NYC Buildings

EN1: Energy Cost Budget Worksheet

Enter information for sections 1, 2 and 3 - incorporate in the drawing set.

Must be typewritten

1	Location Information				
	House No(s) 221	Street Name West 57th Street			
	Borough Manhattan	Block 1029	Lot 14	BIN 1080870	CB No. 105
	Work on Floor(s) SC3 thru 93			Apt/Condos No(s) n/a	

2	Applicant Information				
	Last Name McHugh	First Name Christopher		Middle Initial	
	Business Name AKF Group		Business Telephone 646-758-0900		
	Business Address 1501 Broadway Suite 700		Business Fax		
	City New York	State NY	Zip 10036	Mobile Telephone	
	Email CMcHugh@akfgroup.com			License Number 73130	

3	Energy Modeling Information	
	Modeling Software & version	eQuest v3.64
	Weather File	TMY2 NEW YORK (tm)
	Modeled Square Feet	1217175
	Conditioned SQFT	1071963
	Proposed Unmet Load Hours	142
	Baseline Unmet Load Hours	177
	Proposed Site EUI (kBtu/sf)	73.4
	Baseline Site EUI (kBtu/SF)	82.3

Falsification of any statement is a misdemeanor under the NYC Administrative Building Code and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both.

Name (please print): CHRISTOPHER McHUGH

Signature

Date: 2018-06-15

P.E. / R.A. Seal (apply seal, then sign a

STATE OF NEW YORK · PROFESSIONAL ENGINEER

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5 Energy Modeling Usage Summary

5a Energy Related Design Features

List energy related features that are included in the design and contribute to the energy savings in Section 5.

Condensing Boilers, High Efficiency Heat Pumps and Heat Recovery Units, High-Efficiency Lighting, Domestic Hot Water fed from Condensing Boiler Plant

*BEPU Notes:

1. BEPU reports included in this submission, "DMS" is a Dummy Meter and is excluded from all reported energy consumption and cost values for both baseline and proposed.

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6g	Service Hot Water Systems					
Model Input Parameter	Baseline Design	Units	Proposed Design	Units	Supporting Doc Location	Model Output Report
	Multifamily					
System Type & Fuel	GAS		RESIDENTIAL DHW CONSUMPTION, FED BY HEAT EXCHANGERS FROM MAIN BOILER PLANT		P-400 WATER HEATER AND THERMOSTATIC MIXING VALV SCHEDULE / M-501 BOILER SCHEDULE	PV-A
Input Rating	764	kBtu/h	76,500	kBtu/h	(Boiler Plant feeds DHW as well as FTR / Main Air Handlers / WSHP Loop	PV-A
Efficiency	80%	Et	93%	Et		PV-A
Storage Volume	77.4	Gal	-	Gal		PV-A
Storage Temperature	120	°F	180	°F		PV-A
Peak HW Demand	79.6	GPM	4600	GPM		PV-A
Number of Primary DHW pumps	0	#	10	#		PV-A
Primary DHW Pump Power	0	kW	140	kW		PV-A
Primary DHW Pump Control					Variable Speed	PV-A

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3	Energy Modeling Protocol (select)
	Section 11 ECB

4	Purchased Energy Rates						
Fuel	Utility Rate Provider/Rate Structure (i.e ConEd)	Virtual Utility Rate ($/unit)	Baseline Design Total Charge ($)	Virtual Utility Rate ($/unit)	Proposed Design Total Charge ($)	Supporting Doc. Location	Model Output Report
Electric	Con Ed SC9 - General Large	$0.2077/kWh	$ 2,667,792.00	$0.2009/kWh	$ 2,600,030.00		ES-D
Gas	Con Ed - Nat Gas - SC3	$1.063/Therm	$ 324,035.00	$1.069/Therm	$ 243,010.00		ES-D
Steam	Con Ed SC1-Rate 1 - Residential	$0.2115/kWh	$ 900,884.00	$0.215/kWh	$ 739,382.00		ES-D
Other:						COST SAVINGS	COMPLIES?
TOTAL			$ 3,892,711		$ 3,582,422	8.0%	Yes

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6a	Above-Grade Wall & Fenestration Areas								
		Baseline Case			Proposed Case			Supporting Doc. Location	Model Output Report
		Multifamily							
	Orientation	Window + Wall Area (ft^2)	Vertical Glazing Area (ft^2)	Vertical Glazing Area (%)	Window + Wall Area (ft^2)	Vertical Glazing Area (ft^2)	Vertical Glazing Area (%)		
Above-Grade Wall & Vertical Glazing Area by Orientation	North	200315.28	99431.48	49.6	200315.28	102717.63	51.3		LV-D
	East	167556.53	59690.22	35.6	167556.53	61151.59	36.5	A-090	LV-D
	South	197792.71	73359.84	37.1	197792.71	76931.43	38.9		LV-D
	West	168840.15	61161.75	36.2	168840.15	65608.2	38.9		LV-D
	Total	**734504.67**	**293643.29**	40.0	**734504.67**	**306408.85**	41.7		LV-D
Roof & Skylight Area	Roof + Skylight Area (ft^2)		Skylight Area (ft^2)	Skylight Area (%)	Roof + Skylight Area (ft^2)	Skylight Area (ft^2)	Skylight Area (%)	Supporting Doc. Location	Model Output Report
	Total	**45153**	**0**	0.0	45153	0	0.0	A-090	LV-D

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6g	Service Hot Water Systems					
Model Input Parameter	Baseline Design	Units	Proposed Design	Units	Supporting Doc Location	Model Output Report
	Multifamily					
System Type & Fuel			Retail Space Fitout DHW system, modeled identically between baseline and proposed		n/a (Retail space DHW), modeled code neutral)	PV-A
Input Rating	86	kBtu/h	86	kBtu/h		PV-A
Efficiency	100%	EF	100%	Et		PV-A
Storage Volume	150	Gal	150	Gal		PV-A
Storage Temperature	120	°F	120	°F		PV-A
Peak HW Demand	2.2	GPM	2.2	GPM		PV-A
Number of Primary DHW pumps	0	#	0	#		PV-A
Primary DHW Pump Power	0	kW	0	kW		PV-A
Primary DHW Pump Control						PV-A

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INSTRUCTIONS: If the modeling parameters call for averaging 4 rotations, enter the data into each of the white columns. If the modeling protocol does not require averaging the 4 rotations, enter the data into only the column labeled "0'" (do not

4a	Baseline Rotations										
	Baseline Model										
	0'		90'		180'		270'		Average of 4 rotations		Model Output Location (Report)
	Annual usage (kwh/therm)										
	kwh	therm	kwh	therm	kwh	therm	kwh	therm	kwh	therm	
Interior Lighting	4,094,535	-							4,094,535	-	BEPU
Misc. Equip.	2,344,198	-							2,344,198	-	BEPU
Space Heat	217,079	257,192							217,079	257,192	BEPU
Space Cool	3,949,582	-							3,949,582	-	BEPU
Heat Rejection	15,944	-							15,944	-	BEPU
Pumps & Misc	3,184,288	-							3,184,288	-	BEPU
Vent Fans	2,513,478	-							2,513,478	-	BEPU
Dom. Hot Water	80,767	47,643							80,767	47,643	BEPU
Exterior Lighting	270,071	-							270,071	-	BEPU
Exterior Misc.	435,536	-							435,536	-	BEPU
TOTAL	17,105,478	304,835	-	-	-	-	-	-	17,105,478	304,835	BEPU
	Annual cost ($)										
Electric	$3,568,676.00								$3,568,676.00		ES-D
Gas	$324,035.00								$324,035.00		ES-D
Steam									$0.00		ES-D
Other									$0.00		ES-D
TOTAL	3,892,711		-		-		-		3,892,711		

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6e	Exterior Lighting Power			
	Baseline Design (Watts)	Proposed Design (Watts)	Supporting Doc. Location	Model Output Report
Tradable Lighting Power	5809	6003	Ltg Calcs Spreadsheet	PS-E
Non-Tradable Lighting Power	43498	44683		PS-E
Base Site Allowance	2465.35			
Total Lighting Power	51772.35	50686		PS-E

* Use the tab labeled "Ext. LPD Calculator" to automatically fill in the table above

f	Process/Receptacle Equipment					
Space Type (or Equipment Type)	Space Area (or # Equip.)	Equipment Power Density (W/SF) or (Equip Demand)	Modeling Parameters/ Schedule	Baseline Modeled Identically? (Yes/No)	Supporting Doc. Location	Model Output Report
	SQFT	W/SF				
Retail	252,299	1.00	On Daytime, 7 Days/Week, 20% Fraction Unoccuiped	Yes	ASHRAE 90.1-2007 User's Manual	LV-B
Multifamily	554,324	0.25	On Daytime, 7 Days/Week, 20% Fraction Unoccuiped	Yes		

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COMPLIANCE WITH ECCC-NYS NOTE:

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2011 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE, USING THE ASHRAE 90.1 ALTERNATIVE (LISTED IN NYCECC, 501.2).

KEY PLAN:

PROJECT 865 · WEST 58TH ST · WEST 57TH ST · 8TH AVE · 7TH AVE · BROADWAY

PROJECT NORTH · TRUE NORTH

DEVELOPER:
EXTELL DEVELOPMENT COMPANY
805 THIRD AVENUE, 7TH FLOOR
New York, NY 10022 USA
TEL: 212 712 6000 FAX: 212 712 6100

DESIGN ARCHITECT: Base Building Shell & Core
ADRIAN SMITH + GORDON GILL ARCHITECTURE
111 WEST MONROE STREET SUITE 2300
CHICAGO IL 60603
TEL: 312 920 1888 FAX: 312 920 1775

INTERIOR DESIGNER: Residential
Rottet Architecture and Design Studio, PLLC
298 Fifth Ave, 7th Floor
New York, NY 10001
TEL: 646 998 7000 FAX:

ARCHITECT OF RECORD: Base Building Shell, Core, & Residential
AAI ARCHITECTS, P.C.
401 Wellington St. W., 3rd Floor
Toronto, ON M5V 1E7 Canada
TEL: 416 967 1500 FAX: 416 967 7150

STRUCTURAL ENGINEERS:
WSP CANTOR SEINUK
228 EAST 45th Street
New York, NY 10017 USA
TEL: 212 687 9888 FAX: 646 487 5501

MEP ENGINEERS:
AKF GROUP
One Liberty Plaza, 165 Broadway, 22nd Floor
New York, NY 10006 USA
TEL: 212 354 5656 FAX: 212 354 5668

GEOTECHNICAL ENGINEERS:
Langan Engineering & Environmental Services
21 Penn Plaza - 360 West 31st Street, 8th Floor
New York, NY 10001-2727
TEL: 212 479 5400 FAX: 212 479 5444

CODE CONSULTANTS:
Construction Consulting Associates
100 Church Street
New York, NY 10007
TEL: 212 385 1818 FAX: 212 385 1911

CURTAINWALL CONSULTANT:
A3LP Consulting
40 Worth Street, Suite 826
New York, NY 10013
TEL: 212 757 5659 FAX: 646 219 8508

LANDMARK/PRESERVATION CONSULTANT:
Jan Hird Pokorny Associates, Inc.
39 West 37th Street, 12A
New York, NY 10018
TEL: 212 759 6462 FAX: 212 759 6540

No.	DESCRIPTION	DATE
1	RE-ISSUED FOR DOB COMMENTS	15 JUNE 2018

0 4'-0" 8'-0" 16'-0"

Discrepancies must be reported immediately to the Architect before proceeding. Only figured dimensions are to be used. Contractors must check all dimensions on site. This drawing is protected by copyright.

ALL DIMENSIONS ARE SHOWN IN IMPERIAL.

CONSULTANT: AKF
ONE LIBERTY PLAZA, 165 BROADWAY, 22nd FLOOR
NEW YORK, NY 10006
T: 212 354 5656 F: 212 354 5668

PROJECT:
217 WEST 57TH STREET
NEW YORK, NY

DRAWING TITLE:
ENERGY CODE COMPLIANCE

SEAL & SIGNATURE:

DATE: 03/27/18
PROJECT No: Y130747-000
DRAWN: MS
CHK: JR
REV: 1
SCALE: 12" = 1'-0"
DWG No: **EN-100**
DOB PAGE No: 1 of 3

DOB EMPLOYEE STAMP:
DOB B-SCAN:

36" x 48" Arch E SHEET SIZE

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EN1: Energy Cost Budget Worksheet

Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Residential SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW [illegible]		HEATING AND VENTILATING UNIT		M-502, HEATING AND VENTILATING UNIT WITH ELECTRIC PREHEAT SCHEDULE	SV-A
System Designation(s)	HV-1		HV-1			
# of Similar Systems	1		1			
Total Cooling Capacity	n/a	kBTU/h	n/a	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range		kBTU/h		kBTU/h		
*Unitary Cooling Eff. (EER or SEER)		EER		EER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	2289	kBtu/h	362	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range		COP				
*Unitary Heating Efficiency						
*Fan Control	Constant Volume		Constant Volume			
Supply Airflow	19800	cfm	19800	cfm		
Outdoor Airflow	19800	cfm	19800	cfm		
*Demand Control Ventilation	No		No			
*Economizer High-Limit Shutoff (°F)	n/a		n/a			
Exhaust Air Energy Recovery Systems	Heat Recovery per 90.1-2007 6.5.6		n/a			
*Exhaust Air Energy Recovery Effectiveness	50% sens / 50% latent					
Supply Fan Power	7.9	kW	7.9	kW		
Return/Relief Fan Power		kW		kW		
Exhaust Fan Power		kW		kW		
System Fan Power	7.9	kW	7.9	kW		
Allowed Fan Power:	7.9	kW		kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Amenities SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW WSHP		Pool AC / Dehumidification Unit		M-502, POOL AC	SV-A
System Designation(s)	AC-9-1		AC-9-1			
# of Similar Systems	1		1			
Total Cooling Capacity	405	kBTU/h	256	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range	>135	kBTU/h	n/a	kBTU/h		
*Unitary Cooling Eff. (EER or SEER)	[illegible]	EER	[illegible]	SEER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	382	kBtu/h	250	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range	>135	kBtu/h				
*Unitary Heating Efficiency	3.2	COP				
*Fan Control	Variable Speed		Variable Speed			
Supply Airflow	10000	cfm	10000	cfm		
Outdoor Airflow	1750	cfm	1750	cfm		
*Demand Control Ventilation	n/a		n/a			
*Economizer High-Limit Shutoff (°F)	65 high limit shutoff		65 high limit shutoff dual enthalpy economizer			
Exhaust Air Energy Recovery Systems						
*Exhaust Air Energy Recovery Effectiveness						
Supply Fan Power	7.8	kW	9.32	kW		
Return/Relief Fan Power		kW		kW		
Exhaust Fan Power		kW		kW		
System Fan Power	7.8	kW	9.32	kW		
Allowed Fan Power:	7.8	kW		kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Residential SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW WSHP		Energy Recovery Units		M-502, ENERGY RECOVERY UNIT SCHEDULE	SV-A
System Designation(s)	ERU's 12-1, 27-1, 27-2, 46-1, 46-2, 67-1, 96-1		ERU's 12-1, 27-1, 27-2, 46-1, 46-2, 67-1, 96-1			
# of Similar Systems	[illegible]		[illegible]			
Total Cooling Capacity	[illegible]	kBTU/h	[illegible]	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range	> 760	kBTU/h		kBTU/h		
*Unitary Cooling Eff. (EER or SEER)	9.5	EER	[illegible]	EER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	[illegible]	kBtu/h	[illegible]	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range	>135	COP				
*Unitary Heating Efficiency	3.2		[illegible]	COP		
*Fan Control	Constant Volume		Constant Volume			
Supply Airflow	92500	cfm	92500	cfm		
Outdoor Airflow	92500	cfm	92500	cfm		
*Demand Control Ventilation	None		none			
*Economizer High-Limit Shutoff (°F)	n/a		n/a			
Exhaust Air Energy Recovery Systems	Heat Recovery per 90.1-2007 6.5.6		Heat Recovery Wheel			
*Exhaust Air Energy Recovery Effectiveness	50% sens / 50% latent		[illegible]			
Supply Fan Power	[illegible]	kW	[illegible]	kW		
Return/Relief Fan Power		kW	[illegible]	kW		
Exhaust Fan Power		kW		kW		
System Fan Power	[illegible]	kW	[illegible]	kW		
Allowed Fan Power:	[illegible]	kW		kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Residential SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW 4-Pipe FC		Triplex Fan Coil Units, Top Duplex Fan Coil		M-503, VRV HEAT PUMP INDOOR UNIT SCHEDULE	SV-A
System Designation(s)	Triplex Fan Coil, Top Duplex Fan Coils		Triplex Fan Coil, Top Duplex Fan Coils			
# of Similar Systems	2		2			
Total Cooling Capacity	730	kBTU/h	550	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range	n/a	kBTU/h	n/a	kBTU/h		
*Unitary Cooling Eff. (EER or SEER)		EER		SEER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	557	kBtu/h	701	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range	n/a	COP				
*Unitary Heating Efficiency						
*Fan Control	Cycling		Cycling			
Supply Airflow	21192	cfm	16033	cfm		
Outdoor Airflow	0	cfm		cfm		
*Demand Control Ventilation	None		None			
*Economizer High-Limit Shutoff (°F)	n/a		n/a			
Exhaust Air Energy Recovery Systems	n/a		n/a			
*Exhaust Air Energy Recovery Effectiveness						
Supply Fan Power	16.5	kW	12.5	kW		
Return/Relief Fan Power		kW		kW		
Exhaust Fan Power		kW		kW		
System Fan Power	16.5	kW	12.5	kW		
Allowed Fan Power:	16.5	kW		kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Residential SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW Pkg Rooftop AC		Unit Heaters Serving BOH/stairwell spaces		M-501, UNIT HEATER SCHEDULE	SV-A
System Designation(s)	UH Sys		UH Sys			
# of Similar Systems	1		1			
Total Cooling Capacity	n/a	kBTU/h	n/a	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range		kBTU/h		kBTU/h		
*Unitary Cooling Eff. (EER or SEER)		EER		SEER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	340.00	kBtu/h	434	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range		COP				
*Unitary Heating Efficiency						
*Fan Control	Cycling		Cycling			
Supply Airflow	21816	cfm	26239	cfm		
Outdoor Airflow	0	cfm	0	cfm		
*Demand Control Ventilation	None		None			
*Economizer High-Limit Shutoff (°F)	n/a		n/a			
Exhaust Air Energy Recovery Systems			n/a			
*Exhaust Air Energy Recovery Effectiveness	n/a					
Supply Fan Power	2.161	kW	2.638	kW		
Return/Relief Fan Power		kW		kW		
Exhaust Fan Power		kW		kW		
System Fan Power	2.161	kW	2.638	kW		
Allowed Fan Power:	2.161	kW		kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Residential SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW WSHP		WATER-COOLED AIR CONDITIONING UNIT WITH CONDENSER WATER AND HEAT PUMP HEATING		M-502, AIR CONDITIONING UNIT SCHEDULE FOR CONDENSER WATER WITH HEAT PUMP HEATING	SV-A
System Designation(s)	AC-SC3-1 thru AC-96-3		AC-SC3-1 thru AC-96-3			
# of Similar Systems	28		28			
Total Cooling Capacity	4270	kBTU/h	4024	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range	> 760	kBTU/h		kBTU/h		
*Unitary Cooling Eff. (EER or SEER)	9.5	EER	14.8 (weighted avg)	EER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	4027	kBtu/h	2885	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range	>135	COP				
*Unitary Heating Efficiency	3.2		4.4 (avg)	COP		
*Fan Control	Variable Speed		Variable Speed			
Supply Airflow	104732	cfm	98350	cfm		
Outdoor Airflow	26215	cfm	26215	cfm		
*Demand Control Ventilation	None		None			
*Economizer High-Limit Shutoff (°F)	65 high limit shutoff		Dual Enthalpy economizer on all units with outside air			
Exhaust Air Energy Recovery Systems			none			
*Exhaust Air Energy Recovery Effectiveness						
Supply Fan Power	54.3	kW	50.3	kW		
Return/Relief Fan Power		kW		kW		
Exhaust Fan Power		kW		kW		
System Fan Power	54.3	kW	50.3	kW		
Allowed Fan Power:	54.3	kW		kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Residential SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW WSHP		Residential Amenity and corridor supply units		M-502, RESIDENTIAL AMENITY AND CORRIDOR SUPPLY UNITS	SV-A
System Designation(s)	AC's 1-1, 7-4, 7-5; RCS's 12-1, 27-1, 27-2, 46-1, 95-1		AC's 1-1, 7-4, 7-5; RCS's 12-1, 27-1, 27-2, 46-1, 95-1			
# of Similar Systems	8		8			
Total Cooling Capacity	4699	kBTU/h	2743	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range	>135	kBTU/h		kBTU/h		
*Unitary Cooling Eff. (EER or SEER)	12	EER	12.9 (AVG)	EER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	4463	kBtu/h	2400	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range	>135	kBtu/h				
*Unitary Heating Efficiency	4.2	COP	4.3 (AVG)	COP		
*Fan Control	Constant Volume		Constant Volume			
Supply Airflow	51750	cfm	51750	cfm		
Outdoor Airflow	51750	cfm	51750	cfm		
*Demand Control Ventilation	None		None			
*Economizer High-Limit Shutoff (°F)	n/a (100% OA)		n/a (100% OA)			
Exhaust Air Energy Recovery Systems	Heat Recovery per 90.1-2007 6.5.6		Wrap-Around Heat Pipes			
*Exhaust Air Energy Recovery Effectiveness	50% sens / 50% latent		62%			
Supply Fan Power	40.4	kW	54	kW		
Return/Relief Fan Power		kW		kW		
Exhaust Fan Power		kW		kW		
System Fan Power	40.4	kW	54	kW		
Allowed Fan Power:	40.4	kW		kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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NYC Buildings

EN1: Energy Cost Budget Worksheet

Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Residential SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW WSHP		68th floor Amenity VRV Heat Pump		M-503, VRV / HEAT PUMP WATER COOLED CONDENSING UNIT SCHEDULE	SV-A
System Designation(s)	FCU-68-1, 68-2, 68-3, 68-4, 68-5, 68-6, 68-7		FCU-68-1, 68-2, 68-3, 68-4, 68-5, 68-6, 68-7			
# of Similar Systems	7		7			
Total Cooling Capacity	241	kBTU/h	80.5	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range	<17	kBTU/h		kBTU/h		
*Unitary Cooling Eff. (EER or SEER)	11.2	EER	98	EER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	205	kBtu/h	63	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range	>136	kBtu/h				
*Unitary Heating Efficiency	4.2	COP	4.5	COP		
*Fan Control	Cycling		Cycling			
Supply Airflow	7584	cfm	2780	cfm		
Outdoor Airflow	0	cfm	0	cfm		
*Demand Control Ventilation	None		None			
*Economizer High-Limit Shutoff (°F)	None		None			
Exhaust Air Energy Recovery Systems	None		None			
*Exhaust Air Energy Recovery Effectiveness						
Supply Fan Power	5.9	kW	5.9	kW		
Return/Relief Fan Power		kW		kW		
Exhaust Fan Power		kW		kW		
System Fan Power	5.9	kW	5.9	kW		
Allowed Fan Power:	5.9	kW		kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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EN1: Energy Cost Budget Worksheet

Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Residential SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW VAV w Reheat		Air Handling Units		M-502, AIR HANDLING UNIT SCHEDULE	SV-A
System Designation(s)	AHU-6-1, AHU-7-1, AHU-90-1 AHU-90-2, AHU-94-1 & 2		AHU-6-1, AHU-7-1, AHU-90-1 AHU-90-2, AHU-94-1 & 2			
# of Similar Systems	5		5			
Total Cooling Capacity	425	kBTU/h	675	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range	> 760	kBTU/h	n/a	kBTU/h		
*Unitary Cooling Eff. (EER or SEER)	9.50	EER	n/a	SEER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	161	kBtu/h	697	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range	n/a	COP	n/a			
*Unitary Heating Efficiency	n/a		n/a			
*Fan Control	Variable Speed		Variable Speed			
Supply Airflow	11767	cfm	24650	cfm		
Outdoor Airflow	1200	cfm	1200	cfm		
*Demand Control Ventilation	None		None			
*Economizer High-Limit Shutoff (°F)	65 high limit shutoff		65 high limit shutoff dual enthalpy economizer			
Exhaust Air Energy Recovery Systems						
*Exhaust Air Energy Recovery Effectiveness						
Supply Fan Power	4.2	kW	16	kW		
Return/Relief Fan Power		kW		kW		
Exhaust Fan Power		kW		kW		
System Fan Power	4.2	kW	16	kW		
Allowed Fan Power:	4.2	kW		kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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EN1: Energy Cost Budget Worksheet

Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Nonresidential SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW 4-Pipe FC		Computer Room Air Conditioning Units for IT Loads		M-502, COMPUTER ROOM AIR CONDITIONING SCHEDULE	SV-A
System Designation(s)	CRAC-SC3-1 thru CRAC-97-1		CRAC-SC3-1 thru CRAC-97-1			
# of Similar Systems	8		8			
Total Cooling Capacity	425	kBTU/h	682	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range	n/a	kBTU/h		kBTU/h		
*Unitary Cooling Eff. (EER or SEER)		EER	13.1	EER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	382	kBtu/h	-	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range	n/a	COP				
*Unitary Heating Efficiency						
*Fan Control	Cycling		Cycling			
Supply Airflow	11968	cfm	23000	cfm		
Outdoor Airflow	0	cfm	0	cfm		
*Demand Control Ventilation	None		none			
*Economizer High-Limit Shutoff (°F)	none		none			
Exhaust Air Energy Recovery Systems			-			
*Exhaust Air Energy Recovery Effectiveness						
Supply Fan Power	6.1	kW	11.8	kW		
Return/Relief Fan Power		kW		kW		
Exhaust Fan Power		kW		kW		
System Fan Power	6.1	kW	11.8	kW		
Allowed Fan Power:	6.1	kW	11.8	kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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EN1: Energy Cost Budget Worksheet

Air-Side HVAC Systems	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
System Description	Residential SELECT SYSTEM FROM DROP DOWN LIST IN CELL BELOW WSHP		Water-Cooled Packaged Terminal Heat Pumps		M-502, PACKAGED HEAT PUMP SCHEDULE WITH WATER COOLED DX COIL, M-503 VERTICAL STACK HEAT PUMP SCHEDULE	SV-A
System Designation(s)	HP Sys - Lower, Low-Mid, Upper-Mid, Upper		HP Sys - Lower, Low-Mid, Upper-Mid, Upper			
# of Similar Systems	4		4			
Total Cooling Capacity	5735	kBTU/h	5696	kBTU/h		
*Table 6.8.1 Unitary Cooling Capacity Range	<17	kBTU/h		kBTU/h		
*Unitary Cooling Eff. (EER or SEER)	11.2	EER	12.3	EER		
*Unitary Cooling Part-load Eff. (if applicable)		IEER		IEER		
Total Heating Capacity	4871	kBtu/h	8457	kBtu/h		
*Table 6.8.1 Unitary Heating Capacity Range	>136	kBTU/h				
*Unitary Heating Efficiency	4.2	COP	4.8	COP		
*Fan Control	Cycling		Cycling			
Supply Airflow	180454	cfm	175869	cfm		
Outdoor Airflow	0	cfm	0	cfm		
*Demand Control Ventilation	None		None			
*Economizer High-Limit Shutoff (°F)	n/a		n/a			
Exhaust Air Energy Recovery Systems	n/a		n/a			
*Exhaust Air Energy Recovery Effectiveness						
Supply Fan Power	140.8	kW	137.2	kW		
Return/Relief Fan Power		kW		kW		
Exhaust Fan Power		kW		kW		
System Fan Power	140.8	kW	137.2	kW		
Allowed Fan Power:	140.8	kW		kW		
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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EN1: Energy Cost Budget Worksheet

Chilled Water Model Input Parameter	HVAC System / Group (BASELINE DESIGN) Description	Units	HVAC System / Group (PROPOSED DESIGN) Description	Units	Supporting Doc. Location	Model Output Report
# and Type of Chillers (and capacity of chiller if more than 1 type or size)	2 Electric Open Centrifugal		(5) Electric Screw Chillers for Retail / (2) Electric Open Centrifugal for Triplex at Top of Building		M-502 MODULAR WATER COOLED CHILLER SCHEDULE	PV-A
Total Chiller Capacity	16.8	MBTU	10.8 / 1	MBTU		
Chiller Efficiency - Full Load	6.1	COP	3.14 / 4.1	COP		
Chiller Efficiency - Part Load						
Chilled Water (CHW) Supply Temp	44	°F	44	°F		
CHW ΔT	12	°F	12	°F		
CHW Supply Temp Reset Parameters	54 at 60 OAT, 44 at 80 OAT and reamped linearly in between		54 at 60 OAT, 44 at 80 OAT and reamped linearly in between			
CHW Loop Configuration	Variable Primary		Variable Primary			
Number of Primary CHW Pumps	2	#	3 / 4	#		
Primary CHW Pump Power	9.458	kW	73 / 16	kW		
Primary CHW Pump Flow	457	gpm	3126 / 580	gpm		
Primary CHW Pump Control	Variable Speed, Interlocked		Variable Speed			
Number of Secondary CHW Pumps	0	#	0	#		
Secondary CHW Pump Power						
Secondary CHW Pump Flow		gpm		gpm		
Secondary CHW Pump Control						
Water-Side Economizer						
Water-Side Energy Recovery						
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

COMPLIANCE WITH ECCC-NYS NOTE:

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2011 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE, USING THE ASHRAE 90.1 ALTERNATIVE (LISTED IN NYCECC, 501.2).

KEY PLAN:

PROJECT 865 — WEST 58TH ST — WEST 57TH ST — 6TH AVE — 7TH AVE — BROADWAY

PROJECT NORTH — TRUE NORTH

DEVELOPER:
EXTELL DEVELOPMENT COMPANY
805 THIRD AVENUE, 7TH FLOOR
New York, NY 10022 USA
TEL: 212 712 6000 FAX: 212 712 6100

DESIGN ARCHITECT: Base Building Shell & Core
ADRIAN SMITH + GORDON GILL ARCHITECTURE
111 WEST MONROE STREET SUITE 2300
CHICAGO IL 60603
TEL: 312 920 1888 FAX: 312 920 1775

INTERIOR DESIGNER: Residential
Rottet Architecture and Design Studio, PLLC
298 Fifth Ave, 7th Floor
New York, NY 10001
TEL: 646 998 7000 FAX:

ARCHITECT OF RECORD: Base Building Shell, Core, & Residential
AAI ARCHITECTS, P.C.
401 Wellington St. W., 3rd Floor
Toronto, ON M5V 1E7 Canada
TEL: 416 967 1500 FAX: 416 967 7150

STRUCTURAL ENGINEERS:
WSP CANTOR SEINUK
228 EAST 45th Street
New York, NY 10017 USA
TEL: 212 687 9888 FAX: 646 487 5501

MEP ENGINEERS:
AKF GROUP
One Liberty Plaza, 165 Broadway, 22nd Floor
New York, NY 10006 USA
TEL: 212 354 5656 FAX: 212 354 5668

GEOTECHNICAL ENGINEERS:
Langan Engineering & Environmental Services
21 Penn Plaza - 360 West 31st Street, 8th Floor
New York, NY 10001-2727
TEL: 212 479 5400 FAX: 212 479 5444

CODE CONSULTANTS:
Construction Consulting Associates
100 Church Street
New York, NY 10007
TEL: 212 385 1818 FAX: 212 385 1911

CURTAINWALL CONSULTANT:
A.3LP Consulting
40 Worth Street, Suite 826
New York, NY 10013
TEL: 212 757 5659 FAX: 646 219 8508

LANDMARK/PRESERVATION CONSULTANT:
Jan Hird Pokorny Associates, Inc.
39 West 37th Street, 12A
New York, NY 10018
TEL: 212 759 6462 FAX: 212 759 6540

No.	DESCRIPTION	DATE
1	DOB SUBMISSION	19 DEC 2014
2	DOB SUBMISSION	27 APR 2015
3	DOB AMENDMENT 2	18 SEP 2015
4	RE-ISSUED FOR DOB COMMENTS	15 JUNE 2016

0 4'-0" 8'-0" 16'-0"

Discrepancies must be reported immediately to the Architect before proceeding. Only figured dimensions are to be used. Contractors must check all dimensions on site. This drawing is protected by copyright.

ALL DIMENSIONS ARE SHOWN IN IMPERIAL.

CONSULTANT: AKF
ONE LIBERTY PLAZA, 165 BROADWAY, 22nd FLOOR
NEW YORK, NY 10006
T: 212 354 5656 F: 212 354 5668

PROJECT:
217 WEST 57TH STREET
NEW YORK, NY

DRAWING TITLE:
ENERGY CODE COMPLIANCE

SEAL & SIGNATURE:

DATE:	12/16/14
PROJECT No:	Y130747-000
DRAWN:	MS
CHK:	MS/PHS
SCALE:	12" = 1'-0"
REV:	4
DWG No:	EN-101.01
DOB PAGE No:	2 of 3

DOB EMPLOYEE STAMP: DOB B-SCAN:

NYC Buildings

EN1: Energy Cost Budget Worksheet

Cooling Tower & Condenser Water						
Model Input Parameter	HVAC System / Group (BASELINE DESIGN)		HVAC System / Group (PROPOSED DESIGN)			
	Description	Units	Description	Units	Supporting Doc. Location	Model Output Report
Number of Cooling Towers/Fluid Coolers	2 Cooling Tower (1 for Retail PCW Loop / 1 for Res PCW Loop)		3 Towers for Res HP Loop		M-500 Cooling Tower Schedule	PV-A
Cooling Tower Fan Power	59 / 122	kW	111	kW		
Cooling Tower Fan Control	Two-Speed		Variable Speed			
Condenser Water (CW) Leaving Temp	85	°F	85	°F		
CW ΔT	10	°F	10	°F		
CW Loop Temp Reset Parameters	85 at 80 OAT and above; 70 at 50 OAT and below; ramped linearly in		85 at 80 OAT and above; 70 at 50 OAT and below; ramped linearly in			
Number of CW Pumps	2	#	11	#		
CW Pump Power	96 / 536	kW	342	kW		
CW Pump Flow	3857 / 11691	gpm	16540	gpm		
CW Pump Control	Variable Speed		Variable Primary / Secondary			
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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EN1: Energy Cost Budget Worksheet

Hot Water or Steam						
Model Input Parameter	HVAC System / Group (BASELINE DESIGN)		HVAC System / Group (PROPOSED DESIGN)			
	Description	Units	Description	Units	Supporting Doc. Location	Model Output Report
Number and Type of Boilers	5 Code-Compliant Natural Gas Gas-Fired Boilers		17 Condensing Boilers for DHW, HP Loop Injection, and Heating		M-500 BOILER SCHEDULE	PV-A
Total Boiler Capacity	66	MBTU	76.5	MBTU		
Boiler Efficiency	80%	EF	93%	EF		
Hot Water or Steam (HHW) Supply Temp	180	°F	160	°F		
HHW ΔT	50	°F	35	°F		
HHW Temp Reset Parameters	180 at 30 OAT, 130 at 55 OAT, ramped linearly in between		180 at 35 OAT, 150 at 65 OAT, ramped linearly in between			
HHW Loop Configuration	Variable Primary		Variable Primary / Secondary			
Number of Primary HHW Pumps	5	#	10	#		
Primary HHW Pump Power	39	kW	140	kW		
Primary HHW Pump Flow	1653	gpm	4600	gpm		
Primary HHW Pump Control	Variable Speed		Variable Primary			
Number of Secondary HHW Pumps	4	#	4	#		
Secondary HHW Pump Power	53		112	kW		
Secondary HHW Pump Flow	1662		3900	gpm		
Secondary HHW Pump Control	Variable Secondary		Variable Secondary			
Other (describe)						
Other (describe)						
Other (describe)						
Other (describe)						

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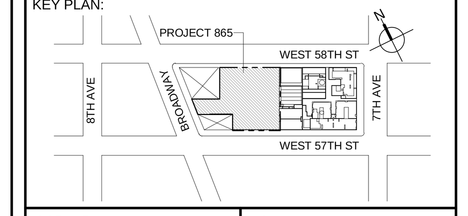
	Inspection/Test	Periodic (minimum)	Reference Standard (See ECC Chapter 6) or Other Criteria	ECC or Other Citation	This Inspection Required YES	NO
IIA	**Envelope Inspections**					
IIA1	**Protection of exposed foundation insulation:** Insulation shall be visually inspected to verify proper protection where applied to the exterior of basement or cellar walls, crawl-space walls and/or the perimeter of slab-on-grade floors.	As required during foundation work and prior to backfill	Approved construction documents	303.2.1; ASHRAE 90.1 – 5.8.1.7	●	○
IIA2	**Insulation placement and R-values:** Installed insulation for each component of the conditioned space envelope and at junctions between components shall be visually inspected to ensure that the R-values are marked, that such R-values conform to the R-values identified in the construction documents and that the insulation is properly installed. Certifications for unmarked insulation shall be similarly visually inspected.	As required to verify continuous enclosure while walls, ceilings and floors are open	Approved construction documents	303.1, 303.1.1, 303.1.2, 502.1, 502.2; ASHRAE 90.1 – 5.5, 5.6 or 11; 5.8.1	●	○
IIA3	**Fenestration thermal values and product ratings:** U-factors and SHGC values of installed fenestration shall be visually inspected for conformance with the U-factors and SHGC values identified in the construction drawings by verifying the manufacturer's NFRC labels or, where not labeled, using the ratings in ECC Tables 303.1.3(1), (2) and (3). Where ASHRAE 90.1 is used, visible light transmittance values shall also be verified.	As required during installation	Approved construction documents; NFRC 100, NFRC 200	303.1, 303.1.3, 502.3; ASHRAE 90.1 – 5.5, 5.6 or 11; 5.8.2	●	○
IIA4	**Fenestration and door assembly product ratings for air leakage:** Windows and sliding or swinging door assemblies, except site-built windows and/or doors, shall be visually inspected to verify that the installed assemblies are listed and labeled by the manufacturer to the referenced standard. For curtain wall, storefront glazing, commercial entrance doors and revolving doors, the testing reports shall be reviewed to verify that the installed assembly complies with the standard cited in the approved plans.	As required during installation; prior to final construction inspection	NFRC 400, AAMA/WDMA/CSA 101/I.S.2/A440 ASTM E283; ANSI DASMA 105	502.4; ASHRAE 90.1 – 5.4.3.2	●	○
IIA5	**Fenestration areas:** Dimensions of windows, doors and skylights shall be verified by visual inspection.	Prior to final construction inspection	Approved construction documents	502.3; ASHRAE 90.1 – 5.5.4, 5.6 or 11	●	○
IIA6	**Sealing:** Openings and penetrations in the building envelope, including site-built fenestration and doors, shall be visually inspected to verify that a continuous air barrier around the envelope forms an air-tight enclosure. The progress inspector shall visually inspect to verify that materials and or assemblies have been tested and meet the requirements of the respective standards, or that the building is tested and meets the requirements of the standard, in accordance with the standard(s) cited in the approved plans.	As required during construction	Approved construction documents; ASTM E2178, ASTM E2357, ASTM E1677, ASTM E779, ASTM E283.	502.4.3, 502.4.7; ASHRAE 90.1 – 5.4.3.1	●	○
IIA7	**Projection factors:** Where the energy analysis utilized a projection factor > 0, the projection dimensions of overhangs, eaves or permanently attached shading devices shall be verified for compliance with approved plans by visual inspection.	Prior to final construction inspection	Approved construction documents, including energy analysis	502.3; ASHRAE 90.1 – 5.5.4, 5.6 or 11	○	●
IIA8	**Loading dock weatherseals:** Weatherseals at loading docks shall be visually verified.	Prior to final construction inspection	Approved construction documents	502.4.5; ASHRAE 90.1 – 5.4.3.3	●	○
IIA9	**Building entrance vestibules:** Required entrance vestibules shall be visually inspected for proper operation.	Prior to final construction inspection	Approved construction documents	502.4.6; ASHRAE 90.1 – 5.4.3.4	●	○
IIB	**Mechanical and Service Water Heating Inspections**					
IIB1	**Fireplaces:** Provision of combustion air and tight-fitting fireplace doors shall be verified by visual inspection.	Prior to final construction inspection	Approved construction documents; ANSI Z21.60 (see also MC 904), ANSI Z21.50	303.1.5; BC 2111; MC Chapters 7, 9; FGC Chapter 6	○	●
IIB2	**Outdoor air intakes and exhaust openings:** Dampers for stair and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be visually inspected to verify that such dampers, except where permitted to be gravity dampers, comply with approved construction drawings. Manufacturer's literature shall be reviewed to verify that the product has been tested and found to meet the standard.	As required during installation	Approved construction documents; AMCA 500D	502.4.4; ASHRAE 90.1 – 6.4.3.4	●	○
IIB3	**HVAC, service water heating and pool equipment sizing and performance:** Equipment sizing, efficiencies and other performance factors of all major equipment units, as determined by the applicant of record, and no less than 15% of minor equipment units, shall be verified by visual inspection and, where necessary, review of manufacturer's data. Pool heaters and covers shall be verified by visual inspection.	Prior to final plumbing and construction inspection	Approved construction documents	503.2, 504.2, 504.7; ASHRAE 90.1 – 6.3, 6.4.1, 6.4.2, 6.8; 7.4; 7.8	●	○
IIB4	**HVAC system controls and economizers and service hot water system controls:** No less than 20% of each type of required controls and economizers shall be verified by visual inspection and tested for functionality and proper operation. Such controls shall include, but are not limited to: • Thermostatic • Set point overlap restriction • Off-hour • Shutoff damper • Snow-melt system • Demand control systems • Outdoor heating systems • Zones • Economizers • Air systems • Variable air volume fan • Hydronic systems • Heat rejection equipment fan speed • Complex mechanical systems serving multiple zones • Ventilation • Energy recovery systems • Hot gas bypass limitation • Temperature • Service water heating • Hot water system • Pool heater and time switches • Exhaust hoods • Radiant heating systems. **Controls with seasonally dependent functionality:** Controls whose complete operation cannot be demonstrated due to prevailing weather conditions typical of the season during which progress inspections will be performed shall be permitted to be signed off for the purpose of a Temporary Certificate of Occupancy with only a visual inspection, provided, however, that the progress inspector shall perform a supplemental inspection where the controls are visually inspected and tested for functionality and proper operation during the next immediate season thereafter. The owner shall provide full access to the progress inspector within two weeks of the progress inspector's request for such access to perform the progress inspection. For such supplemental inspections, the Department shall be notified by the approved progress inspection agency of any unresolved deficiencies in the installed work within 180 days of such supplemental inspection.	After installation and prior to final electrical and construction inspection, except that for controls with seasonally dependent functionality, such testing shall be performed before sign-off for issuance of a Final Certificate of Occupancy	Approved construction documents, including control system narratives; ASHRAE Guideline 1: The HVAC Commissioning Process where applicable	503.2.4, 503.2.5.1, 503.2.11, 503.3, 503.4, 504.3, 504.6, 504.7; ASHRAE 90.1 – 6.3, 6.4.3, 6.5, 6.7.2.4, 7.4.4, 7.4.5	●	○
IIB5	**Duct, plenum and piping insulation and sealing:** Installed duct and piping insulation shall be visually inspected to verify proper insulation placement and values. Joints, longitudinal and transverse seams and connections in ductwork shall be visually inspected for proper sealing.	After installation and prior to closing shafts, ceilings and walls	Approved construction documents; SMACNA Duct Construction Standards, Metal and Flexible	503.2.7, 503.2.8, 504.5; ASHRAE 90.1 – 6.3, 6.4.4.2, 6.8.2, 6.8.3; 7.4.3	●	○
IIB6	**Air leakage testing for high-pressure duct systems:** For duct systems designed to operate at static pressures in excess of 3 inches w.g. (746 Pa), representative sections, as determined by the progress inspector, totaling at least 25% of the duct area, per ECC 503.2.7.1.3, shall be tested to verify that actual air leakage is below allowable amounts.	After installation and sealing and prior to closing shafts, ceilings and walls	Approved construction documents; SMACNA HVAC Air Duct Leakage Test Manual	503.2.7.1.3; ASHRAE 90.1 – 6.4.4.2	●	○
IIC	**Electrical Power and Lighting Systems**					
IIC1	**Electrical metering:** The presence and operation of individual meters or other means of monitoring individual apartments shall be verified by visual inspection for all apartments.	Prior to final electrical and construction inspection	Approved construction documents	505.7	●	○
IIC2	**Lighting in dwelling units:** Lamps in permanently installed lighting fixtures shall be visually inspected to verify compliance with high-efficacy requirements.	Prior to final electrical and construction inspection	Approved construction documents	505.5.3	●	○
IIC3	**Interior lighting power:** Installed lighting shall be verified for compliance with the lighting power allowance by visual inspection of fixtures, lamps, ballasts and transformers.	Prior to final electrical and construction inspection	Approved construction documents	505.5; ASHRAE 90.1 –9.1, 9.2, 9.5, 9.6; 1RCNY §101-07(c)(3)(v)(C)4	●	○
IIC4	**Exterior lighting:** Installed lighting shall be verified for compliance with source efficacy and/or the lighting power allowance by visual inspection of fixtures, lamps, ballasts and relevant transformers.	Prior to final electrical and construction inspection	Approved construction documents	505.6; ASHRAE 90.1 – 9.4.4, 9.4.5; 1RCNY §101-07(c)(3)(v)(C)4	●	○
IIC5	**Lighting controls**: Each type of required lighting controls, including: ▪ occupant sensors ▪ manual interior lighting controls ▪ light-reduction controls ▪ automatic lighting shut-off ▪ daylight zone controls ▪ sleeping unit controls ▪ exterior lighting controls shall be verified by visual inspection and tested for functionality and proper operation.	Prior to final electrical and construction inspection	Approved construction documents, including control system narratives	505.2, 505.2.2.2; ASHRAE 90.1 – 9.4.1, 9.4.1.2 (as modified by section ECC A102)	●	○
IIC6	**Exit signs:** Installed exit signs shall be visually inspected to verify that the label indicates that they do not exceed maximum permitted wattage.	Prior to final electrical and construction inspection	Approved construction documents	505.4; ASHRAE 90.1 – 9.4.3	●	○
IIC7	**Tandem wiring:** Tandem wiring shall be tested for functionality.	Prior to final electrical and construction inspection	Approved construction documents	505.3; ASHRAE 90.1 – 9.4.2	●	○
IIC8	**Electric motors (including but not limited to fan motors):** Where required by the construction documents for energy code compliance, motor listing or labels shall be visually inspected to verify that they comply with the respective energy requirements in the construction documents.	Prior to final electrical and construction inspection	Approved construction documents	503.2.10; ASHRAE 90.1 – 10.4	●	○
IID	**Other**					
IID1	**Maintenance information:** Maintenance manuals for mechanical, service hot water and electrical equipment and systems requiring preventive maintenance shall be reviewed for applicability to installed equipment and systems before such manuals are provided to the owner. Labels required for such equipment or systems shall be inspected for accuracy and completeness.	Prior to sign-off or issuance of Final Certificate of Occupancy	Approved construction documents, including electrical drawings where applicable; ASHRAE Guideline 4: Preparation of Operating and Maintenance Documentation for Building Systems	303.3, 503.2.9.3; ASHRAE 90.1 – 4.2.2.3, 6.7.2.2, 8.7.2	●	○

COMPLIANCE WITH ECCC-NYS NOTE:

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2011 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE, USING THE ASHRAE 90.1 ALTERNAIVE (LISTED IN NYCECC, 501.2).

KEY PLAN:



PROJECT NORTH

TRUE NORTH

DEVELOPER:
EXTELL DEVELOPMENT COMPANY
805 THIRD AVENUE, 7TH FLOOR
New York, NY 10022 USA
TEL: 212 712 6000 FAX: 212 712 6100

DESIGN ARCHITECT: Base Building Shell & Core
ADRIAN SMITH + GORDON GILL ARCHITECTURE
111 WEST MONROE STREET SUITE 2300
CHICAGO IL 60603
TEL: 312 920 1888 FAX: 312 920 1775

INTERIOR DESIGNER: Residential
Rottet Architecture and Design Studio, PLLC
298 Fifth Ave, 7th Floor
New York, NY 10001
TEL: 646 998 7000 FAX:

ARCHITECT OF RECORD: Base Building Shell, Core, & Residential
AAI ARCHITECTS, P.C.
401 Wellington St. W., 3rd Floor
Toronto, ON M5V 1E7 Canada
TEL: 416 967 1500 FAX: 416 967 7150

STRUCTURAL ENGINEERS:
WSP CANTOR SEINUK
228 EAST 45th Street
New York, NY 10017 USA
TEL: 212 687 9888 FAX: 646 487 5501

MEP ENGINEERS:
AKF GROUP
One Liberty Plaza, 165 Broadway, 22nd Floor
New York, NY 10006 USA
TEL: 212 354 5656 FAX: 212 354 5668

GEOTECHNICAL ENGINEERS:
Langan Engineering & Environmental Services
21 Penn Plaza - 360 West 31st Street, 8th Floor
New York, NY 10001-2727
TEL: 212 479 5400 FAX: 212 479 5444

CODE CONSULTANTS:
Construction Consulting Associates
100 Church Street
New York, NY 10007
TEL: 212 385 1818 FAX: 212 385 1911

CURTAINWALL CONSULTANT:
AJLP Consulting
40 Worth Street. Suite 826
New York, NY 10013
TEL: 212 757 5659 FAX: 646 219 8508

LANDMARK/PRESERVATION CONSULTANT:
Jan Hird Pokorny Associates, Inc.
39 West 37th Street, 12A
New York, NY 10018
TEL: 212 759 6462 FAX: 212 759 6540

No.	DESCRIPTION	DATE
1	RE-ISSUED FOR DOB COMMENTS	15 JUNE 2018

0 4' - 0" 8' - 0" 16' - 0"

ALL DIMENSIONS ARE SHOWN IN IMPERIAL.

CONSULTANT: AKF
ONE LIBERTY PLAZA, 165 BROADWAY, 22nd FLOOR
NEW YORK, NY 10006
T: 212.354.5656 F: 212.354.5668
Arlington / Boston / Mexico City / Minneapolis / New York
Philadelphia / Princeton / Puebla / Rochester / Stamford

PROJECT:

217 WEST 57TH STREET
NEW YORK, NY

DRAWING TITLE:

ENERGY CODE COMPLIANCE & TR-8 ENERGY CODE PROGRESS INSPECTION

SEAL & SIGNATURE:

STATE OF NEW YORK · CHRISTOPHER O. McHUGH · LICENSED PROFESSIONAL ENGINEER · No. 073130

DATE:	06/15/18
PROJECT No:	Y130747-000
DRAWN:	Author
CHK:	Checker
SCALE:	12" = 1'-0"
REV:	1
DWG No:	EN-102.00
DOB PAGE No:	3 of 3

DOB EMPLOYEE STAMP:

DOB B-SCAN: