City of Puyallup
Building
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Development & Permitting Services
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Building | Planning
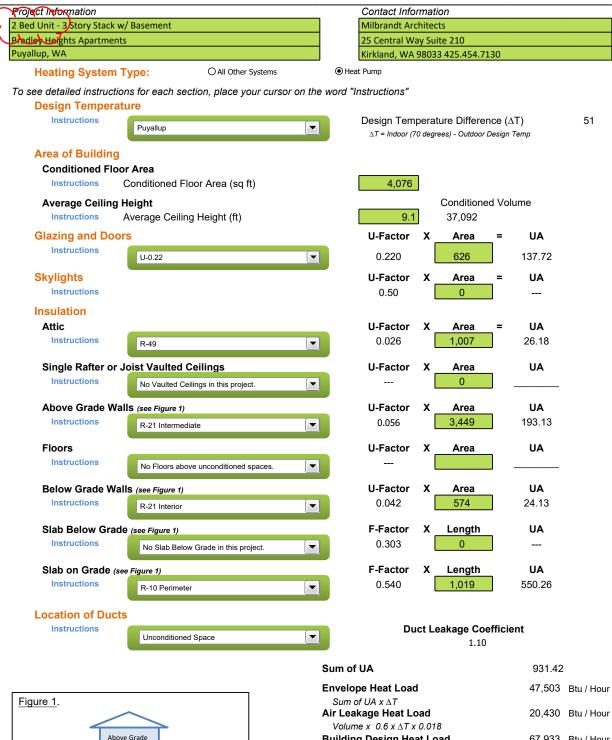Engineering | Public Works
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Simple Heating System Size: Washington State

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*
2 Bed 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)   **4,076**

Average Ceiling Height

Instructions   Average Ceiling Height (ft)   **9.1**   Conditioned Volume   37,092

Glazing and Doors

	U-Factor	X	Area	=	UA
Instructions [U-0.22 ▼]	0.220		626		137.72

Skylights

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

Insulation

Attic

	U-Factor	X	Area	=	UA
Instructions [R-49 ▼]	0.026		1,007		26.18

Single Rafter or Joist Vaulted Ceilings

	U-Factor	X	Area		UA
Instructions [No Vaulted Ceilings in this project. ▼]	---		0		_____

Above Grade Walls *(see Figure 1)*

	U-Factor	X	Area		UA
Instructions [R-21 Intermediate ▼]	0.056		3,449		193.13

Floors

	U-Factor	X	Area		UA
Instructions [No Floors above unconditioned spaces. ▼]	---				_____

Below Grade Walls *(see Figure 1)*

	U-Factor	X	Area		UA
Instructions [R-21 Interior ▼]	0.042		574		24.13

Slab Below Grade *(see Figure 1)*

	F-Factor	X	Length		UA
Instructions [No Slab Below Grade in this project. ▼]	0.303		0		---

Slab on Grade *(see Figure 1)*

	F-Factor	X	Length		UA
Instructions [R-10 Perimeter ▼]	0.540		1,019		550.26

Location of Ducts

Instructions   [Unconditioned Space ▼]

Duct Leakage Coefficient   1.10

Figure 1.

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

Sum of UA   931.42

Envelope Heat Load   47,503   Btu / Hour
Sum of UA x ΔT

Air Leakage Heat Load   20,430   Btu / Hour
Volume x 0.6 x ΔT x 0.018

Building Design Heat Load   67,933   Btu / Hour
Air leakage + envelope heat loss

Building and Duct Heat Load   74,726   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   93,407   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

(07/01/13)