

Tradical[®] Hemcrete[®]

Casting Walls

Method Sheet

1. Preparation of shuttering

Geo-panel, plywood or OSB sheets are often used as shuttering. The shuttering should be constructed accurately and where spaced away from the timber frame, inserted spacers will allow the shutter to be screwed to the frame at an exact distance. The Hemcrete[®] is lightweight so the shuttering can be less robust than for concrete. Proprietary light-weight shuttering systems can also be used to improve the speed of construction. If re-useable shuttering is used, the panels used must be clean and must allow the external wall to meet the requirements for applying any plaster or render.

Permanent shuttering may be used to form the final finish to the wall e.g. a render carrier or timber cladding externally. We recommend the use of a breathable membrane between the Hemcrete[®] and the timber cladding.

2. Mixing

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 1.5 bags of HB.
- Allow the dry ingredients to mix.
- Add approximately 50 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 4 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 Hemcrete[®] in which the particles of hemp are well covered by the binder, avoiding the formation of “pellets” or “balls”.
- Do not use material that has been mixed for more than 6 hours (It can be added to new mixes at the rate of 10% per mix)

High humidity levels and low temperatures can delay curing times.

3. Placing

After mixing, the Hemcrete[®] is tipped or pumped into the shuttering and levelled to form a 200 to 300mm thick layer; this is 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 (carry out density check or material reconciliation).

4. Removal of temporary shuttering

The shuttering can be removed the following day and any spacer holes filled with Hemcrete[®]. The shutter panels are removed by sliding them sideways. In order to encourage drying, they must be removed as soon as possible, except in cold weather as they will provide protection from frost.

After removal of the shuttering the 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 Hemcrete[®] should not take place at temperatures below 5°C.

5. Day Joints

We recommend that vertical day joints are avoided or minimised. 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®.

6. Openings, penetrations and alterations

It is very easy to form openings in Hemcrete®. They are simply created in the shuttering. Service penetrations in buildings are a source of air leakage and heat loss. We recommend that the Hemcrete® is cast around any service penetrations to avoid air leakage. 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 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.

7. Rendering and plastering

The Hemcrete® should be allowed to dry out for 28 days (under typical conditions) before the application of the render or plaster. Use Limetec®/Baumit® plasters or renders in accordance with the approved detail:

7.1 External Render

Limetec Fibrous Lightweight Render FL 68 – 15mm thick as a basecoat, rule flat, grid float and leave to dry. Then apply Limetec Coloured Render Topcoat KRP - 10mm thick scratch back to 8mm or Limetec Decorative Roughcast Finish SEP.

7.2 Internal Plaster

Limetec/Baumit RK38 - basecoat 10mm thick, rule flat, grid float and leave to dry. Then either Limetec Internal Plaster Finish KG 30 – topcoat 2-3mm thick – smooth float finish or Limetec Decorative Textured Finish SEP 01.

If using an internal lining/shuttering board the following options exist:-

9mm Multi-pro XS LT board with 3mm Baumit KG30 lime plaster finish.

15mm Heraklith board with 10mm Baumit RK38 (fully meshed) with a 3mm finish coat of either RK38, RK70 or KG30 depending on the finish required.

7.3 Other finishes

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 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.

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. If an impermeable external finish is required, it must be separated from the Hemcrete® by an appropriate ventilated cavity.