Heat Loss Detail

ASHRAE Load Calculation

Project #:downhill/hodges

February 07, 2018

Project Information

Project #: downhill/hodges

Name: downhill/hodges

Location: 33500 meadow creek ranch

Notes:

Load Calculation Summary

Design Location:	(User Specified) steamboat springs , Colorado	Component Losses:	90,438 Btu/hr
Load Calculation Method:	ASHRAE	Infiltration/Ventilation:	37,262 Btu/hr
Outdoor Temperature:	-15.0 °F	Radiant Back Losses:	13,537 Btu/hr
Floorplans / Levels:		Total Heating Load:	141,236 Btu/hr
Basement	3,634 ft²		
Main Floor	4,139 ft²	Radiant Heating:	112,048 Btu/hr
Total Area:	7,773 ft²	Radiant Back Losses:	13,537 Btu/hr
		Other:	15,652 Btu/hr
		Total Heating Load:	141,236 Btu/hr

Load Calculation Data

Project Summary

Room	Area	Heating Type	Room Temp	Walls	Windows	Doors	Skylights	Floor	Ceiling	Infiltration	Additional	Recovered Panel Loss	Design Load	Unit Loss
Basement	3,634	RH	70.0	14,160	5,127	1,875	0	13,728	1	15,078	0	0	49,969	14.5
Main Floor	4,139	RH,OTH	70.0	14,112	22,683	22,404	0	13,797	7,180	22,184	0	-11,092	91,267	23.1
Total For Project	7,773	RH,OTH	70.0	28,272	27,810	24,280	0	27,525	7,180	37,262	0	-11,092	141,236	19.1

Basement

bedroom 002

Total Area:	381 ft²	Infiltration/Ventilation Load:	1,580 Btu/hr
Ceiling Height:	10' ft	Component Losses:	5,318 Btu/hr
Volume:	3,427 ft³	Additional Losses:	0 Btu/hr
Exposed Perimeter:	51'-11" ft	Total Room Loss:	6,898 Btu/hr
		Recovered Floor Loss:	0 Btu/hr
Room Temperature:	70 °F	Net Room Load:	6,898 Btu/hr
Space Above:	Main Floor		

Heating System

Heating Type:	Radiant	Surface Temp:	79 °F
Floor Area:	357 ft²	Net Room Load:	6,898 Btu/hr
Unheated Area:	60 ft²	Floor Back Loss:	2,130 Btu/hr
Net Heated Area:	297 ft²	Recovered Floor Loss:	0 Btu/hr
Floor Cover Rv:	0.7 hr·ft²·°F/btu	Gross Upward Load:	5,099 Btu/hr
Panel Type:	Embedded Slab		
		Supplemental Heat Supply:	0 Btu/hr
Supplemental Heating Type:	Other	Net Upward Load:	5,099 Btu/hr
Required Supply Temp:	106 °F	Total Radiant Load:	6,898 Btu/hr

Component Losses

Component	Length	Width/Height	Area	Construction	Rv	Heat Loss	Unit Loss
Window	2'	4'-6"	9	C4	3.1	245	0.7
Window	6'	5'-6"	33	C4	3.1	898	2.5
Exposed Walls Above Grade	51'-11"	5'-4"	330	C3	25.0	796	2.2
Basement with Walls	-	-	381	C1	Exterior Wall Insulation: 5.0 hr·ft²·°F/btu Slab Insulation: 15.0 hr·ft²·°F/btu	3,379	9.5
Exposed Ceiling	-	-	0	-	49.0	0	0
Total	-	-	-	-	-	5,318	14.9

bedroom 005

Total Area:	389 ft²	Infiltration/Ventilation Load:	1,614 Btu/hr
Ceiling Height:	10' ft	Component Losses:	4,419 Btu/hr
Volume:	3,502 ft³	Additional Losses:	0 Btu/hr
Exposed Perimeter:	45'-10" ft	Total Room Loss:	6,033 Btu/hr
		Recovered Floor Loss:	0 Btu/hr
Room Temperature:	70 °F	Net Room Load:	6,033 Btu/hr
Space Above:	Main Floor		

Heating System

Heating Type:	Radiant	Surface Temp:	78 °F
Floor Area:	366 ft²	Net Room Load:	6,033 Btu/hr
Unheated Area:	66 ft²	Floor Back Loss:	1,551 Btu/hr
Net Heated Area:	300 ft²	Recovered Floor Loss:	0 Btu/hr
Floor Cover Rv:	0.7 hr·ft²·°F/btu	Gross Upward Load:	4,733 Btu/hr
Panel Type:	Embedded Slab		
		Supplemental Heat Supply:	0 Btu/hr
Supplemental Heating Type:	Other	Net Upward Load:	4,733 Btu/hr
Required Supply Temp:	104 °F	Total Radiant Load:	6,033 Btu/hr

Component Losses

Component	Length	Width/Height	Area	Construction	Rv	Heat Loss	Unit Loss
Window	6'	4'	24	C4	3.1	653	1.8
Window	4'	5'-6"	22	C4	3.1	598	1.6
Window	2'	4'-6"	9	C4	3.1	245	0.7
Exposed Walls Above Grade	45'-10"	10'	404	C3	25.0	1,372	3.7
Basement with Walls	-	-	389	C1	Exterior Wall Insulation: 5.0 hr·ft²·°F/btu Slab Insulation: 15.0 hr·ft²·°F/btu	1,551	4.2
Exposed Ceiling	-	-	0	-	49.0	0	0
Total	-	-	-	-	-	4,419	12.1

bedroom 008

Total Area:	430 ft²	Infiltration/Ventilation Load:	1,783 Btu/hr
Ceiling Height:	10' ft	Component Losses:	6,088 Btu/hr
Volume:	3,868 ft³	Additional Losses:	0 Btu/hr
Exposed Perimeter:	58'-2" ft	Total Room Loss:	7,871 Btu/hr
		Recovered Floor Loss:	0 Btu/hr
Room Temperature:	70 °F	Net Room Load:	7,871 Btu/hr
Space Above:	Main Floor		

Heating System

Heating Type:	Radiant	Surface Temp:	81 °F
Floor Area:	404 ft²	Net Room Load:	7,871 Btu/hr
Unheated Area:	116 ft²	Floor Back Loss:	2,083 Btu/hr
Net Heated Area:	287 ft²	Recovered Floor Loss:	0 Btu/hr
Floor Cover Rv:	0.7 hr·ft²·°F/btu	Gross Upward Load:	6,340 Btu/hr
Panel Type:	Embedded Slab		
		Supplemental Heat Supply:	0 Btu/hr
Supplemental Heating Type:	Other	Net Upward Load:	6,340 Btu/hr
Required Supply Temp:	115 °F	Total Radiant Load:	7,871 Btu/hr

Component Losses

Component	Length	Width/Height	Area	Construction	Rv	Heat Loss	Unit Loss
Window	6'	5'-6"	33	C4	3.1	898	2.2
Window	6'	2'	12	C4	3.1	326	0.8
Exposed Walls Above Grade	58'-2"	4'	255	C3	25.0	632	1.6
Cold Partition Walls	17'-5"	10'	174	C3	25.0	592	1.5
Basement with Walls	-	-	430	C1	Exterior Wall Insulation: 5.0 hr·ft²·°F/btu Slab Insulation: 15.0 hr·ft²·°F/btu	3,639	9
Exposed Ceiling	-	-	0	-	49.0	0	0
Total	-	-	-	-	-	6,088	15.1

family room

Total Area:	1,303 ft²	Infiltration/Ventilation Load:	5,404 Btu/hr
Ceiling Height:	10' ft	Component Losses:	11,611 Btu/hr
Volume:	11,723 ft³	Additional Losses:	0 Btu/hr
Exposed Perimeter:	141'-11" ft	Total Room Loss:	17,016 Btu/hr
		Recovered Floor Loss:	0 Btu/hr
Room Temperature:	70 °F	Net Room Load:	17,016 Btu/hr
Space Above:	Main Floor		

Heating System

Heating Type:	Radiant	Surface Temp:	79 °F
Floor Area:	1,234 ft²	Net Room Load:	17,016 Btu/hr
Unheated Area:	431 ft²	Floor Back Loss:	4,300 Btu/hr
Net Heated Area:	802 ft²	Recovered Floor Loss:	0 Btu/hr
Floor Cover Rv:	0.7 hr·ft²·°F/btu	Gross Upward Load:	14,124 Btu/hr
Panel Type:	Embedded Slab		
		Supplemental Heat Supply:	0 Btu/hr
Supplemental Heating Type:	Other	Net Upward Load:	14,124 Btu/hr
Required Supply Temp:	107 °F	Total Radiant Load:	17,016 Btu/hr

Component Losses

Component	Length	Width/Height	Area	Construction	Rv	Heat Loss	Unit Loss
Window	3'	4'-6"	14	C4	3.1	367	0.3
Window	6'	5'-6"	33	C4	3.1	898	0.7
Door	6'	8'	48	C5	2.2	1,875	1.5
Exposed Walls Above Grade	141'-11"	2'-3"	220	C3	25.0	746	0.6
Basement with Walls	-	-	1,303	C1	Exterior Wall Insulation: 5.0 hr·ft²·°F/btu Slab Insulation: 15.0 hr·ft²·°F/btu	7,724	6.3
Exposed Ceiling	-	-	0	C2	49.0	1	0
Total	-	-	-	-	-	11,611	9.4

slab on grade room

Total Area:	1,132 ft²	Infiltration/Ventilation Load:	4,696 Btu/hr
Ceiling Height:	10' ft	Component Losses:	7,456 Btu/hr
Volume:	10,186 ft³	Additional Losses:	0 Btu/hr
Exposed Perimeter:	123'-9" ft	Total Room Loss:	12,152 Btu/hr
		Recovered Floor Loss:	0 Btu/hr
Room Temperature:	70 °F	Net Room Load:	12,152 Btu/hr
Space Above:	Main Floor		

Heating System

Heating Type:	Radiant	Surface Temp:	74 °F
Floor Area:	1,088 ft²	Net Room Load:	12,152 Btu/hr
Unheated Area:	4 ft²	Floor Back Loss:	3,664 Btu/hr
Net Heated Area:	1,084 ft²	Recovered Floor Loss:	0 Btu/hr
Floor Cover Rv:	0.5 hr·ft²·°F/btu	Gross Upward Load:	8,487 Btu/hr
Panel Type:	Embedded Slab		
		Supplemental Heat Supply:	0 Btu/hr
Supplemental Heating Type:	Other	Net Upward Load:	8,487 Btu/hr
Required Supply Temp:	87 °F	Total Radiant Load:	12,152 Btu/hr

Component Losses

Component	Length	Width/Height	Area	Construction	Rv	Heat Loss	Unit Loss
Exposed Walls Above Grade	123'-9"	0'	25	-	-	0	0
Basement with Walls	-	-	1,132	C1	Exterior Wall Insulation: 5.0 hr·ft²·°F/btu Slab Insulation: 15.0 hr·ft²·°F/btu	7,456	6.9
Exposed Ceiling	-	-	0	C2	49.0	0	0
Total	-	-	-	-	-	7,456	6.9

Main Floor

garage

Total Area:	1,132 ft²	Infiltration/Ventilation Load:	5,557 Btu/hr
Ceiling Height:	10'-8" ft	Component Losses:	25,159 Btu/hr
Volume:	12,054 ft³	Additional Losses:	0 Btu/hr
Exposed Perimeter:	123'-9" ft	Total Room Loss:	30,716 Btu/hr
		Recovered Floor Loss:	-8,532 Btu/hr
Room Temperature:	70 °F	Net Room Load:	22,184 Btu/hr
Space Above:	Not Heated		

Heating System

Heating Type:	Radiant	Surface Temp:	80 °F
Floor Area:	1,088 ft²	Net Room Load:	22,184 Btu/hr
Unheated Area:	8 ft²	Floor Back Loss:	8,532 Btu/hr
Net Heated Area:	1,080 ft²	Recovered Floor Loss:	-8,532 Btu/hr
Floor Cover Rv:	0.5 hr·ft²·°F/btu	Gross Upward Load:	22,183 Btu/hr
Panel Type:	Concrete Over-Pour On Suspended Slab	Supplemental Heat Supply:	0 Btu/hr
		Net Upward Load:	22,183 Btu/hr
Supplemental Heating Type:	Other	Total Radiant Load:	30,716 Btu/hr
Required Supply Temp:	104 °F		

Component Losses

Component	Length	Width/Height	Area	Construction	Rv	Heat Loss	Unit Loss
Window	2'-6"	2'-6"	6	C4	3.1	170	0.2
Door	3'	8'	24	C5	2.2	938	0.9
Window	3'	3'	9	C4	3.1	245	0.2
Window	3'	3'	9	C4	3.1	245	0.2
Window	3'	3'	9	C4	3.1	245	0.2
Door	9'	8'	72	C5	2.2	2,813	2.6
Door	9'	8'	72	C5	2.2	2,813	2.6
Door	11'	8'	88	C5	2.2	3,438	3.2
Window	3'	3'	9	C4	3.1	245	0.2
Exposed Walls Above Grade	123'-9"	10'-9"	1,033	C3	25.0	3,512	3.2
Floor	-	-	1,132	C6	2.0 (panel Insulation)	8,532	7.8
Exposed Ceiling	-	-	1,132	C2	49.0	1,963	1.8
Total	-	-	-	-	-	25,159	23.1

guest suite

Total Area:	476 ft²	Infiltration/Ventilation Load:	2,539 Btu/hr
Ceiling Height:	11'-7" ft	Component Losses:	10,546 Btu/hr
Volume:	5,506 ft³	Additional Losses:	0 Btu/hr
Exposed Perimeter:	70'-7" ft	Total Room Loss:	13,085 Btu/hr
Room Temperature:	70 °F	Recovered Floor Loss:	0 Btu/hr
Space Above:	Not Heated	Net Room Load:	13,085 Btu/hr
Space Below:	Basement/Open or Vented Crawlspace		

Heating System

Heating Type:	Radiant	Surface Temp:	81 °F
Floor Area:	449 ft²	Net Room Load:	13,085 Btu/hr
Unheated Area:	72 ft²	Floor Back Loss:	2,525 Btu/hr
Net Heated Area:	377 ft²	Recovered Floor Loss:	0 Btu/hr
Floor Cover Rv:	0.5 hr·ft²·°F/btu	Gross Upward Load:	10,909 Btu/hr
Panel Type:	Lightweight Over-pour		
		Supplemental Heat Supply:	2,488 Btu/hr
Supplemental Heating Type:	Other	Net Upward Load:	8,420 Btu/hr
Required Supply Temp:	123 °F	Total Radiant Load:	10,597 Btu/hr

Component Losses

Component	Length	Width/Height	Area	Construction	Rv	Heat Loss	Unit Loss
Door	3'	8'	24	C5	2.2	938	2.1
Window	3'	3'	9	C4	3.1	245	0.5
Window	3'	5'-4"	16	C4	3.1	435	1
Window	2'	4'-6"	9	C4	3.1	245	0.5
Window	2'	4'-6"	9	C4	3.1	245	0.5
Window	6'	5'-6"	33	C4	3.1	898	2
Window	6'	3'	18	C4	3.1	490	1.1
Window	6'	5'-6"	33	C4	3.1	898	2
Window	6'	3'	18	C4	3.1	490	1.1
Exposed Walls Above Grade	70'-7"	12'-1"	681	C3	25.0	2,314	5.2
Floor	-	-	476	C8	19.0 (panel Insulation)	2,525	5.6
Exposed Ceiling	-	-	476	C2	49.0	826	1.8
Total	-	-	-	-	-	10,546	23.5

Kitchen

Total Area:	881 ft²	Infiltration/Ventilation Load:	4,468 Btu/hr
Ceiling Height:	11' ft	Component Losses:	12,997 Btu/hr
Volume:	9,693 ft³	Additional Losses:	0 Btu/hr
Exposed Perimeter:	98'-1" ft	Total Room Loss:	17,466 Btu/hr
		Recovered Floor Loss:	-641 Btu/hr
Room Temperature:	70 °F	Net Room Load:	16,824 Btu/hr
Space Above:	Not Heated		

Heating System

Heating Type:	Radiant	Surface Temp:	80 °F
Floor Area:	843 ft²	Net Room Load:	16,824 Btu/hr
Unheated Area:	342 ft²	Floor Back Loss:	641 Btu/hr
Net Heated Area:	501 ft²	Recovered Floor Loss:	-641 Btu/hr
Floor Cover Rv:	0.7 hr·ft²·°F/btu	Gross Upward Load:	16,824 Btu/hr
Panel Type:	Lightweight Over-pour		
		Supplemental Heat Supply:	6,306 Btu/hr
Supplemental Heating Type:	Other	Net Upward Load:	10,518 Btu/hr
Required Supply Temp:	125 °F	Total Radiant Load:	11,160 Btu/hr

Component Losses

Component	Length	Width/Height	Area	Construction	Rv	Heat Loss	Unit Loss
Door	8'	8'	64	C7	2.9	1,859	2.2
Door	2'-8"	8'	21	C7	2.9	620	0.7
Door	3'	6'-8"	20	C7	2.9	581	0.7
Window	9'	4'-6"	41	C4	3.1	1,102	1.3
Door	8'	8'	64	C7	2.9	1,859	2.2
Window	4'	7'-1"	28	C4	3.1	771	0.9
Window	3'	3'	9	C4	3.1	245	0.3
Window	3'	4'-6"	14	C4	3.1	367	0.4
Window	3'	4'-6"	14	C4	3.1	367	0.4
Window	3'	4'-6"	14	C4	3.1	367	0.4
Exposed Walls Above Grade	98'-1"	11'	792	C3	25.0	2,691	3.2
Floor	-	-	881	C8	19.0 (panel Insulation)	641	0.8
Exposed Ceiling	-	-	881	C2	49.0	1,529	1.8
Total	-	-	-	-	-	12,997	15.4

Living Room

Total Area:	889 ft²	Infiltration/Ventilation Load:	5,738 Btu/hr
Ceiling Height:	14' ft	Component Losses:	18,743 Btu/hr
Volume:	12,446 ft³	Additional Losses:	0 Btu/hr
Exposed Perimeter:	96'-4" ft	Total Room Loss:	24,481 Btu/hr
		Recovered Floor Loss:	-1,082 Btu/hr
Room Temperature:	70 °F	Net Room Load:	23,399 Btu/hr
Space Above:	Not Heated		

Heating System

Heating Type:	Radiant	Surface Temp:	80 °F
Floor Area:	851 ft²	Net Room Load:	23,399 Btu/hr
Unheated Area:	31 ft²	Floor Back Loss:	1,082 Btu/hr
Net Heated Area:	820 ft²	Recovered Floor Loss:	-1,082 Btu/hr
Floor Cover Rv:	0.7 hr·ft²·°F/btu	Gross Upward Load:	23,399 Btu/hr
Panel Type:	Lightweight Over-pour		
		Supplemental Heat Supply:	5,622 Btu/hr
Supplemental Heating Type:	Other	Net Upward Load:	17,777 Btu/hr
Required Supply Temp:	122 °F	Total Radiant Load:	18,859 Btu/hr

Component Losses

Component	Length	Width/Height	Area	Construction	Rv	Heat Loss	Unit Loss
Window	2'-6"	8'	20	C4	3.1	544	0.6
Window	2'-6"	8'	20	C4	3.1	544	0.6
Window	2'-6"	1'-2"	3	C4	3.1	79	0.1
Window	2'-6"	1'-2"	3	C4	3.1	79	0.1
Door	7'	8'	56	C5	2.2	2,188	2.6
Window	7'	1'-6"	11	C4	3.1	286	0.3
Window	2'	4'-6"	9	C4	3.1	245	0.3
Window	4'	8'	32	C4	3.1	870	1
Window	3'	4'-6"	14	C4	3.1	367	0.4
Window	3'	4'-6"	14	C4	3.1	367	0.4
Window	4'	3'	12	C4	3.1	326	0.4
Window	4'	3'	12	C4	3.1	326	0.4
Window	4'	8'	32	C4	3.1	870	1
Window	6'	8'	48	C4	3.1	1,306	1.5
Window	6'	3'	18	C4	3.1	490	0.6
Window	6'	8'	48	C4	3.1	1,306	1.5
Window	6'	3'	18	C4	3.1	490	0.6
Window	6'	3'	18	C4	3.1	490	0.6
Window	7'	3'	21	C4	3.1	571	0.7
Door	8'	8'	64	C7	2.9	1,859	2.2
Exposed Walls Above Grade	96'-4"	12'-7"	740	C3	25.0	2,517	3
Floor	-	-	889	C8	19.0 (panel Insulation)	1,082	1.3
Exposed Ceiling	-	-	889	C2	49.0	1,542	1.8
Total	-	-	-	-	-	18,743	22

master bedroom

Total Area:	761 ft²	Infiltration/Ventilation Load:	3,882 Btu/hr
Ceiling Height:	11'-1" ft	Component Losses:	12,729 Btu/hr
Volume:	8,422 ft³	Additional Losses:	0 Btu/hr
Exposed Perimeter:	107'-6" ft	Total Room Loss:	16,612 Btu/hr
		Recovered Floor Loss:	-837 Btu/hr
Room Temperature:	70 °F	Net Room Load:	15,775 Btu/hr
Space Above:	Not Heated		
Space Below:	Basement/Open or Vented Crawlspace		

Heating System

Heating Type:	Radiant	Surface Temp:	80 °F
Floor Area:	718 ft²	Net Room Load:	15,775 Btu/hr
Unheated Area:	31 ft²	Floor Back Loss:	1,017 Btu/hr
Net Heated Area:	687 ft²	Recovered Floor Loss:	-837 Btu/hr
Floor Cover Rv:	0.7 hr·ft²·°F/btu	Gross Upward Load:	15,601 Btu/hr
Panel Type:	Lightweight Over-pour		
		Supplemental Heat Supply:	1,235 Btu/hr
Supplemental Heating Type:	Other	Net Upward Load:	14,366 Btu/hr
Required Supply Temp:	123 °F	Total Radiant Load:	15,376 Btu/hr

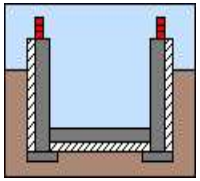
Component Losses

Component	Length	Width/Height	Area	Construction	Rv	Heat Loss	Unit Loss
Window	2'	4'-6"	9	C4	3.1	245	0.3
Window	2'	3'	6	C4	3.1	163	0.2
Window	2'	4'-6"	9	C4	3.1	245	0.3
Window	2'	3'	6	C4	3.1	163	0.2
Window	2'	4'-6"	9	C4	3.1	245	0.3
Window	2'	4'-6"	9	C4	3.1	245	0.3
Window	6'	4'-6"	27	C4	3.1	734	1
Window	6'	5'-6"	33	C4	3.1	898	1.2
Window	2'	4'-6"	9	C4	3.1	245	0.3
Window	9'	6'	54	C4	3.1	1,469	2
Door	8'	8'	64	C5	2.2	2,500	3.5
Window	4'	1'-6"	6	C4	3.1	163	0.2
Exposed Walls Above Grade	107'-6"	10'-8"	905	C3	25.0	3,078	4.3
Floor	-	-	761	C8	19.0 (panel Insulation)	1,017	1.4
Exposed Ceiling	-	-	761	C2	49.0	1,320	1.8
Total	-	-	-	-	-	12,729	17.7

Construction Legend

Construction Code	Component	R-Value	Source	Description
C2	Ceiling	49.0	User Specified	CUSTOM
C3	Wall	25.0	User Specified	CUSTOM
C4	Window	3.1	User Specified	Operable windows - Double Glazing (e = 0.05 on surface 2 or 3), 13 mm argon space, Reinforced Vinyl/Aluminum Clad Wood
C5	Door	2.2	ASHRAE	Swinging Door (Rough Opening = 970 x 2080 mm), Wood slab in wood frame, 25% glazing (560 x 910 lite), Double Glazing with 12.7 mm air space, Thermally broken sill
C6	Heated Floor	2.0 (panel Insulation)	User Specified	Concrete Over-Pour On Suspended Slab
C7	Door	2.9	ASHRAE	Operable windows - Double Glazing (e = 0.05 on surface 2 or 3), 13 mm argon space, Wood/Vinyl
C8	Heated Floor	19.0 (panel Insulation)	User Specified	Lightweight Over-pour

CSA Construction Legend



C1

Description

BCEB_1
- concrete walls and floor
- exterior surface of wall insulated over full-height
- sub-surface of floor slab fully insulated but no insulation under footings
- first storey brick veneer placed directly on basement's concrete walls

Options

Exterior Wall Insulation: 5.0 hr·ft²·°F/btu
Slab Insulation: 15.0 hr·ft²·°F/btu

Design Locaton

Location:	steamboat springs		Altitude:	6800' ft
Province/State:	Colorado		Standard Pressure:	12.5 Psi
Country:	United States			
Outdoor Heating Design Temp:	-15.0	°F	Humidity Ratio:	0.0009
Number of Days over 18C:	2761		Mean Soil Temp:	40.0 °F
Average Air Temperatures:				
January:	-10.0	°F	July:	77.2 °F
February:	10.0	°F	August:	74.7 °F
March:	30.0	°F	September:	66.7 °F
April:	52.7	°F	October:	54.7 °F
May:	62.4	°F	November:	30.0 °F
June:	72.0	°F	December:	20.0 °F

ASHRAECustom

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Cold weather humidification, or some lifestyles that produce excessive moisture, may cause condensation to occur if the absolute humidity of the indoor air is too high for the momentary circumstances. Condensation can occur on surfaces or concealed within the structure, and can lead to mold, mildew, frost damage, and moisture damage. The software does not perform calculations for the estimation or detection of possible condensation problems, and it is the designers (i.e. software users) responsibility to do so independently if required.

The calculated values shown in this report are based on the data input by the user of the software. Inaccurate or erroneous data input will result in inaccurate or erroneous results. You are strongly advised to review all input data carefully, and to have the calculated results reviewed by an experienced heating professional to ensure reasonableness and suitability for your application.

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