

Simple Heating System Size: Washington State

This heating system sizing calculator is based on the Prescriptive Requirements of the 2012 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 2012 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

Contact Information

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 (T)
T = Indoor (70 degrees) - Outdoor Design Temp

49

Area of Building

Conditioned Floor Area

[Instructions](#)

Conditioned Floor Area (sq ft)

Average Ceiling Height

[Instructions](#)

Average Ceiling Height (ft)

Conditioned Volume
 20,040

Glazing and Doors

[Instructions](#)

U-Factor X Area = UA
 0.30 X 297 = 89.07

U-Factor X Area = UA
 0.50 X [] = ---

Skylights

[Instructions](#)

Insulation

Attic

[Instructions](#)

U-Factor X Area = UA
 0.026 X 912 = 23.71

Single Rafter or Joist Vaulted Ceilings

[Instructions](#)

U-Factor X Area = UA
 0.027 X 1,092 = 29.48

Above Grade Walls (see Figure 1)

[Instructions](#)

U-Factor X Area = UA
 0.056 X 1,861 = 104.23

Floors

[Instructions](#)

U-Factor X Area = UA
 0.029 X 1,920 = 55.68

Below Grade Walls (see Figure 1)

[Instructions](#)

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

Slab Below Grade (see Figure 1)

[Instructions](#)

F-Factor X Length = UA
 No selection X [] = ---

Slab on Grade (see Figure 1)

[Instructions](#)

F-Factor X Length = UA
 0.360 X 38 = 13.68

Location of Ducts

[Instructions](#)

Duct Leakage Coefficient

1.00

Sum of UA 315.85

Envelope Heat Load 15,477 Btu / Hour

Sum of UA X T

Air Leakage Heat Load 10,605 Btu / Hour

Volume X 0.6 X T X .018

Building Design Heat Load 26,082 Btu / Hour

Air Leakage + Envelope Heat Loss

Building and Duct Heat Load 26,082 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 36,515 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

Figure 1.

