

The Children's Advocacy Center is seeking LEED certification and is registered under Green Building Design and Construction, LEED for New Construction and Major Renovation v4 (LEED-NC v4).

The USGBC created the LEED rating systems to support the choice to build green and to provide third party certification for building green.

A LEED certification identifies buildings whose owners have taken a leadership role in implementing green building strategies. Green building strategies help protect the health of our natural eco-systems and preserve natural resources. Building green also means that the health of people is protected within the ecosystem and within the building. Indoor Air quality is protected during and after construction, so people can breathe easily. An energy saving heating and cooling system means less is spent on utility bills. And the existing location of the building with access to public transportation and a variety of services improves the quality of life for all who use this green building.

When visiting the building, you may barely notice some of the small differences renovating green provides. But, small differences together add up to a major positive impact to people experiencing the building and to energy consumption over the lifespan of the building.

So, how does the Children's Advocacy Center align with the LEED rating system? First, it is important to know that the LEED rating systems are organized into categories and each category includes credits that are worth a varying amount of points. The point total determines the level of the certification. Below are the categories with the credits and a description of each credit that are being pursued.

### **Prerequisites**

Like all LEED certified projects, this renovation will earn all the prerequisites required for certification. Construction activity pollution was prevented, the required potable water savings was exceeded, water usage is metered, fundamental commissioning was performed, building energy use is metered, the minimum amount of energy savings was exceeded, fundamental refrigerant management was met, recyclables are stored on site, minimum indoor air quality performance was met, and smoking is not allowed in the building or on the property.

**Location and Transportation (LT):** where the building is located matters

### **LTc2 Sensitive Land Protection: Previously Developed**

The project is using previously developed land, which reduces the environmental impact of the location of the building.

### **LTc2 Reduced Parking Footprint**

Although this credit has not been officially pursued, parking has been minimized, which can discourage automobile dependence, reduces land use, and limits rainwater runoff.

**Sustainable Sites (SS):** caring for the site is caring for the earth

### **SSc3 Open Space**

Almost 40% of the site has been preserved as open space. A healing garden with an accessible walking path and benches has been provided for the health and well being of children and staff.

### **SSc 6 Light Pollution Reduction**

Light from the exterior light fixtures does not spill onto the neighboring sites or shine too brightly up into the sky. Shining light into the sky is a waste of energy and has negative effects on people and wildlife. Light pollution affects all living beings by causing a loss of connection with the rhythm of day and night that govern reproduction, nourishment, sleep, and protection from predators.

For more information, visit [www.darksky.org](http://www.darksky.org)

**Water Efficiency (WE):** water efficient fixtures save our water resource

That's important because all the water we have, is all the water we're ever going to have.

### **WEc1 Outdoor Water Use Reduction**

The landscape has been designed to thrive without the use of an irrigation system. This will save water for the life of the building.

### **WEc2 Water Use Reduction**

Water saving plumbing fixtures ensure that this building saves 36.70% more water than a typical building of this type.

Water conservation is one of the most important ways to protect our natural resources. The more we can reserve our daily water use to only what we need, the better. When we use water, we are also using Energy because energy is used to process and transport water.

**Energy and Atmosphere (EA):** saving energy on heating and cooling

**EAc1 Enhanced Commissioning**

Commissioning is a double check by a commissioning authority (CxA) that the building design and construction meets the Owner's expectations and requirements.

**EAc2 Optimize Energy Performance**

Overall energy savings for the building due to design and construction equals 46.40% compared to a standard building of this type. That saves money, saves non-renewable resources, and lessens air pollution.

**Materials and Resources (MR):** saving virgin raw materials

**MRc1.1 Building Life-Cycle Impact Reduction**

59.44% of the building was reused during the renovation. That's a lot of raw materials saved by renovating an existing building instead of building new.

**MRc2 Construction Waste Management**

87.66% of the construction waste was recycled instead of being sent to a landfill. Making products from recyclable waste saves on the use of virgin raw materials and reduces the environmental impacts associated with resource extraction, processing, and transportation. The diversion of waste from landfills avoids the need for expansion or new landfill sites.

**Indoor Environmental Quality (IEQ):** providing clean air  
(it's all about people)

**IEQp2 Environmental Tobacco Smoke (ETS) Control**

The LEED rating systems include prerequisites along with credits. This is a prerequisite. You can tell by the "p" in the name. I've described the other prerequisites in the opening of this summary. But, this prerequisite is special because it directly involves the occupants; that's you. Your health is protected by encouraging you not to smoke and ensuring that you are not exposed to second hand smoke.

**IEQc3 Construction IAQ Management Plan**

An Indoor Air Quality management plan was developed and implemented to protect the air quality during construction. The strategies included keeping air handling units turned off, protecting the duct work from contamination, controlling the source of potential

contaminants, blocking pathways that could allow for cross contamination, cleaning the site throughout construction, and the delivery and sequencing of material installation was done so as to protect any contamination.

### **IEQc6 Interior Lighting**

The lighting controls allow for individual adjustments and multi-level adjustments for occupant needs and to save energy by offering lower light levels when those are appropriate.

**Innovation in Design (ID):** beyond the standard credits  
(kind of like extra credit)

### **IDc1 LEED O+M Starter Kit: MRp Facility Maintenance and Renovation & MRp Ongoing Purchasing and Waste**

Plans are in place to continue green practices. When the facility is renovated, the same strategies will be employed during any minor renovations as were implemented during this major renovation. Additionally, during the building's operations, products will be purchased with the intent of seeking the more responsible ones and recycling or reuse will be employed when they reach the end of their useful life at this facility.

### **IDc2 OM v4 MR: Purchasing Lamps**

The light bulbs installed in the project are all LED, which helps protect our environment from mercury contamination. A commitment has been made to maintain LED/mercury-free lighting.

### **IDc3 Green Building Education**

This web page information and signage located within the building allow for the earning of this credit by providing education and outreach in support of green building.

### **IDc4 Occupant Comfort Survey**

The occupants will be surveyed to ensure their comfort in the building and adjustments will be made as needed.

### **IDc5 Pilot Credit 95 Alternative Energy Performance Metric**

The US Green Building Council (USGBC) offers pilot credits as an option for project teams to try out and test credit strategies for consideration as credits added to the rating systems. We chose to perform calculations that would educate us and possibly inform the decisions

regarding energy use in the building. The path we chose taught us how many GHG emissions (Green House Gas) were being produced from the electricity and natural gas used in the design options being considered.

Exploring GHG emissions with the Pilot Credit calculations resulted in two primary discoveries: a) natural gas production produces significantly more GHG emissions than electricity and b) more energy is lost in the distribution of electricity than natural gas. Further research would be needed to understand the project-specific differential in GHG emissions between electricity and natural gas. It is likely that because the area has nuclear power plants generating some of the electricity, this has lowered the GHG emissions associated with the electricity generation.

Assuming the values in the calculation are correct and if a goal to further reduce GHG emissions were economically feasible, the greatest benefit would be achieved by reducing the natural gas use and increasing the electricity use. But, if utility based electricity were used for heating, the operational costs would be too high.

Solar panels were priced as an on-site renewable energy source to off-set some of the utility-based electricity. This would have reduced some GHG emissions, but not as much as if the natural gas use was reduced.

The ultimate reduction of GHG emissions could be obtained with 100% on-site renewable energy generation using only electricity-based energy for building operations. Additionally, on-site renewable energy cuts the amount of energy needed to be produced by eliminating the large loss of energy during transmission. This path would require a significant up-front cost investment, but would slash operating costs.

Additional research uncovered the fact that based upon an LCA look at solar panels, they do have a GHG emissions factor because production of the panels includes the use of fossil fuels.

Pilot Credit information is being shared on the project's website with the LEED education information. It has been a valuable lesson in understanding the GHG emissions impacts from the energy types used by the building. In general, awareness has been raised regarding how to think about the energy that we use.

#### **IDc2 LEED® Accredited Professional**

At least one professional knowledgeable about LEED with a LEED AP accreditation worked on this project to guide the process and to earn this credit.

For more information regarding using a LEED rating system, visit [www.usgbc.org](http://www.usgbc.org)

**You can build green too!**