

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



*Research • Innovation • Education*

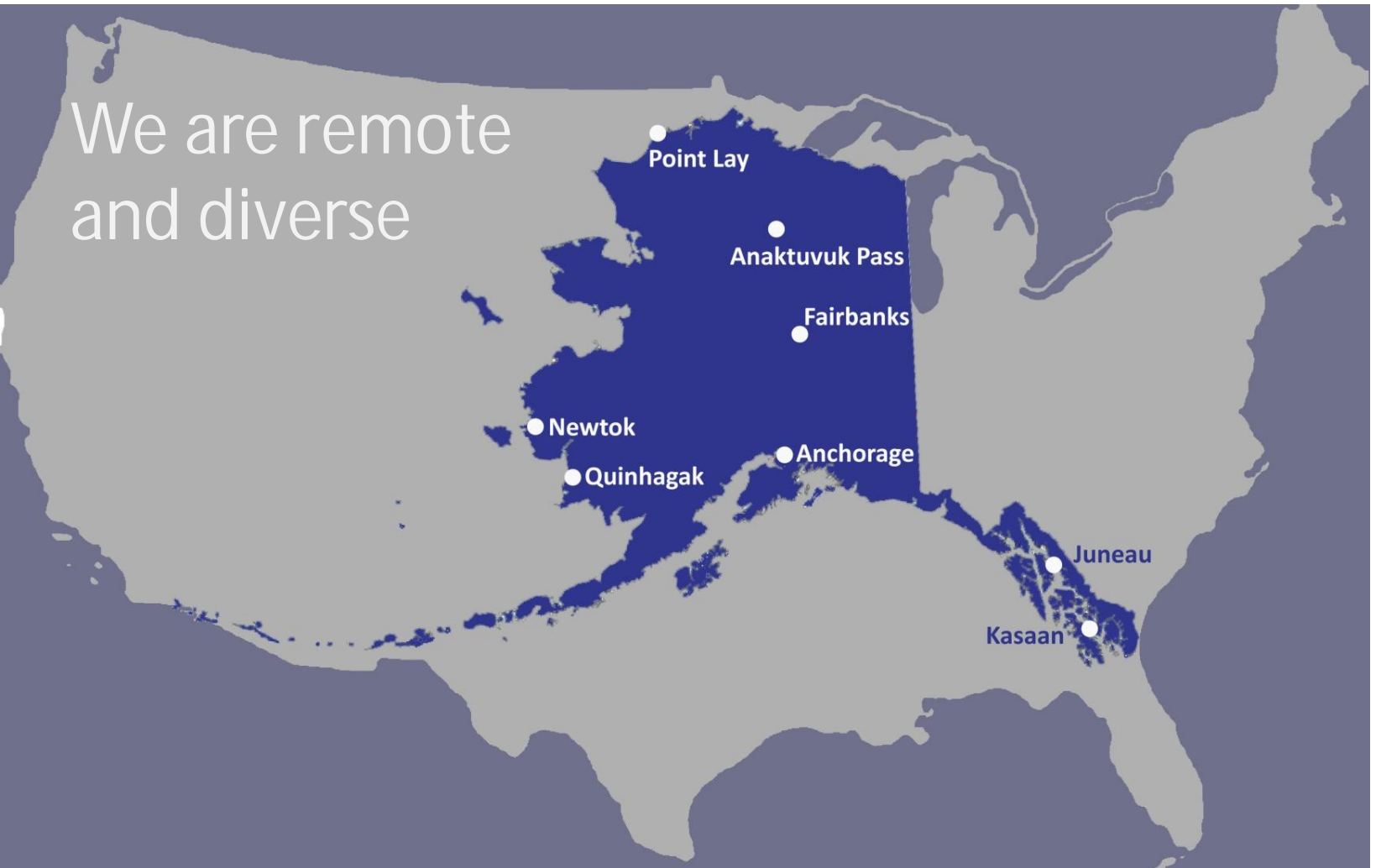


*Cold Climate Housing Research Center*

**CCHRC**



We are remote  
and diverse







**CCHRC**

COLD CLIMATE HOUSING  
RESEARCH CENTER



It's hard to get to work







**CCHRC**

COLD CLIMATE HOUSING  
RESEARCH CENTER

It's hard work







**CCHRC**

COLD CLIMATE HOUSING  
RESEARCH CENTER



Alaska is a Place of Problem Solvers







**CCHRC**

COLD CLIMATE HOUSING  
RESEARCH CENTER





# HOW DOES CCHRC SOLVE PROBLEMS?



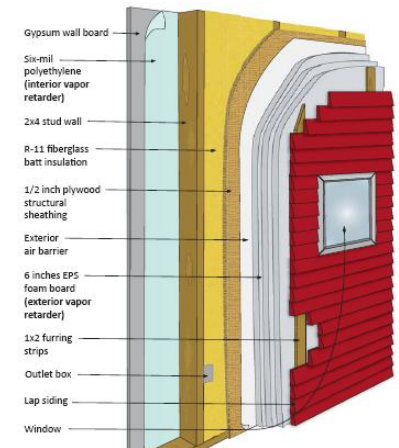
Understand the problem



Gather Information



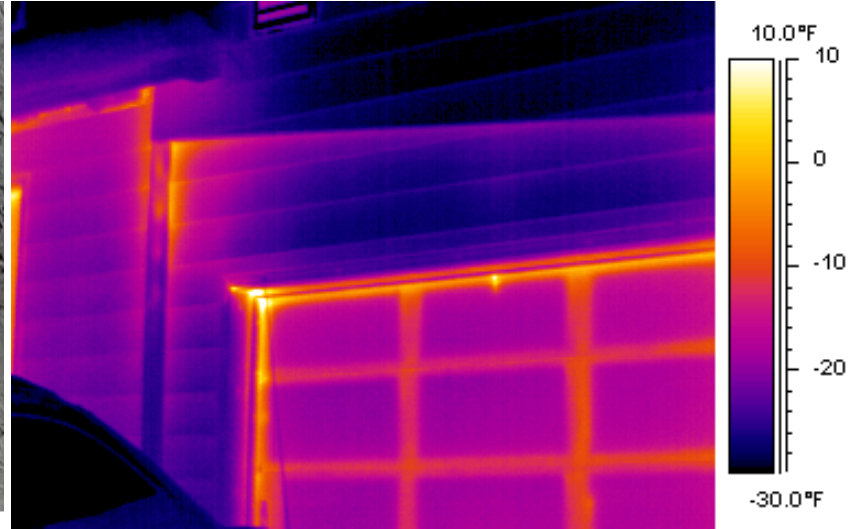
Identify Solutions





# HOW DOES CCHRC SOLVE PROBLEMS?

## Understand the Problem







# HOW DOES CCHRC SOLVE PROBLEMS?

## Understand the Problem







# HOW DOES CCHRC SOLVE PROBLEMS?

## Gather Information

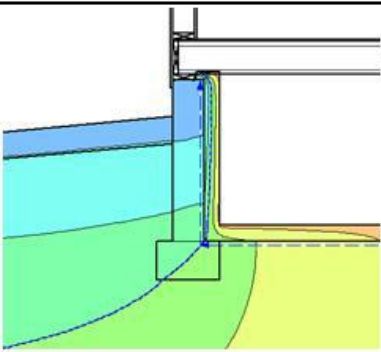
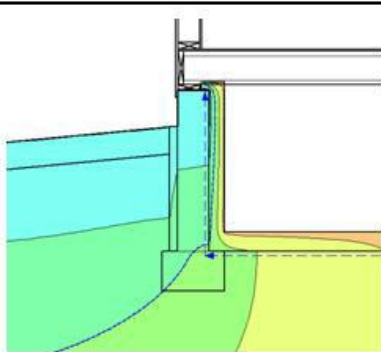
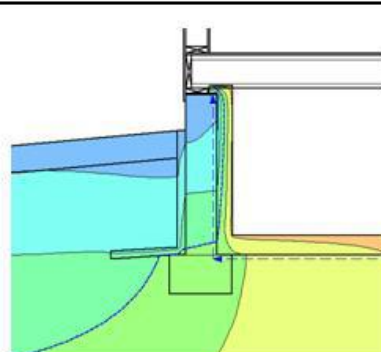




# HOW DOES CCHRC SOLVE PROBLEMS?

## Gather Information



	Scenario A	Scenario C	Scenario D
Fairbanks, AK Average Temperature: 36.5°F 100% MC <sup>(1)</sup> Level Soil, 8% MC <sup>(1)</sup> 100% Wall,			
	No Exterior Insulation	Vertical Exterior Insulation (2" XPS R-10 Foam Board)	Vertical Exterior Insulation with Horizontal Wing (2" XPS R-10 Foam Board, 48" Total Length)

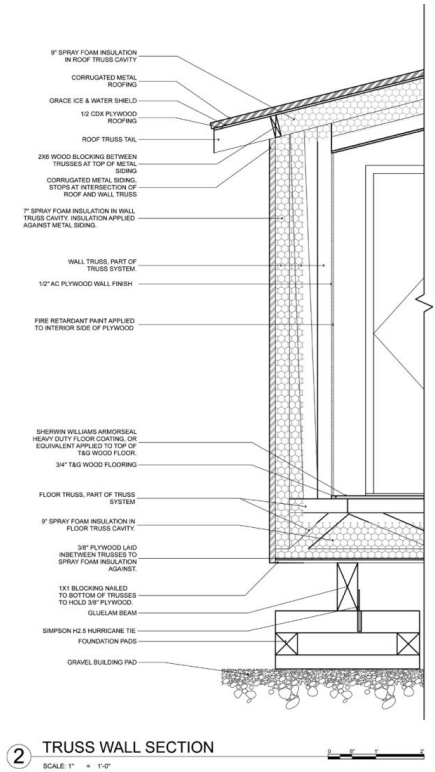
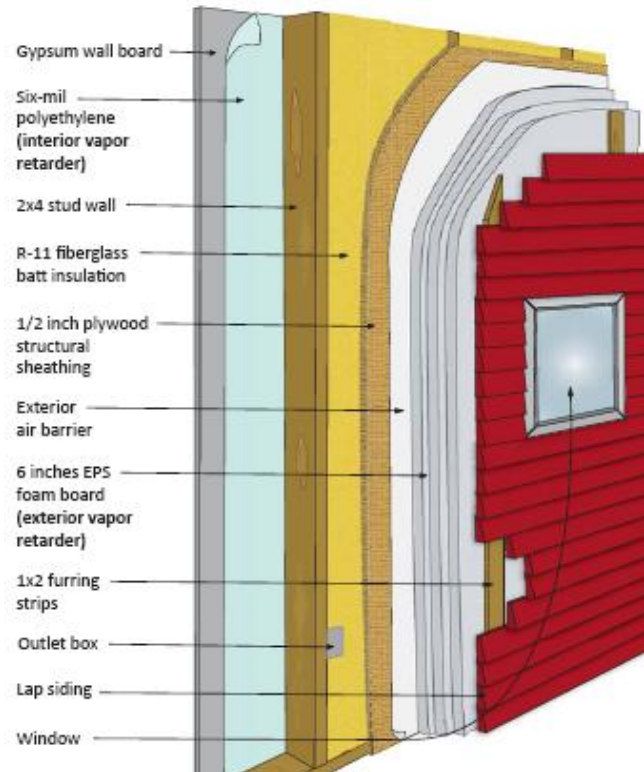
Content (MC)





# HOW DOES CCHRC SOLVE PROBLEMS?

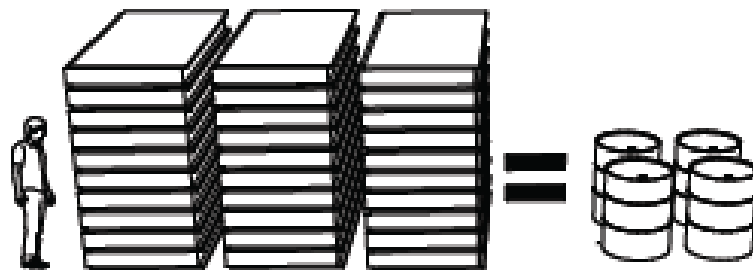
## Identify Solutions





# HOW DOES CCHRC SOLVE PROBLEMS?

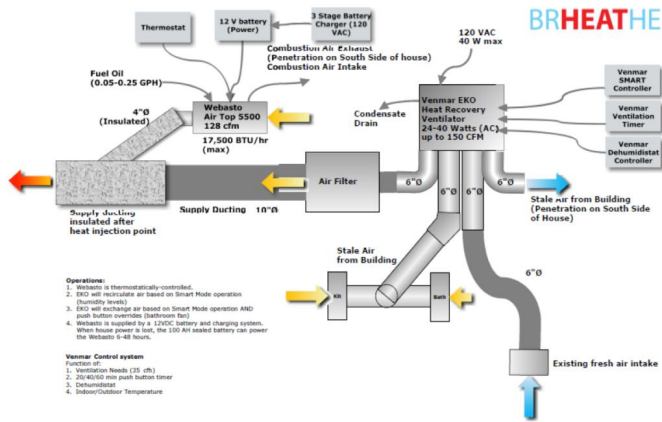
## Identify Solutions





# HOW DOES CCHRC SOLVE PROBLEMS?

## Identify Solutions







# HOW ARE SOLUTIONS APPLIED?

## Communicate with End Users

+50,000 Hits/yr

+20,000 Hits/yr

**CCHRC**  
COLD CLIMATE HOUSING RESEARCH CENTER

Building | Energy | Programs | Projects | Resources | About Us

**Safe & Effective Exterior Insulation Retrofits**  
CCHRC has summarized our latest findings on retrofits in a research snapshot. We studied six retrofit techniques over the last two winters in outfitted with 9 different test walls—each with combinations of interior and exterior insulation with vapor barriers and some without. Research two main questions: is there a minimum thick exterior insulation that can be added to prevent problems, and will adding exterior insulation create a double vapor barrier effect by trapping condensation in the wall cavity?

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

**Upcoming Events**  
Click here to view our events calendar.

**What's New**

- Spray Foaming the Foundations
- Time Lapse: Week Two of the Sustainable Village
- Sustainable Village: Laying Foundations
- Alaska Journal of Commerce: new student housing plans to cut fossil fuels
- Groundbreaking for the UAF Sustainable Village
- Fairbanks Daily News-Miner: Sustainable Village for UAF students will cut costs and oil use
- Does setting my thermostat back really save me money?
- Bethel school harnesses resources to save money
- Saving Money on Hot Water Heating
- Jobs

**Quick Links**

- AHFC Home Energy Rebate and Weatherization Program
- CCHRC Publications
- CCHRC Newsletters
- Evaluating Window Insulation Report
- Building Science Calculators

**UAF Sustainable Village**

**CCHRC in Alaska**

Map | Sat | Top | Earth

become a member

**Making Houses Work**  
Promoting sustainable Alaskan shelter

HOME | ABOUT | ASK A BUILDER | SUSTAINABLE VILLAGE | CCHRC | RSS | Facebook | Twitter

**Spray Foaming the Foundations**  
April 30th, 2012

Two of the homes will have insulated raft foundations. This allows the house to rest directly on the ground, keeping the floor warmer than if it were elevated on piles. A thick mat of spray foam is designed to prevent heat loss from affecting the frozen ground, and a cooling system was also installed in the gravel pad to chill the soils if needed.

Tags: alaska, building, CCHRC, cold climate housing research center, fairbanks, foundation, spray foam, Sustainability, Sustainable Village, UAF, University of Alaska Fairbanks  
Posted in Sustainable Village | No Comments

**Time Lapse: Week Two of the Sustainable Village**  
April 24th, 2012

The UAF Sustainable Village: Week 2 - insulated...

**Recent Posts**

- Spray Foaming the Foundations
- Time Lapse: Week Two of the Sustainable Village
- Sustainable Village: Laying Foundations
- Groundbreaking for the UAF Sustainable Village
- Bethel school harnesses resources to save money

**Associations & Organizations**

- Alaska Housing Finance Corporation
- Arctic Energy Alliance
- Cold Climate Housing Research Center
- Fairbanks Community Cooperative Market
- Fairbanks Economic Development Corporation
- Interior Alaska Greenstar Sustainability Campaign





# HOW ARE SOLUTIONS APPLIED?


## Communicate with End Users

+20,000 Hits/yr



WALLS

[ABOUT US](#)
[CONTACT](#)



**GENERAL INFO**

Walls typically represent the largest exterior surface area of a home. As a result, from an energy stand point, the wall system is a major component of the building envelope, particularly in extreme cold climates. When it comes to improving thermal performance, there are many ways to construct a wall, and the details of sealing, sheathing and insulating are even more numerous.

There are many factors that must be taken into account when designing or choosing a wall system: Energy efficiency, cost, resistance to the elements, availability of materials, and the climate in which the wall is expected to perform, are all important considerations.

**PODCASTS**

- [exterior insulation](#)
- [walls](#)

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**VIDEOS**

- [your northern home: walls](#)
- [REMOTE part 1](#)
- [REMOTE part 2](#)

**ARTICLES**

- [how does mold affect my walls](#)
- [what are the different types of insulation](#)
- [what are some green insulations](#)
- [insulating doors in log homes](#)
- [mold prevention](#)
- [how does vapor drive work?](#)
- [how do vapor barriers and house wraps work](#)

**REPORTS**

- [exterior insulation retrofits Part 1](#)
- [exterior insulation retrofits Part 2](#)
- [REMOTE walls](#)
- [REMOTE manual](#)

**PRESENTATIONS**

- [straw bale housing](#)
- [case study: REMOTE retrofit](#)

**LINKS**

- [REMOTE walls](#)

TOPICS
\* ? ! \$
HOME

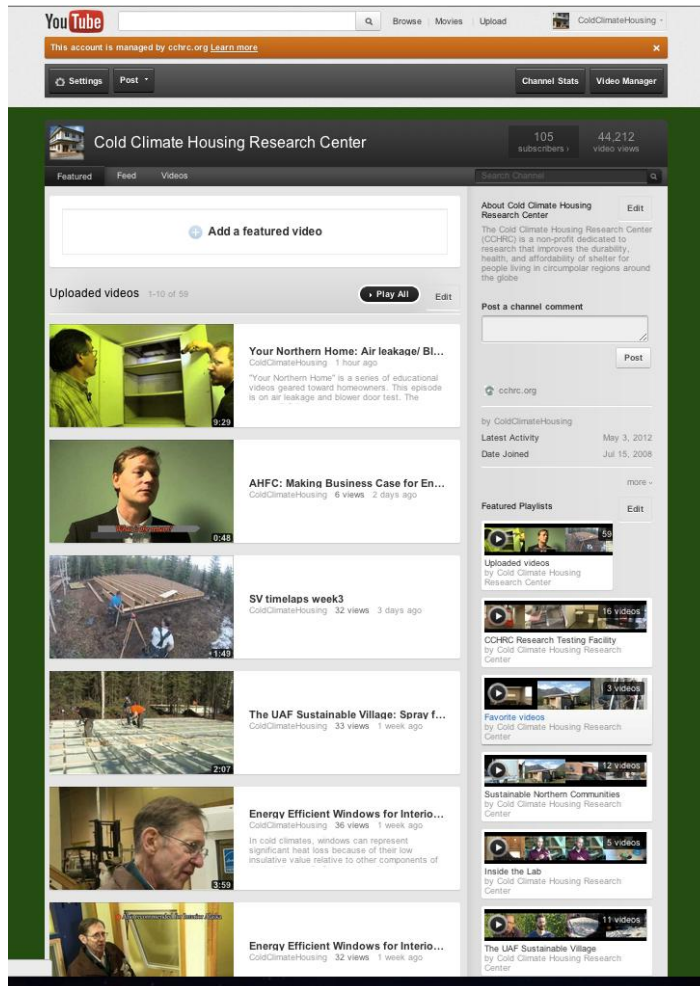




# HOW ARE SOLUTIONS APPLIED?

## Communicate with End Users

+200,000 Views



2,000 Tour Attendees  
2,000 Consultations  
50+ Classes





# HOW ARE SOLUTIONS APPLIED?

## Demonstration

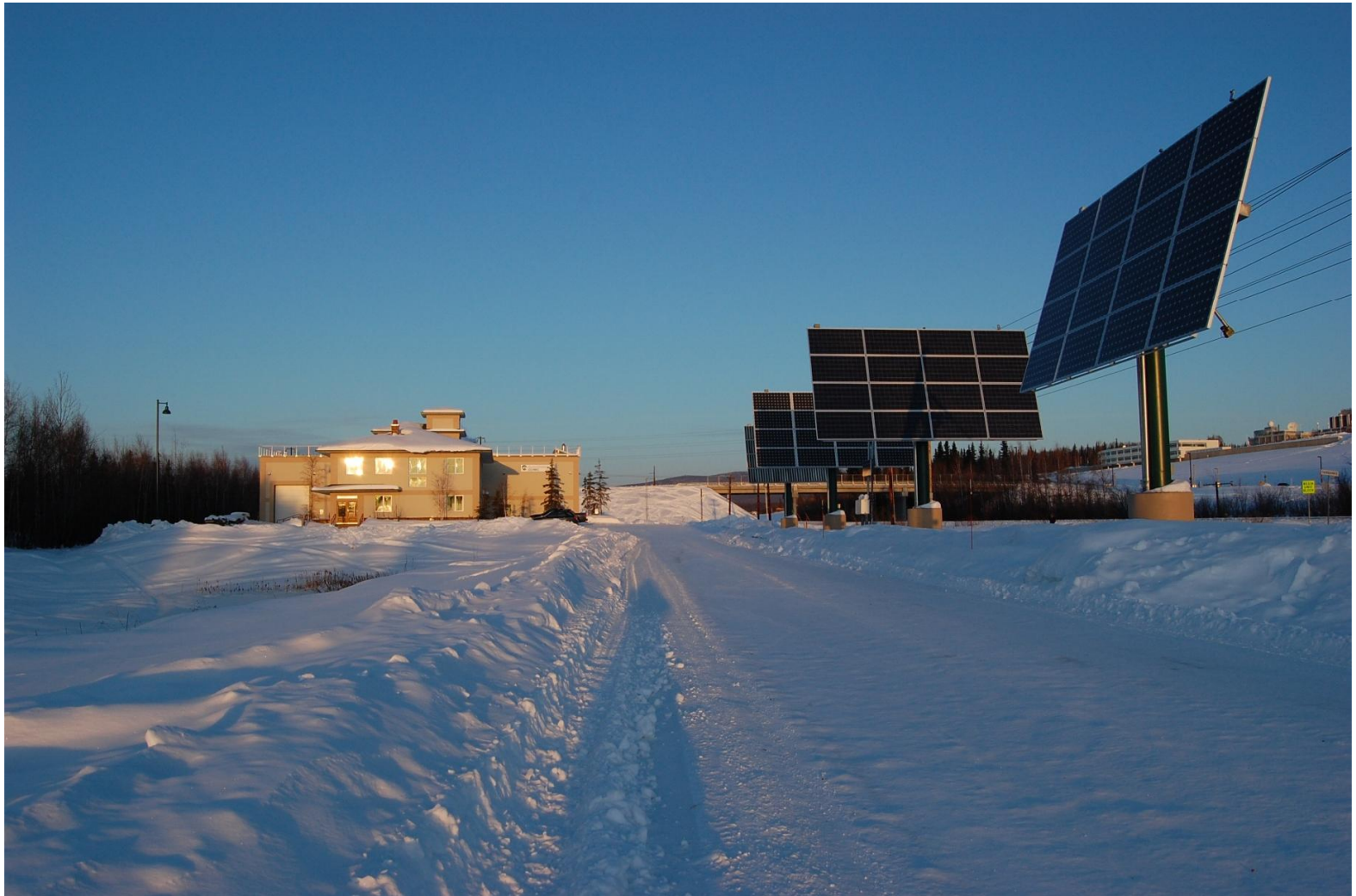






# HOW ARE SOLUTIONS APPLIED?

## Demonstration





# HOW DO WE SOLVE PROBLEMS?



## Understand the problem

High Energy Costs in Some Public Facilities  
Budget Deficit  
Long-term Burden on State



## Gather Information

Benchmark  
Investment Grade Audits  
White Paper on Public Facilities



## Identify Solutions

REAL  
Standards  
Multi-stakeholder collaborations

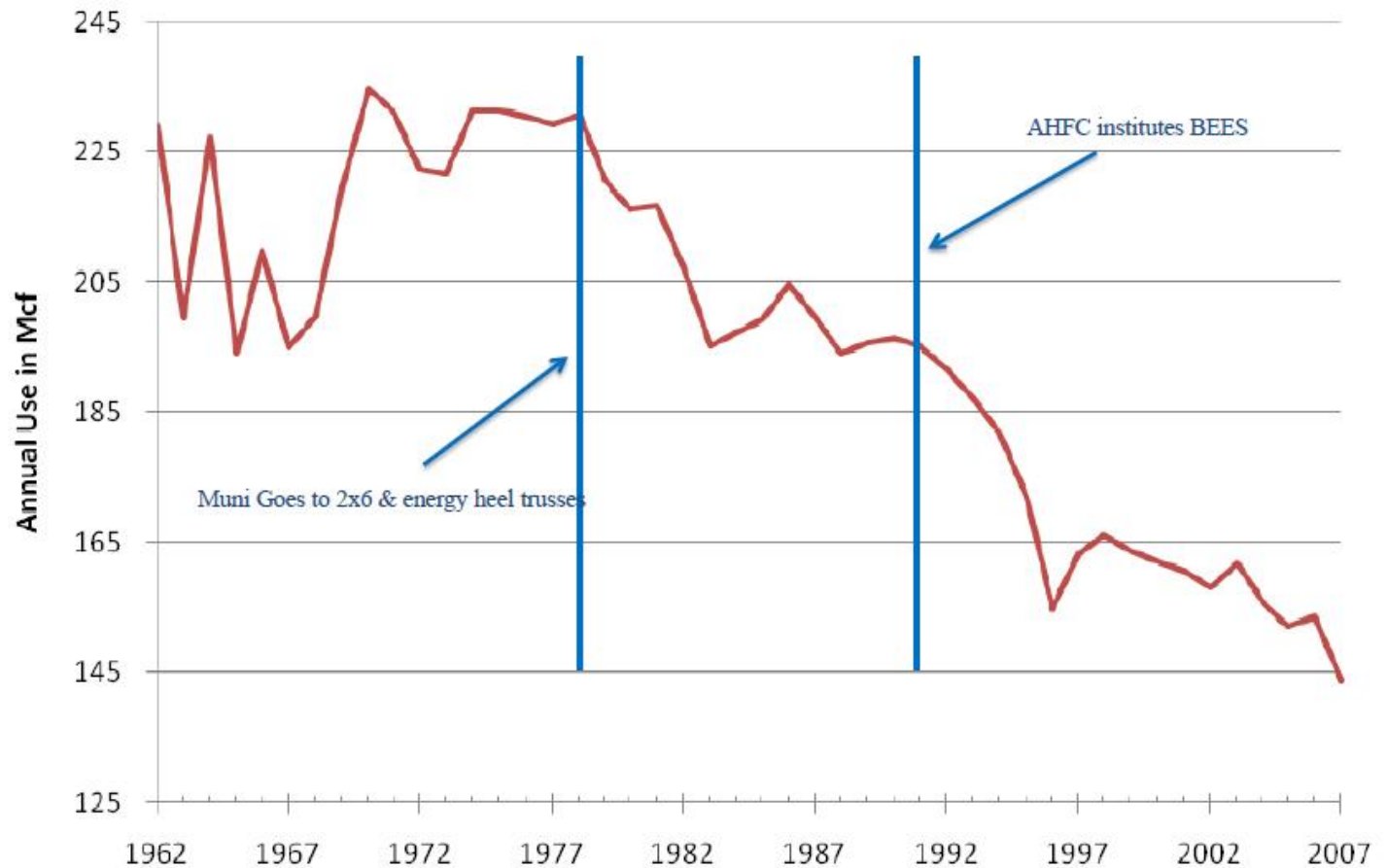


# HOW ARE SOLUTIONS APPLIED?

## Through Standards: Example from the Housing Industry



**Chart 3 - 2008 Residential Customer Average Annual Usage By Year Service Was Initiated**



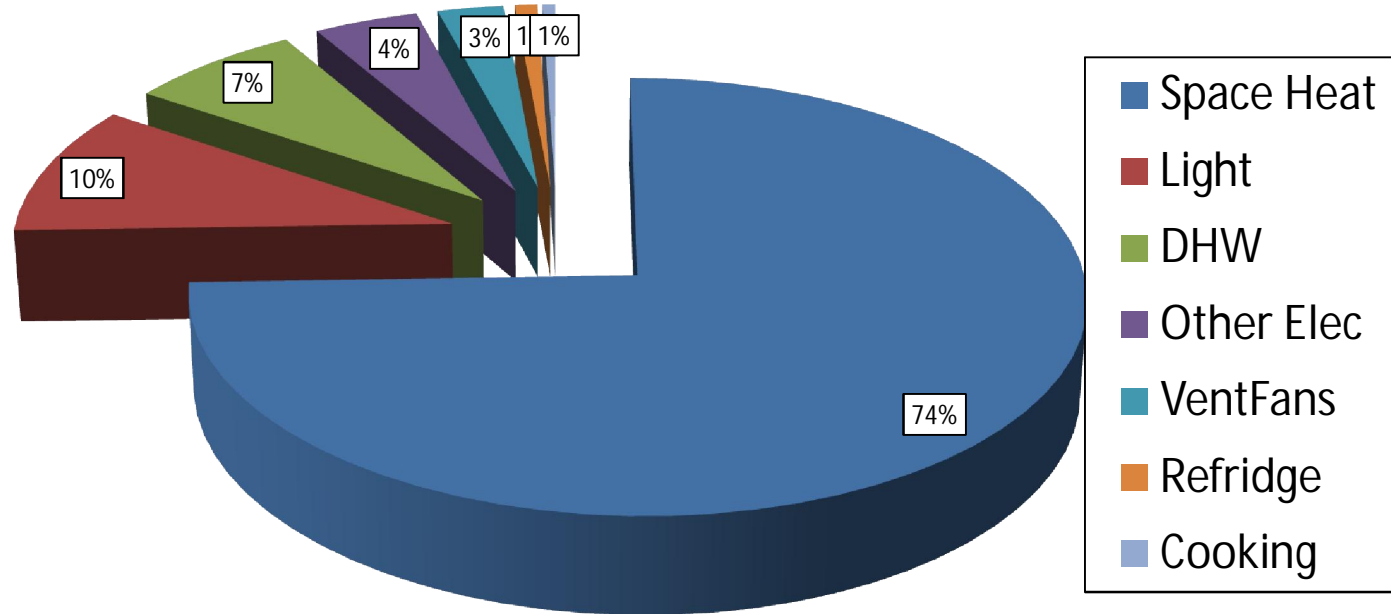


# HOW DO WE SOLVE PROBLEMS?

## Gather Information



Energy End-Use for Public Schools in Alaska



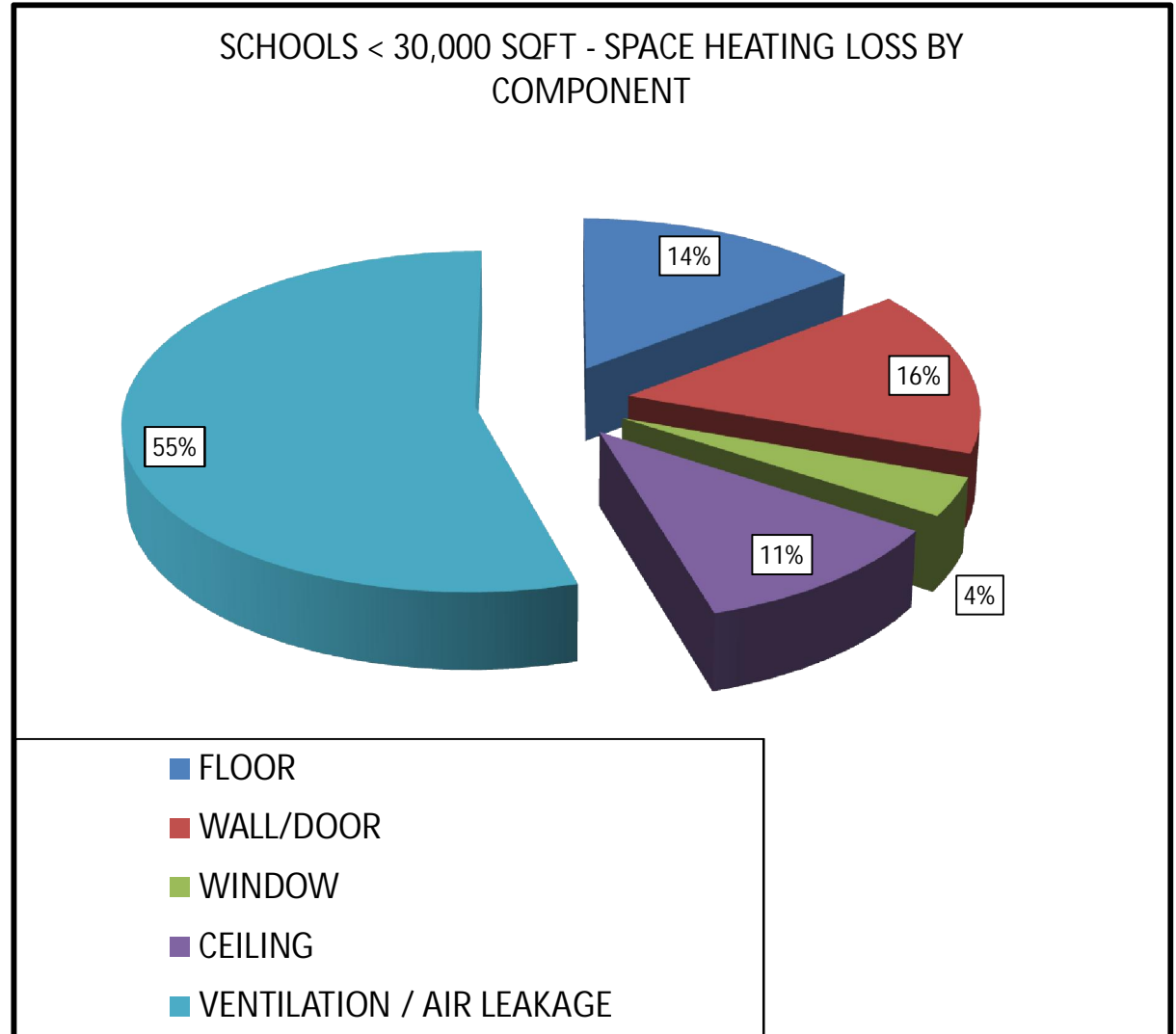


# HOW DO WE SOLVE PROBLEMS?

## Gather Information



Source of Heat Loss in Public Schools



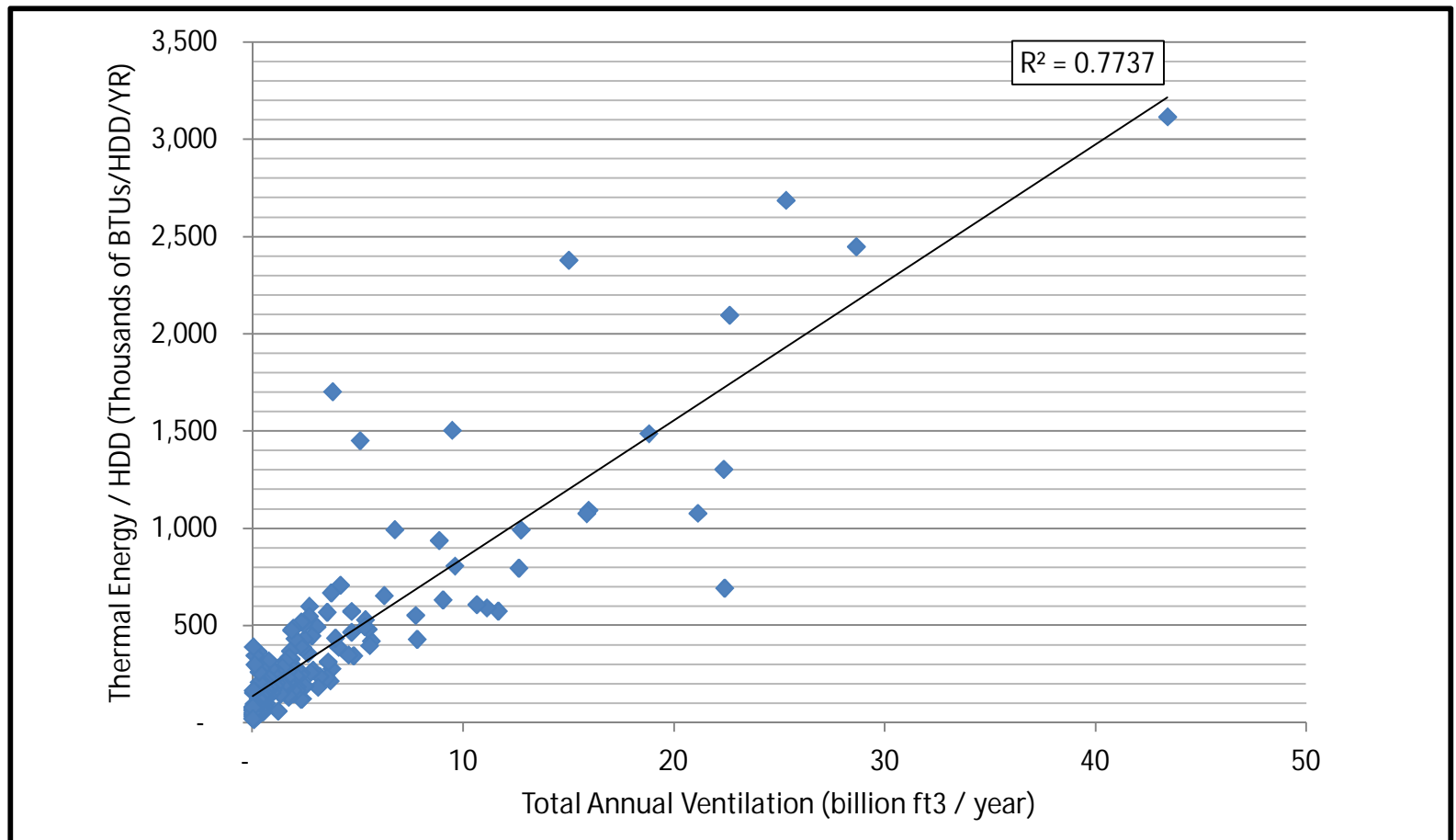


# HOW DO WE SOLVE PROBLEMS?

## Gather Information



Ventilation is a Key Driver of Energy Use





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

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*Research • Innovation • Education*



*Cold Climate Housing Research Center*

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