

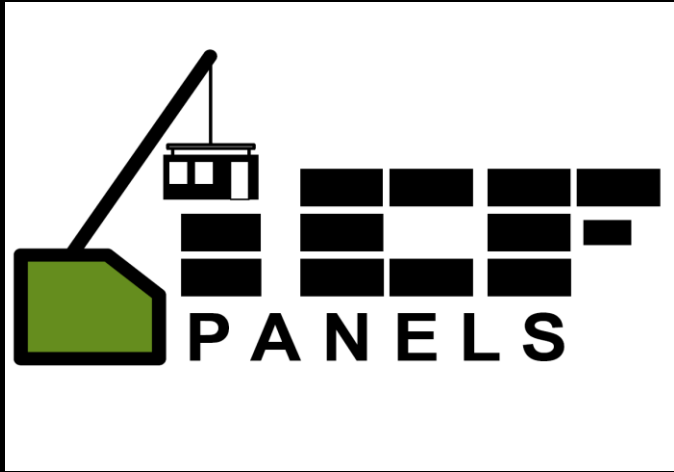
March 8, 2017

New Construction:

Beyond Modeling to Real Data & Results

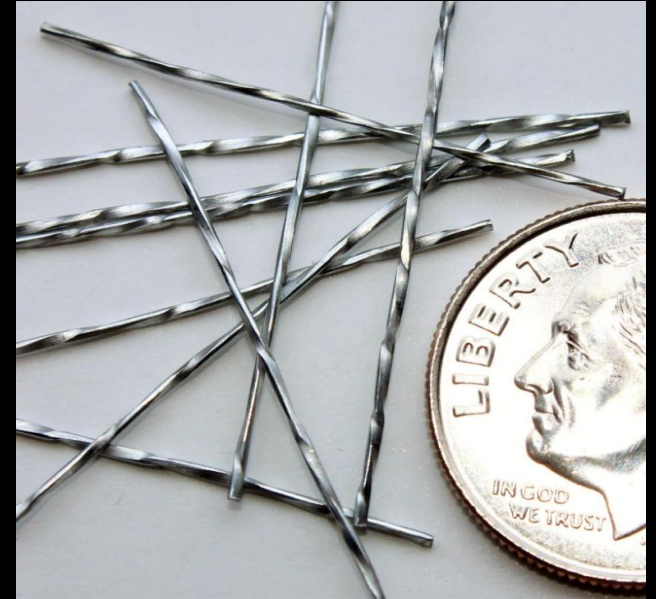
Ryan Merkin

Steve Bluestone





# HELIX REBAR







THE  
**BLUESTONE**  
ORGANIZATION



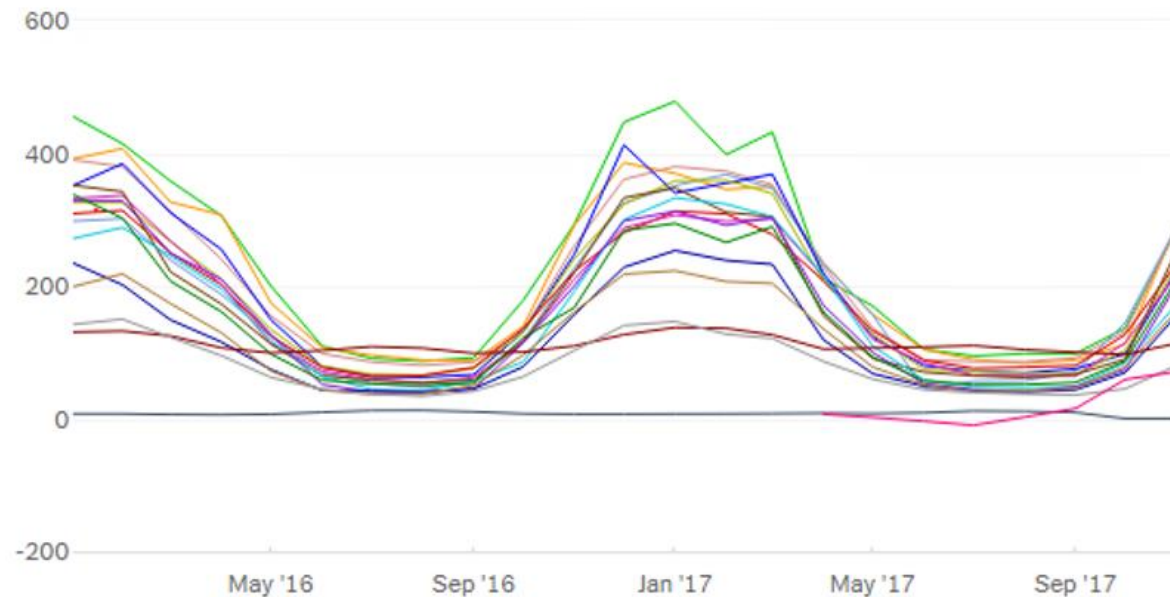
Total energy use in Btu per square foot

Graph  Table

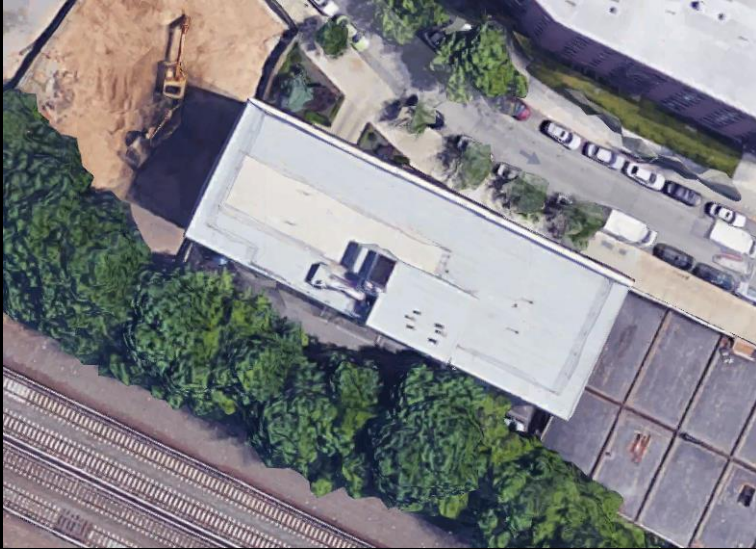
Name	Full-Year Sum	
Fushing Steam Buildin...	91.2k <sup>^</sup>	✓
140-74 34th Avenue	81k <sup>*</sup>	✓
43-06 63rd St	79.6k <sup>*</sup>	✓
95-11 64th Rd	74.7k	✓
138-49 Barclay Avenue	74.5k <sup>*</sup>	✓
113th St	70.5k <sup>*</sup>	✓
28 Gilcrest Rd	68.3k <sup>*</sup>	✓
Austin St	64.6k <sup>*</sup>	✓
141-28 84th Drive	64.1k <sup>*</sup>	✓
99-22 67th Rd	61.2k <sup>*</sup>	✓
Kew Gardens	60.1k <sup>*</sup>	✓
140-26 Franklin Avenue	56.3k <sup>*</sup>	✓
193-04 Horace Harding	47.6k <sup>*</sup>	✓
9 Chelsea Place	46.8k <sup>*</sup>	✓
90-11 160th St	41.6k	✓
65-54 Austin St	29.9k	✓
701 Prospect Avenue	3.03k <sup>*</sup>	✓
BGN	Less than 1 year of data <sup>*</sup>	✓

Detailed data per month

You are currently viewing the last 2 years of data only



The Andrew

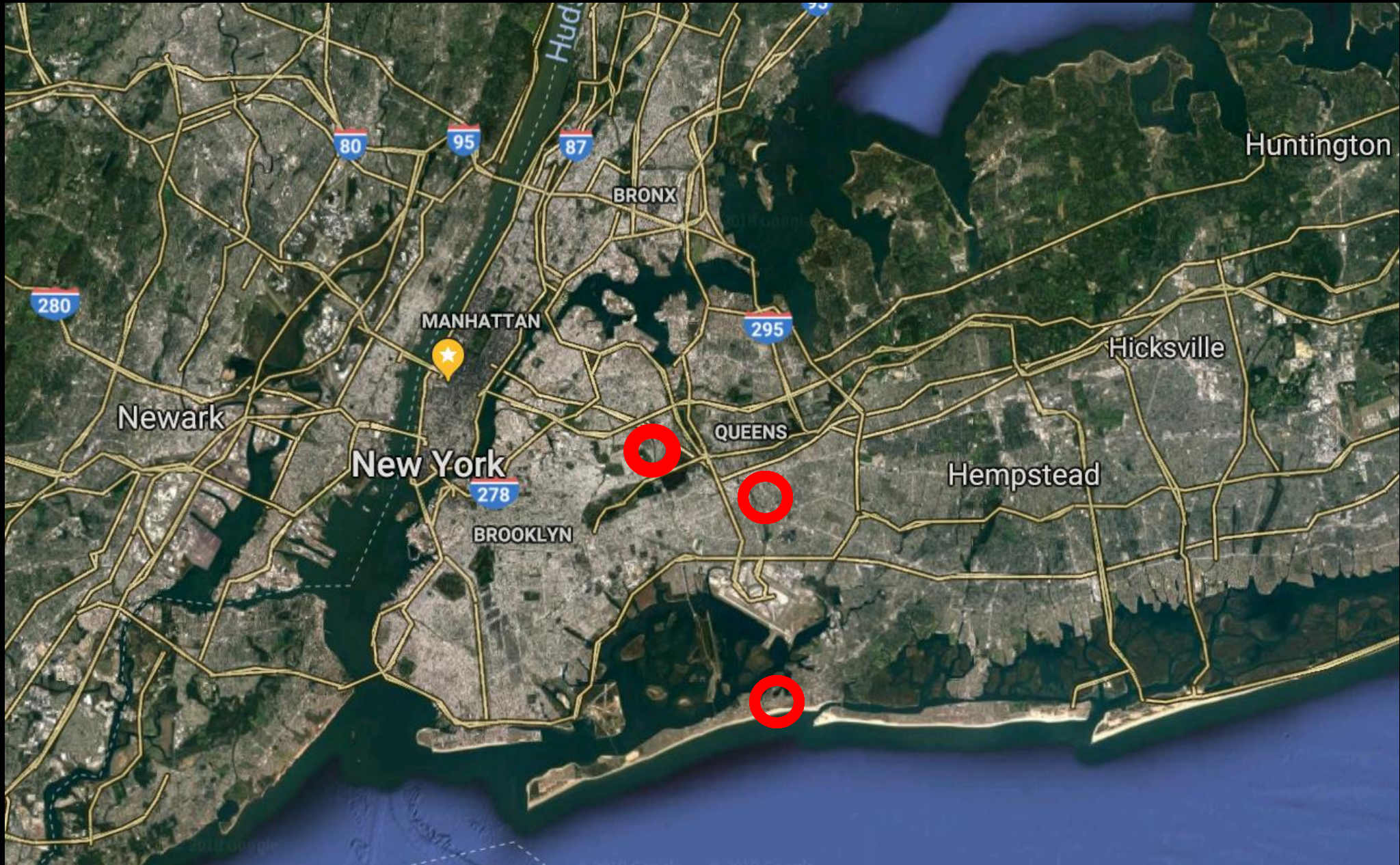


Norman Towers



Beach Green Dunes



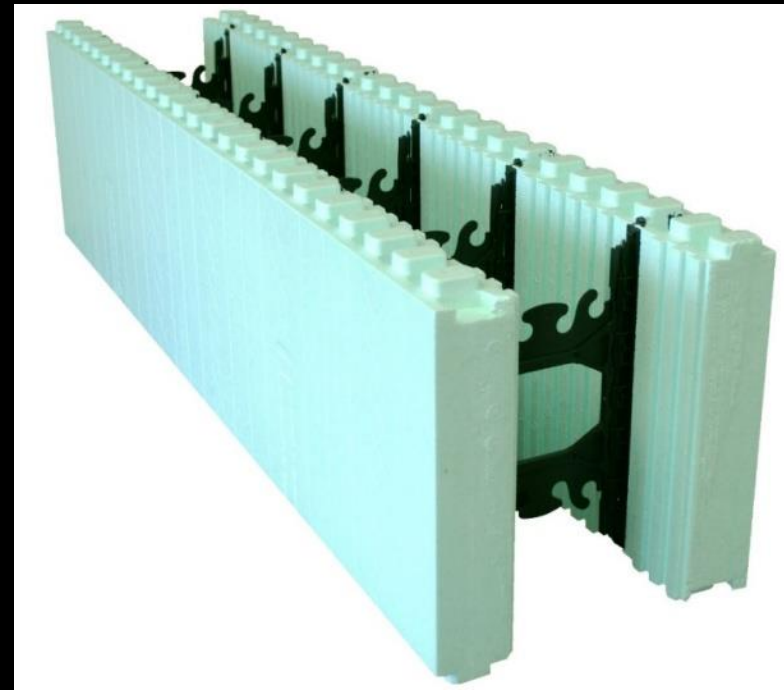






# Insulated Concrete Forms (ICFs)

+/- R24 walls

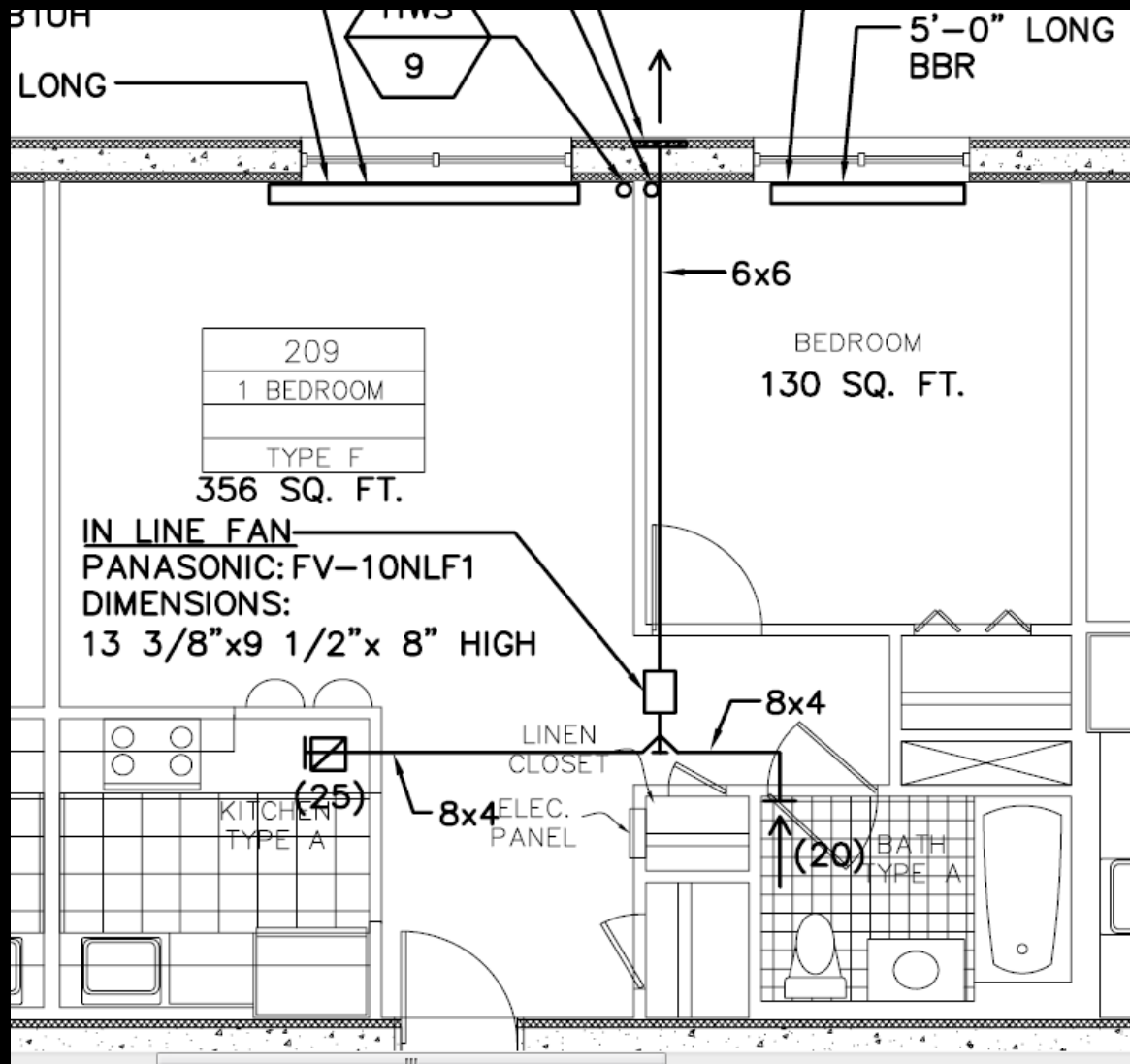




# The Andrew 2010 50 units

- Energy Star
- NYSERDA MPP
- 2.5 to 3.5 ACH



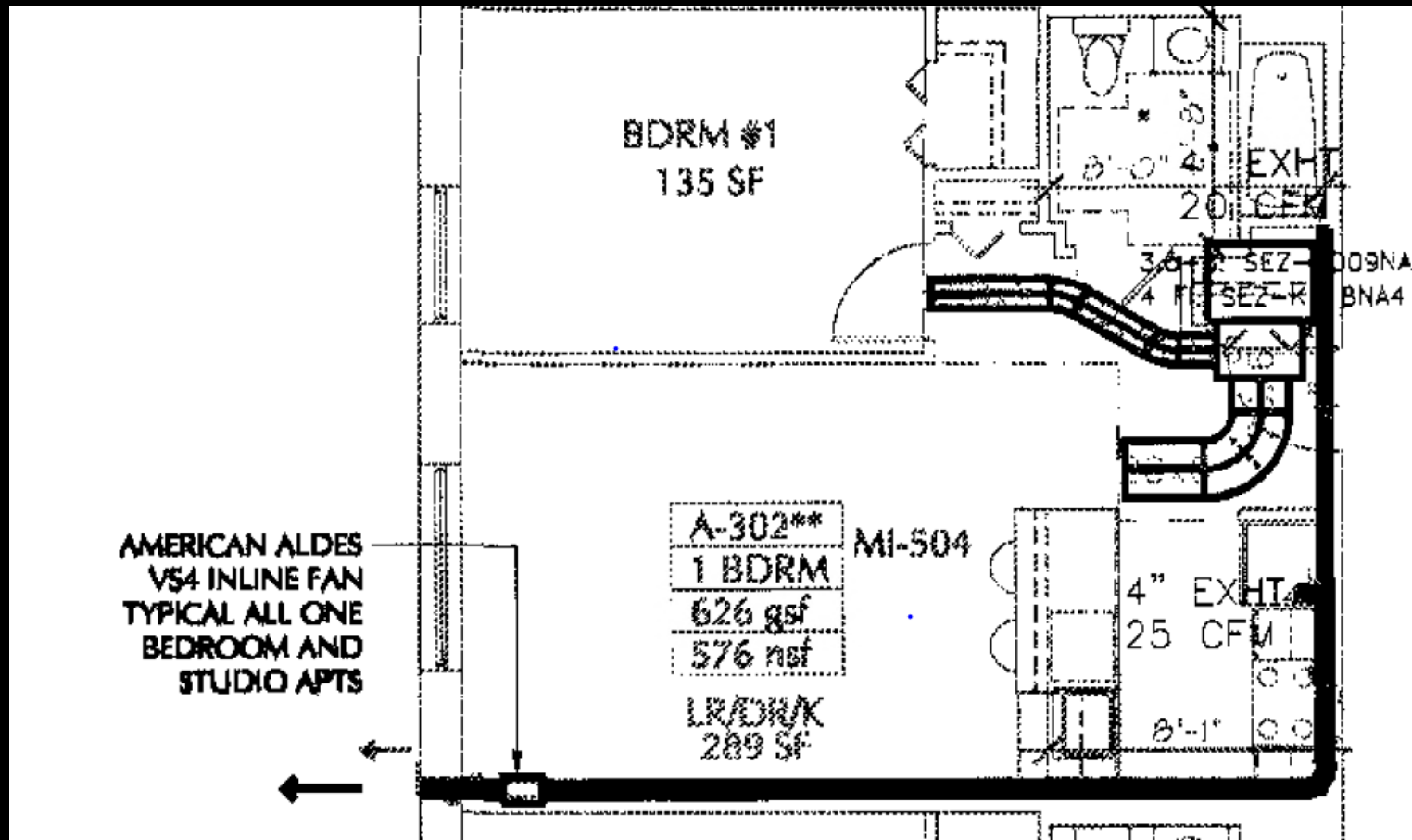


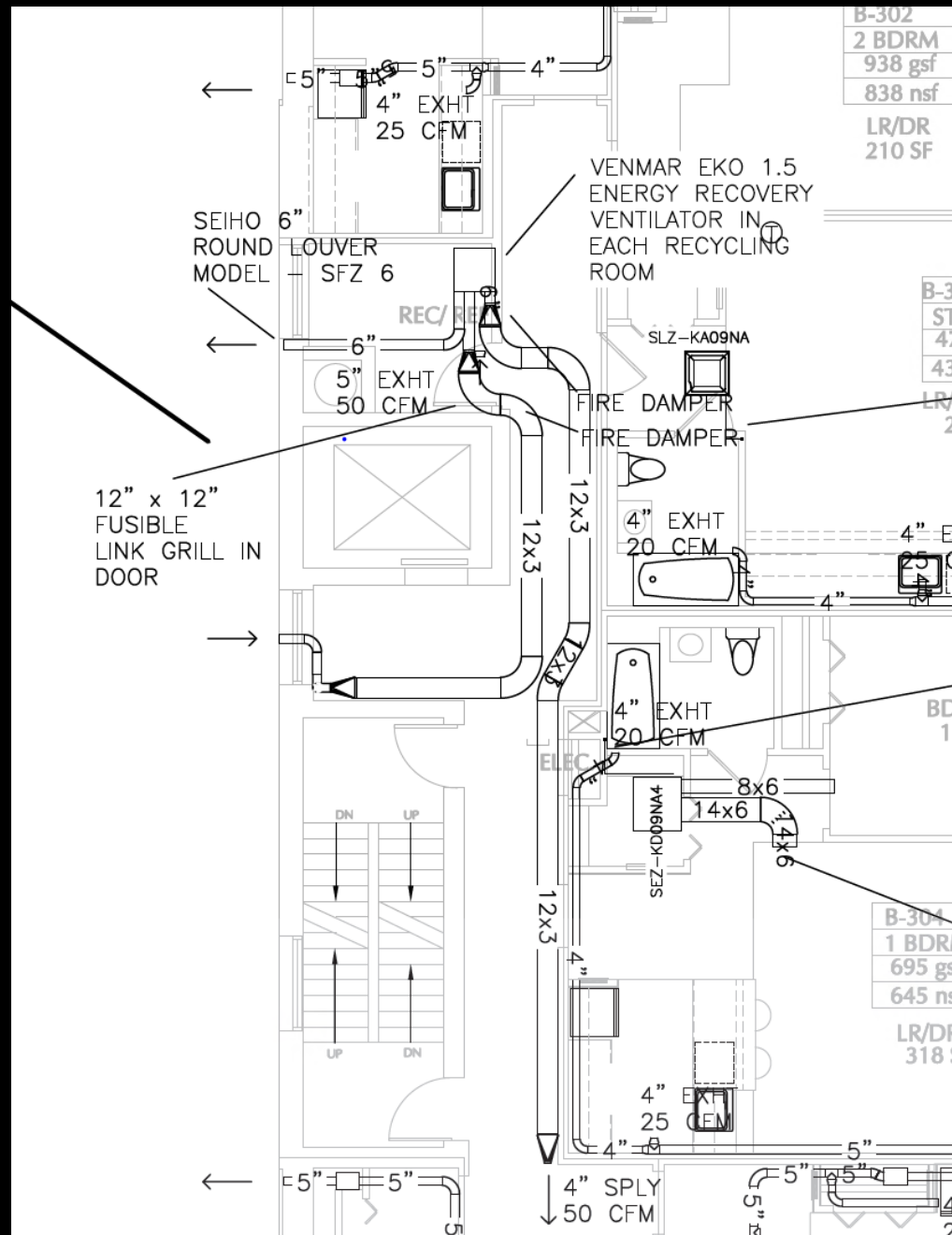


# Norman Towers 2014 101 units

- Energy Star
- NYSERDA MPP
- ASHP (1:1)
- 2.5 to 3.5 ACH









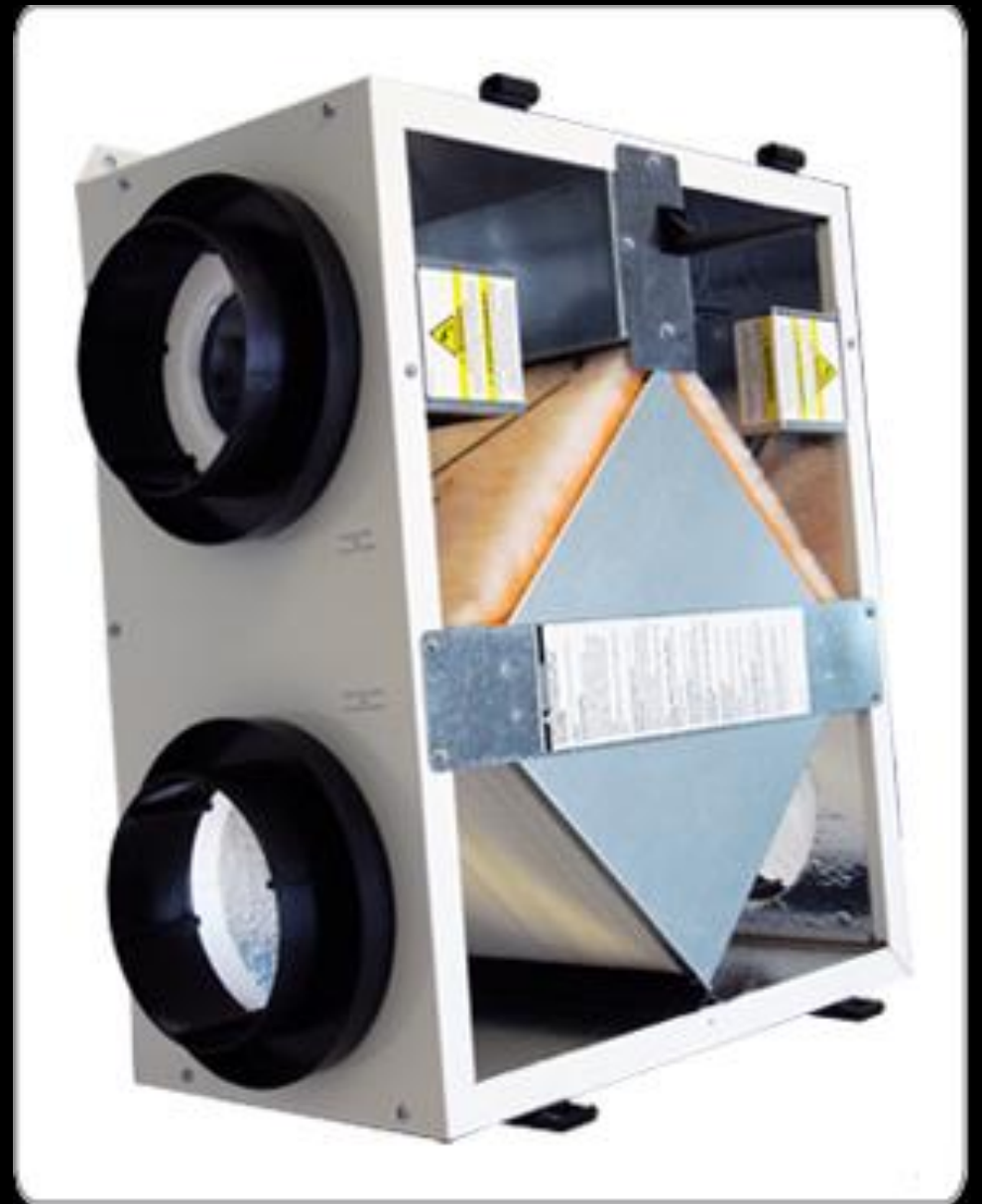
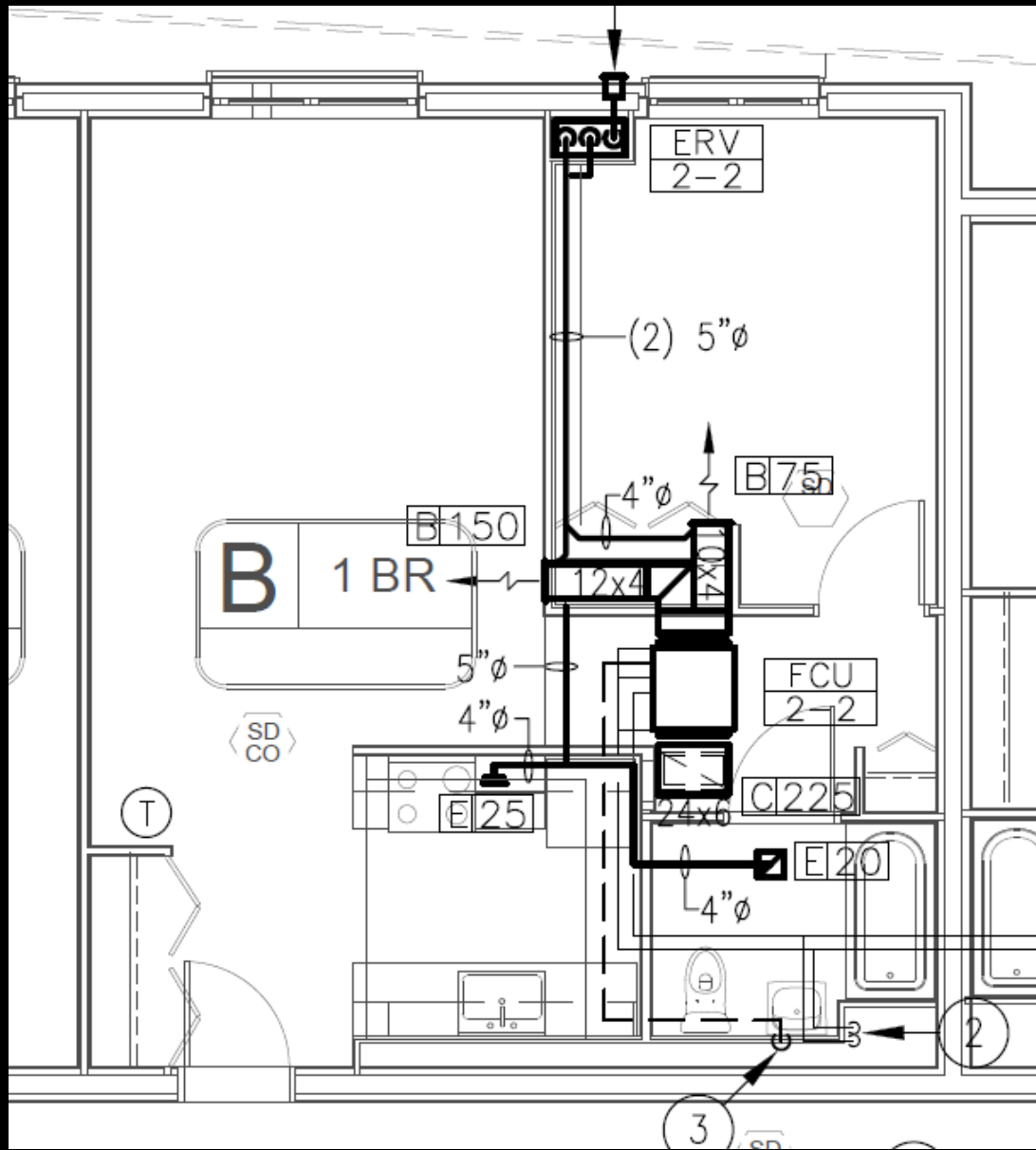


# Beach Green Dunes 2017 101 units



- PHIUS Passive House
- Energy Star
- NYSERDA MPP
- Less than 0.6 ACH







BTU/SF/HDD

BTU/SF/HDD

kBTU/SF

BTU/SF/HDD

kBTU/SF

kWh/SF

BTU/SF/HDD

kBTU/SF

Source

kWh/SF

EUI kBTU/SF



BTU/SF/HDD

\$ / SF

kWh/SF

kBTU/SF

Source

EUI kBTU/SF

BTU/SF/HDD

\$ / SF

kBTU/SF

Source

kWh/SF

EUI kBTU/SF

Btu/kWh/therm/\$



**Local Law 84  
Automated Benchmarking  
NYC Environmental Protection**

October 25, 2012

A stylized map of New York City's waterways, including the Hudson River, Harlem River, East River, and various canals and parks, rendered in white lines on a blue background.

**A GREENER,  
GREATER  
NEW YORK**

**NYC**<sup>TM</sup>

**Department of Finance**

# The Andrew

## Building Information

<b>Address:</b>	65-54 AUSTIN STREET
<b>Neighborhood:</b>	REGO PARK
<b>Property Type:</b>	Elevator Apt
<b>Total Gross SQFT:</b>	51,173
<b>Residential SQFT:</b>	38,868
<b>Commercial SQFT:</b>	12,305
<b>Total Units:</b>	50
<b>Residential Units:</b>	50
<b>Commercial Units:</b>	--
<b>Total Story:</b>	6
<b>Year Built:</b>	2008
<b>Zoning Code:</b>	R7B

# Norman Towers

## Building Information

<b>Address:</b>	90-09 160 STREET
<b>Neighborhood:</b>	JAMAICA
<b>Property Type:</b>	Elevator Apt
<b>Total Gross SQFT:</b>	95,465
<b>Residential SQFT:</b>	87,546
<b>Commercial SQFT:</b>	7,919
<b>Total Units:</b>	101
<b>Residential Units:</b>	101
<b>Commercial Units:</b>	--
<b>Total Story:</b>	9
<b>Year Built:</b>	2014
<b>Zoning Code:</b>	C4-5X

# Beach Green

## Building Information

<b>Address:</b>	44-19 ROCKAWAY BEACH BOULEVARD
<b>Neighborhood:</b>	--
<b>Property Type:</b>	Elevator Apt
<b>Total Gross SQFT:</b>	134,177
<b>Residential SQFT:</b>	134,177
<b>Commercial SQFT:</b>	--
<b>Total Units:</b>	101
<b>Residential Units:</b>	100
<b>Commercial Units:</b>	1
<b>Total Story:</b>	8
<b>Year Built:</b>	2016
<b>Zoning Code:</b>	C4-3A

# The Andrew

## Building Information

Address:	65-54 AUSTIN STREET
Neighborhood:	REGO PARK
Property Type:	Elevator Apt
Total Gross SQFT:	51,173
Residential SQFT:	38,868
Commercial SQFT:	12,305
Total Units:	50
Residential Units:	50
Commercial Units:	--
Total Story:	6
Year Built:	2008
Zoning Code:	R7B

## PROPOSED BUILDING

Floor	Actual Building Area
Floor 1: Lobby, Parking, Laundry, Building Support	8,415
Floor 2: Residential	8,415
Floor 3: Residential	8,415
Floor 4: Residential	8,415
Floor 5: Residential	8,415
Floor 6: Residential	8,415
Roof	683
<b>TOTAL</b>	<b>51,173</b>

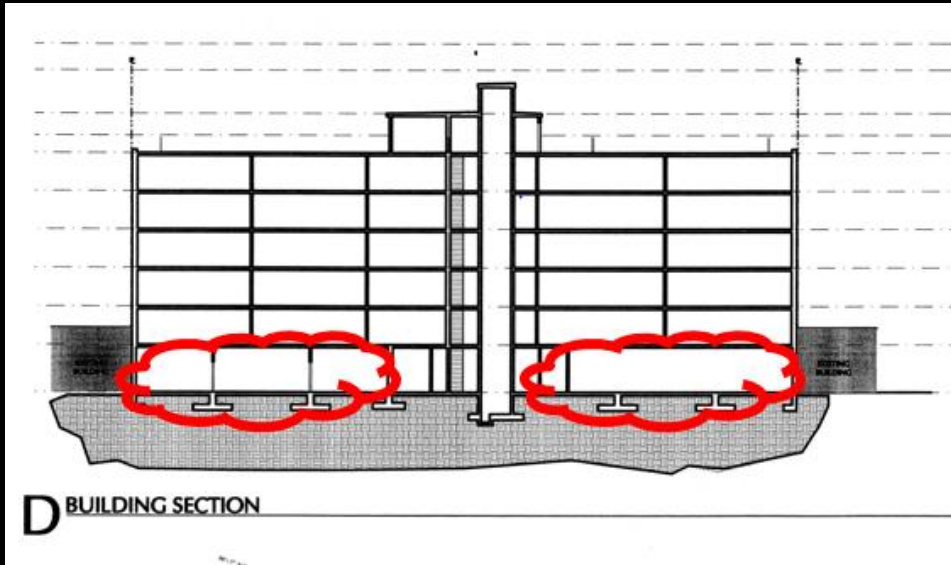
# The Andrew

## Building Information

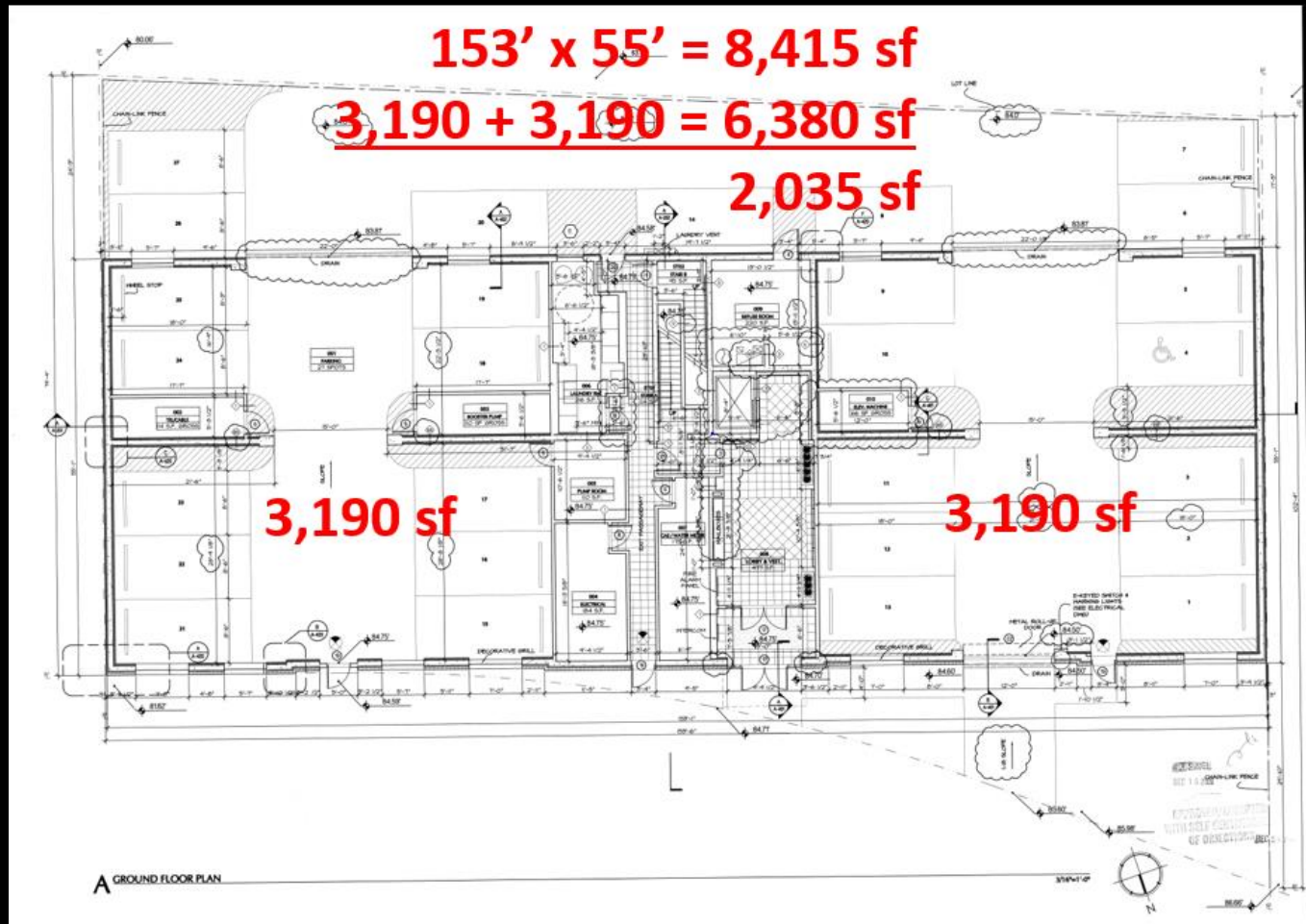
Address:	65-54 AUSTIN STREET
Neighborhood:	REGO PARK
Property Type:	Elevator Apt
Total Gross SQFT:	51,173
Residential SQFT:	38,600
Commercial SQFT:	12,305
Total Units:	50
Residential Units:	50
Commercial Units:	--
Total Story:	6
Year Built:	2008
Zoning Code:	R7B

## PROPOSED BUILDING

Floor	Actual Building Area
Floor 1: Lobby, Parking, Laundry, Building Support	8,415
Floor 2: Residential	8,415
Floor 3: Residential	8,415
Floor 4: Residential	8,415
Floor 5: Residential	8,415
Floor 6: Residential	8,415
Roof	683
<b>TOTAL</b>	<b>51,173</b>



**D** BUILDING SECTION



**A** GROUND FLOOR PLAN



# The Andrew

## Building Information

Address:	65-54 AUSTIN STREET
Neighborhood:	REGO PARK
Property Type:	Elevator Apt
Total Gross SQFT:	51,173
Residential SQFT:	38,868
Commercial SQFT:	12,305
Total Units:	50
Residential Units:	50
Commercial Units:	--
Total Story:	6
Year Built:	2008
Zoning Code:	R7B

## PROPOSED BUILDING

Floor		Actual Building Area
Floor 1: Lobby, Parking, Laundry, Building Support	2,035	<del>8,415</del>
Floor 2: Residential		8,415
Floor 3: Residential		8,415
Floor 4: Residential		8,415
Floor 5: Residential		8,415
Floor 6: Residential		8,415
Roof		683
<b>TOTAL</b>	<b>44,793</b>	<del>51,173</del>

# The Andrew

Building Information	
Address:	65-54 AUSTIN STREET
Neighborhood:	REGO PARK
Property Type:	Elevator Apt
Total Gross SQFT:	51,173
Residential SQFT:	38,868
Commercial SQFT:	12,305
Total Units:	50
Residential Units:	50
Commercial Units:	--
Total Story:	6
Year Built:	2008
Zoning Code:	R7B

44,793

# Norman Towers

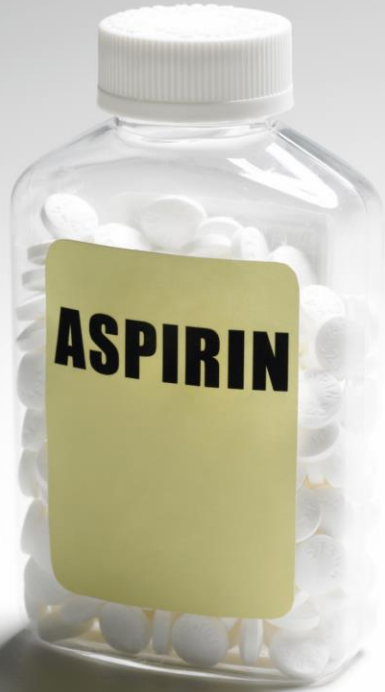
Building Information	
Address:	90-09 160 STREET
Neighborhood:	JAMAICA
Property Type:	Elevator Apt
Total Gross SQFT:	95,465
Residential SQFT:	87,546
Commercial SQFT:	7,919
Total Units:	101
Residential Units:	101
Commercial Units:	--
Total Story:	9
Year Built:	2014
Zoning Code:	C4-5X

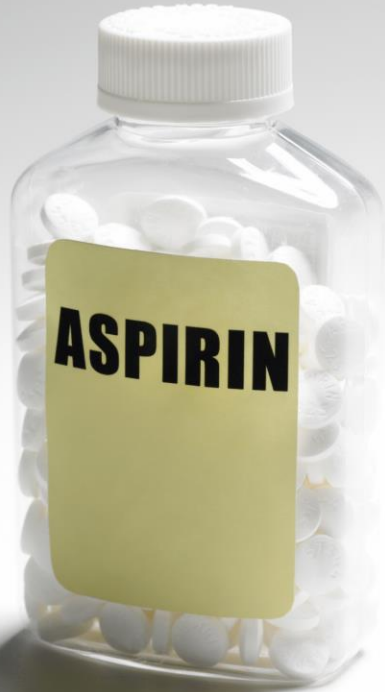
86,365

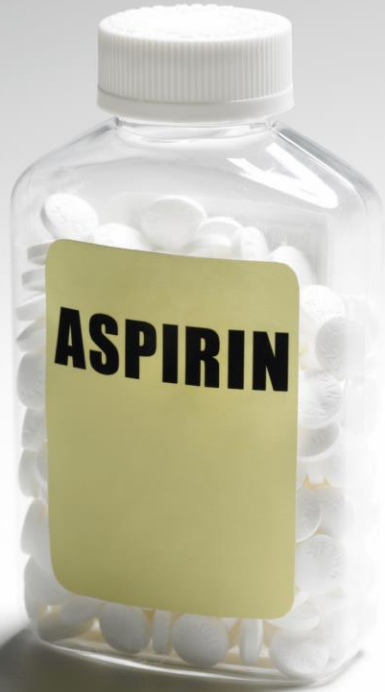
# Beach Green

Building Information	
Address:	44-19 ROCKAWAY BEACH BOULEVARD
Neighborhood:	--
Property Type:	Elevator Apt
Total Gross SQFT:	134,177
Residential SQFT:	134,177
Commercial SQFT:	--
Total Units:	101
Residential Units:	100
Commercial Units:	1
Total Story:	8
Year Built:	2016
Zoning Code:	C4-3A

103,211







## New Construction: Beyond Modeling to Real Data & Results

**Location:** Marina 2

**Speakers:** Steve Bluestone (*Helix Rebar/ICF Panels*), Ryan Merkin (*Steven Winter Associates*)

**CEUs:** 1.5 AIA LU/HSW; 1.5 BPI

**Areas of Focus:** D M P

**Level:** 2

Energy modeling has been an important tool for pushing the design & construction industry toward high efficiency buildings. However, building performance post-construction is decoupled from this process and doesn't provide a critical feedback loop. We will compare modeled results to actual utility consumption data from a set of completed and occupied ENERGY STAR certified multifamily buildings, and discuss results of recent energy audits for context on operations and maintenance practices. We'll examine major design elements (envelope, HVAC, renewables) and attempt to identify the most important factors driving electricity and fuel consumption as well as what design decisions were less influential.

# “Real Data”

**Real:** actually existing as a thing or occurring in fact; not imagined or supposed

**Data:** facts and statistics collected together for reference or analysis

**Fake:** not genuine; counterfeit



# New York City Heating Season

The period between October 1 and May 31 is Heat Season. During this time, the City requires building owners to provide tenants with heat according to the following rules: Between 6 AM and 10 PM, if the outside temperature falls below 55 degrees, the inside temperature must be at least 68 degrees Fahrenheit.



<b>October</b>	<b>November</b>	<b>December</b>	<b>January</b>	<b>February</b>	<b>March</b>	<b>April</b>	<b>May</b>
----------------	-----------------	-----------------	----------------	-----------------	--------------	--------------	------------

<b>October</b>	<b>November</b>	<b>December</b>	<b>January</b>	<b>February</b>	<b>March</b>	<b>April</b>	<b>May</b>
----------------	-----------------	-----------------	----------------	-----------------	--------------	--------------	------------

# The Andrew



	A	B	C	D	E
1	Utility account data for: Gas #0871209831				
2	End Date	Start Date	Therms		
3	2/9/2018	1/12/2018	2034		
4	1/11/2018	12/16/2017	2084		
5	12/15/2017	11/15/2017	1628		
6	11/14/2017	10/14/2017	729		
7		subtotal	6475		
8		estimated DHW	1374		
9		estimated heat	5101		
10		per unit	102		
11		\$ per unit/half winter	\$ 107	(at \$ 1.05/therm)	
12		\$ per unit entire winter	\$ 214		

# Norman Towers

Sept/Oct

97	81044121	212490	706980	0.0005	General		353.49	
98	81044371	209286	267939	0.0005	General		133.9695	
99	81044371	215647	105517	0.0005	General		52.7585	
100	81044462	215648	18371	0.0005	General		9.1855	
101	81044121	209287	262750	0.0005	General		131.375	
102	81044121	212491	395630	0.0005	General		197.815	
103	81044121	212492	120867	0.0005	General		60.4335	
104								14133.2

Oct/Nov

97	81044121	212490	134657	0.0005	General		67.3285	
98	81044371	209286	132212	0.0005	General		66.106	
99	81044371	215647	21093	0.0005	General		10.5465	
100	81044462	215648	41515	0.0005	General		20.7575	
101	81044121	209287	147524	0.0005	General		73.762	
102	81044121	212491	479911	0.0005	General		239.9555	
103	81044121	212492	77519	0.0005	General		38.7595	
104								8329.434

Nov/Dec

97	81044121	209285	77144	0.0005	General		38.572	
98	81044121	212490	14446	0.0005	General		7.223	
99	81044371	209286	215269	0.0005	General		107.6345	
100	81044371	215647	63646	0.0005	General		31.823	
101	81044462	215648	187923	0.0005	General		93.9615	
102	81044121	209287	193246	0.0005	General		96.623	
103	81044121	212491	658284	0.0005	General		329.142	
104	81044121	212492	192145	0.0005	General		96.0725	
105								14765.21

Dec/Jan

98	81044371	209286	574370	0.0005	General		287.185	
99	81044371	215647	17478	0.0005	General		8.739	
100	81044462	215648	570131	0.0005	General		285.0655	
101	81044121	209287	488232	0.0005	General		244.116	
102	81044121	212491	531808	0.0005	General		265.904	
103	81044121	212492	639471	0.0005	General		319.7355	
104								28066.72
105								



# Beach Green Dunes



Energy Report | Power | Gas | RunTime | 2017.12 | Monthly | Daily | View Each | View All

All Group | 2017-12-1 ~ 2017-12-4

System	2017.09	2017.10	2017.11	2017.12
System #1				
Direct Options				
System #2				
System #3				
System #4				
System #5				
System #6				
System #7				

Monthly	Usage	Accumulated
2017/9	0.0	0.0
2017/10	0.0	0.0
2017/11	0.0	0.0
2017/12	54651.6	54651.6

Initial Date 1. | Email | Save to PC



Customer ID: 0807-1001-37-7 | Account #: 0072509001

ENERGY CREDIT BANK

Opening Balance	24,000
Applied to Current Bill	-400
Energy Credit Balance	23,600

<b>Amount Due</b>	<b>\$ 655.49</b>
Please Pay By	Dec 20, 2017

DETAILS OF CURRENT ENERGY CHARGES

Rate 281 - Secondary, Commercial, Large, General Use

84% <b>Delivery &amp; System Charges</b>	<b>\$ 547.43</b>
<i>The cost to deliver electricity: includes operation and maintenance of the electric system, certain on-island generation and certain transition charges of \$0.018188/kWh on behalf of the Utility Debt Securitization Authority.</i>	
Basic Service : 29 day(s) @ \$ 1.7200 =	49.88
Demand 43.0 KW	497.55
16% <b>Taxes &amp; Other Charges</b>	<b>\$ 108.06</b>
Delivery Service Adjustment	-4.63
Revenue Decoupling Adjustment	42.61
NY State Assessment	1.73
Revenue-Based PILOTS	14.92
Sales Tax @ 8.875 %	53.43
100% <b>Total Charges</b>	<b>\$ 655.49</b>

Electric Usage

Meter # 80352868	<b>Reading</b>
Actual reading on 11/22/2017	99705
Actual reading on 10/24/2017	-99700
Difference	5
Meter Multiplier	x 80
Total electricity used in 29 day(s)	400
Applied from Energy Credit Bank	-400
Billed KWH	0
<b>Electric Demand</b> (Rounded to nearest .5 kw)	
Actual Reading	1.71
Actual Reading	-1.17
Difference	.54
Meter Multiplier	x 80
Recorded Demand (KW)	43.0



Customer ID: 0807-1001-37-7 | Account #: 0072509001

ENERGY CREDIT BANK

Opening Balance	23,600
Applied to Current Bill	-11,520
Energy Credit Balance	12,080

<b>Amount Due</b>	<b>\$ 1,653.64</b>
Please Pay By	See Message Center

DETAILS OF CURRENT ENERGY CHARGES

Rate 281 - Secondary, Commercial, Large, General Use

83% <b>Delivery &amp; System Charges</b>	<b>\$ 825.14</b>
<i>The cost to deliver electricity: includes operation and maintenance of the electric system, certain on-island generation and certain transition charges of \$0.018188/kWh on behalf of the Utility Debt Securitization Authority.</i>	
Basic Service : 29 day(s) @ \$ 1.7200 =	49.88
Demand 67.0 KW	775.26
17% <b>Taxes &amp; Other Charges</b>	<b>\$ 163.18</b>
Delivery Service Adjustment	-6.98
Revenue Decoupling Adjustment	64.22
NY State Assessment	2.89
Revenue-Based PILOTS	22.49
Sales Tax @ 8.875 %	80.56
100% <b>Total Charges</b>	<b>\$ 988.32</b>

Electric Usage

Meter # 80352868	<b>Reading</b>
Actual reading on 12/21/2017	99849
Actual reading on 11/22/2017	-99705
Difference	144
Meter Multiplier	x 80
Total electricity used in 29 day(s)	11520
Applied from Energy Credit Bank	-11,520
Billed KWH	0
<b>Electric Demand</b> (Rounded to nearest .5 kw)	
Actual Reading	2.55
Actual Reading	-1.71
Difference	.84
Meter Multiplier	x 80
Recorded Demand (KW)	67.0



Customer ID: 0807-1001-37-7 | Account #: 0072509001

ENERGY CREDIT BANK

Opening Balance	12,080
Applied to Current Bill	-12,080
Energy Credit Balance	0

<b>Amount Due</b>	<b>\$ 2,970.81</b>
Please Pay By	Feb 17, 2018

DETAILS OF CURRENT ENERGY CHARGES

Rate 281 - Secondary, Commercial, Large, General Use

47% <b>Delivery &amp; System Charges</b>	<b>\$ 1,418.30</b>
<i>The cost to deliver electricity: includes operation and maintenance of the electric system, certain on-island generation and certain transition charges of \$0.019894/kWh on behalf of the Utility Debt Securitization Authority.</i>	
Basic Service : 34 day(s) @ \$ 1.8541 =	63.04
First 11200 KWH @ \$ .0111 =	124.32
Demand 84.0 KW	1,230.94
38% <b>Power Supply Charges</b>	<b>\$ 1,121.03</b>
<i>The cost of electricity: includes the purchase of fuel (e.g. oil and gas) used to produce electricity and electricity purchased directly.</i>	
11200 KWH @ \$ .100091 =	1,121.03
15% <b>Taxes &amp; Other Charges</b>	<b>\$ 431.48</b>
DER Charge 11200 KWH @ \$ .003074 =	34.43
Delivery Service Adjustment	16.41
Revenue Decoupling Adjustment	63.54
NY State Assessment	7.82
Revenue-Based PILOTS	67.11
Sales Tax @ 8.875 %	242.17
100% <b>Total Charges</b>	<b>\$ 2,970.81</b>

Electric Usage

Meter # 80352868	<b>Reading</b>
Actual reading on 01/24/2018	00140
Actual reading on 12/21/2017	-99849
Difference	291
Meter Multiplier	x 80
Total electricity used in 34 day(s)	23280
Applied from Energy Credit Bank	-12,080
Billed KWH	11,200
<b>Electric Demand</b> (Rounded to nearest .5 kw)	
Actual Reading	3.60
Actual Reading	-2.55
Difference	1.05
Meter Multiplier	x 80
Recorded Demand (KW)	84.0



Customer ID: 0807-1001-37-7 | Account #: 0072509001

ENERGY CREDIT BANK

Opening Balance	0
Applied to Current Bill	0
Energy Credit Balance	0

<b>Amount Due</b>	<b>\$ 2,592.97</b>
Please Pay By	Mar 18, 2018

DETAILS OF CURRENT ENERGY CHARGES

Rate 281 - Secondary, Commercial, Large, General Use

41% <b>Delivery &amp; System Charges</b>	<b>\$ 1,060.54</b>
<i>The cost to deliver electricity: includes operation and maintenance of the electric system, certain on-island generation and certain transition charges of \$0.019894/kWh on behalf of the Utility Debt Securitization Authority, the owner of such transition charges.</i>	
Basic Service : 29 day(s) @ \$ 1.9100 =	55.39
First 10960 KWH @ \$ .0100 =	109.60
Demand 69.5 KW	895.55
45% <b>Power Supply Charges</b>	<b>\$ 1,166.61</b>
<i>The cost of electricity: includes the purchase of fuel (e.g. oil and gas) used to produce electricity and electricity purchased directly.</i>	
10960 KWH @ \$ .106442 =	1,166.61
14% <b>Taxes &amp; Other Charges</b>	<b>\$ 365.82</b>
DER Charge 10960 KWH @ \$ .003195 =	35.02
Delivery Service Adjustment	21.12
Revenue Decoupling Adjustment	32.92
NY State Assessment	6.40
Revenue-Based PILOTS	58.99
Sales Tax @ 8.875 %	211.37
100% <b>Total Charges</b>	<b>\$ 2,592.97</b>

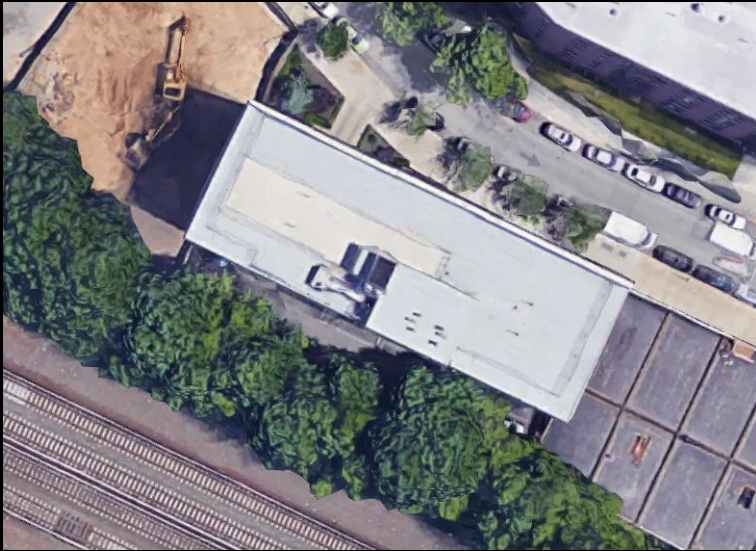
Electric Usage

Meter # 80352868	<b>Reading</b>
Actual reading on 02/22/2018	00277
Actual reading on 01/24/2018	-00140
Difference	137
Meter Multiplier	x 80
Total electricity used in 29 day(s)	10960
Applied to Energy Bank	0
Billed KWH	10,960
<b>Electric Demand</b> (Rounded to nearest .5 kw)	
Actual Reading	4.47
Actual Reading	-3.60
Difference	.87
Meter Multiplier	x 80
Recorded Demand (KW)	69.5



# Annual heating cost per apartment per year???

The Andrew



\$214/apt/year

Norman Towers



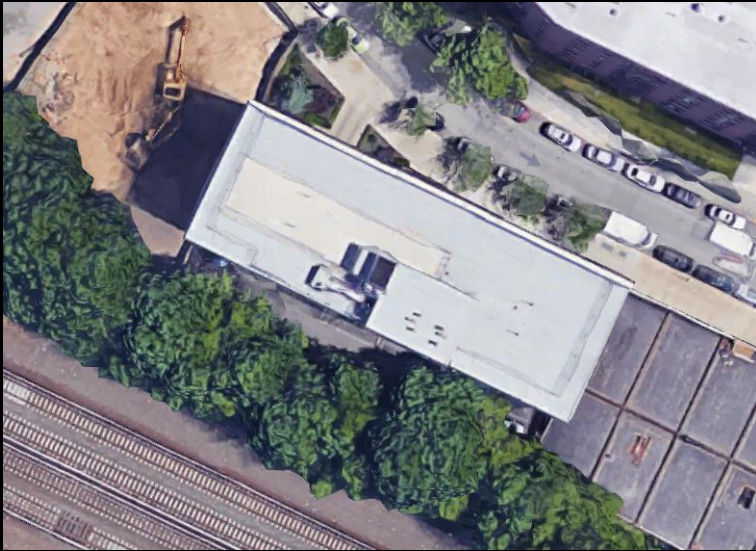
Beach Green Dunes





# Annual heating cost per apartment per year???

The Andrew



\$214/apt/year

Norman Towers



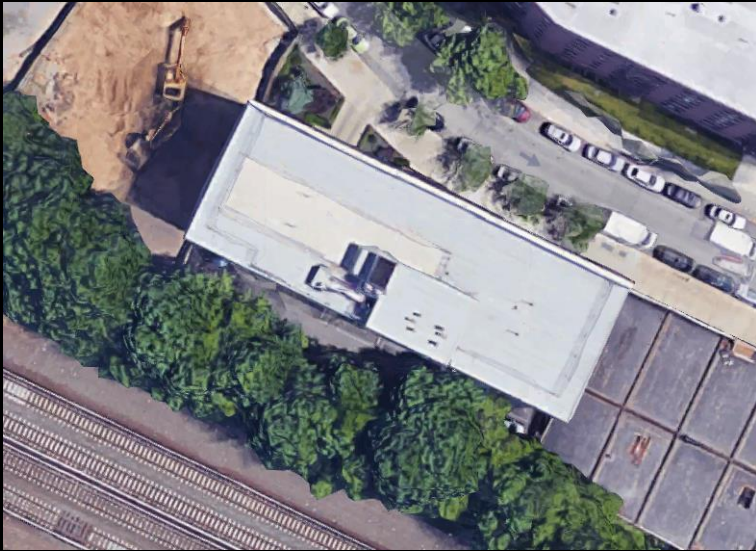
\$230/apt/year?

Beach Green Dunes



# Annual heating cost per apartment per year???

The Andrew



\$214/apt/year

Norman Towers



\$230/apt/year?

Beach Green Dunes



\$301/apt/year?  
\$98/apt/year (w/CHP & PV)

## System #1

Direct Options

System #2

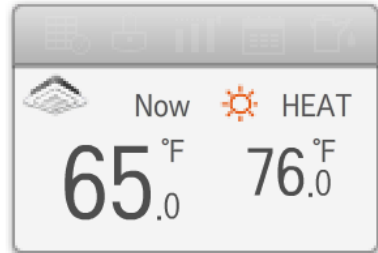
System #3

System #4

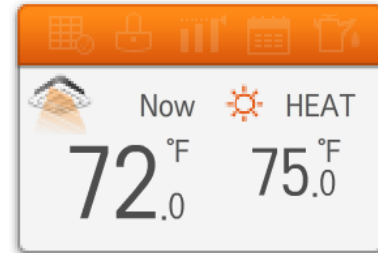
System #5

System #6

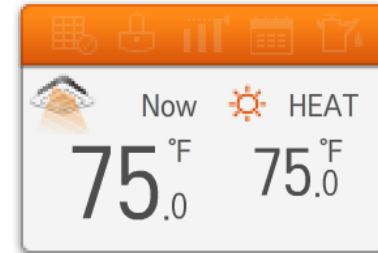
System #7



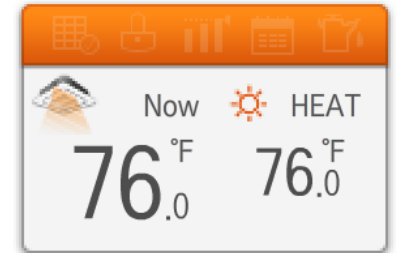
APT 1A



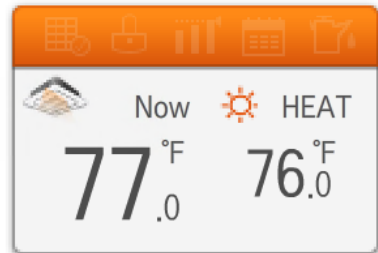
APT 1H



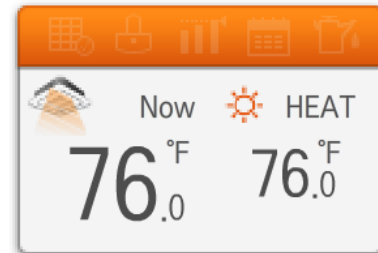
APT 2A



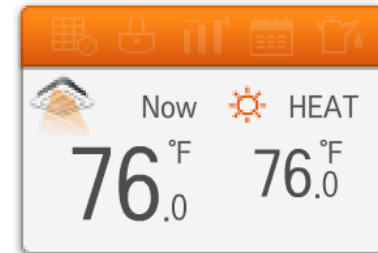
APT 2R



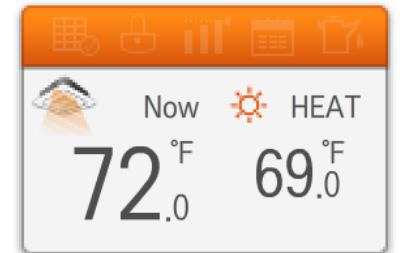
APT 3A



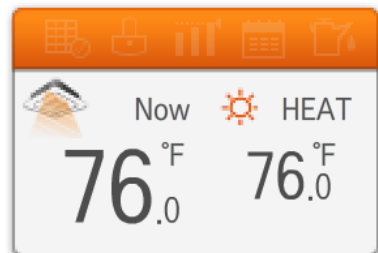
APT 3R



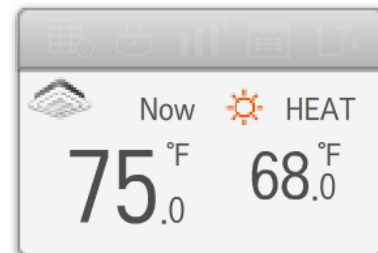
APT 4A



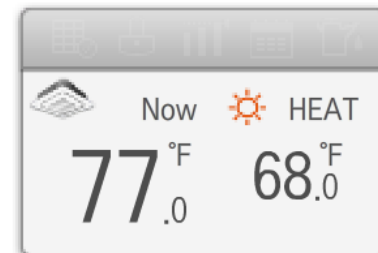
APT 4R



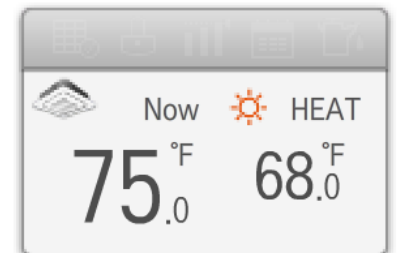
APT 5A



APT 5R



APT 6A



APT 6R

System #1

Direct Options

System #2

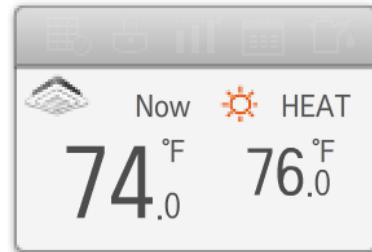
System #3

System #4

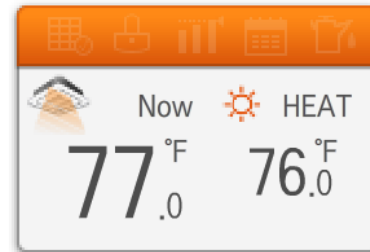
System #5

System #6

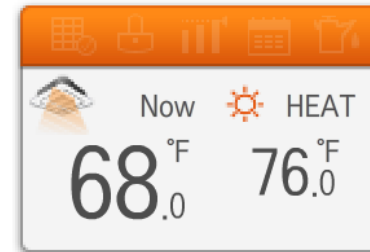
System #7



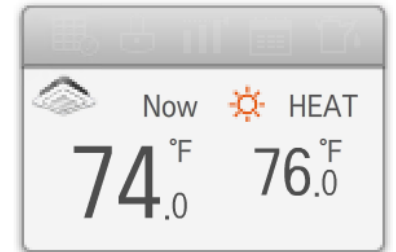
APT 1G



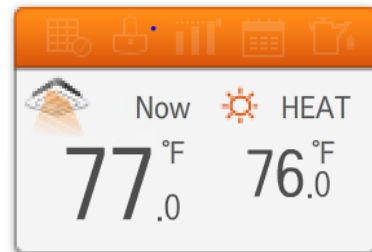
APT 2B



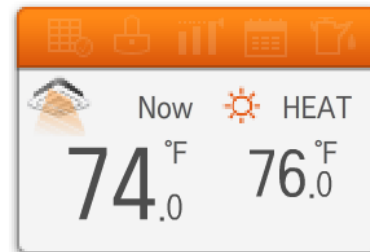
APT 2C



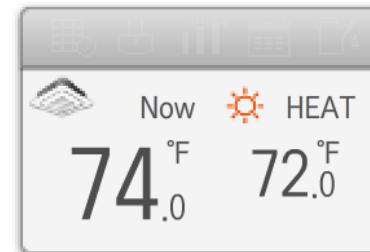
APT 2Q



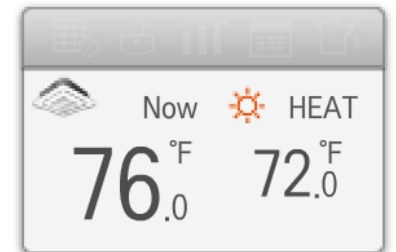
APT 3B



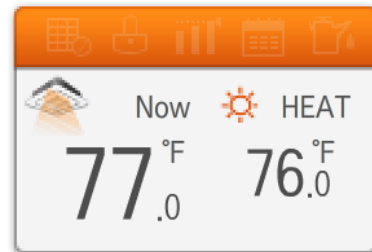
APT 3C



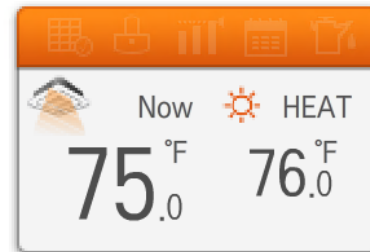
APT 3Q



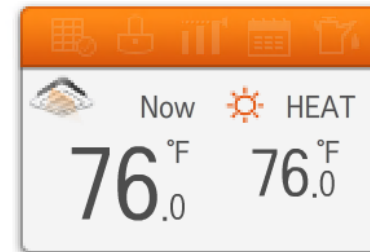
APT 4B



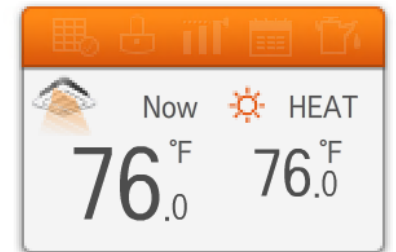
APT 4C



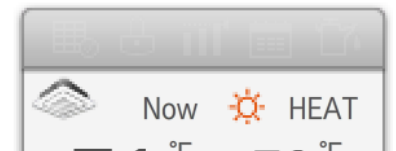
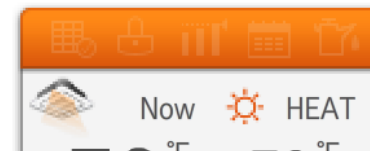
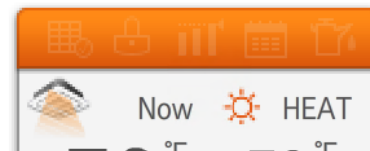
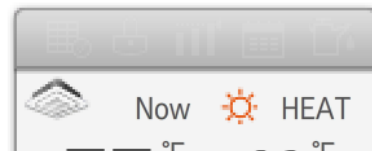
APT 4Q



APT 5B



APT 5C



System #1

Direct Options

System #2

System #3

System #4

System #5

System #6

System #7

Now HEAT  
70.0°F 72.0°F

This card shows the current temperature (70.0°F) and the setpoint (72.0°F) for APT 2D. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 2D

Now HEAT  
74.0°F 76.0°F

This card shows the current temperature (74.0°F) and the setpoint (76.0°F) for APT 2E. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 2E

Now HEAT  
70.0°F 68.0°F

This card shows the current temperature (70.0°F) and the setpoint (68.0°F) for APT 2H. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 2H

Now HEAT  
76.0°F 76.0°F

This card shows the current temperature (76.0°F) and the setpoint (76.0°F) for APT 3D. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 3D

Now HEAT  
73.0°F 76.0°F

This card shows the current temperature (73.0°F) and the setpoint (76.0°F) for APT 3E. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 3E

Now HEAT  
73.0°F 76.0°F

This card shows the current temperature (73.0°F) and the setpoint (76.0°F) for APT 3H. The mode is HEAT. The card has a grey header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 3H

Now HEAT  
74.0°F 76.0°F

This card shows the current temperature (74.0°F) and the setpoint (76.0°F) for APT 4D. The mode is HEAT. The card has a grey header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 4D

Now HEAT  
76.0°F 76.0°F

This card shows the current temperature (76.0°F) and the setpoint (76.0°F) for APT 4E. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 4E

Now HEAT  
76.0°F 76.0°F

This card shows the current temperature (76.0°F) and the setpoint (76.0°F) for APT 4H. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 4H

Now HEAT  
76.0°F 76.0°F

This card shows the current temperature (76.0°F) and the setpoint (76.0°F) for APT 5D. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 5D

Now HEAT  
74.0°F 75.0°F

This card shows the current temperature (74.0°F) and the setpoint (75.0°F) for APT 5E. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 5E

Now HEAT  
77.0°F 76.0°F

This card shows the current temperature (77.0°F) and the setpoint (76.0°F) for APT 5H. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

APT 5H

Now HEAT  
70.0°F 72.0°F

This card shows the current temperature (70.0°F) and the setpoint (72.0°F) for APT 6D. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

Now HEAT  
74.0°F 76.0°F

This card shows the current temperature (74.0°F) and the setpoint (76.0°F) for APT 6E. The mode is HEAT. The card has a grey header with icons for grid, thumbs up, bar chart, calendar, and trash.

Now HEAT  
70.0°F 68.0°F

This card shows the current temperature (70.0°F) and the setpoint (68.0°F) for APT 6H. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

Now HEAT  
76.0°F 76.0°F

This card shows the current temperature (76.0°F) and the setpoint (76.0°F) for APT 6I. The mode is HEAT. The card has an orange header with icons for grid, thumbs up, bar chart, calendar, and trash.

Data in. Crap out.

# Lesson learned?



Questions? I've got plenty.

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