



COLD CLIMATE HOUSING RESEARCH CENTER

CCHRC

Promoting the development and advancement of healthy, durable and economically sound shelter for Alaskans and circumpolar people.

CCHRC QUARTERLY REPORT

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CCHRC

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Internet Web Site:

www.cchrc.org

CCHRC STAFF

.....

President/CEO

Jack Hébert

jhebert@mosquitonet.com

Office/Financial Manager

Gail Koepf

gek@mosquitonet.com

Grant/Contract Manager

Rose Baumes

rbuames@mosquitonet.com

Project Managers:

Phil Kaluza, Mike Musick, Bob Maxwell

CCHRC: This Quarter in Review

The last quarter of 2002 was very busy and productive for CCHRC. The next step in establishing a state of the art Cold Climate Housing and Infrastructure Research Facility in Interior Alaska was taken with the announcement of funding for the design of the Facility. (See page 3 for Press Release)

CCHRC held elections for 3 seats on the board of directors at the Annual General Membership Meeting in November. Incumbents were elected, so our board remains the same for 2003.

You may have received this Report with your local homebuilding newslet-

ter. The Alaska State Home Building Association (ASHBA) voted to include CCHRC membership with the AHSBA membership and contribute \$10 to CCHRC for each ASHBA member. This will allow CCHRC to reach a larger audience in the building industry and keep ASHBA members updated on CCHRC activities. This ASHBA/CCHRC membership does not include voting privileges in CCHRC board elections. If an ASHBA member would like full membership privileges, he or she may credit the \$10 toward another CCHRC membership level. Membership information is available at our website.

Message from the President/CEO

Dear CCHRC members & supporters,

It is now midwinter in Alaska and we are at last getting some of the cold and severe weather that makes our beautiful state the best location for the Earth's premier circumpolar housing research center.

CCHRC has come a long way in our two years of operation. Our potential is enormous and our vision clear, but we are still a very new organization and these early years are crucial in developing the structure that will ultimately result in worthwhile studies and an enduring institution. I believe CCHRC success will not be possible, despite the best efforts of the board and staff, without broad involvement by the builders, building scientists and individuals in Alaska with a dedicated

interest in seeing more affordable, energy efficient, durable and environmentally sustainable shelter developed.

The past two years, CCHRC has been responsive to new projects that come to our attention from people and organizations that have taken the initiative to develop a proposal. If the proposal has fit the priorities set by the Research Advisory Committees (RACs) or CCHRC's general mission, we have pursued funding. However, as our plate gets fuller we see the need to address RAC priority concerns as our primary effort. This will involve better communication with our regional RAC chairs and their committee members and a more open dialogue about how

(Continued on page 4)

CURRENT CCHRC RESEARCH PROJECTS

Health House VOC Monitoring:

CCHRC is examining VOCs in 3 homes of different construction in both Fairbanks and Juneau, pre- and post-occupancy. Dwellings tested in both communities include a Health House, a 5 Star Plus house with an HRV, and a non-mechanically ventilated house. Testing is expected to be substantially completed early in 2003.

Combustion Air/CO Study:

The purpose of this study is to assess current practices in combustion air supply for atmospherically vented heating appliances and the performance of power vented appliances and make recommendations. Testing homes in Fairbanks is beginning now that winter has arrived. Scheduled completion date is August 2003.

Infrared Thermography Study:

CCHRC will conduct infrared thermography on housing of various construction types in the Fairbanks area. The purpose of this study is to create a database of temperature maps for a range of building components and assemblies in a severe cold climate. Imaging will be used to evaluate the performance of building materials. This project is just beginning & is scheduled for completion in August 2003.

Strawbale House Monitoring Project:

CCHRC is conducting in-house monitoring of a strawbale house in Fairbanks. Temperature and moisture gradients are being measured throughout the strawbale insulation of exterior walls. Weather conditions that could affect results are being measured on sight. Monitoring will continue for one year.

Evaluating Ventilation Systems with Regard to Indoor Air Quality:

ABSN monitored one hundred relatively new homes for relative humidity, particulates, benzene, and VOCs in Anchorage, Juneau, and Fairbanks. The goal is to provide an evaluation of the extent to which various factors, including ventilation strategies, house characteristics and location, and occupant usage affect indoor air quality. A peer review of the ABSN report is being prepared.

Improving the AKWarm Design Heat Loss Calculation:

This project is a follow-up of the completed Evalua-

tion of Residential Heating Systems study and has developed new computer software to calculate the design heating load of a home so that home heating systems can be sized more accurately. The software can be operated via the user's Internet web browser and is freely accessible from the CCHRC website. Please try the calculator out and tell us what you think.

PERSIST/EIFS Study:

CCHRC is conducting a study to determine the efficacy of a modified PERSIST (Pressure equalized Rain Screen Insulation Structure Technique) building envelope for Alaska. The PERSIST type design is an attempt to eliminate moisture intrusion or condensation from degrading the structural components of a building. The construction process was recorded on three PERSIST homes and a power point presentation was made at CCHRC's annual meeting in November. Monitoring and cost comparisons are in progress.

Rain Catchment Systems in Alaska:

The Institute of Northern Engineering at UAF is completing research on rain catchment systems to be used for domestic water collection, storage, and distribution. CCHRC will review their work and produce a four-page pamphlet for public distribution.

Foundation Behavior:

AHFC has provided funding for CCHRC to work on viable foundation designs with the Interior Regional Housing Authority (IRHA). CCHRC has met with representatives of IRHA to determine needs and to formulate a study.

Building America in Alaska:

CCHRC has received funding for 2002-2004 from DOE with matching funds from AHFC to do follow-up work on our Building America in Alaska project. A mobile test module is being constructed in North Pole for transport to Juneau in February to address Southeast Alaska building concerns. Students of Construction Technology at the University of Alaska, SE will construct and test various wall systems in the test module. This project will also monitor Building America homes constructed in Alaska in 2001, conduct a cost analysis of Building America techniques in Alaska, and work to promote the Building America technologies.

Above projects received funding through Alaska Housing Finance Corporation

CURRENT RESEARCH PROJECTS (continued)

Healthy Homes in Alaska:

AHFC is working with CCHRC on this HUD sponsored project to address children's health concerns related to their housing. Families from Fairbanks and Hooper Bay will be selected to participate based on child health records and family income. Participant homes will be assessed and tested and appropriate remediation completed. Health assessments and IAQ testing will be conducted pre- and post-remediation to determine if intervention improved the child's health. Currently, the study has received IRB approval and is seeking approval from the Tribal authority in Hooper Bay. Study participants are being identified in Fairbanks.

CCHRC Seeks Research Director

CCHRC is advertising this month for a Research Director. A job description is available at our website. Interested parties should send a cover letter, resume and reference contact information to our office by January 31, 2003.

CCHRC is an equal opportunity employer and all qualified applicants will be considered for employment without regard to race, religion, color, national origin, age, physical handicap, sex, or marital status.

Design & Development of Cold Climate Housing Research and Infrastructure Facility:

12/3/02 Press Release—USDA-Rural Development Alaska State Director Bill Allen said today the agency will provide \$175,000 in financial support for the Cold Climate Housing Research Center in Fairbanks. The funding will be used to finance the design of a research and testing facility. The CCHRC is working jointly with representatives of the University of Alaska-Fairbanks to locate the facility in the Research Park area of the University of Alaska-Fairbanks campus.

"This Cold Climate Housing and Infrastructure Research and Testing Facility will help builders provide safer, more cost efficient homes in the future. Energy efficiency and safety are key factors in our efforts to provide safe, affordable housing in rural Alaska," said Allen. USDA Rural Development offers a number of housing programs nationwide, including Alaska.

The facility will support research currently underway aimed at building durable homes that also address the health concerns of rural residents in northern climates. It will be shared by the Cold Climate Housing Research Center and Institute of Northern Engineering at UAF. "We expect the research done in this facility will spin off a number of small business opportunities to support the housing industry in Alaska," said Jack Hebert, President of CCHRC.

Dan Fauske, CEO of the Alaska Housing Finance Corporation said AHFC is supporting several research projects involving the CCRHC and has requested about \$1 million in next year's budget to support ongoing research and the development of the test facility at the University.

Projects—Proposed or Under Consideration

Egress Window:

The Northern window, designed to address emergency egress problems in rural Alaska, underwent AAMA structural and NFRC thermal tests which were then reviewed by Charlie Deer.

Development of Product Testing Lab:

CCHRC is also working with the University of Alaska and the Institute of Northern Engineering on developing a Product Testing Lab in conjunction with the Research Facility. This lab may incorporate cold chamber testing, structural loading, and seismic testing capabilities.

Affordable Ventilation Strategies:

CCHRC hopes to collaborate with AHFC, industry, and the Alaska Science and Technology Foundation

(ASTF) on developing designs for more passive and lower cost ventilation systems for Alaska in both rural and urban communities.

Modular Housing in Alaska:

A possible DOE project will examine modular housing for Alaska. This is planned as a cooperative study with the Idaho National Engineering & Environmental Laboratory (INEEL) and the University of Alaska. Improvements in energy efficiency, affordability and durability will be target objectives.

Examination of IAQ at Military Facilities in Alaska:

CCHRC has met with military personnel from Alaska and IAQ experts from the University of Alaska to develop a study for the Department of Defense. This study proposes to analyze IAQ in military housing and office buildings and develop remediation strategies to address problems.



COLD CLIMATE HOUSING RESEARCH CENTER

515 7th Ave. Suite 340
Fairbanks, AK 99701

Phone: 907-457-3454
Fax: 907-457-3456

Internet Web Site:
www.cchrc.org

Message from the President/CEO (cont.)

(Continued from page 1)

best to approach research that will produce “real results “ to “real problems”. Toward this end, the RAC chairs are now attending our monthly board of directors meetings and will be involved with the approval process for projects. RACs will also review and comment on completed studies before they are finalized. This is no small task and we are thankful for their time and dedication. Their role in helping guide the direction and focus of our research efforts is critical. RACS are regional so that CCHRC will be responsive to the varied environments and housing conditions of our vast state. A new Bush RAC is currently being formed. My thanks to John Woodward for chairing and organizing this fourth and very important RAC. Call me, call your regional RAC chair and get involved if you want to have input. Contact information is available on the CCHRC website www.cchrc.org or call the CCHRC office at 907-457-3454.

2003 marks the beginning of the CCHRC’s third year of operation. Many of you are founding members and have been a part of the center since inception. This is indeed your research center. You charged the board of directors and myself with guiding the organization toward a successful future. We are doing our best. Your responsibility is to let us know when you feel we are straying from our mission and commitments. We need your input.

My personal wishes to all of you for a healthy and happy new year.

The RAC is appointed by the Board of Directors to advise CCHRC on research projects. Contact a committee member in your area with your input and concerns.

Research Advisory Committee Regional Chairs

- | | |
|----------------------|---|
| Southeast | Marquam George
8752 N. Douglas
Juneau, AK 99801
(907) 586-2060
blu@alaska.com |
| South Central | Bob Lutje
P.O. Box 111646
Anchorage, AK 99511
(907) 345-8861
bob.lutje@acsalaska.net |
| Interior | Mike Musick
P.O. Box 170
Ester, AK 99725
(907) 479-6190
mikemusick@gci.net |
| Bush | John Woodward
Homer, AK
(907) 235-6560
johnwood@ptialaska.net |