



Knowledge for Creating
and Sustaining
the Built Environment



Volume 48, Issue # 5

January 2009

Portland Chapter - The Construction Specifications Institute

COMING IN FEBRUARY

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It's all happening at the Zoo'' February 10, 2009

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Oregon Zoo Bond Measure Funds Future Projects - What does that mean? What projects are they? What sort of products do they use with animals? What are the Zoo's sustainable practices and how will that affect the new construction?

The Oregon Zoo is a wonderful place to take family and friends to see the animals (especially the baby elephant). In November 2008 the voters passed a bond measure at the Oregon Zoo. For our February 10th CSI dinner meeting we will hear from Zoo Director Tony Vecchio about the future at the Zoo and our friends there.

More information to come in the February newsletter.

PRESIDENT'S MESSAGE

By: Russ Pitkin, CSI, AIA



On January 20th of 2009, there will be a new president and new administration that will be facing one of the most challenging economic situations our country has ever faced. The recession we are currently in could be worse, it could actually turn into a depression if the president and his cabinet do not choose the correct course of action to reverse our economic ills.

President Obama has already made history with his election and he with his administration will surely make history during his tenure as president by becoming either one of the most revered presidents or one of the most hated presidents simply by making a few decisions that will seal the economic fate of this great country for many decades to come.

As if this were not daunting enough a task for one man to make, there are plenty of other side challenges facing President Obama and company. The bottom line on each one of these challenges is how our tax dollars will be appropriated to the best advantage of our country, and most assuredly the rest of the world with us.

We too must do our part as constituents to help right this country. I am not talking about footing the bill, because we will surely be paying through the nose for the tab will be steep, but we also need to help the president with his decisions by helping him understand where the money needs to be spent. This is where everyone's voice should be heard. This is what is called "Opportunity" for the construction industry.

President Obama wants to spend a trillion dollars on infrastructure as part of a stimulus package. If we want to help ourselves through these trying economic times, we need to be heard by President Obama and your elected congressional delegates. We should be telling them that one of the best ways to help this country is by investing in the nation's energy inefficient buildings to make them energy efficient through improved building thermal envelopes and by employing proven energy saving technologies.

This is one way to help address our nation's energy dependence and will make a lasting economic difference for the end users. It will help the environment by reducing the need for fossil fuels and help address the economy by stimulating work in the manufacturing sector, and generate increased employment in the building industry.

This is what is phrased, "A Golden Opportunity." It would be unfortunate to let this one slip by us without trying to lobby our government officials to get their help to bring this to fruition.

The Portland Chapter CSI board members voted unanimously to support the efforts of the local Building Enclosure Council (BEC), to help with BEST 2, which will be held in Portland, at the convention center, on April 12-14, 2010. Rob Kistler who represents the Portland Chapter BEC and asked us to help, recently sent me an email regarding participation of the local BEC to write a letter to our congressional representative regarding this "Golden Opportunity."

I thought I should share this with our CSI chapter as it will impact everyone in our industry one way or another. Please read through the attached email and letter from Henry L. Green, President of the National Institute of Building Sciences (NIBS). This should be a call to all in the construction industry to help with sustainability and with the future of our construction industry.

PERKY'S NOTES

By: Perky Kilbourn, CSI



The first note is about a book "A Guinea Pig's History of Biology" by Jim Endersby, published in 2007 by Harvard University Press. This gave a fascinating history on the various microorganisms, insects, fish, mammals and plants which have been used for research. Perky was in the Biology Department at University of Oregon in Eugene with some of the researchers discussed in this book.

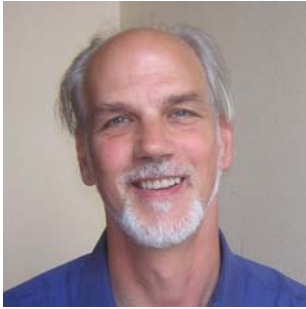
In the May 30th issue of *Science* there was a short statement that the July issue of the *Journal of Archaeological Science* had a report on samples taken from two locations in Israel. The scientist were able to identify microorganisms from archeological (12th and 13th century) samples from a cesspool used by the citizens of Acre and the Hospital of St. John, whose latrines were used by knights, soldiers, and pilgrims. The latrines had traces of two dysentery-causing parasites while the cesspool had none. The report suggests that the locals didn't suffer from the problem while the Crusaders had real difficulties according to the medieval samples.

Next note is on the article "Self-cleaning Materials" by Peter Forbes in the August 2008 issue of *Scientific American*. This is a good review of the history of self-cleaning materials, what scientists are working on now, and what the future may bring. The basic text is fairly straight forward with sidebars containing more detail. Perky likes to read articles from *Scientific American*, especially if it is a topic Perky knows nothing about.

The fourth note is on a special section on "Microbial Ecology" in the May 23, 2008 issue of *Science*. Quoting "This special issue examines some of the challenges in understanding the significance of diversity to the patterns and dynamics of arguably the most important organisms on Earth." One research groups suggests we should be looking for the geographic distribution of traits not microbial species. Teams are using what is known about the environment of each microorganism to identify them. One final thought is that species names and type cultures will continue but the fundamental unit of microbial diversity and what if anything is represented by microbial species has yet to be determined.

Now to conclude with a note on a larger species and another special section. This one is entitled "The Future of Forests" and is in the June 13, 2008 issue of *Science*. Human activities are affecting the world's forests. Climate and forests are connected through physical, chemical and biological processes that affect the carbon cycle, the hydrologic cycle, atmospheric composition and the flow of solar energy and heat through the Earth system. There are Dynamic Global Vegetation Models (DGVMs) which have shown that forest dynamics could dramatically alter the response of the global climate system to increased atmospheric carbon dioxide over the next century. There are different DGVMs and researcher are just getting forest inventory data to figure out which DGVM is correct.

By: Fred Herbold, CSI, CCS



Sustainable Design with Concrete Unit Masonry

Pat Murphy, CSI, CDT, representative for Basalite Concrete Products, LLC presented the sustainable aspects and advantages of concrete unit masonry

(CMU) to the Share Group in December.

Understanding the CMU manufacturing process is key to understanding the “built-in” sustainable qualities of the material. CMU is made from three basic ingredients: cement, aggregates and water, plus admixtures. The dry ingredients are batched and mixed together. Water, just enough to hydrate the cement, is added during mixing. The “stiff” mixture is pressed in a mold. When partially hydrated, the units are unmolded and cured in an autoclave under low pressure steam. This rapidly cures the cement. Final curing and drying takes place at ambient temperature before the units are delivered.

There are several CMU manufacturers in our region. The major ingredient is aggregate. Most manufacturers use local or regional aggregates, so a significant portion of CMU material cost can contribute to USGBC LEED Credit MR 5 for regionally extracted and manufactured products.

A small percentage of both cement and aggregate can be post industrially recycled. Specifiers should check with the manufacturers.

Embodied energy of CMU is relatively low. According to a chart of initial embodied energy of construction materials on the Canadian Architect website, this is how CMU ranks against a few other materials:

Straw Bale	0.24 MJ/kg	31 MJ/m ³
Local Stone	0.79 MJ/kg	2030 MJ/m ³
CMU	0.94 MJ/kg	2350 MJ/m ³
Precast Conc.	2.0 MJ/kg	2780 MJ/m ³
Lumber	2.5 MJ/kg	1380 MJ/m ³
Brick	2.5 MJ/kg	5170 MJ/m ³
Plywood	10.4 MJ/kg	5720 MJ/m ³
Steel	32.0 MJ/kg	251,200 MJ/m ³
Aluminum	227.0 MJ/kg	515,700 MJ/m ³ .

The reference specification for CMU is ASTM C 90 for load-bearing CMU. The standard establishes three weight classifications: Normal (over 125 pcf), Medium (105 to 125 pcf), and Lightweight (less than 105 pcf). We may see the names change in the next edition. One might assume “normal weight” units got their name because no light-weight aggregates are used. Lightweight aggregates are more expensive than normal weight aggregates, so cost is inversely proportional to weight.

Generally, normal weight units will out-perform medium and lightweight units for strength and moisture resistance. However, CMU manufacturers can create medium and lightweight units of higher average-strength (greater than 1900 psi).

There is some disagreement in the industry about the installation cost advantage of medium-weight units. One should verify with local masons that the project could be less expensive by specifying medium-weight CMU where weather-resistance is not critical.

CMU has relatively high mass per volume. It is a dense product and this contributes to CMU’s outstanding durability, sound control, and energy conservation.

The exterior wall system that best takes advantage of CMU’s sustainable characteristics is CMU veneer with insulated rain-screen cavity and reinforced CMU back-up. CMU veneer with a water repellent should be a low maintenance long-life exterior finish. Moisture tolerant thermal insulation, continuous in the cavity, can provide high performance with almost no thermal bridging. Reinforced CMU can provide the interior finish (various options) while stabilizing the interior temperature. The mass of CMU acts as a thermal storage wall to prevent interior temperature swings.

It is interesting to discover that as research into sustainable construction develops and as information about sustainability is available, familiar products and systems float to the top. This seems to be the case with CMU which rates high in life cycle cost analysis and low in environment impact.

For design, construction and details, please refer to National Concrete Masonry Association’s *TEK Manual for Concrete Masonry Design and Construction*. If you don’t have one, contact the Masonry and Ceramic Tile Institute of Oregon 503-224-1940.

CALL FOR PAPERS DEADLINE

JANUARY 15TH CALL FOR PAPERS DEADLINE

A speaker abstract deadline for BEST 2 A “New Design Paradigm for Energy Efficient Buildings,” which is coming to the Portland Convention Center, April 12-14, 2010, is January 15, 2009. This will be the second Building Enclosure Science and Technology (BEST) national educational conference, with the first being held at the Minneapolis Convention Center, June 10-12, 2006. BEST 2 will highlight cutting edge information in building enclosure technology.

The CSI Portland Chapter will assist the local BEC chapter with securing exhibitors and sponsors for this event. For more information on BEST 1 go to the following links:

<http://www.thebestconference.org/best1/program.htm>
<http://www.thebestconference.org>

CERTIFICATION CLASS

By: Michael Madias, CSI, CCS

TIME IS RUNNING OUT - REGISTER TODAY

The holiday season activities are over and now is the time to register for the CSI Certification Exams, get registered now so you can focus on the merriment and madness that will surely follow.

We’re talking professional development here. Completing any of the Certification exams raises confidence and credibility. Invest in yourself and invest in your employees. It’s a smart thing to do.

The Portland Chapter is trying to organize a separate study group for candidates interested in taking the CCCA exam. The Construction Contract Administrator program strengthens knowledge of the construction process and contractual relationships, and by passing this exam candidates will have the ability to administer construction contracts as prescribed by CSI. If you see the benefits of taking this exam, contact mike@beautifulbuildings.com.



*Register now for this year's
CSI Golf Tournament*

August 14th 2009

Lewis River Golf Course

*Please see the Portland Chapter
web site for more information
and to register ONLINE
www.portlandcsi.org*

*You can also contact
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