



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

2 Bed Unit - 3 Story Stack w/ Basement
 Bradley Heights Apartments
 Puyallup, WA

Contact Information

Milbrandt Architects
 25 Central Way Suite 210
 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

Design Temperature Difference (ΔT) 51
 $\Delta T = \text{Indoor (70 degrees)} - \text{Outdoor Design Temp}$

Area of Building

Conditioned Floor Area

Instructions Conditioned Floor Area (sq ft)

Average Ceiling Height

Instructions Average Ceiling Height (ft)

Conditioned Volume

37,092

Glazing and Doors

Instructions

U-Factor	X	Area	=	UA
0.220		<input type="text" value="626"/>		137.72

Skylights

Instructions

U-Factor	X	Area	=	UA
0.50		<input type="text" value="0"/>		---

Insulation

Attic

Instructions

U-Factor	X	Area	=	UA
0.026		<input type="text" value="1,007"/>		26.18

Single Rafter or Joist Vaulted Ceilings

Instructions

U-Factor	X	Area	=	UA
---		<input type="text" value="0"/>		---

Above Grade Walls (see Figure 1)

Instructions

U-Factor	X	Area	=	UA
0.056		<input type="text" value="3,449"/>		193.13

Floors

Instructions

U-Factor	X	Area	=	UA
---		<input type="text" value=""/>		---

Below Grade Walls (see Figure 1)

Instructions

U-Factor	X	Area	=	UA
0.042		<input type="text" value="574"/>		24.13

Slab Below Grade (see Figure 1)

Instructions

F-Factor	X	Length	=	UA
0.303		<input type="text" value="0"/>		---

Slab on Grade (see Figure 1)

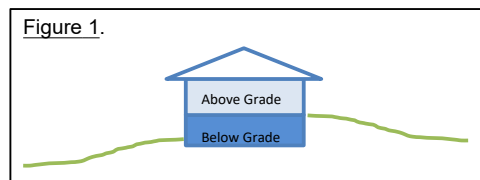
Instructions

F-Factor	X	Length	=	UA
0.540		<input type="text" value="1,019"/>		550.26

Location of Ducts

Instructions

Duct Leakage Coefficient 1.10



Sum of UA	931.42
Envelope Heat Load	47,503 Btu / Hour
<i>Sum of UA x ΔT</i>	
Air Leakage Heat Load	20,430 Btu / Hour
<i>Volume x 0.6 x ΔT x 0.018</i>	
Building Design Heat Load	67,933 Btu / Hour
<i>Air leakage + envelope heat loss</i>	
Building and Duct Heat Load	74,726 Btu / Hour
<i>Ducts in unconditioned space: sum of building heat loss x 1.10</i>	
<i>Ducts in conditioned space: sum of building heat loss x 1</i>	
Maximum Heat Equipment Output	93,407 Btu / Hour
<i>Building and duct heat loss x 1.40 for forced air furnace</i>	
<i>Building and duct heat loss x 1.25 for heat pump</i>	

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