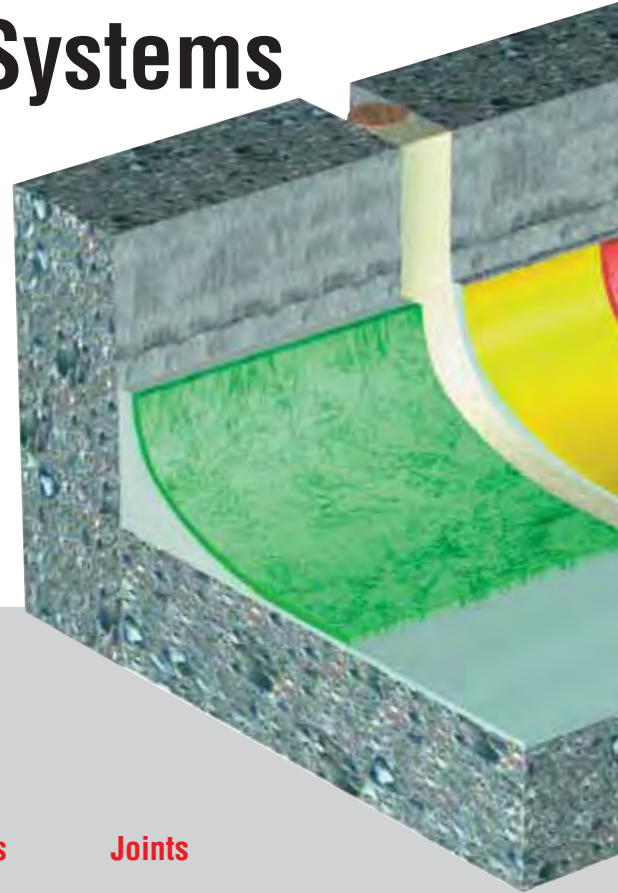




Sika® Technology and Concepts for Industrial Flooring

Design and Construction of Industrial Flooring Systems



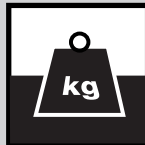
Design Life



This is possibly the most fundamental criterion and is certainly the first question to ask when

selecting a floor: What is the required design life – 2, 5, 10 or 20 years? Is frequent or regular maintenance feasible or desirable? The floor specification must obviously meet this design life and the intended maintenance-free periods. The **Sikafloor®** Programme has systems to meet all such requirements.

Structural Requirements



Both the static and dynamic loadings imposed during construction and use should be considered.

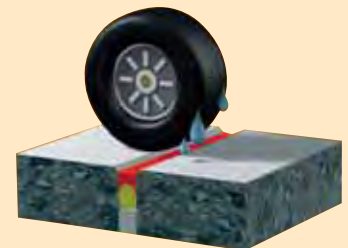
A floor topping must be capable of withstanding these demands but it can only function as well as the substrate to which it is applied, i.e. the structural concrete slab or screed.

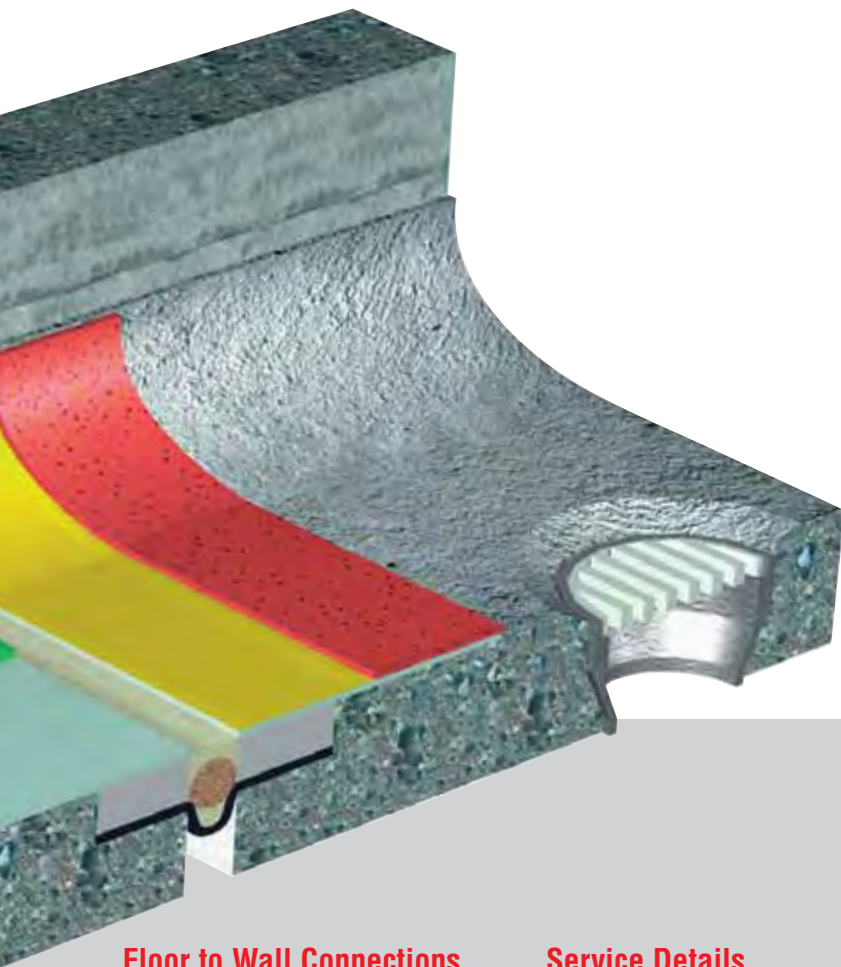
Note: In some instances slabs may require structural strengthening with **Sika® CarboDur®** Composite Strengthening systems.

Joints

Joints of nominal movement such as construction or day work joints are catered for by flexible sealing and overcoating within the **Sikafloor®** Programme.

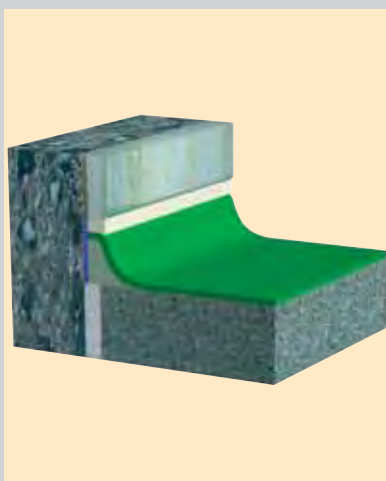
Structural movement expansion or isolation joints in the base construction should always be brought through the floor finish, in the same location as in the structural concrete slab or screed. It is also advisable to design movement joints to occur at the high point of falls and wherever possible away from perimeter walls (i.e. to allow for coving and correct joint detail design).





Floor to Wall Connections

In hygiene or wet areas where coving is important between horizontal and vertical surfaces (such as floor to walls and around plinths), it is necessary to define these coving requirements precisely. This should include: cove radius, cove height, cove width regarding minimum thicknesses and the required floor/wall connection. There are **Sikafloor**® mortars that are designed for coving work. Coving is usually formed, including internal and external angles, using purpose-made coving trowels – a typical radius would be 38 mm (approx. 1.5 inches).



Service Details

Drainage channels

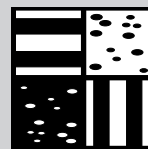
Drainage channels should always be designed to be outside of trafficked areas wherever possible. Falls on the floors should be adequate to discharge liquids as quickly as possible to the channels – the falls within the channels themselves should usually be somewhat greater than those on the floor. When traffic over channels is unavoidable, considerable attention should be given to the channel arrises and cover grating fixings, as these are the most susceptible areas for premature failure. The **Sikafloor**® Programme recommends rebated channel arrises, held by adequate formed angles (normally steel or tiles).

Gullies

Today gullies are predominantly manufactured of steel or polypropylene and care must be taken to ensure adequate sealing to these prefabricated gulley edges. **Sikaflex**® adhesive sealants are normally recommended.



Colour and Appearance



In addition to providing seamless concrete protection against corrosive liquids and mechanical wear, flooring should also meet easy-care, hygiene, safety and durability requirements with the appropriate colour for the environment. Realization of the architect and the customer's requirements always requires consideration of both functional and aesthetic criteria. With the **Sikafloor**® Programme a wide variety of colours, textures and visual effects can be produced – which also provide the overall functional performance.



Floor Finish Design Considerations

Cost : Performance Analysis

Floor design is a critical process, it can be the basis for problems or the reason for their absence. (Insufficient attention is often paid to the design of the floor and the selection of floor finishes, they are classified in specifications and bills of quantities for new works as “internal finishes”, and are largely ignored until the building and, almost certainly, the structural slab is constructed!) In refurbishment projects and maintenance programmes, floors are often only considered after the commissioning or even installation of new plant and machinery! This may well be in accordance with capital expenditure, but the financial consequences of lost production due to future unscheduled downtime can be far greater – even resulting in closure!

Basic Floor Finish Selection Criteria

- End user's continuing or programmed operational requirements
- Expected or given site conditions, i.e. new construction, repair or maintenance
- Additional construction work
- Financial considerations

Minimizing Risk

Sika can ensure that the floor system selected can actually be applied as specified and that it can then meet the performance requirements in use. Only Sika with the complete **Sikafloor®** Programme can offer the full spectrum of available floor finishes, including all types of cementitious, polymer modified and resin products, with systems of all necessary thicknesses and all of them produced in our own factories worldwide! The **Sikafloor®** Programme offers optimum quality and security for client, specifier and contractor and includes:

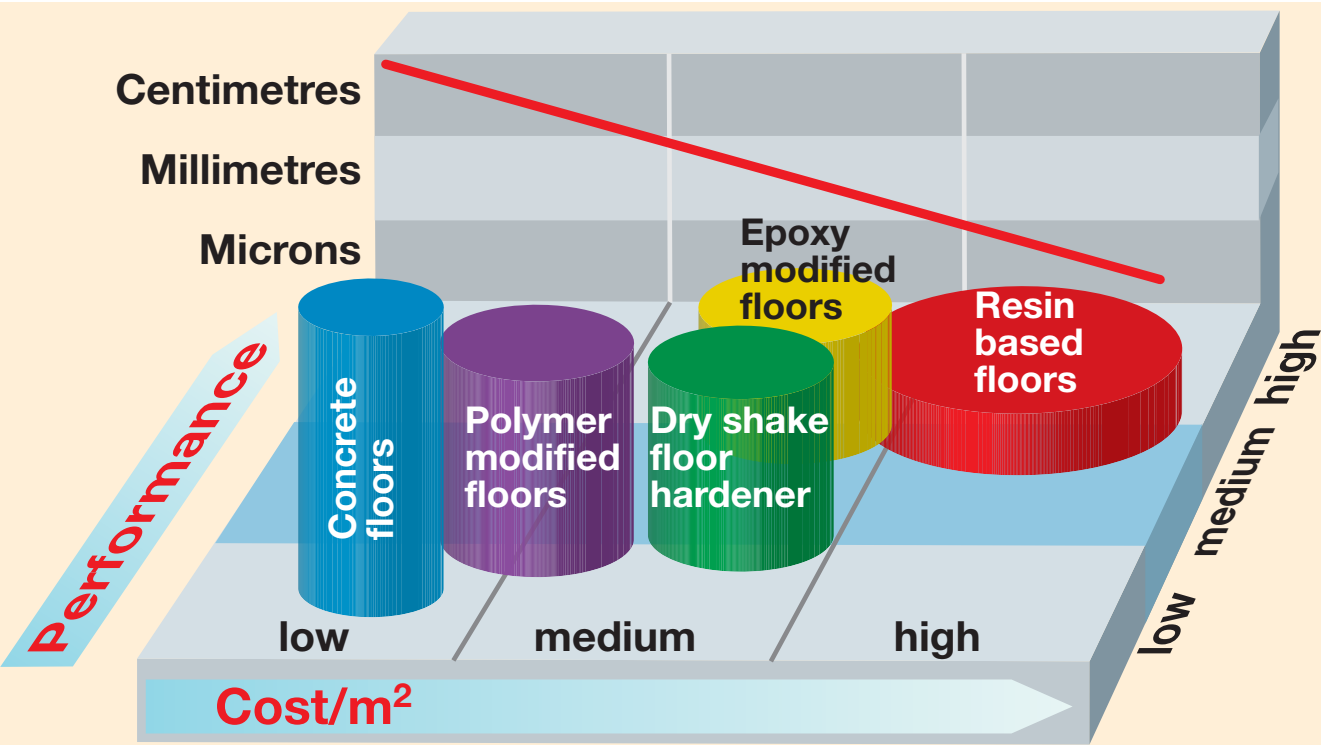
- Preliminary project diagnosis
- Assessment and monitoring during application and on completion
- Maintenance Guidelines

“This is why clients who want to avoid unpleasant surprises demand quality flooring systems from Sika.”

Don't specify “Flooring” or “Internal Finishes” Demand the Sikafloor® Programme!

Sika®, the Global Market and Technology Leader in Industrial Flooring





Total Quality Management



Quality

- ISO 9001
- Innovation
- Technology

Service

- Advice
- Training
- Logistics

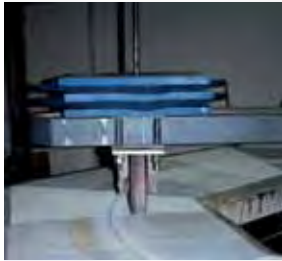
Environment

- Responsible Care
- Solvent reduction
- ISO 14001

Safety

- Water based
- Low toxicity
- Disposal

Project Specific Requirements for the Performance of Industrial Floors



Traffic and Mechanical Wear



This increases physical requirements for mechanical resistance measured as abrasion. Often the greatest wear or exposure occurs in localized areas. Trucking aisles or sections around specialized plant, for example, may require different or additional treatment to the surrounding general floor area. The **Sikafloor®** Programme has the full range of solutions.



Chemical Resistance



Resistance to chemical attack is a major factor for many floor finishes. Assess the effects on the floor of the individual chemicals present plus their combined or mixed effects and the consequences of any chemical reactions. What is their concentration, both at the time of the spillage and after evaporation? Higher temperatures usually increase the aggressive nature of chemicals – particularly acids and alkalis – so temperature ranges should be reviewed for all areas of potential spillage. The **Sikafloor®** Programme has the widest range of chemically resistant systems.



Temperature



Thermal shock can be a major cause of premature industrial floor failure. It is important to consider not only the temperature of operating machinery and the products in the processes, but also the temperature of adjacent areas. Where activities such as autoclaving, cooking, sterilizing or blast freezing are carried out close by, extreme or extreme variations of temperature are the norm. These local areas often require different or additional treatment to the surrounding general area. All appropriate solutions are in the **Sikafloor®** Programme.



Slip Resistance



Pedestrian traffic areas require varying degrees of slip resistance, dependent on whether the environment is wet or dry. This is principally a question of reconciling surface finish demands with spillage risk. The greater the profile, the greater the slip resistance. However, ease of cleaning and hygiene requirements become more difficult to maintain as the surface profile increases. So a balance must be achieved. It is therefore advisable for differing degrees of slip resistance to be designed into the floor to suit differing area requirements.

The **Sikafloor®** Programme provides a complete range of suitable slip resistant finishes.



Fire Resistance



Fire resistance regulations for floors in fire escape routes, explosive production and storage areas plus underground car park decks have to be considered. If the floors in these areas are coated with liquid polymers (i.e. as protection against liquid chemicals or mechanical stress), the coating systems must also have the required fire protection (according to local standard). The **Sikafloor**® systems for these areas have tested fire resistance and certification.



Hygiene



Many modern industries, e.g. pharmaceutical, cosmetic, food, beverage, chemical and electronics, now have similar, very demanding hygiene requirements. These progressive industries often need "clean room" environments, i.e. totally dust free, floors must be without cracks or angled corners, and easily cleanable, yet still satisfy the other specific requirements for the area; such as chemical and mechanical resistance. The **Sikafloor**® Programme easily accommodates the highest standards for cleanliness and decontamination including testing to BS 5295 and DIN 25415.



Impact Resistance, Point Loading



In areas of industry where goods are handled in specific spaces, such as production lines, warehouses, loading bays etc., compressive loads are generated by the movement of goods on trucks, pallets etc. Damage may occur if no allowance is made for the resultant high point loads on the floor. It is essential to ensure that the stresses generated are not higher than the strength of the flooring material and its substrate. The **Sikafloor**® Programme has the full range of system solutions for all point loading and impact resistance properties.



Waterproof



Environmental protection law dictates that floor coatings have to provide an impermeable seal to protect both the concrete and the underlying ground water from the leakage of pollutants. This means reliable containment for liquid pollutants, which are also chemically corrosive, e.g. those in metal processing, galvanizing, food processing (milk, meat, vegetables, etc.). It is also increasingly necessary to contain cleaning media, such as detergents and steam etc. The **Sikafloor**® Programme has the necessary systems with testing and approvals.

Project Specific Requirements for the Performance of Industrial Floors



Rapid Curing



In maintenance works, processing areas with continuous production can often not afford downtime for longer than 48 hours. Therefore flooring systems with rapid curing properties are necessary.

Sikafloor® EpoCem®, Sikafloor® Pronto, Sika® ViscoCrete® and SikaRapid®-1 produce the necessary systems for this type of work.



Floor Coating on Green and Damp Concrete



In many cases of both refurbishment and new construction, freshly concreted substrates must be coated and protected quickly. Traditionally a waiting time of at least 28 days had to be allowed before the concrete could be overcoated. This was to prevent flooring defects such as osmotic blistering. With **Sika's EpoCem®** Technology concrete can be sealed and coated within days without defects.



Crack-Bridging Ability



This relates to structural loading, particularly dynamic loading. What effects do plant vibration and traffic movement have on the floor? How important is it that cracks do not appear? In some specific areas the floor finish must be dynamically crack-bridging, for instance, in exterior car parks or in production facilities where aggressive liquids are present, or in "clean room" areas. Alternatively sufficient stress relief or movement joints must be incorporated into the substrate during construction to prevent future movement cracking. The **Sikafloor®** Programme includes all such systems.



Damping of Impact Noise



In entrance halls, corridors, display and sales areas for example, the main criteria are quite different from general industrial flooring areas. Floor coverings in offices, hospitals etc. also have comparatively different exposures. These floors are mainly used by people walking or standing, sitting and talking. For these reasons, flexible flooring systems with minimal sound transmission and comfort are recommended.

The **Sikafloor®** Programme provides many suitable systems. Note: **SikaBond®** adhesives also help wooden floor systems meet these same objectives (including the new Part E sound transmission regulations).



Neutral Odour, VOC-free



Strong-smelling and solvent-containing products are often responsible for sensitivity reactions of applicators and end users. The use of **Sikafloor®** Programme products with neutral odour and classified as VOC-free should always be considered where appropriate.



Electrical Conductivity/ Anti-Static



There is an increasing demand for conductive or anti-static floor coatings. These are used either to prevent electrical interference with sensitive electronic equipment, or to avoid a build-up of static electricity, which could generate sparks and create a risk of fire or explosion. To satisfy these demands it is essential to determine the degree of electrical resistance (conductivity) necessary. In these areas it is normal to specify a conductive floor with an electrical resistance of between 10^4 and 10^9 Ohms dependent on specific client requirements and local regulations. The **Sikafloor®** Programme has a full range of anti-static systems to meet all such requirements.



Cleaning and Maintenance



Easy cleaning generally means that dirt can be removed by normal dry or wet cleaning methods. To ensure that Sika flooring stays in the best of shape and gives years of satisfaction, we provide fully detailed recommendations for the cleaning and maintenance of all of the flooring systems in the **Sikafloor®** Programme.



Thermal Conductivity



Users evaluate the warmth of a floor to the feet very differently and subjectively. Apart from the ambient room and floor surface temperatures, the thermal conductivity of the substrate is the most significant factor. The lower the value (> 0.5 W), the more effective is the feeling of insulation. Besides the measurement values, the subjective influence of the colour shade should not be underestimated (i.e. the use of "warm" and "cold" colour shades). The **Sika® Comfort Floor** Systems provide suitable finishes here.



Multiple Colour Shades



It is possible to influence behaviour and well-being in the work place with good colour design. The signalling and delineation abilities of colour are important and often used for example in dividing production or work areas from trafficked areas. The **Sikafloor**® Programme can therefore provide RAL, NCS, BS and bespoke colour shades.



UV Resistance



Light, especially energy-rich ultraviolet light, can have a very damaging effect on synthetic resin flooring – resulting in discoloration and degradation. Where colour is important or where high UV exposure is anticipated, suitable **Sikafloor**® Systems are available.

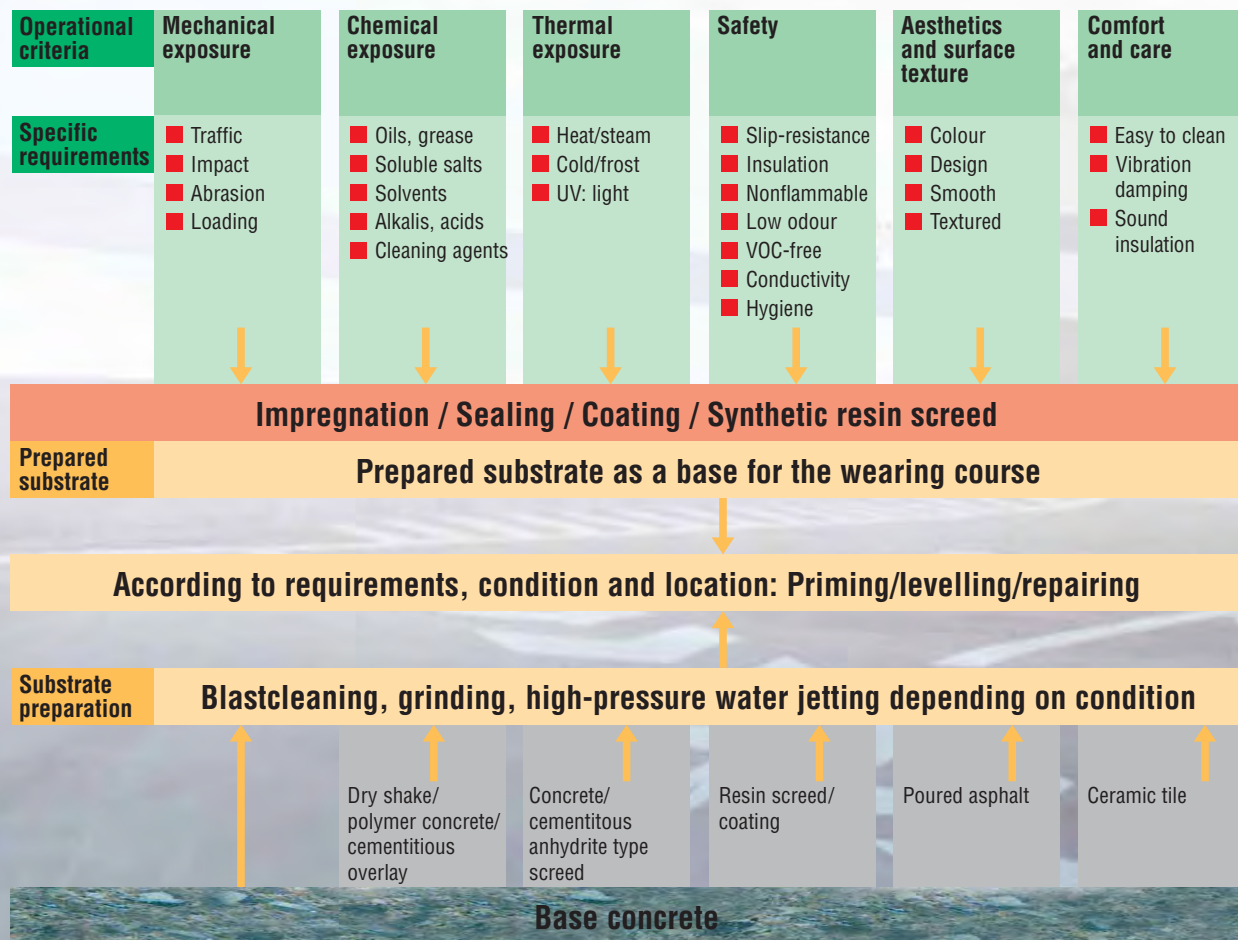


Chair Roll Resistance



The “wheels” or rollers of many swivel chairs are small diameter and therefore can be responsible for creating a heavy point load on the floor. This point load creates an additional heavy mechanical influence when the chair is moving, therefore only a tested flooring system with proven resistance to this exposure should be chosen. The **Sikafloor**® Systems can meet this requirement.

Key Requirements for Consideration in Selecting an Industrial Floor System



Time is Money – Investment in the Sikafloor® Programme is a Key Decision

Scheduled “Start Up” does not always comply with actual Construction Time taken (i.e. Waiting/Delays)

For the client, a major objective in any project is to reduce the construction period. Whether it is a new construction, conversion or refurbishment, the economics demand that business can start as soon as possible. This means that the time required and the relationship between “time” and “costs” needs to be clearly defined at the earliest possible design stage.

Only systems which meet the following “fastrack” requirements should be specified:

- Immediate coating of fresh/green cementitious substrates (even if they have high surface alkalinity or high moisture content)
- Rapid installation of the complete system (with short intercoat or waiting times between the various operations)
- Fast top coat curing (to allow opening as quickly as possible)

Sika® EpoCem® Technology prevents or overcomes Coating Failures related to coating fresh and damp Concrete

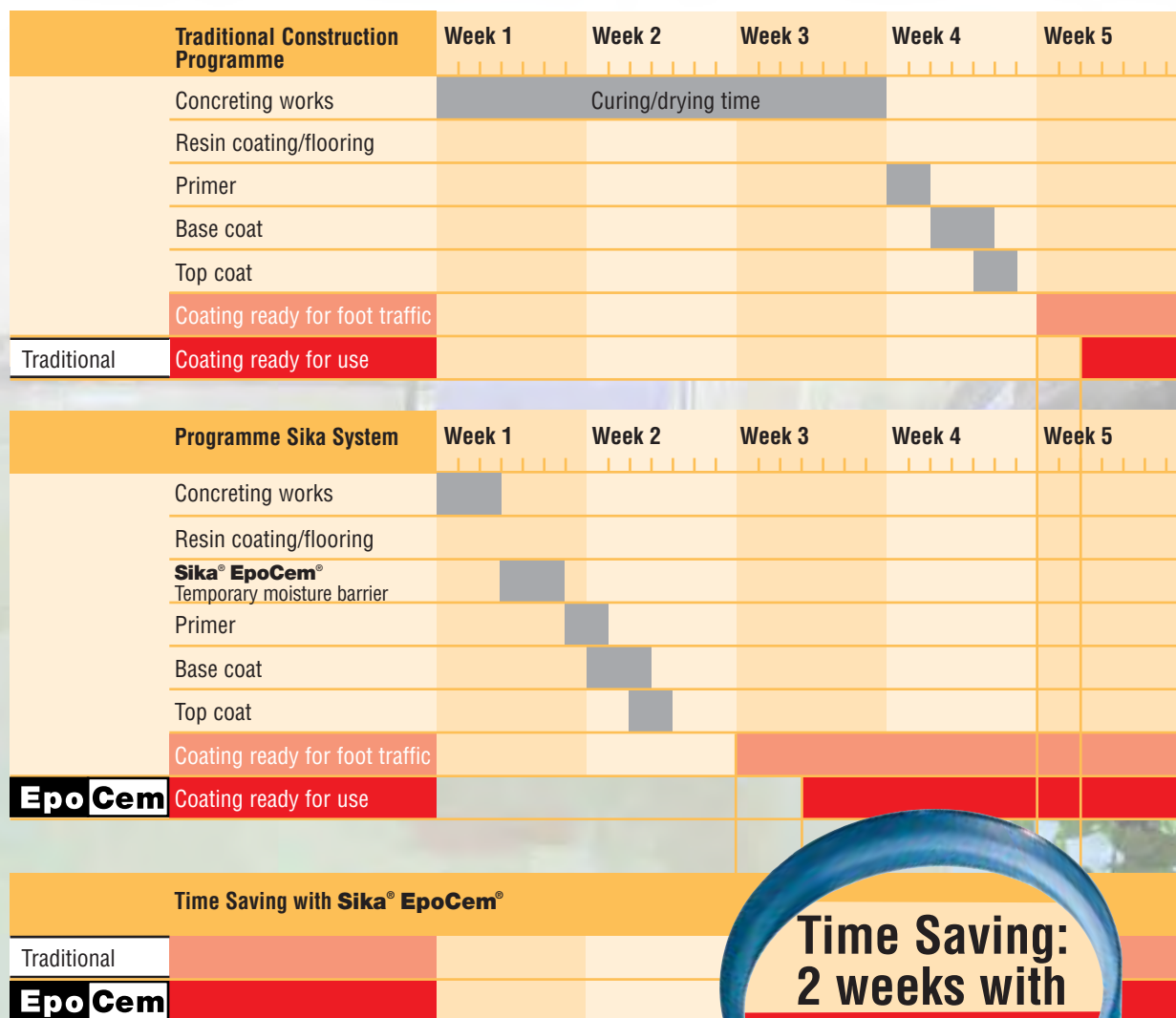
When coating cementitious substrates with reactive resins, the substrate moisture content must generally not exceed 4 % (pbv); generally this is at least 28 days. The consequences of non-compliance with this rule are almost always coating failures. Initial “damages” generally appear after a very short time with further successive phases developing the full extent of the failure. These failures, known as “osmotic blistering”, need not occur! Specify the **Sikafloor®** Programme with **Sika® EpoCem®** Technology.



Schematic of planned Time Saving with Sika® EpoCem® Technology

The installation of industrial flooring and the time before it can be put into operation represents a major time factor in a project.

This time saving and/or cost advantages can be substantial.



Time Saving:
2 weeks with

Epo Cem®

Epo Cem®

No more Waiting. No more Delays.

The Sikafloor® Programme System Selection Guide

Storage and Logistic Areas – New Buildings



Requirements

Two-layer-concrete Slab for accurate Levels and Falls

- Adjustment of level tolerances

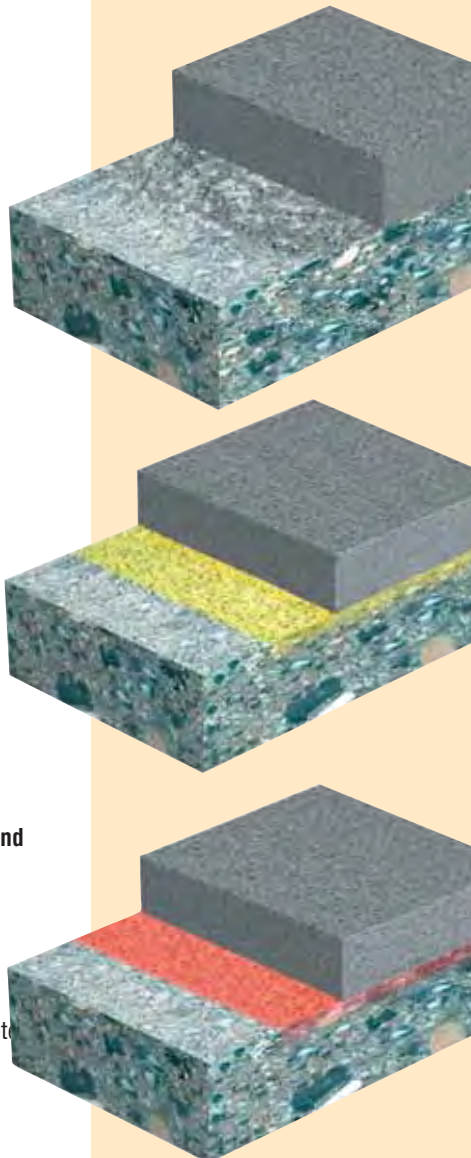
Intermediate Thickness levelling with 10 – 75 mm Screed

- Adjustment of level tolerances
- Pre-blended screed
- Fast setting/curing

Temporary Moisture Barrier on “green” or Damp Concrete Slab and Screed

- For cementitious floors with damaged or missing waterproof membrane
- No waiting time on fresh concrete
- No blisters on topping when coating damp concrete

Design



Sika System / Performance

Site-finished concrete slab based on **Sikament®** or **Sika® ViscoCrete®** technology. Bonding bridge (Sika polymer- modified cement-sand-water). Sika polymer- modified screed with powerfloat finish



Site-finished concrete slab based on **Sikament®** technology
Primer: **Sikafloor®-156**
broadcast with quartz sand
Screed: **Sikafloor®-Level 75** blended with quartz sand (1:3 pbw)
Topping: **Sikafloor®** resin to suit



Site-finished concrete slab based on **Sikament®** technology
Primer: **SikaTop®-Armatec® 110 EpoCem®**
Screed: **Sikafloor®-83 EpoCem®**,
Layer thickness: > 8 mm



use as a moisture barrier for subsequent Sikafloor® toppings



Requirements

Decorative Surface Hardening

- Economical hardener
- Good abrasion
- Good impact resistance
- Colours available

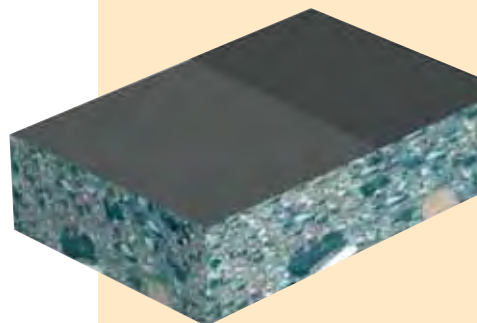
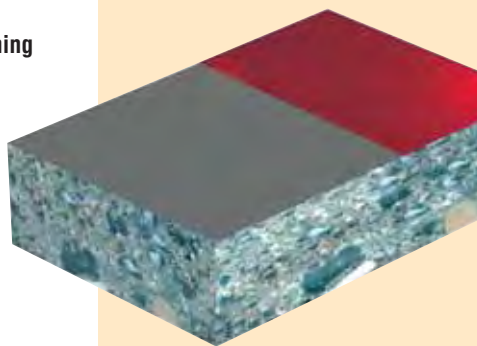
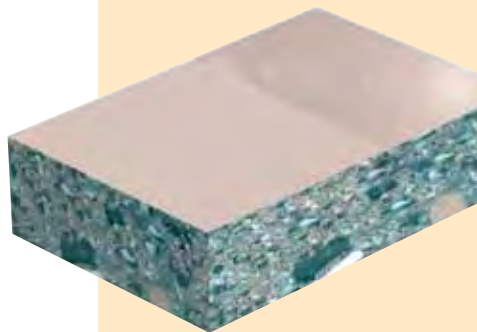
Tough, Economic Surface Hardening

- Tough and durable
- Very good abrasion resistance
- Very good impact resistance

Heavy Duty Surface Hardening

- Excellent abrasion resistance
- Excellent impact resistance
- Extreme durability
- Anti-static properties

Design



Sika System / Performance

Monolithic concrete slab based on **Sikament®** or **Sika® ViscoCrete®** technology. Dry shake floor hardener **Sikafloor®-3 QuartzTop** applied to the fresh concrete slab before the powerfloat finish, surface cured and dustproofed with **Sikafloor®-ProSeal W**



Monolithic concrete slab based on **Sikament®** or **Sika® ViscoCrete®** technology. Dry shake floor hardener **Sikafloor®-2 SynTop** applied to the fresh concrete slab before the powerfloat finish, surface cured and dustproofed with **Sikafloor®-ColourSeal**



Monolithic concrete slab based on **Sikament®** or **Sika® ViscoCrete®** technology. Dry shake floor hardener **Sikafloor®-1 MetalTop** applied to the fresh concrete slab before the powerfloat finish, surface cured and dustproofed with **Sikafloor®-ProSeal 22**



The Sikafloor® Programme System Selection Guide

Storage and Logistic Areas – New Buildings and Refur



Requirements

Concrete Hardening

- Economic surface hardening
- Good abrasion resistance
- Prevent concrete dusting

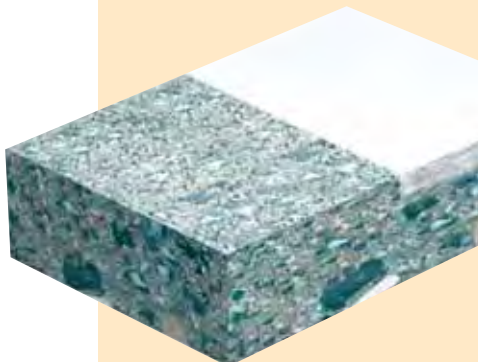
Concrete Curing and Sealing

- Curing to ASTM C-309
- Prevent dusting
- Hardens concrete

Economic coloured Coating

- Curing to ASTM C-309
- Sealing and hardening
- Colour
- Economic coating

Design



Sika System / Performance

1 – 2 x **Sikafloor®-CureHard 24**
A sodium silicate based liquid hardener sprayed and brushed into the substrate



1 – 2 x **Sikafloor®-ProSeal W**
A one part, water based acrylic emulsion



1 – 2 x **Sikafloor®-ColourSeal**
A one part, coloured, solvent based acrylic resin polymer solution



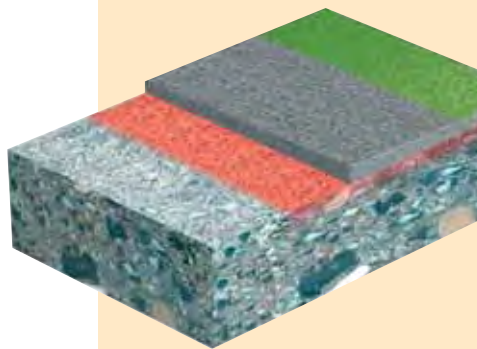


Requirements

Surface Levelling Screed for 5 – 25 mm (breathable vapour permeable)

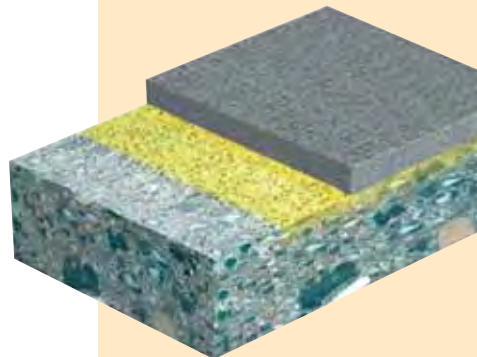
- Smooth, level surface
- Rapid drying
- Vapour permeable
- Thin to medium thickness

Design



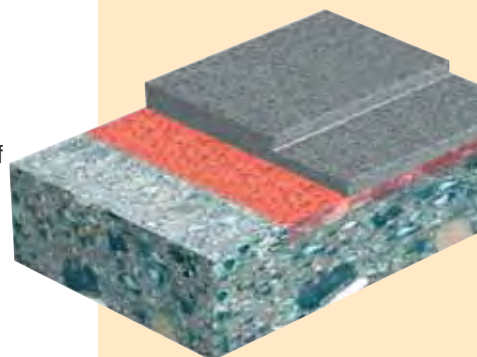
Surface Levelling Screed for 20 – 50 mm

- Smooth, level surface
- Rapid drying
- Medium thickness



Substrate Moisture Control for 2 – 7 mm

- For cementitious floors with damaged or missing waterproof membrane
- No waiting time on “green” or damp concrete
- No blisters in the finish when coating damp concrete



Sika System / Performance

Primer: **Sikafloor®-155 W**

Broadcast with quartz sand

Screed: **Sikafloor®-Level 25**

A one-component, polymer modified cementitious screed

Sealer: **Sikafloor®-2530 W**

A water based, vapour permeable coating



Primer: **Sikafloor®-156**

Broadcast with quartz sand

Screed: **Sikafloor®-Level 50**

A one-component, polymer modified cementitious screed

Topping: **Sikafloor®** resin to suit



Primer: **Sikafloor®-155 W**

Screed: **Sikafloor®-81 EpoCem®**

Layer thickness: 2 – 3 mm

or **Sikafloor®-82 EpoCem®**

Layer thickness: 4 – 7 mm

Both are 3-component epoxy modified cementitious, self-smoothing screeds.

Topping: **Sikafloor®** resin to suit



Storage and Logistic Areas Racking Sections



Requirements

Economy Standard

- Light to medium wear resistance
- Surface stabilization
- Prevent concrete dusting
- Coloured

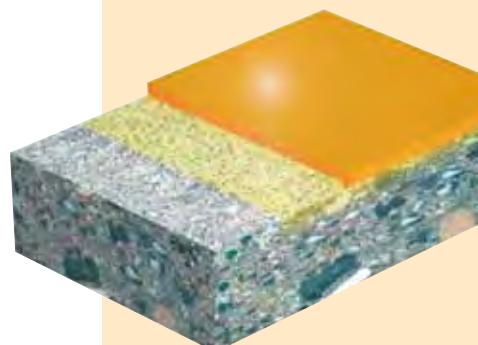
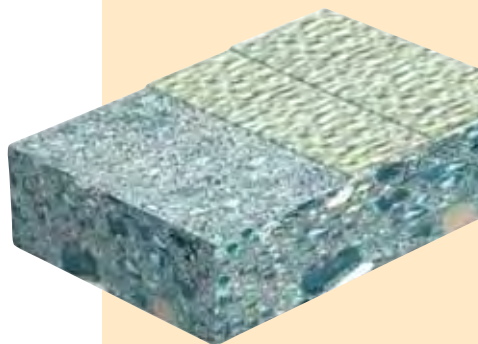
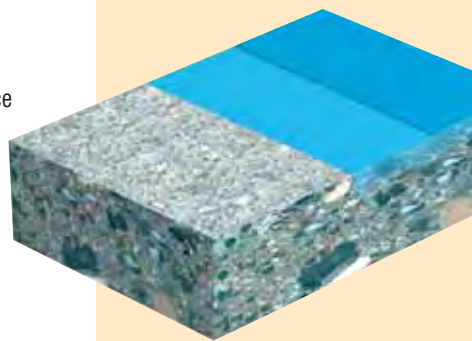
Medium Standard

- Medium wear resistance
- No concrete dusting
- Slip resistance
- Coloured

High Performance

- High wear resistance
- Coloured
- Easy care

Design



Sika System / Performance

2 x **Sikafloor®-2430**

A coloured, solvent containing epoxy resin based impregnation

Total layer thickness:

150 – 250 microns



2 x **Sikafloor®-261 Thixo**

A solvent free coloured epoxy binder for textured coatings

Total layer thickness: **0.6 – 0.8 mm**



Primer: **Sikafloor®-156**

1 x **Sikafloor®-261**

A solvent free coloured epoxy binder for self-smoothing screeds

Total layer thickness: **2 – 3 mm**



Storage and Logistic Areas

Cold Storage

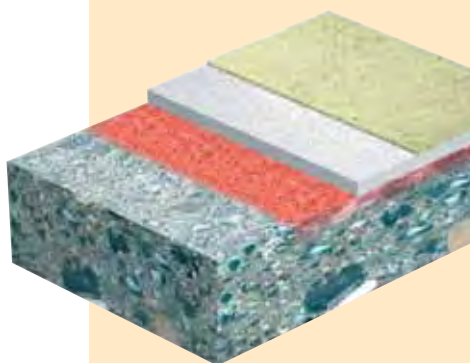


Requirements

Cold Storage ($\leq 5^{\circ}\text{C}$)

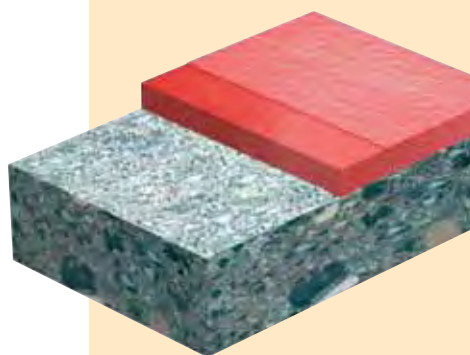
- Medium wear resistance
- Thermal shock resistance
- Easy cleaning

Design



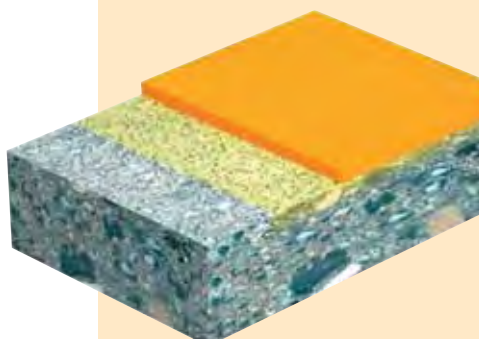
Cold Storage ($\leq 5^{\circ}\text{C}$)

- High wear resistance
- Thermal shock resistance
- Easy cleaning



Frosting/Shockfreezing (0°C down to -30°C)

- High wear resistance
- Thermal shock resistance
- Easy care



Sika System / Performance

Primer: **Sikafloor®-155 W**

Broadcast layer **Sikafloor®-81**

EpoCem®

Sealed with **Sikafloor®-261**

Total layer thickness: **2 – 4 mm**



Broadcast layer **Sikafloor®-261**

A solvent free, coloured epoxy binder for self smoothing screeds

Sealed with **Sikafloor®-261** coating

Total layer thickness: **2 – 4 mm**



Primer: **Sikafloor®-156**

1 x **Sikafloor®-325 P.E.T. tech®**

A solvent free coloured polyurethane binder for elastoplastic thermal shock absorbing self smoothing screeds

Total layer thickness: **2 – 3 mm**



Production and Processing Areas For Dry Areas



Requirements

Economy Standard

- Light to medium wear resistance
- Surface stabilization
- No concrete dusting
- Increased chemical resistance
- Coloured

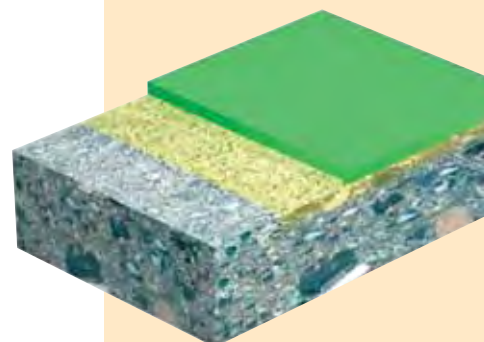
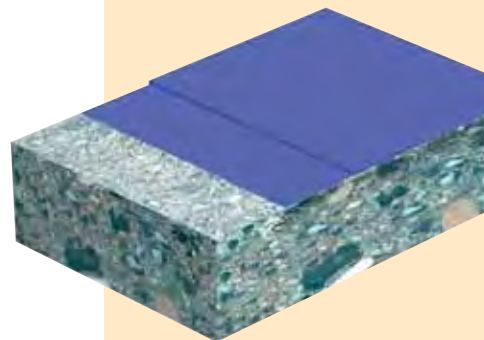
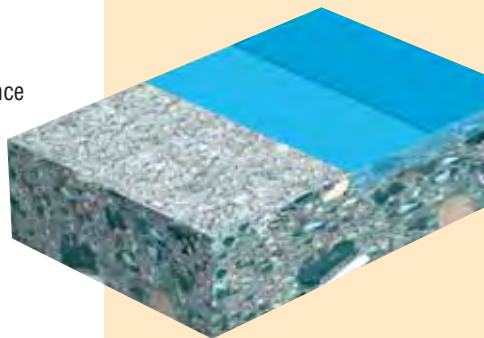
Medium Standard

- Medium wear resistance
- Medium chemical resistance
- Coloured
- Easy cleaning

High Standard

- High wear resistance
- Good chemical resistance
- Coloured

Design



Sika System / Performance

2 x **Sikafloor®-2430**

A coloured, solvent containing epoxy resin based impregnation



2 x **Sikafloor®-261**

A solvent free, coloured epoxy binder for high build coatings

Total layer thickness: 0.6 – 0.8 mm



Primer: **Sikafloor®-156**

1 x **Sikafloor®-261**

A solvent free, coloured epoxy binder for self smoothing screeds

Total layer thickness: 2 – 3 mm



Production and Processing Areas For Wet Areas



Requirements

Economy Standard

- Light wear resistance
- Good chemical resistance
- Medium thermal resistance
- Slip resistance
- Easy cleaning

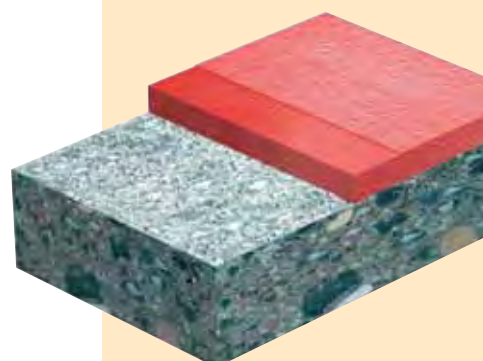
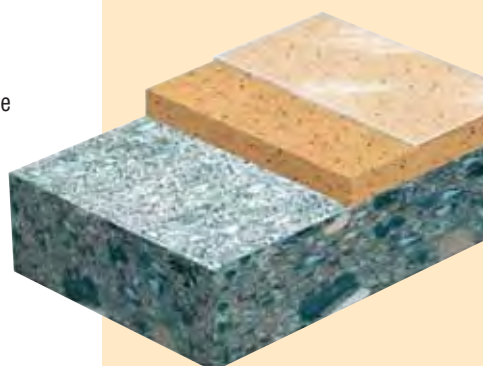
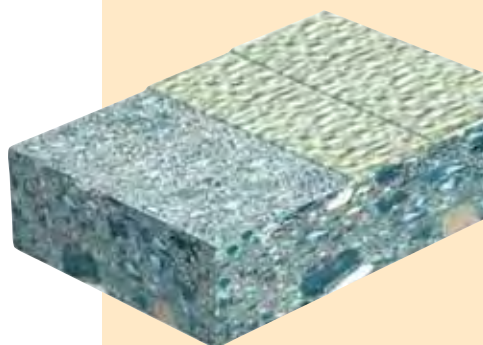
Medium Standard

- Medium to high wear resistance
- Medium chemical resistance
- Medium thermal shock resistance
- Slip resistance
- Coloured

High Standard

- High wear resistance
- Good chemical resistance
- Medium thermal resistance
- Slip resistance
- Coloured

Design



Sika System / Performance

2 x **Sikafloor®-261 Thixo**

A solvent free epoxy resin based textured coating

Total layer thickness: 0.6 – 0.8 mm



Sikafloor®-261

A solvent free, coloured epoxy binder for self smoothing screeds, broadcasted with coloured quartz sand, sealed with

Sikafloor®-162 N, a solvent free transparent epoxy resin

Total layer thickness: 1.5 – 3 mm



Sikafloor®-261

A solvent free, coloured epoxy binder for self smoothing screeds as a broadcast layer sealed with **Sikafloor®-261** coating

Total layer thickness: 2 – 4 mm



Production and Processing Areas

Extreme Conditions (Combinations of Wet, Chemicals, Heat and Wear)



Requirements

Medium Duty Screed

- High wear resistance
- High chemical resistance
- Medium thermal shock resistance
- Slip resistance
- Hygienic
- Easy cleaning
- Coloured

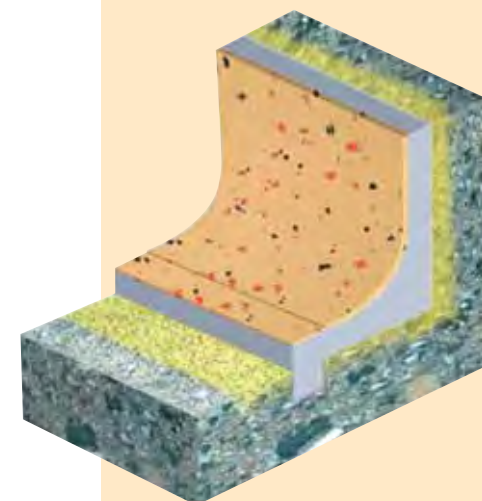
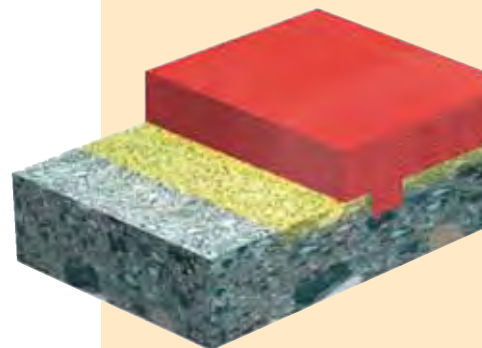
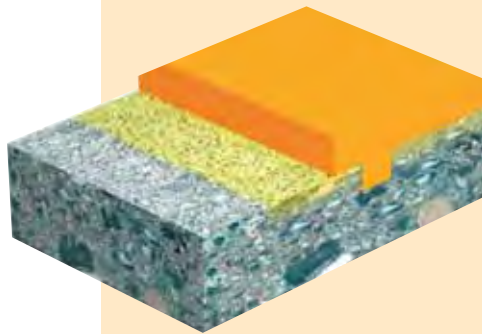
Heavy Duty Screed

- High wear resistance
- High chemical resistance
- High thermal shock resistance
- Slip resistance
- Odour-free
- Hygienic
- Coloured
- Easy cleaning (incl. steam)

Coving and Detailing

- High wear resistance
- High chemical resistance
- High thermal shock resistance
- Easy cleaning (incl. steam)
- Hygienic
- Same colour as floor

Design



Sika System / Performance

Primer: **Sikafloor®-156**

Broadcast with quartz sand

Topping: **Sikafloor®-21 PurCem®**

A 3-component, water based polyurethane, self smoothing, medium duty screed

Total layer thickness: **3 – 6 mm**



Primer: **Sikafloor®-156**

Broadcast with quartz sand

Topping: **Sikafloor®-20 PurCem®**

A 3-component water based, slip resistant, polyurethane heavy duty screed

Total layer thickness: **6 – 9 mm**



Primer: **Sikafloor®-156**

Mortar: **Sikafloor®-29 PurCem®**

A 3-component water based polyurethane detailing mortar

Top coat: 2 x **Sikafloor®-31**

PurCem®



Production and Processing Areas

Minimum Down Time for Production

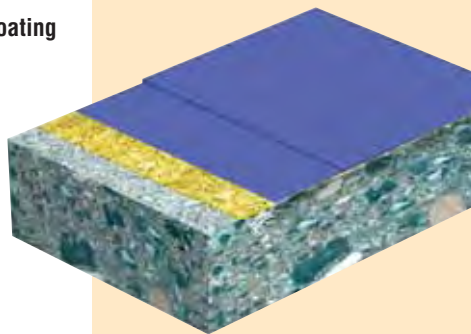


Requirements

Fast curing coloured high Build Coating

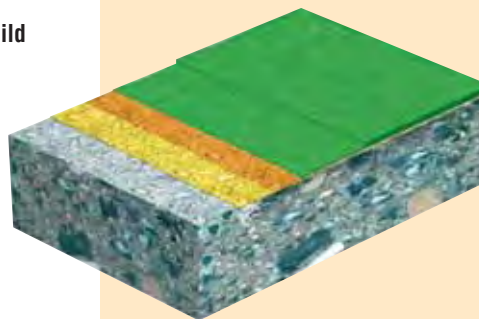
- Light wear resistance
- Chemical resistance
- Easy cleaning and repair
- Rapid curing

Design



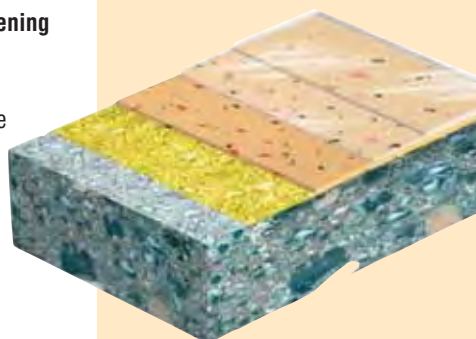
Fast curing slip resistant high Build Coating

- Medium wear resistance
- Chemical resistance
- Slip resistance
- Rapid curing



Fast curing coloured self smoothing Screed with Colour Chips

- Medium to high wear resistance
- Good chemical resistance
- Medium thermal shock resistance
- Coloured
- Rapid curing



Sika System / Performance

Primer: **Sikafloor®-13 Pronto N**

A 2-component PMMA based primer

Top coat: 2 x **Sikafloor®-16 Pronto N**
+ **Sikafloor®-Pronto Colourpaste**

A 2-component PMMA based top coat

Total layer thickness: approx. **0.8 mm**



Primer: **Sikafloor®-13 Pronto N**

Broadcasted in excess with natural quartz sand

Top coat: 2 x **Sikafloor®-16 Pronto N**
+ **Sikafloor®-Pronto Colourpaste**

A 2-component PMMA based coloured top coat

Total layer thickness: **1.0 – 1.5 mm**



Primer: **Sikafloor®-13 Pronto N**

Screed: **Sikafloor®-14 Pronto N**

+ **Sikafloor®-Pronto Filler**
+ **Sikafloor®-Pronto Colourpaste**

A 3-component PMMA based self smoothing screed

Sprinkled with: **Sikafloor®-Colourchips**

Top coat: 2 x **Sikafloor®-16 Pronto N**

A PMMA based transparent top coat

Total layer thickness: **2 – 4 mm**



Production and Processing Areas

Decontaminable Floors and Cleanrooms



Requirements

Economy Standard

- Light wear resistance
- Medium chemical resistance
- Coloured
- Easy cleaning
- Decontaminable according to DIN 25415 and BS 5295

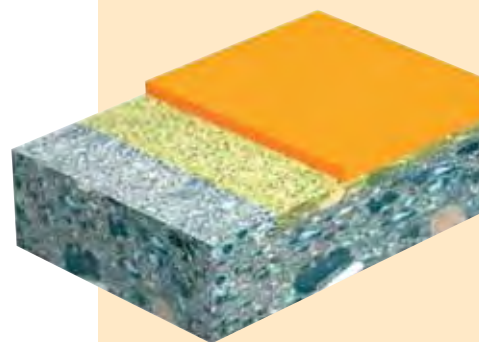
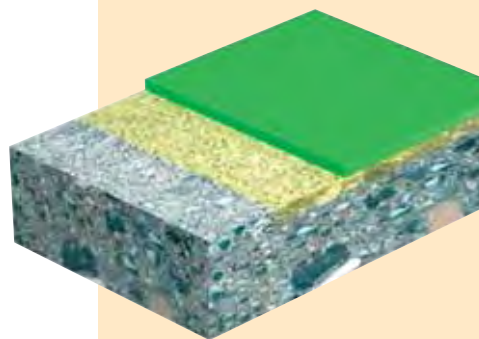
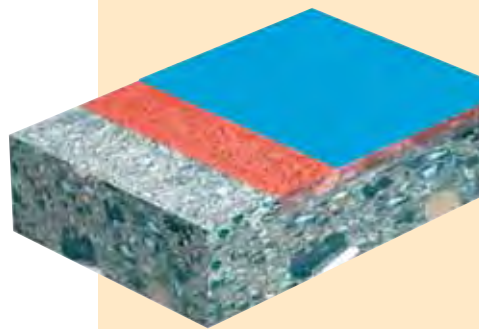
Medium Standard

- Medium wear resistance
- Good chemical resistance
- Coloured
- Decontaminable according to DIN 25415 and BS 5295

High Standard

- High wear resistance
- Very high chemical resistance
- Coloured
- Decontaminable according to DIN 25415 and BS 5295

Design



Sika System / Performance

Primer: **Sikafloor®-155 W**

1 x **Sikafloor®-2530 W**

A coloured solvent free water dispersed epoxy resin coating

Total layer thickness: 0.2 mm



Primer: **Sikafloor®-156**

1 x **Sikafloor®-261**

A solvent free coloured epoxy binder for self smoothing screeds

Total layer thickness: 1 – 2 mm



Primer: **Sikafloor®-156**

1 x **Sikafloor®-381 N**

A solvent free coloured epoxy binder for highly chemically resistant, self smoothing screeds

Total layer thickness: 2 – 3 mm



Production and Processing Areas

Conductive/Anti-static Floors

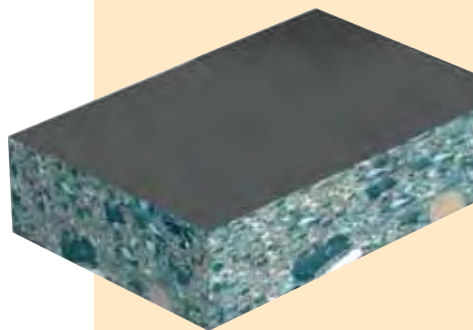


Requirements

Economy Standard

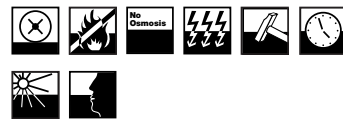
- Excellent abrasion resistance
- Excellent impact resistance
- Very high durability
- Conductive to BS 2050

Design



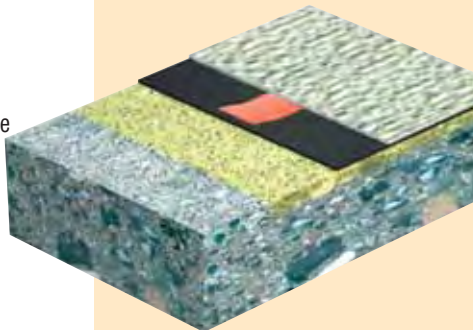
Sika System / Performance

Monolithic concrete slab based on **Sikament®** or **Sika ViscoCrete®** technology. Dry shake floor hardener **Sikafloor®-1 MetalTop** applied to the fresh concrete slab before the powerfloat finish



Economy Standard

- Light to medium wear resistance
- Medium chemical resistance
- Slip resistance
- Easy cleaning
- Conductive to DIN IEC 61340-4-1

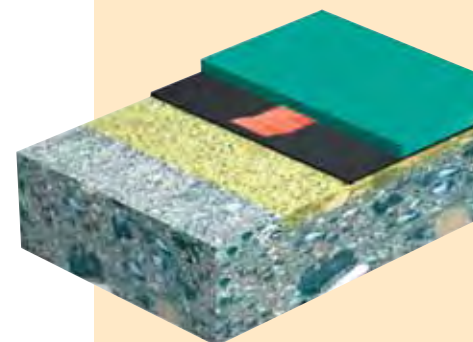


Primer: **Sikafloor®-156**
Conductive layer: **Sikafloor®-220 W Cond.**
Anti-static layer: 1 x **Sikafloor®-262 AS Thixo**
A coloured low solvent containing epoxy resin based textured coating
Total layer thickness: 0.6 – 0.8 mm



Medium Standard

- Medium wear resistance
- Medium chemical resistance
- Coloured
- Conductive to DIN IEC 61340-4-1



Primer: **Sikafloor®-156**
Conductive layer: **Sikafloor®-220 W Cond.**
Anti-static layer: 1 x **Sikafloor®-262 AS**
A coloured solvent free epoxy resin for self smoothing screeds
Total layer thickness: 2.0 mm



Production and Processing Areas

Conductive/Anti-static Floors



Requirements

High Standard

- High wear resistance
- Highest chemical resistance
- Coloured
- Conductive to DIN IEC 61340-4-1

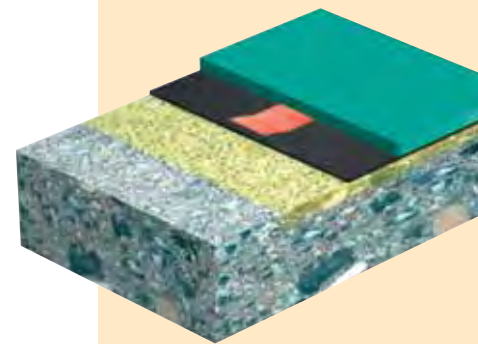
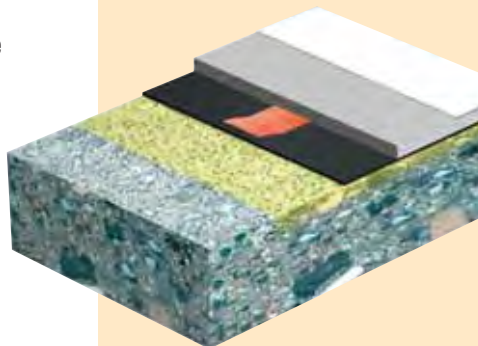
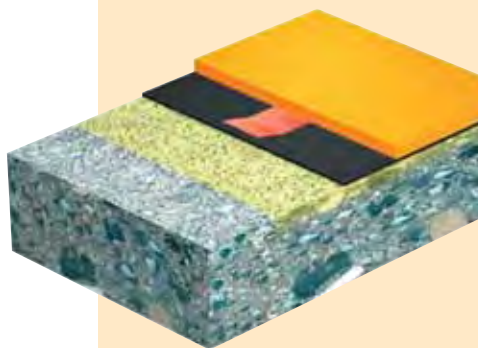
High Standard – ESD Compliance

- Medium wear resistance
- Medium chemical resistance
- Coloured
- ESD approved system (ESD STM 97.1 – 1999)

Crack-bridging, medium/high Standard

- Medium wear resistance
- High chemical resistance
- Crack-bridging ability
- Coloured
- Conductive to DIN IEC 61340-4-1

Design



Sika System / Performance

Primer: **Sikafloor®-156**

Conductive layer: **Sikafloor®-220 W Cond.**

Anti-static layer: 1 x **Sikafloor®-381 AS N**

A coloured solvent free epoxy resin for self smoothening screeds

Total layer thickness: 1.7 – 2.2 mm



Primer: **Sikafloor®-156**

Conductive layer: **Sikafloor®-220 W Cond.**

Anti-static layer: 1 x **Sikafloor®-262 AS**

Dissipative layer: 1 x **Sikafloor®-230 ESD**

A coloured water based epoxy resin top coat

Total layer thickness: 2.2 mm



Primer: **Sikafloor®-156**

Conductive layer: **Sikafloor®-220 W Cond.**

Anti-static layer: 1 x **Sikafloor®-390 AS**

A coloured solvent free flexible epoxy resin for self smoothening screeds

Total layer thickness: 2.0 mm



Car Park Deck Waterproofing

Underground Garages/Internal Decks

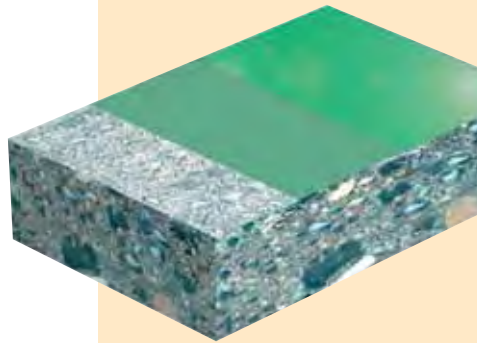


Requirements

Economy Standard

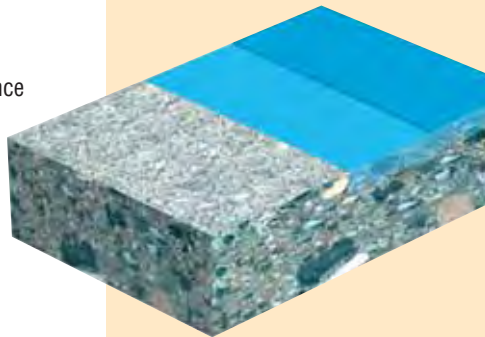
- Good abrasion resistance
- Prevent concrete dusting
- Coloured

Design



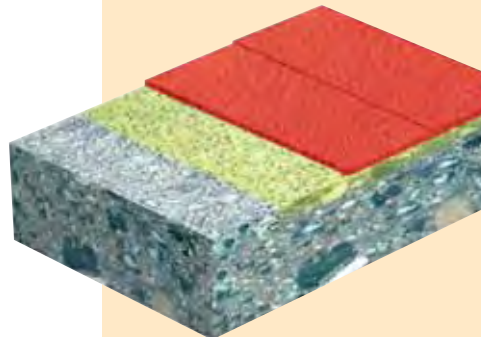
Economy Standard

- Light to medium wear resistance
- Surface stabilization
- Prevent concrete dusting
- Increased chemical resistance
- Coloured



Economy Standard

- High abrasion resistance
- Waterproof
- Slip resistance



Sika System / Performance

Monolithic concrete slab based on **Sikament®** or **Sika®ViscoCrete®** technology.

Dry shake floor hardener

Sikafloor®-3 QuartzTop

Applied to the fresh concrete slab before the powerfloat finish, surface cured and dustproofed with **Sikafloor®-ProSeal W**



2 x **Sikafloor®-2430**

A coloured, solvent containing epoxy resin based impregnation and coating



Primer: **Sikafloor®-156**

Topping: 1 x **Sikafloor®-261**

A solvent free coloured epoxy for coatings and selfsmoothing screeds

Broadcast with quartz sand and sealed with **Sikafloor®-261** as a coating

Total layer thickness: 1 – 2 mm



Car Park Deck Waterproofing

Exterior Intermediate and Exposed Decks



Requirements

Medium Standard Crack-bridging System according to German Standard ZTV SIB (OS 13)

- High abrasion resistance
- Medium static crack-bridging
- Waterproof
- Thermal shock resistance
- Slip resistance
- UV-resistance

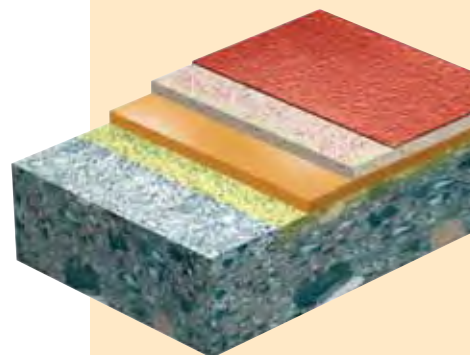
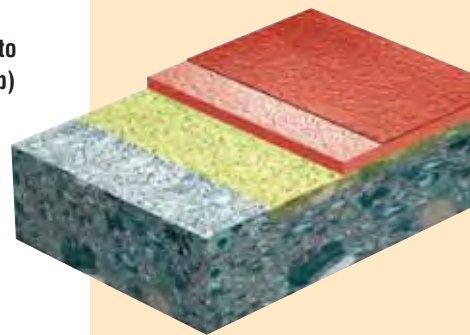
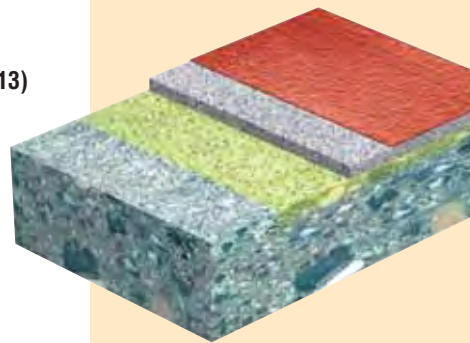
High Standard Crack-bridging System according to German Standard ZTV SIB (OS 11b)

- High abrasion resistance
- High crack-bridging ability
- Waterproof
- Thermal shock resistance
- Slip resistance
- UV resistance

High Standard Crack-bridging System

- High abrasion resistance
- High crack-bridging ability
- Waterproof
- Thermal shock resistance
- UV resistance

Design



Sika System / Performance

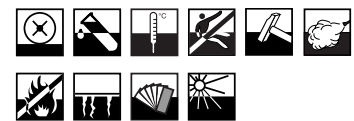
Primer: **Sikafloor®-156**

Abrasion layer: **Sikafloor®-355 N**

A 2-component flexible polyurethane resin broadcast with quartz sand and sealed with **Sikafloor®-359**

A 2-component, slightly flexible polyurethane resin

Total layer thickness: **3 mm**

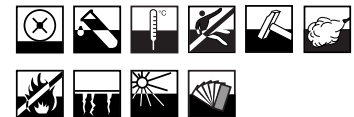


Primer: **Sikafloor®-156**

Abrasion layer: **Sikafloor®-350**

A 2-component flexible polyurethane resin broadcast with quartz sand and sealed with **Sikafloor®-359**

Total layer thickness: **4 mm**



Primer: **Sikafloor®-156**

Membrane: **Sikafloor®-325 P.E.T. tech®**

Abrasion layer: **Sikafloor®-325**

P.E.T. tech®

A solvent free elasto-plastic thermal shock absorbing polyurethane binder broadcast with quartz sand and sealed with **Sikafloor®-359**

Total layer thickness: **4 – 5 mm**



Commercial, Residential and Institutional Areas

Offices, Corridors, Multipurpose Halls



Requirements

Economy Standard

- Coloured
- Easy cleaning

Medium Standard

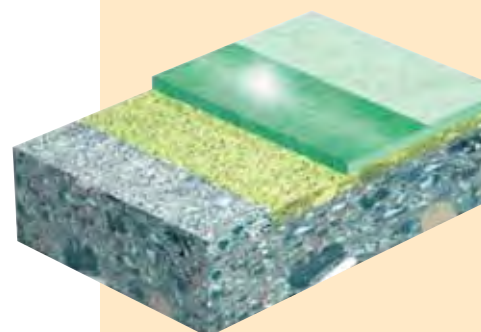
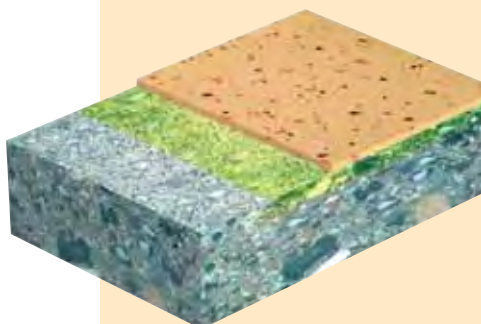
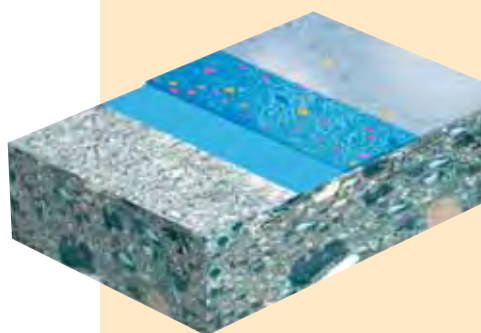
- Wear resistance
- Coloured

High Standard

- Wear resistance
- Coloured
- Slip resistance



Design



Sika System / Performance

2 x **Sikafloor®-261**

A coloured, solvent free, epoxy resin coating, sprinkled with **Sikafloor®-Colourchips**

and sealed with **Sikafloor®-302 W**

A water based polyurethane mat sealer

Total layer thickness: 0.5 mm



Primer: **Sikafloor®-156**

1 x **Sikafloor®-261**

A coloured solvent free epoxy binder for self smoothing screeds, sprinkled with coloured chips

Total layer thickness: 1 – 2 mm



Primer: **Sikafloor®-156**

1 x **Sikafloor®-300 N**

A coloured, solvent free, high elastic polyurethane binder, textured and sealed with **Sikafloor®-302 W**

Total layer thickness: 2 mm



Commercial, Residential and Institutional Areas

Balconies and Stairways



Requirements

Economy Standard

- Light wear resistance
- Easy cleaning
- UV stability

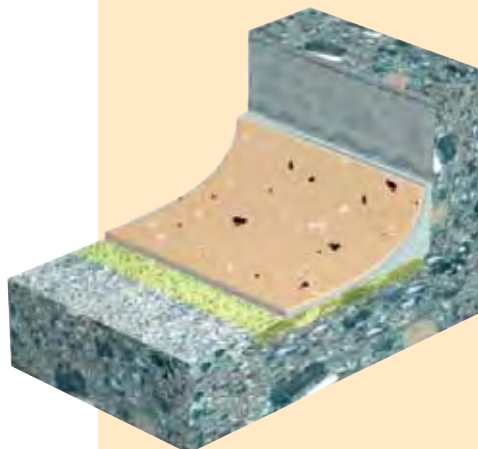
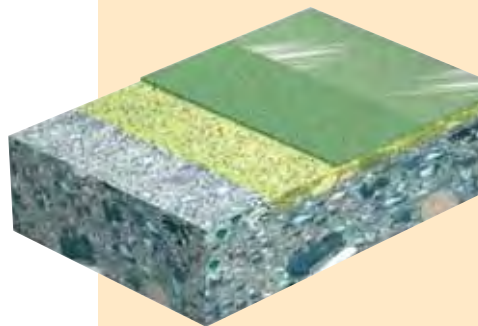
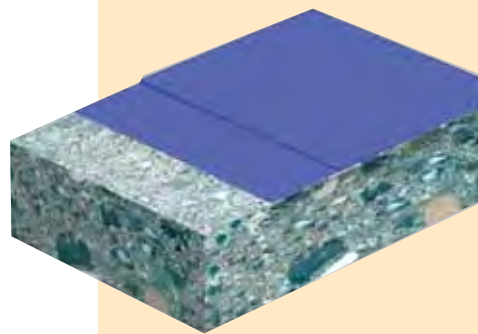
Medium Standard

- High wear resistance
- UV stability
- Slip resistance
- Fast curing

High Standard

- Medium wear resistance
- Thermal shock resistance
- Crack-bridging ability
- UV stability
- Coloured
- Easy cleaning

Design



Sika System / Performance

Primer: 1 x **Sikafloor®-400 N Elastic**
+ 10 % **Sika® Thinner C**

Top coat: 1 x **Sikafloor®-400 N Elastic**
A 1-component, solvent containing, coloured, highly elastic, moisture curing polyurethane coating

Total layer thickness: 0.3 – 0.5 mm



Primer: 1 x **Sikafloor®-13 Pronto N**
Broadcast to excess with quartz sand

Top coat: 2 x **Sikafloor®-16 Pronto N**
+ **Sikafloor®-Pronto Colourpaste**
A 2-component, PMMA based coloured top coat

Total layer thickness: 1.0 – 1.5 mm



Primer: **Sikafloor®-156**

1 x **Sikafloor®-400 N Elastic**
A coloured, solvent containing 1-component highly elastic polyurethane coating, sprinkled with **Sikafloor®-Colourchips**

Total layer thickness: 1 – 2 mm

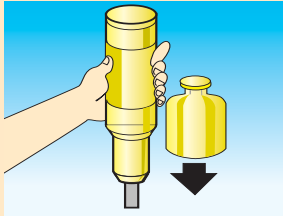


The Sikafloor® Programme Application Procedure

Substrate Inspection and Preparation

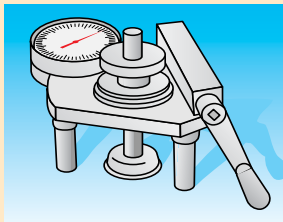
The substrate is the basis of a floor, whether it is new or old. Thorough inspection and assessment is essential to determine the correct substrate preparation for a successful flooring system.

A durable bond must be achieved between the new floor system and the substrate. This requires a dry, sound and clean surface without dust or other contaminants, prior to application of the flooring system.



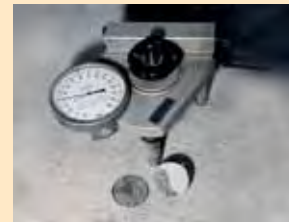
Measuring the compressive Strength

The compressive strength of the substrate should not be less than 25 N/mm² (25 MPa). To meet defined loads, a higher strength may be required. It is advisable to take a number of measurements across the floor and in all parts of the proposed installation to confirm suitability of the compressive strength.



Determining the cohesive Strength

Concrete substrates generally have cement laitance with low strengths in the top few mm (mils). This weak layer must always be removed. Stresses from concrete shrinkage, thermal shock or excessive loading may also lead to reduced cohesive strength. The minimum should be: $\geq 1.5 \text{ N/mm}^2$ ($\geq 1.5 \text{ MPa}$). Any inadequate



areas must be removed and replaced.

Substrate Moisture Content

It is extremely important to measure the substrate moisture content because cement bound substrates should normally only be coated at a moisture level of 4 % by volume or less. The best method for checking moisture content is the "Rubber Mat Test" (at least 1 m x 1 m of polyethylene sheet, taped to the concrete surface). This should be left in position for at least 24 hours, prior to removal and testing.



Any condensed vapour transmissions are thereby detected.

Substrate moisture greater than 4 % by volume or rising moisture (condensed vapour) indicates the need for additional drying time or the use of Sikafloor® EpoCem® Technology.

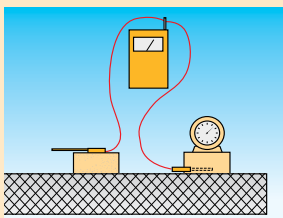
Ambient Climate

If atmospheric climate factors are ignored, serious flooring defects such as poor adhesion, water marks, void formation, irregular surfaces and inadequate curing may occur. The following data must therefore be checked several times a day, before, during and after application to ensure that they are within the system limitations:

- Ambient temperature (air temperature)
- Substrate temperature
- Dew point

Preparation and Cleaning

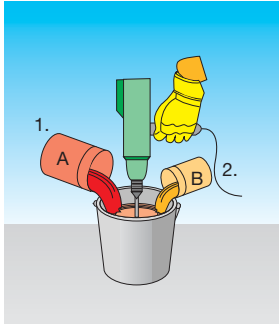
Areas of weak substrate or surface laitance will compromise the adhesion characteristics of any installed system, if not fully removed. Surfaces must therefore always be mechanically prepared down to a sound substrate. Any dirt, dust, oils and grease or other contaminants will also reduce or prevent adhesion of any topping so this must also be removed by thorough cleaning and vacuuming of all residues.



The Sikafloor® Programme Application Procedure

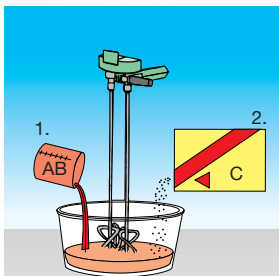
Product Mixing

Each Sikafloor® product needs to be thoroughly mixed prior to application. The mixer used should always be of a low speed, compulsory/forced action type.



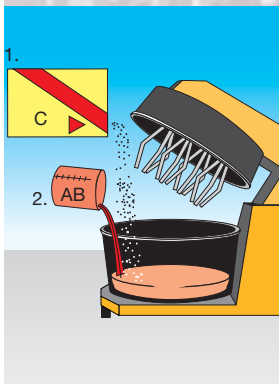
Drill and Mixing Paddle

This tool is only recommended for unfilled binders. Premix Comp. A first. Then add Comp. B and mix for a minimum of 3 minutes until the mix is fully homogeneous.



Double Mixing Paddle (free hand or on a stand)

This is the ideal tool for all filled binder systems as well as for mortar mixes. First of all, mix Component A + B together, put the premixed A + B Component or liquid binder in the mixing pail, and then add Powder Comp. C while stirring. Mix for a minimum of 3 minutes until the mix is fully homogeneous.



Forced Action Pan Mixer

This machine is designed for the correct mixing of all types of mortar and screed. First of all, put the powder component in the mixing pail, and then add the premixed A + B Component or liquid binder while stirring. Mix for a minimum of 3 minutes until the mix is fully homogeneous.



Product Application



Primer application with medium long pile roller



Application of a self smoothing screed with a notched trowel



Application e.g. of Sikafloor®-261 Thixo with a textured roller



Sealing of a broadcast layer with a straight trowel or "squeegee" blade



Sealing of a self smoothing floor with a mat sealer, using a short pile roller



Spiked rolling immediately removes any entrapped air












Typical pump for readymixed cementitious screeds such as the Sikafloor®-Level range



Power float with a variable speed control for trowel finishing of concrete and resin floors

Sikafloor® Product and System Performance Characteristics

<div> <div></div> <div>Sika Product/ System Type</div> </div> <div>Performance Characteristics</div>	Dry shake flooring	Curing and sealing compounds	Epoxy Cement Compound	Epoxy impregnation	Epoxy coating	Epoxy textured coating
	Sikafloor®-3 QuartzTop	Sikafloor®- ProSeal and ColourSeal	Sikafloor®- EpoCem®	Sikafloor®- 2420/2430	Sikafloor®- 2530 W	Sikafloor®- 261 Thixo
 Abrasion resistance; Taber (ISO 7784-2/ASTM D 4060) [CS10/1000/1000]	Reduction of abrasion; loss of up to 50 %	Reduction of abrasion; loss of at least 23 %	Sika Standard; 1 mm/2h (less abrasion)	88 mg	65 mg	70 mg
 Compressive strength 14 d/23 °C (DIN EN 196-1)	NA	NA	60 N/mm ²	NA	NA	NA
Hardness, 14 d/23 °C (DIN 53505 /ASTM D 2240)	NA	NA	NA	NA	NA	Shore D 80
 Impact resistance 14 d/23 °C (EN 12191)	NA	NA	NA	NA	NA	NA
 Crack-bridging (static)	NA	NA	NA	NA	NA	NA
Flex. modulus of elasticity (DIN 1048-5)	NA	NA	20 kN/mm ²	NA	NA	NA
Coeff. of expansion (DIN 52450)	NA	NA	2 x 10 ⁻⁵ per °C	NA	NA	NA
 Electric resistance DIN 61340-4-1	NA	No	NA	NA	NA	NA
 Permeability to liquid water	Yes	NA	No	Yes	No	No
 Heat resistance continuous exposure	120 °C	NA	120 °C	50 °C	50 °C	50 °C
Heat resistance short time exposure	200 °C	NA	200 °C	120 °C	100 °C	120 °C
 Ready for foot traffic after (20 °C)	12 h	4 h	15 h	24 h	15 h	20 h
 Ready for mechanical and chemical exposure (20 °C)	7 d	2 d	7 d	7 d	7 d	7 d

NA = Not applicable

teristics

Epoxy resin screed	Epoxy resin screed	Elastic polyurethane flooring	Visco-elastic polyurethane screed	Elastic poly-urethane parking deck system	Epoxy resin screed	Flexible epoxy resin screed	1-comp. elastic polyurethane coating	Polyurethane modified flooring	PMMA flooring
Sikafloor®-261	Sikafloor®-262 AS	Sikafloor®-300 N/302 W	Sikafloor®-325 P.E.T. tech	Sikafloor®-350 /359	Sikafloor®-381 N/381 AS N*	Sikafloor®-390/390 AS*	Sikafloor®-400 N Elastic	Sikafloor®-PurCem®	Sikafloor®-14 / Sikafloor®-16 Pronto N
70 mg	65 mg	50 mg	55 mg	70 mg (Sikafloor-359)	40 mg	75 mg	30 mg	NA	56 mg (Sikafloor-16 Pronto N)
60 N/mm²	80 N/mm²	NA	NA	NA	≥ 80 N/mm²	NA	NA	45 – 55 N/mm²	45 N/mm²
Shore D 77	Shore D 80	Shore D 80	Shore D 70	Shore D 68 (Sikafloor-359)	Shore D 80	Shore D 60	Shore D 80	NA	NA
220 cm	NA	NA	230 cm	75 cm	75 cm	230 cm	NA	NA	NA
NA	NA	1.5 mm	0.5 mm	1.0 mm	NA	0.2 mm	1.0 mm	NA	NA
3 kN/mm²	NA	10 N/mm²	20 N/mm²	NA	6 kN/mm²	2 kN/mm²	NA	NA	NA
4 x 10 ⁻⁵ per °C	NA	NA	10 x 10 ⁻⁵ per °C	NA	6 x 10 ⁻⁵ per °C	10 x 10 ⁻⁵ per °C	NA	NA	NA
NA	10 ⁴ – 10 ⁶ Ω	NA	NA	NA	10 ⁴ – 10 ⁶ Ω (AS)	10 ⁴ – 10 ⁶ Ω (AS)	NA	NA	NA
No	No	No	No	No	No	No	No	No	No
50 °C	50 °C	50 °C	50 °C	50 °C	50 °C	50 °C	50 °C	70 °C – 120 °C depending on product and thickness	50 °C
120 °C	120 °C	80 °C	100 °C	100 °C	120 °C	120 °C	80 °C	120 °C depending on product	100 °C
24 h	24 h	20 h	24 h	24 h	24 h	24 h	15 h	12 h	1 h
7 d	7 d	7 d	7 d	7 d	7 d	7 d	7 d	4 d	2 h

The Sikafloor® Programme

Typical Details with Sikafloor® Systems

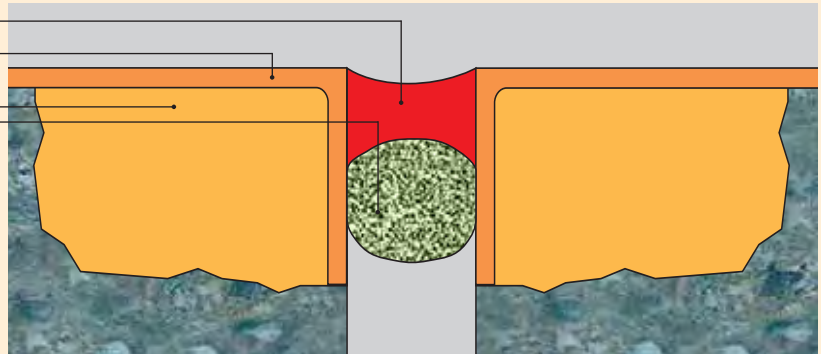
Joint Design – Movement Joints

Sikaflex® PRO-3 WF

Sikafloor®-261

Resin mortar, e.g. **Sikadur®-42**

Sika backing section



■ Movement joint with repaired and reinforced arris

Resin flooring, e.g.

Sikafloor®-325

Sikadur®-31 or

Sikadur®-42

(depending on depth of recess)

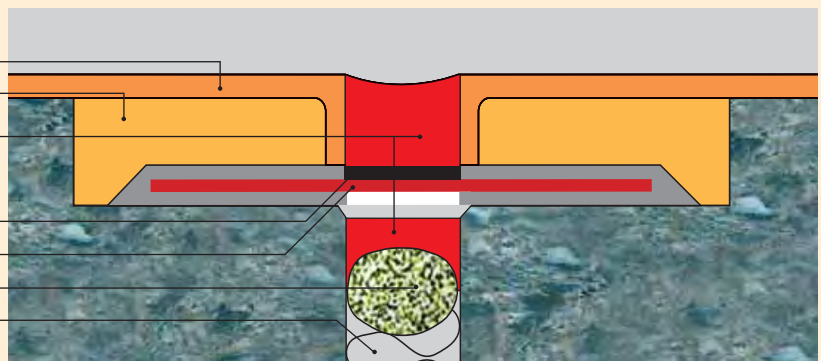
Sikaflex® PRO-3 WF

PE separation foil

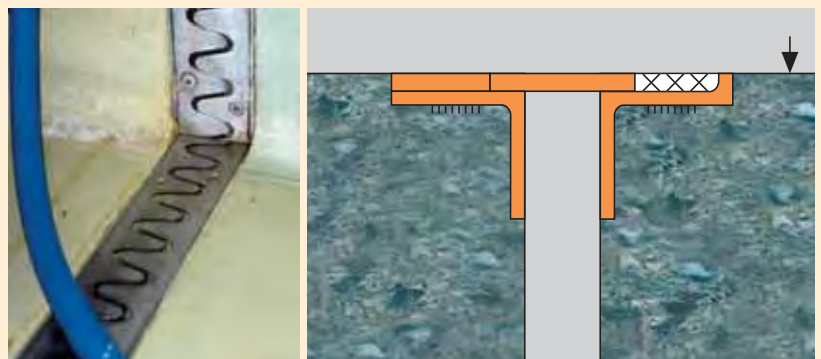
Sikadur®-Combiflex® System

Sika backer rod

Joint filler



■ Waterproof movement joint



■ Preformed mechanical joint for heavily trafficked/wide joints

Sikagard® Coating

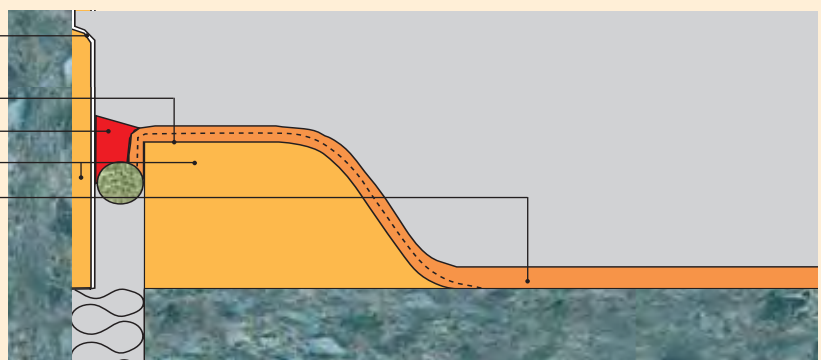
Resin flooring modified

e.g. with glass fabric

e.g. **Sikaflex® PRO-3 WF**

e.g. **Sikadur®-31**

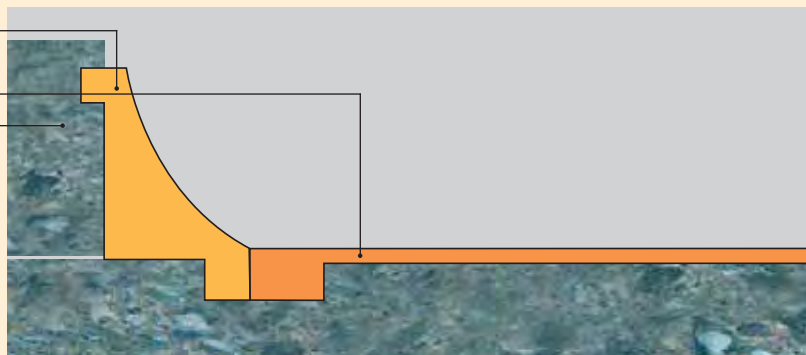
Resin flooring, e.g. **Sikafloor®-261**



■ Perimeter movement joints
(not recommended in new works where they can be designed out)

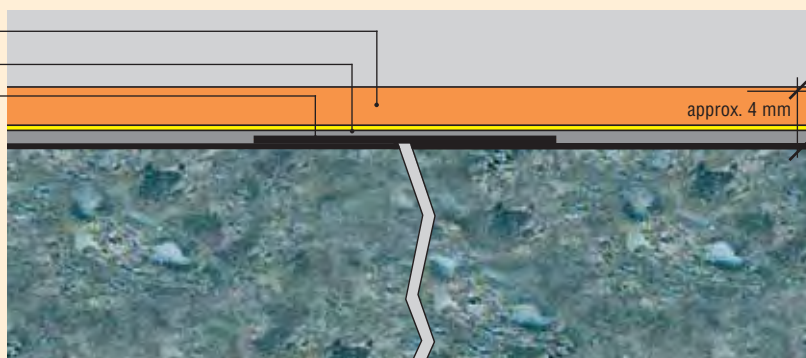
Sikafloor® – Coving/Floor to Wall Connections

Cove detail with **Sikadur®/Sikafloor®**
resin mortar
Floor topping, e.g. **Sikafloor®-325**
Concrete



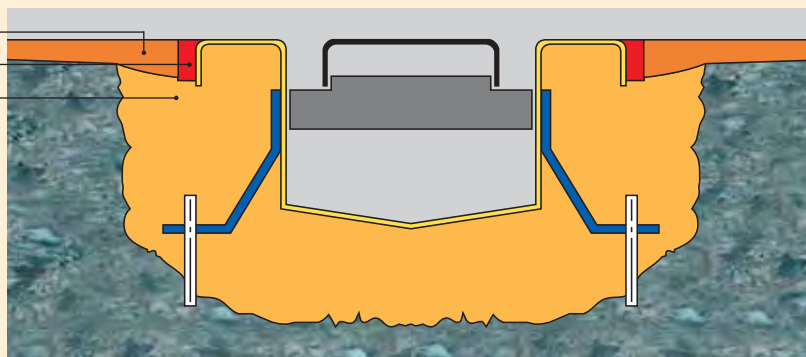
Sikafloor® Non Moving Crack Repair

Sikafloor®-261
Sikafloor®-156
Sikafloor®-156 Primer

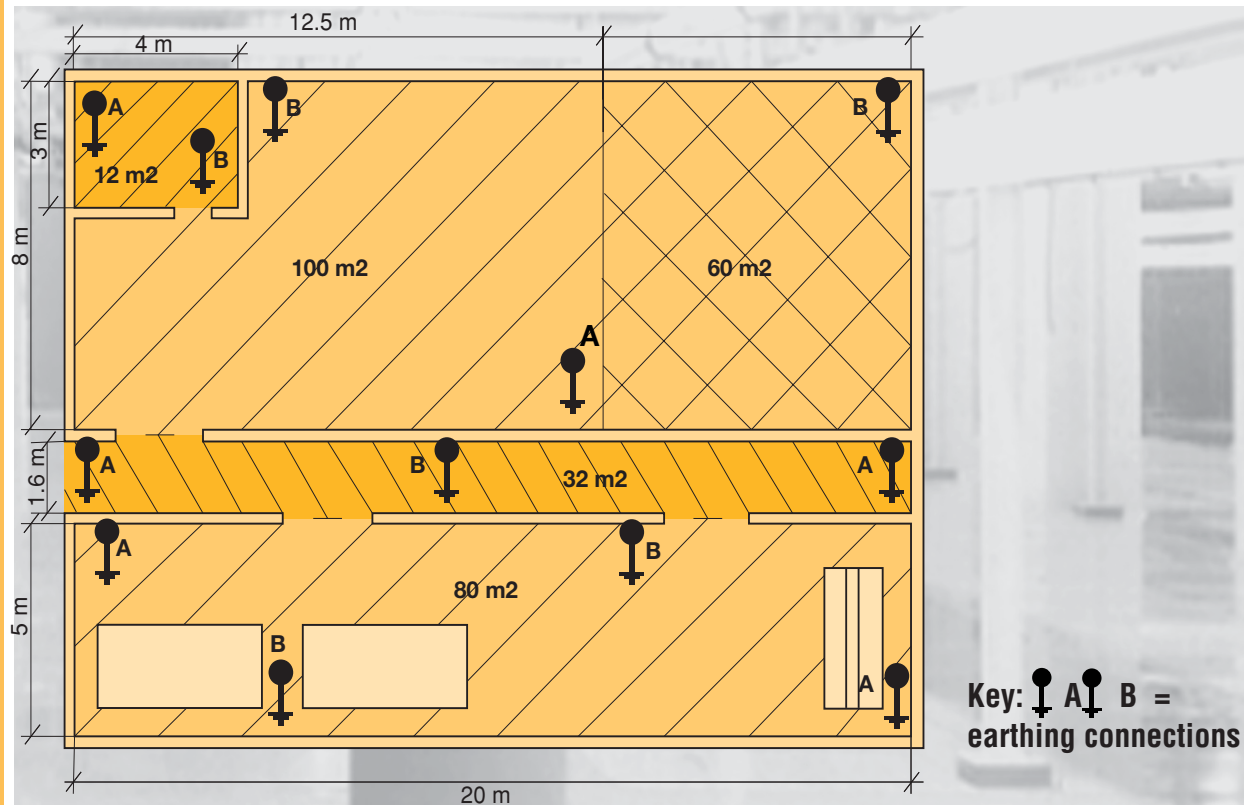


Gulley Installation Details

Sikafloor®-261
Sikaflex® PRO-3 WF
SikaGrout® cement mortar



The Sikafloor® Antistatic/Conductive Systems Connection to Earth



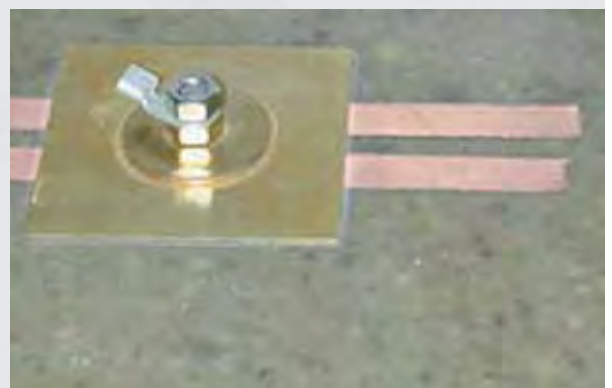
The measurement of conductivity should be undertaken as shown in the chart below:

Applied area	Amount of measurements
< 10 m ²	2 measurements / m ²
10 – 100 m ²	5 – 15 measurements
>100 m ²	10 measurements / 100 m ²



Placing of earthing plates:

The Sika® Earthing Kit system of anchored brass plates with stable earth connection. The instructions for use must be followed exactly. Every earthing point is able to conduct 100 m².



Make sure that the longest distance from each point in the area is max. 10 m to the next earthing point. If site conditions do not allow placing of additional earthing points, longer distances (>10 m) have to be bridged with copper tapes. Clean the earthing spots carefully. The earthing plates have to be connected by a qualified electrician, with at least 2 earthing points per room. The optimum number of earth connections depends on local conditions and regulations and should be clearly detailed by the responsible engineer and according to local standards.

Sika Group Portrait

Our Global Presence for Your Support

There are Sika Companies in 70 countries worldwide with more than 8700 employees. This links our clients and our customers directly to Sika and ensures the success of your projects.

Sika Group Profile

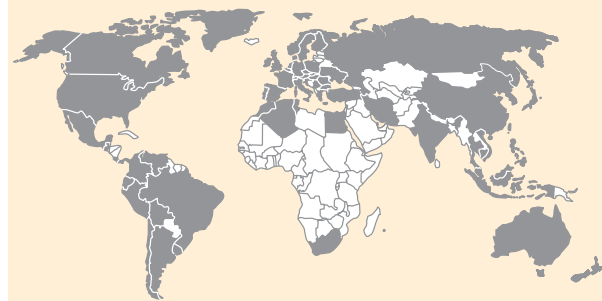
Sika is a global leader in specialty chemicals. We are experts in the technology and processing of materials used in

- Sealing
- Bonding
- Damping
- Reinforcing
- Protecting

Therefore ensuring the success and durability of all types of building and civil engineering structures and in advanced manufacturing and prefabrication – such as the automotive and transportation industries.

Sika Product Ranges

- Concrete admixtures
- Speciality mortars
- Sealants and adhesives
- Damping and structural strengthening materials
- Industrial flooring
- Waterproofing
- Roofing and technical membranes



Our Objective: Added Value for the Customer

We focus on technology and products adapted to the needs of defined customers. These include:

In Construction

- Ready-mix plants
- Precasters
- Builders and craftsmen
- General contractors
- Specialist contractors
- Dealers and merchants and DIY

In other Industries

- Automotive OEM/OES
- Automotive aftermarket
- Transportation industry
- Marine
- Appliance and equipment
- Building components
- Tooling

Our Core Competences include:

In Raw Materials

■ Alliances

We embrace the exchange of technical know-how and cooperation in developing new technologies and products with long-term volume contracts.

■ Basic Materials and Partners

Polyurethanes from Bayer
Acrylates from BASF/TOHO
Silicones from Wacker
Carbon-fiber composites from Gurit
Epoxyes from Dow Research & Development

In Research & Development

■ Research

We have centralized and focussed, long-term research programs in selected fields for the development of new technologies and products.

■ Development

Decentralized regional technology centres for the adaptation of products to local conditions as well as local application and equipment technology to meet our customer needs.

In Production & Logistics

■ Production

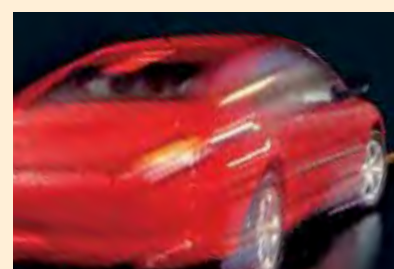
Decentralized for economic supply and meeting our customer needs locally, all over the world.

Synergies by using the same production technologies for our different customer groups such as within construction and other industries.

Efficient utilization of our existing plant capacities by use of the Total Quality Management methods.

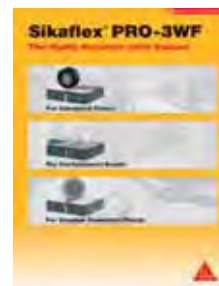
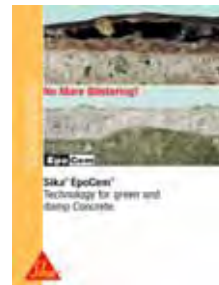
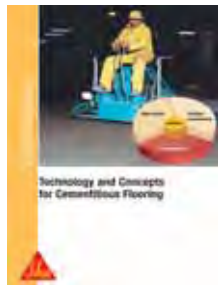
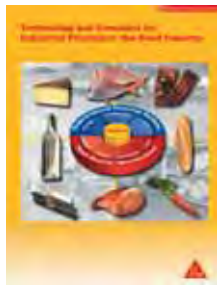
■ Logistics

World-wide knowledge and experience in handling of chemical goods for global availability and delivery on time to our customers.



Sika® Technology and Concepts for Industrial Flooring

Also available from Sika



Sika Limited
Watchmead
Welwyn Garden City
Herts
AL7 1BQ

Tel: 01707 394444
Fax: 01707 329129
email: sales@uk.sika.com
www.sika.co.uk

Sika Ireland Limited
Unit 3
Ballymun Industrial Estate
Dublin 11
Ireland

Tel: (01) 8620709
Fax: (01) 8620707
email: info@sika.ie

