

Lessons Learned

- It takes trial and error to improve production time and quality of pellets. Incorporating different types of materials will produce different results.
- It was challenging remaining within the constraints of the grant budget, but it all worked out in the end.
- A project can be delayed due to shipping. We contacted 3 different companies for the pellet milling machine before finding one that would ship to Alaska. We selected PelletMasters.com
- In the middle of the project, our pellet mill kept jamming. We realized we needed another piece of equipment known as a hammer milling machine to chip our materials to the smaller size necessary for producing pellets.
- Find a suitable location. Our original location lacked the 3 phase power necessary to run our equipment.
- Local volunteers are great! They were sought to help shred paper and collect materials.



Alutiiq Tribe of Old Harbor

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Alutiiq Tribe of Old Harbor

Reinventing Wastes to Create Warmth



Increasing heating efficiency in rural Alaska utilizing pellet stove technology

Project Overview:

The Alutiiq Tribe of Old Harbor saw an opportunity to offset some of the high heating costs in the community while minimizing waste going into the local landfill by developing a pilot project utilizing wood pellet stoves. The project allowed the Tribe to secure the necessary equipment to begin producing small wood pellets from locally available materials and to purchase wood pellet stoves to test in local homes and businesses.



Timeline

- January 2014—Applied for grant
- April 2014—Project Start
- March 2015—Project End

About Pellet Stoves

- Wood pellets are generally small and easy to store.
- Stoves are easy to install and operate.
- They use a hopper to load pellets
- You only need to load once a day.
- They are thermostat controlled.
- Fire is contained in a heat box inside the unit minimizing fire risk.
- They produce less smoke and ash than traditional wood stoves.
- Less creosote—pollutants.
- Pellets can be made from recycled materials—bio mass fuel.
- Lower moisture content due to high compression of pellets, resulting in a hotter and cleaner burn.
- Cost between \$1,700 to \$3,000 plus installation cost, which can be a little to expensive for many people.
- Pre-made pellets may not be available in all areas.
- Stoves run on electricity.
- Heats a room through convection. A blower pulls clean air in, passes it through a heat exchanger, blows heated air into the room and exhausts gases out through the chimney vent.



Our Project

Step 1 - Research and Purchase Supplies

A lot of research was conducted on wood pellet making procedures and equipment, including wood pellet stoves.

We purchased pellet stoves, a wood chipper, a pellet mill, storage containers and a hammer milling machine. Talk with several vendors prior to making your final decision. Ask about price, shipping cost and equipment specifications.

Step 2 - Gather Wood / Paper Materials

Gather brush and ask businesses and the school to bring in all of their cardboard and paper. This is a great way to reduce the amount of waste entering the landfill.



Step 3 - Find Location for Equipment

Our original location was unsuitable for our pellet making operation because we needed a reliable 3 phase power source. Ensure that you identify a good location prior to ordering all of your equipment. If necessary, factor into your project the appropriate electrical installation in the location you would like to use to process wood pellets.

Step 4 - Begin Pellet Making Process

This process included a lot of trial and error, but we kept in contact with our equipment vendors to help guide us when we were experiencing trouble. We went from producing 20 pounds of pellets per hour to 40 pounds per hour. You will need fuel and electricity.



Step 5 - Create SOP's

Figuring out the equipment takes practice. To ensure others operate it correctly in the future when making pellets, develop standard operating procedures (SOP's).

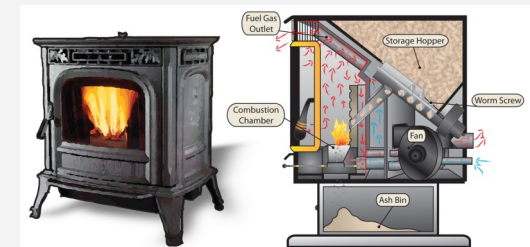
Step 6 - Install Stoves & Test Pellets

Work with homeowners & businesses to install and begin testing the stoves.

Is a wood pellet stove right for you?

There are important questions to consider prior to getting pellet stoves for your community.

1. Initial Cost - They're expensive. Will residents pay for them or will they need to be covered by grants?
2. Availability of Pellets - Can enough pellets be made locally? How much do they cost to import?
3. Electric Power Supply - How much electricity will it use? Is the electric power supply reliable? Will a back-up battery source be needed for power outages?
4. Size of Stove - The heating range for most wood pellet stove models range between 40,000 to 60,000 BTU. 5,000 BTU's will heat a 200 sq. ft. space. You will need to measure the square footage of the room you want to install one in to determine the appropriate size stove to purchase.



Step 7 - Monitor the Effectiveness

Work with homeowners & businesses to install and begin testing the stoves. Create a log to track any utility cost fluctuations and customer satisfaction.

Step 8 - Share Project Results

Project shared with the community and statewide.

