Food • Farms • Community
Old Fire Hall Collective Society
Box 392
Nakusp, BC V0G 1R0

admin@oldfirehallcollective.com

School District #10 (Arrow Lakes)
98 6th Ave NW
Box 340, Nakusp, BC V0G 1R0

June 15, 2023

Dear Trustees,

The Old Fire Hall Collective Society serves as an agricultural and food hub that provides sustainable agriculture resources for the communities of the Arrow Lakes. We are an all-volunteer organization with members representing a cross-section of the Arrow Lakes communities. Our programs and projects are funded in a variety of ways:

Community Garden (volunteers and grants)

Seed Saving Workshops
Garden Club
Joel Salatin Sustainable Agriculture Series

Community Kitchen (volunteers and grants)

Food Processing Workshops
Kids Can Cook
Food Skills for Families
Food Safe Certification

Soup & Social (volunteers, donations, and local grants)

(which became Soup-To-Go during Covid)

Equipment and Space Rental (income-generating)

Commercial Kitchen
Studio Space
Market Space
Small Farming Equipment and Scaffolding

Farmers' and Crafters' Year-Round Markets (income-generating)

The Greenhouse project came about while researching sustainable food production. Inspired by the video "Greenhouse in the Snow", we believe Nakusp is an ideal location for a geothermal greenhouse and community garden to address food security and

sustainability. The challenge is to find a location that meets all the requirements for this project, as successful grant applications are contingent upon having a confirmed location. It would be ideal if we were in a position to break ground in early September. That will only be possible if we have a timely decision from the School Board.

Once in operation, the greenhouse will be self-sustaining. Several businesses in the community have indicated their support and interest in having a supply of locally-grown organic produce.

The projected budget would allow for one part-time employee and a full-time employee who would be responsible for collaborating with school staff to design the curriculum connections, operate and maintain the greenhouse, and oversee the community garden.

Moving forward, we recommend that a committee be formed to work out the details of shared use. The committee might consist of one representative from each of the interested groups: the Old Firehall Collective, The School Board, the elementary school, the secondary school, and the seniors' organization.

We are seeking an agreement in principle for a partnership between the Old Firehall Collective Society and School District #10 to establish a geothermal greenhouse and community garden that will enhance learning opportunities for students.

The attached proposal will provide more complete information on the scope and rationale of the project.

Thank you for your consideration.

Sincerely yours,

Karen McMillan

President

Old Fire Hall Collective Society

Food security concerns are being voiced throughout the world. The provincial government's announcement brings the issue and funding to the forefront.

Historic investment in food security supports British Columbians

> **The Province is investing more than $200 million in food security to ensure people have better access to an increased supply of affordable, local food.**

There are several factors contributing to accessibility and affordability of good quality food. The cost of importing fresh unprocessed food to sparsely populated rural and remote areas is predicted to continue to rise with increased transportation costs. It is a concern that vulnerable consumers may become more reliant on packaged foods that are less expensive, but far less nutritious than fresh food. 2019 RDI community Profiles state that 24% of Area K and 16.6% of Nakusp populations are low income. Basic household expenses have risen since 2019. Individuals on a fixed income directly experience rising costs.

A community greenhouse and community garden can be a solution. The project will contribute not only to food security and improved health through better quality and nutritious foods year-round, but it will also provide an educational environment, skills training, community pride and well being by growing fresh foods for students, vulnerable population, soup kitchen, seed saving, planting, harvest, processing, composting, and produce storage workshops. Partnering a geothermal greenhouse with the community garden creates the opportunity for education related to geothermal technology, food security/self sufficiency/sustainability for generations to come.

Benefits of a geothermal greenhouse and community garden

- Living science lab
- Programs designed to help students K through 12[1] [2] acquire the knowledge needed to become agriculturally literate.
- Improved health by consuming more fruits and vegetables year-round.
- Improved access to fresh foods.
- Improved food security/autonomy over food sources with a greenhouse, community garden, and knowledge sharing.
- Opportunity for volunteerism, contributing to individual well being.
- Work and life skills through responsibility of growing, maintaining and harvesting a crop.
- Horticultural therapy through positive green, light, and humid space.

Challenges of standard greenhouse

- Capital and operating costs
- Successful management of greenhouse
- Small markets for selling produce.

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[1] Farm to School K – 12

[2] Sustainable Agriculture Resources and Programs for K -12 Youth

How do we address those challenges?

- Capital and operating costs – Construction cost of the greenhouse[3] to be funded through grants and community financial support. Ongoing operating cost are off set by selling spare produce to local businesses[4] and not competing with the farmers market vendors. Portions of the Collective space and tool rental.
- Successful management of greenhouse – the Collective will work with school staff to develop relevant programs to enhance learning opportunities. Staff will be hired and trained for one full time and one part time position to cover operations of the greenhouse and community garden 365 days a year. Program development will be in collaboration with the school staff, School Board, Collective and knowledgeable community members.

The Old Fire Hall Collective Society is asking the School Division 10 Board, Nakusp Elementary and Secondary Schools to consider an agreement in principle for the Collective to locate a geothermal greenhouse and community garden on school property. All schools in the district can benefit from this project. Gardening is a healthy activity for anyone, with psychological and physical as well as nutritional rewards[5].

In addition to the greenhouse and community garden, we are interested in promoting individual-level gardening at our monthly garden club, composting programs to improve soil quality, canning, drying, and preserving workshops, and cooking by the season.

In our quest to find a possible answer to food security in our area we discovered the geothermal greenhouse in Nebraska where winter temperatures can reach -37^{0} C. The links below will introduce you to our vision of a geothermal greenhouse.

https://youtu.be/UsZgCz3PQks

https://youtu.be/ZD_3_gsgsnk

This technology is relatively unknown in Canada. With the success of this project the information can be shared with other communities to help address their food security issues.

The following eight paragraphs are quoted from Green House in the Snow. We toured the construction in May 2022[6] and followed their production throughout the year.

What can you grow in a geothermal greenhouse?

Perhaps the easier question is: what do you want to grow? Visitors to the original greenhouse in Alliance Nebraska are always impressed by the citrus, especially the heavily laden Meyer Lemon trees in the middle of winter. Our many customers grow a wide variety including common garden vegetables, oranges, limes, passionfruit, figs, asparagus, strawberries, southern grapes, kiwis, roses, orchids, and other exotic flowers.

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[3] Community letters of support

[4] Business letters of support

[5] Spending One Hour in the Garden

[6] Pictures of tour

What temperatures can a geothermal greenhouse operate in?
The main advantage of a geothermal greenhouse is that even in cold climates, like in Nebraska where it can easily dip to 25-35 degrees Fahrenheit below zero (-32C to -37C), is that they are freeze resistant. We do recommend some kind of back-up heat system. Russ uses a simple forced air propane heater that he has only had to turn on three times in the last 23 years. Plants that do not like cool nighttime temperatures can benefit from a back-up heat system.

What plants can we grow in a geothermal greenhouse?
Most plants do not perform well when the length of day is less than 10 hours. Grow lights can be used very successfully to lengthen the hours of light available to your plants.

Can a geothermal greenhouse function off grid?
Yes. The big advantage of this geo-thermal concept is that we use low amounts of electricity to let the system work. There are several options to reach an off-grid setup.

What should I expect to spend on a geothermal greenhouse?
Generally speaking, you should expect a Greenhouse in the Snow completed cost to be similar to a traditional permanent greenhouse. The **BIG** difference is the energy cost for a geothermal greenhouse versus the traditional. .The operational costs of the Greenhouse in the Snow are much, much lower!!

Is there a climate too cold for a geothermal greenhouse?
The climate in western Nebraska is a zone 4, but being almost 4,000 feet above sea level, they can be plagued with harsh winds and very cold winter temperatures. Actual temperatures of 20-30 degrees Fahrenheit below zero (-29C to -35C) are seen most winters. On occasion, they will get from 35-45 degrees Fahrenheit below zero (-37C to -43C). Our customers in the northern locations report good results as well.

Are the greenhouse kits made in the Canada?
Yes, they are manufactured in Armstrong/Vernon BC https://greenhouseinthesnow.com/- out of steel to our specifications. The polycarbonate is also a Canadian product. We take pride to support Canadian businesses when sourcing all our materials!

Does the geothermal greenhouse concept fit with our desire to produce our own food throughout the year?
Yes because of the frost-free conditions in full winter it is ideal to have a year around production of fruits and vegetables.

PROJECT FUNDAMENTALS

Any project that the Old Fire Hall Collective Society undertakes must meet these fundamental objectives:

Economically sound

A geothermal greenhouse takes advantage of ground heat to allow for year-round production. As this technology is proven, results will be shared with other greenhouse growers to reduce their overhead costs of production. This project will primarily provide an educational opportunity, supply a Fresh Food Cupboard, soup kitchen, cooking programs, and reduce ongoing program costs. Extra produce sold to local business, space rental and workshop fees will support paid positions and operational costs. This project could inject over $62,000 into the local economy during construction plus, create one full time and one part time jobs.

Socially acceptable

Food security continues to be voiced in the face of rising cost of living and inflation. CTV predicted food costs will rise by 7.8% in 2023 when in reality it appears to be higher. The price of importing food to rural areas is predicted to continue to rise. This project addresses these issues in a real way by producing food year-round, creating a community garden that is easily accessible to provide fresh food to students and a vulnerable population.

Environmentally sound

There are several options to reach an off-grid setup. In addition to geothermal principles, this project could implement two sources of energy production to supply power for fans, office internet, and pumps.

- Wind – a vertical windmill[8] design is very efficient as it catches even the slightest breeze and does not negatively affect birds. The construction of the finns can be as simple as using a 3D printer.
- Solar – as most people are familiar with solar power production, we will not go into detail on this source.
- Waste – a compostable toilet will be utilized to handle sewer/solid waste. A local Registered Onsite Wastewater Practitioner will help ensure the system is designed and installed in a way that meets the Sewerage System Regulations and the Composting Toilet Guidelines. The Practitioner will often also take care of all the necessary paperwork. All garden refuse will be composted to build the soils.
- Composting will be in metal bins to mitigate any rodent issues.
- Additional heat source – burning a rocket stove[9] three hours of burn equals 30 hours of heat.

This project blends well with other food, farm, community programs and initiatives of the Collective. Our commitment to community vitality is to build self sufficiency, sustainability and improve food security/autonomy over food sources is. This is achieved by offering educational opportunities, welcoming volunteers, and collectively working toward food security and community sustainability.

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[8] Vertical windmill

[9] Rocket stove

The Collective's Board fully understands that this is a long-term project to benefit the community for many years to come. Our Society has demonstrated long term project success with the repurposing of the old fire.

The next step to acquiring grants and community support for the construction of the greenhouse and site preparation requires an Agreement in Principle between School Division 10, Nakusp Elementary and Secondary Schools and Old Fire Hall Collective Society to work as partners to see this project through.

Respectfully submitted by Karen McMillan and Rosemary Hughes on behalf of the Old Fire Hall Collective Society.

Curriculum Connections: K-7 (Elementary)

	Curricular Competencies	Content
Applied Design, Skills, and Technology	• Make a product using known procedures or through modelling of others (Gr.K-3) • Reflect on their ability to work effectively both as individuals and collaboratively in a group (Gr.K-5) • Decide on how and with whom to share their product (Gr.K-7) • Explore and test a variety of materials for effective use. (Gr.K-7) • Identify needs and opportunities for designing, through exploration (K-3) • Identify and evaluate the skills and skill levels needed, individually or as a group, in relation to a specific task and develop them as needed (Gr.4-7) • Explore the use of simple, available tools and technologies to extend their capabilities (Gr.K-5) • Select and learn about appropriate tools and technologies to complete a task. (Gr.6-7)	• Food studies (Gr.6-7) • Entrepreneurship and Marketing (Gr.6-7) *if produce is being sold*
Arts	• Experience, document and share creative works in a variety of ways (Gr.K-3) • Create artistic works collaboratively and as an individual, using ideas inspired by imagination, inquiry, experimentation, and purposeful play (Gr.K-7) • Apply learned skills, understandings and processes in new contexts (Gr.3) • Reflect on creative processes and make connections to other experiences (Gr.4-5)	• Personal and collective responsibility associated with creating, experiencing, or sharing in a safe learning environment (Gr.K-7) • Symbolism as expressions of meaning (Gr.K-3); Symbolism and metaphor to explore ideas and perspective (Gr.4-7)

Career Education	• Work respectfully and constructively with others to achieve common goals (K-3) • Demonstrate effective work habits and organizational skills appropriate to their level of development (K-3) • Make connections between effective work habits and success (Gr.4-5) • Demonstrate safe behaviours in a variety of environments (Gr.4-5) • Demonstrate leadership skills through collaborative activities (Gr.6-7) • Demonstrate safety skills in an experiential environment (Gr.6-7)	• Emergent leadership skills (Gr.4-5) • Safety hazards and rules at school, at home and in the community (Gr.4-5)
English Language Arts	• Engage actively as listeners, viewers, and readers, as appropriate, to develop understanding of self, identity, and community (Gr.K-3) • Use sources of information and prior knowledge to make meaning (Gr.1-7) • Use developmentally appropriate reading, listening and viewing strategies to make meaning (Gr.1-7)	• Strategies and processes: oral language strategies (Gr.K-7) • Language features, structures, and conventions: features of oral language (Gr.2-7)
Math	• Estimate reasonably (Gr.K-7) • Model mathematics in contextualized experiences (Gr.K-7) • Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving (Gr.K-7) • Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures (Gr.K-7)	• Fractions (Gr.3-7) • Multiplication and division (Gr.3-7) • Measurement (Gr.3-7) • Time (Gr.3-5)
Physical Health Education	• Identify and explore a variety of foods and describe how they contribute to health (Gr.K-2) • Participate daily in physical activity at moderate to vigorous intensity levels (Gr.K-7) • Explore and describe strategies for making healthy eating choices in a variety of settings (Gr.3-7)	• Relationships between food, hydration, and health (Gr.K-2) • Practices that promote health and well-being (Gr.K-7) • Nutrition and hydration choices to support different activities and overall health (Gr.3) • Benefits and effects of physical activity and exercise (Gr.4-7)

	• Explore and describe strategies for pursuing personal healthy-living goals (Gr.3-7)	• Food portion sizes and number of servings (Gr.4) • Food choices to support active lifestyles and overall health (Gr.5) • Influences on food choices (Gr.6) • Factors that influence personal eating choices (Gr.7)
Science	• Experience and interpret the local environment (Gr.K-7) • Express and reflect on personal experiences of place (Gr.K-7) • Make exploratory observations using their senses (Gr.K) • Observe objects and events in familiar contexts (Gr.K-6) • Discuss observations (Gr.K); compare them (Gr.1); make and record observations (Gr. 2-7) • Identify a question to answer or problem to solve through scientific inquiry (Gr.3-7) • Make predictions based on prior knowledge (Gr.3-4) • Identify First Peoples perspectives and knowledge as sources of information (Gr.3-6)	• Basic needs of plants and animals; adaptations of local plants and animals; local First Peoples uses of plants and animals; seasonal changes; First Peoples knowledge of seasonal changes (Gr.K) • Local First Peoples knowledge of the local landscape, plants and animals (Gr.1) • First Peoples use of their knowledge of life cycles; water cycle (Gr.2) • Biodiversity in the local environment; the knowledge of local First Peoples of ecosystems (Gr.3) • Sensing and responding: humans, other animals, plants; biomes (Gr.4) • Local types of earth materials; First Peoples concepts of interconnectedness in the environment (Gr.5) • Effects of balanced and unbalanced forces in daily physical activities (Gr.6) • Survival needs; natural selection (Gr.7)
First Peoples' Principles	1. Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors. 2. Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place). 3. Learning involves patience and time.	

Curriculum Connections: 8-12 (Secondary)

	Curricular Competencies	Content
Applied Design, Skills, and Technology	• Prototype, making changes to tools, materials, and procedures as needed (Gr.8-9) • Conduct the test, collect and compile data, evaluate data, and decide on changes (Gr.8-9) • Make a step-by-step plan for production and carry it out, making changes as needed (Gr.8-9) • Use materials in ways that minimize waste (Gr.8-9) • Decide on how and with whom to share their product and processes (Gr.8-9)	• Food Studies (Gr.8-12) • Entrepreneurship and Marketing (Gr.8-12) *if produce is being sold*
Arts	• Create artistic works collaboratively and as an individual using ideas inspired by imagination, inquiry, experimentation, and purposeful play (Gr.8-9) • Use the arts to communicate, respond to and understand environmental and global issues (Gr.8-9)	• Personal and collective responsibility associated with creating, experiencing, or sharing in a safe learning environment (Gr.8)
Career Education	• Demonstrate respect, collaboration, and inclusivity in working with others to solve problems (Gr.8-9) • Demonstrate safety skills and appreciate the importance of workplace safety (Gr.8-9)	• Recognize the influence of curriculum choices and co-curricular activities on career paths (Gr.8-9) • Workplace safety (Gr.8-9)
English Language Arts	• Apply appropriate strategies to comprehend written, oral, and visual texts, guide inquiry, and extend thinking (Gr.8-9)	• Story/text: forms, functions, and genres of text (Gr.8-9) • Strategies and processes: oral language strategies (Gr.8-9) • Language features, structures, and conventions: features of oral language (Gr.8-9)

Math	• Estimate reasonably (Gr.8-9) • Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving (Gr.8-9)	• Numerical proportional reasoning • Percentages (Gr.8) • Fractions (Gr.8) • Surface area and volume (Gr.8)
Physical Health Education	• Healthy eating choices (Gr.8-9) • Identify factors that influence health messages from a variety of sources, and analyze their influence on behaviour (Gr.8-9) • Create strategies for promoting the health and well-being of the school and community (Gr.9)	• Movement concepts and strategies (Gr.8-9) • Potential short-term and long-term consequences of health decisions, including those involving nutrition, protection from sexually transmitted infections, and sleep routines (Gr.8-9) • Sources of health information (Gr.8-9)
Science	• Identify a question to answer or problem to solve through scientific inquiry (Gr.8-9) • Make predictions about the findings of their inquiry (Gr.8-9) • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information (Gr.8-9)	• Characteristics of life; photosynthesis and cellular respiration; the relationship of micro-organisms with living things (Gr.8) • Sustainability of systems; First Peoples knowledge of interconnectedness and sustainability (Gr.9)
First Peoples' Principles	1. Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors. 2. Learning is holistic, reflexive, reflective, experiential, and relational (focused on connectedness, on reciprocal relationships, and a sense of place). 3. Learning involves patience and time.	

Sustainable Agriculture Resources and Programs for K-12 Youth

September 2009

Prepared by Joan Benjamin for the
Sustainable Agriculture Research & Education (SARE) Program

SARE
Sustainable Agriculture Research & Education

NAKUSP & AREA

DEVELOPMENT BOARD

June 23, 2022

To whom it may concern,

The Nakusp and Area Development Board (NADB) would like to express our strong support for the Old Firehall Collective's (OFC) efforts to fund and build a geothermal greenhouse in Nakusp.

NADB is an incorporated non-profit society whose purpose is to benefit the residents of Nakusp and area by promoting economic growth and development in the West Kootenay region, and we believe Nakusp and its residents would benefit greatly from a project such as this one.

It has become obvious over recent years—through disruptions to our societal and economic fabric due to the COVID-pandemic, local wildfires and evacuations, and flooding and highway washouts and closures—that the supply chains that provide the essentials of life to rural and remote communities such as ours have become vulnerable. Consequently, developing locally based infrastructure to provide fresh and nutritious local produce, food-science education, and skills training has become increasingly important.

Through community consultation processes over the last two years, NADB has identified developing local agriculture and food security as high-priority strategic goals, and we are glad to have the OFC pursuing this worthy endeavour. We strongly encourage your support for the OFC's effort to fund a geothermal greenhouse in Nakusp, and we look forward to working with them to improve access to locally grown produce and to help address food security issues in our rural and remote area.

Sincerely,

Corinne Tessier, President
Nakusp and Area Development Board

PO Box 15, Nakusp, BC, V0G 1R0 • 250-265-8764
nakuspareadevelopment@gmail.com • www.nadb.ca

NA
DB

Nakusp Senior Citizens Association

210 8th Avenue NW

Box 802

Nakusp, BC V0G 1R0

March 16, 2023

Old Fir Hall Collective Society

Box 392

Nakusp[. BC V0G 1R0

Attention: Rosemary Hughes – Letter of Support

Dear Rosemary:

This letter is being sent further to your email to our secretary Doreen Desrochers on February 14, 2023.

At our regular board meeting on March 15, 2023 a motion of support was passed in principle for your geothermal greenhouse project. We wish you success as you move forward on this project.

Sincerely,

Thorlief (Tom) Lie, President.

Old Fire Hall

From: Mike & Tracy Smith <mjsmith9@telus.net>
Sent: June 13, 2023 2:11 PM
To: Old Fire Hall
Subject: Letter of Support

To Whomever it May Concern

I am writing a letter of support to the Old Fire Hall in regards to their geothermal greenhouse project. My husband and I own Hilltop Convenience and Valley Foods in Nakusp and try to supply fresh local fruit, veggies, honey, as much local wares as possible. We would be interested in carrying as much fresh fruit and vegetables as needed through all months of the year. The more locally produced the better. We get people asking for fresh local products all the time and feel very good about helping support another business or community organization.

Thanks

Michael & Tracy Smith

Arrow and Anchor Pizza, Nakusp BC
314 Broadway Street V0G 1R0
nakusp@arrowandanchor.ca
(250) 265-2540

RE: Community Greenhouse

To whom it may concern,

Arrow and Anchor Pizza opened in the Village of Nakusp in April 2020. Our mission is to create quality pizza with fresh and honest ingredients.

Our business has witnessed firsthand the sense of pride of community that comes from supporting local farmers. For instance:

- The wine we serve is from Valley of the Springs Winery, Nakusp BC.
- The cider we serve is from Burton City Cider, Burton BC.
- Our ground beef is sourced from McCormack Farm, Burton BC.
- Our pork is sourced from Fire Valley Farms, Edgewood BC.

Each of the above farmers are family run businesses, as is Arrow and Anchor Pizza, and within a 100 km radius from our restaurant. Furthermore, all our beer and wine that we cannot get within a 100 km radius is still sourced from the Kootenays.

Why we source local ingredients – Beyond fresher food that is easier to access:

- Thru sourcing food locally, we are better able to create our menu and products with passion and purpose, ultimately contributing to a sense of pride and community spirit.
- Providing a menu that supports the "farm to table" and "know where your food comes from" movements are only growing in demand. Our customer base is not only creating the demand for locally sourced ingredients, but they expect it.
- The more local our ingredients, the fresher they will be and the better our product will taste.

ARROW ANCHOR PIZZA

Thru building relationships with local businesses, we have experienced benefits beyond keeping money in the community. Thru word of mouth, these small family-owned businesses are becoming well known and in turn, bringing in more tourism and permanent residents to the community. Local farmers have come together during the global Covid 19 pandemic, and in the face of natural disasters fueled by climate change, have created a stronger local economy, a much healthier alternative to shipping/trucking in our food. For these reasons, we believe a Community Greenhouse will greatly contribute to the overall well being of our community.

Our responsibility to combat climate change:

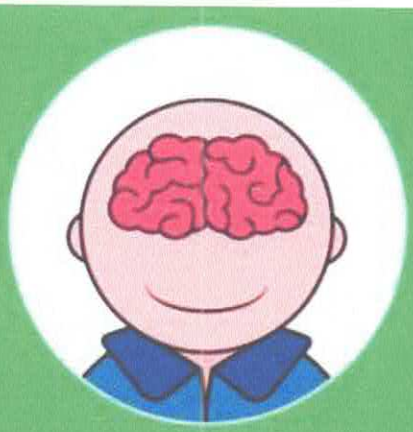
Since our opening in April of 2020, our community has been directly impacted by climate change. The fires during the summer of 2021 and floods of the fall of 2021 brought less tourists to our community and resultant road closures prevented product from shipping. The grocery store shelves were empty, creating a sense of panic, our restaurant had to close due to lack of inventory being delivered. Furthermore, the supply chain problems we have experienced due to the Covid 19 pandemic will take years to amend.

Local produce is seasonally available in Nakusp. As a result, **100%** of our produce is shipped to us for nearly **9 months of the year 2 times per week**. Much of our produce for these 9 months of the year, for example, onions, romaine lettuce, potatoes, and zucchini are sourced from the United States. These produce shipments are directly contributing to climate change. In turn, the natural disasters that have made fresh produce so difficult to access in our rural community will only get worse and more frequent. The ability to source local produce year-round is no longer a nice to have but a **necessity** to create a healthy community. Climate change is directly affecting the community's access to fresh healthy food, and that includes when they dine at local restaurants as Arrow and Anchor Pizza.

The benefits of a Community Greenhouse extend far and beyond the role our restaurant has in this community. In rural communities such as ours, we are all connected thru food, community pride, and local support. A Community Greenhouse is a necessity for our community and will also have positive impacts on a much broader scale.

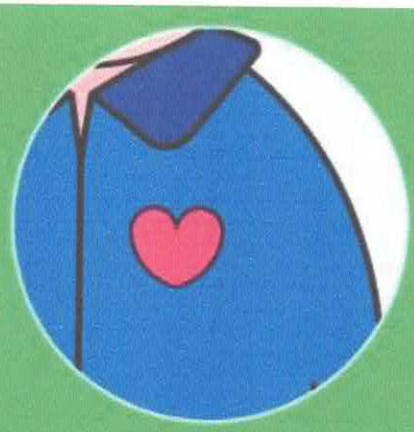
Sincerely,

Arrow and Anchor Pizza



Head

Gardeners have lower levels of the stress hormone, cortisol, leading to improved sleep patterns, relaxation and mental wellbeing.

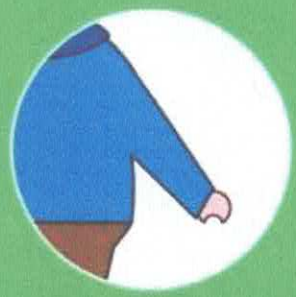


Heart

As a physical activity, gardening naturally helps strengthen the heart, building endurance and increasing stamina, meaning a reduced risk of heart attack and stroke.

Back

Raking and bagging leaves means constant bending, twisting, lifting, and carrying – all these strengthen muscles. Just remember to bend at the knees to prevent back strain.



Arms

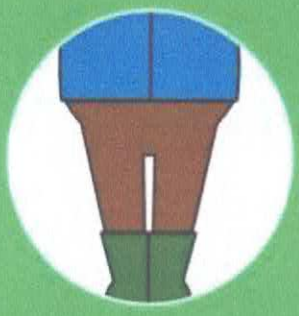
Cutting back hedges with hand-held clippers not only strengthens your triceps and biceps, but also strengthens your core as you reach up and stretch. Work such as raking and carrying leaves can also tone the upper arms and increase flexibility and strength.

Abdominals

Weeding on hands and knees, raking, strimming, and starting a mower are all gardening activities which help strengthen abdominal muscles and build a strong core.

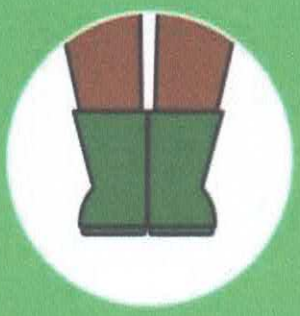
Bottom

Squatting while weeding helps to build and tone gluteal muscles



Thighs

Pushing a wheelbarrow and squatting to weed flowerbeds helps strengthen quads and hamstrings.



Feet & Ankles

Balance and flexibility is improved, helping to prevent falls in older adults.

Mouth

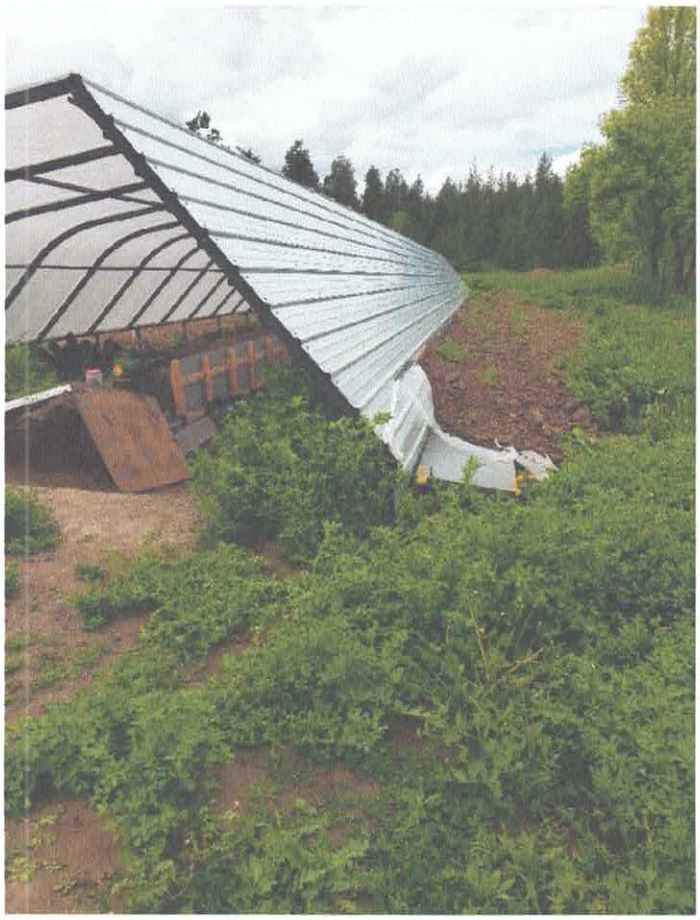
Social interaction with friends vastly improves mental and physical wellbeing.

Stomach

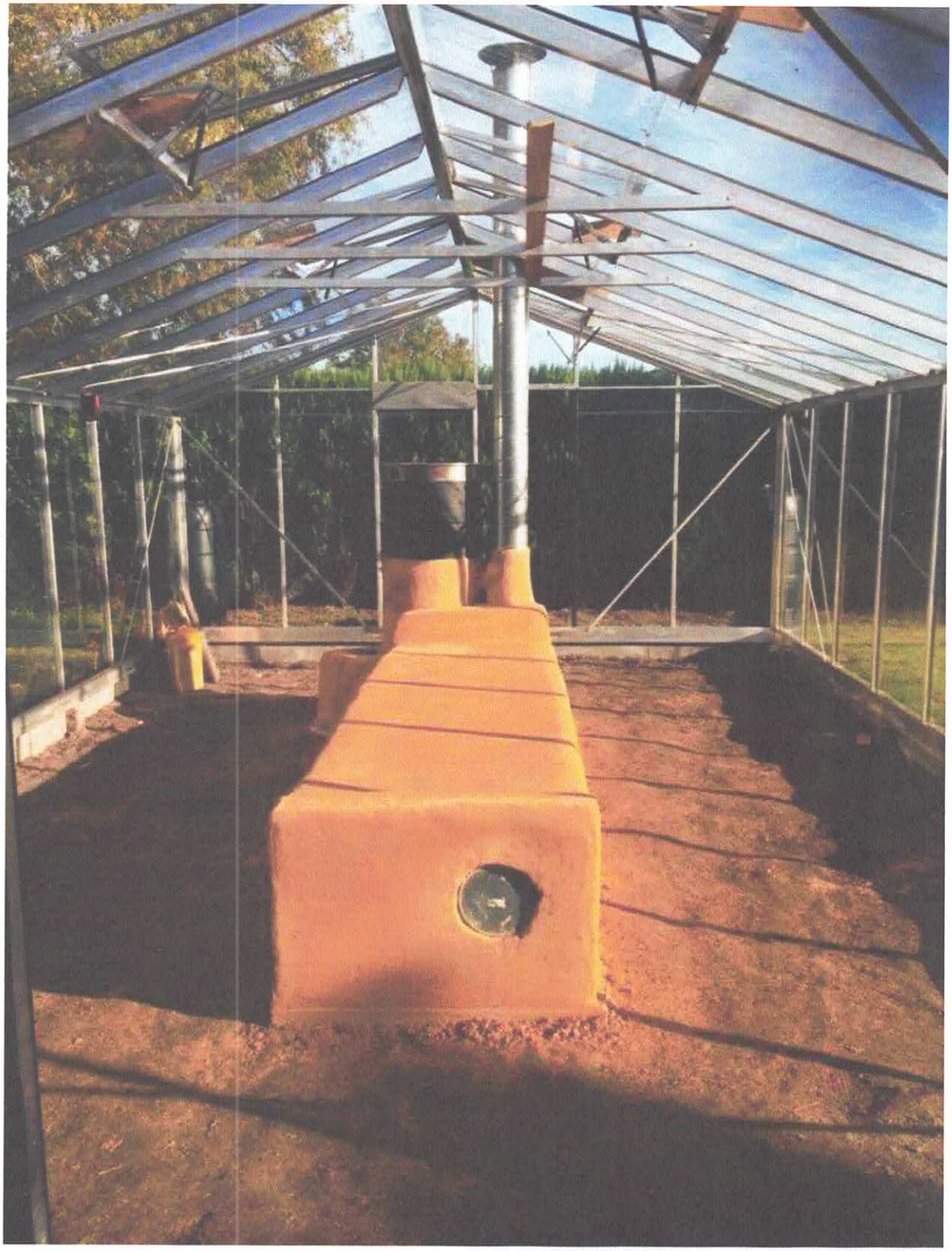
A greater exposure to soil bacteria means gardeners have a stronger immune system.

Hands

Gardening can help increase hand strength, pinch force and nimbleness.



Vertical Windmill



Rocket stove in a greenhouse. Picture curtesy of Using A Rocket Stove To Heat A Greenhouse (hotcore.info)