
HRC NEWS

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

THE NEW RESEARCH YEAR

As the fall semester begins, the research and technology transfer activities of the HRC are being renewed and/or continued starting on September 1. In August the HRC was awarded a \$75,000 grant from the Ben Franklin Partnership Program and received a pledge from the residential construction industry to be coordinated by PBA and the HRC for \$57,500 to fund the HRC for the 1994-95 operating year.

The Breakdown of funding for the upcoming year, as approved by the Ben Franklin Partnership and the PBA Board of Directors in August is as follows:

Ben Franklin Grant	\$ 75,000
PBA Housing Industry Support	\$ 57,500
HRC Housing Industry Support	\$ 27,500
HRC State and Federal Contracts	<u>\$ 85,000</u>
	\$245,000

The PBA has agreed to assume responsibility for \$57,500. This figure includes \$12,500 from PBA's direct contribution, \$20,000 from local associations and regions, and \$25,000 from existing contributors coordinated by the PBA and the HRC.

The HRC has agreed to assume responsibility for securing industry support from new contributors and user fees in the amount of \$27,500. In addition, the HRC is committed to securing State and/or Federal research projects totaling approximately \$85,000. This last category is in line with the expectation from the Ben Franklin Partnership Program that the HRC will reach out to other agencies and corporations for funding for proprietary research or operational funds over and above those allocated by the Advisory Council.

The Operations Committee of the Advisory Council has allocated funds for an "Operations Account," four research projects, and a technology transfer project for the 1994-95 operating year. These projects were proposed and budgeted according to the prioritized

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A PARTING NOTE FROM THE EDITOR

The time has come to turn over the reins as the Assistant Director to a new doctoral student in residential construction. This position gives a Ph.D. candidate a unique opportunity to work closely with the residential construction industry.

Stacy Worley has just completed his masters program in Agricultural Engineering at Virginia Polytechnic Institute and State University and will be starting his research and administrative duties here as of September 1. He will be working half time with Jack Willenbrock in the HRC and the remaining time with Harvey Manbeck in Agricultural and Biological Engineering in the area of structural framing systems.

Stacy's responsibilities will include coordinating the submission of the 1993-94 Ben Franklin report, organizing the Fall Advisory Council meeting and taking over as the editor of the HRC NEWS. His engineering background and organizational skills have already given him a head start in understanding the inner workings of these administrative roles.

I will continue to pursue research in the area of alternative framing systems for the final year of my doctoral work. My research project is being coordinated by Dr. Harvey Manbeck and is being funded by the Advisory Council of the HRC and the U.S. Department of Agriculture. An in-depth project description is given on page three of this newsletter.

My parting remarks go in thanks for the opportunity to work with the many fine people involved with the HRC including Bob Booz and John Werner at Ben Franklin, Bob Buddenbohn and Dave Sheppard at PBA, Roger Glunt at NAHB, the late Bernie Hankin, and of course Jack Willenbrock who has shown great loyalty to the residential construction industry and the people involved with the HRC. Thanks again, I leave you in good hands!

Steven Taylor

The New Research Year continued

list of research projects agreed upon by the March Advisory Council meeting. The projects, and the respective budget amounts, are as follows:

Ventilation-Air Quality	\$ 22,000
Construction Management	\$ 32,000
Alternative Framing	\$ 35,000
CAD Infrastructure	\$ 28,000
Technology Transfer	\$ 18,000
HRC Operations	\$ 35,000
State/Federal Research	<u>\$ 75,000</u>
	\$245,000

The Ventilation-Air Quality budget will be coordinated by Gren Yuill as a one-year master's level research project. The Construction Management budget will be coordinated by Jack Willenbrock and will be considered as a continuation of the Builder Certification project and the beginning of an investigation into Affordable Housing at the master's level.

The Alternative Framing project is a continuation of Ph.D.-level research being coordinated by Harvey Manbeck. Funding for the third year of this research is also being supplemented by the U.S. Department of Agriculture as described in the article on page 3 of this newsletter.

The CAD Infrastructure project is also being funded at the Ph.D. level and is being coordinated by Kevin Parfitt. Supplementary funding from the Hankin Chair accounts will be used to bring this project to the proper level of \$35,000. This decision was made to allow for a higher level of funding in the areas of technology transfer.

The Technology Transfer project will be coordinated by Jack Willenbrock and Phyllis Adams. The budget will be used to coordinate conferences, seminars and short courses for the residential construction industry. The Operations Budget will be used to conduct everyday operations, coordinate the two Advisory Council meetings and maintain an office staff.

The total targeted budget for the HRC for future years, according to the three-year plan submitted to Ben Franklin and the PBA Board of Directors, is \$265,000. This amount is required for core research, technology transfer and operations activities of the HRC. This year's budget is close to that targeted amount, and we are confident that the efforts to secure state and federal funding for this core budget will be successful in the coming year.

FEDERAL FUNDING FOR HRC RESEARCH

The HRC has received federal grants to continue research in two of the HRC's major emphasis areas. The United States Department of Agriculture has approved a grant for \$105,000 over a 2 1/2 year period beginning September 1, 1994 for the investigation of "Creep Behavior of Structural Insulated Panels" mentioned on page 3. The Structural Insulated Panel Association (SIPA) has endorsed this project, and individual manufacturers have donated panels for the testing protocol.

The Department of Energy has funded a project entitled the "Energy Cost Optimized House" for \$75,000 through the end of June 1995. This project focuses on the near-term development of practical and cost effective approaches to energy efficiency in modular housing.

These are examples of HRC efforts to secure funding outside the Advisory Council for research in the major emphasis areas. The support provided by the Ben Franklin Partnership Program, the electric utilities and PBA during the past two years has been invaluable in allowing the investigators to develop the foundation that made these proposals competitive.

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Contributions and news items are
welcome. The deadline for fall issue
submissions is October 1, 1994.

CREEP BEHAVIOR OF STRUCTURAL INSULATED PANELS

In 1992 the Advisory Council of the HRC voted to fund a three year research project investigating alternative framing systems. This project was identified to address the concerns surrounding the skyrocketing costs of lumber and conventional framing techniques.

The first year of the project documented the favorable factors allowing the use of local Pennsylvania hardwoods as framing lumber for residential construction. Constructability factors and strength and stiffness values for red oak, red maple and yellow poplar structural systems and material were presented to summarize the research that had been conducted to bring these species to the attention of designers, manufacturers and contractors.

For more information on the research conducted in the first year please contact Steve Taylor or Stacy Worley to request HRC Report No. 31 entitled "A Review of Selected Alternative Wood Framing Systems for Residential and Light Commercial Construction."

The second year of the project focused on the development of alternative framing systems and identification of structural insulated panels as an area of importance to the manufacturing and contracting industry. Long term structural performance has been a concern for this product because of its newness and the make up of the composite material.

The second year was also used to define theoretical models, experimental plans, testing protocol and to build testing frames to subject a sequence of panel specimens to long term flexural loads. The second year HRC Report No. 34 is entitled "A Progress Report on the Creep Behavior of Structural Insulated Panels."

During year three, theoretical and experimental research will be conducted to develop models to predict the long term behavior of SIP's under sustained loads and "normal temperatures and humidities." The results will also define the influence of load levels, core panel thickness, and core material on the creep behavior of SIP's.

The Advisory Council has participated in this three-year project to advance the knowledge and emphasize the advantages of composite panel systems. This project is the first long term research to be funded by the Advisory Council.

FINAL BEN FRANKLIN REPORT

We are completing our research reports and the ending financial statements for the 1993-94 operating year. Final reports are due to the Ben Franklin Technology Center on September 23. Each project will be documented with a Housing Research Fact Sheet and a full report defining the progress and findings of the research or technology transfer project.

We will also be reporting on the findings of each research project at the next Advisory Council meeting late this fall. This meeting will communicate our research findings to the industry through personal technical presentations. All those interested in our present or recently completed research projects are encouraged to contact us and inquire about attending the meetings. Information on how to obtain final project reports is given on the last page of this newsletter.

FALL ADVISORY COUNCIL MEETING

IMPORTANT The announcement for the upcoming fall Advisory Council meeting will be forthcoming. The agenda will include four main areas of interest.

Advisory Council Meeting

The HRC staff will begin by making presentations on the final reports for the 1993-94 research projects. Secondly, meetings will be held with the industry Consultant Steve Taylor and Industry Committees to assess and update the priorities for research in the major emphasis areas of the HRC.

Penn State Scenic

Center Hotel We will also be summarizing the financial reports for the 1993-94 operating year and reporting on the progress of the fundraising for the 1994-95 year. Finally, we will be making a brief presentation on the philosophy of the Industry-University relationship and the HRC model for research projects.

Chapter Banquet For more information, look for our upcoming mailing or contact us at the HRC.

HRC REPORTS

Research projects reports described in this HRC NEWS issue and other HRC publications can be obtained by contacting Stacy Worley at the HRC, 212 Sackett Building, University Park, PA 16802, and requesting an order form. Reports can be obtained by submitting the order form, along with a check made payable to The Pennsylvania State University (\$75, Non-members; \$50, Patron Members) for each report requested. Leadership and Supporting Members receive free copies of research reports at the end of each HRC operating cycle.

The HRC has also published the second edition of the Housing Research Fact Sheets that describe the HRC Research Report Series to date. For a free copy, please contact the HRC at the above address.

This publication is available in alternative media upon request.

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