MULTIPLE FAMILY CALCULATION
PER NEC 220.84
RESIDENTIAL
(C) CONNECTED LOADS

(1) LIGHTING AND GENERAL-USE RECEPTACLES						
TYP. SUITE A	25,784 SQ. FT. X 3VA		=			77,352 VA
TYP. SUITE B	45,762 SQ. FT. X 3VA		=			137,286 VA
TYP. SUITE BD/C	17,363 SQ. FT. X 3VA		=			52,089 VA
MANAGER	1,163 SQ. FT. X 3VA	3,489 VA	X	1 UNITS	=	3,489 VA
CO-MANAGER	782 SQ. FT. X 3VA	2,346 VA	X	1 UNITS	=	2,346 VA
TOTAL						272,562 VA

(2) SMALL APPLANCE					
TYP. SUITE A	0 VA	X	57 UNITS	=	0 VA
TYP. SUITE B	0 VA	X	75 UNITS	=	0 VA
TYP. SUITE BD/C	0 VA	X	18 UNITS	=	0 VA
MANAGER	4,500 VA	X	1 UNITS	=	4,500 VA
CO-MANAGER	4,500 VA	X	1 UNITS	=	4,500 VA
TOTAL					9,000 VA

(3) NAME PLATE					
TYP. SUITE A	1,500 VA	X	57 UNITS	=	85,500 VA
TYP. SUITE B	1,500 VA	X	75 UNITS	=	112,500 VA
TYP. SUITE BD/C	1,500 VA	X	18 UNITS	=	27,000 VA
MANAGER	9,350 VA	X	1 UNITS	=	9,350 VA
CO-MANAGER	9,350 VA	X	1 UNITS	=	9,350 VA
TOTAL					243,700 VA

(4) MOTORS					
TYP. SUITE A	120 VA	X	57 UNITS	=	6,840 VA
TYP. SUITE B	204 VA	X	75 UNITS	=	15,300 VA
TYP. SUITE BD/C	240 VA	X	18 UNITS	=	4,320 VA
MANAGER	240 VA	X	1 UNITS	=	240 VA
CO-MANAGER	324 VA	X	1 UNITS	=	324 VA
TOTAL					27,024 VA

(5) ELECTRIC HEAT (PTAC AND BASEBOARD HEATER)						
	PTAC ELEC HEAT	ELEC HEAT				
TYP. SUITE A	2,820 VA	0 VA	X	57 UNITS	=	160,740 VA
TYP. SUITE B	2,820 VA	1,000 VA	X	75 UNITS	=	286,500 VA
TYP. SUITE BD/C	5,640 VA	1,000 VA	X	18 UNITS	=	119,520 VA
MANAGER	5,640 VA	1,000 VA	X	1 UNITS	=	6,640 VA
CO-MANAGER	5,640 VA	0 VA	X	1 UNITS	=	5,640 VA
TOTAL						579,040 VA

SIMULATED ELECTRIC COOKING EQUIPMENT LOAD (220.84 EXCEPTION)					
RANGE	8,000 VA	X	150 UNITS	=	1,200,000 VA

TOTAL CONNECTED VA	2,331,326 VA
NEC TABLE 220-84 DEMAND FACTOR BASED ON 152 UNITS	23%
TOTAL DEMAND VA	536,205 VA
SYSTEM VOLTAGE	208V/3PHASE
TOTAL DEMAND FOR RESIDENTIAL (AMPS)	**1,488 AMPS**

Lenity Architecture
National Electrical Code Service Load Calculation
Portland Retirement Residence

Type: New Construction — *By:* Robert Hazleton, PE
Location: Portland, ME — *Date:* January 19, 2016
SERVICE: **120/208 VOLTS 3-PHASE 4-WIRE**

NEC 220.12 Type of Occupancy	SQ.	Load (kW)	Load Type
Office Buildings	575 FT.-	2.0	LIGHTING
Assembly halls and auditoriums space within building	11,386 FT.-	11.4	LIGHTING
Halls, corridors, closets, stairway	SQ. 34,233 FT.	17.1	LIGHTING
Total	46,194 SQ. FT.		
Connected Load-		30.5	
NEC 220.14 (A) Other Loads			
Building Electric Dryers-	1	5.0	
Building Washing Machines-	14	11.8	
Misc. Specific Loads (Water Heaters, etc.)-		20.0	
Total		36.8	
(C) Motor Loads			
Largest Motor-		28.5	
120V 1-Phase Motors-		8.5	
208V 1-Phase Motors-		35.9	
240V 1-Phase Motors-		0.0	
480V 1-Phase Motors-		0.0	
208V 3-Phase Motors-		193.8	
480V 3-Phase Motors-		0.0	
Fire Pump-		0.0	
Total		238.2	

Lenity Architecture
National Electrical Code Service Load Calculation
Portland Retirement Residence

Type: New Construction — *By:* Robert Hazleton, PE
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SERVICE: **120/208 VOLTS 3-PHASE 4-WIRE**

		Load (kW)
(G) Show Window Lighting		
Lineal Feet-	6.0 Ft.	1.2
(I) Receptacle Outlets		
Connected general use receptacle load: Does not include residential receptacles See 220.12 Calculation-		77.4
Demand Table 220.44-		43.7
220.51 Fixed Electrical Space Heating		
Load-		26.5
220.56 Kitchen Equipment		
Number of Thermostat Controlled Units-	47	
Connected Kitchen Equipment-		89.5
Demand-		58.1
Site Lighting		
Connected load-		5.5

****SEE SUMMARY SHEET FOR TOTALS****

Lenity Architecture
NEC Service Load Calculation Summary Sheet
Portland Retirement Residence

Type: New Construction — *By:* Robert Hazleton, PE
Location: Portland, ME — *Date:* January 19, 2016

Summary	AMPERES	
Description	**Connected Load**	**Service Load**
Residential (From Multiple Family Calc)	6,471.1 AMPS	1,488.4 AMPS
General Lighting Load	84.7 AMPS	105.9 AMPS
Specific Outlet and Receptacle Loads	312.2 AMPS	218.7 AMPS
Motor Load	661.2 AMPS	681. AMPS
Show Window Lighting Load	3.3 AMPS	3.3 AMPS
Fixed Electric Space Heating	73.6 AMPS	73.6 AMPS
Kitchen Equipment	248.3 AMPS	161.4 AMPS
Site Lighting Load	15.2 AMPS	15.2 AMPS
TOTAL	**7,869.6 AMPS**	**2,747.3 AMPS**

@ 120/208 VOLTS
3-PHASE 4-WIRE
3000 Amp. Service

Feeder Neutral Load per NEC 220.61

3-Phase Load (Balanced load)	538.0 Amperes
Maximum Neutral Load (Un-balanced load)	2209.3 Amperes
Service Neutral Load (70% of the load over 200 amps)	1606.5 Amperes

ELECTRICAL CONTRACTOR RESPONSIBLE FOR VERIFYING CIRCUIT LOADING AND EQUIPMENT AMPERAGE REQUIREMENTS PRIOR TO WIRING INSTALLATION.
VERIFY SUBMITTALS W/CONTRACTOR

STATE OF MAINE — Robert J. Hazleton — 10527 — PROFESSIONAL ENGINEER — 2-3-16

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ELECTRICAL LOAD CACULATIONS

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DATE 8/28/2015
REVISED DATE 1 9/22/2015

SHEET E2.3d