Heating System Summary

Project #:AppleBrookHouse2
July 29, 2018

Project Information

Project #: AppleBrookHouse2
Name:
Location:

Notes:

Project Summary

Load Calculation Method:	Manual J8	Total Circuit Lengths:		Component Losses:	5,168 W
Design Location:	(User Specified) Chadlington, Oxfordshire	hePEX 1/2"	1142.2 m	Infiltration/Ventilation:	2,129 W
				Radiant Back Losses:	4,855 W
Outdoor Temperature:	-3.8 °C	Total RH Circuits:	24	Total Heating Load:	12,152 W
Floorplans / Levels:		Total Manifolds:	4		
Ground Floor	150.9 m²	Total Zones:	13	Radiant Heating:	7,201 W
Main Floor	115.8 m²			Radiant Back Losses:	4,855 W
Total Area:	266.7 m²	Fluid Type:	100% Water	Other:	96 W
		Total Tubing Volume:	130.6 L	Total Heating Load:	12,152 W

Some panels have excessive downward loss. The water temperature calculations are not valid when the downward losses (or back losses) exceed the required upward load. This can occur when inadequate, or no insulation is specified under the panel. It is recommended that adequate insulation be added to radiant panels.

Zone Heating Summary

Zone #	Gross Area	Construction	Heating Types	RH[1] Circuits	Total Tubing	Manifolds	Flowrate	Head Loss (Circuit Only)	RH Load[2]	Supplemental	Zone Load[3]
Zone 102	24.2	Embedded Slab	RH	2	135.4	1	1.61	2.0	1,083	0	1,083
Zone 103	6.6	Embedded Slab	RH	1	33.0	1	0.42	0.3	269	0	269
Zone 104	16.5	Embedded Slab	RH	2	99.6	1	0.76	0.4	423	0	423
Zone 105	8.0	Embedded Slab	RH	1	35.5	1	0.38	0.3	36	0	36
Zone 106	8.1	Embedded Slab	RH	1	39.1	1	0.38	0.3	64	0	64
Zone 107	6.6	Embedded Slab	RH	0	0.0	0	0.00	0.0	282	0	282
Zone 108	20.7	Embedded Slab	RH	1	44.9	1	0.38	0.4	347	0	347
Zone 109	17.2	Embedded Slab	RH	2	105.0	1	0.97	0.7	625	0	625
Zone 110	11.3	Embedded Slab	RH	1	59.8	1	0.43	0.6	250	0	250
Zone 111	31.5	Embedded Slab	RH	2	131.2	1	1.63	4.1	1,317	0	1,317

Length = m Area = m² Temperature = °C Flowrate = L/min Air Flow = L/s Heat Loss = W Unit Heat Loss = W/m² Rv = m²·K/W
Head Loss = kPa RH = Radiant Floor Heating BB = Baseboard FA = Forced Air OTH = Other Heating SM = Snowmelt N = Not Heated

Created Using LoopCAD 2018 Uponor(US) (7/30/2018)
Version:18.0.0594 R (Trial)

See end of report for important Notes and Disclaimers.

Zone 201	9.5	Concrete Over-Pour On Suspended Slab	RH	1	61.4	1	1.44	4.7	696	0	696
Zone 202	38.7	Concrete Over-Pour On Suspended Slab	RH	5	118.7	1	3.27	5.1	2,388	0	2,388
Zone 203	67.6	Concrete Over-Pour On Suspended Slab	RH,OTH	5	278.8	1	10.50	21.5	6,648	96	6,745

(1) Complete circuits assigned to this zone. (2) Total Radiant heating load for rooms in zone, including all panel back loss. (3) Total load for zone including all panel back loss. Does not account for reclaimed loss within building envelope.

Room Heating Summary (By Construction Type)

Embedded Slab

Zone #	Room Name	Heating Type	Floor Area	Heated Area	Manifold #	Tube Size	RH Circuits[1]	Tube Spacing	Tubing In Room	Floor Cover RV	Required Temp.	Unit RH Load	RH Load[2]	Supplemental	Total Load[3]
Zone 102	Bed 1	RH	22.7	22.6	Manifold 2	1/2"	2	200	106.0	0.09	32	47.9	1,083	0	1,083
Zone 103	Ensuite	RH	5.9	5.9	Manifold 2	1/2"	1	200	24.9	0.09	32	45.1	269	0	269
Zone 104	Bed 3	RH	15.5	15.5	Manifold 4	1/2"	2	200	68.4	0.09	32	27.3	423	0	423
Zone 105	Hall 2	RH	7.4	7.4	Manifold 2	1/2"	1	200	36.4	0.09	32	4.9	36	0	36
Zone 106	Main Bathroom	RH	7.6	7.5	Manifold 2	1/2"	1	200	33.9	0.09	32	8.5	64	0	64
Zone 107	Utility	RH	5.9	5.4	n/a	n/a	0	200	31.9	0.09	-18	52.4	282	0	282
Zone 108	Hall 1	RH	19.3	19.2	Manifold 4	1/2"	1	200	111.8	0.09	32	18.1	347	0	347
Zone 109	Bed 2	RH	15.9	15.2	Manifold 4	1/2"	2	200	63.9	0.09	32	41.2	625	0	625
Zone 110	Bed 4	RH	10.5	10.0	Manifold 4	1/2"	1	200	43.0	0.09	32	25.1	250	0	250
Zone 111	Basement	RH	29.1	28.8	Manifold 4	1/2"	2	200	130.2	0.09	32	45.7	1,317	0	1,317

(1) Circuits assigned to this room. Leaders from other rooms may not be counted. (2) Includes panel back loss. (3) Total load including panel back loss. Does not account for reclaimed loss within building envelope.

Concrete Over-Pour On Suspended Slab

Zone #	Room Name	Heating Type	Floor Area	Heated Area	Manifold #	Tube Size	RH Circuits[1]	Tube Spacing	Tubing In Room	Floor Cover RV	Required Temp.	Unit RH Load	RH Load[2]	Supplemental	Total Load[3]
Zone 201	Study	RH	8.6	8.6	Manifold 1	1/2"	1	200	41.9	0.09	38	81.0	696	0	696
Zone 202	Kitchen	RH	36.6	28.6	Manifold 1	1/2"	4	200	115.7	0.09	37	83.6	2,388	0	2,388
Zone 203	Entrance	RH, OTH	2.5	2.5	Manifold 3	1/2"	1	200	9.2	0.09	54	204.0	516	96	612
Zone 203	Main Cottage	RH	58.5	56.7	Manifold 3	1/2"	5	200	249.2	0.09	54	100.1	5,677	0	5,677
Zone 203	WC	RH	2.5	2.4	Manifold 3	1/2"	1	200	9.3	0.09	49	186.4	456	0	456

(1) Circuits assigned to this room. Leaders from other rooms may not be counted. (2) Includes panel back loss. (3) Total load including panel back loss. Does not account for reclaimed loss within building envelope.

Manifold Summary

Manifold Name	# Zones	# Circuits	Flowrate	Head Loss[1]	Required Temp.	Supplied Temp.	Temp Drop	Manifold Type	Control Type	# Actuators	S/R Length[2]	S/R Pipe

Manifold 1	2	6	4.70	5.3	38	38	11	TruFLOW Jr Valved w/ Balancing	Circuit	6	-	-
Manifold 2	4	5	2.79	2.1	32	38	11	TruFLOW Jr Valved w/ Balancing	Circuit	5	-	-
Manifold 3	1	5	10.50	22.7	54	54	11	TruFLOW Jr Valved w/ Balancing	Manifold	0	-	-
Manifold 4	5	8	4.18	4.2	32	38	11	TruFLOW Jr Valved w/ Balancing	Circuit	8	-	-
Total	12	24	22.17	22.7	54	-	11	-	-	19	-	-

(1) Total Head loss includes manifold, circuits and supply/return piping if specified. (2) S/R Length = one way

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