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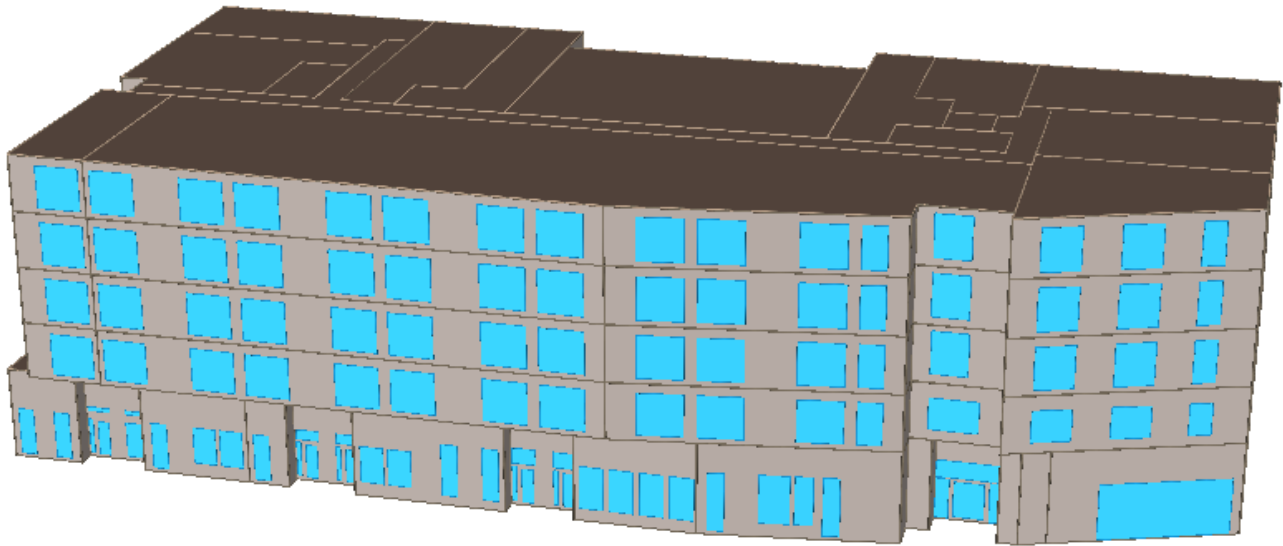
# C407 Compliance Documentation

*for*

**8300 Aurora Ave N**

**Seattle, WA 98103**

**SDCI Project Number: 6757678-CN**



*Submitted by:*  
Eric Knowles  
Solarc Energy Group  
1501 E Madison  
Suite 200  
Seattle, WA 98122  
EricK@SolarcEnergyGroup.com  
(206) 395-4743

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## C407 Compliance – S33 8300 Aurora Ave N

### I. Executive Summary

This report documents energy efficiency improvements for the proposed new apartments at 8S33 8300 Aurora Ave E in Seattle, WA. The building is slated to begin construction in 2023 and will have 5 above-grade floors. The total square footage for the building will be approximately 83,300 square feet. There will be (10) Studios, and (93) 1-bedroom units, and (14) 2-bedroom units in the building. The project is seeking to use the C407 Total Building Performance Path of the 2018 SEC.

The project has chosen the C407 Total Building Performance Path, because there are numerous aspects of the 2018 SEC that the project does not comply prescriptively.

- **C402.1.5 – Component Performance Alternative:** The proposed building envelope UA is 4.0% higher than the baseline UA. The main factors for the increased UA in the proposed design are as follows: the insulation value for the wood-framed wall is R-21 which does not meet the requirements of R-25 and the vinyl sliding doors that have an assembly U-value of U-0.30 instead of the code required U-0.28.
- **C406.1 – Additional energy efficiency credit requirements:** The new C406 section requires 8 points to be achieved, however the project could not comply with all of the points.

To achieve the energy savings, the following Energy Efficiency Measures were implemented:

- **High-Efficiency Heating and Cooling:** 44 of the units are heated and cooled by a variable refrigerant flow (VRF) system. The heat pump heating and cooling efficiency exceeds code requirements (COP-3.80 and EER-11.0). The other units are heating only with electric resistance heating and utilize exceptions 3 of C403.1.4.
- **High-Efficiency Ventilation:** The dwelling units are all ventilated by energy recovery ventilators (ERVs) with a 67% sensible efficient heat recovery core depending on the size and a total fan power of 1.169 W/cfm.
- **Domestic Hot Water:** The proposed domestic hot water heating system is a heat pump water heater (2.70 COP) that operates down to 40 deg F outside air. When OAT drops below 40 deg F, an electric resistance storage tank is the primary source of hot water.

The new 2018 Seattle Energy Code (SEC) modeling guidelines require that the baseline building be modeled using the 2019 ASHRAE 90.1 Standards – Appendix G and then apply a building performance factor (0.52 for multifamily) to the carbon emissions of all the regulated energy enduses. Additionally, exception #2 of the renewable energy section of the SEC (C412) allows for a further deduction of the building performance factor to exempt the project from installing 0.25 W/SF of PV capacity. The adjusted BPF is 0.5044.

The total resulting building Carbon Emissions from the Proposed Design is 530,131 lbs/yr of CO<sub>2</sub>. The Standard Reference Design has a total Carbon Emissions of 488,869 lbs/yr. Table 1 on the next page shows the performance of the current proposed design compared to the new baseline. Table 2 summarizes the energy savings and carbon reduction by enduse. Section II in this report summarizes the energy measures that contribute to the savings for each end-use.



## C407 Compliance – S33 8300 Aurora Ave N

**Table 1. S33 8300 Aurora Apartments – Carbon Emission Calculation**

Area	83500 SF				Emissions Factors		BPF	Emissions Factors		BPF	
	ASHRAE Baseline				0.7	11.7	0.5044	0.7	11.7	1	
	kwh	therms	MMBTU	Regulated / Unregulated	Electric CO2 Regulated	Gas CO2 Regulated	Regulated CO2 x BPF	Electric CO2 Unregulated	Gas CO2 Unregulated	Unregulated CO2 x BPF	
Int Lights	92,073	0	314.25	R	64,451	-	32,509	-	-	-	
Equipment	329,487	0	1,124.54	UR	-	-	-	230,641	-	230,641	
Heating	0	24,069	2,406.9	R	-	281,604	142,041	-	-	-	
Cooling	67,649	0	230.88	R	47,354	-	23,885	-	-	-	
Pumps & Aux	1,986	0	6.78	R	1,390	-	701	-	-	-	
Fans	111,001	0	378.85	R	77,701	-	39,192	-	-	-	
DHW	0	10,167	1,016.70	R	-	118,954	60,000	-	-	-	
Ext Lights	3,285	0	11.21	R	2,300	0	1,160	-	-	-	
<b>Total</b>	<b>605,481</b>	<b>34,236</b>	<b>5,490</b>		<b>193,196</b>	<b>400,558</b>	<b>299,490</b>	<b>230,641</b>	<b>-</b>	<b>230,641</b>	<b>Total (CO2 lb/yr)</b>
											<b>530,131</b>
	Proposed				Emissions Factors		BPF	Emissions Factors		BPF	
	kwh	therms	MMBTU	Regulated / Unregulated	0.7	11.7	1	0.7	11.7	1	
	kwh	therms	MMBTU	Regulated / Unregulated	Electric CO2 Regulated	Gas CO2 Regulated	Regulated CO2 x BPF	Electric CO2 Unregulated	Gas CO2 Unregulated	Unregulated CO2 x BPF	
Int Lights	48,667	0	166.10	R	34,067	-	34,067	-	-	-	
Equipment	329,487	0	1,124.54	UR	-	-	-	230,641	-	230,641	
Heating	45,126	0	154.02	R	31,588	-	31,588	-	-	-	
Cooling	78,520	0	267.99	R	54,964	-	54,964	-	-	-	
Pumps & Aux	36	0	0.12	R	25	-	25	-	-	-	
Fans	95,979	0	327.58	R	67,185	-	67,185	-	-	-	
DHW	97,284	0	332.03	R	68,099	-	68,099	-	-	-	
Ext Lights	3,285	0	11.21	R	2,300	-	2,300	-	-	-	
<b>Total</b>	<b>698,384</b>	<b>0</b>	<b>2,384</b>		<b>258,228</b>	<b>-</b>	<b>258,228</b>	<b>230,641</b>	<b>-</b>	<b>230,641</b>	<b>Total (CO2 lb/yr)</b>
											<b>488,869</b>
% Better than Code, MMBtu/Year				<b>56.6%</b>				% Better than Code, CO2 lb/Year			<b>7.8%</b>

**Table 2. S33 8300 Aurora Apartments – Savings by Enduse**

End Use	Energy Use Savings	Carbon Emission Savings	Associated Energy Saving Measure
Int Lights	47.1%	-4.8%	Proposed Avg LPD: 0.37 W/SF & Baseline Avg LPD: 0.70 W/SF
Equipment	0.0%	0.0%	N/A
Heating	93.6%	77.8%	VRF for space heating / ERVs with 67% heat recover eff.
Cooling	-16.1%	-130.1%	VRF for space cooling / ERVs with 67% heat recover eff.
Pumps & Aux	98.2%	96.4%	No HW loop pumps in proposed design.
Fans	13.5%	-71.4%	ECM motors in heat pump indoor units
DHW	67.3%	-13.5%	HPWH and EWH combination (COP- 2.40)
Ext Lights	0.0%	-98.2%	No lighting savings quantified (will require an electrical permit)
<b>Total</b>	<b>56.6%</b>	<b>7.8%</b>	N/A



## C407 Compliance – S33 8300 Aurora Ave N

### II. Project Description

This report documents energy efficiency improvements for the proposed new apartments at 8S33 8300 Aurora Ave E in Seattle, WA. The building is slated to begin construction in 2023 and will have 5 above-grade floors. The total square footage for the building will be approximately 83,300 square feet. There will be (10) Studios, and (93) 1-bedroom units, and (14) 2-bedroom units in the building. The project is seeking to use the C407 Total Building Performance Path of the 2018 SEC.

#### Building Envelope Characteristics

Per Section C407.3.1, the proposed building envelope UA may exceed the baseline UA by 110%. The total UA calculation (included in Appendix C) shows that the proposed building UA is at 104.0% of the baseline UA.

?	Allowable Total UA	4,901
?	Proposed Total UA	5,248

Proposed, Percent Greater than Allowable	7.1%
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**Figure 1.** S33 8300 Aurora Apartments – UA Calculations

Above Grade Wall Insulation. The above grade wall construction is wood-framed walls and does not meet SEC requirements. The walls are wood-framed construction with R-21 batt for an assembly U-value of U-0.054. For the baseline model, all walls are modeled as steel-framed walls with R-11 batt and R-8 continuous insulation for an assembly U-value of U-0.064

Slab-on-Grade Insulation. The slab-on-grade construction has R-10 insulation for 24” down. The F-Factor for this assembly is F-0.54. The baseline model has no-insulation and an F-Factor of F-0.73.

Roof Insulation: Both roof constructions meet code requirements with the predominant type having R-30 batt between the wood joists plus minimum R-20 rigid above the joists which has an assembly U-value of U-0.020. The other roof type has R-49 batt insulation between the joists which meets the SEC requirements and has an assembly U-value of U-0.021. The baseline is modeled with R-20 rigid insulation above decking for an assembly U-value of U-0.063.

Glazing: The window-to-wall ratio (WWR) is 33.0%. The primary glazing for the building will be Vinyl or Fiberglass windows with some entrance doors. The vinyl windows ( $U_{\text{Assembly}}=0.27$ , SHGC-0.38) meet the SEC requirements. However, the glazed entrance doors do not meet the SEC requirements a ( $U_{\text{Assembly}}=0.30$ , SHGC-0.38). The baseline is modeled with all windows having the same U-value of U-0.57 and SHGC-0.39.

Opaque Doors: Opaque doors account for 175 SF and have a U-value of U-0.37 which is the minimum SEC requirement. The baseline is modeled with a U-value of U-0.70.



## C407 Compliance – S33 8300 Aurora Ave N

### Internal Loads and Schedules

Internal loads are associated with people, lights, and equipment that give off heat to the interior of the building, and in some cases, use electrical energy directly. The building assumes a typical operating schedule based on the LEED for Homes Multifamily Performance Path. The peak number of occupants is 227 people which is based on the LEED for Homes requirement of 1 occupant per unit and 0.5 occupants per bedroom. The peak plug loads on the building are detailed below and the plug load schedule is based on the LEED for Homes Multifamily workbook which assumes the apartment plug loads are energized for 5.8 hours/day. The equivalent full load hours for equipment usage is 4,300 hours. The occupancy and equipment peak loads and schedules remain identical in both the SEC baseline and proposed model.

- Dwelling Units:
  - o In-Unit Misc: 0.50 W/sf
  - o In-Unit Refrigerator: 423 kWh/yr (0.382 W/SF)
  - o In-Unit Stove: 604 kWh/yr (0.546 W/SF)
  - o In-Unit Dishwasher: 164 kWh/yr (0.148 W/SF)
  - o In-Unit Clothes Washer: 57 kWh/yr (0.052 W/SF)
  - o In-Unit Clothes Dryer: 557 kWh/yr (0.513 W/SF)

### Lighting and Lighting Controls

Lighting Power Density. The building does not have an electrical permit, so the lighting is modeled based on the code allowances in both the SEC and ASHRAE Appendix G. The LPDs and schedules for the baseline and proposed models detailed on the table below:

**Table 3. S33 8300 Aurora Apartments - Interior Lighting**

Space Type	Proposed LPD (W/sf) <sup>[1]</sup>	Baseline LPD (W/SF) <sup>[2]</sup>	Schedule (hours/day)
Dwelling Units	0.37	0.70	2.34
Non-Dwelling Unit	0.37	0.70	Varies

[1] LPD is taken from code allowance in Table C405.4.2(1)

[2] LPD is taken from ASHRAE Appendix G allowance from Table G3.8

Exterior Lighting. The exterior lighting is modeled identically in both models because of the lack of completed lighting design. The total exterior lighting is 0.75 kW. The exterior lighting for both models is controlled by photocells for 4,380 hours/year.

### Domestic Hot Water System

DHW will be provided by a central heat pump water heater with an electric resistance tank. The water heater has an efficiency of 2.7 COP. The electric resistance tank is only active when OAT < 40 deg F. Based on temperature bin data, the overall weighted efficiency of the system is 2.53 COP. The baseline water heater fuel source is natural gas with a thermal efficiency of 80%. The water demand in both models is identical and is primarily based on 1.75 gpm shower heads.



## C407 Compliance – S33 8300 Aurora Ave N

### HVAC Systems and Controls

The proposed system design includes both fully conditioned dwelling units and heating-only dwelling units. The units that are heating only meet exception 3 of C403.1.4 which allows them to utilize electric resistance heaters as long as they use less than the allowable threshold. The common areas are served by ductless mini-split heat pumps, and the corridor is served by a supply fan sized for ventilation only with an electric resistance duct heater. The corridor unit meets exception 3 of C403.1.4. Table 4 below summarizes both the baseline and proposed HVAC inputs for the different space types

**Table 4. S33 8300 Aurora Apartments - HVAC Summary**

Unit Type	System Element	Baseline Model	Proposed Model
Dwelling Units Served by Electric Resistance	Heating Efficiency	HW Coil: Boiler 80% Et	Electric Resistance: 1.00 COP
	Cooling Efficiency	DX Coil: 3.2 COP Cooling	DX Coil: 3.2 COP Cooling
	Fan Power	0.300 W/cfm Runs Continuously	0.140 W/cfm, Cycles to meet load
	Ventilation	OA brought in by PTAC unit	ERV with 71% sensible efficiency.
Dwelling Units Served by Heat Pumps	Heating Efficiency	HW Coil: Boiler 80% Et	VRF: 3.55 COP
	Cooling Efficiency	DX Coil: 3.2 COP Cooling	VRF: 11.55 / 11.75 EER
	Fan Power	0.300 W/cfm Runs Continuously	0.140 W/cfm, Cycles to meet load
	Ventilation	OA brought in by PTAC unit	ERV with 71% sensible efficiency.
Common Areas (FC-1 - 5)	Heating Efficiency	HW Coil: Boiler 80% Et	VRF: 3.55 COP
	Cooling Efficiency	DX Coil: 3.2 COP Cooling	VRF: 11.55 / 11.75 EER
	Fan Power	0.300 W/cfm Runs Continuously	0.140 W/cfm, Cycles to meet load
	Ventilation	OA brought in by PTAC unit	ERV with 71% sensible efficiency.
Corridors	Heating Efficiency	HW Coil: Boiler 80% Et	Electric Duct heater: 1.00 COP
	Cooling Efficiency	DX Coil: 3.2 COP Cooling	No Cooling
	Fan Power	0.300 W/cfm Runs Continuously	0.213 W/cfm, Runs continuously
	Ventilation	OA brought in by PTAC unit	100% OA Unit



## C407 Compliance – S33 8300 Aurora Ave N

### III. Methodology Description

#### Whole Building Modeling Software

EQuest/DOE2.3 was used to model the energy and loads of both project areas. EQuest/DOE2.3 is an hour-by-hour whole building energy simulation tool that is widely used in the industry and has demonstrated robust load calculation mathematical models. The model incorporates detailed calculations of sun angles, shading, direct solar gain, solar influenced exterior surface temperatures, diversified occupancy schedules, thermal mass, HVAC thermostat schedules, building HVAC controls, ventilation, fan energy and fan heat. Input to the model includes hourly weather data.

Below grade walls were modeled explicitly in DOE2 as underground walls with a mass wall construction. As an underground wall, the wall acts like a typical exterior wall but has no sun or wind exposure. Similarly, the slab-on-grade floors are modeled as underground walls.

The weather data used for the models is Typical Meteorological Year (TMY3) data for the Boeing Field Airport weather station. TMY3 data files are statistically processed to create a typical (average) weather year using actual weather records.





## C407 Compliance – S33 8300 Aurora Ave N

### IV. Discussion of Estimated Energy Consumption Differences

#### **Proposed vs. Baseline Energy Results**

**Table 5.** Total Energy Consumption for Baseline and Proposed

	2018 SEC Baseline (lbs of CO <sub>2</sub> )	Proposed (lbs of CO <sub>2</sub> )	Savings
Total	530,131	360,891	31.9%

#### **Proposed vs. Baseline Hours Not Met**

Neither model has hours outside of the heating or cooling throttling range that exceed 50 hours.

#### **Descriptions of Carbon Emission Savings and Penalties by Enduse**

This section describes the energy savings from the proposed model in order of most impactful savings. Because of the difference in carbon emission factors for electricity and natural gas (approximately twice as much carbon per btu of electricity compared to natural gas) and the BPF, the proposed model is showing carbon emission penalties for numerous end-uses.

##### Heating: 77.8% Carbon Emission Savings

The majority of energy savings for heating come from the 67% heat recovery core in the ERVs that serve the units. The remainder of the savings come from the VRF system which serves almost half of the units and has a heating efficiency of COP 3.80. The baseline boiler is modeled with a peak efficiency of 80%  $E_t$  with a boiler curve prescribed by the PNNL ASHRAE 90.1 Modeling Guidelines that results in an annual efficiency of 71.2%.

##### Fans: 71.4% Carbon Emission Penalty

The primary driver of fan energy savings is how ventilation is brought into the dwelling units. The proposed design has ERVs that run continuously, but are sized only for the ventilation load. Therefore, even though they have a higher indexed fan power (in kW/cfm), the total electricity usage is lower than the baseline which uses the PTAC fan to bring in the ventilation continuously. Additionally, the increased energy use in the proposed model from de-coupling the heating and cooling system from the ventilation system is minimal given the choice of ductless indoor units for the heat pumps (ECM motors with low fan power).

##### Pumping: 96.4% Carbon Emission Savings

The savings are based on the lack of hot water pumps in the building.

##### Interior Lighting: 4.8% Carbon Emission Penalty

The LPD difference between ASHRAE Appendix G and the 2018 SEC accounts for the 47.1% reduction in electricity. However, the BPF drops the baseline carbon emissions to 4.8% below the proposed.



## **C407 Compliance – S33 8300 Aurora Ave N**

### Cooling: 130.1% Carbon Emission Penalty

The cooling energy usage is 49.6% lower in the proposed design which comes primarily from the improved efficiency of the VRF system (11.0 EER). The energy usage savings would be higher, but the ERVs do not have temperature controls that allow the OA to bypass the heat recovery core when return air temperature is similar to the ambient outside air temperature. Therefore, the cooling system in the proposed design actually has higher annualized loads.

### Domestic Hot Water: 13.5% Carbon Emission Penalty

The proposed design uses a heat pump water heater (2.70 COP) and electric resistance tank for a combined efficiency of 2.40 COP. This is compared to the baseline 80% thermal efficient heater.



## **C407 Compliance – S33 8300 Aurora Ave N**

### **V. Appendices**

#### **A. General Information**

1. C407.2 – Mandatory Compliance Measures
2. Site Plan

#### **B. Building Envelope**

1. Prescriptive Envelope Code Compliance Forms
2. Building air leakage

#### **C. Building Lighting**

1. Prescriptive Lighting Code Compliance Forms

#### **D. Space heating and cooling**

1. Proposed HVAC Calculations
2. Baseline HVAC Calculations

#### **E. Ventilation**

1. Proposed and Baseline fan description

#### **F. Service Water Heating**

1. Proposed and Baseline Fan Description

#### **G. Building Lighting**

1. PV Watts Results - Proposed
2. PV Watts Results - Baseline

#### **H. Computer Printout of Outputs**

1. Output Reports: BEPS, BEPU, LV-D, PS-E, SS-D, SV-A



## C407 Compliance – S33 8300 Aurora Ave N

### A. General Information

Table A1. C407 Mandatory Compliance Measures

Section	Title	Project Compliance Comments / Drawing Reference
C402.5	Air Leakage	See G7.20
C403.1.2	Calculation of heating and cooling loads	See M0.05
C403.1.3	Data centers	N/A
C403.1.4	Use of electrical resistance and fossil fuel-fired heating equipment	Heat pumps in all spaces except those exempted by Exception #3
C403.2	System design	C403.2.1 - N/A C403.2.2 - See M0.01 for Ventilation calculations C403.2.3 - N/A (No motors > 5hp)
C403.3.1	Equipment and system sizing	See M0.05
C403.3.2	HVAC equipment performance requirements	See M0.03-0.04 for HVAC schedules
C403.3.6	Ventilation for Group R occupancy	All dwelling units have ventilation provided by ERV-O or M, see M0.03 for details
C403.3.7	Hydronic system flow rate	N/A
C403.4	HVAC system controls	See below
C403.4.1	Thermostatic controls	See M2.01-M2.05 for locations of thermostats C403.4.1.1 - N/A, no electric resistance supplementary heat C403.4.1.2 - Thermostat details on M0.00 C403.4.1.3 - Thermostat details on M0.00 C403.4.1.4 / 5 - N/A C403.4.1.6 - Door interlock requirements on M0.00
C403.4.2	Off-hour controls	N/A - Group R
C403.4.7	Combustion heating equipment controls	N/A - No combustion heating
C403.4.8	Group R-1 hotel/motel guestrooms	N/A - No Group R-1
C403.4.9	Group R-2 and R-3 dwelling units	See thermostat details on M0.00
C403.4.10	Group R-2 sleeping units	See thermostat details on M0.00
C403.4.11	Digital direct control systems	N/A - No equipment meets requirements in Table C403.4.11.1
C403.4.12	Pressure independent control valves	N/A - No CHW or HHW coils



## C407 Compliance – S33 8300 Aurora Ave N

Section	Title	Project Compliance Comments / Drawing Reference
C403.5.5	Economizer fault detect and diagnostics (FDD)	N/A - No economizers
C403.7	Ventilation and exhaust systems	C403.7.1 / 2 - No spaces meet occupancy threshold C403.7.3 - N/A C403.7.4 - No Group R-1 spaces C403.7.5 - N/A C403.7.6 - No spaces meet minimum airflow threshold C403.7.7 - No commercial kitchens or laboratories C403.7.8 - Exception 2.2
C403.8	Fan and fan controls	C403.8.1 / 2 - No fans exceed 5hp C403.8.3 - Exception 3. C403.8.4 - ERV-1 = 1.16 W/CFM C403.8.5 - Exception 1
C403.9.1	Heat rejection equipment (partial)	N/A
C403.9.1.1	Variable flow controls	N/A
C403.9.1.2	Limitation on centrifugal fan cooling towers	N/A
C403.10	Construction of HVAC elements	See Duct Insulation schedules on M0.01
C403.11	Mechanical systems located outside of the building thermal envelope	N/A
C403.15	Commercial food service	N/A
C404	Service Water Heating	C404.2 - HPWH-1/2 & EWH-1 meet minimum requirements C404.2.1 - N/A C404.2.2 / 3 - HPWH-1/2 are rated at > 2.70 COP, swing tank heats recirculated water only C404.3 / 4 - N/A (plumbing permit is deferred) C404.5 - See EWH-1 schedule on P0.03 C404.6 / 7 / 8 / 9 - N/A (plumbing permit is deferred) C404.10 - No drawing water heat recovery units C404.11 / 12 - No pools or spas C404.13 - N/A (plumbing permit is deferred)



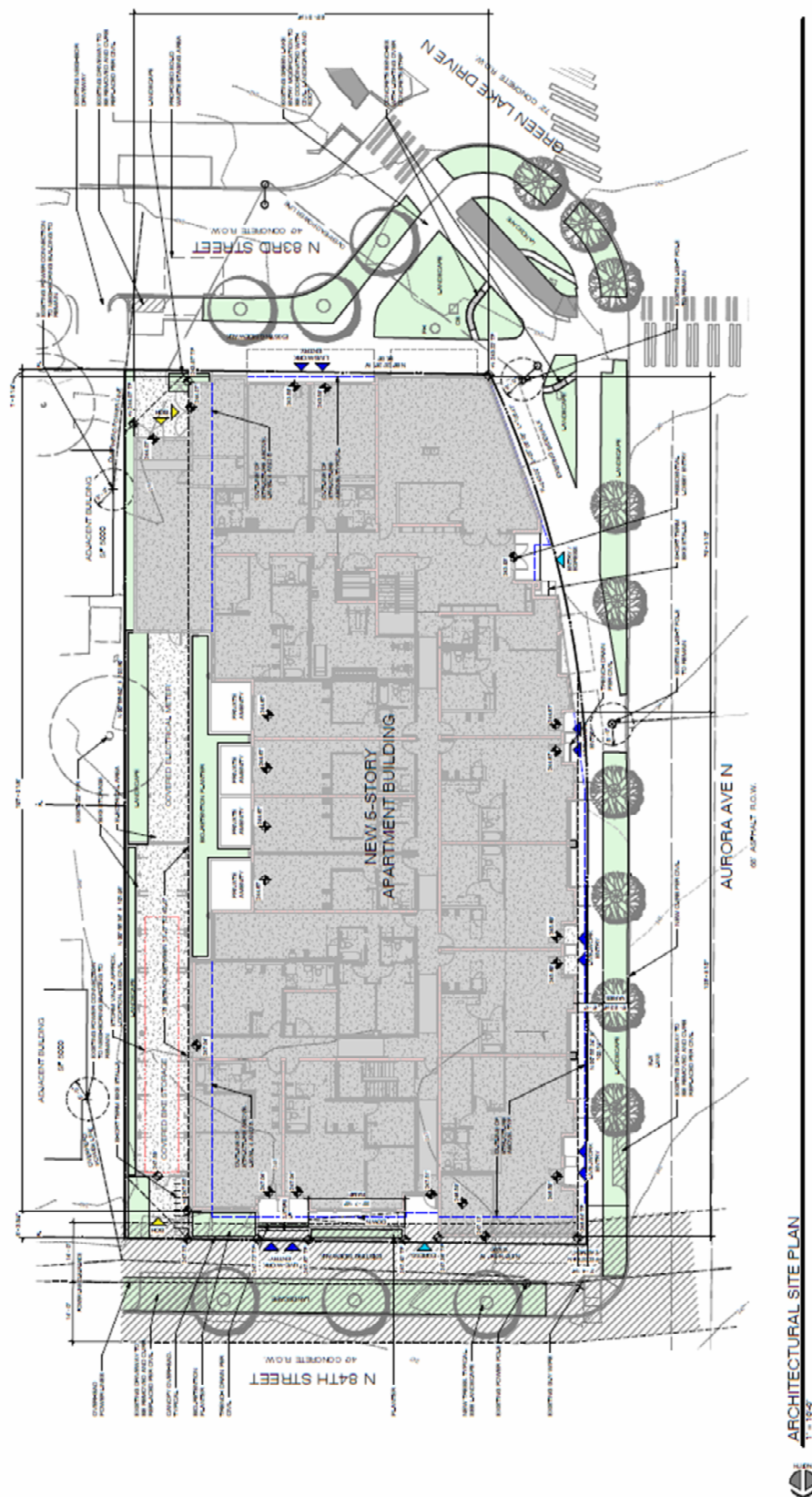
## C407 Compliance – S33 8300 Aurora Ave N

Section	Title	Project Compliance Comments / Drawing Reference
C405.1	General	N/A (electrical permit is deferred and no savings are taken from lighting design)
C405.2	Lighting controls	
C405.3	Exit signs	
C405.4	Interior lighting power	
C405.5	Exterior building lighting power	
C405.6	Electrical transformers	
C405.7	Dwelling unit energy consumption	
C405.8	Electric motor efficiency	
C405.9	Vertical and horizontal transportation	
C405.10	Controlled receptacles	
C405.11	Voltage drop in feeders	
C407	Total Building Performance	See body of this report for details.
C408	System commissioning	Commissioning required for Mechanical systems only
C409	Energy metering	Each unit to have separate electrical panel.
C410	Refrigeration requirements	N/A
C411	Solar readiness	See A2.15 for Solar Readiness details
C412	Renewable energy	Complies via exception 2.



# C407 Compliance – S33 8300 Aurora Ave N

## Site Plan (A1.10)





# C407 Compliance – S33 8300 Aurora Ave N

## B. Building Envelope

### Component Performance Path, pg. 1

ENV-UA

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1 Revised Mar 2021 rev. 1

Project Title: <b>S33 - 8300 Aurora Ave N</b>						Date: <b>05/05/2023</b>		
Target Insulation Allowance: Fully Conditioned Space - Commercial, Group R, Mixed Use						For SDCI Use		
Calculation Adjustments None								
Fenestration Area as % gross above-grade wall area <b>32.8%</b> Max. Target: <b>35.0%</b>								
Skylight Area as % gross roof area Max. Target: <b>5.0%</b>								
Vertical Fenestration Alternates: <b>None Selected on ENV-SUM</b>								
For Stand-alone Projects <sup>14,15</sup> Vertical Fenestration				Net Wall		User Note		
Existing-to-remain Areas Skylights				Net Roof				
Envelope Component				Proposed UA		Target UA		
Cavity+Cl		Plan/Detail #	U-factor Source & Table # <sup>2</sup>	U-factor	x Area (A)	= UA (U x A)	U-factor x Area (A) = UA (U x A)	
Roofs	Deck	R=					0.027	
		R=					Above Deck Insulation U-0.027	
		R=						
	Mtl Bld	R=					0.027	
		R=					Metal Building U-0.027	
		R=						
Joist/Rtr	R=					0.027		
	R=					Joist/single rafter U-0.027		
	R=							
Attic/Oth	R= 49+0	FC-1 A2.60	Table A102.1	0.021	1766	37.1	0.021 17661 370.9	
	R= 30+20	RC-1 A2.60	Table A102.1	0.021	15895	333.8	Single raft, attic, other U-0.021	
	R=							
Opaque Walls - Above Grade <sup>4,6,7</sup>	Steel Frm	R=					0.055	
		R=					Steel/metal frame U-0.055	
		R=						
	Mtl Bld	R=					0.052	
		R=					Metal Building U-0.052	
		R=						
	Wood/Oth	R= 21+0	4E1  A2.50	Appendix A - A103.3.1(5)	0.054	21820	1178.3	0.051 21820 1112.8
		R=					Wood Frame, other U-0.051	
		R=						
	Mass	R= 11+0	1F3.8 A2.50	Table A103.3.7.1(2) (R-11 batt in wood)	0.116	1279	148.4	0.057 1279 72.9
		R=					Mass Wall U-0.057	
		R=						
Transfer <sup>8</sup>	R=					0.200		
	R=					Mass Transfer Deck U-0.20		
	R=							
Intr. Slab	R=					0.100		
	R=					Slab piercing wall ins U-0.10		
	R=							
Below Grd	R=					0.070		
	R=					Assumed to be Mass Wall U-0.07		
	R=							
Floors <sup>8</sup>	Mass	R= 0+30	FC-6 A2.60	Appendix A - A105.1(3)	0.031	360	11.2	
		R=					0.031 360 11.2	
		R=					Mass Floor U-0.031	
	Mtl Joist	R=					0.029	
		R=					Joist/Framing, metal U-0.029	
		R=						
Wd Joist	R= 30+0	FC-5  A2.60	Appendix A - A105.1(3)	0.029	388	11.2	0.025 388 9.7	
	R=					Joist/Framing, wood U-0.025		
	R=							
Page 1 Subtotal				Area <sup>1</sup>	UA	Area <sup>1</sup>	UA	
				41508	1720	41508	1577	

Component Performance Compliance (UA) **UA DOES NOT COMPLY**





# C407 Compliance – S33 8300 Aurora Ave N

## Component Performance Path, pg. 2

ENV-UA

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Revised Mar 2021 rev. 1

<b>Project Title:</b> S33 - 8300 Aurora Ave N						<b>Date:</b> 05/05/2023		
<b>Fenestration Area</b> as % gross above-grade wall area <b>32.8%</b> Max. Target: <b>35.0%</b>						For Building Department Use		
<b>Skylight Area</b> as % gross roof area Max. Target: <b>5.0%</b>								
<b>Building Component</b>				<b>Proposed UA</b>		<b>Target UA</b>		
Ins. R		Plan/Detail #	F-factor Source & Table # <sup>9</sup>	F-factor	x Perimeter	= FP(F x P)	F-factor	x Perimeter = FP(F x P)
Slab-on-grade <sup>8</sup>	Unheated	R= 10	F-1   A2.60	Appendix A - A106.1 (Horizontal for 2')	0.540	431	232.7	0.540 431 232.7
	Heated	R=						Slab-On-Grade U-0.55
	R=							0.550
Doors <sup>6,9</sup>	Swinging							0.370 280 103.6
	Garage							Opaque Sw ing Doors U-0.37
	Other							0.600
Vertical Fenestration <sup>6,11</sup>	AW, fixed							0.34
	AW, op.							AW, Fixed U-0.34
	Mt entry							0.36
	Other, fix							AW, Operable U-0.36
	Other, op							0.60
	Other, op							Metal Frame, Entrance Dr. U-0.60
Skylights <sup>11</sup>	All Types							0.26 10642 2766.9
								Non-AW, Fixed U-0.26
								0.28 785 219.9
Refrigerated Space Freezer Floors	CI	Plan/Detail #	U-factor Source & Table # <sup>2</sup>	U-factor	x Area (A)	= UA (U x A)	U-factor	x Area (A) = UA (U x A)
	Freezer Floor							0.28 210 56.7
								Non-AW, Operable U-0.28

	Area <sup>1</sup>	UA
Page 2 Subtotal	12138	3428
Page 1 Subtotal	41508	1720
Project Total	53647	5147

	Area <sup>1</sup>	UA
	12138	3323
	41508	1577
	53647	4901

TO COMPLY - The Proposed Total UA shall not exceed the Target Total UA.

Component Performance Compliance (UA)

UA DOES NOT COMPLY

## C407 Compliance – S33 8300 Aurora Ave N

## SHGC Calculation

**ENV-SHGC**

2018 Seattle Energy Code Compliance Forms for Commercial Buildings including R2, R3, & R4 over 3 stories and all R1

Revised Mar 2021 rev. 1

2019 Seattle Energy Code Compliance Form for Commercial Buildings including IECC, IRC, and ASHRAE 90.1-2010 and ASHRAE 189.1-2012				Revised Mar 2021 Rev.	
Project Title: S33 - 8300 Aurora Ave N				Date: 05/05/2023	
Target Insulation Allowance: Fully Conditioned Space - Commercial, Group R, Mixed Use				For SDCl Use	
Fenestration Area as % gross above-grade wall area		32.8% Max. Target: 35%			
Skylight Area as % gross roof area		Max. Target: 5%			
Vertical Fenestration Alternates: None Selected on ENV-SUM					
Notes: 1 - Proposed vertical fenestration and skylight areas entered in ENV-SHGC must match proposed fenestration areas in ENV-UA. 2 - If Target Area Adjustment is required per ENV-UA, then target areas will be automatically adjusted in ENV-SHGC. Refer to Target Area Adjustments worksheet for this calculation. 3 - Fenestration assembly SHGC shall be the manufacturer's NFRC product rating, or shall be the default value per Section C303.1.3. 4 - Fenestration that separates conditioned space from a non-conditioned space shall be included in this worksheet. Enter target SHGC values for this fenestration under proposed SHGC, so it is neutral to the calculation.					
				User Note	
Skylights				Proposed SHGC	
Sch. ID	Provide SHGC source and fenestration schedule ID	SHGC	x Area (A) = SHGC x A		Target SHGC
					SHGC x Area (A) = SHGC x A
					0.32
					SHGC 0.32
Skylight Totals					

All Non-North Vertical Fenestration+				Proposed SHGC		Target SHGC ++				
Sch. ID	Provide SHGC source and fenestration schedule ID	PF	SHGC	x Area (A) =	SHGC x A	PF Category	SHGC	x Area (A) =	SHGC x A	
A11.21	NFRC - CPD Number	0	0.34	10642	3618	PF < 0.2	0.38	11427	4342.4	
Sliders	NFRC - CPD Number	0	0.23	575	132	0.2 ≤ PF < 0.5	0.46			
Ext Doors	NFRC - CPD Number	0	0.15	210	32	PF ≥ 0.5	0.61			
						++ If projection factor (PF) credits are applied to the proposed design, Target SHGC will sum fenestration area by PF category.				
+ If PF credit is applied, then vertical fenestration must be entered in the correct table according to orientation. If credit is not applied then all vertical fenestration can be entered in either table				Non-North Window Totals		11427.4	3782.1		11427.4	4342.4

North Vertical Fenestration+		Proposed SHGC				Target SHGC++			
Sch. ID	Provide SHGC source and fenestration schedule ID	PF	SHGC	x Area (A)	= SHGC x A	PF Category	SHGC	x Area (A)	= SHGC x A
						PF < 0.2	0.51		
						0.2≤PF<0.5	0.56		
						PF ≥ 0.5	0.61		
						++ If projection factor (PF) credits are applied to the proposed design, Target SHGC will sum fenestration area by PF category.			
North Window Totals									

*TO COMPLY- The Proposed Total SHGC x A shall not exceed the Target Total SHGC x A.*

	Area	SHGC x A
<b>Total (Skylight + Window)</b>	11427.4	3782.1

Area	SHGC x A
11427.4	4342.4

### Component Performance Compliance (SHGC)

## SHGC COMPLIES



## C407 Compliance – S33 8300 Aurora Ave N

### Glazing (Sheet A11.20)

The glazing for the building is a combination of vinyl punched openings and metal framed storefront. The vinyl windows have U-values of U-0.27 and SHGC of 0.38. The glazed doors have U-values of U-0.30 and SHGC-0.35. The following tables summarize the different window types, quantities, and the overall thermal performance.

### Opaque Doors (Sheet A11.11)

There is 175 SF of opaque door in the building. They all meet the SEC requirement of U-0.37.

### Building Air Leakage

The infiltration rate was determined using Table C407.5.1(1) Air Leakage Requirements. See the figure below for details of baseline and proposed infiltration rates.

	Pressure Differential	Air Leakage Rate of the Building Envelope @ Specified Pressure Differential	Air Leakage Measurement Type	Total Building Envelope Area	Total Air Leakage at the Specified Pressure Differential
	-	I	-	S	Q
	Pa	cfm/ft <sup>2</sup>	-	ft <sup>2</sup>	cfm
Proposed Design:	75	0.4	Whole Building (ASTM e779)	69,727	27,891
Baseline Design:	75	1.0	n/a		69,727

**Table 2: Simulation Inputs Calculator**

#### Instructions

The table helps establish simulation inputs by calculating the equivalent air leakage at the wind pressure differential and expressing it in the units accepted by the simulation tool.

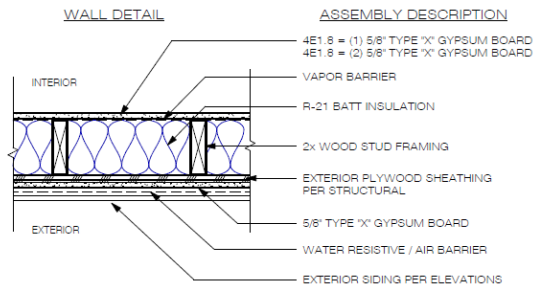
	Infiltration Modeling Method	Building Volume	Infiltration Rate to Be Modeled	
		ft <sup>3</sup>	ACH	
Proposed Design:	ACH	916,268	0.205	Restore Formula
Baseline Design:			0.511	



# C407 Compliance – S33 8300 Aurora Ave N

Opaque Envelope (Sheet A2.50 & 2.60 – Referenced in UA calculations starting on page 16)

## Exterior Wall Constructions:

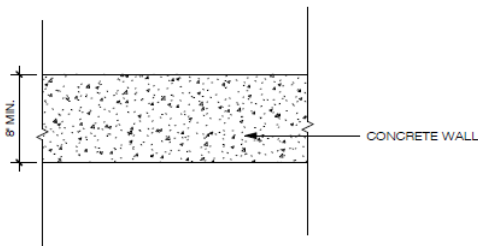


MARK	CORE WIDTH	FIRE RATING	UL LISTING	STC RATING
4E1.8	2x8	1HR	UL U344	56
4E1.8R	2x8	1HR	UL U344	56

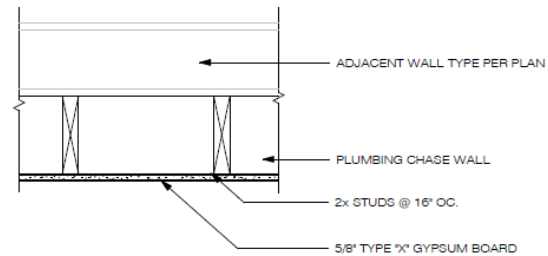
MODIFIERS:  
1. PROVIDE EXTERIOR SIDING OR WATER RESISTIVE / AIR BARRIER ON BOTH SIDES. USE 5/8\"/>

**2 WALL - 4E1**  
1 1/2\"/>

## Mass Wall Construction:



MARK	CORE WIDTH	FIRE RATING	UL LISTING	STC RATING
1F3.8	SEE STRUCT.	3HR	SBC TABLE 721.1 (2) ITEM 4-1.1	NA



MARK	CORE WIDTH	FIRE RATING	UL LISTING	STC RATING
9F0.2		0HR		-
9F0.3	2x3	0HR	N/A	N/A
9F0.4		0HR		N/A
9F0.6	2x6	0HR	N/A	N/A

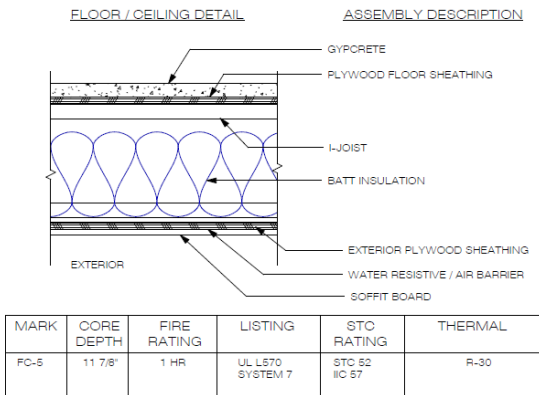
**1 CONCRETE WALL - 1F3**  
1 1/2\"/>

**10 FURRED PLUMBING WALL - 9F0**  
1 1/2\"/>



# C407 Compliance – S33 8300 Aurora Ave N

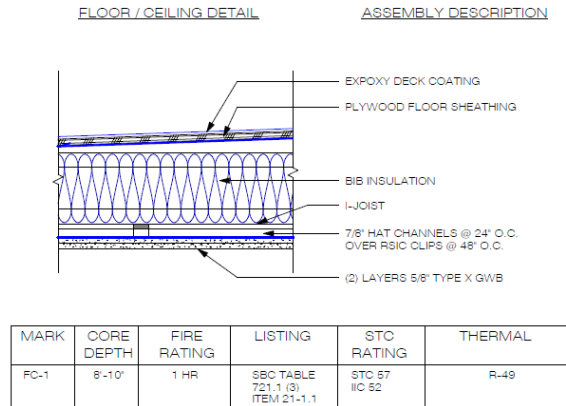
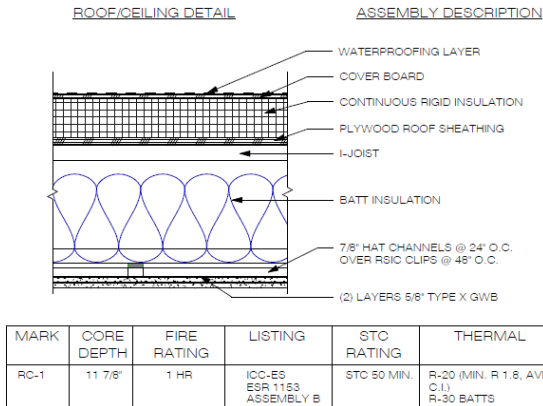
## Exposed Floor Construction:



## 6 FLOOR CEILING - FC-5

1 1/2" = 1'-0" FC-5

## Roof Construction:



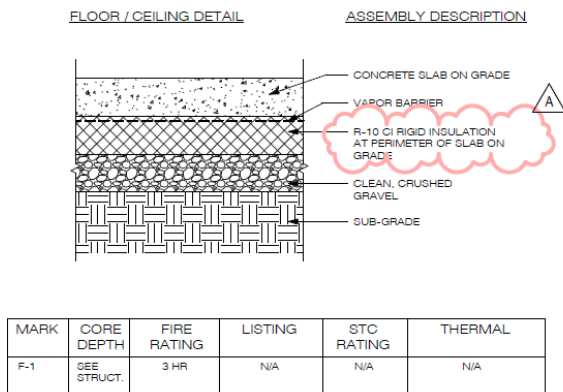
## 1 ROOF CEILING - RC-1

1 1/2" = 1'-0" RC-1

## 2 FLOOR CEILING - FC-1

1 1/2" = 1'-0" FC-1

## Slab-on-Grade Construction:



## 9 FLOOR - F-1

1 1/2" = 1'-0" F-1



## **C407 Compliance – S33 8300 Aurora Ave N**

### **C. Lighting**

The electrical permit for this project is not part of this submittal. A preliminary exterior lighting take-off will be completed as part of the next submittal to be the basis of exterior lighting allowances.



# C407 Compliance – S33 8300 Aurora Ave N

## D. Space Heating and Cooling Heat Pump Outdoor Unit (Sheet M0.04)

VRF SPLIT SYSTEM HEAT PUMP SCHEDULE – OUTDOOR UNIT											
EQUIP NO.	SERVICE	CAPACITY, TONS	TOTAL COOLING CAPACITY, BTU/H	EER/IEER	TOTAL HEATING CAPACITY, BTU/H	COP	ELECTRICAL			WEIGHT, LBS	BASIS OF DESIGN
							VOLTAGE	MCA	MOCP		(1)(2)(3)
HP-1	UNITS	14	168,000	11.0/25.6	188,000	3.8	208V/3P	61.0	100	739	MITSUBISHI PURY-P168TNU-A
HP-2	UNITS	14	168,000	11.0/25.6	188,000	3.8	208V/3P	61.0	100	739	MITSUBISHI PURY-P168TNU-A
HP-3	UNITS	14	168,000	11.0/25.6	188,000	3.8	208V/3P	61.0	100	739	MITSUBISHI PURY-P168TNU-A
HP-4	UNITS	14	168,000	11.0/25.6	188,000	3.8	208V/3P	61.0	100	739	MITSUBISHI PURY-P168TNU-A

## Heat Pump Indoor Unit (Sheet M0.04)

VRF SPLIT SYSTEM HEAT PUMP SCHEDULE – INDOOR UNIT										
EQUIP NO.	SERVICE	MOUNTING/ DISCHARGE	FAN			ELECTRICAL			WEIGHT, LBS	BASIS OF DESIGN (1)(2)
			AIRFLOW, CFM	ESP, IN. WG	MOTOR, HP	VOLTAGE	MCA	MOCP		
FC-1	AMENITY	WALL	300	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P12NLMU-E
FC-2	AMENITY	WALL	300	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P12NLMU-E
FC-3	LEASE OFFICE	WALL	150	0.1	FHP	208V/1P	0.2	15	24	mitsubishi PKFY-P04NLMU-E
FC-4	GYM	WALL	300	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P12NLMU-E
FC-5	LOBBY	WALL	300	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P12NLMU-E
FC-102-1	UNIT 102 LIVING ROOM	WALL	200	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P06NLMU-E
FC-102-2	UNIT 102 BEDROOM	WALL	150	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P04NLMU-E
FC-103-1	UNIT 103 LIVING ROOM	WALL	200	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P06NLMU-E
FC-103-2	UNIT 103 BEDROOM	WALL	150	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P04NLMU-E
FC-103-3	UNIT 103 BEDROOM	WALL	150	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P04NLMU-E
FC-104-1	UNIT 104 LIVING ROOM	WALL	300	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P12NLMU-E
FC-104-2	UNIT 104 BEDROOM	WALL	150	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P04NLMU-E
FC-104-3	UNIT 104 BEDROOM	WALL	200	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P06NLMU-E
FC-105-1	UNIT 105 LIVING ROOM	WALL	300	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P12NLMU-E
FC-105-2	UNIT 105 BEDROOM	WALL	150	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P04NLMU-E
FC-106-1	UNIT 106 LIVING ROOM	WALL	300	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P12NLMU-E
FC-106-2	UNIT 106 BEDROOM	WALL	150	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P04NLMU-E
FC-107-1	UNIT 107 LIVING ROOM	WALL	300	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P12NLMU-E
FC-107-2	UNIT 107 BEDROOM	WALL	150	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P04NLMU-E
FC-108-1	UNIT 108 LIVING ROOM	WALL	225	0.1	FHP	208V/1P	0.2	15	25	mitsubishi PKFY-P08NLMU-E

## Corridor DOAS (M0.03)

DEDICATED OUTDOOR AIR SYSTEM SCHEDULE																
EQUIP NO.	SERVICE	DISCHARGE	SUPPLY FAN			EXHAUST FAN			TOTAL COOLING CAPACITY, BTUH	EER	TOTAL HEATING CAPACITY, BTUH	COP	HEAT RECOVERY EFFECTIVENESS	ELECTRICAL		
			AIRFLOW, CFM	ESP, IN WG	MOTOR HP	AIRFLOW, CFM	ESP, IN WG	MOTOR HP						VOLTAGE	MCA	MOCP
DOAS-1	CORRIDOR VENTILATION	VERTICAL	1000	1.0	1	1000	1.0	1	37700	14.5	31000	3.3	0.80	208V/3P	28	40



## C407 Compliance – S33 8300 Aurora Ave N

### E. Ventilation

COMMON SPACE VENTILATION CALCULATIONS								
ROOM	AREA, SF	OCCUPANTS, PEOPLE	CFM/ SQ FT	CFM/ PEOPLE	CFM (AREA)	CFM (OCC)	CFM REQUIRED	CFM PROVIDED
LEASING OFFICE 100LO	139	1	0.06	5	8	5	13	0
MAIL LOBBY 100ML	354	4	0.06	5	21	20	41	0
RESID AMTY 100RA	970	30	0.06	5	58	150	208	0
GYM 100G	420	4	0.06	20	25	80	105	0
LEVEL 1 CORRIDOR	1250	0	0.06	0	75	0	75	0
LEVEL 2 CORRIDOR	1110	0	0.06	0	67	0	67	0
LEVEL 3 CORRIDOR	1110	0	0.06	0	67	0	67	0
LEVEL 4 CORRIDOR	1080	0	0.06	0	65	0	65	0
LEVEL 5 CORRIDOR	1080	0	0.06	0	65	0	65	0

WHOLE HOUSE VENTILATION CRITERIA				
UNIT	2018 WSMC CRITERIA (1)			
	FLOOR AREA, SQFT	NUMBER OF BEDROOMS	REQUIRED CFM (2)	PROVIDED CFM
LIVE/WORK	501–1000	1	30	40
LIVE/WORK UNIT 216	1001–1500	2	35	40
LIVE/WORK UNIT 100	1001–1500	4	55	60
STUDIO & 1–BEDROOM	<500	1	30	40
1–BEDROOM	501–1000	1	30	40
2–BEDROOM	501–1000	2	35	40

NOTE: (1) VENTILATION CRITERIA BASED ON THE WSMC 403.4.2 (EQUATION 4–10)

(2) MIN. OSA FOR OPERATING CONTINUOUSLY

### Unit ERV (M0.03)

ENERGY RECOVERY VENTILATOR														
EQUIP NO.	SERVICE	MOUNTING/ DISCHARGE	FAN (SUPPLY & EXHAUST)		HEAT/ENERGY PERFORMANCE	OPERATION	ELECTRICAL			DIMENSIONS, INCHES			WEIGHT, LBS	BASIS OF DESIGN (1)
			AIRFLOW, CFM	ESP. IN WG	SENSIBLE HEAT RECOVERY EFFECTIVENESS @ 32°F		VOLTAGE	AMPS	MOCP	L	W	H		
ERV-O	UNIT	CEILING	60	1.0	67%	(2)	120V/1P	1.6	15	25	23	10	35	ALDES E130-HR-N
ERV-M	UNIT	CEILING	60	1.0	67%	(2)	120V/1P	1.6	15	25	23	10	35	ALDES E130-HR-N-M





## C407 Compliance – S33 8300 Aurora Ave N

### F. Service Water Heating Water Heater Efficiency

DOMESTIC HOT WATER - HEAT PUMP WATER HEATER (AIR-SOURCE)																				
EQUIP NO.	DESCRIPTION	SET POINT (°F)	UNIT CONFIGURATION	HEATING @ 40°F AIR TEMP		CONDENSER					PHYSICAL				ELECTRICAL				INLET/OUTLET CONN.	BASIS OF DESIGN
				CAPACITY MBH	COP	REFRIGERANT	ENTERING WATER TEMP (°F)	LEAVING WATER TEMP (°F)	FLOW RATE (GPM)	PRESSURE DROP (FT. HD)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	OPERATING WEIGHT (LBS)	VOLTAGE (V)	RLA (A)	MCA (A)	MOC (A)		
HPWH-1,2	AIR TO WATER HEAT PUMP	140	SINGLE-PASS	171,000	2.70	R-134A	52	140	15	13	72"	41"	89"	2400	208V/3P	138	172	175	2"	NYLE e360
.....																				
EQUIP TAG.	LOCATION	SERVICE		STORAGE, GAL	GPH RECOVERY AT 100°F TR	SET POINT	INPUT	SUPPLY INLET/OUTLET CONNECTION	WORKING PRESSURE, PSIG	OPERATING WEIGHT, LBS	ELECTRICAL		BASIS OF DESIGN							
EWB-1	ROOF	DOMESTIC HOT WATER SWING TANK		200	409	140°F	100KW	1½"	150		208/3P/300A		CEMUNE V200EHB100C3-RL 200-100							

.....

EQUIP TAG.	LOCATION	SERVICE	STORAGE, GAL	GPH RECOVERY AT 100°F TR	SET POINT	INPUT	SUPPLY INLET/OUTLET CONNECTION	WORKING PRESSURE, PSIG	OPERATING WEIGHT, LBS	ELECTRICAL	BASIS OF DESIGN
EWH-1	ROOF	DOMESTIC HOT WATER SWING TANK	200	409	140°F	100KW	1½"	150		208/3P/300A	CEMUNE V200EB100C3-RL 200-100

### Water Heating Demand

The water heating demand for the building is based on the LEED for Homes spreadsheet. The following inputs were used to determine the total load:

- Shower Head Flow Rate: 1.75 GPM
- Kitchen Faucet Flow Rate: 1.75 GPM
- Bathroom Faucet Flow Rate: 1.0 GPM
- In-Unit Clothes Washer: 1,127 gal/yr/unit
- Total DHW Usage/day: 4,560 gal/day



## **C407 Compliance – S33 8300 Aurora Ave N**

### **G. Computer Printout of Inputs and Outputs**

Select reports are included in this section. Complete printout of inputs and outputs is attached separately. The following reports are included with brief descriptions:

- BEPS/BEPU Report: Annualized energy use summary. Referenced in Tables 1 and 2 of the report.
- LV-D Report: Summary of Envelope Thermal Performance.
- LV-B Report: Summary of spaces including lighting power density, equipment power density, and infiltration rate.
- PS-F Report: Monthly energy use summary.
- PS-C Report: Summary of waterside energy using equipment (boilers and water heaters)
- LS-D Report: Peak heating and cooling loads without ventilation included.
- SS-D Report: Peak heating and cooling loads with ventilation included.
- SV-A Report: Typical HVAC system (representative of typical HVAC systems)



# C407 Compliance – S33 8300 Aurora Ave N

## Proposed Model

S33 - 8300 Aurora - Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- BEPS Building Energy Performance

WEATHER FILE- SEATTLE SEATTLE-T WA

	LIGHTS	TASK LIGHTS	MISC EQUIP	SPACE HEATING	SPACE COOLING	HEAT REJECT	PUMPS & AUX	VENT FANS	REFRIG DISPLAY	HT PUMP SUPPLEM	DOMEST HOT WTR	EXT USAGE	TOTAL
EM1 ELECTRICITY													
MBTU	166.1	0.0	1125.0	154.1	269.3	0.0	0.1	327.9	0.0	0.0	332.0	11.2	2385.3
FM1 NATURAL-GAS													
MBTU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
MBTU	166.1	0.0	1125.0	154.1	269.3	0.0	0.1	327.9	0.0	0.0	332.0	11.2	2385.3
										</			

S33 - 8300 Aurora - Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- BEPU Building Utility Performance

WEATHER FILE- SEATTLE SEATTLE-T WA

	LIGHTS	TASK LIGHTS	MISC EQUIP	SPACE HEATING	SPACE COOLING	HEAT REJECT	PUMPS & AUX	VENT FANS	REFRIG DISPLAY	HT PUMP SUPPLEM	DOMEST HOT WTR	EXT USAGE	TOTAL
EM1 ELECTRICITY													
KWH	48667.	0.	329487.	45147.	78904.	0.	36.	96084.	0.	0.	97284.	3285.	698894.
FM1 NATURAL-GAS													
THERM	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL ELECTRICITY				698894. KWH	8.464 KWH	/SQFT-YR GROSS-AREA				8.464 KWH	/SQFT-YR NET-AREA		

S33 - 8300 Aurora - Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- LV-D Details of Exterior Surfaces

WEATHER FILE- SEATTLE SEATTLE-T WA

	AVERAGE U-VALUE/WINDOWS (BTU/HR-SQFT-F)	AVERAGE U-VALUE/WALLS (BTU/HR-SQFT-F)	AVERAGE U-VALUE WALLS+WINDOWS (BTU/HR-SQFT-F)	WINDOW AREA (SQFT)	WALL AREA (SQFT)	WINDOW+WALL AREA (SQFT)
NORTH	0.270	0.054	0.112	1725.44	4619.11	6344.55
NORTH-EAST	0.000	0.054	0.054	0.00	23.99	23.99
EAST	0.276	0.054	0.122	3494.04	7867.95	11361.99
SOUTH-EAST	0.279	0.054	0.120	191.88	460.77	652.65
SOUTH	0.265	0.054	0.113	1301.65	3325.79	4627.44
SOUTH-WEST	0.265	0.054	0.137	1789.88	2766.08	4555.95
WEST	0.267	0.054	0.144	2946.56	4035.98	6982.54
FLOOR	0.000	0.029	0.029	0.00	387.66	387.66
ROOF	0.000	0.021	0.021	0.00	17661.08	17661.08
ALL WALLS	0.270	0.054	0.125	11449.44	23099.66	34549.11
WALLS+ROOFS	0.270	0.040	0.090	11449.44	40760.73	52210.18
UNDERGRND	0.000	0.015	0.015	0.00	16954.24	16954.24
BUILDING	0.270	0.032	0.072	11449.44	58102.62	69552.07



# C407 Compliance – S33 8300 Aurora Ave N

S33 – 8300 Aurora – Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- LV-B Summary of Spaces

WEATHER FILE- SEATTLE SEATTLE-T WA

NUMBER OF SPACES 86 EXTERIOR 71 INTERIOR 15

SPACE	SPACE*FLOOR MULTIPLIER	SPACE TYPE	AZIM	LIGHTS (WATT / SQFT )	PEOPLE	EQUIP (WATT / SQFT )	INFILTRATION METHOD	ACH	AREA (SQFT )	VOLUME (CUFT )
Spaces on floor: FL1 Ground Flr										
LW7 Livework Spc	1.0	EXT	0.0	0.37	2.0	2.14	AIR-CHANGE	0.20	1170.3	18725.0
LW3-LW6 Livework Spc	1.0	EXT	-90.0	0.37	6.0	2.14	AIR-CHANGE	0.20	3427.9	54846.5
101 Amenity Spc	1.0	EXT	-20.0	0.37	19.4	0.30	AIR-CHANGE	0.20	969.1	15506.4
LW1-LW2 Livework Spc	1.0	EXT	-90.0	0.37	3.0	2.14	AIR-CHANGE	0.20	1172.0	18751.4
105 Elec Spc	1.0	EXT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	359.9	5758.0
104 Trash Spc	1.0	EXT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	802.6	12841.0
123 Unit Spc	1.0	EXT	180.0	0.37	2.0	2.14	AIR-CHANGE	0.20	708.5	11336.6
103 Gym Spc	1.0	INT	0.0	0.37	4.4	0.30	AIR-CHANGE	0.20	442.2	7076.0
119-122 Unit Spc	1.0	EXT	180.0	0.37	6.0	2.14	AIR-CHANGE	0.20	2179.2	34867.0
116 Unit Spc	1.0	EXT	-90.0	0.37	1.0	2.14	AIR-CHANGE	0.20	507.8	8124.1
LW9 Livework Spc	1.0	EXT	90.0	0.37	1.5	2.14	AIR-CHANGE	0.20	802.2	12835.2
LW8 Livework Spc	1.0	EXT	0.0	0.37	2.0	2.14	AIR-CHANGE	0.20	917.5	14680.6
100B Corridor Spc	1.0	EXT	0.0	0.37	0.0	0.30	AIR-CHANGE	0.20	1553.3	24853.1
S2-1 Stair Spc	1.0	INT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	186.2	2978.6
101A Office Spc	1.0	INT	0.0	0.37	1.4	1.50	AIR-CHANGE	0.20	281.0	4496.8
S1-1 Stair Spc	1.0	INT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	195.0	3120.0
L1 Elev Spc	1.0	INT	0.0	0.00	0.0	0.00	AIR-CHANGE	0.20	72.2	1155.4
118 Unit Spc	1.0	EXT	-90.0	0.37	8.8	2.14	AIR-CHANGE	0.20	876.3	14020.0
113 Mech Spc	1.0	EXT	90.0	0.37	0.0	0.20	AIR-CHANGE	0.20	191.0	3056.2
117 Mech Spc	1.0	INT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	140.0	2240.0

Spaces on floor: EL2 Ground Flr

218 Unit Spc	1.0	EXT	0.0	0.37	1.0	2.14	AIR-CHANGE	0.20	456.1	4483.4
207-218 Unit Spc	1.0	EXT	0.0	0.37	15.5	2.14	AIR-CHANGE	0.20	4843.6	47612.5
206 Unit Spc	1.0	EXT	-20.0	0.37	2.0	2.14	AIR-CHANGE	0.20	870.6	8557.8
204-205 Unit Spc	1.0	EXT	-90.0	0.37	3.0	2.14	AIR-CHANGE	0.20	933.1	9172.5
203 Unit Spc	1.0	EXT	-90.0	0.37	1.5	2.14	AIR-CHANGE	0.20	746.1	7334.4
202 Unit Spc	1.0	EXT	180.0	0.37	1.0	2.14	AIR-CHANGE	0.20	447.9	4402.8
201 Unit Spc	1.0	EXT	0.0	0.37	1.5	2.14	AIR-CHANGE	0.20	622.7	6120.9
228 Unit Spc	1.0	EXT	180.0	0.37	1.0	2.14	AIR-CHANGE	0.20	622.8	6122.2
224-227 Unit Spc	1.0	EXT	180.0	0.37	6.0	2.14	AIR-CHANGE	0.20	2179.2	21421.4
223 Unit Spc	1.0	EXT	-90.0	0.37	1.0	2.14	AIR-CHANGE	0.20	876.3	8613.6
222 Unit Spc	1.0	EXT	180.0	0.37	1.0	2.14	AIR-CHANGE	0.20	647.8	6367.4
221 Unit Spc	1.0	EXT	0.0	0.37	2.0	2.14	AIR-CHANGE	0.20	937.5	9215.6
219-220 Unit Spc	1.0	EXT	0.0	0.37	3.0	2.14	AIR-CHANGE	0.20	976.3	9597.4
200 Corridor Spc	1.0	EXT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	1086.4	10678.9
S2-2 Stair Spc	1.0	INT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	186.2	1830.0
S1-2 Stair Spc	1.0	INT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	195.0	1916.8
L2 Elev Spc	1.0	INT	0.0	0.00	0.0	0.00	AIR-CHANGE	0.20	72.2	709.8

Spaces on floor: EL3 Ground Flr

318 Unit SPC	1.0	EXT	0.0	0.37	15.5	2.14	AIR-CHANGE	0.20	456.1	4483.4
307-318 Unit Spc	1.0	EXT	0.0	0.37	2.0	2.14	AIR-CHANGE	0.20	4843.6	47612.5
306 Unit Spc	1.0	EXT	-20.0	0.37	3.0	2.14	AIR-CHANGE	0.20	870.6	8557.8
304-305 Unit Spc	1.0	EXT	-90.0	0.37	1.5	2.14	AIR-CHANGE	0.20	933.1	9172.5
303 Unit Spc	1.0	EXT	-90.0	0.37	1.0	2.14	AIR-CHANGE	0.20	746.1	7334.4
302 Unit Spc	1.0	EXT	180.0	0.37	1.5	2.14	AIR-CHANGE	0.20	447.9	4402.8
301 Unit Spc	1.0	EXT	0.0	0.37	1.0	2.14	AIR-CHANGE	0.20	622.7	6120.9
328 Unit Spc	1.0	EXT	180.0	0.37	6.0	2.14	AIR-CHANGE	0.20	622.8	6122.2
324-327 Unit Spc	1.0	EXT	180.0	0.37	1.0	2.14	AIR-CHANGE	0.20	2179.2	21421.4
323 Unit Spc	1.0	EXT	-90.0	0.37	1.0	2.14	AIR-CHANGE	0.20	876.3	8613.6
322 Unit Spc	1.0	EXT	180.0	0.37	2.0	2.14	AIR-CHANGE	0.20	647.8	6367.4
321 Unit Spc	1.0	EXT	0.0	0.37	3.0	2.14	AIR-CHANGE	0.20	937.5	9215.6
319-320 Unit Spc	1.0	EXT	0.0	0.37	0.0	2.14	AIR-CHANGE	0.20	976.3	9597.4
300 Corridor Spc	1.0	EXT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	1086.4	10678.9
S2-3 Stair Spc	1.0	INT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	186.2	1830.0
S1-3 Stair Spc	1.0	INT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	195.0	1916.8
L3 Elev Spc	1.0	INT	0.0	0.00	0.0	0.00	AIR-CHANGE	0.20	72.2	709.8

Spaces on floor: EL4 Ground Flr

417 Unit Spc	1.0	EXT	0.0	0.37	15.5	2.14	AIR-CHANGE	0.20	456.1	4483.4
406-416 Unit Spc	1.0	EXT	0.0	0.37	15.5	2.14	AIR-CHANGE	0.20	4843.6	47612.5
405 Unit Spc	1.0	EXT	-20.0	0.37	3.0	2.14	AIR-CHANGE	0.20	870.6	8557.8
403-404 Unit Spc	1.0	EXT	-90.0	0.37	2.0	2.14	AIR-CHANGE	0.20	933.1	9172.5
402 Unit Spc	1.0	EXT	-90.0	0.37	1.5	2.14	AIR-CHANGE	0.20	1017.9	10006.2
401 Unit Spc	1.0	EXT	180.0	0.37	1.0	2.14	AIR-CHANGE	0.20	528.0	5190.1
427 Unit Spc	1.0	EXT	90.0	0.37	6.0	2.14	AIR-CHANGE	0.20	622.8	6122.2
423-426 Unit Spc	1.0	EXT	180.0	0.37	1.0	2.14	AIR-CHANGE	0.20	2179.2	21421.4
422 Unit Spc	1.0	EXT	-90.0	0.37	2.0	2.14	AIR-CHANGE	0.20	626.1	6154.5
421 Unit Spc	1.0	EXT	180.0	0.37	1.5	2.14	AIR-CHANGE	0.20	807.1	7933.6
420 Unit Spc	1.0	EXT	0.0	0.37	2.0	2.14	AIR-CHANGE	0.20	735.8	7232.7
418-419 Unit Spc	1.0	EXT	0.0	0.37	1.5	2.14	AIR-CHANGE	0.20	976.3	9597.4
400 Corridor Spc	1.0	EXT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	1058.2	10401.9
S2-4 Stair Spc	1.0	INT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	186.2	1830.0
S1-4 Stair Spc	1.0	INT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	195.0	1916.8
L4 Elev Spc	1.0	INT	0.0	0.00	0.0	0.00	AIR-CHANGE	0.20	72.2	709.8



# C407 Compliance – S33 8300 Aurora Ave N

S33 – 8300 Aurora – Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- LV-B Summary of Spaces

WEATHER FILE- SEATTLE BOEING FI WA

Spaces on floor: EL5 Ground Flr

517 Unit Spc	1.0	EXT	0.0	0.37	0.0	2.14	AIR-CHANGE	0.20	456.1	4483.4
506-516 Unit Spc	1.0	EXT	0.0	0.37	15.5	2.14	AIR-CHANGE	0.20	4843.6	47612.5
505 Unit Spc	1.0	EXT	-20.0	0.37	2.0	2.14	AIR-CHANGE	0.20	870.6	8557.8
503-504 Unit Spc	1.0	EXT	-90.0	0.37	3.0	2.14	AIR-CHANGE	0.20	933.1	9172.5
502 Unit Spc	1.0	EXT	-90.0	0.37	2.0	2.14	AIR-CHANGE	0.20	1017.9	10006.2
501 Unit Spc	1.0	EXT	180.0	0.37	1.5	2.14	AIR-CHANGE	0.20	528.0	5190.1
527 Unit Spc	1.0	EXT	90.0	0.37	1.0	2.14	AIR-CHANGE	0.20	622.8	6122.2
523-526 Unit Spc	1.0	EXT	180.0	0.37	6.0	2.14	AIR-CHANGE	0.20	2179.2	21421.4
522 Unit Spc	1.0	EXT	-90.0	0.37	1.0	2.14	AIR-CHANGE	0.20	626.1	6154.5
521 Unit Spc	1.0	EXT	180.0	0.37	2.0	2.14	AIR-CHANGE	0.20	807.1	7933.6
520 Unit Spc	1.0	EXT	0.0	0.37	1.5	2.14	AIR-CHANGE	0.20	735.8	7232.7
518-519 Unit Spc	1.0	EXT	0.0	0.37	3.0	2.14	AIR-CHANGE	0.20	976.3	9597.4
500 Corridor Spc	1.0	EXT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	1058.2	10401.9
S2-5 Stair Spc	1.0	EXT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	186.2	1830.0
S1-5 Stair Spc	1.0	EXT	0.0	0.37	0.0	0.20	AIR-CHANGE	0.20	195.0	1916.8
L5 Elev Spc	1.0	EXT	0.0	0.00	0.0	0.00	AIR-CHANGE	0.20	72.2	709.8

BUILDING TOTALS				0.37	226.5	1.88			82569.7	916268.0
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CONDITIONED FLOOR AREA	=	82569.7	SQFT
TOTAL INSTALLED LIGHTING POWER	=	30.417	KW
TOTAL INSTALLED EQUIPMENT POWER	=	155.447	KW



# C407 Compliance – S33 8300 Aurora Ave N

S33 – 8300 Aurora – Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- PS-F Energy End-Use Summary for EMI							WEATHER FILE- SEATTLE SEATTLE-T WA						
	LIGHTS	TASK LIGHTS	MISC EQUIP	SPACE HEATING	SPACE COOLING	HEAT REJECT	PUMPS & AUX	VENT FANS	REFRIG DISPLAY	HT PUMP SUPPLEM	DOMEST HOT WTR	EXT USAGE	TOTAL
JAN													
KWH	4129.	0.	27984.	12776.	298.	0.	3.	7928.	0.	0.	8804.	279.	62202.
MAX KW	8.966	0.000	77.181	59.175	10.232	0.000	0.004	11.149	0.000	0.000	21.194	0.750	135.142
DAY/HR	3/19	0/ 0	1/ 9	15/ 5	7/16	0/ 0	1/ 1	7/16	0/ 0	0/ 0	7/ 8	1/ 1	16/ 9
PEAK ENDUSE	6.677	0.000	77.181	23.653	0.000	0.000	0.004	10.673	0.000	0.000	16.955	0.000	
PEAK PCT	4.9	0.0	57.1	17.5	0.0	0.0	0.0	7.9	0.0	0.0	12.5	0.0	
FEB													
KWH	3733.	0.	25276.	8771.	1196.	0.	3.	7203.	0.	0.	8154.	252.	54587.
MAX KW	8.966	0.000	77.181	72.987	37.769	0.000	0.004	12.153	0.000	0.000	21.731	0.750	144.728
DAY/HR	1/19	0/ 0	1/ 9	19/ 6	27/16	0/ 0	1/ 1	27/16	0/ 0	0/ 0	19/ 8	1/ 1	27/16
PEAK ENDUSE	4.877	0.000	76.887	0.000	37.769	0.000	0.004	12.153	0.000	0.000	13.038	0.000	
PEAK PCT	3.4	0.0	53.1	0.0	26.1	0.0	0.0	8.4	0.0	0.0	9.0	0.0	
MAR													
KWH	4139.	0.	27984.	4138.	2838.	0.	3.	8047.	0.	0.	9045.	279.	56473.
MAX KW	8.966	0.000	77.181	41.215	39.380	0.000	0.004	12.406	0.000	0.000	21.774	0.750	154.842
DAY/HR	1/19	0/ 0	1/ 9	24/ 7	14/17	0/ 0	1/ 1	14/17	0/ 0	0/ 0	2/ 8	1/ 1	14/18
PEAK ENDUSE	5.868	0.000	76.887	0.000	37.994	0.000	0.004	12.315	0.000	0.000	21.774	0.000	
PEAK PCT	3.8	0.0	49.7	0.0	24.5	0.0	0.0	8.0	0.0	0.0	14.1	0.0	
APR													
KWH	4001.	0.	27081.	1949.	5900.	0.	3.	7894.	0.	0.	8651.	270.	55748.
MAX KW	8.966	0.000	77.181	30.856	57.438	0.000	0.004	12.985	0.000	0.000	21.519	0.750	173.373
DAY/HR	1/19	0/ 0	1/ 9	19/ 6	27/17	0/ 0	1/ 2	26/18	0/ 0	0/ 0	18/ 8	1/ 2	27/18
PEAK ENDUSE	5.868	0.000	76.887	0.000	56.275	0.000	0.004	12.820	0.000	0.000	21.518	0.000	
PEAK PCT	3.4	0.0	44.3	0.0	32.5	0.0	0.0	7.4	0.0	0.0	12.4	0.0	
MAY													
KWH	4132.	0.	27984.	496.	9079.	0.	3.	8245.	0.	0.	8513.	279.	58732.
MAX KW	8.966	0.000	77.181	20.777	51.923	0.000	0.004	13.077	0.000	0.000	20.494	0.750	167.990
DAY/HR	2/19	0/ 0	1/ 9	18/ 6	4/17	0/ 0	1/ 2	4/18	0/ 0	0/ 0	18/ 8	1/ 2	4/18
PEAK ENDUSE	5.868	0.000	76.887	0.000	51.660	0.000	0.004	13.077	0.000	0.000	20.494	0.000	
PEAK PCT	3.5	0.0	45.8	0.0	30.8	0.0	0.0	7.8	0.0	0.0	12.2	0.0	
JUN													
KWH	4004.	0.	27081.	58.	11327.	0.	3.	8052.	0.	0.	7829.	270.	58625.
MAX KW	8.966	0.000	77.181	4.721	59.110	0.000	0.004	13.073	0.000	0.000	19.475	0.750	174.416
DAY/HR	1/19	0/ 0	1/ 9	14/ 4	28/18	0/ 0	1/ 2	28/18	0/ 0	0/ 0	6/19	1/ 2	28/18
PEAK ENDUSE	5.868	0.000	76.887	0.000	59.110	0.000	0.004	13.073	0.000	0.000	19.474	0.000	
PEAK PCT	3.4	0.0	44.1	0.0	33.9	0.0	0.0	7.5	0.0	0.0	11.2	0.0	
JUL													
KWH	4129.	0.	27984.	2.	15278.	0.	3.	8454.	0.	0.	7723.	279.	63851.
MAX KW	8.966	0.000	77.181	0.102	68.406	0.000	0.004	13.568	0.000	0.000	18.591	0.750	183.232
DAY/HR	1/19	0/ 0	1/ 9	6/ 5	31/18	0/ 0	1/ 2	31/18	0/ 0	0/ 0	4/ 8	1/ 2	31/18
PEAK ENDUSE	5.777	0.000	76.887	0.000	68.406	0.000	0.004	13.568	0.000	0.000	18.590	0.000	
PEAK PCT	3.2	0.0	42.0	0.0	37.3	0.0	0.0	7.4	0.0	0.0	10.1	0.0	
AUG													
KWH	4139.	0.	27984.	2.	16096.	0.	3.	8490.	0.	0.	7490.	279.	64483.
MAX KW	8.966	0.000	77.181	0.104	74.796	0.000	0.004	14.671	0.000	0.000	18.031	0.750	190.256
DAY/HR	1/19	0/ 0	1/ 9	6/ 4	10/18	0/ 0	1/ 2	10/18	0/ 0	0/ 0	1/ 8	1/ 2	10/18
PEAK ENDUSE	5.868	0.000	76.887	0.000	74.796	0.000	0.004	14.671	0.000	0.000	18.030	0.000	
PEAK PCT	3.1	0.0	40.4	0.0	39.3	0.0	0.0	7.7	0.0	0.0	9.5	0.0	
SEP													
KWH	4001.	0.	27081.	27.	10718.	0.	3.	8055.	0.	0.	7229.	270.	57385.
MAX KW	8.966	0.000	77.181	2.400	59.409	0.000	0.004	13.201	0.000	0.000	17.983	0.750	169.761
DAY/HR	1/19	0/ 0	1/ 9	27/ 4	22/17	0/ 0	1/ 2	22/17	0/ 0	0/ 0	27/ 8	1/ 2	14/18
PEAK ENDUSE	5.868	0.000	76.887	0.000	56.211	0.000	0.004	12.808	0.000	0.000	17.983	0.000	
PEAK PCT	3.5	0.0	45.3	0.0	33.1	0.0	0.0	7.5	0.0	0.0	10.6	0.0	
OCT													
KWH	4129.	0.	27984.	1114.	4446.	0.	3.	8078.	0.	0.	7660.	279.	53692.
MAX KW	8.966	0.000	77.181	19.191	41.243	0.000	0.004	12.509	0.000	0.000	18.439	0.750	152.691
DAY/HR	3/19	0/ 0	1/ 9	30/ 3	4/17	0/ 0	1/ 2	4/17	0/ 0	0/ 0	12/ 8	1/ 2	4/18
PEAK ENDUSE	5.868	0.000	76.887	0.000	39.176	0.000	0.004	12.318	0.000	0.000	18.438	0.000	
PEAK PCT	3.8	0.0	50.4	0.0	25.7	0.0	0.0	8.1	0.0	0.0	12.1	0.0	
NOV													
KWH	3998.	0.	27081.	5446.	1233.	0.	3.	7703.	0.	0.	7759.	270.	53493.
MAX KW	8.966	0.000	77.181	43.862	72.730	0.000	0.004	12.201	0.000	0.000	19.300	0.750	148.794
DAY/HR	1/19	0/ 0	1/ 9	29/21	4/16	0/ 0	1/ 2	4/16	0/ 0	0/ 0	11/ 8	1/ 2	4/15
PEAK ENDUSE	5.218	0.000	76.887	0.000	41.013	0.000	0.004	12.162	0.000	0.000	13.510	0.000	
PEAK PCT	3.5	0.0	51.7	0.0	27.6	0.0	0.0	8.2	0.0	0.0	9.1	0.0	
DEC													
KWH	4132.	0.	27984.	10368.	494.	0.	3.	7934.	0.	0.	8428.	279.	59623.
MAX KW	8.966	0.000	77.181	50.184	16.646	0.000	0.004	11.358	0.000	0.000	20.289	0.750	132.281
DAY/HR	1/19	0/ 0	1/ 9	26/ 4	10/15	0/ 0	1/ 1	10/15	0/ 0	0/ 0	25/ 8	1/ 1	26/ 9
PEAK ENDUSE	6.677	0.000	77.181	21.515	0.000	0.000	0.004	10.673	0.000	0.000	16.231	0.000	
PEAK PCT	5.0	0.0	58.3	16.3	0.0	0.0	0.0	8.1	0.0	0.0	12.3	0.0	
=====													
KWH	48667.	0.	329487.	45147.	78904.	0.	36.	96084.	0.	0.	97284.	3285.	698894.
MAX KW	8.966	0.000	77.181	72.987	74.796	0.000	0.004	14.671	0.000	0.000	21.774	0.750	190.256
MON/DY	1/ 3	0/ 0	1/ 1	2/19	8/10	0/ 0	1/ 1	8/10	0/ 0	0/ 0	3/ 2	1/ 1	8/10
PEAK ENDUSE	5.868	0.000	76.887	0.000	74.796	0.000	0.004	14.671	0.000	0.000	18.030	0.000	
PEAK PCT	3.1	0.0	40.4	0.0	39.3	0.0	0.0	7.7	0.0	0.0	9.5	0.0	



# C407 Compliance – S33 8300 Aurora Ave N

S33 – 8300 Aurora – Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- SS-D Building HVAC Load Summary

WEATHER FILE- SEATTLE SEATTLE-T WA

- - - - - C O O L I N G - - - - -						- - - - - H E A T I N G - - - - -						- - - E L E C - - -	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC- TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)	
JAN	5.28838	7 16	37.F	34.F	171.037	-64.564	15 5	27.F	25.F	-276.323	48087.	108.450	
FEB	17.94776	27 16	67.F	54.F	539.855	-44.568	19 6	22.F	20.F	-337.532	42334.	118.064	
MAR	40.26343	14 17	63.F	51.F	567.155	-23.124	24 7	35.F	29.F	-202.004	44289.	120.187	
APR	80.37347	27 18	79.F	61.F	759.065	-11.574	11 5	41.F	39.F	-162.220	43741.	133.020	
MAY	124.66360	7 17	72.F	60.F	742.310	-3.353	18 6	42.F	42.F	-117.140	46341.	130.065	
JUN	155.34772	28 18	80.F	61.F	789.359	-0.491	14 4	50.F	48.F	-39.583	46263.	135.225	
JUL	210.49757	31 18	83.F	65.F	906.190	-0.023	2 5	54.F	48.F	-1.176	50235.	141.540	
AUG	217.93159	10 18	89.F	65.F	921.204	-0.026	6 4	53.F	52.F	-1.207	50745.	146.157	
SEP	149.05132	22 17	77.F	63.F	837.788	-0.238	27 4	47.F	46.F	-16.267	45842.	134.118	
OCT	60.11184	4 17	70.F	51.F	596.281	-7.355	31 22	45.F	44.F	-113.138	43507.	120.873	
NOV	17.72993	4 16	70.F	61.F	630.468	-29.757	29 21	41.F	37.F	-226.694	42731.	121.290	
DEC	8.36743	10 15	51.F	47.F	293.904	-53.437	26 4	30.F	29.F	-231.420	46642.	105.930	
TOTAL	1087.574					-238.510					550756.		
MAX					921.204					-337.532		146.157	

S33 – 8300 Aurora – Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- LS-D Building Monthly Loads Summary

WEATHER FILE- SEATTLE SEATTLE-T WA

- - - - - C O O L I N G - - - - -						- - - - - H E A T I N G - - - - -						- - - E L E C - - -	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC- TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)	
JAN	39.87082	20 14	44.F	40.F	331.462	-52.627	15 2	29.F	26.F	-203.160	32113.	84.199	
FEB	54.36594	27 16	67.F	54.F	545.280	-40.421	19 7	23.F	22.F	-247.745	29008.	84.199	
MAR	84.94166	14 16	63.F	52.F	588.216	-31.604	24 6	35.F	29.F	-176.460	32123.	84.199	
APR	114.96572	26 17	76.F	57.F	659.205	-21.388	11 4	41.F	40.F	-164.933	31083.	84.199	
MAY	144.40700	15 16	75.F	55.F	667.187	-12.263	18 5	42.F	42.F	-130.097	32116.	84.199	
JUN	157.63210	28 17	80.F	62.F	662.751	-5.472	14 2	51.F	48.F	-96.057	31086.	84.199	
JUL	189.08273	31 17	83.F	66.F	708.865	-2.428	2 4	54.F	48.F	-44.095	32113.	84.199	
AUG	186.09453	10 17	89.F	66.F	747.661	-2.097	5 1	55.F	52.F	-36.340	32123.	84.199	
SEP	145.54031	22 16	77.F	64.F	665.769	-4.720	27 3	47.F	46.F	-65.349	31082.	84.199	
OCT	93.71654	4 16	70.F	52.F	591.047	-18.811	31 20	45.F	44.F	-127.419	32113.	84.199	
NOV	54.40367	4 15	70.F	61.F	537.226	-33.221	29 21	41.F	38.F	-186.242	31079.	84.199	
DEC	44.39712	10 15	51.F	48.F	407.477	-45.766	22 23	34.F	33.F	-172.678	32116.	84.199	
TOTAL	1309.418					-270.816					378155.		
MAX					747.661					-247.745		84.199	



# C407 Compliance – S33 8300 Aurora Ave N

S33 – 8300 Aurora – Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- PS-C Equipment Loads and Energy Use

WEATHER FILE- SEATTLE SEATTLE-T WA

		COOL LOAD	HEAT LOAD	ELEC USE	FUEL USE	Number of hours within each										PART LOAD	range			TOTAL
MON	SUM	(MBTU)	(MBTU)	(KWH)	(MBTU)	00	10	20	30	40	50	60	70	80	90	100	RUN			
	PEAK	(KBTU/HR)	(KBTU/HR)	(KW)	(KBTU/HR)	10	20	30	40	50	60	70	80	90	100	+	HOURS			
-----																				
-----																				
-----																				
-----																				
HP-1																				
	SUM	76.6	-34.8	9216.8		COOL1514	1018	413	59	0	0	0	0	0	0	0	3004			
	PEAK	87.3	-39.9	5.8		HEAT1955	664	16	0	0	0	0	0	0	0	0	2635			
	MON/DAY	8/10	2/19	2/19		ELEC2757	2002	838	42	0	0	0	0	0	0	0	5639			
HP-2																				
	SUM	153.2	-54.4	15328.1		COOL4610	676	714	296	151	87	18	2	0	0	0	6554			
	PEAK	136.0	-50.5	9.5		HEAT2141	1149	97	5	0	0	0	0	0	0	0	3392			
	MON/DAY	8/10	2/19	8/10		ELEC4701	2199	1337	414	91	14	1	0	0	0	0	8757			
HP-3																				
	SUM	81.7	-12.8	6944.0		COOL1491	1160	377	40	0	0	0	0	0	0	0	3068			
	PEAK	75.5	-24.9	5.2		HEAT1525	16	0	0	0	0	0	0	0	0	0	1541			
	MON/DAY	8/10	2/19	8/10		ELEC2637	1488	461	23	0	0	0	0	0	0	0	4609			
HP-4																				
	SUM	163.2	-59.2	16044.5		COOL 923	699	658	466	304	147	45	0	0	0	0	3242			
	PEAK	138.8	-66.2	8.5		HEAT1013	1032	388	46	4	0	0	0	0	0	0	2483			
	MON/DAY	8/29	2/19	8/29		ELEC1807	1153	1577	939	201	30	0	0	0	0	0	5707			
HPWH-1/2																				
	SUM		-796.7	97284.2		LOAD2555	0	0	1656	2543	1128	878	0	0	0	0	8760			
	PEAK		-178.3	21.8		ELEC2142	413	0	0	366	2130	1399	910	823	484	93	8760			
	MON/DAY		3/ 1	3/ 2																
HWCP-1																				
	SUM			35.5		FLOW	0	0	0	0	0	0	0	0	8760	0	8760			
	PEAK			0.0		RPM	0	0	0	0	0	0	0	0	0	8760	8760			
	MON/DAY			1/ 1		ELEC	0	0	0	0	0	0	0	0	8760	0	8760			





# C407 Compliance – S33 8300 Aurora Ave N

S33 – 8300 Aurora – Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- SV-A System Design Parameters for ERV-O/M

WEATHER FILE- SEATTLE SEATTLE-T WA

SYSTEM TYPE	ALTITUDE FACTOR	FLOOR AREA (SQFT )	MAX PEOPLE	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)	HEAT PUMP SUPP-HEAT (KBTU/HR)	
DOAS	1.000	71274.5	201.	1.000	0.000	0.000	0.000	0.000	0.000	0.000	
FAN TYPE	CAPACITY (CFM )	DIVERSITY FACTOR (FRAC)	POWER DEMAND (KW)	FAN DELTA-T (F)	STATIC PRESSURE (IN-WATER)	TOTAL EFF (FRAC)	MECH EFF (FRAC)	FAN PLACEMENT	FAN CONTROL	MAX FAN RATIO (FRAC)	MIN FAN RATIO (FRAC)
SUPPLY	7680.	0.00	8.978	3.66	5.5	0.55	0.62	DRAW-THRU	CONSTANT	1.10	0.10

S33 – 8300 Aurora – Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- SV-A System Design Parameters for FC-1/2

WEATHER FILE- SEATTLE SEATTLE-T WA

SYSTEM TYPE	ALTITUDE FACTOR	FLOOR AREA (SQFT )	MAX PEOPLE	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)	HEAT PUMP SUPP-HEAT (KBTU/HR)	
PVVT	1.000	969.1	19.	0.000	65.591	0.742	-67.521	0.000	0.000	0.000	
FAN TYPE	CAPACITY (CFM )	DIVERSITY FACTOR (FRAC)	POWER DEMAND (KW)	FAN DELTA-T (F)	STATIC PRESSURE (IN-WATER)	TOTAL EFF (FRAC)	MECH EFF (FRAC)	FAN PLACEMENT	FAN CONTROL	MAX FAN RATIO (FRAC)	MIN FAN RATIO (FRAC)
SUPPLY	1543.	1.00	0.193	0.39	0.4	0.41	0.62	DRAW-THRU	SPEED	1.00	0.30

VRF BRANCH GAS PIPE NOMINAL DIA: 0.625 (IN)

\*\*\* THE ABOVE CHARACTERISTICS ARE FOR EACH OF: 1 AIR HANDLERS

\*\*\* THE NUMBER OF VRF BRANCH LOOPS WAS SET TO: 3 TO SATISFY THE MAX-CAP/UNIT LIMIT OF 30000. (BTU/HR)

ZONE NAME	SUPPLY FLOW (CFM )	EXHAUST FLOW (CFM )	FAN (KW)	MINIMUM FLOW (FRAC)	OUTSIDE AIR FLOW (CFM )	COOLING CAPACITY (KBTU/HR)	SENSIBLE (FRAC)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	ZONE MULT
101 Amentiy Zn	1543.	0.	0.000	0.010	200.	0.00	0.00	34.93	0.00	-75.67	1.

S33 – 8300 Aurora – Proposed

DOE-2.3-50h 11/17/2022 14:26:27 BDL RUN 1

REPORT- SV-A System Design Parameters for 202 Unit Sys

WEATHER FILE- SEATTLE SEATTLE-T WA

SYSTEM TYPE	ALTITUDE FACTOR	FLOOR AREA (SQFT )	MAX PEOPLE	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)	HEAT PUMP SUPP-HEAT (KBTU/HR)	
PVVT	1.000	447.9	1.	0.000	7.076	0.742	0.000	0.310	0.000	0.000	
FAN TYPE	CAPACITY (CFM )	DIVERSITY FACTOR (FRAC)	POWER DEMAND (KW)	FAN DELTA-T (F)	STATIC PRESSURE (IN-WATER)	TOTAL EFF (FRAC)	MECH EFF (FRAC)	FAN PLACEMENT	FAN CONTROL	MAX FAN RATIO (FRAC)	MIN FAN RATIO (FRAC)
SUPPLY	269.	1.00	0.081	0.94	0.9	0.34	0.62	DRAW-THRU	SPEED	1.00	0.30

\*\*\* THE ABOVE CHARACTERISTICS ARE FOR EACH OF: 1 AIR HANDLERS

ZONE NAME	SUPPLY FLOW (CFM )	EXHAUST FLOW (CFM )	FAN (KW)	MINIMUM FLOW (FRAC)	OUTSIDE AIR FLOW (CFM )	COOLING CAPACITY (KBTU/HR)	SENSIBLE (FRAC)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	ZONE MULT
202 Unit Zn	269.	0.	0.000	0.010	60.	0.00	0.00	7.21	0.00	-2.32 -2.41 (BASEBOARDS)	1.



# C407 Compliance – S33 8300 Aurora Ave N

## Baseline Model

S33 - 8300 Aurora - Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- BEPS Building Energy Performance

WEATHER FILE- SEATTLE SEATTLE-T WA

	LIGHTS	TASK LIGHTS	MISC EQUIP	SPACE HEATING	SPACE COOLING	HEAT REJECT	PUMPS & AUX	VENT FANS	REFRIG DISPLAY	HT PUMP SUPPLEM	DOMEST HOT WTR	EXT USAGE	TOTAL
EM1 ELECTRICITY													
MBTU	314.2	0.0	1125.0	0.0	242.2	0.0	6.7	389.2	0.0	0.0	0.0	11.2	2088.1
FM1 NATURAL-GAS													
MBTU	0.0	0.0	0.0	2393.0	0.0	0.0	0.0	0.0	0.0	0.0	1017.0	0.0	3409.8
	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
MBTU	314.2	0.0	1125.0	2393.0	242.2	0.0	6.7	389.2	0.0	0.0	1017.0	11.2	5497.9
TOTAL SITE ENERGY				5497.87 MBTU		66.6 KBTU/SQFT-YR GROSS-AREA		66.6 KBTU/SQFT-YR NET-AREA					
TOTAL SOURCE ENERGY				9674.01 MBTU		117.2 KBTU/SQFT-YR GROSS-AREA		117.2 KBTU/SQFT-YR NET-AREA					
PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.00													
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.00													
HOURS ANY ZONE ABOVE COOLING THROTTLING RANGE = 0													
HOURS ANY ZONE BELOW HEATING THROTTLING RANGE = 0													

S33 - 8300 Aurora - Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- BEPU Building Utility Performance

WEATHER FILE- SEATTLE SEATTLE-T WA

	LIGHTS	TASK LIGHTS	MISC EQUIP	SPACE HEATING	SPACE COOLING	HEAT REJECT	PUMPS & AUX	VENT FANS	REFRIG DISPLAY	HT PUMP SUPPLEM	DOMEST HOT WTR	EXT USAGE	TOTAL
EM1 ELECTRICITY KWH	92073.	0.	329487.	0.	70951.	0.	1974.	114032.	0.	0.	0.	3285.	611803.
FM1 NATURAL-GAS THERM	0.	0.	0.	23931.	0.	0.	0.	0.	0.	0.	10167.	0.	34098.
TOTAL ELECTRICITY			611803. KWH	7.410 KWH /SQFT-YR GROSS-AREA			7.410 KWH /SQFT-YR NET-AREA						
TOTAL NATURAL-GAS			34098. THERM	0.413 THERM /SQFT-YR GROSS-AREA			0.413 THERM /SQFT-YR NET-AREA						

S33 - 8300 Aurora - Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- LV-D Details of Exterior Surfaces

WEATHER FILE- SEATTLE SEATTLE-T WA

	AVERAGE U-VALUE/WINDOWS (BTU/HR-SQFT-F)	AVERAGE U-VALUE/WALLS (BTU/HR-SQFT-F)	AVERAGE U-VALUE WALLS+WINDOWS (BTU/HR-SQFT-F)	WINDOW AREA (SQFT)	WALL AREA (SQFT)	WINDOW+WALL AREA (SQFT)
NORTH	0.572	0.062	0.201	1725.44	4619.11	6344.55
NORTH-EAST	0.000	0.062	0.062	0.00	23.99	23.99
EAST	0.601	0.062	0.228	3494.04	7867.95	11361.99
SOUTH-EAST	0.613	0.062	0.224	191.88	460.77	652.65
SOUTH	0.553	0.062	0.200	1301.65	3325.79	4627.44
SOUTH-WEST	0.551	0.062	0.254	1789.88	2766.08	4555.95
WEST	0.562	0.062	0.273	2946.56	4035.98	6982.54
FLOOR	0.000	0.051	0.051	0.00	387.66	387.66
ROOF	0.000	0.063	0.063	0.00	17661.08	17661.08
ALL WALLS	0.573	0.062	0.232	11449.44	23099.66	34549.11
WALLS+ROOFS	0.573	0.062	0.174	11449.44	40760.73	52210.18
UNDERGRND	0.000	0.022	0.022	0.00	16954.24	16954.24
BUILDING	0.573	0.051	0.137	11449.44	58102.62	69552.07



# C407 Compliance – S33 8300 Aurora Ave N

S33 – 8300 Aurora – Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- LV-B Summary of Spaces

WEATHER FILE- SEATTLE SEATTLE-T WA

NUMBER OF SPACES 86 EXTERIOR 71 INTERIOR 15

SPACE	SPACE*FLOOR MULTIPLIER	SPACE TYPE	SPACE AZIM	LIGHTS (WATT / SQFT )	PEOPLE	EQUIP (WATT / SQFT )	INFILTRATION METHOD	ACH	AREA (SQFT )	VOLUME (CUFT )
Spaces on floor: FL1 Ground Flr										
LW7 Livework Spc	1.0	EXT	0.0	0.70	2.0	2.14	AIR-CHANGE	0.51	1170.3	18725.0
LW3-LW6 Livework Spc	1.0	EXT	-90.0	0.70	6.0	2.14	AIR-CHANGE	0.51	3427.9	54846.5
101 Amenity Spc	1.0	EXT	-20.0	0.70	19.4	0.30	AIR-CHANGE	0.51	969.1	15506.4
LW1-LW2 Livework Spc	1.0	EXT	-90.0	0.70	3.0	2.14	AIR-CHANGE	0.51	1172.0	18751.4
105 Elec Spc	1.0	EXT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	359.9	5758.0
104 Trash Spc	1.0	EXT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	802.6	12841.0
123 Unit Spc	1.0	EXT	180.0	0.70	2.0	2.14	AIR-CHANGE	0.51	708.5	11336.6
103 Gym Spc	1.0	INT	0.0	0.70	4.4	0.30	AIR-CHANGE	0.51	442.2	7076.0
119-122 Unit Spc	1.0	EXT	180.0	0.70	6.0	2.14	AIR-CHANGE	0.51	2179.2	34867.0
116 Unit Spc	1.0	EXT	-90.0	0.70	1.0	2.14	AIR-CHANGE	0.51	507.8	8124.1
LW9 Livework Spc	1.0	EXT	90.0	0.70	1.5	2.14	AIR-CHANGE	0.51	802.2	12835.2
LW8 Livework Spc	1.0	EXT	0.0	0.70	2.0	2.14	AIR-CHANGE	0.51	917.5	14680.6
100B Corridor Spc	1.0	EXT	0.0	0.70	0.0	0.30	AIR-CHANGE	0.51	1553.3	24853.1
S2-1 Stair Spc	1.0	INT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	186.2	2978.6
101A Office Spc	1.0	INT	0.0	0.70	1.4	1.50	AIR-CHANGE	0.51	281.0	4496.8
S1-1 Stair Spc	1.0	INT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	195.0	3120.0
L1 Elev Spc	1.0	INT	0.0	0.00	0.0	0.00	AIR-CHANGE	0.51	72.2	1155.4
118 Unit Spc	1.0	EXT	-90.0	0.70	8.8	2.14	AIR-CHANGE	0.51	876.3	14020.0
113 Mech Spc	1.0	EXT	90.0	0.70	0.0	0.20	AIR-CHANGE	0.51	191.0	3056.2
117 Mech Spc	1.0	INT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	140.0	2240.0

Spaces on floor: EL2 Ground Flr

218 Unit Spc	1.0	EXT	0.0	0.70	1.0	2.14	AIR-CHANGE	0.51	456.1	4483.4
207-218 Unit Spc	1.0	EXT	0.0	0.70	15.5	2.14	AIR-CHANGE	0.51	4843.6	47612.5
206 Unit Spc	1.0	EXT	-20.0	0.70	2.0	2.14	AIR-CHANGE	0.51	870.6	8557.8
204-205 Unit Spc	1.0	EXT	-90.0	0.70	3.0	2.14	AIR-CHANGE	0.51	933.1	9172.5
203 Unit Spc	1.0	EXT	-90.0	0.70	1.5	2.14	AIR-CHANGE	0.51	746.1	7334.4
202 Unit Spc	1.0	EXT	180.0	0.70	1.0	2.14	AIR-CHANGE	0.51	447.9	4402.8
201 Unit Spc	1.0	EXT	0.0	0.70	1.5	2.14	AIR-CHANGE	0.51	622.7	6120.9
228 Unit Spc	1.0	EXT	180.0	0.70	1.0	2.14	AIR-CHANGE	0.51	622.8	6122.2
224-227 Unit Spc	1.0	EXT	180.0	0.70	6.0	2.14	AIR-CHANGE	0.51	2179.2	21421.4
223 Unit Spc	1.0	EXT	-90.0	0.70	1.0	2.14	AIR-CHANGE	0.51	876.3	8613.6
222 Unit Spc	1.0	EXT	180.0	0.70	1.0	2.14	AIR-CHANGE	0.51	647.8	6367.4
221 Unit Spc	1.0	EXT	0.0	0.70	2.0	2.14	AIR-CHANGE	0.51	937.5	9215.6
219-220 Unit Spc	1.0	EXT	0.0	0.70	3.0	2.14	AIR-CHANGE	0.51	976.3	9597.4
200 Corridor Spc	1.0	EXT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	1086.4	10678.9
S2-2 Stair Spc	1.0	INT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	186.2	1830.0
S1-2 Stair Spc	1.0	INT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	195.0	1916.8
L2 Elev Spc	1.0	INT	0.0	0.00	0.0	0.00	AIR-CHANGE	0.51	72.2	709.8

Spaces on floor: EL3 Ground Flr

318 Unit SPC	1.0	EXT	0.0	0.70	15.5	2.14	AIR-CHANGE	0.51	456.1	4483.4
307-318 Unit Spc	1.0	EXT	0.0	0.70	2.0	2.14	AIR-CHANGE	0.51	4843.6	47612.5
306 Unit Spc	1.0	EXT	-20.0	0.70	3.0	2.14	AIR-CHANGE	0.51	870.6	8557.8
304-305 Unit Spc	1.0	EXT	-90.0	0.70	1.5	2.14	AIR-CHANGE	0.51	933.1	9172.5
303 Unit Spc	1.0	EXT	-90.0	0.70	1.0	2.14	AIR-CHANGE	0.51	746.1	7334.4
302 Unit Spc	1.0	EXT	180.0	0.70	1.5	2.14	AIR-CHANGE	0.51	447.9	4402.8
301 Unit Spc	1.0	EXT	0.0	0.70	1.0	2.14	AIR-CHANGE	0.51	622.7	6120.9
328 Unit Spc	1.0	EXT	180.0	0.70	6.0	2.14	AIR-CHANGE	0.51	622.8	6122.2
324-327 Unit Spc	1.0	EXT	180.0	0.70	1.0	2.14	AIR-CHANGE	0.51	2179.2	21421.4
323 Unit Spc	1.0	EXT	-90.0	0.70	1.0	2.14	AIR-CHANGE	0.51	876.3	8613.6
322 Unit Spc	1.0	EXT	180.0	0.70	2.0	2.14	AIR-CHANGE	0.51	647.8	6367.4
321 Unit Spc	1.0	EXT	0.0	0.70	3.0	2.14	AIR-CHANGE	0.51	937.5	9215.6
319-320 Unit Spc	1.0	EXT	0.0	0.70	0.0	2.14	AIR-CHANGE	0.51	976.3	9597.4
300 Corridor Spc	1.0	EXT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	1086.4	10678.9
S2-3 Stair Spc	1.0	INT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	186.2	1830.0
S1-3 Stair Spc	1.0	INT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	195.0	1916.8
L3 Elev Spc	1.0	INT	0.0	0.00	0.0	0.00	AIR-CHANGE	0.51	72.2	709.8

Spaces on floor: EL4 Ground Flr

417 Unit Spc	1.0	EXT	0.0	0.70	15.5	2.14	AIR-CHANGE	0.51	456.1	4483.4
406-416 Unit Spc	1.0	EXT	0.0	0.70	15.5	2.14	AIR-CHANGE	0.51	4843.6	47612.5
405 Unit Spc	1.0	EXT	-20.0	0.70	3.0	2.14	AIR-CHANGE	0.51	870.6	8557.8
403-404 Unit Spc	1.0	EXT	-90.0	0.70	2.0	2.14	AIR-CHANGE	0.51	933.1	9172.5
402 Unit Spc	1.0	EXT	-90.0	0.70	1.5	2.14	AIR-CHANGE	0.51	1017.9	10006.2
401 Unit Spc	1.0	EXT	180.0	0.70	1.0	2.14	AIR-CHANGE	0.51	528.0	5190.1
427 Unit Spc	1.0	EXT	90.0	0.70	6.0	2.14	AIR-CHANGE	0.51	622.8	6122.2
423-426 Unit Spc	1.0	EXT	180.0	0.70	1.0	2.14	AIR-CHANGE	0.51	2179.2	21421.4
422 Unit Spc	1.0	EXT	-90.0	0.70	2.0	2.14	AIR-CHANGE	0.51	626.1	6154.5
421 Unit Spc	1.0	EXT	180.0	0.70	1.5	2.14	AIR-CHANGE	0.51	807.1	7933.6
420 Unit Spc	1.0	EXT	0.0	0.70	2.0	2.14	AIR-CHANGE	0.51	735.8	7232.7
418-419 Unit Spc	1.0	EXT	0.0	0.70	1.5	2.14	AIR-CHANGE	0.51	976.3	9597.4
400 Corridor Spc	1.0	EXT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	1058.2	10401.9
S2-4 Stair Spc	1.0	INT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	186.2	1830.0
S1-4 Stair Spc	1.0	INT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	195.0	1916.8
L4 Elev Spc	1.0	INT	0.0	0.00	0.0	0.00	AIR-CHANGE	0.51	72.2	709.8



# C407 Compliance – S33 8300 Aurora Ave N

S33 - 8300 Aurora - Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- LV-B Summary of Spaces

WEATHER FILE- SEATTLE SEATTLE-T WA

Spaces on floor: EL5 Ground Flr

517 Unit Spc	1.0	EXT	0.0	0.70	0.0	2.14	AIR-CHANGE	0.51	456.1	4483.4
506-516 Unit Spc	1.0	EXT	0.0	0.70	15.5	2.14	AIR-CHANGE	0.51	4843.6	47612.5
505 Unit Spc	1.0	EXT	-20.0	0.70	2.0	2.14	AIR-CHANGE	0.51	870.6	8557.8
503-504 Unit Spc	1.0	EXT	-90.0	0.70	3.0	2.14	AIR-CHANGE	0.51	933.1	9172.5
502 Unit Spc	1.0	EXT	-90.0	0.70	2.0	2.14	AIR-CHANGE	0.51	1017.9	10006.2
501 Unit Spc	1.0	EXT	180.0	0.70	1.5	2.14	AIR-CHANGE	0.51	528.0	5190.1
527 Unit Spc	1.0	EXT	90.0	0.70	1.0	2.14	AIR-CHANGE	0.51	622.8	6122.2
523-526 Unit Spc	1.0	EXT	180.0	0.70	6.0	2.14	AIR-CHANGE	0.51	2179.2	21421.4
522 Unit Spc	1.0	EXT	-90.0	0.70	1.0	2.14	AIR-CHANGE	0.51	626.1	6154.5
521 Unit Spc	1.0	EXT	180.0	0.70	2.0	2.14	AIR-CHANGE	0.51	807.1	7933.6
520 Unit Spc	1.0	EXT	0.0	0.70	1.5	2.14	AIR-CHANGE	0.51	735.8	7232.7
518-519 Unit Spc	1.0	EXT	0.0	0.70	3.0	2.14	AIR-CHANGE	0.51	976.3	9597.4
500 Corridor Spc	1.0	EXT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	1058.2	10401.9
S2-5 Stair Spc	1.0	EXT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	186.2	1830.0
S1-5 Stair Spc	1.0	EXT	0.0	0.70	0.0	0.20	AIR-CHANGE	0.51	195.0	1916.8
L5 Elev Spc	1.0	EXT	0.0	0.00	0.0	0.00	AIR-CHANGE	0.51	72.2	709.8

BUILDING TOTALS

0.70 226.5 1.88 82569.7 916268.0

CONDITIONED FLOOR AREA = 82569.7 SQFT  
TOTAL INSTALLED LIGHTING POWER = 57.546 KW  
TOTAL INSTALLED EQUIPMENT POWER = 155.447 KW



# C407 Compliance – S33 8300 Aurora Ave N

S33 – 8300 Aurora – Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- PS-F Energy End-Use Summary for EMI										WEATHER FILE- SEATTLE SEATTLE-T WA			
	LIGHTS	TASK LIGHTS	MISC EQUIP	SPACE HEATING	SPACE COOLING	HEAT REJECT	PUMPS & AUX	VENT FANS	REFRIG DISPLAY	HT PUMP SUPPLEM	DOMEST HOT WTR	EXT USAGE	TOTAL
JAN													
KWH	7812.	0.	27984.	0.	103.	0.	285.	9679.	0.	0.	0.	279.	46141.
MAX KW	16.962	0.000	77.181	0.000	9.639	0.000	0.809	13.056	0.000	0.000	0.000	0.750	109.551
DAY/HR	3/19	0/ 0	1/ 9	0/ 0	20/14	0/ 0	28/ 8	20/14	0/ 0	0/ 0	0/ 0	1/ 1	20/14
PEAK ENDUSE	9.815	0.000	76.887	0.000	9.639	0.000	0.153	13.056	0.000	0.000	0.000	0.000	
PEAK PCT	9.0	0.0	70.2	0.0	8.8	0.0	0.1	11.9	0.0	0.0	0.0	0.0	
FEB													
KWH	7062.	0.	25276.	0.	546.	0.	235.	8742.	0.	0.	0.	252.	42113.
MAX KW	16.962	0.000	77.181	0.000	42.868	0.000	0.839	13.143	0.000	0.000	0.000	0.750	142.129
DAY/HR	1/19	0/ 0	1/ 9	0/ 0	27/16	0/ 0	19/ 7	27/16	0/ 0	0/ 0	0/ 0	1/ 1	27/16
PEAK ENDUSE	9.226	0.000	76.887	0.000	42.868	0.000	0.004	13.143	0.000	0.000	0.000	0.000	
PEAK PCT	6.5	0.0	54.1	0.0	30.2	0.0	0.0	9.2	0.0	0.0	0.0	0.0	
MAR													
KWH	7830.	0.	27984.	0.	1392.	0.	212.	9680.	0.	0.	0.	279.	47377.
MAX KW	16.962	0.000	77.181	0.000	43.271	0.000	0.757	13.278	0.000	0.000	0.000	0.750	143.340
DAY/HR	1/19	0/ 0	1/ 9	0/ 0	14/17	0/ 0	24/ 7	14/17	0/ 0	0/ 0	0/ 0	1/ 1	14/17
PEAK ENDUSE	9.899	0.000	76.887	0.000	43.271	0.000	0.004	13.278	0.000	0.000	0.000	0.000	
PEAK PCT	6.9	0.0	53.6	0.0	30.2	0.0	0.0	9.3	0.0	0.0	0.0	0.0	
APR													
KWH	7570.	0.	27081.	0.	4179.	0.	168.	9370.	0.	0.	0.	270.	48638.
MAX KW	16.962	0.000	77.181	0.000	81.873	0.000	0.461	13.476	0.000	0.000	0.000	0.750	181.851
DAY/HR	1/19	0/ 0	1/ 9	0/ 0	27/16	0/ 0	11/ 5	26/18	0/ 0	0/ 0	0/ 0	1/ 2	27/16
PEAK ENDUSE	9.871	0.000	76.887	0.000	81.873	0.000	0.004	13.216	0.000	0.000	0.000	0.000	
PEAK PCT	5.4	0.0	42.3	0.0	45.0	0.0	0.0	7.3	0.0	0.0	0.0	0.0	
MAY													
KWH	7818.	0.	27984.	0.	7341.	0.	134.	9687.	0.	0.	0.	279.	53242.
MAX KW	16.962	0.000	77.181	0.000	69.068	0.000	0.437	13.592	0.000	0.000	0.000	0.750	170.222
DAY/HR	2/19	0/ 0	1/ 9	0/ 0	4/16	0/ 0	18/ 6	4/18	0/ 0	0/ 0	0/ 0	1/ 2	4/18
PEAK ENDUSE	11.102	0.000	76.887	0.000	68.637	0.000	0.004	13.592	0.000	0.000	0.000	0.000	
PEAK PCT	6.5	0.0	45.2	0.0	40.3	0.0	0.0	8.0	0.0	0.0	0.0	0.0	
JUN													
KWH	7576.	0.	27081.	0.	10155.	0.	85.	9371.	0.	0.	0.	270.	54539.
MAX KW	16.962	0.000	77.181	0.000	81.987	0.000	0.408	13.473	0.000	0.000	0.000	0.750	183.453
DAY/HR	1/19	0/ 0	1/ 9	0/ 0	28/18	0/ 0	14/ 4	28/18	0/ 0	0/ 0	0/ 0	1/ 2	28/18
PEAK ENDUSE	11.102	0.000	76.887	0.000	81.987	0.000	0.004	13.473	0.000	0.000	0.000	0.000	
PEAK PCT	6.1	0.0	41.9	0.0	44.7	0.0	0.0	7.3	0.0	0.0	0.0	0.0	
JUL													
KWH	7812.	0.	27984.	0.	16105.	0.	60.	9697.	0.	0.	0.	279.	61936.
MAX KW	16.962	0.000	77.181	0.000	100.599	0.000	0.282	13.684	0.000	0.000	0.000	0.750	202.103
DAY/HR	1/19	0/ 0	1/ 9	0/ 0	31/18	0/ 0	2/ 5	31/18	0/ 0	0/ 0	0/ 0	1/ 2	31/18
PEAK ENDUSE	10.929	0.000	76.887	0.000	100.599	0.000	0.004	13.684	0.000	0.000	0.000	0.000	
PEAK PCT	5.4	0.0	38.0	0.0	49.8	0.0	0.0	6.8	0.0	0.0	0.0	0.0	
AUG													
KWH	7830.	0.	27984.	0.	18072.	0.	55.	9700.	0.	0.	0.	279.	63919.
MAX KW	16.962	0.000	77.181	0.000	112.807	0.000	0.271	13.917	0.000	0.000	0.000	0.750	214.717
DAY/HR	1/19	0/ 0	1/ 9	0/ 0	10/18	0/ 0	5/ 3	10/18	0/ 0	0/ 0	0/ 0	1/ 2	10/18
PEAK ENDUSE	11.102	0.000	76.887	0.000	112.807	0.000	0.004	13.917	0.000	0.000	0.000	0.000	
PEAK PCT	5.2	0.0	35.8	0.0	52.5	0.0	0.0	6.5	0.0	0.0	0.0	0.0	
SEP													
KWH	7570.	0.	27081.	0.	9669.	0.	86.	9380.	0.	0.	0.	270.	54056.
MAX KW	16.962	0.000	77.181	0.000	82.417	0.000	0.350	13.626	0.000	0.000	0.000	0.750	182.834
DAY/HR	1/19	0/ 0	1/ 9	0/ 0	22/17	0/ 0	27/ 4	22/17	0/ 0	0/ 0	0/ 0	1/ 2	22/17
PEAK ENDUSE	9.899	0.000	76.887	0.000	82.417	0.000	0.004	13.626	0.000	0.000	0.000	0.000	
PEAK PCT	5.4	0.0	42.1	0.0	45.1	0.0	0.0	7.5	0.0	0.0	0.0	0.0	
OCT													
KWH	7812.	0.	27984.	0.	2543.	0.	172.	9680.	0.	0.	0.	279.	48469.
MAX KW	16.962	0.000	77.181	0.000	48.143	0.000	0.441	13.180	0.000	0.000	0.000	0.750	148.056
DAY/HR	3/19	0/ 0	1/ 9	0/ 0	4/16	0/ 0	31/21	4/17	0/ 0	0/ 0	0/ 0	1/ 2	4/16
PEAK ENDUSE	9.871	0.000	76.887	0.000	48.143	0.000	0.004	13.151	0.000	0.000	0.000	0.000	
PEAK PCT	6.7	0.0	51.9	0.0	32.5	0.0	0.0	8.9	0.0	0.0	0.0	0.0	
NOV													
KWH	7564.	0.	27081.	0.	601.	0.	220.	9367.	0.	0.	0.	270.	45104.
MAX KW	16.962	0.000	77.181	0.000	53.064	0.000	0.801	13.234	0.000	0.000	0.000	0.750	153.061
DAY/HR	1/19	0/ 0	1/ 9	0/ 0	4/15	0/ 0	29/21	4/15	0/ 0	0/ 0	0/ 0	1/ 2	4/15
PEAK ENDUSE	9.871	0.000	76.887	0.000	53.064	0.000	0.004	13.234	0.000	0.000	0.000	0.000	
PEAK PCT	6.4	0.0	50.2	0.0	34.7	0.0	0.0	8.6	0.0	0.0	0.0	0.0	
DEC													
KWH	7818.	0.	27984.	0.	246.	0.	262.	9679.	0.	0.	0.	279.	46268.
MAX KW	16.962	0.000	77.181	0.000	19.985	0.000	0.754	13.045	0.000	0.000	0.000	0.750	119.317
DAY/HR	1/19	0/ 0	1/ 9	0/ 0	10/15	0/ 0	22/23	10/15	0/ 0	0/ 0	0/ 0	1/ 1	10/15
PEAK ENDUSE	9.246	0.000	76.887	0.000	19.985	0.000	0.153	13.045	0.000	0.000	0.000	0.000	
PEAK PCT	7.7	0.0	64.4	0.0	16.7	0.0	0.1	10.9	0.0	0.0	0.0	0.0	
=====													
KWH	92073.	0.	329487.	0.	70951.	0.	1974.	114032.	0.	0.	0.	3285.	611803.
MAX KW	16.962	0.000	77.181	0.000	112.807	0.000	0.839	13.917	0.000	0.000	0.000	0.750	214.717
MON/DY	1/ 3	0/ 0	1/ 1	0/ 0	8/10	0/ 0	2/19	8/10	0/ 0	0/ 0	0/ 0	1/ 1	8/10
PEAK ENDUSE	11.102	0.000	76.887	0.000	112.807	0.000	0.004	13.917	0.000	0.000	0.000	0.000	
PEAK PCT	5.2	0.0	35.8	0.0	52.5	0.0	0.0	6.5	0.0	0.0	0.0	0.0	



# C407 Compliance – S33 8300 Aurora Ave N

S33 – 8300 Aurora – Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- PS-F Energy End-Use Summary for FM1										WEATHER FILE- SEATTLE SEATTLE-T WA			
	LIGHTS	TASK LIGHTS	MISC EQUIP	SPACE HEATING	SPACE COOLING	HEAT REJECT	PUMPS & AUX	VENT FANS	REFRIG DISPLAY	HT PUMP SUPPLEM	DOMEST HOT WTR	EXT USAGE	TOTAL
JAN													
THERM	0.	0.	0.	4295.	0.	0.	0.	0.	0.	0.	918.	0.	5212.
MAX THERM/HR	0.0	0.0	0.0	10.9	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	12.6
DAY/HR	0/ 0	0/ 0	0/ 0	15/ 2	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	7/ 8	0/ 0	15/ 8
PEAK ENDUSE	0.0	0.0	0.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	
PEAK PCT	0.0	0.0	0.0	82.8	0.0	0.0	0.0	0.0	0.0	0.0	17.2	0.0	
FEB													
THERM	0.	0.	0.	3366.	0.	0.	0.	0.	0.	0.	849.	0.	4215.
MAX THERM/HR	0.0	0.0	0.0	12.6	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	14.1
DAY/HR	0/ 0	0/ 0	0/ 0	19/ 7	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	19/ 8	0/ 0	19/ 8
PEAK ENDUSE	0.0	0.0	0.0	11.9	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	
PEAK PCT	0.0	0.0	0.0	84.3	0.0	0.0	0.0	0.0	0.0	0.0	15.7	0.0	
MAR													
THERM	0.	0.	0.	2683.	0.	0.	0.	0.	0.	0.	942.	0.	3625.
MAX THERM/HR	0.0	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	11.1
DAY/HR	0/ 0	0/ 0	0/ 0	24/ 7	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	2/ 8	0/ 0	24/ 7
PEAK ENDUSE	0.0	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	
PEAK PCT	0.0	0.0	0.0	87.8	0.0	0.0	0.0	0.0	0.0	0.0	12.2	0.0	
APR													
THERM	0.	0.	0.	1870.	0.	0.	0.	0.	0.	0.	901.	0.	2771.
MAX THERM/HR	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	9.2
DAY/HR	0/ 0	0/ 0	0/ 0	11/ 5	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	18/ 8	0/ 0	10/22
PEAK ENDUSE	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	
PEAK PCT	0.0	0.0	0.0	78.4	0.0	0.0	0.0	0.0	0.0	0.0	21.6	0.0	
MAY													
THERM	0.	0.	0.	1239.	0.	0.	0.	0.	0.	0.	889.	0.	2128.
MAX THERM/HR	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	7.7
DAY/HR	0/ 0	0/ 0	0/ 0	18/ 6	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	18/ 8	0/ 0	17/22
PEAK ENDUSE	0.0	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	
PEAK PCT	0.0	0.0	0.0	75.3	0.0	0.0	0.0	0.0	0.0	0.0	24.7	0.0	
JUN													
THERM	0.	0.	0.	638.	0.	0.	0.	0.	0.	0.	819.	0.	1457.
MAX THERM/HR	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	6.5
DAY/HR	0/ 0	0/ 0	0/ 0	14/ 4	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	6/19	0/ 0	14/ 8
PEAK ENDUSE	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	
PEAK PCT	0.0	0.0	0.0	69.2	0.0	0.0	0.0	0.0	0.0	0.0	30.8	0.0	
JUL													
THERM	0.	0.	0.	323.	0.	0.	0.	0.	0.	0.	809.	0.	1133.
MAX THERM/HR	0.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	4.4
DAY/HR	0/ 0	0/ 0	0/ 0	2/ 5	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	4/ 8	0/ 0	4/ 8
PEAK ENDUSE	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	
PEAK PCT	0.0	0.0	0.0	56.3	0.0	0.0	0.0	0.0	0.0	0.0	43.7	0.0	
AUG													
THERM	0.	0.	0.	258.	0.	0.	0.	0.	0.	0.	786.	0.	1044.
MAX THERM/HR	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	4.6
DAY/HR	0/ 0	0/ 0	0/ 0	5/ 3	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	1/ 8	0/ 0	3/ 8
PEAK ENDUSE	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	
PEAK PCT	0.0	0.0	0.0	59.9	0.0	0.0	0.0	0.0	0.0	0.0	40.1	0.0	
SEP													
THERM	0.	0.	0.	583.	0.	0.	0.	0.	0.	0.	759.	0.	1342.
MAX THERM/HR	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	5.8
DAY/HR	0/ 0	0/ 0	0/ 0	27/ 4	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	27/ 8	0/ 0	30/ 8
PEAK ENDUSE	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	
PEAK PCT	0.0	0.0	0.0	67.9	0.0	0.0	0.0	0.0	0.0	0.0	32.1	0.0	
OCT													
THERM	0.	0.	0.	1841.	0.	0.	0.	0.	0.	0.	803.	0.	2645.
MAX THERM/HR	0.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	8.6
DAY/HR	0/ 0	0/ 0	0/ 0	31/21	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	12/ 8	0/ 0	31/22
PEAK ENDUSE	0.0	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	
PEAK PCT	0.0	0.0	0.0	80.1	0.0	0.0	0.0	0.0	0.0	0.0	19.9	0.0	
NOV													
THERM	0.	0.	0.	2968.	0.	0.	0.	0.	0.	0.	812.	0.	3780.
MAX THERM/HR	0.0	0.0	0.0	9.8	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	11.2
DAY/HR	0/ 0	0/ 0	0/ 0	29/21	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	11/ 8	0/ 0	29/21
PEAK ENDUSE	0.0	0.0	0.0	9.8	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	
PEAK PCT	0.0	0.0	0.0	87.4	0.0	0.0	0.0	0.0	0.0	0.0	12.6	0.0	
DEC													
THERM	0.	0.	0.	3867.	0.	0.	0.	0.	0.	0.	880.	0.	4747.
MAX THERM/HR	0.0	0.0	0.0	9.8	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	11.1
DAY/HR	0/ 0	0/ 0	0/ 0	22/23	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	25/ 8	0/ 0	22/23
PEAK ENDUSE	0.0	0.0	0.0	9.8	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	
PEAK PCT	0.0	0.0	0.0	88.6	0.0	0.0	0.0	0.0	0.0	0.0	11.4	0.0	
THERM													
MAX THERM/HR	0.0	0.0	0.0	23931.	0.0	0.0	0.0	0.0	0.0	0.0	10167.	0.	34098.
MON/DY	0/ 0	0/ 0	0/ 0	12.6	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	14.1
PEAK ENDUSE	0.0	0.0	0.0	2/19	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	0/ 0	3/ 2	0/ 0	2/19
PEAK PCT	0.0	0.0	0.0	11.9	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	
PEAK PCT	0.0	0.0	0.0	84.3	0.0	0.0	0.0	0.0	0.0	0.0	15.7	0.0	



# C407 Compliance – S33 8300 Aurora Ave N

S33 – 8300 Aurora – Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- SS-D Building HVAC Load Summary

WEATHER FILE- SEATTLE SEATTLE-T WA

	C O O L I N G						H E A T I N G						E L E C		
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC- TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)			
JAN	1.12237	20 14	44.F	40.F	124.251	-321.529	15 2	29.F	26.F	-799.905	45578.	109.397			
FEB	6.00852	27 16	67.F	54.F	549.237	-248.789	19 7	23.F	21.F	-955.628	41626.	142.125			
MAR	15.75123	14 17	63.F	51.F	562.653	-193.580	24 7	35.F	29.F	-700.854	46886.	143.336			
APR	48.28309	27 16	81.F	62.F	962.168	-132.381	11 5	41.F	39.F	-638.485	48200.	181.847			
MAY	87.71076	4 18	74.F	57.F	870.041	-84.374	18 6	42.F	42.F	-547.617	52829.	170.218			
JUN	121.06167	28 18	80.F	61.F	975.791	-41.220	14 4	50.F	48.F	-405.899	54183.	183.449			
JUL	194.66252	31 18	83.F	65.F	1169.869	-20.119	2 5	54.F	48.F	-229.212	61597.	202.099			
AUG	212.82578	10 18	89.F	65.F	1230.765	-16.139	5 3	55.F	52.F	-216.219	63586.	214.713			
SEP	118.07441	22 17	77.F	63.F	1017.155	-36.959	27 4	47.F	46.F	-328.503	53701.	182.829			
OCT	28.84051	4 16	71.F	52.F	610.061	-126.178	31 21	45.F	44.F	-538.209	48019.	148.052			
NOV	7.00547	4 15	70.F	61.F	688.646	-214.007	29 21	41.F	37.F	-704.577	44613.	153.057			
DEC	2.64804	10 15	51.F	47.F	232.564	-286.772	22 23	34.F	32.F	-707.080	45727.	119.163			
TOTAL	843.994					-1722.047					606544.				
MAX					1230.765					-955.628		214.713			

S33 – 8300 Aurora – Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- LS-D Building Monthly Loads Summary

WEATHER FILE- SEATTLE SEATTLE-T WA

	C O O L I N G						H E A T I N G						E L E C		
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY HR	DRY- BULB TEMP	WET- BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC- TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)			
JAN	18.11757	7 16	37.F	34.F	306.252	-158.095	12 24	40.F	38.F	-520.298	35796.	90.458			
FEB	32.21670	27 16	67.F	54.F	608.184	-122.684	19 7	23.F	22.F	-588.644	32337.	90.458			
MAR	61.21386	14 16	63.F	52.F	661.435	-98.315	24 6	35.F	29.F	-454.735	35814.	90.458			
APR	97.99711	1 16	81.F	57.F	790.091	-71.577	11 4	41.F	40.F	-446.374	34651.	90.458			
MAY	136.53438	15 16	75.F	55.F	799.924	-47.163	18 5	42.F	42.F	-364.118	35802.	90.458			
JUN	158.05969	28 17	80.F	62.F	807.017	-26.523	13 3	53.F	50.F	-308.581	34657.	90.458			
JUL	202.94923	31 17	83.F	66.F	889.099	-14.980	2 4	54.F	48.F	-173.719	35796.	90.458			
AUG	203.21800	10 17	89.F	66.F	953.407	-12.872	4 24	56.F	53.F	-172.068	35814.	90.458			
SEP	149.50114	22 16	77.F	64.F	818.862	-21.528	27 3	47.F	46.F	-191.028	34651.	90.458			
OCT	74.16819	4 15	71.F	53.F	649.463	-66.181	31 20	45.F	44.F	-373.501	35796.	90.458			
NOV	33.22268	4 14	70.F	61.F	630.224	-104.621	29 21	41.F	38.F	-505.181	34645.	90.458			
DEC	23.53945	10 15	51.F	48.F	437.244	-137.319	22 23	34.F	33.F	-443.318	35802.	90.458			
TOTAL	1190.738					-881.858					421560.				
MAX					953.407					-588.644		90.458			



# C407 Compliance – S33 8300 Aurora Ave N

S33 - 8300 Aurora - Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- PS-C Equipment Loads and Energy Use

WEATHER FILE- SEATTLE SEATTLE-T WA

		COOL LOAD	HEAT LOAD	ELEC USE	FUEL USE	Number of hours within each										PART LOAD	range			TOTAL
MON	SUM	(MBTU)	(MBTU)	(KWH)	(MBTU)	00	10	20	30	40	50	60	70	80	90	100	RUN			
PEAK	(KBTU/HR)	(KBTU/HR)	(KW)	(KBTU/HR)		10	20	30	40	50	60	70	80	90	100	+	HOURS			
B-1																				
	SUM		-1690.9	0.0	2358.4	LOAD1722	868	744	687	752	714	610	455	280	148	0	6980			
	PEAK		-689.3	0.0	856.1	ELEC	0	0	0	0	0	0	0	0	0	0	0			
	MON/DAY		1/16	0/ 0	1/16	FUEL1471	729	615	690	740	843	716	602	385	188	1	6980			
B-2																				
	SUM		-25.2	0.0	34.7	LOAD	0	0	0	0	62	6	0	0	0	0	68			
	PEAK		-476.5	0.0	628.2	ELEC	0	0	0	0	0	0	0	0	0	0	0			
	MON/DAY		2/19	0/ 0	2/19	FUEL	0	0	0	0	50	16	2	0	0	0	68			
HPWH-1/2																				
	SUM		-796.7	0.0	1016.7	LOAD2555	0	0	1656	2543	1128	878	0	0	0	0	8760			
	PEAK		-178.3	0.0	222.9	ELEC	0	0	0	0	0	0	0	0	0	0	0			
	MON/DAY		3/ 1	0/ 0	3/ 2	FUEL	0	2555	0	0	0	1900	1883	908	909	512	93			
HWCP-1																				
	SUM			35.5		FLOW	0	0	0	0	0	0	0	0	8760	0	8760			
	PEAK			0.0		RPM	0	0	0	0	0	0	0	0	0	8760	8760			
	MON/DAY			1/ 1		ELEC	0	0	0	0	0	0	0	0	8760	0	8760			
P-1																				
	SUM			1912.8		FLOW2474	1252	1084	958	780	479	146	19	1	0	0	7193			
	PEAK			0.5		RPM	0	0	0	0	0	0	0	0	0	7193	7193			
	MON/DAY			1/28		ELEC	0	0	2606	615	645	794	1073	1389	71	0	7193			
P-2																				
	SUM			25.7		FLOW	0	0	0	51	17	0	0	0	0	0	68			
	PEAK			0.4		RPM	0	0	0	0	0	0	0	0	0	68	68			
	MON/DAY			2/19		ELEC	0	0	0	0	0	49	19	0	0	0	68			





# C407 Compliance – S33 8300 Aurora Ave N

S33 - 8300 Aurora - Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- SV-A System Design Parameters for FC-1/2

WEATHER FILE- SEATTLE SEATTLE-T WA

SYSTEM TYPE	ALTITUDE FACTOR	FLOOR AREA (SQFT )	MAX PEOPLE	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)	HEAT PUMP SUPP-HEAT (KBTU/HR)	
PVVT	1.000	969.1	19.	0.109	62.314	0.742	-35.163	0.312	0.000	0.000	
FAN TYPE	CAPACITY (CFM )	DIVERSITY FACTOR (FRAC)	POWER DEMAND (KW)	FAN DELTA-T (F)	STATIC PRESSURE (IN-WATER)	TOTAL EFF (FRAC)	MECH EFF (FRAC)	FAN PLACEMENT	FAN CONTROL	MAX FAN RATIO (FRAC)	MIN FAN RATIO (FRAC)
SUPPLY	1842.	1.00	0.553	0.94	1.2	0.48	0.62	DRAW-THRU	CONSTANT	1.00	0.30

\*\*\* THE ABOVE CHARACTERISTICS ARE FOR EACH OF: 1 AIR HANDLERS

ZONE NAME	SUPPLY FLOW (CFM )	EXHAUST FLOW (CFM )	FAN (KW)	MINIMUM FLOW (FRAC)	OUTSIDE AIR FLOW (CFM )	COOLING CAPACITY (KBTU/HR)	SENSIBLE (FRAC)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	ZONE MULT
101 Amenity Zn	1842.	0.	0.000	0.375	200.	0.00	0.00	60.42	0.00	-17.64	1.

S33 - 8300 Aurora - Baseline

DOE-2.3-50h 11/17/2022 22:03:11 BDL RUN 8

REPORT- SV-A System Design Parameters for 202 Unit Sys

WEATHER FILE- SEATTLE SEATTLE-T WA

SYSTEM TYPE	ALTITUDE FACTOR	FLOOR AREA (SQFT )	MAX PEOPLE	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)	HEAT PUMP SUPP-HEAT (KBTU/HR)	
PVVT	1.000	447.9	1.	0.201	8.978	0.742	-8.404	0.312	0.000	0.000	
FAN TYPE	CAPACITY (CFM )	DIVERSITY FACTOR (FRAC)	POWER DEMAND (KW)	FAN DELTA-T (F)	STATIC PRESSURE (IN-WATER)	TOTAL EFF (FRAC)	MECH EFF (FRAC)	FAN PLACEMENT	FAN CONTROL	MAX FAN RATIO (FRAC)	MIN FAN RATIO (FRAC)
SUPPLY	298.	1.00	0.090	0.94	0.9	0.34	0.62	DRAW-THRU	CONSTANT	1.00	0.30

\*\*\* THE ABOVE CHARACTERISTICS ARE FOR EACH OF: 1 AIR HANDLERS

ZONE NAME	SUPPLY FLOW (CFM )	EXHAUST FLOW (CFM )	FAN (KW)	MINIMUM FLOW (FRAC)	OUTSIDE AIR FLOW (CFM )	COOLING CAPACITY (KBTU/HR)	SENSIBLE (FRAC)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	ZONE MULT
202 Unit Zn	298.	0.	0.000	0.475	60.	0.00	0.00	7.21	0.00	-3.54	1.