

NAHB Research Center

NAHB Research Center News Roundup

HOME BUILDING INDUSTRY TO ROADMAP THREE PROMISING HOUSING TECHNOLOGY AREAS

As previewed in the June issue of *WOODWORDS*, the [Industry Steering Committee of the Partnership for Advancing Technology in Housing](#) (PATH) designated three technology areas to be examined in detail by roadmapping task groups made up of builders, remodelers, manufacturers and researchers. Each of these technology areas will help to promote the PATH goals for the residential construction industry—lower cost, increased energy efficiency and durability, reduced environmental impact, improved safety, and better resistance to natural hazards.

The three technologies chosen to be roadmapped later this year are:

- 1. Information Technology to Accelerate and Streamline Home Building:** Information technology can greatly improve the speed and efficiency of the entire home building process. A roadmapping group will look at ways that computers, software and telecommunications (especially wireless and the Internet) can improve speed, efficiency and quality in residential construction.
- 2. Advanced Panelization Systems:** The potential advantages of shifting away from “construction in place” with respect to labor skills, quality control, standardization and economical engineering are undeniable. Panelization technologies promise significant benefits with respect to all of the PATH goals. Some of the concepts that will be further examined during the roadmapping process include integrated wall, floor and roof systems; homogeneous wall panels; pre-cast insulated wall panels and panelized roof components; and interlocking roof sections. The roadmapping group will look not only at factory production, but also at economical on-site or near-site production methods to add flexibility.
- 3. Whole-House and Building Process Redesign:** This facet of the roadmapping task will take a systems-oriented view of houses and the process used to build them to see if there are ways to do it faster, at lower cost and with higher quality. The group will explore using fewer components to build a house; assembling fewer components on site; modularizing bathrooms and kitchens; making plumbing manifolds, wiring chases and HVAC distribution more efficient; and incorporating flexible, adaptable space in new designs. The technology roadmaps that result will define what is necessary to develop beneficial new technologies. Roadmapping will also look at anticipated costs, risks, benefits and time required for technology development. The roadmaps can be used by government agencies to analyze and assign priorities among alternative R&D investments and to determine critical gaps in research that would serve PATH goals.

Manufacturers can use this information to develop plans for product development or to establish research consortia.

NEW LABORATORY CAPABILITIES

Earlier this year, the NAHB Research Center expanded its laboratory capabilities by developing a wall assembly racking test frame that allows for the controlled testing of wall structural systems, including foundation attachments, sill plates, joists, rim joists, platform diaphragms, sole plates, studs, structural sheathing, windows, doors, top plates and roofs. Dubbed "The Racker," this new machine can test up to a complete quarter section of a house in full reverse loading up to 150,000 pounds. "The Racker" will allow a load to be applied anywhere from a position parallel to the wall, to a position fully oblique with a corner assembly. For more information on this new equipment or other laboratory testing capabilities, call 800/638-8556.

RESEARCH CENTER FUNDS IIP ON RACKING STRENGTH OF PRE-DRILLED STUDS

After reviewing employee proposals submitted in April, an NAHB Research Center selection committee recently identified two Innovative Idea Projects (IIPs) that will be funded internally. The first project, already underway, addresses the problem of decreased quality in framing lumber, particularly studs. The increased occurrence of warp in lumber today is due in part to the use of younger and smaller diameter trees. Avoiding crook (side bend) in studs is paramount for the attachment of drywall to a flat plane. This research project will look at the impact of drying technology on the strength and structural viability of predrilled wood studs, which will then more effectively utilize the timber resource and minimize warp.

Predrilled studs will be compared to conventional wood studs both individually and incorporated in wall assemblies. Tests will include flexural tests of individual studs and small wall assemblies; axial compression tests of individual studs and small wall assemblies; and lateral force resistance (racking) tests of wall assemblies.

Currently, the Research Center is performing the lateral strength tests of 8'x8' wall sections using "The Racker" apparatus (described above), which was developed earlier this year by NAHB Research Center staff. For more information on this project, please contact Kevin Powell, at 301/430-6287, or Shawn McKee at 301/430-6241. Project information and updates will also be available on the NAHB Research Center's web site at www.nahbrc.org. The second internally-funded IIP is scheduled to begin later this year.

The NAHB Research Center is the not-for-profit research arm of the National Association of Home Builders, and is located in Upper Marlboro, MD.

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