

## Needled Carpets | Installation Instruction of Modules | FINETT DIMENSION

### 1.0 General Notes

The technical regulations of VOB Part C DIN 18365 "Floor covering work" including the latest explanations in this connection, as well as the latest technical rules, DIN documents and directives are authoritative for the installation of needled carpets.

#### Especially

The technical rules: "Assessment and Preparation of Substrates, Installation of Elastic and Textile Floor Coverings, Laminated Material, Parquet, and Wood-Block Paving; Heated and Unheated Flooring Constructions" published by the Bundesverband Estrich und Belag e. V. (Federal Screed and Floor Covering Association).

as well as

The TKB-8 Technical Rules: "Assessment and Preparation of Substrates for Floor Coverings and Parquets" issued by the Technische Kommission Bauklebstoffe (TKB) im Industrieverband Klebstoffe e. V. Düsseldorf (Technical Commission for Constructions Adhesives of the Industrial Adhesives Association, Düsseldorf).

This recommendation is a supplement from the product-specific point of view which has been compiled to the best of our knowledge based on experience and testing.

No guarantee can be given for its completeness, correctness and applicability in individual cases. If in doubt, carrying out one's own gluing tests is advisable.

Our recommendations are in line with the latest developments in installation technology to the extent that we were aware of such at the time of publication.

We have no influence at all on the proper installation, for which reason no guarantee can be given for the results of installation. The directives for installation provided by the producers and suppliers of installation materials are always authoritative.

### 2.0 Substrates

#### 2.1 Screeds according to DIN 18560

In its Sections 2, 3, 4, and 7, DIN 18560 "Screeds in the Building Trade" distinguishes between the following constructions and types of screed:

- Screeds and heated screeds on an insulating layer (floating screeds), Section 2
- Compound screeds, Section 3
- Screeds on a separation layer, Section 4
- Highly wear-resistant screeds (industrial screeds), Section 7

Other substrate constructions may be:  
Cavity floors | Raised floors | Concrete substrates

#### Types of Screed

According to DIN 18560 - Section 1, one distinguishes between:

- CA calcium-sulphate screed
- AS poured asphalt screed
- MA magnesium-oxide screed
- SR synthetic-resin screed
- CT cement screed

#### 2.2 Dry Constructions

Wooden floors | Chip boards | Plaster boards

#### 2.3 Floor Heating Systems

A distinction has to be made between electric storage-type floor heating systems and hot-water-type floor heating systems.

For this purpose, refer to the latest FBH-D1 Technical Rules/Documentation "Work Sequence for Heated Flooring Constructions" published by the Zentralverband Sanitär Heizung Klima (Central Association of the Sanitation Heating Air-Conditioning Trades).

### **3.0 The installers duties to take due care and to give information with regard to the substrates and materials**

Before carrying out his/her work, the installer is obligated to check and ensure that the construction of the substrate is in accordance with the rules.

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The respective substrate for installation has to meet the requirements of VOB, Part C DIN 18365 "Floor Covering Work" and of the explanations in this connection in their latest version, as well as those of the applicable DIN documents, technical rules and directives.

In general, level substrates are suitable, if they are lastingly dry, free of cracks, clean, resistant to tensile stress, and compression-proof. Attention must be paid in particular to good surface hardness and strength of the top peripheral area of the substrate.

When he/she inspects the substrate, the installer is obliged to advance objections in cases of ...

#### **... major unevenness**

With regard to evenness, the substrate has to meet the requirements of DIN 18202 "Tolerances in Structural Engineering", Table 3, Line 3.

#### **... cracks in a substrate**

Any cracks and signs of cracking have to be closed with a suitable two-component resin material, in particular in cases of floating screeds.

#### **... insufficiently dry substrates**

All mineral substrates, with the exception of poured asphalt screeds, have an equilibrium of dampness determined by the material of the various types of screed, which also corresponds to the point when a floor covering is ready to be installed and which must not be exceeded.

Before doing preparatory work on the sub-floor, the installer is obliged to take adequate measurements of dampness following the calcium-carbide method, using a so-called CM moisture meter (with mineral substrates) or, with wooden substrates, using suitable special electronic dampness gauges.

For floor heating constructions, the FBH-D4 documentations "Making Screed Ready for Surfacing by Heating" published by the Zentralverband Sanitär Heizung Klima (Central Association of the Sanitation Heating Air-Conditioning Trades) as well as the FBH-M 2 Technical Rules "Preparatory Measures for the Installation of Floor Coverings on Cement and Calcium-Sulphate Heated Screeds" published by the Zentralverband Sanitär Heizung Klima are all authoritative.

In the course of a record of measures, the property developer/client (and also the architect) as well as the heating installer have to accept by their dated signatures a confirmation of the heating-up and cooling-down phases.

The maximum permissible moisture content of screed constructions and other mineral substrates, when textile floor coverings are glued, are as follows:

Cement screed (not heated)	≤ 2,0 CM-%
Cement screed (heated)	≤ 1,8 CM-%
Calcium sulphate screed (not heated)	≤ 0,5 CM-%
Calcium sulphate screed (heated)	≤ 0,3 CM-%
Magnesium-oxide screed (not heated)	1,0-3,5 CM-%

(Depending on the proportion of organic component fractions; ask manufacturers for empirical values).

#### **Note**

In rooms without basements or on ceilings above rooms with high relative humidity and high temperature drops, clients have to provide for and produce appropriate sealing measures and/or damp barriers.

In cases of concrete slabs with and without compound screed, one must bear in mind that the figures determined using measuring instruments usual in the trade might not be sound. The values measured in the upper zone of the substrate do not allow any conclusions about the moisture content of the concrete slab all the way through.

Through suitable measures, the installer is obliged to provide solutions that the moisture from the substrate is being kept away from subfloor preparation materials as well as from the adhesive and the floor covering.

#### **... insufficiently solid surface of a substrate**

The installer can test the surface strength of a substrate by means of "grid-type scratch tests" or wire-brush treatment and hammer-blow tests.

#### **... too porous and too rough surface of a substrate**

This is tested through visual inspection.

#### **... required closing actuated by gravity of movement joints in the substrate**

The functioning of movement joints in the substrate must not be impaired in any manner, i. e. nor should they be covered with floor covering.

#### **... dirty surface of a substrate, e.g. with oil, wax, enamels or paint residues**

Cleaning the substrate by scraping and vacuuming are part of the usual preparatory work, removing dirtying of the aforementioned types, however, being a service that has to be paid for additionally.

#### **... unsuitable temperature of the substrate**

The surface temperature of the substrate has to be at least 15 °C, with a floor heating system it should be between 18 and 22 °C. Higher temperatures of the substrate may lead to changed reaction times while the installation materials are handled. It is advised not to exceed a temperature of 22 °C even in case of substrates without floor-heating.

#### **... unsuitable temperature and humidity conditions in a room**

According to the VOB, Part C of the DIN 18365 "Floor Covering Work" and the explanations /comments in this connection, as well as more far-reaching technical rules and directives, it is prescribed that the room temperature has to be at least 18 °C and that the relative humidity shall amount to between 50 and 65 %.

High temperatures of the room air change the reaction times and drying when the installation materials are processed, which may change the dimensions of the carpet.

A room temperature of 26 °C should not be exceeded.

These are the climatic conditions, under which installation materials and needed carpets have to be brought to a moderate temperature/acclimatized.

## **4.0 Preparatory Work for Substrates**

Unless there are other instructions by the client, to guarantee that substrates are suitable for castor chairs, the installer is obliged to finish substrates with a min. 1-mm layer of suitable filler and levelling material.

Continue by levelling out the substrate to the necessary thickness of the layer to create a suitable, evenly absorbent and level surface for gluing the covering.

Depending on the type of substrate, carry out the cleaning measures necessary, it being especially pointed out that the surface of calcium-sulphate screeds always has to be roughened by sanding with a conventional sanding machine in one working operation, using a suitable abrasive paper, and vacuumed with an industrial-type vacuum cleaner, unless there are different and binding instructions by the manufacturer for preparing the surface.

## 5.0 Auxiliary Installation Materials

### Precoats (Priming Coats)

On substrates to which the filler compound does not sufficiently adhere, e.g. magnesium-oxide and calcium-sulphate screeds, a priming coat should be applied.

On cement screed surfaces and on calcium-sulphate/calcium sulphate floating screeds, magnesium-oxide screeds, and poured asphalt screeds, it always is advisable to apply a priming coat as a bonding course for the subsequent filler.

Today, dispersion priming coats are, usually, used for this, special attention having to be given to suitable film-forming priming coats being used on substrates such as magnesium-oxide screed, chip board panels, terrazzo-/stone floors, as these are non-absorbent substrates.

With old substrates, special attention has to be given to separation layers first being removed from them.

The relevant stipulations of the suppliers/manufacturers of the installation materials have to be considered as binding.

### Fillers

The usual fillers/levelling materials in common use are cement-based. In addition, dispersion fillers and two-component plastic fillers are available for special fields of application.

Bear in mind that poured asphalt screed constructions should be levelled out to a minimum layer thickness of 1.5 mm so that there is a migration barrier opposite the bituminous parts of the substrate.

Wooden substrates can be levelled based on the system with special elastic wooden floor levelling material. Substrates for installation made of type "V 100 E 1" chip boards (glued in the groove- and tongue area) are usually levelled with dispersion fillers as migration barriers.

The relevant stipulations of the suppliers of the filler material have to be considered as binding.

### Carpet Underlays according to DIN 14499

Carpet underlays may impair the indentation behaviour, the castor chair suitability, and the fire behaviour of FINDEISEN needed carpets.

Therefore, we do not recommend installing FINDEISEN needed carpets on underlays of any kind and, in each individual case, they must only be realized where this has been explicitly authorized by us.

## 6.0 Storing Modules

The modules have to be stored flat in their original packing and protected against soiling, humidity, and direct insolation.

## 7.0 Checking and Acclimatizing Modules

Check lot numbers. Install only material of identical lots. Before the modules are installed, they have to be checked for perceptible faults, as, after completion of the installation work, notifications of faults are not accepted any more.

Minor commercial colour variations may occur in every lot. In this connection, we especially refer to the latest explanation/comment of the DIN 18365.

The boxes have to be put on a flat surface in the room where the modules shall be installed and left in the room for acclimatization for at least 24 hours. Do not pile up more than 12 boxes.

The floor temperature must be min. 15 °C, the air temperature between 18 and 22 °C (max. 26 °C), and the relative air humidity between 50 and 65 %.

The flooring installer is obliged to inform the contractor that the room climate must also be maintained after the end of the installation work, however, the flooring installer shall not be obliged to ensure that the room climate is actually being maintained.

## 8.0 Removable Installation of Modules

### General Notes

For the installation, observe the arrow marks on the rear side of the modules to make sure that the chosen direction of installation is continuously adhered to.

When installing the modules be sure that to moisten the whole surface with a suitable adhesive system so that they can be removed again.

For removable installation, FINDEISEN needled carpets, in Germany, must be glued by adhesives that have a general approval (abZ) of the "Deutsches Institut für Bautechnik (DIBt) [German Site Supervision Authority]".

### 8.1 Fixing the Modules

We recommend "tackifiers" of the lowest emission class that are free of low-, medium- and high-boiling solvents.

Below a list of recommended products (without claiming to be exhaustive):

Product	Contract Technology
MAPEI Ultrabond Eco Tack	fine-pored foam roller
SCHÖNOX Multifix	
WULFF Fixiergel	
UZIN U 2100	coarse-pored foam roller

The tackifier to be used must always be **undiluted**. The directives provided by the suppliers of the installation material are always authoritative, in particular with regard to the preparation of the substrate, quantity to be applied, and working times.

When other than the above products shall be used, the suitability will have to be clarified in advance with the respective supplier, possibly making one's own installation tests.

The modules must be installed with closed and tension-free joints. The optimum working time is achieved when, with the "finger test", the tackifier does not stick to your finger.

The tackifier must have produced a transparent, strongly tacky film ensuring that a horizontal **and** vertical adherence of the needled carpet.

Under this condition it is guaranteed that the carpet safely adheres to the substrate at the same allowing the carpet to be easily removed again.

Shortly after the installation, the flooring has to be evenly run over with a min. 50 kg pressing roller within the working time stipulated by the supplier of the installation material.

### Please note:

Anti-slip products (such as UZIN U 1000 or THOMSIT T 425/T 435) must not be used.

### Dry Adhesives

In particular for temporary applications (e. g. in fair and shop installations), there also is the possibility of using dry adhesives for a full-surface installation of the modules.

The installed flooring has to be intensely and evenly be run over with a heavy pressing roller (min. 50 kg). Furthermore, the installation instructions of the suppliers of the dry adhesives are authoritative.

### Marginal Tiles

Near the walls or in the area of other stationary parts of the building a functional circumferential expansion gap has to be provided for. Press-fit cutting of the flooring may cause deformations producing arching in the border areas. Therefore, press-fit cutting must be avoided.

In principle, when carpets are installed, it should not be necessary in the border areas or in the area of other stationary parts of the building (e. g. coves) to insert small strips or other small pieces.

Otherwise, these have to be firmly glued to the substrate in order to avoid that they will possibly be sucked in during maintenance cleanings.

## 8.2 Installation of the Modules

### Tiles (50 x 50 cm)

Mark out with a line a parallel to the main front of the room. The distance to the wall should be identical to the dimension of 2 to 3 tiles, i. e. 100 to 150 cm. Mark the chosen starting point on the line determined.

The arrangement in the room should be chosen in such a way that, in the entrance area and in places which are especially eye-catching (such as door reveal areas) you can, to a large extent, lay entire tiles and are not forced to insert small strips.

Then, install one row of tiles from the starting point along the lining-out. All tiles have to be laid in the same direction (note the marking on the underside of the tile).

Continue installing the tiles from the starting point into the respective directions. Make sure that the tiles are tightly butted together, but not pressed to one another. The cross-shaped joints produced have to coincide without pressing the tiles.

### Planks (25 x 100 cm)

As for the installation of tiles, a parallel to the main front of the room has to be marked out with a line. Parallel shifting shows, according to width of the planks, the optimum starting point for the installation.

The arrangement in the room should be chosen in such a way that, in the entrance area and in places which are especially eye-catching (such as door reveal areas) you can, to a large extent, lay mostly entire planks, but at least half elements and are not forced to insert too small residual or marginal parts (which have to be firmly glued).

Continue installing one row of planks in parallel to the lining-out. All elements must be laid in the same direction (note the marking on the underside of the planks).

When installing the second and following rows, the gaps, independently of the chosen type of installation (even or irregular units) must be offset sufficiently by at least approx. 30 cm. Make sure that the planks are tightly butted together, but not pressed to one another.

### 8.3 Installation on Raised Floor Panels

Modules laid on raised floor panels have to be installed with their joints offset to the joints of the raised floor panels.

For the installation of tiles, the ideal case is given when the cross-type joint of the tiles comes to lie on the centre of a raised-floor panel.

When installing on raised-floor panels, you must ensure that the (liquid) tackifier used does not get into the joints of the raised-floor panels, since this would make the raised-floor panels glue together.

### 8.4 Additional Notes

The carpet must be protected against direct insulation until after the completion of the installation works. Acc. to the VOB, the necessary measures are considered special services and have to be paid for separately.

Finally, when the modules have been completely installed and glued, protect them against getting soiled until given to the client. We refer in this connection to the rule that the supplier is obliged to conserve a completed yet not accepted work (protection of the carpet against getting damaged by subsequent trades). Acc. to the VOB, this is a special service to be paid for separately.

Bear in mind that the glued carpet lines must not be covered until the tackifier has set.

When using needled carpet materials on the surface of floor heating screed constructions, only use auxiliary materials suited for this application.

The entire content must be taken into consideration of the latest technical rule/documentation "Interface Coordination in case of Heated Floor Constructions" of the Bundesverband Flächenheizung e. V (Federal Association of Radiant Heating Systems), as well as the latest technical rules and directives including the latest TKB-8 Technical Rules "Assessment and Preparation of Substrates for Floor Coverings and Parquets".

## Room Air Conditions

Installation materials and floor coverings and, hence, also FINDEISEN modules are designed for rooms in which air conditions generally recommended for the comfort of human beings are lastingly guaranteed.

This includes an air temperature ranging from 18 °C to approx. 23 °C and a relative humidity ranging from 50 to 65 %.

## 9.0 Concluding Remarks

FINDEISEN modular carpets (in the form of tiles and planks) can give the impression of a predominantly homogenous surface that can easily be taken for a floor covering installed in rolls.

Perceptibility of individual modules within a given area is an inherent feature of the product, which means, within large areas, depending on the viewer's position and the different light reflections resulting therefrom, it is normally possible to perceive individual elements.

When carpet rolls and modules are combined side by side, this appearance can sometimes be made out more clearly.

Only the explanations in these installation instructions as well as the general technical regulations of the VOB, Part C DIN 18365 "Floor Covering Work" are authoritative for the delivery, installation and durability (usefulness and utility) of the modules we supply.

If any faults or damages appear on our floor coverings which are attributable to non-compliance with these directives, the manufacturer and/or supplier may not assume any liability for the warranty. Any claims of recourse in this connection shall be excluded.

In the course of technical development, we reserve the right to correspondingly alter the modules we supply and produce.

With publishing of these technical rules, all preceding technical rules in this connection become invalid.