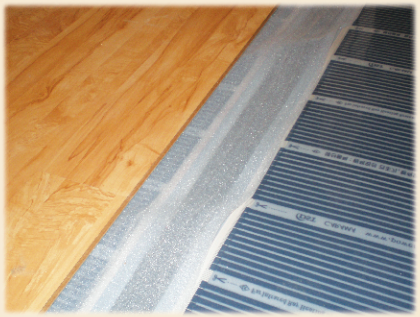
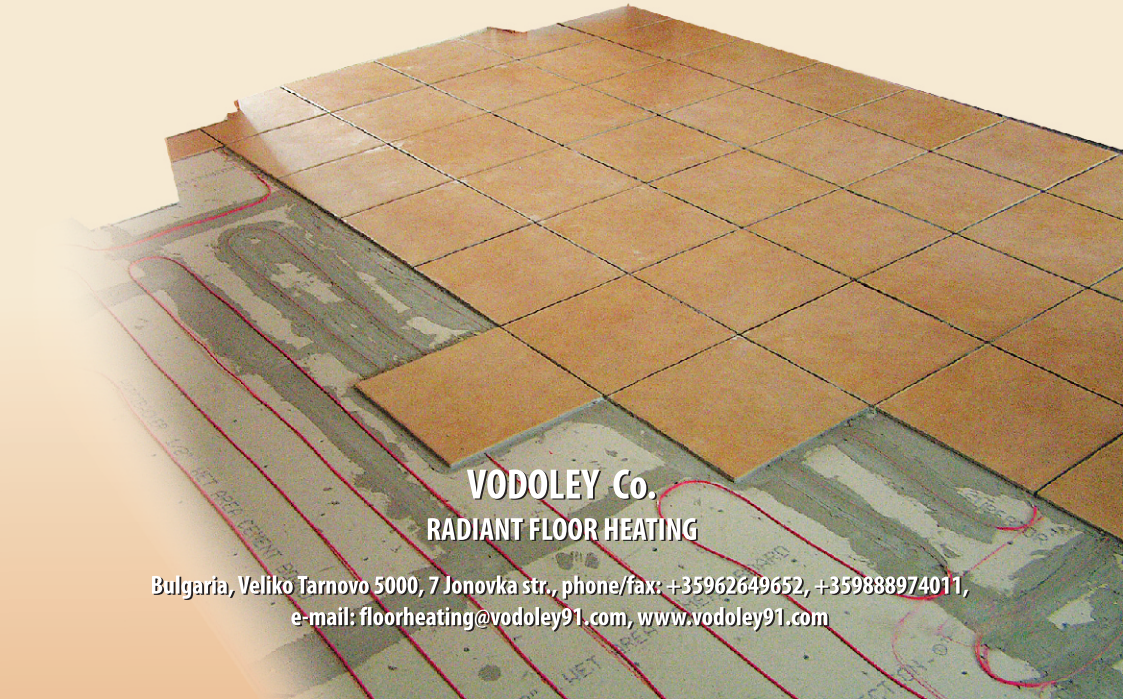
INSTALATION GUIDE

RADIANT FLOOR HEATING





VODOLEY Co.
RADIANT FLOOR HEATING
Bulgaria, Veliko Tarnovo 5000, 7 Jonovka str., phone/fax: +35962649652, +359888974011,
e-mail: floorheating@vodoley91.com, www.vodoley91.com

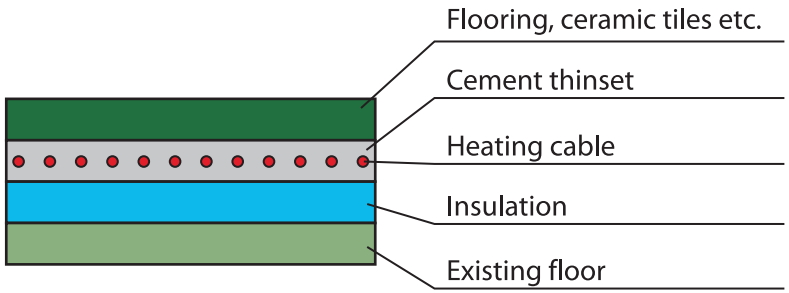
RADIANT FLOOR HEATING

Radiant floor heating matches all kind of premises - homes, offices, social establishment and production buildings.

Advantages :

1. Temperature control from 5°C to 30°C/40°F - 80°F.
2. With its large heating surface distributes the heat more evenly and comfortably through - out the room than traditional systems.
3. Heated floors mean complete comfort, not only on the floor, but for the whole room.
4. It is not a trouble in renovations.
5. With floor heating there is less dust in the rooms.
6. With optimal exploitation it uses 10% to 40% less energy than the normal heating system. In homes it is about 30 %.

FLOOR HEATING SYSTEM'S CONSTRUCTION



- If the flooring is laminate you should have manufacturer assurance that it's suitable for floor heating.
- Heating cable is 4mm (1/6 inch) thick.
- Cement thinset is at least 1.5 cm (2/3 inch).
- Insulation – if needed.

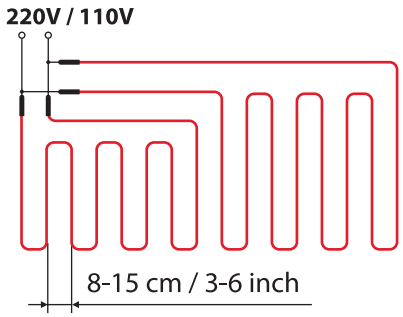
CHOOSING HEATING CABLES

Heating cables are chosen to ensure 100÷160 W/m^2 (9÷15 W/sq. ft.). They are made of special electro-resistance material and double layer high temperature insulation, the diameter is 4-5 mm. When the floor heating system is used as a primary heating source we recomendet using 160 W/m^2 - 15W/sq.ft. When it is used as a secondary heating source (only for comfort) you can use 100 W/m^2 - 9W/sq.ft.

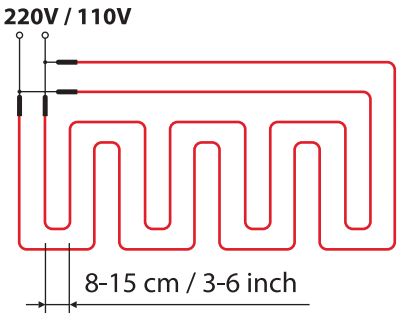
INSTALLATION

Heating cables are installed under flooring material or concrete slab.
Conductors are arranged on the floor at distance from 8cm to 15cm / 3-6 inch.

If there are more than one cable they are arranged parallel or on sections:



On this scheme there are 2 cables arranged on section.



On this scheme there are 2 cables arranged parallel.

INSTALLATION GUIDE

We recommend looking at the photos from installations at our website:
www.vodoley91.com/?nav=photos

1. We suppose that you have already chosen appropriate cables for your room. We can help you with advice if needed.

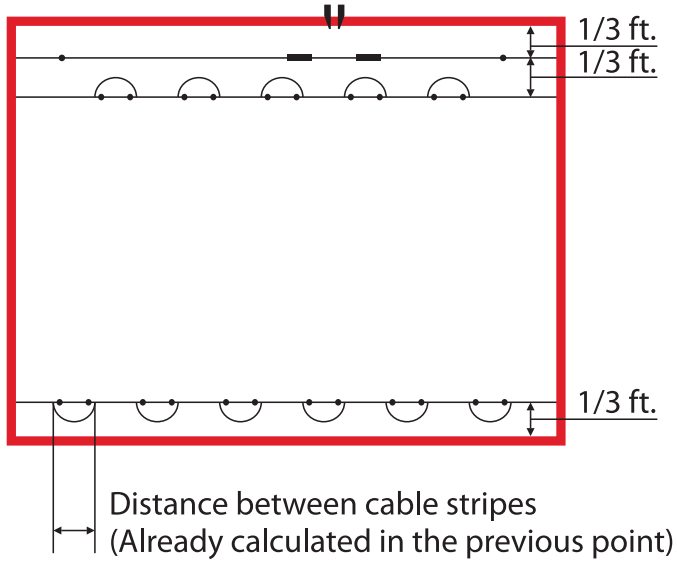
2. Prepare the room. It should be well swept. There shouldn't be sharp objects that can damage the cable.

3. Measure the area you want to heat. Sometimes it's not the whole room.

4. Calculate the exact size of the area you will heat. You can calculate the step (distance between 2 cable stripes) with the step calculator at our website :

www.vodoley91.com/?nav=calc_1

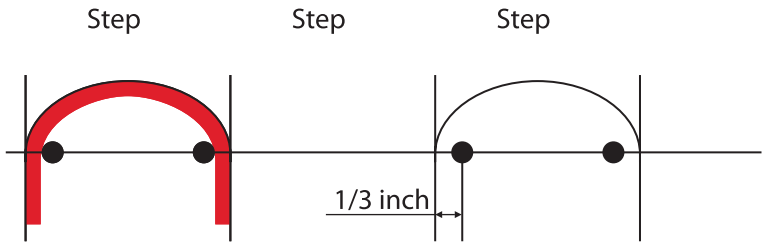
5. Draw up the area using the following scheme:

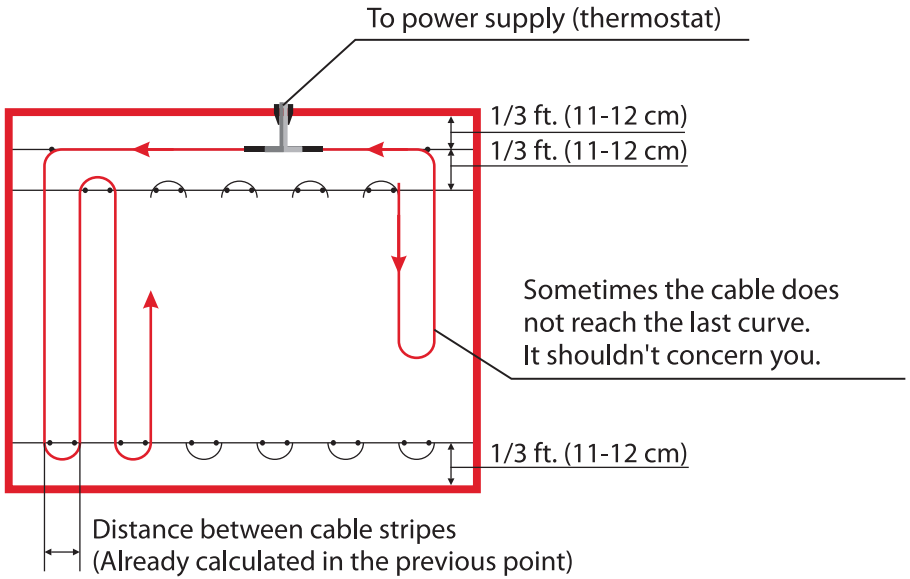


First draw 2 lines on the side of the room where the thermostat will be and one on the other. The distance between these lines and the wall is at least 1/3 foot. The connections with the cold tails will be mounted on the floor in front of the thermostat on the first line. Then if you have already calculated steps you draw them on the other two lines. You draw curves where the cable will turn.

6. Hammer nails in the inner side of the curves at about 1/3 inches from the curve you have drawn. This way the cable will be placed exactly according to the step.

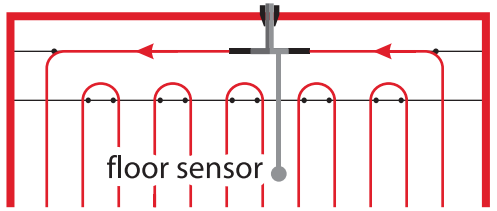
7. Arrange the cable on the floor. It should be tight but don't pull it too hard around the nails. The turn should be round. You start by mounting the first connection with the cold tail in the floor. And you unroll the cable bit by bit clockwise. You should end up mounting the second connection with the cold tail.

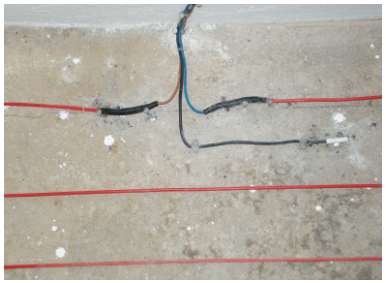




8. Make a groove in the wall for the cold tails.

9. Install the thermostat. There is a connection scheme inside. The floor sensor goes between two cable stripes like this:

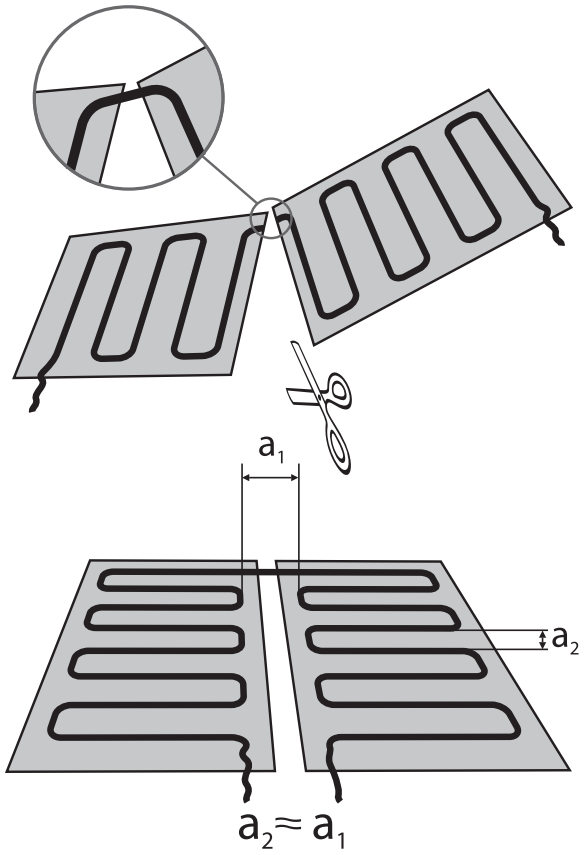


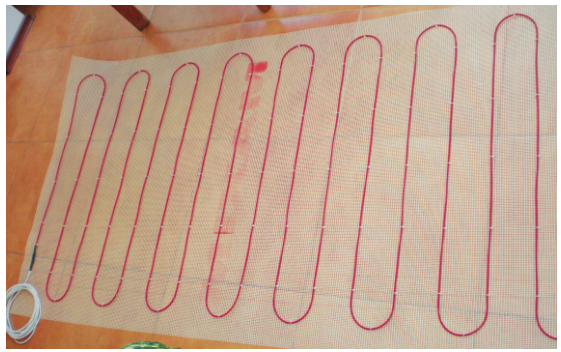


10. Test the system for several minutes.

11. When everything is done you can lay the cement thinset - obey the requirements in the guide!

All the requirements for the heating cables must be obeyed when installing a mat. The heat conductor must not be cut. If you need to change direction you can cut the mesh only.





REQUIREMENTS !!!

1. Crossing the active part of the circuit is not allowed. Placing a part of the circuit very close to another part is forbidden also.

2. The connection "heating circuit cable to power supply (cold) cable" should be mounted into the floor.

3. When inserting the heating cable into the concrete a perfect concrete compactness around the cable should be provided.

4. If the premises are humid (for example bathrooms) then a screened type of cables must be used.

5. The minimal diameter of a cable bending should exceed 6D, where D is the external diameter of the cable.

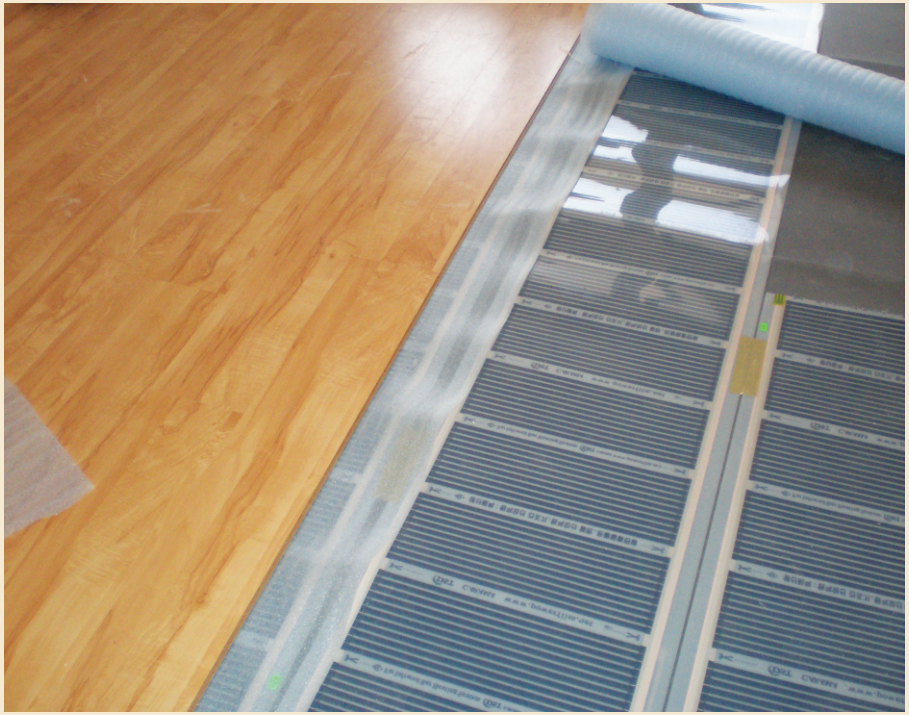
6. After the electric circuit installation is ready it should be checked by connecting the circuit to power supply for short period of time.

7. The complete system should be used not earlier than one month after completing the concrete works.

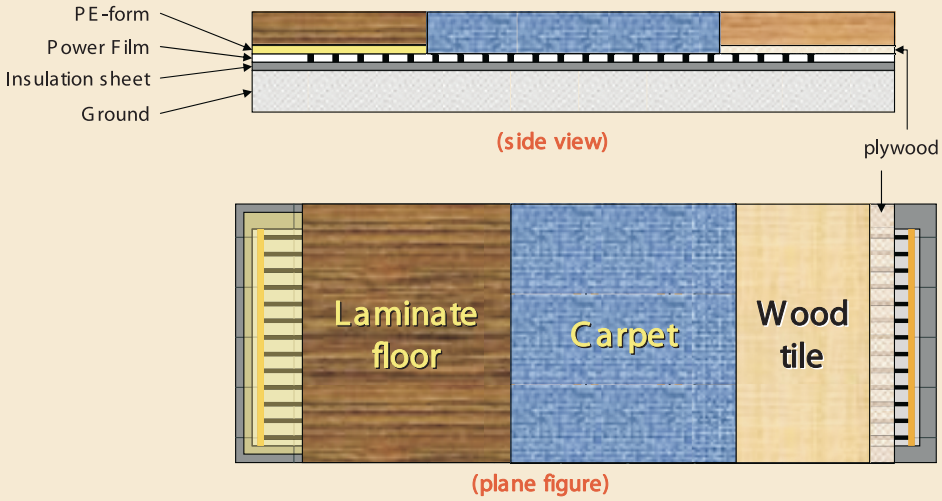
8. For areas larger than 20m^2 (220 sq.ft.) it's recommended to leave about 5-10 mm (1/5 - 1/3 inch) space between the wall and the thinset.

Carbon Heating Film

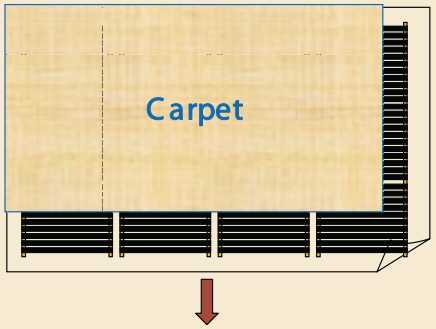
This heating film is a perfect addition to our product range. The specific here is that it is made primary for hardwood , laminate or plywood floorings. It can also be used for direct heating under carpets on the existing floors. When you order the items come prepared especially for your room and it's ready to use. Installation is extremely easy.



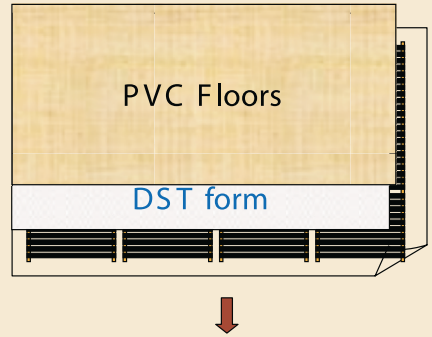
* Sectioned drawing



Carpet / PVC Floors

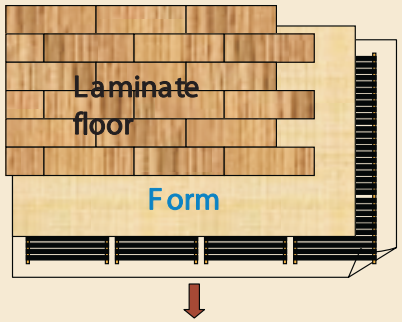


①Install the heat insulation on the floor.
②Install the film on the heat insulation.
④Cover the carpet on the film.

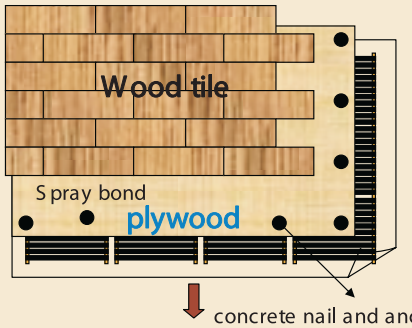


① Install the heat insulation on the floor.
② Install the film on the heat insulation.
④ Install the DST form on the film.
⑤ Cover the PVC floors on the DST form.

Laminate flooring / Wood tile

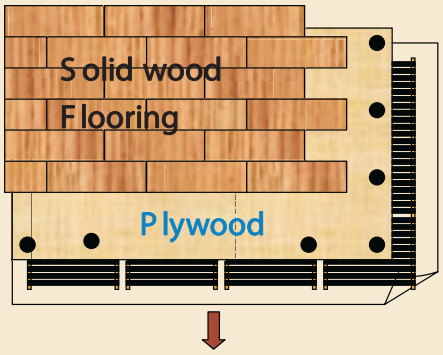


① Install the heat insulation on the floor.
② Install the film on the heat insulation.
③ Install the form on the film.
④ Install the laminate floor.



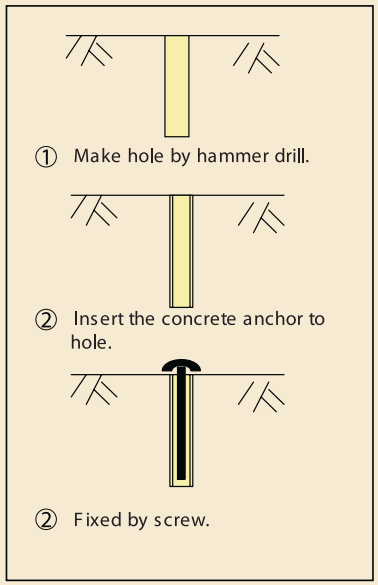
① Install the heat insulation on the floor.
② Install the film on the heat insulation.
③ Fixed the plywood by concrete nail after install the plywood on the film.
④ Install the wood tile after spray the bond on the plywood.

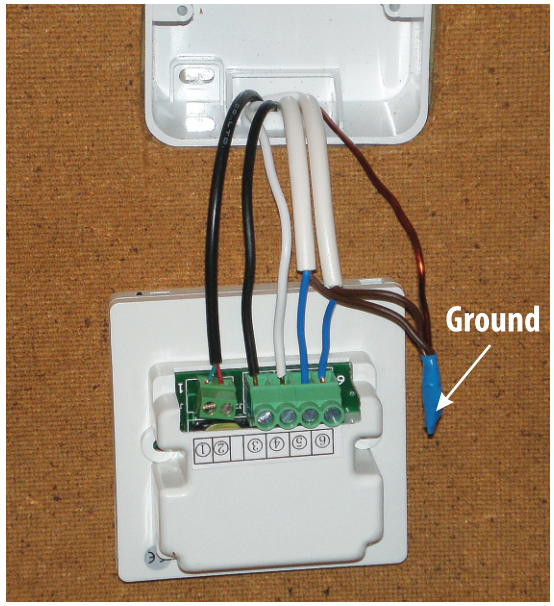
Solid wood flooring



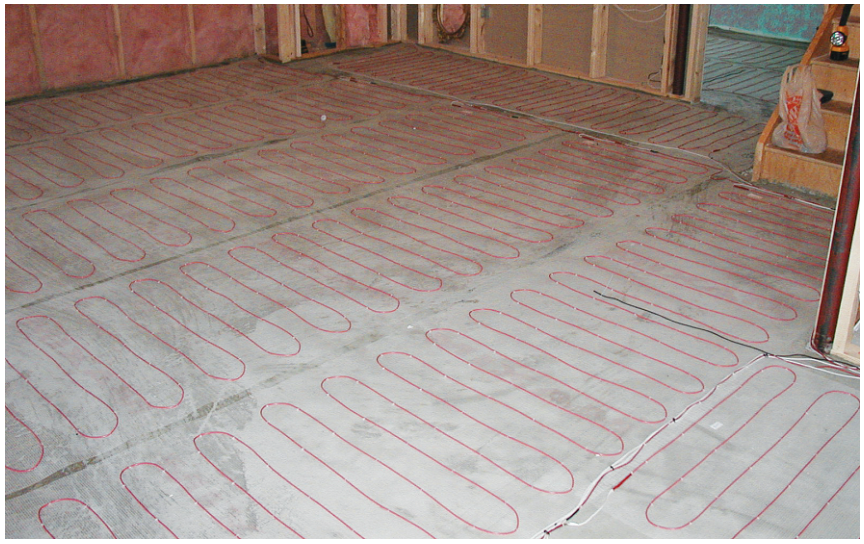
① Install the heat insulation on the floor.
② Install the film on the heat insulation.
③ Fixed the plywood by concrete nail after install the plywood on the film.
④ Stick the solid wood floor after paint the epoxy on the plywood.

* Cross section





This photo shows the wiring for a 120V shielded cable or a mat. Typical for the connection of shielded cables is that the brown cold ends are used only for grounding.



This photo shows arrangement of several mats in one room.

WARRANTY CARD

Attention!

1. Turning on the cable for more than a minute when it is a roll is not allowed.

2. The distance between the cable strings must be at least 8cm/3inc.

3. The company is not responsible if the cable is damaged by the client or due to unprofessional handling.

.....

.....

.....

.....

.....

.....

.....

Date: .....

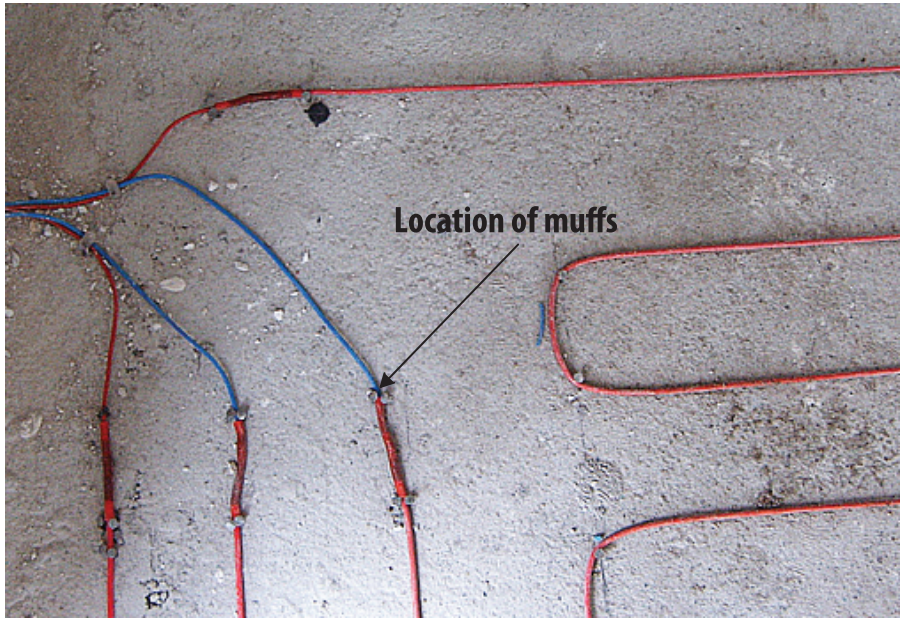
Customer: .....

Address: .....

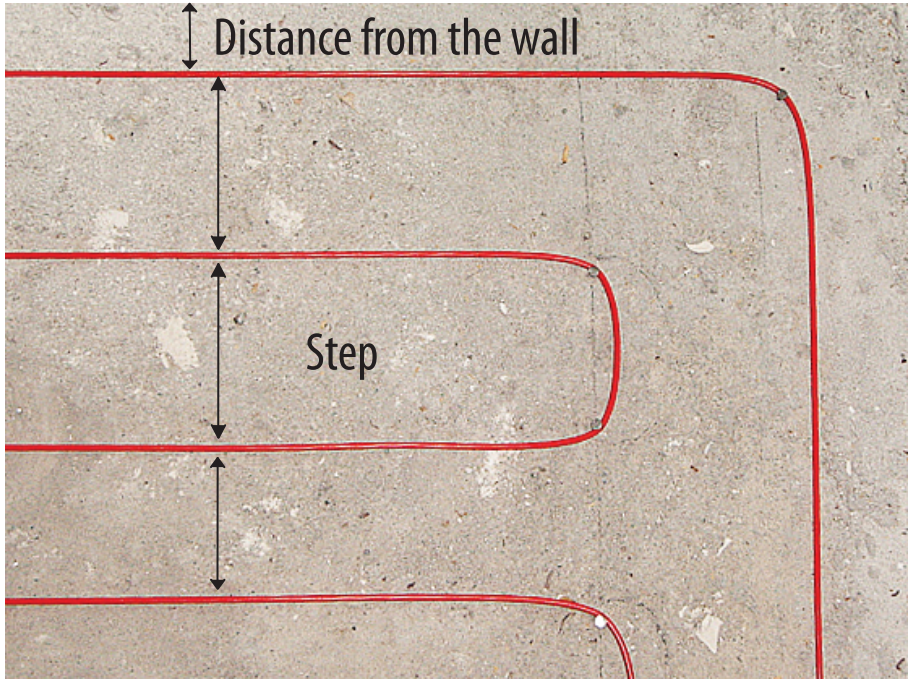
Vodoley Co.
Bulgaria

eng. M.Davidov: .....

CONNECTING



This is two cables going to one thermostat



This shows two cables arranged on sections