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- 1) Walls and ceilings of the room should be insulated so that the heating mats can be laid after having installed the condensation barrier on the floor.  
A tooting insulating slab with a width of 0,50 m can be installed as illustrated on picture "K1" . Then the heating mat has to be laid along this slab with a distance of approx. 0,10 m.
  - 2) After having installed the condensation barrier and cleaned the room the frost protection heating will be mounted.  
You should stick to the installation plan of the room we will provide on request. The heating mat has to be unrolled and the foil has to be cut in according to the "length of strips" mentioned on the plan.
    - a) Swing the laying direction by 90°, then cut in the foil again after x cm, being mentioned as laying distance.
    - b) Swing the laying direction once again by 90° and unroll the heating mat in order to proceed according to "a-b" after having reached the gauge length.
  - 3) In case that several heating mats are needed for one room you have to start with the next heating mat always at the end of the one installed before. Stick to the installation instructions as explained in paragraph "a" to "c".
  - 4) The cold cable ends at the heating mats have to be installed on the floor surface according to the installation plan. You have to avoid any crossing with heating cables and other conduits! The use of protective pipes is not permitted.
  - 5) The temperature sensor has to be installed as illustrated on information sheet K 1 and described on sheet K 23.
  - 6) After installation of the heating mats which can be fixed e.g. with point-by-point hot bitumen, you should install the floor insulating slabs immediately. It is possible to walk on the heating mats with corresponding caution.
  - 7) Test the electric flow according to the test report only by means of an ohmmeter or a flow tester delivered by us.
    - a) after installation of heating mats and temperature sensor.
    - b) after installation of floor insulating slabs before concreting of the roadway concrete slab.
    - c) after concreting.
  - 8) Connection of heating according to our information sheet K 19 and the wiring diagram enclosed.

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**ATTENTION, strictly adhere to these Assembly Instructions!**

When installing the heating mats and temperature sensor and also when connecting the control box you have to observe the instructions K5, K14, K15, K19, K23, K24 in addition to the installation plan.

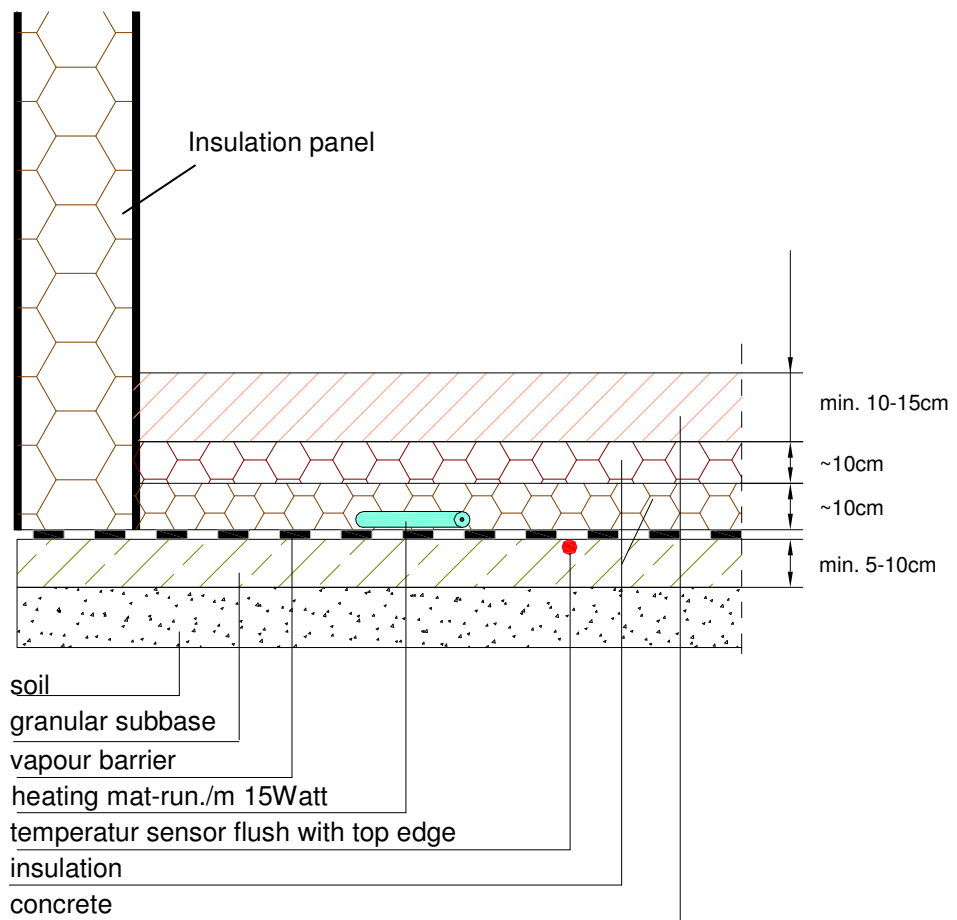
All markings of the heating mats and temperature sensors indicated in the plan have to be transferred to the ends of the cold cables and sensor wires so that they cannot get lost or mixed up. This measure is also necessary to guarantee a correct connection to the control box by the electrical fitter later.

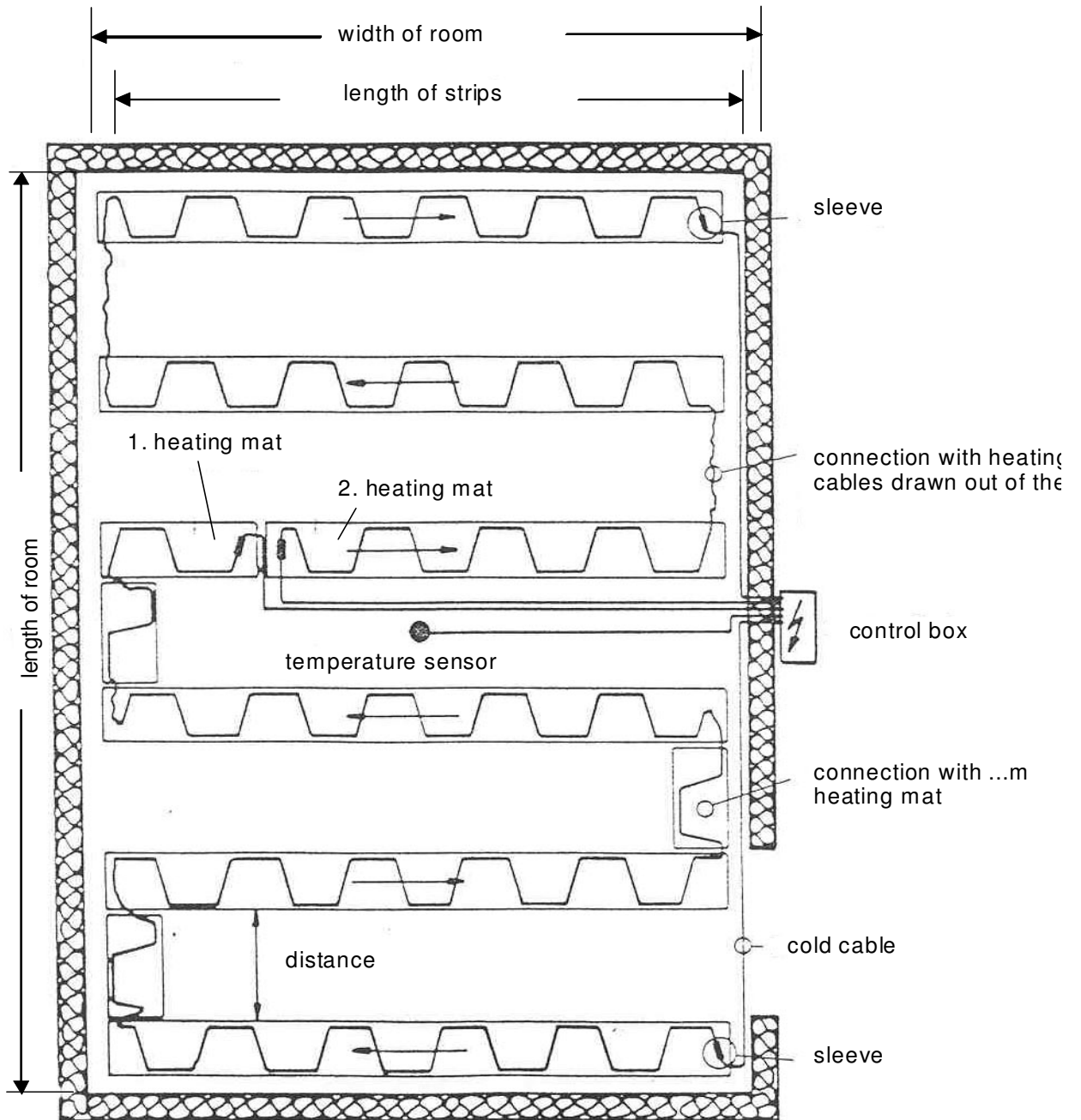
The assembly of the heating mats, cold cables and temperature sensors has to be carried out without any crossings which might lead to shearing power or possibly to damages.

Heating conductors always have to be installed that way that they have a good contact to each of the components to be heated on the total length of heating circuit (fixing/covering possibly with self-adhesive aluminium foil). Do not surround the heating conductors with insulating material (e.g. hot bitumen, condensation barrier or assembly foam), danger of overheating!!

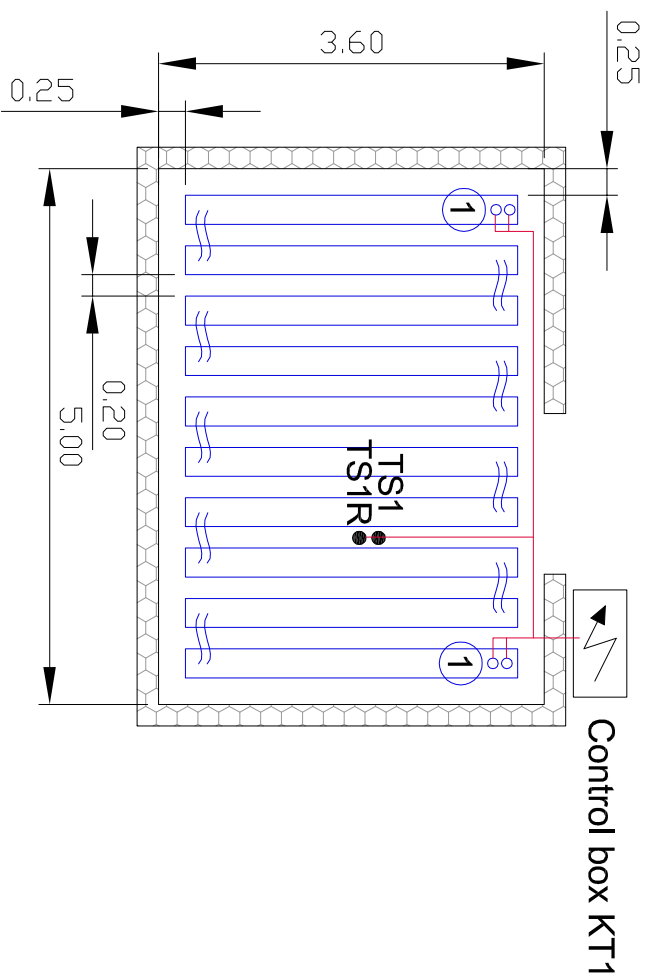
Take care with all cables that they are not pulled over sharp edges or bended and that they are protected against mechanical damage by respective measures e.g. when leading them through walls or panels.

Check all dimensions in the installation plan before starting the assembly.





## Floor heating



### LEGEND UNDERFROSTPROTECTION

- Floor heating**
- 1 heating mat KM14-R-520-230-15 (No. 1)  
Power 520W at 230V/32.5m/15m
  - 10 strips each approx. 3.10m  
distance approx. 0.20m  
margin approx. 0.25m
  - 9 connections with heating conduits drawn of approx. 0.17m mat.
  - 1 temperature sensor 20m TS1
  - 1 temperature sensor 20m TS1R
  - 1 control box KT1

**Attention, strictly adhere to the following:**

When installing the heating mats and temperature sensors and connecting the control box observe the following information additionally to this plan: K4E, K5E, K15E, K19E, K23E.

All descriptions of heating mats and temperature sensors indicated in the plan have to be transferred to the ends of the cold cables and sensor wires in order to guarantee a faultless connection to the control box later.

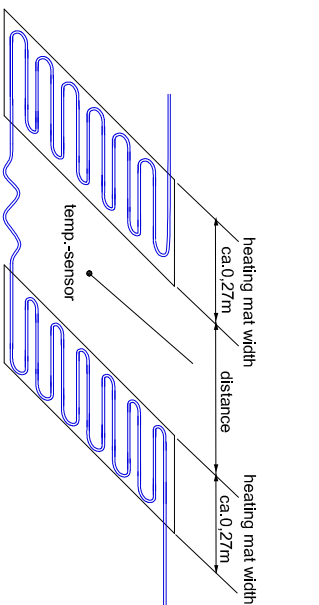
**All heating mats, cold cables and sensor leads have to be installed in an area with temperature higher than +5°C.**  
Install the heating mats, temperature sensors and cold cables that way that there are no crossings. They could lead to shearing power which might cause damage.

In case of support or wall heating always ensure firm contact to the components to be heated when installing the heating cables (fixing/covering, if necessary with self adhesive aluminium foil).  
**Do not surround the heating cables with insulating materials (e.g. hot bitumen, condensation barrier or assembly foam).**  
**(ATTENTION: OVERHEATING!!!)**

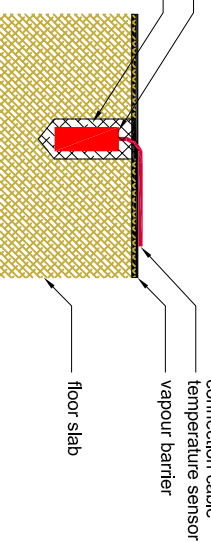
Don't draw the cables over sharp edges or bend them. Cables have to be protected against mechanical damage by appropriate measures, for example when leading them through wall or panel.

**Don't walk on the heating after installation!**

**All measurements of this plan have to be checked before starting assembly.**



temperature sensor  
e.g. rapid curing cutback, resin etc.



### Installation temperature sensor

Install the temperature sensor centrally between two stripes of heating mats (preferably in the centre of the room) so that the temperature sensor has a good thermal contact to the floor slab. For the installation, the vapour barrier has to be cut crosswise. Afterwards, prepare a bore hole with min. diameter 20mm and a depth of 30-40mm approx.: in the floor slab for inserting the temperature sensor. Before installing the temperature sensor, remove all boring residuals (e.g. bore dust) from the bore hole. Then, the temperature sensor can be fixed in the bore hole by adequate means. After installation, the vapour barrier has to be closed again by suitable measures.

Rev. C		Date	15.04.11
Rev. B		Prepar.	Kowollik
Rev. A		Approv.	
Revision	Date	Name	Norm

Temcor S.r.l.  
I 20046 Blassono

Underfrost Protection



Reference-No.:	02-11-0233	Page	1
Order-No.:		from	1
Drawing-No.:	02-11-0233 Q4E		