Goal: Establish Resilient Village Locations
Featuring: Razom Centers for R&D Business Incubators





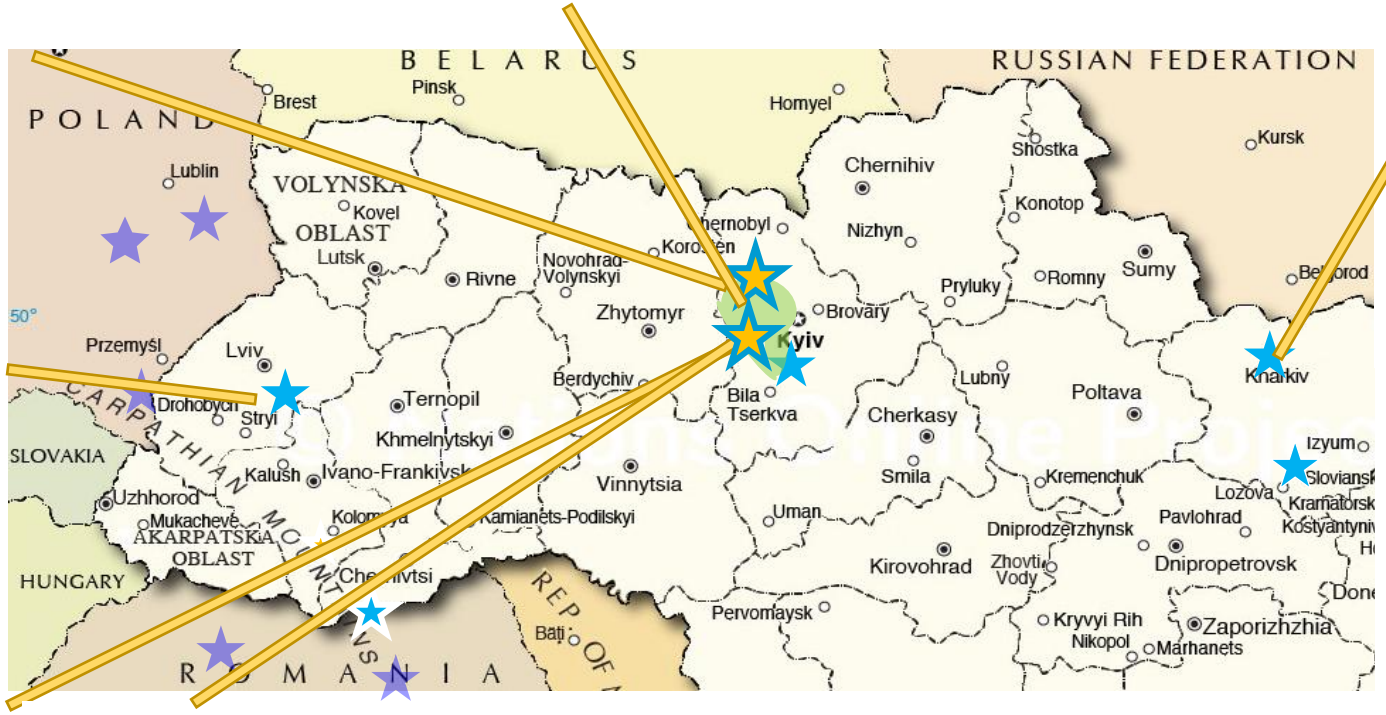
Kyivska Oblast
Ivankiv
New life for war-torn factory







Lviv
Explore EkoPich Heating for frontlines 2022 IDPs 2026



Kharkiv
EkoPich heating system prototype



Bucha
Workshops for veterans, military & civilian



Post Traumatic Growth



Defiant Heat

Hostomel
War debris research



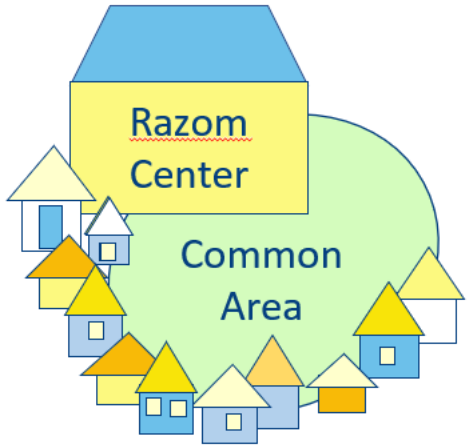
Putting it all together

Anatomy of a Resilient Village

Seeking Locations near Kyiv for a Razom Center
R&D for RMH Heating Systems, other grid-independent innovations

Training center, showplace & warming center offering support for:

- Locals
- Villagers
- Entrepreneurs
- Veterans

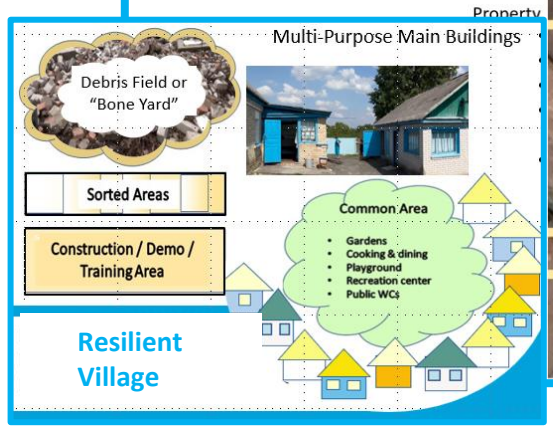




Two Potential sites

Building Resilient Villages Together With Veteran Power

Training teams of veterans to build EkoPich heating systems, other innovations while contributing to rural communities to help in their recovery as well. For the veterans themselves, develop live-in communities of innovators, offering resilience training including The Boulder Crest Institute for Posttraumatic Growth℠ - the world leader in advancing the science of Posttraumatic Growth (PTG). Boulder Crest exists to further program development, training and education, research and evaluation, and social and policy change centered around the science of Posttraumatic Growth.





Other Aspects of this Resilient Village:

- Razom Innovation Center for repurposed war debris R&D
- Design Rocket Mass Heating: (RMH) Systems
- Off-grid technologies using war debris
- Green technologies – restore & grow healthy economies
- Historical preservation through recycling
- Building resilience: personal & community

Introducing Ukraine's

Defiant Heat

- **material efficiency**
- **scalability**
- **emergency resilience**

Lightweight portable Combustion unit



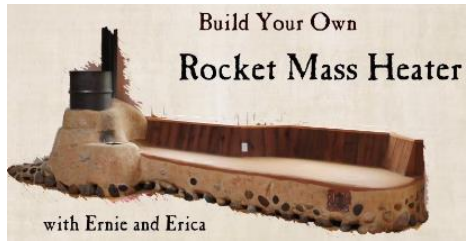
Suitable for outdoor or emergency heat, cooktop. Add Oven!

Adaptable Ceramic core

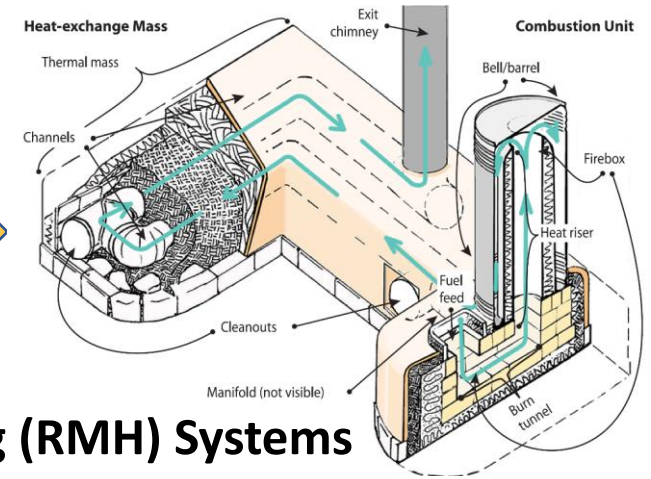














Indoor

Outdoor

Rocket Mass Heating (RMH) Systems

Use the same core to create infinite styles. Salvaged components (cob, brick, concrete, metal) can be used throughout.

After **3-4 hours burn time** these heat storage systems can yield ***24-48 hours of heat,*** using small wood trimmings and assorted biomass

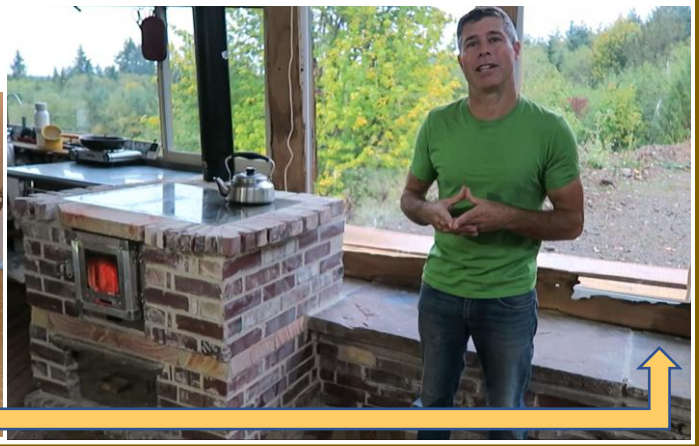
Deliver critical heat where needed

An ecological, wood or biomass emergency heating & cooking solution



Stoves using Matt Walker's riserless core (Ceramic Fiber Board)

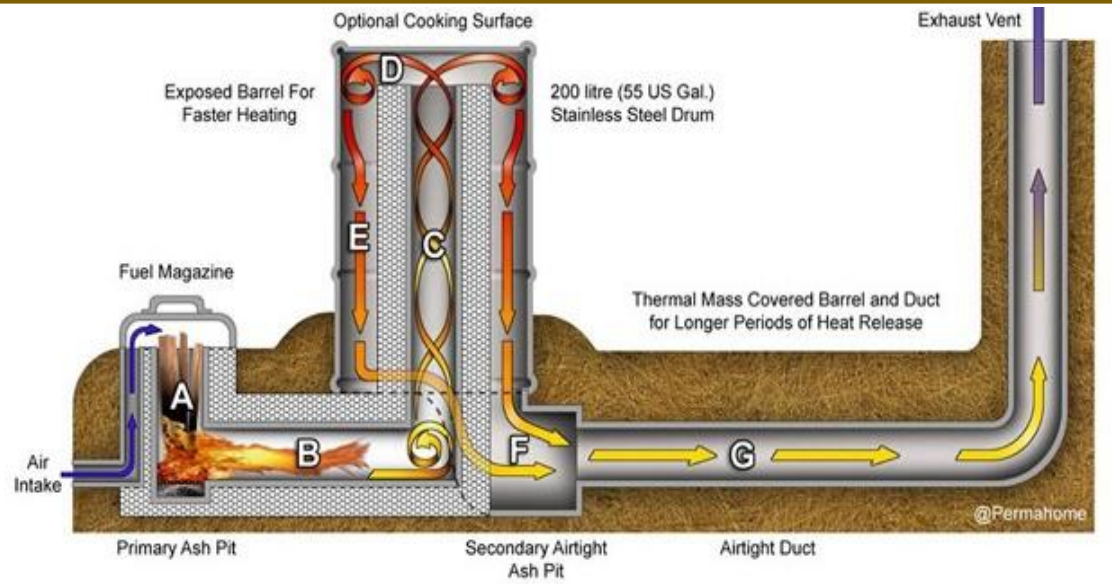




Defiant Heat

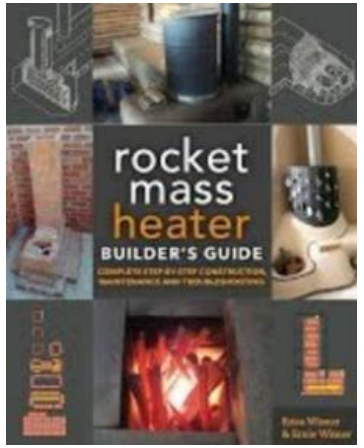
ResilientVillageUkraine.org







Collaboration with world leaders in the most efficient, safe, state-of-the-art, wood burning solutions



Rocket Mass Heating (RMH)
A Brief Intro to an Evolving Technology

Firewood Comparison

Traditional Logs ***EkoPich sticks, trim***

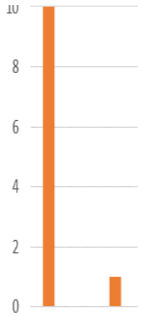
10/1



A traditional masonry heater



Many homes need huge piles of firewood. Annually $2-300 USD







Recycle concrete, brick debris



2024 R&D site in Hostomel

Unfortunately, it lacked a structure to build the full Rocket MASS Heater:

NEEDED!

A damaged homesite, garage, or warehouse with war debris

to serve as an R&D center for developing habitation resilience and off-grid skills



First Prototype

War debris recyclables

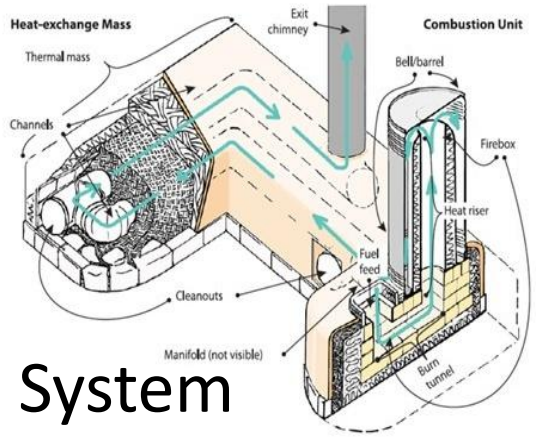
dry walls/ drainage

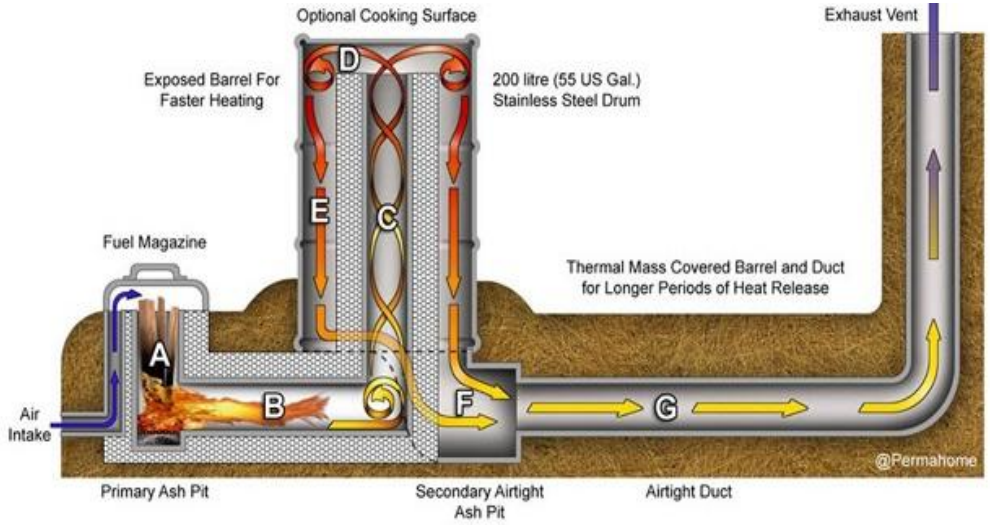
warming house/ EcoPich site

cob bench & table

Such a site may also serve as the 1st Resilient Village community of volunteers or paid workers to develop the business potential, while teaching and donating heating systems under a nonprofit wing.

Building the Main Components for a Standard RMH System



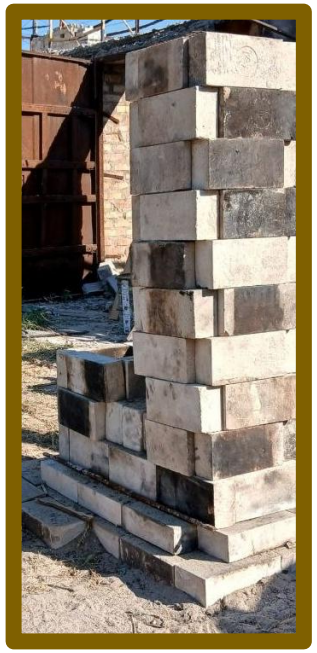






A suggested system design

Combustion Unit



Thermal Mass Bench



A thermal bench acts like a heat battery, storing heat in broken bricks, chunks of concrete – war debris – to slowly release the remaining heat for up to 48 hours **AFTER THE FIRE GOES OUT!**

That's potentially 2 days of heat with NO FIRE!

Asbestos Containment Project

a Grassroots Solution for an Enormous Problem

Bulldozing, trucking away, creating toxic mountains laden with asbestos chunks and dust creates a widespread secondary contamination of the Ukrainian landscape. It's incubating major health concerns for decades to come.

Miyamoto International experts, including a professor at KNUBA, provided insights on creating a "pragmatic" solution.

miyamotointernational.com/addressing-ukraines-asbestos-crisis/

knuba.edu.ua

Safely isolating, entombing the asbestos on the original site, (much like the Chernobyl reactor) prevents further spreading of this carcinogenic material.



Here we experiment with cob (sand, clay, straw) to encase heat-storing materials like brick, concrete, mortar in simple structures. A similar thermal bench will be part of *EcoPich,* our Ukrainian version of the highly efficient Rocket Mass Heating system.

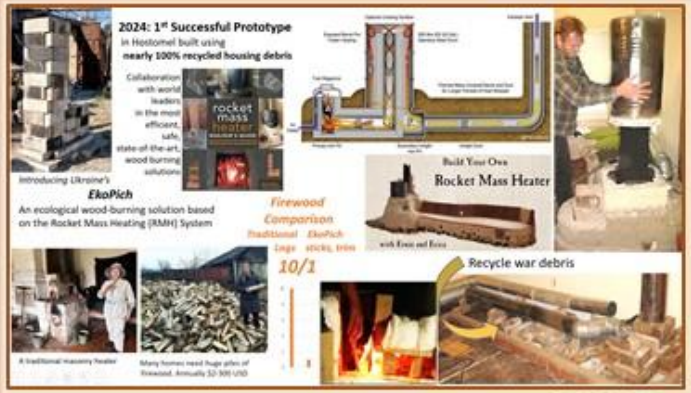








Researching better handling techniques for the many homeowners and volunteers exposed to asbestos and other dangerous war debris daily.







Real-time collaboration with experts at Permies.com

Resilient Village Workshops

Rocket Mass Heating Systems

Ukrainian version: EkoPich

Off-Grid War Debris
R&D Centers
Arch-Truss Construction
The Resilient Village Concept

NEEDED: Team to Build Efficient Heat For





The Resilience Projects
In coordination with



Resilient Village Ukraine

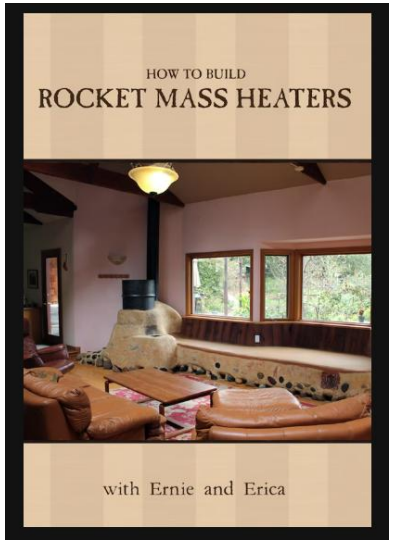


Ernie and Erica Wisner are … best known for their innovative rocket mass heater designs. They are often referred to as the worldwide leaders and trainers in rocket stove technology. They have made over 700 rocket stoves all over the world.

…

Ernie and Erica now spend their time touring the world teaching workshops on how to build these energy-efficient, natural heaters. They are also working to design and build a stove that will get an Underwriters Laboratory listing, which would eliminate insurance issues.

en.wikipedia.org/wiki/Ernie_and_Erica_Wisner



vimeo.com/ondemand/rmh

A nearly 300-page illustrated guide with step-by-step instructions. Many variations – all for safe, do-it-yourself construction suitable for **compliance to building codes**



Appendix 2:

Rocket Mass Heater Building Code (Portland, Oregon)

ORIGINAL TEXT AND COMMENTARY is available at: www.portlandoregon.gov/bds/article/214146, article 09-002 "Rocket Mass Heater: Final Recommendation."

[Author comment: This code was originally drafted in 2009, through a collaboration between Ernie and Erica Wisner, Joshua Klyber, Bernhard Masterson, and other manual builders. It was approved for use with a one-week permitting process by the Alternative Technologies Advisory Committee, of which Mr. Klyber was a member, in 2013.

A few elements in these guidelines do not agree with our current recommendations, and we've inserted author comments pointing them out where they appear below, in case readers are considering using these codes as a model for a local code appeal or amendment. These author comments are not part of the legally-approved code guidelines.

Only the building guidelines have been reproduced here; for the full supporting documentation, including comments on building code conflicts, typical materials, history of use and testing, and other factors, please see http://www.portlandoregon.gov/bds/48661?a=437516]

1. Scope:

1.1 This guide covers the design and construction of Rocket Mass Heaters, a subset of solid fuel burning masonry heaters. It provides dimensions for site constructed rocket mass heaters and clearances that have been derived by experience and found to be consistent with safe installation of those rocket mass heaters.

1.2 Values given are in English measurements, and are regarded to be standard. All dimensions are nominal unless specifically stated otherwise. All clearances listed in this guide are actual dimensions.

2. Definitions:

2.1 Combustion unit: The area where fuel is consumed and clean exhaust produced; comprising the fuel feed, burn tunnel, heat riser, barrel, and the manifold.

2.2 Combustion unit base: Area composed of the fuel feed, ash pit, burn tunnel, insulation and casing.

The Wisners helped write the building code for the City of Portland, Oregon (above)

Modern Rocket Heating

Learn more from some of the global experts



Overview of Rocket Heat Innovations at Wheaton Labs, Montana USA

An Internet tour of 41 rocket heat projects - our attempt to solve global problems

youtube.com/watch?v=pQa5ikr3AmU

Also see:
Permies.com



Walker Stoves

Matt Walker – ceramic core design innovations

walkerstoves.com/innovations/

ResilientVillageUkraine.org







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