PRMU20240284 - BLDG C

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

Instructions   [U-0.22 ▼]

U-Factor	X	Area	=	UA
0.220		626		137.72

Skylights

Instructions

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

Insulation

Attic
Instructions   [R-49 ▼]

U-Factor	X	Area	=	UA
0.026		1,007		26.18

Single Rafter or Joist Vaulted Ceilings
Instructions   [No Vaulted Ceilings in this project. ▼]

U-Factor	X	Area		UA
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Above Grade Walls *(see Figure 1)*
Instructions   [R-21 Intermediate ▼]

U-Factor	X	Area		UA
0.056		3,449		193.13

Floors
Instructions   [No Floors above unconditioned spaces. ▼]

U-Factor	X	Area		UA
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Below Grade Walls *(see Figure 1)*
Instructions   [No Below Grade Walls in this project. ▼]

U-Factor	X	Area		UA
0.028		0		_____

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 ▼]

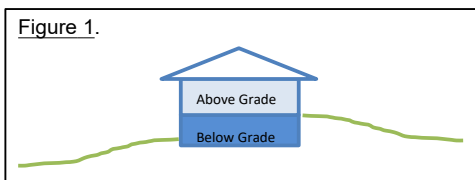| F-Factor	X	Length		UA
0.540		1,019		550.26

Location of Ducts

Instructions   [Unconditioned Space ▼]

Duct Leakage Coefficient   1.10

Figure 1.

Sum of UA   907.30

Envelope Heat Load   46,272   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   66,702   Btu / Hour
Air leakage + envelope heat loss

Building and Duct Heat Load   73,372   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   91,715   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)