

GREEN BUILDING COMMERCIAL case study



NATURE CONSERVANCY

► SPECIFICS

- Nature Conservancy/
Regional Headquarters
- 2424 Spruce Street,
Boulder, CO
- Built: 2002
- Square Feet:
16,000 office space

► FEATURES

- American Institute of
Architects, Colorado
Chapter, Merit Award, 2002
- Expect energy savings of
50% due to efficiency
measures
- Energy costs approximately
\$3.50 per sq. ft., budgeted
at \$7.00 per sq. ft.
- Low-E windows –
U-value .38
- Low VOC floor finishes
- Linoleum flooring –
expected to last 100 years
- Interface carpet- leased
and replaced as worn by
the company – and then
recycled into new carpet-
Interface takes full respon-
sibility for product through-
out its life cycle
- Central evaporative cool-
ing/air conditioning used
only when office tempera-
tures rise above 80
degrees, which is very few
days due to good design
and tinted glazing in all
east/west windows
- Purchasing 20% of electric
need as wind power

► CONTRACTOR

- Deneuve Construction
2344 Spruce Street
Boulder, CO 80302
303.444.6633

► ARCHITECT

- Oz Architecture
Kelly Davis, Principal
1820 Folsom
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www.ozarch.com

Since 1951, the Nature Conservancy has been working with communities, businesses and people to protect more than 98 million acres around the world. In February of 2002 the Nature Conservancy finished building their 16,000 sq. ft. office space located at 2424 Spruce Street. The building serves as their regional headquarters. The building was created with energy conservation, indoor air quality, and a quality-working environment all emphasized equally. This building merges conservation and comfort, beauty and quality.

The design concept behind the facade of the building is intended to demonstrate Boulder's progression from industrial to modern over the course of the last century. The windows were enlarged on the first and second floors to maximize daylight and reduced on the third to minimize afternoon heating. These two green improvements increase the energy efficiency of the building by decreasing dependence on air conditioning and overhead lights. All of the windows carry and upgraded glazing, which helps deflect the sun's rays thus decreasing passive solar heating of the building. Operable windows are used to allow the employees situated near windows to control their temperature without the use of treated air. The windows provide day lighting, and the buildings other lighting was designed with energy conservation in mind. Motion detectors turn on lights in seldom used rooms and halls. The lights automatically turn off when no motion is detected. Reflective ceilings maximize the sunlight as well as the light produced in the building.

The Nature Conservancy building is using half of the anticipated energy per square foot. The Nature Conservancy projected nearly \$7.00 a square foot cost, but is using \$3.50. This cost reduction is paying back the initial investment in smart lighting, efficient windows and energy efficient heating and cooling strategies. The Nature Conservancy is using 20% wind energy, Windsorce®, to further reduce their building's reliance on natural resources.

Although Leadership in Energy and Environmental Design (LEED™) certification was pursued and even qualified for, it was not completed due to cost.

SPECIFIC PRODUCTS AND DESIGN FEATURES

Energy & Atmosphere

Windows – www.hurd.com

All 107 of the Nature Conservancy's windows: Double-hung operable windows. Low-E Glass – two panes of glass, one with a low-e (low-emissivity coating, separated by an air space); provides greater energy-efficiency than insulating glass and helps make entire building more comfortable U-value = .38





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Materials & Resources

Bamboo Flooring – Bamboo flooring was chosen for the high traffic, high visibility areas. Bamboo flooring is a very hard, dimensionally stable and durable wood flooring substitute. These benefits outweigh the long-distant transportation impacts. Bamboo grass is a renewable resource that grows to a harvestable size in as little as three years. There are several different products available, but all consist of either three horizontal layers of flat grain or multiple layers of vertical grain. The bamboo floors were finished with low volatile organic compound (VOC) treatments to insure indoor air quality.

Linoleum – www.forbo-linoleum.com

Forbo uses natural raw materials, such as linseed oil (cultivated with less fertilizers and pesticides), limestone, and rosin in the production of linoleum. Natural raw materials are only the start of their strong environmental performance. State-of-the-art processes ensure that each production stage causes minimum environmental impact. On average 12% of their total investments are spent on measures designed to further improve environmental performance. Forbo's approach to waste management is to recycle as much as possible and to design processes so that there is less waste to start with. Real linoleum is often referred to as the 100-year floor because it lasts so long.

Indoor Air Quality

Carpet – www.interfaceflooring.com

The Interface carpet used by the Nature Conservancy is installed in separate squares that allow for easier carpet replacements and thus less waste than traditional carpets where an entire room of carpet has to be disposed of just to repair a high-traffic area.

Also, the carpet is leased from Interface, which means that Interface takes full responsibility for the carpet throughout its life cycle.

Interface follows sustainable design principles to develop a full range of product and service solutions designed to take less from the environment while continuing to provide optimum performance and value. They do this by (1) eliminating waste (2) eliminating harmful emissions (3) using only renewable energy (4) creating closed loop processes (5) minimizing the movement of people and material (6) integrating sustainability into company culture and (7) pioneering new business models of sustainability.

Finishes-Fixtures – Paints and finishes are water-based and low-VOC where possible. Desks, cabinets, and office partitions/panels were chosen based on their air quality impact. Frequently composite materials such as these are bound together with toxic high-emission binders. The Nature Conservancy specifically sought products with low off-gas emissions.

For More Information

Visit the city of Boulder's Planning & Development Services' web site at www.ci.boulder.co.us/pwplan/index.htm

For commercial LEED green building standards, visit the US Green Building Council's web site at www.usgbc.org

Sponsored by the city of Boulder's Office of Environmental Affairs www.environmentalaffairs.com

