

National Consortium of Housing Research Centers

Consortium Annual Meeting

Executive Committee: January 18, 2016, 9:30 AM to 12:00 PM

Annual Meeting: January 18, 2016, 12:00 PM to 4:00 PM

Attendees	Guests
Isabelina Nahmens, LSU	Sam Yuan, Home Innovation Research Labs
Georg Reichard, Virginia Tech	Jack Hébert, Cold Climate Housing Research Center
Ali Memari, Penn State	Gary Ehrlich, NAHB Construction Technology Research Subcommittee (CTRS)
Rose Grant, State Farm Insurance	Jay Crandell, ARES Consulting
Tom Kenney, Home Innovation Research Labs	Paul Michelsohn, NAHB-CTRS
Ken Bertolini, South Dakota State University	Karen Kassik Michelsohn, M&D Construction
Matt Syal, Michigan State	
George Berghorn, Michigan State	
Neil Opfer, University of Nevada, Las Vegas	
Sam Rashkin, U.S. Department of Energy	
Ben Bigelow, Texas A & M	
Scott Kelting, California Polytechnic State University, San Luis Obispo	

Agenda:

1. Welcome and Update
2. Budget and Membership Overview
3. General Discussion – Executive Conference Call
4. Education
 - a. Joint Committee on Building Science Update
 - b. Update on DOE Race to Zero Student Design
5. Research
 - a. NSF Research Coordination Networks
 - b. Areas of Expertise & Funding Agencies
6. Housing Consortium Member’s Reports
7. Adjourn

Summary of Discussions:

Welcome and Review 2015 Annual Meeting Minutes

- There was a correction noted to the 2015 minutes, page 2 fifth line from the bottom, “He mention that beginning in 2015... will include a few papers (~~2–4~~) (1 of 4) as part of the Special Edition.” (Approved as amended)

Open Discussion

- Paul Michelsohn, NAHB-CTRS noted that Penn State provided a review of a NIST study for the CTRS. This work grew out of the joint meeting the Consortium had with CTRS last year. The CTRS is again requesting assistance and will be contacting the Consortium with specific topics for research on building code related concerns. They noted that there will be ~2000 code change proposals this session (Louisville) and that NAHB intends on opposing 6 to 800 as; unnecessary, lack verification, or on other grounds. In addition to specific requests, CTRS asked if the Universities could “Scour the code for items to research.”

Matt Syal asked for a list of their top ten issues so our members would know where to direct their focus. NAHB CTRS has a limited budget for this work, and is seeking partners to collaborate with on funding. He gave the example of ARA indicating that ASCE “is overly conservative” which led the Metal Building Industry to volunteer \$50,000 for research. Also on the topic of codes, NAHB is trying to talk the ICC into going to a six year code cycle.

Ali Memari noted that we compiled a list of expertise last year. This list should be mapped against the topics CTRS is interested in so as to provide appropriate linkages. Memari also suggested sending CTRS a list of the top three issues each Consortium school is researching.

Sam Rashkin noted that the Building America website contains dynamic content and guides for high performance buildings (on 22 measures). There is also a tab for code-related issues and they have already identified 15 to 20. Georg Reichard noted that academic research typically addresses longer range issues. A discussion of energy issues related to windows, U values and payback periods ensued. Sam Rashkin believes that every time a builder adds innovation to a new home, that house has a leg up on the competition (especially existing homes). Jay Crandell indicated that this research would be beneficial. Additionally, discussed was the difficulty in projecting energy costs/prices into the future, and metrics on measuring affordability.

ACTION ITEM: Gary Ehrlich is to send Isabelina Nahmens a list of code issues identified by CTRS as potential research projects for Consortium members.

Budget Report

- Tom Kenney distributed copies of the annual Treasurer’s report. He noted that the Budget Plan for 2016 includes 10 full members and 6 affiliate members totaling \$4,100. Combined with the balance forward from 2015 of \$3,640 it gives the Consortium \$7,740. The expected expenses are \$2,200 which leave a balance of \$5,540. There were a number of unpaid memberships noted, and questions regarding billing, note – the balance forward does not include unpaid membership fees of \$2,700. A motion was made and seconded to accept the Treasures report, it passed unanimously.

Executive Meeting Review

Publications and Education sub-committees are successful because we have strong leaders. Ali Memari noted that we have a list of activities / opportunities but need champions to lead the efforts. They are:

- The Special Section on Housing and Residential Building Construction within the Journal of Architectural Engineering (JAE). Three editions have been published containing Special Section thus far and have been well received.
- Conference Series at Penn State (a mix of manufacturers and universities)
- CityScape, a HUD publication, is published 4 times per year. Isa Nahmens is working to collect papers for the journal.
- Consortium members are being asked to organizing a session at whatever conferences they normally attend. This would help publicize the Consortium and the research we do, and perhaps attract new members.

Research

The National Science Foundation's (NSF) Research Collaboration Network (RCN) provides funding "to advance a field or create new directions in research or education by supporting groups of investigators to communicate and coordinate their research, training and educational activities across disciplinary, organizational, geographic and international boundaries." Grants could provide funding to "share information and ideas, coordinate ongoing or planned research activities, foster synthesis and new collaborations, develop community standards, and in other ways advance science and education through communication and sharing of ideas." Ideas for creating a new network included: Building Enclosure Science Network, Smart Home Building, or a Lifecycle/Sustainable Building Network. RCN awards do not support primary research. Info at: https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=11691&org=NSF&sel_org=NSF&from=fund

A general discussion followed. Isa Nahmens asked for volunteers for conference presentations. Ali Memari mentioned a section on Residential Construction at the American Society for Civil Engineers' Architectural Engineering Institute annual conference/forum. Isa indicated that IIE (Institute of Industrial Engineering) annual conference may also be a possibility. Matt Syal asked if we had tried recently for a session at the IBS. Gary Ehrlich noted that if we did so it should be something practical on resilience for the builders (but not the Insurance Institute for Business and Home Safety's Fortified program). Another potential topic would be economics.

ACTION ITEM: Scott Kelting and Gray Ehrlich will work together to propose a Consortium led session for the 2017 IBS.

Rose Grant suggested that members consider posting when they are heading to specific conferences. This would enable other Consortium members to meet with them. It would increase our contact throughout the year, provide networking opportunities, assist in the support of the research of fellow members (especially when attending a member's presentation) and help to further solidify the organization.

Education

Georg Reichard provided an update on Building Science Education activities. He is now the co-chair of the Joint Committee on Building Science Education. He noted that findings indicate Building Science education to be very fragmented. Current efforts include capturing the current state, where building science is being taught, what is being taught, and who is doing so. There was a Building Science Education workshop at the NIBS Building Innovation Conference last week (January 11- 15, 2016). There are a number of diverse participants in the field, with 60 or more people at a time participating on teleconferences. The Joint Committee will move to a WebEx format in 2016.

Sam Rashkin updated the group on the Building Science Education Guidelines D.O.E worked to create. There were 31 workforce classifications identified that were mapped to four major topic areas to create a framework. The framework should assist in ensuring that the correct information is being taught at the appropriate level. The guidelines are flexible and they are awaiting feedback on how well they are working. D.O.E. has created a repository of materials that can be shared (PowerPoints, curricula, etc.) that will provide a baseline for the trades, appraisers, universities and others. It is due to go live online this spring (~ March 2016).

Sam then provided an update on the Race to Zero project. This is the third year of the competition. There are 34 teams from 27 universities, resulting in more than 300 students engaged in the program. It is anticipated that there may be as many as 40 teams competing next year. The students receive a number of benefits including free Building Science training from top experts, free modeling software, training on hydrothermal design principles, experience presenting to expert jurors, and career connection opportunities. Four winners present their project to the entire group of attendees. The jury selects one of the four as the grand winner. An important aspect of the competition is the collaborative nature of the work as it involves architects, engineers, landscape design, construction management, and more. This year's competition will be held April 16th and 17th. In March the announcement of the 2017 competition will be sent to academic institutions to solicit participation.

ACTION ITEM: Sam Rashkin will draft a letter that the Consortium can provide with relevant details of the upcoming events and deadlines.

The Consortium web site was the next item discussed. There were questions regarding purpose (communications portal, report repository, calendar, or???). Georg asked if we could post more often, perhaps brief reports by members to make it fresh. The group expressed a desire to be more involved in the hosting and management of the site. Some suggested that the members edit their own pages and post new information as it becomes available. Posting more than once a year (annual reports) was thought to be beneficial and could drive more traffic to the site. A concern appears to be one of site management and policing to ensure that inappropriate materials, or items that appear to endorse specific products, are not posted to the site. The historical context on why the Consortium has a website involves the mandatory annual reports. In the distant past the reports were collected and published as a hard copy document. Copies were made available to Consortium members to distribute (within their institution, their state, and to federal agencies) in order to provide information on research expertise and focus. This practice was discontinued when the website was created. Georg noted that we need to be able

to track the number of people accessing the site. Jack Hebert of the Cold Climate Housing Research Center noted that their site has received a half million hits. The current Consortium site is very much out of date with possibly no updates since 2011. In order to create a new site, it may be necessary to have annual reports from the past five years resent and reposted. An attempt will be made to retain the web address.

ACTION ITEM: Georg Reichard will set up a WebEx meeting to talk about a pilot with a new format.

Member Reports

Electronic versions of member reports are pending and need to be submitted. Highlights of member reports presented at the meeting are as follows:

- Louisiana State University (Isabelina Nahmens) – new research on decision making on estimation for long term projects, especially material price volatility issues and modeling of how prices may vary over time. Exploration of contract language that may help improve how the issue is address.
- Penn State (Ali Memari) – research includes learnings from the Solar Decathlon homes (review of 2002-2013 projects), moisture management in residential structures (roofs, accidental, windows, plumbing), and an evaluation of wall insulation retrofitting options. Penn State purchased a furnace to test connections under fire loads.
- Home Innovation Research Labs (HIRL) (Tom Kenney) – the lab is now being operated as a for profit enterprise. They have just completed the National Green Building Standard. They will no longer be involved in the student competition. They completed research for D.O.E on the use of exterior foam (simplifies framing) and will submit code change proposals to the International Residential Code (IRC) next year. HIRL published four documents, one on retrofits to existing buildings another one was a code change cost comparison (from 2009 to 2012).
- Texas A & M (Ben Bigelow) – Texas A &M is a HELP Grant recipient. Research conducted included an evaluation of energy consumption which compared home of different ages (from the 1990's forward) utilizing utility metering data and a design/build project of two "tiny" homes.
- Virginia Tech (Georg Reichard) – [Andrew McCoy typically submits the report but was unable to attend.] Research has included risk management, low income housing, resilience, high performance building technologies, and phase change materials. Their curriculum now includes Building Science Performance. Students will be participating in Race to Zero.
- University of Nevada, Las Vegas (Neil Opfer) – UNLV has a strong connection to Pulte Homes and is exploring an extremely energy efficient home design AKA Zero energy home in southern Nevada. This "cocoon house" is a slab –on-grade with insulated walls with an enclosed attic (attic is part of the conditioned space) which is expected to lower HVAC loads. The university is also researching sealing streets to extend their life-span. They have been chosen to compete in the 2017 Solar Decathlon and are in the process of fund raising. Additional research involves the use of drones to inspect clay tile roofs (for builders and home inspectors).

- South Dakota State University (Ken Bertolini) – SDSU is a HELP Grant recipient. They are using HELP grant funding to provide certification training and have met with builders in Minnesota (they are currently experiencing a period of limited employment opportunities in SD) as well as some big builders in Colorado. They are also working with their governor on the design of a passive house.
- Michigan State (Matt Syal) – Michigan State is engaged in deconstruction research (in Detroit). Their students will be participating in both the Race to Zero and the NAHB student competitions. The university utilizes Consortium member reports to show their administration the value of the work they are doing as well as what more they could be accomplishing.
- State Farm Insurance (Rose Grant) – State Farm continued research on long term durability of roofing products as well as secondary roofing barriers (which resist rain water entry). They engaged in the evaluation water supply line freeze vulnerability. State Farm also conducted research on hurricane damage (various storms from 2008 and 2012). Student interns from the University of Illinois, the University of Florida, and the State University of New York at Buffalo assisted.
- Guest Report: The Cold Climate Housing Research Center (Jack Hébert) – Their 25,000 sq. ft. research facility will soon be off of fossil fuels (for heating) as they have added a significant amount of thermal storage (significant since they are located in Fairbanks, Alaska). They have been working with FEMA on disaster resiliency and have been active in relocating at risk coastal communities. They will host the 4th Sustainable Northern Shelter Forum on 11-13 March 2016, in Fairbanks.

Next Steps:

Quarterly conference calls will be conducted. Isa Nahmens will determine dates and provide them to the members. The next annual meeting will be held in Orlando, in conjunction with the 2017 International Builders Show (01/10-12).

The meeting adjourned around 5:00 p.m.

Action Items:

- Gary Ehrlich is to send Isabelina Nahmens a list of code issues identified by CTRS as potential research projects for Consortium members.
- Scott Kelting and Gray Ehrlich will work together to propose a Consortium led session for the 2017 International Builders Show.
- Sam Rashkin will draft a letter that the Consortium can provide with relevant details of the upcoming events and deadlines.
- Georg Reichard will set up a WebEx meeting to talk about a pilot with a new format.