A Case Study:
All Saints Catholic Cemetery Chapel & Administration Building

Earth is God's gift to us. As good stewards of this gift we are called on to care for our environment and use of our natural resources. Pope Benedict XVI at World Youth Day 2008 reminded us that care of the environment is "of vital importance for humanity". As plans were being discussed for a new combination office and chapel building at All Saints Cemetery, the administration of the Catholic Cemeteries decided to put this responsibility into practice by requesting a building design that would be environmentally friendly and would meet the requirements to be LEED (Leading in Energy and Environmental Design) Certified. We are proud of our efforts and we thank the other team members involved in making this "green" building a reality.

-Catholic Cemeteries Archdiocese of Chicago

Sustainable Sites

Buildings affect ecosystems in a variety of ways. By constructing the new Administration/ Chapel Building on the old Administration Building site, this new building did not consume any additional open space and reduced the environmental impact. In fact, the new complex reduced the overall footprint of building site by **53%**. The remaining **2.7 acres** of space were turned back into open, green cemetery space. An erosion and sedimentation control plan was implemented during construction to prevent loss of soil by stormwater runoff, to prevent sedimentation affecting streams, and to prevent polluting the air with dust and particle matter.

15% less of the City of Des Plaines' water supply is used through water efficient landscaping.

Water-Efficient Landscaping

Using plant species that are drought resistant and able to thrive naturally in our area eliminates the need to irrigate, saving water and energy. Planting native species and non-invasive adaptive plant varieties preserves local biodiversity. Reintroducing natural planting through the cemetery allows birds and other animals to move between the neighboring parks and forest preserves. Planting native species in diverse ecological communities that respond to the topographies of the site eliminates the need for irrigation. The planting beds around the building perimeter do not require additional water or irrigation.

Alternative Transportation

Operation of vehicles significantly contributes to global change and air quality problems through the emission of greenhouse gases and other pollutants. Alternative fuel vehicles and carpooling offer the possibility of reducing air pollutants from vehicular travel as well as the environmental effects of producing gas. Five percent of the parking spaces at the Chapel and Administration Complex are reserved for fuel efficient vehicles along with five percent of the parking spaces reserved for carpool vehicles.

Local and Regional Materials

Using products manufactured within the region (500 miles of the project) reduced the amount of energy required to transport the material to the job site during construction. This "embodied energy" also includes energy consumed in manufacturing the product.

Recycled Materials

25% of our building materials were manufactured regionally to minimize the energy needed to transport them to our construction site.

Recycling provides a way to conserve natural resources and is a key part of the strategy to extend the lifecycle of materials. Instead of sending unneeded materials to a landfill or incinerator, recycled materials can be manufactured into new products. We were able to divert 98% of the construction waste from the landfill. Ninety-one percent of all the wood used is from Forest Stewardship Council certified forests was also used. Rapidly renewable resources grow back quickly after harvesting. Wheat-board, utilized for casework and trim through the building, is made of recycled wheat chaff, a by-product of wheat harvesting, and uses formaldehyde free glues. The flooring and tack boards are made of linoleum, a material made from linseed oil and pine and that does not release harmful chemicals into the air. Almost 13% of materials used in construction were from recycled sources, including: carpets, structural steel framing, ceiling tiles, concrete rebar, ceiling grids, fiber insulation, and gypsum drywall paper.

95% of all of the regularly occupied spaces have a view to the outside, allowing occupants and visitors to maintain a connection with nature.

Health, Comfort and Productivity

Use of natural lighting in rooms is believed to improve the health, temperament, productivity, and performance levels of employees and visitors. Virtually all interior spaces receive some daylight. Operable windows allow for natural ventilation when conditions are favorable. We also use low-VOC (volatile organic compounds) paints, glues, and adhesives to improve air quality.

Indoor Air Quality

The quality of air inside buildings is important for the health of faculty and visitors. A carbon dioxide monitoring system that is interconnected to an outdoor air supply system automatically provides fresh air when sensors indicate that carbon dioxide levels inside a room exceed minimum acceptable levels. Specially designed mats are provided at all building entries and exits to reduce the quantities of contaminants introduced to the building. Only low volatile organic compound (VOC) emitting materials were used in the construction of the building. All heating, ventilating, and air conditioning (HVAC) and refrigerant systems use chlorofluorocarbon (CFC)-free refrigerants, thus reducing the impact of the chapel and administration building on the atmospheric ozone layer.

Green Roof

As rain passes through the green roof, pollutants are removed, creating cleaner water for reuse or overflow discharge into municipal storm drains. The sun's rays which would eventually cause traditional roofing material to degrade are diminished. Thus the green roof protects the sensitive waterproofing layer from the sun, extending the material's life. Small creatures including birds and insects will make their homes on the roof. Plants take in carbon dioxide and release oxygen into the atmosphere. Our roof also reduces the "urban heat island effect" which occurs when dark surfaces convert sunlight to heat and raise the temperature of the local microclimate. Cool roofs keep the building from heating up, reducing demand for air conditioning.

91% of the roof surfaces has been designated to reduce the heat island effect caused by sun hitting dark surfaces that then raise the temperature of the local microclimate.

Green Housekeeping

The goal of our housekeeping program is to maintain a truly healthy office and chapel environment. Our focus is on cleaning for health, not just appearance.

All of our cleaning staff receive training on green cleaning prior to and during their employment. They use energy-efficient equipment selected to have less environmental impact—low moisture processes, quieter operation, higher filtration, and lower emissions.

Our cleaning staff uses Green Seal Certified cleaning products. Including paper towels and toilet tissue, the paper products being used are 100% recycled.

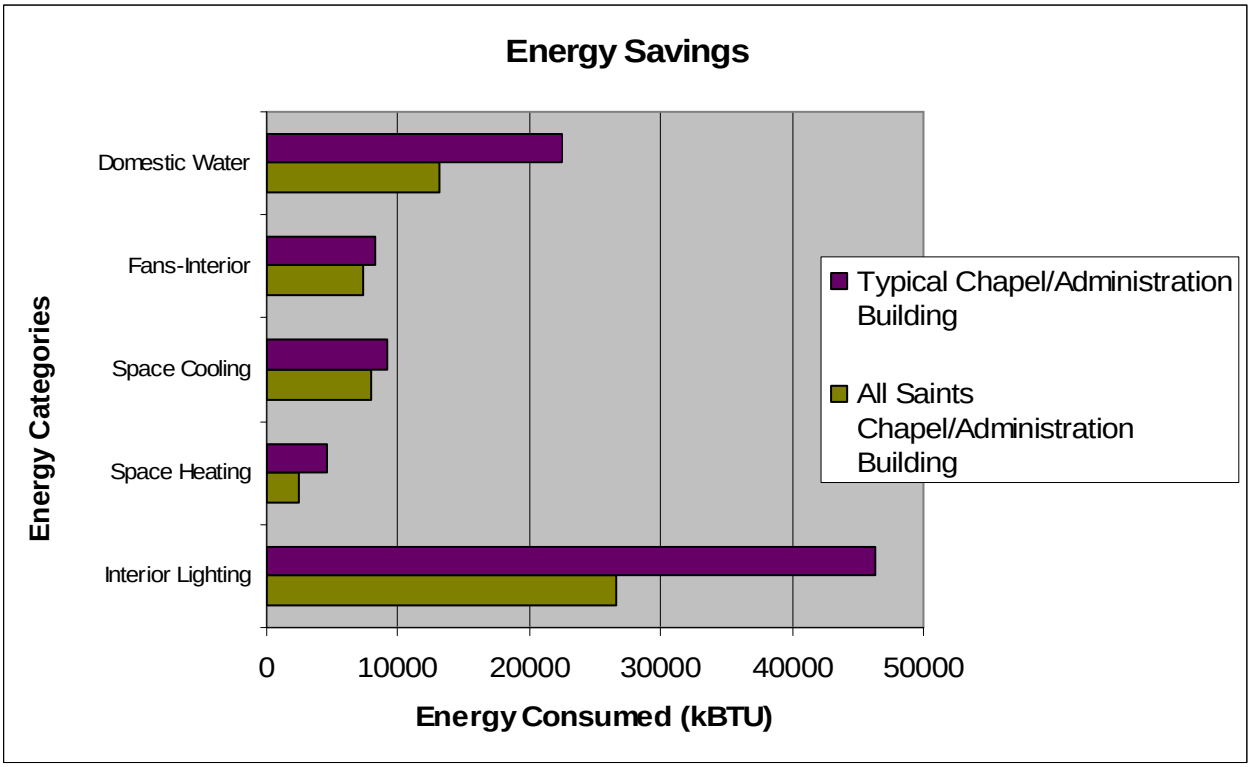
Recycling allows us to reduce our burdens on the environment as a result of both solid waste disposal and the extraction of the natural raw materials. We recycle mixed paper, cardboard, cans, glass, and type 1 (PETE) and 2 (HDPE) plastics.

27.7%

less energy is used through ventilating and shading naturally to reduce air conditioning load and managing lights with occupancy and photo sensors.

Energy Efficiency

The new facility uses one-third less energy than standard construction. Artificial lighting is used only as needed to augment natural light. To reduce energy use, lights are controlled by occupancy sensors as well as photocells that automatically adjust the level of artificial lighting according to the amount of daylight available. Improved building envelope design includes a roof that exceeds the thermal property requirements of standard building design by 155% and walls that exceed the same requirements by a factor of three. Windows are twice as insulating as energy standard for insulating properties. The central air system takes advantage of an “economizer” operation to eliminate mechanical cooling by bringing in fresh air when outside air temperatures are appropriate; it also uses energy recovery to minimize waste of mechanical cooling and heating. To reduce overall demand on the building’s cooling system, shades have been installed in key solar orientations.



Around the Cemeteries

The construction of our Chapel and Administration Building, designed to USGBC LEED Silver standards, is just another example of the commitment to environmental stewardship of Chicago Catholic Cemeteries. Catholic Cemeteries has other locations which are examples of our commitment to energy conservation. Active and passive solar heating systems have been used since the late seventies energy crisis and are still paying back dividends in savings.

Green Operations and Maintenance Guidelines- During 2008-2009, Catholic Cemeteries continues to investigate and can implement a Green Operations and Maintenance Programs for all other cemeteries.

Recycling Guidelines – Recycling guidelines established for the All Saints Cemetery Chapel and Administration Building will be implemented into all buildings in the entire cemetery system. Contracts with waste haulers will be reviewed to insure conformity to the guidelines.

Green Groundskeeping – Catholic Cemeteries has utilized Green Groundskeeping for many years. Utilizing native plants, mulching grass and leaves, conserving black dirt for reuse, minimal irrigation and reducing the use of all pesticides and herbicides, our cemeteries will continue to be stewards of the environment for many years into the future.

Transportation - Recently, Catholic Cemeteries has purchased three totally electric vehicles for use within the cemetery operation. These vehicles are utilized by field and supervisory staff in performance of their daily duties. Future intra cemetery vehicle purchases will include only hybrid vehicles. Additional fuel efficient and carpool vehicle reserved parking stalls will be added at all facilities.