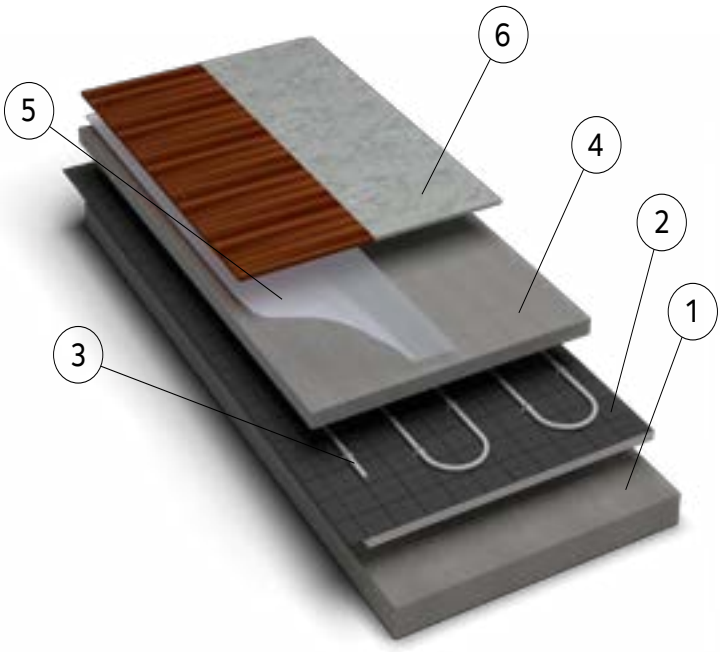
On load-bearing floors with LK Foil Board Silent

Design

LK Underfloor heating together with LK Foil Board Silent for floating placement on loadbearing floor construction in dry spaces. The system is built with a 30 mm or 50 mm thick insulation board in EPS with step sound-absorbing properties for intermediate concrete floors. The boards are equipped with a foil with a grid pattern for easy installation of underfloor heating pipes together with LK Staple Gun 3D Premium.



Requirements

A requirement for the proper functioning of the underfloor heating system is weather compensation control of the supply line temperature and a correctly implemented and documented balancing of the primary and secondary flows.

The boards should be placed on a load-bearing floor construction.

Generally, instructions apply in accordance with the Swedish Hus-AMA and the appointed constructor/quality tester.

Construction principle

1. Load-bearing floor construction

2. LK Foil Board Silent

Insulation board of EPS, 2000 x 1000 x 30 mm alt 2000 x 1000 x 50 mm with grid pattern in foil for laying underfloor heating pipes c/c 200 or c/c 300 mm.

3. LK Universal Pipe dim. 16 mm, alt 20 mm

The pipe is fixed to the foil board using LK Staple Gun 3D Premium and LK Staples 3D Premium 30 mm.

4. Floor screed

5. Vapour barrier in accordance with floor manufacturer's instructions and cell foam / rag board

6. Surface layer

Surface layer

Parquet- or laminate flooring

The concrete surface layer is covered with a vapour barrier (ageing resistant plastic) followed by rag board or cell foam. The flooring is then fitted in accordance with the floor supplier's instructions and for wooden floor taking into account GBR guidelines for wood flooring on underfloor heating. Always consult LK for floor thicknesses above 25 mm.

Plastic or linoleum carpet

Lay in accordance with supplier instructions.

Ceramics or natural stone

Lay in accordance with supplier instructions.

Note!
LK Foil Board should not be used in wet rooms. For wet rooms, LK recommends instead laying underfloor heating with Clip Rail 12/16/20.

LK Manifold Cabinet

LK Manifold Cabinet is mounted at the assigned location according to the plan. Read first through the included installation instructions.

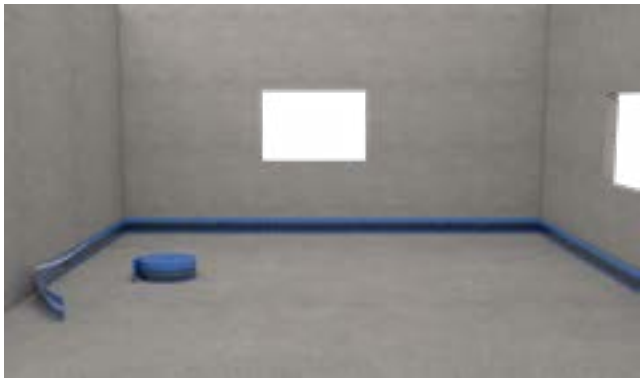
Laying edge strips and boards

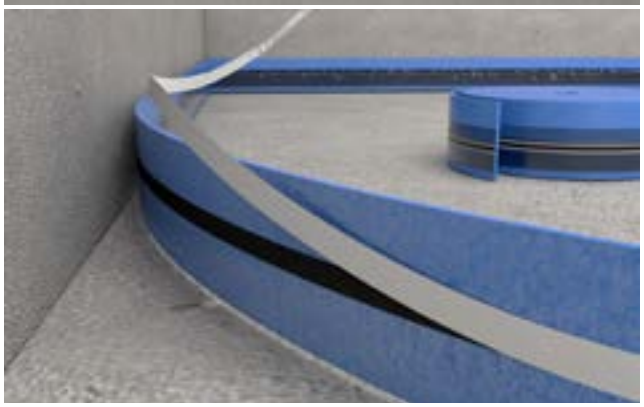
Prior to laying the boards, the sub-floor must be checked for flatness, according to requirements in HUS-AMA, table 43.DC/-1, class A, i.e. max bulging ± 5 mm across two metres and ± 1.2 mm

across 0.25 metres.

1. LK Edge Strip

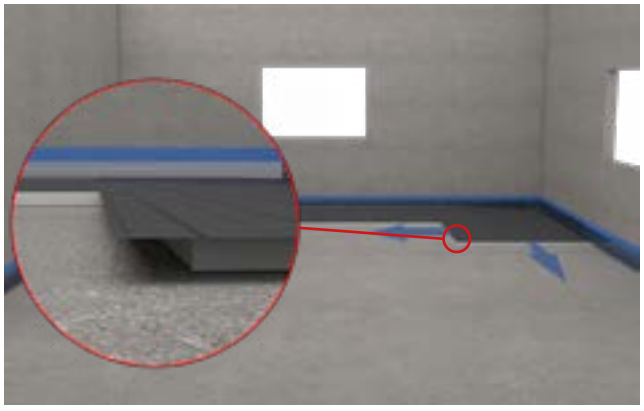
LK Edge Strip is fixed along the room's surrounding walls using the pre-assembled adhesive strip. The protective foil is removed gradually as the edge strip is applied.





2. LK Foil Board 30 / LK Foil Board 50

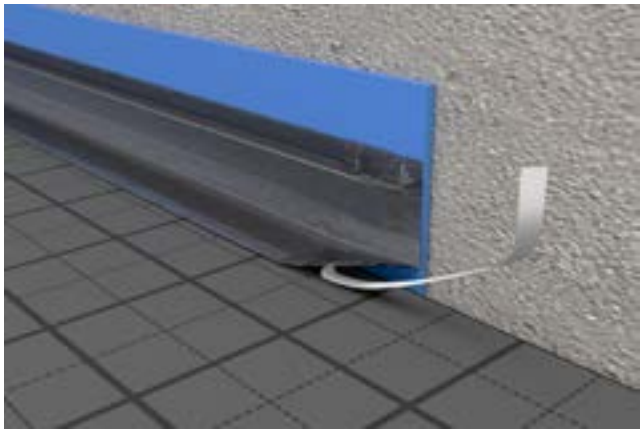
Begin laying the foil boards in one corner of the room. Note that the foil is longer on two of the board's edges. This protrusion should point towards the room (see the arrows in the illustration below) as these are fitted with an adhesive edge underneath that is used to glue the foil boards to each other. To ensure that the boards do not rise during pipe laying then LK recommends that the Foil Boards are glued using double-sided tape to the underlay in the pipe turning boards.
Continue to lay the boards until you arrive at the opposite wall. Measure the remaining distance and cut the next foil board to size. Note which part of the board you are cutting so that the part with protruding foil starts the next row of boards.



Board cutting is easy when using LK Heating Knife fitted with the LK Knife Blade 40.

4. Fixing the edge strip to the foil board

LK Edge Strip includes an adhesive edge that should be fixed to LK Foil Board as shown in the illustration below. This is in order to ensure that the liquid filler that is spread above the construction does not run under the boards or on their sides.



Reinforcement

Note the need for reinforcement in consultation with the supplier of levelling compound.

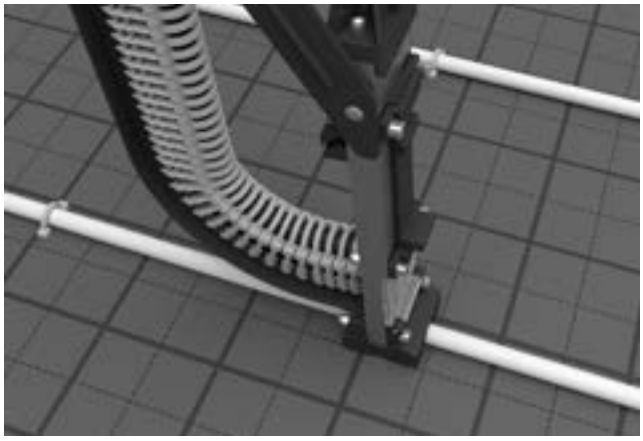
Pipe laying

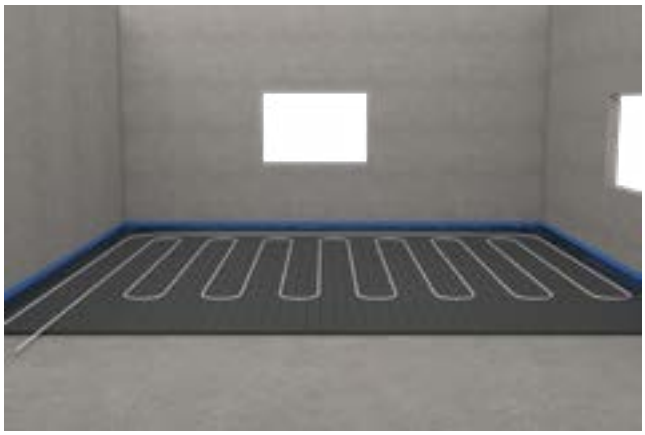
Plan the pipe laying based on the installation diagram. Ensure there is no obstruction to the supply and return pipes. Note that the number of floor heating circuits and that different pipe distances c/c 200 or c/c 300 mm may be used. Be aware of the direction in the circuit flow so the supply pipe is closest to the outer wall.

Use the grid pattern as a guide when laying. The grid pattern on the foil is 100 x 100 mm which helps to achieve the correct c/c distance when laying.

As an aid during pipe laying, use LK Coil Cart or LK Pipe Decoiler UNI. Pipe cutting should be carried out using pipe cutters intended for PE-X, such as LK Pipe Cutting Topcut.

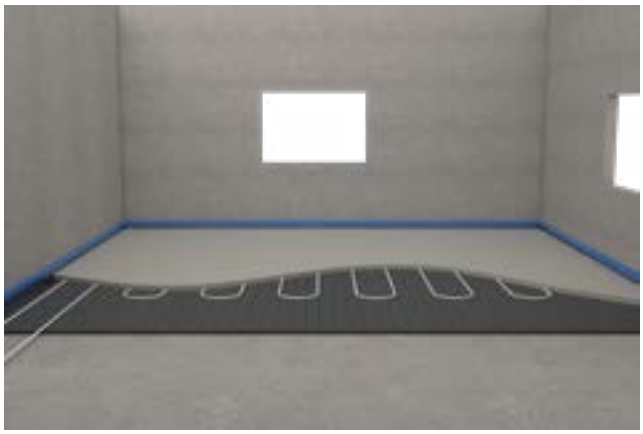
To fix the pipes in the foil board use LK Staple Gun 3D Premium with LK Staples 3D Premium 30 mm.





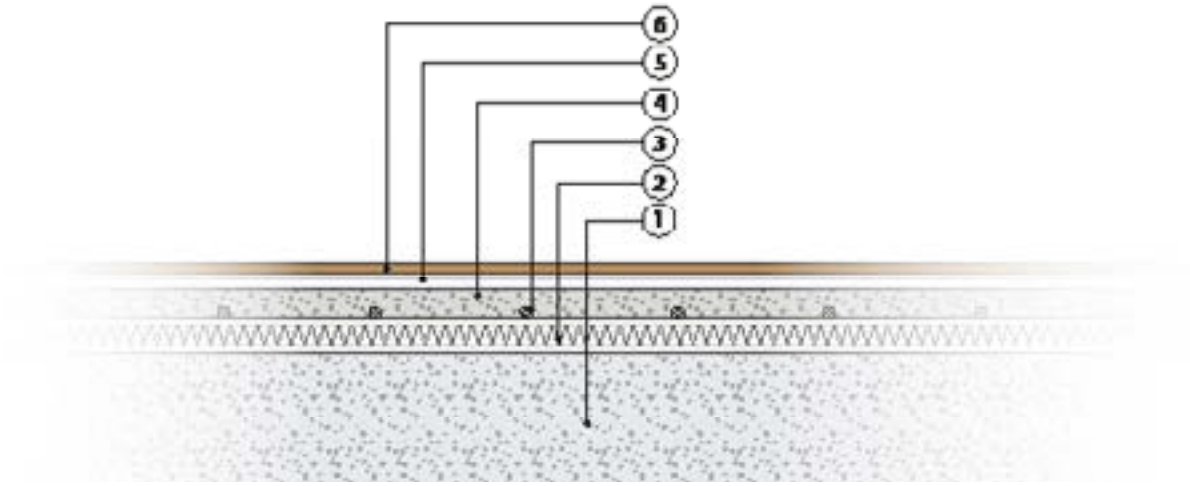
Screed and concrete floors

When the pipes have been laid in all spaces, they are covered with Bostik 1050 Fiber floor screed or equivalent alternative. The pipes should be covered with 30 mm of floor screed. This means a total depth of about 45 mm when laying Ø16 mm underfloor heating pipes.



Application of the covering can begin once the floor screed has hardened, as described earlier in the installation instructions.

Laying Principle



Sketch for underfloor heating design with LK Foil Board 30 Silent

Number	Description
1	Load-bearing intermediate concrete floor
2	LK Foil Board 30 Silent / LK Foil Board 50 Silent
3	LK Universal pipe / LK Underfloor pipe Ø16/Ø20
4	Intermediate embedding, Bostik 1050 or corresponding
5	Vapor barrier and Cellfoam
6	Floor covering, e.g Parquet 14 mm or Laminated 10 mm

Product overview, Laying materials and aids

LK art. no	Product name	Quantity	Description/Comment
243 49 99	LK Foil Board 30 Silent	1 board = 2 m²	Foil covered insulation board of EPS
298 89 87	LK Foil Board 50 Silent	1 board = 2 m²	Foil covered insulation board of EPS
298 88 17	LK Edge Strip 8x150	1 roll = 40 m	Edge insulation
-	LK Universal pipe / LK Underfloor Pipe Ø16/Ø20 mm	According to the underlay	
188 06 72	LK Staple Gun 3D Premium		Staple gun for fixing pipe to the Foil Boards
243 49 98	LK Staples 3D Premium 30 mm	1 box = 400 staples	Consumption about 1 staple per half metre pipe and about three staples per turn
243 51 93	LK Coil Cart		An aid in feeding pipe during laying
241 74 96	LK Pipe Decoiler		An aid in feeding pipe during laying
241 99 36	LK Heating Knife		Tool for cutting or making grooves in EPS by melting. Used together with blade accessories
241 99 37	LK Knife Blade 40		Suitable accessory blade for LK Heating Knife for cutting EPS
-	Bostik 1050 Fiber		Consumption about 77kg/m² for 45mm screed

TECHNICAL DATA

Surface heating element /thermal insulation material for buildings	**LK Foil Board 30 Silent**	**LK Foil Board 50 Silent**
Fire class insulation material	RtF - E	RtF - E
Fire class of whole product with foil	E	E
Nominal thickness	30	50
Tolerance class	T0	T0
Thermal resistance RD in m² · K/W	0,670	1,110
Rated value λD in W / (m K)	0,045	0,045
Nominal value λD in W / (m K)	0,043	0,042
Compressive strength in mm	≤ 3	≤ 3
Maximum load in kPa /m²	≤ 4	4
Fire retardant	Polymer FR	Polymer FR