

NAHB Research Center, Inc.
2008 Annual Report

December 2008

A. Overview/Summary

The NAHB Research Center, located about 25 miles from Washington, DC, in Upper Marlboro, Md., was established in 1964 as a separately incorporated, wholly-owned subsidiary of the National Association of Home Builders (NAHB). The 235,000 individual members of the NAHB and the 800 state and local home builder associations are involved in the construction of over 80% of U.S. homes. The Research Center's staff includes engineers, economists, architects, planners, market demographers, and other professionals in related disciplines. The Research Center provides product commercialization consulting services to a wide variety of housing industry stakeholders, provides third-party quality assurance verification and testing services to building product manufacturers, builders, and trade contractors, and conducts a wide range of dissemination and training activities for builders, remodelers, and other housing industry service purveyors. Our research is sponsored by NAHB, public agencies, and private-sector clients.

Mission Statement: The NAHB Research Center's mission is to promote innovation in housing technology to improve the quality, durability, affordability, and environmental performance of homes and home building products.

B. Activities of 2008

- **NAHB's Green Building Program:** We continue awaiting the internal ANSI process to approve the National Green Building Guidelines Standard (NGBS). The technical work has been complete since May of 2008, and the consensus committee has completed its work. When ANSI renders a determination, we will move forward to incorporate the NGBS as a part of national certification. Both the guidelines and the NGBS will be options for green certification during the near-term future.
 - Initiated national green home certification program for NAHB
 - Developed and implemented comprehensive green building website (www.nahbgreen.org) as industry reference
 - Developed and implemented green home on-line scoring tool as a part of nahbgreen.org to evaluate green designs against the national certification program criteria
 - Trained and qualified 300 accredited verifiers in 43 states to serve as third-party inspectors of green certifications
- **Disaster Relief Housing Alternatives:** The U.S. Department of Housing and Urban Development has commissioned the NAHB Research Center to conduct extensive research and provide recommendations on effective post-disaster housing alternatives in areas affected by Hurricane Katrina.
- **U.S. Environmental Protection Agency:** A report on radon-resistant construction practices used by home builders in the United States during the 2007 calendar year and to uncover the motivators and obstacles for home builders using radon-reducing construction practices.
- **OSHA-Susan Harwood Scaffolding Safety Training:** A training course for approximately 1,350 English and Spanish-speaking workers to recognize and prevent falls from scaffolds and ladders in the residential construction industry.
- **Best Practice Videos (FPL & NAHB):** Development of "instructional" videos that focus on defining "best practices" that minimize the moisture related performance issues in the design and

construction of wood-framed wall systems. Four topics explored: (1) An Overview of the Building Enclosure, (2) Drainage and Drying Methods for Wall Systems, (3) Weather Resistant Barriers, Air Barriers, & Insulation, and (4) Flashing Techniques & Methods

- **ASHRAE:** Development of an economic database of installed cost data for combinations or variations of construction.
- **Technical Assistance to the Steel Framing Alliance:** A multi-year project to provide technical assistance for rebuilding in the Gulf Coast for the Steel Framing Alliance developed a range of educational pieces designed to support builders seeking to use steel framing. Specific pieces developed this year were *MEP Trades Guide to Steel Framing* and *Steel and the Environment*, a sustainable look at how framing with steel measures up in green building programs.
 - Follow up: Specific pieces developed this year were *A Builder's Guide to Steel Frame Construction* (http://www.steel framing.org/PDF/SFA_Framing_Guide_final%20.pdf) and *Inspector's Guide to Steel Frame Construction* not yet posted.
- **Third-Party Product Certifications:** The Research Center continues to provide third-party product certifications for OSB, plumbing fixtures, and insulation materials. It also offers quality management system certification for builders and trade contractors as part of our NHQ program.
 - *Wind Pressure Testing of Wall Assemblies with Foam Sheathing And Vinyl Siding Products:*
 - <http://www.foamsheathing.org/images/icc/0801%20FSC%20Final%20Report%20Negative%20Pressure%20Tests%20Report%204107003013108.pdf>
 - <http://www.foamsheathing.org/images/icc/0807%20FSC%20Final%20Report%20Positive%20Pressure%20Tests%20Report%204108007062508.pdf>
- **Home Builders Online Research Panel (Internet Builder Panel):**
 - Currently consists of about 6,650 members
 - 4,648 active participants who've participated in a survey within the last three years
 - Each survey generally receives more than 300 responses within a very short time, generally just a few days
 - If Client requires more responses, we have the option of leaving the survey open and available longer and sending reminder emails to increase responses
 - Benefit of this forum allows Client(s) to pose individual and unique questions to form a baseline analysis from responses received
 - So far in 2008, members were invited to participate in 9 surveys
- **DOE Building America Program:** A research and development program for the enhancement of energy performance of new and existing homes. Its ultimate goal is to make net-Zero Energy Homes available for the US market by 2025.
 - Provided engineering support for builders throughout the U.S. in designing and constructing energy-efficient, high-performance homes to specified BA levels
 - Monitoring energy efficient houses built by BA builder partners to verify the energy efficiency performance in multiple climates
 - Evaluating the effects of thermal-mass block houses on controlling HVAC equipment in Tucson, AZ
 - Developing quality management tools, specifically scopes of work, for builders and trades for constructing high-performance homes
 - Aligning the DOE's Builders Challenge Quality Criteria with the National Green Building Standard in preparation of multiple certifications
 - Assist Building America in outlining a multiyear plan on quality management and quality assurance in high performance homes
 - Identify code barriers to constructing energy efficient homes and propose solutions

- **Evaluation of Stakeholder Response to Builder Challenge Performance Goals, Performance Benefits and Communication Materials:** Support of the DOE Builders Challenge initiative with a focus on qualitative aspects of the benefits stemming from Builder Challenge activities.
 - evaluate stakeholder response to the benefits of energy efficient homes that meet Builder Challenge performance goals
 - evaluate stakeholder response regarding the effectiveness of Builder Challenge communication materials
 - gauge the familiarity of the both builder and consumer participants with energy efficiency programs, including Building America,

C. Sample Continuing Activities

- **New Product Development and Commercialization Tools:** This study continues with the development of a fourth Tool: The Financing Guide during summer 2008 <<http://www.housing-commercialization-tools.org/>>
- **FEMA/AHPP Building Science Evaluation:** Identifies and documents the planning factors necessary to employ one or more of these housing approaches in the future. Such an evaluation will help inform the decision process if the need exists for such housing. Also identifies opportunities for improvement in either the products or processes used to produce AHPP units.
- **Housing Award Programs:** Continued to administer two national awards programs—the EnergyValue Housing Award and the National Housing Quality Award.
- **Builders' Expectations for Manufacturers in Soft Housing Market:** A follow-up to our 2007 study to understand the differences in how builders are navigating the continued soft housing market.
- **FPL - Raised Wood Foundation Time and Cost Study in the Gulf Coast Region of the United States:** The overall objective of this study is to provide detailed information on all costs and labor requirements to build foundation/floor systems for new single-family houses in the Gulf Coast region of the United States.
 - Follow up: One raised wood foundation has been completed and costs and labor inputs recorded. A builder event to introduce builders in the Mobile AL area to this alternate method of construction will take place this week. (A raised or “floating” slab is the predominant foundation style in the area.) Several additional foundations are in the planning stages.

D. Sample Publication for 2008

- Ganguly, I.; Koebel, T.; Cantrell, R. (Forthcoming). *A Categorical Modeling Approach to Analyzing New Product Adoption and Usage in the Context of the Building Materials Industry*, In-Review in *Technological Forecasting & Social Change*.
- NAHB Research Center Building America (BA) Team (Forthcoming). *Quality Management Products: Scopes of Work for High Performance Homes*.
- *ADVANCED FRAMING: An Examination of its Practical Use in Residential Construction*, NAHB Research Center, Building America Program, May 2008.
- *PV/Solar Thermal System Comparison*, NAHB Research Center, Building America Program, May 2008.

E. Other Dissemination Activities

- **EnergyValue Housing Awards:** This year there were a total of 29 projects submitted for 2009 EnergyValue Housing Awards consideration. Applications were received from nearly every geographic region of the United States in the following categories: affordable, custom, and production housing (there were no submissions in either the multi-family or factory built categories). Each category is further subdivided by climate: cold, moderate, or hot. The judges met in early September to complete the evaluation process, and after a rigorous session, 13 finalists were named.
 - Finalists will be recognized at the EVHA Ceremony which will be held in Las Vegas, NV Monday, January 19, 2009 at the Flamingo Las Vegas Hotel. In addition to having their winning houses showcased during the ceremony, each finalist will be featured in the EVHA Winner Magazine which is distributed during the International Builder's Show, other events, and on the EVHA website.
- **Commercialization Tools for Innovators and Inventors,** Re-inventing "Made in USA" Conference, NASA Glenn Research Center, Cleveland, Ohio. Showcased a New Product Development case study conducted between a team of entrepreneurs and the Research Center for the development of a pre-fabricated, insulated wall panel.