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*
Townhouse Unit 2, 1726 19th Ave	Brad Khouri, b9 Architects
Seattle, WA 98122	610 2nd Avenue
6701530-CN	Seattle, WA 98104

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: Seattle: Sea-Tac AP

Design Temperature Difference (ΔT) 46

ΔT = Indoor (70 degrees) - Outdoor Design Temp

Area of Building

Conditioned Floor Area

Instructions — Conditioned Floor Area (sq ft): 1,993

Average Ceiling Height

Instructions — Average Ceiling Height (ft): 8.1 — Conditioned Volume: 16,143

Glazing and Doors

Instructions: U-0.24

U-Factor	X	Area	=	UA
0.240		419		100.56

Skylights

Instructions

U-Factor	X	Area	=	UA
0.50		8		4.00

Insulation

Attic

Instructions: Select R-Value

U-Factor	X	Area	=	UA
No selection				---

Single Rafter or Joist Vaulted Ceilings

Instructions: R-38 Vented

U-Factor	X	Area	UA
0.027		513	13.85

Above Grade Walls *(see Figure 1)*

Instructions: R-21 Intermediate

U-Factor	X	Area	UA
0.056		1,254	70.22

Floors

Instructions: R-38

U-Factor	X	Area	UA
0.025		521	13.03

Below Grade Walls *(see Figure 1)*

Instructions: No Below Grade Walls in th

U-Factor	X	Area	UA
0.028			_____

Slab Below Grade *(see Figure 1)*

Instructions: No Slab Below Grade in th

F-Factor	X	Length	UA
0.303			---

Slab on Grade *(see Figure 1)*

Instructions: R-10 Fully Insulated

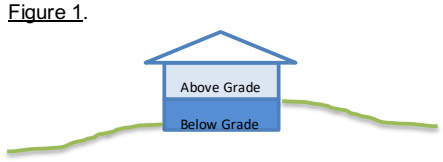
F-Factor	X	Length	UA
0.360			_____

Location of Ducts

Instructions: Conditioned Space

Duct Leakage Coefficient
1.00

Figure 1.



Sum of UA	201.66	
Envelope Heat Load	9,276	Btu / Hour
Sum of UA x ΔT		
Air Leakage Heat Load	8,020	Btu / Hour
Volume x 0.6 x ΔT x 0.018		
Building Design Heat Load	17,296	Btu / Hour
Air leakage + envelope heat loss		
Building and Duct Heat Load	17,296	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	21,620	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		