NAHB Research Center, Inc.
National Association of Home Builders

# 2004 Annual Report

## A. Center Overview/Summary

The NAHB Research Center, located in Prince George's County, Md., was established in 1964 as a separately incorporated, wholly-owned, subsidiary of the National Association of Home Builders (NAHB), whose members are involved in the construction of over 80% of U.S. homes. The Research Center's professional staff includes engineers, economists, architects, planners, and professionals in related disciplines. The Research Center studies all aspects of home building, tests and certifies building products in a fully equipped laboratory, and conducts a wide range of dissemination and training activities for builders, remodelers, and other participants in the housing industry. 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 2003/2004

- Developed a set of model green home building guidelines
- Developed a publication describing low impact development (LID) techniques.
- Developed guidelines on tolerances for installation of roof sheathing connections
- Performed an overview of the seismic hazard assessment procedures used in the International Residential Code (IRC) and estimated the magnitude of the last series of earthquakes in New Madrid using structural damage information from historic sources
- Performed a study to measure the effects of various anchorage methods on the performance of light-frame wood shear walls including conventional "partial restraint" systems, engineered hold-downs, and innovative truss plate solutions that can be incorporated into advanced panelized systems for accelerated and streamlined on-site assembly
- an open design competition for students on best design features from aging in place
- Served as an advisory member of the CAPS (Certified Aging in Place Specialist) Board of Governors with the NAHB Remodelors' Council and as member of the National Advisory Council for Aging in Place sponsored by the National Reverse Mortgage Lender's Association

- Participated in the first annual Aging in Place Summit on October 29, 2003, Washington, D.C. and Aging in Place Week, November 9-15, 2003, November 7-13, 2004
- Participated with organizations within the aging network to provide trainings for Area Agencies on Aging including the National Association of Area Agencies on Aging Information & Referral Conference, and the Pennsylvania State & Area Agencies on Aging Conference
- Participated in *Falls Free: Promoting National Fall Prevention Action P*lan; December 2004; a summit sponsored by the National Council on Aging, the Center for Healthy Aging, the Home Safety Council, and the Archstone Foundation; official activity of the White House Conference on Aging .
- Revised *Builder's Guide to Frost Protected Shallow Foundations*
- Conducted numerous proprietary market research studies and laboratory-based structural tests on innovative building products and systems
- Initiated a project to assemble design and construction information to assist practitioners with providing effective entranceways into houses
- Initiated a program to enhance the diffusion of innovative technologies to the design and construction industry professionals by developing an electronic database of construction details
- Initiated a program to improve the energy efficiency of existing homes by developing a training/certification program for remodeling contractors
- Developed unified facility criteria for design of all military family housing
- Started a project to evaluate the performance of zinc-coated fasteners in pressure treated wood
- In celebration of its 40th year in the home building industry, the Research Center hosted a Housing Technology Fair where nearly 150 current and potential clients toured the facility, its laboratory, and the LifeWise Home.

## C. Sample Continuing Activities

- Continued to test and label building products including insulation, solid surface materials, and kitchen and bath fixtures
- Continued work on developing more transparent and justified seismic risk mitigation measures commensurate with the previously observed levels of damage for South Carolina
- Provided an ongoing series of tours for the housing industry, the public, organizations, policy makers, and others of the LifeWise Home, a demonstration home designed to support aging in place and located in Bowie, Md.
- Continuing to monitor the performance of light-gauge steel and measuring the corrosion rate in occupied homes
- Conducted our annual national survey of building material use rates in new and remodeled homes
- Continued to monitor nine field evaluations/demonstrations of innovative technologies

in support of the Partnership for Advancing Technology in Housing (PATH)

- Continued to sponsor two national awards programs including the EnergyValue Housing Awards, and the National Housing Quality Awards.
- The Research Center's NHQ (National Housing Quality) Program reached two major milestones in 2004 -- its first three builders (Grayson Homes, KB Home Las Vegas, Veridian Homes) certified under the NHQ-Certified Builder program, and the first manufacturer (Simpson Strong-Tie) to have training materials certified under the NHQ-Certified Training Materials program. Currently there are 80 NHQ-Certified Trade Contractors with 1,200 having been trained and working toward certification; additionally, over 40 builders are anticipating certification in 2005.
- Expanded the industry penetration of the TOOLBASE non-commercial, web portal for technical information relative to the home building industry
- Continued with the development of the Residential Buildings Loads for the Structural Engineering Institute of ASCE
- Developed supporting materials to improve the energy efficiency of existing homes for remodeling contractors.
- Continued to monitor and evaluate performance of multiple photovoltaic systems installed on homes in New York State.

## D. Sample Publications for 2003/2004

- Residential Steel Framing - Builder's Guide to Fire and Acoustic Details
- NAHB's Model Green Home Building Guidelines
- Roofing Sheathing Connection Tolerances
- New Madrid Seismic Zone: Overview of Earthquake Hazard and Magnitude Assessment Based on Fragility of Historic Structures
- Light-Frame Wood Shear Walls with Various Overturning Restraints
- Simplified Residential Framing Guide
- Aerobic wastewater treatment systems, PATH Field Evaluation, Anne Arundel County MD
- Energy Retrofit: Hi-efficiency HVAC w/o HCFC, Radiant Barrier, Vertical Axis Washing Machine, PATH Field Evaluation, Cold Weather Energy Retrofit Ithaca, NY
- Decorative concrete floor finish, PATH Field Evaluation, CFranklin Homes – Plano, TX
- Tankless water heaters, pre-finished drywall corners, stained concrete, PATH Field Evaluation, CFranklin Homes -Kensington Park, Plano, TX
- Radiant Heat vs. Forced Air, PATH Field Evaluation, Schenectady, NY
- ICF & Ventilation, PATH Field Evaluation, H4H-Annapolis, MD
- Low flow fixtures and alternative septic technology, PATH Field Evaluations, Homeaid America Loudon County, VA
- AAC, ICF, composite panel, comparisons, PATH Field Evaluations, Hughes Construction, Lexington, NC

- Photovoltaic, radiant barriers, passive solar water heat, PATH Field Evaluations, Shea Homes San Francisco, CA
- Influence of Technology on the Homebuyer's Purchasing Decision, PATH Field Evaluations, PATH Field Evaluations, Summerset Dev. Co. Pittsburgh, PA
- Directory of Accessible Building Products 2003
- Directory of Accessible Building Products 2004
- Spotlight on Ideas: Best Design Features from Aging in Place: an Open Design Competition for Students, Fall 2002 (the competition was in 2002, but we published the booklet in 2003)
- Aging in Place: An Open Design Competition for Students: Fall 2002 Virtual Tour (published in 2003)
- Seniors Housing E-Review, monthly on-line newsletter
- National Older Adults Housing Survey 2002, Report published in January 2003
- ToolBase News (technical newsletter produced quarterly; distributed to over 80,000 building professionals)
- ToolBase E-News (bi-weekly building industry news service that focuses on information technology and other advanced technologies in home building)
- Quality Matters monthly (electronic newsletter created as a resource for those participating in and those interested in participating in the Research Center's NHQ Certification and training programs)
- The Practice of Low Impact Development, U.S. Department of Housing and Urban Development, July 2003, 131 p.
- Strategies for Energy-Efficient Remodeling: SEER 2003 Case Study Report, November 2004, NREL/SR-550-36474, US Department of Energy

## E. Other Dissemination Activities

Web Pages (www.nahbrc.org and www.toolbase.org) - Describes Research Center services and publications; serves as a technical resource for anyone seeking residential housing information; and contains descriptions and updates on PATH projects and other selected current projects.

TOOLBASE Program - Provides technical assistance through the Internet portal, online FAQ database, quarterly technical newsletter, and bi-weekly electronic news service.

Safety Seminars – An OSHA sponsored series of seminars related to safety on residential construction sites.