



CCHRC QUARTERLY REPORT

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CCHRC

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CCHRC: This Quarter in Review

CCHRC spent much of the last quarter in growth activities. The Cold Climate Housing & Infrastructure Research & Testing Facility (RTF) is going from design board to preliminary work on site. We received additional funds from the Department of Agriculture to prepare the site for early construction next spring and to monitor subsurface temperatures. Our next big push is to locate construction funds.

Several new studies that address the concerns of our Research Advisory Committees are in the final stages of being formalized as CCHRC projects. These include the Kenai Indoor Air Quality Study, a South Central Ventilation study, and an Air Filtering Study. AHFC has also asked CCHRC to review the new ASHRAE 62.2 ventilation standards and make recommendations. (*See What's New in Research at CCHRC? page 2*)

CCHRC was represented by Mike Musick at the Canadian Housing Conference in Dawson City in July and by Gerald Goodman at the Yukon and Northern First Nations Housing Conference in Whitehorse in early October.

Staff and board are off to Juneau from October 8 to October 12 to attend a professional planning session with Dennis McMillian, president of the Foraker Group and hold a CCHRC Annual General Membership Meeting and Board of Directors Meeting in conjunction with the Alaska State Home Builders Association Convention. CCHRC voting members were mailed an information packet concerning this meeting a couple of weeks ago. We hope to see many of you there.

If your membership has lapsed, you will find a membership renewal form enclosed and membership information is also available at our website.

Message from the President/CEO

Dear CCHRC members and supporters:

This should be a very productive winter for research on important issues to the builders and residents of our great state. With the cooling weather conditions, initiating a number of new studies and completing projects begun last season will begin in earnest. I am particularly anxious to see work on South Central Alaska's ventilation strategies make progress. Addressing this most highly prioritized project is long overdue. I'm committed to having some results available to the builders in our state's most popu-

lated region by the building season of 2004.

This is the end of our third year since incorporating. The CCHRC staff and board of directors are an extremely strong team making possible the vision that Alaskan Builders had a few years ago of creating the premier housing research center in the circumpolar north. Clai Porter has been tireless in his strong leadership of the board and as architect for the research facility. CCHRC's Director of Research (John Davies, Ph.D.) has been with us now since the spring. His talents and enthusiasm are add-

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What's New in Research at CCHRC?

Dr. John Davies, Director of Research

As we have listened to discussions of proposed research projects in the various Research Advisory Committee meetings, one topic always rises to the top of the list: indoor air quality, or the lack of it in too many homes across the state. The Technical Committee of the Board of Directors has made ventilation strategies the highest priority research issue for CCHRC. So while we continue to work on a number of existing projects, we have initiated several new projects related to indoor air quality and ventilation.

Already approved and underway is a project by Steve Wisdom and Associates in the Kenai Peninsula area to monitor the IAQ in 100 homes. Each home will be monitored over two days for carbon monoxide, carbon dioxide, temperature, relative humidity and radon. Also, each home will undergo a BEES ventilation check, ultrafine particle sweep and pressure imbalance testing. Data from all homes investigated will be analyzed for trends or patterns in the causes of poor indoor air quality. A final report will summarize the findings and make recommendations for remediation of existing homes and improving ventilation techniques.

In the design stage is a project in the Anchorage area by John Freeman aimed at determining if the BEES approved, skuttle air ventilation strategy for homes with gas-fired, forced-air furnaces is standing the test of time and is the most cost-effective solution available. Many homes in South Central Alaska are heated with forced-air furnaces and rely on the furnace fan and a skuttle air vent to provide fresh air to

the house. Stale air is exhausted using bathroom fans with occupant switches, dehumidistats, or timers to control their operation. There are a variety of assumptions that are made in the design of these systems and we want to know how well they are working out as real people actually live in the homes. This will be an equipment intensive project, as we want to monitor the run-time of the furnaces and bath fans as well as the IAQ in homes utilizing several different types of exhaust fan strategies. We hope to identify a cost-effective solution that meets BEES, provides good indoor air quality and saves energy.

We have received a proposal to evaluate how well different outdoor air filtering systems work for episodes of cold-weather inversions, spring time pollen releases, and summer forest fire smoke inundation. Bill Reynolds at Solutions, Inc and Cathy Cahill at UAF have teamed up to sample organic compounds produced during these air quality episodes both outdoors and indoors. They will also test a number of filters that can be added on to an HRV to reduce the amount of the outdoor air contaminants that are brought indoors by the HRV. We hope to produce a Best Practices Brochure to provide cost-effective solutions for people with different sensitivities.

We are looking forward to the results of these studies because they should provide some solid, data-backed recommendations to one of the most important aspects of modern home design – an effective, affordable system to provide fresh air that is energy efficient.

Research & Test Facility

This past month the RTF footprint was covered with straw and EPS insulation to keep the seasonal frost out so that we can break ground on the foundation as early as possible in the coming construction season. The site was secured with a temporary construction fence. A Driveway Permit Application was submitted to the AK-DOT for the 1700 foot access road in to the site from Fairbanks Street. After substantial iteration, that application was approved. Construction of the access road should be initiated in mid-October, pending review and approval of the DOT-driven changes to the access road by the university. A new route for the access road is also being submitted for review in the next few days. The DOT and university mandated changes increase the cost of the access road by about \$10K.

by Don Cott, Ph.D., P.E. Project Manager

This month DOT also piled gravel about 40 feet high on the Thompson Drive site immediately adjacent to our construction site. The weight from that gravel is squeezing water from the saturated silt below, which has been running across to our site and saturating the surface silt. How deep the problem goes, and how much it may effect our plans for building early next season, are currently being evaluated. Meanwhile, good progress has been made with the definition of the strong floor in the Structures Laboratory, with the drainage and hydro test systems in both labs, and with moisture control questions (vertical vs. horizontal heave testing) in the Frost Heave Laboratory. All these questions relate to the details of how the floor slab will be designed.

The Coalition behind the Cold Climate Housing & Infrastructure Research & Testing Facility

Jack Hébert has been promoting the idea of building a research and testing facility (RTF) in Fairbanks for over a year now, and judging from the enthusiasm he has generated in many different quarters, it is a concept whose time has arrived. CCHRC has been working to form partnerships with other organizations to bring as much expertise and support to this project as early as possible.

The University of Alaska was the first to see the potential of the RTF and has written a letter of intent in providing a site for the building on its Fairbanks campus. Both parties are currently working on the Joint Use Agreement.

The University of Alaska's Institute of Northern Engineering (INE) will be leasing space in the new RTF for a structural testing lab. Faculty engineers at the University are working closely with CCHRC to design the components for this lab to meet their needs. As well, a number of engineering faculty are involved in an advisory roll in the facility's structural, mechanical, electrical, soils analysis and site planning. Last semester, engineering students designed an access road as part of their course work. The collaboration between CCHRC and INE is expected to bring many research dollars to both parties as the relationship develops.

The Cooperative Extension Service (CES) has recognized that working with CCHRC will further the focus of its mission and has committed to leasing office space in the RTF. CES will become a major part of CCHRC's outreach strategy.

Golden Valley Electric Association (GVEA) has written a letter of intent to develop a long-term relationship with CCHRC for the purpose of demonstrating the potential of using renewable and alternative energy in conjunction with energy efficient lighting, cogeneration, power management systems, and other energy saving strategies in Interior Alaska. The RTF provides a good opportunity for GVEA to advance several of its education and training goals while also allowing CCHRC to incorporate cutting edge energy efficiency and renewable power into the building. John Davies has been appointed to their Green Power Advisory Committee.

The State of Alaska Department of Transportation will be partially funding and assisting in the design of a frost heave test bed laboratory as part of the RTF. This lab will have the potential to support a variety of research projects.

Alaska Chapter of U.S. Green Building Council Forming

An Alaska Chapter of the U.S. Green Building Council (USBBC) is in the organizational phase. The USGBC is the nation's foremost coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. The goal of the Alaska Chapter is to be the state's point of contact for promoting this type of building, so their main focus will be education, networking and collaboration. The group consists of architects, engineers, builders and green energy enthusiasts from Juneau, Anchorage and Fairbanks, and welcomes new members. The Alaska Chapter timeline follows:

1. Committees set up by the end of 2003
2. Strategic Plan draft complete by the end of January 2004
3. Apply for Provisional Chapter by June 2004.

Jack Hébert, John Davies and Mike Musick from CCHRC are members and John will be attending the GreenBuild Convention in Pittsburgh this November. One of CCHRC's goals for the Research & Testing Facility is to make it a certified LEED building. The LEED (Leadership in Energy and Environmental Design) Green Building Rating System™ is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. Members of the U.S. Green Building Council developed LEED and continue to contribute to its evolution.

Current Project List

**Building America II
Healthy House Initiative
Regional Housing Authority Consultation
REMOTE Study
Combustion Air/CO Study
Infrared Thermography Study
Strawbale House Monitoring Project
Housing Authority Consultation
Health House VOC Monitoring
Kenai Indoor Air Quality Study**

Other - Proposed or Under Consideration

**Development of Product Testing Lab:
Modular Housing in Alaska:
IAQ at Military Facilities in Alaska:**

*Further Information on all projects available at:
www.cchrc.org*



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ing immeasurably to the productivity of your housing research center. John's strength as a scientist is matched by the Cold Climate Housing and Infrastructure Research and Testing Facility (RTF) project director Don Cott, Ph.D. M.E. Gail and Rose keep the organization operating soundly, out of the spotlight, but invaluable in the financial and legal health of our daily activities. Mike, Phil, Bob, Gerald, Marquam and each of the project managers, contributors and scientists that work with us are essential parts of our team. The members of the RAC's keep us moving toward worthwhile research projects. AHFC, with Dan Fauske at the helm and staff like Scott and Mimi, is unwavering in supporting CCHRC's vision and potential. The founding members of CCHRC, the members of the Alaska State Homebuilding Association, Fannie Mae Corporation's management, our delegation in Washington and so many more that have contributed to our success to this point all deserve mention as important individuals in building an idea into something tangible. Each of you is part of CCHRC's team.

Three years ago I said to many of you when I was president of the Alaska State Homebuilding Association, that "CCHRC is your research center. The success of what ultimately the CCHRC will become is really up to your involvement and energy. I am just sharing with you a vision that all of us really have. We can do this together, but just a few of us can not do it alone." My statement then, you have proved to be true.

All of you have made this organization successful. Your continued input and involvement will insure and grow that success. My personal thanks to each of you.

The CCHRC Quarterly Report is sent to members, funding agencies and to those requesting information about CCHRC. Response to this report is welcome.

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.

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