



www.lime.org.uk

Tŷ-Mawr

ecological building products
deunyddiau adeiladu ecolegol

insulating plaster



lime hemp

...breathing life into buildings...

Made entirely from **British** ingredients, Tŷ-Mawr's lime hemp plaster is a combination of lime and hemp fibres designed to give **interior walls a lively, textured finish**. At a time when we are all **concerned about the environment**, the lime hemp plaster offers a **sustainable** option- the product uses **renewable hemp plant fibres** instead of the more traditional quarried sand to reduce its environmental impact, when blended with high calcium lime, the result is a plaster that literally **breathes and flexes in harmony with the property** in which it is used. It also improves **the insulation value of walls** and, as it helps to **achieve air tightness**, can greatly improve the **energy efficiency** of your building.

"I think that the Tŷ-Mawr Lime Hemp is the most versatile and labour saving lime based product on the market which makes the use of lime much more affordable and user friendly for everyone." JM, HEREFORDSHIRE



Caring for buildings...Caring for the environment...Caring for health...

Gofalu am adeiladau...Gofalu am yr amgylchedd...Gofalu am iechyd...

lime hemp benefits...strong...in



Hemp crop 4 weeks after planting



Hemp shiv



Ideal for timber frame infill



Courtesy: Lime Repairs

Patching with lime hemp

Tŷ-Mawr's lime hemp plaster is a blend of British **lime (binder)** and **hemp plant fibres/shiv (aggregate)**, to make a plaster which is suitable for **old buildings** as well as **ecological new builds** or those wanting a **unique finish**.

why lime?

- > has been successfully **used** in building for over **4000 years**.
- > helps to **control condensation and damp**, thus creating a **healthier building**.
- > enables **other sustainable building materials to be used** such as wood, straw, woodfibre boards, clay and earth.
- > can be **recycled at the end of its useful life** and will allow **other building components** to potentially be **reclaimed and reused**.
- > is **less damaging** to the environment compared to its modern counterparts.

why hemp fibre?

- > like all plants, the hemp plant **absorbs carbon dioxide** as it grows (which is good for the environment).
- > it is one of the **faster growing** biomasses, producing up to 25 tonnes of dry matter per hectare per year.
- > it is a **low input** plant – it does not require vast amounts of water or pesticides and uses no herbicides to grow, uniquely it also enriches and hence **improves the soil** in which it grows.
- > is now grown in the UK enabling us to produce a fully **British** product.
- > it is **renewable** and therefore does not deplete a finite, natural resource (like sand) and so is more **sustainable**.

why lime hemp plaster?

- > made from a **natural, renewable** plant fibre (instead of depleting a natural aggregate resource).
- > has **greater flexural strength** than traditional lime plasters making it **extremely durable** e.g. it is far more resilient for use on corners, reveals and other vulnerable areas of the building.

- > has some **thermal properties** and can therefore be used to help improve the insulation performance of the wall. It also adds to the thermal mass helping to keep buildings warm in winter and cool in summer.
- > can greatly improve the **airtightness** of old buildings, improving the comfort of the room and offering energy savings.
- > can be applied in much **thicker coats** (single coats can be applied between 10-50mm) than traditional lime plaster therefore is especially useful for 'dubbing out' hollows in walls prior to further plaster coats.
- > is a **successful way of 'patching'** old lime plasters e.g. where electricians/plumbers have been 'chasing out'.
- > is **easier to use** than conventional lime plaster (minimal shrinkage even on high suction backgrounds) offering **labour savings**.
- > is **breathable** and therefore helps to safeguard the functioning and health of the building as well as helping to regulate humidity. This makes it ideal for use in older buildings.

- > is **beautiful** - the coarse/medium plaster gives a soft textured finish otherwise the fine hemp, glaster® or lime finish plaster can be used for a smoother finish.

where?

- > most conventional backgrounds - **stone, brick, block, Tŷ-Mawr wood wool board, woodfibre board, reed mat, reed board and traditional battens/laths**.
- > internally as a plaster which can be left as a **textured finish** or **trowelled smooth**. It can then be left unpainted or painted with a breathable paint.
- > **internally** for **dubbing out** (filling hollows) in the wall prior to plastering (to allow evenness of subsequent coats) or for **patching** old lime plaster.
- > **externally** for **dubbing out** and **base coats** for traditional lime or glaster® top coat render.

insulating...breathable...healthy...

strength

Tests show that the addition of hemp fibres to lime plaster dramatically improves the strength (by more than 300%), this gives it several advantages:

- > it is more robust and hence it is highly suitable for use in vulnerable areas (corners, reveals) within a building
- > it has less 'shrinkage' which means less tending and that it is more suited to patching/repairing existing plaster
- > it also means that no meshing is required (when applied in 10mm plus coats) and no hair is required.



Courtesy: S.Holmes – demonstrating the strength of the plaster!

insulating

The addition of fibre also improves the thermal properties of the plaster hence it is often used as an 'insulating' plaster. The table below shows the improvements that can be made to the thermal value of solid walls, although it will not achieve the same performance as some of the 'boarded' solutions, it does offer some advantages including:

- > less disruption internally
- > easier to achieve air tightness
- > no risk of cold bridging
- > maintains the thermal mass of the wall which helps to even out the temperature internally
- > simplicity and hence far less labour

	Bare Wall	With the addition of 50mm Tŷ-Mawr Lime Hemp plaster internally
300mm Limestone	2.6 W/(m2K)	1.26 W/(m2K)
500mm Limestone	1.9 W/(m2K)	1.07 W/(m2K)
300mm Sandstone	3.33 W/(m2K)	1.41 W/(m2K)
500mm Sandstone	2.58 W/(m2K)	1.26 W/(m2K)
215mm Brick	3.31 W/(m2K)	1.41 W/(m2K)

Please note: these figures are for indication purposes only, you should contact Tŷ-Mawr to undertake an exact u-value calculation for your specific situation. W/(m2K) – Thermal conductivity



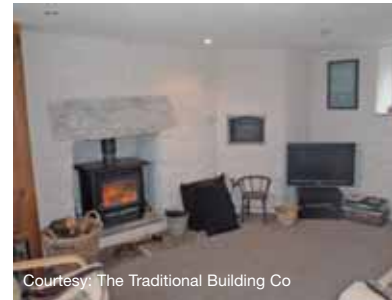
Courtesy: CADW and Capps and Capps

Tretower Court



Courtesy: CADW and Capps and Capps

Tretower Court



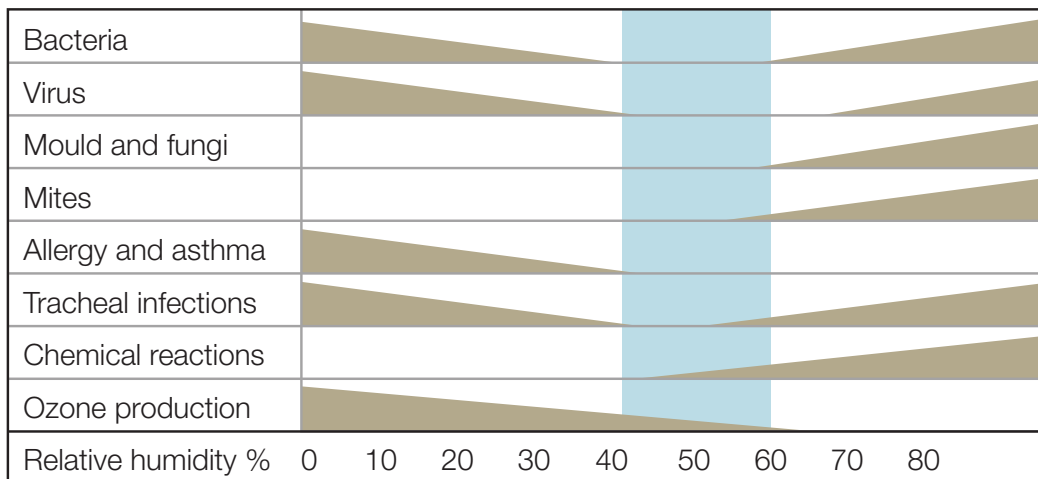
Courtesy: The Traditional Building Co

breathable

Like all lime products, it is breathable which helps to safeguard the functioning and health of the building as well as helping to regulate the humidity which makes for a healthier internal environment (see diagram below).

Table ref: Green Building Bible Volume 1, Green Building Press.

Optimal zone



Buildings that are too dry/too humid create ideal environments for harmful agents to thrive which can have an effect on the occupants, we now understand that lime plasters help to maintain the optimal zone as shown above and so contribute to a healthy home.

Specialist Manufacturer and Distributor of Traditional and Ecological Building Materials and Paints



Courtesy: Lime Repairs

...easy to use...labour saving...



Courtesy: S.Frost

moisture

The hemp fibres in the plaster actually retain a certain amount of moisture which is ideal for assisting carbonation (curing of lime) given the correct environmental conditions, this also means that it is especially useful for use on 'high suction' backgrounds such as blocks where traditional lime plasters might fail.

It is a 'thirsty' product and so is ideal in timber-frame panels as it helps to wick moisture away from the timber, it is therefore used as the 2010 version of daub in wattle and daub infill panels.

ease of application

Tŷ-Mawr's lime hemp plaster is easier to use than traditional lime plaster due to many of the properties highlighted above, it therefore means that significant time savings can be made in actually applying and tending the plaster (although it still needs time to carbonate).

It is supplied ready to use and can be mixed in an ordinary cement mixer. The premixed products offer consistency of mix as well as a cleaner site and minimal waste.

finishing

The coarse/medium plaster gives a textured finish otherwise the fine hemp, glaster® (can be self coloured) or lime finish plaster can be used to give a smoother finish.

It can be left unpainted or painted with a breathable paint (see www.lime.org.uk for a wide range of natural, breathable paints or call 01874 611350 for our paint charts).

Quantity	Approximate Coverage
1 tonne of wet mix	30sqm at 25mm coat
25kg bag of wet mix	0.75sqm at 25mm coat

availability

Tŷ-Mawr lime hemp plaster is available in three grades:

- > **coarse** for base coats and textured top coats
- > **medium** as above but ideal for substrates that require more of a 'finger-hold' e.g. laths
- > **fine** for smoother top coats (still slight texture)

Each of these products are available in 2 premixed forms:

- > non-hydraulic (fat/wet) - which simply requires 'knocking-up' on site in a cement mixer.
- > hydraulic (dry) - which will require water adding to it on site and at least twenty minutes being thoroughly mixed in a cement mixer on site.

All products are available in one tonne bulk bags, the non-hydraulic product is available in 25kg bags and the hydraulic product is available in 20 litre buckets. Please see our website for current prices and availability.

NBSPlus

Contact us for NBS specification clauses.

lime hemp plaster selection

Building Material	Site Type	Suggested Base Coat Levelling Coat	Suggested Top Coat <small>- please note the top coat should not be harder than the base coat</small>
Cob, Rammed Earth,	Internal	Premixed Fat Lime Hemp Plaster (coarse) 1 x 15mm coat	Premixed Fat Lime Hemp Plaster (fine) - 1 x 6mm coat or Premixed Fat Lime Finish Plaster (standard) - 1 x 3mm coat
Lath, Reed Mat, Reed Board	Internal	Premixed Fat Lime Hemp Plaster (medium) 1 x 15mm coat	Premixed Fat Lime Hemp Plaster (fine) - 1 x 6mm coat or Premixed Fat Lime Finish Plaster (standard) - 1 x 3mm coat
Tŷ-Mawr Wood Wool Boards	Internal	Premixed Fat Lime Hemp Plaster (medium) 1 x 10-15mm coat	Premixed Fat Lime Hemp Plaster (fine) - 1 x 6mm coat or Premixed Fat Lime Finish Plaster (standard) - 1 x 3mm coat
	Ceilings Heavy Stress	Premixed Fat Lime Hemp Plaster (medium) 1 x 10-15mm coat (meshed)	Premixed Fat Lime Hemp Plaster (fine) - 1 x 6mm coat or Premixed Fat Lime Finish Plaster (standard) - 1 x 3mm coat as above if required
	Light Stress	Premixed Fat Lime Hemp Plaster (medium) 1 x 10-15mm coat	
Woodfibre Board	Internal	Levelling coat: level background with standard hydraulic lime plaster (min 2 x 10mm), for adhering boards 5mm to back of board	Premixed Fat Lime Hemp Plaster (fine) - 1 x 6mm coat
Soft Stone, Brick	Internal	Premixed Fat Lime Hemp Plaster (medium) 1 x 8-25mm coat*	Premixed Fat Lime Hemp Plaster (fine) - 1 x 6mm coat or Premixed Fat Lime Finish Plaster (standard) - 1 x 3mm coat
Hard Stone, Hard Engineering Brick	Internal	Premixed Fat Lime Hemp Plaster (medium) 1 x 8-10mm coat	Premixed Fat Lime Hemp Plaster (fine) - 1 x 6mm coat or Premixed Fat Lime Finish Plaster (standard) - 1 x 3mm coat
Concrete Blocks Insulation Blocks*	Internal	Premixed Fat Lime Hemp Plaster (medium) 1 x 8-15mm coat*	Premixed Fat Lime Hemp Plaster (fine) - 1 x 6mm coat or Premixed Fat Lime Finish Plaster (standard) 1 x 3mm coat

It is possible to use lime hemp plaster for exterior use, provided the right protection, detailing and curing times are observed.

*Insulation blocks have very high suction, be careful to control the suction.

*Depending on suction

*Could be greater on well keyed, high suction backgrounds.



version 1/2010

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For further information on any product or system in this leaflet or to keep up with developments at Tŷ-Mawr, please visit our website www.lime.org.uk and register for regular updates!

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