



A New Approach To Adaptable, Affordable, And Energy Efficient Housing Designed For Individuals With Autism (Poster)

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Abstract

The autistic community is underrepresented in modern residential design, with only a few user-identified housing options existing nationally intended for the specific and varying needs of the disorder. Working in partnership with local 501c3, LIFE Village Inc., initiatives to design housing for adults with autism and related disorders to gain independence are proposed for Boone, North Carolina. The goal of the LIFEmpowered homes is to provide energy efficient, adaptable, affordable, client-centered prototypes for individuals on the autistic spectrum. As autism is a spectrum disorder, individuals experience the disorder differently, which provides many opportunities for considering design “solutions” to be versatile for individualized needs. Research included relevant literature and architectural precedent studies, client observations, interviews, visual preference surveys, and spending time with intended users. In order to meet determined needs, design goals, outlined in the acronym “SMART”, were defined: Sensory, Modular, Autonomous, Resilient, Transition. The SMART home provides a whole-home adaptable sensory space, a modular design that could be built quickly and affordably, a home that fosters autonomy, a resilient home that could withstand the local climate and user impact, and a space that would allow for a low-stress transition from dependent to independent living. Designed to meet guidelines outlined by the US DoE Solar Decathlon Design Challenge, the 512 sf home provides environmental performance while providing flexibility for users. The LIFEmpowered homes can be adapted to meet differing climate zones, providing the possibility to deliver homes to individuals living with autism nationwide.

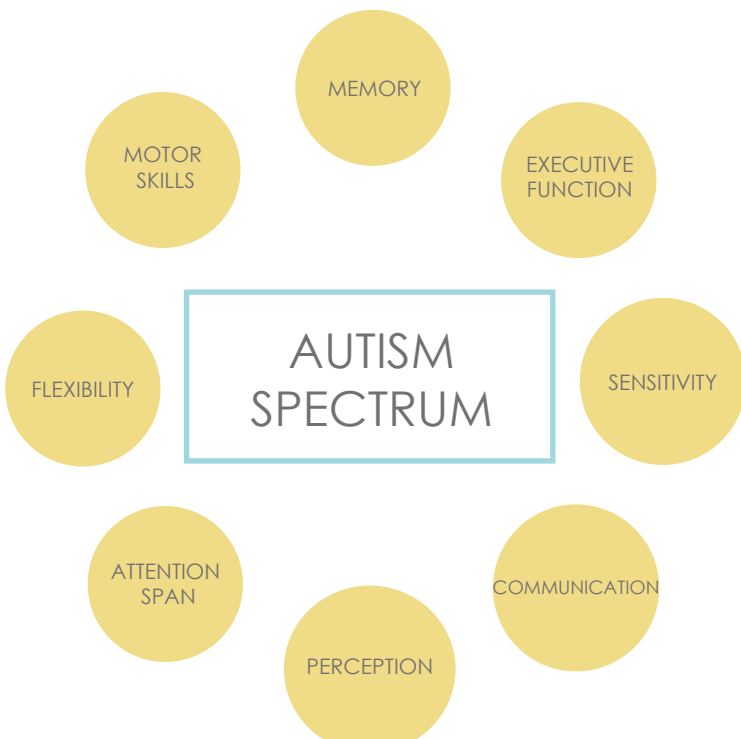
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THE USER

Bridging the gap between Autism and independence by designing a new standard in Zero Energy Ready, prefabricated homes that meet the needs of anyone on the Autism spectrum.

"IF YOU HAVE MET ONE PERSON WITH AUTISM, YOU HAVE MET ONE PERSON WITH AUTISM"
-DR. STEPHEN SHORE

- SOCIAL INTERACTION**
Not interested in others - A variety of friendships
- COMMUNICATION**
Nonverbal - Verbal
- BEHAVIORS**
Intense - Mild
- SENSORY**
Not very sensitive - Very sensitive
- MOTOR**
Uncoordinated - Coordinated



THE FLOOR PLAN



01 DIMENSION PLAN

THE GOALS

- Sensory
- Modular
- Autonomous
- Resilient
- Transition

SD Design Challenge
Attached Housing
04/09/2019

\$ 68,909.00
135/GSF
512 SF • 1 bed • 1 bath



PROJECT SUMMARY

Appalachian State University's IDEXlab was approached by LIFE Village Inc., a local 501c3, to assist with developing a community for adults with autism and related disorders within the Town of Boone, NC. IDEXlab students were asked to design an Attached Housing unit that meets the unique needs of adults with autism. To create a sense of belonging, autonomy, and safety for the occupants, the home design will be interactive with high levels of control. In addition to providing independence and potential for growth, the design should also encourage interaction among residents in the community.

In the US 500,000 teens with autism will age into adulthood over the next decade.

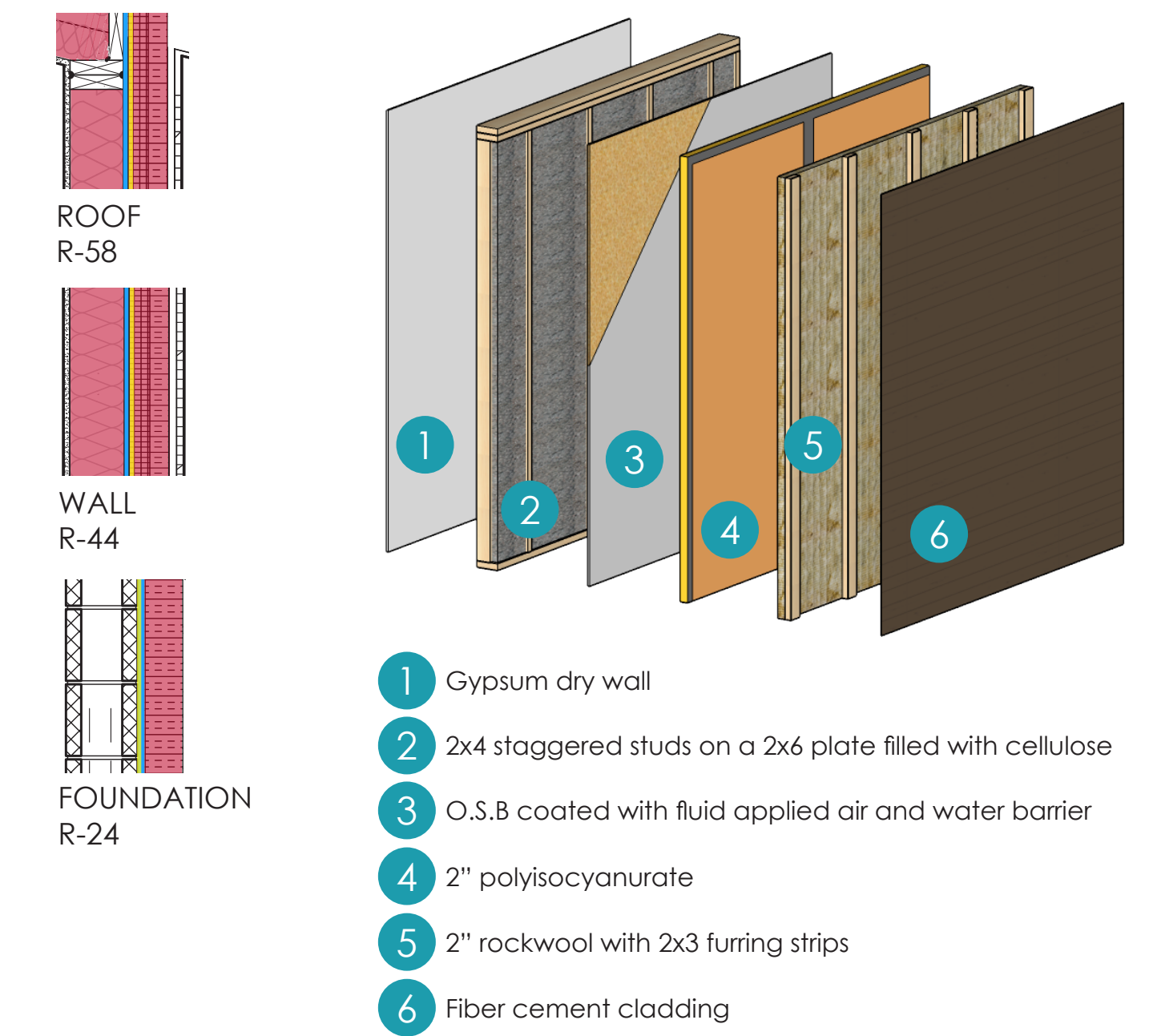
- WHO did we design for?
- WHAT is the vision?
- WHY is this important?
- HOW does it work?
- WHERE is this happening? Not happening?
- WHEN does this need to happen?



THE SYSTEMS

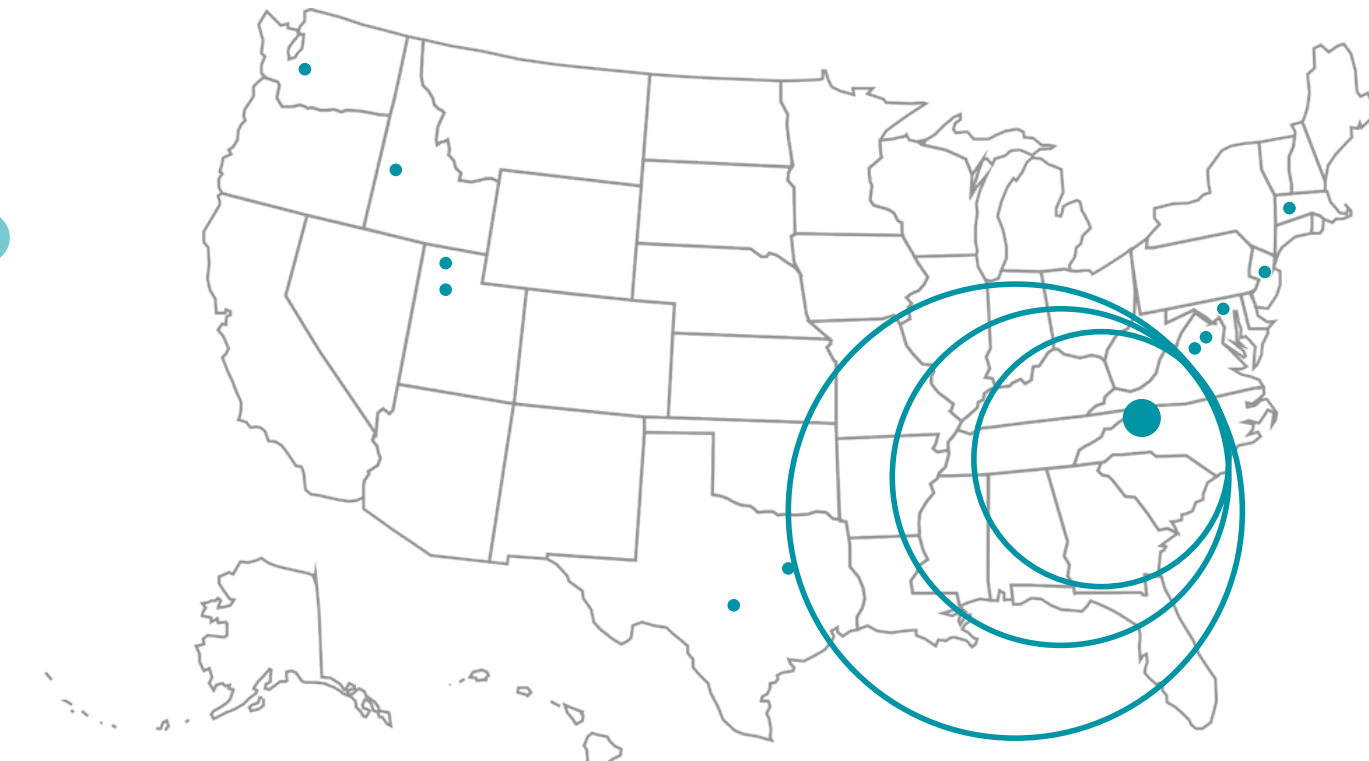
- Single zone heat pump 6 kBTUH, ERV
- 2.75 kW PV
- Home automation
- \$10.50/month / \$-13.80/month with PV
- HERS with PV -1

THE STRUCTURE



THE OPPORTUNITY

There is a lack of these communities nationwide



THE SOLUTION

In order to address the urgency to build the LIFE community, these homes will be modularized, built within a warehouse environment, delivered to the site and assembled within 32 days so that housing can be provided for adults with autism.