City of Puyallup Building ACCEPTED [Montgomery 05/08/2024 11:12:47 AM]

PRMU20240286

Simple Heating System Size: Washington State

This heating system sizing calculator is based on the Prescriptive Requirements of the 2018 Washington State Energy Code (WSEC) and ACCA Manuals J and S. This tool will calculate heating loads only. ACCA procedures for sizing cooling systems should be used to determine cooling loads.

Please complete the green drop-downs and boxes that are applicable to your project. As you make selections in the drop-downs for each section, some values will be calculated for you. If you do not see the selection you need in the drop-down options, please contact the WSU Energy Program at energycode@energy.wsu.edu or (360) 956-2042 for assistance.

Project Information	*Contact Information*
1 Bed Int Unit - 3 Story Stack w/ Basement	Milbrandt Architects
Bradley Heights Apartments	25 Central Way Suite 210
Puyallup, WA	Kirkland, WA 98033 425.454.7130

Heating System Type: ○ All Other Systems ◉ Heat Pump

To see detailed instructions for each section, place your cursor on the word "Instructions"

Design Temperature

Instructions: Puyallup

Design Temperature Difference (ΔT): 51

ΔT = Indoor (70 degrees) - Outdoor Design Temp

Area of Building

Conditioned Floor Area

Instructions — Conditioned Floor Area (sq ft): 2,686

Average Ceiling Height

Instructions — Average Ceiling Height (ft): 9.1

Conditioned Volume: 24,443

Glazing and Doors

Instructions: U-0.22

U-Factor	X	Area	=	UA
0.220		436		95.92

Skylights

Instructions

U-Factor	X	Area	=	UA
0.50		0		---

Insulation

Attic

Instructions: R-49

U-Factor	X	Area	=	UA
0.026		825		21.45

Single Rafter or Joist Vaulted Ceilings

Instructions: No Vaulted Ceilings in this project.

U-Factor	X	Area	UA
---		0	

Above Grade Walls *(see Figure 1)*

Instructions: R-21 Intermediate

U-Factor	X	Area	UA
0.056		1,065	59.65

Floors

Instructions: No Floors above unconditioned spaces.

U-Factor	X	Area	UA

Below Grade Walls *(see Figure 1)*

Instructions: R-21 Interior

U-Factor	X	Area	UA
0.042		237	9.94

Slab Below Grade *(see Figure 1)*

Instructions: No Slab Below Grade in this project.

F-Factor	X	Length	UA
0.303		0	---

Slab on Grade *(see Figure 1)*

Instructions: R-10 Perimeter

F-Factor	X	Length	UA
0.540		712	384.48

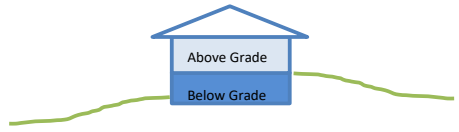
Location of Ducts

Instructions: Unconditioned Space

Duct Leakage Coefficient: 1.10

Sum of UA	571.43	
Envelope Heat Load	29,143	Btu / Hour
Sum of UA x ΔT		
Air Leakage Heat Load	13,463	Btu / Hour
Volume x 0.6 x ΔT x 0.018		
Building Design Heat Load	42,606	Btu / Hour
Air leakage + envelope heat loss		
Building and Duct Heat Load	46,867	Btu / Hour
Ducts in unconditioned space: sum of building heat loss x 1.10		
Ducts in conditioned space: sum of building heat loss x 1		
Maximum Heat Equipment Output	58,583	Btu / Hour
Building and duct heat loss x 1.40 for forced air furnace		
Building and duct heat loss x 1.25 for heat pump		

Figure 1.



FULL SIZED LEDGIBLE COLOR REPORT IS REQUIRED TO BE PROVIDED BY THE PERMITTEE ON SITE FOR ALL INSPECTIONS