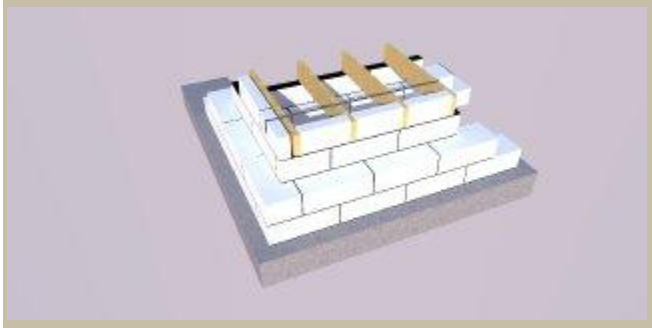
FLOOR CONSTRUCTION

Concrete or Timber Floor?

There are 2 types of floor construction used in construction today; these can be classed as either **Suspended** or **Solid**. Solid floors are a lot more substantial and require the ground to be made up in layers of ground sub base, sand, compacted hard core, damp proof membrane, insulation and concrete. Suspended floors are normally made up of 2 materials, either timber joists or a concrete beam system. There are quite a lot of variations on these types of floor, mainly depending on what use you intend for that floor area and the floor finish. In recent years the use of suspended concrete floors has become common place normally in the commercial sector, but to a lesser degree, even in upper floors of domestic dwellings. So we will discuss Concrete or Timber floor systems.

Type 1: Suspended Floors

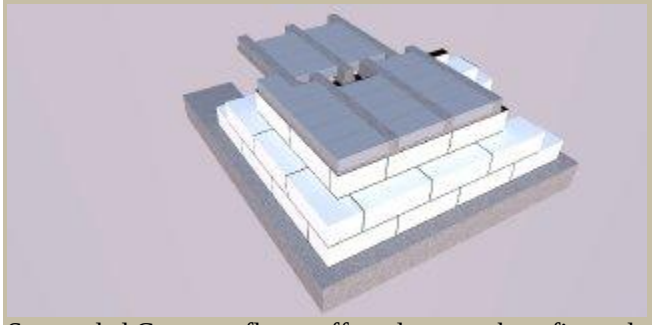


Suspended timber floors are normally made up of timber joists suspended from bearing walls, which are then covered with either floor boards or high quality sheets of tongue and groove. To a degree this type of floor can give more comfort when your intention is to carpet the floor, when the floor is well insulated these can create a degree of sound proofing when used in upper floors. Timber floors will deteriorate more readily and in time the boards often come a little loose and will start to get a few squeaks and creaks.

Another problem sometimes associated with this type of floor is drafts, a requirement of all suspended floors is that they have a constant flow of fresh air brought in by the placement of air bricks within the exterior wall and internal walls is required to provide a good air flow under the floor. A way to avoid drafts is to install a Airtight Breather Membrane, which will allow the free flow of moisture to the ground, but will maintain and airitight seal, thus preventing drafts.

Modern centrally heated homes will cause the flooring to expand and contract and when used in conjunction with tongue and groove sheets of chip board, access to any pipes or cable will create a little more work.

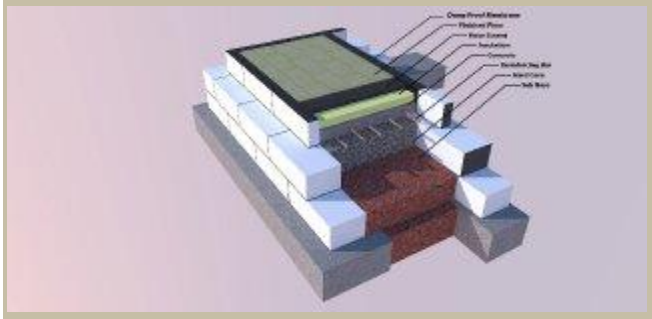
Suspended Concrete floors



Suspended Concrete floors offer a lot more benefits and are normally made up of either concrete beams (more commonly known as Bison Beams) or concrete planks, both of these systems require a lot of handling and experienced professionals when being fitted. Depending on ground conditions, these types of walls will require more support walls in your foundations and a closer eye on the details. Both of these flooring systems can be insulated and will offer greater sound proofing when installed correctly.

Suspended concrete floor systems are also suitable when your intention is to use a floor tile, as there is no movement and will prevent any cracking because of movement. These types of floors are alot more expensive, but the benefits for the future are greater as there will be little or no maintenance. Another advantage of a suspended floor is that in some circumstances where your property is on a sloping site, using a solid floor can be very expensive as the walls to support the ground underneath would be very substantial and in turn, expensive.

Type 2: Solid Floor



Solid concrete floors can have some benefits over a suspended floor because of low maintenance in the future and less prone to movement. They are normally up of different layers of materials which include:

• Sub Base
• Compacted Hard-core
• Concrete
• Insulation
• Damp Proof Membrane
• Cement Based Floor Screed

There are some variances in the order depending on the ground conditions which your builder can detail. All the layers must have great care taken to make sure they are installed correctly or you could find the floor will move or have damp issues in the future.

Sub base

This can be building rubble or other loose stone based material, make sure it is well compacted and no voids.

Hard Core

This material should be purchased to make sure it contains the right amount of stone and sand, probably a norm would be 20mm to dust, this will help greatly when compacted and create a solid base for the above layers.

Concrete

This layer should be very level and contain a moderately strong concrete mixture, At all times you should be checking the levels to make sure you allow enough height above for the next few layers, this can be achieved by marking it on the wall from an existing FFL (finished floor level). If you are going to put your DPM (damp proof membrane) on this layer then make sure the surface is smooth to avoid puncturing the membrane.

Damp Proof Membrane

You should choose a high gauge of membrane, possibly 1000 or 1200 grade and should be laid with great care, which ever make up of the floor you choose, great care should be taken not to puncture it when installing. If you intend to install on the hard core level, then you should introduce a thin layer of sand will remove the chance of it getting punctured. Always make sure you have enough to allow lapping up the wall above FFL and that if joints are required, you overlap them by at least 200mm and seal them with a good quality waterproof tape.

Insulation

This is very important in today`s energy efficient society and come in many different shapes and sizes, these can even be purchased with a tongue and groove system. All insulation is widely available and your builder or local builders merchant should be able to advise you on the exact product you require.

Screed

Sand and Cement screed should not be laid to thin, being made up of 3 parts sand – 1 part Portland cement, normally the introduction of PVA bonding agent should be used if screed directly onto concrete. I would suggest a professional doing this layer as it has to be of the right consistency, exactly level and not to dry so that the floor powders. If you get a dusty finish and intent to use floor tiles, then you will have to use a self- levelling compound or your tiles will just not adhere to the surface.

Curing Time

You should try to avoid walking on your finished floor for at least a week or you will start to make the surface dusty. The floor should be given as long as possible to completely dry out if you intend to put a impermeable floor covering on it as, this will stop the floor from drying. Your DPM can be cut off and tucked up behind the skirting board.

Conclusion

I have written about 3 flooring systems in this article and which you choose will dependant on many things including, cost, ground conditions and if it is in an old or new dwelling. There are many many variances to these types of floors and as always you should consult your local building professional who can advise you on which system is best situated to your project.