

# Embedding in screed with LK System Board 30

## DESIGN

LK Under Floor Heating may be fitted using LK System Board 30 for embedding in screed constructions. The system boards are made of EPS closed cell expanded polystyrene and shaped so that the laying of the under floor heating pipe can be adapted to the heat requirements of the building. The design allows the under floor heating pipe to be embedded in screed, while also being protected from contact with the reinforcement. The system board provides 30 mm additional insulation.

## REQUIREMENTS

We recommend that to achieve optimum efficiency of the under floor heating system the use of weather dependent (weather compensation) flow temperature control, properly set and balanced in line with the design for adjustment of the primary and loop flow. We also recommend the settings are recorded for future reference.

## CONSTRUCTION OUTLINE

### 1. Insulation / Concrete floor

Total insulation thickness must be designed to take account of under floor heating needs. The compressive strength shall be designed taking into account of the house load. A "rule of thumb" for a normal house with a so-called slab on ground is that the thickness of insulation should be at least 250 mm and compressive strength of min. S100.

### 2. LK System Board 30

Insulation thickness: 30 mm.

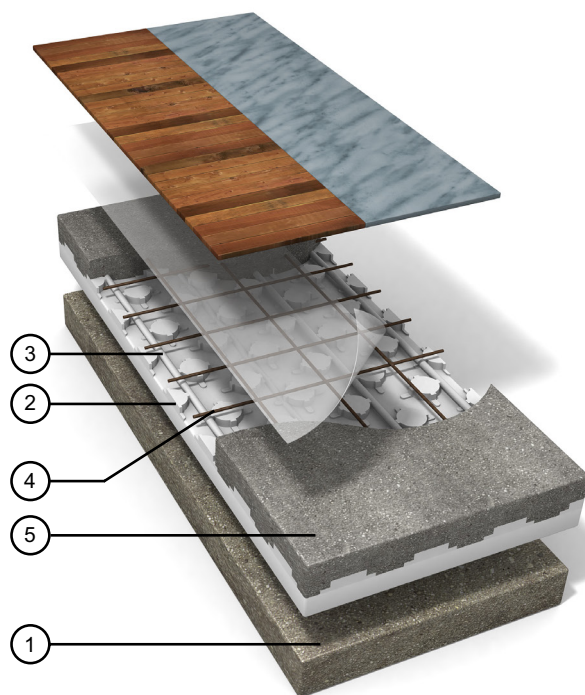
Total height: 60 mm.

### 3. LK Universal Pipe dim. 16 mm

### 4. Reinforcement

### 5. Concrete/screed

70 mm screed depth is recommended to allow proper function of the under floor heating, i.e. in order to achieve the most even surface temperature possible (approx. 45 mm required above the pipe). The minimum acceptable depth of screed is 55 mm (i.e. 30 mm above the pipe). Construction height incl. system plate 30 and excl. floor covering is at least 85 mm.



House foundation slab shall be designed taking into account the load of the house in accordance with EN 206-1. A "rule of thumb" for a normal house with a so-called slab on ground is that the concrete strength class must be at least C20/25.

## SURFACE LAYER

### Parquet, solid wood or laminated floor

Concrete surfaces are covered with a vapour barrier (DPM) and then with rag paper or cellfoam. The flooring should be installed in line with manufacturer's instructions. Always consult LK for floor thicknesses above 25 mm.

### Vinyl or linoleum flooring

Are laid according to the supplier's instructions.

### Ceramics or natural stone

Are laid according to the supplier's instructions. In wet areas the sealing layer should be assembled in accordance with the supplier and local valid requirements.

## DRYING OUT THE CONCRETE SCREED

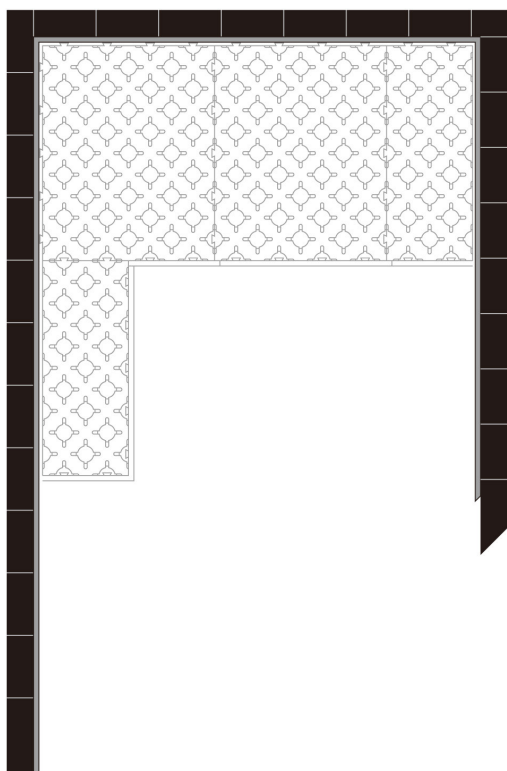
It is extremely important that the concrete screed is sufficiently dried out before the floor covering is applied. RH measurement must be carried out in accordance with local building codes. The drying out time may be shortened by using the installed under floor heater. The supplyline temperature should in this case be kept around 5 °C higher than the actual temperature of the concrete screed, though no higher than 30 °C. Remember to take into consideration the curing time of the concrete or screed before using this method.

## LK HEATING CIRCUIT MANIFOLD

The LK Heating Circuit Manifold must be installed as shown in the design drawing. Please read the instructions enclosed with the manifold first.

## LAYING PROCEDURE, SYSTEM BOARDS

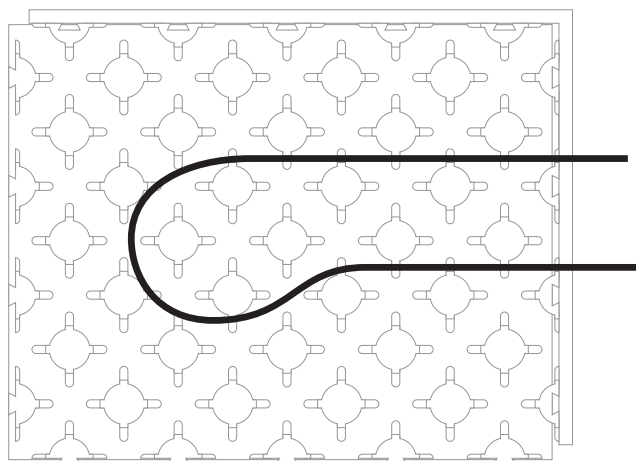
LK System Boards should be laid out from left to right according to the overall view. The boards have a joint system, consisting of overlapping locking edges. Start each subsequent row with the piece that was cut off at the end of the preceding row. This enables you to achieve a staggering of the joints as the floor is laid.



## LAYING THE PIPE

Lay the under floor heating pipe out according to the layout drawing. Using LK Pipe Decoiler aids pipe laying. Ensure the direction of flow in the loop is such that the supply line is closest to the outer wall. The pipe is mounted 50-100 mm from the inside of the outer wall. Number and name the loops according to the drawing. The drawing probably shows various pipe distances in various spaces. An 'edge zone' may also be necessary, e.g. if there are large window areas. It is very important to note differences in the pipe distances on installation.

A 180° pipe loop bend should be formed as shown in the diagram. This locks the pipe in place. If the pipe should slip out of place due to tension, use an LK Pipe Holder, which is fixed down "angled" in one or more of the castellations the pipe is wedged against.



In cases with edge reinforcement, the pipe is fixed to the reinforcement mesh using plastic cable ties. Pipes should be cut using pipe shears intended for PE-X.

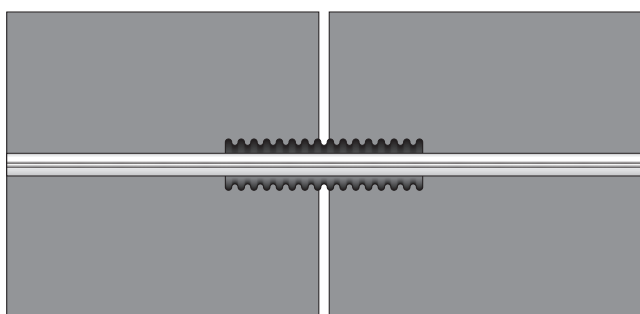
## EDGE INSULATION

When pouring concrete up to existing walls/sleepers/pillars/ edge insulation strips must be used. The edge insulation absorbs the movements of the concrete and has a heat insulating effect.



## EXPANSION AREAS

Large areas become "expansion areas". A under floor heating loop must be laid within the same expansion area without touching a neighboring area. Only supply and return lines may cross the expansion joint these are then protected by a protective pipe such as LK Conduit. Total length of the conduit should be at least 400 mm and placed centrally, i.e. 200 mm conduit on each side of the expansion joint. This will eliminate the risk of damages that can occur during expansion movement between the concrete slabs.



## OUTLINE SECTION - LK SYSTEM BOARD 30

