City of Puyallup
Building
ACCEPTED
[Montgomery]
05/10/2024
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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*
1 Bed End Unit - 3 Story Stack	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)   [2,136]

Average Ceiling Height
Instructions   Average Ceiling Height (ft)   [9.1]   Conditioned Volume   19,438

Glazing and Doors
Instructions   [U-0.22 ▼]

	U-Factor	X	Area	=	UA
	0.220		357		78.54

Skylights
Instructions

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

Insulation

Attic
Instructions   [R-49 ▼]

	U-Factor	X	Area	=	UA
	0.026		825		21.45

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

	U-Factor	X	Area		UA
	---		0		_____

Above Grade Walls *(see Figure 1)*
Instructions   [R-21 Intermediate ▼]

	U-Factor	X	Area		UA
	0.056		2,624		146.96

Floors
Instructions   [No Floors above unconditioned spaces. ▼]

	U-Factor	X	Area		UA
	---				_____

Below Grade Walls *(see Figure 1)*
Instructions   [R-21 Interior ▼]

	U-Factor	X	Area		UA
	0.042		0		_____

Slab Below Grade *(see Figure 1)*
Instructions   [No Slab Below Grade in this project. ▼]

	F-Factor	X	Length		UA
	0.303		b		_____

Slab on Grade *(see Figure 1)*
Instructions   [R-10 Perimeter ▼]

	F-Factor	X	Length		UA
	0.540		67		36.18

Location of Ducts
Instructions   [Unconditioned Space ▼]

Duct Leakage Coefficient
1.10

Figure 1.
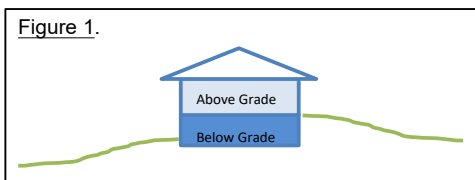
Sum of UA   283.13

Envelope Heat Load   14,439   Btu / Hour
Sum of UA x ΔT

Air Leakage Heat Load   10,706   Btu / Hour
Volume x 0.6 x ΔT x 0.018

Building Design Heat Load   25,146   Btu / Hour
Air leakage + envelope heat loss

Building and Duct Heat Load   27,660   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   34,575   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)