BUYING GUIDE

WHICH IS THE BEST TYPE OF FLOOR HEATING FOR YOUR PROJECT?

FLEXTHERM®

We've all been through this. Your alarm goes off early in the morning, pulling you out of deep sleep. The thought of leaving your warm, comfy bed is excruciating, let alone having to set your bare feet on a hard cold floor. Talk about a rude wakening!

The solution for you may be a heated floor. You've heard of them and maybe even know a few friends or family members who have them and keep bragging about them. But are they the right system for you, for your home?

To help you make a sound decision and make sure you choose the right type of floor heating system that will meet your every need, this guide will, well, guide you through what you need to know about not only the functioning of floor heating systems but how they compare to traditional systems such as hot air systems.

A HEATED FLOOR... BEYOND THE FLOOR?

Obviously when we think about floor heating what comes to mind is warmth and comfort for your feet. However, did you know that floor heating systems are great as a main heating system in a home? Of course, they provide wonderful warmth under your every step but they also heat the entire room, enveloping you in coziness. How?

Well, radiant heating involves heating solid masses rather than the air. This means that the floor heating system uses the floor structure to absorb the heat and this heat is radiated to other objects in the room, such as the furniture and the walls. In return, these objects radiate heat throughout the room, making you comfortable and cozy. This concept can be compared to the sun heating the environment; even on cold days, rocks and asphalt roads will be warm as they absorb the sun's rays and radiate heat in return.

They are also:

- Quiet when functioning and require no maintenance
- Easily controllable manually or programmed in advance depending on the choice of thermostat
- Compatible with every project, small or large, renovation or new construction
- Designed for interior installations, in dry or wet environments
- Offered with solid warranties

For more information, keep on reading!

ONE OF THESE THINGS IS NOT LIKE THE OTHERS

How do electric floor heating systems compare with traditional heating systems such as furnaces and baseboards or traditional hydronic floor heating systems?

ELECTRICITY VS. WATER

There are two popular types of floor heating systems: the electric type where the heating cable is hooked up directly to the thermostat which is hooked up to the electrical panel, and hydronic systems where heated liquid (water or a water/glycol solution) flows through pipes to heat the floor.

What to know about these two types of systems:

HYDRONIC FLOOR HEATING SYSTEMS	ELECTRIC FLOOR HEATING SYSTEMS
Hydronic systems have multiple parts, including a heating source such as a boiler, manifolds, pumps, pipes, pipe supports, valves, controls such as the thermostat, water temperature controls, and safety controls. There are also air separators, an expansion tank and fittings. A separate boiler room or other type of space is required for the equipment.	Electric systems have 2 parts: the floor heating cable or mat and the thermostat.
Different parts are often provided by different manufacturers and come with different warranties.	Floor heating systems are generally offered with a 20 to 25 year limited warranty or even a lifetime warranty (in the case of FLEXTHERM systems installed by a certified installer).
Since they require a lot of equipment, hydronic systems cannot be installed in a single room but rather have to be put in throughout an entire floor as part of a construction project.	Since many floor heating systems are installed directly under the floor covering and are connected directly to the thermostat in the room, electric systems can be easily installed in a single bathroom or a kitchen, or even in an entire home, as part of a quick renovation project or a new construction project.
Most hydronic systems and components need maintenance and pipes have to be flushed out every once in a while.	Electric systems require no maintenance.
Leaks and breakages aren't easily found in hydronic systems and depending on which part breaks, can potentially cause major damage (not to mention water damage).	A damaged cable in an electric system can easily be found and fixed; in most cases, only one or two tiles are removed, then the cable is fixed and the tiles are replaced.

HOLDING ON TO TRADITIONS?

In North America, we are used to traditional heating systems (baseboards, forced-air systems, etc.). These systems blow hot air in a room in order to keep its occupants warm while radiant floor heating systems radiate heat from one surface in a room to another in order to spread heat.

What to know about these two types of systems:

TRADITIONAL HEATING SYSTEMS	ELECTRIC FLOOR HEATING SYSTEMS
Traditional systems are controlled by thermostats and blow hot air in the room.	Floor heating systems are controlled by thermostats and use the solid mass of the floor to store and radiate heat throughout the room.
Since air is blown in a room, traditional systems risk spreading germs and dust, not to mention the dirt that may be released from the ducts.	Since they do not blow out air, floor heating systems spread no germs or dust.
Hot air rises naturally to the ceiling, which creates uneven heat in a room and may cause occupants to feel colder from the neck down. They will need to increase the temperature in order to feel warmer. This issue is even more prominent in homes with cathedral ceilings.	Floor heating systems release even heat from floor to ceiling making sure occupants feel warm from toes to head.
Increasing temperature to blow out more hot air substantially increases bills.	Since heat is transferred, energy waste is kept to a minimum. According to ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers), occupants can lower the temperature of a room by 5 °C and remain just as comfortable. By installing an electric floor heating system, energy consumption may be reduced by 28% in the room where it is installed.

SPECS OF KNOWLEDGE

Electric floor heating systems are ideal for new constructions or renovation projects. They can be installed in a single room or an entire home, and can be used as a primary or secondary heat source.

The heating cables and mats are installed directly on a subfloor such as plywood or concrete, etc. before the floor covering is installed on top. When planning an installation, there are some details to keep in mind when choosing the perfect system for your project.

MAT OR CABLE?

Many electric floor heating systems are available in two formats: cable or mat. Which one will work best for you?

FLOOR HEATING CABLE	FLOOR HEATING MAT
The loose cable is installed using gauges that are secured to the subfloor and through which the cable is run. It can also be installed with FLEXTHERM's FLEXSnap+ system and uncoupling membrane installation systems.	The mat is a substrate onto which the cable is laid. The mat is unrolled and secured to the subfloor.
The cable runs can be installed at an even spacing that may vary between 2, 3 or 4 inches depending on the heating cable, the project and type of floor covering. It is compatible with most floor coverings.	The cable on the mat is laid at an even, pre-determined spacing. It is compatible with ceramic and natural stone floor coverings.
The cable is ideal for rooms with irregular angles or fixed objects (ex. cupboards, toilets, kitchen islands).	The mat is ideal for square and rectangular rooms free of obstacles (with a mat, it is a little tricky to circumvent corners and obstacles).

VOLTAGE AND OUTPUT

Floor heating systems are usually available in 120V and 240V. Selecting either one will have no impact whatsoever on the energy consumption of your system.

The system's output is influenced by the installation type*, for example:

2 watt cable with 2 inch spacing: 12 W/ft^2 3 watt cable with 3 inch spacing: 12 W/ft^2	Compatible with ceramic and natural stone floor coverings and various subfloors.
2 watt cable with 3 inch spacing: 8 W/ft^2 3 watt cable with 4 inch spacing: 9 W/ft^2	Compatible with all types of floor coverings on a concrete subfloor only.

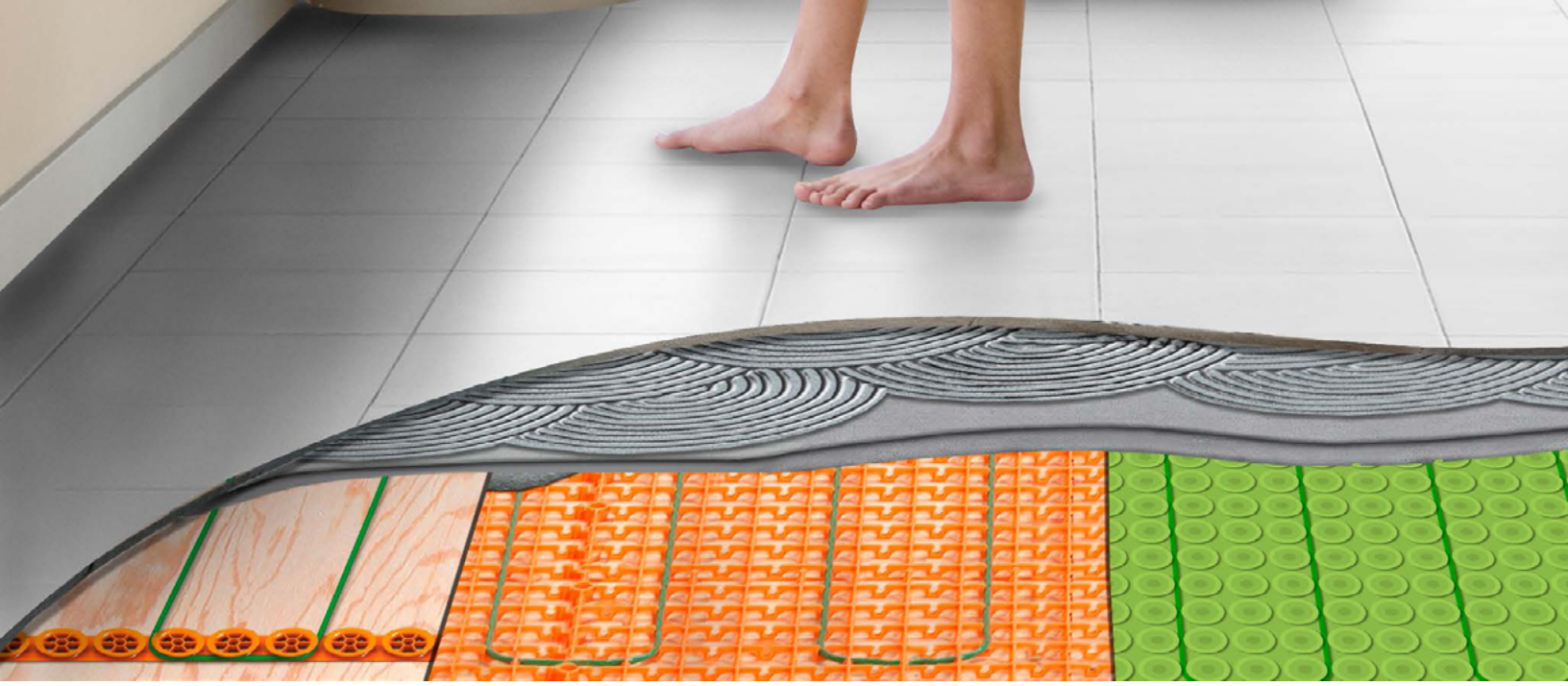
** See the floor covering chart below to make sure you choose the right system for your project.*

CERAMIC, NATURAL STONE, VINYL, OH MY!

Never before have consumers been offered a larger array of floor covering options. Luckily, electric floor heating systems are usually compatible with almost all of them, with the exception of natural wood floors (since heat can decrease the natural humidity of the wood) and cork covering (since cork is a natural heat barrier).
Refer to the table below to make a perfect match between your floor heating system and your floor covering.

	FLOOR COVERINGS							
INSTALLATION SURFACES	CERAMIC	NATURAL STONE	ENGINEERED WOOD	VINYL	FLOATING FLOOR	LINOLEUM	PARQUET	CARPET (without rubber backing or caorpet padding)
PLYWOOD	2	3	N/A	N/A	N/A	N/A	N/A	N/A
SMOOTH CONCRETE	2 / 3	3 / 4	4	4	4	4	4	4
CEMENT BOARD	2	3	N/A	N/A	N/A	N/A	N/A	N/A
CERAMIC	2	3	N/A	N/A	N/A	N/A	N/A	N/A
ACOUSTIC MEMBRANE	2	3	N/A	N/A	N/A	N/A	N/A	N/A
ANTI-FRACTURE MEMBRANE	2	3	N/A	N/A	N/A	N/A	N/A	N/A
MORTAR BED	2 / 3	3 / 4	N/A	N/A	N/A	N/A	N/A	N/A
SCRATCH COAT	2	3	N/A	N/A	N/A	N/A	N/A	N/A

N/A - not applicable
Compatibility with cables (2, 3 or 4 inch spacing) and mats (3 inch spacing)



SAFETY FIRST

Electric floor heating systems are a safe heating solution that can give homeowners peace of mind.

Here is why:

No electromagnetic fields (EMF)	Many systems, such as Flextherm heating cables and mats show an EMF level that varies between 0.25 mG and 0.50 mG at the surface of the floor, which is considered non-significant (for example, a hair dryer produces between 60 and 20,000 mG and a microwave produces between 100 and 500 mG).
No burns	Floor heating systems include no component other than the thermostat on the wall, so there is no risk for toddlers to stick their little fingers on a heating element, like it would be the case with baseboards, for example.
No fire hazard	Floor heating systems are covered in concrete and are therefore maintained in an oxygen-free environment, which means that there is absolutely no risk of a fire.
No incident	Thermostats and expansion units used to control floor heating systems are equipped with a ground fault circuit interrupter (GFCI) that is triggered instantaneously and cuts power if an incident was to occur.

EASY PEASY

Floor heating systems can quickly be installed by a tile layer, an electrician or a DIY enthusiast.

A few things to keep in mind:

- Heating mats and cables can be installed over plywood, smooth concrete, ceramic, acoustic membrane, anti-fracture membrane, mortar bed and scratch coat subfloors.
- Floor heating systems can be embedded directly in or under the concrete slab.
- They can be installed in any room.
- They are compatible with most floor coverings.
- When installing in a basement, the concrete slab (or mortar bed) must be insulated to avoid heat loss from below.
- When installing a system over a concrete subfloor, it is recommended that all rooms be heated to avoid perimeter heat loss.
- Whether you choose to install the system yourself or not, you will need an electrician at the end of the installation to connect the wires to the thermostat.

TO SUM THINGS UP...

Before moving forward with a renovation or construction project, a radiant floor heating system should always be considered. After all, once you're put in or replace a floor covering, you might not get an opportunity again for many years to install your heating cable or mat. Make sure to never compromise on the quality of the system you buy; while a sink or drapes can easily be changed according to style or trends, a floor heating system will provide you with ultimate comfort for years and years.

QUICK RECAP

	FLEXTHERM	OTHER FLOOR HEATING SYSTEMS	TRADITIONAL HEATING SYSTEMS
Available un 120V & 240V	✔	✔	✔
Install with gauges	✔	✔	N/A
Lifetime warranty	✔		
Energy savings up to 28%*	✔	✔	
Easy to install yourself	✔	✔	
EMF-free** (electromagnetic fields)	✔		
Does not spread dust or germs	✔	✔	
Maintenance free	✔	✔	
Does not dry in the air	✔	✔	
Silent	✔	✔	
Compatible with most floor coverings	✔	✔	N/A
Adapts to rooms of all shapes and dimensions	✔	✔	✔
Wide range of lenghts for maximum coverage	✔		N/A
Offers cables and mats to meet any need	✔		N/A
No restrictions to where you can put furniture (or other objects) since there are no visible parts (other than the thermostat)	✔	✔	
Products are manufactured entirely at our plant, where quality are implemented throughout the entire production process	✔		
Made in Canada	✔		

** In a room heated by a Flextherm floor heating system.*