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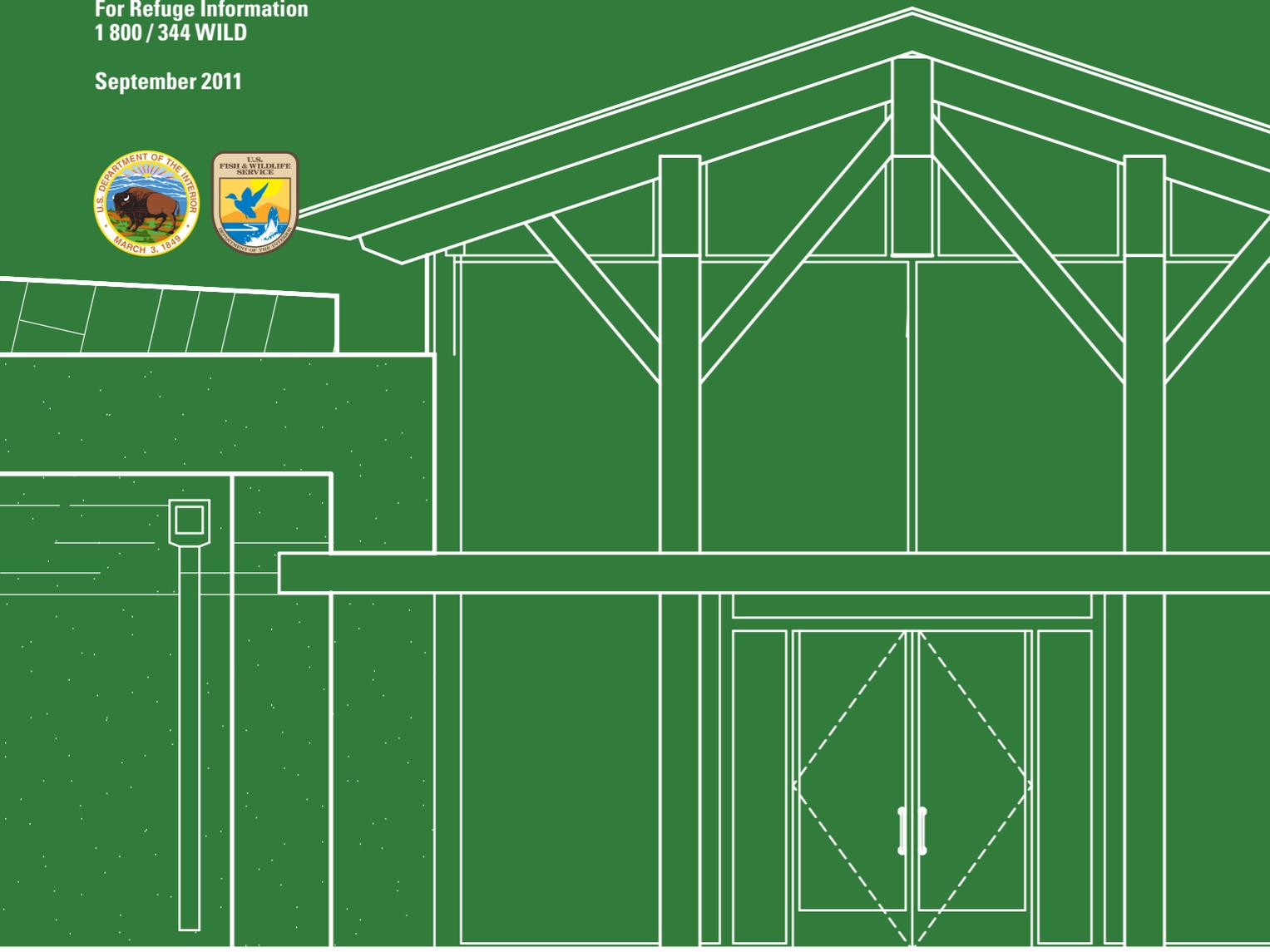
September 2011



# San Luis

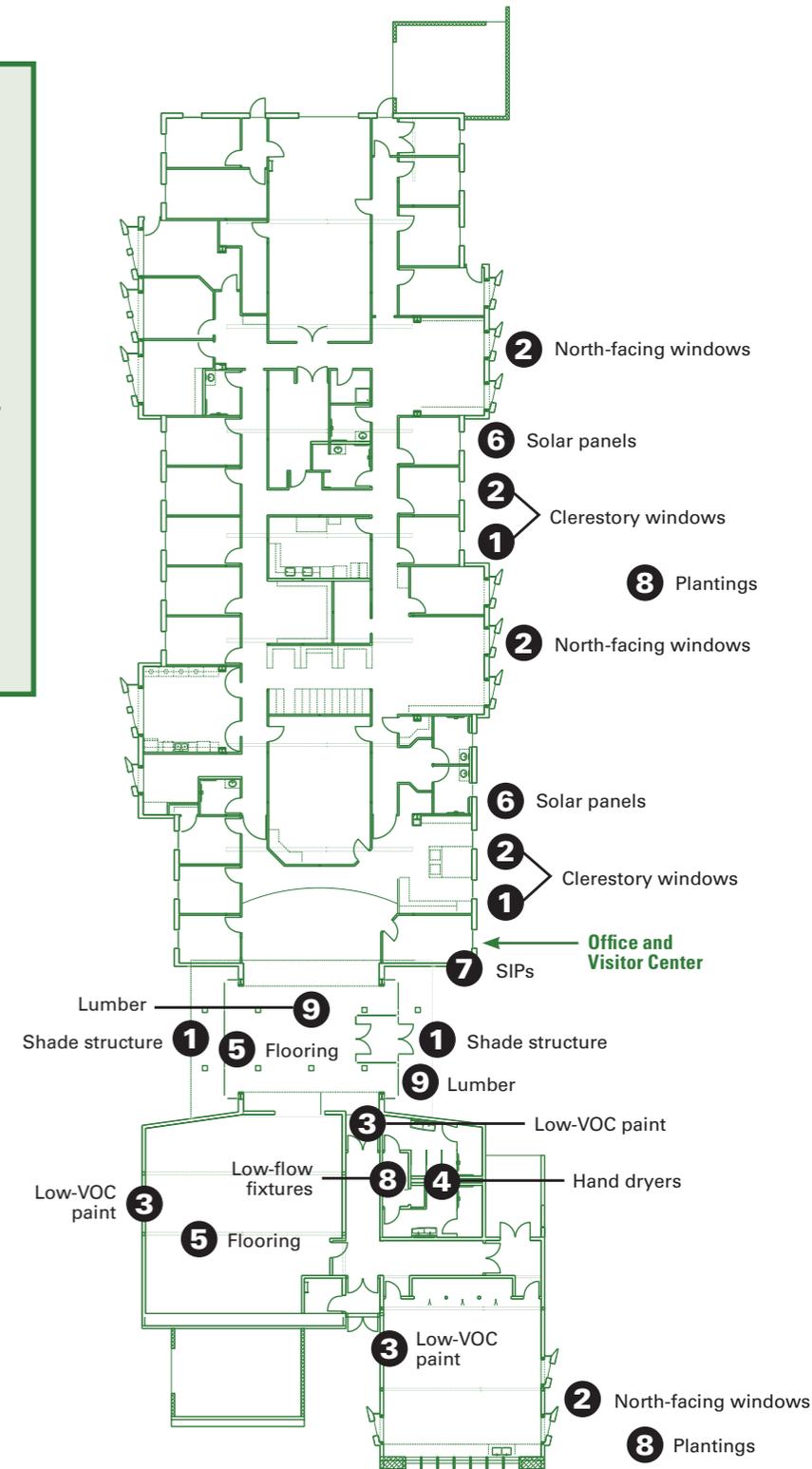
National Wildlife  
Refuge Complex

## A "Green" Building Tour



This building earned platinum-level Leadership in Energy and Environmental Design (LEED) certification, the highest level of certification possible, from the U.S. Green Building Council. To earn its LEED certification, the building met a long list of standards for energy conservation, renewable energy production, water efficiency, use of recycled materials, and indoor environmental quality and control.

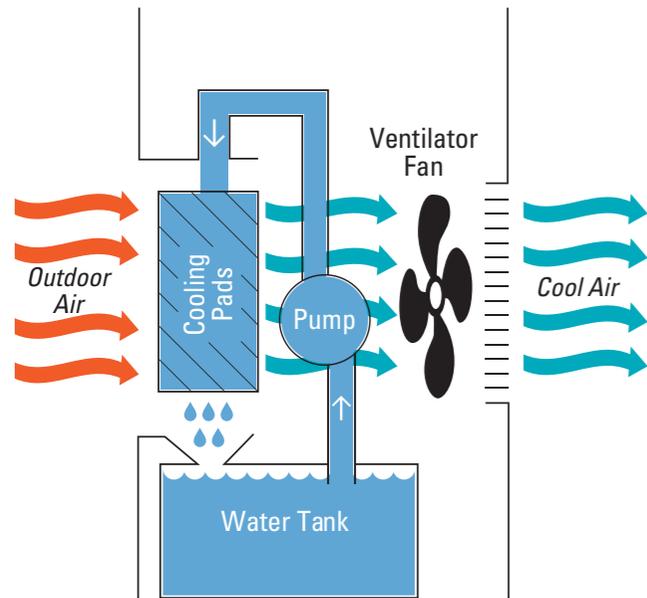
Follow the numbered markers to discover the environmentally friendly "green" features of the San Luis National Wildlife Refuge Complex Headquarters and Visitor Center.



## 1 Keeping Cool

From outside the administrative wing of the building, notice the banks of north-facing rooftop windows. At night, these clerestory windows vent hot air that has built up during the day (the natural nighttime cooling we enjoy here makes this a very efficient way to cool the building). The windows work together with a ventilation system to create a “whole-house fan” that cycles air through the facility.

Look up and to the left of this green building exhibit. Do you notice the wooden slats at the ceiling? This structure shades direct afternoon sunlight. A similar shade structure over the visitor center entrance shades the building from the morning sun. These structures, along with shades on all the building’s windows, help keep the building cool.



To further cool the building, an energy-efficient “evaporative cooling system” uses air flowing over water to supply air throughout the facility. The system brings in outside air, which increases ventilation and indoor air quality.

## 2 Efficient Lighting

Look up to see the building’s clerestory windows. These windows face north to let in light while avoiding direct sunlight from the south that would add heat to the building. This light is reflected and magnified by the light-colored ceiling. In addition, office spaces are designed with tall north-facing windows that let in natural light while reducing the need for artificial light. High-efficiency lighting fixtures help save electricity, and all rooms have sensors that turn off the lights when no one is in the room, and turn on the lights only when natural lighting is inadequate.

## 3 Low-VOC Materials

Many traditional paints and finishes release harmful chemicals into the air. These volatile organic compounds, or VOCs, are a leading cause of air pollution and indoor toxins. This building is painted with a new generation of low-VOC paints that are much less harmful to people and the environment. Many other elements used in the building are also “low-VOC,” including the flooring, wall materials, sealants, adhesives, and pre-manufactured wood products. To further reduce indoor air pollution, the building was vented for two weeks prior to occupancy, and only “green” cleaning products are used.

## 4 Saving Paper Towels

All restrooms are equipped with state-of-the-art high performance hand dryers. This means that no paper towels are required, and no paper is wasted.



## 5 Flooring

Notice the use of decorative concrete for flooring. This eliminates the need for carpeting that routinely requires cleaning and replacement. In addition, some of the volume of this massive concrete floor is fly ash. Fly ash is a waste product from coal-fired power plants, for which disposal is a problem. Using the fly ash in a concrete mix strengthens that mix while helping reduce disposal problems.

## 6 Solar Panels

Photovoltaic “solar” panels provide 100 percent of the building’s power needs, making it a “net zero” facility. Excess power produced during sunny weather is exchanged for power from the local utility company during less-sunny periods.

## 7 Structural Insulated Panels

The walls and ceiling of this building are made of structural insulated panels, or SIPs. These panels consist of a rigid foam core sandwiched between two sturdy wooden layers made of recycled wood chips. The panels are strong and quick to install—and they provide airtight, energy-efficient insulation. On the outside walls, the SIPs are covered with exterior siding. On the inside walls, the SIPs are covered with gypsum wallboard.

## 8 Saving Water

This facility uses less than half the water of a standard building. Landscaping includes the use of native plants that are adapted to the climate and soil conditions of the local area—they only require irrigation for a short time to get them established. Inside, all restroom fixtures are designed to minimize the use of water, from low-flow toilets and urinals, to automatic faucets.

## 9 Lumber

Half of the lumber used in this building is certified by the Forest Stewardship Council (FSC). The FSC label ensures that the forest products used are from sustainably harvested sources. FSC-certified forest products are verified from the forest of origin, all the way through the supply chain.

