Meeting Agenda for ACI 130G
Sustainability of Concrete Education/Certification Subcommittee
Tuesday, October 18, 2011
Cincinnati, OH 7:30 AM - 9:00 AM, Room C-261

Mission: To develop educational products and sponsor regular workshops and sessions on sustainability in support of Committee 130 and in coordination with other committees.

Goal: To produce relevant and timely educational products and sessions covering the three pillars of sustainability (environmental, social and economic.)

1) Call to order / Identify meeting 7:35 AM
   a) Self Introductions / Announcements/Housekeeping
   b) Request for Agenda Changes
   c) Review & Approve Meeting Minutes From 2011 Spring, Tampa Meeting

2) ACI Concrete Construction Sustainability Inspector Program, Khaled A. 7:45 AM
   a) Program outline (See Attachment A)
   b) Next Steps

3) Training/Sessions/Events Update 8:05 AM
   a) Understanding the Implications of Green Building Codes and Standards on the Concrete and Masonry Industries, Sunday Oct. 16, from 2pm – 5pm
   b) Promoting the Planning, Design and Construction of Sustainable Infrastructure: The Institute for Sustainable Infrastructure’s envision Sustainability Rating System, Wednesday Oct. 19, from 2pm - 5pm

   2012 Fall,, Toronto
   a) Teaching Sustainability to Current and Future Engineers
   b) Energy Modeling of Concrete and Masonry Buildings
      i) Part 1, Forum Discussion Overview Energy Modeling Programs
      ii) Part 2, User Level Applying Energy Modeling Programs

4) University Outreach Pilot Program based on SCG1 & SCGA, Kevin M. 8:15 AM
   (See Attachment B)

5) Ideas for Other Education Tools 8:35 AM
   a) Tool Box – i.e. checklists and graphics to facilitate training on Green Building.

6) Committee Outreach 8:40 AM
   a) ASCC – Beverly Garnant, Ken Hover & Michael Schneider
   b) Marketing
   c) ACI 236
   d) Other

7) New & Old Business 8:55 AM
   a) Parent Committee/Sister Subcommittee Request
   b) Other

8) Adjournment 9:00 AM
ACI Concrete Construction Sustainability Inspector

Proposed by subcommittee 130G

Definition of subject:
To develop a program that will endorse the competence of Inspectors tasked to oversee the sustainability aspects of concrete construction. This program would help concrete construction inspectors obtain the required knowledge and skills to reduce the environmental footprint of concrete construction.

Perceived need:
The Green Building market size is expected to exceed USD 100 billion by 2013. Most attention in green buildings is focused on reducing the emissions of operating a building because of the long life and thus cumulative impact associated with energy, waste, and other materials used during a building’s 50-100 year lifetime. However, as building operations achieve low carbon and low energy goals, increased attention will focus on the data necessary to reduce the emissions associated with building construction, renovation, and demolition. This is the next frontier for the construction industry, which must to establish new practices and procedures to lower the carbon footprint of construction activities. Accordingly, having trained and certified people to perform the associated tasks will become an industry need.

Reason for ACI involvement:
ACI is a technical Society dedicated to develop and promote knowledge, insight, and influence regarding concrete and its applications. It is recognized worldwide for its technical publications and programs. ACI is also an internationally recognized authority in Certification. ACI Certification has become a globally recognized endorsement for the competence of concrete practitioners. By introducing a certification in inspection of sustainability in concrete construction, ACI would be promoting education in sustainable concrete construction and would assist concrete contractors in highlighting their commitment to sustainability. In addition, ACI 130 Concrete Sustainability will be available soon and will be an excellent reference for a solid Certification program. This program will support ACI strategy in promoting sustainable concrete construction.
Background information:
Greenhouse emissions from construction can be avoided during construction through adequate control of the main construction materials used on site and minimization of construction waste.

The amount of waste that is typically generated when a new building is constructed is estimated to account for between 10% and as much as 30% of the total municipal waste streams. This amounts to more than 1,000,000 tons of waste, per year, in New York City alone. The EPA estimates that up to 85% of construction waste is actually recyclable - a major opportunity to improve the environmental impact of construction. This can involve a net savings in economic terms, reducing the amount of materials needed to purchase and helping to avoid off-site disposal fees. For example, equipment is available that grinds down typical castoffs including wood, brick, block into materials that can then be reused on-site.

Purpose and objectives:
The purpose of the program is to prepare site inspectors to monitor and reduce the environmental footprint of concrete construction.

A sustainability inspector would be able to:

- Quantify the carbon footprint of the construction process
- Identify materials with high negative footprint
- Minimize construction waste
- Maximize the re-use of water on site
- Monitor the environmental footprint of concrete produced and delivered to site
- Minimize concrete waste
- Maximize re-use of water in concrete production and supply
- Reduce noise pollution from site activities (provide fencing, minimize staging, etc...)

Such an inspector would be a key element in projects in the US and around the world seeking Green Certification (LEED or others). This program can also help create additional jobs in concrete construction in the US and globally. Inspectors obtaining this certification would have a strong technical differentiator that would allow them better job opportunities in Green Projects. Moreover, if this program is endorsed by USGBC and other Green societies, it could become a mandatory requirement in Green Projects.
Scope of Program:

Define the boundary for GHG emissions on site
- Define the areas in the supply chain where GHG emissions should be accounted for.

Select products and building components with a low footprint
- For example, was the product manufactured in a facility with highly efficient operations, one that recycles water or makes use of renewable energy?

Work with suppliers to source locally produced materials and reduce transportation distance
- Knowing the number of delivery trips is one baseline metric to use.
- Optimize purchasing to reduce unnecessary materials brought on site.

Work with the general contractor to reduce the carbon footprint on the construction site.
- Track the amount of materials recycled, sent to landfill, or reused
- Track the energy consumption of the construction processes
- Track the use of concrete and other main materials consumed during construction

Profile of individual to be certified:
Construction Inspectors, supervisors, superintendents, engineers.

Area of Expertise to be certified:
Planning, Documentation, record keeping, review of suppliers’ datasheet, calculation of carbon footprint of various materials, understand and carry life cycle analysis of concrete and other materials, quantification and sorting of construction waste, understanding water and wastewater properties, understand ways and practices to minimize waste and maximize re-use or recycling.
University Outreach Pilot Program based on SCG1 & SCGA

ACI has several programs in place to educate design and construction professionals on the use of concrete in sustainable development, and is currently developing a program to engage university students.

Phase 1 - Fall 2011 at Pilot Universities
ACI to partner with a diverse selection of approximately five universities in the U.S. and Canada and offer up to approximately 30 copies each of SCG1 and SCGA for integration into curriculum and distribution to students. In return, each university would be asked to submit a one-page overview of how the books were used, what worked/what didn’t in the classroom, opportunities to improve text for students, student reactions, and additional tools desired from ACI to increase/improve sustainability education. (At present, 260 students at six universities will participate in this program during the Fall 2011 semester.)

Phase 2 - Fall 2012 Outreach
Based on feedback received in reports from six pilot universities, a proposal and Financial Impact Statement will be presented to the Board at ACI Spring 2012 Convention for approval of an on-going program to offer copies of SCG1 and SCGA for integration into curriculum and distribution to students. The free resources could be offered annually to who?...all universities who earn Excellent or Outstanding status in the new ACI Award for University Student Activities for the year prior, or other groups established by ACI. (NOTE: 130G Feedback is Solicited)

Current list of schools participating:
- Arizona State University, CIM 305 Production Course
- California Polytechnic State University, ARCE 444/ARCE 452 Concrete Design
- Rose Hulman Institute of Technology, CE371 Hydraulic Engineering, CE471 Water Resources Engineering course, and CE320 Civil Engineering Material Science
- United States Military Academy at West Point, CE483 Reinforced Concrete Course/Sustainability Lab
- University of Arkansas, Sophomore-Level Structural Materials Course
- University of Missouri-Kansas City, Advanced Materials Course

Project Leader:
Kevin P. Mlutkowski, LEED AP BD+C
Director, Sustainability
American Concrete Institute
248-848-3716