

REPORT

Elastic Sealants for floor areas

Part 2: Interior

1st Edition | May 2024

Introduction

Elastic floor joints in interior areas are exposed to a wide range of service conditions. In addition to accommodating the mechanical stresses resulting from movements of adjacent building elements and the use of the floor, they must withstand chemical exposure, for example from cleaning agents, and provide a reliable seal against liquids. The proper application of the joint sealant is essential to ensure that these requirements are met.

This publication provides comprehensive and practice-oriented guidance on the use of joint sealants for horizontal interior applications. Covering all relevant aspects from joint design and sealant selection to sealant application, it supplies the information required to ensure that elastic floor joints in interior areas perform reliably throughout their service life.

The authors describe in detail the influences acting on floor joints and derive the resulting performance requirements for joint sealants. Understanding these requirements is fundamental to the selection of a suitable joint sealant. The publication therefore serves as a practical guide to sealant selection and explains the key properties and typical fields of application of the different sealant technologies.

Detailed guidance on joint design, including example calculations for the correct dimensioning of floor joints, is provided together with practical recommendations for sealant application. The publication further explains how appropriate maintenance and repair measures contribute to maintaining the functionality and appearance of floor joints over the long term.

The second part of the publication focuses on the use of sealants based on different polymer technologies in interior applications. Exterior applications are not considered. The latter are dealt with in the first part of the series "Elastic sealants in flooring applications", which can be accessed here:

<https://deutsche-bauchemie.de/publikationen/englischsprachige-publikationen/baudichtstoffe>

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1 | Definition

Floor joints in interior areas

Floor joints in interior areas can generally be divided into two categories: **movement joints** and **connection joints**.

A **movement joint** serves to separate building components and to accommodate movements in order to prevent stress-induced cracking.

A **connection joint** occurs where different building components or materials meet. Examples include joints between different floor coverings as well as joints connecting the floor to walls or skirting boards.

Elastic floor joints in interior areas must fulfil two essential functions. They must provide a reliable seal against liquid media arising from normal room use, for example for hygienic reasons, while at the same time allowing adjacent building components to move without restraint.

The service conditions acting on a floor joint after application are a key factor in the selection of a suitable joint sealant. In addition to movement, which may result from thermal influences, floor joints are frequently subjected to mechanical and chemical loads. The type and intensity of these loads depend on the intended area of application.

Thermal movements are caused by temperature variations, for example between summer and winter conditions, between heated and unheated surfaces, or on cooled sur-

faces. The magnitude of these movements also depends on the materials of the adjacent building components, which may respond differently to temperature changes. Mechanical loads arise from pedestrian and vehicular traffic, for example in storage and production facilities. Chemical loads typically occur in areas with high hygiene requirements, where surfaces are cleaned using cleaning agents and high-pressure cleaning equipment.

Additional requirements associated with specific areas of application, such as food processing areas, clean rooms, paint shop facilities or fire protection zones, can further influence the selection of a joint sealant. Depending on the application, the sealant may be required to fulfil specific performance criteria, such as compliance with fire protection requirements, suitability for use in areas where food is handled or in direct contact with food, or the absence of silicone. Resistance to mould and bacterial growth may also be required, for example in sanitary areas and swimming pools.

The selection of a joint sealant therefore depends on a number of factors. These include the type of floor joint, the characteristics of the adjacent building components, the service conditions acting on the joint after installation and any additional performance requirements arising from specific applications. As these factors vary according to the area of application, each case must be assessed individually.

Connection joint



2 | Regulations and areas of application

Relevant standards/regulations for the various areas of application (indoor use)

Euronorm	Area of application
EN 15651-4¹: Sealants for non-structural use in joints in buildings and pedestrian walkways – Part 4: Sealants for pedestrian walkways	Cold-applied, non-load-bearing elastic sealants used in building construction, both indoors and outdoors, for floor joints, e.g. for pedestrian walkways and floor joints designed for public areas, movement joints between concrete slabs, areas subject to loads from pedestrians, areas subject to loads from luggage trolleys/suitcase trolleys, walk-on floors, balconies, terraces, warehouses
EN 14188-2: Joint fillers and sealants – Part 2: Specifications for cold applied sealants	Cold-applied joint sealants used for roads, parking decks, bridge decks, airfields and other traffic areas
ISO 11618: Buildings and Civil Engineering Works – Sealants – Classification and requirements for pedestrian walkway sealants	
ASTM C 920: Standard Specification for Elastomeric Joint Sealants	

¹The 2012 issue of the standard is the version of the harmonized European standard that is authoritative for the CE marking of corresponding products, i.e. the version published in the Official Journal of the EU. The standard version EN 15651:2017, however, has no relevance in this respect.

Further regulations (e.g.)

Harmlessness for use in food-related areas (e.g. ISEGA)

3 | Effects on sealants

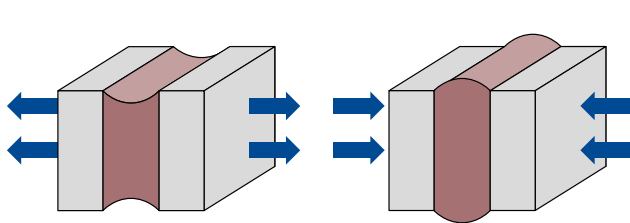
Floor joints sealed with joint sealants in interior areas are exposed to a wide range of service conditions. These conditions result in specific requirements for planners and architects and form the basis for the selection of an appropriate joint sealant. The type and extent of the exposure depend on the intended use of the area and the associated cleaning procedures. Kitchens, for example, are exposed to food residues, bathrooms to personal care products, and workshops to solvents.

In commercial and industrial environments with specific hygiene requirements, additional influences may arise from the use of floor cleaning machines, high-pressure water cleaning and/or disinfectants. Cleaning agents always have an impact on the floor joint.

Where increased resistance to mechanical loads and chemical exposure is required, joint sealants with suitable performance characteristics can be specified. However, even such sealants may be damaged when subjected to recurring or continuous severe exposure. For this reason, regular maintenance of the floor joint should be planned and agreed upon.

Chemical substances can affect a joint sealant in different ways. Possible effects include discoloration, swelling, embrittlement, softening or, in extreme cases, complete degradation of the sealant.

Mechanical loads acting on a floor covering generally result in movement within the floor joint and, consequently, deformation of the joint sealant



STRETCH

If a building material/element **contracts**, the sealant stretches. This causes it to taper in its cross-section.

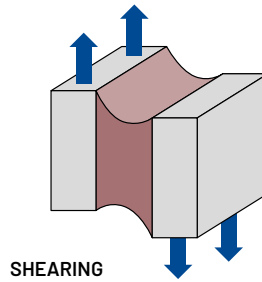
This can lead to

- partial debonding at the adhesive surfaces
- The sealant tearing off the substrate
- failure of the expansion joint.

COMPRESSION

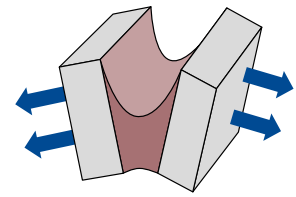
If a building material/element **expands**, the sealant is compressed. Substantial compression can lead to the "busting" of the sealant.

As a further consequence, compressive stresses are induced into the subsoil, which can cause fractures at the edges of the elements.



SHEARING

If an element **settles** uniformly, the sealant is subjected to shear deformation. In this situation, the joint surfaces move parallel to each other, resulting in damage mechanisms similar to those observed under extension. However, under shear loading, these damage patterns occur at significantly lower levels of deformation.



PEELING

When the bonded substrates or structural elements **tilt apart**, causing a trapezoidal change in joint geometry, peel forces act on the sealant. Compared with tensile and shear loading, this form of loading results in significantly earlier damage and failure.

The effects of chemicals are also dependent on:

- the duration of exposure,
- the type and concentration of the chemical,
- the temperature,
- the type and composition of the sealant,
- the material of the sides of the joint.

Floor joints in interior areas are also exposed to subsequent loads:

- Thermal effects, e.g. from heated screeds, sunlight or surface cooling.
- UV exposure, e.g. from sunlight (large window areas).
- Vertical forces, e.g. dead loads from furnishings and vehicles.
- Horizontal dynamic thrust forces, e.g. from the start and end of movement of persons and vehicles.
- Impulse/impact forces, e.g. bouncing, vibrations from machines, driving over uneven sections.
- Abrasion e.g. cleaning with sliding, wiping/scratching brushes.
- Point loads.
- Biological effects, e.g. from mould and bacteria. Organic deposits on sealants in combination with permanent moisture and heat lead to mould formation on the sealant surface. Sealants themselves do not provide a nutrient source for mould growth. Mould development is promoted by organic deposits on the sealant surface, such as dust, soap residues, greases, or similar

substances. Preventive measures include the regular removal of such deposits by cleaning and the subsequent drying of the sealant surfaces. Effective drying is supported by adequate air exchange. In applications where thorough cleaning and drying are not feasible due to limited accessibility, the use of fungicidal sealants containing a film preservative is recommended. In areas involving contact with food, the applicable regulatory requirements shall be observed. Sealant joints exposed to high mechanical or chemical stresses should be inspected at regular intervals, for example two to four times per year as part of maintenance and visual inspections. This allows damage to be identified at an early stage and joints to be repaired in a timely manner (see Chapter 8).

- Chemical effects, e.g. from chlorine, salt, oil, cleaning agents and much more.

When the surface is significantly recessed, the effects on the sealant joint are intensified in the following situations:

- Standing/accumulating water/wastewater and other media,
- Slow drying,
- Reduced cleaning options,
- Increased collection of dirt,
- Increased cleaning frequency through object-related cleaning concepts.

As a consequence of the effects, changes take place in the structural materials/elements. Today, these are common in the large number of floor constructions:

- Chemical and physical expansion due to water (swelling),
- Chemical and physical shrinkage due to the release of water (drying),
- Deformation due to addition and/or removal of loads,
- Deformation due to drying.

Furthermore, design-related effects generate movements/ state changes:

- Intersection of different materials,
- Changes in structural design,
- Changes in geometry,
- Settlement due to deadweight and pressure of static loads.

All the parameters referred to can occur to the sealant, alone and/or superimposed and cumulatively. This means that adequate joint dimensioning is essential, adjusted and adapted to the structural materials and structural components.

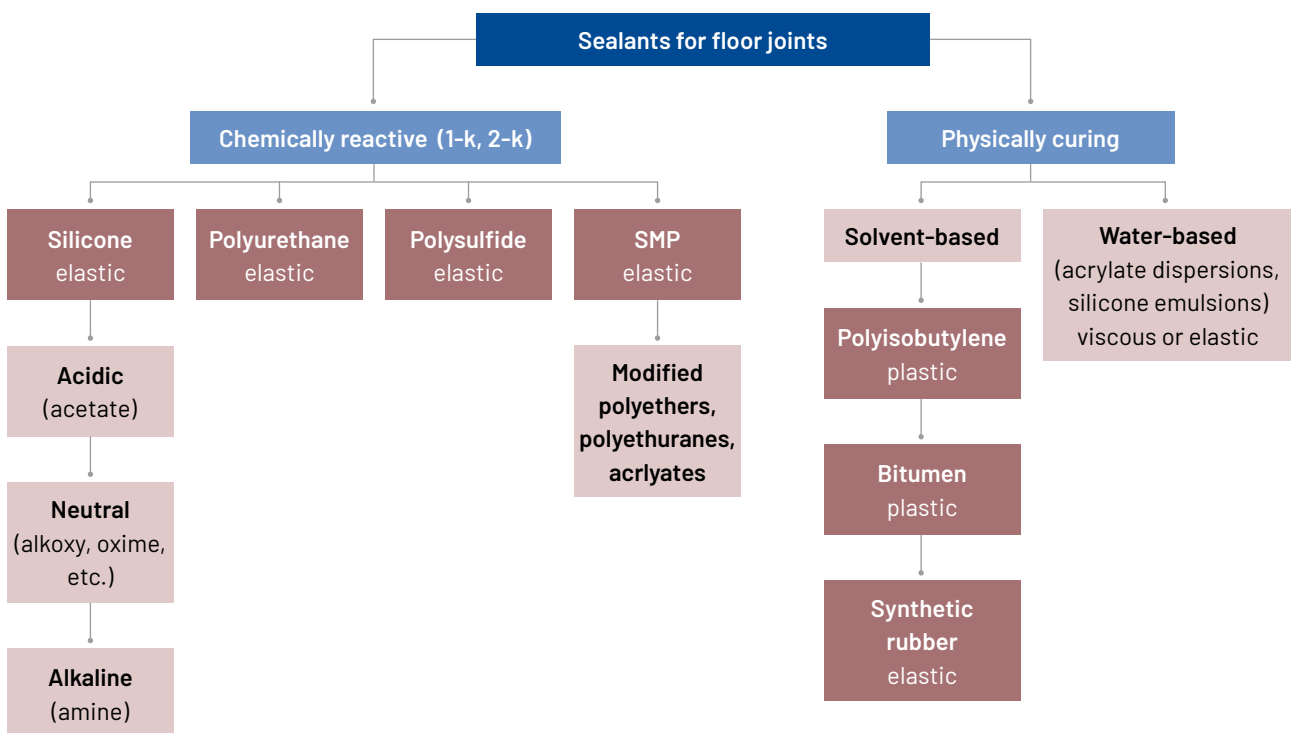
Coating, cleaning and contact instructions that can damage floor joints and can be avoided:

- When selecting the sealant, compatibility with other building materials/floor coverings must be taken into account. Especially with wood, plastic and natural stone coverings.
- Subsequent coatings applied to floor joints can lead to damage.

4 | Requirements for sealants

Sealants are materials that develop their mechanical properties only after application through a physical or chemical curing process. An exception is represented by sealants

that remain permanently thermoplastic and therefore do not undergo a curing reaction, such as polyisobutylene (butyl).



Classification according to curing behaviour and raw material base

In 1-component chemically reactive systems, curing begins after the material has been removed from its container (e.g. cartridge, foil pack or drum). Exposure to atmospheric moisture initiates chemical reactions that result in cross-linking of the sealant compounds and the formation of an elastomeric material (rubber type). In most cases, these reactions are condensation reactions, during which different by-products may be released depending on the curing system, such as carbon dioxide, water, alcohols, acetic acid or oximes. The reaction rate depends on both the temperature of the surrounding environment and the materials involved, as well as on the moisture content of the air. Booster systems represent a special case in which water is added during processing. Higher temperatures generally accelerate the chemical reaction. Curing proceeds from the surface towards the interior of the sealant and begins with the formation of a skin. Since cold air contains less moisture than warm air, air temperature and humidity have a direct influence on the curing behaviour and, in particular, on skin formation. As a result, at higher temperatures, such as in summer conditions, tooling of the sealant must be completed more quickly before skin formation occurs. The manufacturer's instructions shall be followed.

In 2-component chemically reactive systems, crosslinking begins only after the two components, consisting of the base component and the hardener, have been mixed. For cartridge systems as well as pumping and dispensing equipment, either static or dynamic mixers are used. The curing reaction proceeds independently of the ambient humidity. However, the reaction rate is influenced by both the ambient temperature and the temperature of the materials involved. Unlike 1-component systems, curing occurs simultaneously throughout the entire sealant volume and is not accompanied by identifiable skin formation. Tooling of the sealant surface must be completed within the specified working time. The manufacturer's instructions shall be followed.

Physically curing sealants change only physically, for example by hardening during cooling or due to loss of solvents or water. No chemical reactions at all take place inside the sealant or between the sealant and substrate.

One-component floor joint sealants offer the advantage that no mixing of components is required, eliminating the risk of mixing errors. Their curing process depends on ambient humidity and temperature.

Two-component floor joint sealants provide the advantage of more rapid and homogeneous curing that is independent of ambient humidity. Curing is initiated by mixing the A and B components.

In floor joints, minor damage to the sealant surface can occur at an early stage. Therefore, a high resistance to tear propagation is required. Among other properties, tear prop-

agation resistance can be used as an indicator of the mechanical load-bearing capacity of a sealant.

The chemical resistance of a sealant is determined primarily by its specific formulation. Nevertheless, characteristic performance trends can be observed depending on the chemical base of the sealant.

Key properties of selected sealant groups

The effects on sealants described in Section 3 result in requirements for sealants for the specific areas of application. This is particularly important for the selection of suitable sealants described in Section 6.

The main properties of sealants that can be used for interior floor joints are discussed below.

> Silicone sealants

Silicone sealants are characterized by excellent resistance to ultraviolet (UV) radiation, a water-repellent (hydrophobic) surface, and good adhesion to a wide range of substrates, including glass, ceramic materials, concrete, natural stone, metals, and plastics with polar surfaces. Their mechanical properties, such as strength, movement capability, and elastic recovery, remain largely unchanged over a wide temperature range from approximately -60 °C to +150 °C. Silicone sealants that do not contain organic plasticizers or solvents can withstand temperatures of up to 220 °C without damage. Certain special silicone sealants can tolerate temperatures of up to 350 °C and may therefore be classified as fire-retardant with regard to their reaction to fire. Due to their hydrophobic surface, silicone sealants provide little adhesion for organic materials such as fungi, bacteria, paints, or coatings. Depending on the curing system, different reaction by-products may be released during curing, including alcohols (neutral systems), oximes (neutral systems), acetic acid (acidic systems), or amines (alkaline systems). These characteristics shall be considered when selecting a sealant. Depending on the curing system, additional protective measures may be required during application and curing, such as the use of personal protective equipment and adequate ventilation. After curing, silicone sealants are chemically and biologically inert.

> Polyurethane sealants (PU)

Polyurethane sealants exhibit an adhesion profile comparable to that of silicone sealants and provide good adhesion to a wide range of substrates. In addition, they offer a suitable surface for the application of paints and coatings (paintability). Polyurethane sealants are available with a wide range of mechanical properties and are characterized by good processing characteristics. Their service temperature range extends from approximately



–40 °C to +130 °C, making them suitable for outdoor applications. In trafficable surfaces, polyurethane sealants are characterized by high resistance to tear propagation. Curing occurs through a polyaddition reaction between polyols and polyisocyanates. As a result, application requires appropriately trained personnel. Depending on the product, additional protective measures may also be necessary. After curing, polyurethane sealants are chemically and biologically inert.

➤ **Silane-modified polymer sealants (SMP)**

Silane-modified polymer (SMP) sealants are also commonly referred to as hybrid polymers. They are polyether-based organic polymers that cure neutrally with the release of alcohol. SMP sealants are characterized by good UV stability, excellent adhesion to a wide range of substrates and good paintability. After curing, SMP sealants are chemically and biologically inert.

➤ **Acrylic sealants**

Acrylic sealants are water-based dispersions that cure by physical drying through film formation. No chemical crosslinking reaction takes place during this process. Successful drying requires unsaturated ambient air and temperatures above the freezing point. Typical acrylic sealants exhibit plasto-elastic behaviour and are capable of accommodating movement of approximately 8 % to 15 %. High-performance formulations can achieve movement accommodation of up to 25 %. In the uncured state, acrylic sealants are sensitive to frost. After curing, they remain permanently sensitive to moisture and are therefore not suitable for applications exposed to high levels of water. Acrylic sealants are characterized by excellent paintability with emulsion paints.

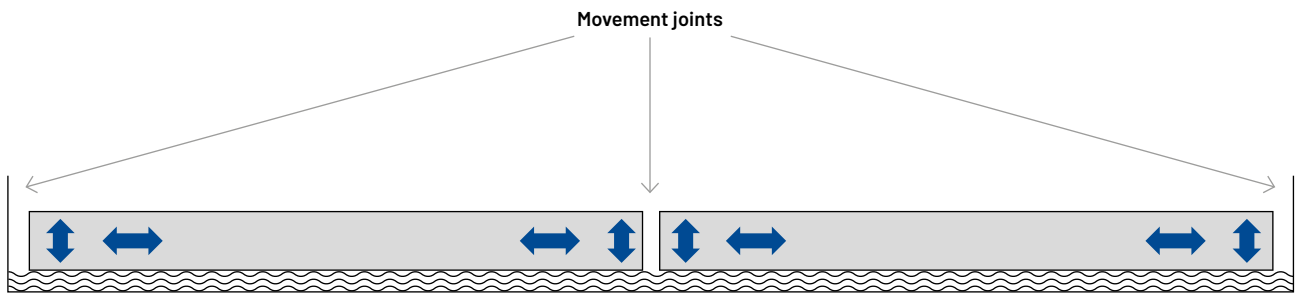
5 | Planning/Dimensioning/Structural Design

Movement joints are required in floor constructions in residential, industrial and commercial buildings to accommodate movements occurring between building elements. The number of joints depends on the size of the floor area and the magnitude of the expected movements.

Expansion joint widths of 8 to 10 mm are commonly used and have proven effective in practice. Nevertheless, the location and dimensions of movement joints shall be determined during the design phase. Joint dimensions depend on

the expected movements, which may result from component shrinkage, deformation of building materials, such as fatigue of insulation beneath floating screeds, load absorption, or temperature changes.

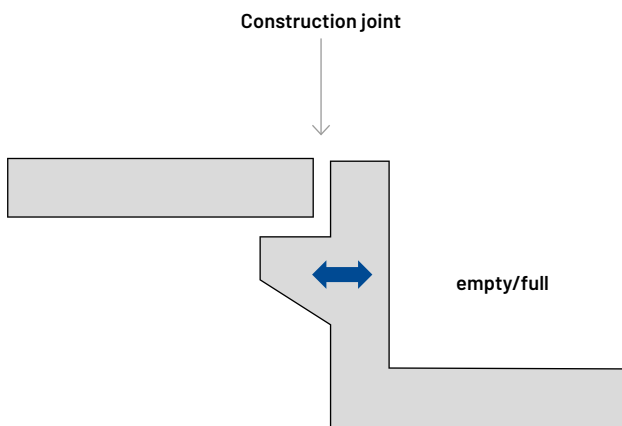
Movement joints are located within the floor surface and at all adjoining vertical building elements, including walls, supports, etc.



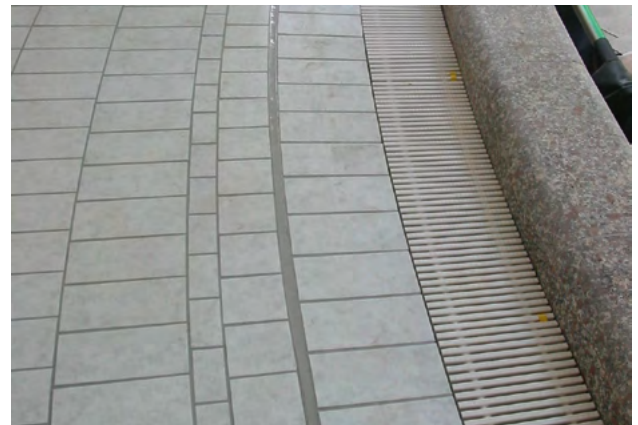
Expected movements that must be absorbed by the movement joints

The building joints, which are already dimensioned in the building shell, are an exception. In this case, the same width must be used throughout all floor layers in the top layer.

If these joints are reduced in size for visual or aesthetic reasons, the building will repeatedly suffer major damage.



A



B



C

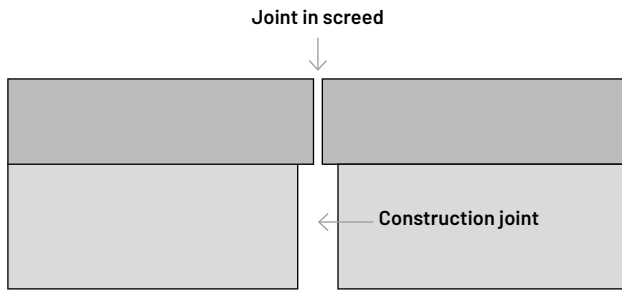


D

Example of swimming pool tank construction

- A Construction joint on a pool surround
- B Construction joint adopted in the same width
- C Damage due to undersized joint

- D Compressed silicone joint due to insufficient dimensioning and no transfer of the construction joint



Joint in screed has not adopted the width of the construction joint

Floor constructions typically incorporate screeds installed either on a separating layer or as floating screeds. These are flat, relatively thin building elements that are not rigidly bonded to the underlying substrate. Screed surfaces cannot be constructed without limitation in size, as drying and shrinkage processes may lead to cracking. The maximum achievable dimensions depend on the binder system used, for example cement or calcium sulphate, as well as on the intended application.

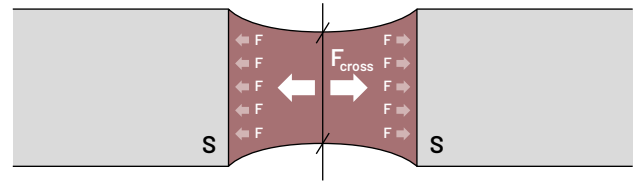
Screeds installed on a separating layer primarily exhibit movement in the horizontal plane. In contrast, floating screeds may also undergo vertical movement due to compression of the insulation layer beneath the screed. Such vertical displacements can amount to several millimetres. Consequently, the joint between the screed and adjoining wall must be capable of accommodating both horizontal and vertical movement.

The use of a backer rod is essential, as movement of the adjoining building elements must be anticipated. The backer rod ensures an appropriate sealant cross-section with a thin zone that accommodates tensile and compressive stresses.

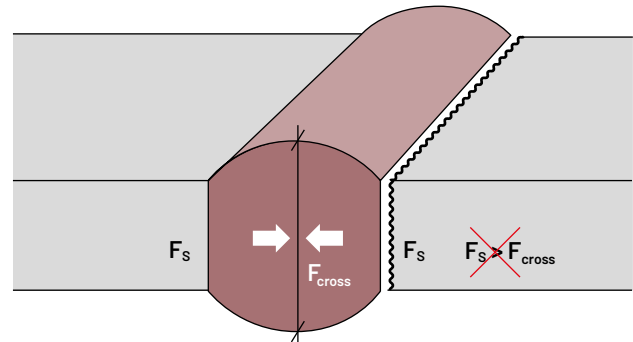
If the central movement zone of the movement joint is excessively thick, for example due to the absence of a backer rod, joint movement can lead to cohesive stress con-

$F_{\text{Adhesive surface}} > F_{\text{Cross-section}}$

$F = \text{Force}$



Shape of the sealant



Tearing of the sealant at the bonding zone due to the movement zone of the movement joint being too thick

centrations and subsequent loss of adhesion at the bond interface.

The design and dimensioning of a movement joint require prior determination of the movements that the joint is expected to accommodate.

Examples:

- > Swimming pool: empty - filled
- > Screeds: Shrinkage (element shortening)
- > Floating screeds: Settlement (3 - 4 mm)
- > Screed underfloor heating: Changes in length (depending on binder, expansion coefficient and element length)



Calculation examples: Length change in screeds

Example 1: Cement screed

Initial situation

Field length/max. edge joint spacing (l) = 6 m

Coefficient of thermal expansion (α_t) = 0.010

max. temperature difference (ΔT) = 40 K

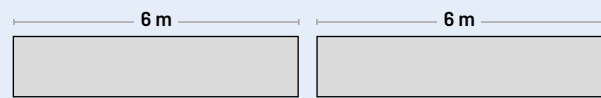
Calculation for correct dimensioning

Change in length (Δl):

$$= l \times \alpha_t \times \Delta T$$

$$= 6 \text{ m} \times 0.010 \text{ mm/m}\cdot\text{K} \times 40 \text{ K}$$

$$= 2.4 \text{ mm}$$



Exemplary screed construction

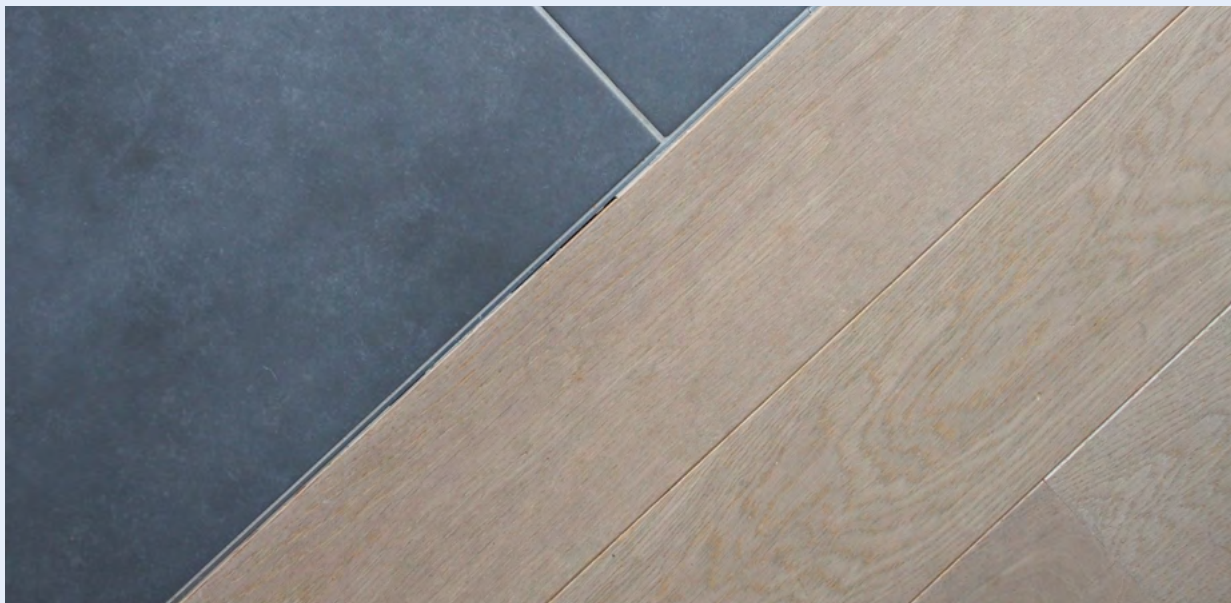
Joint width:

$$= \Delta l \times 100 \% / 20 \%$$

$$= 2.4 \text{ mm} \times 100 \% / 20 \%$$

$$= 12 \text{ mm} \rightarrow \text{necessary joint width to be dimensioned}$$

Damage caused by incorrect dimensioning



Movement joints that are too small (intentional from an architectural point of view) lead to the sealant cracking as it reaches its performance limits

Example 2: Floating screed

Initial situation

Settlement of the screed: 3 mm

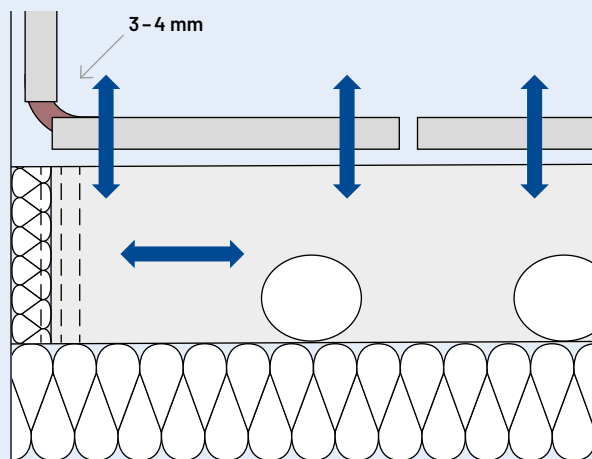
Calculation for correct dimensioning

Joint width:

$$= \Delta l \times 100 \% / 20 \%$$

$$= 3 \text{ mm} \times 100 \% / 20 \%$$

= 15 mm → necessary joint width to be dimensioned



Usual movements in floating and heated screed constructions

Damage caused by incorrect dimensioning



Overstretching of the sealant with cracking in the area of the skirting-wall connection



Damage due to insufficiently dimensioned movement joints in a swimming pool coping

Backing material for joint sealants

An elastic material with a non-polar surface is usually selected as the backing material, which can limit the joint depth in terms of shape and dimensions and prevent the

sealant from adhering to the joint base. The sealant should not normally adhere to the backfill material. The dimensioning of the sealant is based on the existing joint dimensions.

The following material is suitable for backfilling of joint sealants

Material type	Shape	Properties	Additional properties, remarks
Polyethylene foam, closed-cell	Round cord, hollow cord, rectangular profile, special profile	Chemically inert, low density, compressible, easy to cut, smooth water-repellent surface, does not promote water (capillary effect), rot-proof, UV-stable	Ideal for all types of sealants



6 | Selection of suitable sealants

The table below provides a simplified overview of selected performance requirements for elastic sealants and their relevance to the sealing of floor joints in interior applications. The requirements are illustrated using representative examples of different application areas.

Before a sealing system is selected, the suitability of the sealant products used shall always be verified against the manufacturer's recommendations or clarified separately.

Specific requirements for the elastic sealant for the floor joints	Applications (examples)				
	Sanitary areas + kitchens	Living rooms	Commercial areas (office, department stores)	Multi-story car park	Logistics and production areas
High movement absorption, high elongation at break, good elastic recovery			✗	✗ (Passenger car traffic)	✗ (forklift traffic and pressure load from machines)
High tear resistance to further tearing (mechanical load)			✗ (shopping trolley, pedestrian, heeled shoes)	✗	✗
High chemical resistance	✗ (Cleaning)			✗ (fuel, engine oil)	✗ (Cleaning)
Low water absorption (no swelling under moist conditions)	✗			✗ (Moisture through tires)	✗ (Cleaning)
Natural stone compatibility	(✗)	(✗)	(✗)		
Simple refurbishment in the future (among other things)	✗	✗			

7 | Application

The surfaces must be dry, free of dust and grease, and also free of non-adhering parts (shrinkage cavities, paint residues, rust, etc.), so that the sealant adheres to them. As well as cleaning, some surfaces additionally require preparation with a primer in order for the sealants to be able to adhere. Primers are to be selected as a dependency of the material which is to be combined.

Remedial sealing: Removal of old sealant

During resealing, the existing sealant and the existing backer rod shall first be removed completely and carefully. Elastic sealants are typically removed mechanically using suitable cutting tools, such as sharp blades. Care shall be taken to avoid damage to adjacent layers behind the joint, for example bonded waterproofing systems. Where chemical agents are used in addition to mechanical methods to remove residual sealant, it shall be ensured that no chemical residues remain within the joint. It shall also be verified that no reactions occur with adjacent materials or underlying layers that could impair the adhesion of the newly applied sealant. Residual chemicals or incompatible reactions may affect the curing behaviour of the new sealant and, consequently, its functional performance.

Application of sealants

Stability

Before the sealant is applied, a backer rod e.g. polyethylene (PE) shall be installed to prevent three-sided adhesion. For floor joints, the backer rod shall be selected so that the joint depth corresponds to the joint width.

Self-levelling

For floor joints with a gradient of less than 3°, both non-sag sealants and self-levelling sealants can be used. Self-levelling sealants settle under their own weight and form a smooth surface without additional finishing.

The same basic requirements apply to self-levelling sealants as to non-sag sealants. The principal difference lies in the application method. Self-levelling sealants are particularly suitable for horizontal joints, whereas non-sag sealants can also be used in joints with corresponding gradients. In contrast to non-sag sealants, tooling is not required when using self-levelling sealants.

Execution instructions

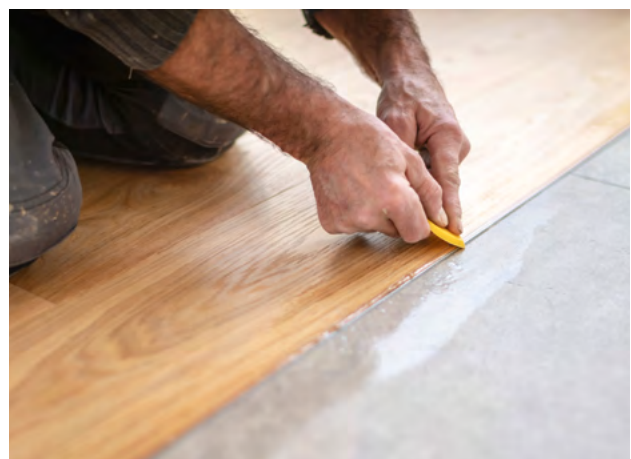
Joint geometry, e.g. concave sealant surface

The width of movement joints in floor applications should generally be between 10 mm and 20 mm. The joint depth should be adjusted by means of a backer rod to achieve an approximate width-to-depth ratio of 1:1 and should not exceed 15 mm. Movement joints exposed to vehicular traffic should be provided with a slight chamfer or suitable edge protection to reduce the risk damage to the screed or concrete edges. In such applications, the sealant is typically installed with a recessed profile. For movement joints exposed to pedestrian traffic, a flush joint profile should be used to minimise tripping hazards and to prevent the accumulation of liquids. Joints exposed to chemical loading should be designed in the same manner as pedestrian traffic joints. The final joint profile, including the occurrence of a slight concave surface, is influenced by both the tooling method and the inherent shrinkage of the sealant.

Smoothing agents should not be sprayed onto the joint or applied uncontrolled to the sealant and adjacent joint edges by means of a brush. For optimal application, the tooling device should be moistened with a suitable smoothing agent and then drawn across the sealant surface.

Only smoothing agents recommended by the sealant manufacturer for floor joint applications should be used. The amount applied should be limited to the minimum necessary. Residues of smoothing agents on the sealant surface or adjacent materials should be avoided.

Where a brush is used, the sealant surface should be wetted selectively using a clean brush and only a small quantity of smoothing agent. The sealant should then be tooled and finished using an appropriate tooling device.



8 | Maintenance and repair

Maintenance

After the elastic sealant suitable for the application and the expected load has been selected and professionally installed according to the current rules of technology, it is important to monitor the permanent functionality through regular checks.

During their service life, sealants are exposed to a wide range of physical, biological, mechanical and chemical stresses. These influences may cause damage to the sealant, which can subsequently result in consequential damage.

Cleaning

When using high-pressure cleaning equipment, an adequate distance from the sealant joint should be maintained.

Which joints should therefore be provided with maintenance?

According to DIN 52460, a maintenance joint is a joint exposed to significant chemical, mechanical, biological and/or physical stresses, requiring the sealant to be

inspected at regular intervals and renewed when necessary in order to prevent consequential damage. Such maintenance joints shall be identified to the client or building owner before the start of the work and taken into account when defining the contractual scope.

Responsibility for the maintenance of maintenance joints generally lies with the building owner, the operator or their authorised representatives rather than with the contractor. For this reason, the conclusion of a separate maintenance agreement in accordance with DIN 52460 is recommended. Such an agreement should define the maintenance requirements, the obligations of the client and the allocation of associated costs.

Inspection and maintenance intervals shall be determined individually according to the intended application and the anticipated service conditions. For certain applications, such as storage, filling and transfer facilities or installations for handling liquid manure, slurry and silage effluent, recommendations and specifications for inspection and maintenance intervals are already defined in the relevant general building authority approvals.





By visual assessment of the floor joints and connection joints, any defects incurred can be easily examined:

- Tear-offs or loss of adhesion in the flank region,
- Cracks in the sealant,
- Instances of damage in the sealant,
- Algae formation/mould infestation,
- Discolouring,
- Abrasion/wear.

If damage is detected, it must be documented and submitted to the client for further decision.

Repair

If the joint needs to be replaced, the sealant must first be removed by mechanical means. The backing material behind it must also be checked for damage and replaced if necessary. If suitable chemical cleaners are used, their residues must be completely removed.

After the complete removal of the old sealant, it is then necessary, taking account of the current generally accepted codes of practice and taking account of the anticipated effects and loadings, to select and introduce a new sealant.

Bibliography

- [1] **EN 15651-4:2012*** Sealants for non-structural use in buildings and pedestrian walkways – Part 4: Sealants for pedestrian walkways

*This version of the Standard (year of issue 2012) is determinant for the CE marking of corresponding products, i.e. the version of the corresponding harmonized European Standard notified in the Official Journal of the EU. Conversely, the Standard version EN 15651-1:2017 had no relevance in this respect.

- [2] **EN 14188-2:2004** Joint fillers and sealants – Part 2: Specifications for cold-applied sealants

- [3] **DIN 18560** Floor screeds in building construction

Epilogue

This report "Elastic sealants in floor areas – Part 2: Interior areas" was prepared by the Working Group 7.6 "Floor joints" of Deutsche Bauchemie e.V. and discussed and approved by Technical Committee 7 "Construction sealants".

It serves to provide information for all members and for the technically interested public.

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Deutsche Bauchemie e.V.

Mainzer Landstraße 55
60329 Frankfurt am Main

P: +49 69 2556-1318

E: info@deutsche-bauchemie.de

deutsche-bauchemie.com