TKB-Technical Briefing Note 12

Installation of Floor Coverings with Dry Adhesives

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- Bundesverband der vereidigten Sachverständigen für Raum und Ausstattung
- Bundesverband Estrich und Belag
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Preamble

Until recently, state-of-the-art for installation of floor coverings and mounting of baseboard systems with dry adhesives has been documented in the technical information sheet “Trockenklebstoffe (TK) für die Fußbodentechnik”, published by Institut für Fußboden- und Raumausstattung (IFR) Cologne.

The work on this TKB technical briefing note was largely co-initiated by the IFR.

With publication of this TKB technical briefing note, the previous information sheet becomes obsolete as agreed with Mr. R.A. Kille of IFR.

Table of Contents

1. Introduction

This technical briefing note advises the installer on application of dry adhesives for installation of textile and resilient floor coverings as well as of wall base systems. It gives information on the different types of dry adhesives, their structure, requirements for substrate and installation materials as well as on respective installation conditions.

Information contained in this briefing note is limited to general technical data. It complies with state-of-the-art and general know-how at time of publication.

2. Dry Adhesives

Dry adhesives are sheets or strips which are adhesive on both sides and are available in the form of rolls of different widths. In selected areas, they are an alternative to liquid/pasty adhesives or fixations.

2.1 Properties of Dry Adhesives

Dry adhesives require no airing, setting or drying time. Immediately after application, they are ready to take loads. Some dry adhesives are suitable to form permanent bonds, others are formulated so that the flooring, including dry adhesive, can be lifted, if needed. Depending on type of adhesive and substrate, flooring can also be lifted residue-free (observe manufacturer's instructions).

Dry adhesives have a different structure depending on type and scope of application (adhesive composition, with or without carrier, type of carrier, adhesive film thickness). Consequently, dry adhesives shall be carefully selected to match the intended use.

2.2 Structure of Dry Adhesives

2.2.1 Dry Adhesives without Carrier

Pressure sensitive adhesives consisting of an adhesive film in which a coarse laid scrim may be embedded. These dry adhesives come in form of rolls, sheets or narrow strips, with protective paper sheet or film on one side. They are exclusively designed for permanent bonding of flooring/baseboards to substrate.

2.2.2 Dry Adhesives with Carrier

Fine mesh fabrics, films or fleeces which are coated with adhesive on both sides, are used as carriers for dry adhesives. The adhesive films on each side on the top and bottom of the carrier may be made from different raw materials and their application weight might also differ. These dry adhesives are therefore suitable for either

permanent or loose installation of the flooring. They have a protective paper or film on one side and come in form of rolls as either sheets or narrow strips.

3. Substrates and their Preparation

3.1 Substrates according to Requirements of DIN 18365

Substrates according to requirements of DIN 18365 are suitable for application of dry adhesives after levelling. Immediately prior to installation, the substrates must be vacuumed using a heavy duty industrial vacuum cleaner and need to be primed to bind dust. The same applies to prefabricated dry screed elements, wood particle and OSB panels.

The TKB Technical Briefing Note 8 “Assessment and Preparation of Substrates for Installation of Floor Coverings and Parquet” and TKB Technical Briefing Note 10 “ Wood particle boards used as laying substrate” as well as BEB-Merkblatt (BEB-information sheet) "Beurteilen und Vorbereiten von Untergründen. Verlegen von elastischen und textilen Bodenbelägen, Schichtstoffelementen (Laminat), Parkett und Holzpflaster. Beheizte und unbeheizte Fußbodenkonstruktionen" (Assessment and preparation of substrates. Installation of elastic and textile floor coverings, laminate, parquet and wood paving. Heated and non-heated floor constructions) contain detailed instructions and specifications regarding required tests and substrate preparation.

3.2 Existing Floor Coverings as Substrates

Existing floor coverings are not covered by DIN 18365. Based on their specific properties they pose special challenges for installation of flooring with dry adhesives. Tests might be required which go beyond the requirements of DIN 18365.

The existing flooring must be sufficiently stable and suited for the intended use. Each additional flooring layer increases thermal resistance. Consequently, especially for underfloor heating systems, it shall be ensured that the admissible thermal resistance is not exceeded.

3.2.1 Existing PVC, CV, Linoleum or Elastomer Flooring as Substrates

For installation on existing PVC, CV, linoleum or elastomer flooring, use dimensionally stable textile, PVC and CV floor coverings according to instructions issued by dry adhesive manufacturer.

Existing floor coverings must be fully glued down over the entire area. Damaged sections need to be repaired. Surface must be free of any anti-adherent substances. Principally, appropriate cleaning measures and sample bonding must be performed on site for determination of sufficient adhesive strength. Patterns from underlaying existing old flooring may show up on new flooring.

Residual impressions in the new flooring might be visible more intensely depending on old flooring, especially with high punctual loads. Suitability for chair castors depends on the respective combination of old and new flooring.

Discolorations of the old flooring can never be completely excluded.

3.2.2 Existing Textile Flooring as Substrate

Only install suitable textile floor coverings on existing textile flooring, while observing instructions of dry adhesive manufacturer.

Experience has shown that from the variety of different flooring types with different surface structures, needlefelt and short-pile (pile height up to approx. 5 mm) flooring offer the best characteristics to serve as substrates for application of dry adhesives. For suitability of other textile flooring types, dry adhesive manufacturer shall be consulted.

Existing textile flooring must be fully glued down over the entire area. Damaged or worn sections must be repaired or replaced. The surface must be free of dust and anti-adherent substances. Make sure no ascending or condensation moisture from substrate is present in installation room.

Principally, the appropriate cleaning measures and sample bonding shall be performed on site for determination of sufficient adhesive strength.

Residual impressions in the new flooring might be visible more intensely depending on old flooring, especially with high punctual loads. Suitability for chair castors depends on the respective combination of old and new flooring.

On account of adhesive residues, the old textile floor covering can no longer be used in case new flooring is later removed.

3.2.3 Existing Parquet, Cork and Laminate Floors as Substrates

For installation on existing parquet, cork and laminate flooring, use vapour permeable textile floor coverings according to instructions of dry adhesive manufacturer.

The existing flooring shall be fully glued down over the entire area. Damaged areas must be repaired. Only varnished parquet is suited as substrate, cork must be varnished or coated with a PVC-layer. The surface must be free of oils, wax or other anti-adherent substances. Principally, the appropriate cleaning measures and sample bonding shall be

performed on site for determination of sufficient adhesive strength.

Joints and deformations of the existing flooring may show on new floor covering. With cork, residual impressions might be visible more intensely depending on old flooring, especially with high punctual loads. Suitability for chair castors depends on the respective combination of old and new flooring.

3.2.4 Existing ceramic Tile, artificial Stone or Terrazzo Floors as Substrates

For installation on existing ceramic tile, artificial stone or terrazzo floors, use textile, PVC and CV floor coverings according to instructions issued by dry adhesive manufacturer.

The existing floors must meet requirements over the entire area. Damaged areas shall be repaired. The surface shall be free of anti-adherent substances. Principally, the appropriate cleaning measures and sample bonding shall be performed on site for determination of sufficient adhesive strength.

Patterns of existing floors, e.g. joints, may show in the new floor covering. For substrates with open pores, e.g. grout between tiles, adhesive residues can never be completely excluded even with removable installation.

3.2.5 Existing Coatings as Substrates

Existing old synthetic resin-based industrial floors (EP, PUR and MMA resins) must meet requirements over the entire area. Damaged areas shall be repaired. Surface must be free of anti-adherent substances. Appropriate cleaning measures and sample bonding shall be performed on site for determination of sufficient adhesive strength. For removable installation, residues can never be completely precluded after removing of floor covering and dry adhesive.

3.3 Walls as Substrate

When walls are used as substrate, this technical briefing note only refers to permanent installation of baseboards. The walls shall be dry, sufficiently sound, level, free of dust and anti-adherent substances. Wall coverings must fully adhere to wall, paint shall not chalk. Principally, a sample bonding shall be performed on site for determination of sufficient adhesive strength. When selecting the appropriate dry adhesive, always consider structure of the wall (plaster) or wallpaper.

When installing core skirting with a core made of hardwood fibres, walls must also comply with levelness requirements of DIN 18202, table 3, line 7, in particular regarding measuring point distances under 2 meters.

4. Full Surface Installation of Floor Coverings and Installation on Stairs

4.1 Full Surface Installation of Floor Coverings

Principally, when using dry adhesives, flooring shall be glued over the full surface.

Installation conditions, installation technique, storage and conditioning of the flooring and installation materials are described in the relevant TKB Technical Briefing Notes.

In a first step, dry adhesive is applied over the entire surface where flooring shall be installed, without joints and overlaps. The protective paper is not removed at this stage. Next, the flooring is laid down and pre-cut.

Seams of the floor covering and of dry adhesive sheets must have a clearance of minimum 20 cm for parallel installation, however flooring can also be installed transversely to dry adhesive run.

When cutting the flooring seams, dry adhesive layer shall not be cut. Flooring is folded back by half, the protective paper is removed from the dry adhesive and flooring is laid down. The same steps are repeated for the second half of the flooring.

In addition, always observe instructions issued by dry adhesive manufacturer.

4.2 Installation of Floor Covering on Stairs

Dry adhesive is cut to fit stair width and is applied to all steps and risers. Overlaps of dry adhesive layers might show depending on type of flooring and should therefore be avoided.

When installing stairtreads, protective paper is removed starting at the bottom riser, the flooring is installed and cut flush to the upper edge. The protective paper of the step is folded back by approx. 10-15 cm starting at the stair edge. The stairtread is laid on the dry adhesive, then the remaining protective paper is removed and the stairtread is glued down into the angle of the step. Next, the protective paper of the riser is removed, flooring is glued down and cut flush to the upper edge. These steps are then repeated for all steps.

When also installing stair nosings, flooring is glued to the bottom riser as described. Depending on profile depth, the protective paper is folded back on step and profile is installed flush to the step. In

the next step, the flooring is installed in the same manner as described for stairtreads.

When installing suitable textile or CV flooring on block steps, no nosing is required. Installation can start at the bottom or the top step. The same work steps as above apply.

Please refer to information sheets issued by dry adhesive manufacturers for additional installation instructions.

5. Installation of Baseboards and Bases

For installation of baseboards and bases, the same requirements regarding installation conditions, storage and conditioning apply as for flooring. After bonded to the wall, all baseboards shall be tapped down with a suitable rubber hammer to achieve sufficient adhesive strength. It is not sufficient to simply rub down the baseboards.

PVC soft base boards and wooden baseboards shall not be installed with dry adhesives.

5.1 Carpet Baseboards

For needlefelt and looped carpet skirting boards, dry adhesive shall be applied to the backside of the baseboard. Width of the adhesive tape shall be a minimum 80 % of the baseboard width. 2 – 3 mm of the looping shall also be covered by the adhesive tape. Just prior to glueing on the wall, the protective paper is removed.

5.2 Core Skirting

For core skirting, adhesive tape is applied to the wall. Skirting is installed immediately after protective paper has been removed. In addition, the ends of the skirting are secured with steel pins after bonding.

5.3 Elastomer Baseboards

For elastomer (rubber) baseboards, release agents must be removed from both sides of the baseboard prior to bonding. The adhesive tape is applied to the wall. Baseboard is installed immediately after protective paper has been removed.

5.4 Coved Base Skirting

To form a coved base skirting, a 10 cm wide strip along the walls must remain free when flooring is installed. Next, the dry adhesive is applied to the wall up to the required height. If a coved base profile is used, the protective paper is removed on the bottom up to profile height and profile is bonded to wall.

The dry adhesive is applied between flooring seam and lower profile edge or wall connection. Next, the protective paper of the dry adhesive on substrate is removed and the prepared flooring sheet is installed. Next, the protective paper of the dry adhesive on wall is removed and the remaining part of the flooring sheet is installed.

For coved moulded elements the same sequence is applied: apply dry adhesive on substrate and wall. Remove protective paper on floor. Place coved moulded element flush to seam of flooring and install. Bend the coved moulded element away from wall, remove protective paper and install element on wall.

For further installation information, please refer to manufacturer's instructions.

6. Relevant Standards and Technical Briefing Notes

In the following, please find the relevant applicable standards and technical briefing notes. They represent the version valid at time of publication.

6.1 Standards for Floor Covering Work

DIN 18365
VOB Vergabe- und Vertragsordnung für Bauleistungen – Teil C: Allgemeine Technische Vertragsbedingungen für Bauleistungen (ATS) – Allgemeine Regelungen für Bauarbeiten aller Art - Bodenbelagsarbeiten
October 2006

6.2 TKB Technical Briefing Notes

TKB Technical Briefing Note 8
Assessment and Preparation of Substrates for Installation of Floor Coverings and Parquet
06-2004
Technical Commission Construction Adhesives of Industrieverband Klebstoffe; Düsseldorf

TKB Technical Briefing Note 10
Wood particle boards used as laying substrate
09-2009
Technical Commission Construction Adhesives of Industrieverband Klebstoffe; Düsseldorf

6.3 Other Standards and Information Sheets

BEB-Merkblatt (BEB-information sheet)
Beurteilen und Vorbereiten von Untergründen. Verlegen von elastischen und textilen Bodenbelägen, Schichtstoffelementen (Laminat), Parkett und Holzpflaster. Beheizte und unbeheizte Fußbodenkonstruktionen.
October 2008

DIN 1960
VOB Vergabe- und Vertragsordnung für Bauleistungen - Teil A: Allgemeine Bestimmungen für die Vergabe von Bauleistungen
May 2006

DIN 1961
VOB Vergabe- und Vertragsordnung für Bauleistungen - Teil B: Allgemeine Vertragsbedingungen für die Ausführung von Bauleistungen
October 2006

DIN 18299
VOB Vergabe- und Vertragsordnung für Bauleistungen - Teil C: Allgemeine Technische Vertragsbedingungen für Bauleistungen (ATV) - Allgemeine Regelungen für Bauarbeiten aller Art
October 2006

DIN 18202
Toleranzen im Hochbau - Bauwerke
October 2005

6.4 Literature and Commentaries

Harald Kaulen, Günter Hahn, Ortwin Baumann
Erläuterungen zur DIN 18365 – Bodenbelagsarbeiten und DIN 18299, Ausgabe 2002, 6. Auflage 2004

Arbeitskreis Bodenbeläge im Bundesverband Estrich und Belag e. V.
Kommentar zur DIN 18365 - Bodenbelagsarbeiten
1. Edition, 2006