

Tradical® Hemcrete® Toolbox Talk for Shuttered Walls

Materials

Tradical® Hemcrete® is a blend of Tradical® HB (hemp binder) and Tradical® HF (hemp filler - the fragmented internal part of the hemp stalk).

Timber Frame

The timber frame should be designed to support the load from the upper floors and roof. This would normally require the services of an Engineer or timber framing specialist. A typical domestic timber frame would use 50 x 100mm studs at 400mm centres. Attention must be paid to the junction between wood-hemp in the case of a visible external frame. Other types of frame may be used, but require an adapted design.

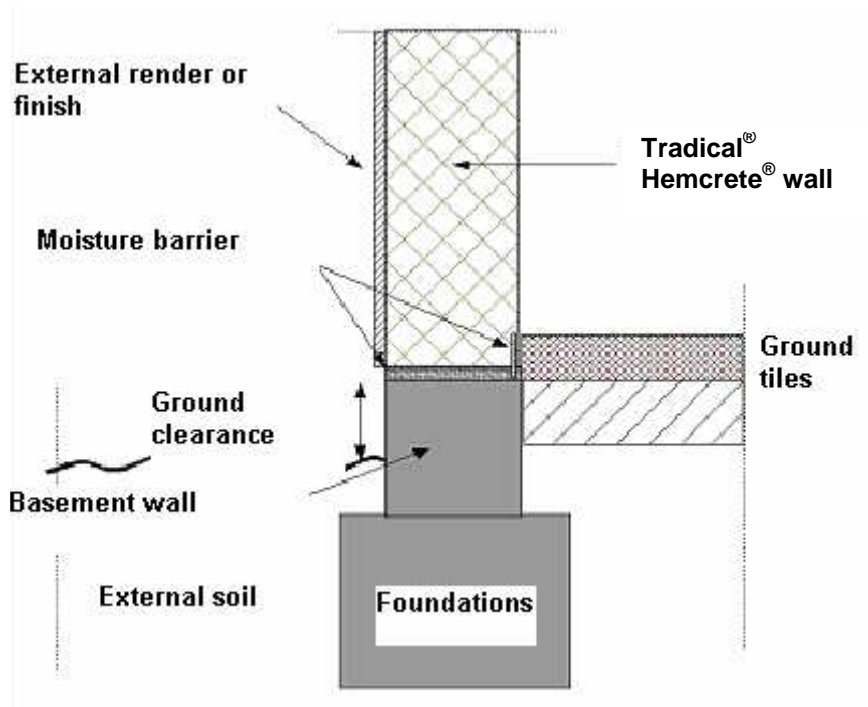
Storage and Handling

Tradical® HB and Tradical® HF should be stored in cool dry conditions. See data sheet for more information.

Health and Safety

Tradical® HB should be treated in the same way as any other lime or cement based binder. Gloves, goggles and masks should be provided to users. (See full data sheet for further details.) Tradical® HF is a non hazardous material. (See full data sheet for further details.)

Foundations



It may be possible to use simple lightweight foundations with Tradical® Hemcrete® walls. Seek advice from your structural engineer.

Mixing

Hemp concrete can be manufactured on site with a concrete mixer or pan mixing machine.

Mixing is best done in a pan mixer. A slow speed of rotation is recommended:

- › Add the Tradical® HF followed by the Tradical® HB in the ratio of 1 bale of HF to 2 bags of HB.

- › Allow the dry ingredients to mix.

- › Add approximately 60 litres of water and allow the material to mix for about 2 to 5 minutes until thoroughly mixed.

- › If you are using a drum mixer, then the mixes will tend to be smaller and have to be gauged with buckets.

- › Use 3 buckets of HF to 1 bucket of HB with about one bucket of water.

- › Using a dustbin lid to seal the drum mixer can help reduce the dust during the dry mixing stage. Alternatively adding most of the water to the HB first, before adding the HF can help to reduce the dust.

- › Vary the water to suit the conditions, weather and time delay before the placing. The hemp is absorbent so the mix will dry out if it is left to stand.

- › In all cases, the aim is to obtain a homogeneous mixture in order to produce an aerated concrete in which the particles of hemp are well covered by the binder, avoiding the formation of “pellets”.

- › Do not use material that has been mixed for more than 6 hours.

Placing

After mixing, the Tradical® Hemcrete® is tipped into the shuttering and levelled to form a 300mm thick layer. This then lightly tamped before the next layer is tipped in. Simple pieces of wood are ideal for tamping.

We recommend making a small trial section to establish the level of tamping required. 1 bale of HF mixed with 2 bags of HB should fill 200 litres at the target density. A plywood box of 0.5m x 0.5m x 0.8m will be ideal as a 200 litre test box.

Striking Shuttering

The shuttering can be removed the following day and the spacer holes filled with Tradical® Hemcrete®. The shutter panels are removed by sliding them sideways. In order to encourage drying, they must be removed as soon as possible.

Day Joints

We recommend that walls do not have vertical day joints. To avoid this you should work up to the side of openings. Horizontal day joints should be lightly wetted before the application of more Hemcrete.

Openings

It is very easy to form openings in Tradical® Hemcrete®. They are simply created in the shuttering.

Shuttering

Plywood is often used as shuttering. This should be oiled first with vegetable oil, or lined with polythene to allow for easy release. The shuttering should be constructed accurately and where spaced away from the timber frame, hollow tubular spacers (water pipe or similar) will allow the shutter to be screwed to the frame at an exact distance. The Tradical® Hemcrete® is lightweight so the shuttering can be less robust than for conventional concrete.

In some instances permanent shuttering may be used to form the final finish to the wall e.g. timber cladding. If using permanent shuttering, the panels used must be clean and must allow the external wall to meet the statutory requirements of flatness for applying render. We recommend the use of a breathable membrane between the Tradical® Hemcrete® and the timber cladding.

Service Penetrations

Service penetrations in buildings are a source of air leakage and heat loss. We recommend that the Tradical® Hemcrete® is cast around any service penetrations to avoid air leakage.

Curing, Protection and Aftercare

After removal of the shuttering the Tradical® Hemcrete® should be protected against the extremes of the weather (frost, rain, snow and drying winds). In moderate weather no protection will be required. Building with Tradical® Hemcrete® should not take place at temperatures below 5 degrees centigrade.



Alterations

Tradical® Hemcrete® is very easy to alter if changes are necessary. Within the first 6 hours, it can be simply dug out, the shuttering altered and then recast. If the Tradical® Hemcrete® has set (even years later) it can simply be cut out with simple hand or power tools. Take care to avoid any concealed services. Take advice about the structural implications of any alterations.

Membranes

Tradical® Hemcrete® is a fully breathing wall system. It is important not to use impermeable membranes. Breathing membranes may be used as separation layers such as against timber cladding.

Suitable Finishes

Tradical® Hemcrete® is normally finished with a lime render on the outside and a lime plaster on the inside. However as long as the finishes are vapour permeable, a number of options can be considered to suit the style of the development. In all cases, external walls in Tradical® Hemcrete® must have a protective covering on the external face, these include:

- › Timber cladding, with a breathable membrane and/or a ventilated air gap separating the two.
- › Tile, slate or shingle hanging, with a breathable membrane and/or a ventilated air gap separating the two.
- › Brick or stone facing, laid in lime mortar.
- › Mathematical tiles.

Rendering/Plastering

The Tradical® Hemcrete® should be allowed to dry out for 28 days (under typical conditions) before the application of the render or plaster. Use lime based plasters or renders in accordance with the instructions provided.

Paint Finishes

It is important that vapour permeable paint finishes are used with Tradical® Hemcrete®. The main options are:

Internal	External
Play paint	Lime wash
Soft distemper	Silicate mineral paint
Contract emulsion	
Lime wash	

Vapour impermeable finishes must not be used.

Fixings

It is possible to fix into Tradical® Hemcrete® with a range of proprietary fixings (see data sheet for exact figures on strength of fixings). We recommend that heavy items (radiators, kitchen fittings, etc.) should be fixed back to the timber frame. The frame should be shown on a working drawing in the CDM file.