Simple Heating System Size: Washington State

This heating system sizing calculator is based on the Prescriptive Requirements of the 2015 Washington State Energy Code (WSEC) and ACCA Manuals J and S. This calculator will calculate heating loads only. ACCA procedures for sizing cooling systems should be used to determine cooling loads.
The glazing (window) and door portion of this calculator assumes the installed glazing and door products have an area weighted average U-factor of 0.30.
The incorporated insulation requirements are the minimum prescriptive amounts specified by the 2015 WSEC.
Please fill out all of 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 call the WSU Energy Extension Program at (360) 956-2042 for assistance.

Project Information

PREMIUM HOMES
2906 74th Ave SE
Mercer Island WA 98040

Contact Information

PS Home Designs
253-282-2277

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: Mercer Island

Design Temperature Difference (ΔT) 45
ΔT = Indoor (70 degrees) - Outdoor Design Temp

Area of Building

Conditioned Floor Area

Instructions: Conditioned Floor Area (sq ft) 4,111

Average Ceiling Height

Instructions: Average Ceiling Height (ft) 8.1

Conditioned Volume 33,299

	U-Factor	X	Area	=	UA
Glazing and Doors Instructions	0.30		540		161.94
Skylights Instructions	0.50		0		---
Insulation					
Attic Instructions: R-49	0.026		2,773		72.10
Single Rafter or Joist Vaulted Ceilings Instructions: No Vaulted Ceilings in this project.	---		0		_____
Above Grade Walls *(see Figure 1)* Instructions: R-21 Intermediate	0.056		2,844		159.26
Floors Instructions: No Floors above unconditioned spaces.	---		0		_____
Below Grade Walls *(see Figure 1)* Instructions: R-21 Interior	0.042		912		38.30

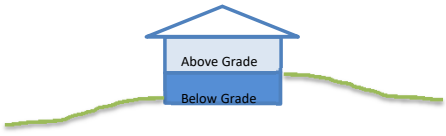
	F-Factor	X	Length	UA
Slab Below Grade *(see Figure 1)* Instructions: No Slab Below Grade in this project.	---		1,367	_____
Slab on Grade *(see Figure 1)* Instructions: R-10 Perimeter	0.540		1,334	720.36

Location of Ducts

Instructions: Unconditioned Space

Duct Leakage Coefficient 1.10

Figure 1.



Sum of UA	1151.96	
Envelope Heat Load *Sum of UA X ΔT*	51,838	Btu / Hour
Air Leakage Heat Load *Volume X 0.6 X ΔT X .018*	16,183	Btu / Hour
Building Design Heat Load *Air Leakage + Envelope Heat Loss*	68,021	Btu / Hour
Building and Duct Heat Load *Ducts in unconditioned space: Sum of Building Heat Loss X 1.10* *Ducts in conditioned space: Sum of Building Heat Loss X 1*	74,824	Btu / Hour
Maximum Heat Equipment Output *Building and Duct Heat Loss X 1.40 for Forced Air Furnace* *Building and Duct Heat Loss X 1.25 for Heat Pump*	93,530	Btu / Hour