project Overview

- Size:**  
93,505 square feet
- Location:**  
San Diego, CA
- Retrofit Schedule**
  - IMAX Theater Renovations - 1998, 2009
  - HVAC System Overhaul and Replacement - 2005, 2007
  - Lighting Retrofits - Ongoing
- Building type:**  
Museum - science
- Energy Efficiency:**  
38% better than national average of similar buildings
- Green Rating:**  
Seeking LEED® for Existing Buildings - Operations & Maintenance

### Team

- Owner:**  
City of San Diego
- Project Manager:**  
Reuben H. Fleet Science Center
- Mechanical Engineer:**  
Alpha Mechanical
- LEED Consultant:**  
Collaborative Project Consulting
- Energy Advisor:**  
California Center for Sustainable Energy
- Utility Program:**  
SDG&E's Sustainable Communities Program



### Annual Savings

**Indoor Water Use: 450,000 gallons**



“Through both museum exhibits and the energy saving measures we implement behind the scenes, our goal is to draw people’s attention to sustainable living and show it can be done by organizations as well as families.”

– JEFFREY W. KIRSCH, PH. D. EXECUTIVE DIRECTOR REUBEN H. FLEET SCIENCE CENTER



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### About Reuben H. Fleet Science Center

The Reuben H. Fleet Science Center (the Fleet) is a non-profit, educational institution that serves the public through enriching their understanding and expanding their knowledge of different facets of science, technology and the environment. The Fleet has more than 100 interactive science exhibits, including one called, SoWatt!, which focuses on energy efficiency and electricity production. This exhibit displays a real time energy monitoring system so visitors can see the current and historical electricity production of the 100-kW SDG&E-owned PV system on their roof. The Fleet currently consumes less energy today than it did prior to 1998, after which the facility doubled its floor space. Through its ongoing efforts, the Science Center hopes to serve as a model for museums and urban parks across the nation.

### Sustainable Features

- Stormwater management plan directs all runoff into groundwater sources in Balboa Park.
- Environmentally sensitive pest management practices reduce chemical use and runoff.
- Reduction in conventional commuting trips among employees reduces pollution.
- Cool roof reduces heat island effect.
- A bioswale in the park treats and filters water runoff.
- Exterior downlighting reduces light pollution.

### Sustainable Sites

### Water Efficiency

- Waterless urinals and low-flow faucets reduce indoor water use by more than 30%.

### Energy & Atmosphere

- The Fleet uses 38% less energy than similar buildings.
- Building commissioning ensures systems are operating at optimal levels to maximize energy efficiency.
- Automated Building Management System monitors and controls key building systems to perform at optimal levels.
- 100 kW of on-site photovoltaic system offsets approximately 15% of the facility’s energy needs.
- Lighting fixtures were retrofitted with energy efficient CFL and LED bulbs, as well as motion sensors.
- Centrifugal chillers with oil-free compressors replaced old chillers, which are 30-40% more efficient.

### Materials & Resources

- A sustainable purchasing plan was established, including every day office supplies and durable goods, such as monitors and refrigerators.
- The Fleet has reduced toxic materials, such as lamps containing mercury.
- The Fleet diverts more than 50% of their solid waste from landfill through a park-wide waste recovery program.
- A waste stream audit was conducted to improve diversion rate and track progress.

### Indoor Environmental Quality

- There is a no-smoking policy for the entire building and the park.
- A green cleaning policy improves the work environment for maintenance personnel, museum employees and museum visitors.
- Increased ventilation and indoor air quality management provides healthy environment for building occupants and visitors.
- An occupant comfort survey was conducted to assess the level of occupant comfort and to correct any issues.
- Occupant controlled lighting and thermal systems.

### Innovation in Operations

- Interactive exhibits educate visitors of all ages, specifically about energy efficiency and water conservation.
- Educational signage is placed throughout the building for visitors and occupants to learn about the sustainable features incorporated in the facility.
- The Fleet works with the Balboa Park Cultural Partnership to help others learn about sustainability, including hosting public workshops and training events.



For more information about the Sustainable Communities Program, go to [sdge.com/sustainable](http://sdge.com/sustainable)

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