



# COLORADO BUILDING GREEN

The official newsletter of the U.S. Green Building Council - Colorado Chapter

August 2006

## Project Profile

### Byron G. Rogers US Courthouse

by Tom Hootman, AIA, LEED AP, RNL Design



local historians consider the building to be a Formalist masterpiece. It was designed by notable Denver firms James Sudler Associates and Fisher and Davis as part of a Federal complex including the adjacent 18 story Federal Office Building. The Courthouse was built to house the 10th U.S. Circuit Court of Appeals, the U.S. Marshal's offices and the U.S. Attorney's offices.

As a significant Federal building within downtown Denver and within the General Services Administration's (GSA) portfolio of property the renovation and modernization project was part of the GSA's First Impressions and Design Excellence Program. The project was also to meet the GSA's goal of a LEED Silver rating. The GSA has

The Byron G. Rogers US Courthouse exemplifies what might be considered the most important sustainable strategy a project could incorporate – building reuse. “What better example of a sustainable building can you have? We have given new life to this 40 year old majestic structure, which has served our community for so long and

can now continue to be an important public asset,” noted Mary Morissette, AIA from Bennett Wagner & Grody Architects, who has spent the last four years managing the design team's efforts in renovating the federal courthouse.

The Byron Rogers Courthouse was constructed in 1965 in a modernist tradition of a Formalist style and many



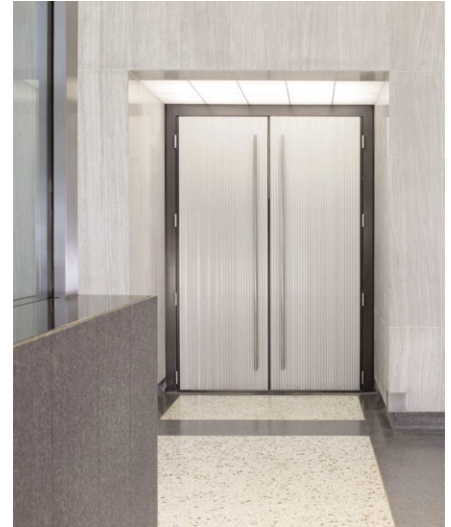
# Project Profile

## Byron G. Rogers US Courthouse

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### Project Data

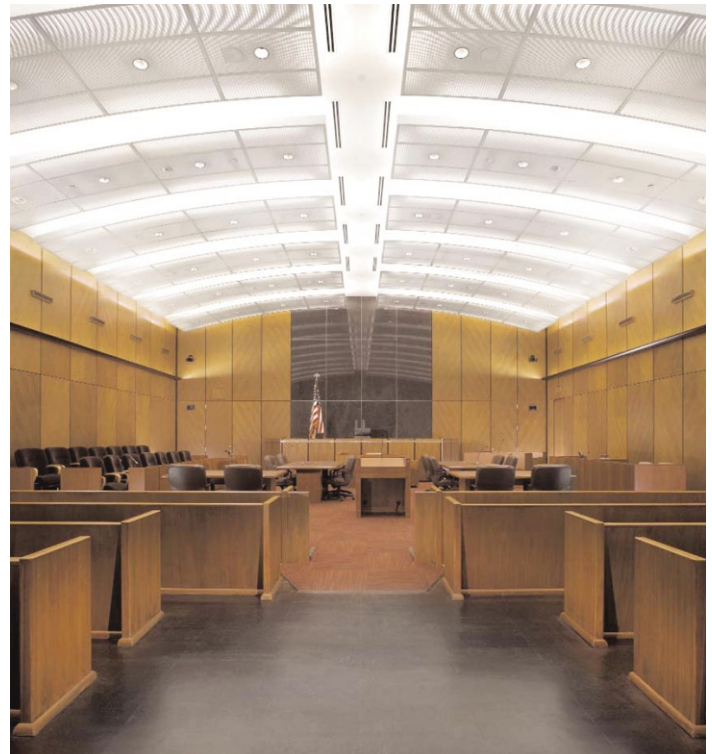
Project Name	Byron G. Rogers U.S. Courthouse
Project Type	Existing Courthouse
Project Location	Downtown Denver, Colorado
Construction Completion Date	January 2006
Project Size	260,000 GSF
Project Cost	\$45.8 million
Owner	General Services Administration
Key Participants	
Architect:	Bennett Wagner & Grody, Architect
Interior Design:	Bennett Wagner & Grody, Architect
General Contractor:	A joint venture of MCDS/PCL
Design Consultants:	RMH Group - MEP Engineers Martin/Martin - Structural and Civil Engineers Lime Green Design - Landscape Design Ambient Energy - Sustainability Consultant Walsh Environmental - Asbestos Abatement E-Cube - Commissioning Agents



lead the country in sustainability being the first Federal Agency to require new construction projects and substantial renovations be LEED certified.

The project was an excellent candidate at the time for the newly developed LEED for Existing Building and was accepted by the USGBC as a LEED-EB pilot project. The project team is currently finalizing its submittal to USGBC and has exceeded the GSA's benchmark of LEED Silver and depending on the final results from USGBC's technical review the project may receive a Gold rating. A Contributing factor is the high energy efficiency achieved in the modernization project. "The project is anticipated to have a high energy star rating at 88, which provides 6 points toward our LEED-EB certification," stated Renee Azerbegi of Ambient Energy who led the sustainability effort for the project.

In addition to, and in synergy with LEED-EB, the project implemented



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a comprehensive list of GSA green policies. These policies included items such as a site and building exterior maintenance plan; occupant recycling and recycled office materials; certified wood; and green cleaning to name a few. Significant LEED strategies include water conservation through water efficient landscaping, irrigation and plumbing fixtures; optimized use of alternative materials, optimized energy performance saving a projected 30% in energy use and the purchase of 100% wind power eliminating 3,678,500 pounds of CO<sub>2</sub> in a year.

Daylighting was a key strategy despite the limited amount of glazing on the existing building. New windows were discreetly added on the main level, where the bulk of office space occurs. Most of the building's upper levels are devoted to court rooms. In addition extensive use of interior clerestory glazing along office walls



## Key Sustainable Features

### Sustainable Sites

#### Urban Redevelopment:

- Reuse of the existing building and site. The building is approximately 260,000 GSF.

#### Alternative Transportation:

- Easy access to both bus and light rail transportation lines
- GSA's free bus pass program
- Secure storage and shower facilities provide a bicycle friendly environment

#### Reduced Site Disturbance:

- Site and erosion control policy
- Increased open space with over 50% of area using native or adapted vegetation

#### Reduce Heat Island Effect:

- Underground parking to minimize thermal gradient differences around the site
- New white, high emissivity roof to reduce reflectance.

#### Light Pollution Reduction:

- Low cut off fixtures used to minimize light pollution and light trespass

#### Green Site and Building Exterior Management:

- Management plan for maintaining site and building exterior to reduce impact of local environments
- Natural habitat for urban wildlife
- Use of environmentally friendly pesticides further protects the urban wildlife habitat

### Water Efficiency

#### Water Use Reduction in Irrigation:

- Approximately 50% saving in water usage from plantings and drip irrigation

#### Water Use Reduction in Plumbing Fixtures:

- Plumbing fixtures such as faucet aerators and low flow showerheads were selected which save 20% compared to typical plumbing fixtures. Comparing actual water bills to previous water bills showed a 32% reduction in water usage between the pre-construction and post-construction periods.
- A p-trap primer saves water by eliminating the need to add water to p-traps.

### Energy and Atmosphere

#### Commissioning Measurement and Verification

- The Commissioning Agent, E-Cube, was involved from design development through post-occupancy and also measured and verified savings from systems.

#### Refrigerant Selection

- HFC refrigerants help to reduce the effects of ozone depletion.

#### Optimizing Energy Performance

- The renovation is anticipated to save 30% on energy costs compared to their previous utility bills. The following features were incorporated into the design:
  - Replaced dual duct constant volume system with single duct variable air volume system
  - Direct evaporative cooling to reduce the amount of chilled water and associated peak demand
  - Replaced existing T-12 fluorescent lighting system with T-8 fluorescent lighting with electronic ballasts
  - Occupancy sensors to turn off lights during unoccupied periods
  - Replaced roof with R-30 insulation
  - Demand controlled ventilation to base outdoor air rates on occupancy levels

#### Green Power

- The Courthouse is powered by 100% wind power.

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### Materials and Resources

#### Reuse of Existing Materials:

- The design called for careful precautions to reuse and clean much of the interior materials original to the building such as wood wall paneling, judges' benches and spectator seating in the courtrooms; marble panels and terrazzo floors in the lobby and public corridors; stainless steel and brass elevator doors and frames; painted metal decorative reveals; original plaster reveal details; decorative radiator covers; existing mail chute system; and public art

#### New Materials

- Most of the new wood installed met Forest Stewardship Council guidelines.
- More than half of all materials used on the project had some level of recycled content including mechanical and electrical systems.

### Indoor Environmental Quality

#### Demand Controlled Ventilation

- Demand controlled ventilation control based on carbon dioxide sensors varies the amount of outside air needed per person based on the actual occupancy levels of the building to both save energy and ensure good air quality. This is especially important in rooms such as courtrooms and conference rooms with highly variable occupancy.

#### Increased Daylight

- The typical Formalist building exterior skin has very limited window areas. To increase the amount of natural daylight into the building, exterior windows were added at the east elevation. The lobby addition is entirely glass and includes a skylight in the new roof. Natural daylight reaches deep into interior spaces through the use of borrowed light and clearstory windows in interior walls.

#### Improved Air Quality

- First the asbestos was either removed or encapsulated, the lead paint was removed. During construction, all the ducts were sealed, with a final duct cleaning at the end to make sure debris from ductwork does not get into the air stream. New high efficiency filters on the air handling units were installed just prior to occupancy and the building was flushed with outside air for two weeks to remove all volatile organic compounds. The building HVAC system was designed to meet current codes for ventilation. Entryway grilles help to collect dust from people walking in from the street. Copy rooms and janitor closets are separately exhausted.

#### Environmentally Friendly Cleaning Products

- Additionally, the use of environmentally friendly cleaning products contributes to the ongoing high level of indoor air quality.

### Design Innovations

#### Green Policies:

- Part of the LEED for Existing Buildings process is to identify and implement green policies. Policies were developed for the Byron Rogers Courthouse based on existing and new GSA policies.

#### EcoPass Program:

- Encourage the use of public transportation for building occupants via an incentive program. The courthouse occupants have a free EcoPass program which has been quite successful in encouraging public transportation usage. Based on a survey of 38 employees, 50% of respondents use the EcoPass free transportation program (incidentally 3% walk and 5% carpool) to get to work.

#### Education:

- Educate the general public on the benefits of sustainably designed buildings. Tours and a case study were prepared

#### Low VOC Materials:

- Meet or exceed VOC limits for adhesives, sealants, paints, composite wood products, and carpet systems. Though taken out of LEED-EB as four credits, we kept track of the VOC content of materials and were able to achieve one innovation credit for this.



allows daylight to filter deeper into the building. The law library has been redesigned to align bookshelf aisles with existing windows to maximize the impact of the limited window area.

The building shell and structure were reused in addition to key interior materials in the building's lobbies and courtrooms. This sustainable approach also worked in synergy with another project goal – historic preservation. The courthouse is not yet 50 years old, making it too young to qualify for the National Register of Historic Places. However, it is believed to have historic significance and it is projected that once it meets the 50 year age requirement it will qualify for the National Register. The renovation remained sensitive to historic character of the building in order to not inhibit future consideration on the National Register. The building's interior was riddled with asbestos and lead based paint requiring a significant abatement process. Fortunately materials including the terrazzo floors and marble walls in the lobbies and wood panel walls in the courtrooms were able to be salvaged and reused.

Ironically, the Byron Rogers Courthouse had been scheduled for



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a smaller scale modernization project by another design firm in early 2001 but came to a halt due to historic preservation concerns. The time elapsed before restarting the project is significant as the security requirements for the project changed dramatically after 9/11. The time delay also allowed the project to participate in the LEED-EB Pilot program.

The Champa Street side of the courthouse has very limited standoff distance to the street and a vehicular barrier was required between the street and the building face for security and antiterrorism requirements. This became an opportunity to incorporate another sustainable strategy, which was to make the barrier a stone planter element featuring native and xeric landscaping. It was also an opportunity to incorporate an integrated art and architecture piece by nationally known artist Jim Campbell. The piece includes light cubes within the xeriscape plantings. It also includes an illuminated wall element abstractly simulating the movement of people.

All light elements utilize energy efficient LED lights.

The Byron Rogers Courthouse project shows how LEED and sustainability can work in harmony with a wide variety of client objectives. In this case it included historic preservation, security and antiterrorism, GSA green policies, and an art and architecture program. It also included a GSA First Impression and Design Excellence requirement. The refined and elegant design reinforces the historic elements while giving the interiors a much needed modern and fresh look. The project is certainly a testament to the fact that high performance design can also be high design. In fact, The Byron Rogers Courthouse project garnered both a 2006 AIA Denver Design Honor Award and a 2006 AIA Denver COTE Sustainability Award. “Because we had a very experienced professional project team, the project success was always at the forefront of everyone’s goals,” reflected Chris Lewis, GSA Project Manager for the project.

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# LEED Update



## The Sincerest Form of Flattery: the Emergence of Other Green Building Rating Systems

by Renée Azerbegi, Ambient Energy, Inc. – Solar and Sustainable Design Solutions

They say that imitation is the sincerest form of flattery. Following the tremendous success of the USGBC and the LEED rating system, there are many green building rating systems that have been released recently with similar objectives. Some of these ratings systems started with LEED and made changes and some started with BREEAM (the original green building rating system from the UK) and developed something that still looks relatively similar to LEED.

Barry Lehrman, a LEED AP with Ehrenkrantz Eckstut & Kuhn Architects in Los Angeles prepared a well-written overview of Sustainable Design Rating Systems and allows others to copy it for non-commercial purposes, so let's start with that. I have revised it slightly based on experience with some of these ratings systems, added a few more rating systems, and included their applicability to Colorado.

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Below is a summary of current sustainable design ratings systems in the US Market. These rating systems are distinguished from sustainable design guidelines by incorporating a certification process. The SPiRiT, Green Guide for Health Care, CHPS, and PSD Sustainable Design Guidelines are derivatives of LEED.

The certification systems are:

- **LEED** (Leadership in Energy and Environmental Design) [www.usgbc.org](http://www.usgbc.org)

- **CHPS** (Collaborative High Performance Schools) [www.chps.net](http://www.chps.net)
- **Green Globes** [www.thegbi.org/greenglobes](http://www.thegbi.org/greenglobes)
- **Energy Star** [www.energystar.gov](http://www.energystar.gov)
- **Built Green** [www.builtgreen.org](http://www.builtgreen.org)
- **Cradle to Cradle** [www.mbd.com](http://www.mbd.com)
- **BEES** (Building for Economic and Environmental Performance) <http://www.bfrl.nist.gov/oae/software/bees.html>
- **BREEAM** (BRE's Environmental Assessment Method) [www.breeam.org](http://www.breeam.org)
- **SPiRiT** (Army Corp of Engineers Sustainable Project Rating Tool) <http://www.cecer.army.mil/sustDesign/SPiRiT.cfm>
- **Green Guide for Health Care** ([www.gghc.org](http://www.gghc.org))
- **Poudre School District Sustainable Design Guidelines** ([www.psdschools.org](http://www.psdschools.org))

### GENERAL GREEN BUILDING RATING SYSTEMS

**Green Globes** is a self-certifying rating and was developed by the Green Building Initiative. It is similar to LEED and is implemented on the internet. It addresses some areas in addition to LEED such as acoustics, safety, demand reduction, and integrated design. It also requires a post construction site visit. It is an adaptation of the British Building Research Establishment's Environmental Assessment Method (BREEAM) for the Canadian

market. Green Globes has low market penetration currently but is growing in market share in the US.

**BREEAM** is the oldest certification system and was a precedent for the development of LEED and GBI. Building Research Establishment is the English equivalent of the USGBC - though, I should state the USGBC is the American version of the BRE. The BRE certification process is not easily accessible to US practitioners.

### SPECIFIC BUILDING TYPE GREEN BUILDING RATING SYSTEM

For many credits, the **Green Guide for Health Care** directly incorporates the language of the parallel LEED credit, referencing LEED's New Construction, Existing Buildings and Commercial Interiors products. In some cases, existing LEED credits have been modified to respond to the unique needs and concerns of healthcare facilities. In others, new credits have been added beyond those in current LEED products. The Guide primarily follows the language in LEED-NC v.2.1. The Steering Committee is incorporating appropriate, healthcare relevant LEED-NC v.2.2 and LEED-EB language as it becomes available. In general, the Guide builds on the LEED family of products by addressing the particular structural, usage, and regulatory challenges of healthcare buildings and by emphasizing the environmental and public health issues that comprise an important

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part of what it means for a healthcare institution to address sustainability in their building portfolio.

**SPiRiT** provides guidance to support the consideration of sustainable design and development principles in Army installation planning decisions and infrastructure projects to the fullest extent possible, balanced with funding constraints and customer requirements. It is intended to be used throughout the design process to guide the project towards a sustainable solution as well as to score and rate the resulting facility. The project team or an independent review panel will use SPiRiT to determine the rating level of the project at its conclusion. The U.S. Army Engineer Research and Development Center (ERDC) developed SPiRiT for the Corps of Engineers at ACSIM's request. While several rating tools have been put into practice, most of them do not reflect the reality of military installation planning, design, and construction. After evaluating different rating products, ERDC based SPiRiT on the USGBC's LEED 2.0 rating system.

Although the **Collaborative for High Performance Schools (CHPS)** was developed as a standard for California's public schools, this website contains excellent information for Colorado too. Its Best Practices Manual is a good standard reference for high performance school design and has information directed to school districts and guidelines for designers. It contains information on each building system and provides a variety of detailed

design recommendations centered on resource efficiency, daylighting, and indoor air quality. CHPS was developed in California, specifically for certifying public K-12 schools. Oregon, New York, and Massachusetts have currently adapted variations of CHPS, and several other states are also exploring its implementation. LEED was the basis of most of the credits, with additional emphasis placed on creating a good learning environment with acoustics and resolutions passed by the school district related to the built environment. As a self-certifying system, there are low registration fees, along with extensive support network to entice school districts to use the system. There are no disadvantages with using CHPS except the references specific to California codes do not apply.

**Poudre School District Sustainable Design Guidelines** - Poudre School District is committed to being a responsible steward of our natural resources and believes that public education should provide leadership in developing an ethic of sustainability in all of its practices. In Poudre School District, they have both Energy Conservation and Waste Management policies that espouse these values, making environmental stewardship an integral part of the physical plan operation. The purpose of the Sustainable Design Guidelines is to provide direction for applying these policies to the construction of new facilities and the renovation of existing schools.

**Energy-Star for Commercial Buildings** - The national energy performance rating system in Portfolio Manager benchmarks the energy performance of a wide range of commercial facilities relative to the performance of similar facilities in the United States. To be eligible to receive a rating from EPA's national energy performance rating system, at least 50% of your facility's floor area must be defined by one of the Eligible Space Types listed below, which define the peer group to which your facility will be compared. Based on your space type, geographical location, and level of business activity, Portfolio Manager will assign your facility a national energy performance rating on a scale of 1 to 100. Facilities that meet certain criteria and achieve a rating of 75 or better are eligible to **apply for the ENERGY STAR**. To be eligible to use EPA's national energy performance rating system, which is tailored for specific types of facilities, at least 50% of your facility's floor area must consist of one of the primary space uses listed below. Follow each space link for complete information on its definition and the applicable eligibility requirements:  
[Office \(General\)](#), [Office \(Bank Branch\)](#), [Office \(Courthouse\)](#), [Office \(Financial Center\)](#), [Hospital](#), [Hotel/Motel](#), [K-12 School](#), [Medical Office](#), [Supermarket/Grocery Store](#), [Dormitory/Residence Hall](#), [Refrigerated/Unrefrigerated Warehouse](#).



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### HOMES GREEN BUILDING RATING SYSTEM

**Energy-Star for Homes** is a Federal program promoting energy efficiency and conservation. Appliances and building products can earn Energy Star certification, along with new homes. There are more Energy Star homes than all buildings certified under LEED, Green Globes & CHPS combined. Currently over 1500 homebuilders are enrolled in the program and evaluated for compliance by regional consultants selected by the EPA. Two strengths of the program are that Energy Star Houses are evaluated on regional criteria and the program has reached the widest population. The market for Energy-Star certification is primarily (single family) tract housing. It is common to see projects certified as both Energy-Star and another system. Like the other systems, there are extensive free marketing resources available as the major incentive to encourage enrollment.

**Built Green** Introduced in 1995, Built Green Colorado was created through the joint efforts of the Home Builders Association of Metro Denver (HBA), The Governor's Office of Energy Management and Conservation (OEMC), Xcel Energy, and E-Star Colorado. The largest green building program in the nation, we currently have over 100 builder members across the state, 45 sponsor members, and 8 members of our Built Green Industry Leaders group. The operating budget of the program is generated from

the dues and fees of the builder and sponsor members, and from the substantial financial contributions of the Built Green Industry Leaders. Built Green Industry Leader members are: James Hardie Building Products, Rheem Company, Boise Building Solutions, Trex Decking, Whirlpool Corporation, Kurowski Development Co., and Grace Construction Products. A voluntary program, the purpose of Built Green Colorado is to encourage homebuilders to use technologies, products and practices that will: Provide greater energy efficiency and reduce pollution; Provide healthier indoor air; Reduce water usage; Preserve natural resources; and Improve durability and reduce maintenance.

### GREEN BUILDING MATERIALS

The **BEES** (Building for Environmental and Economic Sustainability) software brings to your fingertips a powerful technique for selecting cost-effective, environmentally-preferable building products. Developed by the NIST (National Institute of Standards and Technology) Building and Fire Research Laboratory with support from the U.S. EPA Environmentally Preferable Purchasing Program, the tool is based on consensus standards and designed to be practical, flexible, and transparent. Version 3.0 of the Windows-based decision support software, aimed at designers, builders, and product manufacturers, includes actual environmental and economic

performance data for nearly 200 building products. In support of the 2002 Farm Security and Rural Investment Act (P.L. 107-171), BEES has been adapted for application to biobased products. BEES measures the environmental performance of building products by using the life-cycle assessment approach specified in the ISO 14040 series of standards. All stages in the life of a product are analyzed: raw material acquisition, manufacture, transportation, installation, use, and recycling and waste management. Economic performance is measured using the ASTM standard life-cycle cost method, which covers the costs of initial investment, replacement, operation, maintenance and repair, and disposal. Environmental and economic performance is combined into an overall performance measure using the ASTM standard for Multi-Attribute Decision Analysis. For the entire BEES analysis, building products are defined and classified according to the ASTM standard classification for building elements known as UNIFORMAT.

### MANUFACTURING PROCESS GREEN RATING SYSTEM

**Cradle-to-Cradle (C2C)** is a proprietary standard administered by William McDonough and Dr. Michael Braungart's consultancy - McDonough Braungart Design Chemistry. It is primarily aimed at manufacturers of products and components. C2C examines the chemistry used in a product for all known or suspected



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toxins and also evaluates end-of-lifecycle issues of re-use/recycling. As part of Bill McDonough's quest to provide industrial and biological nutrients from all products, C2C is the most narrowly focused sustainable design systems. There are currently six products certified: Athletic Polymer Systems, Inc. Tartan® Track, Haworth, Inc. Zody™ Chair; Hycrete Technologies, LLC Hycrete® Concrete Additive; Pendleton® Woolen Mills Classic Wool Flannel; Steelcase, Inc. Think™ Chair; and Victor Innovatex, Inc. Eco Intelligent Polyester®.

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So which rating system to use? Currently, LEED has responded well to the wide variety of projects, with the exception of public schools, where CHPS and the Poudre School District Guidelines specialization augments the LEED credits. That said, individual owners and project teams should incorporate the rating system, or combination of rating systems that best match the needs for the project.

Why is getting a project certified worthwhile for the owner? The USGBC has produced extensive presentations addressing this issue. To summarize, there are financial and ethical incentives. The financial incentives are the most persuasive for selling certification to owners: they receive enhanced marketability, free publicity, access to governmental subsidies and grants, and generally an increased ROI. As architects the firm benefits by providing excellent

service, receive recognition, and positive publicity, enhance a firm's technical skills and quality control, and gain additional fees through the added service. Then there is the ethical dimension associated with the environmental benefits (doing the right thing). This ethic applies to designers and owners alike.

Bill McDonough frequently discusses creating the maximum good - not doing the least harm. As a design practice, firms can easily embrace the maximum good as a win-win situation for owners and the places we make.

Practitioners of green design will want to be familiar with the variety of rating systems available in order to discuss with their clients the advantages and disadvantages of each. Rather than to default solely to the LEED rating system, it is important for sustainable design consultants (not LEED consultants specifically), to be versed in all of these rating systems and to apply the best ideas to your next building project.

**Source: Sustainable Design Rating Systems – an overview** by Barry Lehrman, LEED-AP, Ehrenkrantz Eckstut & Kuhn Architects © Barry Lehrman – 2006 [blehrman@alumni.upenn.edu](mailto:blehrman@alumni.upenn.edu), Los Angeles

# Executive Director Corner



## Growing a Greener Future

by Amy Jiron, USGBC Colorado, Executive Director

USGBC-Co takes pride in what others might call “walking the talk.” For USGBC-Co members and volunteers “walking the talk” is really an innate commitment to environmental and social responsibility. We reduce paper by circulating chapter collateral (newsletters, meeting materials, bulletins, invitations, etc.) digitally, use post-consumer recycled paper and vegetable/water based, non-toxic inks only if necessary, utilize public transportation and/or walkable, bikeable meeting locations, offer organic and locally grown food at events, choose venues that support sustainability as part of their mission and plant trees in thanks to our committed and outstanding chapter members. Our annual chapter party featured the beautiful and transit-accessible outdoor urban landscape of the Boulder Band Shell. We included art made from recycled materials, all-natural food from Colorado’s Western slope, and locally grown musical entertainment. For Greenbuild Denver, we have an entire committee and a dedicated green event planner to ensure the greenest conference. All of these activities just make sense and come naturally considering the Chapter mission and goals.

As Executive Director and because of my own personal beliefs I strive to similarly incorporate sustainability into daily activities and life. In the past (nine) months this idea has taken on entirely new meaning! As many of you know I will be welcoming the next generation of my family onto our great green earth this month. What I’ve found through many, many hours

of research, shopping, reading, asking, explaining and purchasing within the expansive baby product industry is that growing a greener baby is not as easy as you might think. And is in many ways more difficult than planning a green event and seeing a green building through to completion!

U.S. Department of Agriculture (USDA) certification standards per the Organic Foods Production Act (OFPA) of 1990 have made shopping for certified organic foods consumer-friendly much in the same way that LEED has defined “green” for buildings. However, labeling standards have not progressed in the same way. Marketing and labeling of *agricultural products* using the word organic, and only organic, are regulated under the OFPA. USDA standards specify that “organic” must mean at least 95% organic, “made with organic ingredients” must mean at least 70 percent organic ingredients and list up to three of the organic ingredients, and if a product contains less than 70 percent organic ingredients, labels and marketing materials for products cannot display or use the term “organic” other than to identify specific ingredients. Using these labels fraudulently could result in a \$10,000 fine from the USDA. Beyond USDA certification and labeling standards which only apply to the word “organic” and agricultural products, no similar standard exists for products that claim to be nontoxic, all-natural, “free,” biodegradable, fragrance free, sensitive, etc. Further, most non-food products do not even list all contained ingredients.

So, you might ask, how does a new

parent go about ensuring a greener future for the next generation without the infrastructure like USGBC and LEED to inform and support sustainable decisions? Good question! I write this article to give those of you also trying to grow a greener future a head start. Please remember, though, we did our best but you can do much more.

We started with what we knew from being in the green building industry. We designed a green nursery: non-toxic, zero-VOC paint and primer, water-based sealants and adhesives, green and/or homemade natural cleaning products, energy-star rated and water conserving appliances, compact fluorescent lighting, natural ventilation, and daylight. Who wouldn’t want their child learning and growing in the high performance setting of a green nursery! Second, we used organic, non-toxic and/or locally grown or manufactured products whenever and wherever we could. This was tricky! Ensuring that these products really contain or don’t contain what they say required us to be very consumer-savvy. We looked at the labels and read carefully. For example, Wal-Mart sells Parent’s Choice™ baby wipes with “organic cotton and other naturally derived fibers.” On first glance, a busy parent might pick these up believing it a good natural alternative to the standard baby wipe. On second glance, however, the consumer-savvy green parent would see that wipes contain only 15% organic cotton and include 13 other assorted scents, additives and chemicals. In fact, it is almost impossible to find baby wipes without some fragrance



# Executive Director Corner

## Growing a Greener Future

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or additive unless you make your own (which reduces trash, anyway). Also, as we have all experienced in the green building community, suppliers of green products often think that greener choices can command an outrageous premium. We found cute little organic cotton onesies at a local natural foods store for \$27 EACH! Other organic clothiers sell the same for half or less which is comparable to “normal” or non-organic clothes (or layette if you follow the lingo) found at any baby department store.

Finally, in growing a greener future for our child, we found that the simplest choice was often the best choice: less is almost always better and all-natural or non-synthetic materials and food work just as well as the other option! Again, we frequently recognize this strategy in sustainable building design...think natural ventilation through operable windows. We chose cloth diapering for health reasons alone. Disposable diapers are bleached, thus contain dioxin, a known carcinogen (cancer-causing agent) to babies. Plus disposable plastic diapers are not breathable, thus prevent babies' bodies from adequately regulating body temperature and causing the increased risk of future reproductive problems. Now who wants their newborn exposed to that! While most parents still consider disposable diapering the most time-efficient and convenient option, cloth diapering has come a long way. New cloth diapering systems are cute, easy to use, machine washable, healthier for babies and better for the environment (disposable diapering uses 20 times more raw materials, three times more energy, twice

as much water, and generates 60 times more waste than cloth diapering<sup>1</sup>). For toys and other plastic accessories, we had to be very careful in determining the type of plastic, if glass or wood was not an option. Recent scientific research from the University of Rochester and Tufts University links plastics containing phthalates and bisphenol A to problems with reproductive development. These compounds are found in most baby bottles, teething rings, pacifiers, Nalgene bottles(!), etc. As a result, San Francisco and twelve European countries have banned these compounds from plastic baby products and children's toys. Colorado has no such ban, thus we as green parents must use extra consumer-savvy and stay away from #3, 6 and 7 plastics for anything that goes in the mouth for us or our next generation.

As simple as it gets: we will be making our own baby food. This is a control issue. Deciphering the ingredients, preservatives and additives in pre-made baby foods requires one to learn a new chemical vocabulary. We want only the freshest, most basic, appetizing, chemical and pesticide-free foods for our future generation, so we will be mashing up our own carrots and avocados at home. The homemade method reduces manufacturing, transportation, and packaging energy and pollution, plus helps ensure that those important vitamins and minerals are transferred from fruit or veggie to

baby. Luckily we already have organic, vegetables and fruit delivered to our door once per week. Door to Door organics offers delicious, cost-effective delivery service of organic and often locally-grown fruits and vegetables throughout the Denver-metro area, <http://denver.doortodoororganics.com>.

Like building a greener building, growing a greener future takes some effort and education but we feel so much better in making informed choices. And, the rewards and benefits of the additional time and energy far outweigh the work.

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For online product information, Consumer Reports maintains a website which outlines each type of labeling claim and what they really mean, see Eco-Labels, <http://www.eco-labels.org/labelIndex.cfm>. Another Consumer Reports website, “Greener Choices,” lists reviews and articles on various products and green living strategies, <http://www.greenerchoices.org/home.cfm>. The Environmental Working Group keeps a vast database of health information on personal care products including baby care products as part of its “Skin Deep” report, <http://www.ewg.org/reports/skindeep2>.

<sup>1</sup> “A Review of Procter & Gamble’s Environmental Balances for Disposable and Re-usable Nappies”

The Landbank Consultancy Limited, 1991.

# Local Green Building News

## UCB University Memorial Center Obtains LEED-EB Silver Ranking: First LEED Certification for Campus

by Corey Reynolds, Communications Coordinator, CU Environmental Center

The University of Colorado at Boulder University Memorial Center (UMC) has proven to be more than just a place where students relax, dine, and socialize—it is one of the greenest buildings on campus. On June 19, 2006, the University Memorial Center's new addition was awarded LEED Silver certification under the U.S. Green Building Council's Leadership in Energy and Environmental Design certification system for Existing Buildings (LEED-EB). The UMC is the first building on the Boulder campus to receive LEED certification and the second building in Colorado to receive this prestigious honor under the LEED-EB system. A ceremony will be held at the building at noon on Thursday, September 7.

Open since 2002, the University Memorial Center addition included roughly 50,000 square feet of new space and the renovation of another 136,000 square feet of existing area. As directed by students through the University of Colorado Student Union, environmental sustainability was one of the primary design priorities from the onset of the expansion project, initiated before LEED certification existed.

Carlos Garcia, Director of the UMC said, "We're very pleased and honored that the UMC is CU's first LEED certified building. Environmentally sustainable design was a goal of the UMC expansion and renovation project from the beginning. It is wonderful to see this goal recognized with the U.S. Green Building Council's certification. As the center of student life on campus, we're especially proud that our building reflects the 'green' values and environmental concerns of CU students. The UMC expansion and renovation project, completed in 2002, was a pilot for sustainable building on campus. It's rewarding to see the efforts of so many dedicated students and staff pay off through the recognition of the Silver LEED rating."

Through an analysis of system processes and the use of environmentally friendly materials, students and staff at the CU Environmental Center worked in collaboration with UMC staff and RMI to improve maintenance procedures while preserving the safe, comfortable and



University of Colorado's LEED-EB 2 Silver University Memorial Center, image courtesy of Gensler

inviting nature of the building. Rocky Mountain Institute's RMI/ENSAR Built Environment Team assisted with the initial design of the addition and then recently provided assistance to the CU Environmental Center in the LEED certification process. As the first LEED-EB project at CU, the UMC will serve as a model for future campus building renovations as well as an example for other universities seeking to promote sustainability in the remodeling process.

The Memorial Center's key sustainability achievements include:

- An EPA Energy Star score of 91 out of 100 denoting the highest standard of energy efficiency compared to similar buildings;
- Powered by 100 percent renewable wind energy;
- Use of recycled and sustainable materials in the building process, including bamboo flooring and workstations made of 98 percent recycled content;
- An estimated 89% recycling diversion rate;
- Daylighting through strategic window placement and a bright, spacious atrium;
- Extensive use of compact fluorescent light bulbs;

- Access to 18 bus lines connecting students and employees to the greater Boulder/Denver metro area;
- Use of non-toxic, environmentally friendly green cleaning products; and
- Native flora used in the surrounding landscape.

Rocky Mountain Institute's Built Environment Team is one of the world's leading proponents of green development, a fast-growing field in which the pursuit of environmental excellence produces fundamentally better buildings and communities—more comfortable, more efficient, more appealing, and ultimately more profitable. For more on our work, please visit our website at [www.rmi.org](http://www.rmi.org).

Established in 1970, the CU Environmental Center educates, activates, and inspires the campus community to understand and engage in local and global environmental issues. For additional information on the CU Environmental Center, please visit <http://ecenter.colorado.edu>.



# Local Green Building News

## Denver Justice Center Update

by Amy Jiron, USGBC Colorado, Executive Director

While Greenprint Denver was launched just last month, the Denver Justice Center Project has been on a parallel sustainable track since the project's early planning stages. In May of 2005 Denver voters authorized funding to the tune of \$378 million for a new detention center, courthouse, parking garage and jail renovations. With strong support from Denver Mayor Hickenlooper and under the leadership of Project Manager James Mejia, the project team chose to pursue sustainability and LEED certification for the obvious reason, because "it is the right thing to do." And, as a reward for their commitment, they may be one of the first teams in the world to achieve LEED certification for a detention facility.

"We think that an established credential [like LEED] shows our leadership. We weren't sure that if we just did something and said that "this is very green" it would make as much of a difference as with third party verification. We liked what it shows in terms of leadership and we want to encourage others to pursue LEED. We'd like to see the certification from others also..."

Mejia asserts that this project is one of many in a movement to create a critical mass of projects that will help educate more people about the importance of sustainable design. The project team is designing with sustainability in mind by incorporating gray water, green roof and photovoltaic systems. Following in the path of the EPA Region 8 Headquarters and to overcome green roof water rights issues, the project team has already scheduled meetings with Denver Water and the Public Works Department. Mejia believes that a green roof is feasible

with the help of a few smart reasonable people. For additional financing, the project team is considering private sources and the use of Clean Renewable Energy Bonds (CREBs).

The new 311,000 square foot Justice Center Courthouse and 481,000 square foot Justice Center Detention Facility will be located at the former headquarters of the Rocky Mountain News, in vicinity of Colfax Avenue and Delaware Street. After a very high profile design competition where bids were received from Europe and all over the Americas, the City selected what they believe are some of the best designers in the world. Steven Holl Architects and Klipp Design were selected for the Courthouse project. Hartman Cox and Oz Architecture were selected for the Detention Center project. The project will break ground in January or February of 2007 and is scheduled for completion by the end of 2009. The buildings will likely earn basic LEED certification and the project teams are cautiously optimistic about achieving LEED Silver. The project team is "excited about [designing] buildings that function better and look great" in addition to long term operating savings.

### Project Name:

Denver Justice Center Courthouse and Denver Justice Center Detention Facility

### Type:

New Construction

### Location:

The Courthouse will be located on W. 14th Avenue between Fox St. & Gene Amole Way/Elati Street.

The Detention Center will be located on W. 14th Avenue between Delaware Street & Gene Amole Way.

### Scheduled Completion Date:

December 31, 2009

### Size:

Courthouse: 311,000 sq ft.

Detention Center: 481,000 sq ft

### Cost:

Denver voters approved \$378 million in general obligation bonds for a Detention Center, Courthouse, parking garage and jail renovations.

Courthouse construction: \$99 million

Detention Center construction: \$114 million

### Owner:

City of Denver

### Architects:

Courthouse: Steven Holl Architects (NYC) and Klipp Design

Detention Center: Hartman Cox (DC) and Oz Architecture

# Colorado LEED Projects

## Certified Projects

BUILDING	CITY
Sundeck Restaurant (1.0 Bronze)	Aspen
CH2M Hill South Building (V2 Certified)	Englewood
CH2M Hill West Building (V2 Certified)	Englewood
CH2M Hill North Building (V2 Certified)	Englewood
North Boulder Recreation Center (V2 Silver)	Boulder
Boulder Community Hospital (V2 Silver)	Boulder
U.S. Department of Transportation (V2 Silver)	Lakewood
Denver Place (LEED-EB 1.0 Gold)	Denver
Russell T. Tutt Science Center (V2 Certified)	Colorado Springs
Snowmass Golf Clubhouse (V2 Silver)	Aspen
Colorado Springs Utilities Laboratory (V2 Silver)	Colorado Springs
Fossil Ridge High School (V2 Silver)	Fort Collins
University of Denver, College of Law (V2 Gold)	Denver
Belmar 2M3 (V2 Silver)	Lakewood
State of CO Dept. of Labor and Empl. (V2 Cert)	Denver
Boulder Associates, Inc. (LEED-CI V2 Gold)	Boulder
Pikes Peak Regional Development Center (V2 Silver)	Colorado Springs
ProLogis (V2 Cert)	Denver
Univ. of Colorado Memorial Center (LEED-EB V2 Silver)	Boulder
* Classrooms of Guggenheim Hall (LEED-CI 1.0 Silver)	Fort Collins
* Alliance Center (LEED-EB V2 Gold)	Denver
* Porter Industries Building (LEED-EB V2 Gold)	Loveland

\* New!

## Get Involved!

### Run for the Board!

Elections for USGBC Colorado Board

USGBC Colorado is seeking nominations (including self-nominations) for qualified candidates to fill Board vacancies in 2007. Each Board position is a two-year term. Elections for USGBC Colorado Board positions will be held in November and December 2006. Applications/Nominations for the board of USGBC Colorado need to be emailed to Dana Kose at [dana.kose@mortenson.com](mailto:dana.kose@mortenson.com) by September 22nd. Questions can also be emailed to Dana Kose.

Board Seats Open for Elections

- + President (currently filled by Annette Stelmack)
- + Vice-President (currently filled by Lauren Yarmuth)
- + Secretary (currently filled by Shane Fowler)
- + Treasurer (currently filled by Carol Blaha)
- + Communications Committee Chair (currently filled by Tom Hootman)
- + Education Committee Chair (currently filled by Lauren Yarmuth)
- + Director at Large (Currently filled by Michael Haughey)

Download an elections fact sheet and application at <http://chapters.usgbc.org/colorado/News.htm>.

# Membership Update

## Welcome New Colorado Chapter Members!

### July

Bryce Colwell  
 Jeff Weier  
 Mark Peternell  
 Melissa Kyer  
 Tom Bresadola  
 Ryan Stromquist  
 Michael Branigan

## Welcome New Member Organizations!

### July

Fair Pacific Sustainable Materials,  
*Littleton*  
 Regional Transportation District,  
*Denver*  
 Hensley Installation,  
*Golden*  
 Joan Matranga, Consultant,  
*Carbondale*  
 Shell Consulting,  
*Denver*  
 Thira Incorporated,  
*Steamboat Springs*  
 New World Roofing, Inc.,  
*Crested Butte*  
 Prologis,  
*Denver*



## VISION

Promote responsibility for Colorado's environmental legacy.

## MISSION

Advance and promote sustainable planning, design, construction and operation of the built environment through education, improving industry guidelines, policy advocacy, and information and resource sharing.

## BOARD OF DIRECTORS

**Annette Stelmack, President**  
Associates III, Inc.

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Aardex, Inc.

**Carol Blaha**  
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**Lauren Yarmuth**  
DOMANI

**Tom Hootman**  
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**Jay Griffin**  
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**Dana Kose**  
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# 100 Friends of Colorado

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### Certified - \$500

The USGBC Colorado Chapter reaches all segments of the Colorado building community including real estate agents, developers, owners & operators, architects, engineers, general contractors, product suppliers, interior designers, consultants, government officials, educators and students. Our materials go out to thousands!

**Join the 100 Friends of Colorado.** For more information please contact Amy Jiron at (303) 229-9424 or [amy@usgbccolorado.org](mailto:amy@usgbccolorado.org).

**Thank you to these supporters for in-kind donations during July!**

