AFFORDABLE AND RESILIENT HOUSING FOR NEW BERN

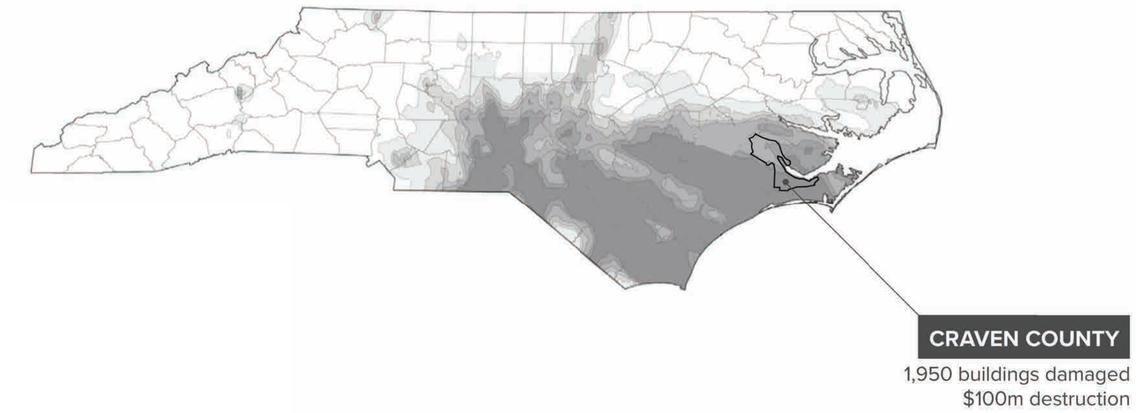
Affordable Housing + Sustainable Communities Initiative | School of Architecture | NC State University

Core+

Gayatri Ganesh

Disaster Declaration

Hurricane Florence



October 2018 [one month after debris]:

"families [in New Bern] with damaged homes and unlivable apartments ***hadn't heard anything from FEMA about temporary housing."***

-The Atlantic, 10/04/18

December 2021 [three years after debris]:

Florence-damaged buildings at Trent Court are **still awaiting final FEMA approval**

-Sun Journal, 12/13/21

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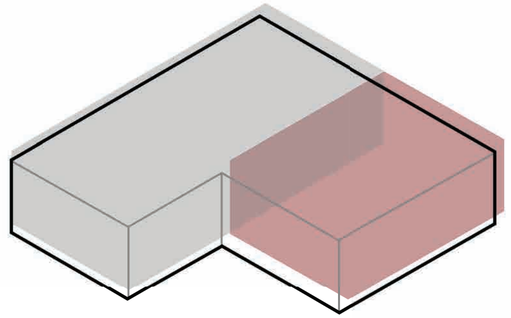
Project Statement



Employing a prototypical system of **rapid deployment post-disaster** wherein affected residents are immediately provided with basic core units, and able to later **custom expand** based off preference.

To avoid relocation, cores are built in place of the destroyed home and expansions **rehabilitate destroyed home pieces**, if possible.*
The model is designed so residents can continue to **reside in the self-sustaining core** while expansion construction is ongoing.

*if not, the expansion is started afresh instead of leveraging destroyed home materials

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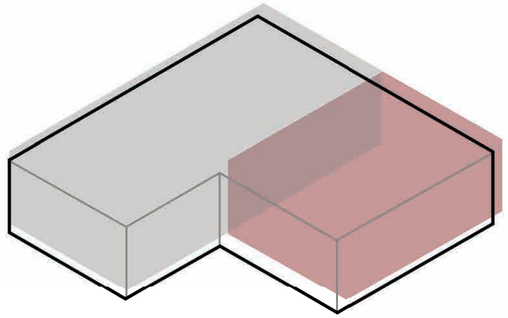
Design Overview



Low maintenance

Prototypical rapid deployment

Not site specific

Prefabricated Core

Off-site

Reduces specialized labor (greater volunteer ability + participation)

Decreases construction time/cost

Resident-determined/community engagement

Pre-designated ‘packets’ wherein residents can determine from ‘catalog’ for expansion (bolt-on units)

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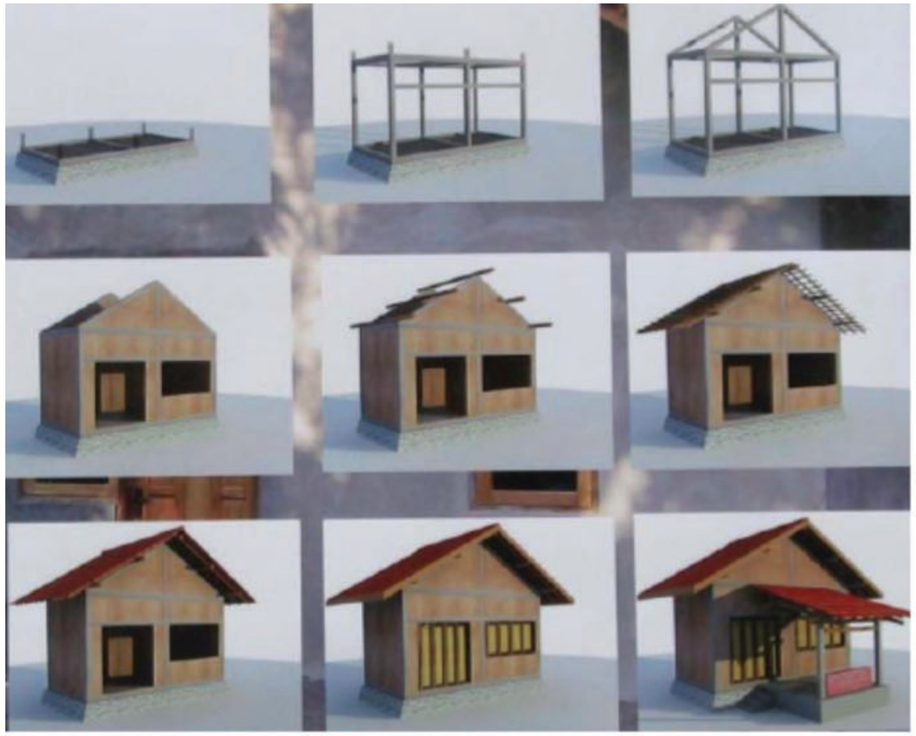
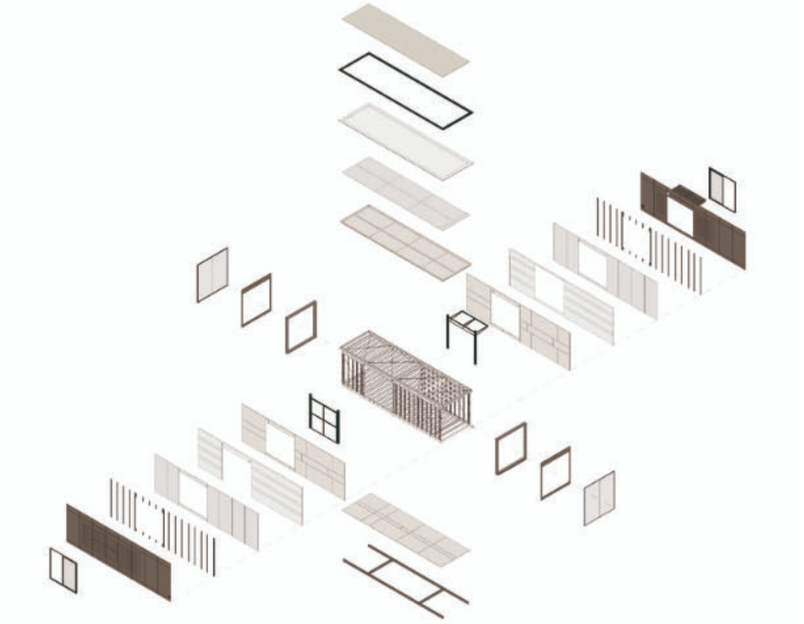
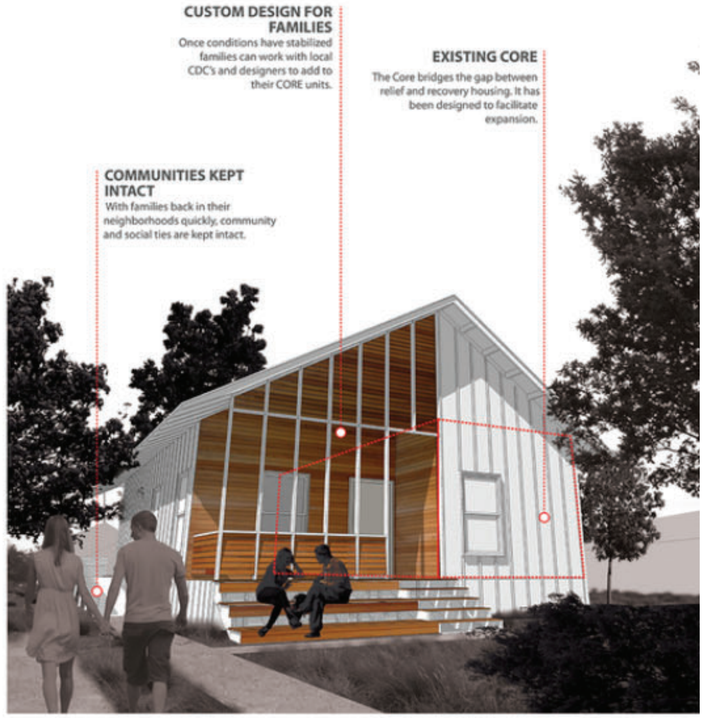
Delivery, Assembly, Implementation Precedents



Core Disaster Recovery
post Central Java Earthquake in Indonesia
(2006)



MINIMOD_MAPA
Rapid prefab delivery
(2013)



RAPIDO_bc Workshop
post Hurricane Dolly in Texas
(2008)

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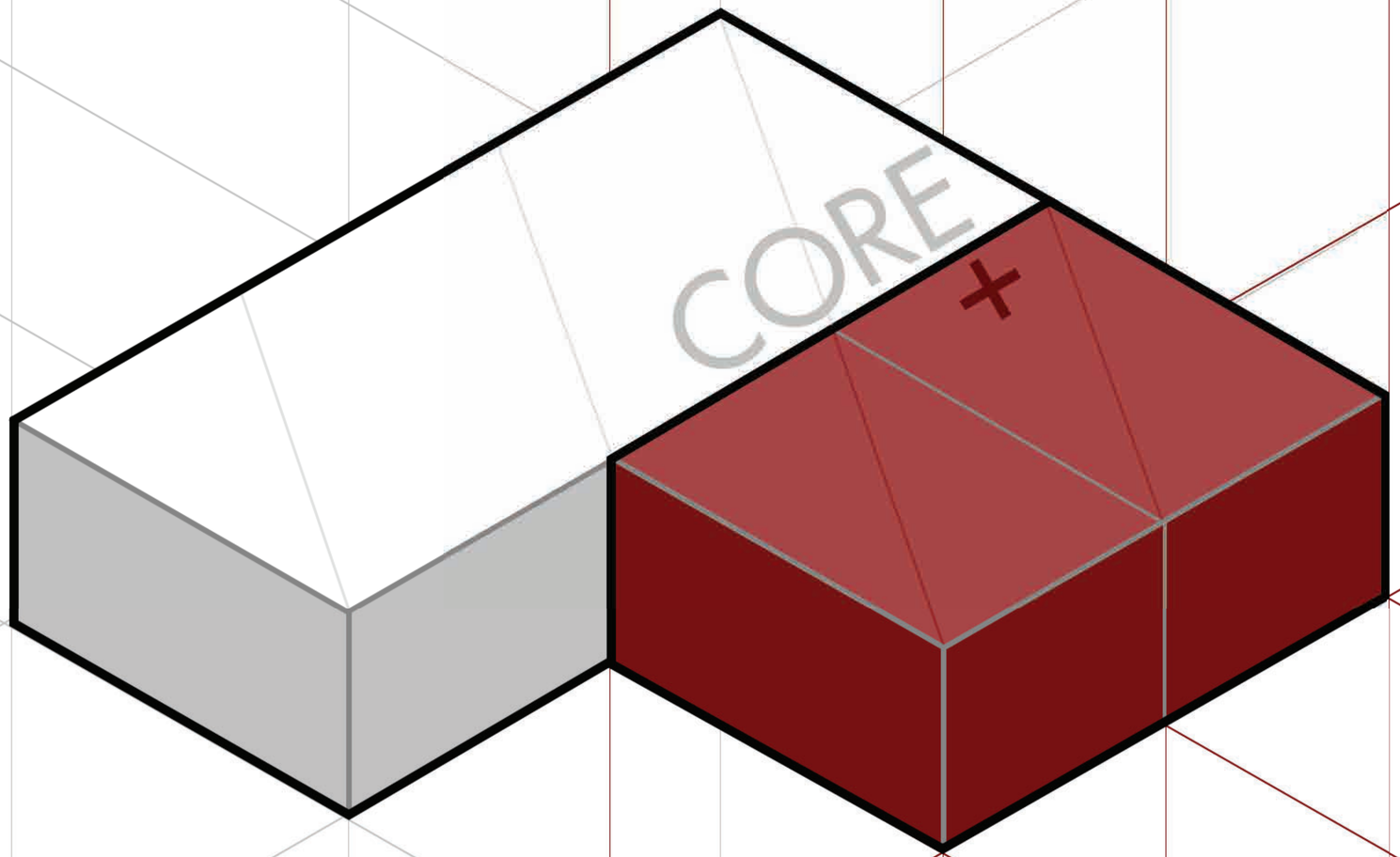
Geometry



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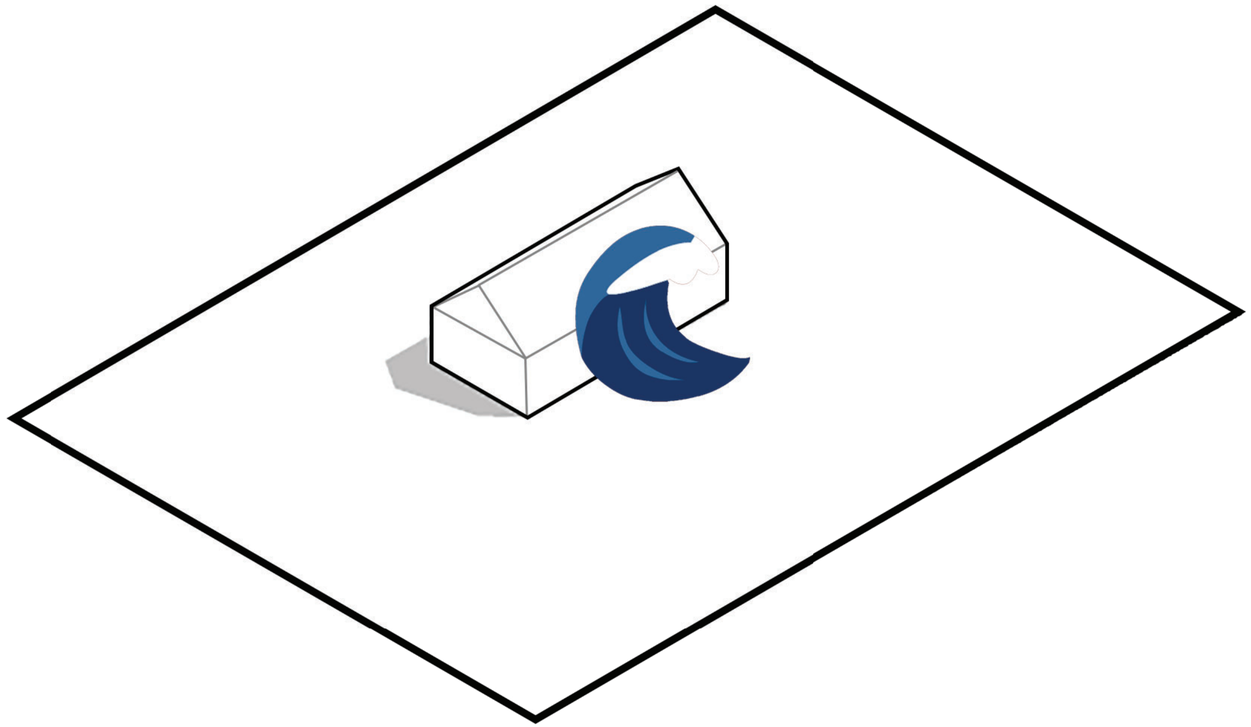
System

DESTRUCTION



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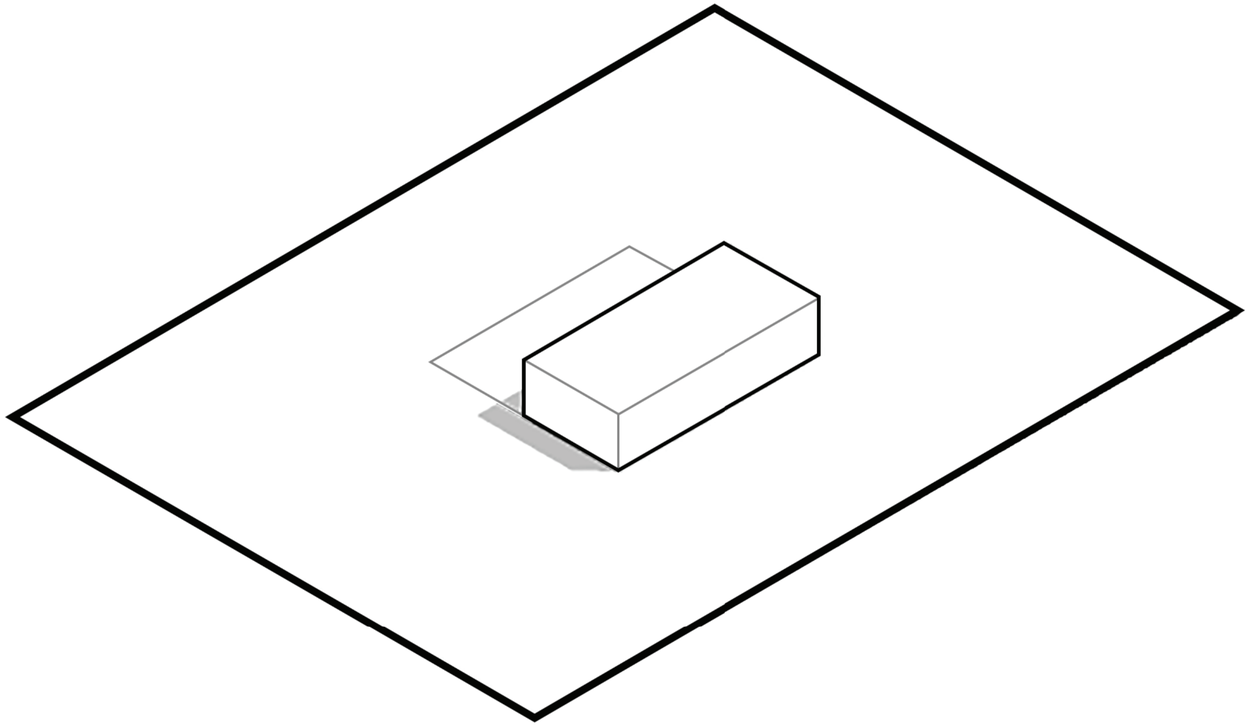
System

DESTRUCTION

TRANSITIONAL



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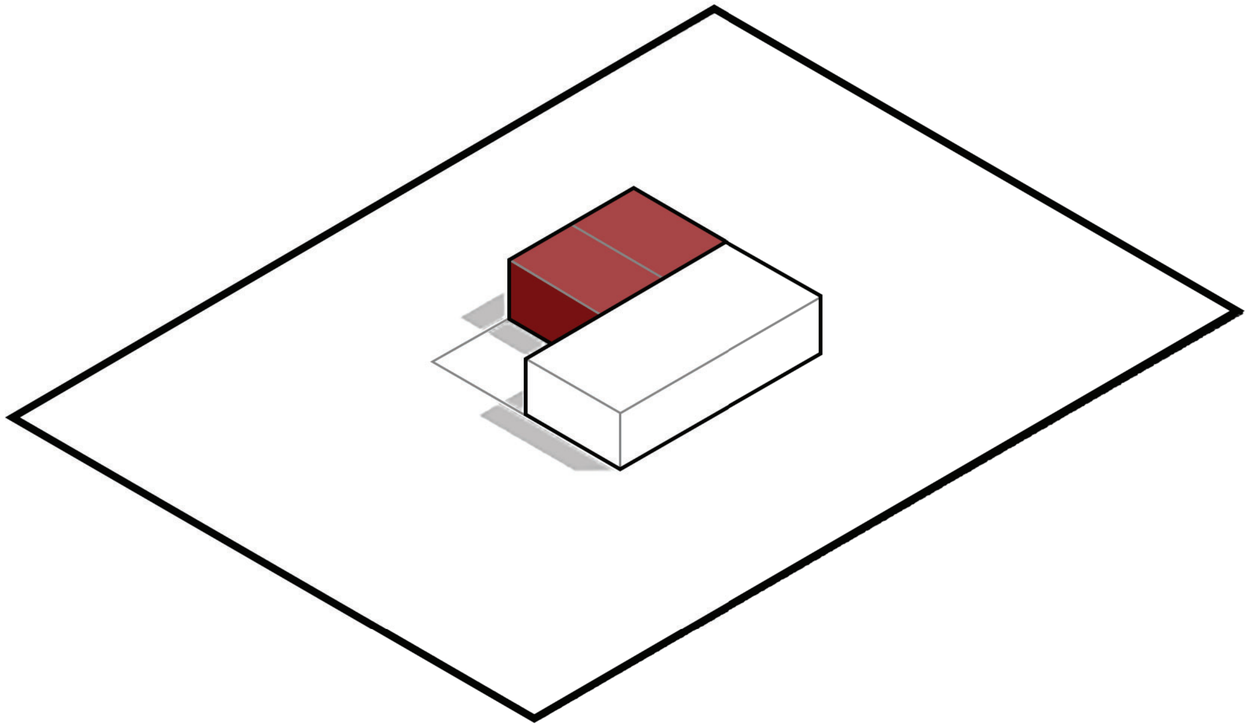
System

DESTRUCTION

TRANSITIONAL

PERMANENT



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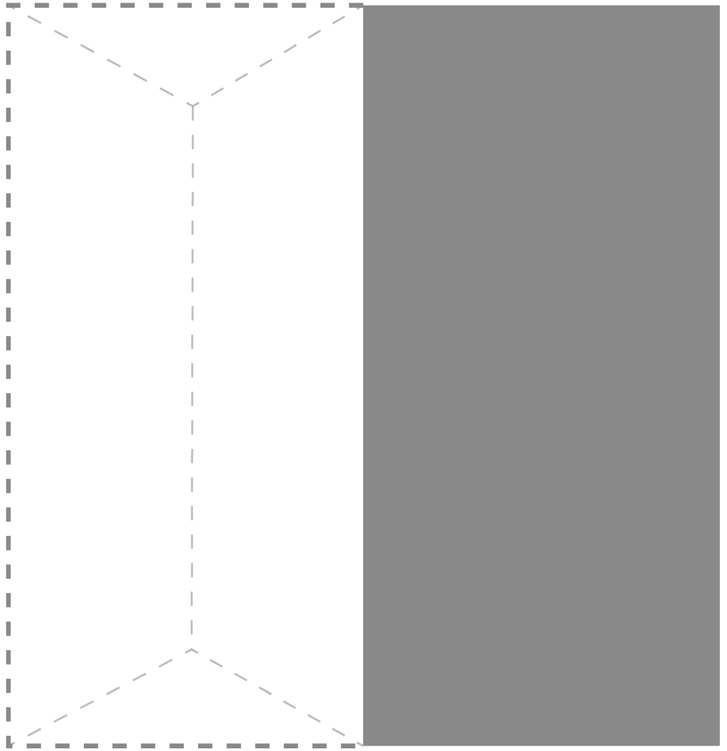
Assembly + Delivery

DESTRUCTION

CORE

6 WEEKS



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Assembly + Delivery

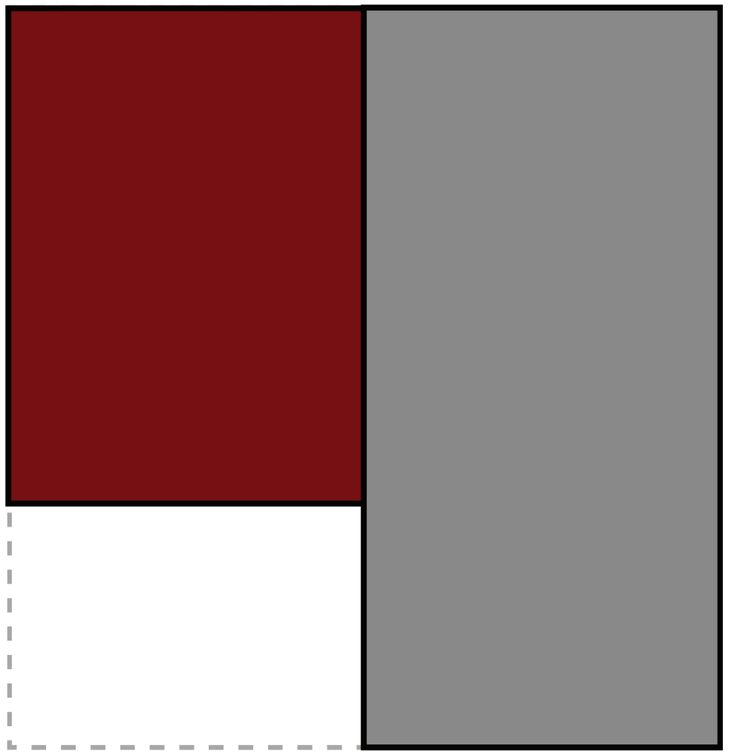
DESTRUCTION

CORE

6 WEEKS

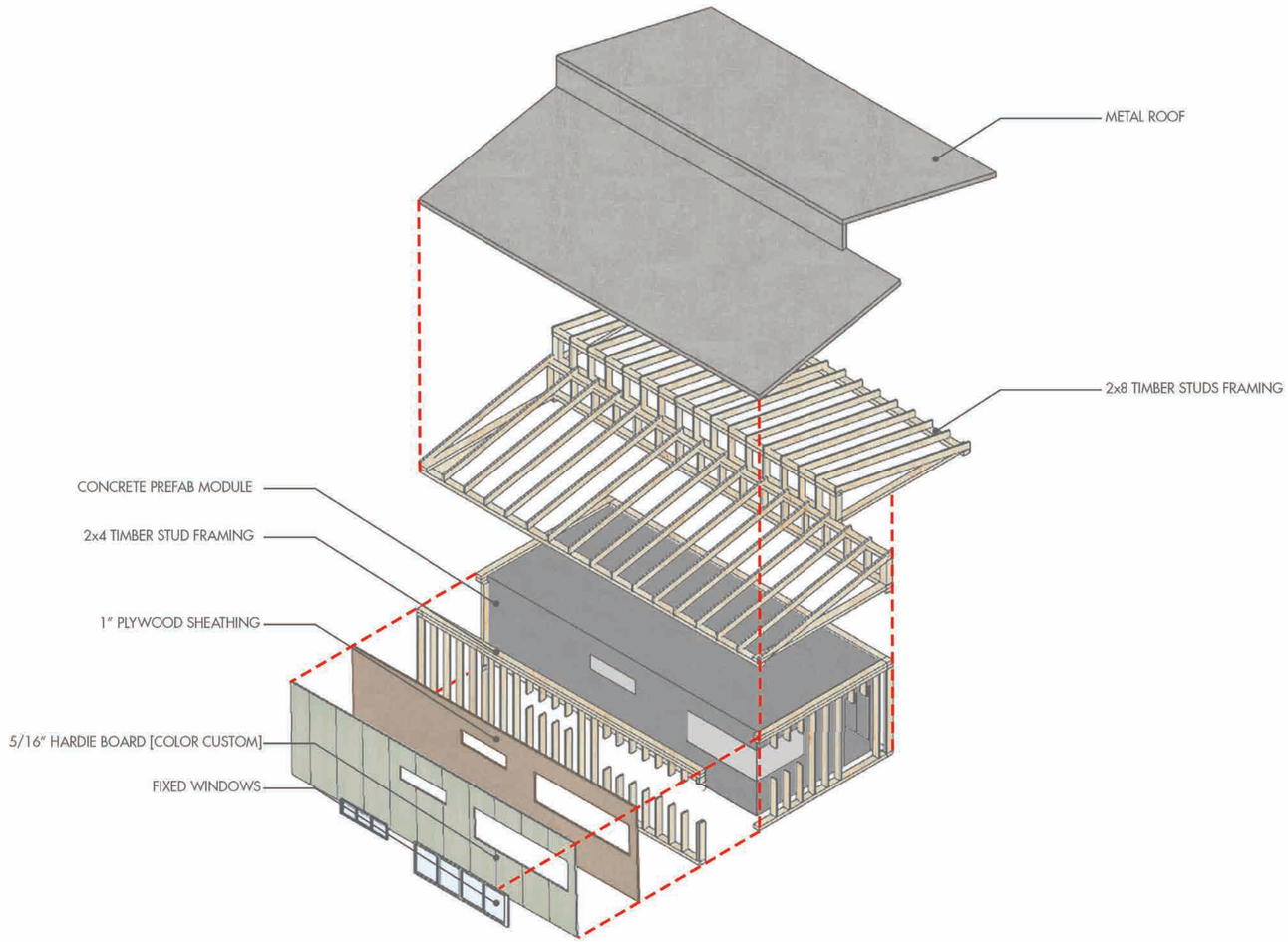
+

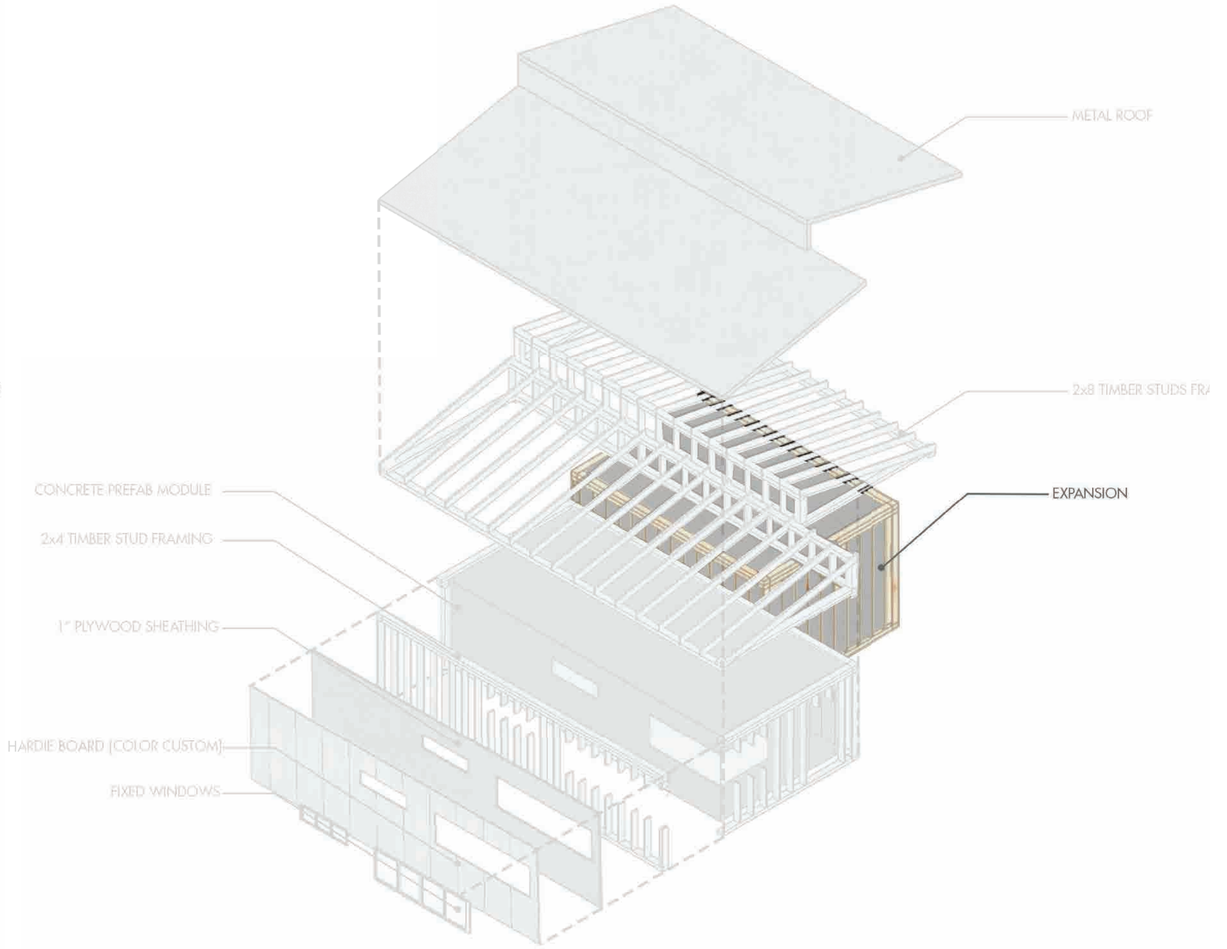
3 MONTHS~



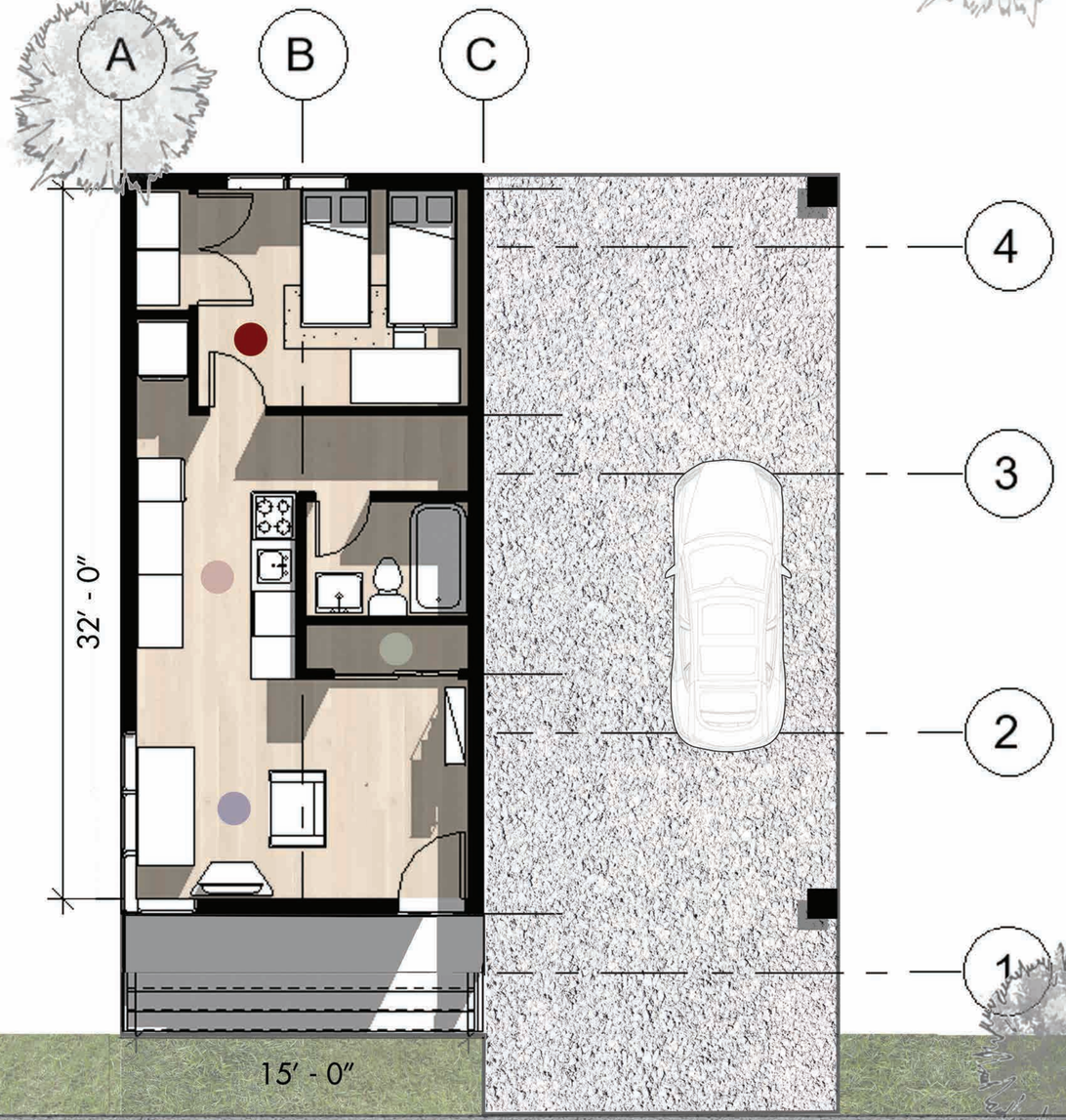
Core+

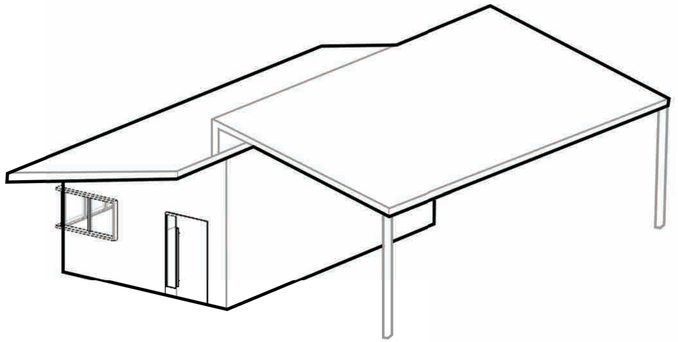
Assembly + Delivery





Core





BEDROOM

KITCHEN

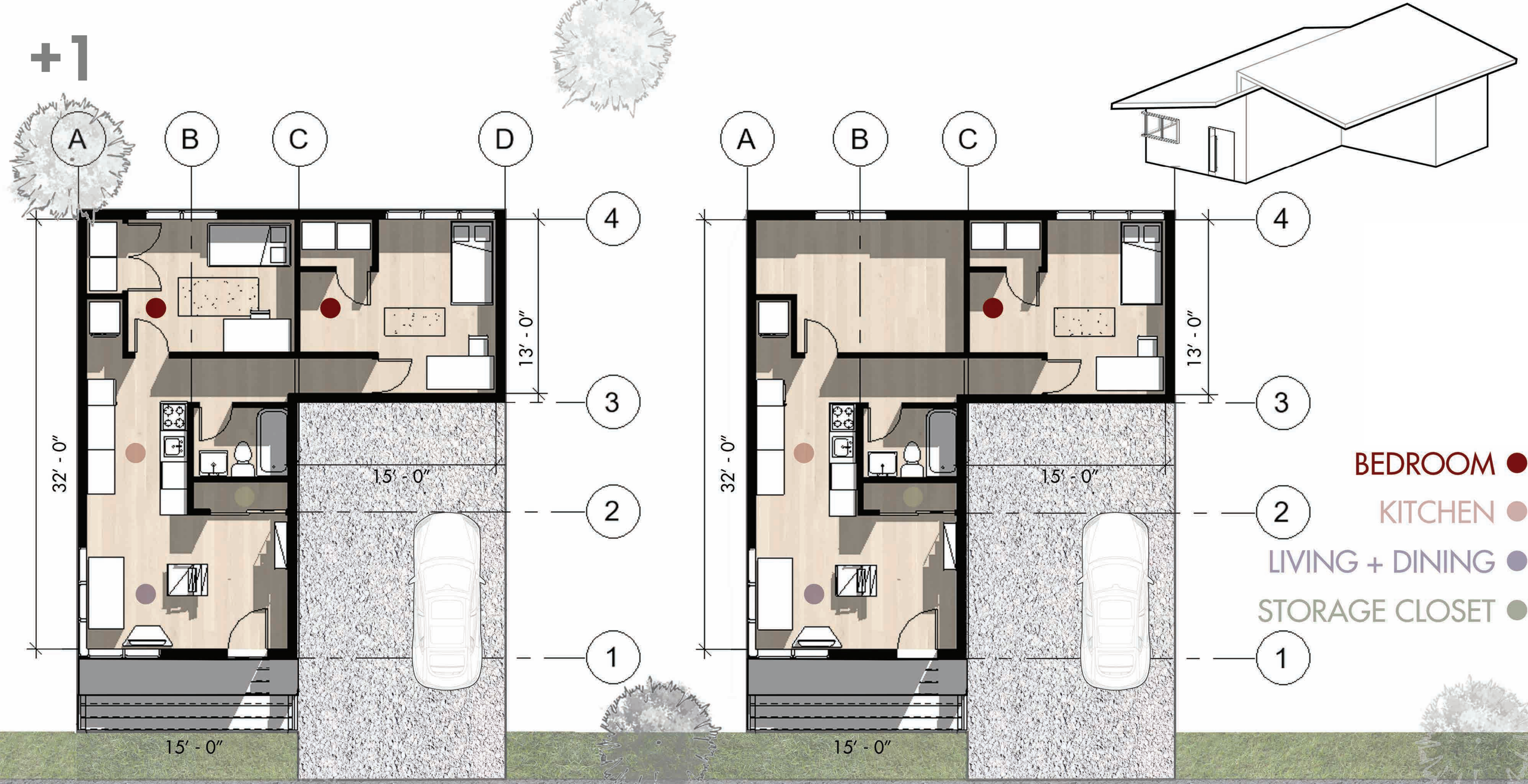
LIVING + DINING

STORAGE CLOSET

LVL 1 FLOOR PLAN - 480 sf

1/4" = 1'- 0"

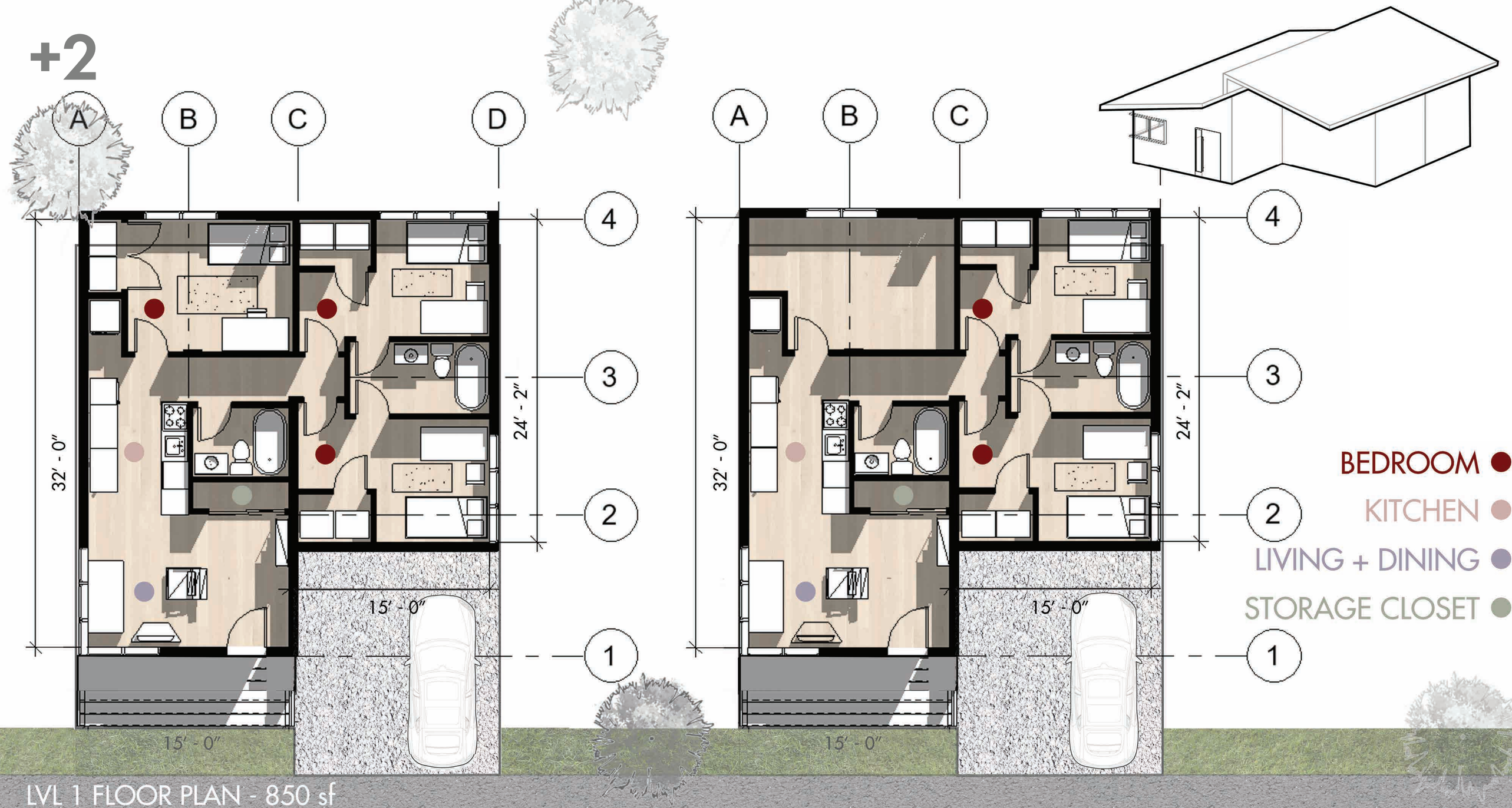
+1



LVL 1 FLOOR PLAN - 675 sf

1/4" = 1'- 0"

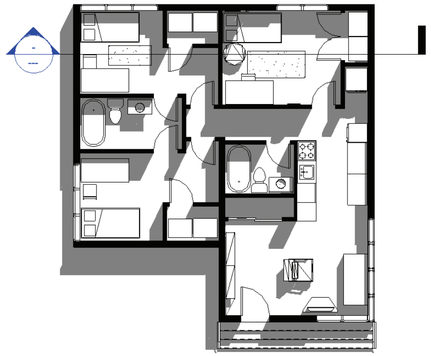
+2

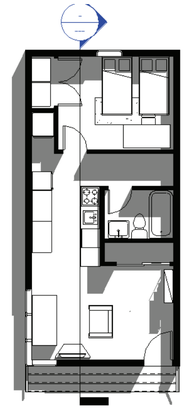


LVL 1 FLOOR PLAN - 850 sf

1/4" = 1'- 0"

Building Sections





NORTH CUT

0 2.5 5 7.5 10 12.5

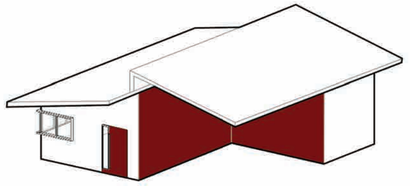
EAST CUT

0 2.5 5 7.5 10 12.5

Material Palette

EXTERIOR WALL FINISHES

WOOD-STAINED HARDIE BOARD VERTICAL SIDING

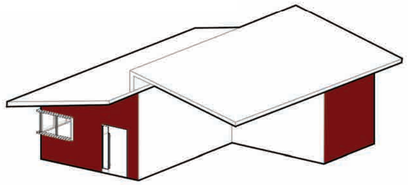


MAPLE

CHERRY

WALNUT

COLOR-PRIMED HARDIE BOARD LAP SIDING



SAGE

LAVENDER

PEACH

MUSTARD

AQUA

MONOTONE

RECOMMENDED COMBOS

WALNUT +

PEACH

CHERRY +

AQUA

MAPLE +

SAGE

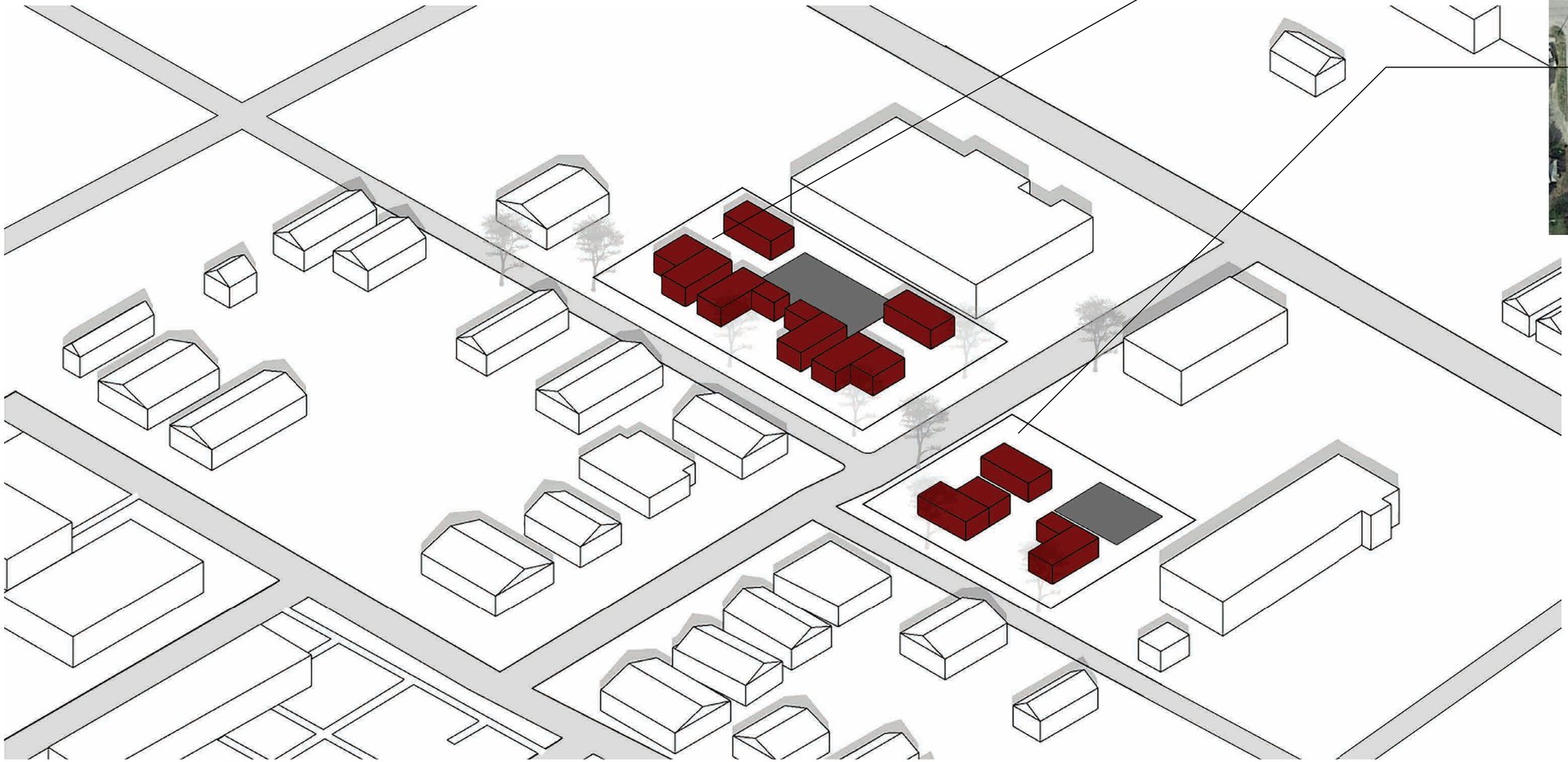
WEST ELEVATION

Sustainability

Scattered Sites

Zone 1

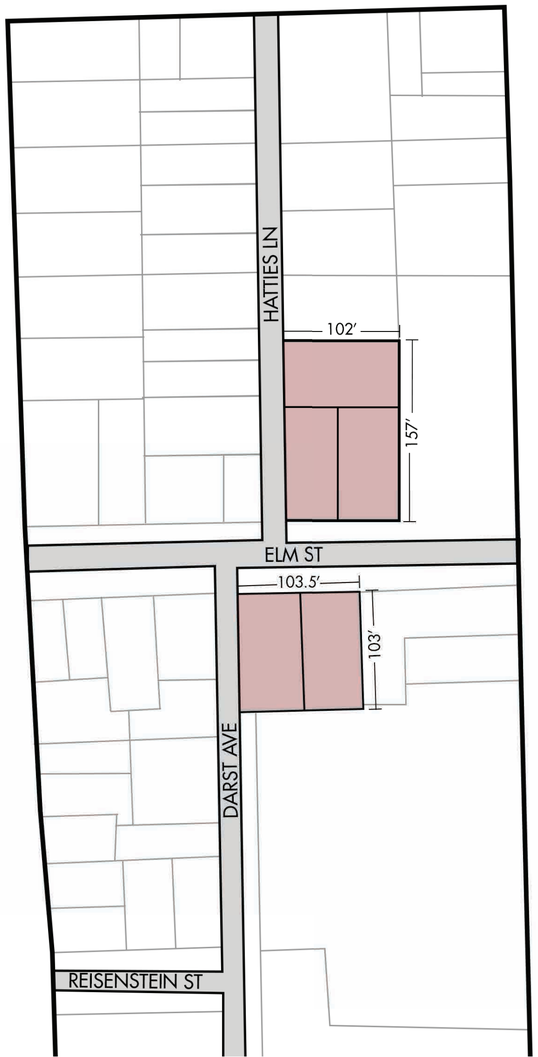
Site



Hatties Ln
Elm St
Elm St
Elm St
West St
Darst Ave
West St
West St

Zone 1

Site

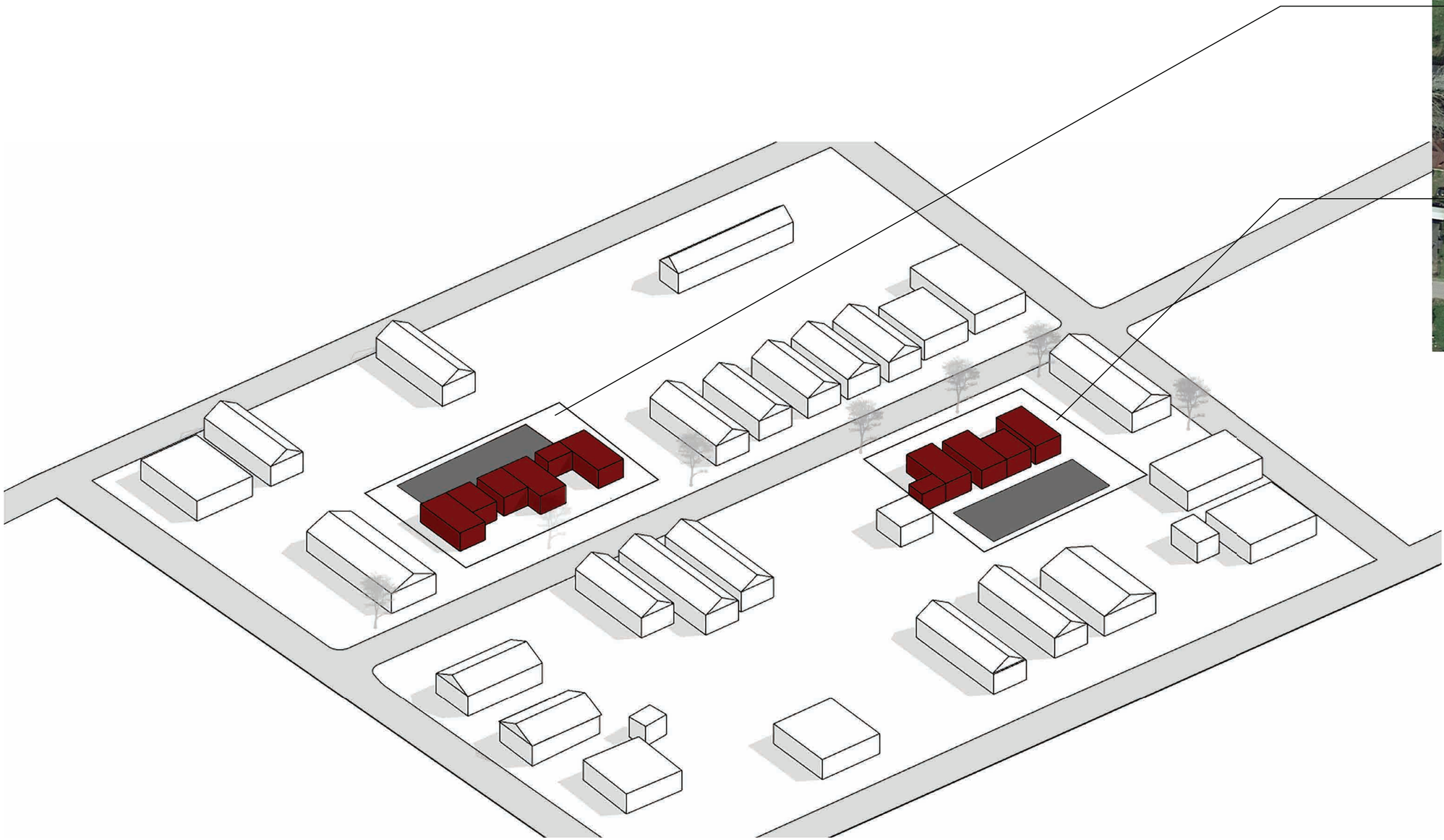

HATTIES LN
102'
157'
ELM ST
103.5'
103'
DARST AVE
REISENSTEIN ST

HATTIES LN
WEST ST
ELM ST
DARST AVE
0
13
26
39
52
65

Community Garden

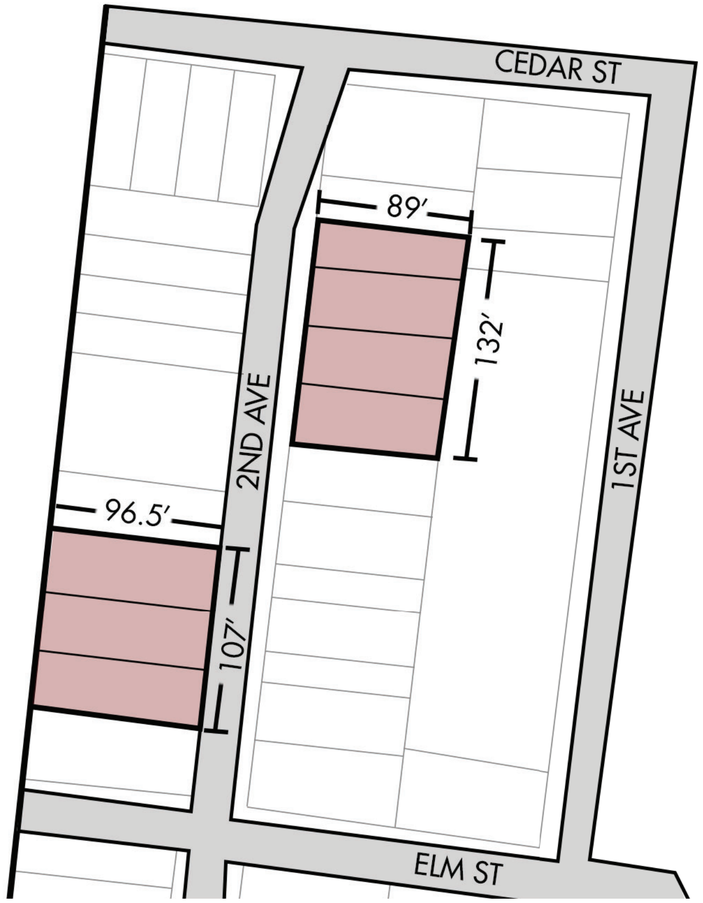
Zone 2

Site



Zone 2

Site


CEDAR ST
89'
132'
2ND AVE
1ST AVE
96.5'
107'
ELM ST

CEDAR ST
2ND AVE
1ST AVE
ELM ST
0
13
26
39
52
65

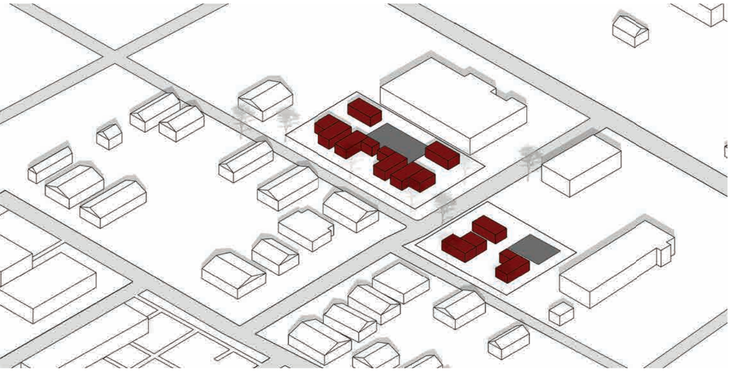
Core+

Interior Renders

Living + Entry

Bedroom

Kitchen



WEST ELEVATION