Installation Instructions to BEKA Mats as Floor Heating

1. General Remarks

The BEKA floor heating system can be installed onto nearly any carrying surface.

The floor must be constructed according to the valid standards for impact sound- and heat insulation and must be able to carry the required traffic loads.

-> Remarks to the Building Specifications are found in B08 „Questions before construction of BEKA-floor heating„

In contrary to other floor heating systems the BEKA floor heating is not embedded into the load carrying concrete. The capillaries are laid on top of an already load carrying base and is only covered with a thin covering-layer and with the desired floor coverings. The appropriate floor covering must be chosen according to the existing floor base. The application should be done according to the manufacturer's working directions. Basically, the thickness of the layer should only be as thick as necessary.
The thickness is influencing the reaction-time of the BEKA floor heating (little thickness of layer = quick reaction !).
The supply lines and the collector pipes of the mats are commonly laid in wall slots or hidden channels in the floor.

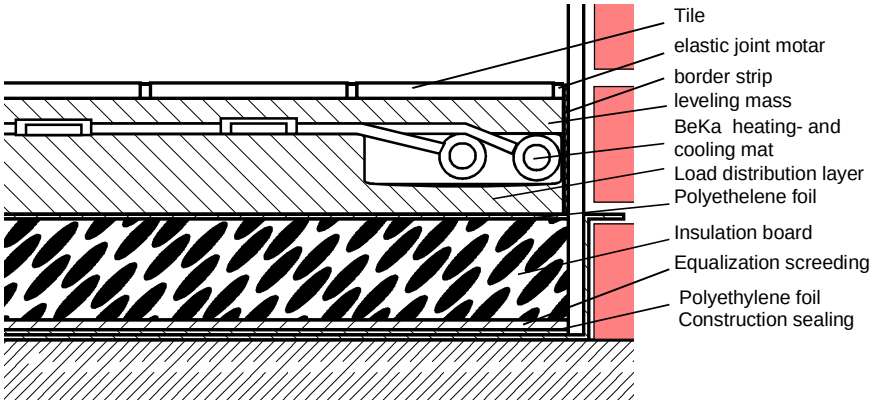
Before starting to work, a layout pattern must be prepared as work basis. All mats with their measurements , the direction they are laid and the supply lines must be indicated

In the layout pattern also all areas must be indicated which must be kept free of tube mats, for instance where internal walls will be put up. Areas for closets and permanently fixed furniture should not be covered with tube mats, because heating is not required at these areas. For the application of the BEKA mats for floor heating the mats must be fixed to the raw floor temporarily until the load distributing layer has been brought in. For this the BEKA heating- and cooling mats can be supplied with butyl adhesive-strip. After removal of the protective tape from the butyl strips, the mats can simply be positioned on the raw floor. On a dry screed floor base, the mats can also be tacked-on.

2. Arrangement of the Connecting Lines and Collector Pipes.

For a new construction of the floor, the collector and the supply pipes can be laid in hidden channels. These channels are simply integrated into load distributing layer (temporarily wooden (roof)batten are laid-out). After the concrete is solid, they can be removed and channels had been created.

Illustration 1: Cross-section of floor with the layout of collecting pipes in the floor channels

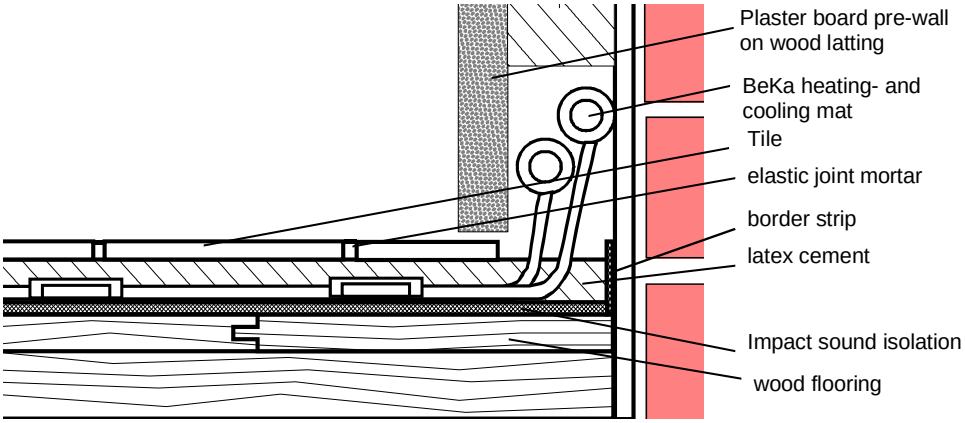


If chipboards are used for the load-distributing layer, two layers should be chosen. At places where channels have to be formed, then one layer is simply omitted.

The carrying capacity of the load-distributing layer will be recovered again, when the channels are poured with levelling compound.

In renovation cases, it is possible to make free-cuts in the floorboard in longitudinal direction of the beams. In these cases the carrying capacity must be restored again with an appropriate wood sub-construction.

Illustr. 2: Arrangement of the collector pipes behind the cover-wall



The collector pipes and the connection lines can also be laid in wall slots. Before the chiselling work is started, it is necessary to check if the stability of the wall construction is sufficient. If the stability of the wall is not strong enough, slots can be created by addition of a cover (plasterboards on lathing).

3. Installation Steps

Take BEKA mats out of packaging and roll-out on a flat and clean surface, to keep them down apply some (flat) weights at the loop-ribbon side. The mats can stack up to 15 on top of each other. Before further work, the mats should rest for one day for stress relieving.

1. Preparation of the raw floor
- Smoothen unevenness
- Apply priming
- Make plan for arrangement of mats at the floor.
- Fix clamps for fastening of supply lines and for the collector

2. Connect and pressure test BEKA mats to the waterside.
- Install supply lines.
- Connect BEKA mats to the supply lines (see → M02 – Instructions for thermal welding of plastic materials)
- Pressure test of the completely installed system. (see → M07 – Test instruction for BEKA heating- and cooling systems)
- Setting to idle pressure to 3 bar (the mats will remain under idle pressure during the total time of installation until start of operation!)

3. Fastening of mats to the raw floor
- Fastening of the BEKA mats on the load distributing layer with means of:

Butyl adhesive tape
Plug-type dowel double clamps (Supplier: Hilti – Type: EDD 4-12)
Tack with non-corrosives staples (use only in conjunction with application on dry-screed floor base!) The staples are positioned above braces of the spacer-ribbon. The tucker application strength and length of staples chosen should be fit to hold the mats firmly in place, the spacers length's though should not be damaged.

- Alignment of the mats, and stretching of the capillary tubes.

4. Apply covering layer and smoothen. (observe manufacturer's advices!)
- Apply self-levelling equalisation compound – watch for minimal thickness, normally 10 to 15 mm .
- In case capillaries are damaged, repair at once by closing tube ends with soldering iron, or if required replace damaged mat. →TI.M01