

Heating load calculation from ALF3.1.1 modelling

Old BPI	0.081					
BPI Factor	1205					
Heating energy	26402					
Heating degree:	30.1					
New BPI	1.40					
Must be less than 1.55 to comply						
Therefore satisfactory						
		17pm-23pm 7-9am 17-23pm 7am-23pm				
Heating Schedule		Evening	Morn/Eve	Daytime	All day	
Hours		6hr	8 hr	16 hr	24hr	
ALF value		15.2	21.8	38.8	64.1	hr °C 10 ³
		0.237	0.340	0.605	1.000	
Internal gain multiplier		1.28	1.71	3.42	4.27	
Effective thermal mass					11.9	W/°C
Floor	105	105	105	105	105	W/°C
Walls	69	69	69	69	69	W/°C
Windows	429	429	429	429	429	W/°C
Roof	81	81	81	81	81	W/°C
Total Envelope loss	606	606	606	606	606	W/°C
ALF Air leak loss	149	149	149	149	149	W/°C
ALF warm up loss	624	741	347	0	0	W/°C
Area	270.5					
<u>Losses</u>						
Floor	1596	2289	4074	6731	6731	kW.hr
Walls	1049	1504	2677	4423	4423	kW.hr
Windows	6521	9352	16645	27499	27499	kW.hr
Roof	1231	1766	3143	5192	5192	kW.hr
Air Leak	2265	3248	5781	9551	9551	kW.hr
Warm up	9485	16154	13464	0	0	kW.hr
Total load	22146	34313	45784	53395	53395	kW.hr
Window gain	13885	15329	24301	24320	24320	kW.hr
Internal gain	1742	2310	4621	5775	5775	kW.hr
Total gain	15627	17639	28922	30095	30095	kW.hr
Useful Passive gain	9282	11461	14661	15849	15849	kW.hr
Annual Heating Total	12864	22852	31123	37546	37546	kW.hr

Heating requirements for 20°C

	Total Annual (kW.hr)	Cost @18c/kw.hr COP=1	Peak load (kW)	Energy Density (W/m ²)
24hr - Continual heating	37546	\$ 6,758	9	33
16 hr - Daytime heating	31123	\$ 5,602	11	41
8hr - Morning and Evening heating	22852	\$ 4,113	16	60
6hr - Evening heating only	12864	\$ 2,316	12	45
24hr - Continual heating - no passive gain with start up	53395	\$ 9,611	13	47
16hr - Daytime heating - no passive gain	45784	\$ 8,241	16	60
8hr - Morning and Evening heating - no passive gain	34313	\$ 6,176	24	90
6hr - Evening heating only - no passive gain	22146	\$ 3,986	21	77