

2/14/12

Overview

by Cold

Climate

Housing

Research

Center

<TARGET><BILL></BILL><SUBJECT>2-14-12 Overview by Cold
Climate Housing Research
Center</SUBJECT><COMM>HENE27</COMM></TARGET>

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



Research • Innovation • Education



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The Challenge

- Cost of energy going up
- Cost of building going up
 - Construction and maintenance
- Weather and climate change
- Cost of poor housing
 - Health and safety hazards
 - Continuous burden to the state





Alaskan Shelter—a matter of life and death

- Interior Environment affects our lives
 - Egress, Mold, Moisture,
 - CO, Radon, Allergens,
 - Ventilation
 - Psychological and financial burden





2011 -2012

RTF is completed, CCHRC's effectiveness grows, and output increases to 20 active projects at any given time.

Over 50 active projects at any given time ranging from policy, to applied research, to innovative new designs.

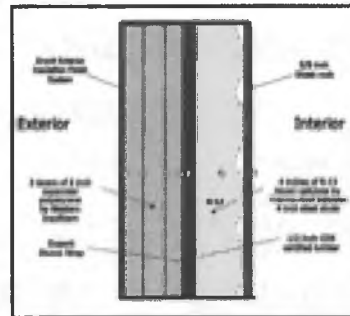
2006 -2011

Early research began addressing critical efficiency and health needs statewide.

1999 - 2006

Founded by members of the Home Building Industry .

1999





Research and Testing Facility

Uses Less:

Uses 50% less energy than the average building of the same size.

Built for Less:

- Built for less per square foot than comparable buildings.

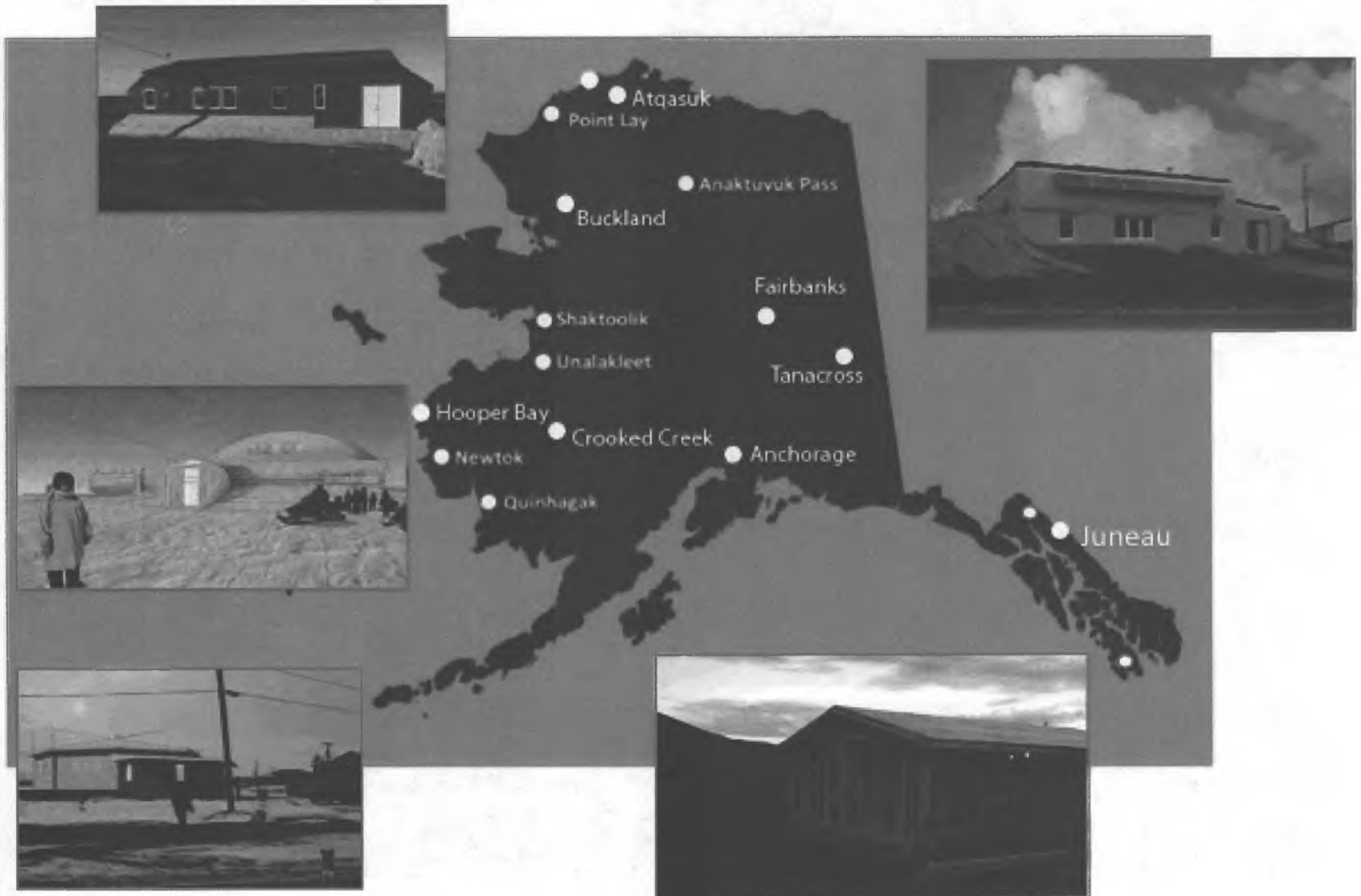
Performs Better:

- Farthest north LEED Platinum building in the world.





Helping communities statewide



SUSTAINABLE NORTHERN SHELTER



A PROCESS

SUSTAINABLE NORTHERN SHELTER

LEARN FROM THE PAST



**Our Question is not “Should we go back to living in Sod Igloos,”
But “What can we learn from how they worked?”**

SUSTAINABLE NORTHERN SHELTER ADAPT TO THE PRESENT



"My house is always full. I have 37 grandchildren. We need to build for the young people. Our people moved from site to site until the state told us to live here for school for our children. So now, we need to build up this site, here where we are, for our children."

Nathan Hadley Sr, Buckland, AK

SUSTAINABLE NORTHERN SHELTER PREPARE FOR THE FUTURE



Anaktuvuk Pass Prototype

Energy and Cost Efficient





Anaktuvuk Pass Prototype

Challenges

- 16,000 HDD
- Electricity 60 cents/kWh
- Heating oil \$8/gallon
- 1,400 gallons/year
- New house is \$750,000
- Last house built 10 years ago
- Transportation costs

Outcomes

- Cost over 50% less than new home quotes.
- Less than 150 gallons fuel in 2009
- Completed in four weeks.
- Local workforce
- Approaches net zero



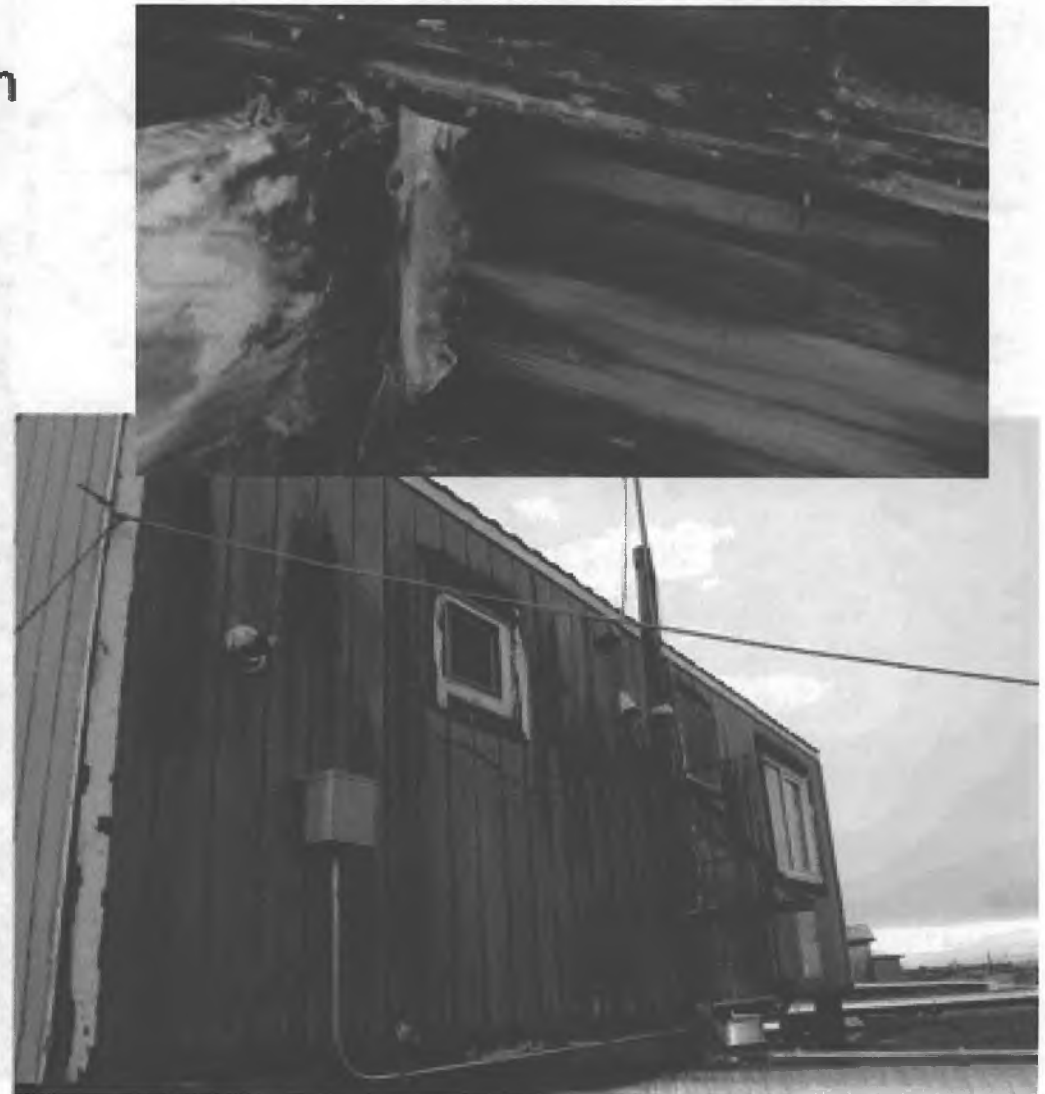


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Quinhagak

Energy efficient,
healthy solutions for an
aging housing stock





Quinhagak

Constructability



Design

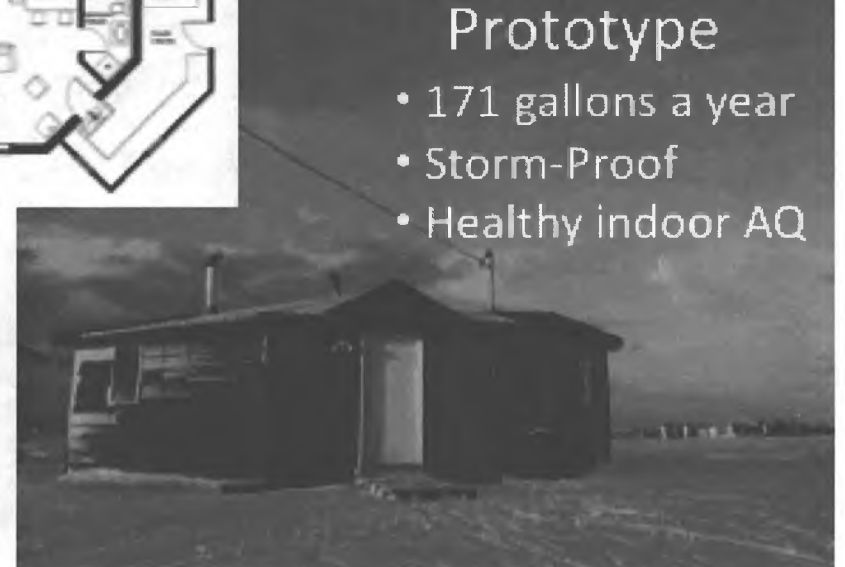


Local labor



Prototype

- 171 gallons a year
- Storm-Proof
- Healthy indoor AQ





The Sustainable Village at the University of Alaska Fairbanks

A development at UAF that demonstrates new building technologies and serves as a living and learning center for UAF students.

- Renewable energy
- Resource efficiency
- Food production



SPRING 2012

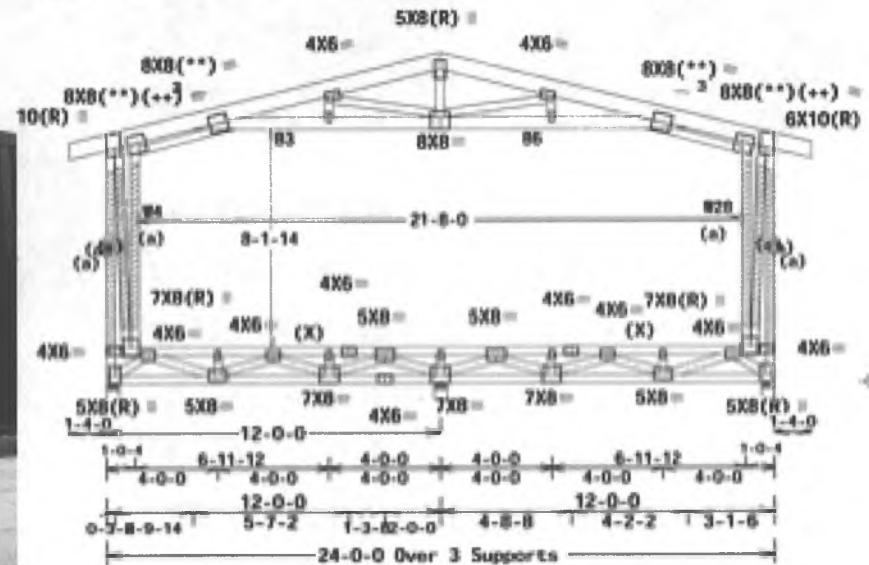
"A dynamic and evolving community at UAF, committed to the tenets of sustainability, demonstrating what can be achieved to secure an enduring future for people of the circumpolar north."





Innovation

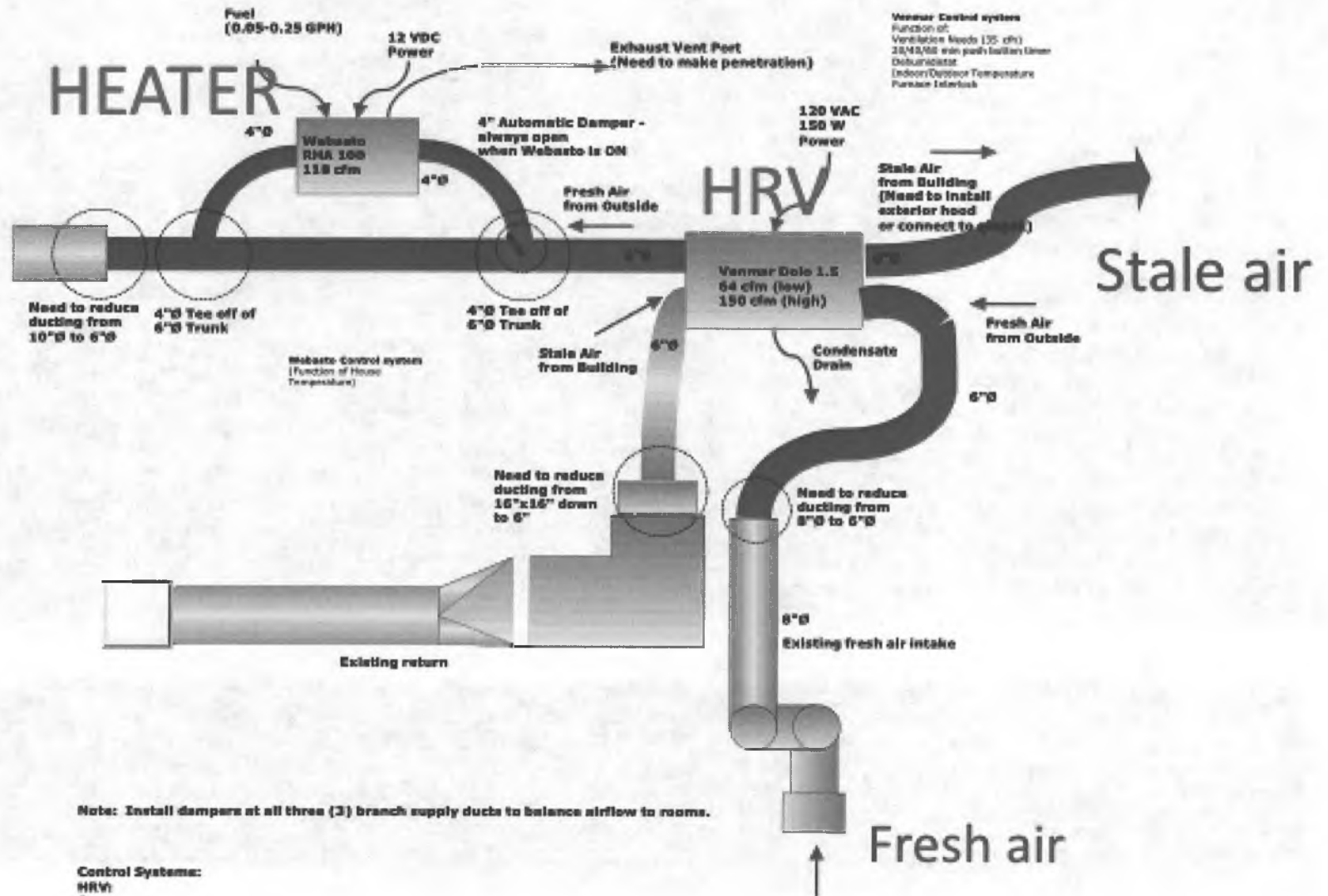
Developing solutions for the future





BrHEAThe System

ADDITIONAL INFORMATION



Passive Refrigeration



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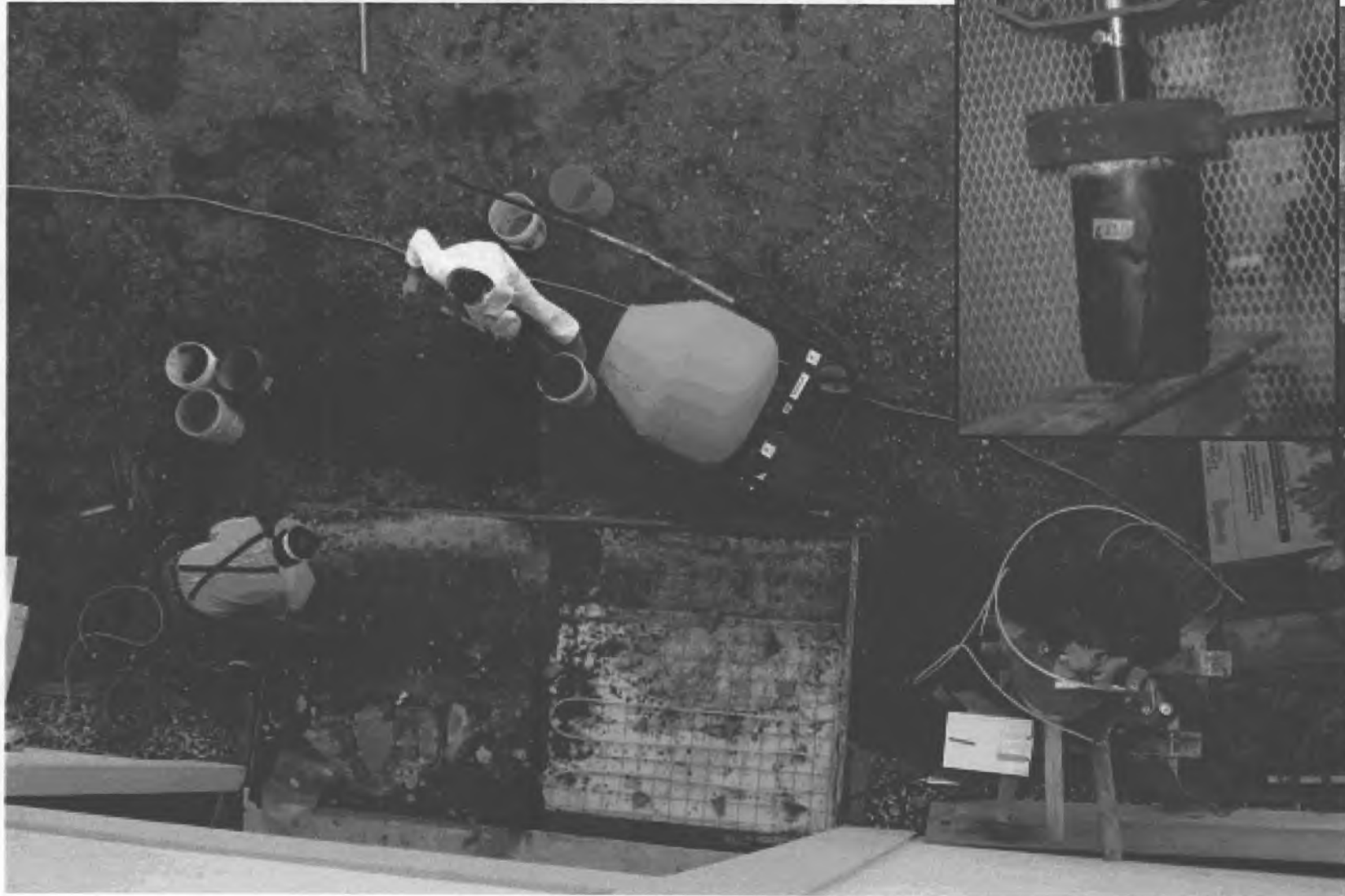




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Geopolymers





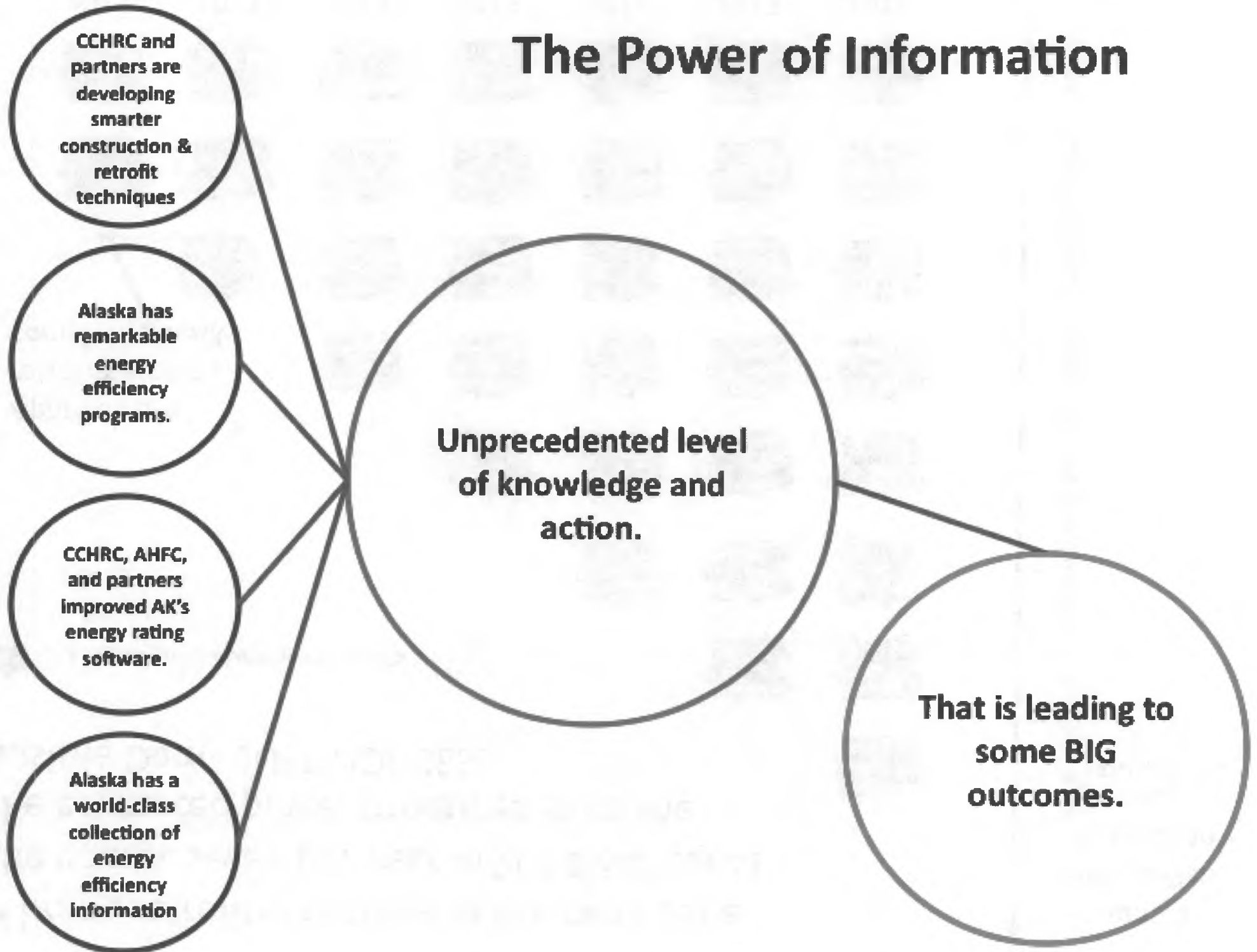
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Net-Zero Energy in Fairbanks



The Power of Information



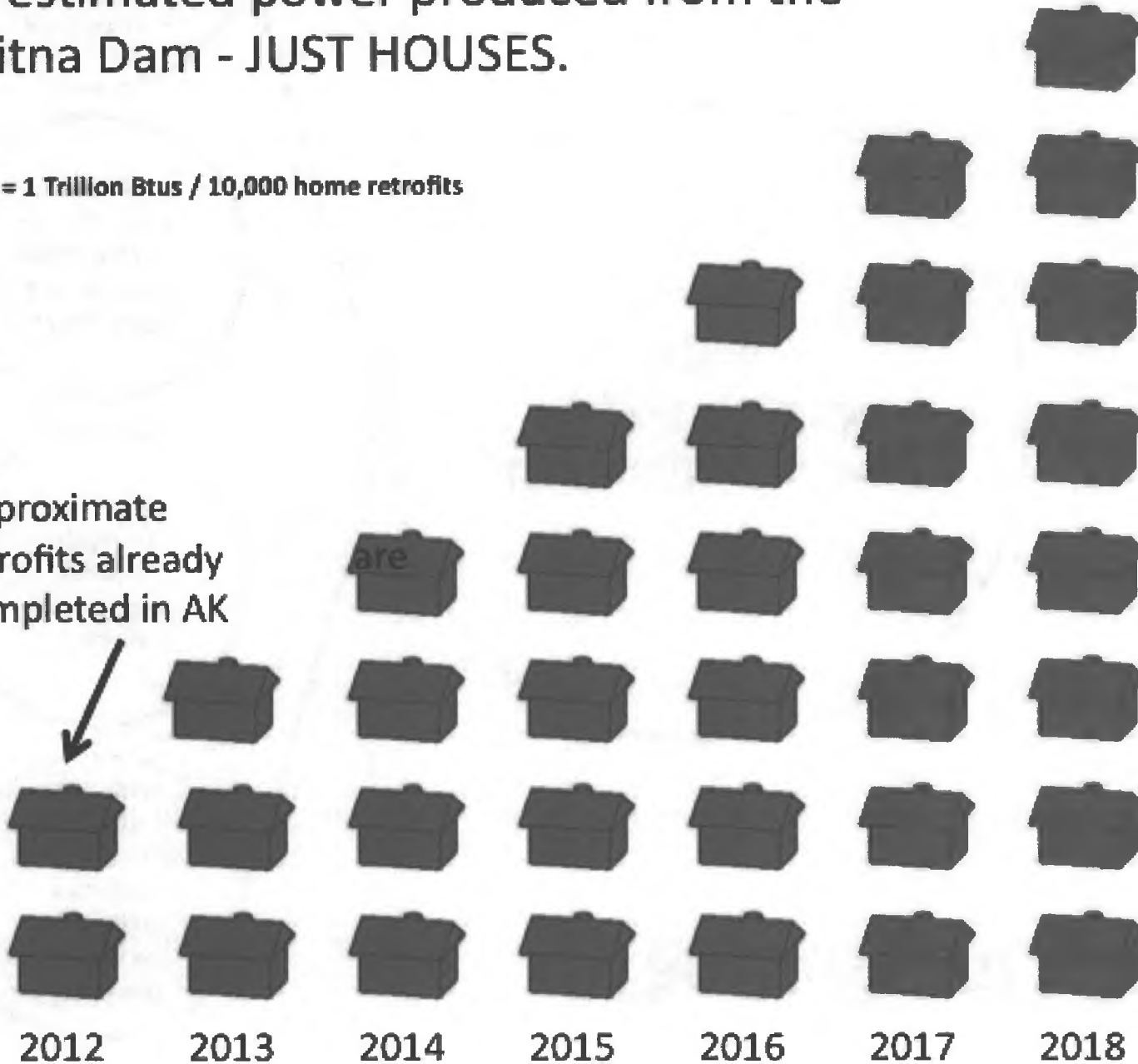
If home retrofits continue at the peak pace the energy saved per year in 2018 will equal the estimated power produced from the Susitna Dam - JUST HOUSES.

Annual
Susitna Dam
Production

~8.8 trillion
BTUs projected

 = 1 Trillion Btus / 10,000 home retrofits

Approximate
retrofits already
completed in AK



Alaska Solutions, Global Sustainability

Shelter, food, water, and stewardship of resources are of global concern.

Alaskan rural communities face the challenges of tomorrow, today.

The solutions we apply here can be a model for the rest of the nation and the world.





Creativity of the North

Alaskans are leaders in innovation

- Surviving and thriving in the world's most difficult conditions
- First pioneers who came across the Bering Straits 10,000 y.a.
- Newer pioneers who moved West and then came North
- Creative, skilled, artistic



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Thank You!

Follow our research on: www.cchrc.org
Blog: makinghouseswork.cchrc.org
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