

Radiant Design Summary - Manifold View

Project #: 39981
Date: Dec 22, 2015

Prepared For:

Project Summary

Project #:	39981	Total Flowrate:	3.5 USGPM
Project Name:		Maximum Head Loss:	5 ft(H2O)
Design Data Location:	(User-Specified Location)	Total Loops:	24
Outdoor Temperature:	-6 °F	Total Manifolds:	5
Wind Speed:	22 mph	Total Zones:	11
Total Area:	2,287 ft ²	Min. Tubing Required:	4248 ft
Heated Area:	2,287 ft ²	Total Load:	33,625 Btu/hr
Construction Quality:	Best	Total Radiant Load:	31,563 Btu/hr
RFH Glycol Level:	100% Water	Total Supplemental Load:	0 Btu/hr
Design Temp. Drop:	20 °F (20 °F for all QuikTrak)		
Radiant Tubing Volume:	33.4 gallons(US)		
Volume Water:	33.4 gallons(US)		
Volume Glycol:	0 gallons(US)		

Units: Flowrate = USGPM; Head Loss = ft(H2O); Cover Rv = °F·ft²·hr/Btu; Length = ft; Area = ft²; Unit Heat = Btu/hr/ft²; Spacing = in; Temperature = °F

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Radiant Design Data

Manifold 1

Water Temperature:	121.3 °F	Flow Rate:	0.6 USGPM
Zone Control:	Actuators	Head Loss:	2.7 ft(H2O)
Control Method:	None/Other	Head Loss S/R:	0.2 ft(H2O)
Total Loops:	6	S/R Tube Length (One way):	30 ft
		S/R Tube Type:	hePEX 3/4"

Room	Zone #	Attach Method	Tube Type	Loop #	Area	Unit Heat	Tube Spacing	Leader Length	Loop Length	Flow Rate	Head Loss	Valve Turns	Cover Rv	Surface Temp.	Req. Water Temp.	Design Temp. Drop
Kitchen - Floor	1	Quik Trak	hePEX 5/16"	1	119	10.4	7	10	224	0.1	2.7	4.2	1.7	73.2	99.3	20
Kitchen - Floor	1	Quik Trak	hePEX 5/16"	1	119	10.4	7	10	224	0.1	2.7	4.2	1.7	73.2	99.3	20
Dining - Floor	2	Quik Trak	hePEX 5/16"	1	75.3	12.2	7	10	149	0.1	1.2	2.79	3	74.1	121.3	20
Dining - Floor	2	Quik Trak	hePEX 5/16"	1	75.3	12.2	7	10	149	0.1	1.2	2.79	3	74.1	121.3	20
1/2 Bath - Floor	1	Quik Trak	hePEX 5/16"	3	20.4	10.4	7	10	55	0	0	1.03	1.98	73.2	102.4	20
Laundry - Floor	1	Quik Trak	hePEX 5/16"	4	42	14.6	7	10	92	0.1	0.3	1.73	1.98	75.3	116.2	20

Units: Flowrate = USGPM; Head Loss = ft(H2O); Cover Rv = °F·ft²·hr/Btu; Length = ft; Area = ft²; Unit Heat = Btu/hr/ft²; Spacing = in; Temperature = °F

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Manifold 2

Water Temperature:	136 °F	Flow Rate:	0.8 USGPM
Zone Control:	Actuators	Head Loss:	3.9 ft(H2O)
Control Method:	None/Other	Head Loss S/R:	0.8 ft(H2O)
Total Loops:	5	S/R Tube Length (One way):	80 ft
		S/R Tube Type:	hePEX 3/4"

Room	Zone #	Attach Method	Tube Type	Loop #	Area	Unit Heat	Tube Spacing	Leader Length	Loop Length	Flow Rate	Head Loss	Valve Turns	Cover Rv	Surface Temp.	Req. Water Temp.	Design Temp. Drop
Living - Floor	5	Quik Trak	hePEX 5/16"	1	104.4	15.6	7	10	199	0.2	3.8	3.78	3	75.8	136	20
Living - Floor	5	Quik Trak	hePEX 5/16"	2	104.4	15.6	7	10	199	0.2	3.8	3.78	3	75.8	136	20
Foyer - Floor	4	Quik Trak	hePEX 5/16"	3	68.2	16.9	7	10	137	0.1	1.4	2.6	1.98	76.4	123.8	20
Family - Floor	3	Quik Trak	hePEX 5/16"	4	117.2	11.0	7	10	221	0.1	3	4.2	3.5	73.5	121.9	20
Family - Floor	3	Quik Trak	hePEX 5/16"	5	117.2	11.0	7	10	221	0.1	3	4.2	3.5	73.5	121.9	20

Manifold 3

Water Temperature:	138.9 °F	Flow Rate:	0.7 USGPM
Zone Control:	Actuators	Head Loss:	3.2 ft(H2O)
Control Method:	None/Other	Head Loss S/R:	0.5 ft(H2O)
Total Loops:	6	S/R Tube Length (One way):	64 ft
		S/R Tube Type:	hePEX 3/4"

Room	Zone #	Attach Method	Tube Type	Loop #	Area	Unit Heat	Tube Spacing	Leader Length	Loop Length	Flow Rate	Head Loss	Valve Turns	Cover Rv	Surface Temp.	Req. Water Temp.	Design Temp. Drop
Master Closet - Floor	6	Quik Trak	hePEX 5/16"	1	56	14.5	7	10	116	0.1	0.7	2.29	3.5	75.3	138.9	20
Master Bath - Floor	6	Quik Trak	hePEX 5/16"	2	80.5	14.1	7	10	158	0.1	1.5	3.12	1.98	75.1	114.7	20

Units: Flowrate = USGPM; Head Loss = ft(H2O); Cover Rv = °F·ft²·hr/Btu; Length = ft; Area = ft²; Unit Heat = Btu/hr/ft²; Spacing = in; Temperature = °F

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Room	Zone #	Attach Method	Tube Type	Loop #	Area	Unit Heat	Tube Spacing	Leader Length	Loop Length	Flow Rate	Head Loss	Valve Turns	Cover Rv	Surface Temp.	Req. Water Temp.	Design Temp. Drop
Hallway - Floor	6	Quik Trak	hePEX 5/16"	3	72.3	7.3	7	10	144	0.1	0.4	2.84	2.5	71.6	96	20
Guest Bath - Floor	6	Quik Trak	hePEX 5/16"	4	54.3	15.1	7	10	113	0.1	0.6	2.23	1.98	75.5	117.7	20
Master Bedroom - Floor	7	Quik Trak	hePEX 5/16"	5	112.6	12.5	7	10	213	0.2	3.2	4.2	3.5	74.2	128.8	20
Master Bedroom - Floor	7	Quik Trak	hePEX 5/16"	6	112.6	12.5	7	10	213	0.2	3.2	4.2	3.5	74.2	128.8	20

Manifold 4

Water Temperature:	141.7 °F	Flow Rate:	0.7 USGPM
Zone Control:	Actuators	Head Loss:	4.2 ft(H2O)
Control Method:	None/Other	Head Loss S/R:	0.8 ft(H2O)
Total Loops:	4	S/R Tube Length (One way):	120 ft
		S/R Tube Type:	hePEX 3/4"

Room	Zone #	Attach Method	Tube Type	Loop #	Area	Unit Heat	Tube Spacing	Leader Length	Loop Length	Flow Rate	Head Loss	Valve Turns	Cover Rv	Surface Temp.	Req. Water Temp.	Design Temp. Drop
R Office - Floor	9	Quik Trak	hePEX 5/16"	1	72.3	19.2	7	10	144	0.2	2	2.89	2.5	77.6	141.7	20
R Office - Floor	9	Quik Trak	hePEX 5/16"	2	72.3	19.2	7	10	144	0.2	2	2.89	2.5	77.6	141.7	20
Guest Bedroom - Floor	8	Quik Trak	hePEX 5/16"	3	110.3	13.9	7	10	209	0.2	3.4	4.2	2.5	75	121.4	20
J Office - Floor	10	Quik Trak	hePEX 5/16"	4	100.3	18.0	7	10	192	0.2	4.2	3.86	2.5	77	137.3	20

Units: Flowrate = USGPM; Head Loss = ft(H2O); Cover Rv = °F·ft²·hr/Btu; Length = ft; Area = ft²; Unit Heat = Btu/hr/ft²; Spacing = in; Temperature = °F

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Manifold 5

Water Temperature:	130.3 °F	Flow Rate:	0.8 USGPM
Zone Control:	Actuators	Head Loss:	1 ft(H2O)
Control Method:	None/Other	Head Loss S/R:	0.9 ft(H2O)
Total Loops:	3	S/R Tube Length (One way):	100 ft
		S/R Tube Type:	hePEX 3/4"

Room	Zone #	Attach Method	Tube Type	Loop #	Area	Unit Heat	Tube Spacing	Leader Length	Loop Length	Flow Rate	Head Loss	Valve Turns	Cover Rv	Surface Temp.	Req. Water Temp.	Design Temp. Drop
4 Season - Floor	11	Joist Trak Plates	hePEX 1/2"	1	149.3	16.2	8	10	244	0.3	0.9	4.2	2.25	76.1	130.3	20
4 Season - Floor	11	Joist Trak Plates	hePEX 1/2"	2	149.3	16.2	8	10	244	0.3	0.9	4.2	2.25	76.1	130.3	20
4 Season - Floor	11	Joist Trak Plates	hePEX 1/2"	3	149.3	16.2	8	10	244	0.3	0.9	4.2	2.25	76.1	130.3	20

Units: Flowrate = USGPM; Head Loss = ft(H2O); Cover Rv = °F·ft²·hr/Btu; Length = ft; Area = ft²; Unit Heat = Btu/hr/ft²; Spacing = in; Temperature = °F