Simple Heating System Size: Washington State

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Project Information	*Contact Information*
6717 42ND AVE S - RH19	JW ARCHITECTS
SEATTLE, WA 98118	1257 S KING ST, SEATTLE, WA
6848602-CN	(206) 953-1305

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): 1,511

Average Ceiling Height

Instructions — Average Ceiling Height (ft): 8.5 — Conditioned Volume: 12,844

	U-Factor	X	Area	=	UA
Glazing and Doors (Instructions: U-0.28)	0.280		419		117.37
Skylights (Instructions)	0.50		0		---

Insulation

	U-Factor	X	Area	=	UA
Attic (Instructions: Select R-Value)	No selection		0		---
Single Rafter or Joist Vaulted Ceilings (Instructions: R-38 Vented)	0.027		622		16.78
Above Grade Walls *(see Figure 1)* (Instructions: R-21 Intermediate)	0.056		2,580		144.50
Floors (Instructions: R-38)	0.025		16		0.39
Below Grade Walls *(see Figure 1)* (Instructions: R-21 Interior)	0.042		147		6.15

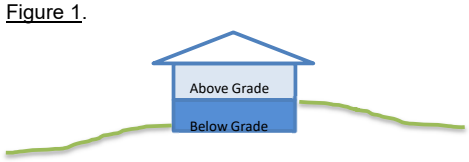
	F-Factor	X	Length	UA
Slab Below Grade *(see Figure 1)* (Instructions: R-21 int Plus R-5 ci)	0.303		51	15.45
Slab on Grade *(see Figure 1)* (Instructions: R-10 Fully Insulated)	0.360		56	20.16

Location of Ducts

Instructions — No Ducts

Duct Leakage Coefficient
1.00

Figure 1.



Sum of UA	320.81	
Envelope Heat Load	14,757	Btu / Hour
Sum of UA x ΔT		
Air Leakage Heat Load	6,381	Btu / Hour
Volume x 0.6 x ΔT x 0.018		
Building Design Heat Load	21,138	Btu / Hour
Air leakage + envelope heat loss		
Building and Duct Heat Load	21,138	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	26,422	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		

Simple Heating System Size: Washington State

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Project Information	*Contact Information*
6717 42ND AVE S - RH20	JW ARCHITECTS
SEATTLE, WA 98118	1257 S KING ST, SEATTLE, WA
6848602-CN	(206) 953-1305

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): 1,531

Average Ceiling Height

Instructions — Average Ceiling Height (ft): 8.5 — Conditioned Volume: 13,014

	U-Factor	X	Area	=	UA
Glazing and Doors (Instructions — U-0.28)	0.280		413		115.62
Skylights (Instructions)	0.50		0		---

Insulation

	U-Factor	X	Area	=	UA
Attic (Instructions — Select R-Value)	No selection		0		---
Single Rafter or Joist Vaulted Ceilings (Instructions — R-38 Vented)	0.027		627		16.93
Above Grade Walls *(see Figure 1)* (Instructions — R-21 Intermediate)	0.056		2,489		139.41
Floors (Instructions — R-38)	0.025		20		0.51
Below Grade Walls *(see Figure 1)* (Instructions — R-21 Interior)	0.042		160		6.70

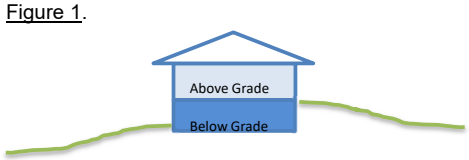
	F-Factor	X	Length	UA
Slab Below Grade *(see Figure 1)* (Instructions — R-21 int Plus R-5 ci)	0.303		53	15.91
Slab on Grade *(see Figure 1)* (Instructions — R-10 Fully Insulated)	0.360		53	18.90

Location of Ducts

Instructions — No Ducts

Duct Leakage Coefficient
1.00

Figure 1.



Sum of UA	313.97	
Envelope Heat Load *Sum of UA x ΔT*	14,443	Btu / Hour
Air Leakage Heat Load *Volume x 0.6 x ΔT x 0.018*	6,465	Btu / Hour
Building Design Heat Load *Air leakage + envelope heat loss*	20,908	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*	20,908	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*	26,135	Btu / Hour

Simple Heating System Size: Washington State

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Project Information	*Contact Information*
6717 42ND AVE S - RH21	JW ARCHITECTS
SEATTLE, WA 98118	1257 S KING ST, SEATTLE, WA
6848602-CN	(206) 953-1305

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): 1,531

Average Ceiling Height

Instructions — Average Ceiling Height (ft): 8.5

Conditioned Volume: 13,014

Glazing and Doors

Instructions — U-0.28

U-Factor	X	Area	=	UA
0.280		391		109.36

Skylights

Instructions

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

Insulation

Attic

Instructions — Select R-Value

U-Factor	X	Area	=	UA
No selection		0		---

Single Rafter or Joist Vaulted Ceilings

Instructions — R-38 Vented

U-Factor	X	Area	UA
0.027		538	14.54

Above Grade Walls *(see Figure 1)*

Instructions — R-21 Intermediate

U-Factor	X	Area	UA
0.056		2,527	141.51

Floors

Instructions — R-38

U-Factor	X	Area	UA
0.025		11	0.26

Below Grade Walls *(see Figure 1)*

Instructions — R-21 Interior

U-Factor	X	Area	UA
0.042		704	29.56

Slab Below Grade *(see Figure 1)*

Instructions — R-21 int Plus R-5 ci

F-Factor	X	Length	UA
0.303		86	25.91

Slab on Grade *(see Figure 1)*

Instructions — R-10 Fully Insulated

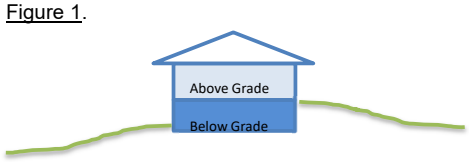
F-Factor	X	Length	UA
0.360		28	9.90

Location of Ducts

Instructions — No Ducts

Duct Leakage Coefficient
1.00

Figure 1.



Sum of UA	331.03	
Envelope Heat Load	15,227	Btu / Hour
Sum of UA x ΔT		
Air Leakage Heat Load	6,465	Btu / Hour
Volume x 0.6 x ΔT x 0.018		
Building Design Heat Load	21,692	Btu / Hour
Air leakage + envelope heat loss		
Building and Duct Heat Load	21,692	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	27,116	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		

Simple Heating System Size: Washington State

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Project Information	*Contact Information*
6717 42ND AVE S - RH22	JW ARCHITECTS
SEATTLE, WA 98118	1257 S KING ST, SEATTLE, WA
6848602-CN	(206) 953-1305

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): 8.5 — Conditioned Volume: 16,941

	U-Factor	X	Area	=	UA
Glazing and Doors (Instructions: U-0.28)	0.280		462		129.41
Skylights (Instructions)	0.50		0		---

Insulation

	U-Factor	X	Area	=	UA
Attic (Instructions: Select R-Value)	No selection		0		---
Single Rafter or Joist Vaulted Ceilings (Instructions: R-38 Vented)	0.027		619		16.71
Above Grade Walls *(see Figure 1)* (Instructions: R-21 Intermediate)	0.056		2,655		148.65
Floors (Instructions: R-38)	0.025		20		0.49
Below Grade Walls *(see Figure 1)* (Instructions: R-21 Interior)	0.042		133		5.60

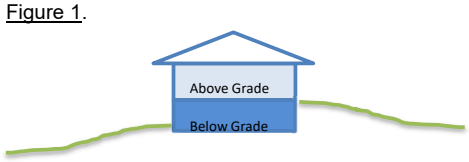
	F-Factor	X	Length	=	UA
Slab Below Grade *(see Figure 1)* (Instructions: R-21 int Plus R-5 ci)	0.303		39		11.82
Slab on Grade *(see Figure 1)* (Instructions: R-10 Fully Insulated)	0.360		73		26.28

Location of Ducts

Instructions — No Ducts

Duct Leakage Coefficient
1.00

Figure 1.



Sum of UA	338.96	
Envelope Heat Load	15,592	Btu / Hour
Sum of UA x ΔT		
Air Leakage Heat Load	8,416	Btu / Hour
Volume x 0.6 x ΔT x 0.018		
Building Design Heat Load	24,008	Btu / Hour
Air leakage + envelope heat loss		
Building and Duct Heat Load	24,008	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	30,010	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		

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Project Information	*Contact Information*
6717 42ND AVE S - RH23	JW ARCHITECTS
SEATTLE, WA 98118	1257 S KING ST, SEATTLE, WA
6848602-CN	(206) 953-1305

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): 1,659

Average Ceiling Height

Instructions — Average Ceiling Height (ft): 8.5

Conditioned Volume: 14,102

Glazing and Doors

Instructions — U-0.28

U-Factor	X	Area	=	UA
0.280		504		141.07

Skylights

Instructions

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

Insulation

Attic

Instructions — Select R-Value

U-Factor	X	Area	=	UA
No selection		0		---

Single Rafter or Joist Vaulted Ceilings

Instructions — R-38 Vented

U-Factor	X	Area	UA
0.027		608	16.42

Above Grade Walls *(see Figure 1)*

Instructions — R-21 Intermediate

U-Factor	X	Area	UA
0.056		2,609	146.09

Floors

Instructions — R-38

U-Factor	X	Area	UA
0.025		15	0.38

Below Grade Walls *(see Figure 1)*

Instructions — R-21 Interior

U-Factor	X	Area	UA
0.042		326	13.70

Slab Below Grade *(see Figure 1)*

Instructions — R-21 int Plus R-5 ci

F-Factor	X	Length	UA
0.303		47	14.33

Slab on Grade *(see Figure 1)*

Instructions — R-10 Fully Insulated

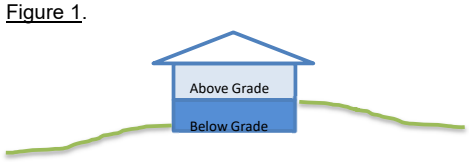
F-Factor	X	Length	UA
0.360		65	23.29

Location of Ducts

Instructions — No Ducts

Duct Leakage Coefficient
1.00

Figure 1.



Sum of UA	355.28	
Envelope Heat Load	16,343	Btu / Hour
Sum of UA x ΔT		
Air Leakage Heat Load	7,006	Btu / Hour
Volume x 0.6 x ΔT x 0.018		
Building Design Heat Load	23,348	Btu / Hour
Air leakage + envelope heat loss		
Building and Duct Heat Load	23,348	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	29,186	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		

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Project Information	*Contact Information*
6717 42ND AVE S - RH24	JW ARCHITECTS
SEATTLE, WA 98118	1257 S KING ST, SEATTLE, WA
6848602-CN	(206) 953-1305

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): 1,497

Average Ceiling Height

Instructions — Average Ceiling Height (ft): 8.5 — Conditioned Volume: 12,725

Glazing and Doors

Instructions — U-0.28

U-Factor	X	Area	=	UA
0.280		504		141.07

Skylights

Instructions

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

Insulation

Attic

Instructions — Select R-Value

U-Factor	X	Area	=	UA
No selection		0		---

Single Rafter or Joist Vaulted Ceilings

Instructions — R-38 Vented

U-Factor	X	Area	UA
0.027		608	16.42

Above Grade Walls *(see Figure 1)*

Instructions — R-21 Intermediate

U-Factor	X	Area	UA
0.056		2,609	146.09

Floors

Instructions — R-38

U-Factor	X	Area	UA
0.025		15	0.38

Below Grade Walls *(see Figure 1)*

Instructions — R-21 Interior

U-Factor	X	Area	UA
0.042		326	13.70

Slab Below Grade *(see Figure 1)*

Instructions — R-21 int Plus R-5 ci

F-Factor	X	Length	UA
0.303		47	14.33

Slab on Grade *(see Figure 1)*

Instructions — R-10 Fully Insulated

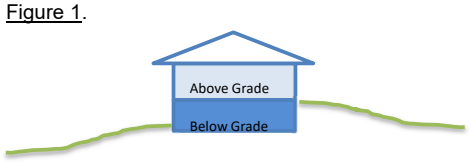
F-Factor	X	Length	UA
0.360		65	23.29

Location of Ducts

Instructions — No Ducts

Duct Leakage Coefficient
1.00

Figure 1.



Sum of UA	355.28	
Envelope Heat Load	16,343	Btu / Hour
Sum of UA x ΔT		
Air Leakage Heat Load	6,322	Btu / Hour
Volume x 0.6 x ΔT x 0.018		
Building Design Heat Load	22,664	Btu / Hour
Air leakage + envelope heat loss		
Building and Duct Heat Load	22,664	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	28,330	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		

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Project Information	*Contact Information*
6717 42ND AVE S - RH25	JW ARCHITECTS
SEATTLE, WA 98118	1257 S KING ST, SEATTLE, WA
6848602-CN	(206) 953-1305

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): 1,494

Average Ceiling Height

Instructions — Average Ceiling Height (ft): 8.5 — Conditioned Volume: 12,699

	U-Factor	X	Area	=	UA
Glazing and Doors (Instructions — U-0.28)	0.280		462		129.41
Skylights (Instructions)	0.50		0		---

Insulation

	U-Factor	X	Area	=	UA
Attic (Instructions — Select R-Value)	No selection		0		---
Single Rafter or Joist Vaulted Ceilings (Instructions — R-38 Vented)	0.027		619		16.71
Above Grade Walls *(see Figure 1)* (Instructions — R-21 Intermediate)	0.056		2,655		148.65
Floors (Instructions — R-38)	0.025		20		0.49
Below Grade Walls *(see Figure 1)* (Instructions — R-21 Interior)	0.042		133		5.60

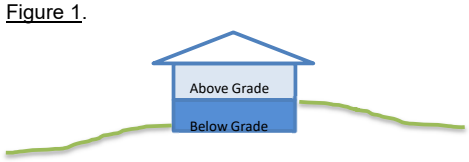
	F-Factor	X	Length	UA
Slab Below Grade *(see Figure 1)* (Instructions — R-21 int Plus R-5 ci)	0.303		39	11.82
Slab on Grade *(see Figure 1)* (Instructions — R-10 Fully Insulated)	0.360		73	26.28

Location of Ducts

Instructions — No Ducts

Duct Leakage Coefficient
1.00

Figure 1.



Sum of UA	338.96	
Envelope Heat Load *Sum of UA x ΔT*	15,592	Btu / Hour
Air Leakage Heat Load *Volume x 0.6 x ΔT x 0.018*	6,309	Btu / Hour
Building Design Heat Load *Air leakage + envelope heat loss*	21,901	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*	21,901	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*	27,376	Btu / Hour