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# HRC NEWS

Vol. 2. No. 2. Summer 1993

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A Publication of the Housing Research Center at The Pennsylvania State University

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## RESEARCH PROJECTS FOR 93-94

Based on the decisions made at the May 1993 Advisory Council Meeting, the HRC will be starting four new research projects in September 1993. These projects are funded by the \$75,000 grant received from the Ben Franklin Technology Center of Central and Northern Pennsylvania, Inc. and the funds that will be raised from the upcoming Pennsylvania Builders Association (PBA) sponsored fundraiser. The topical coverage includes:

### **1. Innovative Structural Framing Systems in Wood Engineering for Residential Construction**

With lumber prices soaring as a result of large scale natural disasters and environmental concerns, the need for identifying and investigating alternative engineered wood structural systems has never been greater. The first year literature review phase that was completed in August 1993 indicates that substantial information has been published in the areas of establishing allowable design values for hardwood glue-laminated lumber (glulam), laminated veneer lumber (LVL), wood diaphragm and nail-laminated systems.

NAHB is committed to investigating alternative framing systems to encourage the concepts of innovative structural system alternatives. Also the Mid-Atlantic Building Systems Council is determined to tear down the barriers that stand in the way of developing hardwoods as a competitive, structurally sound material for use in wood framing systems.

The second year focus of this research project will center on alternative systems such as composite panels. Lamination process, building code specifications, and physical testing protocol will be addressed with the goal of establishing criteria for the structural evaluation of panels under a critical loading condition such as creep or combined loading. This evaluation will then be used to develop predictive models of panel performance in the third year.

*research projects continued next page*

## FALL MEETING OF THE ADVISORY COUNCIL

The annual meeting format of the HRC Advisory Council is being changed in response to the suggestions made by the operations committee. In order to be more effective in presenting completed research results and prioritizing future research the HRC will adopt a schedule of one day meetings in both late fall and early spring.

The one day late fall meeting, which will be held in November, will include the presentation of results of completed research projects and the prioritization of a list of issues based topics that will be considered for the next research cycle. The annual reception for leadership members will on the evening of this fall meeting. The single day spring meeting will be held in mid March to finalize the proposed research topics in order to meet the April proposal deadlines.

The shift of the presentation of the research project results back to the fall semester will allow the research teams to present the results of completed projects. The fall meeting will also allow lead time for the formation of task groups related to the research areas of the HRC. The groups will present a list of research topics critical to their areas of research for consideration at the spring meeting.

In previous years the meeting in mid May presented problems in that many research proposals had to be developed so they could be submitted for review to the state or federal agencies in mid April. This meant that the HRC could not obtain the approval of the Advisory Council for specific projects prior the submission of the proposal. The new mid March meeting date will provide the research task groups with sufficient time to iron out the details of their research priorities in order for the Advisory Council to make informed decisions at the spring meeting.

This new format will emphasize increased participation from the task groups to provide the project principal investigators with continuous input as the research projects progress.

*Research Projects continued*

## **2. Quality Controlled CAD for Residential Land Development**

Computer-Aided Design (CAD) is currently one of the focus areas of the HRC at Penn State. Based on the work completed and the experience gained from previous CAD projects, future CAD projects must include elements of continued research and applied technology transfer. The expressed needs of the homebuilding industry in Pennsylvania with regard to CAD is as varied as the industry itself. Issues concerning non-users, novice users, and experienced users have been identified.

The technology transfer aspects of the project will take the HRC on the path to becoming a CAD Resource Center. Based on the builder survey that was conducted last year, several key areas of interest were identified by survey participants. Last years CAD project included information on available CAD systems, the evaluation and selection of existing CAD systems, the presentation of basic and advanced training seminars, and CAD customization.

The research aspect of this current project will develop an application of CAD to the infrastructure phase of the homebuilding industry, specifically addressing the automated quality control in working drawings.

## **3. Construction Management Issues: Builder Certification Within the TQM Framework**

In the fall of 1992, PBA's Education Committee adopted the planning assumption that the development, implementation, and administration of a statewide certification program would add credibility to individual builders as well as to PBA. This would ultimately result in an improved image for the homebuilding industry in the eyes of the state government, the state legislature and the consumer.

The components of the program will probably include proof of compliance with the minimum standards of a Total Quality Management program, such as PBA's Contractor Quality Commitment Program, as well as proof that a specified level of educational requirements have been satisfied.

The purpose of this research project will be to assist PBA, its Education Committee, and the Knowledge Work Group that will be organized to address the issues cited above. Specifically, the contribution of this research will be to integrate the existing PBA Contractor Quality Commitment Program with the

broader definition of TQM in order to ensure that the final version of the program referenced within the certification process properly addresses the key issues that quality-conscious builders face. Ideally, builders who become certified will also be widely recognized as those who have adopted a TQM approach to the management of their firms.

## **4. Indoor Air Quality**

At the May meeting the Advisory Council voted to investigate indoor air quality issues. While this was not a proposed topic, it exemplifies the Advisory Council's receptiveness to industry input.

It has been noted that two key factors influence the material selection process of residential builders: a) economic considerations; and b) product availability at the local level. Today's builder would be smart to also investigate how particular materials/products might impact the health and well being of their clients. This project will educate builders about indoor air pollution and ways they can provide their customers with a more healthful home environment. The deliverables will be a publication entitled "Building Healthy Homes: A Builders Reference Guide" and an instructor's workshop curriculum guide to accompany the publication.

### *HRC NEWS*

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Contributions and news items are  
welcome. The deadline for fall issue  
submissions is November 1, 1993.

## THE SECOND ANNUAL HOUSING AND ENERGY CONFERENCE

This year's Housing and Energy Conference is entitled **SELLING MORE HOMES THROUGH ENERGY EFFICIENT CONSTRUCTION**. It will be held on October 27-28 in Harrisburg PA at the Marriott Hotel. Co-sponsors include the HRC at Penn State, the PBA, the Pennsylvania Electric Association (PEA), and the Pennsylvania Energy Office.

The two day program is designed for everyone from builders, remodelers and developers to architects, engineers, inspectors, housing officials and realtors. The conference will focus on how building energy efficient homes can be the key to the growth and survival of a homebuilding firm. Energy efficient philosophies can truly improve the builder's bottom line if she or he knows what consumers really want and knows how to effectively market today's energy efficient homes.

The program will kick off with opening remarks from Brian Castelli, Executive Director of the PEA. Sessions for the first day will focus on the theme of "Building the Energy Efficient Home." Topics will include:

- Ingredients of Quality and Comfort
- Keys to a Successful Building Enveloper
- The Resource Conservation House
- HVAC Systems: What a Builder Needs to Know
- Building and Maintaining a Healthy Home
- Building Energy Conservation Act (Act 222)

A reception dinner and exhibitor sessions will follow the first day sessions. The theme for the second day is "Marketing the Energy Efficient Home" and includes topics such as:

- Psychology of Marketing and Selling Energy Efficient Homes
- Enhancing Utility Company and Builder Relationships
- Educating the New Home Sales Person
- Sales and Marketing of Energy Efficient Homes
- Conveying Value to the Housing Consumer
- The Importance of Energy Efficient Housing to the Future of Pennsylvania

Plan should be made by all interested parties to attend the conference this year. For more information about program content contact Phyllis Adams-Barner at (814) 863-7868. For more information about registration contact Jerri Milsome-Heater at (814) 863-1744.

## IMPORTANT 93-94 HRC FUNDRAISER

National Builders Show Las Vegas, Nevada sponsored by the PBA will be scheduled during the Fall of 1993. Look for more details in our next HRC NEWS.

Phyllis A. Barner  
Sabbatical at  
Harvard University

## 92-93 RESEARCH RESULTS

Ben Franklin Propo

Advisory Council MAs the 92-93 research year and Dinner draws to a close the final reports and project

Advisory Council summaries are being written. Research Symposium Our next issue will present some of the important results

Jack H. Willenbrock of these research and tech transfer projects.

Sabbatical at the  
NAHB Research  
Center and PBA

Ben Franklin Propo

Welcome Jack Julio  
Research Assistant to  
(replacing Mike Sucl

Energy Symposium:  
Guidelines for Meeting  
Efficiency Requirements  
Housing in the '90s

Fall Advisory Council  
Priorities

NAHB Student Cha

## 1992-93 CONTRIBUTORS TO THE HRC

(July 1, 1992 to June 30, 1993)

### LEADERSHIP MEMBERS (\$2500+/year)

Pennsylvania Builders Association  
Pennsylvania Electric Association  
Penn Terra Engineering Incorporated  
Philadelphia Electric Company  
CertainTeed Corporation  
Elam G. Stoltzfus, Jr., Incorporated  
Home Builders Association of Metro Harrisburg  
Midwest Region of the PBA

### CONTRIBUTING MEMBERS (\$500-\$999/year)

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Franklin County Builders Association  
Lehigh Valley Builders Association  
J. Roger Glunt  
Curtis E. Schneck  
Tepes Construction Company  
Bucks and Montgomery Builders Association  
Eastern Distributors Company Incorporated  
York County Builders Association  
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### SUPPORTING MEMBERS (\$1000-\$2499/year)

C. Kenneth Zook  
Haven Homes  
DOW Chemical  
Home Builders Association of Central PA  
Celotex

### PATRON MEMBERS (\$100-\$499/year)

N.V. Ryan Homes  
Ryland Building Company  
Maleno Builders  
Greater DuBois Area Builders Association  
Home Builders Association of Mercer County  
David Reager  
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Venango County Builders Association  
C. Keith Construction Company  
S. Murry Rust Incorporated  
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Dave Sheppard  
Sugar Hollow Homes  
Rock Hill Builders

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