

# momentum

Spring/Summer 2009



Vol. 4 No. 1

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2009 is here and what a change from 2008! Our world is in a state of flux. Take a look at the stock market, our economy, the political system, our business, your business. All of us have new challenges to address, both at work and at home.

Larson Engineering turns 30 in this dynamic year. It is interesting to note that we are seeing some of the challenges of our first years in business again in our 30th year. Just as we did then, we are doing now. We attack head on. We adapt. We expand. We shift to meet the needs of our industry and our clients.

Larson Engineering now has Thermal Design services available as well as Energy Modeling. We have expanded and enhanced our Blast Design services. Our increasing numbers of LEED Accredited Professionals continue to stay current with environmental building trends.

Change also comes to our newsletter. Starting with this issue, we have adapted Momentum to bring you information and news from multiple office locations. Momentum is designed to keep our most valuable asset, YOU – our clients, informed about our company and industry. Please visit [www.larsonengr.com](http://www.larsonengr.com) for more information on Larson Engineering. Previous issues of Momentum are also available on our website.

Through the change and challenge, Larson Engineering is here to serve and assist you. The foundation of our business remains rooted in the relationships we build with our clients. We look forward to the success this dynamic year can bring for all.



Kirk Smith, PE  
Scottsdale, AZ

### Cover: Photo by Anthony Schoenecker

A group of volunteers and members of EWB ride into the sun delivering much needed bedding, mosquito nets, dishware, and farm animals to families in need around an AIDS devastated community in rural Kyetume, Uganda - Africa.

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For an electronic copy of this newsletter or to learn more about Larson Engineering, please visit: [www.larsonengr.com](http://www.larsonengr.com).

## Fox Cities Ice Cats

Meghan Meyer  
White Bear Lake, MN

Recently the Fox Cities Ice Cats women's hockey team took the Silver Medal at the 2009 Badger State Winter Games. Rhonda Choudoir from Larson's Appleton office has been a member of the Ice Cats since 1999. The Ice Cats have two more tournaments left this season. Let's wish them luck as they go for the gold!



 The Fox Cities Ice Cats pose with their medals. Rhonda Choudoir does out high fives after the intense tournament.

## Engineer's Day

Kirk Smith, PE  
Scottsdale, AZ

Larson's Scottsdale office attended Engineer's Day at the Arizona Science Center on February 21. Engineer's Day is designed to excite and inspire the interests of children and adults in the field of engineering.

Larson Engineering's theme for the day was

"Engineer's Create Tomorrow  
Be an engineer—  
What can you create?"

Kirk Smith, Dallas Wright and Sri Raghavan had fun engaging the children with educational projects all day. Cristi Thomas, manager of the Arizona office, is one of the primary organizers of the event and has been for the past few years.



 Engineer's Day at the Arizona Science Center was fun for all!

## Canstruction

Melissa Gradecki, LEED AP  
Chicago, IL

Canstruction is a community based, fun charity event. Teams of architects and engineers compete to design and build giant structures out of canned goods. Structures are displayed and open to the public and then donated to the local food bank. Last year over 86,000 cans were used to build 20 "can-structures" and donated in Chicago alone. Since its inception, Canstruction has aided the donation of over ten million pounds of food.


Larson's Naperville office is in the schematic stage of the 2009 Build. We have a lot of great ideas going, but we can't reveal any of them yet. The Chicago exhibit will be open to the public June 12-June 28, 2009 at 350 West Mart Center Drive (Apparel Center). For those not in the Chicago area, Canstruction is held in over 100 cities in the United States. The exhibits are typically free to the public and held throughout the year. For more information about the charity, to view pictures, or to find dates and locations of a local exhibit visit [www.canstruction.org](http://www.canstruction.org).

## Rebuild Together

Melissa Gradecki, LEED AP  
Chicago, IL

Jennifer Traut and Melissa Gradecki of Larson's Chicago office participate yearly in Rebuilding Together - Metro Chicago. Rebuilding Together's mission is to help improve the homes and neighborhoods of elderly, disabled and low-income residents so that they may continue to live in warmth, safety and comfort. Every year a different Chicago neighborhood is selected, and candidates in that neighborhood are interviewed and selected by need. Work begins at 8:00 am at the sponsored homes and doesn't stop until the work is done. This year Rebuilding Day is April 25th. This event also occurs in a number of cities in the US, for more info visit [www.rebuildingtogether.org](http://www.rebuildingtogether.org).



 Larson's 2008 entry, "Hunger It's No Day At The Beach."

## The Kennedy Community

Meghan Meyer  
White Bear Lake, MN

The Kennedy Community School, one of Larson Minnesota's projects, recently received the 2009 Award of Excellence for a Green/Sustainable Project by the Minnesota Construction Association. This building is also Silver LEED certified and was featured on CNN Money.

Located in St. Joseph, Minnesota, the community desired that the school be environmentally responsible. The design is projected to reduce energy by at least 49%, yielding a return within five years. The school makes use of natural light through strategically placed and sized windows to reduce electricity use.



 Kennedy Community School - St. Joseph, MN

# Spring Greening LEED 2009

Melissa Gradecki, LEED AP  
Chicago, IL

## Certification

Spring will be rolling in shortly and the United States Green Building Council (USGBC) has done some spring cleaning of its own, making improvements to the effectiveness and refocusing the objective of its Leadership in Energy and Environmental Design (LEED) program. Some significant changes have been made to the current version of its technical rating system, but the changes relate more to the overall certification than the actual credit content. The main two categories of change are credit weighting and regionalization.

LEED certification is indicatively geared toward improving the environment and reducing negative effects caused by construction, but the restructuring in LEED 2009 will stress the actual impact that individual credits embody. In the current LEED format, points are distributed more evenly throughout all the credits. The USGBC realizes that some credits have a more significant and/or direct impact than others. A complex analysis of the environmental and human benefit of each credit helped determine which credits to weigh more heavily - reallocating credit points to more accurately reflect the potential for positive environmental impacts or to mitigate negative impacts.

In turn this may encourage individuals seeking certification to attain credits with higher points. Credits in the higher weight category are related to energy use, water use, and transportation.

- Water Efficiency Category: Previously accounted for 7% total points; LEED 2009: 10%
- Energy & Atmosphere Category: Previously accounted for 25% total points; LEED 2009: 32%
- Transportation & Development Density (SSc2 & SSc4.1-SSc4.4): Previously accounted for 7% total points; LEED 2009: 16%

Credits related to siting, materials, indoor environmental quality, and waste management will now have less of an impact on overall score. The new thresholds for certification levels are as follows:

- Certified: 40-49 points
- Silver: 50-59 points
- Gold: 60-79 points
- Platinum: 80-110 points

Another change with LEED 2009 is in the Innovation and Design category. Just like in the current version, LEED 2009 will have Innovation and Design points and a point for a LEED Accredited Professional (AP), however for LEED 2009, the

LEED AP is its own credit no longer in the ID category. Up to 5 Innovation in Design points will now be allowed in addition to the 1 point available for having the involvement of a LEED AP on a project.

LEED 2009 also introduces a new point category - the option to achieve 4 Regionalization points. Regional Priority Credits are intended to provide incentive for achievement of credits that address geographic environmental priorities. Regions will be by zip code and then lumped together. Each USGBC Regional Council will identify 6 credits that have specific environmental importance for their region. There will be a database for each region on the USGBC's website. Projects will be eligible for a maximum of 4 points in this category.

Another major change includes a prerequisite in the Water Efficiency Category. The new prerequisite requires a minimum of 20% Water Use Reduction. In the current version there are no prerequisites for this category. The new thresholds for the two points available for Water Use Reduction are now incremental to the prerequisite at 30% and 40%. Other changes include: Energy and Atmosphere credit EAc1 will be updated to ASHRAE 90.1-2007., Low-Emitting Materials IQc4.3 currently applies to carpet systems, in LEED 2009 it will be expanded to include most other types of flooring. Innovation and Design Credit, IDc1, is currently allocated 4 points for innovations or exemplary performance points. LEED 2009 will put a maximum of 3 points allowed for exemplary points, the other(s) are designed to encourage innovation in green building. There will be 2 points allocated to this since the ID category will now have 5 potential points in addition to the LEED AP.

The LEED 2009 Reference Guide is due out this March and LEED online will follow in April. Projects currently in the certification process have the option to upgrade to LEED 2009 during the transition or they can continue under the version the project is currently registered under. This will be in effect until about August, which is when the full turnover will occur and any new projects will then have to register with LEED 2009.

For more information please visit the USGBC's website: [www.usgbc.org](http://www.usgbc.org).



## The Green Money Tree

The current cost of the LEED AP exam is \$300 for USGBC members and \$400 for non-members. Under the LEED 2009 format there are two exams and fees associated with both. The Green Associates (core) exam is \$150/\$200 for USGBC members and non-members respectively. Specialty exam fees for LEED AP+ designation will be in addition to the core exam and will cost \$300/\$450 for members and non-members respectively.

Additional fees will also apply that do not exist under the current LEED version. The LEED 2009 credential system will require an application fee in addition to the registration fee for each of the two exams. The application fees are \$50 for LEED Green Associates and \$100 for LEED AP+s.

To sum it up, application and registration fees will now be \$200/\$250 to become a LEED Green Associate and \$600/\$800 to become a LEED AP+ for members and non-members respectively.

## Accreditation

LEED Accredited Professional (AP) is one of the most popular titles to hold in the building industry at this time. Since the program was launched in 2001, more than 80,000 people have earned the LEED AP credential. The growing trend has evoked some restructuring of the credential systems to keep with the current market, calling for a more dynamic approach. Significant changes have been made effecting exam format, eligibility, difficulty, cost, and continuing education requirements.

The LEED 2009 Reference Guide is available beginning in March and the rush begins to become accredited under what will soon be referred to as a Legacy LEED AP.

The system overhaul immediately affects anyone who may be currently studying for the LEED exam. Applicants have until March 31, 2009 to register under the current LEED exam version and will likely have until June 30, 2009 to actually take the test. The downfall to cramming the test in before the switchover is that if you fail, you will have to wait until the new version is released to retake the test in addition to having to learn all the new LEED 2009 material.

### Exam Format

The first major change is to the exam structure. Currently there is one exam to pass and one title given - LEED AP. The new LEED 2009 will have three different titles to pursue:

- **Tier I - LEED Green Associate:** requires passing only the core exam, available in May. This exam is being commonly referred to as the "Green Associates Exam" and tests an applicant's general knowledge of LEED and green building practices.
- **Tier II - LEED AP+:** requires passing a specialty exam in addition to the core exam. Specialty exams will be available in May, but be sure to check the USGBC's website for specific date releases. Specialty exams will test an applicant on their advanced knowledge of LEED and specialization in one of the following fields:
  - BD&C: Building Design and Construction
  - ID&C: Interior Design and Construction
  - O&M: Operations and Maintenance
  - H: Residential Homes
  - ND: Neighborhood Development
- **Tier III - LEED AP Fellow:** encompasses an "elite class" of leading professionals who are distinguished by their years of experience. There is no additional exam for this credential and the specifics are still being worked out.

### Eligibility: Chicken or the Egg

Before you start deciding which title you are interested in, you will need to verify that you are eligible to test. Currently there are no eligibility requirements. Testing under Tier I requires applicants to be employed in a sustainable field or enrolled in a LEED education program. Tier II pushes this a bit further by requiring applicants prove participation in LEED projects.

### Continuing Education

A Credit Maintenance Program (CMP) will also be introduced with LEED 2009. Green Associates are required a minimum of 15 hours of continuing education (3 being LEED specific) and LEED AP+s are required 30 hours (6 being LEED specific). A Biennial CMP fee of \$50 for both LEED Green Associates and LEED AP+s will also go into effect.

This should not come as a shock to professionals in any field. It is not uncommon for credentials to be required to be maintained. The LEED program changes as the needs of the environment transform and technology advances. Accredited Professionals need to keep their LEED knowledge current and continuing education aids in keeping skills sharp.

### What Does this Mean for Current LEED AP's?

If you are now a LEED AP or pass the current version of the exam, you are considered a Legacy LEED AP. As a Legacy LEED AP, you can choose to do nothing and your title will remain the same, but you will have inactive status. To gain active status, you must opt-in to the new system within two years. This can be done in one of two ways. You can take, and pass, one of the new specialty exams or simply sign the disciplinary policy and agree to the Credit Maintenance Program. The CMP fee described earlier is waived for the first 2 years. You will also get to use the new LEED AP+ designation and be listed in the active registry.

*For more information on LEED 2009 and specialty exam release dates visit the Green Building Certification Institute's website: [www.gbci.org](http://www.gbci.org) or the United States Green Building Council's site: [www.usgbc.org](http://www.usgbc.org).*

*Matt Hogen  
White Bear Lake, MN*

Our plane took off from the Minneapolis-St. Paul International Airport on January 10th at 1:30 p.m. Our group's final destination was Iringa, Tanzania. Every couple of years, our global mission committee at church organizes a trip to visit our "sister" congregation in Kipenzelo, Tanzania. My wife and I knew the list of people that were slated to go and the few "maybes," and we couldn't pass up the opportunity. Some time in April we decided we were going to save vacation time and money to make the trip.

Although on our passports it stated we were in Tanzania for mission, there was nothing done by the group that would be classified as traditional mission work. The group was not there to build anything or to do any teaching. The church sends a yearly stipend for operations and raises funds for the special needs of the church. Our mission was to visit our sister congregation, learn more about them, and identify any needs which they may have. We did just that and brought back a request from the congregation for bicycles for the evangelists. The congregation does not worship on the same day in the same church. The roads are bad and the distances are great. The church has multiple smaller churches for its members that live the farthest distances away. The evangelists travel back and forth on foot from the main village to the outlying village to preach. The bicycles are intended to make travel quicker and more efficient between the villages.

We spent one night away from the city and our mission at Ruaha National Park. Our stay consisted of an afternoon and a morning game drive. It is much like going to the zoo but without the cage to protect you from the animals. It's quite unnerving being parked 10 feet from a pride of lions with no protection.

Before we left, my thoughts of Tanzania were flat grasslands that stretched for miles. This is a land that has topographic and climatic changes great enough to send all predispositions back home. After returning from being immersed in a culture and landscape rich enough to overload the senses, I find myself talking to friends and relatives about a place that must be experienced at least once in their lifetime.

“This is a land that has topographic and climatic changes great enough to send all predispositions back home.”



⤴ *Members of the village throw a welcoming party*  
(Photo courtesy Matt Hogen)



⤴ *Without running water in the homes, water is gathered at wells. These boys are bringing a jug of water to their home 5 miles outside of the village.*  
(Photo courtesy Matt Hogen)

# Hope Integrated Academy

Anthony Schoenecker, LEED AP  
White Bear Lake, MN

*Anthony Schoenecker recently participated in the University of Minnesota's Engineers Without Borders Uganda Implementation at the Hope Integrated Academy, a school with an impending need for potable water and ecological sanitation.*

When I first arrived in Entebbe, Uganda, my preconceived image of Africa was based on pictures, movies, the occasional National Geographic film, and the mother-favored phrase, "Clean your plate; there are starving children in Africa and you are wasting food." Looking back, I had no real foundation to prepare for any of the adventures I was about to experience.

When I remember traveling to Africa now, I think of my first adventure, the morning after my arrival, getting to Hope Integrated Academy where the rest of the project team was waiting. Through my story, I hope that someone can relate, or find a bit that piques their interest in a similar adventure.

The morning after my arrival, I was given a nice meal by a polite and helpful hotel staff member and sent on my way to town on my first boda boda ride; this translates to a 50cc moped converted to a four person open air first class passenger vehicle. The boda boda driver was a little shaky on the road with the weight of my bags filled with clothes and tools, but we made the 15 minute ride and he helped me to find a taxi to the next town, where I transferred to another taxi to meet my ride.

So I packed into a 1980's Toyota van most likely made to seat 7 or 8 people, now crammed with 12, and a man hanging out the side window pointing to the sky. I later learned this is a system to pickup more riders; to my disbelief we did, and added at least 3 more on the way. I won't lie, I was scared; I didn't speak the language, nor did the driver speak mine. I had little idea where we were going and I didn't know how to find the next taxi.

A little anxious of transferring to the next connection, doing at least 60 mph on a one and a half lane road, swerving around people, bicycles, and boda boda drivers, I attempted to ask one of the two drivers how to get to the next town, Masaka. He smiled and turned around; spoke Lugandan to the other passengers, and that was it. Ten minutes passed and a lady in the rear tapped me on the shoulder and asked if I needed help to get to Masaka; what a relief.

Jennifer, as she introduced herself, helped carry a bag and led me through a solid maze of vendors as we made our way to the taxi park. She was just as awesome and friendly as the taxi driver and the hotel staff before. Jennifer helped to coordinate with my pickup by calling the school, and negotiated with the Taxi the cost of my trip to the next town.

The taxi ride was fun; the driver's assistant manning the door of the taxi pointed out things to me and explained them, like the equator and different towns we went through. The landscape was incredibly lush and beautiful, and I was just along for the ride.

We were stopped several times and once almost commandeered by a stranded bus load of people, but our

driver kept us going and got us to Masaka in good time. After being helped once again by another person, my pickup was coordinated and I was dropped off in town. I met my ride and slept the rest of the way to Hope Academy. I was greeted with food and smiles, and everything was alright.

Overall, it was a wonderful experience; amazing people, nice as could be and very appreciative of our work; beautiful landscape, lush, fruitful, and hot. If I learned one thing other than to be thankful for everything, it was that everything always just works out.



⤴ Top: After wresting the last connection of the rainwater harvesting, we realize the mistake of our installation procedures!

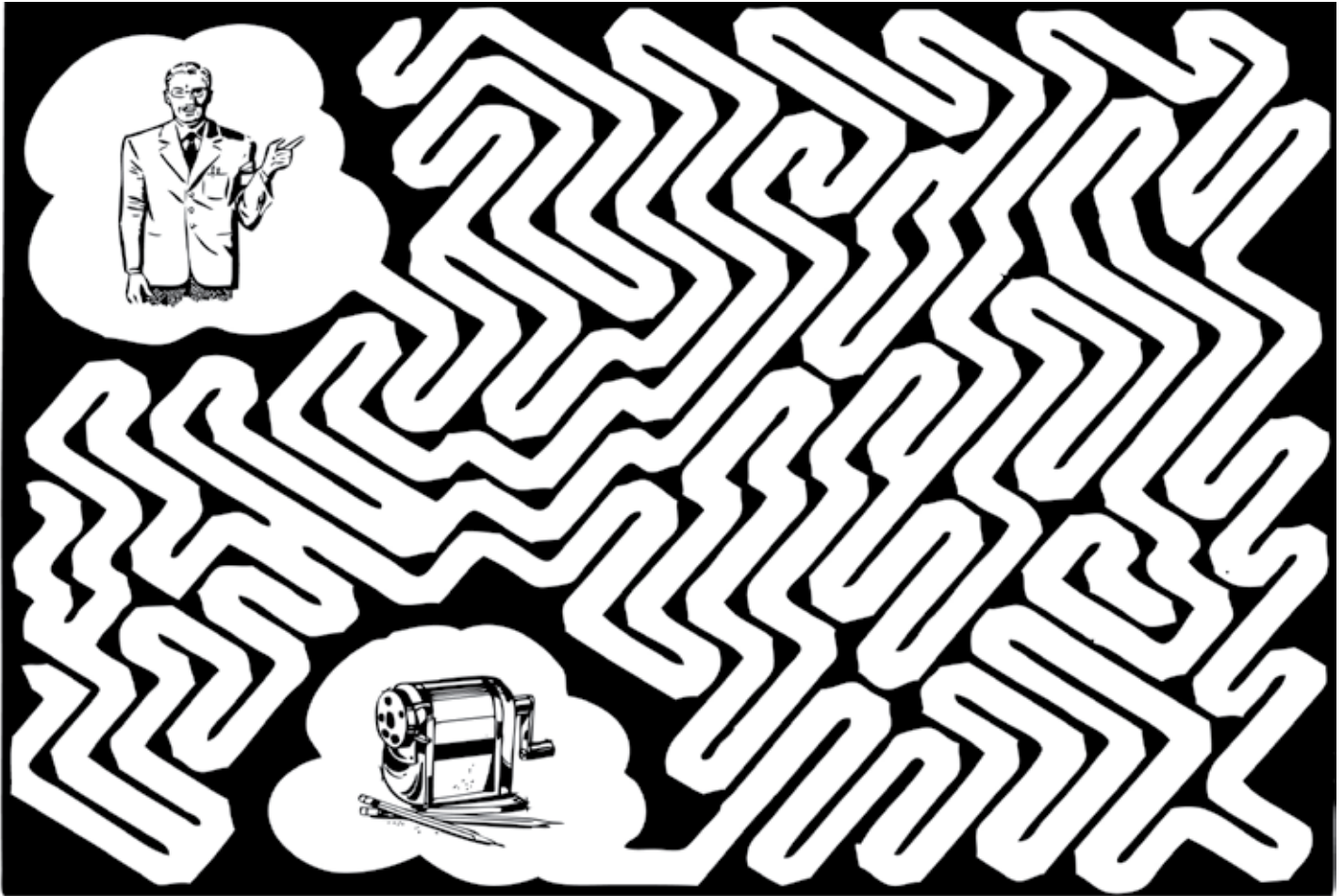
Bottom: It took 7 people nearly 2 days to pour the giant slab of concrete to support 2 water holding tanks as part of a rainwater harvesting installation to provide 96,000 L of drinkable water to the local school.

(Photos courtesy Anthony Schoenecker)

*This article originally appeared in "Uganda Implementation" the University of Minnesota's Engineers Without Borders June 2008 publication.*

*For more information on Engineers Without Borders and their projects please visit: [www.tc.umn.edu/~ewb](http://www.tc.umn.edu/~ewb) or email: [ewb@umn.edu](mailto:ewb@umn.edu).*

Help this engineer stay sharp! Help him find the pencil sharpener.



## Factoids

### *Commercial, institutional, and residential buildings account for approximately:*

- 40% global consumption of raw materials
- 37% primary US consumption
- 68% US electricity consumption
- 12% US potable water consumption
- 136 million tons construction and demolition debris
  - 40% total US solid waste stream
  - 2.5 pounds of solid waste per square foot of construction
- 35% US CO2 emissions
- Businesses lose \$60-400 billion annually due to building related illness
- Average American spends 90% of time indoors

### *Tech Food for Thought:*

- Extra heat generated by computers means more heat in the office, which translates to more use of air conditioning
- Creation of a desktop PC usually requires ten times the PC's weight in fossil fuels and chemicals - most of them toxic
- Fifteen billion batteries are made and sold across the globe every year.
- 130 million cell phones each year go into retirement. Recycling 100 million phones would recover 3.4 metric tons of gold—gold that would not have to be mined
- Each year in the U.S., electronic devices that are turned off, but not unplugged use electricity worth \$3 billion.

### *The Need for Rebuilding Together:*

- 46% of new homeowners have low and moderate income
- The home ownership rate of seniors is 80%
- 92% of retired people prefer to age in place
- Falls are the leading cause of death from injury to people over 65 years of age
- More than 1.45 million elderly households lack some of the basic elements of housing security, such as complete plumbing or a reliable source of heat