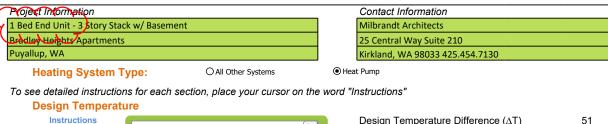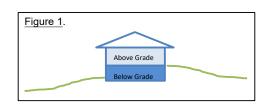## PRMU20240286

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 End 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

$\Delta T = Indoor\ (70\ degrees) - Outdoor\ Design\ Temp$

Area of Building

Conditioned Floor Area

Instructions   Conditioned Floor Area (sq ft)   **2,761**

Average Ceiling Height

Instructions   Average Ceiling Height (ft)   **9.1**

Conditioned Volume   25,125

Glazing and Doors

Instructions   [U-0.22 ▼]

	U-Factor	X	Area	=	UA
	0.220		**476**		104.72

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		**3,236**		181.21

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		**501**		21.02

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

Figure 1.

Above Grade		
Below Grade		

Sum of UA	712.89	
Envelope Heat Load	36,357	Btu / Hour
Sum of UA x ΔT		
Air Leakage Heat Load	13,839	Btu / Hour
Volume x 0.6 x ΔT x 0.018		
Building Design Heat Load	50,196	Btu / Hour
Air leakage + envelope heat loss		
Building and Duct Heat Load	55,216	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	69,020	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		

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

(07/01/13)