

Limecrete

Limecrete is a modern interpretation of a traditional lime-ash floor that can still be seen in many historic or well preserved older homes. Limecrete can be used to create an alternative to a concrete floor. It is vital to have an alternative option for a traditionally built house as an impervious, non flexible cement floor may create problems with dampness being forced into the walls at ground level which can result in poor insulation, mould growth with associated health problems and even structural damage.

Lime-ash floors were originally made with lime putty and lots of a pozzolanic additive to provide a hydraulic and hard set. Although very effective, this method needs a very long time to harden and carbonate. A Limecrete floor is made using a natural hydraulic lime (NHL) powder that sets much quicker and potentially harder than the lime-ash floor. A mixture of NHL5 and well graded aggregates can be used to create the limecrete slab but it is also possible to introduce breathable insulation and even underfloor heating.

Mike Wye & Associates Ltd offer an option for an insulated floor using a clay aggregate, this can be incorporated into the slab as insulation rather than just using sand. In it's coated form it can be used as an effective loosefill material below the slab to help prevent capillary action pulling moisture from the ground.



The Screed is normally 25 - 50mm thick; if you are laying underfloor heating then the screed will need to be 75mm thick.

For standard domestic use the limecrete slab is 100mm thick

The loosefill is the main insulation layer, the thicker it is then the more insulated the floor is, usually approx 250mm thick

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Method Statement

Step 1 – The Preparation

The first stage is to dig down to the depth required, when excavating it is essential to avoid undermining the foundations. Once you have got to the required depth you will need to level and compact the area. In some cases when the base is still rough you will need to lay a blinding layer of sand to avoid damage to the geotextile membrane.

Step 2 – Geotextile Membrane

After the preparation you then need to lay the first layer of membrane. The geotextile membrane separates the clay insulation loosefill from the earth / sand and it also helps to reduce capillary action. The membrane needs to be laid across the floor, so that it overlaps, and folded up against the wall so that it can contain the loosefill.

Step 3 – Loosefill

The Loosefill layer is made up of 20-10mm Coated clay aggregate, this layer gives the majority of the insulation to the floor. The clay aggregate is coated with a soap to help reduce capillary action. This layer is spread out and levelled, it is essential that the clay aggregate isn't crushed, if it is then the fine particles will encourage capillary action.



Step 4 – Geotextile Membrane

Once the loosefill has been levelled then the second layer of geotextile membrane is laid over it. Please note that when laying the membrane you will need to use boards to walk across the loosefill.

Step 5 – The Slab

The slab is a mixture of 0-20mm uncoated clay aggregate and NHL5, it is mixed at 3:1 (Aggregate : NHL) and then gently compacted to form the slab. The slab is usually laid at 100mm thick. The left side of the picture shows the compacted slab, the compaction reduces it by approx 10%. If you did not want an insulated slab then you could use sand instead of the clay aggregate.



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Curing:

The drying times of the slab varies due to the humidity, using Hanson NHL you can walk on it using boards after approx 24 - 48 hours. In certain conditions you may need to lightly mist the slab so that it does not dry out too quickly.

Step 6 – The Screed

Once the slab has been left to cure for approx 7 - 14 days then the screed can be laid. This is the final layer of a limecrete floor; it is mixed at a 2:1 ratio (Sand: NHL) the screed can be used for a variety of things: The standard thickness is 50mm, but if you have underfloor heating then it will need to be 75mm thick. In addition you can use this layer as a bedding mortar for tiles; in this situation you will only need a 25mm thick layer.



The curing times and requirements of the screed are as per the slab. In addition if you have installed underfloor heating you cannot use it for a minimum of 4 weeks.

Please note that as this floor is breathable you should not apply any finish to it that will hinder the flow of moisture, e.g. applying an acrylic based tile adhesive.