

Energy Use Test on Home Models to Calculate Kilowatts Saved with Nansulate®



Test Setup:

A prefabricated 1 cm thick concrete panel was used in the construction of this setup.
House size is 125 cm*125 cm*125 cm (4.1 ft x 4.1 ft x 4.1 ft) with a window in front.

One of the houses coated with Nansulate GP inside and outside at a thickness of 100 microns each side.
(4 mils each side, approx. 3 coat coverage)

Sensors are placed in two different locations inside.

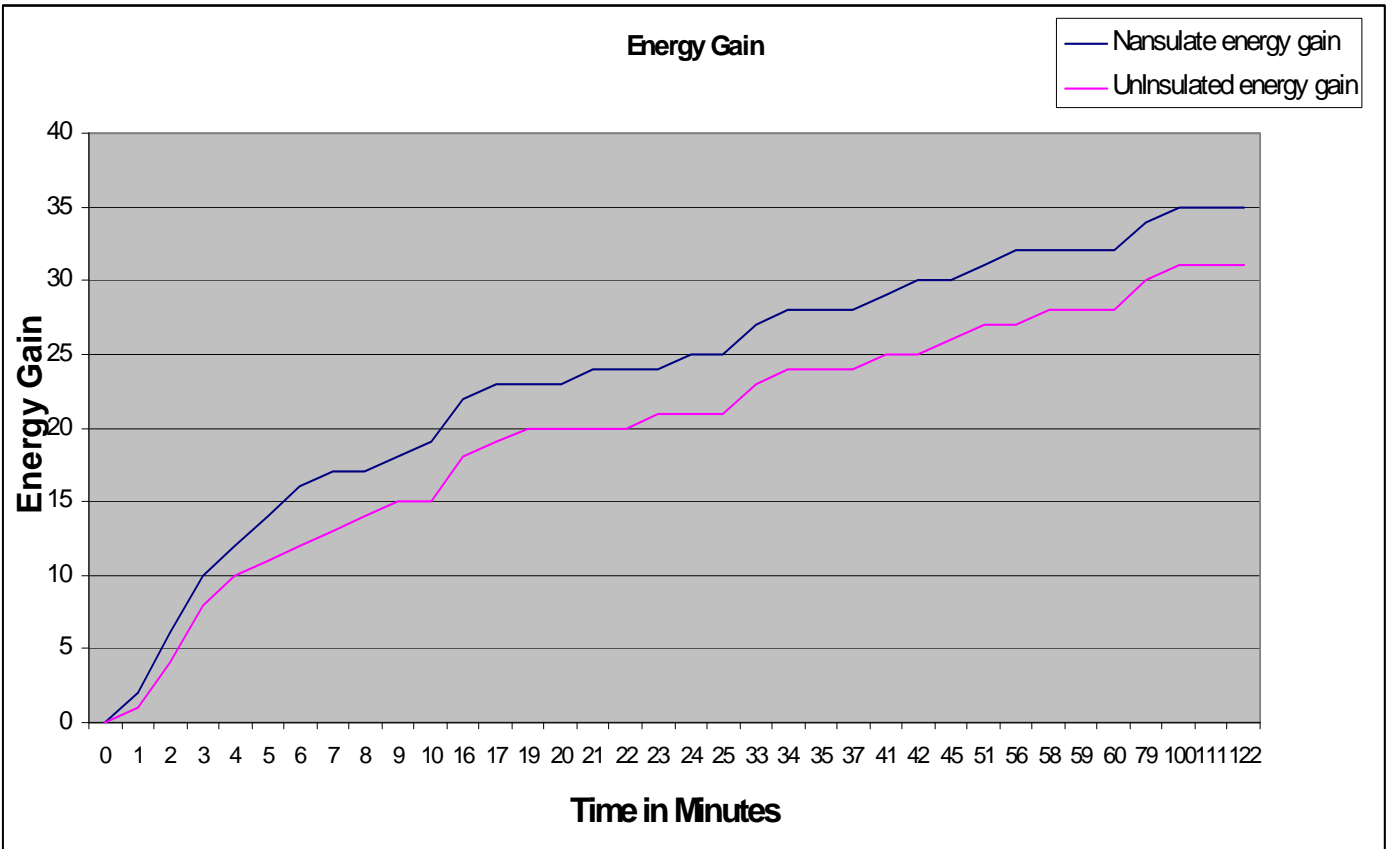
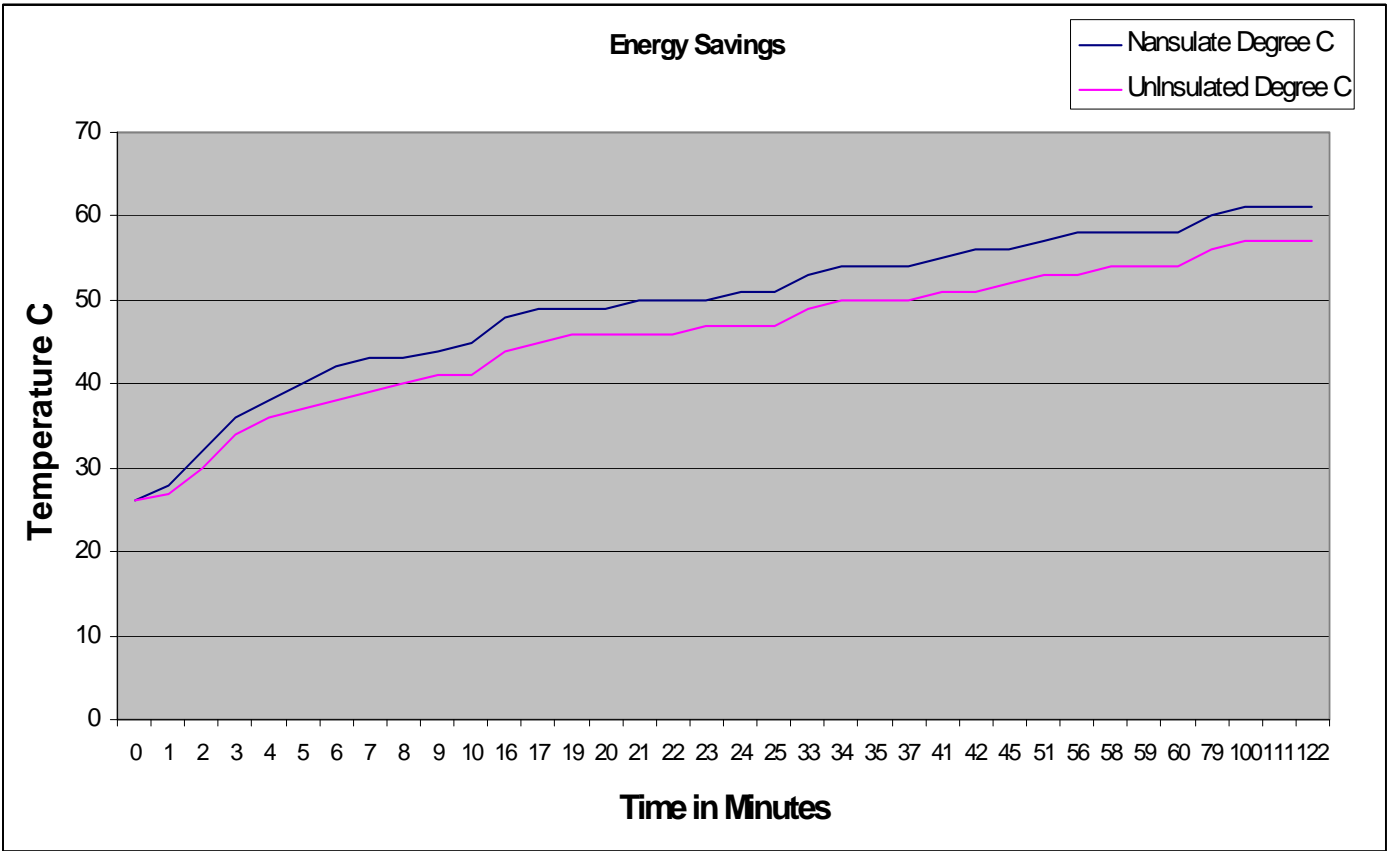
Electrical heating elements of same wattage are used in both demo-houses.

Heaters are placed in the same location.

Electricity consumption is also monitored.

Ambient Temperature is 26 C

Time Minutes	Nansulate Degree C	No- insulation Degree C	Ambient Degree C	Nansulate Energy Gained	No- insulation Energy Gained	Difference in %
0	26	26	26	0	0	
1	28	27	26	2	1	100
2	32	30	26	6	4	50
3	36	34	26	10	8	25
4	38	36	26	12	10	20
5	40	37	26	14	11	27.27272727
6	42	38	26	16	12	33.33333333
7	43	39	26	17	13	30.76923077
8	43	40	26	17	14	21.42857143
9	44	41	26	18	15	20
10	45	41	26	19	15	26.66666667
16	48	44	26	22	18	22.22222222
17	49	45	26	23	19	21.05263158
19	49	46	26	23	20	15
20	49	46	26	23	20	15
21	50	46	26	24	20	20
22	50	46	26	24	20	20
23	50	47	26	24	21	14.28571429
24	51	47	26	25	21	19.04761905
25	51	47	26	25	21	19.04761905
33	53	49	26	27	23	17.39130435
34	54	50	26	28	24	16.66666667
35	54	50	26	28	24	16.66666667
37	54	50	26	28	24	16.66666667
41	55	51	26	29	25	16
42	56	51	26	30	25	20
45	56	52	26	30	26	15.38461538
51	57	53	26	31	27	14.81481481
56	58	53	26	32	27	18.51851852
58	58	54	26	32	28	14.28571429
59	58	54	26	32	28	14.28571429
60	58	54	26	32	28	14.28571429
79	60	56	26	34	30	13.33333333
100	61	57	26	35	31	12.90322581
111	61	57	26	35	31	12.90322581
122	61	57	26	35	31	12.90322581



Notes

1. Nansulate coated house reached 50 C in 21 minutes, whereas the un-insulated one reached 50 C in 34 minutes. 13 minute difference.
2. 13 minute difference corresponds to 38% energy saving.
3. Same experiment repeated with thermostatical control of the heater. The target air temperature was set to 50 C.
4. The temperatures reached were 56 C against 51 C.
5. Second experiment resulted in 5 C higher final temperature in the Nansulate coated house with 30% less electricity.
6. This means energy gains of 30 C against 25 C, an additional 20% difference in energy.
7. Overall, this corresponds to a total energy difference of 42%.

	Nansulate	No-insulation	Ambient	Nansulate	No-insulation	Difference	%Difference
Time	Degree C	Degree C	Degree C	Electricity	Electricity		
Minutes				Consumption	Consumption		
0	26	26	26				
35	56	51	26	547 watt	773 watt	226 watt	29.23673997
Energy Gain	30	25					
Value of Temp difference	0.2						
Total Savings	42.00%						