



Promoting and advancing the development of healthy, durable and sustainable shelter for Alaskans and other circumpolar people through applied research.

CCHRC REPORT

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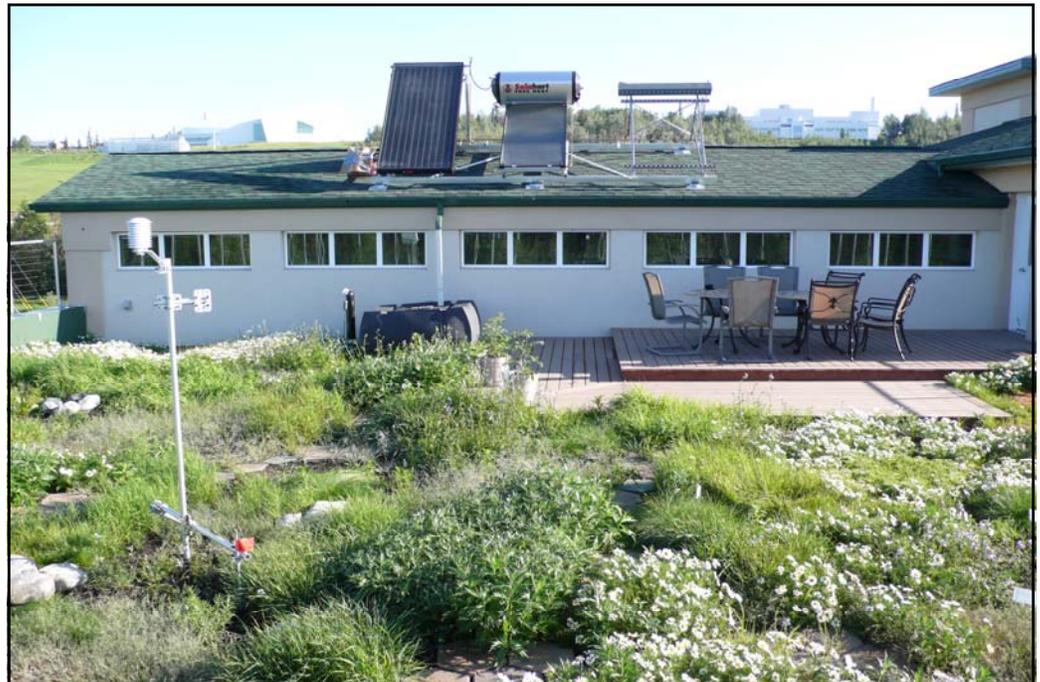
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Solar Thermal Units & CCHRC Green Roof



View of installed solar collectors and green roof over the south lab with weather station, rain water collection tank and deck. Photo taken June 8, 2007 by Gail Koepf

A Solar Thermal Panel Installation class funded by Golden Valley Electrical Association was held at CCHRC on May 5th. Solar thermal systems, unlike photovoltaics (PV), have not been widely used in the area and the intent is to increase the local expertise and test the performance of different systems. Solar thermal systems can be up to 60% efficient, compared with 20% for PV because they make a more direct use of the sun's energy.

Several local contractors took the course and are now certified solar installers. A list of installers for solar thermal and PV can be found at <http://www.alaskasun.org>.

The 3 units installed on the CCHRC Research and Testing Facility (RTF) roof include (from left to right) a Gobi 408 Heliodyne flat-plate

panel, a SolarhartKF flat-plate collector, and a 20-tube Thermomax evacuated tube system. The Thermomax tubes will not be installed until the system is ready for operation.

CCHRC is currently seeking funding to install thermistors and BTU monitoring equipment and to complete the system and conduct the research necessary to answer questions on how the systems perform in our climate.

Cooperative Extension agent Michele Hebert developed a plan for the RTF green roofs: a natural scape on the south side and a research garden on the north. The Alaska Division of Agriculture Plant Materials

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Research Update—Wood Energy

Dave Misiuk

If you have recently visited or driven past our Research and Testing Facility, you may have noticed the twelve tractor-trailer loads of aspen, birch and spruce logs scattered across our west lawn. This marks the exciting beginning of preparations for our biomass energy system which we hope to install and incorporate into a larger Hybrid Micro Energy Project for our building that will also harness solar and wind energy. Part of this load of logs has already been prepared and is drying for use in our emissions and efficiency testing of wood-burning appliances which will commence in conjunction with the Forum on Sustainable Northern Shelter occurring at the end of October. We have been working closely with the Masonry Heater Association of North America (MHA) president Norbert Senf and former-president Jerry Frisch on testing issues and procedures and both have been invited to Fairbanks for the forum and will assist in getting our testing program started. Norbert and Jerry are both founding members of the MHA and are considered to be the foremost experts on masonry heater testing and development. They bring with them over 60 years of combined experience. John Crouch, Director of Public Affairs for the Hearth, Patio and Barbeque Association (HPBA) will also be attending the forum and will demonstrate a

voluntary EPA wood stove change out program. The HPBA currently represents the wood stove, fireplace and masonry heater industries, among others.

It is a very important time in the world of wood-burning emissions testing with the tightening of EPA emissions standards and also major revisions to testing requirements as the wood-burning appliance industry moves away from EPA testing methods and into a new ASTM (American Society for Testing & Materials) based system. With the new emissions standards mandated by the EPA, air quality non-attainment areas in Alaska are pressed for a solution like many other states; it is our intent to help develop an effective and sensible program which could also be used as a model for other states and would demonstrate that Alaska can be a leader in these important issues. I am representing CCHRC on MHA's Technical Committee dealing with emissions testing and building codes for masonry heaters, and on the ASTM Committee E.06.54 on Solid Fuel Burning Appliances. I am also a professional member of the International Code Council (ICC). Since the beginning of our Wood Energy Project in March, we have been pleased to consult on masonry heaters and building codes on projects from Bettles, Alaska to New Brunswick, Canada.



View of CCHRC Research and Testing Facility showing wood for emissions & efficiency testing and Cold Labs from UAF.

Photo taken 7/3/07 by Dave Misiuk

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

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Center donated the native seeds for the green roof. The south roof is now a verdant mat of native grasses and flowers. The north roof was planted in annual rye grass and will be used for student research projects.

The green roof concept is important because as forests and agricultural lands are replaced with concrete and buildings, we must do something to recover the lost green spaces. Vegetated or green roofs are one potential remedy for this problem. Studies are being conducted concerning thermal analysis comparisons between green roofs and traditional

impervious roofs. It is important to capture the energy flux through the two roof systems in order to understand their functioning. To achieve this, temperature profiles are being taken though a cross section of the roof. Several test sites are established to measure air temperature, incoming solar radiation, wind speed and direction and relative humidity.

Studies such as this on green roof technology could show how green roofs can be a great tool to use to minimize the concern of impervious cover in this extremely important watershed.

CCHRC Update

Gail Koepf

The activity level rises at CCHRC as it does throughout the North as the daylight increases and temperatures rise. The RTF has hosted numerous events including a Venmar Ventilation Training, an Energy Rater Training, a Log Building Workshop and a week long class put on by Siemens on its Control Systems. Siemens has also consulted with CCHRC on developing plans for a pre-engineering curriculum for high school students on sustainability, energy use and emerging systems.

CCHRC has also added to the staff to keep moving forward. **Danielle Jamieson** worked for us a student intern last summer and has now joined us full time after completing her masters degree in Historic Preservation of Architecture. She is working closely with Jack as Executive/Design Assistant and hopes to pursue her interest in sustainable community design and green architecture.

Dave Shippey has joined our staff as Building Manager/Project Manager. Dave worked on the RTF construction from the very beginning and brings intimate knowledge of the building with him. Along with building management & maintenance, he will also work on projects as the need arises.

Kirsten Reifenstuhl has joined us as a summer intern to begin getting the CCHRC Builders' Resource Library established and organized. She is also helping us with reception and membership.

Jennifer Jolis has moved on to organize the Alaska Federation of Natives Convention, but is helping us in the transition as **Nancy Bachner** comes up to speed in the organization of the Circumpolar Housing Conference we are holding here in October. More information on all CCHRC staff is included on

our website.

CCHRC welcomes its Board of Directors to Fairbanks for a face-to-face Board Meeting on July 9-10. On July 10th, the first Industry Advisory Council (IAC) meeting will be held via teleconference. We are proud to have seven members at the Corporate level and look forward to their initial organizational meeting.

Builders' Resource Library

The Cold Climate Housing Resource Center is quickly becoming a center of building knowledge for circumpolar people. The Builders' Resource Library is a central part of CCHRC's outreach to local builders and anyone interested in cutting-edge building technologies for Alaska and the world's cold climates. Visitors of the Builders' Resource Library are able to access CCHRC's latest research, the University of Alaska Fairbanks Library's on-line collections, as well as a broad array of texts and technical materials. Also, CCHRC has collaborated with the National Association of Home Builders to provide a wide variety of books for purchase. You can order NAHB books directly through our library, or simply order through their website at www.builderbooks.com. If you mention CCHRC (or link to their site via ours) part of your purchase will go to support our library. If you are interested in supporting the Builders' Resource Library directly, please contact us at: library@cchrc.org. We are currently accepting donations of building books and magazines. Your donation may be tax deductible, please contact your tax advisor for full information.

Membership: Please make sure your membership is updated. Membership level information and an application is available on our website at <http://www.cchrc.org/membership.html>.

**CIRCUMPOLAR HOUSING CONFERENCE
OCTOBER 28-30, 2007—REGISTRATION LIMITED!
REGISTER NOW AT: www.cchrc.org/forum.html**



The first circumpolar Forum on Sustainable Northern Shelter in a World of Diminishing Resources (the Forum), is to be held in Fairbanks, Alaska October 28-30, 2007 in conjunction with the International Polar Year. The Forum will address the challenges of constructing northern shelter and empowering northern communities to build energy efficient, sustainable, culturally and geographically appropriate, healthy homes and communities. The timing of the Forum, following the Alaska Federation of Natives Convention, and interactive web-casting to rural communities around the Arctic are part of a focused effort to include Alaska Native and First Nations peoples in the dialogue to create appropriate and sustainable homes and communities in the north.

Opening Key Note speakers are Swedish eco-municipal planner Torbjörn Lahti and Sarah James, community planner from Boston. They will speak at a free public forum on community planning through participatory processes that lead to local ideas, local development and sustainability.

Registration is limited and is open for this two and a half day event filled with great speakers, panelists and moderators from around the circumpolar north. For more information on the Forum, including a schedule of speakers and panel discussions, AND TO REGISTER, visit <http://www.cchrc.org/forum.html>.



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NAHB Launches National Green Building Program

The National Association of Home Builders held their Spring Board meeting in Washington, DC on June 5-10, 2007. Jack Hebert and Mike Musick were some of the 1200 Local Directors from all 50 States to attend strategy meetings for developing a unified message to take to our respective legislators. This year our focus was on Immigration, EPA/Corps Storm Water regulations, Federal mortgage programs and Climate Change. We met with Senators Stevens and Murkowski and Representative Young.

The most remarkable moment of the weekend came when all 1200 Directors voted to include \$2.2 Million in the 2007 budget to implement and promote a voluntary National Green Building Standard based on the National Association Model Green Home Building Guidelines. Go to www.nahb.org to check out the green building momentum and download the NAHB Model Green Home Building Guidelines. Green building is going main steam with around 100,000 homes being built and certified by voluntary green building programs around the country in the last 10 years. The Interior Alaska Building Association has initiated a green building program based upon a modified version of the NAHB program. For more information go to www.interioralaskabuilders.com. Stay tuned to see which of our local builders is the first certified Green Builder in Alaska.

The **Industry Advisory Council (IAC)** is comprised of CCHRC corporate level members and will be advising CCHRC on industry research needs. It will hold its first organizational meeting at the RTF and by teleconference July 10, 2007. The IAC and RAC are key to helping CCHRC focus its research agenda.

The CCHRC 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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