



Lead-advisor:
Prof. Laura Battaglia



4th year Architecture
(Lead) Kobi Henson



5th year Architecture
Ty Champion



4th year Architecture
Amir Amzajerian



Co-advisor:
Prof. Jeehwan Lee



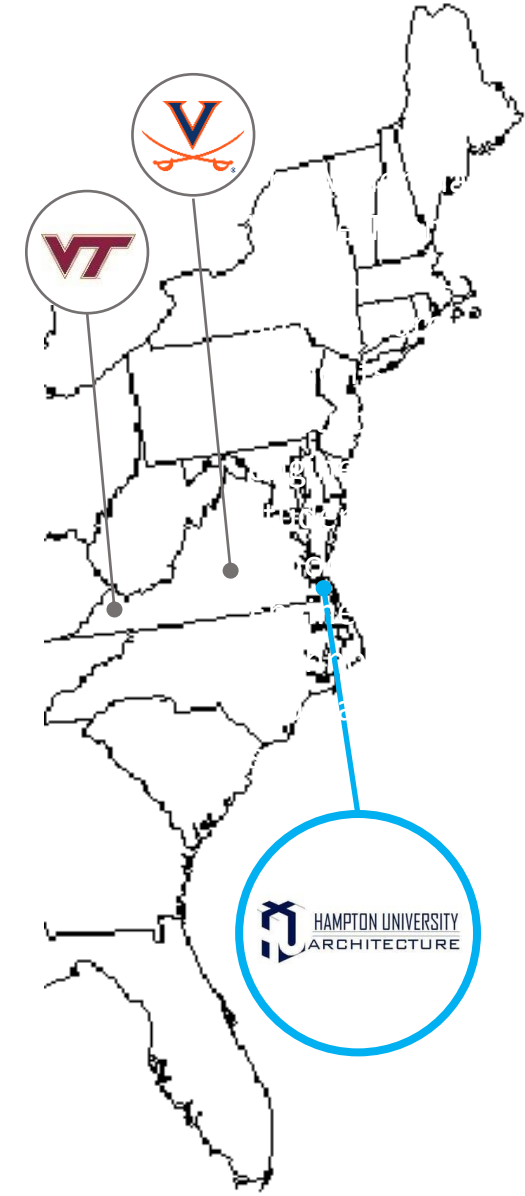
4th year Architecture
Michael Poarch



4th year Architecture
Trayquan Walton



3rd year Architecture
Jai Huntley



MILLENNIAL VILLAGE Hampton

HAMPTON

U N I V E R S I T Y



Hampton University is a private historically black university in Hampton, Virginia. It was founded in 1868 by black and white leaders of the American Missionary Association after the American Civil War to provide education to freedmen.



Architecture:

13 in its 2019 graduating class

Electrical Engineering:

3 in its 2019 graduating class

MILLENNIAL VILLAGE Hampton



Millennial Village





MILLENNIAL VILLAGE Hampton



Campus in a Box:



Hampton Roads resiliency
Adaptation to Sea Level Rise



work + live



**Create. Support.
Promote. Let's
join forces and
revitalize the
ViBe.**

*ViBe creative District
Executive Director:
Ms. Kate Pittman*



**To design a
zero ready
home, you do
not need to
overbuild**

*Net-Zero Home Builder
Mr. Jay Epstein*



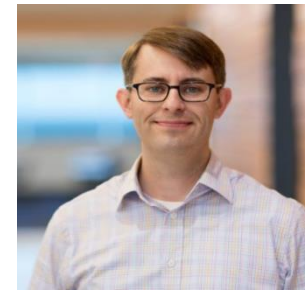
**Altruistic Design is a client-
centered, socially responsible
architecture firm**

*Altruistic Design Architect:
Mr. Jeremy Maloney*

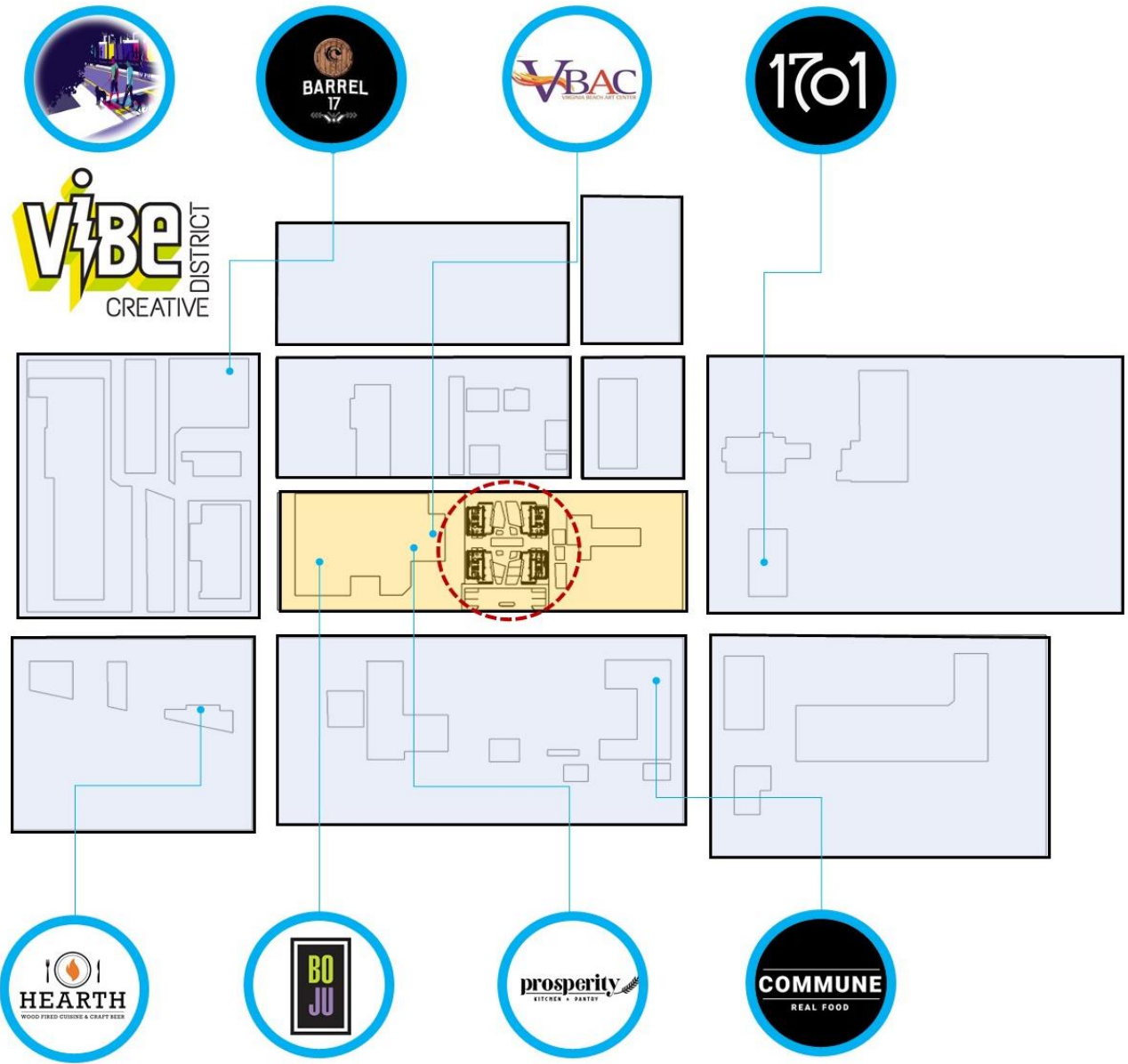


**mechanical,
mechanical,
mechanical**

*Clark Nexsen
Mechanical engineer:
Mr. Brian Turner*



STAKEHOLDER ENGAGEMENT



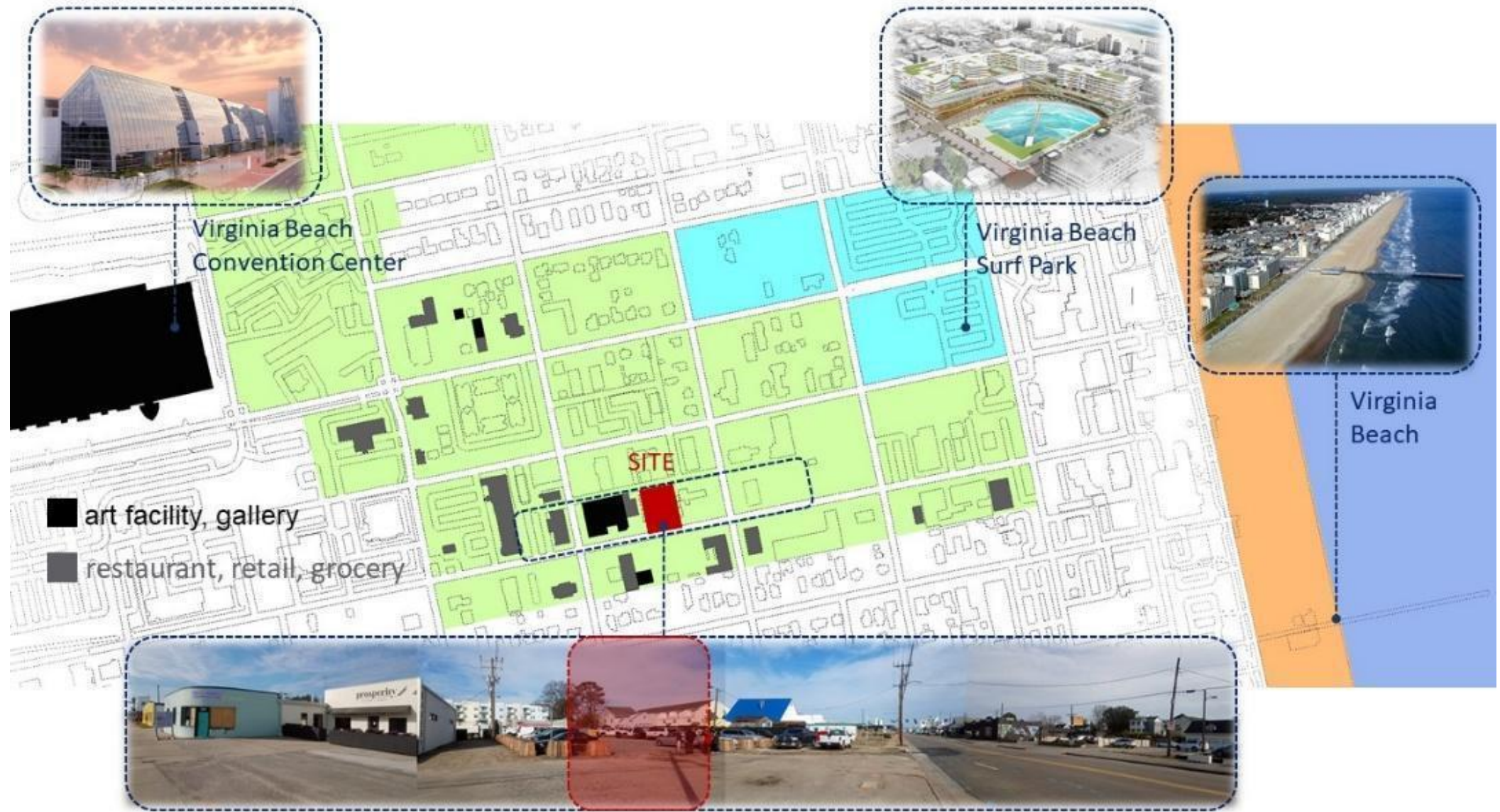
VIBE CREATIVE DISTRICT

A PART OF YOUR COMMUNITY
SINCE 2015



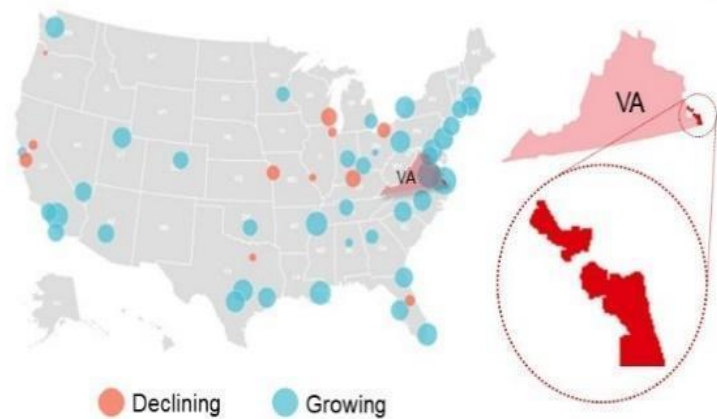
Hampton

Millennial Village



MARKETABILITY: the ViBe Creative District

Millennial Change (2010-2015)



Rank	Urban Area	Millennial Percentage	Millennial Population
1	Virginia Beach-Norfolk-Newport News	16.4%	7,034

AGE BREAKDOWN

The Virginia Beach MSA has the highest percentage of millennials of any metro area in the country, according to Forbes.

Age	Number	Percent
9 and under	57,140	12.6%
10 to 19	56,610	12.5%
20 to 34	106,715	23.5%
35 to 44	59,865	3.2%
45 to 54	61,093	13.5%
55 to 64	54,373	12.0%
65 to 74	34,517	7.6%
75 to 84	6,853	3.7%
85+	6,781	1.5%

Source: ESRI Business Analyst Online, 2016 Data

12.10.2015

MILLENNIAL HOUSING: PAVING THE WAY FOR CHANGE

Contributed by Dan Anderton

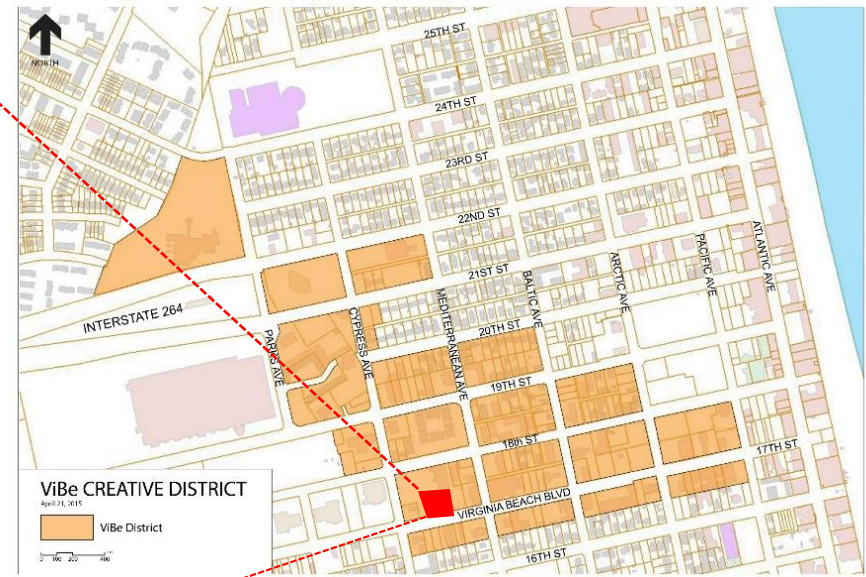
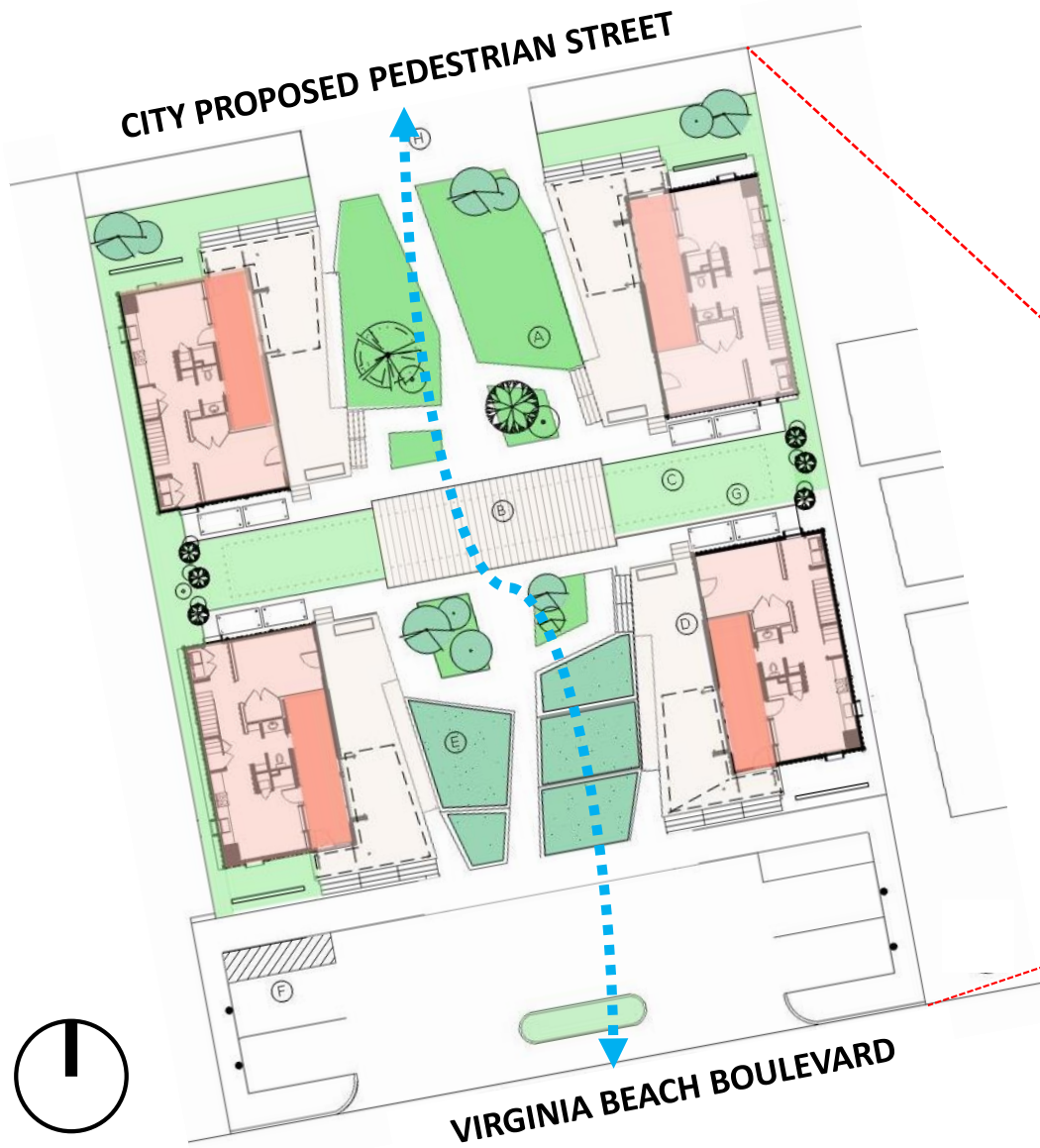
New housing demands are on the rise and at the 2015 Maryland Housing Conference I focused on these demands in my presentation to a group of local developers, planners and architects, realty groups, financial institutions, and government agencies, among others. The main reasons for this new shift in demand is the emergence of the next wave of first-time home buyers, millennials. The millennial population, as I define it, are people between the

Expanding on the Tiny House Movement

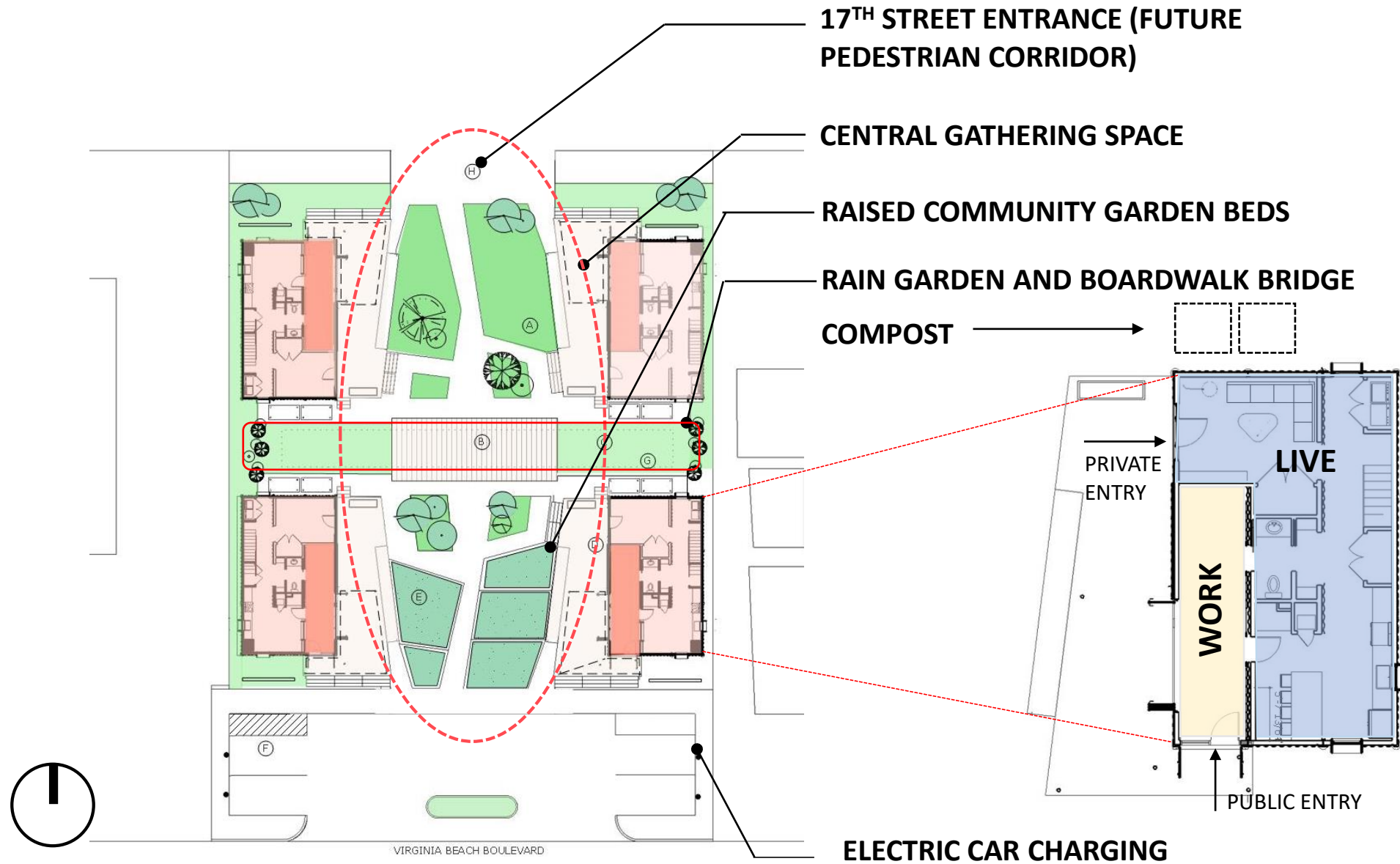
The tiny house movement is a unique subset of housing options. For those unfamiliar with the movement, the tiny house movement is the notion of cutting costs and environmental impacts often associated with home ownership and reducing the amount of personal items owned, enabling owners to travel more and partake in experience outside the home. The tiny

“The Virginia Beach MSA has the highest percentage of millennials of any metro area in the country, according to Forbes”

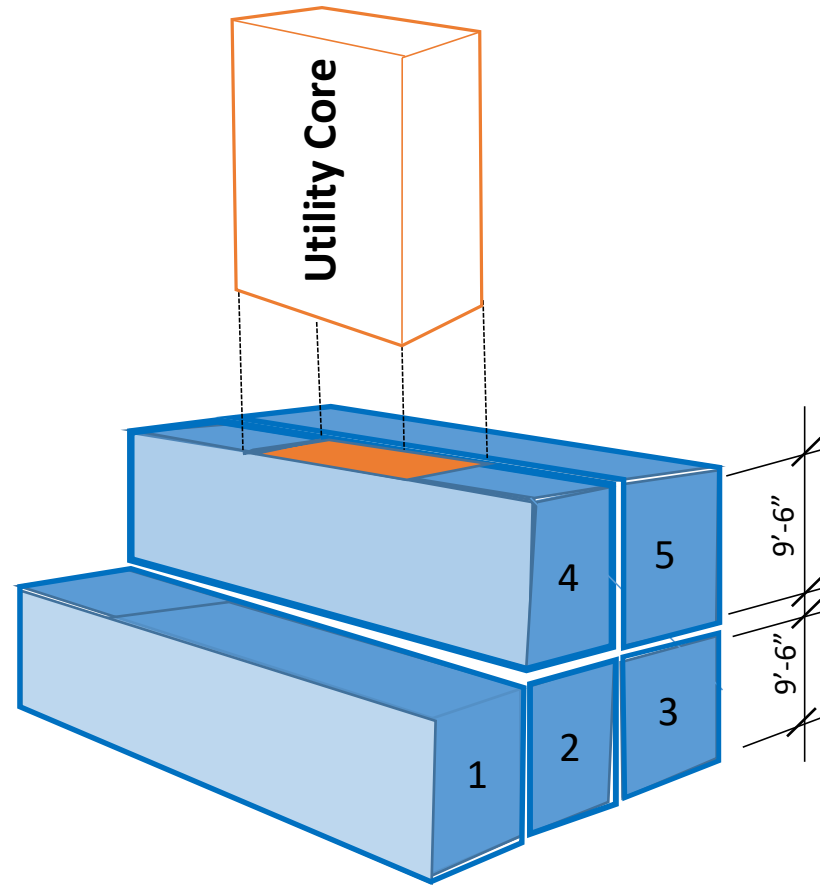
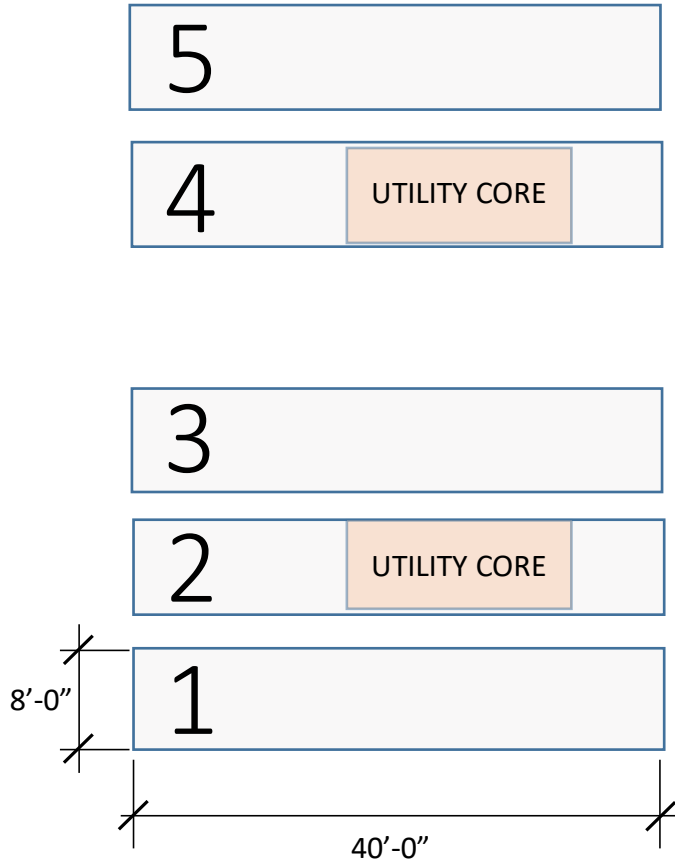
MARKETABILITY: Millennials



SITE PLAN: CONNECTIVITY

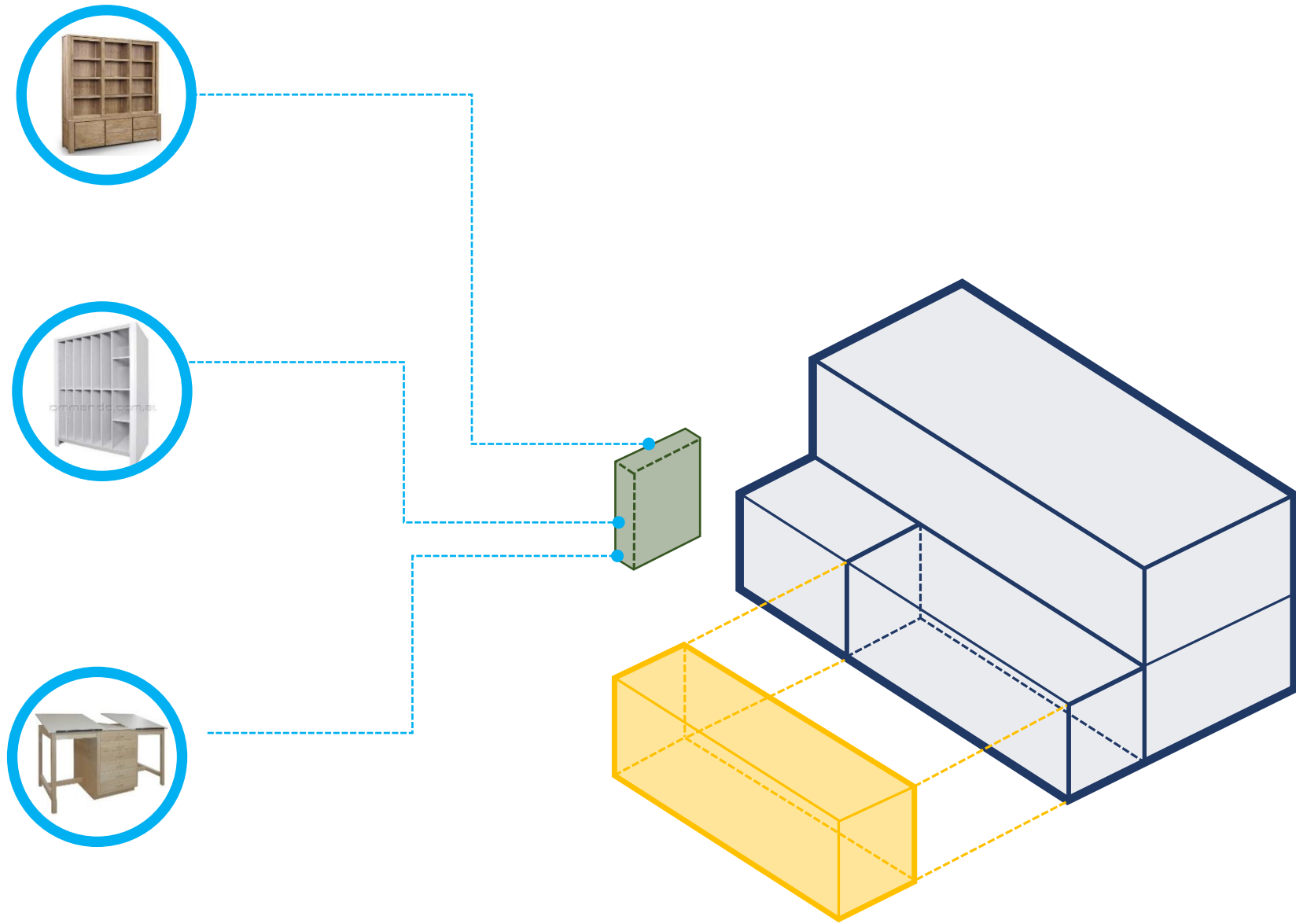


VILLAGE CONCEPT

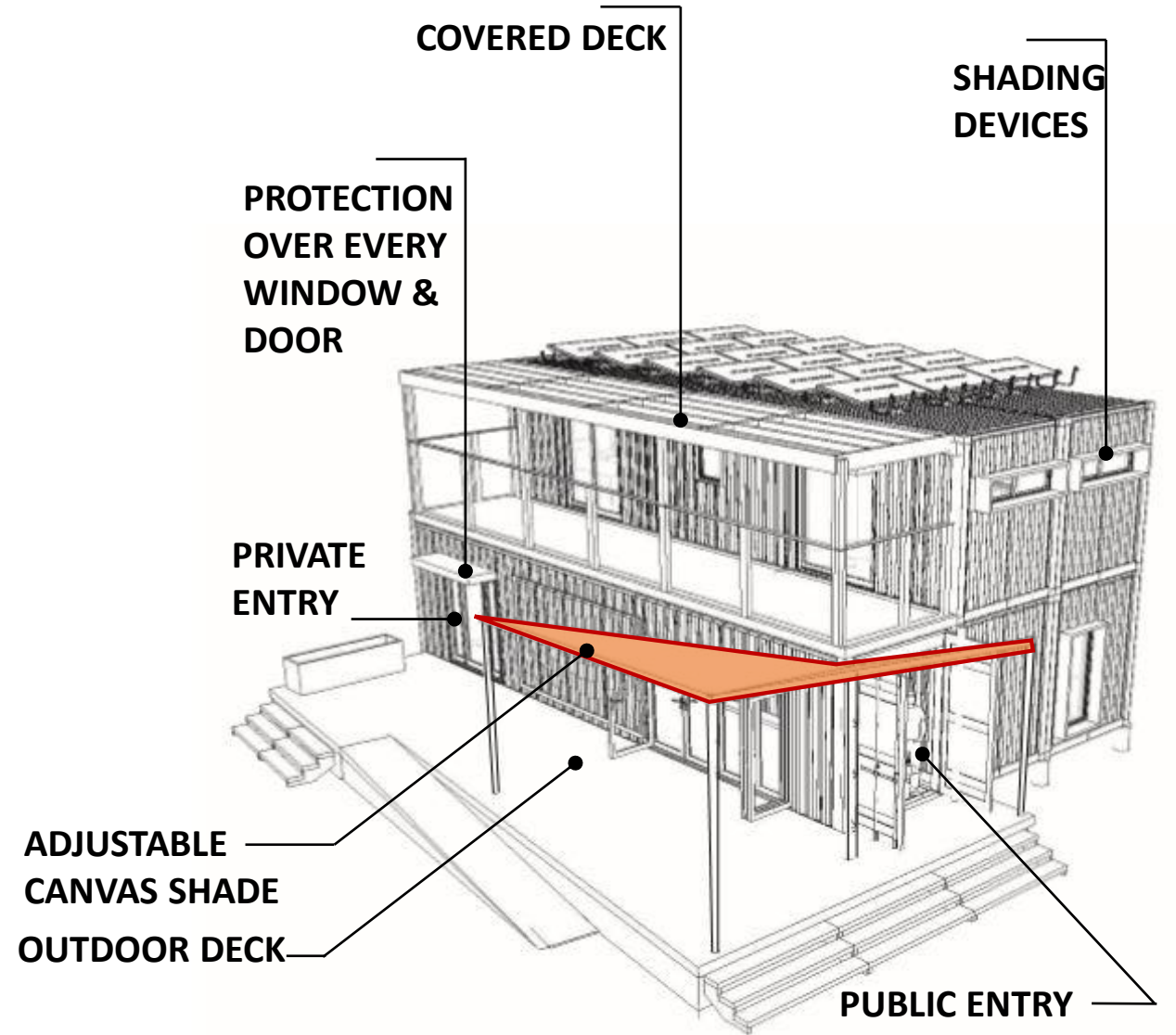
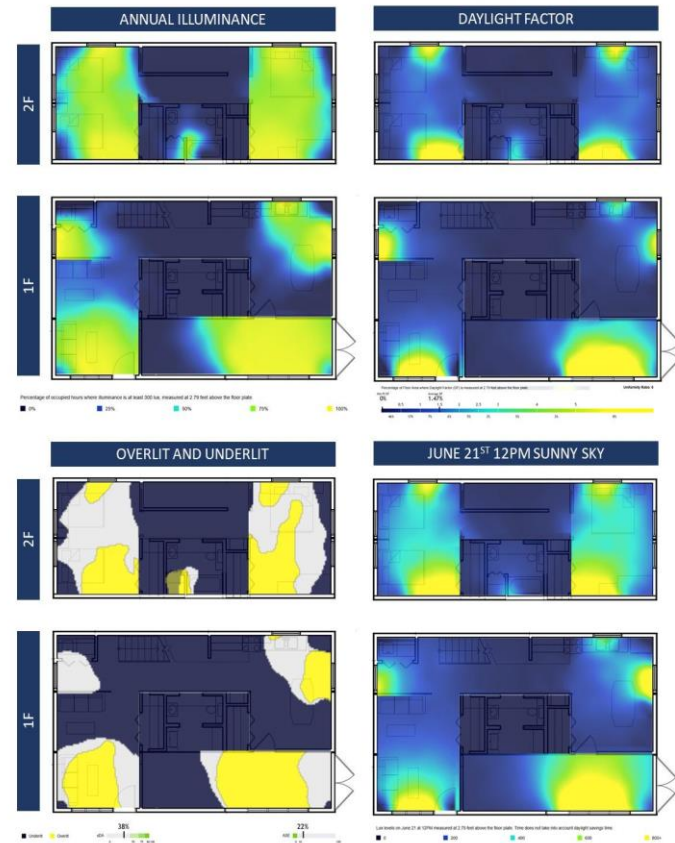


5 HIGH CUBE CONTAINERS

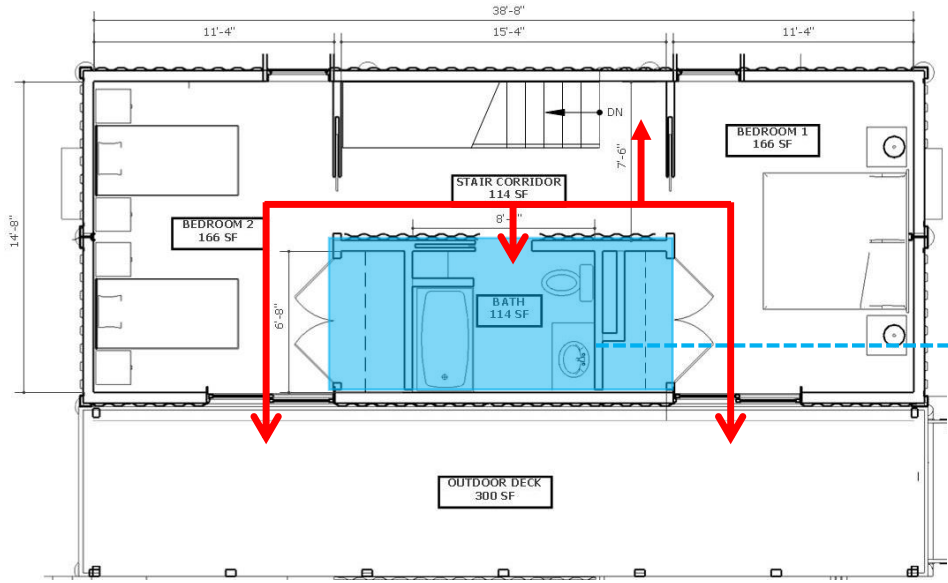
CONSTRUCTABILITY CONCEPT



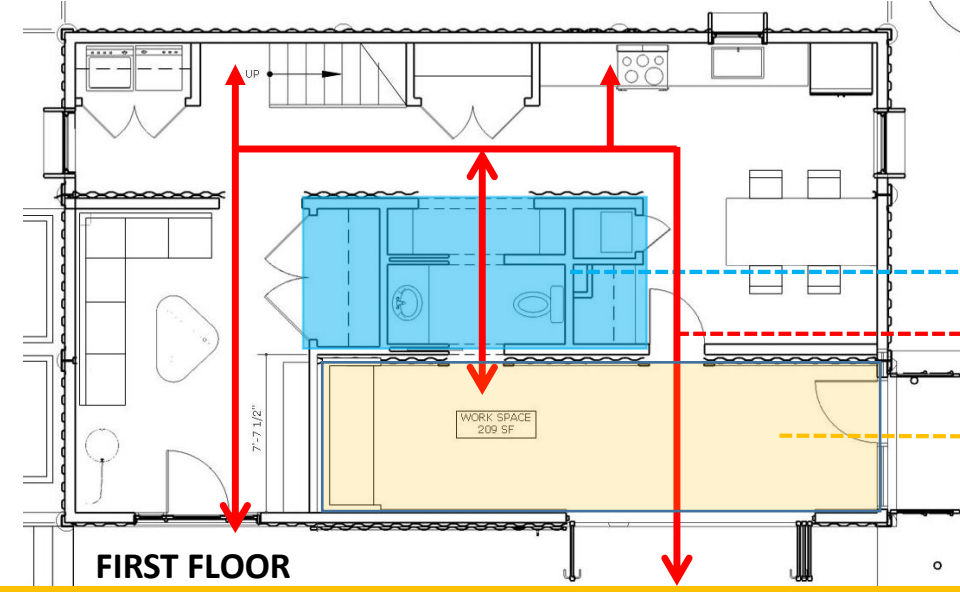
LIVE/WORK MODULARITY



EXTERIOR FEATURES



SECOND FLOOR



FIRST FLOOR

UTILITY CORE

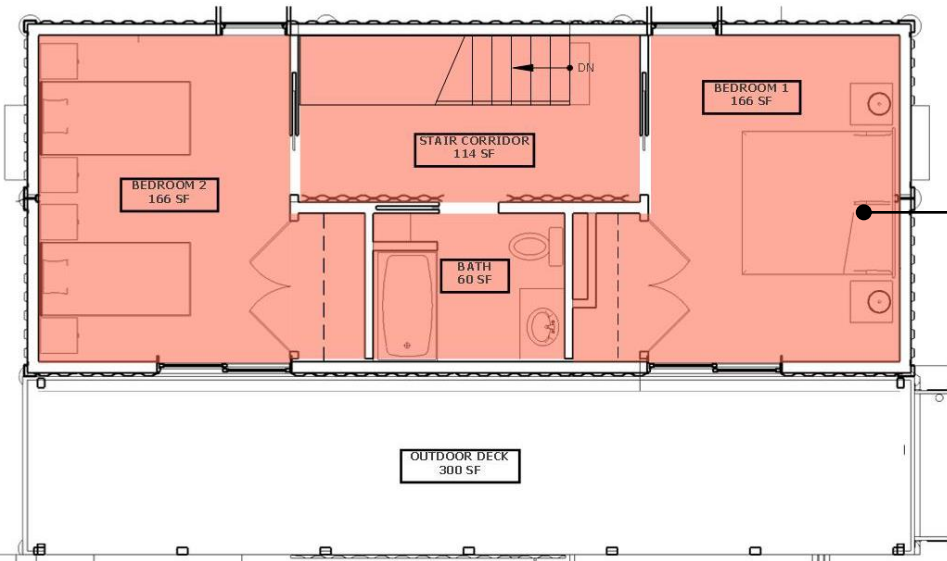
WORK SPACE

CIRCULATION

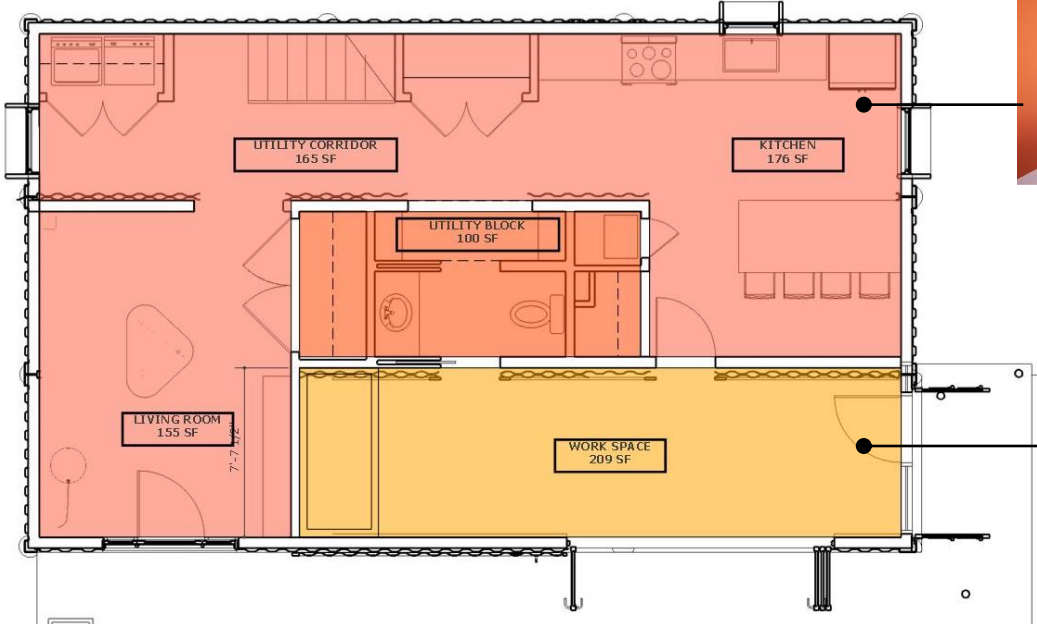
FLOOR PLANS



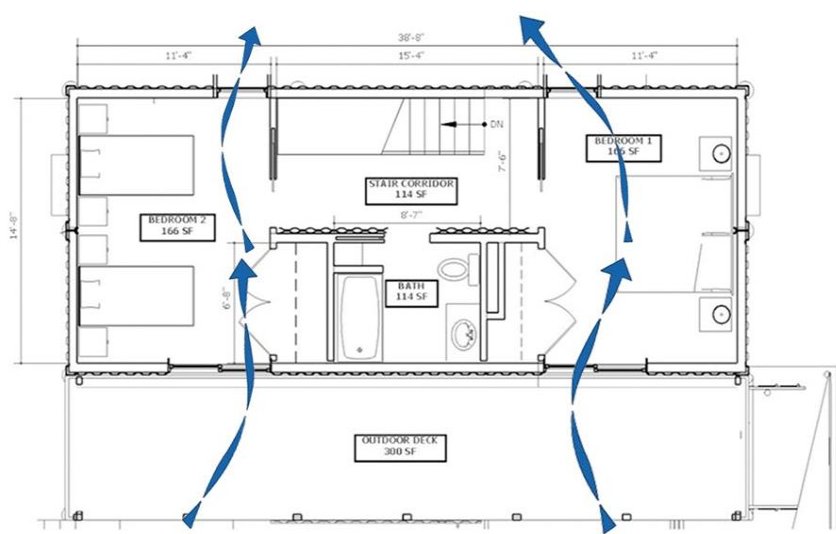
SECOND FLOOR



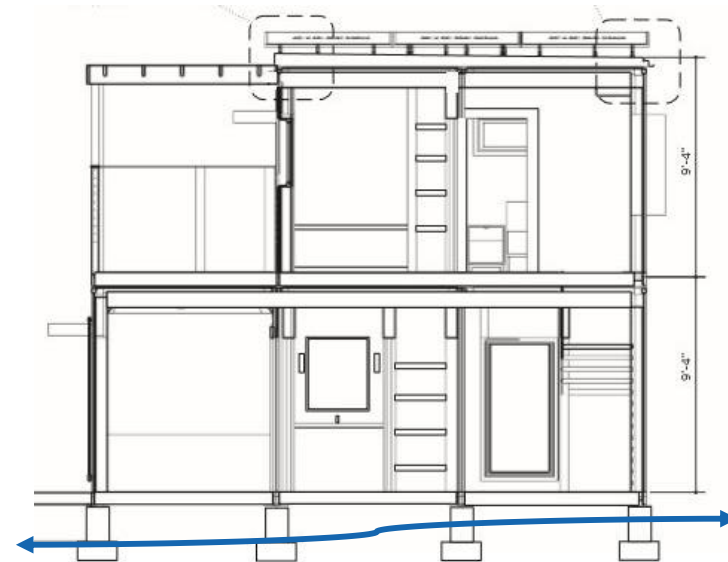
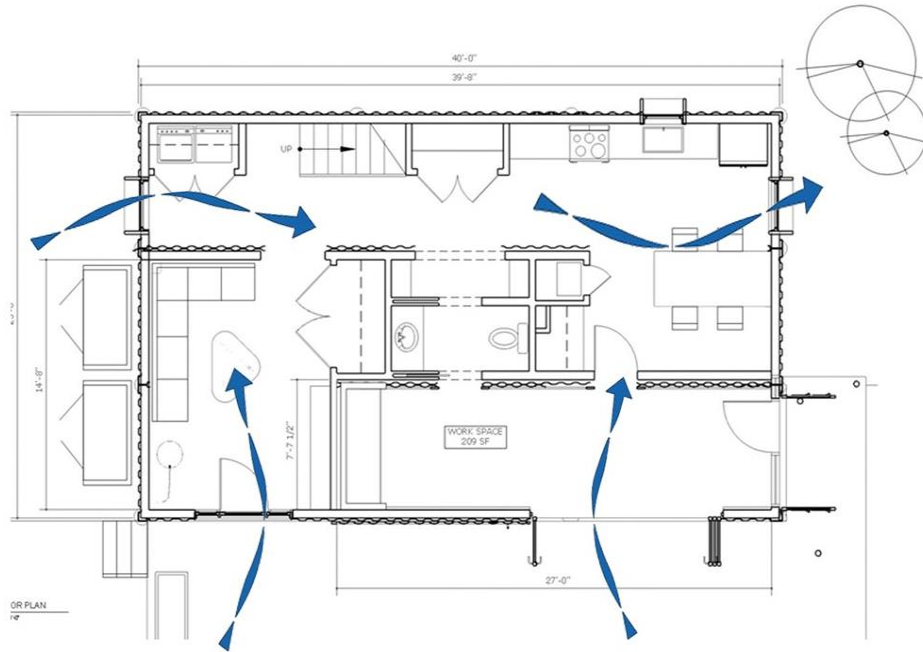
FIRST FLOOR



COMFORT & ENVIRONMENT



Climate zone 4A (mild and humid)



NATURAL VENTILATION

“As all Canadian children do, when it gets cold, we pull the sweaters over the outside of us. We don't eat them, shove them into our ribs. So you have to decide you want to be a sweater wearer rather than a sweater eater”.

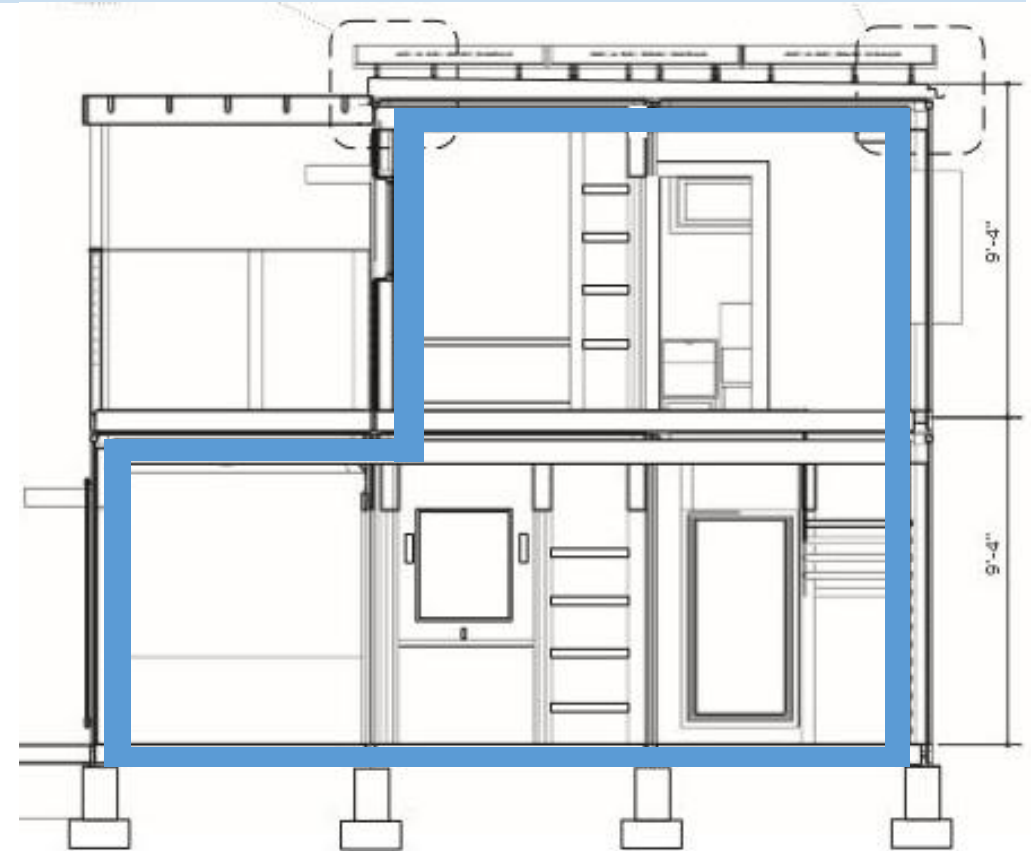
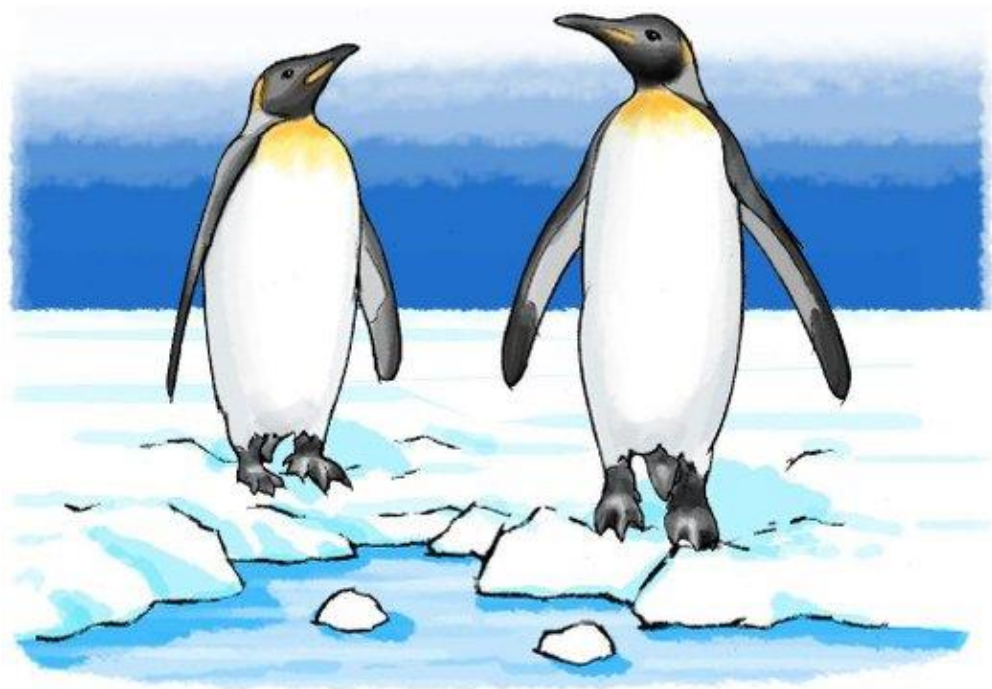
Joe Lstiburek, Building Science Corp.



INSULATION CONCEPT

Humans use clothes to keep themselves warm—and they need even more layers of clothing the colder it is. Clothes form a thermal barrier between our warm bodies and the cold weather, preventing heat from escaping. Other mammals have developed natural barriers to trap body heat, allowing them to survive in cold climates.

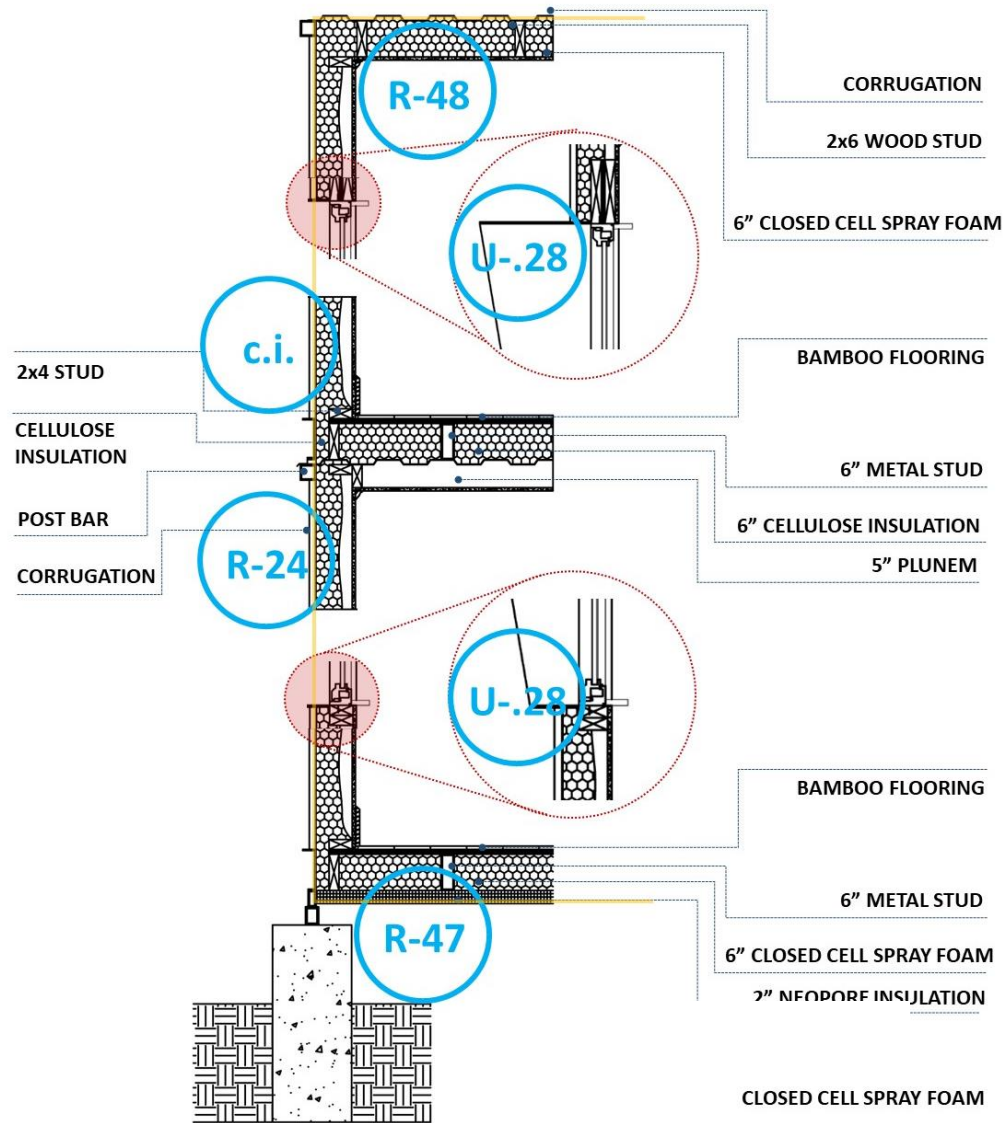
<https://www.scientificamerican.com/article/how-do-arctic-animals-stay-warm/>



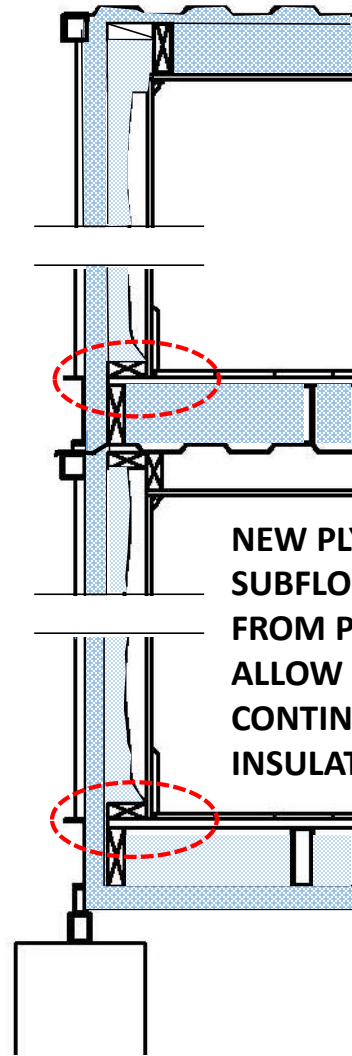
INSULATION CONCEPT



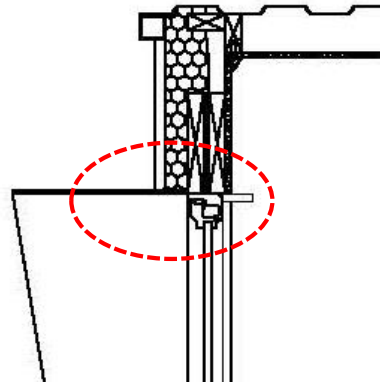
WALL SECTION DETAILS



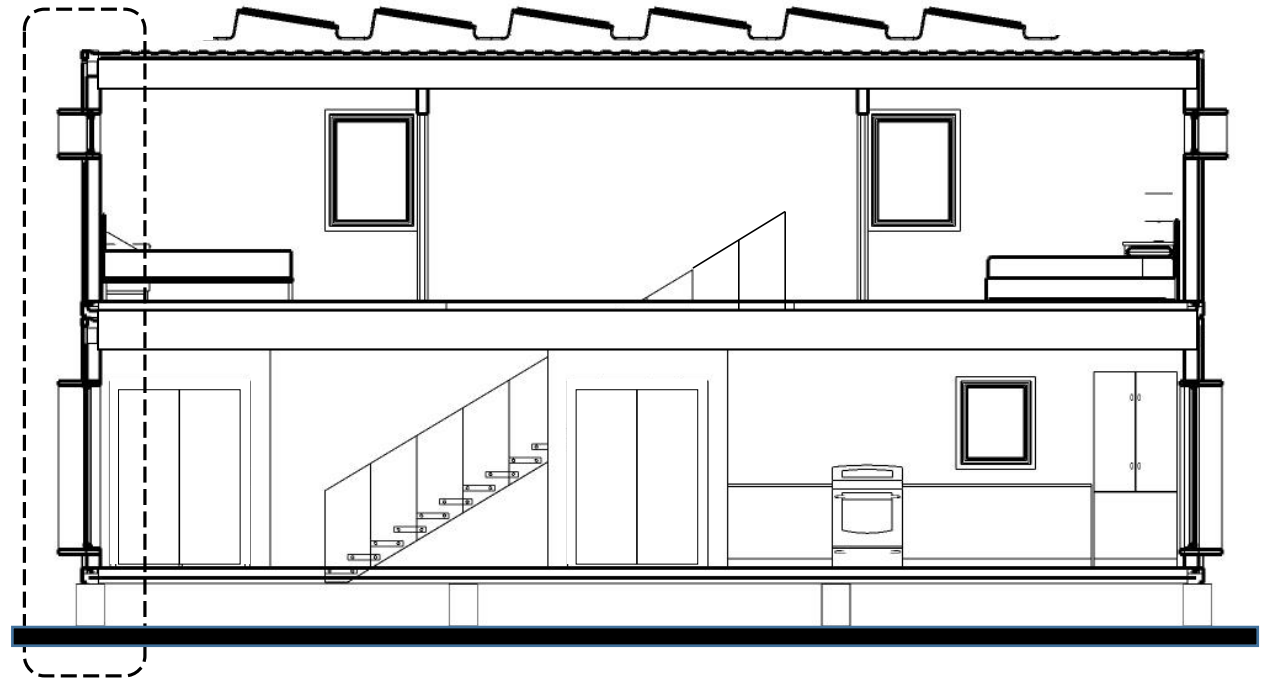
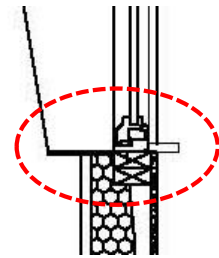
INSULATION R-VALUES



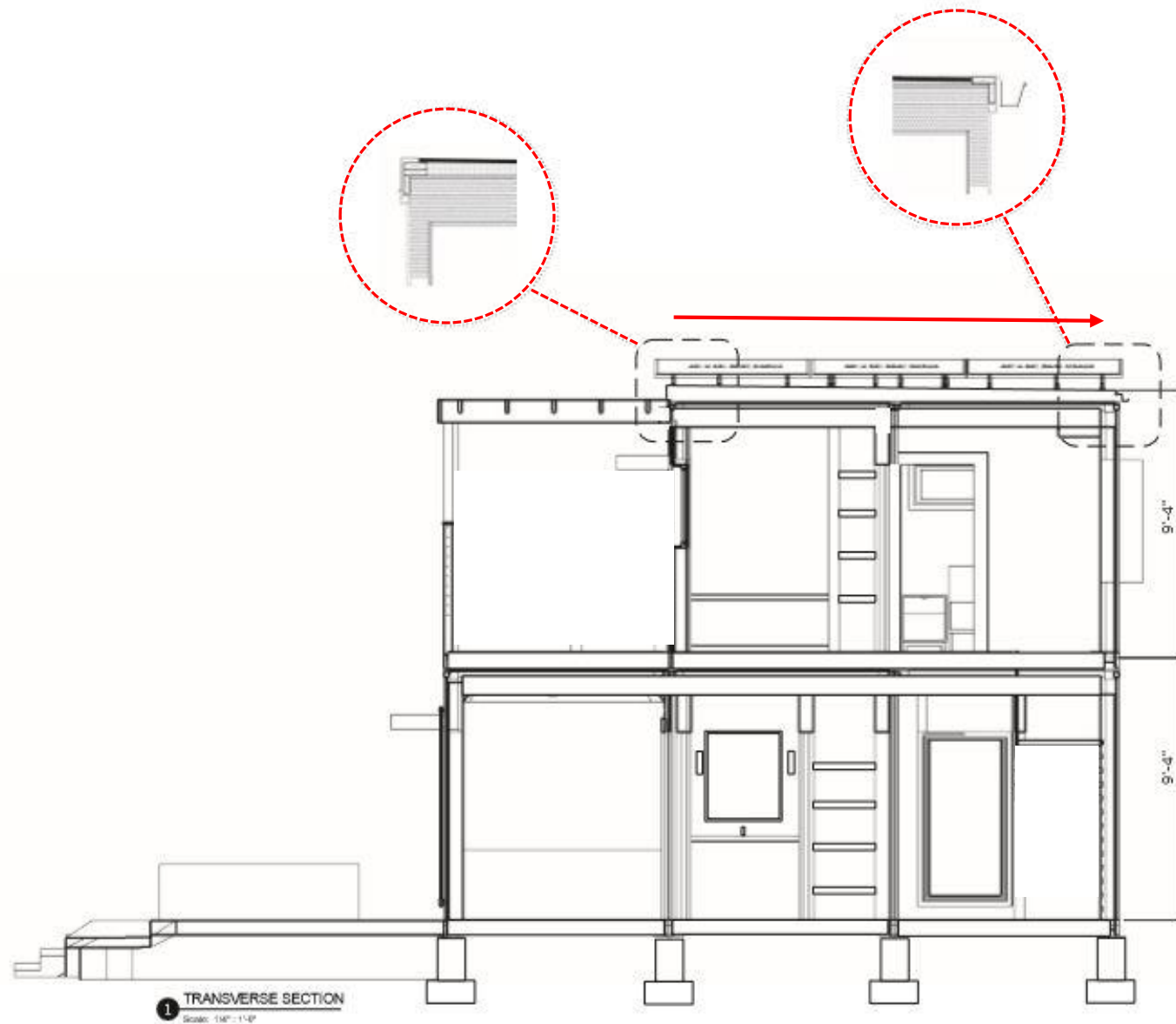
**NEW PLYWOOD
SUBFLOOR CUT BACK
FROM PERIMETER TO
ALLOW FOR 2" OF
CONTINUOUS
INSULATION**



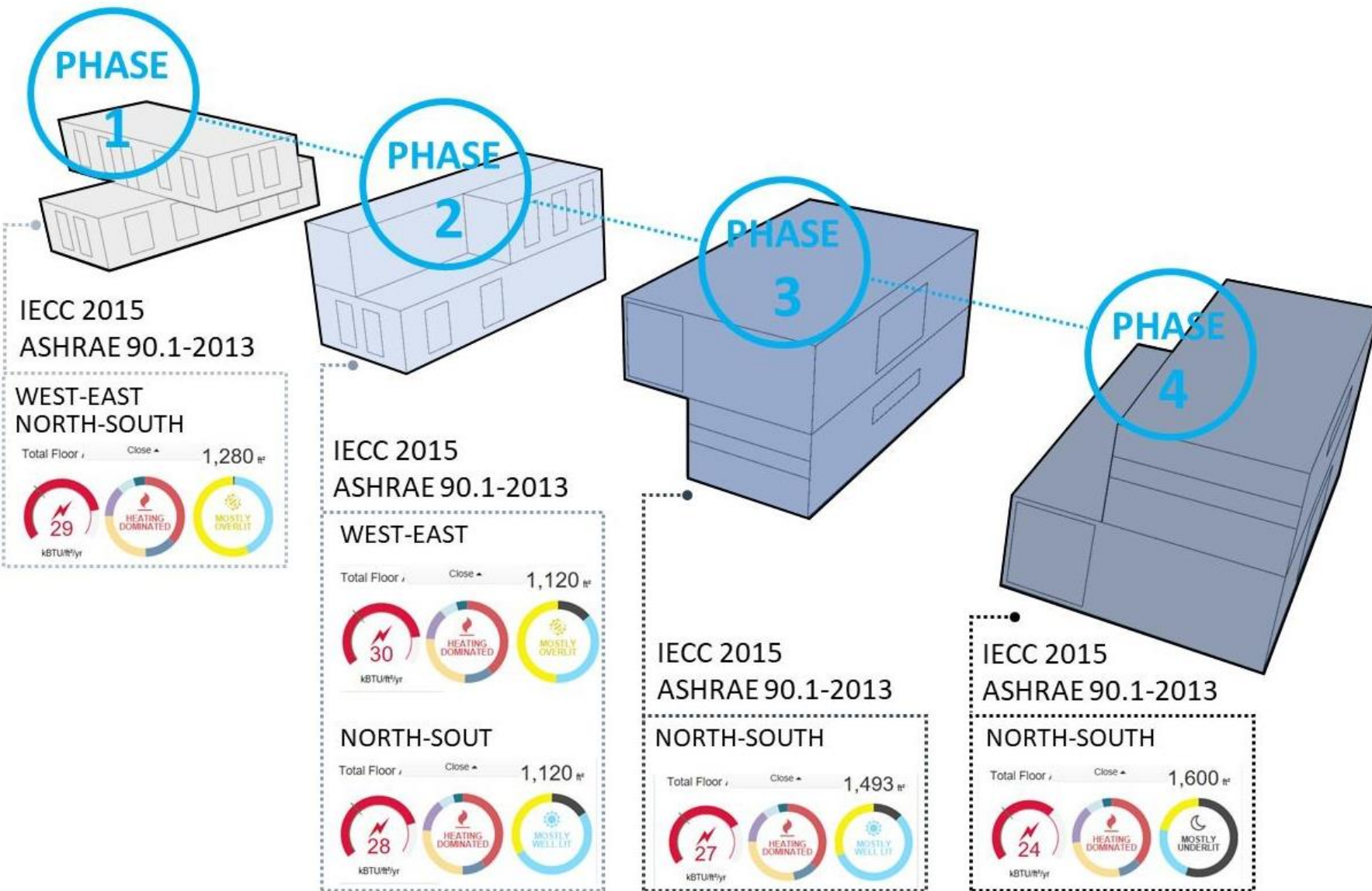
**SHEET METAL WINDOW
BOX TO SHIELD WELDED
INTO EXTERIOR STEEL
CORRUGATION**



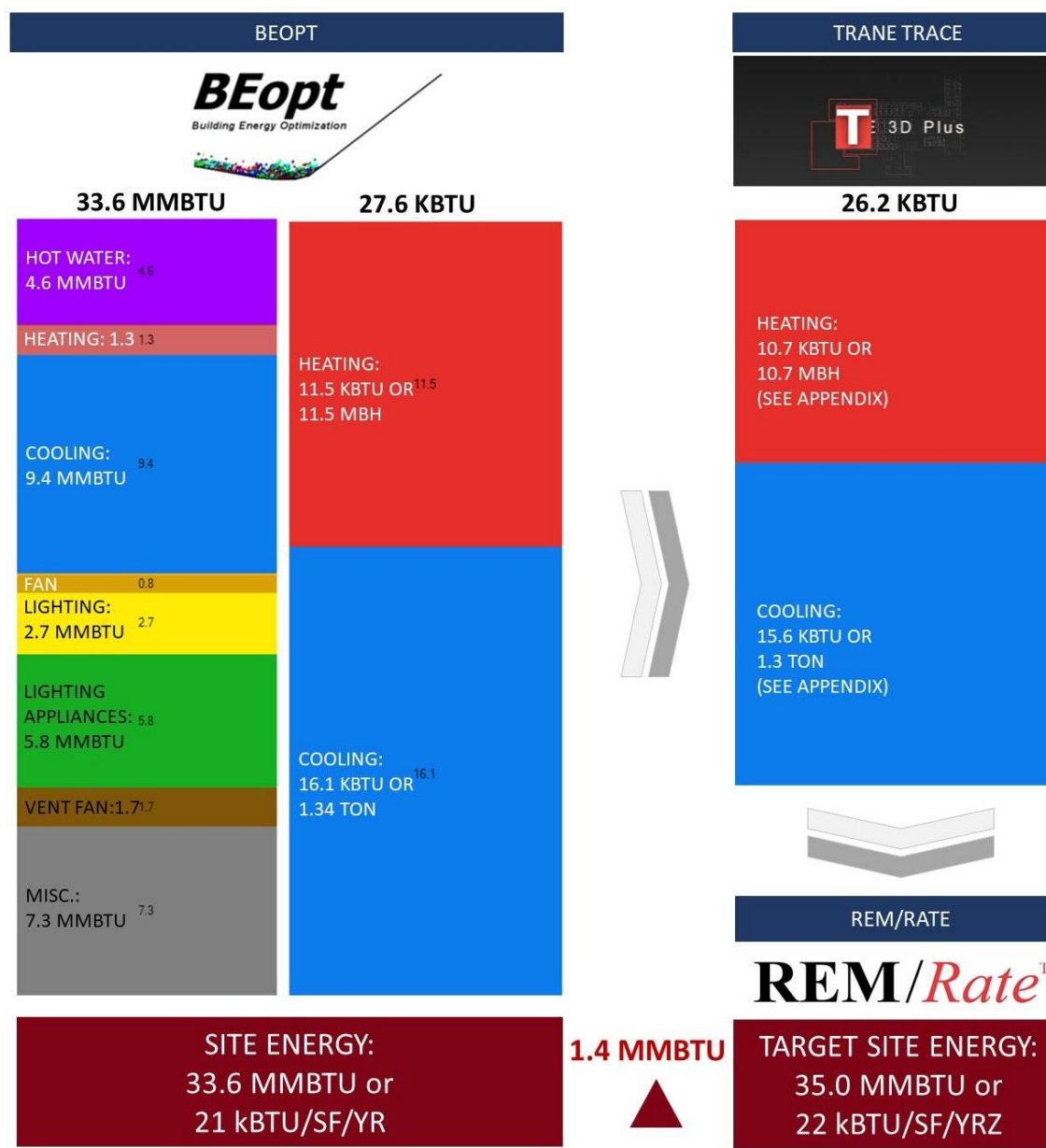
CONSTRUCTABILITY



CONSTRUCTABILITY

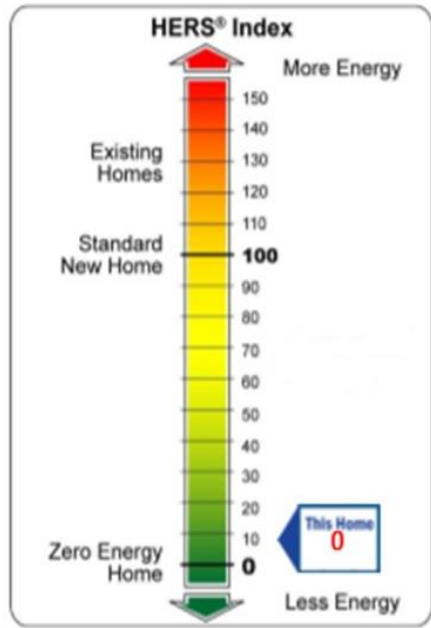


SCHEMATIC ENERGY ANALYSIS



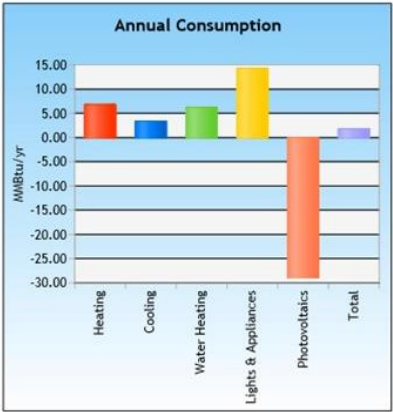
SIMULATION OUTCOMES

REM/RATE HERS INDEX



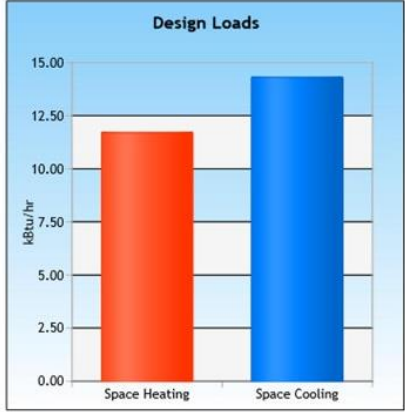
HERS INDEX w/o PV: 51
 HERS INDEX w PV: 0

ANNUAL CONSUMPTION



32.5 MMBTU/YR

HEATING AND COOLING



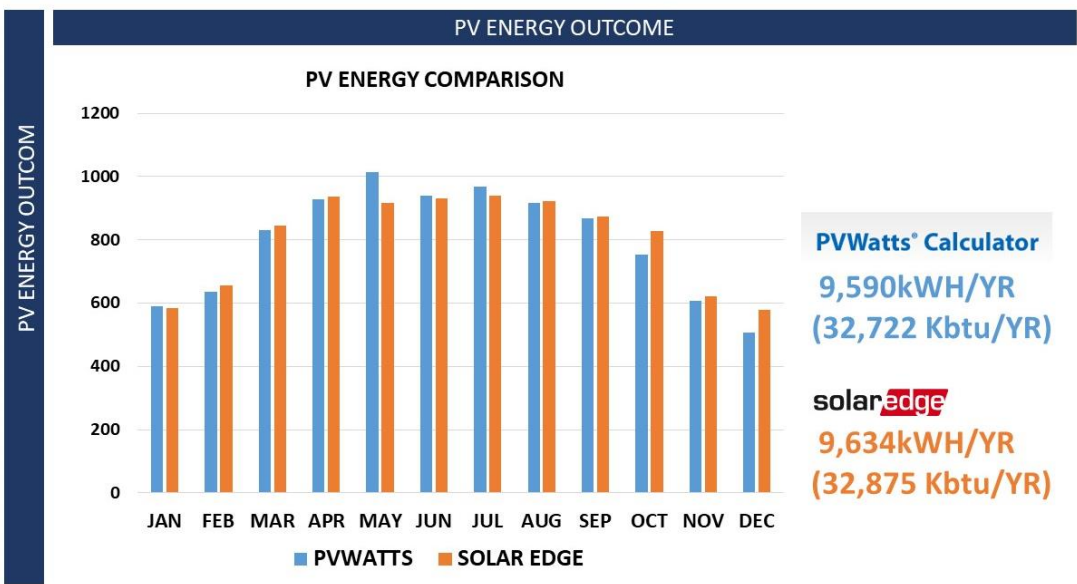
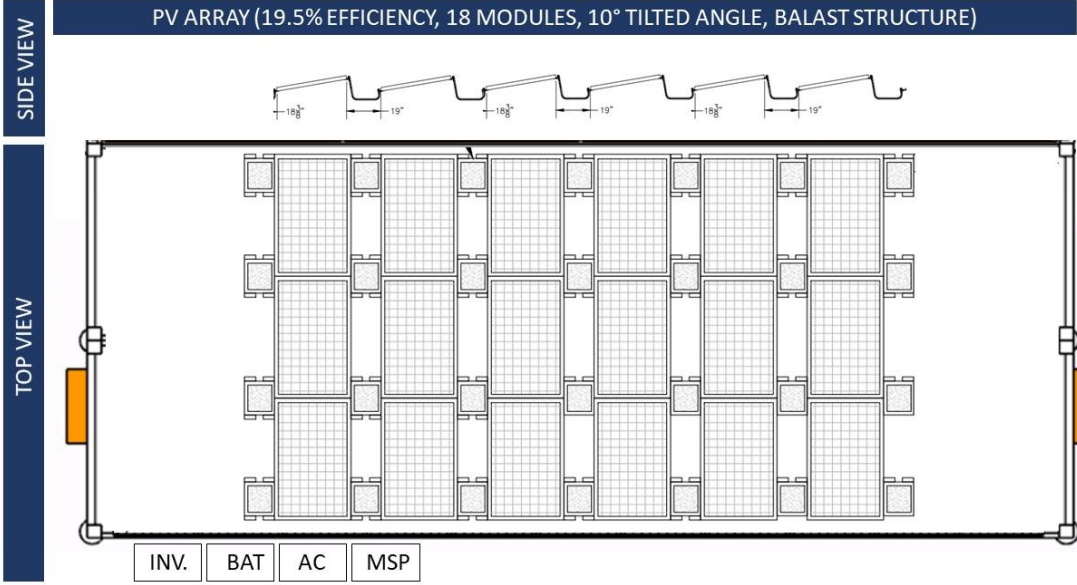
HEATING: 11.7 kBtu
 COOLING: 14.3 kBtu

TARGETED SITE ENERGY:
 35.0MMBTU or
 22 kBtu/SF/YR

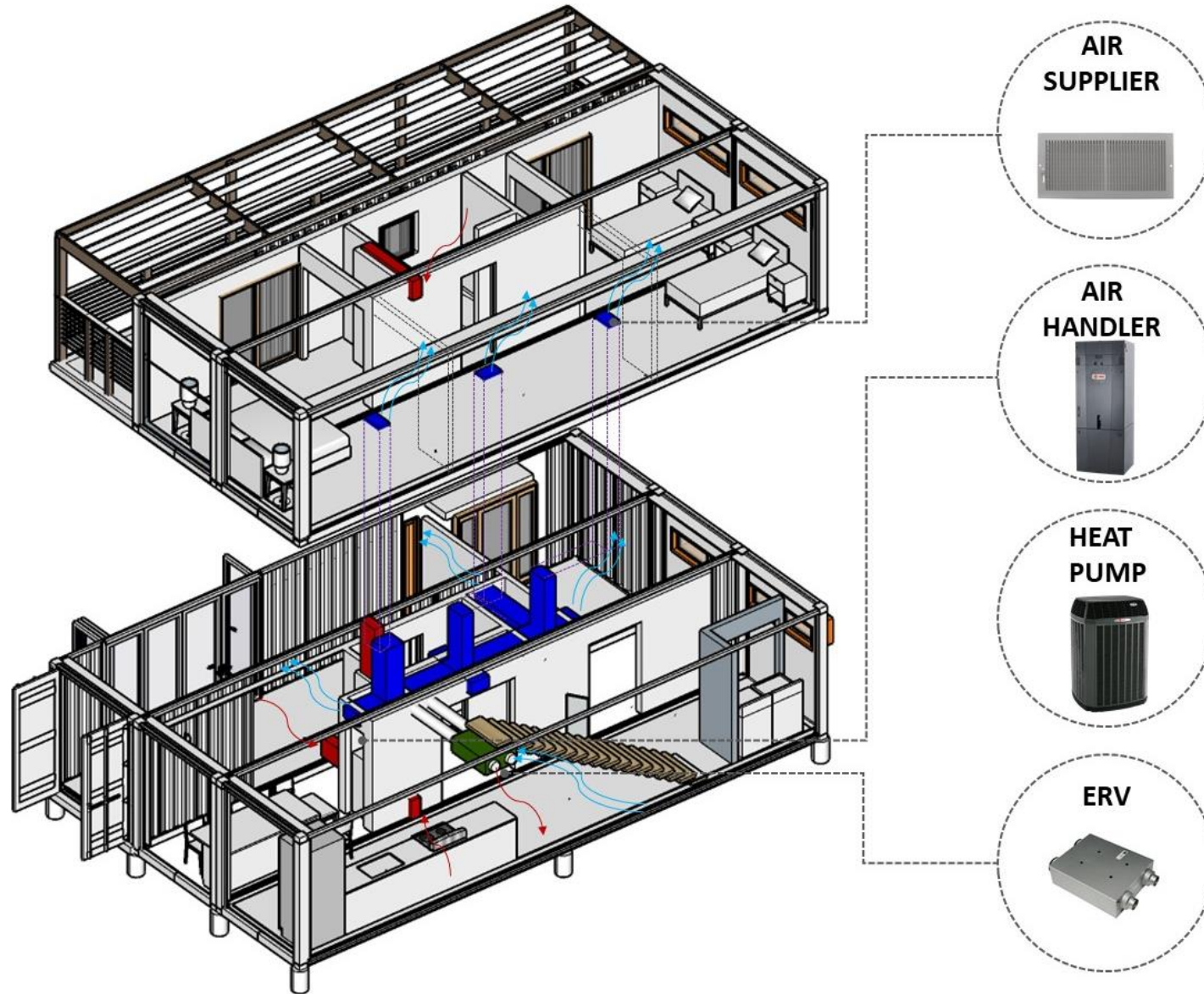
2.5 MMBTU

ACHIEVED SITE ENERGY:
 32.5 MMBTU or
 20.3 kBtu/SF/YR

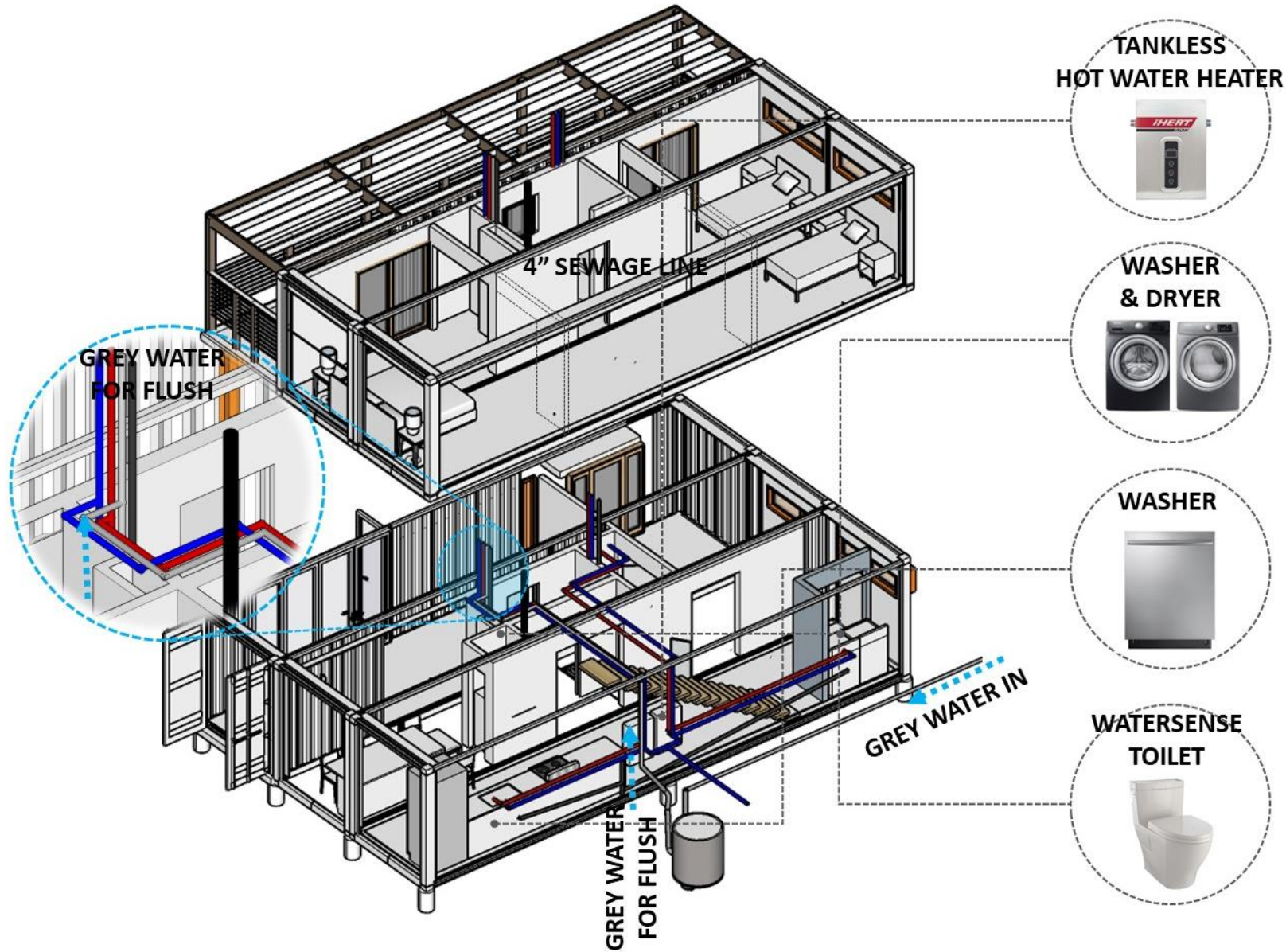
REM/RATE ENERGY SIMULATION



PV ARRAY AND ENERGY GENERATION



HEATING, COOLING & VENTILATING



PLUMBING

Population Estimates from the United States Census Bureau

Population	450,435	(July 1, 2017)
Median value of owner-occupied housing units	\$267,300	(2013-2017)
Mean price for detached	\$360,600	(According to City-Data website)
Education (high school graduate or higher)	93.4%	
Bachelor's degree or higher	34.8%	(2013-2017)
Median household income (in 2017 dollars)	\$70,500	
Mean household income	\$89,528	
Family income	\$81,730	
Married families	\$97,685	

Closet Shelving & Mirrors	\$464.00	40 sq ft
Stairs	\$2,753.55	
Subtotal	\$3,217.55	
EQUIPMENT (See Attached)		
Range (Samsung NE59M4310SS)	\$549.99	
Refrigerator (Samsung RF260BEAESR)	\$1,299.00	
Dishwasher (Miele G 4976 Vi SF)	\$649.99	
Dryer (Samsung DV22N680**H*)	\$899.00	
Washer (Samsung WF45K62**A*)	\$631.99	
Subtotal	\$4,029.97	
MECHANICAL (See Attached)		
Ventilating Fan (RadonAway® RP140)	\$139.00	
Dehumidifier (Ultra-Aire 70H)	\$1,248.00	
Air Handling Unit (Hyperion™ TAM7A0A24)	\$1,250.00	
iHert Tankless Hot Water Heater	\$299.99	
Heat Pump (XV20i)	\$8,500.00	
Fire Protection	\$3,711.78	
Plumbing	\$6,175.00	
Subtotal	\$21,323.77	
ELECTRICAL (See Attached)		
Power	\$7,350.78	
Lighting (Fans, General and Accent)	\$9,114.00	
Electrical Service	\$6,065.00	
Subtotal	\$21,560.67	
Grand Total:	\$246,257.16	

FINAL COST ESTIMATE (after review with advisors) = \$246,257

COST ESTIMATE

FINAL COST ESTIMATE = \$246,257

\$246,257 @ 1600 SF = \$154 per sq. ft.

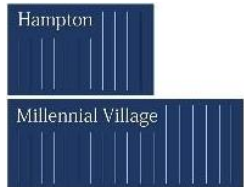
(lower than median list price per sq. ft. in Virginia Beach = almost 10% lower)

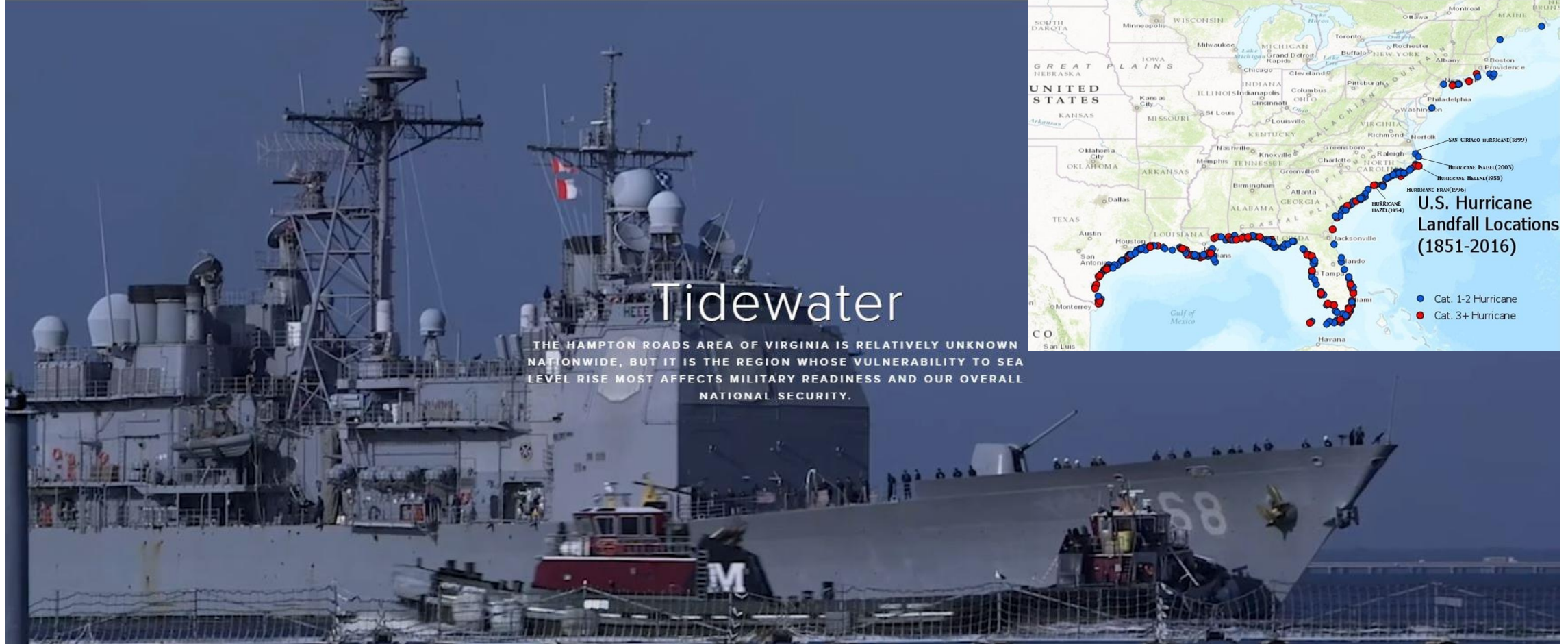
COST SAVINGS OVER 10 YEARS

\$28,080 (estimated)

	Typical	Millennial Village Home
Gas	\$80	0
Electrical	\$124	\$40
Sewage	\$34	\$34
Water + Storm Water	\$100	\$80
Monthly Total	\$338	\$154
Annual Total	\$4,656	\$1,848
Difference per year		Save \$2,808

COST ESTIMATE





RESILIENCE





Concentrations



Adaptation to Sea Level Rise

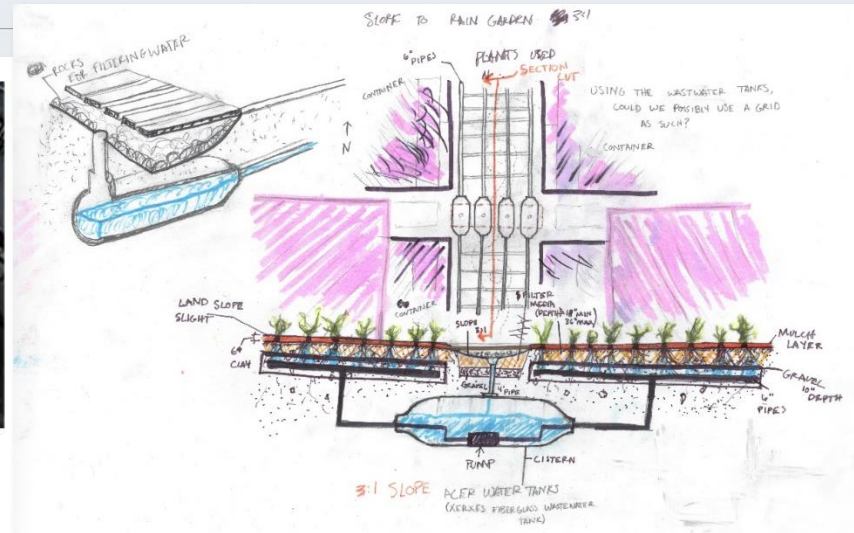
The Hampton University Department of Architecture has established one of the first programs devoted to design solutions adapting coastal urban communities to the challenges posed by Sea Level Rise.

An emerging field of inquiry, a knowledge base in and completion of the requirements for a concentration in the field should provide an advantage to graduates seeking employment. Further, as the program is rooted in an active collaborative process with policy makers, area professionals, and engineering students from other state universities, potentially employers will recognize the special skills required for successful collaboration.

Since its inception, students engaged in the program have been active in community engagement processes, have been invited participants in an international design program, have been speakers before municipal and state officials, and at regional and national conferences.

The Department of Architecture has been named one of six programs nationally to form the National Resilience Initiative, formed by the Clinton Global Initiative and the Rockefeller Foundation's 100 Resilient Cities program and overseen by the American Institute of Architects.

The concentration is an available addition to the Master of Architecture degree, requiring completion of two courses offered in the Department, one offered by the university's Marine Science Program, and one offered online by Old Dominion University's Department of Civil and Environmental Engineering.



RESILIENCE





Category 1

- Winds 74-95 mph (119-153 km/h)
- Some damage and power cuts



Category 2

- Winds 96-110 mph (154-177 km/h)
- Extensive damage



Category 3

- Winds 111-129 mph (178-208 km/h)
- Well-built homes suffer major damage



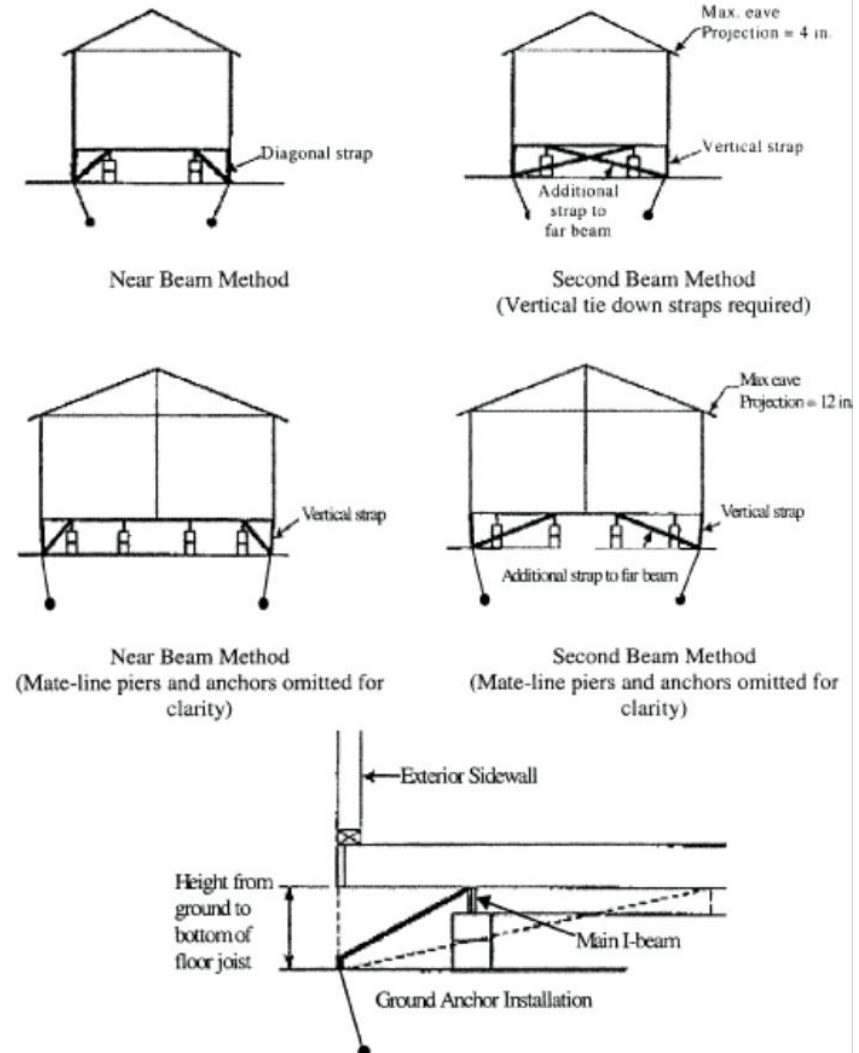
Category 4

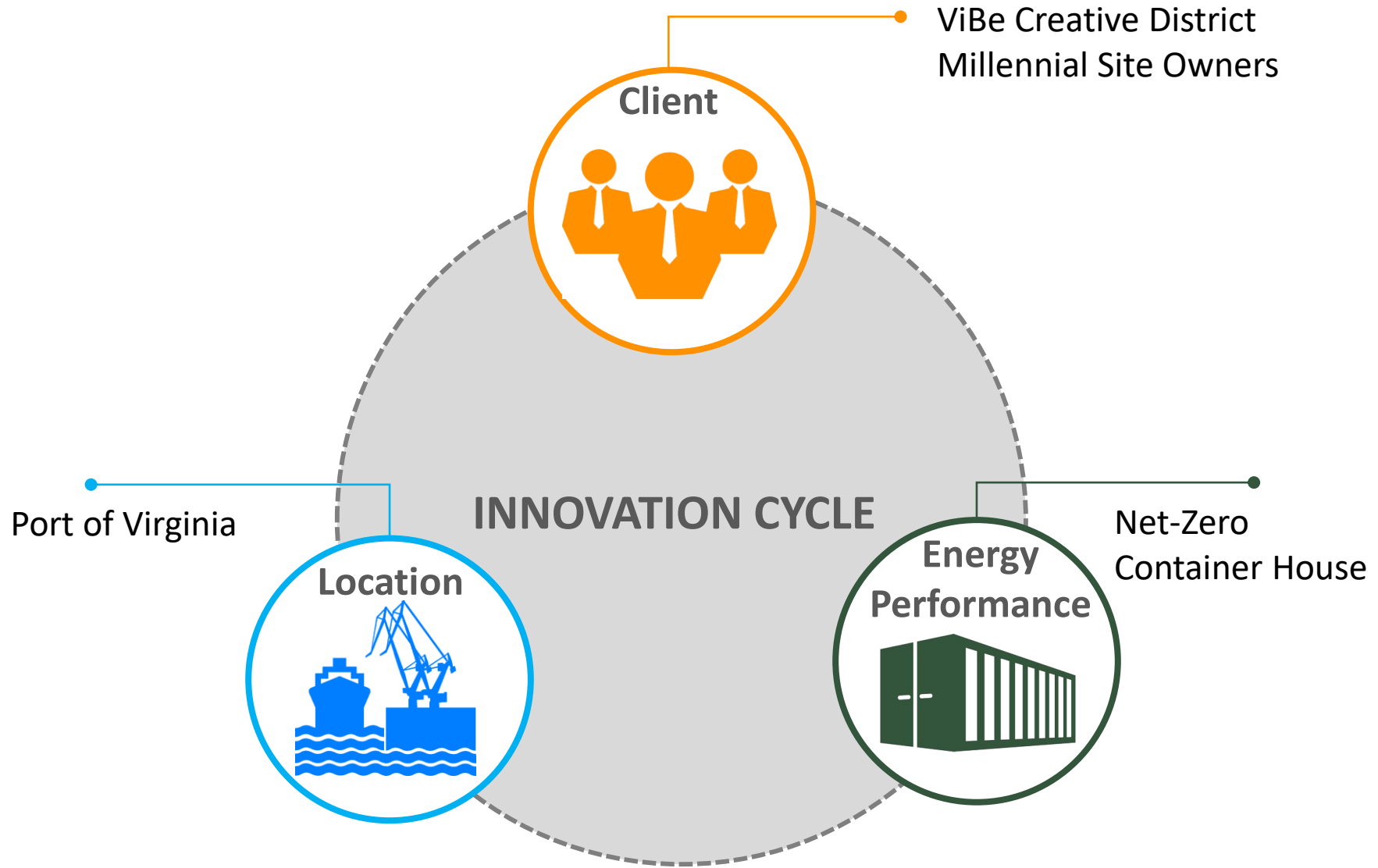
- Winds 130-156 mph (209-251 km/h)
- Severe damage to well-built homes, trees blown over



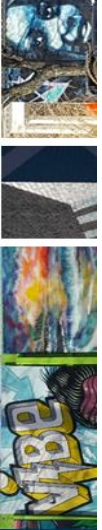
Category 5

- Winds 157+ mph (252+ km/h)
- Many buildings destroyed, major roads cut off





INNOVATION



Millennial Village Site owner



DRST motto: "Where dreams and reality sometimes touch" Jay Epstein

MILLENNIAL VILLAGE Potential