ROW HOME
REGEN

Jefferson
Philadelphia University +
Thomas Jefferson University

U.S. DEPARTMENT
OF ENERGY
SOLAR
DECATHLON

TECHNICAL GOALS

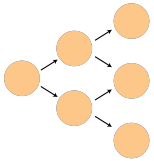
NET ZERO ENERGY

NET ZERO WATER

PASSIVE VENTILATION

OFF THE GRID

NATURAL LIGHT



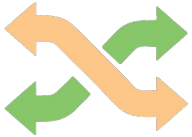
REPLICABILITY

COMMUNITY GOALS

HOME OWNERSHIP

ACCESSIBILITY

AFFORDABILITY



FLEXIBLE SPACE

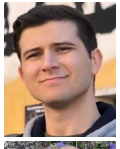
AGING IN PLACE

FOOD GROWTH

Our Team

Theresa Chiarenza, Bachelor of Architecture '20, Minor in Photography

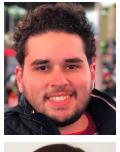
Nhân Dung, Bachelor of Architecture '20



Ross Capaccio, Bachelor of Architecture '20

Alexxa Ingalls, Bachelor of Architecture '21, Minor in Real Estate Development

Chadd Ziegler, Bachelor of Architecture '21, Minor in Construction Management



Omar Abdurahman, Masters in Architecture '23. Bachelor in Architecture and Urban Design

Riya Malik, Master of Science in Construction Management '20

Faculty Partners

Max Zahniser, LEED Fellow, CEO of Praxis Building Solutions
Bungane Mehlomakulu, Managing Principal, Integral Group
Apoorv Goyal, Senior Building Performance Analyst, Integral Group
Shreshth Nagpal, Principal, Integral Group
Kim Zamora, PhD, LEED AP BD+C, Construction Management Faculty

Industry Partners

Glenn Rentschler, Senior Principal Engineer at Wiss-Janney-Elstner Associates
Darnetta Arce, Executive Director Lower North Philadelphia CDC
Alisia Strong, Senior Construction Manager, Philadelphia Housing Authority
Leslie Smallwood-Lewis, Owner, Mosaic Development Partners
Roger Clark, Director of Clean Energy, Reinvestment Fund
Torjia Karimu, AmeriCorps Community Outreach Coordinator, Habitat for Humanity Philadelphia
Tya Winn, Director of Project Planning, Habitat for Humanity Philadelphia

LOWER NORTH PHILADELPHIA COMMUNITY DEVELOPMENT CORPORATION
Community Members Building Communities

WJE ENGINEERS ARCHITECTS MATERIALS SCIENTISTS
Wiss, Janney, Elstner Associates, Inc.

PHA
PHILADELPHIA HOUSING AUTHORITY
OPENING DOORS TO OPPORTUNITIES

INTEGRAL GROUP

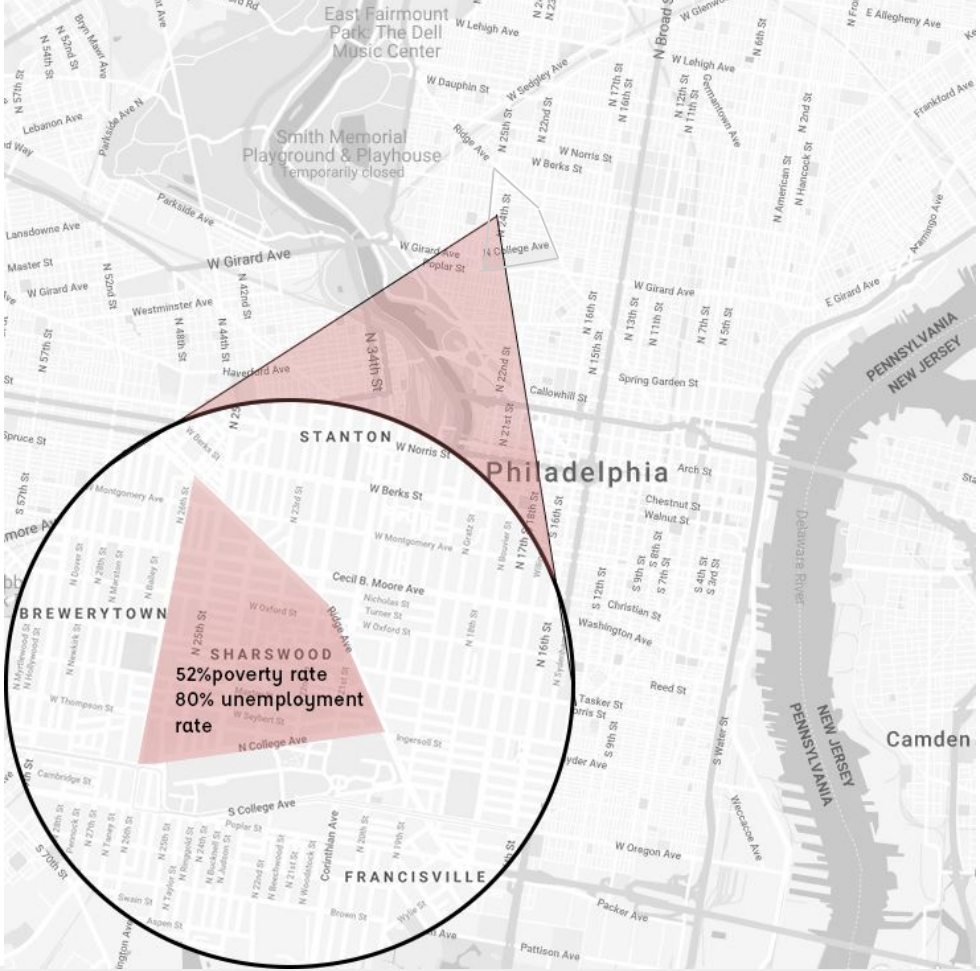
MOSAIC DEVELOPMENT PARTNERS

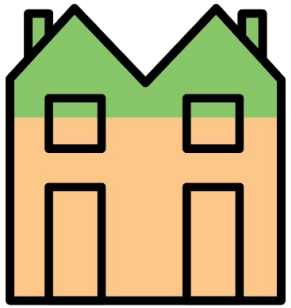
Habitat for Humanity®

REINVESTMENT FUND

GINKGO VERNACULAR

COMMUNITY BACKGROUND


East Fairmount Park, The Dell Music Center
Smith Memorial Playground & Playhouse
Temporarily closed
STANTON
Philadelphia
BREWERYTOWN
SHARSWOOD
52%poverty rate
80% unemployment rate
FRANCISVILLE
Camden
PENNSYLVANIA
NEW JERSEY
Delaware River
W Girard Ave
W Lehigh Ave
W Berks St
W Norris St
Cecil B. Moore Ave
N College Ave
S College Ave
Spring Garden St
Callowhill St
Arch St
Chestnut St
Walnut St
Washington Ave
Reed St
W Oregon Ave
Packer Ave
Pattison Ave
Parkside Ave
Lansdowne Ave
Westminster Ave
Haverford Ave
Ridge Ave
Corinthian Ave
N 34th St
N Broad St



Owner Occupied: 30.09%
3,761 units

Renter Occupied: 69.91%
8,740 units

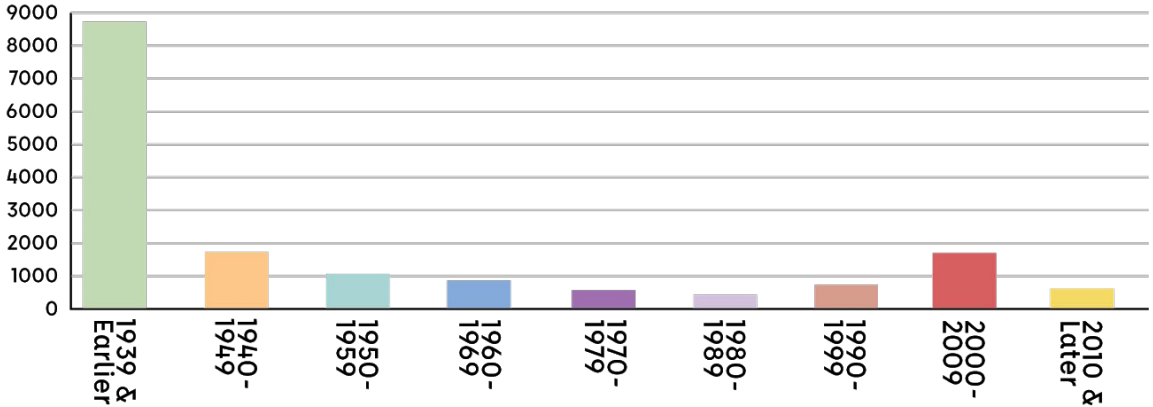
Houses With a Morgage: 1,254
33.34%

Houses Without a Morgage: 2,507
66.66%

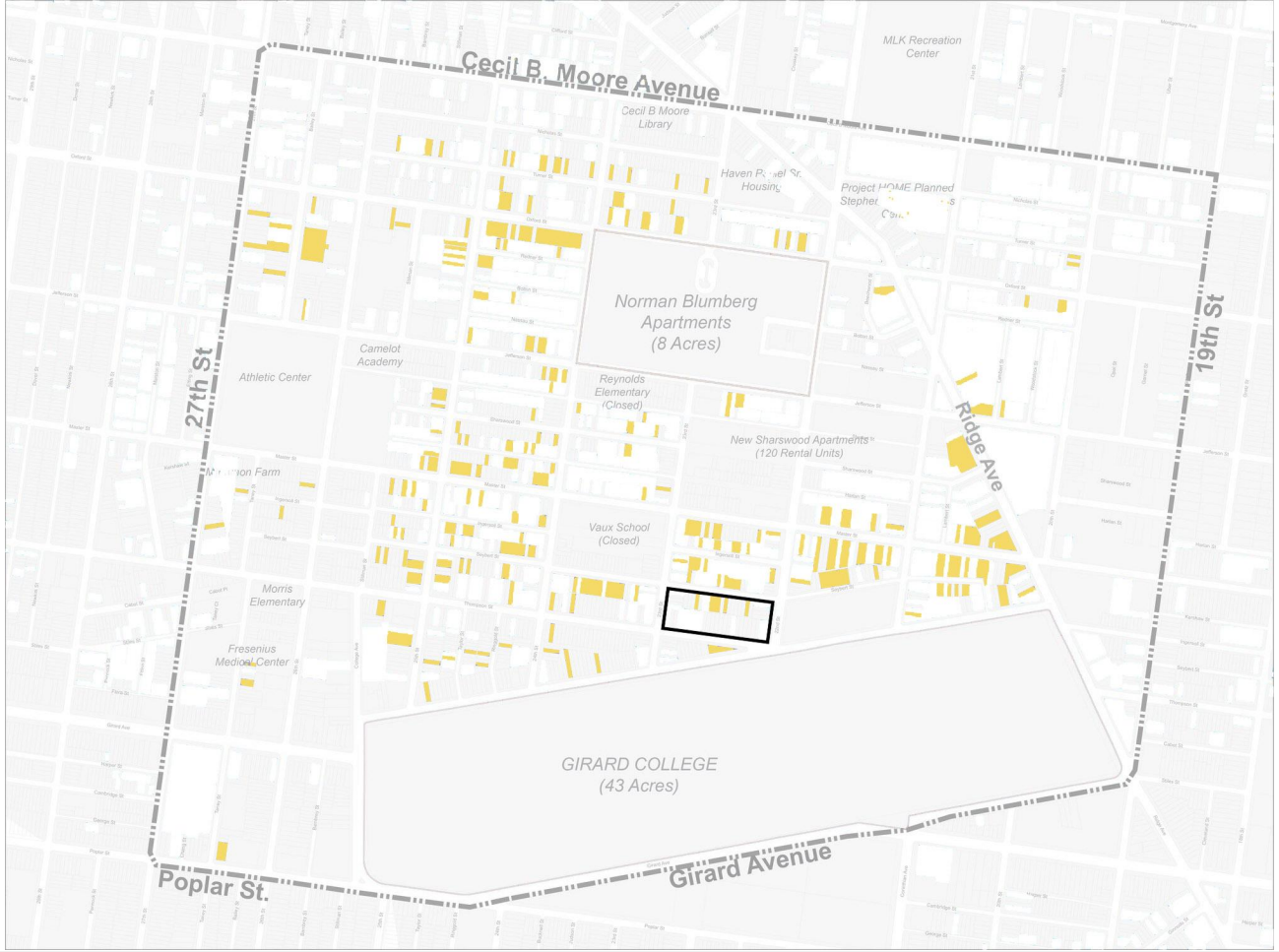
Median Home Value

With Morgage: $138,900

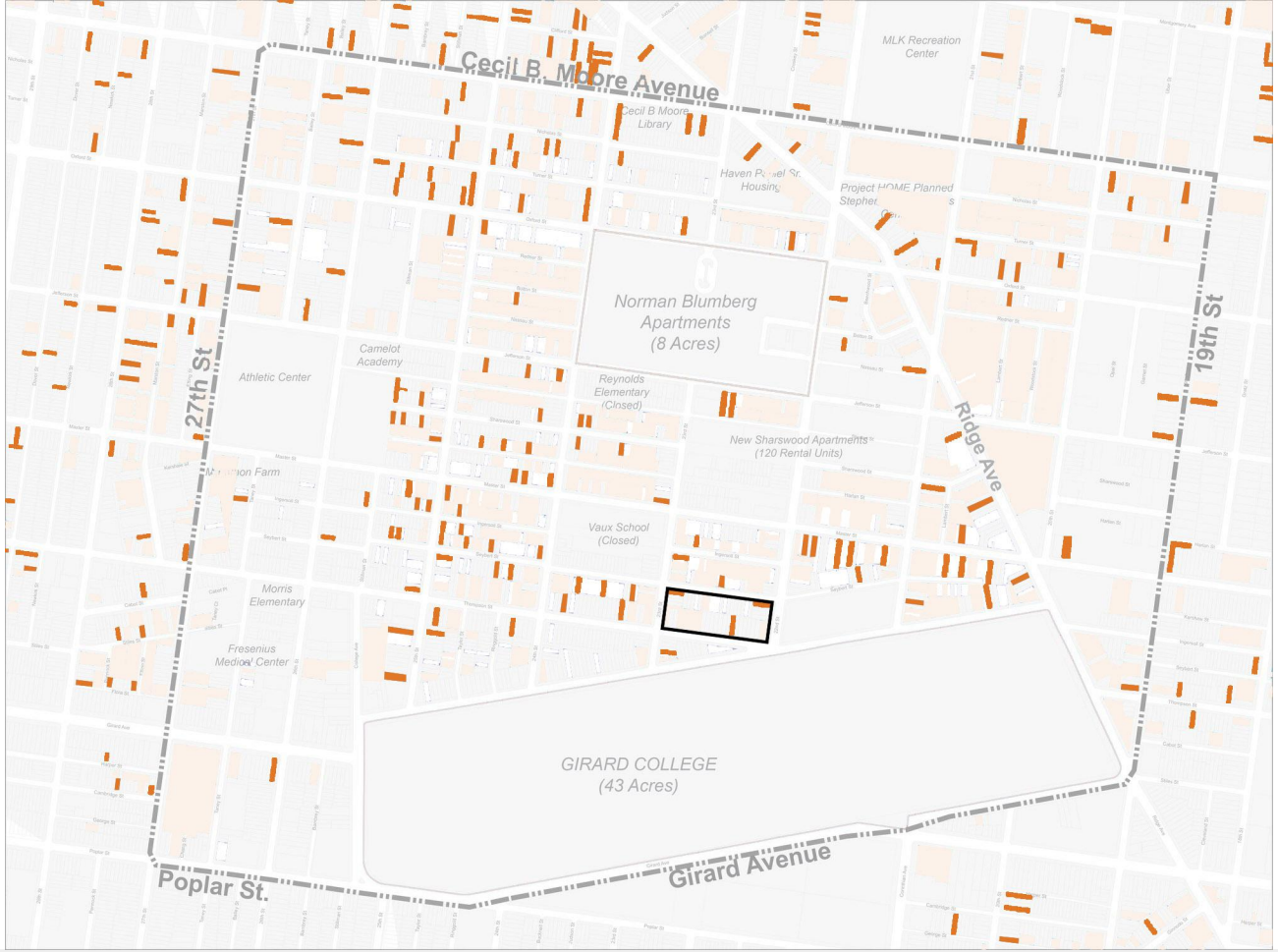
Without Morgage: $67,700



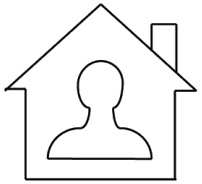
VACANT PROPERTIES



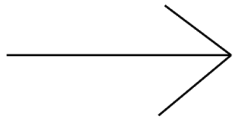
VACANT LOT IN BETWEEN EXISTING BUILDINGS

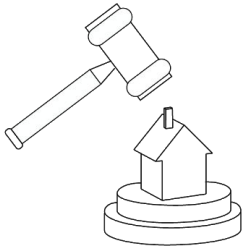


PHA MODEL:

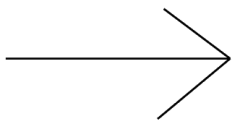


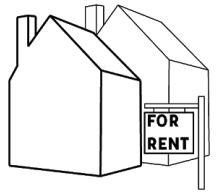
LEGACY
HOME OWNERS





EMINENT DOMAIN
OR HARD TIMES



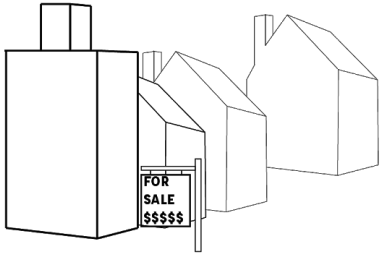


RENTERS FOR LIFE

DEVELOPER MODEL:

CHEAP HOMES FOR SALE IN UNDER APPRECITED NEIGHBORHOODS

EXTRACT VALUE AND OUT PRICE THE NIEGHBORHOOD. DON'T USE LOCAL TRADES OR COMPANIES.



SELL FOR HIGHEST DOLLAR. RAISING PROPERTY VAULE AND TAXES. ALSO NOT PUTTING MONEY INTO THE LOCAL ECONOMY.

Sharswood

ENDLESS POSSIBILITIES

ENERGY | ENGINEERING | FINANCIAL FEASIBILITY | RESILIENCE | ARCHITECTURE | OPERATIONS | MARKET POTENTIAL | COMFORT & ENVIRONMENT | INNOVATION

RENOVATION AT 1423 N 29TH ST

LOWER NORTH PHILADELPHIA COMMUNITY DEVELOPMENT CORPORATION
Community Members Building Communities

WJE ENGINEERS ARCHITECTS MATERIALS SCIENTISTS
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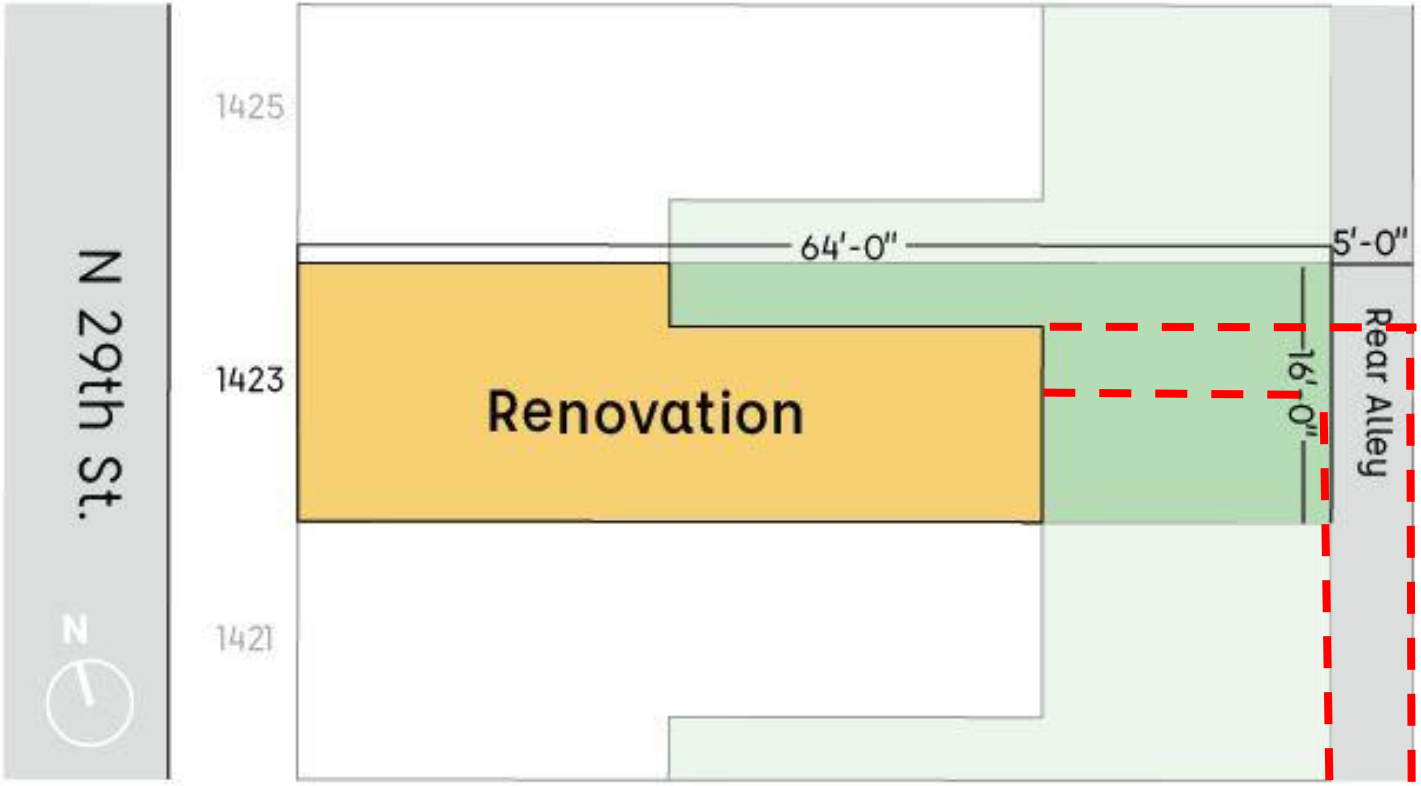
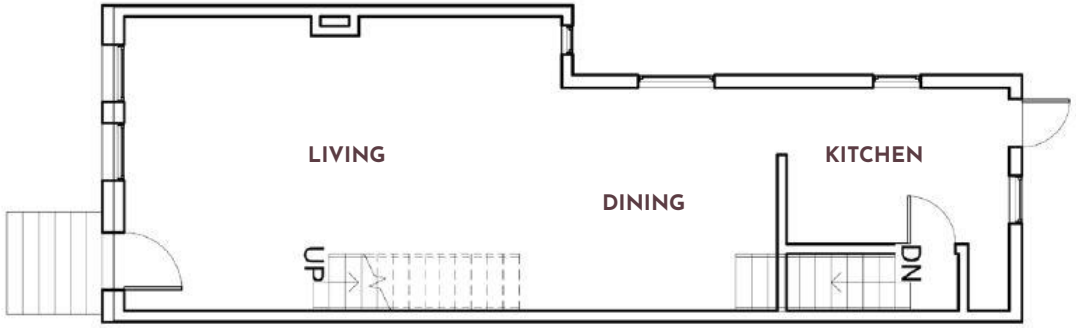
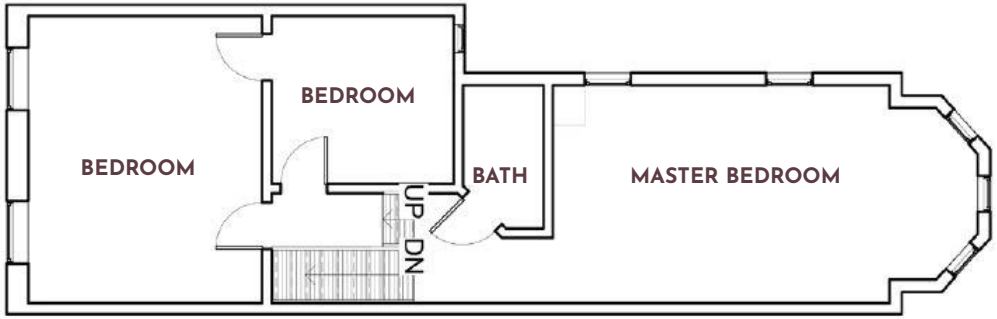


ADA ACCESSIBLE ALLEY



EXISTING 1ST FLOOR PLAN



EXISTING 2ND FLOOR PLAN

CEILING EXPLORATION

EXISTING BRICK CONDITION

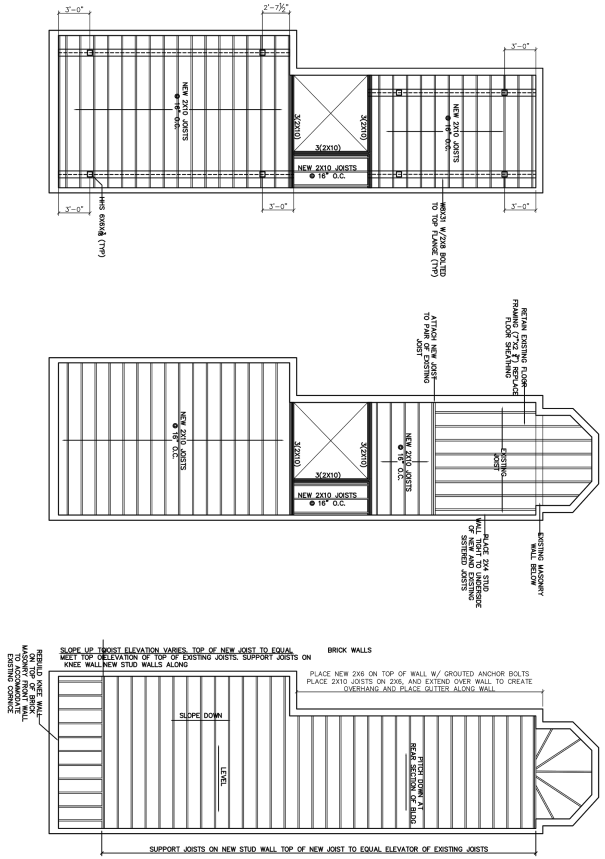
MASTER BEDROOM EXISTING FRAMING

ROOF EXAMINATION

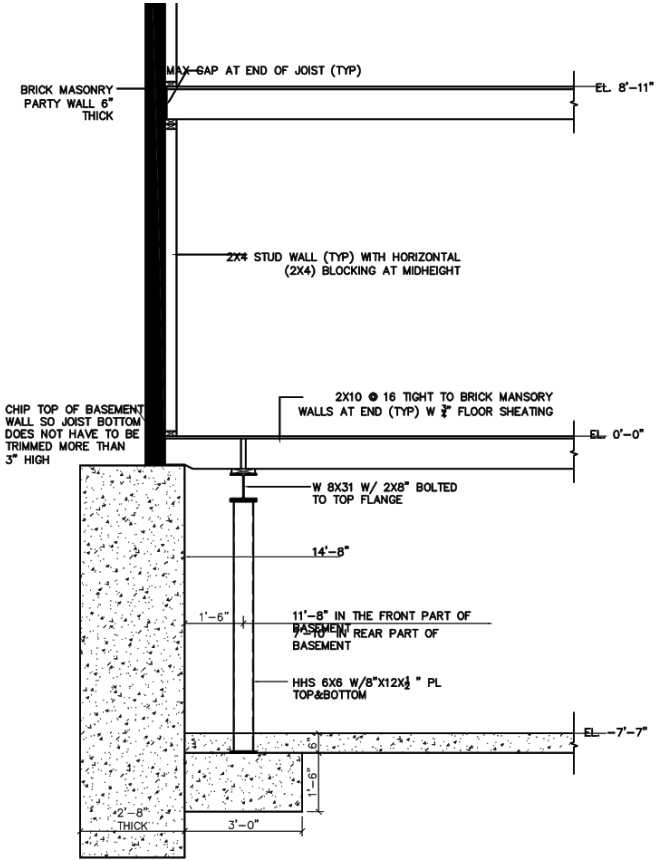
2ND FLOOR CEILING CAVITY

EXISTING LIVING & DINING ROOM

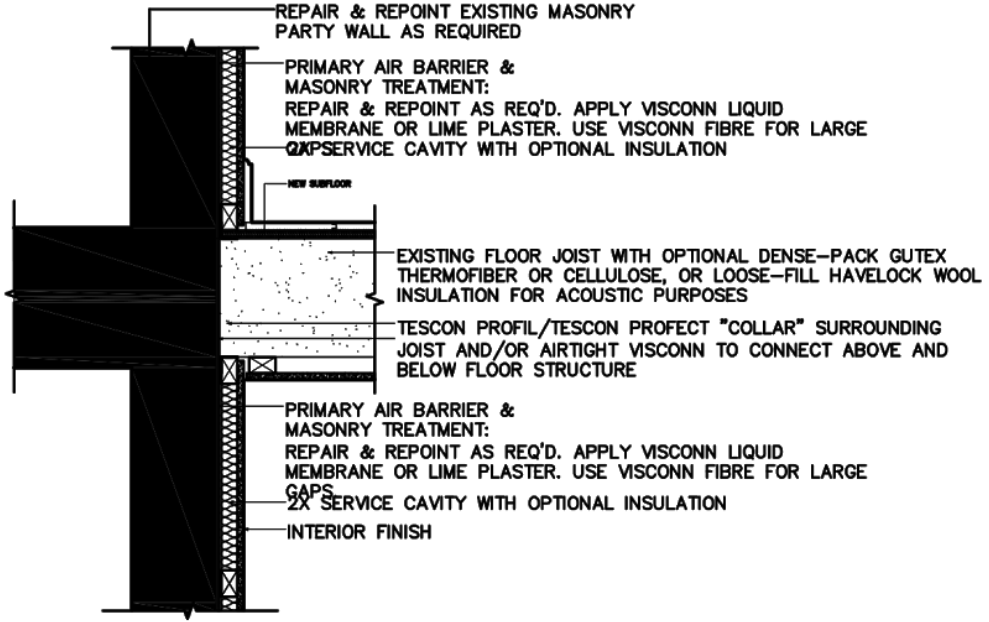
FRAMING AXON



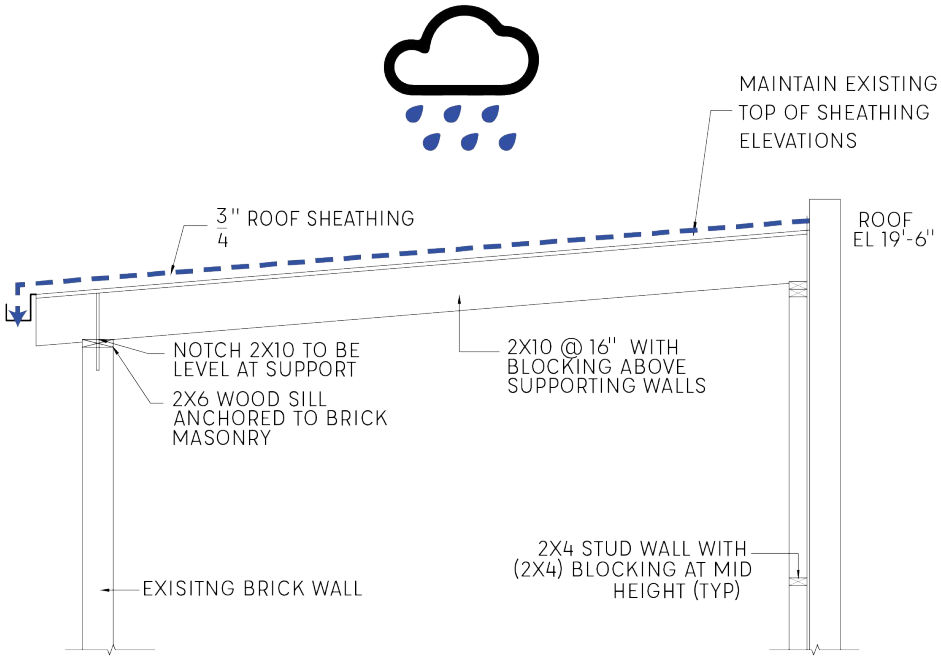
FRAMING PLANS



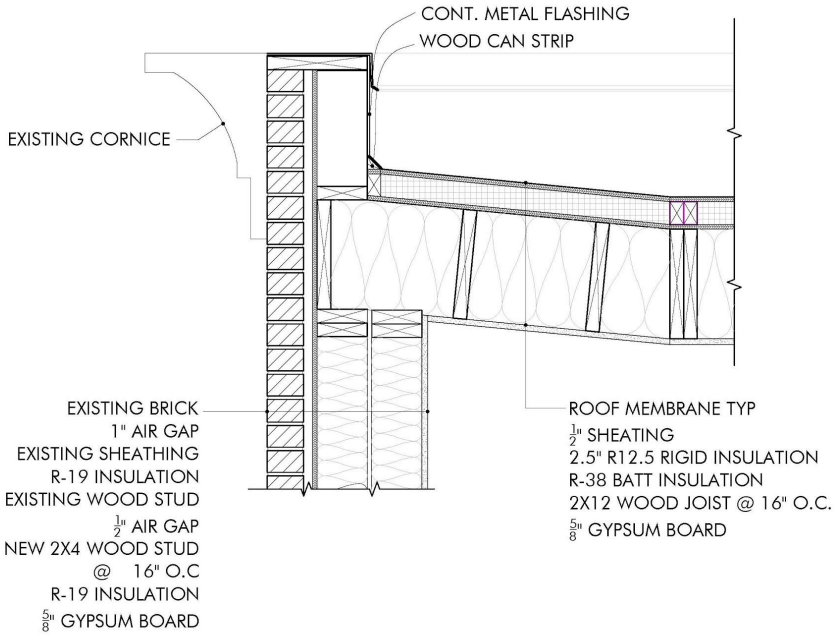
CROSS SECTION



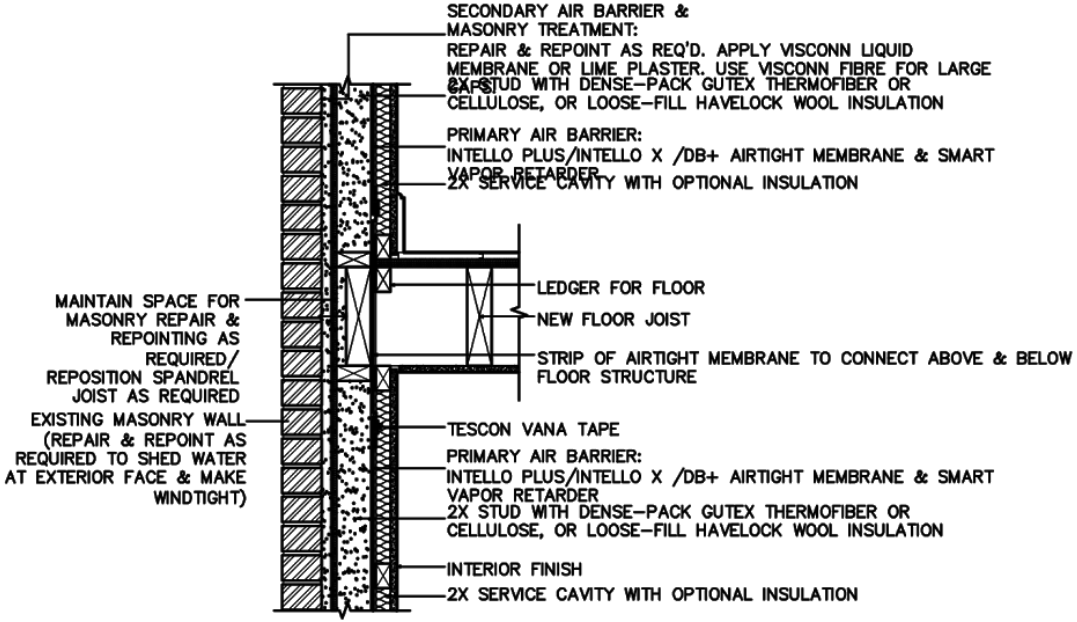
PARTY WALL DETAIL



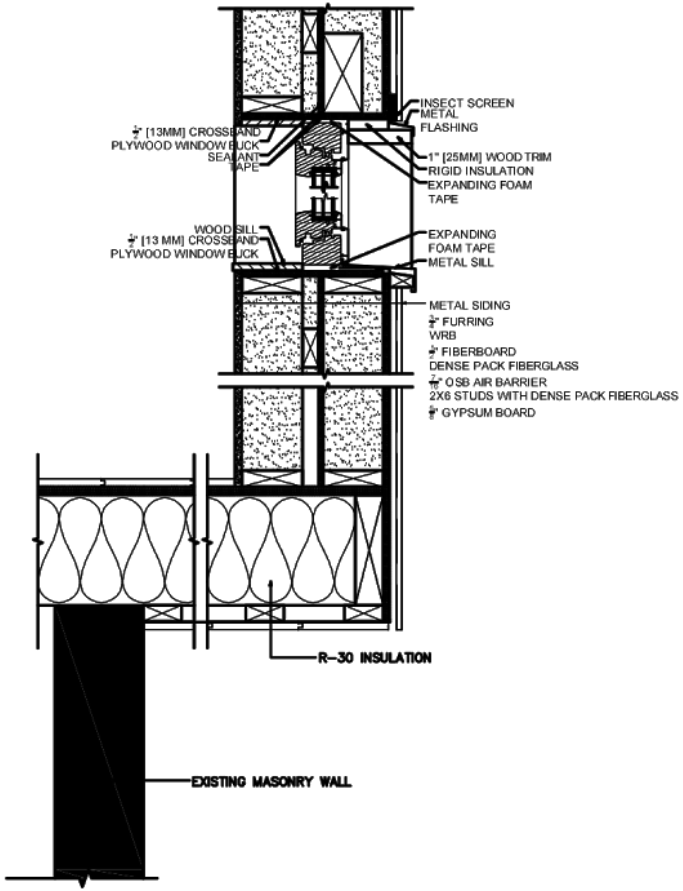
CROSS SECTION



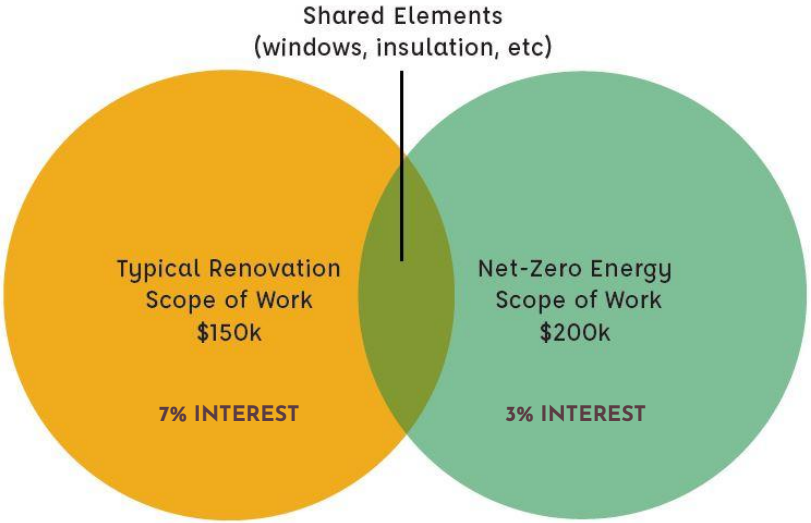
CORNICE DETAIL



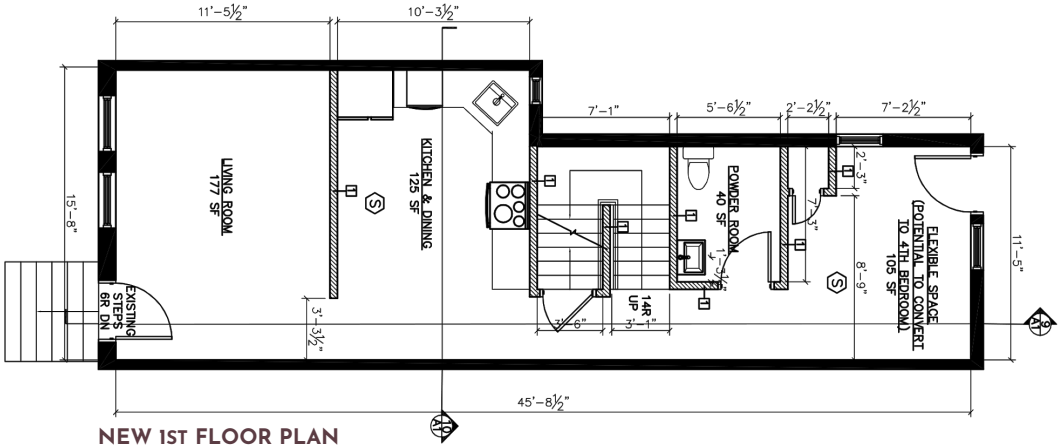
PARTY WALL DETAIL



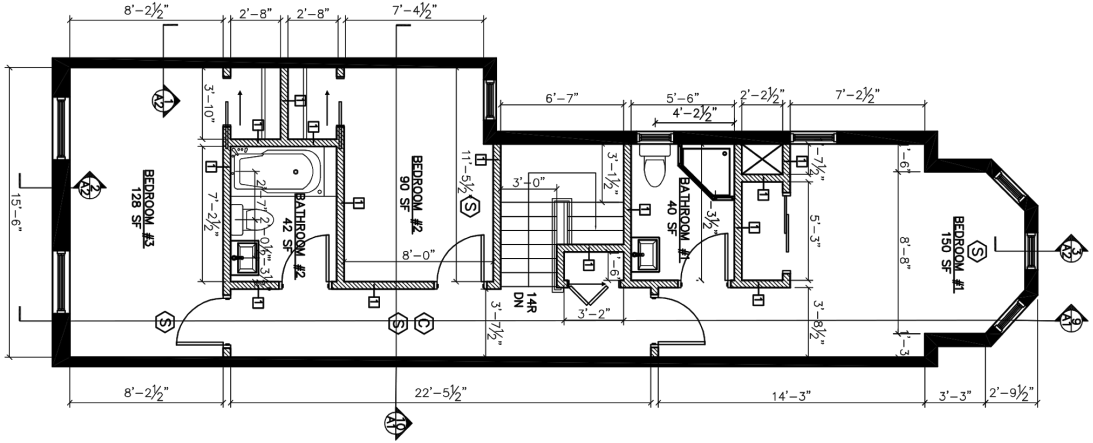
OVERHANG DETAIL



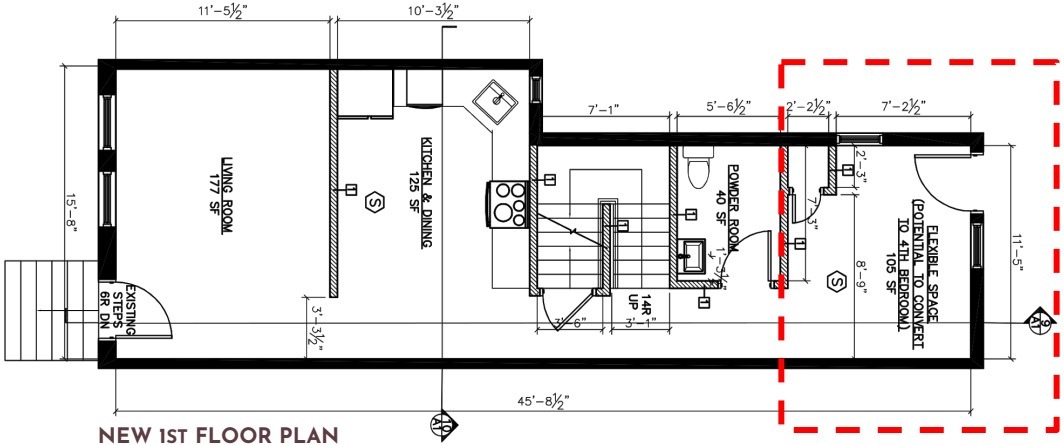
Project:	Attached Housing - Renovation at 1423 N 29th St						
Gross SF	2185						
Date:	15/2/2020						
CSI	Description				Amount	$ / S.F.	% of Total
01	GENERAL REQUIREMENTS				$ 38,758	$ 17.74	19.5%
	PERMITS				$ 2,000	$ 0.92	1.0%
02	EXISTING CONDITIONS				$ 39,025	$ 17.86	19.7%
03	CONCRETE				$ 2,400	$ 1.10	1.2%
04	MASONRY				$ 412	$ 0.19	0.2%
06	WOOD, PLASTICS, AND COMPOSITES				$ 36,206	$ 16.57	18.2%
07	THERMAL AND MOISTURE PROTECTION				$ 11,171	$ 5.11	5.6%
08	OPENINGS				$ 8,763	$ 4.01	4.4%
09	FINISHES				$ 13,026	$ 5.96	6.6%
10	SPECIALITIES				$ 4,200	$ 1.92	2.1%
21	FIRE SUPPRESSION				$ 325	$ 0.15	0.2%
22	PLUMBING				$ 4,641	$ 2.12	2.3%
23	HVAC				$ 1,650	$ 0.76	0.8%
26	ELECTRICAL				$ 20,037	$ 9.17	10.1%
		TOTAL DIRECT COSTS			$ 182,613	83.58	92.0%
	SALES TAX	6.0%			$ -	0.00	0.0%
		$ -				0.00	
				Subtotal	$ 182,613	83.58	92.0%
	GENERAL OVERHEAD	3.0%			$ 5,478	2.51	2.8%
				Subtotal	$ 188,091	86.08	94.7%
	CM FEE/PROFIT	2.0%			$ 3,762	1.72	1.9%
		SUBTOTAL A			$ 191,853	87.80	96.6%
	BONDS	0.0%			$ -	0.00	0.0%
				Subtotal	$ 191,853	87.80	96.6%
	INSURANCE	1.0%			$ 1,919	0.88	1.0%
				Subtotal	$ 193,772	88.68	97.6%
	CONTINGENCY	2.5%			$ 4,796	2.20	2.4%
		SUBTOTAL C			$ 198,568	90.88	100.0%
	DESIGN	0.0%		-			
	OTHER (PLUG)				$ -	0.00	0.0%
		TOTAL			$ 198,568	90.88	100.0%



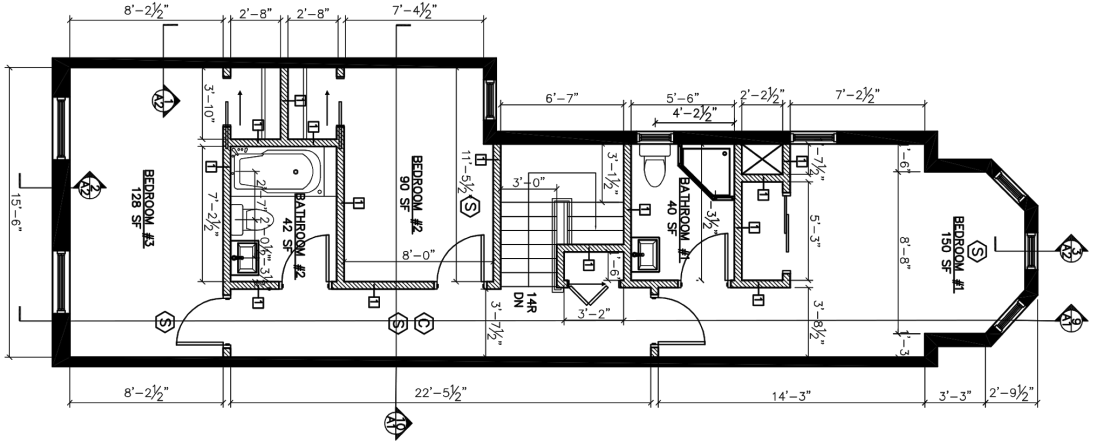
NEW 1ST FLOOR PLAN



NEW 2ND FLOOR PLAN



NEW 1ST FLOOR PLAN



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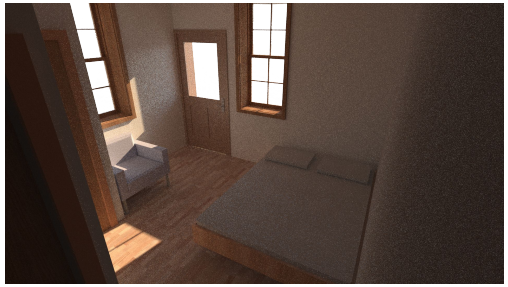
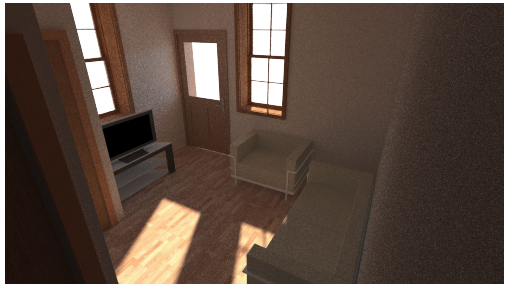
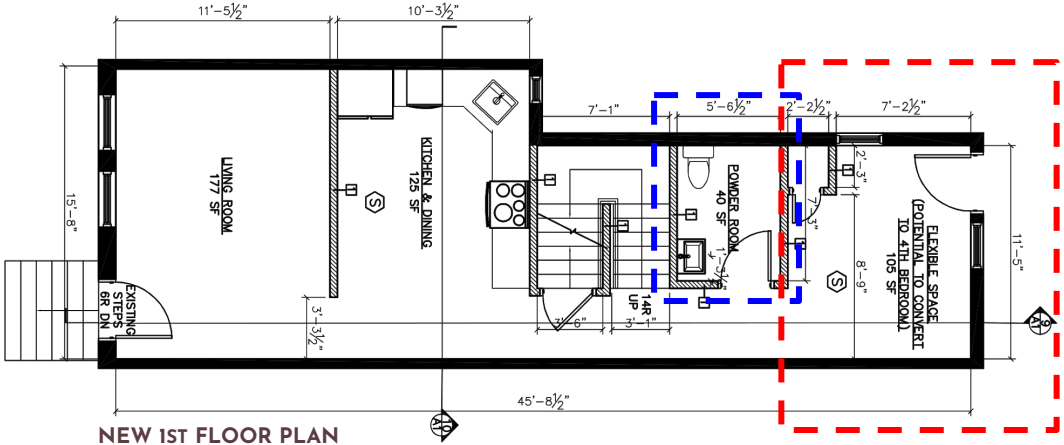


BEDROOM

OFFICE



FAMILY ROOM



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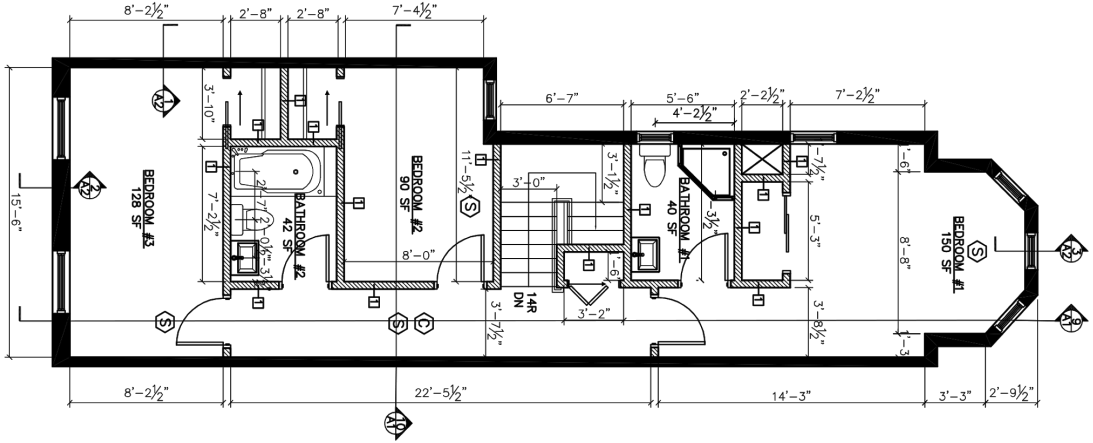
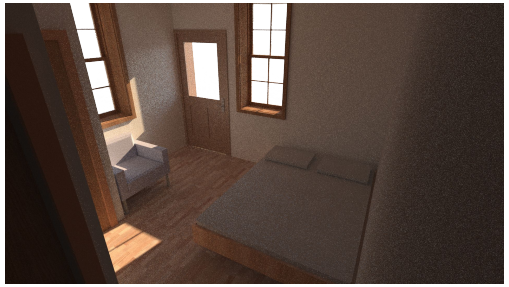
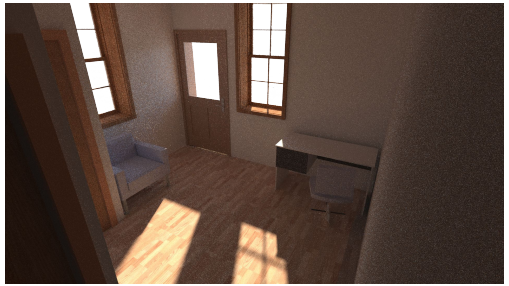


NEW 2ND FLOOR PLAN



BEDROOM



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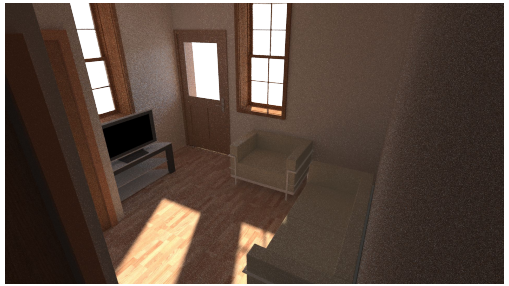
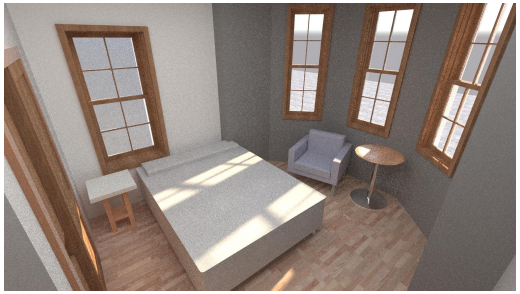
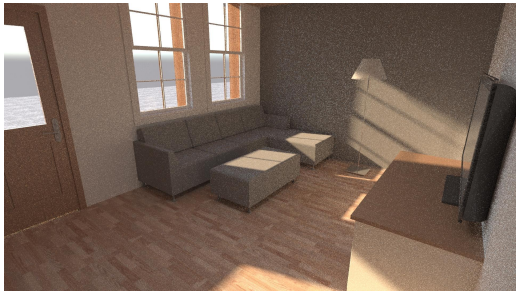
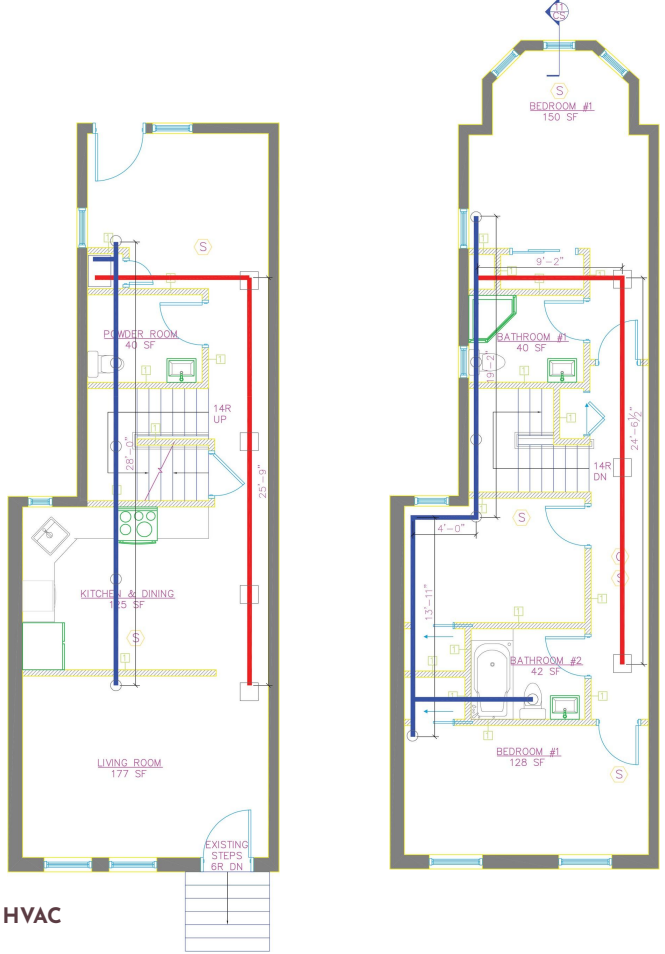


FAMILY ROOM

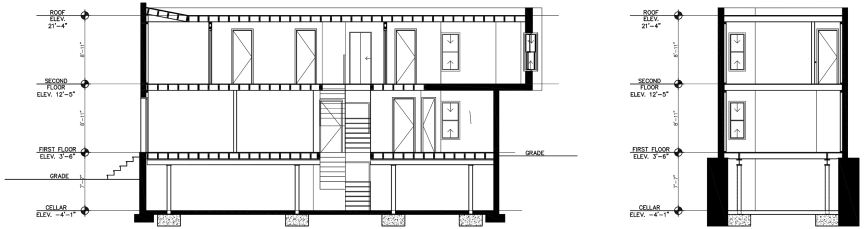






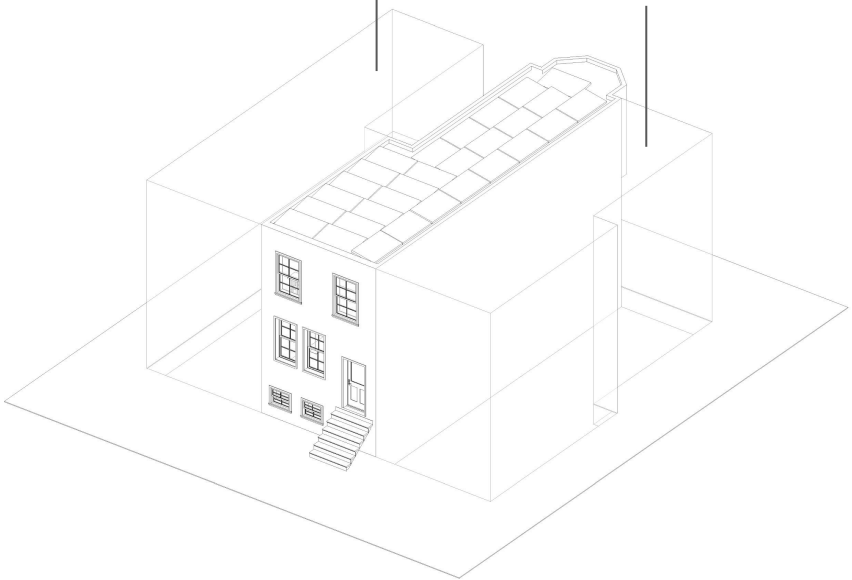
HVAC

SOLAR PANEL SECTION



CROSS SECTIONS

MASSING REPRESENTING ADJACENT PARTY WALL



LEED Metrics

12% sDA

8 DEGREE ROTATION

LEED Metrics

16% sDA

98 DEGREE ROTATION

LEED Metrics

11% sDA

189 DEGREE ROTATION

LEED Metrics

12% sDA

-81 DEGREE ROTATION

RENO EUI BEFORE SOLAR

Whole Building EUI

Single Family Home 13.52 kBtu/ft²/yr

LEED Points - EAc2 Credit

No leed data available for this project

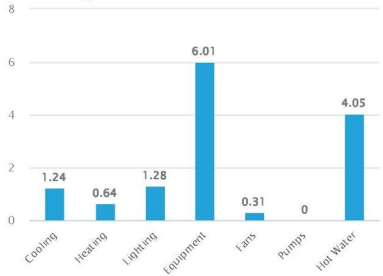
Electricity $872.89 /yr
Natural Gas $0 /yr

CO2 Reduction %

2030 Baseline Emissions 7.2 Tonne/CO2e/yr
You Saved 2.1 Tonne/CO2e/yr
1 Trucks of Ice/yr

Benchmarking Energy

Whole Building Eui Breakdown



Height (ft) 25 | Roof Area (ft²) 676 | Floor Area (ft²) 1845.3 | Skylight Area (ft²)

Rotate Building 0°

Wall Area (ft²)

N	282	NE	30.1	E	1331.1	SE	0
S	428.5	SW	0	W	1300.5	NW	40.7

Glazing Area — Area (ft²) | %

N	45.1	NE	10.4	E	0	SE	0
S	118.5	SW	0	W	33.7	NW	10.4

RENO EUI WITH SOLAR

Whole Building EUI

-11.74

LEED Points - EAc2 Credit

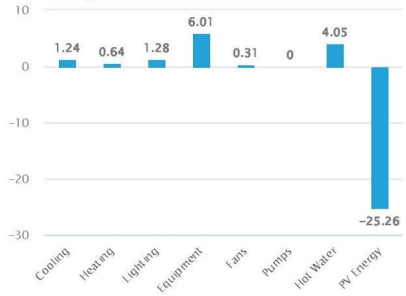
No leed data available for this project

CO2 Reduction %

No Data Available

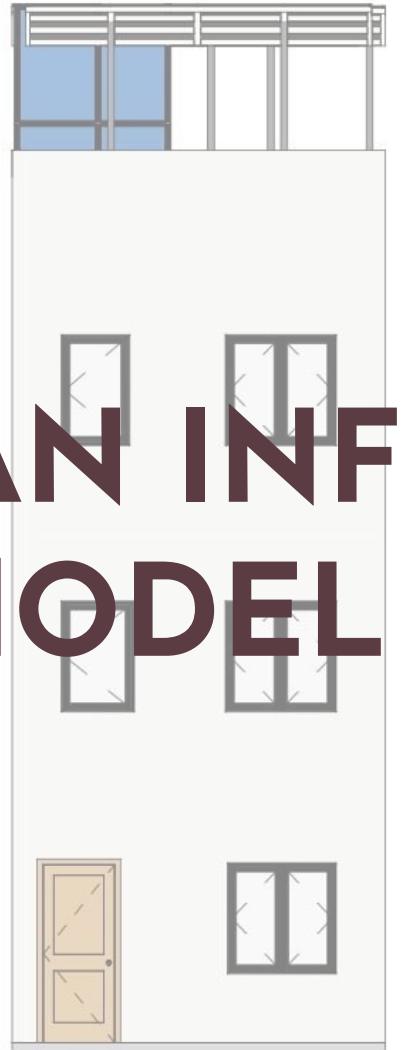
Single Family Home -11.74 kBtu/ft²/yr
Electricity $-757.59 /yr
Natural Gas $0 /yr

Whole Building Eui Breakdown

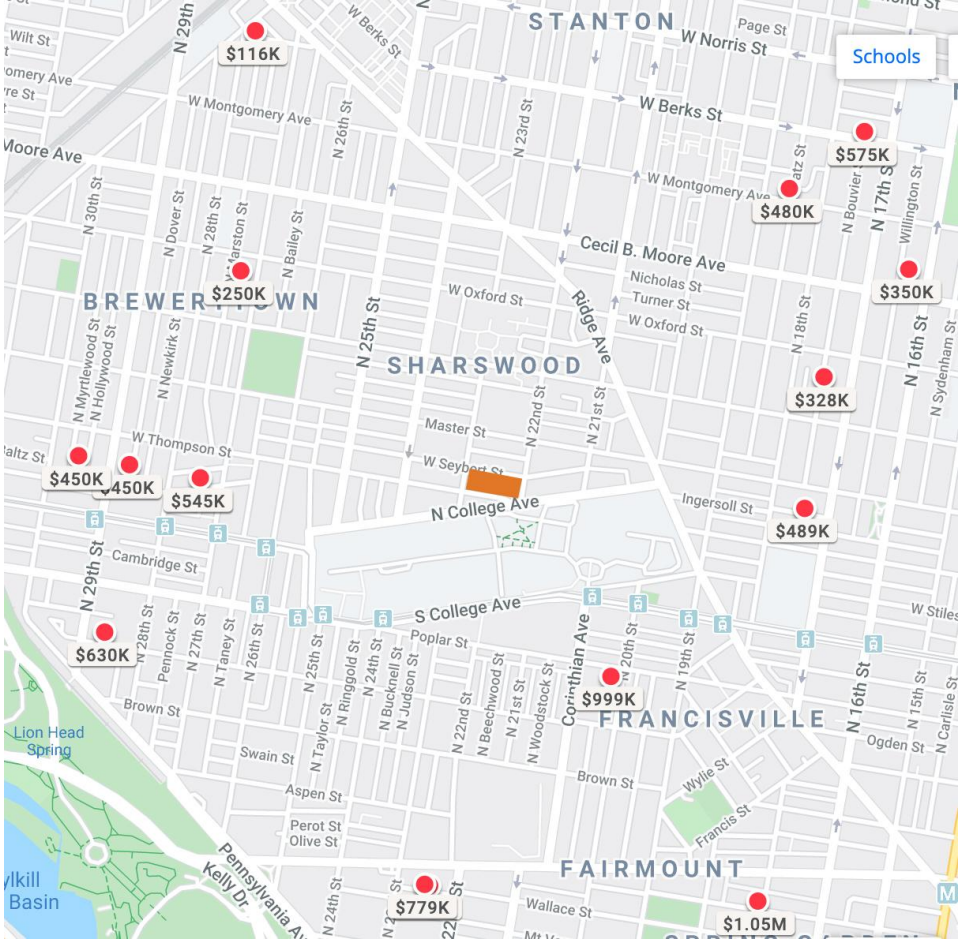


Envelope | Usage and Schedules | Building System | Energy Generation | General

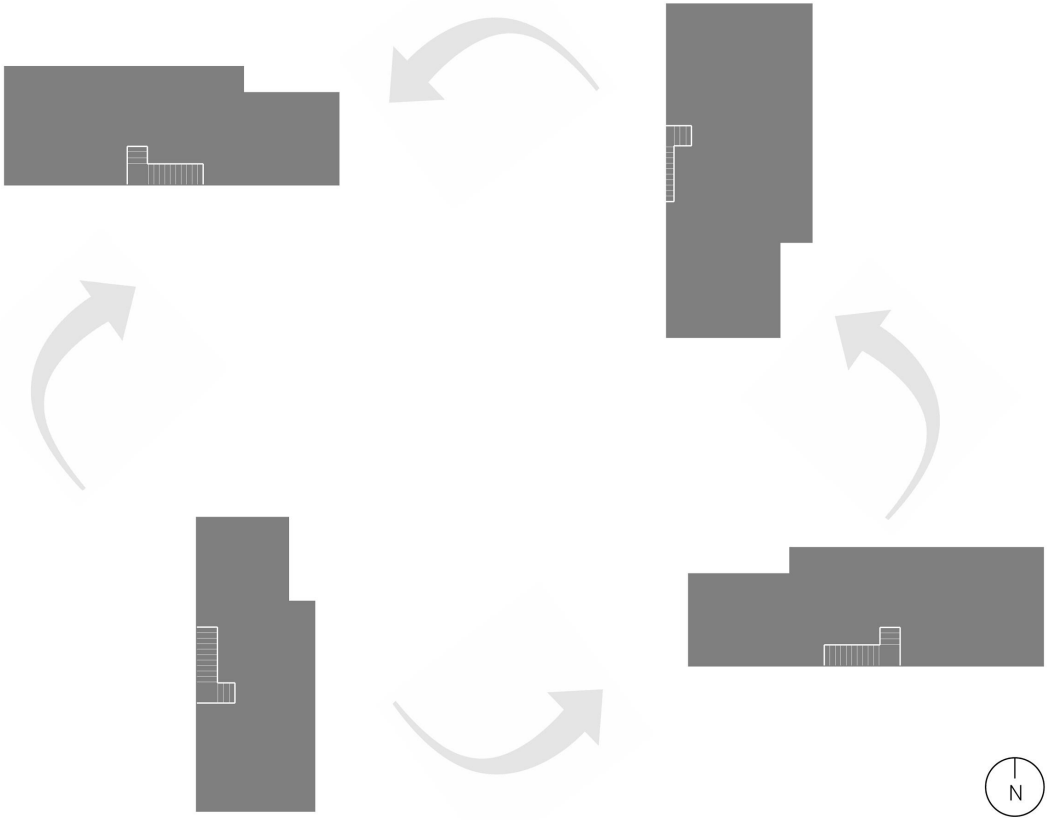
Roof R-Value (h ft² F/BTU)	50
Wall R-Value (h ft² F/BTU)	35
Glazing U-Value (BTU/h ft² F)	0.12
Glazing SHGC	0.38
Skylight U-Value (BTU/h ft² F)	0.3
Skylight SHGC	0.4
Envelope Heat Capacity	Very Heavy
Blinds/Curtains/Shades	(Exterior) Blinds
Wall Emissivity	0.9

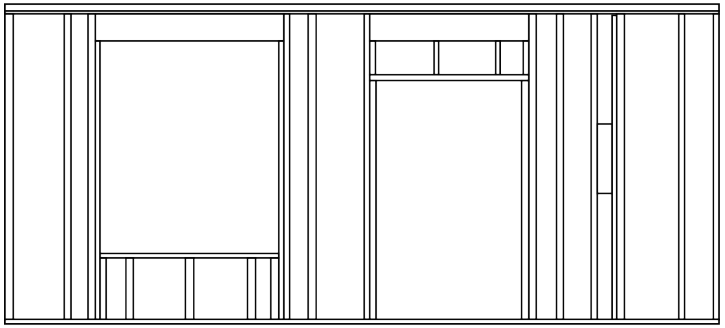


URBAN INFILL MODEL

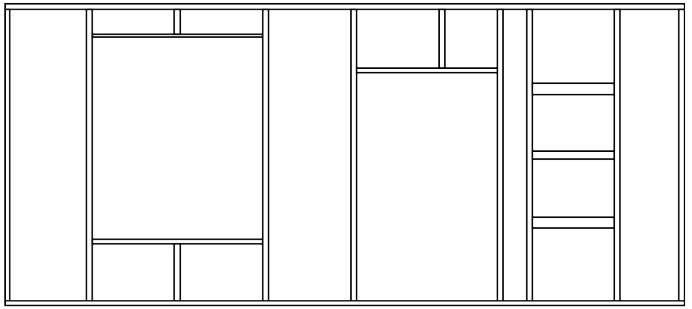

Schools
$116K
$575K
$480K
$350K
$250K
$328K
$450K
$450K
$545K
$489K
$630K
$999K
$779K
$1.05M
STANTON
SHARSWOOD
FRANCISVILLE
FAIRMOUNT
W Norris St
W Berks St
W Montgomery Ave
Cecil B. Moore Ave
W Oxford St
N College Ave
S College Ave
Master St
W Thompson St
Cambridge St
Brown St
Poplar St
Swain St
Aspen St
Perot St
Olive St
Wallace St
Ingersoll St
Ogden St
Wylie St
Francis St
N 25th St
N 29th St
N 16th St
Ridge Ave
Corinthian Ave
Lion Head Spring
Pennsylvania Ave
Kelly Dr


UP
DW
KICHEN
117 SF
REF.
LIVING
ROOM
189 SF
BEDROOM
1
87 SF
DN
BATHROOM
46 SF
BEDROOM
2
132 SF
MASTER
BATH
88 SF
MASTER
BED
184 SF

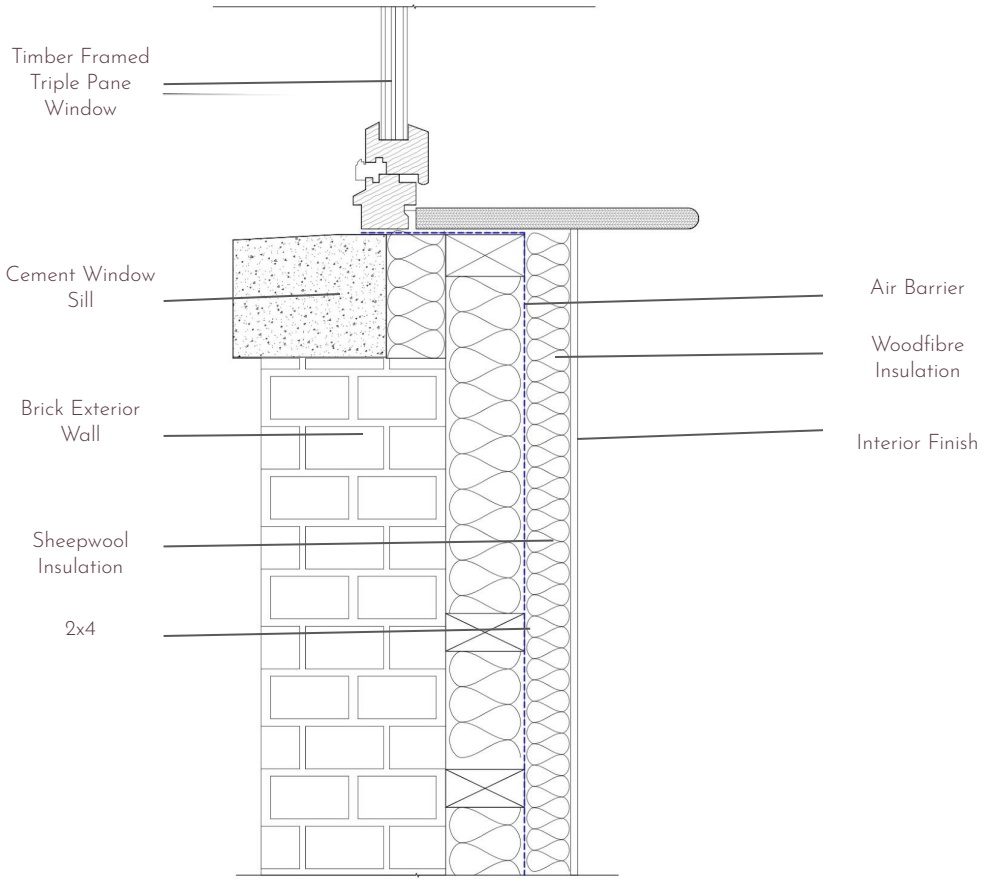

N



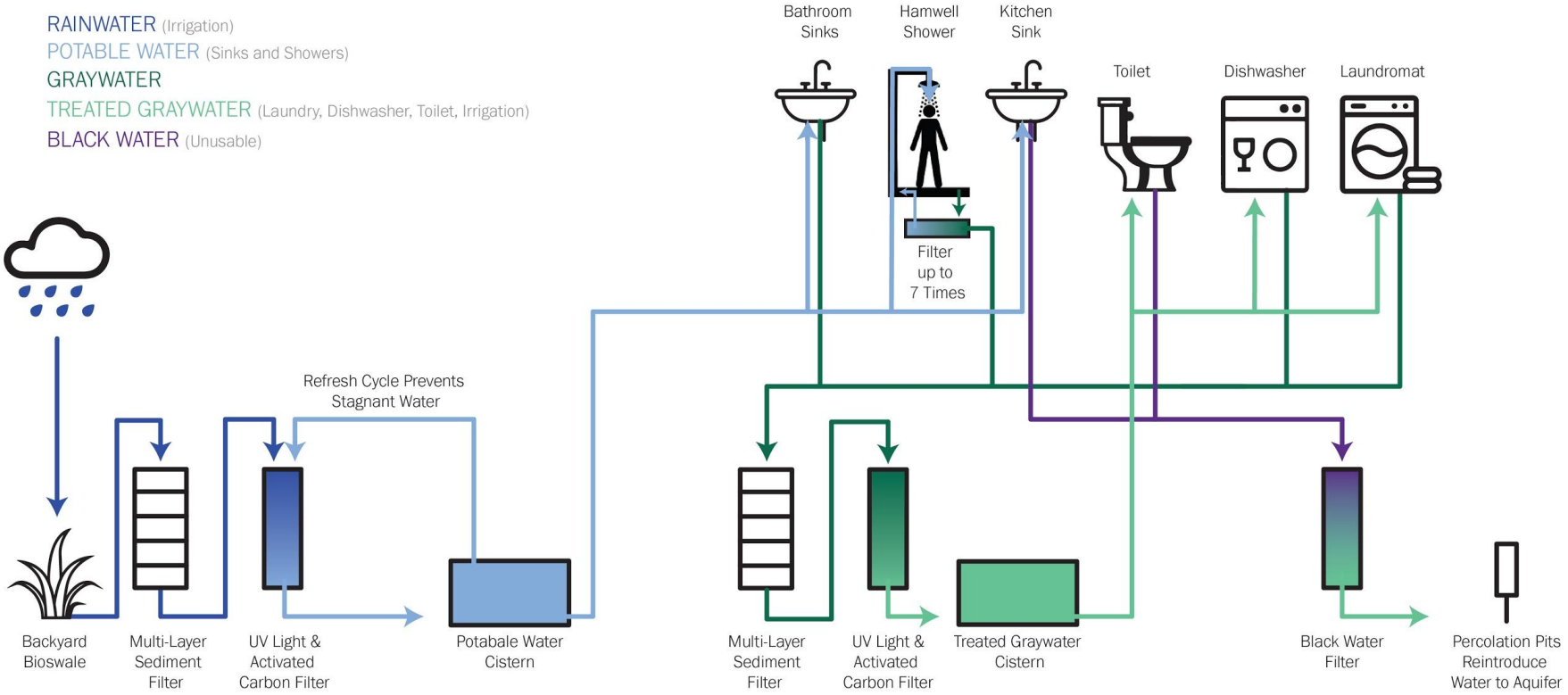
The Old Way
2x4 @ 16" O.C.
R-11

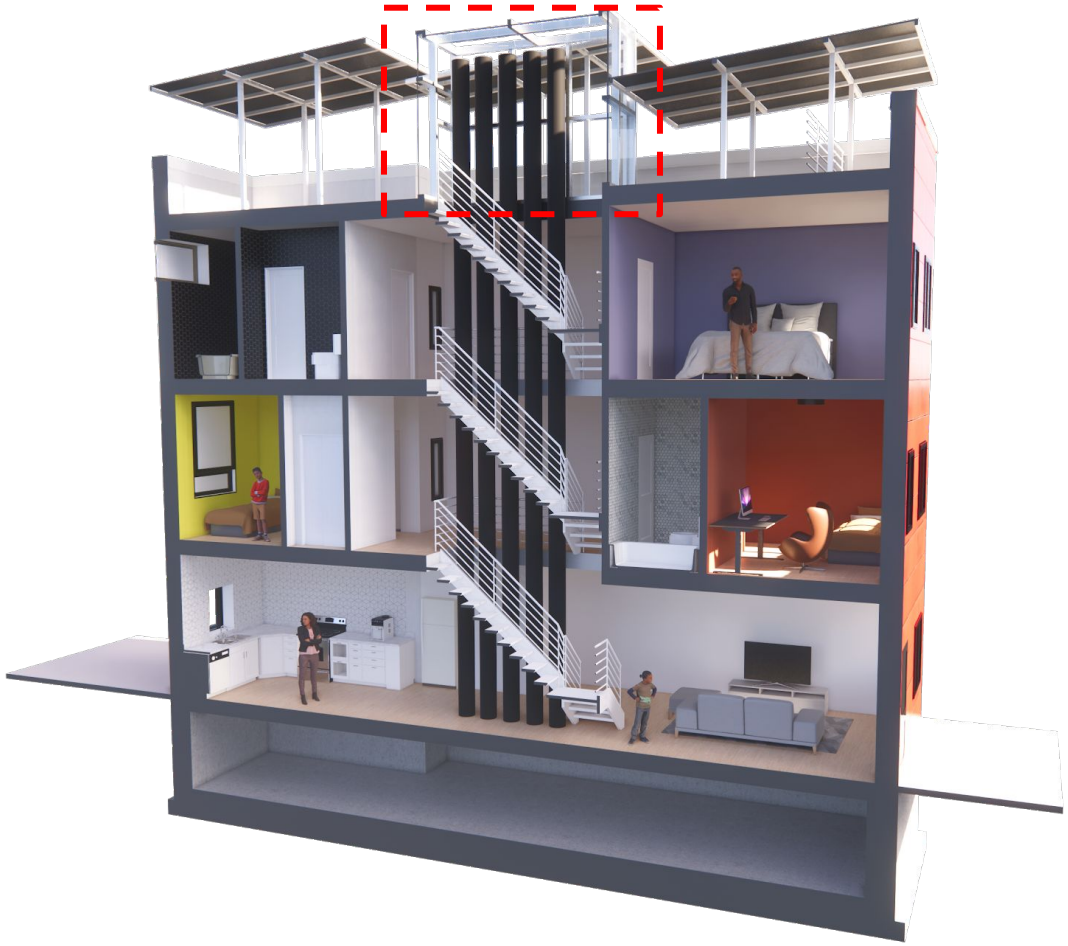


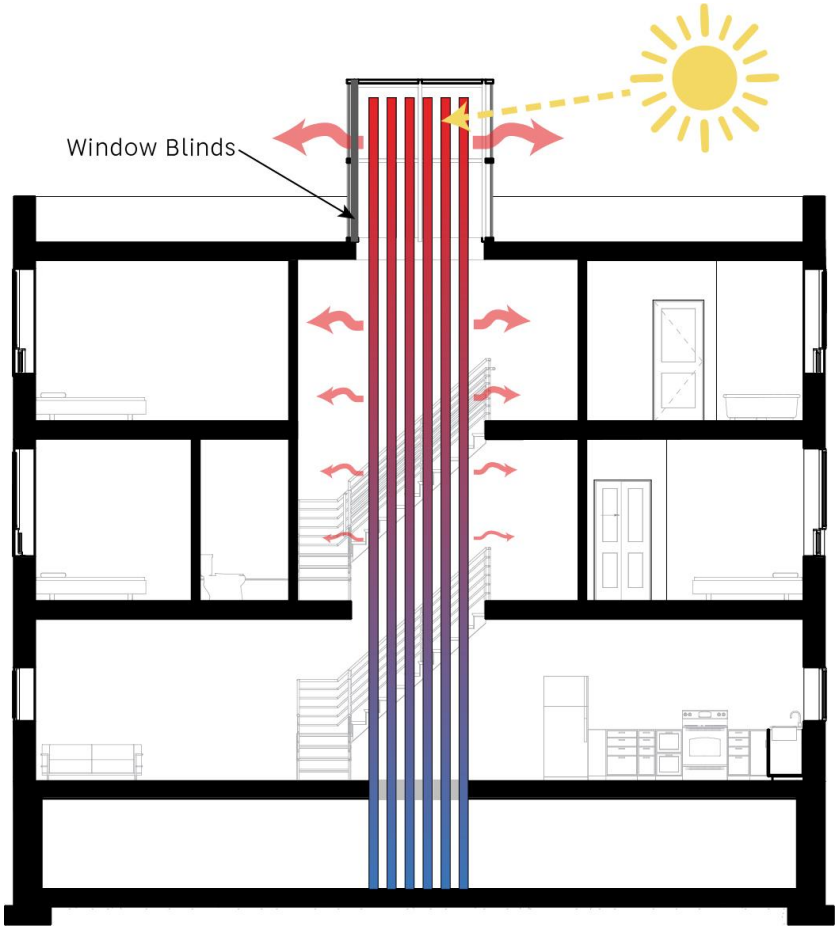
The Advanced Framing
2x6 @ 24" O.C.
R-19

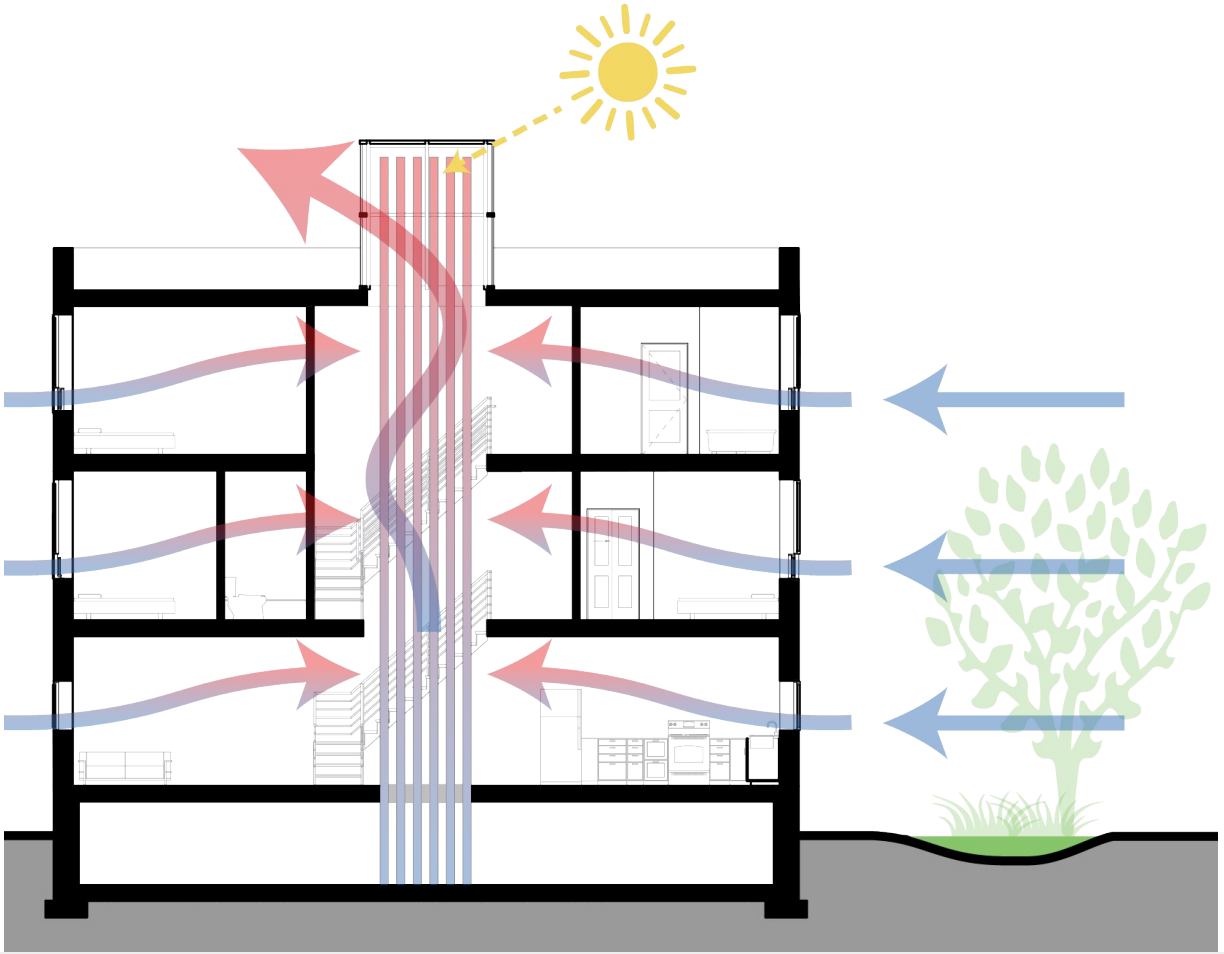

Timber Framed Triple Pane Window
Cement Window Sill
Brick Exterior Wall
Sheepwool Insulation
2x4
Air Barrier
Woodfibre Insulation
Interior Finish

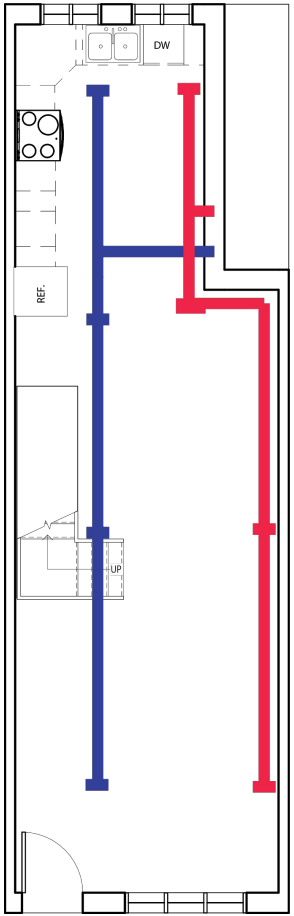
Project:	Attached Housing - Infill Unit				
Gross SF	2340				
Date:	15/2/2020				
WBS/CSI #	Description		Amount	$ / S.F.	% of Total
00	PERMIT		$ 2,000	$ 0.85	
01	GENERAL REQUIREMENTS		$ 113.645	$ 48.57	30.6%
02	EXISTING CONDITIONS		$ 1,500	$ 0.64	0.4%
03	CONCRETE		$ 12,000	$ 5.13	3.2%
04	MASONRY		$ 5,000	$ 2.14	1.3%
06	WOOD, PLASTICS, AND COMPOSITES		$ 63.635	$ 27.19	17.1%
07	THERMAL AND MOISTURE PROTECTION		$ 46.301	$ 19.79	12.5%
08	OPENINGS		$ 10.126	$ 4.33	2.7%
09	FINISHES		$ 36.921	$ 15.78	9.9%
10	SPECIALITIES		$ 18.075	$ 7.72	4.9%
21	FIRE SUPPRESSION		$ 225	$ 0.10	0.1%
22	PLUMBING		$ 8.485	$ 3.63	2.3%
23	HVAC		$ 12.265	$ 5.24	3.3%
26	ELECTRICAL		$ 16.484	$ 7.04	4.4%
		TOTAL DIRECT COSTS	$ 344.662	147.29	92.9%
	SALES TAX	6.0% $ -	$ -	0.00 0.00	0.0%
		Subtotal	$ 344,662	147.29	92.9%
	GENERAL OVERHEAD	3.0%	$ 10,340	4.42	2.8%
		Subtotal	$ 355,002	151.71	95.6%
	CM FEE/PROFIT	2.0%	$ 7,100	3.03	1.9%
		SUBTOTAL A	$ 362,102	154.74	97.6%
	BONDS	1.0%	$ 3,621	1.55	1.0%
		Subtotal	$ 365,723	156.29	98.5%
	INSURANCE	1.0%	$ 3,621	1.55	1.0%
		Subtotal	$ 369,344	157.84	99.5%
	CONTINGENCY	0.5%	$ 1,811	0.77	0.5%
		SUBTOTAL C	$ 371,154	158.61	100.0%
	DESIGN	0.0% -			
	OTHER (PLUG)		$ -	0.00	0.0%
		TOTAL	$ 371,154	158.61	100.0%

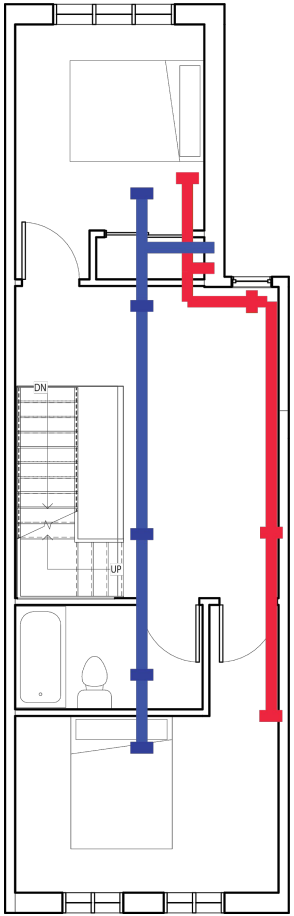

RAINWATER (Irrigation)
POTABLE WATER (Sinks and Showers)
GRAYWATER
TREATED GRAYWATER (Laundry, Dishwasher, Toilet, Irrigation)
BLACK WATER (Unusable)
Bathroom Sinks
Hamwell Shower
Kitchen Sink
Toilet
Dishwasher
Laundromat
Filter up to 7 Times
Refresh Cycle Prevents Stagnant Water
Backyard Bioswale
Multi-Layer Sediment Filter
UV Light & Activated Carbon Filter
Potabale Water Cistern
Multi-Layer Sediment Filter
UV Light & Activated Carbon Filter
Treated Graywater Cistern
Black Water Filter
Percolation Pits Reintroduce Water to Aquifer

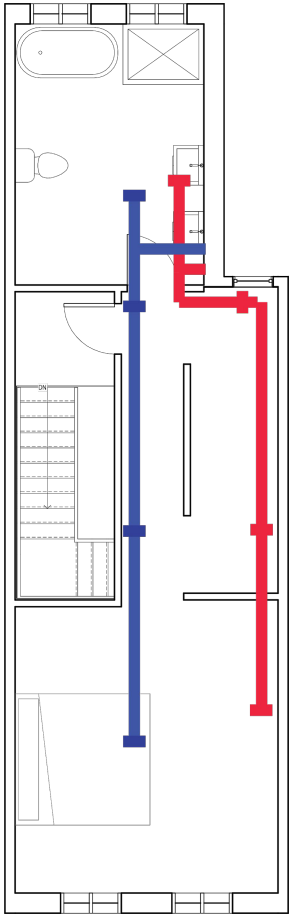


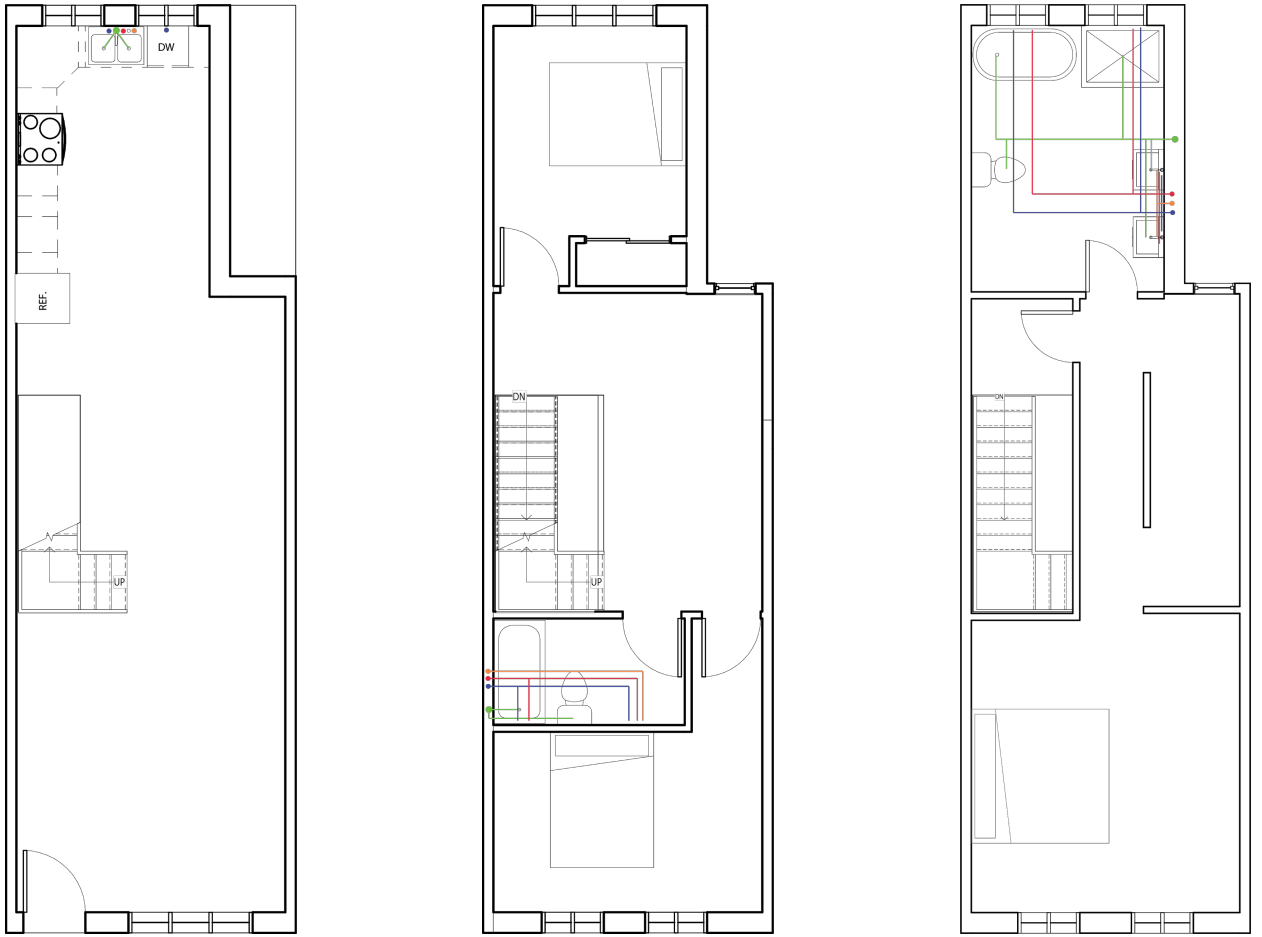

Window Blinds

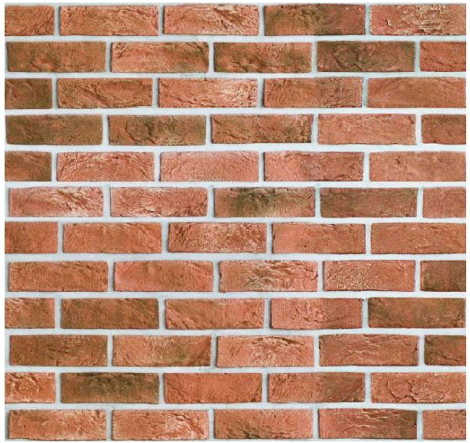


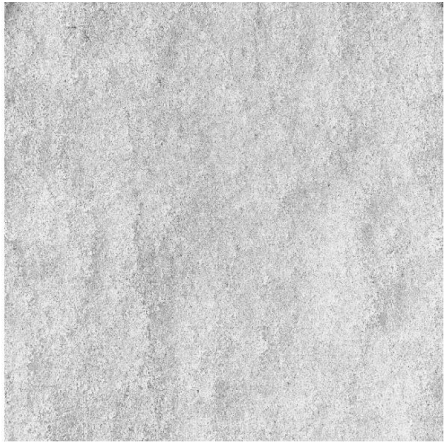

DW
REF.
UP

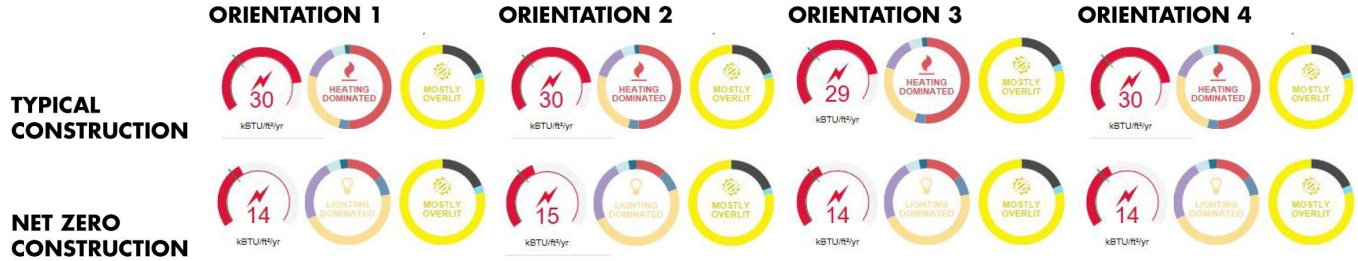

DN
UP

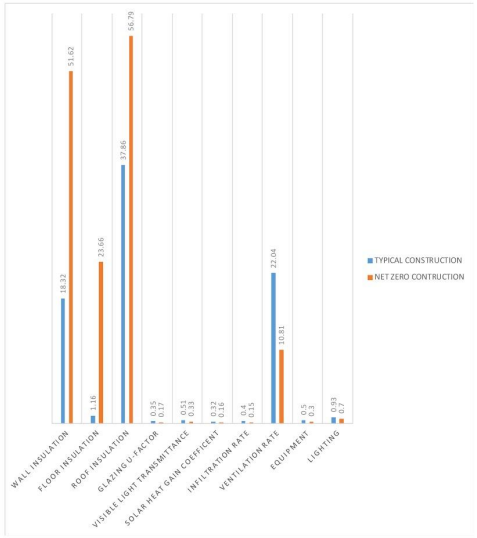

DN

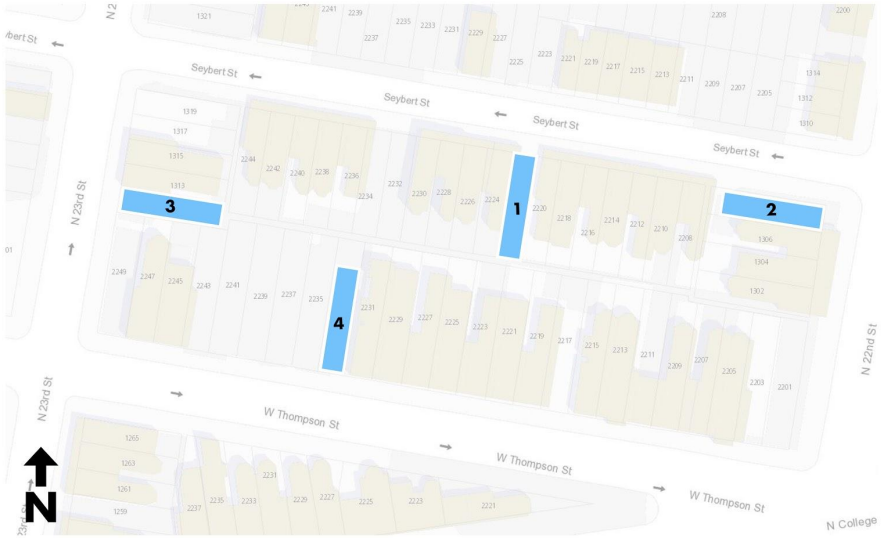

DW
REF.
UP
DN
UP
DN




ORIENTATION 1
ORIENTATION 2
ORIENTATION 3
ORIENTATION 4
TYPICAL CONSTRUCTION
NET ZERO CONSTRUCTION
30
29
14
15
kBTU/ft²/yr
HEATING DOMINATED
LIGHTING DOMINATED
MOSTLY OVERLIT


18.32
51.62
1.16
23.66
37.86
56.79
0.35
0.17
0.51
0.33
0.32
0.16
0.15
0.15
22.04
10.81
0.5
0.3
0.93
0.7
WALL INSULATION
FLOOR INSULATION
ROOF INSULATION
GLAZING U-FACTOR
VISIBLE LIGHT TRANSMITTANCE
SOLAR HEAT GAIN COEFFICIENT
INFILTRATION RATE
VENTILATION RATE
EQUIPMENT
LIGHTING
TYPICAL CONSTRUCTION
NET ZERO CONTRUCTION


Seybert St
N 23rd St
W Thompson St
N 22nd St
N College
1
2
3
4
N

INFILL EUI BEFORE SOLAR

Baseline Energy

Whole Building EUI

Single Family Home: 13.52 kBtu/ft²/yr

LEED Points - EAc2 Credit

No leed data available for this project

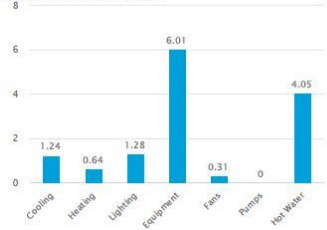
Electricity $872.89 /yr
Natural Gas $0 /yr

CO2 Reduction %

2030 Baseline Emissions: 7.2 Tonne/CO2e/yr
You Saved: 2.1 Tonne/CO2e/yr
1 Trucks of Ice/yr

Benchmarking Energy

Whole Building Eui Breakdown



Height (ft) 32 | Roof Area (ft²) 509.6 | Floor Area (ft²) 1943 | Skylight Area (ft²) 0

Rotate Building: 0°

Wall Area (ft²)

N	1726.3	NE	0	E	437.8	SE	0
S	1775.2	SW	0	W	452.3	NW	0

Glazing Area: Area (ft²) | %

N	84.8	NE	0	E	112	SE	0
S	65.6	SW	0	W	84.5	NW	0

INFILL EUI WITH SOLAR

Whole Building EUI

−8.58

Single Family Home: -8.58 kBtu/ft²/yr

LEED Points - EAc2 Credit

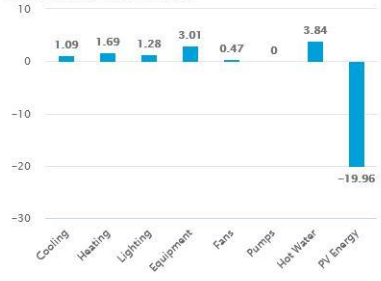
No leed data available for this project

Electricity $-583.24 /yr
Natural Gas $0 /yr

CO2 Reduction %

No Data Available

Whole Building Eui Breakdown

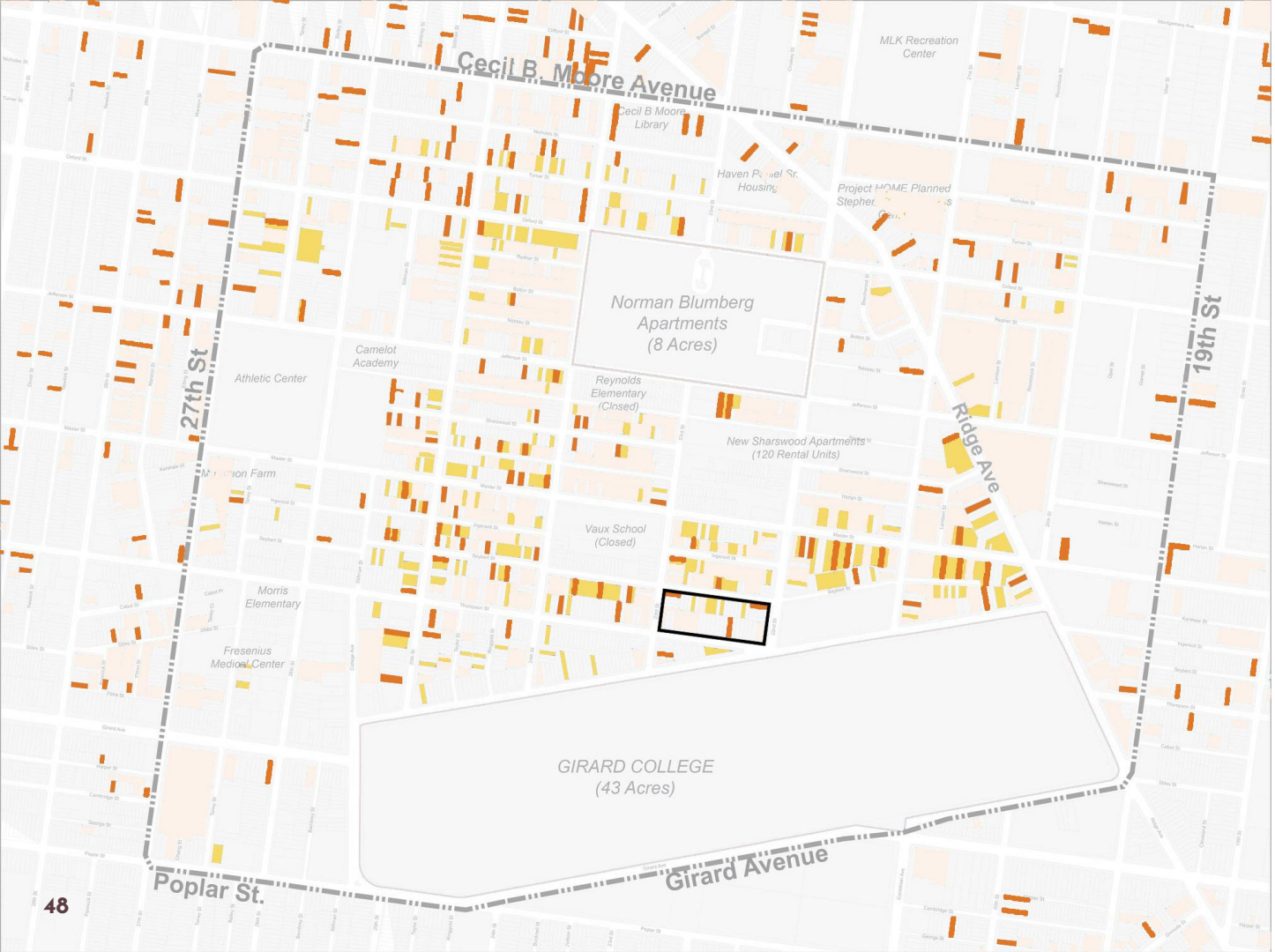


Envelope | Usage and Schedules | Building System | Energy Generation | General

Roof R-Value (h ft² F/BTU)	50
Wall R-Value (h ft² F/BTU)	35
Glazing U-Value (BTU/h ft² F)	0.15
Glazing SHGC	0.38
Skylight U-Value (BTU/h ft² F)	0.15
Skylight SHGC	0.38
Envelope Heat Capacity	Very Heavy
Blinds/Curtains/Shades	(Exterior) Blinds
Wall Emissivity	0.9

ENERGY | ENGINEERING | FINANCIAL FEASIBILITY | RESILIENCE | ARCHITECTURE | OPERATIONS | MARKET POTENTIAL | COMFORT & ENVIRONMENT | INNOVATION

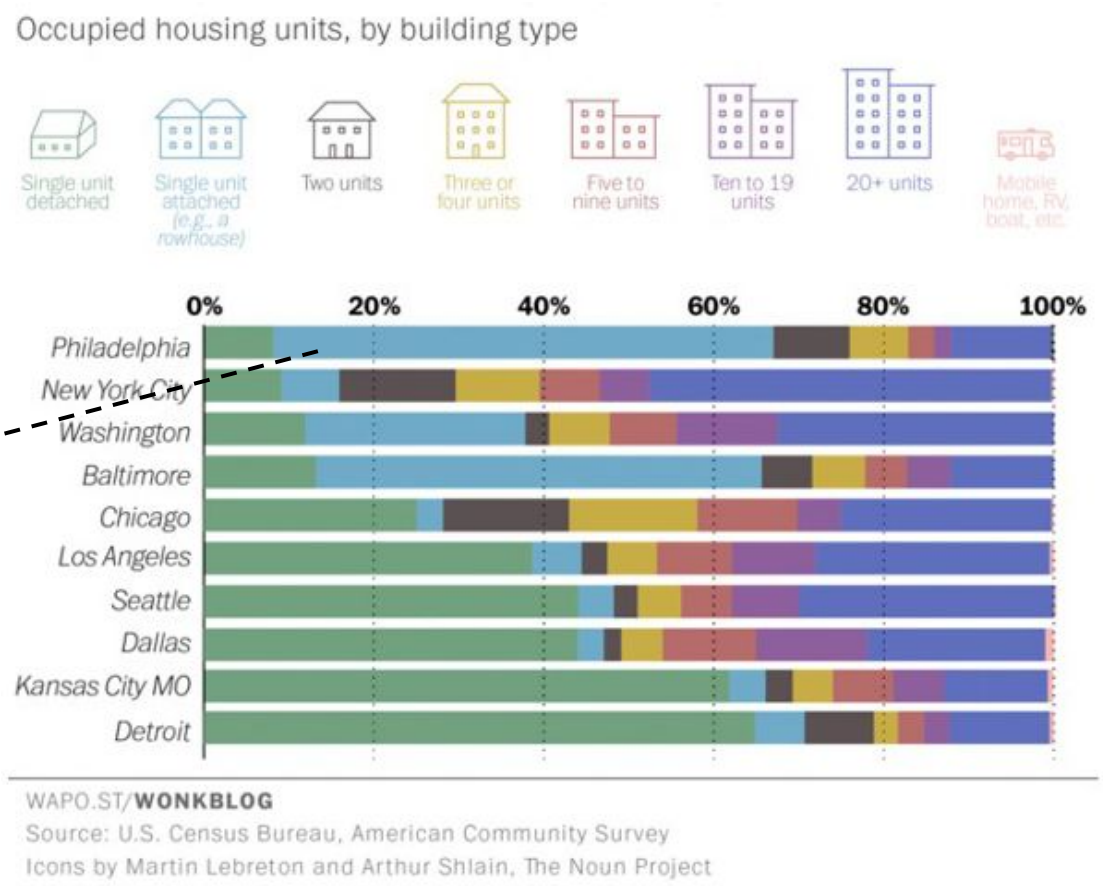
WHY IT MATTERS



VACANT EXISTING BUILDINGS
245

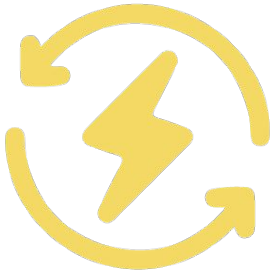
"MISSING TEETH"
228

660,000 HOMES

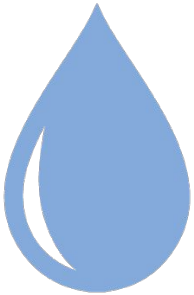


ATTACHED HOUSING BY CITY

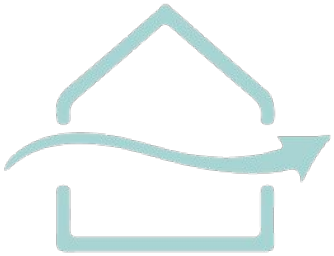
TECHNICAL GOALS



NET ZERO ENERGY

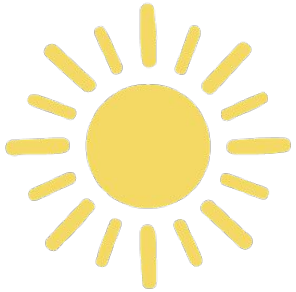


NET ZERO WATER

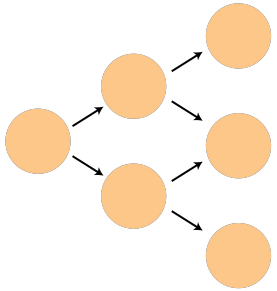


PASSIVE VENTILATION

OFF THE GRID



NATURAL LIGHT



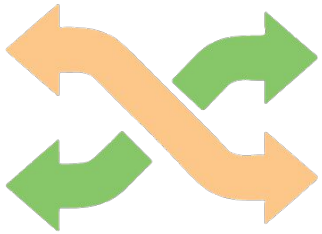
REPLICABILITY

COMMUNITY GOALS

HOME OWNERSHIP

ACCESSIBILITY

AFFORDABILITY

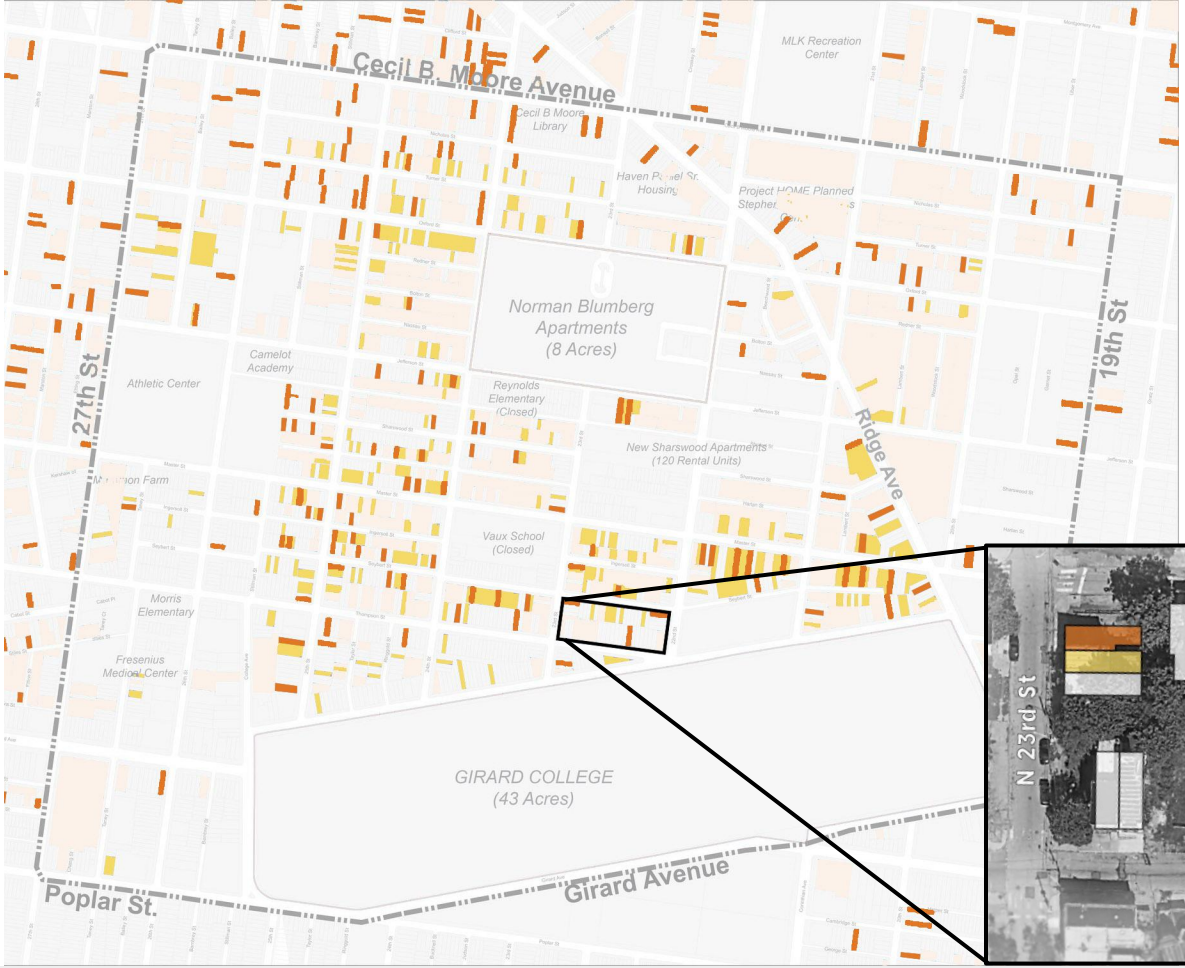


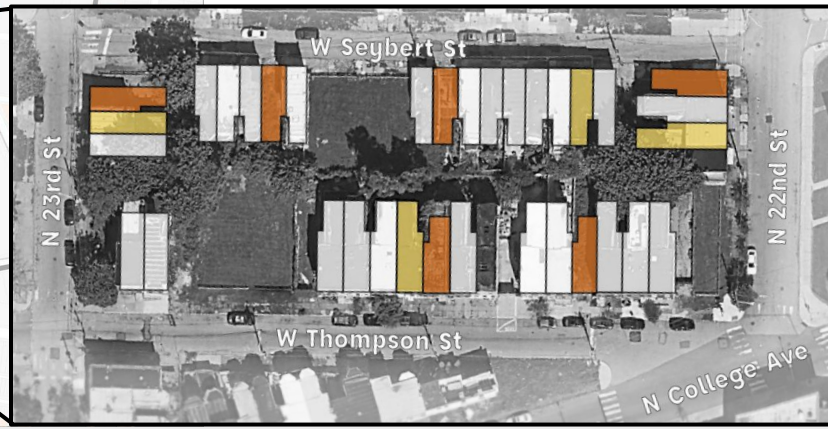
FLEXIBLE SPACE

AGING IN PLACE

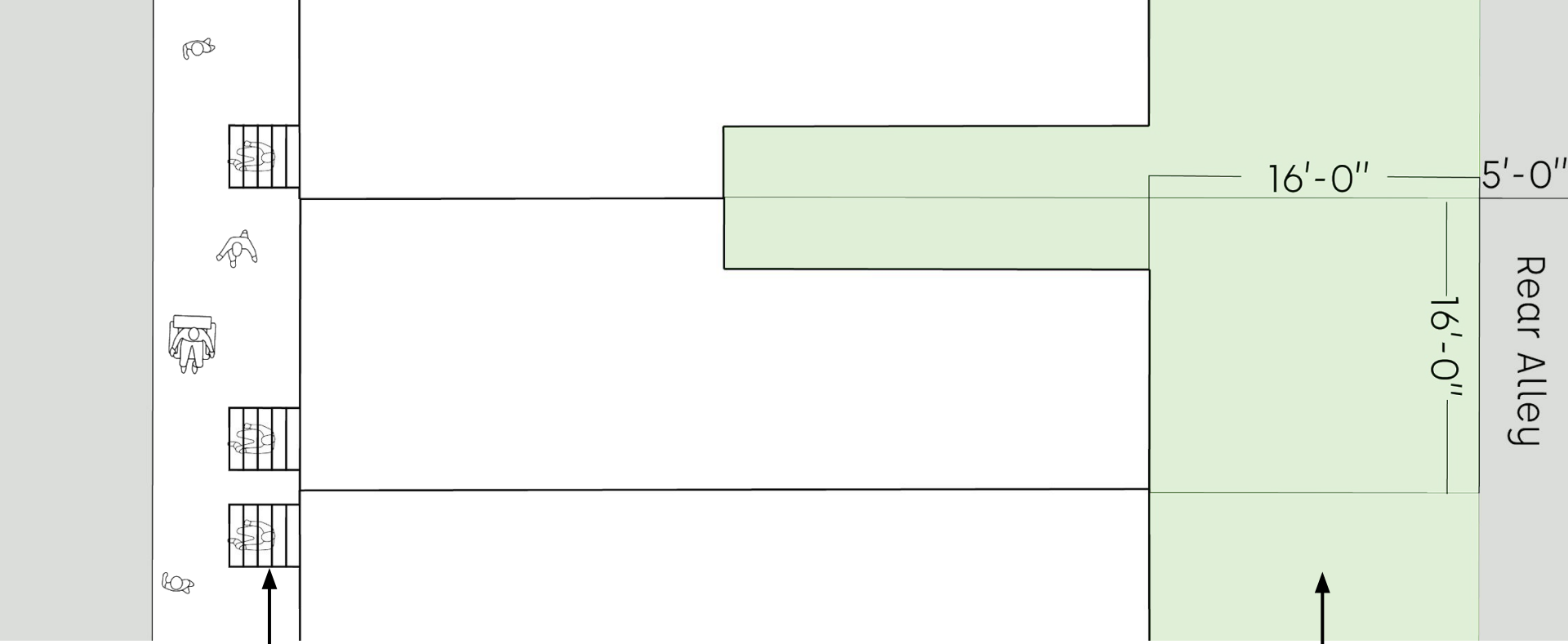
FOOD GROWTH

BLOCK SCALE INTERVENTION


Cecil B. Moore Avenue
MLK Recreation Center
Cecil B Moore Library
Haven Panel Sr. Housing
Project HOME Planned
Norman Blumberg Apartments (8 Acres)
Camelot Academy
Athletic Center
27th St
Reynolds Elementary (Closed)
New Sharswood Apartments (120 Rental Units)
Ridge Ave
19th St
Vaux School (Closed)
Morris Elementary
Fresenius Medical Center
GIRARD COLLEGE (43 Acres)
Girard Avenue
Poplar St.


W Seybert St
N 23rd St
N 22nd St
W Thompson St
N College Ave

OPPORTUNITIES FOR PUBLIC SPACE

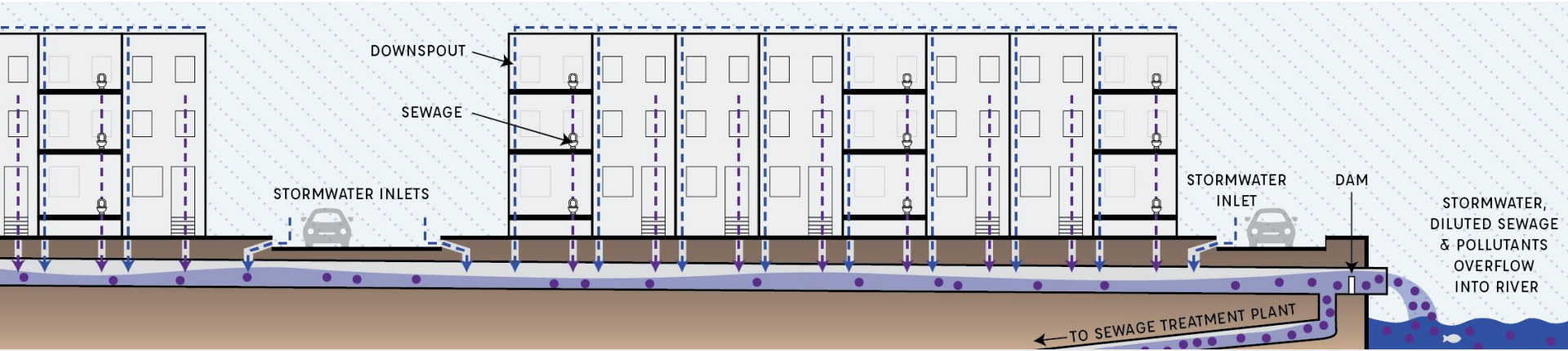


STOOP:
SOCIAL SPACE

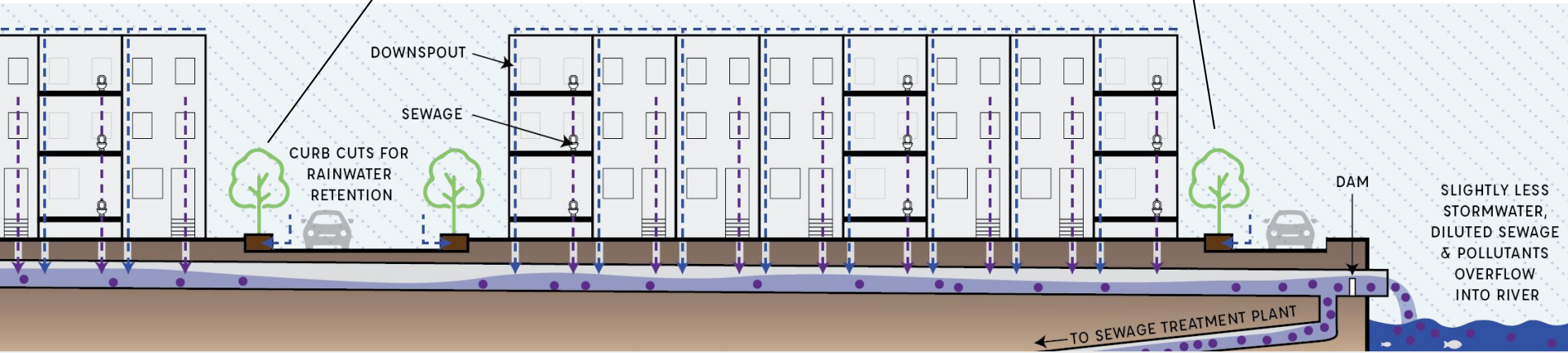
BACKYARD:
FENCED IN, STORAGE

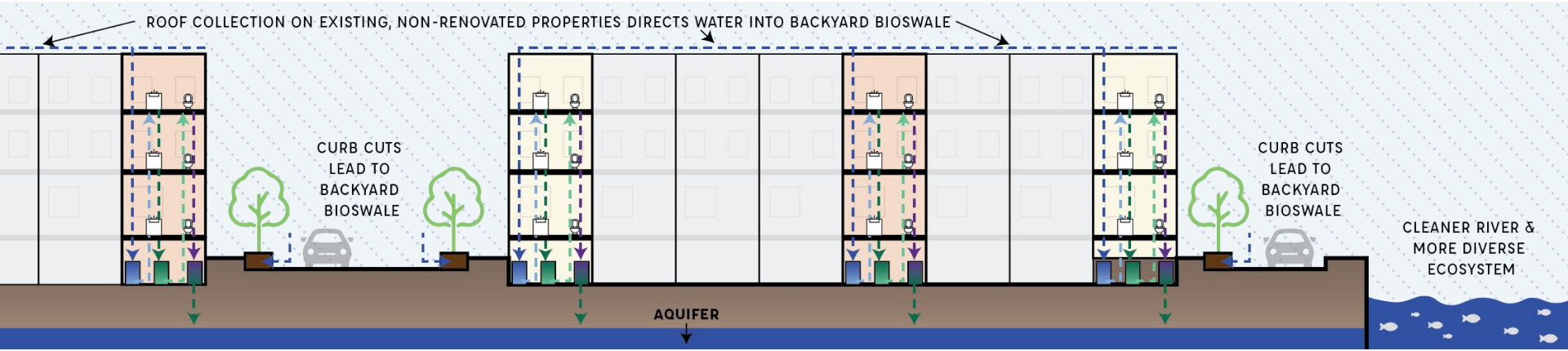

LUMION
PRO STUDENT


LUMION
PRO STUDENT

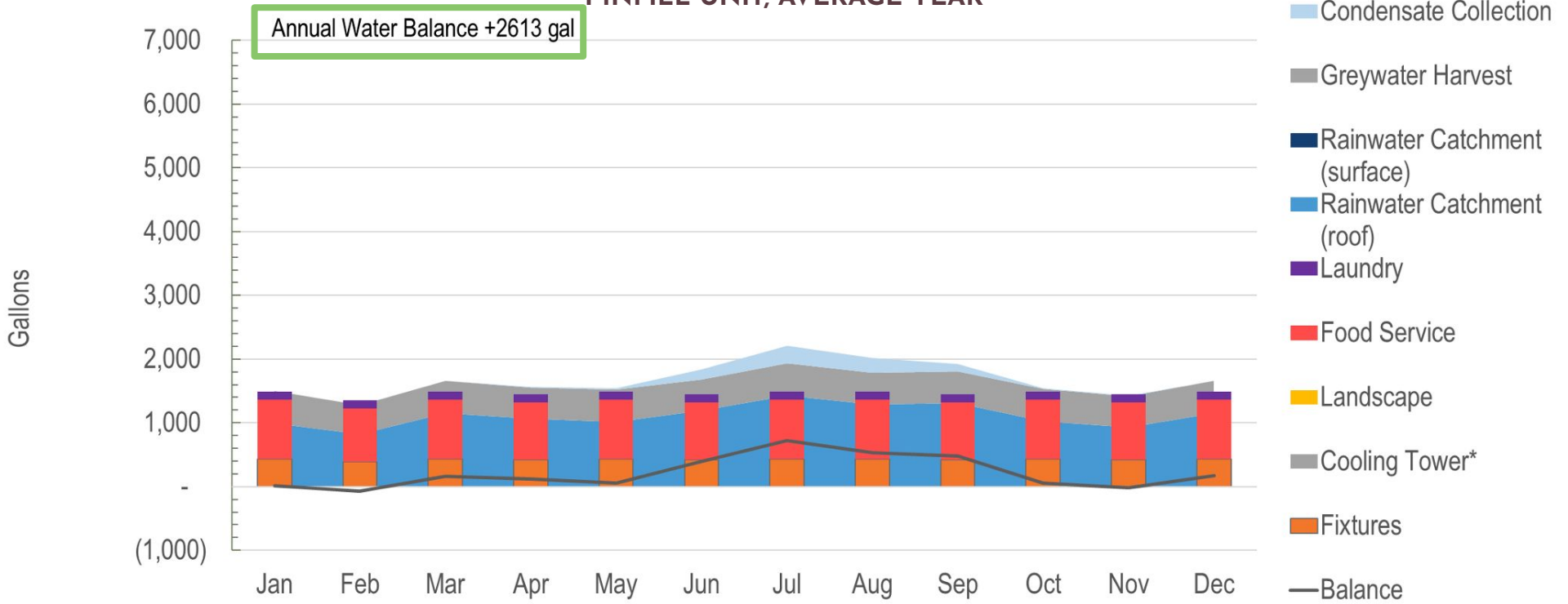

DOWNSPOUT
SEWAGE
STORMWATER INLETS
STORMWATER INLET
DAM
STORMWATER, DILUTED SEWAGE & POLLUTANTS OVERFLOW INTO RIVER
TO SEWAGE TREATMENT PLANT

Source: Yale Environment 360

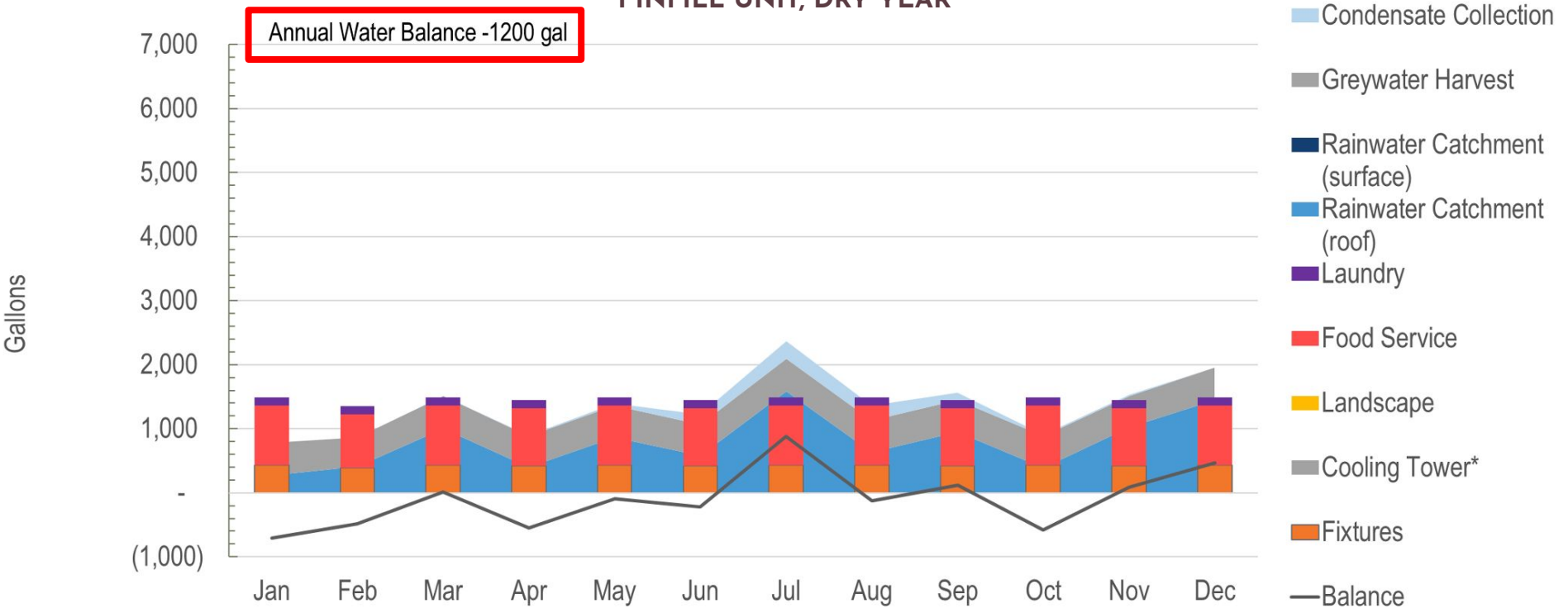



ROOF COLLECTION ON EXISTING, NON-RENOVATED PROPERTIES DIRECTS WATER INTO BACKYARD BIOSWALE
CURB CUTS LEAD TO BACKYARD BIOSWALE
CURB CUTS LEAD TO BACKYARD BIOSWALE
CLEANER RIVER & MORE DIVERSE ECOSYSTEM
AQUIFER

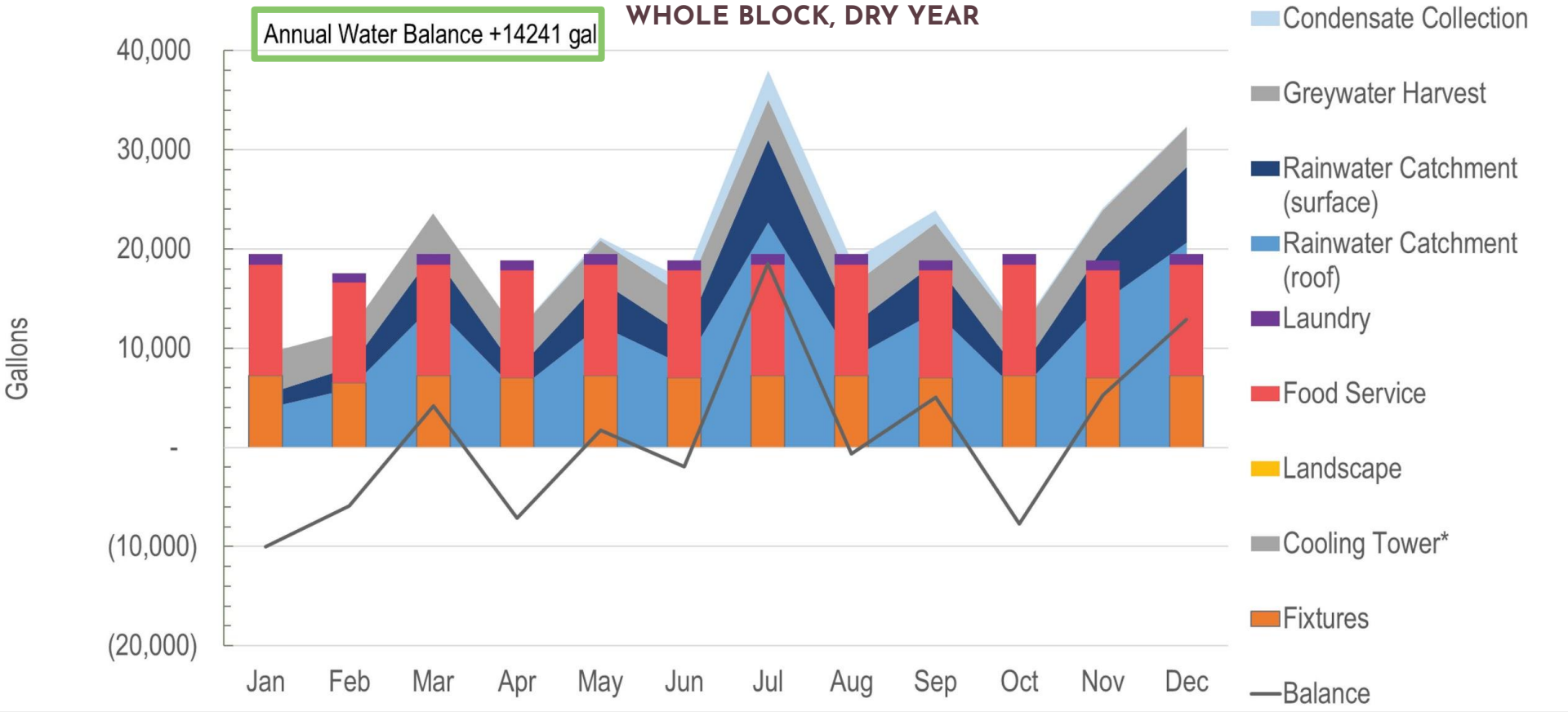
WATER BALANCE -
1 INFILL UNIT, AVERAGE YEAR



WATER BALANCE -
1 INFILL UNIT, DRY YEAR



WATER BALANCE - WHOLE BLOCK, DRY YEAR




Avg Annual Rain Harvested
175,000
170,000
165,000
160,000
155,000
150,000
145,000
140,000
135,000
130,000
45
40
35
30
25
20
15
10
5
-
Days
20,000
25,000
35,000
37,500
40,000
Cistern Size (Gallons)
Rainfall Harvest Range
Dry Yr. Days Empty
Wet Yr. Days Empty
Wet Yr. Rainwater Harvested
Dry Yr. Rainwater Harvested

RENO

INFILL

LAUNDROMAT

PARTICIPATING IN BACKYARD SHARING

EXISTING

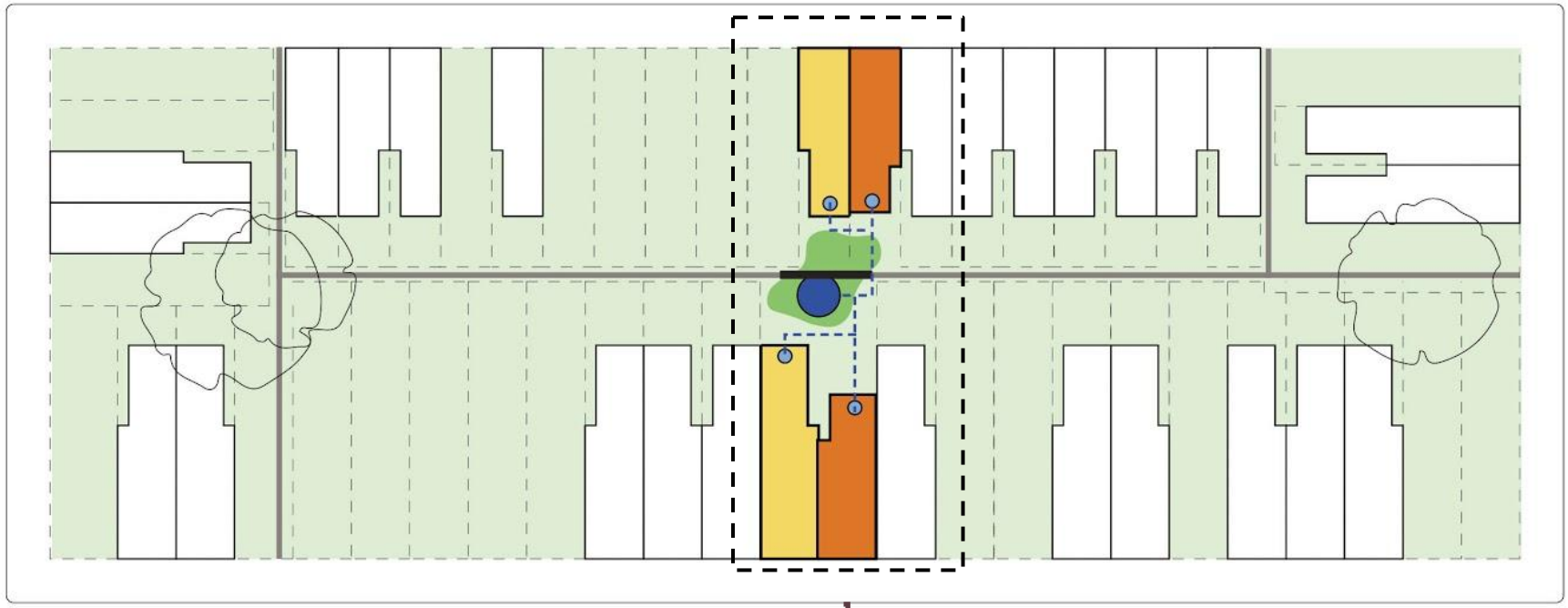
BIOSWALE

PLAY AREAS

RAINWATER CISTERNS

PLUMBING CONNECTIONS

DAY TANKS



1

RENO

INFILL

LAUNDROMAT

PARTICIPATING IN BACKYARD SHARING

EXISTING

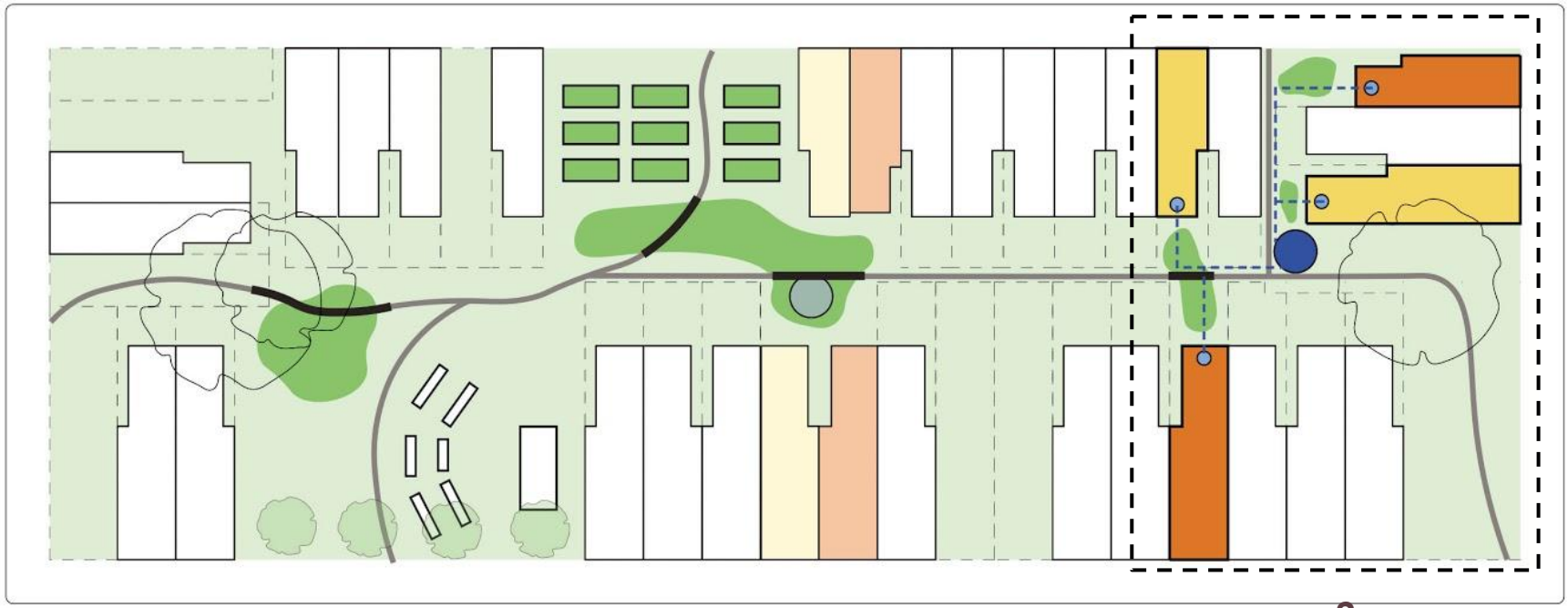
BIOSWALE

PLAY AREAS

RAINWATER CISTERNS

PLUMBING CONNECTIONS

DAY TANKS



2

RENO

INFILL

LAUNDROMAT

PARTICIPATING IN BACKYARD SHARING

EXISTING

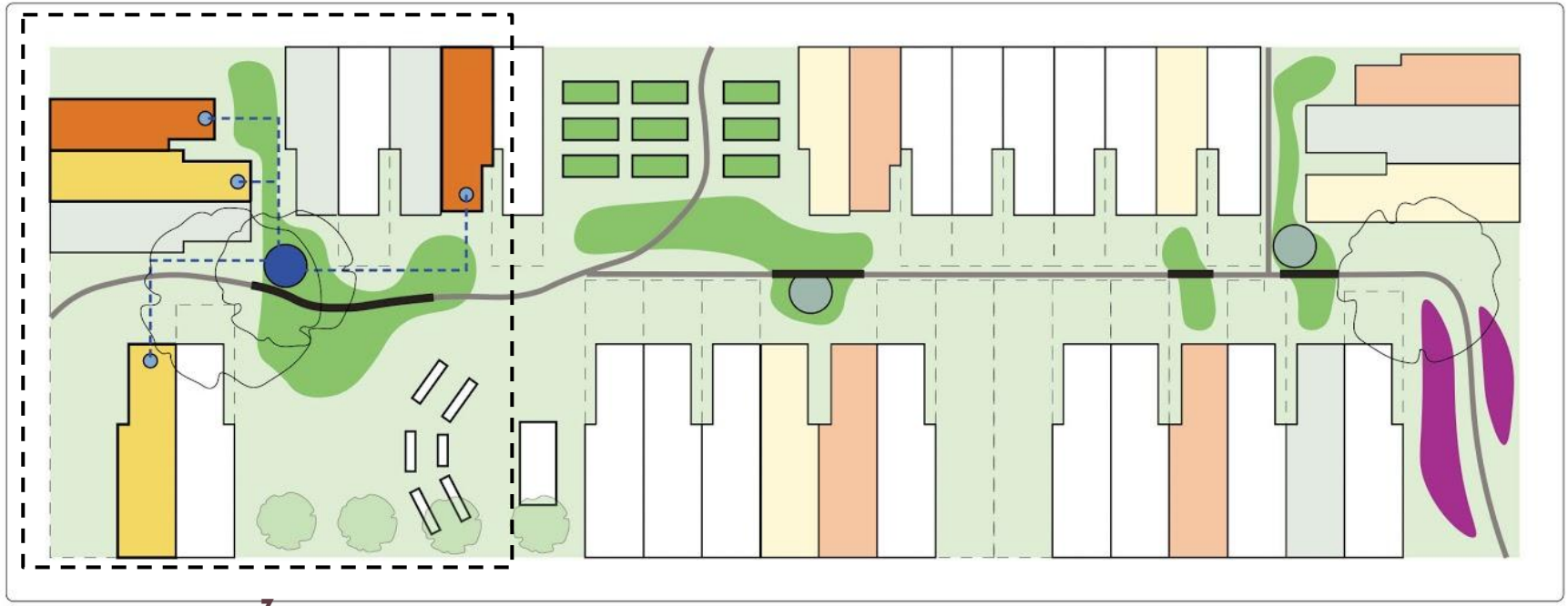
BIOSWALE

PLAY AREAS

RAINWATER CISTERNS

PLUMBING CONNECTIONS

DAY TANKS



3

RENO

INFILL

LAUNDROMAT

PARTICIPATING IN BACKYARD SHARING

EXISTING

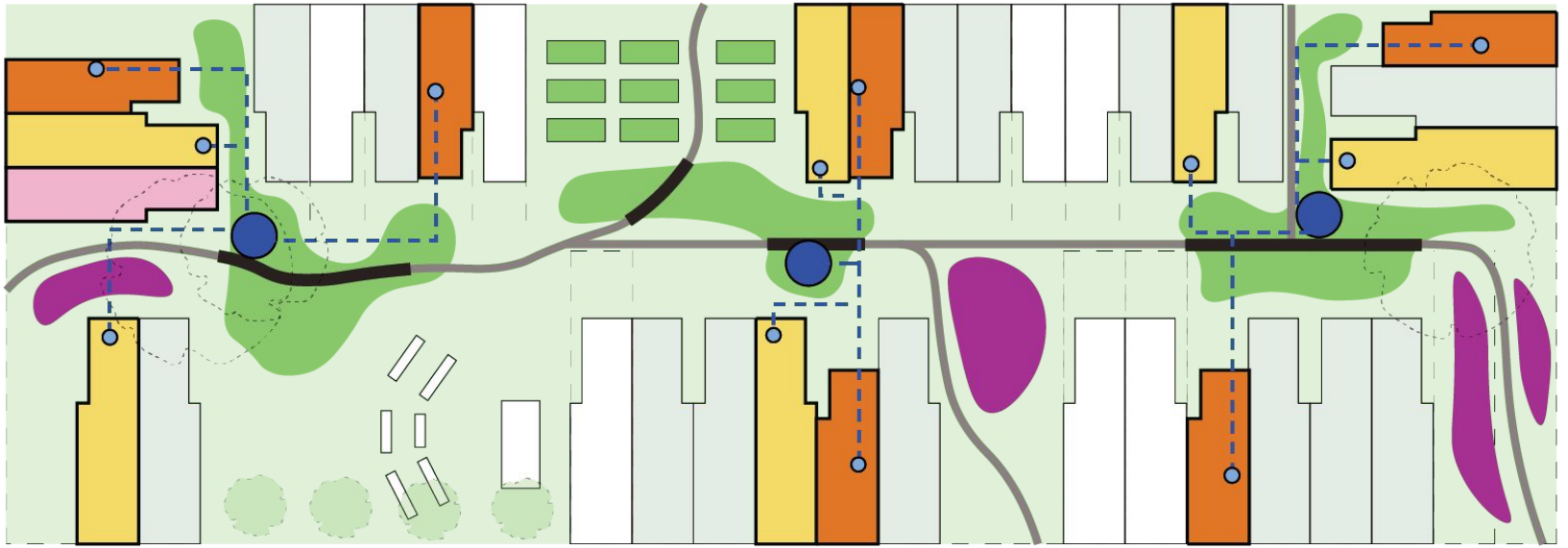
BIOSWALE

PLAY AREAS

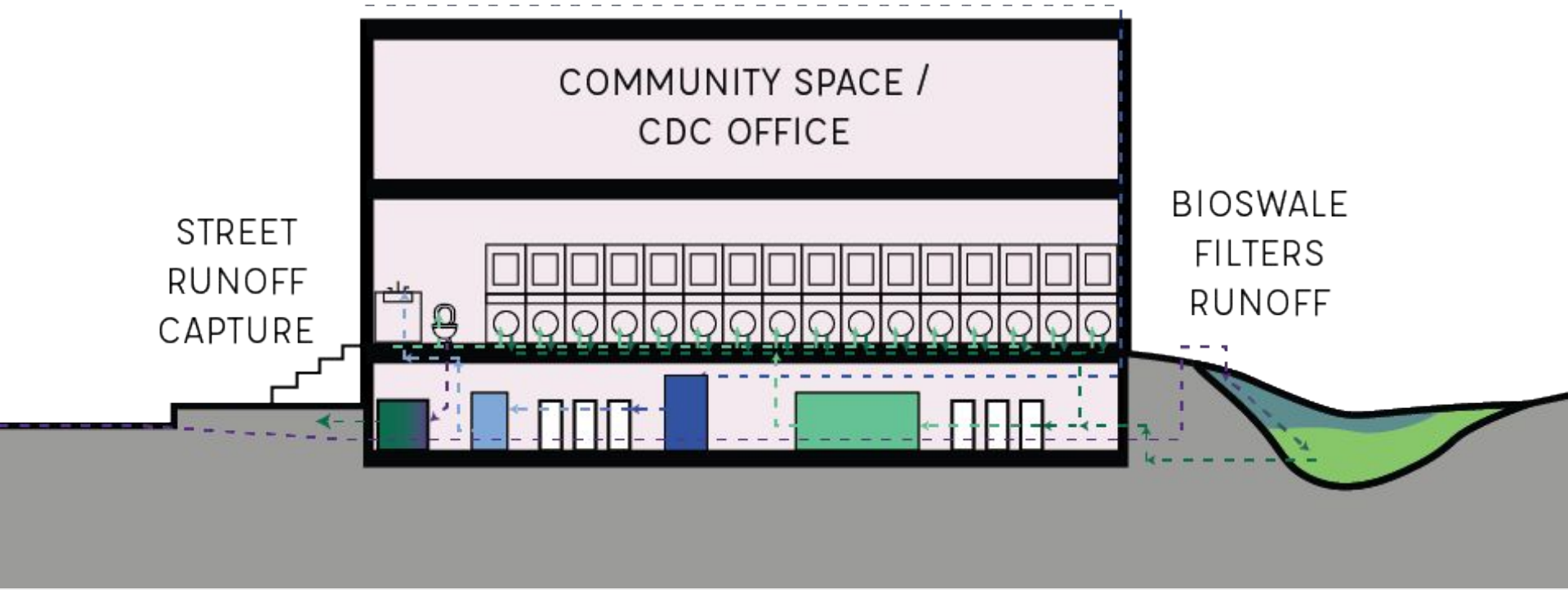
RAINWATER CISTERNS

PLUMBING CONNECTIONS

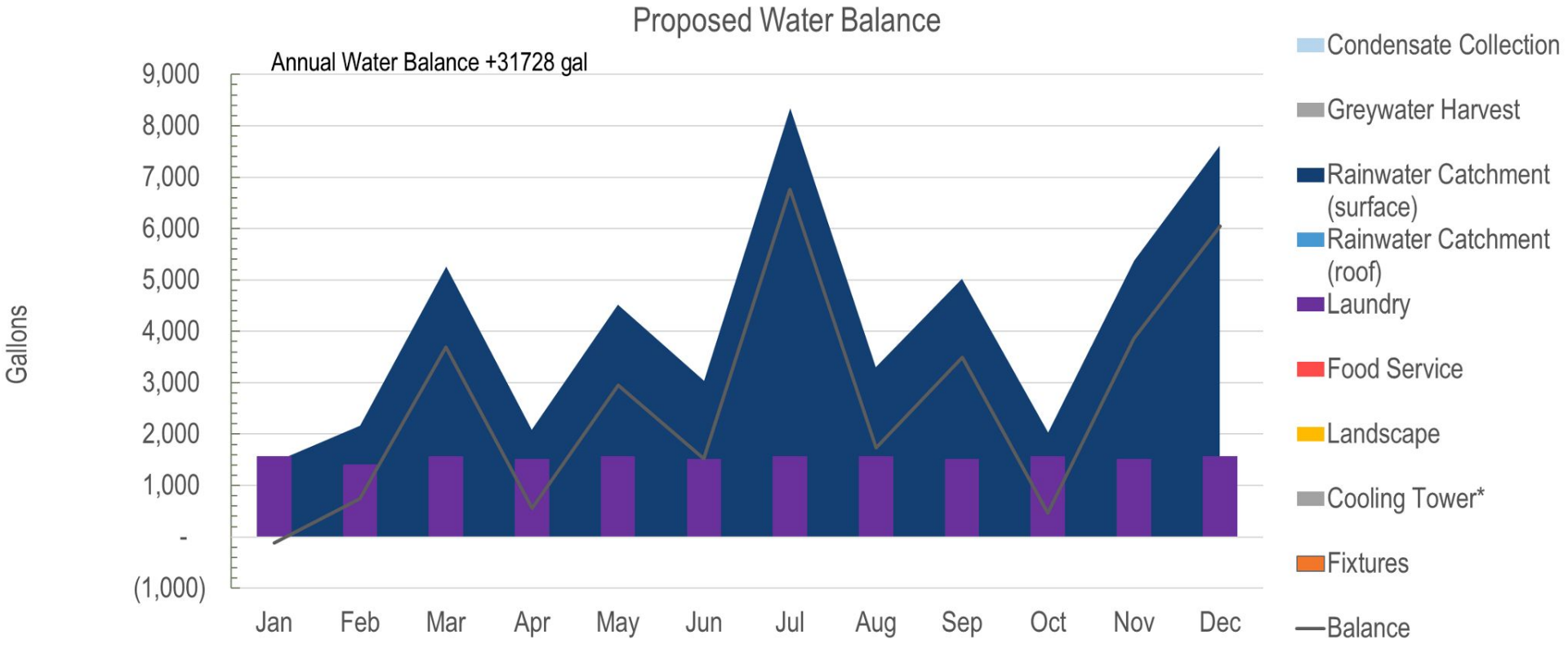
DAY TANKS

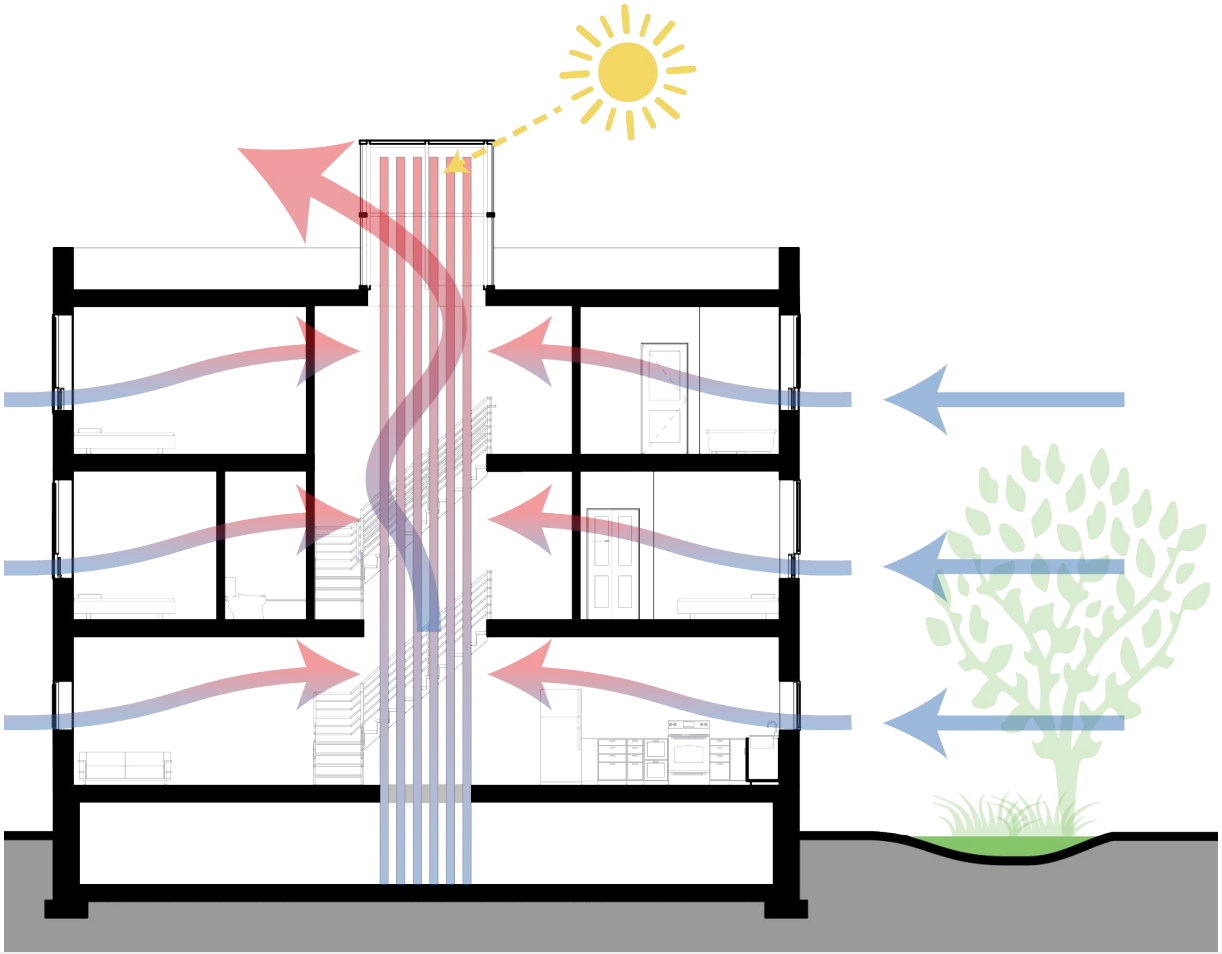



25 PANELS
25 PANELS
24 PANELS
24 PANELS
BATTERY
25 PANELS
25 PANELS
20 PANELS
20 PANELS
25 PANELS
21 PANELS
25 PANELS
29 PANELS
25 PANELS
25 PANELS

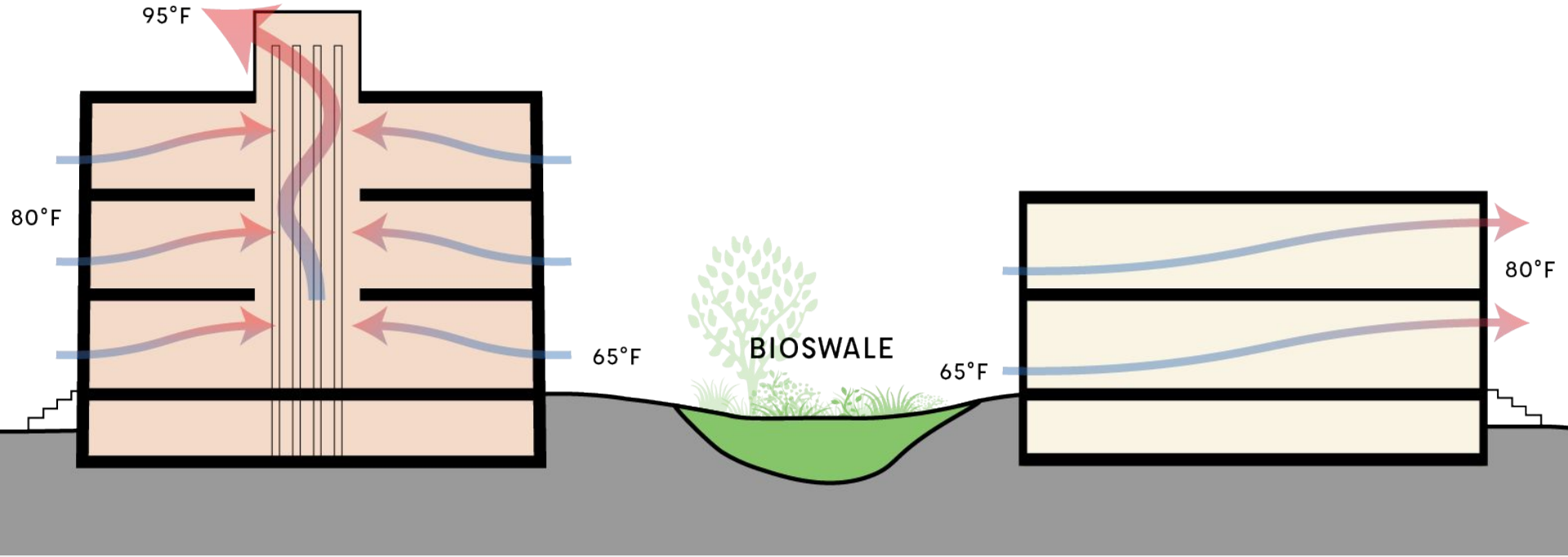

COMMUNITY SPACE /
CDC OFFICE
STREET
RUNOFF
CAPTURE
BIOSWALE
FILTERS
RUNOFF


ZONE 1
ZONE 2
ZONE 3
ZONE 1
ZONE 2
ZONE 3
ZONE 1
ZONE 2
ZONE 3

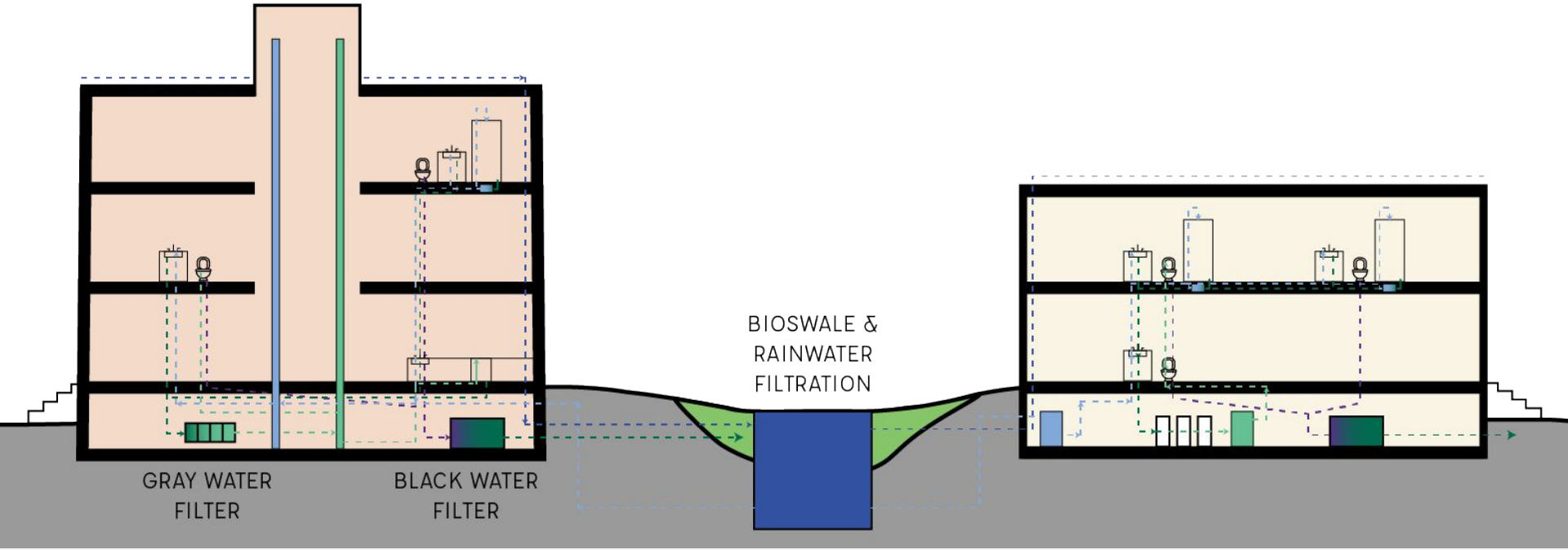

Proposed Water Balance
Annual Water Balance +31728 gal
Gallons
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
(1,000)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Condensate Collection
Greywater Harvest
Rainwater Catchment (surface)
Rainwater Catchment (roof)
Laundry
Food Service
Landscape
Cooling Tower*
Fixtures
Balance

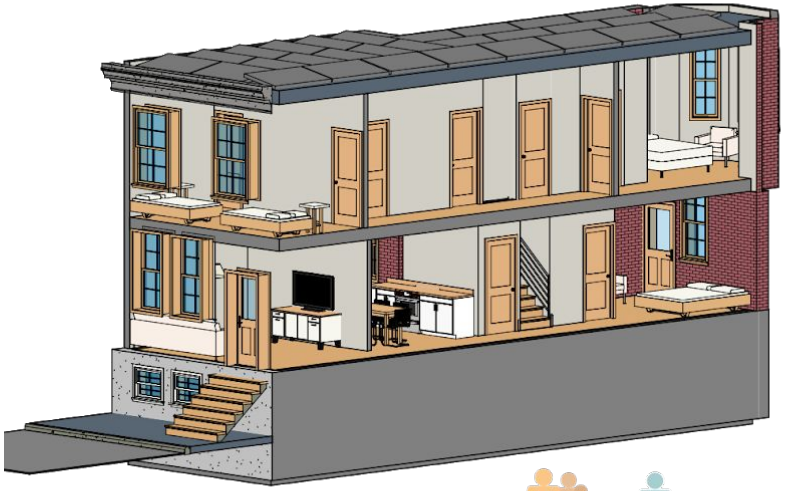


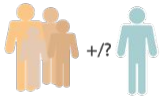
INFILL BIOSWALE EFFECTS ON TEMPERATURE



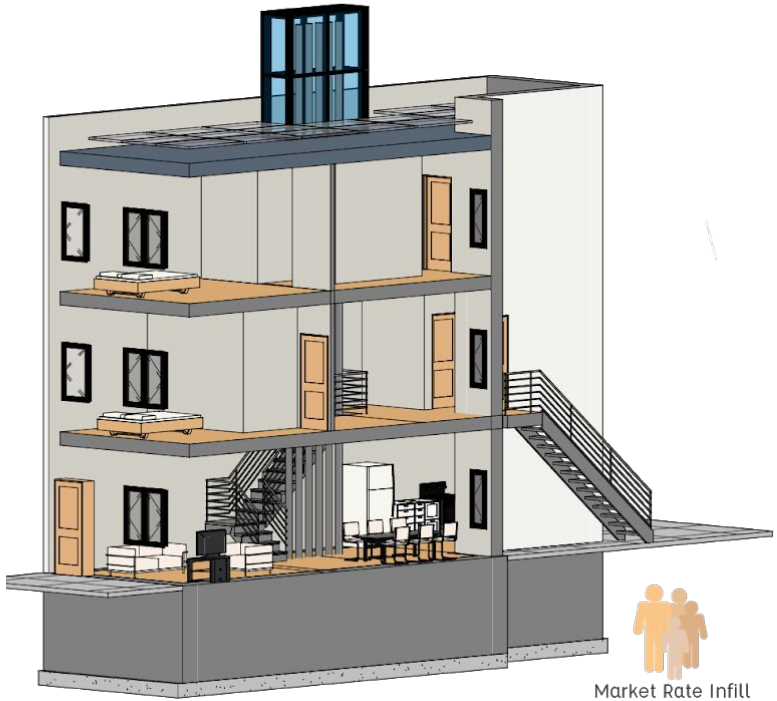
BLOCK SCALE BIOSWALE EFFECTS ON TEMPERATURE


BIOSWALE &
RAINWATER
FILTRATION
GRAY WATER
FILTER
BLACK WATER
FILTER

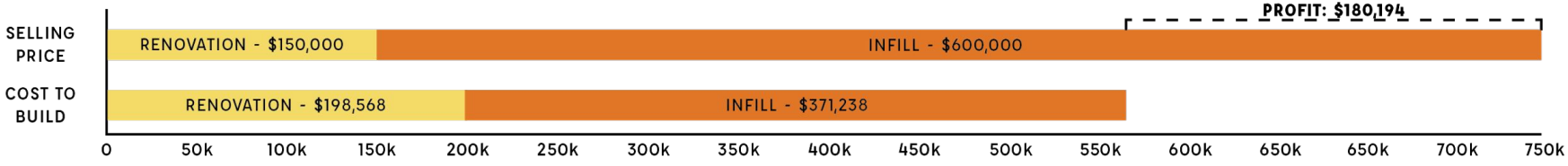




Low Income- Renovation
Opportunity for Multi-Generational Living



Market Rate Infill



GROWTH MODEL

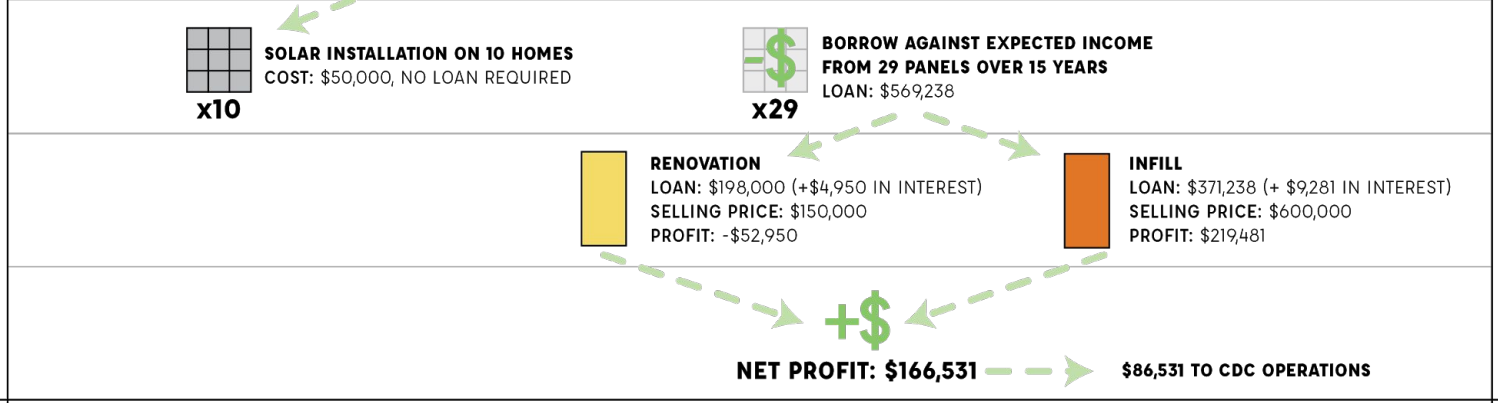
YEAR	SCOPE OF WORK & COSTS ASSOCIATED	SOLAR INCOME
2020	**BORROW FROM REINVESTMENT FUND FOR RENOVATION @ 1423 N 29TH ST** **LOAN:** $198,000 **SELLING PRICE:** $245,000 **PROFIT:** $47,000	**$27,489 (21 homes)**
2021	**BORROW FROM REINVESTMENT FUND FOR SOLAR INSTALLATION ON 20 EXISTING HOMES** **LOAN:** $100,000 @ 4% INTEREST RATE FOR ENERGY MEASURES **x20**	**$27,489 (21 homes)**

YEAR	SCOPE OF WORK & COSTS ASSOCIATED	SOLAR INCOME
2020	**BORROW FROM REINVESTMENT FUND FOR RENOVATION @ 1423 N 29TH ST** **LOAN:** $198,000 **SELLING PRICE:** $245,000 **PROFIT:** $47,000	**$27,489 (21 homes)**
2021	**BORROW FROM REINVESTMENT FUND FOR SOLAR INSTALLATION ON 20 EXISTING HOMES** **LOAN:** $100,000 @ 4% INTEREST RATE FOR ENERGY MEASURES **x20**	**$27,489 (21 homes)**
2022		**$27,489 (21 homes)**

YEAR	SCOPE OF WORK & COSTS ASSOCIATED	SOLAR INCOME
2020	**BORROW FROM REINVESTMENT FUND FOR RENOVATION @ 1423 N 29TH ST** **LOAN:** $198,000 **SELLING PRICE:** $245,000 **PROFIT:** $47,000	**$27,489 (21 homes)**
2021	**BORROW FROM REINVESTMENT FUND FOR SOLAR INSTALLATION ON 20 EXISTING HOMES** **LOAN:** $100,000 @ 4% INTEREST RATE FOR ENERGY MEASURES **x20**	**$27,489 (21 homes)**
2022		**$27,489 (21 homes)**
2023	**BORROW AGAINST EXPECTED INCOME FROM 11 PANELS OVER 15 YEARS** **LOAN:** $198,000 **x11** **BORROW FROM REINVESTMENT FUND** **LOAN:** $371,238 4% INTEREST RATE FOR ENERGY MEASURES 7% INTEREST RATE FOR TYP. BUILDING SCOPE **PAY OFF COST OF 10 PANELS:** $54,000 NO LONGER OWED **RENOVATION** **LOAN:** $198,000 (+$4,950 IN INTEREST) **SELLING PRICE:** $150,000 **PROFIT:** -$52,950 **INFILL** **LOAN:** $371,238 (+ $9,281 IN INTEREST) **SELLING PRICE:** $600,000 **PROFIT:** $219,481 **PAY OFF COST OF REMAINING 10 PANELS:** $54,000 NO LONGER OWED **NET PROFIT: $166,531** **$62,531 TO CDC OPERATIONS**	**$27,489 (21 homes)**

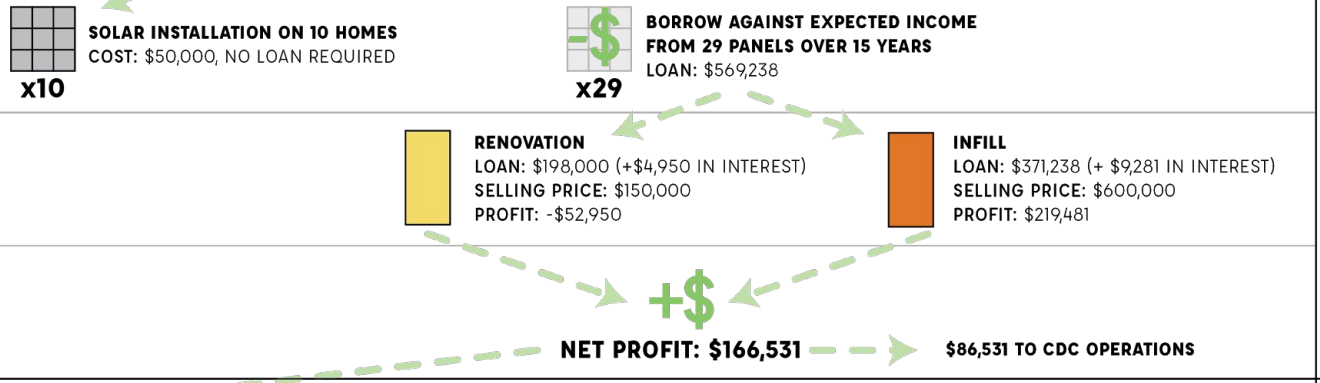
YEAR	SCOPE OF WORK & COSTS ASSOCIATED	SOLAR INCOME
2020	**BORROW FROM REINVESTMENT FUND FOR RENOVATION @ 1423 N 29TH ST** LOAN: $198,000 SELLING PRICE: $245,000 PROFIT: $47,000	$27,489 (21 homes)
2021	**BORROW FROM REINVESTMENT FUND FOR SOLAR INSTALLATION ON 20 EXISTING HOMES** LOAN: $100,000 @ 4% INTEREST RATE FOR ENERGY MEASURES x20	$27,489 (21 homes)
2022		$27,489 (21 homes)
2023	**BORROW AGAINST EXPECTED INCOME FROM 11 PANELS OVER 15 YEARS** LOAN: $198,000 x11 **BORROW FROM REINVESTMENT FUND** LOAN: $371,238 4% INTEREST RATE FOR ENERGY MEASURES 7% INTEREST RATE FOR TYP. BUILDING SCOPE **PAY OFF COST OF 10 PANELS:** $54,000 NO LONGER OWED **RENOVATION** LOAN: $198,000 (+$4,950 IN INTEREST) SELLING PRICE: $150,000 PROFIT: -$52,950 **INFILL** LOAN: $371,238 (+ $9,281 IN INTEREST) SELLING PRICE: $600,000 PROFIT: $219,481 **PAY OFF COST OF REMAINING 10 PANELS:** $54,000 NO LONGER OWED **NET PROFIT: $166,531** **$62,531 TO CDC OPERATIONS**	$27,489 (21 homes)
2024	**SOLAR INSTALLATION ON 10 HOMES** COST: $50,000, NO LOAN REQUIRED x10	

2024 (cont'd)



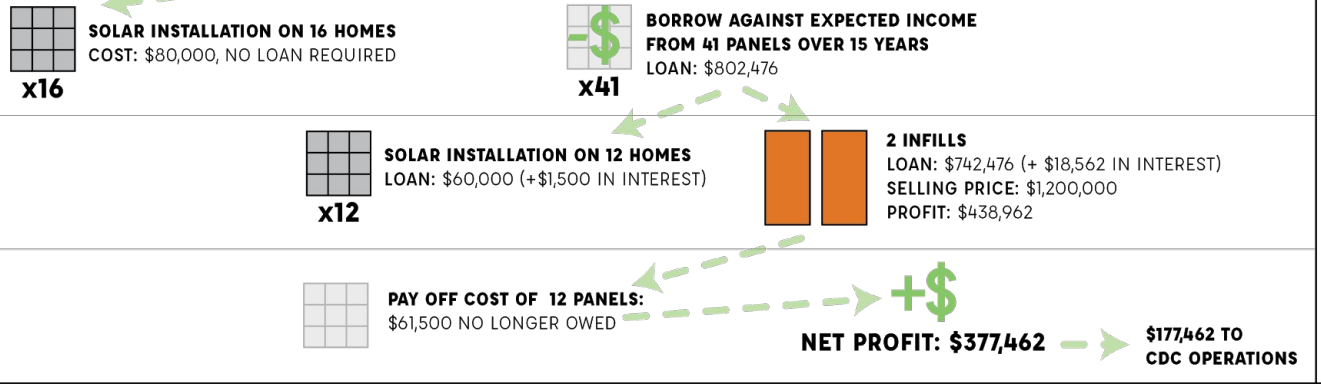
$43,197 (33 homes)

2024 (cont'd)



$43,197 (33 homes)

2025



$66,759 (51 homes)

2024 (cont'd)

SOLAR INSTALLATION ON 10 HOMES
COST: $50,000, NO LOAN REQUIRED
x10

BORROW AGAINST EXPECTED INCOME FROM 29 PANELS OVER 15 YEARS
LOAN: $569,238
x29

RENOVATION
LOAN: $198,000 (+$4,950 IN INTEREST)
SELLING PRICE: $150,000
PROFIT: -$52,950

INFILL
LOAN: $371,238 (+ $9,281 IN INTEREST)
SELLING PRICE: $600,000
PROFIT: $219,481

NET PROFIT: $166,531 → **$86,531 TO CDC OPERATIONS**

$43,197 (33 homes)

2025

SOLAR INSTALLATION ON 16 HOMES
COST: $80,000, NO LOAN REQUIRED
x16

BORROW AGAINST EXPECTED INCOME FROM 41 PANELS OVER 15 YEARS
LOAN: $802,476
x41

SOLAR INSTALLATION ON 12 HOMES
LOAN: $60,000 (+$1,500 IN INTEREST)
x12

2 INFILLS
LOAN: $742,476 (+ $18,562 IN INTEREST)
SELLING PRICE: $1,200,000
PROFIT: $438,962

PAY OFF COST OF 12 PANELS:
$61,500 NO LONGER OWED

NET PROFIT: $377,462 → **$177,462 TO CDC OPERATIONS**

$66,759 (51 homes)

2026 & Beyond

SEVERAL OPTIONS FOR PROFIT USE, WILL VARY YEAR BY YEAR

$85,085 (65 homes)

2026 & Beyond

TYPICAL DEVELOPMENT MODEL

BORROW AGAINST EXPECTED INCOME FROM 62 PANELS OVER 15 YEARS
LOAN: $1,200,000 (REINVESTMENT FUND MAXIMUM LOAN)

x62

2 RENOVATIONS
LOAN: $396,000 (+$9,900 IN INTEREST)
SELLING PRICE: $300,000
PROFIT: -$105,900

2 INFILLS
LOAN: $742,476 (+ $18,592 IN INTEREST)
SELLING PRICE: $1,200,000
PROFIT: $438,962

PROFIT: $333,062
- 100,000 FOR CDC OPERATIONS =
233,062 YEARLY NET PROFIT

THIS 2:2 RATIO CAN BE CONTINUED INDEFINITIELY, FUNDED EACH YEAR THROUGH THE MAXIMUM LOAN OF 1,200,000 FROM REINVESTMENT FUND'S CLEAN ENERGY FUND & NETTING $233,062.

OPTIONS FOR PROFIT USE

RENOVATION
COST: $198,000, NO LOAN REQUIRED
SELLING PRICE: $150,000
PROFIT: -$47,000

$85,085 (65 homes)

SOLAR INSTALLATION ON 46 HOMES
COST: $230,000, NO LOAN REQUIRED

x46

EXTRA PROFIT & PAY RAISES FOR CDC
UP TO: $233,000

UTILITY DEBT FORGIVENESS
IN THE FACE OF A CRISIS OR HARDSHIP
UP TO: $233,000,
OR ENERGY FOR 167 HOMES

$91,630 (65 homes)

OTHER NEIGHBORHOOD IMPROVEMENTS
BIOSWALE, CLEANUPS, MURALS, ETC.
UP TO: $233,000


THANK YOU.