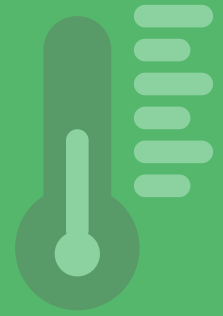# Want to be warm in the winter and cool in the summer?

Insulation can both for you as long as you use the appropriate material. To find this material you need two measures:

Warm in winter

U value: this measures the heat lost through a given thickness of material. You want a low number
or
R value: is also quoted and this measures the ability to block heat transfer. Because it's the opposite of U value you want a high number.

Depending on thickness of material used:

- Wood fibre has a U value of around 0.3 to 0.7
- Hemp has a U value of 0.1 to 0.3
- PIR has a U value of approx. 0.2

U value and R value tell you how good a material will be at keeping you warm in winter.

For more detailed information about insulation materials contact: **Unity**

Cool in summer

To stay cool in summer you need a denser material with high decrement delay. This means that it takes longer for the heat outside to transfer through the wall.

Measured in hours, it's the time taken for the peak temperature inside the building to match the peak temperature outside.

For example:

- Wood fibre board takes 17 hours before the internal temperature matches the peak temperature outside.
- Hemp board takes 15 hours
- PIR insulation board (manmade insulation) takes 3.7 hours.

So to future proof your home, choose materials that keep you warm and cool. This is where nature knows best!

See image on next page ➡

For more information about retrofit and green living, go to my website:
ecorenovationhome.com

Want to be warm in the winter and cool in the summer?

UNITY

Decrement Delay Comparison

At the thickness to acheive a U-Value of 0.015 W/m2.K

Product Name	Material	Form	Thickness	Density kg/m³	Specific Heat Capacity J/(kg.K)	Decrement Delay (Hours)
Isolair Multi *	Wood fibre	Board	280	145	2100	17
Indiboard *	Hemp	Board	253	130	2100	15
Cork Board *	Cork	Board	260	110	1852	13
PIR (0.022)	Polyisocyanurate	Board	149	32	1400	3.7
EPS (0.032)	Polystyrene	Board	208	15	1450	3.5
Pavaflex 0.036 *	Wood fibre	Flexible Batt	247	55	2100	9.9
Indtiherm *	Hemp	Flexible Batt	253	45	2100	9.1
Pavatextil-P *	Denim & Velvet	Flexible Batt	253	20	1600	5.2
Mineral Wool (0.035)	Basalt	Flexible Batt	227	20	830	3.1
Isolena Optimal *	Sheepwool	Roll	250	18	1760	5.1
Glass Wool (0.040)	Glass Wool	Roll	260	15	830	2.7
Blocco Ambiente	Hemp	Block	312	310	1280	24+
Aircrete Block (0.15) *	Aircrete	Block	975	600	1280	24+
Medium Density Block	Concrete	Block	5000+	1500	1280	N/A

*Denotes sustainable/natural insulations

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