

# TKB-Technical Briefing Note 11

No longer updated.  
We refer to the TKB leaflets 10 and 13.

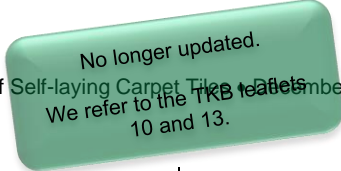
## Installation of Self-laying Carpet Tiles

Version: December 2018

Prepared by Technische Kommission Bauklebstoffe (TKB) (Technical Commission on Construction Adhesives) of Industrieverband Klebstoffe e.V. (German Adhesives Association), Düsseldorf

In collaboration with

- Bundesverband der vereidigten Sachverständigen für Raum- und Ausstattung (BSR)
- Bundesverband Parkett- und Fußbodentechnik (BVPF)
- Zentralverband Raum und Ausstattung (ZVR)



## Table of Contents

1	Introduction .....	2
2	Substrates.....	2
2.1	Screeds.....	2
2.2	Prefabricated Screed Constructions .....	2
2.3	Hollow and Double Floors .....	2
2.4	Assessment of Substrate .....	3
2.5	Preparation of Substrate .....	3
3	Loose and Removable SL carpet tiles .....	3
3.1	Structure .....	3
3.2	Properties.....	3
3.3	Applications.....	4
4	Installation.....	4
4.1	Storage and Conditioning .....	4
4.2	Installation Conditions.....	4
4.3	Application of fixation for SL Carpet Tiles .....	4
4.4	Installation of Floor Covering .....	5
4.5	Conductive Installation.....	5
4.6	Taking up and Re-use.....	5
5.	Cleaning and Maintenance .....	5
6	Relevant Standards and Technical Briefing Notes .....	6
6.1	Industrial and Consumer Safety.....	6
6.2	TKB Technical Briefing Notes .....	6
6.3	Standards for Floor Coverings .....	6
6.4	Standards for Floor Covering Installation.....	7
6.5	Standards for substrates.....	7
6.6	Other Standards.....	7
6.7	Commentaries for Standards .....	8
6.8	Other Technical Briefing Notes .....	8
6.9	Specialist Literature .....	8

## 1 Introduction

This briefing note provides recommendations for installers regarding installation and removal of self-laying carpet tiles. The ISO 2424 standardized term for carpet tiles is the following: "Modular carpet. Textile floor covering of predetermined shape and size intended to be used in a modular mode." This briefing note exclusively deals with self-laying carpet tiles which manufacturers have approved for loose installation. For self-laying carpet tiles other terms are used as well depending on their format, e.g. SL (carpet) tiles, carpet panels, carpet plates or carpet planks. In the following, we shall use the term "SL carpet tile" which includes all terms mentioned above and shall be interpreted as a synonym for carpet tiles with different dimensions, suited for loose installation. In some instances, the term "tile" is used instead of "SL-carpet tile" to improve readability of the text.

In particular, these SL carpet tiles are preferably used in situations where installations in double or hollow floors must be easily accessible or where the floor covering shall be removed quickly and flexibly, either partially or over the whole surface. Information is provided on properties and

applications for loose-laying or removable SL carpet tiles and panels as well as regarding installation, removal and maintenance.

## 2 Substrates

Information regarding assessment and preparation of substrates can be found in TKB Technical Briefing Note 8 "Beurteilen und Vorbereiten von Untergründen für Bodenbelag- und Parkettarbeiten".

### 2.1 Screeds

The common screed types such as cement screed, calcium sulphate flow screed and magnesia screed are approved for installation of SL carpet tiles. However, readiness for installation and evenness of the screed are prerequisites for this type of installation. For mastic asphalt screeds a sufficiently thick levelling layer (2-3 mm with calcium sulphate or cement-based levelling compounds) is required to provide uniform absorbency and evenness. All screed mounting constructions (compound screed /screed on separating layer /screed on insulation / screed for under floor heating) are suited for installation of SL carpet tiles.

### 2.2 Prefabricated Screed Constructions

Prefabricated screeds, sometimes also confusingly described as dry screeds, are slab type substrates, installed on a load-bearing floor on which floor coverings can be immediately installed without drying time.

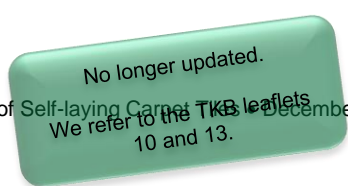
The possible constructions are the result of the elements' mechanical properties, directly related to their chemical composition.

The TKB briefing note 10 "Bodenbelags- und Parkettarbeiten auf Fertigteilestrichen – Holzwerkstoff- und Gipsfaserplatten" gives descriptions of the materials used for prefabricated screed elements and the different installation constructions.

SL carpet tiles place no special demands on prefabricated screed constructions. However, it is important to remove all overhangs in the joint areas, if necessary smoothing down the joints with a suitable levelling compound. In some cases, a full surface levelling of the complete prefabricated screed area might be advisable using a self-levelling compound.

### 2.3 Hollow and Double Floors

The basis for hollow floors are formwork elements which are either placed on height-adjustable supporting legs or directly on the concrete floor. After applying a separating layer, the screed is installed on the formwork base, in most cases a calcium sulphate flow screed or a reinforced cement screed. The clear cavity height to be used for



electrical, water or computing installations etc, can be up to 200 mm.

Hollow floors are used where quick and easy access to the installations and supply lines is required. This is advantageous for offices, workrooms, training and research facilities. The installations are thus accessible through inspection openings in the framework and the screed. Vent holes and outlets can be installed in the framework, the screed can also be installed as heated screed. The term double floor stands for prefabricated floor panels placed on height-adjustable supporting legs. Each individual panel can be removed to gain access to the installation level. Double floors are used in computing rooms, control rooms, auditoriums and allow for clear heights of up to 1250 mm in the installation cavity. Different floor panels can be used:

- Steel tubs filled with calcium sulphate bound mortar on which then different floor coverings can be installed. By placing heating coils with quick release into the mortar, even under floor heating systems can be installed.
- Calcium sulphate bound mineral panels with fibre reinforcement and no steel tub.
- High density wood-based panels or particle boards with integrated aluminium laminate on the underside or counteracting sheet steel
- Steel panels.

SL carpet tiles are a particularly suitable and often used floor covering solution for double floors, since the tiles as well as the double floor panels can be quickly removed and so ensure easy access to the installation level. For installation, SL carpet tiles do not follow the joint grid of the double floor system.

## 2.4 Assessment of Substrate

The required substrate assessment procedures and their execution prior to installation of SL carpet tiles are specified in TKB briefing note 8 "Beurteilen und Vorbereiten von Untergründen für Bodenbelag- und Parkettarbeiten". In particular, the requirements of DIN 18365 must be observed, similar to installation of other textile or elastic floor coverings.

TKB briefing note 10 "Bodenbelags- und Parkettarbeiten auf Fertigteilstrichen – Holzwerkstoff- und Gipsfaserplatten" contains special information regarding assessment of prefabricated screed constructions.

## 2.5 Preparation of Substrate

The individual steps for the preparation of substrates are detailed in TKB briefing note 8 "Beurteilen und Vorbereiten von Untergründen für Bodenbelag- und Parkettarbeiten". In particular, it must be made sure that the substrate is clean, even and dry. For prefabricated screed components, overhangs in the joint area must be removed and for

double floors, height offsets between the panels are to be avoided.

TKB briefing note 10 "Bodenbelags- und Parkettarbeiten auf Fertigteilstrichen – Holzwerkstoff- und Gipsfaserplatten" contains special information regarding assessment of prefabricated screed constructions.

## 3 Loose and Removable SL carpet tiles

### 3.1 Structure

Like all textile floor coverings, SL carpet tiles are divided into textile floor coverings with pile and those without pile. For SL carpet tiles, like textile coverings with pile, a distinction is made between coverings with loop pile (Bouclé) and those with cut pile (Velours). Needle felt and twined yarn floor coverings are also available in tile form and are examples for textile coverings without pile.

In addition, SL carpet tiles are also manufactured using a weaving process, however only woven carpets with pile are offered as tiles. Woven carpets with pile are also manufactured with loop or cut pile.

For SL carpet tiles, the required high grammage is achieved through heavy coating, consisting of bitumen or PVC, today increasingly also of polyurethane (PUR), ethylene vinyl acetate copolymers (EVA) or polyolefins.

Given that the tiles shall be easily removable, it makes sense to check the bonding strength of the combination of backing construction and SL carpet tile fixation or to have manufacturers of the floor covering or the fixation confirm that the combination of backing construction and fixation is suitable for the intended purpose.

### 3.2 Properties

In particular, SL carpet tiles stand out on account of their dimensional stability and the ability to be installed level without the need for adhesives. Compared to other textile floor coverings, SL carpet tiles have a higher grammage, ensuring level laying.

In most cases, the tiles are installed on a special SL carpet tile fixation, preventing slippage during use.

The usual edge length of SL carpet tiles is 50 cm x 50 cm. However, there also exist non-square forms (e.g. rectangular) in order to be able to satisfy special design requirements.

SL carpet tiles are characterized by a number of parameters, such as edge length, grammage (DIN EN 1307; ISO 8543), overall thickness (DIN EN 1307; ISO 1765), the manufacturing process (ISO 2424), construction (ISO 2424), pile type, pile weight (ISO 2424), pile layer thickness (DIN EN 1307; ISO 1766), material of pile, carrier and

backing or pile, binding and filling warps, nap count (DIN EN 1307; ISO 1763), contact resistance (DIN EN 1307; ISO 10965), surface resistance (DIN EN 1307; ISO 10965), degree of impact sound attenuation (DIN EN 1307; DIN EN ISO 10140-3), sound reduction (DIN EN 1307; DIN EN ISO 354), heat transfer resistance (DIN EN 1307; ISO 8302), fire behaviour (EN 14041).

The dimensional tolerances for SL carpet tiles are determined in EN 1307. Within a batch, the dimensional accuracy shall not exceed a tolerance of  $\pm 0,2\%$  (inspection according to EN 994). Regarding dimensional stability, examination of loose lay and removable bonded tiles according to EN 986 shall only allow shrinkage or expansion of max. 0.2% in both horizontal directions. When testing according to EN 986, the SL carpet tiles may only cup or bulge for not more than max. 2 mm. In practice however, vertical changes of this scale will lead to complaints.

### 3.3 Applications

SL carpet tiles are used in residential and industrial projects when a certain flexibility in floor construction is required, e.g.

- In offices for easy access to electrical installations under double and hollow floors.
- In hotels and restaurants for easy exchange of soiled or damaged tiles in heavy duty areas.
- In store or exhibition stand construction for easy and quick installation or renovation.
- In all projects where individuality, a wide range of designs and variability in floor design is required.

For installers, SL carpet tiles offer two important benefits compared to carpets on rolls: transport is much easier on account of the smaller dimensions as well as simple and reliable calculation of clippings of the floor covering with individual room geometries and unfavourable room layouts.

The SL carpet tiles are placed on a dried SL carpet tile fixation to prevent slipping. Consequently, they can later be taken up easily and without damage and if required, can be re-installed later without the need for renovation of the substrate.

For installation, this entails the following:

On the one hand, not only the floor covering, SL carpet tile fixation and substrate must be suited for the heavy duty demands of the project, but more importantly, the combination of the materials must stand up to these requirements and on the other hand, the flexible and non-destructive removal of SL carpet tiles must be ensured. This requires the use of specialized products and exact observance of

special parameters before, during and after installation.

## 4 Installation

### 4.1 Storage and Conditioning

SL carpet tiles must be stored in a dry place. If manufacturer has not issued different instructions, the SL carpet tiles must be unpacked and conditioned for a period of 1-2 days at temperatures between 18 – 22 °C and a relative air humidity of 45 – 65 %. In order to prevent excessive stress on lower tiles in stack, tiles shall not be stacked too high. This applies if flooring manufacturer has not issued other instructions.

### 4.2 Installation Conditions

During installation and for 7 days after installation, the following ambient conditions shall be observed:

- Substrate temperature: min. 15 °C
- Material temperature: mind. 18 °C
- Substrate temperature with under floor heating systems: 18 - 22 °C (3 days before and up to 7 days after installation)
- Air temperature: min. 18 °C
- Relative air humidity: preferably 40 – 65 %, max. 75 %

Since SL carpet tiles particularly react to changes in relative air humidity, always carefully observe above conditions.

More detailed information regarding room climate can be found in TKB Briefing Note 17 "Auswirkungen des Raumklimas auf Bodenbeläge und Verlegewerkstoffe während der Verlegung und der Nutzung". This briefing note outlines that responsibility for setting the required installation climate basically lies with the customer, the installer however is required to assess the conditions before start of installation. Should the installation conditions deviate from the required climate conditions, installation shall only take place after explicit agreement between customer and installer.

### 4.3 Application of fixation for SL Carpet Tiles

As their name implies, SL carpet tiles are self-laying and based on their structure and depending on their grammage, do not necessarily require to be glued down over the entire surface. One advantage of SL carpet tiles is that they can easily be taken up which makes them the ideal floor covering option for double and hollow floors.

Consequently, SL carpet tiles are only prevented from slipping by application of a special fixation. Based on this function, SL carpet tile fixations are often designated as anti-slip layers. SL carpet tile fixations are aqueous polymer dispersions which,

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Self-laying Carpet Tiles leaflets  
We refer to the TKBs December 2018  
10 and 13.

once dried, form an elastic film with specific, low adhesion to the SL carpet tiles. The low adhesion of the SL carpet tiles on the dried film of the fixation prevents slipping of the tiles and at the same time allows for easy and non-damaging removal and re-use of the tiles.

SL carpet tile fixations distinguish themselves by their composition, properties and function from other fixations with different designations and applications/functions, e.g. universal fixations with higher bonding strength, wide range of applications and use with wet or pressure-sensitive adhesive methods, fixation of textile coverings (for rolls) and dispersion fixations for (PVC) design and multilayer floor coverings.

If manufacturer has not issued other instructions, the fixation shall be applied with an appropriate fine-pored foam roller in a thin layer using a stripping grid. With double floor systems it shall be ensured that the liquid fixation does not enter between the individual floor panels, since panel edges might glue together and subsequently double floor panels are difficult to remove at a later date. To avoid leakage of fixation between panels, mask the joints or apply fixation panel by panel.

The applied SL carpet tile fixation must have dried out completely before carpet tiles are installed to avoid tiles to be glued down permanently. If tiles are placed on film too early, instead of an anti-slip effect, a full bond is achieved and SL carpet tiles can be damaged when taken up at a later date.

#### 4.4 Installation of Floor Covering

Upon delivery, the pallets with SL carpet tiles are often numbered or the installation sequence of the individual pallets is specified. The boxes normally have batch numbers which must be followed on account of colour tolerances. The SL carpet tiles need to be conditioned before installation as described under 4.1.

The SL carpet tiles must lay flat, even without adhesion film applied. SL tiles with cupped edges or bulging centres must be discarded.

During installation, make sure there are no significant colour deviations from tile to tile. For this reason, always observe the numbering of the consignment as described above.

Direction of installation is normally indicated on the backside of the tile. Always observe manufacturer's instructions regarding installation direction.

After room has been measured, installation starts in the centre of the room. It has been proven helpful to install tiles along an exact rectangular reference line. First, 4 tiles are fixated and serve as starting point for the rest of the installation. Installation is then continued in a stepped manner, joint meeting

joint. Always make sure that protruding pile of velour tiles is not wedged in or bent.

When installing SL carpet tiles on double floor panels, make sure that the tile edges are offset to the edges of the double floor panels.

#### 4.5 Conductive Installation

The surface and contact resistance of SL carpet tiles is typically approx.  $10^8$  to  $10^9 \Omega$ . For conductive installations, conductive fixations are used. Typically, a conductive agent is added to the regular SL carpet tile fixation. The surface conductivity of such conductive fixations is between  $10^5$  to  $10^7 \Omega$ . Conductive installation of anti-static SL carpet tiles normally results in an overall contact resistance of  $10^8$  to  $10^9 \Omega$ .

A defined grounding is achieved by placing a blank copper strip ( $w = 10 \text{ mm}$ ,  $t = 0.1 \text{ mm}$ ) into the fixation layer. The copper strip shall be installed circularly in the room with a wall clearance of 25 cm. For grounding of conductive floors, potential equalization (VDE 0107/3.68) is required for every 30 m<sup>2</sup> of surface. A copper strip with a length of min. 1 meter is placed in the fixation layer and shall overlap the copper strip which has been installed along the walls with 25 cm clearance. The copper strip shall jut out by 1 meter from installation surface to serve as terminal for the electrician to make potential equalization.

#### 4.6 Taking up and Re-use

In order to ensure proper re-use of the SL carpet tiles, the tiles shall be removed by a professional installer. The tiles have to be taken up carefully, in particular not taken up diagonally starting with the edge since this might result in warping. They must then be properly stored in an air-conditioned room. When taking up the tiles, make sure the fixation layer is not contaminated by dust or other types of dirt.

The floor space with exposed anti-slip layer shall be protected from dust and dirt by appropriate measures, e.g. covering it with PE sheets.

When re-using the SL carpet tiles, it shall be made sure that each tile goes back to its initial position in order to maintain the original appearance. This ensures that the original colour variation pattern is restored.

### 5. Cleaning and Maintenance

SL carpet tiles shall only be cleaned with dry cleaning processes or using special cleaning pads. Wet cleaning methods, e.g. spray extraction or wet shampooing are not permitted to prevent damage to

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10 and 13.

floor covering and substrate. This applies when floor manufacturer has not issued other instructions.

## 6 Relevant Standards and Technical Briefing Notes

### 6.1 Industrial and Consumer Safety

Verordnung zum Schutz vor Gefahrstoffen (Gefahrstoffverordnung – GefStoffV) vom 26.11.2010 (BGBl. I S. 1643)  
In der aktuellen Fassung vom 29.03.2017 (BGBl. I S. 626)

TRGS 900  
Arbeitsplatzgrenzwerte  
Ausgabe: Januar 2006  
BArBI Heft 1/2006, S. 41-55  
Zuletzt geändert und ergänzt: GMBI 2017, S. 368-370 v. 8.6.2017  
Ausschuß für Gefahrstoffe (AGS)

GISCODE für Verlegewerkstoffe  
aktuelle Fassung  
(<http://www.bgbau.de/gisbau/giscodes>)  
Gefahrstoff Informationssystem der Berufsgenossenschaften der Bauindustrie; Frankfurt

EMICODE für Verlegewerkstoffe  
aktuelle Fassung (<http://www.emicode.com/de/>)  
„Gemeinschaft Emissionskontrollierte Verlegewerkstoffe, Klebstoffe und Bauprodukte e.V.“ (GEV)

TRGS 600  
Substitution  
Ausgabe: August 2008  
GMBI Nr. 46/47, S. 970-989 v. 22.09.2008  
Ausschuß für Gefahrstoffe (AGS)

TRGS 610  
Ersatzstoffe und Ersatzverfahren für stark lösemittelhaltige Vorstriche und Klebstoffe für den Bodenbereich  
Ausgabe: Januar 2011  
GMBI 2011 Nr. 8, S.163-165 v. 02.03.2011  
Ausschuß für Gefahrstoffe (AGS)

### 6.2 TKB Technical Briefing Notes

TKB-Merkblatt 8  
Beurteilen und Vorbereiten von Untergründen für Bodenbelag- und Parkettarbeiten  
Stand: April 2015  
Technische Kommission Bauklebstoffe (TKB) im Industrieverband Klebstoffe e.V. (IVK), Düsseldorf  
Available at: [www.klebstoffe.com](http://www.klebstoffe.com).

TKB Technical Briefing Note 9  
Technical Specification and Installation of Floor Levelling Compounds  
Version: April 2008  
Technische Kommission Bauklebstoffe (TKB) im Industrieverband Klebstoffe e.V. (IVK), Düsseldorf.  
Available at: [www.klebstoffe.com](http://www.klebstoffe.com)

TKB-Merkblatt 10  
Bodenbelags- und Parkettarbeiten auf Fertigteilestrichen – Holzwerkstoff- und Gipsfaserplatten  
Stand: März 2016  
Technische Kommission Bauklebstoffe (TKB) im Industrieverband Klebstoffe e.V. (IVK), Düsseldorf.  
Available at: [www.klebstoffe.com](http://www.klebstoffe.com)

TKB-Merkblatt 17  
Auswirkungen des Raumklimas auf Bodenbeläge und Verlegewerkstoffe während der Verlegung und der Nutzung  
Stand: März 2018  
Technische Kommission Bauklebstoffe (TKB) im Industrieverband Klebstoffe e.V. (IVK), Düsseldorf.  
Available at: [www.klebstoffe.com](http://www.klebstoffe.com)

### 6.3 Standards for Floor Coverings

Norm DIN EN 1307:2016-05  
Textile Bodenbeläge – Einstufung  
Deutsche Fassung EN 1307:2014 + A1:2016  
Berlin: Beuth Verlag GmbH. Mai 2016

Norm DIN ISO 2424:1999-01  
Textile Bodenbeläge - Begriffe  
Deutsche Fassung ISO 2424:1992  
Berlin: Beuth Verlag GmbH. Januar 1999

Norm ISO 2424:2007-02  
Textile floor coverings - Vocabulary  
Berlin: Beuth Verlag GmbH. February 2010

Norm DIN CEN/TS 14472-1:2003-10  
Elastische, textile und Laminatbodenbeläge - Planung, Vorbereitung und Verlegung - Teil 1: Allgemeines.  
Deutsche Fassung CEN/TS 14472-1:2003  
Berlin: Beuth Verlag GmbH. Oktober 2003

Norm DIN CEN/TS 14472-2:2003-10  
Elastische, textile und Laminatbodenbeläge - Planung, Vorbereitung und Verlegung - Teil 2: Textile Bodenbeläge  
Deutsche Fassung CEN/TS 14472-2:2003  
Berlin: Beuth Verlag GmbH. Oktober 2003

No longer updated.

We refer to the TKB leaflets 10 and 13.

Norm DIN EN 14041:2008-05  
Elastische, textile und Laminat-Bodenbeläge -  
Wesentliche Eigenschaften  
Deutsche Fassung EN  
14041:2004+AC:2005+AC:2006  
Berlin: Beuth Verlag GmbH. Mai 2008

Norm E DIN EN 14041:2016-07  
Elastische, textile und Laminat-Bodenbeläge -  
Wesentliche Eigenschaften  
Deutsche Fassung prEN 14041:2016  
Berlin: Beuth Verlag GmbH. Juli 2016

Norm DIN EN 986:2006-03  
Textile Bodenbeläge - Fliesen - Bestimmung der  
Maßänderung infolge der Wirkungen wechselnder  
Feuchte- und Temperaturbedingungen und  
vertikale Flächenverformungen  
Deutsche Fassung EN 986:2005  
Berlin: Beuth Verlag GmbH. März 2006

Norm DIN EN 994:2012-03  
Textile Bodenbeläge - Bestimmung der Länge und  
Geradheit der Kanten und der Rechtwinkligkeit von  
Fliesen  
Deutsche Fassung EN 994:2012  
Berlin: Beuth Verlag GmbH. März 2012

Norm ISO 1765:1986-11  
Maschinell gefertigte textile Fußbodenbeläge -  
Dickebestimmung  
Berlin: Beuth Verlag GmbH. November 1986

Norm ISO 1766:1999-10  
Textile Bodenbeläge - Bestimmung der Dicke über  
der Grundschrift  
Berlin: Beuth Verlag GmbH. Oktober 1999

Norm ISO 1763:1986-11  
Teppiche - Bestimmung der Knoten- und/oder  
Schlingenanzahl je Längen- und Flächeneinheit  
Berlin: Beuth Verlag GmbH. November 1986

Norm ISO 10965:2011-07  
Textile Bodenbeläge - Bestimmung des  
elektrischen Widerstandes  
Berlin: Beuth Verlag GmbH. Juli 2011

Norm DIN EN 14159:2015-03  
Textile Bodenbeläge - Anforderungen für  
Toleranzen der (linearen) Maße von abgepassten  
Teppichen, Läufern, Teppichfliesen und Teppich-  
Auslegeware und des Musterrapports  
Deutsche Fassung EN 14159:2014  
Berlin: Beuth Verlag GmbH. März 2015

Norm ISO 8543:1998-05  
Textile Bodenbeläge - Verfahren für die  
Gewichtsbestimmung  
Berlin: Beuth Verlag GmbH. Mai 1998

## 6.4 Standards for Floor Covering Installation

Norm DIN 18365:2016-09  
VOB Vergabe- und Vertragsordnung für  
Bauleistungen - Teil C: Allgemeine Technische  
Vertragsbedingungen für Bauleistungen (ATV) -  
Bodenbelagarbeiten  
Berlin: Beuth Verlag GmbH. September 2016

## 6.5 Standards for substrates

Norm DIN EN 12825:2002-04  
Doppelböden  
Deutsche Fassung EN 12825:2001  
Berlin: Beuth Verlag GmbH. April 2002

Norm DIN EN 13213:2001-12  
Hohlböden  
Deutsche Fassung EN 13213:2001  
Berlin: Beuth Verlag GmbH. Dezember 2001

## 6.6 Other Standards

Norm DIN 18202:2013-04  
Toleranzen im Hochbau - Bauwerke  
Berlin: Beuth Verlag GmbH. April 2013

Norm DIN 18299:2016-09  
VOB Vergabe- und Vertragsordnung für  
Bauleistungen - Teil C: Allgemeine Technische  
Vertragsbedingungen für Bauleistungen (ATV) -  
Allgemeine Regelungen für Bauarbeiten jeder Art.  
Berlin: Beuth Verlag GmbH. September 2016

Norm DIN 18340:2016-09  
VOB Vergabe- und Vertragsordnung für  
Bauleistungen – Teil C: Allgemeine technische  
Vertragsbedingungen für Bauleistungen (ATV) –  
Trockenbauarbeiten  
Berlin: Beuth Verlag GmbH. September 2016

Norm DIN 1960:2016-09  
VOB Vergabe- und Vertragsordnung für  
Bauleistungen - Teil A: Allgemeine Bestimmungen  
für die Vergabe von Bauleistungen  
Berlin: Beuth Verlag GmbH. September 2016

Norm DIN 1961:2016-09  
VOB Vergabe- und Vertragsordnung für  
Bauleistungen - Teil B: Allgemeine  
Vertragsbedingungen für die Ausführung von  
Bauleistungen  
Berlin: Beuth Verlag GmbH. September 2016

Norm DIN EN ISO 10140-3:2015-11  
Akustik - Messung der Schalldämmung von  
Bauteilen im Prüfstand - Teil 3: Messung der  
Trittschalldämmung  
Deutsche Fassung EN ISO 10140-  
3:2010+A1:2015  
Berlin: Beuth Verlag GmbH. November 2015

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10 and 13.

Norm DIN EN ISO 354:2003-12  
Akustik - Messung der Schallabsorption in  
Hallräumen  
Deutsche Fassung EN ISO 354:2003  
Berlin: Beuth Verlag GmbH. Dezember 2003

Norm ISO 8302:1991-08  
Wärmeschutz - Bestimmung des stationären  
Wärmedurchlasswiderstandes und verwandter  
Eigenschaften - Verfahren mit dem Plattengerät  
Berlin: Beuth Verlag GmbH. August 1991

### 6.7 Commentaries for Standards

Verbände übergreifender Kommentar zur ATV DIN  
18365  
Hamburg: SN-Verlag Michael Steinert, 2017  
ISBN 978-3-924883-16-4

### 6.8 Other Technical Briefing Notes

BEB-Arbeits- und Hinweisblatt  
Beurteilen und Vorbereiten von Untergründen im  
Alt- und Neubau, Verlegen von elastischen und  
textilen Bodenbelägen, Laminat, mehrschichtig  
modularen Fußbodenbelägen, Holzfußböden und  
Holzpflaster, Beheizte und unbeheizte  
Fußbodenkonstruktionen  
Stand: März 2014  
Bundesverband Estrich und Belag e.V., Troisdorf

ZVPF Technisches Hinweisblatt 02  
Qualitätsanforderung an die Ebenheit von  
Untergründen für Bodenbeläge und Parkett  
Stand: 2016-07  
Zentralverband Parkett und Fußbodentechnik,  
53842 Troisdorf-Oberlar

### 6.9 Specialist Literature

Karl Remmert, Josef Heller, Horst Spang, Dr. Jörn  
Haferkorn  
Fachbuch für Bodenleger  
2. Auflage 2010  
Hamburg: SN-Verlag Michael Steinert, 2010  
ISBN 978-3-924883-12-6