



# COMMUNITY

TAKES THE LEED LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)  
A MODEL FOR STEAMBOAT SPRINGS, COLORADO



# CENTER

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The City of Steamboat Springs has formally embraced environmental sustainability as one of its main community priorities. To further that value and objective, City Council adopted a formal *Sustainability Management Plan* which states, "The City of Steamboat Springs will serve as a community leader in sustainability."

One of the main goals and objectives of becoming a sustainable city is to practice integrated design for new construction which includes use of Leadership in Energy and Environmental Design (LEED) for public facilities. The new Steamboat Springs Community Center is the flagship project for this effort.

LEED is a consensus-driven rating system developed by the US Green Building Council (USGBC) as a voluntary program to define and measure "Green" buildings. LEED certification strives to improve both the occupant well-being and minimize the environmental impact of a building by using a checklist to earn points for sustainable measures achieved. A LEED project will fall within an award scale ranging from Certification, to Silver, Gold, and Platinum levels.

The process of sustainable or LEED design required the early and committed partnership of the Owner (City of Steamboat Springs), Architect (Andrews and Anderson Architects), Contractor (Fox Construction) and citizen user groups. These partners worked for over a year to design and build a sustainable building, starting with a public LEED Charrette in July 2006 where we gathered information and sought public input. To further promote LEED education and outreach, the City videotaped the Charrette which is available to the public.

“The City of **STEAMBOAT SPRINGS** will serve as a community **LEADER IN SUSTAINABILITY.**”

The LEED rating system includes five (5) categories addressing sustainability including site selection and building situation on the site. At the Community Center, capturing solar energy will reduce energy costs and provide wonderful natural lighting. The building was placed on the site to minimize impacts to the natural ecology while restoring animal habitat near the Yampa River. The site maximizes open space and there are plans for a community garden in the future. Carpool vans and alternative fuel vehicles get preference in the parking lot, and permanent racks provide secure storage for bicycles – the ultimate clean vehicle. As a response to national dark-sky initiatives to preserve our nighttime views of the sky, the Community Center was designed to minimize light pollution by specifying downward focused exterior light fixtures.

Innovative techniques were used in the design of the foundations and walls. Foundations were constructed using a minimum of concrete in order to conserve materials. The exterior walls are primarily constructed from Insulated Concrete Forms (ICF), or dense foam blocks which, when stacked together, create a void which is then filled with concrete. The forms are left in place – unlike traditional form work that is removed when the concrete has cured – to act as insulation for the building. The resulting walls, besides being highly insulated, are extremely 'tight' – very little air is lost to leakage normally experienced with typical construction. This means that a significant amount of energy is saved because the mechanical systems do not work as hard heating or cooling outside air. In a similar fashion, the ceiling of the Community Room is constructed from Structural Insulated Panels (SIP) which act as both structure and insulation creating a very tight, efficient and extremely well insulated system.



Water conservation, energy efficiency, and indoor environmental quality count toward fulfilling the criteria needed to achieve LEED certification. The Community Center features water conserving fixtures, including unique dual-flush toilets and low-flow faucets, which reduce water use by 50%. Additionally, native landscape materials will require little or no irrigation. The building envelope was designed using the ASHRAE Advanced Energy Design Guide for Small Office Buildings – requiring significant insulation and high performance glass. Maintaining healthy air quality for occupants is addressed through CO<sub>2</sub> monitoring and aggressive air filtering systems. The architect specified low-emitting materials for the building, and windows are operable, allowing users to breathe easy. Natural

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daylighting was designed into the building, resulting in exquisite qualities of light and energy savings.

Sustainable materials figure significantly in the effort to make a building green. The building uses recycled steel, aluminum and other industrial byproducts in its construction and makes provisions for recycling within building operations. Maple wood flooring salvaged from a gymnasium in Golden, Colorado, will serve as the new dance floor. Every effort is being made to purchase materials that originate within our region, thereby reducing pollution associated with transportation.

The commitment of the general contractor to follow sustainable construction practices



is essential to building a LEED-certified structure. This includes jobsite recycling, minimization of site disturbance, and regulation of VOCs (Volatile Organic Compounds), often found in many paints, adhesives and sealants. It is the general contractor who assures that all LEED specifications are met during the progression of the job.

Jobsite recycling for the Community Center has the goal of diverting 75% or more waste from the landfill. In order to accomplish this in Steamboat Springs, the general contractor must be creative because there are few systems in place for recycling construction materials. To dispose of scrap wood, excluding treated lumber and plywood which burn noxious fumes, free firewood is advertised for pickup. If construction materials are reusable in any way, Fox Construction saves them for reuse on other jobs. Home Resource, a local salvage company at Twin Enviro Landfill, has a similar practice and will offer tax credits for salvaged construction materials. Recycling is significantly reducing jobsite waste, which is ordinarily 2.5 pounds of waste for every square foot of commercial construction.

Post-consumer waste is recycled on the jobsite. This includes items such as plastic bottles, paper, aluminum cans, newspapers, container wraps, etc. — normal waste from construction labor activity. Waste Management provides commingled recycling eliminating the need to “sort” recyclables.

Another example of LEED choice for the Community Center is the use of lumber certified by the Forest Stewardship Council (FSC). The FSC was created in 1993 to promote sustainable forestry practices. FSC wood is selectively, not clear-cut, out of a forest. This means that lumber is harvested tree by tree inter-dispersed throughout the forest in order to allow other trees to have more room to grow. FSC wood typically costs a little more; however, this encourages the forestry industry to continue their sustainable practices. The Community Center is constructed of 60% FSC lumber, including the rafters, wood windows, and studs.

The LEED rating system requires significant documentation of everything associated with a building, from the designs and planning to the construction and operations of a facility. For the Community Center, the Contractor, Architect and Owner must keep numerous

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tracking logs used throughout the project to insure all the appropriate data can be compiled and submitted to USGBC for the final LEED certification.

A Sustainable Facility Management Plan (SFMP) was created for the Community Center as a model for other City buildings. A green housekeeping policy recommends the use of Green-Seal tested products and outlines environmentally responsible procedures for cleaning. A green-purchase policy creates a recycling program, stipulates purchase of recycled office products, and proposes green office practices. These practices include single spacing documents, defaulting to two-sided printing, and electronic filing when possible. The SFMP also encourages environmental education aimed at both City employees and the public in the form of articles (like this one), signage, and classes.

The primary goal of environmental sustainability in buildings is to design, construct and operate environmentally-friendly facilities both short and long-term. This includes using environmentally responsible products for maintenance, operations, cleaning and pest control. Such products are safer for employees and the public and easier to dispose of in an environmentally responsible manner. The City also intends to purchase renewable energy (wind power) to offset the total electrical consumption of the facility. The purchase of clean wind power helps achieve LEED certification and supports development of new or expanded wind farms in the United States. This is one small way for Steamboat Springs to help renewable energy development which is an important part of sustainability.

The City of Steamboat Springs, Andrews and Anderson Architects and Fox Construction are very excited to be building the first LEED certified building in Northwest Colorado. The City intends to lead by example and hopefully other local government agencies and private developers will follow by designing and constructing other LEED and environmentally sustainable buildings in the region. The Community Center will be a model and long-term testament to sustainability as well as a wonderful public facility to benefit the citizens of Steamboat Springs.

