

# Specifications



Floor Warming and Heating Systems

## 1 Scope

This specification covers Series Heating Cable Mats and their installation in concrete for a floor warming application.

## 2 Applicable documents

### 2.1 The cable

The cable set, put on self-adhesive flexible fiberglass mesh and secured by adhesive tape, shall comply (certified) with the following standards:

- CAN/CSA-C22.2 NO. 130-03, Requirements for electrical resistance heating cables and heating device sets; designation G for general use and designation W for wet environment in Canada and installation type C in the USA.
- IEEE 515.1 – Standard for Testing, Design, Installation and Maintenance of Electrical Resistance Heat Tracing for Commercial Applications.

#### Writer's notes:

CAN/CSA-C22.2 NO. 130-03, designation G and W: For interior floor usage only, cables need to be embedded in concrete or mortar. Wet environments such as a ceramic shower floor or washroom/laundry room and in Canada, in pool apron.

IEEE 515.1: American standard for manufacturing and installation of electric heating cables for commercial application.

## 3 Specifications

### 3.1 Dimensions

Depending on the required electrical power and installation application, the mat shall be available in different lengths to optimise the floor surface to heat. Make sure to properly plan the products required since they cannot be modified. The cable on the substrate shall have a nominal diameter of 7/32 inch (5.6 mm) in order to assure a good impact resistance during embedding.

### 3.2 Mat structure

Put on a self-adhesive flexible fiberglass mesh, the Green Cable™ Concrete is secured on both sides and in the middle of the mesh by an adhesive tape.

For the structure of the Green Cable™ Concrete please refer to the technical drawing of the Concrete Mat Xpress.

### 3.3 Compatibility with installation surfaces and floor coverings

For an application requiring an installation in concrete, the mat shall be compatible with installation environment and floor coverings as indicated in the following tables.

Writer's notes :

Make the selection according to the specific project.

<b>Concrete Mat Xpress</b>	
<b>Floor covering</b>	<b>Spacing/Power</b>
	15 cm (6 in) 129 W/m <sup>2</sup> (12 W/ft <sup>2</sup> )
Ceramic	✓
Natural stone	✓
Engineered wood <sup>1</sup>	✓
Vinyl <sup>1</sup>	✓
Floating floor <sup>1</sup>	✓
Linoleum <sup>1</sup>	✓
Parquet <sup>1</sup>	✓
Carpet <sup>1</sup> (without rubber backing or carpet padding)	✓

<sup>1</sup> For floor coverings other than ceramic and natural stone, always check with the manufacturer of the floor covering first, to make sure its product is compatible with FLEXTHERM floor heating systems.

<b>Installation environment</b>	
Concrete slab <sup>1</sup>	✓
Concrete topping	✓

<sup>1</sup> The concrete slab (or mortar bed) must be insulated to avoid heat loss from below. FLEXTHERM also recommends that all rooms supported by the concrete slab be equipped with a FLEXTHERM floor heating system to avoid perimeter heat loss.

### 3.4 Electrical specifications

For an application requiring an installation in a concrete slab, the cable shall comply with the electrical characteristics as described in the following table.

Electrical characteristics	
Standard voltage	240 volts (208 volts available on special order)
Output	19.7 W/linear m (6 W/linear ft)
Output by type of installation	15 cm (6 in) spacing: 129 W/m <sup>2</sup> (12 W/ft <sup>2</sup> )
Connection to thermostat	Simple installation: a single cold lead is connected to the thermostat (return feed on the same cable)
Designations and applications	CSA Canada: Electrical space heating Heating cable set in series type G & W CSA US: Electrical space heating Heating cable set in series type C Dry and wet environments
No significant electromagnetic field emission*	✓

\* Based on the installation instructions included in the FLEXTHERM installation guide, the recorded EMF measurement is considered insignificant (between 0.25 mG and 0.5 mG).

### 3.5 Electrical voltage

The cable shall be compatible with electrical installations of 240 VAC or 208 VAC.

### 3.6 Cable securing system

The securing system of the mat will be a self-adhesive flexible fiberglass mesh with additional anchors if needed.

### 3.7 Controls

FLP series programmable thermostat or FLK series non-programmable thermostat incorporating a class A certified GFCI, electronic, with low voltage module, including at least one temperature probe that needs to be fixed to the rigid insulation or subfloor, placed as close as possible to the floor covering. If embedding in the concrete slab, the probe must be inserted in a plastic conduit provided for this purpose (FLS1260T).

For an installation exceeding 15A, use the FLE series expansion unit.

Please refer to the guide for installation.

### 3.8 Product to be specified

Order according to the surface to cover. The cable cannot be cut or modified.

- Local or room: \_\_\_\_\_
- Surface to be covered: \_\_\_\_\_
- Floor covering: \_\_\_\_\_
- Concrete Mat Xpress model: \_\_\_\_\_
- Controls:  
(write down the required quantities) FLP [ ] FLK [ ] FLE [ ]
- Conduit for thermal probe:  
(write down the required quantities) FLS1260T [ ]

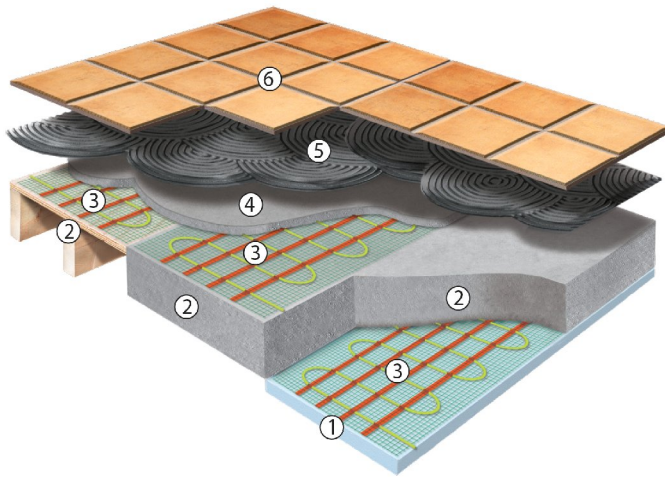
#### Writer's notes:

Due to its specific dimensions (fixed width of 24" and standard length), the mat cannot fit a room precisely. For this reason and to prevent the installer from having to remove the cable from the mat to install it like a regular cable (with no installation gauges) we recommend choosing a mat that does not exceed 90% of the available heating surface.

## 4 Installation

- Secure the heating mat in accordance to FLEXTHERM Concrete Mat Xpress installation guide; to rigid concrete insulation, concrete or plywood with its self-adhesive mesh.
- Place the thermostat remote sensing probe in accordance to FLEXTHERM Concrete Mat Xpress installation guide.
- Do not cross expansion joints with cable.
- Do not alter heating cable length.
- Ensure cables do not bunch or cross.
- Do not turn your system on, nor proceed with floor covering installation, immediately after the concrete is poured. The system can be operated only after the concrete has completely cured. Refer to the instructions of your construction professional to verify the curing time: this curing period is essential so that the concrete reaches its full hardness.
- Please refer to the installation guide for complete instructions, available with the product and on our website [www.flextherm.com](http://www.flextherm.com).

## 5 Application



1. Insulation
2. Concrete slab / plywood
3. Concrete Mat Xpress
4. Concrete topping
5. Adhesive
6. Floor covering

## 6 Quality assurance

### 6.1 Warranty

The Concrete Mat Xpress shall bear a 20 year limited warranty against any manufacturing defect when it's installed in conformity with the installation guide.

Please refer to the complete warranty card available in the installation guide included with the product or on our website [www.flextherm.com](http://www.flextherm.com).

### 6.2 General

Each product is inspected at the source, during manufacturing and at the end, in order to ensure compliance with the present specification.

### 6.3 Product manufacturing history

Every product has a unique serial number that traces the product manufacturing history.

### 6.4 Repairs

The cable can be repaired if it's damaged during or after the installation and is 5 inches or less from the floor covering surface. Contact our customer service for a diagnosis and a recommendation for a technician who is qualified to repair FLEXTHERM heating cables.

## 7 Packaging

The product is shipped in a box clearly identified with its contents. Each box shall include

- One roll of heating mat and anchors;
- Installation instructions including testing procedures during installation.

Each roll has a seal in order to ensure the integrity of the product.

## 8 Lexicon

Spacing: distance between two adjacent strands of cable.

Cable Securing System: system to be used to secure the cable to the mesh (as per section 3.6).

Series Heating Cable Sets: combination of heating cable and a cold lead to connect the cable to electrical source, assembled by supplier.