

NAHB Research Center Resources

Scorecard Being Developed to Rank Housing Technologies

Comparing housing technologies can be difficult—sort of like comparing the proverbial apples and oranges.

DynaRank, a sophisticated scorecard being developed by the Rand Corporation for the Partnership for Advancing Technology in Housing (PATH), and the NAHB Research Center, will make the comparison less difficult. This scorecard will help all home building professionals make the best choices among housing technologies as they attempt to build better houses.

The scorecard begins with a technical effectiveness assessment. Each member of the Technology Roadmapping Working Group, which consists of people from Rand, PATH and the NAHB Research Center, will use the scorecard to assess each technology's described technical merits at the household level. In other words, the effectiveness of each technology option is assessed assuming that it is technically feasible, diffused in the market and currently in use in homes. Each of the assessments reflects a percentage change compared to current baseline/industry norms. If a technology option would result in a trend contrary to the PATH goal of reducing the monthly cost of new housing by 20 percent or more, then the rating would be shown as a negative percentage of the baseline.

The next section of the scorecard is designed to see how a given technology ranks in terms of cutting the environmental impact and energy use of new housing by 50 percent or more and reducing energy use in at least 15 million existing homes by 30 percent or more (another PATH goal). This section is divided into four parts. Since the environmental impact of a product or technology has both energy and non-energy components, the new housing portion of this PATH goal occupies the first two DynaRank assessments in this section. The third part focuses solely on reducing energy use in existing homes. Finally, the fourth part seeks to identify the percentage of existing homes that could potentially use the technology in question.

Two other PATH goals for 2010 each occupy their own column in the DynaRank system. One is to improve durability and reduce maintenance costs by 50 percent. The other is to reduce by at least 10 percent the risk of loss of life, injury and property destruction from natural hazards and decrease by at least 20 percent illnesses and injuries related to residential construction work. In addition to the PATH goals, there are columns to assess the risk of technical failure, the risk of market failure, the development cost to make the product commercially viable and the time needed to develop the first commercially viable product.

The Technology Roadmapping Working Group discussed PATH technology options during a

brainstorming session in Kansas City in March. With the creative input of home builders, remodelers, manufacturers, government officials, and others in the residential construction industry, nearly 50 technology options were reviewed and written up in accordance with the DynaRank system.

Since their March meeting, members of the Working Group have refined their initial thoughts about the technology options. As not all options hold equal potential for advancing the PATH goals, the technology assessment provided by DynaRank will provide a structured framework for comparing options and establishing research and development priorities.

The technology roadmaps, some of which will be developed later this year, may include short-term, intermediate, and even long-term (ten-year) milestones for each building technology. Roadmaps will provide the following information:

- Description of specific technology options for achieving the technology strategies.
- Identification of technological barriers and risks that must be overcome.
- Nature, timing and estimated cost of required research and/or development programs.
- Identification and description of current activities or projects included in the roadmap and their funding status.
- Recommended approach for funding research and development based on classification into one of four categories: privately funded, proprietary; privately funded, collaborative (a group of manufacturers); publicly/privately funded, cooperative; and publicly funded, public domain.
- Increased public funding required for existing programs.
- Identification of new research and development and related programs that need public funding, or existing programs that need increased funding in order to contribute to achieving the PATH goals.
- Priorities of technology development projects and paths.

The ultimate purpose of the road-maps is not simply to identify needed research, it is also to guide and coordinate a package of public and private research and development projects that will accelerate progress toward PATH goals. The PATH Industry Steering Committee, who will determine final program prioritization based on the roadmaps, will be responsible for communicating results to policy- and decision-makers in the public and private sectors.

Technology roadmapping is not the only element in PATH, nor is it the sole route to program success. However, it is a key part and possibly the most important part of the overall picture. Through their combined efforts, the Working Group and the Steering Committee are embarking on a very powerful process to prioritize a technology development agenda for the residential construction industry that will carry participants through the next decade.

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