



# Design + Build Collaborative

## Affordable Housing





## Wheel Pad XL Jericho, Vermont

- 200 sq.ft. accessible bedroom and bathroom that can be attached to an existing home.
- Developed for Edmond Little, a military veteran in Jericho, VT who has amyotrophic lateral sclerosis.





## Wheel Pad XL, Jericho, Vermont

In collaboration with LineSync Architecture and Wheel Pad L3C, Norwich students and faculty from Engineering, Construction Management, and Architecture worked together to design and build prototype.





## Wheel Pad (Norwich Model), Putney, Vermont

- an ecofriendly 200-square foot accessible bedroom and bathroom designed to be attached to an existing home
- donated to Windham County residents in need. The first beneficiary of the Norwich Wheel Pad was Cynthia Payne-Meyer of Putney.





## **Wheel Pad (Norwich Model), Putney, Vermont**

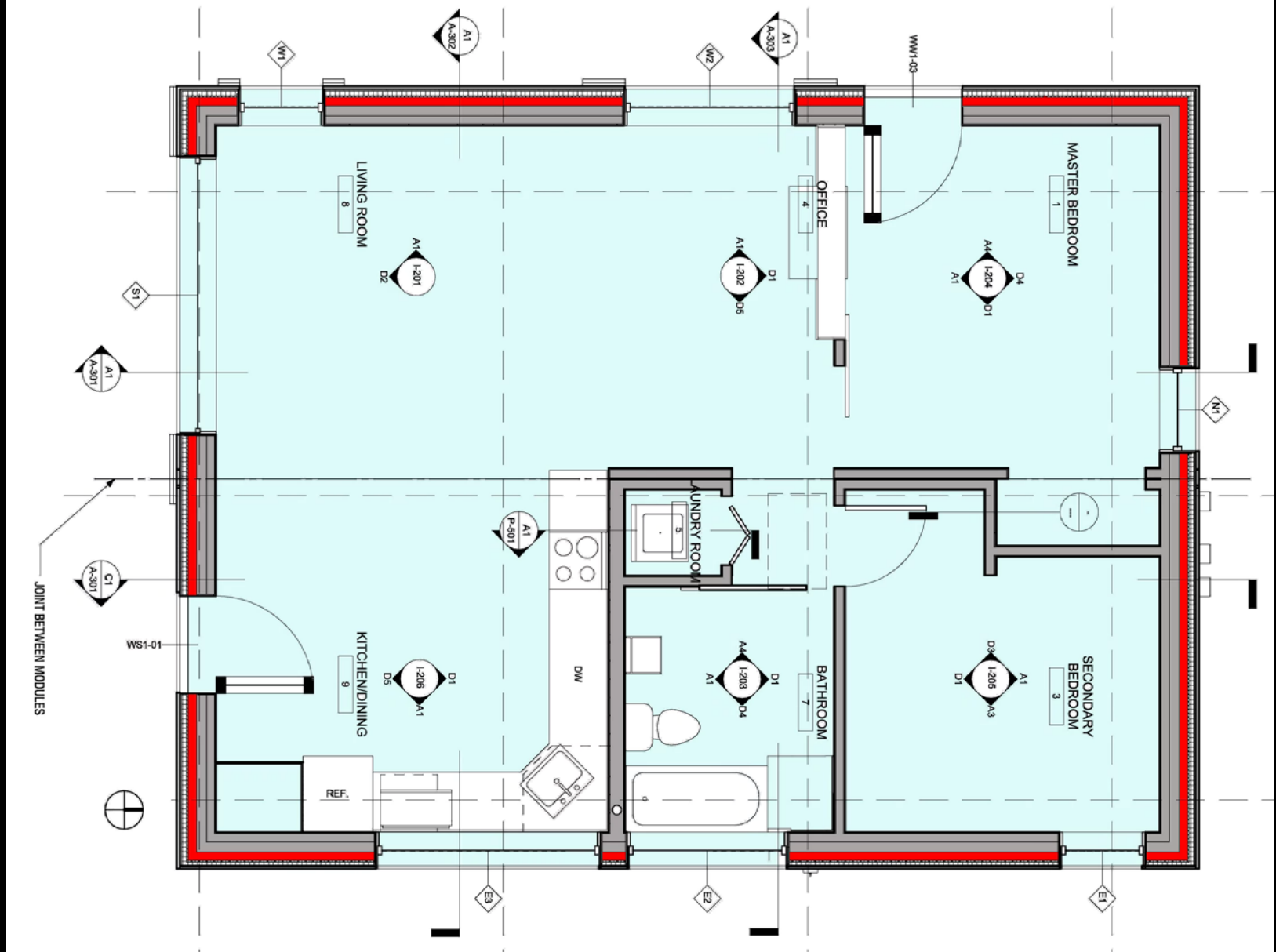
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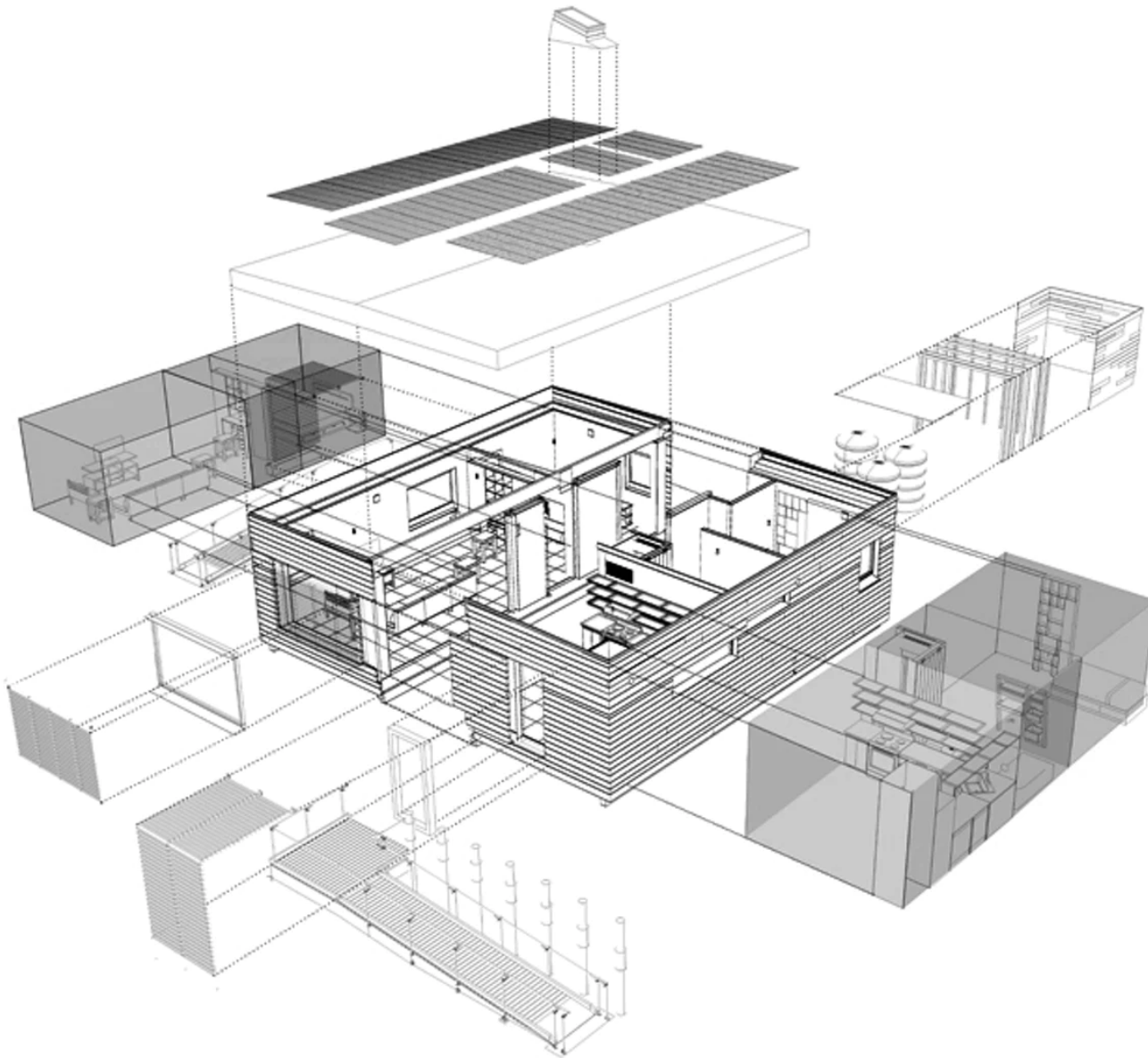


## **Delta T-90** (solar powered, affordable for cold climates)

- 1,000 square feet, two bedroom, 1 bath home
- cost \$168,000 and includes all the appliances and energy systems
- 1st place in the Affordability
- 1st in Energy Balance by producing more solar energy than the home used or needed
- <https://youtu.be/jQ2ePmRgiKg>



## Delta T-90 (solar powered, affordable for cold climates)



## **Delta T-90** (solar powered, affordable for cold climates)

- designed to maintain a comfortable 70 degrees Fahrenheit even when temperatures are -20
- integrated solar array provides required annual energy
- 16" thick walls insulated with dense-pack cellulose
- building envelope shelters from extreme temperatures and reduces carbon footprint





## **Delta T-90** (solar powered, affordable for cold climates)

- Integrated factory fabrication streamlined mechanical, electrical, and building envelope systems
- Maximized affordability and reduced primary energy demands
- 12 day production time in factory, 3 day set-up time on site





## Delta T-90 (solar powered, affordable for cold climates)

- Interior daylighting and high ceiling provide comfortable environment in both public and private spaces
- Compact, efficient space becomes grand and spacious





## **Delta T-90** (solar powered, affordable for cold climates)

- Now located next to Frank Lloyd Wright's Westcott House, a National Historic Landmark in Springfield, OH
- Used as a learning lab for design education activities to foster dialogue about sustainable practices and environmental stewardship

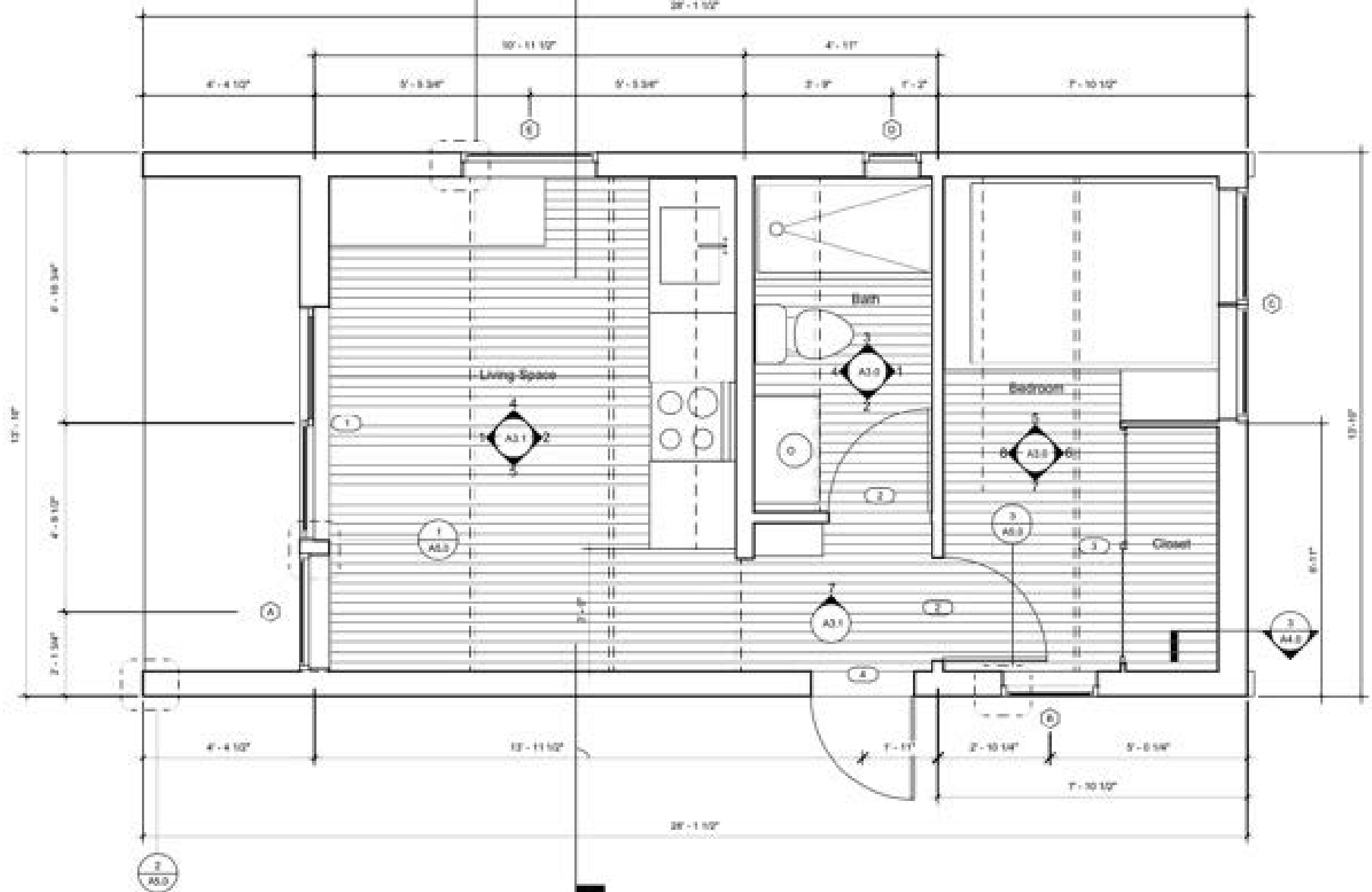




## **CASA 802** (for Creating Affordable Sustainable Architecture)

- energy-efficient, 324-square-foot home
- 1 bedroom, 1 bath home
- given free labor, donated materials and a hefty grant, the \$60,000 house could be sold for \$30,000
- won the People's Choice Award from the Vermont chapter of the American Institute of Architects





## CASA 802 (for Creating Affordable Sustainable Architecture)

- quite generous, with a separate bedroom with lots of storage, a full bathroom and a comfortable living space.
- The unit is wide enough that one can actually enter into a hall outside the bathroom instead of just falling into the living area.





## **CASA 802** (for Creating Affordable Sustainable Architecture)

- provides sustainable, beautiful housing for people from all income levels.
- immediate and long-term objective is to develop a regionally derived, affordable housing
- an alternative to the mobile home





## **CASA 802** (for Creating Affordable Sustainable Architecture)

- used about \$30,000 in materials (all good quality, formaldehyde free woods, locally harvested and milled siding and flooring) high efficiency windows, cellulose insulation, and a high efficiency heat pump
- Two walls in the bathroom are finished in aluminum for a durable waterproof finish
- a reclaimed sap bucket as a bathroom sink.





## **CASA 802** (for Creating Affordable Sustainable Architecture)

- inspired by Vermont's vernacular architecture
- Fits into its surroundings with its gabled form and material palette, while simultaneously introducing a new way of living through modern detailing and a reduced footprint



## **CASA 802** (for Creating Affordable Sustainable Architecture)

- Custom built-in birch plywood furniture provides carefully planned storage, seating and work space.
- Standing seam metal wraps the roof and long exterior walls; the gable end walls and covered porch are charred local white cedar.





## Vermont Habitat For Humanity Passive House

- 1400 sf house, 3 bedroom, 1 bathroom
- Stonorov Workshop did pro-bono schematic and design development work
- Norwich Architecture students developed construction drawing set.
- The house was built by the community in conjunction with local contractors and Habitat for Humanity.



## Vermont Habitat For Humanity Passive House

- 1400 sf house
- 3 bedroom, 1 bathroom
- The house was built to Passive House standard and is an incredibly high performing, energy efficient and sustainable house.





## Habitat for Humanity, East Montpelier, Vermont

Design: Stonorov Workshop

Construction Drawings: Norwich University School of Architecture + Art





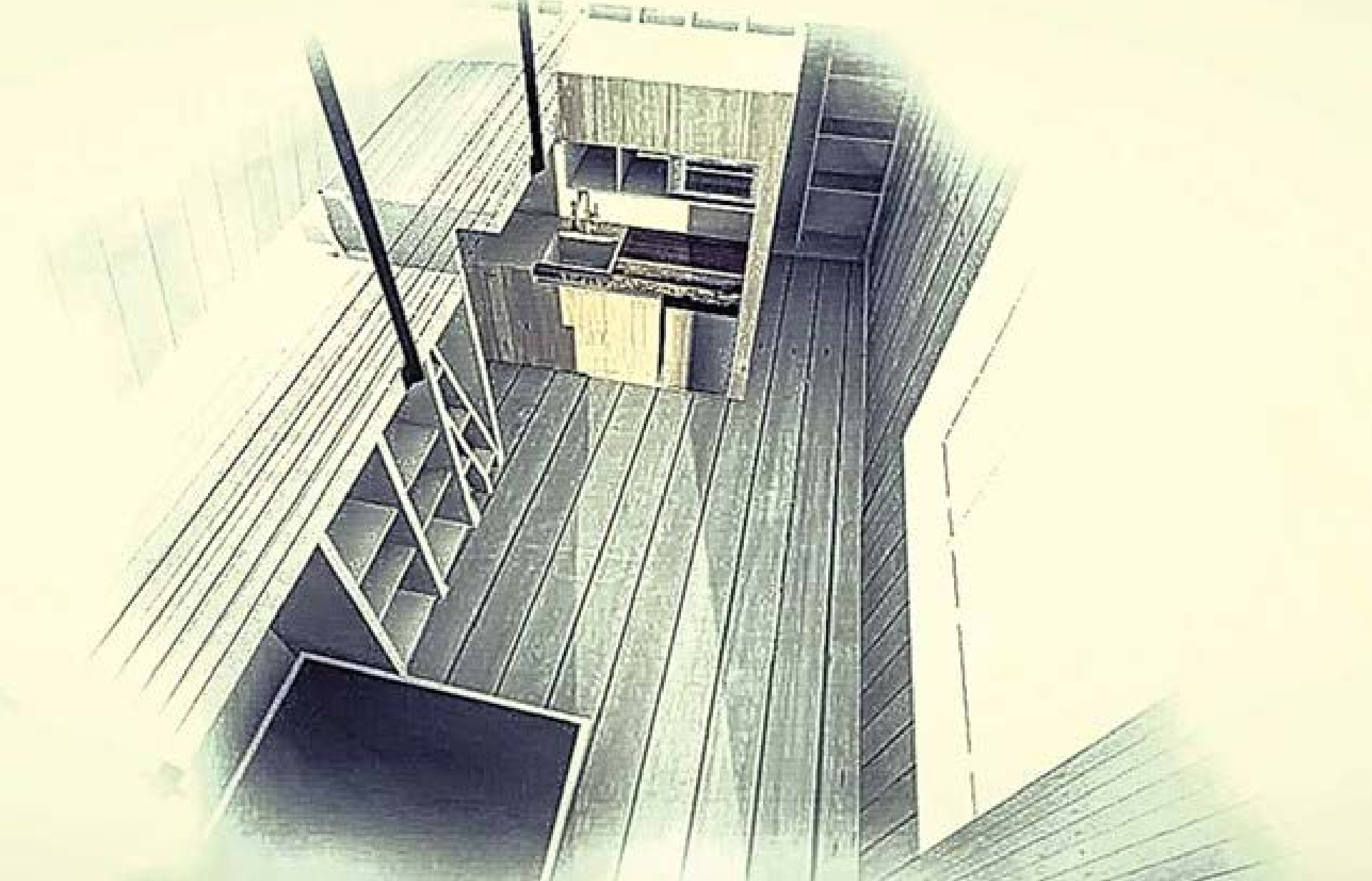
## **SuCASA** (built with nearly all locally sourced, sawn and produced materials)

- 288 sf house
- Energy Efficient with an approximate annual electricity cost of \$564 with R Values of 46.6 in the ceiling, 25 in the walls and 37 in the floor



**NORWICH**  
UNIVERSITY™





**SuCASA** (built with nearly all locally sourced, sawn and produced materials)

- Open floor plan
- Sleeping loft and Murphy Bed
- Large bathroom with 4' shower, flush toilet



## **SuCASA** (built with nearly all locally sourced, sawn and produced materials)

- Sold as do-it-yourself kits (building materials only)' Fontaine Forestry and Millworks for \$28,000
- Finished for \$37,000





## **LIFT House** (to be located in Barre City, Vermont)

- Two new, custom-designed energy-efficient small homes (approximately 300 SF) that promote both contemporary and authentic architectural values will soon be located on a vacant lot once inhabited by blighted, deteriorating housing in downtown Barre City, Vt.





## **LIFT House** (to be located in Barre, Vermont)

- in partnership with Downstreet Housing & Community Development and Washington County Mental Health as a way to reduce the financial cost of new housing while creating safe, healthy, and sustainable homes for vulnerable Vermonters





## **LIFT House** (to be located in Barre, Vermont)

Housing vouchers will be paired with the dwellings in order to serve individuals who have mental illness and/or are at high risk of homelessness or are currently homeless.