

INSUboard® savings tool

Savings Tool	BASE CASE	
	Un-insulated Roof	Insulated Roof with 50mm XPS
U-factor	3.226	0.458
Average Exterior Temperature	38	38
Inside Temperature	25	25
Temperature Gradient	13	13
Heat Gain (in BTU)	41.94	5.960
Heat Gain- 12 hours for specified months	120.78	17.16
Energy consumption of HVAC system (kWh per m ²)-specified months	34.34	4.88
Power Cost per annum (per m ²)	377.76	53.69
Savings (per m ²)		324.08
Savings for a 1000 m ² area		Rs. 324,078
Investment in Insulated Roof		Rs. 775,000
Payback (in years)		2.39
Savings over life of the structure (i.e.35 years)		Rs. 11,342,734
Return on Investment per year		41.82%

Other Savings:

A smaller HVAC unit can be installed= upto 30% reduction in
The life of the structure is increased and maintenance is re

XPS Insulation Thickness (mm)	R-value of External	R-value of RCC 150mm
	Air Film	
0mm	0.044	0.103
25mm	0.044	0.103
50mm	0.044	0.103
75mm	0.044	0.103

k=1.25 & 25mm steel

ENTER DESIRED VALUES

Enter Avg Exterior Temp (in °C)	38
Enter Required Interior Temp (in °C)	25
Number of Months of A/C cooling	8
EER of HVAC	12
Electricity Cost/ Unit (Rs/ kWh)	11

Insulated Roof with 75mm XPS
0.325
38
25
13
4.227
12.17
3.46
38.08
339.69
Rs. 339,685
Rs. 901,000
2.65
Rs. 11,888,986
37.70%

in capacity is possible
duced

R-value of PCC 50mm	R-value of Plaster 25mm	R-value of Mosaic Tiles 20mm	R-value of XPS Insulation	R-value of Internal Air Film
0.04	0.0352	0.014	0	0.16
0.04	0.0352	0.014	0.89	0.16
0.04	0.0352	0.014	1.785	0.16
0.04	0.0352	0.014	2.679	0.16

k=1.25

k=0.71

U-value of the roof
2.523977789
0.777484062
0.458463231
0.325182102