

# INSTALLATION GUIDE

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## FLOOR HEATING



**VODOLEY CO**

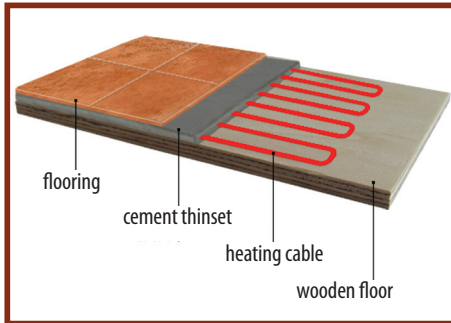
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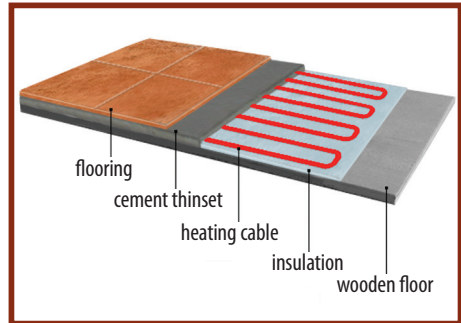
## CABLE FLOOR HEATING

The cable floor heating has a wide variety of applications. The primary heating elements here are the heating cables which are always embedded in the upper cement layer of the floor. On top of this cement layer you can glue the floor covering – tiles, marble, carpeting, linoleum and many more. It can be used for both dry and humid premises.

### • Floor heating system's construction



*Standard floor construction on top of wooden /plywood floor*



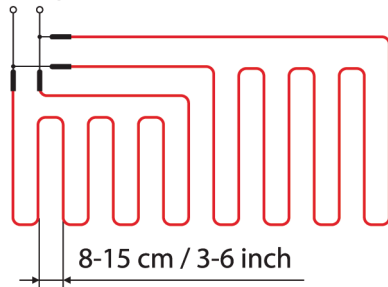
*Standard floor construction on top of concrete floor*

*Comment: The heating cable is 1/6inch (4 mm) thick. The cement thinset is about 1/3inch – 2/3inch (8–15 mm). The heating insulation is mandatory if the floor is in the outside or if the heated room is over a non heated area. On top of wooden or plywood floors it is not required.*

### • Installation



220V / 110V



*Heating cables are installed in a cement layer under the floor covering. They are arranged at 3–6" distance (7–15cm). Several cables can be used in the same room connected parallel to the power supply (thermostat).*

### • Installing floor heating with heating cables

**\* Installing heating cables with cold ends from both sides.** We recommend reading the “[Documents](#)” section, the „[Presentation for Cable Floor Heating Installation](#)” and the photos in the [Gallery](#) sections regarding installation in our website [www.vodoley91.com](http://www.vodoley91.com).

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

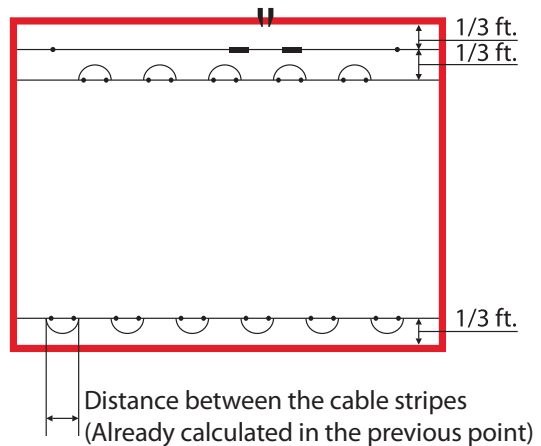
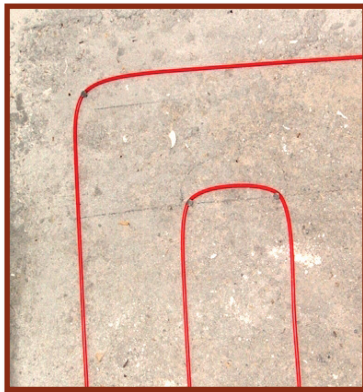
2. **Prepare the room for installation.** The floor should be clean, without any sharp objects that can damage the cable.

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

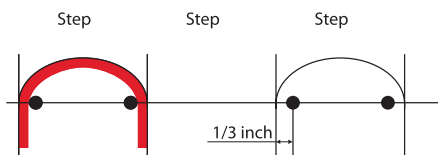
4. **Calculate the exact size of the heated area.** You can calculate the spacing between the cables using the step calculator at our website [www.vodoley91.com](http://www.vodoley91.com) – section **Step calculator**.

5. **Draw up the area using the following scheme:**

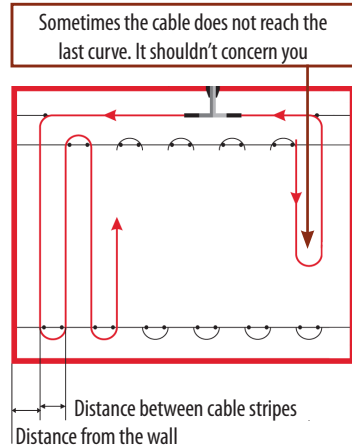
First draw 2 lines on the side of the room where the thermostat will be and one on the other. The distance between these lines and the wall is at least 1/3 foot. The connections with the cold tails will be mounted on the floor in front of the thermostat on the first line. Mark the calculated steps on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



6. **Hammer nails** in the inner side of the curves at about 1/3 inch from the curve you have drawn. This way the cable will be placed exactly following the calculated spacing. If the concrete is too tough you can drill holes first.

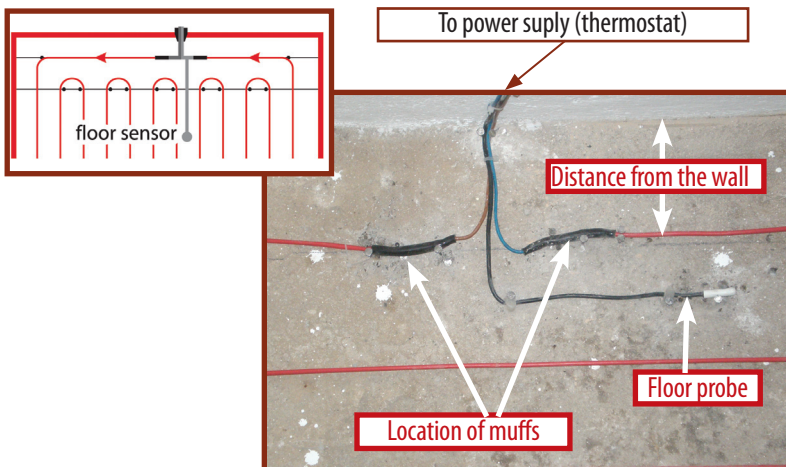


7. **Arrange the cable on the floor.** It should be tight but don't pull it too hard around the nails - the curves should be round. Start by mounting the first connection with the cold tail in the floor and keep unrolling the cable bit by bit clockwise while arranging it around the nails. The process should end up by mounting the second connection with the cold tail.



8. **Make a groove in the wall for the cold tails.** The cold ends of the heating cables and the floor sensors of the thermostats fit in this groove. All these cables should go in the installation box which is also embedded in the wall. The power lines from the electric installation also go in this box. The installation box is included with the thermostat.

9. **Install the thermostat.** The connection instructions for the thermostat can be found in the "Wiring diagrams" section in our website. We will email a link to the proper wiring diagram when we send the materials. The floor sensor goes between two cable stripes like this:

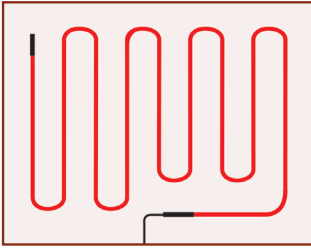


*Comment – These photos clearly show the placement of the muffs. A 'muff' is the joint part where the heating element connects to the cold power lines. Keep in mind that **this placement is absolutely mandatory** for all cables with cold ends from both sides.*

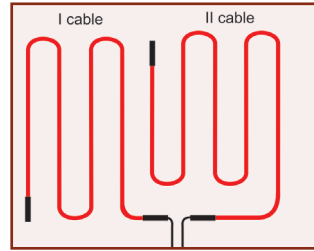
10. **Test the system for several minutes** – until you feel the cables heating up.

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

\* **Installing a heating cable with cold end from one side only.** The installation here is almost the same but easier.



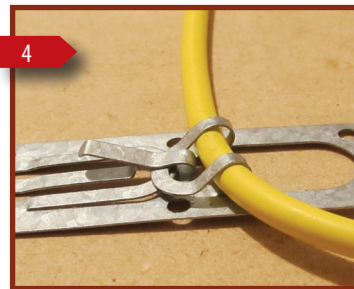
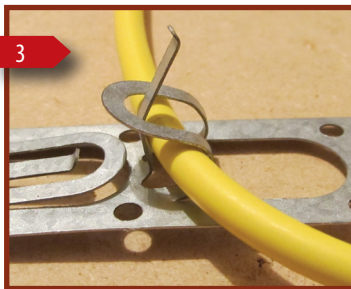
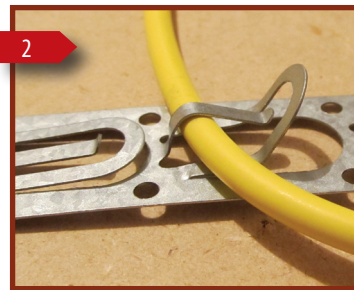
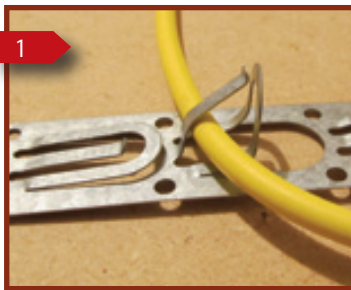
*Here is placement of a cable with one cold end from one side.*



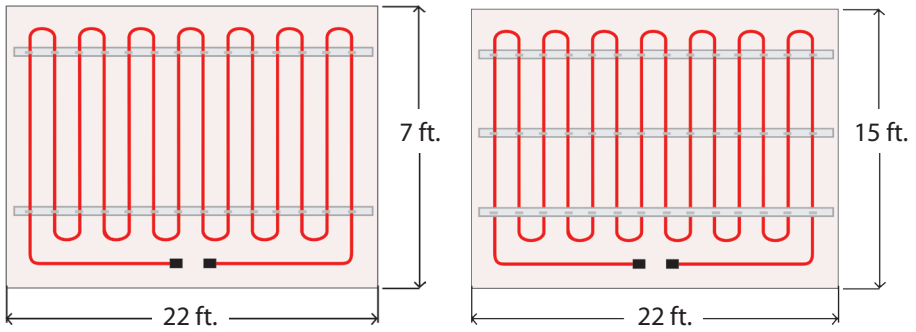
*Here is placement of two cables with cold ends from one side.*

### • Using fixing tapes for installing heating cables.

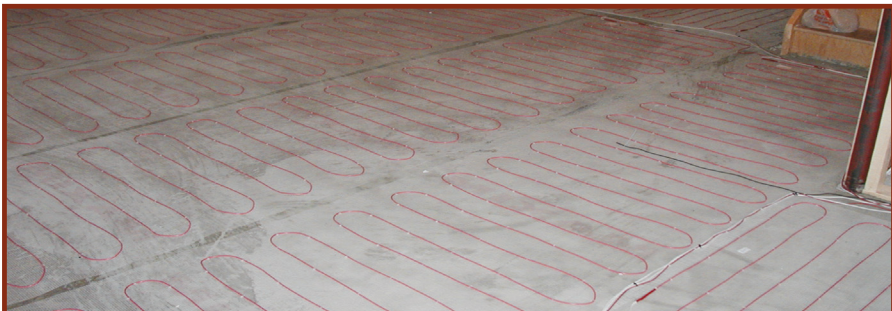
The fixing tape has a spacing of 1 inch. It is nailed to the floor and here is how the cable is fastened to the tape:

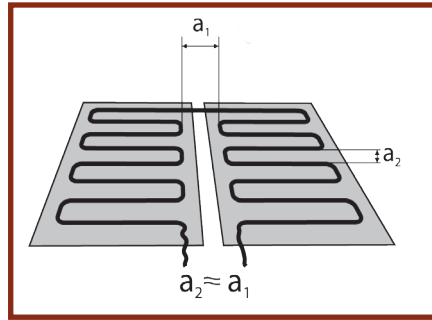
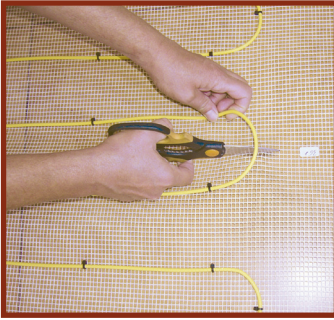


The following two schemes show using fixing tape for small and big premises. When the lines are long it is much easier to use extra fixing tape in the middle to maintain the spacing between the cable stripes.



### • Heating mats





These are heating cables arranged on a mesh for easier and quicker installation. All the installation requirements for the heating cables apply for the heating mats. The mesh can be cut so the mat can change direction but not the cable. These heating mats come in predefined sizes and also can be made per request. Several mats can be used in the same room connected parallel to the power supply (thermostat). The mats are placed on the floor with the mesh to the ground and the cables above.

### • Cement layer and gluing tiles

There are no special requirements for the cement type. You can use all kinds of cement and glues based on cement. There are two ways to make the cement layer. The first way is to make a thin layer to cover the cables. When this thin layer dries you can glue the tiles with a cement glue. This way is easier. The second way is to glue the cables directly on top of the heating cables. Do this carefully to avoid damage.

In all the cases the **cables must be well stuffed in cement without any air around it**. This is the most important requirement for the long life of the system.



## REQUIREMENTS !!!

1. Cutting and shortening the cable is strictly forbidden. The cable must be used with the right voltage. Do not try to use 120V system at 220V or the opposite.
2. Crossing the active part of the circuit is not allowed. Placing a part of the circuit very close to another part is forbidden! The minimum distance between two cable stripes is 3 inches (7.5cm).
3. The connection „heating circuit cable to power supply (cold) cable“ must be mounted into the floor!
4. When covering the heating cable with cement you must provide a perfect compactness around the cable without any air.
5. If the premises are humid (for example bathrooms) then a shielded type of cables must be used!
6. The minimal diameter of a cable bending should exceed  $6D$ , where  $D$  is the external diameter of the cable!
7. After the electric circuit installation is ready it should be checked by connecting the circuit to power supply for short period of time – until the cable starts heating.
8. The complete system should not be used earlier than 2 weeks after completing the cement layers – after it dries completely by itself.
9. For areas larger than  $20\text{m}^2$  (220 sq. ft) it's recommended to leave about 5–10 mm ( $1/5 - 1/3$  inch) space between the wall and the cement thinset.

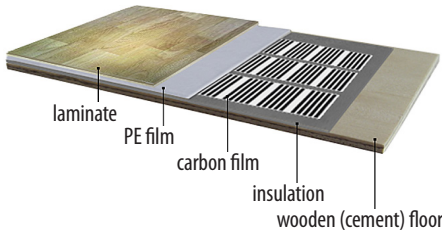


## FLOOR HEATING WITH CARBON FILM

A cutting edge technology heating element emitting healthy heating in the infrared spectrum. It is made specially for heating all kinds of wooden and laminate floors. The many advantages include quick heating, even heat distribution on the whole floor, precise temperature control. It is used only for dry premises.

### • Floor Construction

*A standard construction scheme for wooden and cement floor and laminate*



**Comment:** The insulation is not strictly mandatory when using on top of wooden floors. A thin vapor material called PE Film is used between the carbon film and the wooden flooring for soundproofing. For other kinds of wooden floorings there are specific floor constructions which are covered in the Documents section.

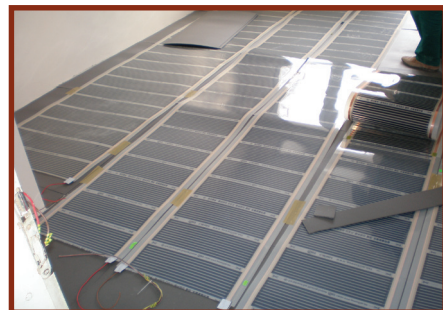
### • Installation

We recommend checking the “Documents” section, the „[Presentation for Carbon Heating film Installation](#)” and the photos in the “[Gallery](#)” regarding the carbon film installation in our website.

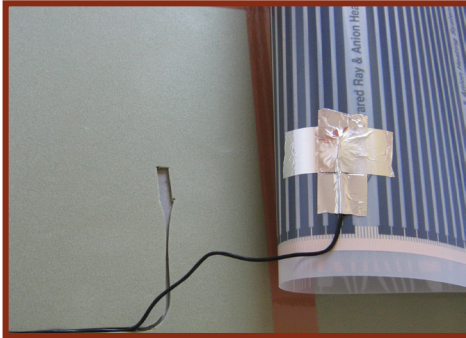
1. Installation starts with **cleaning the floor and covering with insulation**. On top of wooden or plywood floors insulation is not required. A nylon is placed under the insulation for humid floors.



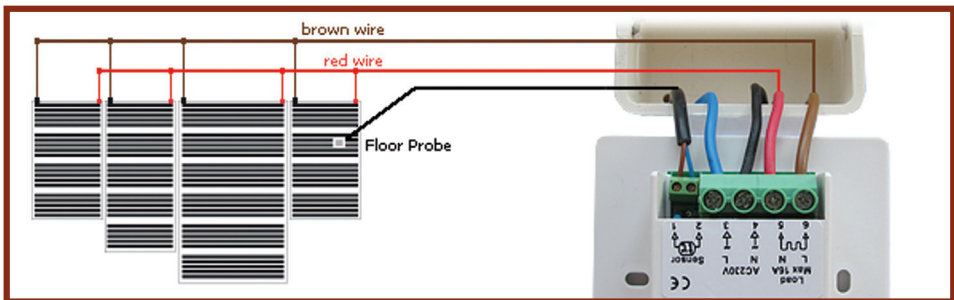
2. **Place the carbon film** following the scheme provided with the materials. The carbon films are numbered and arranging is easy following the numbers. The arrangement is shown in the “[Carbon floor heating – Installation](#)” section in our website [www.vodoley91.com](http://www.vodoley91.com)



3. **Glue the floor sensor** with the aluminum tape included in the parcel as shown on the photo. The floor sensor can be placed on both parts of the film but it must be on the active (heating) area.



4. The connection is done by the scheme "Connecting Carbon Heating System to a thermostat". The terminals of the separate sheets are soldered and insulated. All the sheets are connected parallel to the power supply. When the connection is done there should be 3 wires in the installation box – the red and brown that can be seen on the scheme and the floor sensor. The power lines from the electric system go in the same box. The connection instructions for the thermostat can be found in the "[Wiring diagrams](#)" section in our website. We will email a link to the proper wiring diagram when we send the materials. After everything is connected the system can be tested for a short period to see that the thermostat and the floor sensor are ready. When the test is successful, proceed to the next point.



*Connecting Carbon Heating System to a thermostat*

5. Cover the floor with the PE film /the blue roll on the photo/. This is a very thin vapor material which is used for soundproofing the floor. It is not heating insulation! The whole room is covered with this PE film before mounting the laminate.



6. The laminate can be mounted. There are no special requirements here.



**IMPORTANT FOR THE CARBON FILM INSTALLATION:**

1. The carbon film works only at 220-240V.
2. Using a thermostat with a floor sensor is mandatory.
3. Don't use carbon film under heavy permanent furniture.
4. The carbon film sheets are arranged carefully on the floor without covering each other.
5. The carbon film sheets come with prepared cold ends. All the connections must be well soldered with a good insulation. The sheets are connected parallel to the power supply!

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