

Park Avenue Green

Passive High-Rise Affordable Housing



Tyler Davis, Director of New Construction



Project Introduction

Park Avenue Green Team

Developer:
Omni New York

Architect:
Curtis + Ginsberg Architects

MEP:
Skyline Engineering

Contractor:
Monadnock Construction

Passive House Consultant:
Bright Power

Structural Engineer:
De Nardis Engineering



*PHIUS+ 2015, 2015 Enterprise Green Communities, &
ENERGY STAR Multifamily High-Rise Certified

Statistics

- 154 dwelling units
- 163,743 sf of total gross floor area
- 159,146 sf of gross residential floor area
- 4,597 sf art workshop (community facility)
- Construction duration:
 - May 2017 to (TCO) November 1, 2018
- Certification Dates:
 - 2015 Enterprise Green Communities: February 2019
 - PHIUS+ 2015: March 2019
 - ENERGY STAR MFHR: April 2019



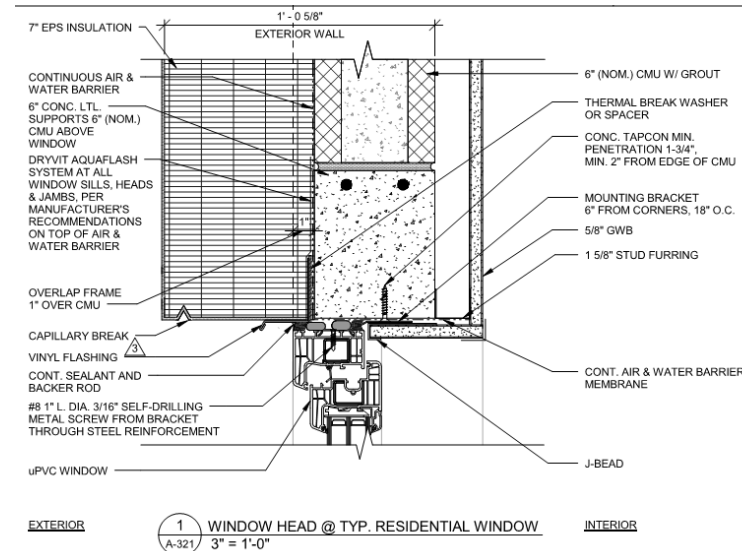
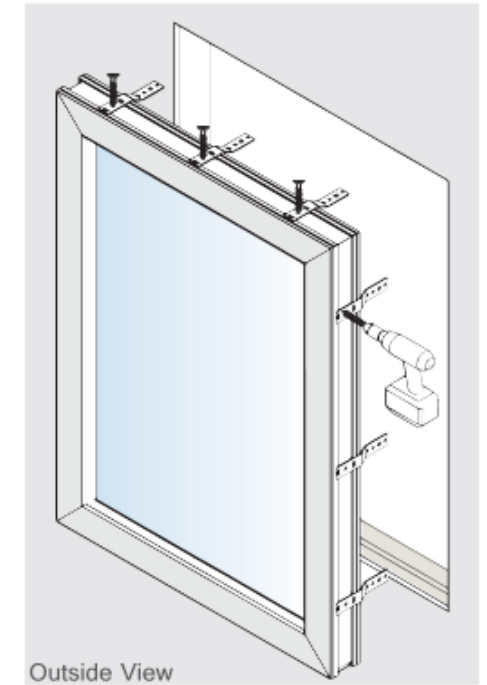
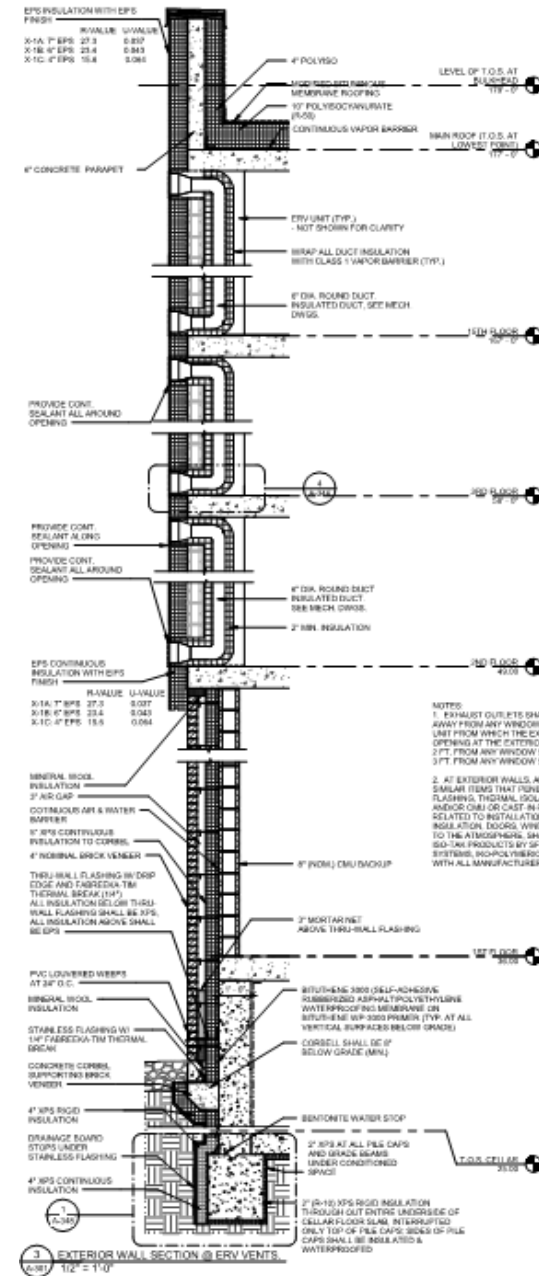
Design Objectives

- Minimized operational and maintenance costs for one entity that is developer/ long-term owner/ property manager
- Comfortable home for more than 150 families and individuals
- Resilience
- Energy Efficiency
- Noise reduction and improved indoor air quality

Achieving Passive House

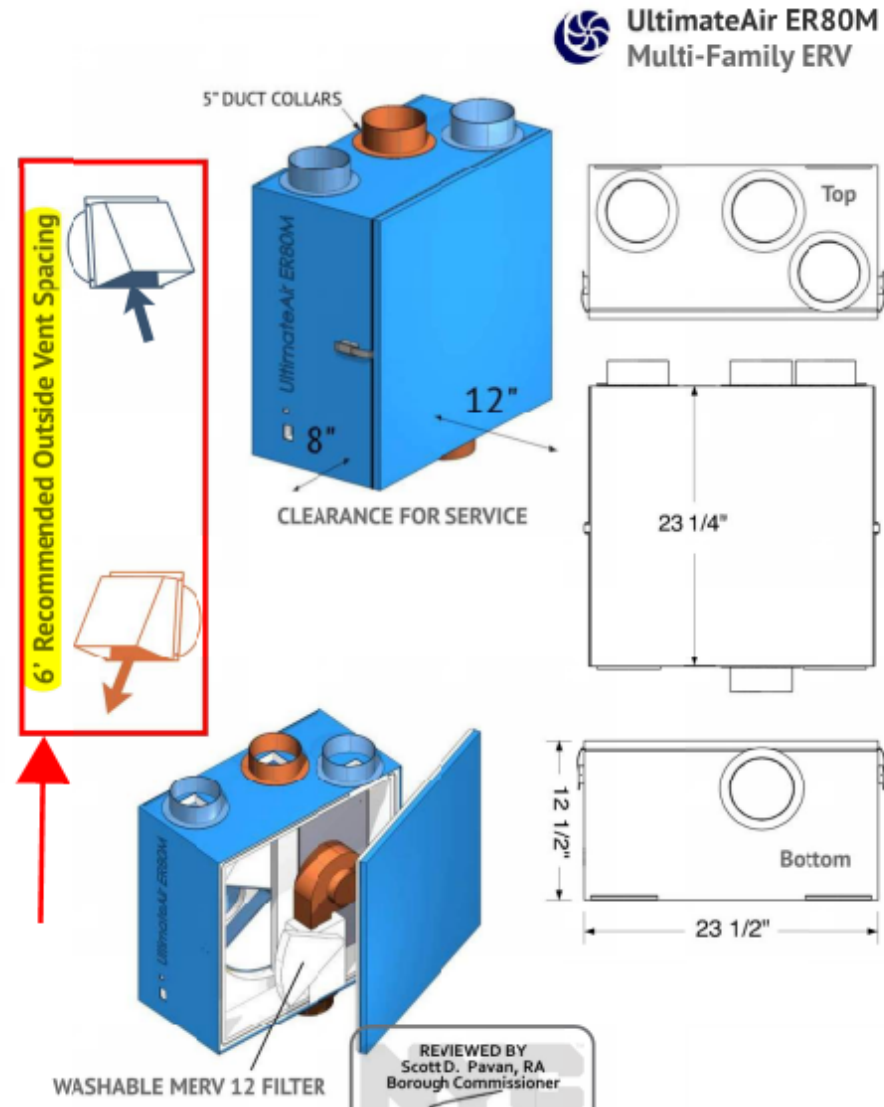
High Performing Building Envelope

- Continuous Insulation with EIFS
 - Air/Wind tightness with EIFS
 - Minimize Thermal Bridging
 - Optimize Solar Gains – Glazing and Shading through high performance, triple glazed uPVC window
 - Indoor Air Quality – Heat/ Moisture Recovery
-
- *Sub-Slab: R-10*
 - *Walls: R-27.3 Cont.*
 - *Roof: R-50 min*
 - *uPVC Window: U-Factor = 0.14 Overall*
 - *UG = 0.088; UF = 0.167*
 - *SHGC = 0.25*
 - *OITC = 28*

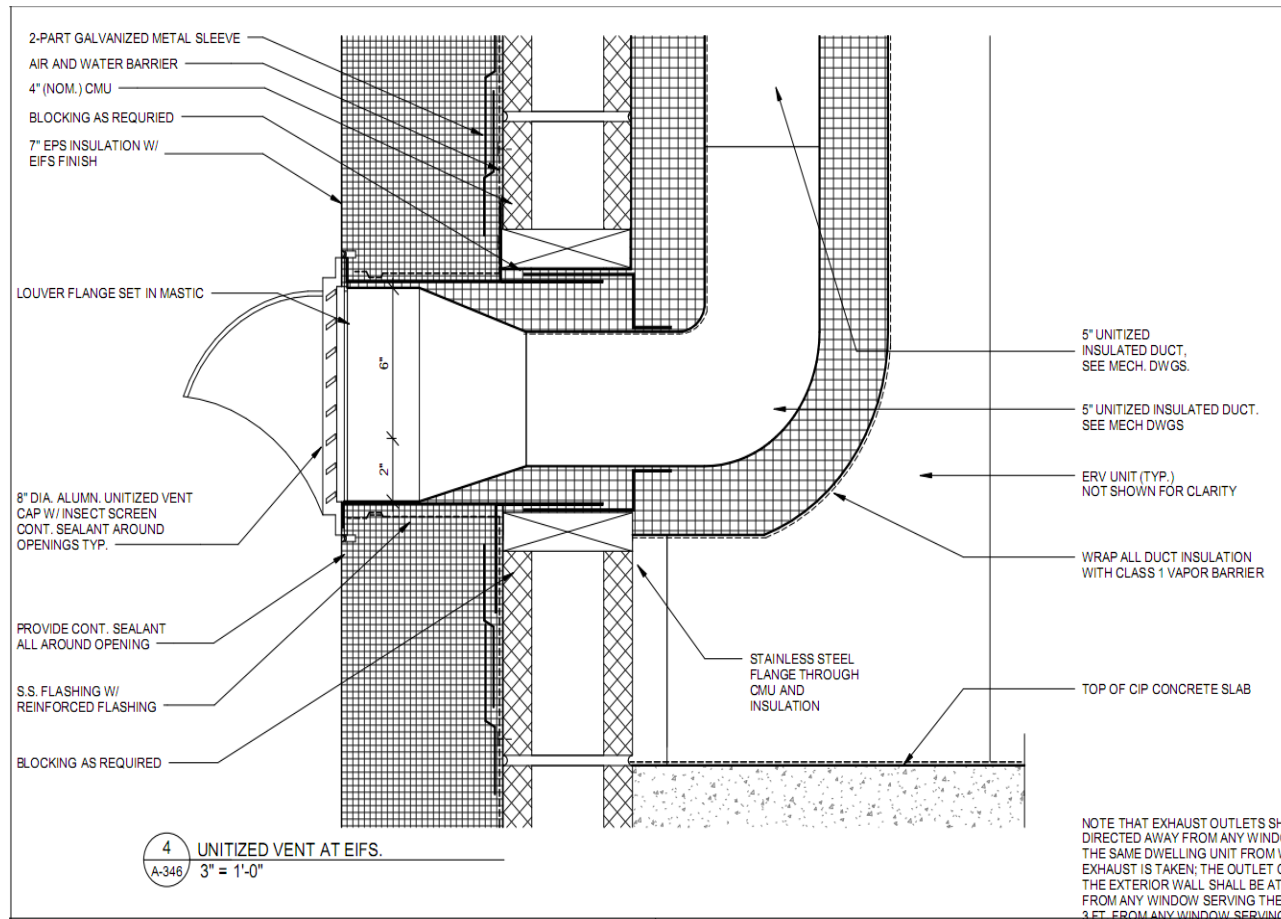


DOB Special Permission Solution

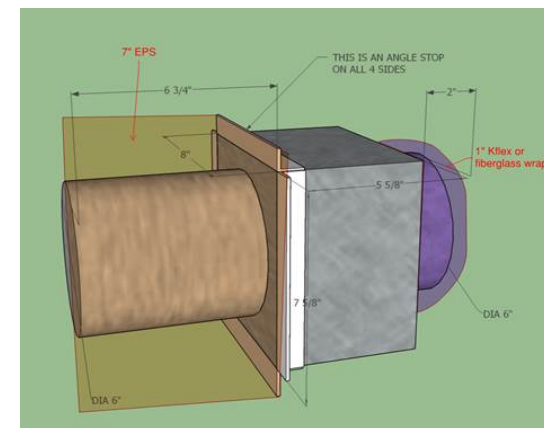
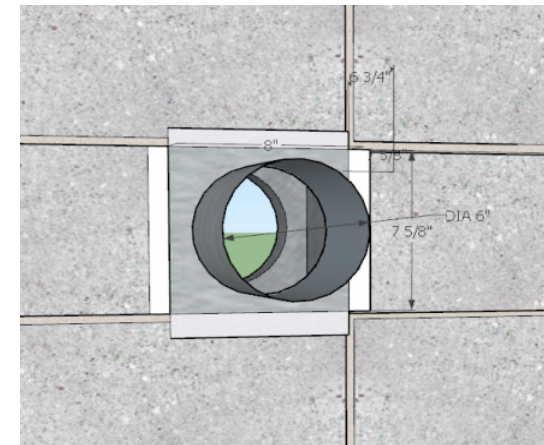
10' distance between
exhaust and supply



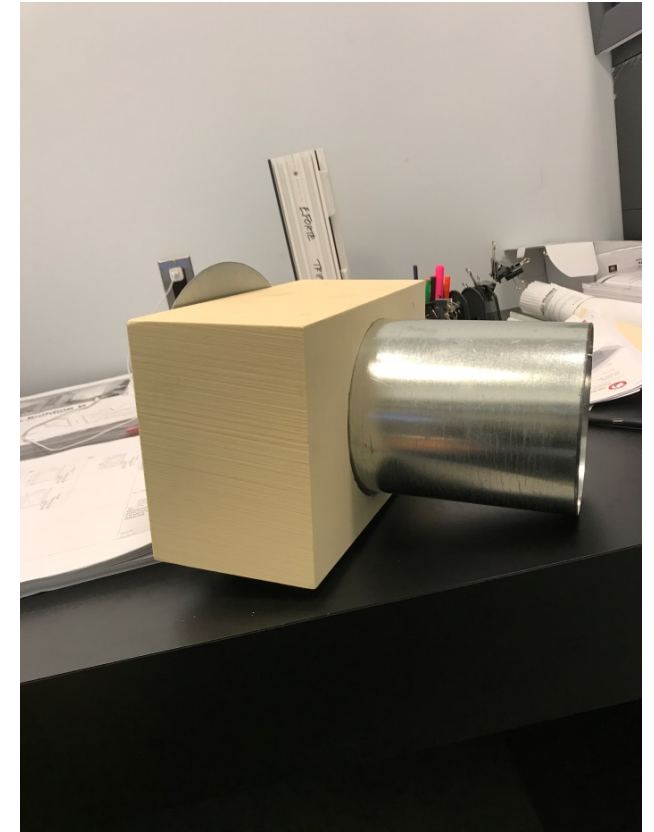
ERV Duct Insulation



Alternate for better constructability



Contractor Solution



Use structural grade thermal blocks around ducts which the mason can then place perfectly in the 8" CMU rough opening

Duct Aerosealing

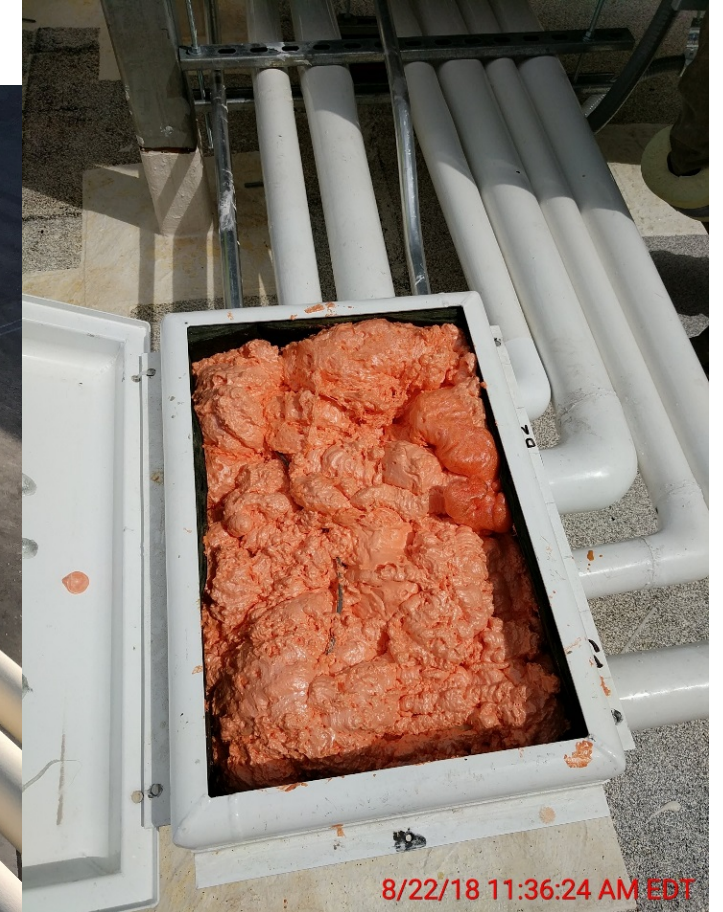


Appendix A. Aeroseal Duct Sealing Results

System	Riser ID	Duct Leakage		% Reduction	Total Design Flow (CFM)*	% Leakage Pre-Aeroseal	% Leakage Post-Aeroseal	CFM Reduction at 50 Pa
		Pre-Aeroseal (CFM @ 50 Pa)	Post-Aeroseal (CFM @ 50 Pa)					
Dryer Make-Up	Dryer Make-Up	131	5	96%	2,200	6.0%	0.2%	126
DXF-1	DXF-1	67	3	96%	2,200	3.0%	0.1%	64
ERV-2	GX-1, JX-1, TX-1	366	11	97%	910	40.2%	1.2%	355
	MUA-1	164	16	90%	1,015	16.2%	1.6%	148
HV-1	MUA-2	193	6	97%	795	24.3%	0.8%	187
RXF-1**	RX-1	75	6	92%	970	7.7%	0.6%	69
Total - All Systems		996	47	95%	8,090	12.3%	0.6%	949

*Total design air flow is based on the total design CFM of the grilles connected to the ductwork that was sealed.
 **A block came loose during pre-seal, pre-aeroseal leakage rate is adjusted to reflect actual leakage rate once block was installed correctly

Roof “The Vault” Detail



Factory QA / QC



November 3, 2017
Intus Window Fabrication Inspection Report #1
Page 18 of 37

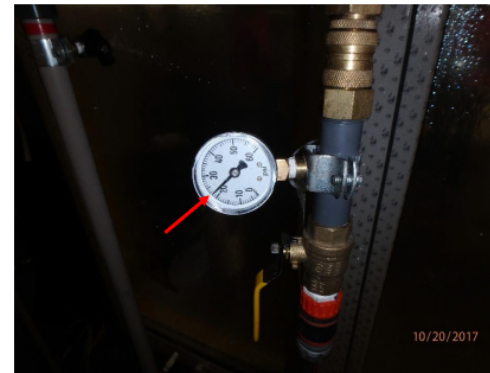
Photograph #27

View of the window main frame corners being welded with automated welding machine.



Photograph #19

View of a water pressure gauge at the hose connected to spray rack. Water pressure was set to 24PSI (red arrow).



Photograph #64

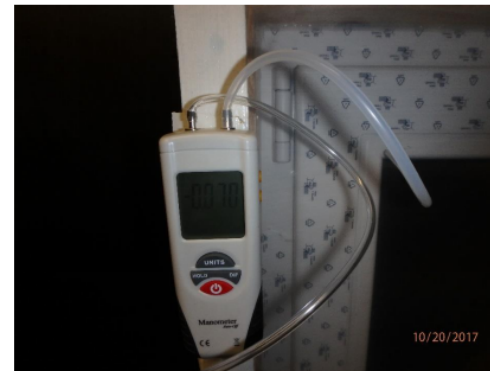
Overview of typical window frames fully glazed with insulated glass and being wrapped with cellophane wrap.



Photograph #20

View of the electrical Dual Dig-Monometer used to measure the differential air pressure in the chamber.

differential air pressure in chamber is 0.07PSI (red w).



Factory Production Quality Control

Detailed checking should be made for every 75 units in one production order. Detailed checking should be made of at least for one unit in the order.

ORDER: P4843 POS: B1 DATE: 10/23/2017 CHECKED BY: Ugne Buivydaite

IMAGE OF THE SAMPLE:

		SYSTEM: <input type="checkbox"/> Arcade <input checked="" type="checkbox"/> Clotte <input type="checkbox"/> Other: _____	FITTINGS: <u>Siegenia</u>
		TYPE: <input checked="" type="checkbox"/> Window <input type="checkbox"/> Balcony Door <input type="checkbox"/> Entry Door <input type="checkbox"/> Lift & Slide	OPERATION: <input type="checkbox"/> Dual Action <input checked="" type="checkbox"/> Casement <input type="checkbox"/> Tupper <input type="checkbox"/> Flaring <input type="checkbox"/> In-swing <input type="checkbox"/> Out-swing <input type="checkbox"/> Lift & Slide

DIMENSIONS	FRAME		SASH 1		SASH 2		SASH 3	
	Width	Height	Width	Height	Width	Height	Width	Height
Order	3' 11"	5' 1 13/16"	3' 8 7/16"	4' 11 3/16"				
Actual	3' 11"	5' 1 13/16"	3' 8 7/16"	4' 11 3/16"				
Difference	N/A	N/A	N/A	N/A				

Acceptable deviations: ≤1 m: 1 mm, >1 m: 2 mm

	Config: SN61 28 6x18Arx18AnPren		Config: SN61 28 6x18Arx18AnPren		Config:		Config:	
	Glued	Welded	Glued	Welded	Glued	Welded	Glued	Welded
Glass	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Gasket	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Drilling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sealing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Dec. Grids	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Item	Pass	Did Not Pass	N/A	Comments
Aesthetic evaluation (scratches/other damages)	X			
Corner cleaning quality on frame	X			
Corner cleaning quality on sash	X			
Integ. mullion installation quality (pos., fixation, sealing)	X			
Gaskets quality on frame (conn. in corners, cutting)	X			
Gaskets quality on sash (conn. in corners, cutting)	X			
Drainage and ventilation holes quality (position/number of holes following Tech. Manuals)	X			
Handle holes quality	X			
Hardware completeness	X			
IGU quality (defects, scratches, cracks)	X			
Quality of glazing beads cuttings	X			
Correct functioning of the sash (if adjustment needed)	X			

Field QA / QC



3/26/2018
Park Avenue, 2956 (Morris Phase II)
Report #27
Page 5

MONADNOCK
CONSTRUCTION, INC.



Color: ■
Subject: Rising Sun
Page Label: A -North Elevation
Status:
Author: fnoel (1)
Creation Date: 8/2/2018 3:16:43 PM
Capture: Yes
Ticket Work: NO
Material To Be Ordered: NO

Remove grout and caulk all junction box.



1.4

Locations: Ground Floor – West Elevation, various locations

Observation: The Contractor added DOW Scoreboard rigid insulation at the columns (*red arrow*) where it was previously missing, in accordance with CANY's previous recommendation (*refer to Report #26 – Section 1, Item 1.10 for previous observation*).

Conforming / Nonconforming: Conforming.

Referenced Document: Contract Drawings Detail 1/A341.



Sessa (8)



Color: ■
Subject: Sessa
Page Label: A -North Elevation
Status:
Author: fnoel (1)
Creation Date: 4/23/2018 4:43:05 PM
Capture: Yes
Ticket Work: NO
Material To Be Ordered: NO

Aqua flash patched



1.5

Locations: Ground Floor – West Elevation, various locations

Observation: Relieving angle installation was in progress. The fiber glass reinforced plastic structure plates were installed at each anchor location (*red arrow*).

Conforming / Nonconforming: In Progress.

Referenced Document: Contract Drawings Detail 4/A321.



Color: ■
Subject: Sessa
Page Label: A -North Elevation
Status:
Author: fnoel (1)
Creation Date: 4/23/2018 4:49:49 PM
Capture: Yes
Ticket Work: NO
Material To Be Ordered: NO

Damaged aquaflash sealed



Color: ■
Subject: Sessa
Page Label: A -North Elevation
Status:
Author: fnoel (1)
Creation Date: 4/23/2018 4:54:19 PM
Capture: Yes
Ticket Work: NO
Material To Be Ordered: NO

Anchor clip sealed



Results

Test Results

Help

Airflow at 50 Pascals
4268 CFM50 (+/- 11.7 %)
0.18 ACH50

Leakage Area
234.7 in2 LBL ELA @ 4 Pa

Building Leakage Curve
Flow Coefficient (C) = 445.8 (+/- 17.7 %)
Exponent (n) = 0.577 (+/- 0.048)
Correlation Coefficient = 0.99320

Accuracy Level
Standard Level of Accuracy Test

Estimated Annual Infiltration
544.8 CFM 0.02 ACH
1.5 CFM per person

Estimated Design Infiltration
Winter: 542.8 CFM 0.02 ACH
Summer: 346.7 CFM 0.01 ACH

Estimated Cost of Air Leakage
\$ 102 per year heating
\$ 121 per year cooling

Previous
to Test Graph

Next
to Deviations from Std

- Target: 8,219 CFM50

Buildings of Excellence Competition Administered by NYSERDA



- Building Design Competition
- Awarded \$250,000
- Only project selected in the *Post-Completion Performance Optimization* category

L to R: Brendan Hall (ASHRAE), Mark Kruse (AIA New York State), NYSERDA President and CEO Alicia Barton, Tyler Davis (Bright Power), Abdulla Darrat (Renewal Construction Services LLC), Lt. Governor Kathy Hochul, New York State Senator Brian Kavanagh, Richard Yancy (Building Energy Exchange) at the Buildings of Excellence Award Ceremony at the Building Energy Exchange in the Surrogate's Courthouse on October 29, 2019.

Buildings of Excellence: How We'll Use the Award



Morris Avenue Apartments

- Certifications:
 - LEED Gold
- 176 units
- Completed 2016
- On-site generation:
 - 50 kW Solar PV



Park Avenue Green

- Certifications:
 - Passive House (PHIUS+)
 - Enterprise Green Communities
 - ENERGY STAR®
- 154 units
- Completed 2018
- On-site generation:
 - 34 kW Solar PV
 - 65 kW Cogeneration

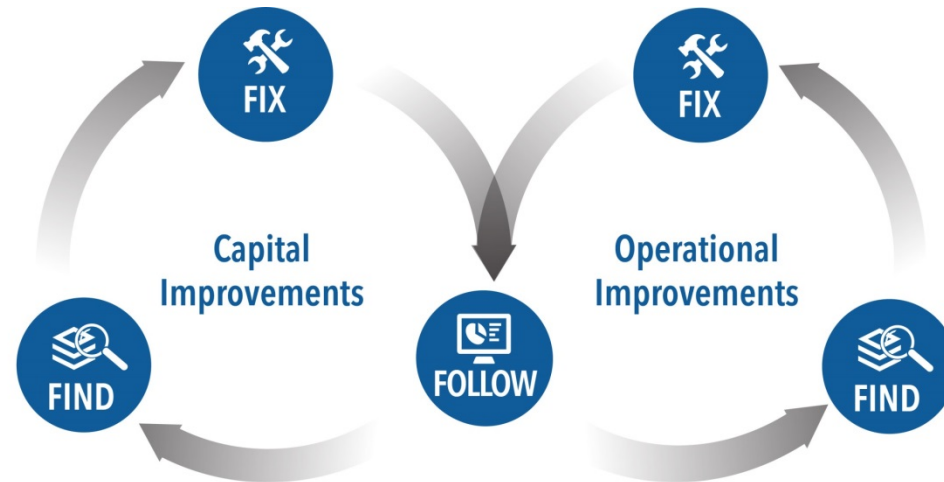
Buildings of Excellence: How We'll Use the Award

Implement Bright Power's MoBIUS[®] real-time energy management service to:

- Maintain building performance
- Improve and optimize building performance

Omni New York will also implement MoBIUS at the neighboring Morris Avenue Apartments (LEED Gold Certified). The award will enable Bright Power and Omni New York to compare real data from two different buildings of similar size, tenant population, and location — one Passive House and one not.

A subscription service connecting owners to dedicated project engineers focused on decreasing energy consumption and increasing operational efficiency through data driven action.



Thank you!

Tyler Davis

Director of New Construction
tdavis@brightpower.com

