

How Mr Bell could get a B

	SAP	Energy rating	kg CO ₂ /m ²	CO ₂ % reduction	Energy cost (£)	Saving pa	Approximate cost (£)	Payback time (years)	Cumulative savings (£)	Cumulative cost	Cumulative payback (£)
1 Base building	51	E	56.9		656				0	0	
2 Low energy lights (60% cut in energy used)	55	D	54.6	4%	610	46	50	1.1	46	50	1.1
3 Increase loft insulation to 300 mm	61	D	47.4	17%	538	73	150	2.1	119	200	1.7
4 Draughtproofing windows	61	D	46.9	18%	532	6	50	8.5	125	250	2.0
5 Boiler changed to grade A (83% efficiency)	65	D	41.6	27%	480	52	1,500*	29.0	176	1,750	9.9
6 Double glazing to all windows (U-value 2.0)	71	C	34.4	39%	406	75	8,000*	107.4	251	9,750	38.9
7 Internal insulation (Sempatap type)	74	C	30.6	46%	367	39	1,000	25.9	290	10,750	37.1
8 Internal or external 50 mm	79	C	24.7	57%	307	60	3,000	49.7	350	13,750	39.3
9 Ground floor insulation (150 mm)	82	B	19.9	65%	258	48	2,000 **	41.3	398	15,750	39.5
10 Higher spec glazing, (U-value 1.5)	83	B	19.0	67%	249	9	1,500	167.1	407	17,250	42.3
11 Solar water heating	85	B	16.7	71%	226	24	1,500	63.7	431	18,750	43.5
12 PV (1.5 kWp)	91	B	13.1	77%	151	75	7,500	100.3	506	26,250	51.9

As you can see, the house as it is has a SAP rating of 51, which puts it in the E category. It's easy for him to get that to a D: all he has to do is buy low energy lightbulbs. Loft insulation improves the figure by 6% but draughtproofing has minimal effect. After that, changing his boiler gets him to a C. Making further progress is pretty expensive: changing his single-glazed windows to double-glazing saves 6% and internal insulation saves 3%, but he would need to fit external insulation and take up all his

floorboards to make it to a B rating - after that, he'd have to go for new technology, which would bring him to within a whisker of an A rating.

For comparison, a home built today to the current Part L would be between a B and a C. A semi-detached house with cavity walls would have a baseline figure of 45, and a detached house would be 38.

* Already mandatory upon replacement

** Involves lifting floor boards