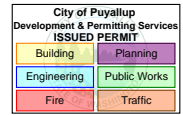


These calculations must be on site and made available by the Permittee for all inspections.

PRRNTH20250333



7th Ave Townhomes
HVAC Calculations
By
HV Engineering
6912 220th St. SW, Suite 303
Mountlake Terrace, WA 98043
Ben Muyres, PE
206-706-9669, Ext 111

HVAC calculations for this project were calculated using Carrier HAP program V5.1. Envelope components were selected to match U-values shown on architectural drawings based on each type of window, door, wall, roof, floor, etc...

Temperature design conditions for interior (72 deg F) and exterior (24 deg F) for heating. Temperature design conditions for interior (75 deg F) and exterior (86 deg F) for cooling.

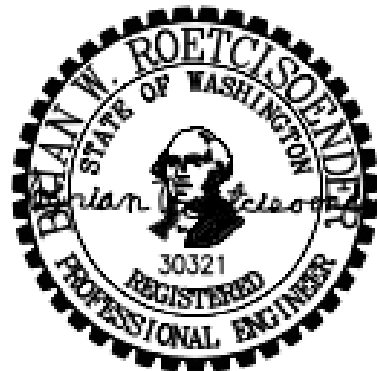
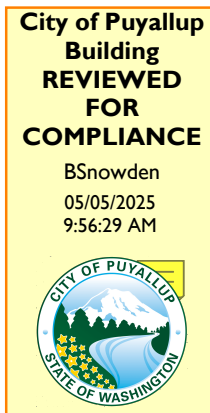
Infiltration rates selected were based on 0.20 air changes per hour.

Townhomes are provided with balanced ventilation Energy Recovery Units. Ventilation is non-distributed & whole house transfer fans have been provided for delivering ventilation air to bedrooms. Additional source capture exhaust is provided in spare bathroom, kitchen & laundry.

Primary heating and cooling for largest zone is provided through split system heat pumps with an indoor wall hung unit located in the main living space. Additional heating is by electric wall heaters per Div. 26.

The HVAC and plumbing systems are designed to comply with the 2021 WSECR

2021 UPDATE. THE HVAC AND PLUMBING SYSTEMS ARE DESIGNED TO COMPLY WITH 2021 WSECR. BRIAN ROETCISOENDER, PE



Dedicated Outdoor Air System (DOAS) Sizing Summary for A100

Project Name: 2021-007 - 1200 7th Ave - Puyallup
Prepared by: HV Engineering, Inc.

01/28/2025
01:00PM



Air System Information

Air System Name **A100**
Equipment Class **TERM**
Air System Type **SPLT-FC**

Number of zones **2**
Floor Area **1341.0** ft²
Location **Seattle IAP, Washington**

Sizing Calculation Information

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Zone CFM Sizing **Sum of space airflow rates**
Space CFM Sizing **Individual peak space loads**

Ventilation Fan Sizing Data

Actual max CFM **43** CFM
Standard CFM **43** CFM
Actual max CFM/ft² **0.03** CFM/ft²

Fan motor BHP **0.01** BHP
Fan motor kW **0.01** kW
Fan static **0.80** in wg

Outdoor Ventilation Air Data

Design airflow CFM **43** CFM
CFM/ft² **0.03** CFM/ft²

CFM/person **10.85** CFM/person

Air System Design Load Summary for A100

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1800			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 82.2 °F / 64.4 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	294 ft²	8228	-	294 ft²	-	-
Wall Transmission	1531 ft²	2558	-	1531 ft²	3833	-
Roof Transmission	868 ft²	1067	-	868 ft²	797	-
Window Transmission	287 ft²	392	-	287 ft²	3697	-
Skylight Transmission	7 ft²	10	-	7 ft²	90	-
Door Loads	63 ft²	114	-	63 ft²	1072	-
Floor Transmission	697 ft²	16	-	697 ft²	1359	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	805 W	2745	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	4	980	820	0	0	0
Infiltration	-	817	-580	-	5244	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	16927	240	-	16091	0
Zone Conditioning	-	16067	240	-	15620	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	43 CFM	0	-	43 CFM	0	-
Ventilation Load	43 CFM	97	-235	43 CFM	727	0
Ventilation Fan Load	43 CFM	26	-	43 CFM	-26	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	16189	5	-	16321	0
Terminal Unit Cooling	-	16188	0	-	0	0
Terminal Unit Heating	-	0	-	-	16321	-
>> Total Conditioning	-	16188	0	-	16321	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Zone Design Load Summary for A100

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



Lower	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1800			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 82.2 °F / 64.4 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	173 ft²	4301	-	173 ft²	-	-
Wall Transmission	721 ft²	1220	-	721 ft²	1805	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	173 ft²	236	-	173 ft²	2228	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	42 ft²	76	-	42 ft²	715	-
Floor Transmission	633 ft²	0	-	633 ft²	1212	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	380 W	1296	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	386	-274	-	2475	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	8005	136	-	8435	0

Upper	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1800			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 82.2 °F / 64.4 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	121 ft²	3928	-	121 ft²	-	-
Wall Transmission	810 ft²	1338	-	810 ft²	2028	-
Roof Transmission	868 ft²	1067	-	868 ft²	797	-
Window Transmission	114 ft²	156	-	114 ft²	1468	-
Skylight Transmission	7 ft²	10	-	7 ft²	90	-
Door Loads	21 ft²	38	-	21 ft²	357	-
Floor Transmission	64 ft²	16	-	64 ft²	147	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	425 W	1449	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	432	-307	-	2769	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	8922	103	-	7656	0

Dedicated Outdoor Air System (DOAS) Sizing Summary for A200

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



Air System Information

Air System Name **A200**
 Equipment Class **TERM**
 Air System Type **SPLT-FC**

Number of zones **2**
 Floor Area **1341.0** ft²
 Location **Seattle IAP, Washington**

Sizing Calculation Information

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone CFM Sizing **Sum of space airflow rates**
 Space CFM Sizing **Individual peak space loads**

Ventilation Fan Sizing Data

Actual max CFM **43** CFM
 Standard CFM **43** CFM
 Actual max CFM/ft² **0.03** CFM/ft²

Fan motor BHP **0.01** BHP
 Fan motor kW **0.01** kW
 Fan static **0.80** in wg

Outdoor Ventilation Air Data

Design airflow CFM **43** CFM
 CFM/ft² **0.03** CFM/ft²

CFM/person **10.85** CFM/person

Air System Design Load Summary for A200

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1700			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 83.5 °F / 64.8 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	210 ft²	7185	-	210 ft²	-	-
Wall Transmission	1161 ft²	1918	-	1161 ft²	2906	-
Roof Transmission	868 ft²	1092	-	868 ft²	797	-
Window Transmission	203 ft²	316	-	203 ft²	2615	-
Skylight Transmission	7 ft²	11	-	7 ft²	90	-
Door Loads	63 ft²	130	-	63 ft²	1072	-
Floor Transmission	697 ft²	18	-	697 ft²	1207	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	805 W	2745	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	4	980	820	0	0	0
Infiltration	-	963	-584	-	5244	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	15359	236	-	13932	0
Zone Conditioning	-	14584	236	-	13630	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	43 CFM	0	-	43 CFM	0	-
Ventilation Load	43 CFM	118	-236	43 CFM	729	0
Ventilation Fan Load	43 CFM	26	-	43 CFM	-26	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	14727	0	-	14333	0
Terminal Unit Cooling	-	14727	0	-	0	0
Terminal Unit Heating	-	0	-	-	14332	-
>> Total Conditioning	-	14727	0	-	14332	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Dedicated Outdoor Air System (DOAS) Sizing Summary for A300

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



Air System Information

Air System Name **A300**
 Equipment Class **TERM**
 Air System Type **SPLT-FC**

Number of zones **2**
 Floor Area **1341.0** ft²
 Location **Seattle IAP, Washington**

Sizing Calculation Information

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone CFM Sizing **Sum of space airflow rates**
 Space CFM Sizing **Individual peak space loads**

Ventilation Fan Sizing Data

Actual max CFM **43** CFM
 Standard CFM **43** CFM
 Actual max CFM/ft² **0.03** CFM/ft²

Fan motor BHP **0.01** BHP
 Fan motor kW **0.01** kW
 Fan static **0.80** in wg

Outdoor Ventilation Air Data

Design airflow CFM **43** CFM
 CFM/ft² **0.03** CFM/ft²

CFM/person **10.85** CFM/person

Air System Design Load Summary for A300

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1600			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 85.0 °F / 65.0 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	294 ft²	9223	-	294 ft²	-	-
Wall Transmission	1531 ft²	2613	-	1531 ft²	3833	-
Roof Transmission	868 ft²	922	-	868 ft²	797	-
Window Transmission	287 ft²	540	-	287 ft²	3697	-
Skylight Transmission	7 ft²	13	-	7 ft²	90	-
Door Loads	63 ft²	157	-	63 ft²	1072	-
Floor Transmission	697 ft²	22	-	697 ft²	1359	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	805 W	2745	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	4	980	820	0	0	0
Infiltration	-	1140	-584	-	5244	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	18354	236	-	16091	0
Zone Conditioning	-	17328	236	-	16020	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	43 CFM	0	-	43 CFM	0	-
Ventilation Load	43 CFM	142	-236	43 CFM	730	0
Ventilation Fan Load	43 CFM	26	-	43 CFM	-26	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	17495	-1	-	16725	0
Terminal Unit Cooling	-	17496	0	-	0	0
Terminal Unit Heating	-	0	-	-	16725	-
>> Total Conditioning	-	17496	0	-	16725	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Zone Design Load Summary for A300

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



Lower	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1600 COOLING OA DB / WB 85.0 °F / 65.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 24.0 °F / 19.2 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	173 ft²	5179	-	173 ft²	-	-
Wall Transmission	721 ft²	1218	-	721 ft²	1805	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	173 ft²	326	-	173 ft²	2228	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	42 ft²	104	-	42 ft²	715	-
Floor Transmission	633 ft²	0	-	633 ft²	1212	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	380 W	1296	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	538	-275	-	2475	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	9151	135	-	8435	0

Upper	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1700 COOLING OA DB / WB 84.5 °F / 64.8 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 24.0 °F / 19.2 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	121 ft²	4146	-	121 ft²	-	-
Wall Transmission	810 ft²	1490	-	810 ft²	2028	-
Roof Transmission	868 ft²	1067	-	868 ft²	797	-
Window Transmission	114 ft²	210	-	114 ft²	1468	-
Skylight Transmission	7 ft²	13	-	7 ft²	90	-
Door Loads	21 ft²	51	-	21 ft²	357	-
Floor Transmission	64 ft²	21	-	64 ft²	147	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	425 W	1449	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	569	-309	-	2769	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	9506	101	-	7656	0

Dedicated Outdoor Air System (DOAS) Sizing Summary for B100

Project Name: 2021-007 - 1200 7th Ave - Puyallup
Prepared by: HV Engineering, Inc.

01/28/2025
01:00PM



Air System Information

Air System Name **B100**
Equipment Class **TERM**
Air System Type **SPLT-FC**

Number of zones **2**
Floor Area **976.0** ft²
Location **Seattle IAP, Washington**

Sizing Calculation Information

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Zone CFM Sizing **Sum of space airflow rates**
Space CFM Sizing **Individual peak space loads**

Ventilation Fan Sizing Data

Actual max CFM **21** CFM
Standard CFM **21** CFM
Actual max CFM/ft² **0.02** CFM/ft²

Fan motor BHP **0.00** BHP
Fan motor kW **0.00** kW
Fan static **0.80** in wg

Outdoor Ventilation Air Data

Design airflow CFM **21** CFM
CFM/ft² **0.02** CFM/ft²

CFM/person **10.66** CFM/person

Air System Design Load Summary for B100

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1800			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 82.2 °F / 64.4 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	215 ft²	6879	-	215 ft²	-	-
Wall Transmission	1087 ft²	1854	-	1087 ft²	2721	-
Roof Transmission	693 ft²	852	-	693 ft²	636	-
Window Transmission	208 ft²	284	-	208 ft²	2679	-
Skylight Transmission	7 ft²	10	-	7 ft²	90	-
Door Loads	21 ft²	38	-	21 ft²	357	-
Floor Transmission	692 ft²	15	-	692 ft²	1315	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	379 W	1294	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	595	-320	-	3816	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	12310	90	-	11615	0
Zone Conditioning	-	11691	90	-	11478	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	21 CFM	0	-	21 CFM	0	-
Ventilation Load	21 CFM	48	-78	21 CFM	358	0
Ventilation Fan Load	21 CFM	13	-	21 CFM	-13	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	11751	11	-	11823	0
Terminal Unit Cooling	-	11751	0	-	0	0
Terminal Unit Heating	-	0	-	-	11823	-
>> Total Conditioning	-	11751	0	-	11823	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Zone Design Load Summary for B100

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



Lower	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1800			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 82.2 °F / 64.4 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	165 ft²	4949	-	165 ft²	-	-
Wall Transmission	756 ft²	1256	-	756 ft²	1893	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	165 ft²	225	-	165 ft²	2125	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	38	-	21 ft²	357	-
Floor Transmission	632 ft²	0	-	632 ft²	1177	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	379 W	1294	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	385	-185	-	2471	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	8637	225	-	8023	0

Upper	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1800			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 82.2 °F / 64.4 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	50 ft²	1931	-	50 ft²	-	-
Wall Transmission	331 ft²	598	-	331 ft²	829	-
Roof Transmission	693 ft²	852	-	693 ft²	636	-
Window Transmission	43 ft²	59	-	43 ft²	554	-
Skylight Transmission	7 ft²	10	-	7 ft²	90	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	60 ft²	15	-	60 ft²	138	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	0 W	0	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	0	0	0	0	0	0
Infiltration	-	210	-135	-	1345	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	3673	-135	-	3592	0

Dedicated Outdoor Air System (DOAS) Sizing Summary for B200

Project Name: 2021-007 - 1200 7th Ave - Puyallup
Prepared by: HV Engineering, Inc.

01/28/2025
01:00PM



Air System Information

Air System Name **B200**
Equipment Class **TERM**
Air System Type **SPLT-FC**

Number of zones **2**
Floor Area **1341.0** ft²
Location **Seattle IAP, Washington**

Sizing Calculation Information

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Zone CFM Sizing **Sum of space airflow rates**
Space CFM Sizing **Individual peak space loads**

Ventilation Fan Sizing Data

Actual max CFM **43** CFM
Standard CFM **43** CFM
Actual max CFM/ft² **0.03** CFM/ft²

Fan motor BHP **0.01** BHP
Fan motor kW **0.01** kW
Fan static **0.80** in wg

Outdoor Ventilation Air Data

Design airflow CFM **43** CFM
CFM/ft² **0.03** CFM/ft²

CFM/person **10.85** CFM/person

Air System Design Load Summary for B200

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1800			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 82.2 °F / 64.4 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	190 ft²	7464	-	190 ft²	-	-
Wall Transmission	1116 ft²	2111	-	1116 ft²	2794	-
Roof Transmission	793 ft²	974	-	793 ft²	728	-
Window Transmission	183 ft²	250	-	183 ft²	2357	-
Skylight Transmission	7 ft²	10	-	7 ft²	90	-
Door Loads	42 ft²	76	-	42 ft²	715	-
Floor Transmission	709 ft²	19	-	709 ft²	1235	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	805 W	2745	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	4	980	820	0	0	0
Infiltration	-	817	-581	-	5244	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	15447	239	-	13163	0
Zone Conditioning	-	14634	239	-	12723	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	43 CFM	0	-	43 CFM	0	-
Ventilation Load	43 CFM	97	-235	43 CFM	729	0
Ventilation Fan Load	43 CFM	26	-	43 CFM	-26	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	14757	4	-	13426	0
Terminal Unit Cooling	-	14757	0	-	0	0
Terminal Unit Heating	-	0	-	-	13424	-
>> Total Conditioning	-	14757	0	-	13424	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Zone Design Load Summary for B200

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 01:00PM



Lower	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 83.2 °F / 64.4 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 24.0 °F / 19.2 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	104 ft²	4320	-	104 ft²	-	-
Wall Transmission	589 ft²	1114	-	589 ft²	1475	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	104 ft²	171	-	104 ft²	1340	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	42 ft²	91	-	42 ft²	715	-
Floor Transmission	633 ft²	0	-	633 ft²	1060	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	380 W	1296	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	440	-275	-	2475	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	7922	135	-	7064	0

Upper	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1700 COOLING OA DB / WB 83.5 °F / 64.8 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 24.0 °F / 19.2 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	86 ft²	3070	-	86 ft²	-	-
Wall Transmission	527 ft²	885	-	527 ft²	1319	-
Roof Transmission	793 ft²	998	-	793 ft²	728	-
Window Transmission	79 ft²	123	-	79 ft²	1018	-
Skylight Transmission	7 ft²	11	-	7 ft²	90	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	76 ft²	21	-	76 ft²	175	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	425 W	1449	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	509	-309	-	2769	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	7556	101	-	6098	0

Dedicated Outdoor Air System (DOAS) Sizing Summary for B300

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 03:55PM



Air System Information

Air System Name **B300**
 Equipment Class **TERM**
 Air System Type **SPLT-FC**

Number of zones **2**
 Floor Area **1341.0** ft²
 Location **Seattle IAP, Washington**

Sizing Calculation Information

Calculation Months **Jan to Dec**
 Sizing Data **Calculated**

Zone CFM Sizing **Sum of space airflow rates**
 Space CFM Sizing **Individual peak space loads**

Ventilation Fan Sizing Data

Actual max CFM **43** CFM
 Standard CFM **43** CFM
 Actual max CFM/ft² **0.03** CFM/ft²

Fan motor BHP **0.01** BHP
 Fan motor kW **0.01** kW
 Fan static **0.80** in wg

Outdoor Ventilation Air Data

Design airflow CFM **43** CFM
 CFM/ft² **0.03** CFM/ft²

CFM/person **10.85** CFM/person

Air System Design Load Summary for B300

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 03:55PM



	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 83.2 °F / 64.4 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	270 ft²	8944	-	270 ft²	-	-
Wall Transmission	1488 ft²	2891	-	1488 ft²	3725	-
Roof Transmission	868 ft²	1044	-	868 ft²	797	-
Window Transmission	263 ft²	433	-	263 ft²	3387	-
Skylight Transmission	7 ft²	12	-	7 ft²	90	-
Door Loads	42 ft²	91	-	42 ft²	715	-
Floor Transmission	697 ft²	19	-	697 ft²	1319	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	805 W	2745	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	4	980	820	0	0	0
Infiltration	-	931	-585	-	5244	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	18091	235	-	15278	0
Zone Conditioning	-	17221	235	-	14950	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	43 CFM	0	-	43 CFM	0	-
Ventilation Load	43 CFM	112	-237	43 CFM	729	0
Ventilation Fan Load	43 CFM	26	-	43 CFM	-26	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	17359	-2	-	15654	0
Terminal Unit Cooling	-	17359	0	-	0	0
Terminal Unit Heating	-	0	-	-	15654	-
>> Total Conditioning	-	17359	0	-	15654	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Zone Design Load Summary for B300

Project Name: 2021-007 - 1200 7th Ave - Puyallup
 Prepared by: HV Engineering, Inc.

01/28/2025
 03:55PM



Lower	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1700			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 84.5 °F / 64.8 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	158 ft²	5605	-	158 ft²	-	-
Wall Transmission	777 ft²	1420	-	777 ft²	1945	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	158 ft²	290	-	158 ft²	2035	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	42 ft²	102	-	42 ft²	715	-
Floor Transmission	633 ft²	0	-	633 ft²	1172	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	380 W	1296	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	509	-276	-	2475	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	9712	134	-	8342	0

Upper	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1700			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 84.5 °F / 64.8 °F			HEATING OA DB / WB 24.0 °F / 19.2 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	112 ft²	3540	-	112 ft²	-	-
Wall Transmission	711 ft²	1324	-	711 ft²	1780	-
Roof Transmission	868 ft²	1067	-	868 ft²	797	-
Window Transmission	105 ft²	193	-	105 ft²	1352	-
Skylight Transmission	7 ft²	13	-	7 ft²	90	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	64 ft²	21	-	64 ft²	147	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	425 W	1449	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	569	-309	-	2769	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	8666	101	-	6935	0