

**McDONNELL
LANGLEY**
◆ ASSOCIATES ◆

Building Services Consultants
3 High Street Purley Surrey CR8 2AF
Tel: 020 8763 0270 Fax: 020 8763 1338

8th February 2006

JHA Innovation Ltd
Unit 5 Kings Eight
St James Road
Brentwood
Essex CM14 4LF
London NW1 1NJ

10 FEB 2006

For the attention of Mr. B. Neil

Dear Mr. Neil,

Re: St. Mary Somerset Tower

Please find enclosed 1 copy of our heat losses for the above project as requested.

Should you have any queries, please do not hesitate to contact the writer.

Yours faithfully


David McDonnell

c.c. Nicola Murphy – Boyarsky Murphy Architects

Outside design temperature -3.0 degC
 Main system of heating - Warm floor

Room number 1
 Room name Kitchen

- Temperatures -
 Resultant 21.0
 Environmental 21.2
 Air 20.5
 Mean radiant 21.5

System - Warm floor

 Total room heat loss 455 W

Average = 25.3 W/m3
 = 58.1 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	11.05	0.35	24.0	94
Wall 2	3.51	0.35	24.0	30
Window in wall 2	0.24	3.20	24.0	19
Exposed floor 1	7.83	0.91	24.0	172
Internal ceiling 1	7.83	0.81	0.0	0
Partition 1	11.05	2.40	0.0	0
Partition 2	3.75	2.40	0.0	0

Volume	18.0 m3	A/c rate 1.00	Fabric loss	314
			Infiltration loss	141

				Total heat loss
				455

Room number 2
Room name Living/dining

- Temperatures -
Resultant 21.0
Environmental 21.4
Air 19.9
Mean radiant 22.1

System - Warm floor

Total room heat loss 1913 W

Average = 40.8 W/m3
= 93.8 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)		
Wall 1	4.00	2.70	24.0	263		
Wall 2	4.00	2.70	24.0	263		
Wall 3	4.00	2.70	24.0	263		
Wall 4	10.24	0.50	24.0	125		
Wall 5	10.40	0.50	24.0	127		
Wall 6	5.16	0.50	24.0	63		
Exposed floor 1	20.39	0.91	24.0	452		

				Fabric loss 1555		
Volume 46.9 m3	A/c rate 1.00			Infiltration loss 359		

				Total heat loss 1913		

Room number 3
Room name stairwell

- Temperatures -
Resultant 21.0
Environmental 21.3
Air 20.0
Mean radiant 22.0

System - Warm floor

Total room heat loss 406 W

Average =118.9 W/m3
=273.6 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	5.08	2.70	24.0	334
Exposed floor 1	1.49	0.91	24.0	33

Volume 3.4 m3	A/c rate 1.50			Fabric loss 367
				Infiltration loss 39

				Total heat loss 406

Room number 4
Room name entrance lobby

- Temperatures -
Resultant 21.0
Environmental 21.1
Air 20.7
Mean radiant 21.3

System - Warm floor

Total room heat loss 114 W

Average = 31.3 W/m3
= 72.1 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)		
Wall 1	3.75	0.35	24.0	32		
Wall 2	2.22	0.35	24.0	19		
Exposed floor 1	1.58	0.91	24.0	35		
Internal ceiling 1	1.58	2.00	0.0	0		
Partition 1	3.75	2.40	0.0	0		
Partition 2	2.22	2.40	0.0	0		

Fabric loss				85		
Volume 3.6 m3	A/c rate 1.00	Infiltration loss		29		

Total heat loss				114		

Room number 5
Room name Entrance lobby Main

- Temperatures -
Resultant 21.0
Environmental 21.3
Air 20.2
Mean radiant 21.8

System - Warm floor

Total room heat loss 613 W

Average = 32.6 W/m3
= 78.3 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	7.96	0.35	24.0	68
Window in wall 1	3.57	3.20	24.0	277
Wall 2	3.67	0.35	24.0	31
Window in wall 2	0.24	3.20	24.0	19
Internal floor 1	7.83	2.00	0.0	0
Internal ceiling 1	7.83	2.00	0.0	0
Partition 1	11.53	2.40	0.0	0
Partition 2	3.91	2.40	0.0	0

Volume	18.8 m3	A/c rate 1.50	Fabric loss	395
			Infiltration loss	218

				Total heat loss 613

Room number 6
Room name void over dining/living

- Temperatures -
Resultant 21.0
Environmental 21.5
Air 19.4
Mean radiant 22.6

System - Warm floor

Total room heat loss 1679 W

Average = 34.3 W/m3
= 82.4 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	0.00	2.70	24.0	0
Window in wall 1	4.18	3.20	24.0	328
Wall 2	0.00	2.70	24.0	0
Window in wall 2	4.18	3.20	24.0	328
Wall 3	0.00	2.70	24.0	0
Window in wall 3	4.18	3.20	24.0	328
Wall 4	10.68	0.50	24.0	131
Wall 5	10.85	0.50	24.0	133
Wall 6	5.39	0.50	24.0	66

Volume 48.9 m3 A/c rate 1.00				Fabric loss 1313
				Infiltration loss 366

				Total heat loss 1679

Room number 7
Room name stairwell

- Temperatures -
Resultant 21.0
Environmental 21.4
Air 19.7
Mean radiant 22.3

System - Warm floor

Total room heat loss 390 W

Average =109.6 W/m3
=262.9 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	5.30	2.70	24.0	350

Volume	3.6 m3	A/c rate 1.50		Fabric loss 350
				Infiltration loss 40

				Total heat loss 390

Room number 8
Room name stairwell/lobby new

- Temperatures -
Resultant 21.0
Environmental 21.3
Air 20.2
Mean radiant 21.8

System - Warm floor

Total room heat loss 304 W

Average = 20.0 W/m3
= 46.0 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	9.32	0.35	24.0	79
Wall 2	3.51	0.35	24.0	30
Window in wall 2	0.24	3.20	24.0	19
Internal floor 1	6.60	2.00	0.0	0
Internal ceiling 1	6.60	2.00	0.0	0
Partition 1	9.32	2.40	0.0	0
Partition 2	3.75	2.40	0.0	0

Volume	15.2 m3	A/c rate 1.50	Fabric loss	127
			Infiltration loss	176

				Total heat loss 304

Room number 9
Room name Bathroom

- Temperatures -
Resultant 21.0
Environmental 21.2
Air 20.4
Mean radiant 21.6

System - Warm floor

Total room heat loss 584 W

Average = 90.2 W/m3
=207.5 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	3.97	2.70	24.0	259
Wall 2	3.45	2.70	24.0	225
Window in wall 2	0.30	3.20	24.0	23
Internal floor 1	2.81	2.00	0.0	0
Internal ceiling 1	2.81	2.00	0.0	0
Partition 1	3.97	2.40	0.0	0
Partition 2	3.75	2.40	0.0	0

Volume	6.5 m3	A/c rate 1.50	Fabric loss	508
			Infiltration loss	76

				Total heat loss 584

Total heat losses

Total exposed wall	loss	17229 W
Total exposed roof	loss	1909 W
Total exposed floor	loss	692 W
Total internal floor	loss	0 W
Total internal ceiling	loss	0 W
Total internal partition	loss	0 W
Total window	loss	6933 W
Total rooflight	loss	0 W
Total infiltration	loss	7645 W
Total fixed air	loss	0 W

Total Heat loss		34408 W

Total floor area	322 m2	106.9 W/m2
Total volume	956 m3	36.0 W/m3

Pre-heat period (hrs)	Plant ratio	Plant boosted output (kW)
0	1.97	67.9
1	1.86	63.9
2	1.75	60.3

Room number 10
Room name void above living/dining

- Temperatures -
Resultant 21.0
Environmental 21.3
Air 20.1
Mean radiant 21.9

System - Warm floor

Total room heat loss 1324 W

Average = 14.8 W/m3
= 34.1 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	14.26	0.50	24.0	173
Wall 2	14.42	0.50	24.0	175
Wall 3	14.26	0.50	24.0	173
Wall 4	9.36	0.50	24.0	114
Internal floor 1	38.87	2.00	0.0	0
Internal ceiling 1	38.87	2.00	0.0	0

Volume 89.4 m3 A/c rate 1.00				Fabric loss 635
				Infiltration loss 689

				Total heat loss 1324

Room number 11
Room name stairwell

- Temperatures -
Resultant 16.0
Environmental 16.4
Air 14.9
Mean radiant 17.1

System - Warm floor

Total room heat loss 296 W

Average = 86.7 W/m3
=199.5 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	4.94	2.70	19.0	258
Window in wall 1	0.12	3.20	19.0	7

Volume	3.4 m3	A/c rate 1.50	Fabric loss	266
			Infiltration loss	31

			Total heat loss	296

Room number 12
Room name stairwell/landing

- Temperatures -
Resultant 21.0
Environmental 21.2
Air 20.4
Mean radiant 21.6

System - Warm floor

Total room heat loss 485 W

Average = 23.4 W/m3
= 74.0 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	10.48	0.35	24.0	89
Window in wall 1	2.25	3.20	24.0	174
Wall 2	4.92	0.35	24.0	42
Window in wall 2	0.24	3.20	24.0	19
Internal floor 1	6.56	2.00	0.0	0
Internal ceiling 1	6.56	2.00	0.0	0
Partition 1	12.73	2.40	0.0	0
Partition 2	5.16	2.40	0.0	0

Volume 20.8 m3 A/c rate 1.00				Fabric loss 323
				Infiltration loss 162

				Total heat loss 485

Room number 13
Room name utility room

- Temperatures -
Resultant 21.0
Environmental 21.2
Air 20.5
Mean radiant 21.5

System - Warm floor

Total room heat loss 760 W

Average = 86.4 W/m3
=273.2 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	5.41	2.70	24.0	353
Wall 2	4.91	2.70	24.0	320
Window in wall 2	0.24	3.20	24.0	19
Internal floor 1	2.78	2.00	0.0	0
Internal ceiling 1	2.78	2.00	0.0	0
Partition 1	5.41	2.40	0.0	0
Partition 2	5.15	2.40	0.0	0

Volume	8.8 m3	A/c rate 1.00	Fabric loss	691
			Infiltration loss	69

				Total heat loss 760

Room number 14
Room name lounge

- Temperatures -
Resultant 21.0
Environmental 21.5
Air 19.6
Mean radiant 22.4

System - Warm floor

Total room heat loss 1874 W

Average = 32.6 W/m3
=103.2 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	2.92	2.70	24.0	193
Window in wall 1	2.25	3.20	24.0	176
Wall 2	2.98	2.70	24.0	197
Window in wall 2	2.25	3.20	24.0	176
Wall 3	0.72	2.70	24.0	48
Window in wall 3	2.25	3.20	24.0	176
Wall 4	14.31	0.50	24.0	175
Wall 5	14.34	0.50	24.0	176
Wall 6	10.16	0.50	24.0	124

Volume 57.5 m3 A/c rate 1.00				Fabric loss 1442
				Infiltration loss 433

				Total heat loss 1874

Room number 15
Room name stairwell

- Temperatures -
Resultant 21.0
Environmental 21.5
Air 19.5
Mean radiant 22.5

System - Warm floor

Total room heat loss 474 W

Average =100.9 W/m3
=319.2 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	6.23	2.70	24.0	412
Window in wall 1	0.12	3.20	24.0	9

			Fabric loss	421
Volume 4.7 m3 A/c rate 1.50			Infiltration loss	53

			Total heat loss	474

Room number 16
Room name Main stairwell/lobby

- Temperatures -
Resultant 21.0
Environmental 21.3
Air 20.2
Mean radiant 21.8

System - Warm floor

Total room heat loss 476 W

Average = 31.1 W/m3
= 76.7 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	6.96	0.35	24.0	59
Window in wall 1	2.43	3.20	24.0	188
Wall 2	3.78	0.35	24.0	32
Window in wall 2	0.24	3.20	24.0	19
Internal floor 1	6.21	2.00	0.0	0
Internal ceiling 1	6.21	2.00	0.0	0
Partition 1	9.39	2.40	0.0	0
Partition 2	4.02	2.40	0.0	0

Volume 15.3 m3	A/c rate 1.50	Fabric loss		298
		Infiltration loss		178
		Total heat loss		----- 476 -----

Room number 17
Room name Bathroom

- Temperatures -
Resultant 21.0
Environmental 21.2
Air 20.4
Mean radiant 21.6

System - Warm floor

Total room heat loss 180 W

Average = 23.5 W/m3
= 57.9 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	4.71	0.35	24.0	40
Wall 2	3.78	0.35	24.0	32
Window in wall 2	0.24	3.20	24.0	19
Internal floor 1	3.11	2.00	0.0	0
Internal ceiling 1	3.11	2.00	0.0	0
Partition 1	4.71	2.40	0.0	0
Partition 2	4.02	2.40	0.0	0

Volume 7.7 m3 A/c rate 1.50				Fabric loss 90
				Infiltration loss 90

				Total heat loss 180

Room number 18
Room name Bedroom

- Temperatures -
Resultant 21.0
Environmental 21.5
Air 19.5
Mean radiant 22.5

System - Warm floor

Total room heat loss 2041 W

Average = 43.5 W/m3
=107.2 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	1.89	2.70	24.0	125
Window in wall 1	2.18	3.20	24.0	171
Wall 2	1.00	2.70	24.0	66
Window in wall 2	3.07	3.20	24.0	241
Wall 3	1.89	2.70	24.0	125
Window in wall 3	2.18	3.20	24.0	171
Wall 4	11.12	0.50	24.0	136
Wall 5	11.20	0.50	24.0	137
Wall 6	6.39	3.30	24.0	517

Volume 47.0 m3 A/c rate 1.00				Fabric loss 1688
				Infiltration loss 352

				Total heat loss 2041

Room number 19
Room name stairwell

- Temperatures -
Resultant 21.0
Environmental 21.5
Air 19.5
Mean radiant 22.5

System - Warm floor

Total room heat loss 370 W

Average =101.0 W/m3
=249.1 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	4.83	2.70	24.0	319
Window in wall 1	0.12	3.20	24.0	9

			Fabric loss	329
Volume 3.7 m3 A/c rate 1.50			Infiltration loss	41

			Total heat loss	370

Room number 20
Room name Stairweel/lobby

- Temperatures -
Resultant 21.0
Environmental 21.3
Air 20.2
Mean radiant 21.8

System - Warm floor

Total room heat loss 751 W

Average = 44.0 W/m3
=115.4 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)			
Wall 1	6.29	0.35	24.0	53			
Window in wall 1	4.23	3.20	24.0	328			
Wall 2	4.03	0.35	24.0	34			
Window in wall 2	0.24	3.20	24.0	19			
Roof 1	6.51	0.75	24.0	118			
Internal floor 1	6.51	2.00	0.0	0			
Partition 1	10.52	2.40	0.0	0			
Partition 2	4.27	2.40	0.0	0			

Fabric loss				553			
Volume 17.1 m3 A/c rate 1.50	Infiltration loss			198			

Total heat loss				751			

Room number 21
Room name Bathroom

- Temperatures -
Resultant 21.0
Environmental 21.2
Air 20.4
Mean radiant 21.6

System - Warm floor

Total room heat loss 216 W

Average = 28.7 W/m3
= 73.5 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	4.63	0.35	24.0	39
Wall 2	4.16	0.35	24.0	35
Roof 1	2.93	0.75	24.0	53
Internal floor 1	2.93	2.00	0.0	0
Partition 1	4.63	2.40	0.0	0
Partition 2	4.16	2.40	0.0	0

Volume	7.5 m3	A/c rate 1.50	Fabric loss	128
			Infiltration loss	88

				Total heat loss 216

Room number 22
Room name Bedroom

- Temperatures -
Resultant 21.0
Environmental 21.3
Air 20.2
Mean radiant 21.8

System - Warm floor

Total room heat loss 1908 W

Average = 40.2 W/m3
=103.1 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)		
Wall 1	0.66	2.70	24.0	44		
Window in wall 1	3.56	3.20	24.0	277		
Wall 2	0.65	2.70	24.0	43		
Window in wall 2	3.58	3.20	24.0	278		
Wall 3	0.66	2.70	24.0	44		
Window in wall 3	3.56	3.20	24.0	277		
Wall 4	11.56	0.50	24.0	140		
Wall 5	11.64	0.50	24.0	141		
Wall 6	6.02	3.30	24.0	482		

				Fabric loss 1724		
Volume 47.4 m3	A/c rate 0.50			Infiltration loss 184		

				Total heat loss 1908		

Room number 23
Room name stairwell

- Temperatures -
Resultant 21.0
Environmental 21.5
Air 19.5
Mean radiant 22.5

System - Warm floor

Total room heat loss 383 W

Average =100.6 W/m3
=257.9 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	5.14	2.70	24.0	340

Volume	3.8 m3	A/c rate 1.50	Fabric loss	340
			Infiltration loss	43

			Total heat loss	383

Room number 24
Room name Bedroom

- Temperatures -
Resultant 21.0
Environmental 21.4
Air 19.8
Mean radiant 22.2

System - Warm floor

Total room heat loss 1355 W

Average = 32.2 W/m3
= 72.7 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)		
Wall 1	1.27	2.70	24.0	84		
Window in wall 1	1.44	3.20	24.0	112		
Wall 2	1.27	2.70	24.0	84		
Window in wall 2	1.44	3.20	24.0	112		
Wall 3	1.27	2.70	24.0	84		
Window in wall 3	1.44	3.20	24.0	112		
Wall 4	8.43	0.50	24.0	103		
Wall 5	11.21	0.50	24.0	137		
Wall 6	11.28	0.50	24.0	138		
Wall 7	5.65	0.50	24.0	69		

				Fabric loss 1035		
Volume 42.1 m3	A/c rate 1.00			Infiltration loss 320		

				Total heat loss 1355		

Room number 25
Room name stairwell

- Temperatures -
Resultant 21.0
Environmental 21.3
Air 20.2
Mean radiant 21.8

System - Warm floor

Total room heat loss 888 W

Average = 65.0 W/m3
=147.0 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)		
Wall 1	5.55	2.70	24.0	363		
Wall 2	5.45	2.70	24.0	357		
Window in wall 2	0.12	3.20	24.0	9		
Internal floor 1	6.04	2.00	0.0	0		
Internal ceiling 1	6.04	2.00	0.0	0		
Partition 1	5.55	2.40	0.0	0		
Partition 2	5.57	2.40	0.0	0		

				Fabric loss 730		
Volume 13.7 m3	A/c rate 1.50			Infiltration loss 159		

				Total heat loss 888		

Room number 26
Room name study open area above bedroom

- Temperatures -
Resultant 21.0
Environmental 21.2
Air 20.3
Mean radiant 21.7

System - Warm floor

Total room heat loss 1548 W

Average = 43.5 W/m3
 =118.9 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)			
Wall 1	2.32	2.70	24.0	152			
Window in wall 1	2.25	3.20	24.0	174			
Wall 2	2.26	2.70	24.0	148			
Window in wall 2	2.25	3.20	24.0	174			
Wall 3	2.29	2.70	24.0	150			
Window in wall 3	2.25	3.20	24.0	174			
Wall 4	6.11	0.50	24.0	74			
Wall 5	12.42	0.50	24.0	150			
Wall 6	6.14	0.50	24.0	74			
Internal floor 1	13.02	2.00	0.0	0			
Internal ceiling 1	13.02	2.00	0.0	0			
Partition 1	8.42	2.40	0.0	0			

				Fabric loss 1271			
Volume 35.6 m3 A/c rate 1.00				Infiltration loss 277			

				Total heat loss 1548			

Room number 27
Room name Bathroom

- Temperatures -
Resultant 21.0
Environmental 21.7
Air 18.9
Mean radiant 23.1

System - Warm floor

Total room heat loss 537 W

Average = 44.8 W/m3
=122.5 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	2.26	2.70	24.0	151
Window in wall 1	2.25	3.20	24.0	178
Wall 2	6.21	0.50	24.0	77

Volume 12.0 m3	A/c rate 1.50		Fabric loss	405
			Infiltration loss	131

				Total heat loss 537

Room number 28
Room name stairwell

- Temperatures -
Resultant 21.0
Environmental 21.2
Air 20.3
Mean radiant 21.7

System - Warm floor

Total room heat loss 857 W

Average =211.0 W/m3
=577.1 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	6.21	2.70	24.0	406
Wall 2	6.17	2.70	24.0	404

			Fabric loss	810
Volume 4.1 m3 A/c rate 1.50			Infiltration loss	47

			Total heat loss	857

Room number 29
Room name lounge

- Temperatures -
Resultant 21.0
Environmental 21.5
Air 19.6
Mean radiant 22.4

System - Warm floor

Total room heat loss 5865 W

Average = 26.4 W/m3
=153.8 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	4.88	2.70	24.0	323
Window in wall 1	4.80	5.60	24.0	657
Wall 2	4.88	2.70	24.0	323
Window in wall 2	4.80	3.20	24.0	376
Wall 3	4.88	2.70	24.0	323
Window in wall 3	4.80	3.20	24.0	376
Wall 4	4.88	2.70	24.0	323
Window in wall 4	4.80	3.20	24.0	376
Wall 5	26.25	0.50	24.0	321
Wall 6	26.43	0.50	24.0	323
Wall 7	26.25	0.50	24.0	321
Wall 8	12.07	0.50	24.0	148
Internal floor 1	38.13	2.00	0.0	0
Internal ceiling 1	38.13	2.00	0.0	0

Volume 222.5 m3 A/c rate 1.00				Fabric loss 4188
				Infiltration loss 1677

				Total heat loss 5865

Room number 30
Room name stairwell

- Temperatures -
Resultant 21.0
Environmental 21.2
Air 20.5
Mean radiant 21.5

System - Warm floor

Total room heat loss 1792 W

Average =206.8 W/m3
=1206.419 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	13.24	2.70	24.0	864
Wall 2	13.04	2.70	24.0	850
Window in wall 2	0.12	3.20	24.0	9

Volume 8.7 m3	A/c rate 1.00	Fabric loss		1724
Infiltration loss				68

Total heat loss				1792

Room number 31
Room name lounge

- Temperatures -
Resultant 21.0
Environmental 21.3
Air 20.0
Mean radiant 22.0

System - Warm floor

Total room heat loss 3569 W

Average = 30.0 W/m3
= 90.0 W/m2

Surface	Area (m2)	U value (W/m2C)	Temp diff (degC)	Fabric loss (Watts)
Wall 1	18.57	0.50	24.0	226
Wall 2	19.22	0.50	24.0	234
Wall 3	18.57	0.50	24.0	226
Wall 4	19.22	0.50	24.0	234
Roof 1	39.66	1.80	24.0	1737
Internal floor 1	39.66	2.00	0.0	0

Volume 119.0 m3 A/c rate 1.00				Fabric loss 2657
				Infiltration loss 912

				Total heat loss 3569
