

COLORADO BUILDING GREEN

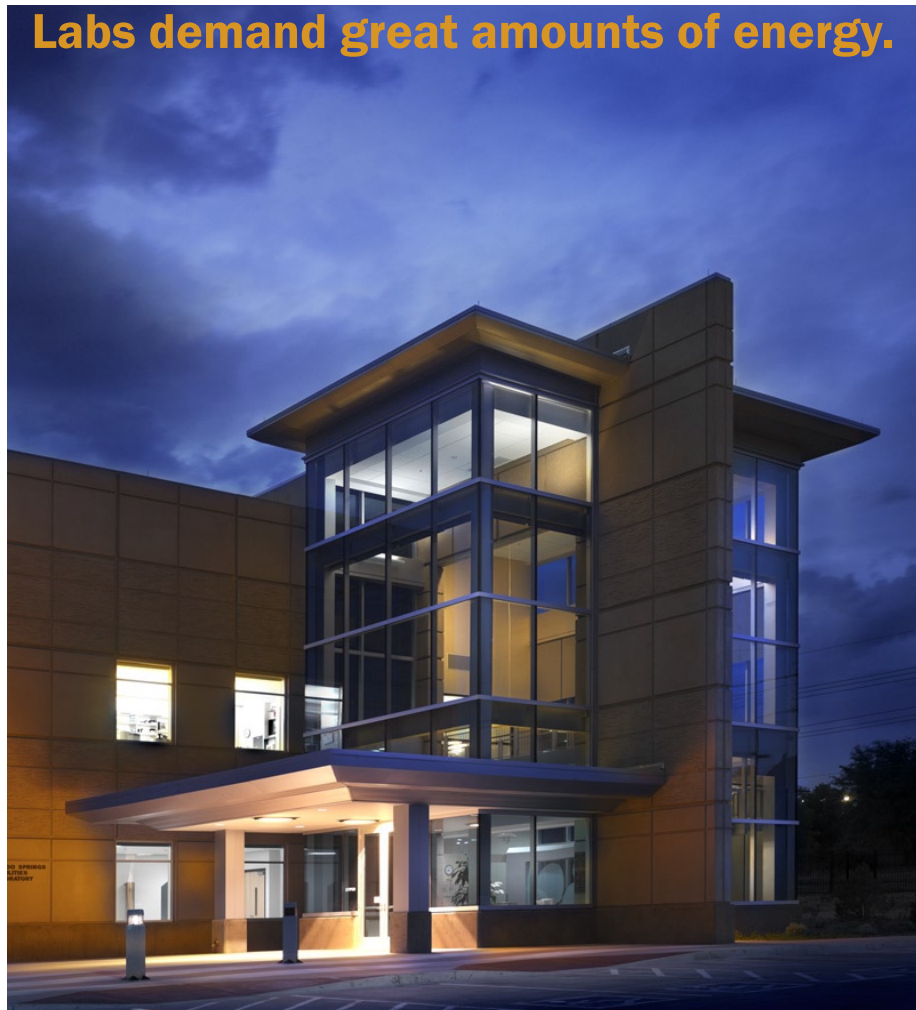
The official newsletter of the U.S. Green Building Council - Colorado Chapter

September 2005

Project Profile

Colorado Springs Utilities Water Testing Laboratory

by Tom Hootman, RNL Design
and Renée Azerbegi, Ambient Energy, Inc.



Labs demand great amounts of energy.

A typical lab can use more than five times the energy of a similar sized office building. When Colorado Springs Utilities committed to building a new water testing laboratory, the design team led by RNL Design, suggested a sustainable approach. The initial response was that a sustainable lab, with all its required process energy and water demands, just did not seem achievable. Of course, the story does not end here. Three years after the first suggestions for sustainable design the building is now complete and has achieved a LEED Silver rating. Colorado Springs Utilities is very proud of their new building, with its beautiful architecture, productive work environments, energy saving and resource conserving design. The new lab building has exceeded the utility company's expectations while helping them to advance their mission of customer service and environmental stewardship.

Sometimes big ideas start as small suggestions. Once the owner realized that the high energy and water demands of a lab were actually an opportunity to save resources, it didn't take long for the owner to come around to the idea of a sustainable lab. In response, the design team met regularly to identify and develop sustainable design approaches for the lab. LEED

Project Profile

Colorado Springs Utilities Water Testing Laboratory

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was adopted as tool for the owner and design team to organize and advance their sustainable goals. However, to deal with the high energy and water usages required in lab environments and the demanding health and safety concerns, the design team had to look beyond the LEED rating system. Fortunately, the EPA and DOE have developed a program called Labs21 to promote sustainability and energy efficiency in labs using a whole building approach.

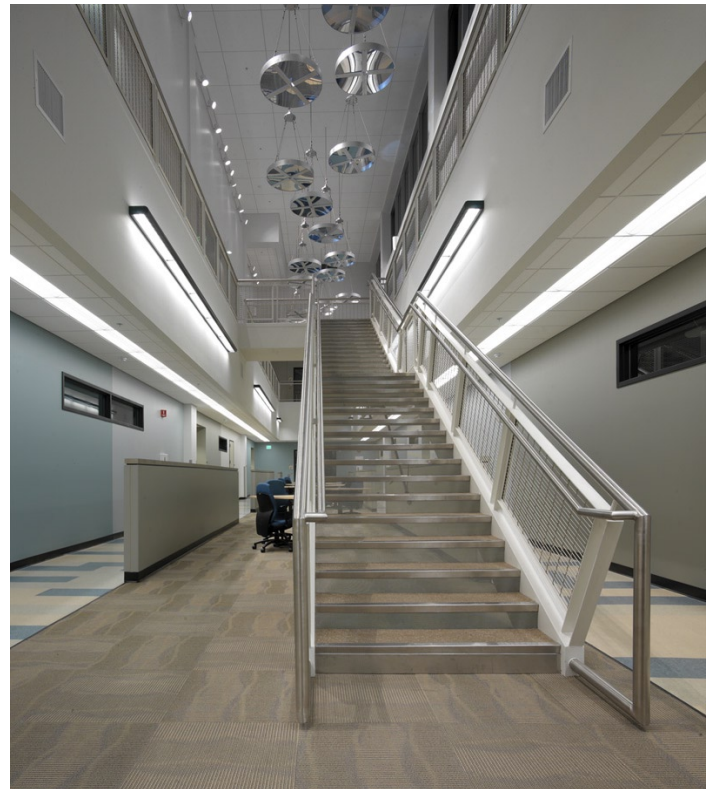
The design team followed the Labs21 Environmental Performance Criteria, which complements the LEED program, before it was incorporated into the LEED program as a LEED Application Guide for Labs. This application guide includes many design guidelines specific for laboratory environments including minimizing process energy and water usage; ensuring proper handling of chemical and hazardous waste; right sizing equipment; commissioning fume hoods; installing alarm systems; modeling air flow; monitoring and metering equipment; and ensuring proper ventilation.

In addition to the challenges of the lab environment, there was tremendous effort to achieve a sustainable design for the entire building following LEED-NC. “Sustainable design goals were analyzed in great detail to achieve a number of benefits”, says RNL associate principal Thomas M. Wuertz. “Daylighting creates healthier work environments, saves energy and also results in wonderful architecture”, Wuertz adds. Daylighting is brought into the interior of the building through a three-story light well.

“Never give up, even when it gets hard... and it will get hard”, reflects Philip Macey, RNL’s director of science and technology. Following through with LEED does require a certain amount of conviction, and sometimes this can wear thin after a

Project Data

Project Name	Colorado Springs Utilities Water Testing Laboratory
Project Type	Laboratory
Project Location	Colorado Springs, Colorado
Construction Completion Date	April 2005
Project Size	48,000 SF
Project Cost	\$11,500,000
Owner	Colorado Springs Utilities
Key Participants	
Prime Architect:	RNL Design
Local Architect:	Colorado Architectural Partnership
General Contractor:	Gerald H. Phipps
Design Consultants:	The RMH Group, Inc. - Mechanical Engineering The RMH Group, Inc. - Electrical Engineering Ambient Energy with RMH Group - Sustainability/Energy Consultants HCDA Engineering - Structural Engineering Obering, Wurth and Associates - Civil Engineering RNL Design - Landscape Architecture Hines Irrigation - Irrigation Consultant



Project Profile

Colorado Springs Utilities Water Testing Laboratory

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long and intense design process. Fortunately, when Gerald H. Phipps, the general contractor, began construction of the project, the firm and its project manager, Mike Hester, whole-heartily embraced the sustainable mission of the project. “Mike’s past experience with LEED and his can-do attitude were essential for completing the project, and it really re-ignited everyone’s commitment”, continues Macey. Due to Hester and the entire design team’s prior LEED experience, and due to frequent LEED specific meetings during the entire design and construction process, the laboratory achieved official LEED Silver certification only one month after building occupancy.

All of the hard work and dedication to sustainable design is paying off in terms of energy savings, worker productivity and the public image of the utility company. “In some respects, our laboratory at Colorado Springs Utilities is similar to many others -- it involves complex systems for handling air, water and energy. What does set us apart from many other labs is that ours was designed, engineered and built with an emphasis on energy and environ-

Sustainable Lab Features

- Closed loop laboratory systems with chiller-recirculators and vacuum pumps to eliminate once through process water usage.
- Functional testing was performed on traditional HVAC systems and lighting systems as well as on lab-specific processes such as the heat recovery system, the phoenix valves, the lab alarms, water detection sensors, lab air compressor, eyewash and emergency showers, lab vacuum, glass washer DCW meter, chlorine detector, oxygen sensor, and DO/DI conductivity sensors.
- Assessed minimum ventilation requirements by reviewing the practices and needs of the laboratory users with the project architect, the laboratory management staff, the HVAC engineer, laboratory equipment suppliers, and members of the health and safety committee for the utility.
- Low-Flow Fume Hoods - High-performance, low-flow hoods requiring 60 FPM instead of the traditional 100 FPM. The use of high-performance fume hoods is another innovation. These hoods use only 60% of the air that a conventional hood uses and protect the user from contaminants as well, or better.
- Heat Recovery - A run-around heat recovery coil to preheat and precool air entering the laboratory AHU.
- Hazardous Material Handling - An information system was already developed to keep track of all chemicals classified as hazardous. Additionally a matrix was created to identify the quantity, hazard, and location of all chemicals.
- Chemical Resource Management - A chemical hygiene plan was developed to eliminate, minimize, and substitute hazardous chemicals. This plan also stipulates chemical receipt, handling, segregation, and storage practices.
- Lab ventilation - The laboratory complies with all of the requirements of the ANSI laboratory building ventilation standard, Z9.5-2003.
- Alarm systems - Alarm systems are tied to the DDC systems. Alarms are provided on the emergency eyewashes and showers, airflow monitor at the fume hoods, oxygen detector in the gas tank storage room, and chlorine detector. Lab technicians can directly activate alarms when necessary.
- Design Innovation - Using the Labs21 EPC document before the US Green Building Council has officially adopted it as an Application Guide for Laboratories.



Project Profile

Colorado Springs Utilities Water Testing Laboratory

Continued

Key Sustainable Features

Sustainable Sites

- Open space area with native vegetation equivalent to 188% of the area of the building footprint.
- Storm Water Treatment – San Filter Extended Detention Basins capable of removing 80% TSS and 48% TP and Porous Landscape Detention capable of removing 85% TSS and 50% TP.

Water Efficiency

- 100% reduction in potable water use for irrigation since non-potable water system provided by Colorado Springs Utilities was utilized.
- High Efficiency Irrigation System using drip irrigation for shrubs and trees instead of spray irrigation and a rain sensor to stop the irrigation system if appropriate amount of precipitation has been captured, and a sophisticated irrigation controller and flow sensor.
- Process and plumbing fixture water usage savings of over 40% with water less urinals, high efficiency glassware washers, and low flow plumbing fixtures.

Energy and Atmosphere

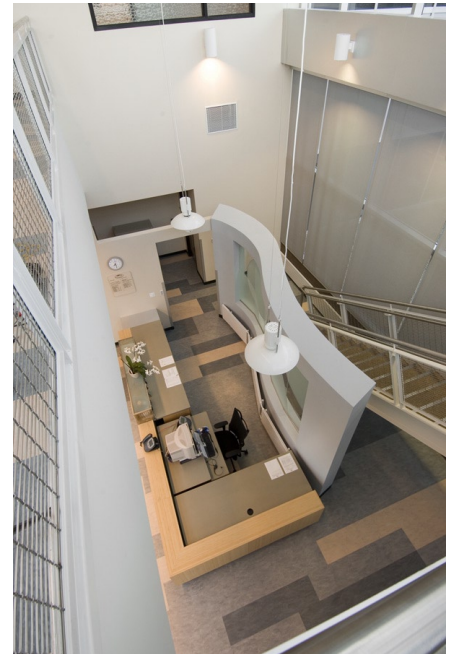
- Energy Efficient Design – First the building was modeled to set up the base case building for comparison. Then different energy features were analyzed to determine optimal systems to include in the design. With an integrated design, the laboratory will reduce its total annual energy usage by 26% and energy costs by 30%. Without including plug loads, which is required in the calculation of LEED credits, the building will save 37% in annual energy costs that equates to 5 out of the 10 possible LEED points for Optimizing Energy Efficiency. The following energy efficient measures were used on this project: Dedicated Air Handling Units; Evaporative Cooling; High Performance Building Envelope; Efficient Heating System; High Efficiency Water Heater System; Variable Air Volume; Daylighting; Efficient Lighting; Premium Efficiency Motors; Low Flow Fume Hoods; and Heat Recovery.

Materials and Resources

- Recycled Content Materials – 27% of materials were selected with recycled content including structural steel, joist and decking, glazing, aluminum, gypsum, tile, acoustical ceiling, asphalt, insulation, fly ash, wheat board, and more.
- Recycled Construction Waste by 58% by recycling wood, metal, concrete, and asphalt. This diverted 1,750 cubic yards of waste from the landfill.
- Local Materials – 40% of materials were manufactured locally and 63% of the 40% were regionally extracted. Local materials include asphalt, planting, rebar concrete, masonry, steel, millwork, and stucco.

Indoor Environmental Quality

- Construction Indoor Air Quality Plan During Construction and Before Occupancy – Met SMACNA IAQ Guideline for Occupied Buildings under construction. Protected materials from moisture damage. Conducted a two week building flush-out prior to occupancy with 100% outside air. MERV 13 filters were used during the flush-out and replaced with MERV 13 filters afterwards. Ductwork was kept wrapped and capped during construction.
- Low VOC Materials - Adhesives, Sealants, Paints, Carpet, Composite Wood. Paint VOCs were an average of 37 grams per liter. All sealants used were less than 50 g/L VOCs. All adhesives less than 130 g/L. Carpet met Carpet and Rug Institute Green Label requirements. Wood does not contain urea-formaldehyde.
- Views for more than 90% of occupants.



mental conservation”, states Mary Veatch, environmental scientist lead at Colorado Springs Utilities, Laboratory Services Section. “We used environmentally-friendly materials, high-efficiency lighting, energy efficient windows, efficient boiler systems, and natural lighting.”

“We expect immediate savings of at least \$50,000 per year in utilities cost and the new facility has helped to create a positive working environment”, Veatch adds. “Employees really enjoy the natural light and appreciate the low flow fume hoods - they are much quieter than conventional hoods. We also benefit from the tempered incoming air, which results in much less thermal variability. All of these things not only save money but add value to the work environment. It’s a win-win situation.”

-The Colorado Springs Utilities Water Testing Laboratory contains office and chemistry laboratory spaces for the continual analysis of chemical and biological factors in water to ensure a safe and high quality drinking water supply for the community.

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Chapter News

Executive Director Challenge Grant

by Annette Stelmack, Associates III, Chapter President

The USGBC Colorado Chapter was awarded a Challenge Grant to hire an Executive Director for our Chapter to help us achieve further market transformation.

As a young, thriving and growing Chapter and membership base, this grant is a tremendous step forward for our chapter development and maturity. A full time Executive Director will increase our visibility and outreach. This will prove to be an enormous benefit to our local, regional and national exposure, particularly with hosting Greenbuild in 2006. This position will assist and support the Board, the Chapter and Colorado to heighten the level of awareness of green buildings and sustainable developments in this region and foster collaboration throughout the states, which will inevitably benefit the chapter, national USGBC and Greenbuild.

Colorado holds enormous potential in the marketplace and the Colorado Chapter is effectively positioned with a strong green building industry, tremendous community growth (in the built environment), large student / university presence, well-built connection to national environment, and incomparable chapter support. There is a constant demand for educational programming and tools for green building applications. There is also extensive interest in and opportunity for collaboration among public and private organizations to push efforts forward. Additionally, with the momentum around Greenbuild 2006 and recent legislative efforts, there is an opportunity to affect market transformation like never before!

Our vision includes hiring a dynamic leader who will support the Chapter and Board by cultivating fundraising opportunities through harnessing the full potential of grants, sponsorships and fundraising throughout the state; by increasing the diversity of our membership while supporting and growing the demand for the diversity of LEED products (i.e. LEED-H, LEED-EB, etc.); by working within the state's political system to develop pro-environmental and pro-LEED legislation; by enhancing and expanding the public presence of our chapter; and by managing day to day business associated with the numerous initiatives and projects.

The Executive Director Selection Committee is posting on open announcement for the position in the chapter newsletter, website and other job-posting sites including non-profit sites. If you know someone qualified and interested in this position, please have them contact the committee. There will be a rolling application deadline to allow us to move forward and/or keep looking as dictated by caliber of applicant pool and schedule. Our goal is to fill the position by November 1st so that our new Executive Director can attend Greenbuild 2005 in Atlanta in preparation for hosting Greenbuild 2006!

Visit our Chapter home page at www.usgbc.org/chapters/colorado for a detailed job description

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Sponsor a Chapter Co-Chair for Greenbuild

SPONSORSHIP OPPORTUNITY!!!
Colorado Chapter Co-Chairs need sponsors to attend Greenbuild 2005 in Atlanta in preparation for Greenbuild 2006.

The USGBC-Colorado Chapter needs your help! This is a great opportunity for your company to be involved with our local chapter in hosting Greenbuild 2006 in Denver. In order to host the most successful Greenbuild possible in Denver next year, the Greenbuild planning committee volunteers are working hard to secure representation at this year's Atlanta Greenbuild 2005 Conference.

Goal:

Send 20+ Greenbuild co-chairs to the 2005 Atlanta Conference. We need your help to meet this goal and encourage your considerate sponsorship to make this possible.

How It Works:

- + Each committee co-chair needs \$1,500 for registration, airfare, and hotel expenses.
- + Sponsorship may be contributed by an employer on behalf of their employee, or directly to the USGBC Colorado chapter for one of the Greenbuild volunteers.

Sponsorship Benefits:

- + Your firm's profile in USGBC Colorado Chapter monthly newsletter, sharing your company's environmental commitment and why you

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Chapter News

Sponsor a Chapter Co-Chair for Greenbuild - Continued

are supporting the chapter's efforts. This is available on a first come first serve basis.

- + Recognition in Green Peaks, our local magazine with targeted distribution of 30,000+ copies prior to and during Greenbuild 2006
- + Logo on a banner at the chapter café and booth in Atlanta, November 2005

Donations may be given in the full amount of \$1,500 or \$500 increments. Deadline for sponsorships has been extended to October 15th.

If you want to help sponsor a dedicated volunteer member of your local chapter, please contact the USGBC-Colorado Chapter fundraising co-chairs or visit the website to complete and send in the sponsor form:

www.usgbc.org/chapters/colorado

Jim Bradburn
Fundraising Chair – Greenbuild 2006
Colorado Committee
The RMH Group, Inc.
jbradburn@rmhgroup.com

Annette Stelmack
Fundraising Co Chair – Greenbuild
2006 Colorado Committee
Associates III
annette@associates3.com

Thank You!

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USGBC Colorado Chapter Board Elections

USGBC Colorado is seeking nominations for qualified candidates to fill Board vacancies in 2006. Each Board position is a two year term. Elections for USGBC Colorado Board positions will be held at the end of November. Nominations for Board members are to be emailed to Shane Fowler at shane.fowler@ardex.com by August 31st.

Board Seats Open for Elections

- Director at Large (Currently filled by Peter D'Antonio)
- Membership Committee Chair (Currently filled by Janet Pogue)
- Events Committee Chair (Currently filled by Elizabeth Vasatka)
- Collaboration Committee Chair (Currently filled by Kristi Ennis)

Criteria for Evaluating the Candidates for the 2006 Board. Given the Chapter's greatly expanding scope of programs and influence in the market, a number of qualifications are particularly important in the 2005 elections. These are criteria to be used in soliciting and evaluating candidates.

1. Is a USGBC Colorado Chapter member in good standing who is actively serving on a chapter committee.
2. Is employed in a pertinent industry.
3. Brings substantive knowledge and experience from the pertinent membership category to help the Chapter design and implement programs relevant to that sector.
4. Brings important knowledge and contributions from one or more areas of special interest to the Chapter: perspectives in the area of developing, delivering, and servicing products in the marketplace pertinent for LEED and other USGBC programs; experience from organizations with successful chapter programs; designing and delivering accreditation and curricula programs; special technical/scientific expertise including product/material life cycle assessments; and leadership in nonprofit governance.
5. Contributes to the Board's diversity in geography, skills, and overall perspective.
6. Brings senior or executive level expertise to contribute to the Chapter's governance.
7. Brings the ability and willingness to influence key players and sectors in the industry including high priority sectors of real estate, corporate, energy/utility, finance, residential and product manufacturers.
8. Is able and willing to recruit new members for the Chapter.
9. Is able and willing to serve on committees as needed including leadership positions.
10. Brings the ability and willingness to help secure funding for the Chapter's programs through sponsorships, corporate and charitable sources, and other significant sources of funding.
11. Will abide by the Chapter's conflict of interest policy.
12. Is able and willing to attend at ten of twelve Board meetings each year in addition to specific committee meetings, the Chapter Retreat at a remote location, and USGBC National Convention at a remote location. (Note that travel expenses may not be reimbursed).
13. The nominating Committee is authorized by the Board to accept or disqualify any and all applications for candidacy at their sole discretion.

For additional requirements and information please download the Fact Sheet on 2005 USGBC Colorado Elections at <http://www.usgbc.org/chapters/colorado/elections.asp>.

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LEED Update



LEED products are like alphabet soup – when do you use which rating system?

by Renée Azerbegi, Ambient Energy, Inc.

NC, CI, EB.....With so many products out there, people are finding it more and more difficult to determine the difference and applicability of each rating system to their particular project. Based on the names it might seem obvious which rating system to use, but there are actually many complexities in the decisions. Let's just focus for this discussion on the three products that have passed their pilot stage, namely LEED for New Construction and Major Renovation (LEED-NC), LEED for Commercial Interiors (LEED-CI) and LEED for Existing Buildings (LEED-EB).

Let's start with the most obvious, a brand new building. I don't think I need to tell you that this type of building would go for LEED-NC.

Ok, now let's try an existing building where the interior is being completely gutted and renovated. You could apply LEED-EB if you want the building to have a sustainable maintenance and management plan for future maintenance, construction, and operation. Or you could apply LEED-NC since it is a major renovation but then you would miss out on long term maintenance programs. LEED does not define "major renovation" so this is subject to interpretation. For example, the Byron G. Rogers U.S. Courthouse downtown has almost completed a major gut and remodel where only the shell has remained. With the approval of the USGBC, this project is pursuing a LEED-EB Silver rating under the LEED-EB pilot program.

Now what if only tenant space is being renovated for an existing building? You could then apply LEED-CI to the renovated area or LEED-EB to the whole building for long term sustainable operations. The Alliance for Sustainable Colorado, for example, which has renovated 95% of its tenant finish space, is registered under

	LEED-NC	LEED-EB	LEED-CI
Total Prerequisites	7	14	6
Certified	26	32	21
Silver	33	40	27
Gold	39	48	32
Platinum	52	64	42
TOTAL Possible	69	83	55

both rating systems in order to pursue the benefits of both systems.

But the fundamental question is, does it really matter? Are you going to be disqualified if you apply for one type of LEED system when it might be more likely to better fit the requirements of another type? And the answer is - probably not. When LEED first came out, there was only one product, LEED-NC, and that product was applied across the board to all types of projects. According to the new LEED-CI reference guide, if more than one rating system applies, and if the project can meet the minimum prerequisites and the minimum number of points required in a given rating system, then USGBC leaves this decision to the discretion of the project team.

So what are the point and prerequisite requirements for these various systems? Table 1 shows the significant differences in total points, prerequisites, and levels of certification. On a percentage basis, the requirements are the same for the percentage of points required to meet Certified, Silver, Gold, and Platinum levels. However, there is a significantly higher number of prerequisites and total number of points for LEED-EB compared to LEED-NC and LEED-CI.

Also, Table 1 shows the allocations of points by percentage in each category. LEED-NC, for example allocates more than 2/3rds of its points to sustainable sites, indoor environmental quality, and

energy, while LEED-EB and LEED-CI focus more on energy, materials, and indoor environmental quality. So the type of rating system you might want to consider for your particular project may depend on what significant environmental category you will be improving.

In the long term, we can expect the USGBC to continue to develop more specific systems: core and shell, homes, neighborhood development... and thus add more letters to each spoonful of alphabet soup. While ambiguous, these choices provide flexibility to the practitioner in meeting the needs of the client. Mmmm..... alphabet soup....my favorite!

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Local Green News

ENSAR Joins Rocky Mountain Institute

by Cory Lowe, Rocky Mountain Institute

ENSAR Addition Bolsters RMI's Green Building Division

Two leaders in resource efficiency and environmentally sustainable building design today announced the consolidation of their practices. On Monday, Rocky Mountain Institute of Snowmass, Colo. and ENSAR Group of Boulder, Colo. announced that ENSAR Group has become a part of RMI's green real estate and development consultancy in a new RMI department, RMI/ENSAR Built Environment.

"The work that RMI does, and the work that ENSAR Group does has been complementary for more than twenty years," said RMI Executive Director Marty Pickett. "Indeed, RMI and ENSAR Group have worked on several green building projects together. Hiring ENSAR Group to become part of our Green Development Services was a logical step in the evolution of the Institute."

Rocky Mountain Institute, led by physicist Amory Lovins, is a 23-year-old independent nonprofit group that fosters the efficient and restorative use of resources to make the world secure, just, prosperous, and life-sustaining. RMI earns most of its revenue through private-sector consulting in three areas: energy and resources, integrative design, and green buildings and real estate development. ENSAR Group, led by Greg E. Franta, FAIA, has for 27 years been a leading consultancy in high-performance buildings, and is one of only five U.S. firms certifying LEED buildings (Leadership in Energy and Environmental Design) under the auspices of the U.S. Green Building Council. Its name is short for "Environmentally Sustainable Architecture."

On August 1, 2005, the entire staff of ENSAR Group joined RMI's green real estate and development consultancy

(formerly called Green Development Services) under its new operating name: RMI/ENSAR Built Environment. RMI/ENSAR Built Environment will be based in Snowmass and Boulder, Colo., under Mr. Franta's leadership.

The purpose of joining forces is to provide a more comprehensive approach to green development, from notions developed at the "think tank" level through on-the-ground implementation, resulting in a larger impact on the building industry than either group has achieved alone. The current services of both organizations will remain intact with a new market development opportunity for more comprehensive services for a broader range of clients.

RMI/ENSAR Built Environment will create, develop, and implement integrated solutions for the building industry that will restore and regenerate natural systems while enhancing life-sustaining built environments. The team will offer businesses, public agencies, communities, and individuals strategies and methods for creating more wealth and employment, protecting and enhancing natural and human capital, and increasing profit and competitive advantage.

"I am truly looking forward to being more effective in creating sustainable developments around the world," said Mr. Franta. "Our joint effort will allow us to provide more comprehensive services in environmental quality and energy efficiency, not only for the building industry, but for communities, businesses, NGOs, and governments."

Mr. Franta, ENSAR Group's principal architect, has pioneered environmentally sustainable architecture around the world since the early 1970s. As an international

consultant to other design professionals and developers, Mr. Franta has led ENSAR Group in providing services on more than 800 energy efficient and environmentally sound projects, including offices, laboratories, educational buildings, health facilities, libraries, homes, and other buildings—many, including RMI's 1984 headquarters, considered among the most energy efficient in the country. He has also assisted in the creation of sustainable communities, from EcoVillage in Virginia to Gaia Village in Brazil.

Mr. Franta has served on the National Board of Directors for the American Institute of Architects and is a cofounder of the AIA Committee on the Environment. He is the chairman of the Sustainable Building Industries Council and very active in the U.S. Green Building Council. He helped to develop the LEED Green Building Rating System, is part of the LEED certification team, and is a national LEED faculty member. From 1977 to 1982, Mr. Franta led the Commercial Buildings Group at the Solar Energy Research Institute (now the National Renewable Energy Laboratory), where he developed new design resources and tools for energy-conscious architects.

ENSAR Group, Inc. was originally founded by Robert Clarke in 1977 under the name of Solar Pathways. Mr. Franta joined Mr. Clarke in 1982 and they changed the name to ENSAR Group. At the time, part of ENSAR Group was focused on the research, development, and commercialization of building products for energy efficiency. Alpen, Inc., a high-performance glass company in Boulder, was created under the auspices of ENSAR Group and Mr. Clarke branched out with Alpen, Inc. Today he remains Alpen's



Local Green News

ENSAR Joins Rocky Mountain Institute

Continued

president and an ENSAR Group board member. Other key ENSAR Group staff members who are joining RMI/ENSAR Built Environment include Victor Olgyay, AIA, Cara Taverna Carmichael, and Ashley Muse.

Mr. Olgyay also has a long history in environmental architecture. He is renowned for his skills in climate-responsive design, daylighting, and energy efficiency. Mr. Olgyay is the coauthor of *Architectural Lighting*, has done extensive research on related topics, and teaches climate-responsive architectural design. Mr. Olgyay is also very active in the U.S. Green Building Council and is a member of the national LEED faculty.

Ms. Carmichael has considerable experience with sustainable design, energy analysis, charrette development, computer modeling, and natural daylighting techniques. She has consulted on a range of projects including daylighting and energy studies for schools, retail and national park facilities, and has developed sustainable design guidelines internationally. Ms. Carmichael has also managed project data for an in-depth laboratory case study evaluated by the Green Building Tool, an international green building rating system, and she is a LEED 2.0 Accredited Professional.

Ms. Muse is an environmental designer and consultant with experience in LEED standards, sustainable design, daylighting, and materials selection. Before joining ENSAR Group, Ms. Muse worked at several Colorado architectural firms participating in design, master planning and historic preservation. She has also worked as an assistant teacher for green building classes at the University of Colorado at Denver's Graduate School of Architecture and Planning where she helped to develop the school's green materials resource guide. Ms. Muse is a LEED 2.0 Accredited Professional, founder and co-chair of the

USGBC Colorado Chapter's Emerging Green Builders' Committee, and a member of the national Emerging Green Builders' Committee. She is also part of the LEED project certification review team for the USGBC.

The new team members join RMI Principal Alexis Karolides in the new consultancy. Ms. Karolides, an architect and LEED-accredited professional, has been a senior consultant and researcher with RMI for seven years, leading the Institute's Green Development Services team's health care and university projects, working with corporate clients, and providing educational seminars and presentations nationally and internationally. Ms. Karolides will also lead the new group's research in biomimicry-innovation inspired by nature (a field synthesized by RMI Trustee Janine Benyus); and in biophilia-the hypothesis, now drawing strong experimental support, that people are healthier, happier, and more productive when in buildings that embrace nature and remind us of the natural habitats in which our species evolved.

RMI, cofounded by Amory Lovins in 1982, has about 50 staff and is noted worldwide for the breakthrough performance-often at lower capital cost-of the buildings, factories, processes, and vehicles it helps to design. RMI is a "think and do tank" that implements its cutting-edge ideas chiefly by helping private firms adopt them for competitive advantage. This "applied research" creates market pressure for emulation, teachable case-studies, and a disciplined approach to implementation grounded in real-world experience.

RMI's Green Development Services, founded in 1991 by Bill Browning, Hon. AIA (now an RMI Senior Fellow), has helped to design several hundred projects worldwide, including the Greening of the White House and of the Pentagon (both in collaboration with ENSAR Group) and the athletes' village for the Sydney Olympics.

RMI also published the standard textbook *Green Development Services: Integrating Ecology and Real Estate* (distributed by the American Institute of Architects and the Urban Land Institute) and a supporting CD-ROM of 200 case-studies. RMI has offices in Snowmass and Boulder, Colo., Kona, Hi., Washington DC, and other locations.

Combining RMI's green development consultancy with ENSAR Group is expected to strengthen the integration among all three of RMI's three practice areas. All of RMI's thought leadership depends on a continuous flow of innovation.

"Having worked closely with Greg and ENSAR Group for three decades, we think they're the best in the world at helping design professionals create high-performance buildings with superior economics and aesthetics," said Mr. Lovins, "Their practice is complementary to RMI's, emphasizing detailed end-to-end design support that turns early-stage conceptual designs (the traditional focus of RMI's buildings work) into finished projects with measured results. Combining forces is a longstanding dream come true for all of us. It will greatly strengthen both organizations and help us advance the state of the art more rapidly."

To contact the new consultancy, call 970-927-3851.

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Local Green News

Greene/Cassidy Home

by Jim Cassidy, NatureNet Homes

All Concrete Passive Solar Home Stores Energy in Walls

Construction is underway in Perry Park, on a passive solar all concrete high performance home designed to get the maximum benefit of state of the art insulated wall technologies.

The Greene/Cassidy Home just north of the Perry Park Golf Course, is sited to make the most of the inclination of the sun, in all seasons. To save even more energy, the building shell is constructed of "Poured in Place" formed concrete walls, and features a complete building envelope of extruded polystyrene insulation sandwiched in between the concrete.

The assembly is held together with structural-grade, non-thermal bridging fibercomposite connectors. This design eliminates thermal short-circuits in the walls, and creates a thermal storage capacity on the inside of the concrete building shell. The homeowners expect to benefit from substantial savings on heating and cooling costs through these strategies, as well as enjoying all of the other benefits of passive solar concrete construction.

"The colored concrete was picked to blend in with the stunning rock outcroppings around the home," explained Jim Cassidy, from NatureNet Homes. "We are fortunate to have this opportunity to showcase the very high efficiencies possible with custom homes built with integrally insulated concrete. Concrete by itself has virtually no R-Value, but it has a great energy storage ability. By placing the insulation to the outside of the inner mass, high performance walls are created. We



also like the fire resistance, durability, quietness, security and all of the other benefits of building with concrete."

The Dow T-Mass® insulation system was installed by Concrete Foundations and Flatwork, Inc. when they erected the concrete wall assemblies. Architect is William Moore of William Moore Architects and Sprocket Design-Build. Structural Engineer is Dennis Finn of DCF Engineering, and the General Contractor is Kimber Janney of Kiva Construction, Inc. Civil Engineers are Dave Archer and Associates. Electrical contractor is Mesa Electric, and utility and site work is by Fischer Enterprises. Windsor Doors and Windows via Home Lumber. Roofing by Independent Roofing Specialists, and the Radiant Floor Heating system by Stroman Plumbing and Heating. Castle Rock Bank and First Executive Mortgage are the lenders.

There will be an Open House, September 22, 2005, from 9am to 3pm, with snacks and beverages provided.

Come and meet the inventor of the T-Mass® system, and Dow systems representatives. See up close, one of the best sustainable "Green" strategies to save energy in residential and commercial construction. For information on the open house and for directions, call Karen Durfee with Dow, (303) 741-2885 or Rick Felton with T-Mass, 303-877-1664. The address is: 6526 Wauconda Dr., Larkspur, CO 80118, and can be viewed on MapQuest.

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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

* New!



Belmar 2M3

Membership Update

Welcome New Colorado Chapter Members!

August

Caleb Rockenbaugh
 Brian Michel
 Ianna Breese
 Christine Frankhauser
 Rhett McNallie
 Josh Ward
 Karen Jacobsen
 Andrew Grover
 Anthony Johnson
 Fred Frantz

Welcome New Member Organizations!

August

Natural Capitalism Solutions,
Eldorado Springs
 Wild Oats Markets, Inc.,
Boulder
 Second Chance Deconstruction,
Fountain
 Tierra Incognita, LLC,
Denver
 F & D International LLC,
Niwot
 Shapins Associates, INC.,
Boulder

Chapter Calendar

USGBC-Colorado Evening Program

October 3, 2005
 How the West was Warmed
www.usgbc.org/chapters/colorado

Contact committee chairs for individual committee meeting schedules.



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

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Get Involved!

Join a Committee

The USGBC Colorado Chapter needs your help to create high-quality educational programs, events and communications to take the Chapter to the next level. We have established a number of committees that meet monthly to provide direction and input to the Board of Directors and help advance the goals of the Chapter. If you are interested in participating, please contact the appropriate committee chair listed below:

Committee	Chair	E-Mail
Collaboration	Kristi Ennis	kennis@boulderassociates.com
Communications	Tom Hootman	tom.hootman@rnl.design.com
Education	Lauren Yarmuth	lyarmuth@domanisc.com
Events	Elizabeth Vasatka	VasatkaE@ci.boulder.co.us
Finance	Carol Blaha	cblaha1219@aol.com
Greenbuild 2006	Michael Haughey	mhaughey@earthlink.net
Membership	Janet Pogue	janet_pogue@gensler.com
Programs	Michael Haughey	mhaughey@earthlink.net

Learn more about Chapter committees by following the "committees" link on our Chapter website at www.usgbc.org/chapters/colorado. If you have additional questions, feel free to contact any of the committee chairs listed above or the President of the Board, Annette Stelmack, at annette@associates3.com.

Sponsors

Your 100% volunteer staff has been working hard and long to see this goal of a local Colorado USGBC chapter. Your donation helps green building move from innovative idea to factual reality. Much more is needed to meet our goal. Support from our members and sponsors will enable us to expand current programming while developing additional funding (including grant) opportunities.

Thank you to these sponsors for in-kind donations during August!



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