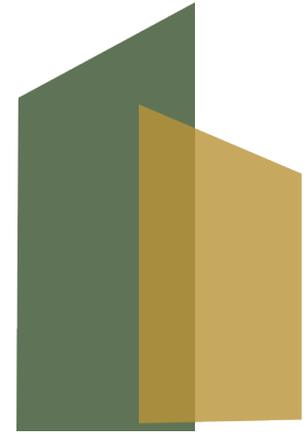


# PEACE VILLAGE

SOLAR DECATHLON | U.S. DEPT. OF ENERGY  
ATTACHED HOUSING | PROJECT PRESENTATION  
TEAM GETTING TOO ATTACHED



MIAMI  
UNIVERSITY  
OXFORD OHIO



# MEET THE TEAM

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

ACCESSIBILITY +  
INCLUSION

SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION

## STUDENT PROFILES



**TIM SPERLING**  
3rd Year | Architecture  
Sustainability Minor  
Tim Leader



**EMMA RICHARDS**  
3rd Year | Architecture  
Photography Minor



**TAYLOR LUEHR**  
3rd Year | Architecture  
Geography Minor



**ELLIOTT BOYLE**  
4th Year | Architecture  
Urban Design Minor



**JAKE GANSENBERG**  
3rd Year | Architecture  
Mech. Engineering Minor



**JUSTIN STANLEY**  
3rd Year | Architecture  
Digital Innovation Minor



**COLIN FINNIGAN**  
3rd Year | Architecture  
Fine Arts + Painting Minor



**ANNA STEWART**  
3rd Year | Architecture  
Fashion Minor



**KYLIE BLOVITS**  
3rd Year | Interior Design  
French Minor



**TORI HOFFMANN**  
3rd Year | Architecture  
Management Minor



**TAYLOR MASON**  
3rd Year | Engineering  
Finance Minor

## FACULTY PROFILES



**JOHN BECKER**  
Dept. of Architecture + Interior Design  
RA | Building Technology, Materials  
Lead Studio Faculty



**MARY BEN BONHAM**  
Dept. of Architecture + Interior Design  
AIA, NCIDQ, LEED AP | Building Envelope, Lighting  
Project Coordinator



**MIAMI  
UNIVERSITY**

O X F O R D O H I O

# MIAMI HISTORY IN OVER-THE-RHINE

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

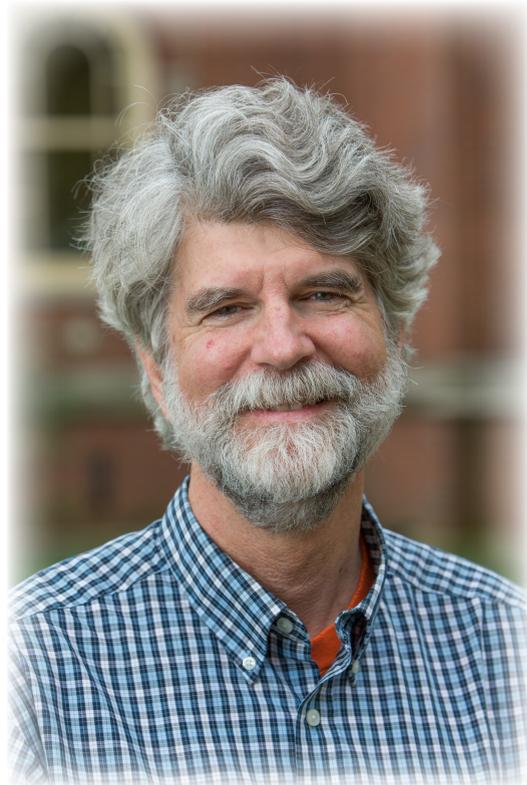
ACCESSIBILITY +  
INCLUSION

SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

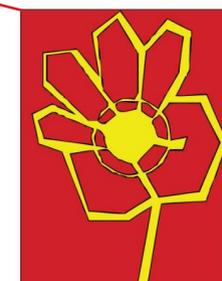
CONCLUSION



## EXPANDED CONTEXT MAP



PEACE VILLAGE



the miami university  
center for community  
engagement

# SITE CONTEXT- COMMUNITY

INTRODUCTION

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DESIGN

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NET ZERO DESIGN

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Suggested \$1.00 Donations Only

Buy From Badged Vendor ONLY

## STREETVIBES

February 1997 The Tri State's Homeless Grapevine

### Remembering buddy gray

by Bonnie Neumeier

buddy gray made a commitment very young to dedicate his life energies to the cause of freedom, justice and peace for all humanity. He never wavered on that commitment. To buddy, every person had a face, a name. He was a man with great passion and soul. A man who was motivated by his inclusive love and just anger so that we all could live free with basic human rights.

buddy used all that he was in the service of his vision. He give endless hours of dedication/determination because he believed we must be about building a healthier neighborhood and world community for all of us. buddy's life as a revolutionary, a public servant, a poet, a carpenter, a friend, an organizer, an advocate, a prophet, a brother, a keen strategist, a preserver of life, a justice-seeker, a consistent challenger, a planter of trees and flowers, a lover of people, and an enthusiast for the simple joys of life challenged many to take an active part in something so much greater—to be a part of the historic movement for

FREEDOM. He knew that this serious task was not without its difficulty and pain, but he helped many feel the joy in being part of the freedom train.

buddy's strong, life-giving spirit was felt and impacted many people and places, but his soul lived specially deep in the people and soil of the Over-the-Rhine neighborhood of Cincinnati, Ohio. He walked side by side with us, his neighbors, with little or no resources using all we had in us to claim the right to stay in this land for IT IS OUR HOME that deserves and needs to be respected by the power forces grabbing our land for their profit interests. He had a deep care and compassion for people who are homeless and with little or no incomes. He believed in peoples ability to overcome addictions and hopelessness. He was an advocate of the people to whom he gave hope by what he said and what he did, he never brushed people off. buddy worked hard at developing and sharing leadership for he believed in the power of the people. What he thought was just and right, he took action with others to carry it out. He knew seeds had to



be planted well, planted deep, for our hope lies in the coming together of all of us creating a new world with compassion for all earth's creatures.

Some of the ways in which he carried out his commitment:

See Remembering buddy gray on page 3

## COMMUNITY RESOURCES MAP



- 15-Minute Walk
- Bus stop
- Grocery (Findlay Market, Tucker's Corner Store)
- Community Assets (OTRCH, CCC, Freestore, Peaslee, etc.)
- Immediate site context
- Place of worship
- Healthcare (Christ Hospital, Crossroad Health Center)
- Parks (Findlay Playground, Grant Park, etc.)
- Schools (Rothenberg, St. Francis Seraph, etc.)

# SITE CONTEXT- NEIGHBORHOOD

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## STREETVIBES *The In State's Homeless Grapevine* Page 3

### Over-the-Rhine Developers Give Tenants Notice on Walnut Street

by Bonnie Neumeier  
There's a project called THE MIDDLE EARTH CONSORTIUM which recently was selected for funding through the City's Housing Round III. The Over-the-Rhine Community Council was approached by Mr. Jay Voss from Middle Earth Properties about this project and requested our support. We could not support this project because it involved displacing low-income tenants.

displaced and one other tenant who was evicted a short time ago. It's a hardship on all of them and the news quite shocking. It is not easy to find an affordable unit. Those who are elderly, facing many health problems are finding a much harder time. Finding a place that will accept their animal friends is tough. No one was talked to about being able to come back once renovation was complete. All of them were encouraged to meet with Mark Brunner, The Over-the-Rhine Foundation,

### "Being Asked to Leave Your Home Is Never Good News..."

low income rental units into market rate rental buildings. This project involving various for-profit corporations and limited partnerships, is rehabbing 8 buildings within one block area around 14th and Walnut Streets. The buildings will contain 53 residential units and 4 store fronts. Six of the 8 buildings will have only market rate units (1 bedroom \$400 a month, 2 bedroom \$500 a month, 3 bedroom \$600 a month).

who works with the Anti-Displacement program, offering Section 8 units, as if that were all the disruptions that the tenants are faced with. Anxiety is high...the 60 days is too short a time. Because this project is using federal dollars from the City the tenants are eligible

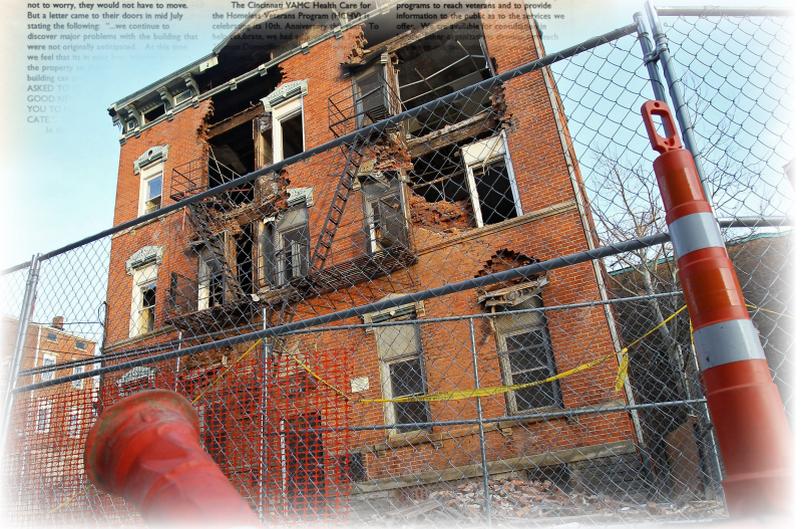


These buildings at 1410 Walnut Street are slated for improvements. They have been occupied for decades by Appalachian families. Photo by Berta Lambert.

### Veterans Homeless Program Celebrates Anniversary

by Iola Green

The Cincinnati VAMC Health Care for the Homeless Veterans Program (VHCP) celebrated its 10th anniversary on Tuesday.



# SITE CONTEXT- MAIN + SCHILLER

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

ACCESSIBILITY +  
INCLUSION

SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

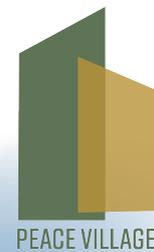
PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION

MAIN + SCHILLER TODAY



MAIN + SCHILLER AS IT SHOULD BE



# MAIN + SCHILLER SURVEY RESULTS

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

ACCESSIBILITY +  
INCLUSION

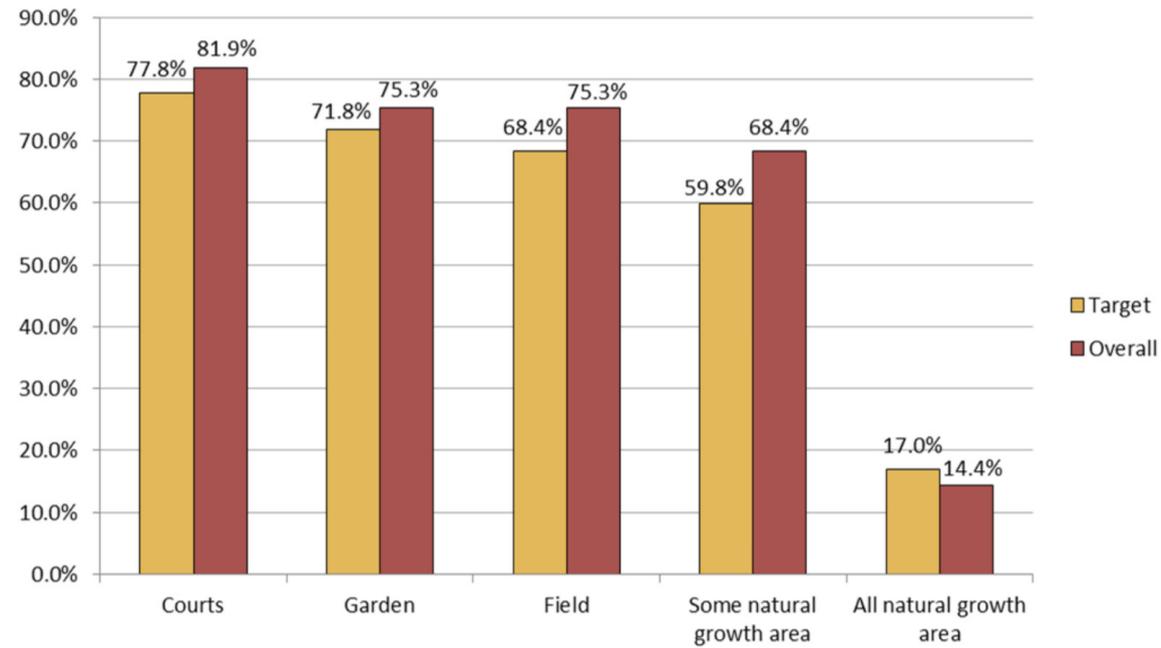
SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

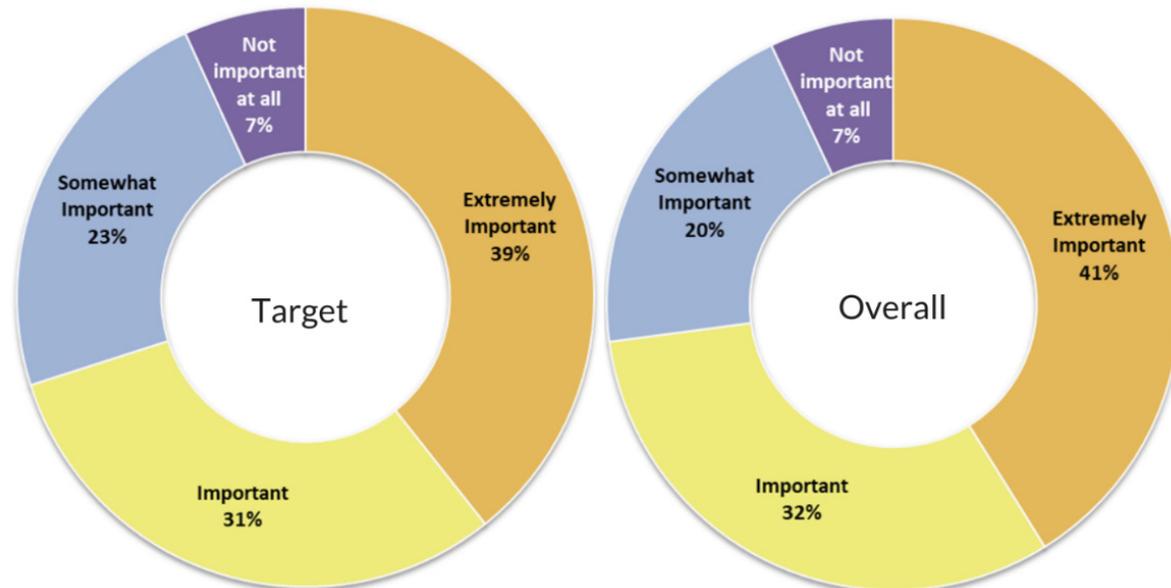
PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION

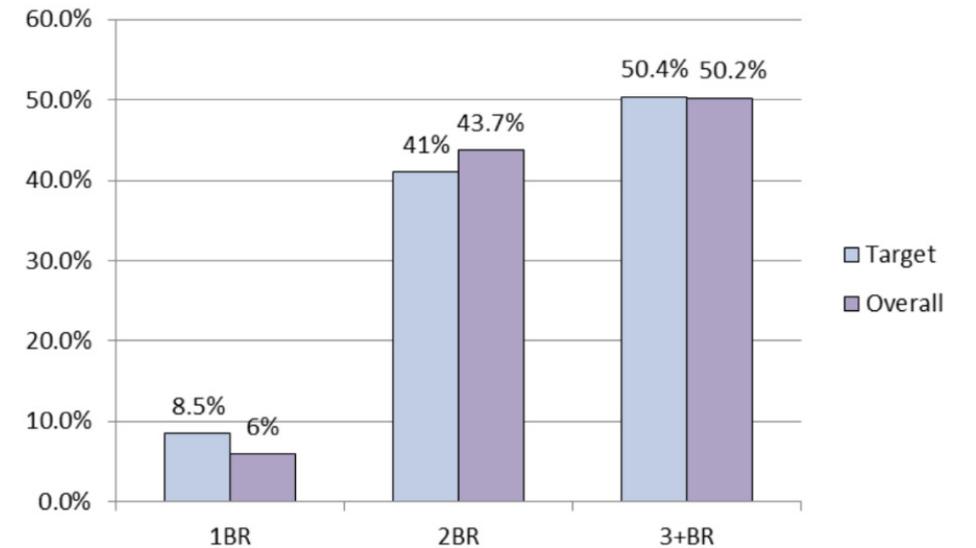
What should stay and be strengthened?



How important is it for new home ownership opportunities to be made available in this area?



What size represents the community's highest need?



# SURVEY + SITE PLAN CONNECTION

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

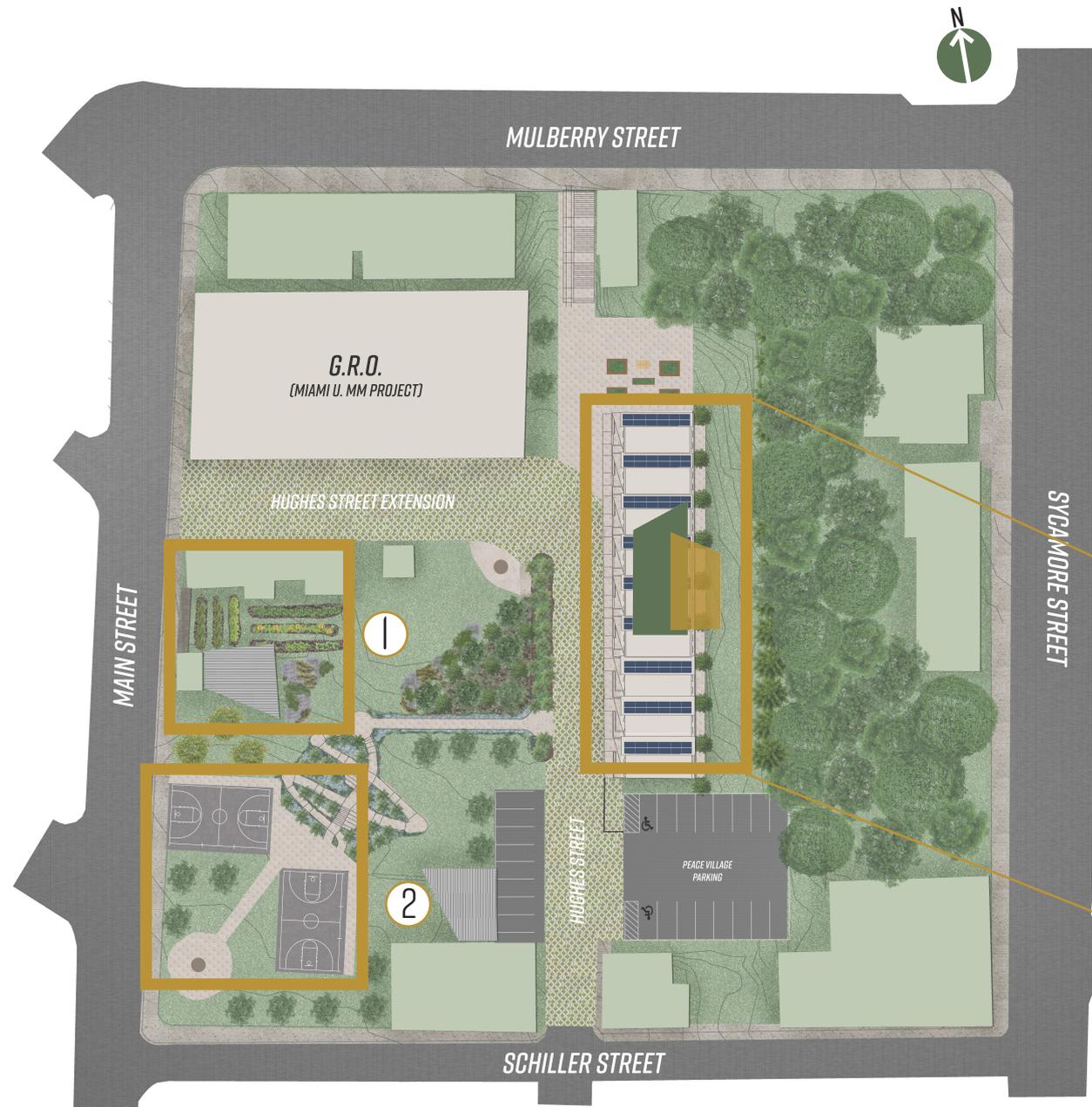
ACCESSIBILITY +  
INCLUSION

SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION



## COMMUNITY NEEDS

1. KEEP EXISTING COURTS

2. KEEP PERMACULTURE GARDEN

3. PLENTIFUL GREEN SPACE

4. FAMILY-SIZED HOUSING UNITS

5. AFFORDABLE HOUSING (<50% AMI)

6. HOME OWNERSHIP OPPORTUNITIES

# SCALABILITY + "ECHO"

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

ACCESSIBILITY +  
INCLUSION

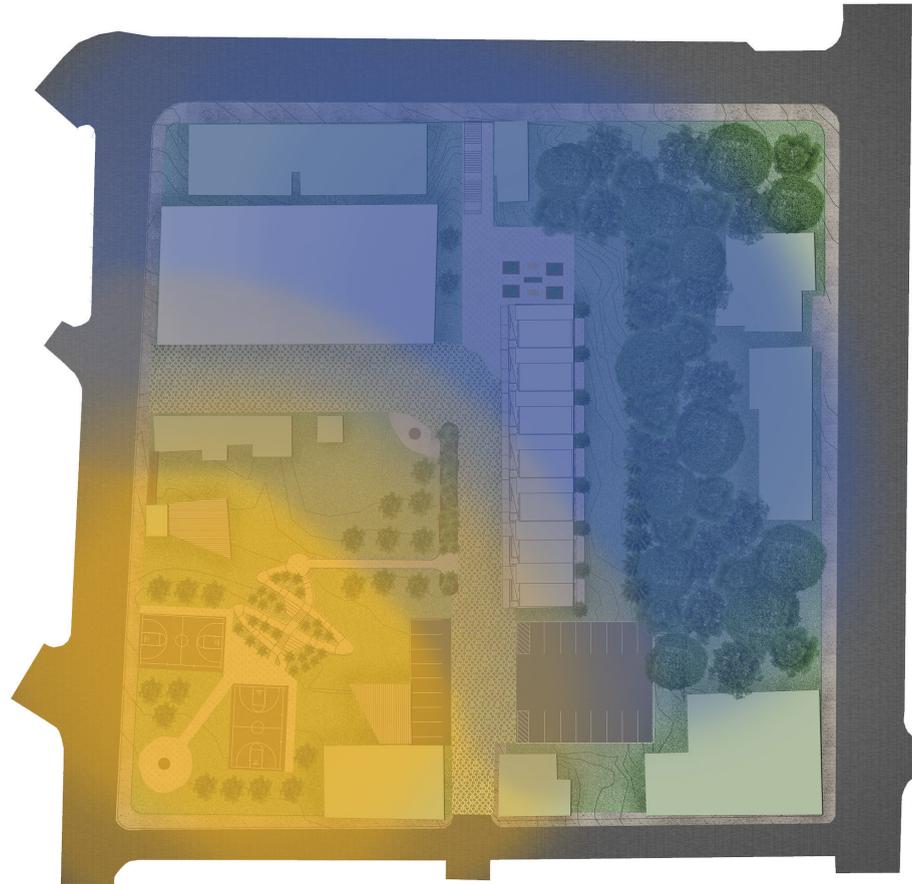
SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION

"ECHO"



MICRO-NEIGHBORHOODS



-  = Potential Development Zones
-  = 1-mile Radius
-  = Project Site

# COMMUNITY SPACES

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INCLUSION

SUSTAINABLE  
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DESIGN

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NET ZERO DESIGN

CONCLUSION



## I. SWITCHBACK PATH

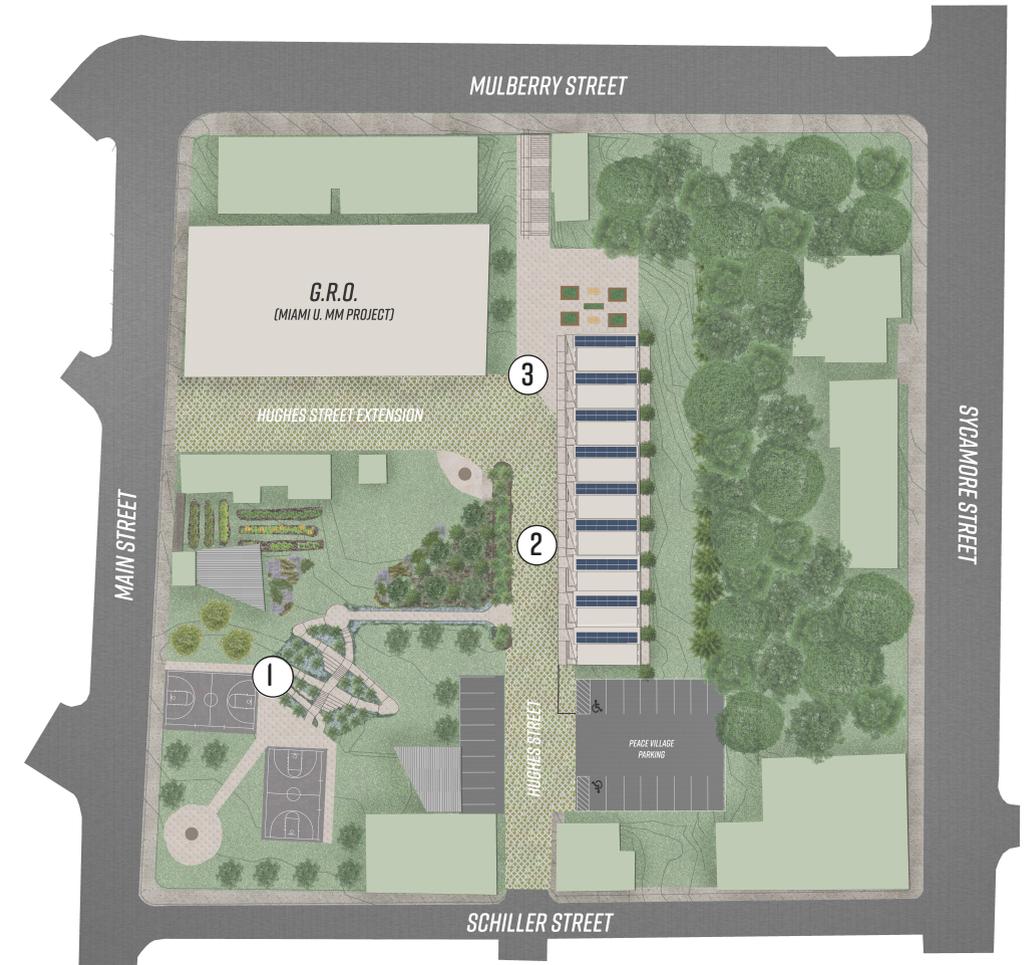
- A. Stair Seating
- B. Bioswales
- C. Accessible Path

## 2. ENTRY STOOPS

- A. Stair Seating
- B. Shade Grove
- C. Pedestrian Street
- D. Rain Garden

## 3. MURAL CORNER

- A. Public Mural Wall
- B. Private Mural
- C. Public Seating
- D. Planting Beds
- E. Public Staircase



# RESIDENT NARRATIVES

INTRODUCTION

NEIGHBORHOOD  
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INCLUSION

SUSTAINABLE  
COMMUNITY

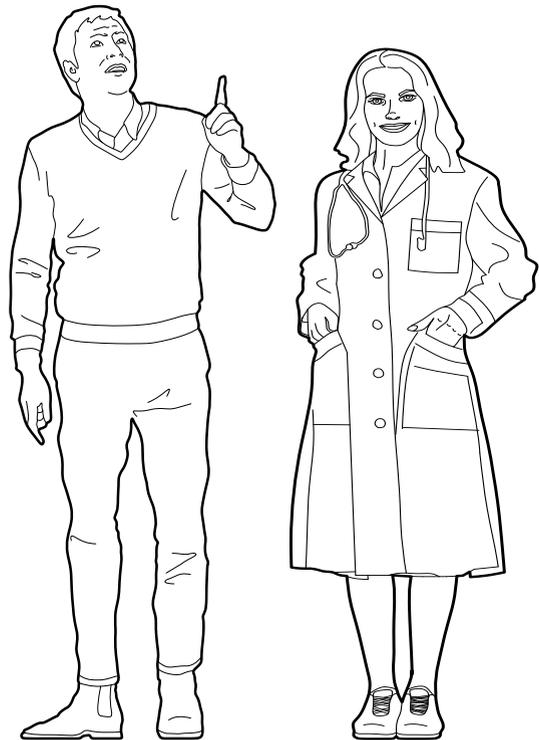
PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION



**MICHAEL + EMILY JONES**  
UNIT TYPE A • 2 BED



**CHRISSY DIMITRIO**  
UNIT TYPE B • 3 BED



**GEORGE + JUDY JOHNSON**  
UNIT TYPE C • ACCESSIBLE 2 BED



# DESIGN GOALS

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NEIGHBORHOOD  
COHESIVENESS

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INCLUSION

SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
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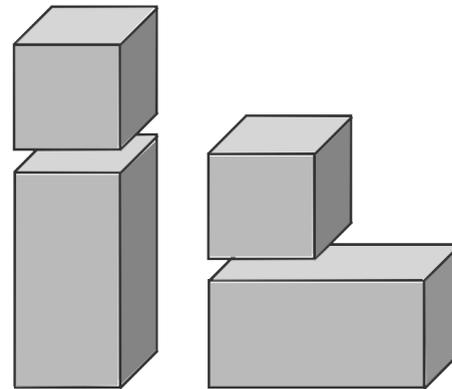
NEIGHBORHOOD COHESIVENESS



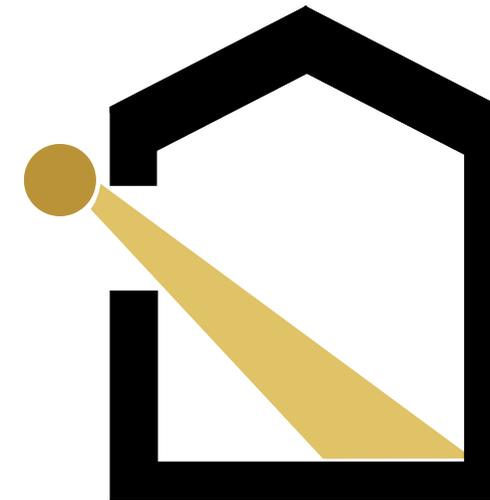
ACCESSIBILITY + INCLUSION



SUSTAINABLE COMMUNITY



PREFABRICATED DESIGN



PASSIVE HOUSE + NET ZERO DESIGN

# *1. NEIGHBORHOOD COHESIVENESS*



# BUILDING ELEVATIONS

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WEST FACADE | STREET ELEVATION



EAST FACADE | BACKYARD ELEVATION



# COMMUNITY CONNECTIONS

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## OTR HISTORICAL BUILDING GUIDELINES

- 1 MASSING & COMPOSITIONAL RELATIONSHIP
- 2 MATERIAL CONSIDERATION
- 3 SYMMETRICAL OPENINGS

## EXISTING MURAL



## OTR ITALIANATE FACADES



## PEACE VILLAGE ADAPTED FACADES



# BUILDING MATERIALS

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

ACCESSIBILITY +  
INCLUSION

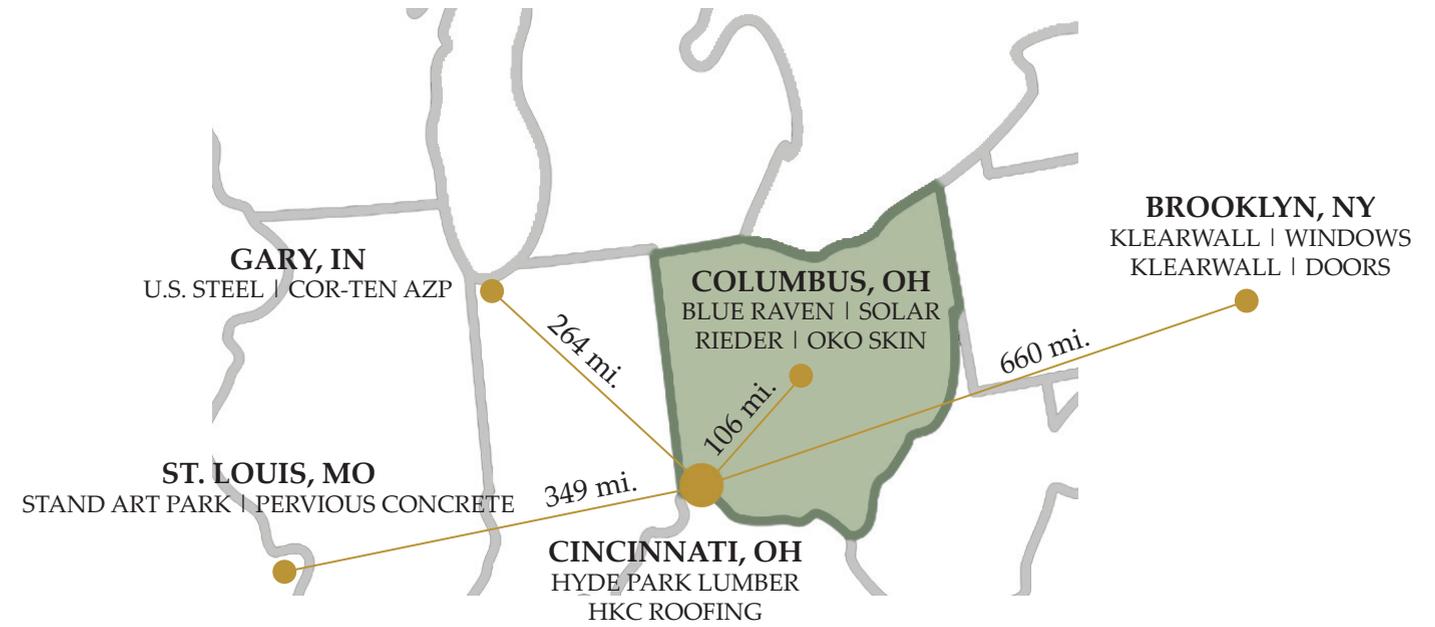
SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION

## MATERIAL SOURCING MAP



## MATERIALS OVERVIEW

PV PANELS

MURAL WALL



OKO SKIN CONCRETE PANELS

TRIPLE PANE WINDOWS

COR-TEN AZP

SANDSTONE ENTRY PLANTER

# 2. ACCESSIBILITY + INCLUSION



# SITE + UNIT ACCESSIBILITY

INTRODUCTION

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ACCESSIBILITY +  
INCLUSION

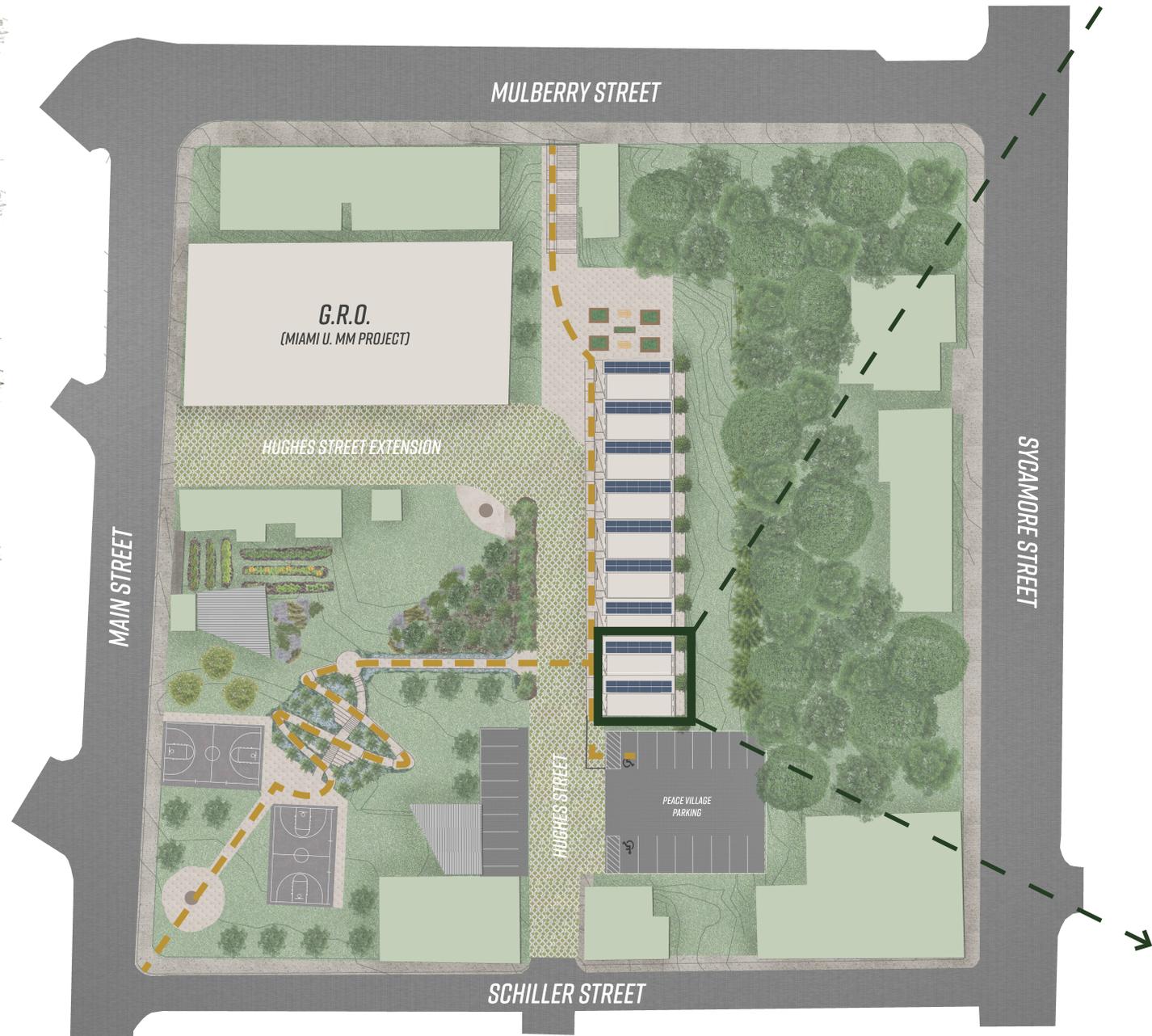
SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

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## ACCESSIBLE SITE PLAN



FIRST FLOOR

## ACCESSIBLE 2-BED UNIT PLANS



SECOND FLOOR

# FINANCIAL INCLUSIVITY

INTRODUCTION

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ACCESSIBILITY +  
INCLUSION

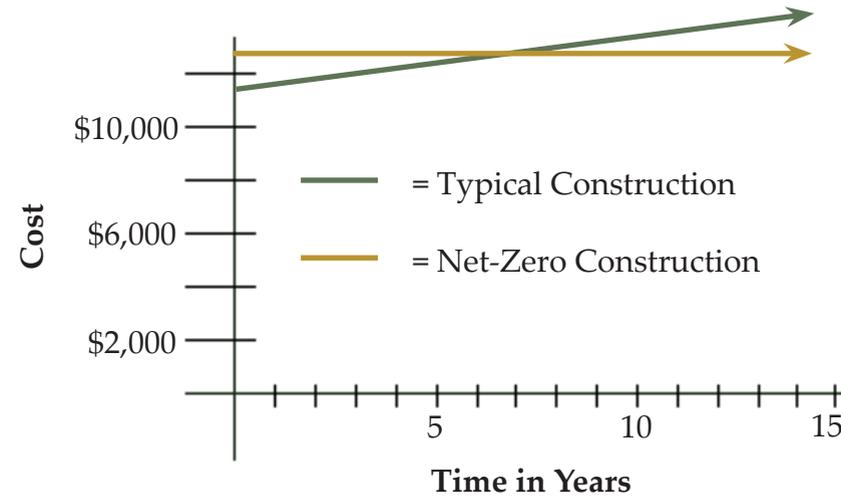
SUSTAINABLE  
COMMUNITY

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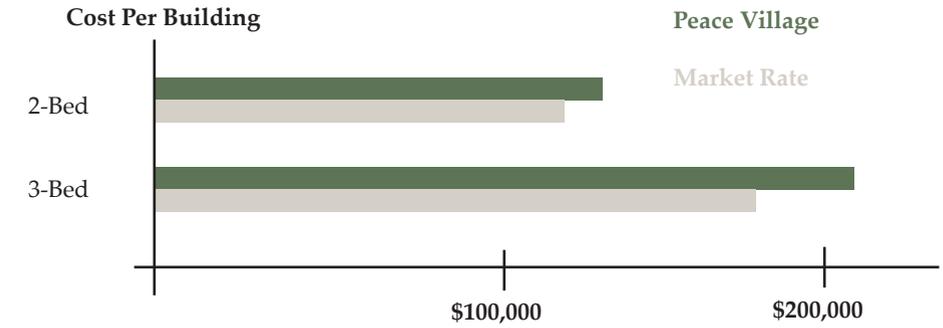
## NET-ZERO CONSTRUCTION COSTS



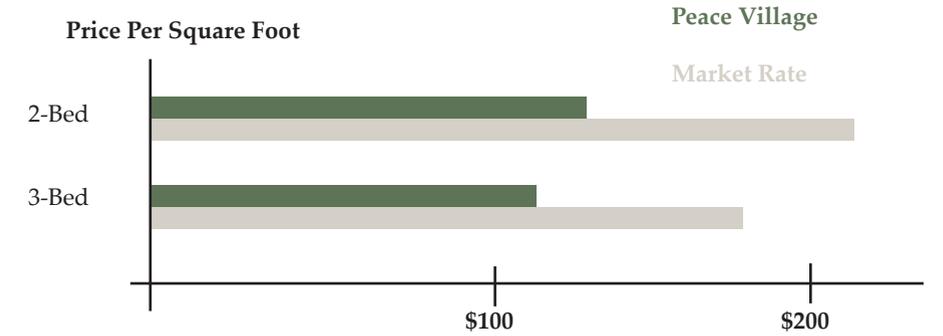
## OVERALL COST SUMMARY

	Unit Type A (2-Bed)	Unit Type B (3-Bed)	Unit Type C (Accessible 2-Bed)
Hard Costs	\$134,792	\$185,903	\$133,703
Soft Costs	\$33,039	\$33,039	\$33,039
Appliances	\$5,782	\$6,478	\$5,811
<b>Total Cost</b>	<b>\$173,613</b>	<b>\$225,420</b>	<b>\$172,553</b>
<b>Price per ft<sup>2</sup></b>	<b>\$135</b>	<b>\$131</b>	<b>\$124</b>

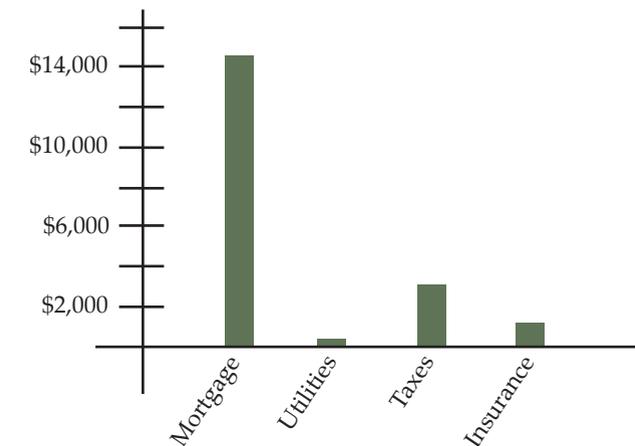
## CONSTRUCTION COST SUMMARY



## SALES PRICE SUMMARY



## ANNUAL EXPENSES



# 3. *SUSTAINABLE COMMUNITY*



# DOING DEVELOPMENT DIFFERENTLY

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# ECOVILLAGE

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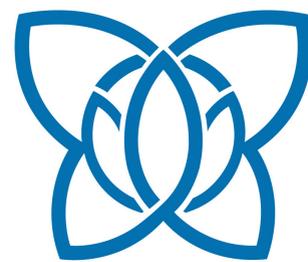
ACCESSIBILITY +  
INCLUSION

SUSTAINABLE  
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DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION



GLOBAL  
ECOVILLAGE  
NETWORK



# GREEN SPACES

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## BIOSWALES



## PERMEABLE PAVEMENT



## NATIVE PLANTS



# WATER MANAGEMENT

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CONCLUSION



## RAINWATER MITIGATION STRATEGIES



# RESILIENCE

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ACCESSIBILITY +  
INCLUSION

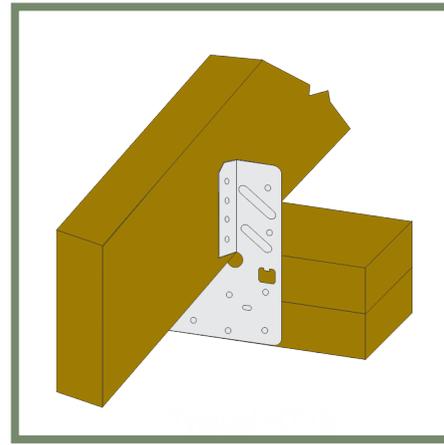
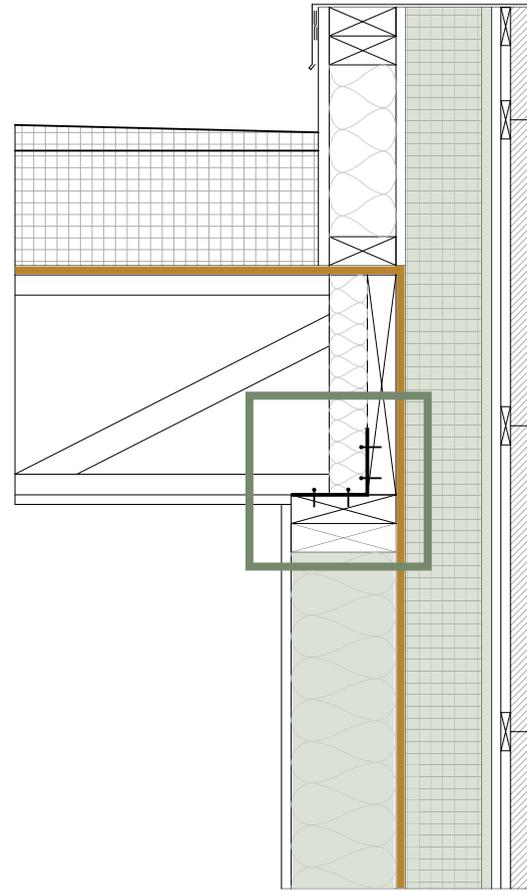
SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION

## HURRICANE TIE DETAIL

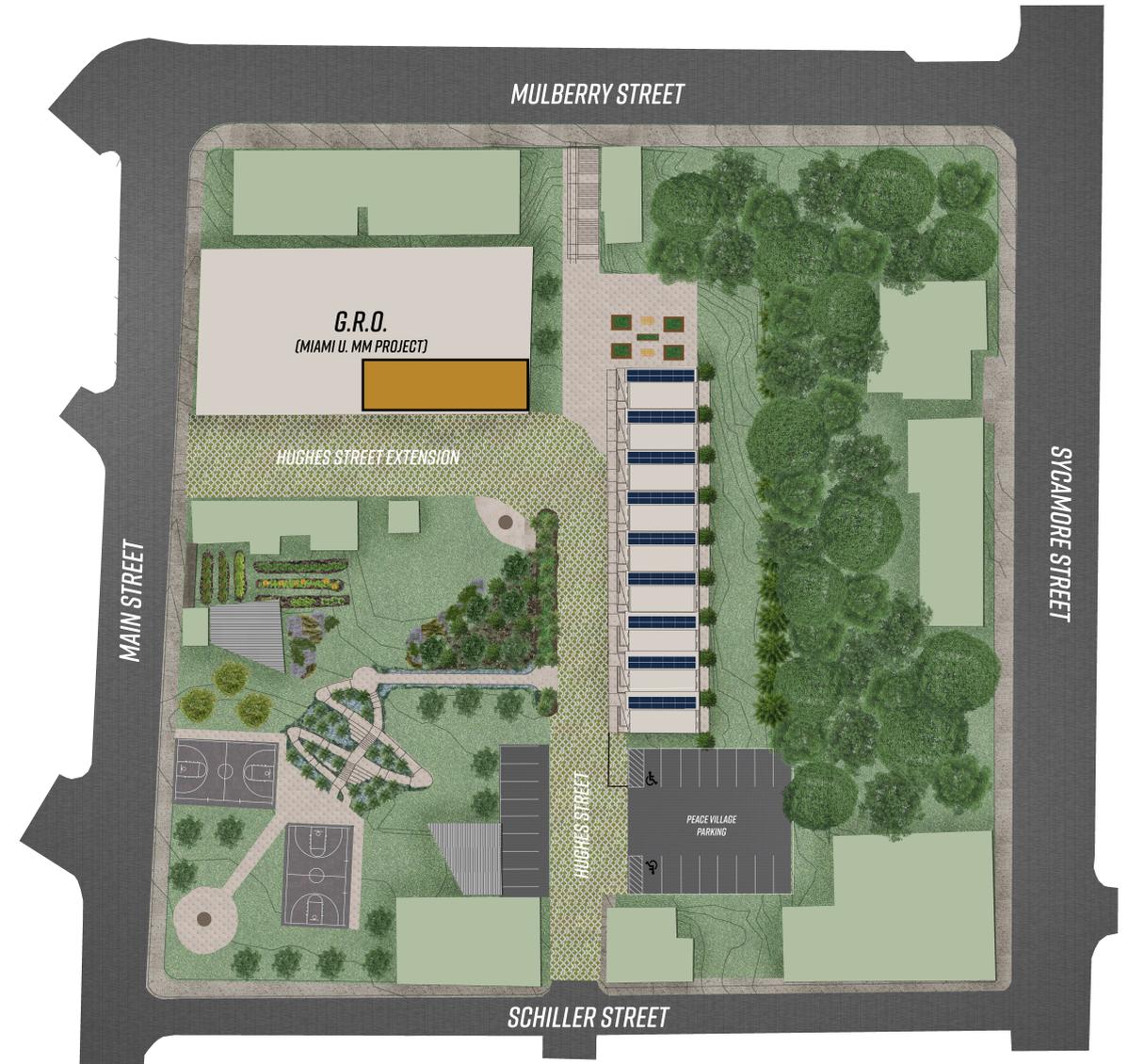


## TORNADO INDEX



## TORNADO SHELTER MAP

= Tornado Shelter (Capacity 436)



# *4. PREFABRICATED DESIGN*



# EXTERIOR COMPONENTS

INTRODUCTION

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ACCESSIBILITY +  
INCLUSION

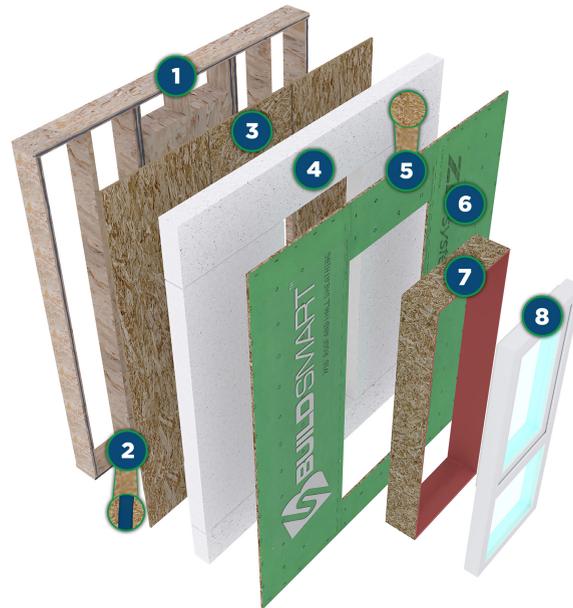
SUSTAINABLE  
COMMUNITY

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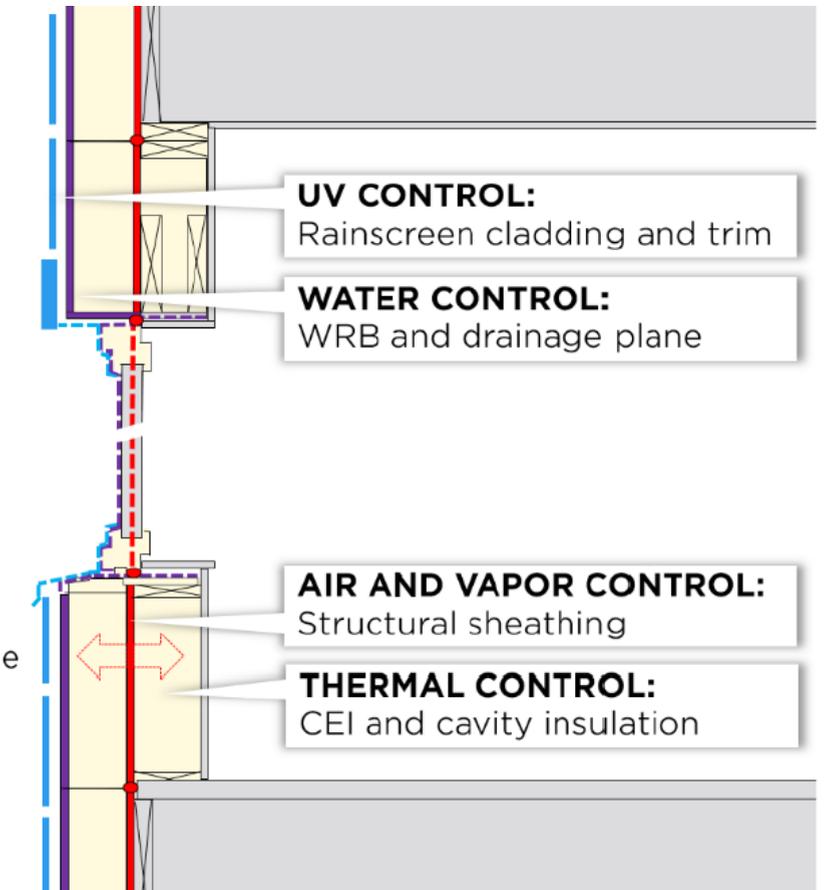
CONCLUSION

## E-Wall Panelized Building Envelope System



- 1 LSL Structural Wall Assembly**
  - Better precision, dead-flat walls, reduced shrinkage, tighter tolerances.
  - 2 x 4 or 2 x 6 studs at 16" or 24" o.c.
- 2 Air Barrier**
  - Utilizes industry-leading fluid applied air barrier materials.
- 3 Structural Sheathing**
  - Code-required fasteners, Quality inspected. Perimeter adhesive adds panel strength and air sealing
- 4 Continuous External Insulation Thermal Barrier**
  - Maximizes R-Value. Eliminates thermal bridging and condensation at structural sheathing.
- 5 External Nailbase**
  - Simplifies field-installed exterior finishes.
- 6 Weather Resistive Barrier**
  - Factory-applied WRB and panel joint detailing.
- 7 Factory-Prepared Rough Opening**
  - Fully flashed and air sealed. Properly locates windows and doors in thermal plane.
- 8 Factory-Installed and Air Sealed High Performance Window (optional)**
  - Plumb level and square factory installation of your high performance windows.

## CONTROL LAYERS



Vapor permeable



# INTERIOR COMPONENTS

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

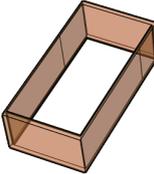
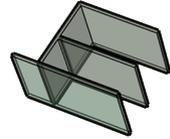
ACCESSIBILITY +  
INCLUSION

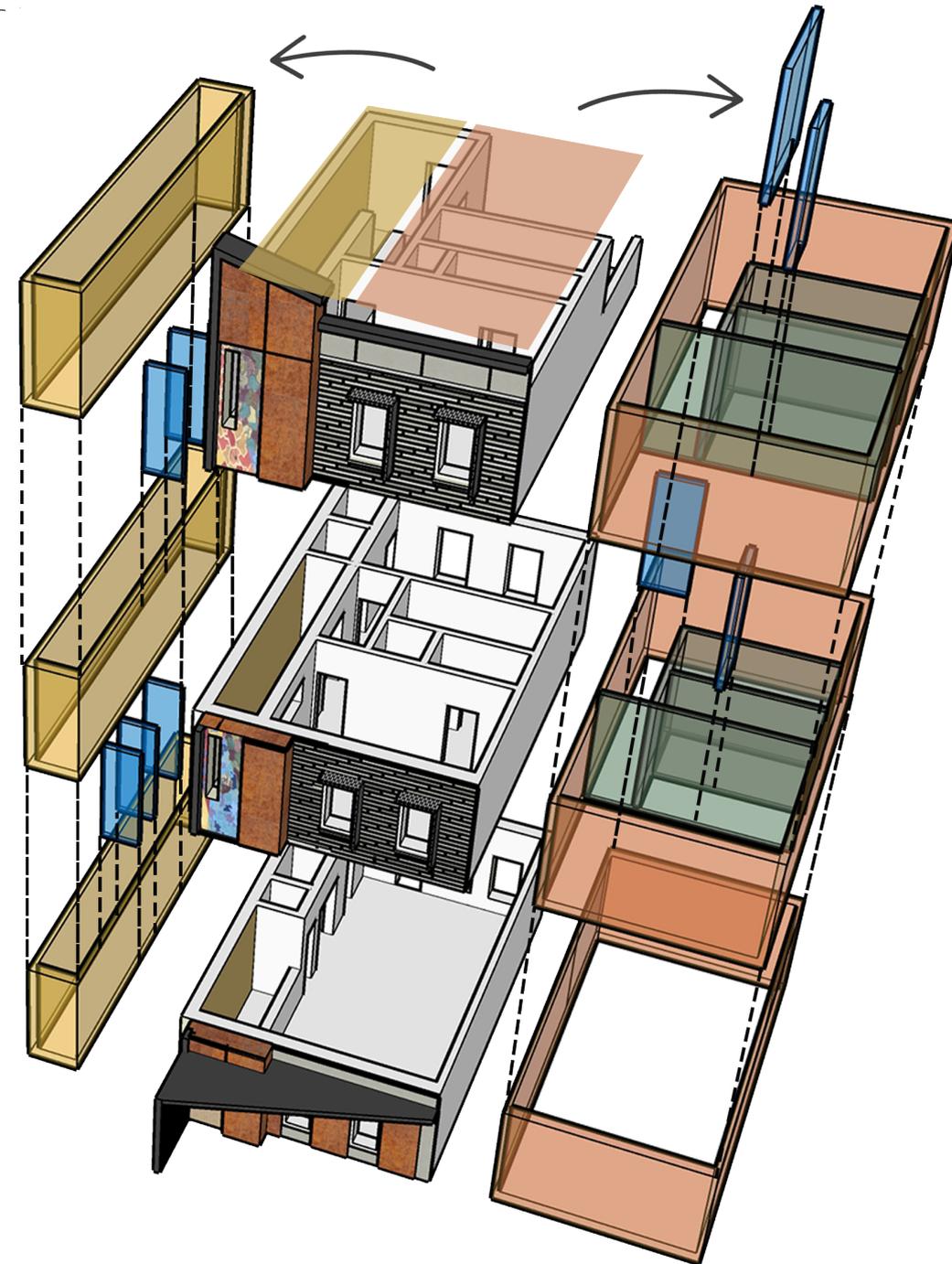
SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION

MODULES	#	DIMENSIONS
	3	34' X 21' X 9'
	3	34' X 4'6" X 9'
	2	11' X 20" X 9'
	8	3'6" X 9'
	1	11' X 9'



# INTERIOR DESIGN- LIVING SPACES

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

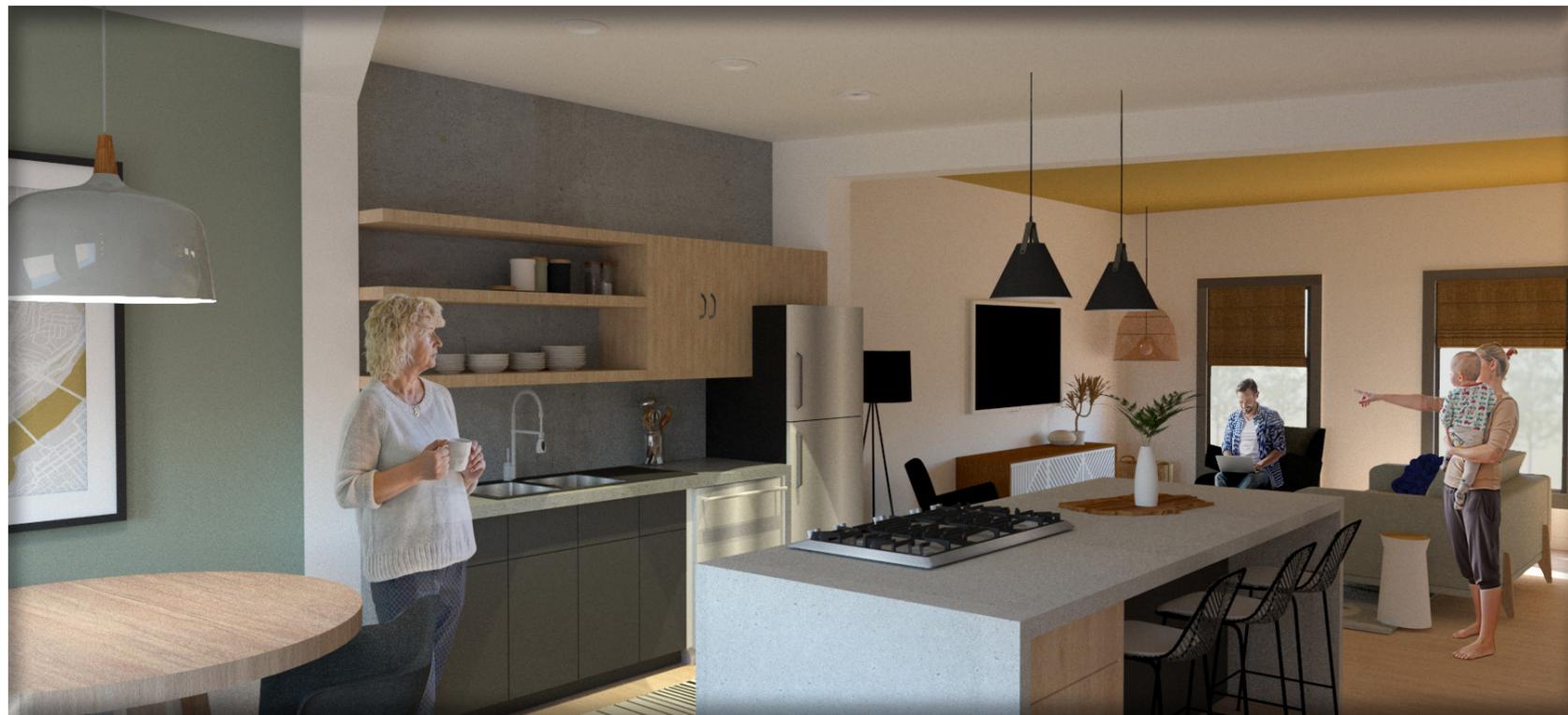
ACCESSIBILITY +  
INCLUSION

SUSTAINABLE  
COMMUNITY

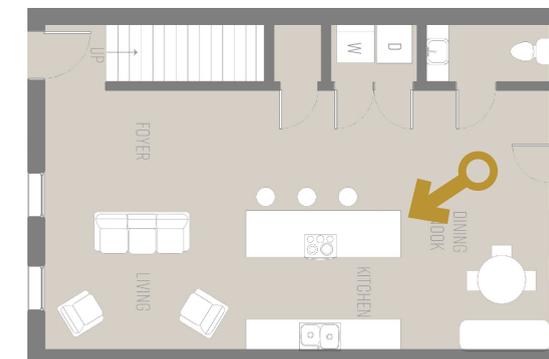
PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

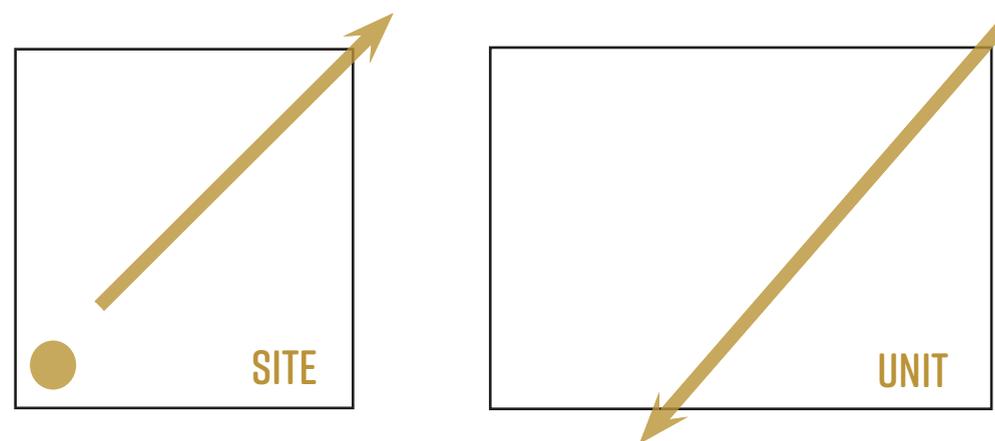
CONCLUSION



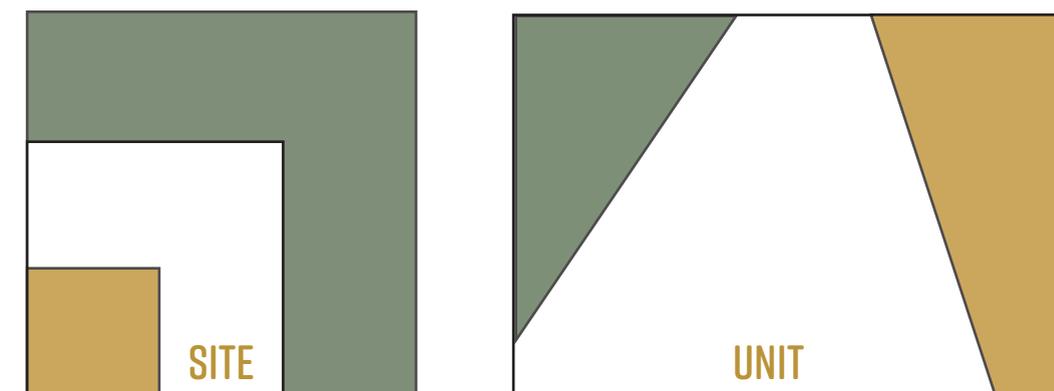
FIRST FLOOR LIVING SPACE



PARTI CONCEPT DIAGRAMS | DIAGONAL AXIS



PARTI CONCEPT DIAGRAMS | ZONES



# INTERIOR DESIGN- BEDROOMS

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

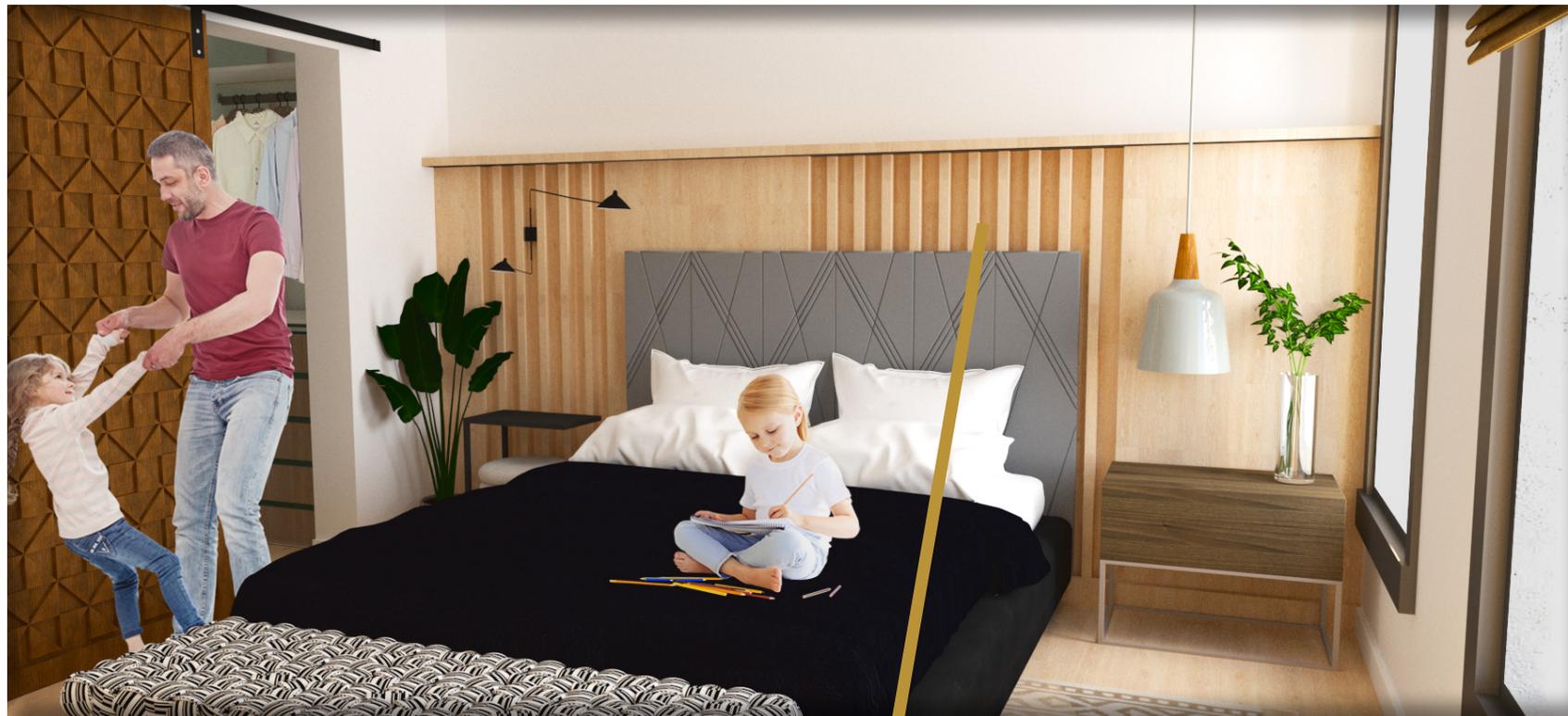
ACCESSIBILITY +  
INCLUSION

SUSTAINABLE  
COMMUNITY

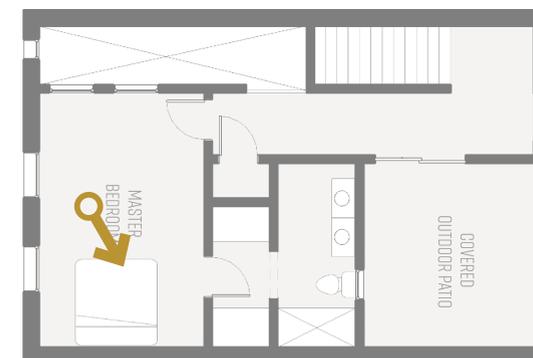
PREFABRICATED  
DESIGN

PASSIVE HOUSE +  
NET ZERO DESIGN

CONCLUSION



MASTER BEDROOM



ARCHITECTURAL  
CONTEXT



# INTERIOR DESIGN- CIRCULATION

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

ACCESSIBILITY +  
INCLUSION

SUSTAINABLE  
COMMUNITY

PREFABRICATED  
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CONCEPT | COLOR + CREATIVITY



# INDOOR COMFORT STRATEGIES

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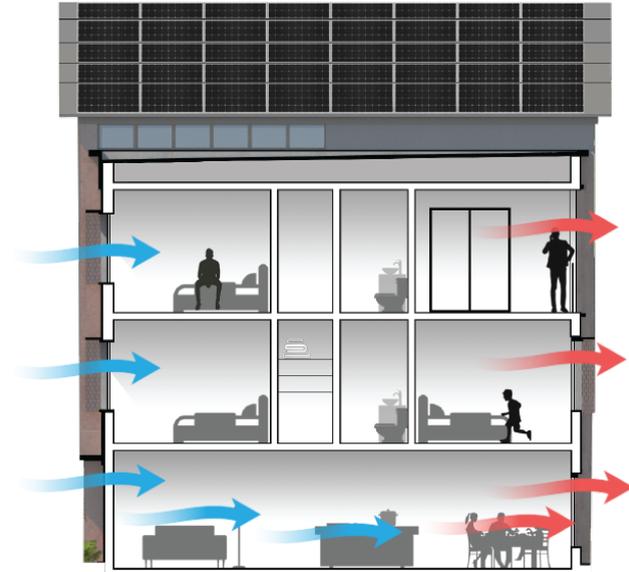
SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

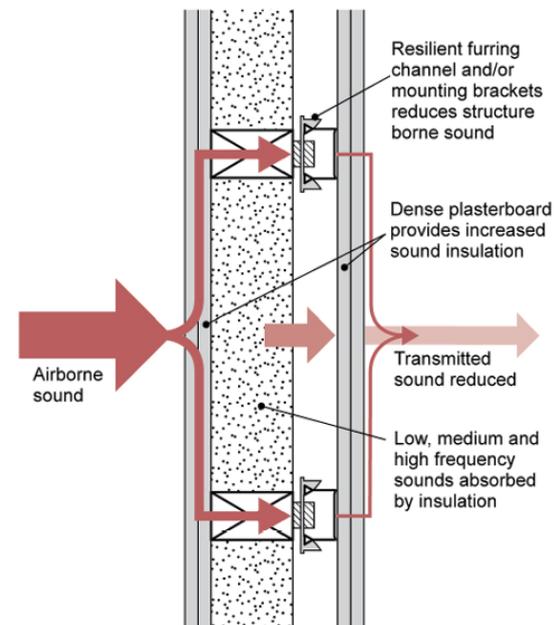
PASSIVE HOUSE +  
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CONCLUSION

## NATURAL VENTILATION



## ACCOUSTICAL STRATEGIES



### PureBond Hardwood Plywood

Formaldehyde-free  
FSC-Certified  
U.S.-Manufactured



### Formica Laminate Countertop

Affordable  
Durable  
GreenGuard Certified



### Filzfelt Akustika Ceiling Tile

> 60% recycled content  
100% recyclable  
Biodegradable. VOC-free

## MATERIAL PALETTE



### Daltile Modulate Ceramic Wall Tile

Zerotox  
Pre-consumer recycled  
Midwest-based



### USG Sheetrock EcoSmart Panels- Firecode X

GreenGuard Biobased product  
Pre & post-consumer recycled  
High fire-resistance



### Marmoleum Sheet

100% bio-based linoleum  
Antibacterial, anti-static  
Non-toxic, SMART certified



### Harris Cork Luxury Vinyl Cork

Waterproof, durable  
Sound absorption  
Environmentally sustainable



### Benjamin Moore Paint

VOC-free  
Allergy friendly  
Cradle to Cradle

# 5. PASSIVE HOUSE + NET ZERO DESIGN



# SMART TECHNOLOGIES

INTRODUCTION

NEIGHBORHOOD  
COHESIVENESS

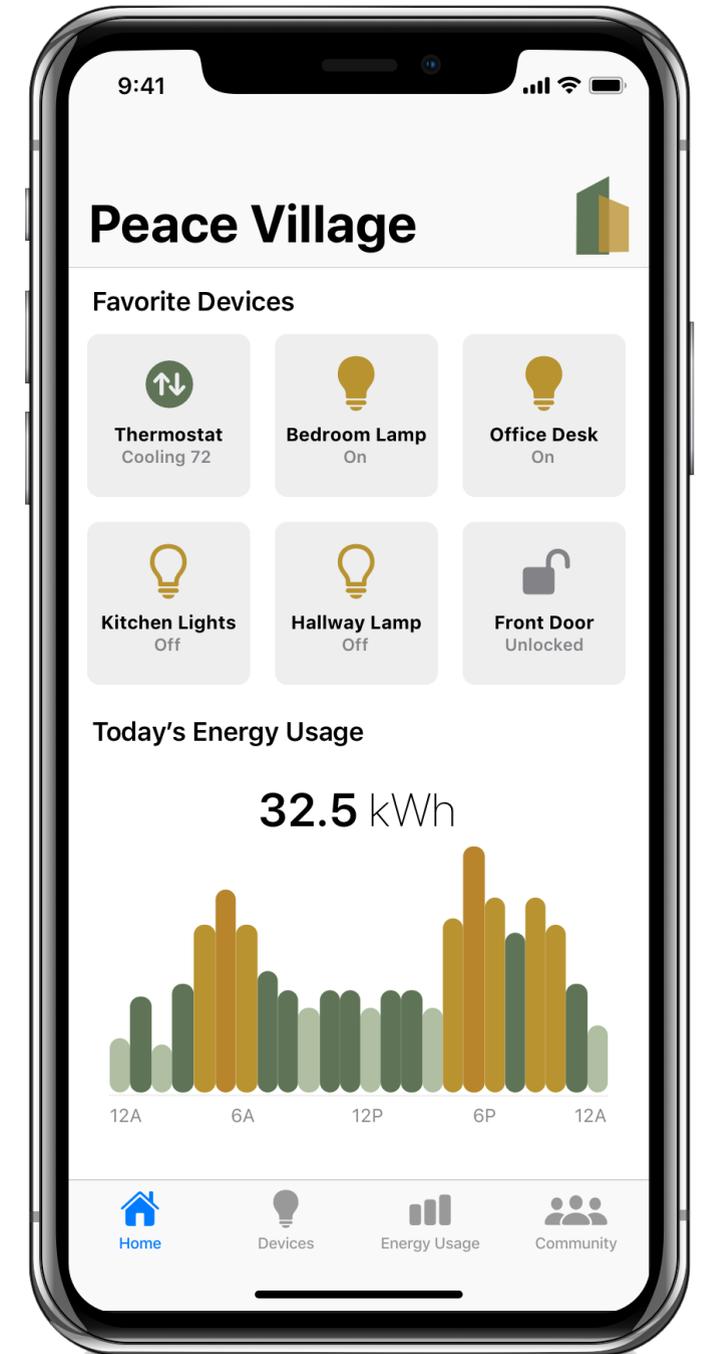
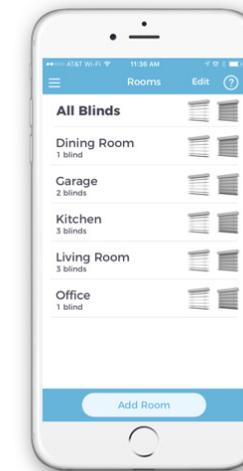
ACCESSIBILITY +  
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# DAYLIGHTING

INTRODUCTION

NEIGHBORHOOD  
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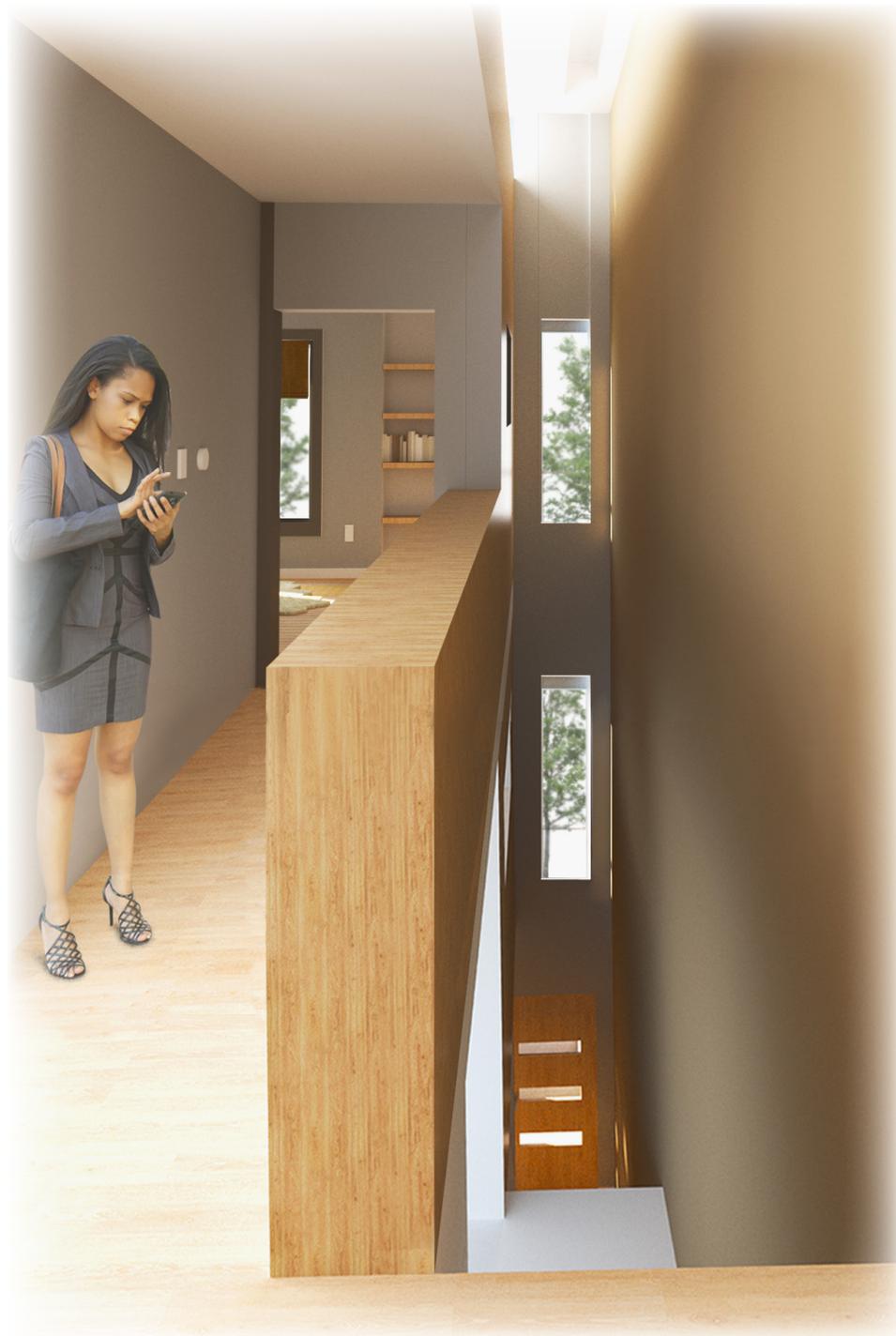
ACCESSIBILITY +  
INCLUSION

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FIRST FLOOR



SECOND FLOOR

# LED LIGHTING

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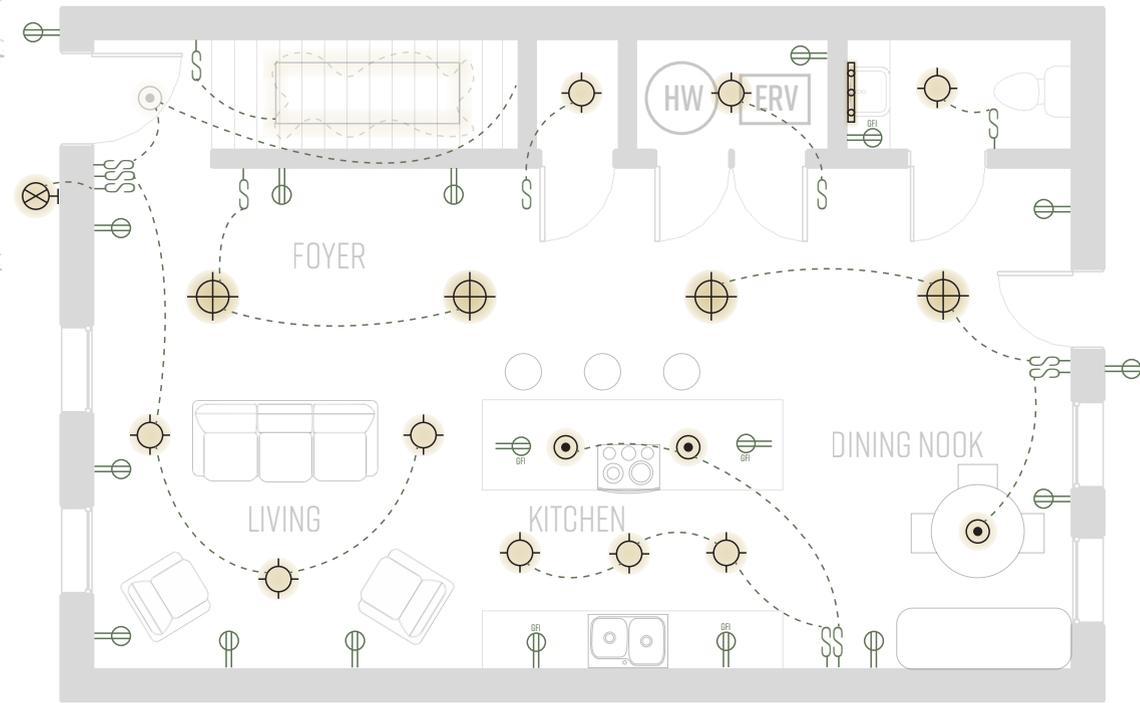
SUSTAINABLE  
COMMUNITY

PREFABRICATED  
DESIGN

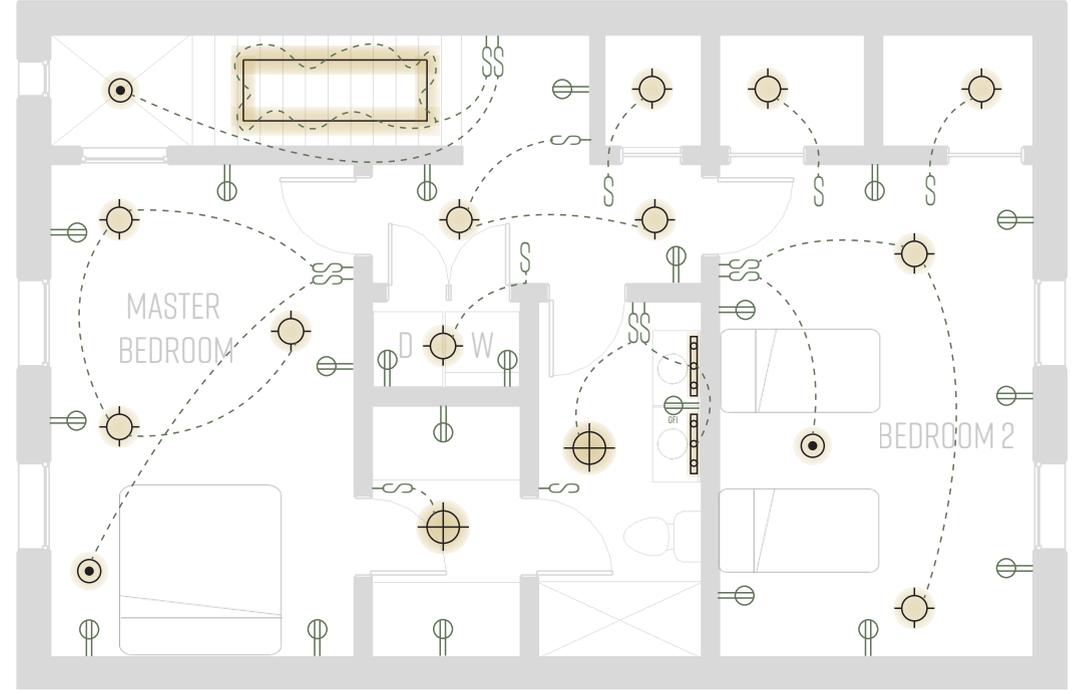
PASSIVE HOUSE +  
NET ZERO DESIGN

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## SCHEMATIC ELECTRICAL PLANS | UNIT TYPE A



FIRST FLOOR



SECOND FLOOR

### FIXTURE SELECTION

- 
**4" Surface Mount**  
 Razor-CCT Slim LED  
 10 Watts | 120 Volts
- 
**8" Surface Mount**  
 Razor-CCT Slim LED  
 18 Watts | 120 Volts
- 
**Pendant**  
 Progress One-Light LED  
 9 Watts | 120 Volts
- 
**Bath Bar**  
 Maxim 30" LED  
 20 Watts | 120 Volts
- 
**Cove**  
 Cooper 2' LC32 LED  
 9 Watts/ft | 120 Volts
- 
**Exterior Wall Mount**  
 Hinkley Small Lantern LED  
 16 Watts | 120 Volts



# ENERGY PERFORMANCE METRICS

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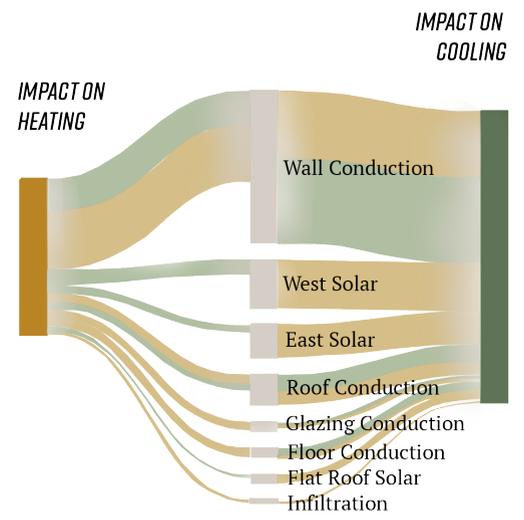
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COMMUNITY

PREFABRICATED  
DESIGN

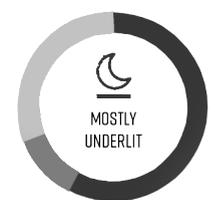
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## SEFAIRA



- Heating • 5481
- Cooling • 5671
- Pump • 1922
- Fans • 3315
- Equipment • 5140
- Lighting • 8613



- Underlit • 60%
- Well Lit • 11%
- Overlit • 29%

## WUFI PASSIVE

PHIUS+ 2018 VERIFICATION 1

### BUILDING INFORMATION

Category:	Residential
Status:	In planning
Building type:	New construction
Year of construction:	1
Units:	3 (Design)
Number of occupants:	463.3 ft²/Person
Occupant density:	

### Boundary conditions

Climate:	CINCINNATI MUNICIPAL AP LUNKI OH
Internal heat gains:	0.3 Btu/hr ft²
Interior temperature:	68 °F
Overheat temperature:	77 °F

### Building geometry

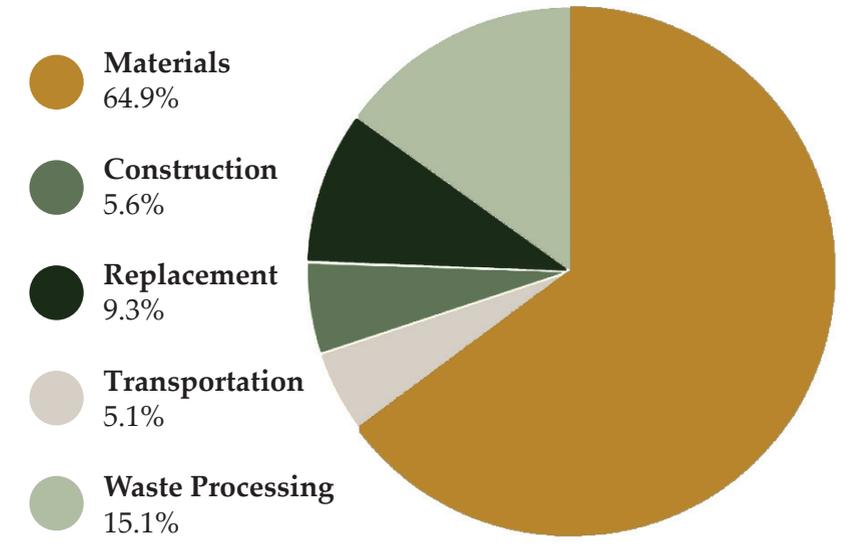
Enclosed volume:	15,490.8 ft³
Net-volume:	11,773 ft³
Total area envelope:	3,553 ft²
Area/Volume Ratio:	0.2 1/ft
Floor area:	1,390 ft²
Envelope area/CFM:	2.556

### PASSIVEHOUSE REQUIREMENTS

Certificate criteria: PHIUS+ 2018

Requirement	Specific	Target	Total	Status
Heating demand	6.23 kBtu/ft²yr	6.8 kBtu/ft²yr	8,656.08 kBtu/yr	✓
Cooling demand	3.31 kBtu/ft²yr	4.34 kBtu/ft²yr	6,030.86 kBtu/yr	✓
Heating load	4.49 Btu/hr ft²	4.9 Btu/hr ft²	6,234.98 Btu/hr	✓
Cooling load	3.42 Btu/hr ft²	4.1 Btu/hr ft²	4,756.92 Btu/hr	✓

## ONE CLICK LCA



## GLOBAL WARMING POTENTIAL (KG OF CO₂ EMMITED)

Construction Materials	12,789
Transportation to Site	998
Construction/Installation	1,105
Repairs	16
Material Replacement	1,831
End of Life	2,976
External Impacts	-4,075
<b>Total</b>	<b>19,715</b>

# PASSIVE HOUSE DESIGN

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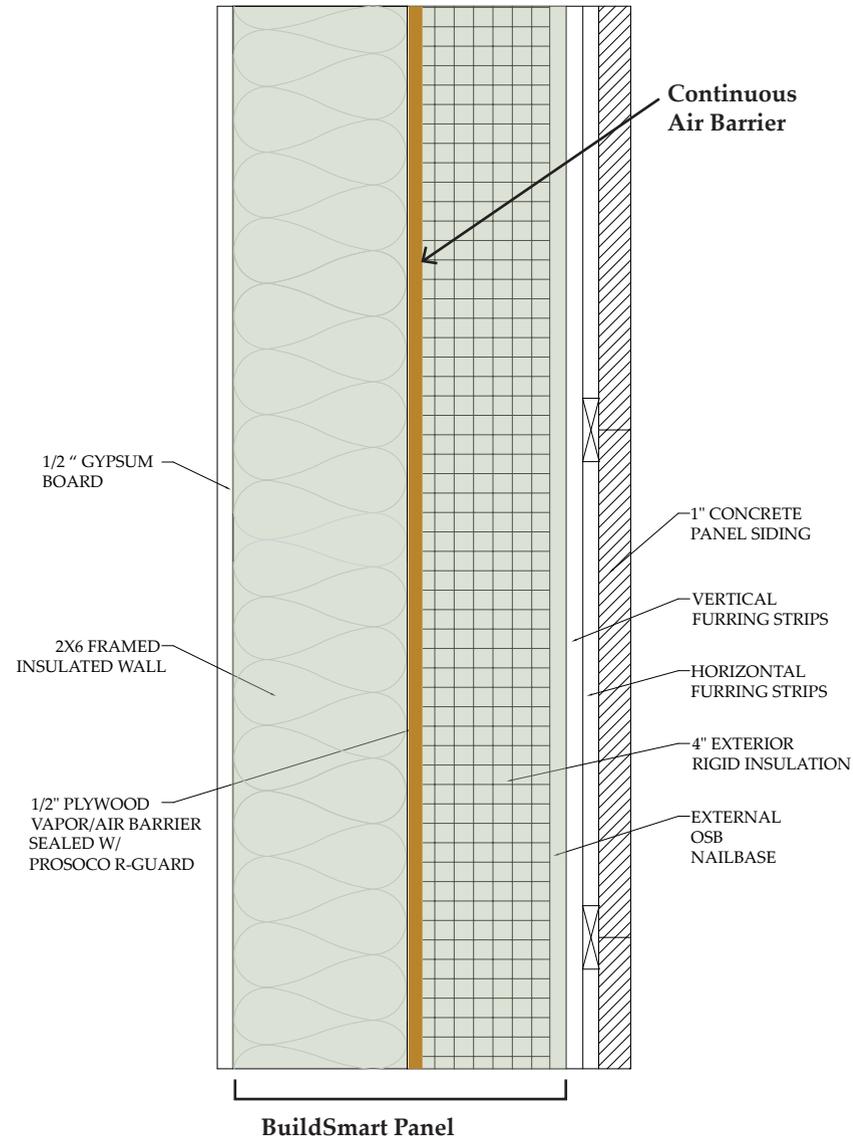
SUSTAINABLE  
COMMUNITY

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## WALL SECTION DETAIL



UltimateAir



## PASSIVE HOUSE GUIDELINES

1. CONTINUOUS ENVELOPE INSULATION
2. EXTREME AIRTIGHTNESS
3. HIGH-PERFORMANCE WINDOWS + DOORS
4. BALANCED VENTILATION SYSTEMS
5. MINIMAL SPACE CONDITIONING

# PHOTOVOLTAIC SYSTEMS

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## PV OUTPUT DATA

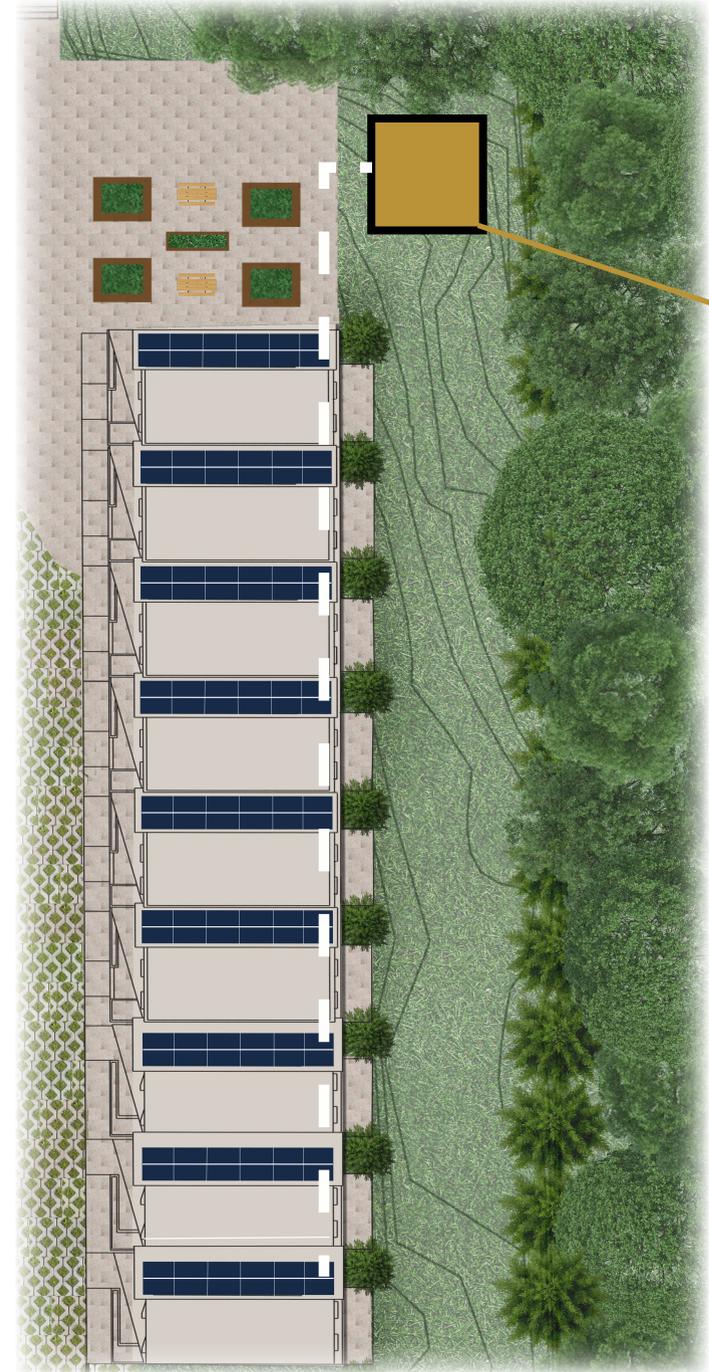
6,669 kWh/Year

Month	Solar Radiation (kWh / m <sup>2</sup> /day)	AC Energy (kWh)	Value (\$)
January	3.33	433	36
February	3.93	443	37
March	4.81	583	48
April	5.36	604	50
May	5.73	646	54
June	6.36	682	57
July	6.12	680	56
August	6.14	675	56
September	5.71	611	51
October	4.55	527	44
November	3.61	423	35
December	2.81	362	30
<b>Annual</b>	<b>4.87</b>	<b>6,599</b>	<b>\$554</b>

SUNPOWER™



## SOLAR PANEL ROOF PLAN



Battery Storage  
Systems



# MOVING FORWARD

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PEACE VILLAGE

