


SIKA® TECHNOLOGY AND CONCEPTS FOR FLOORING AND COATING

Update August 2013

BUILDING TRUST

Sika® Technology and Concepts for Flooring and Coating

Sika has continued to strengthen its position as the worldwide market leader in construction chemicals during the last few years, despite the global economic situation. As part of this expansion, Sika has maintained a strong focus on providing flooring and coating systems for many different applications and extending them worldwide. Today Sika provides a full range of flooring and coating solutions, which meet or exceed all of the latest standards and requirements for both new and refurbishment works. The latest developments from our new technologies and new systems from our acquisitions, together with testing and approvals to updated standards, make it necessary to update and expand this brochure for our flooring products and their system build-ups.

Additionally Sika has developed new products for additional industrial and commercial applications, and also now helps you to define the most suitable flooring products and systems for your projects in accordance with the latest information on sustainability and in regard to their whole life cycle costing. This brochure is intended as a selection guide to help you define all of the key requirements for your floors and then to select the most appropriate products and the system build-ups to achieve them.

In addition to the most commonly used products and the typical system build-ups and details outlined in the brochure, there are many more specialised flooring and protective coating solutions available from Sika. These are detailed in separate brochures and documentation for their specific application and areas of use, or on the Internet at: www.sika.com, where they are regularly updated.

As stated earlier, Sika is the worldwide market leader in construction chemicals and as such we provide a full range of specialist construction solutions in our "Basement to the Roof" approach. Sika is therefore an ideal partner on your construction project and provides all of the latest technologies with proven solutions in a 'one-stop-shop'.

For full details of the Sika service and support available in your region, please contact your local Sika organisation.

The Sika Flooring and Coating Team

Content

Sika's Industrial and Commercial Flooring and Coating Capabilities

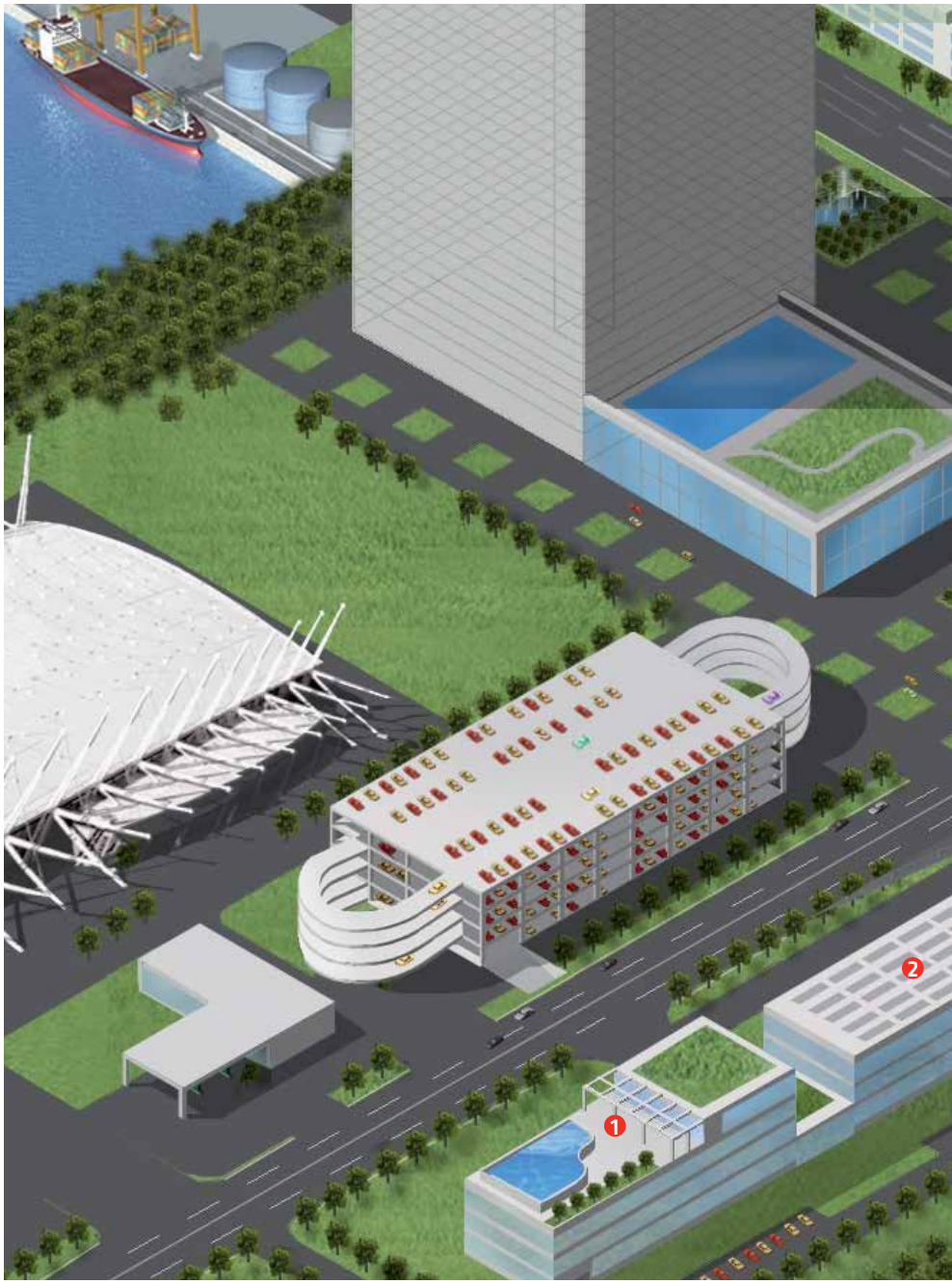
Solutions for Storage, Logistics and Sales Areas Page 6

Solutions for Production and Processing Areas Page 14

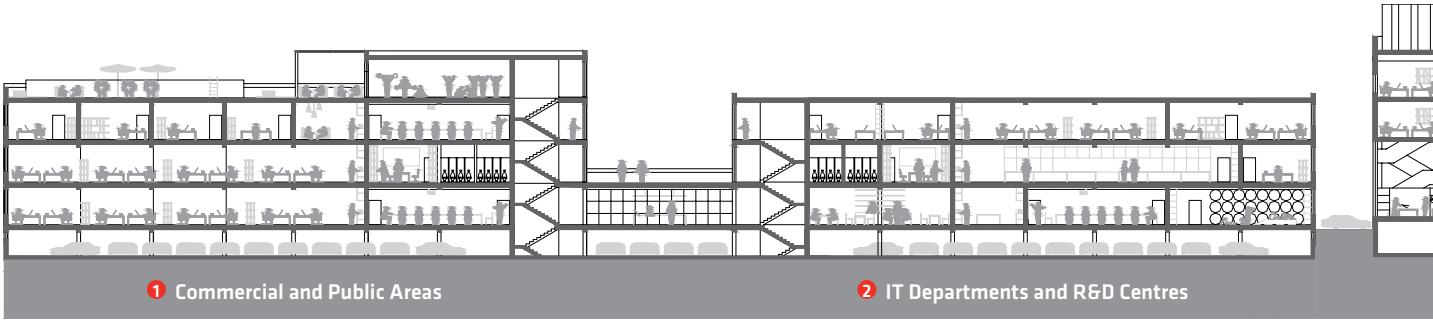
Solutions for Cleanroom Areas Page 22

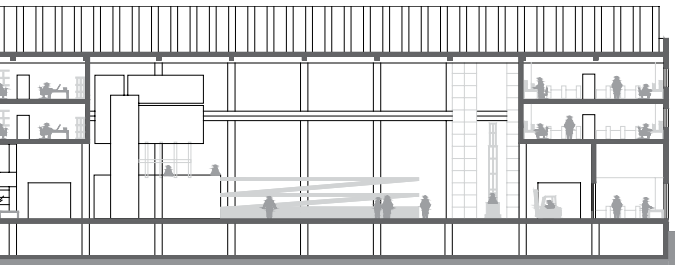
Solutions for ESD Protection and Electrostatic Control Page 26

Solutions for Multi-Storey and Underground Car Parks Page 30

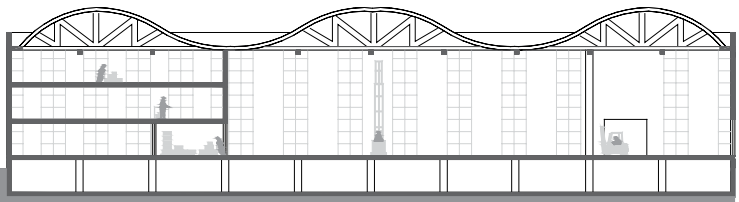


A user-friendly online Industrial Building Selection Guide is available at www.sika.com





3 Production and Processing Areas



4 Storage, Logistics and Sales Areas

Sikafloor® Solutions for Storage, Logistics and Sales Areas

Introduction

Large quantities of goods have to be produced, distributed and delivered quickly- and on time for an efficient economy to function. In the manufacturing industries where these goods are handled and stored, the warehouses, their loading bays etc., all need to have their floors designed and installed to suit the specific conditions of each areas operation. It is always essential to ensure that the stresses imposed are all able to be safely accommodated by the flooring system. Therefore, fully understanding each areas operations and then defining all of the performance requirements for the floor is most important. This includes the required mechanical impact, abrasion and chemical resistance, thermal exposure plus ease of cleaning, and dust prevention, etc.

New Buildings

Concrete slabs produced from mix designs using **Sikament**® or **Sika**® **ViscoCrete**® **SCC** technology form a sound foundation and allow accurate levels with the necessary falls to be achieved. **Sikafloor**® "dry shake" solutions as the name suggests, are applied as dry powders directly onto the surface of the freshly laid concrete, where they are power float finished, and then harden monolithically with the base concrete. This creates an integrated and extremely hardwearing floor.

Concrete curing agents, plus surface hardening and sealing compounds complete the **Sikafloor**® range.

Additionally, **Sika**® **EpoCem**® technology can be used on relatively new "green" or existing damp concrete, where it acts as a temporary moisture barrier to reduce waiting times for the application of vapour-tight floor systems.

Refurbishment

Cementitious, self-smoothing **Sikafloor**® **Level** pumped screeds and **Sikafloor**® **CorCrete** toppings are used to provide a uniform and level surface for the application of floor finishes.
These vapour permeable and rapid drying screeds provide very economic solutions. **Sika**® **EpoCem**® Technology is again frequently used in refurbishment projects when the existing floors have rising or high moisture contents but need to be over-coated quickly.

Racking Areas

Sikafloor® solutions provide a bright coloured floor that can be installed in a wide range of thicknesses and with a variety of surface textures. These floors are seamless, non-porous and non-dusting, with good chemical resistance. Their properties make the floor hygienic and easy to clean as well as being hard and very durable, so they are ideally suited for use in dry process and racked storage areas.

Cold Storage Areas

Sikafloor® solutions can provide durable flooring solutions for cold storage areas even in the most severe conditions with extreme mechanical, chemical and thermal exposure.

Storage, Logistics and Sales Areas

Requirements

Concrete Slab with Screed for Accurate Levels and Floors to Falls

- Fine level tolerances

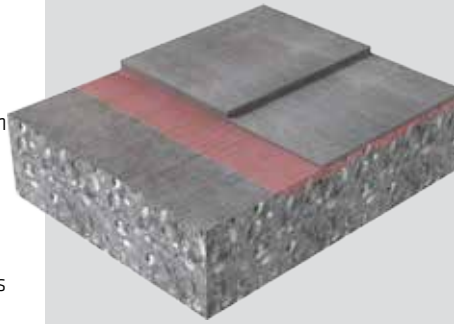
Design / Build-up

Sika System / Performance

Concrete slab: Using **Sikament®** or **Sika® ViscoCrete® SCC** technology
Bonding-bridge: Sika polymer modified cement
Screed: Sika polymer modified, cement based screeding mortar with a power float finish

Self-Smoothing Temporary Moisture Barrier on "Green" or Damp Concrete

- Self-Smoothing for concrete floors with a damaged or missing waterproof membrane
- Reduced waiting time to overcoat green concrete
- No blistering in vapour tight floor toppings when coating damp concrete



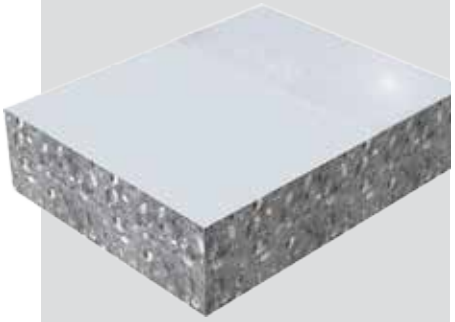
Primer: **Sikafloor®-81 EpoCem® Module**
Screed: **Sikafloor®-81 EpoCem®** at layer thickness: **2 – 3 mm** or **Sikafloor®-82 EpoCem®** at layer thickness: **4 – 7 mm**
3-component epoxy modified, cement based, self-smoothing screeds.
Topping: **Sikafloor®** resin system to suit

Requirements

Monolithic Finish for Concrete Floors

- Economic surface hardening
- Good abrasion resistance
- Good impact resistance
- Colour options

Design / Build-up

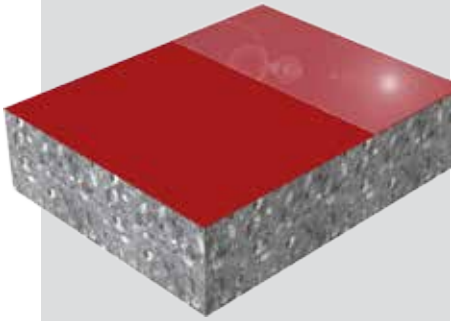


Sika System / Performance

Concrete slab: Using **Sikament®** or **Sika® ViscoCrete® SCC** technology
Dry-shake: **Sikafloor®-3 QuartzTop** applied on the fresh concrete and power float finished
Curing and Sealing: **Sikafloor® ProSeal-22** for optimum surface hardening and to prevent dusting

Tough Monolithic Finish for Concrete Floors

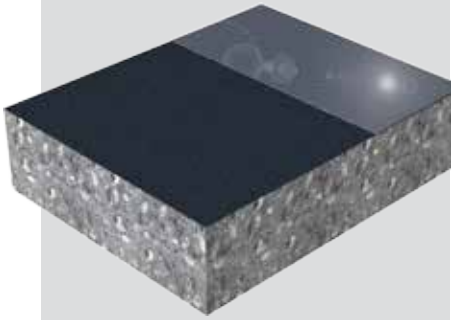
- Tough and durable
- Very good abrasion resistance
- Very good impact resistance



Concrete slab: using **Sikament®** or **Sika® ViscoCrete® SCC** technology.
Dry-shake: **Sikafloor®-2 SynTop** applied on the fresh concrete and power float finished
Curing and Sealing: **Sikafloor® ProSeal-22** for optimum surface hardening

Tough Monolithic Finish for Concrete Floors

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



Concrete slab: using **Sikament®** or **Sika® ViscoCrete® SCC** technology.
Dry-shake: **Kemox® A** applied on the fresh concrete and power float finished
Curing and Sealing: **Sikafloor® ProSeal-22** for optimum surface hardening

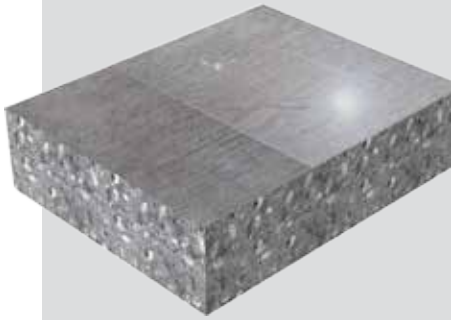
Storage, Logistics and Sales Areas

Requirements

Surface Hardener for Concrete Floors

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

Design / Build-up

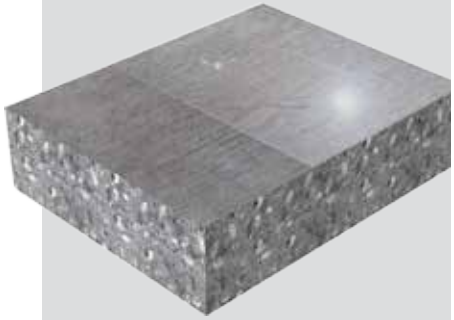


Sika System / Performance

Surface hardener: 1 – 2 x **Sikafloor®** **CureHard-24**, sodium silicate based, or **Sikafloor® CureHard LI**, lithium silicate based, liquid hardeners, spray applied and brushed into freshly finished hardened, or ground existing concrete

Concrete Floor Curing and Sealing (Solvent Based)

- Curing to ASTM C-309
- Sealing and hardening
- Fast film formation



Curing and sealing: 1 – 2 x **Sikafloor®** **ProSeal-22**, 1-part, transparent, solvent dispersed, acrylic resin polymer solution

Requirements

Self-Smoothing, Temporary Moisture Barrier on "Green" or Damp Concrete

- For concrete floors with damaged or missing water-proofing membrane
- No waiting time on "green" or damp concrete
- No blistering in the finish when coating damp concrete

Design / Build-up

Sika System / Performance

Primer: **Sikafloor®-81 EpoCem® Module**
Base layer: **Sikafloor®-81 EpoCem®** at
layer thickness: **2 – 3 mm**, or
Sikafloor®-82 EpoCem® at
layer thickness: 4 – 7 mm
3-part epoxy modified, cement based, self-smoothing screeds
Topping: **Sikafloor®** resin system to suit

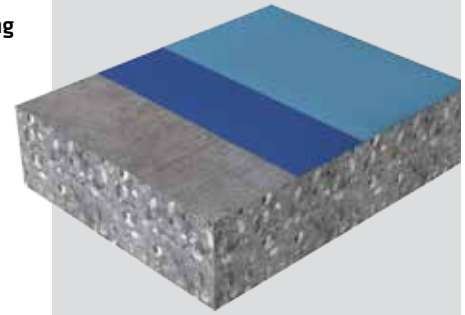
Storage, Logistics and Sales Areas

Requirements

Water Dispersed, Coloured Roller Coating

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

Design / Build-up

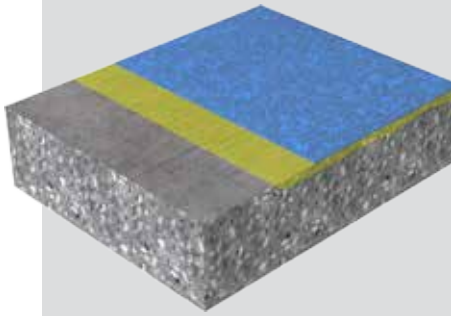


Sika System / Performance

Primer: Not generally required
Coating: 2 x **Sikafloor®-2530 W**, 2-part, water dispersed, coloured, epoxy resin based coating
Total system thickness: **0.15 – 0.25 mm**

Textured, Coloured Rigid Coating

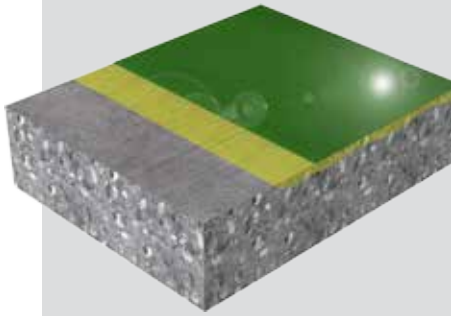
- Good wear and abrasion resistance
- Good chemical resistance
- Slip resistant
- Easy cleaning
- Coloured



Primer: **Sikafloor®-156/-161**
Coating: **Sikafloor®-264 Thixo**, 2-part, total solids, coloured, epoxy resin binder for textured coatings
Total system thickness: **0.6 – 0.8 mm**

Smooth, Coloured Rigid Screed

- High wear and abrasion resistance
- Good impact resistance
- Good chemical resistance
- Medium thermal resistance
- Easy to clean
- Coloured



Primer: **Sikafloor®-156/-161**
Top coat: **Sikafloor®-263 SL**, 2-part, coloured epoxy resin binder for self-smoothing screed systems.
Total system thickness: **2 – 3 mm**

Requirements

Cold Storage (> -10 °C),
Broadcast, Coloured ECC Screed

- Medium wear resistance
- Medium thermal shock resistance
- Slip resistant
- Coloured

Cold Storage (> -10 °C),
Broadcast, Coloured Rigid Screed

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

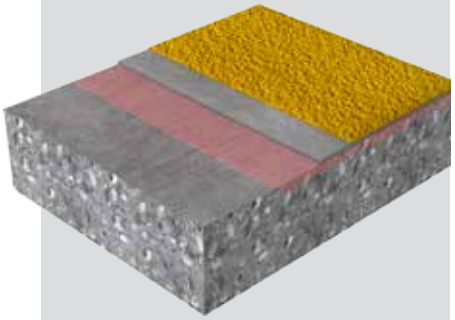
Frost / Blast Freezing Resistant (> -20 °C)
Tough Elastic, Smooth Finish

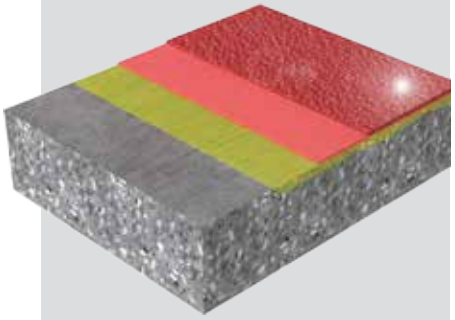
- High wear resistance
- Thermal shock resistance
- Easy to clean
- Coloured
- Low VOC

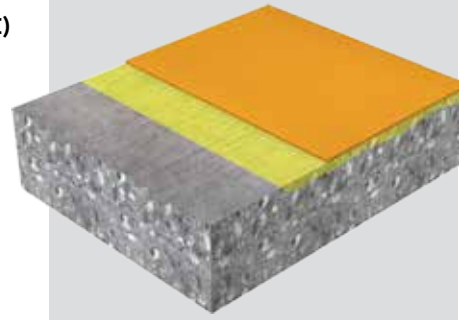
Highly Frost Resistant Blast Freezer
(> -40 °C)
Heavy Duty, Resistant Screed

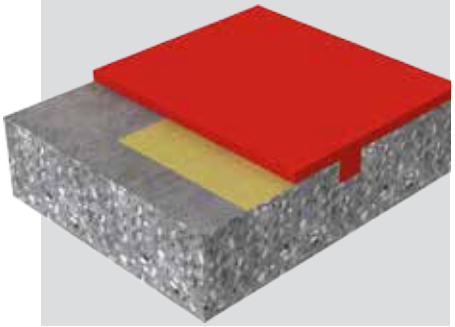
- High wear resistance
- Thermal shock resistance
- Easy to clean
- Coloured
- Slip resistant

Design / Build-up









Sika System / Performance

Primer: **Sikafloor®-81 EpoCem® Module**
Base layer: **Sikafloor®-81 EpoCem®** broadcast with quartz sand
Seal coat: **Sikafloor®-264**, 2-part, total solids, coloured, epoxy resin coating
Total system thickness: **2 – 4 mm**

Primer: **Sikafloor®-156/-161**
Base layer: **Sikafloor®-263 SL**, 2-part, total solids, coloured, epoxy broadcast with quartz sand.
Seal coat: **Sikafloor®-264**, 2-part, total solids, coloured, epoxy resin coating
Total system thickness: **2 – 4 mm**

Primer: **Sikafloor®-156/-161**
Topping: **Sikafloor®-326**, total solids, coloured polyurethane binder for elasto-plastic, thermal shock absorbing, self-smoothing screeds.
Total system thickness: **2 – 3 mm**

Primer: Generally not required. If necessary use **Sikafloor®-156 /-161** broadcast with quartz sand
Screed: **Sikafloor®-20 PurCem®**, easy trowel, heavy duty, 3 / 4-part polyurethane modified, cement based screed.
Total system thickness: **6 – 9 mm**

Sikafloor® Solutions for Production and Processing Areas

Introduction

The biggest challenges for flooring systems in manufacturing facilities are generally in the production areas. These floors not only have to withstand severe exposure, including mechanical, chemical and thermal stresses, but also need to provide the right degree of slip resistance to meet health and safety requirements.

The **Sikafloor**® systems applied in production areas are based predominantly on Cement, Epoxy and Polyurethane resin technologies, which are developed in our laboratories from more than 40 years of practical experience. For special requirements, different binder and filler systems are combined to achieve specific properties, e.g. Polyurethane and Cement in the **Sikafloor**® **PurCem**® range for high temperature and chemical resistance in wet environments.

Dry and Wet Areas

Most production areas can be divided into 'dry' or 'wet' processing areas. Flooring systems in 'wet' process areas generally require a higher degree of slip-resistance, which must also be easily cleaned, and yet be resistant to the water and any chemical exposure. In the production areas of the food and beverage industries in particular, a clean floor is obviously of crucial importance.to facilitate the necessary hygienic working environment.

'Dry' processing areas also often require a balance or compromise to be made between ease of cleaning and slip resistance to meet the requirements for efficiency and hygiene, plus health and safety.

Areas with Extreme Exposure (Combinations of Wet Conditions, Chemicals, Temperatures and Abrasion)

Sika has a complete range of flooring solutions for industrial facilities that are required to be durable under extreme exposures and conditions of use. These conditions can vary from severe chemical attack with thermal shock exposure in the food industry, to high point loading and abrasion in the automotive industry.

The **Sikafloor**® **PurCem**® range will perform under the most demanding service environments and can meet all of these and many other different individual exposure requirements with design flexibility. This includes a full range of non-slip / anti-skid profiles.

Minimum Downtime for Production

Each day or even each hour of downtime in production can be very expensive in both new construction and in refurbishment projects. It is always therefore essential to finish all of the flooring work within the shortest possible time, but still ensuring the required performance and durability. Using the fast curing **Sikafloor**® **Pronto** systems for floor maintenance and refurbishment projects can reduce down time to a minimum. **Sikafloor**® systems can also be designed to withstand all of the other requirements and conditions with various degrees of slip resistance and surfaces that are easy to clean.

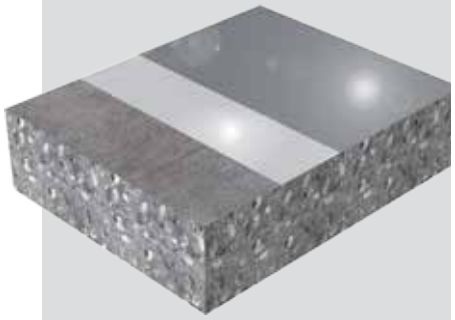
Production and Processing Areas
Dry Areas

Requirements

Coloured Roller Coating

- Good wear and abrasion resistance
- Good chemical resistance
- Easy to clean
- Coloured

Design / Build-up

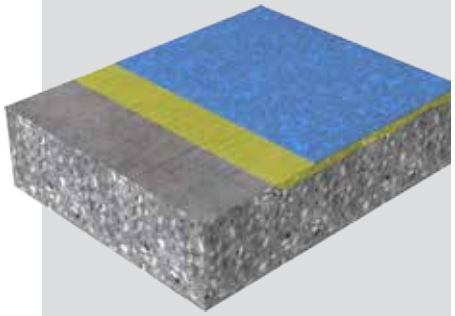


Sika System / Performance

Coating: 2 x **Sikafloor®-264**, 2-part, total solids, economic, coloured, high build coating based on an epoxy resin binder.
Total system thickness: **0.6 – 0.8 mm**

Textured, Coloured Rigid Coating

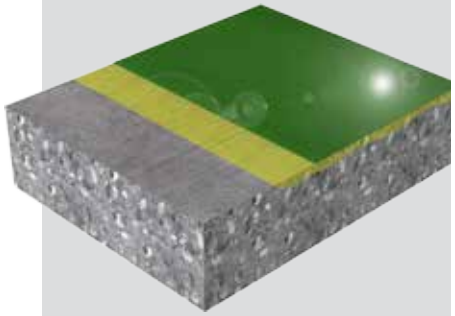
- Good wear and abrasion resistance
- Good chemical resistance
- Slip resistance
- Easy to clean
- Coloured



Primer: **Sikafloor®-156/-161**
Coating: **Sikafloor®-264 Thixo**, 2-part, total solids, coloured, epoxy resin binder for textured coating systems.
Total system thickness: **0.6 – 0.8 mm**

Smooth, Coloured Rigid Screed

- High wear and abrasion resistance
- Good impact resistance
- Good chemical resistance
- Medium thermal resistance
- Easy to clean
- Coloured



Primer: **Sikafloor®-156/-161**
Screed: **Sikafloor®-263 SL**, 2-part, coloured, epoxy resin binder for producing self-smoothing screed systems.
Total system thickness: **2 – 3 mm**

* **Note:** 1) The 3D graphics in this brochure are not to scale and they are only intended to illustrate the system build-ups.
2) The symbols such as ⊠ represent typical project related performance requirements and these are all listed and discussed on Pages 52 to 54 of this brochure.

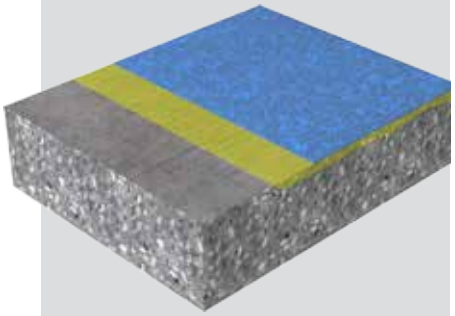
Production and Processing Areas
Wet Areas

Requirements

Textured, Coloured Rigid Coating

- Good wear and abrasion resistance
- Good chemical resistance
- Slip resistance
- Easy to clean
- Coloured

Design / Build-up

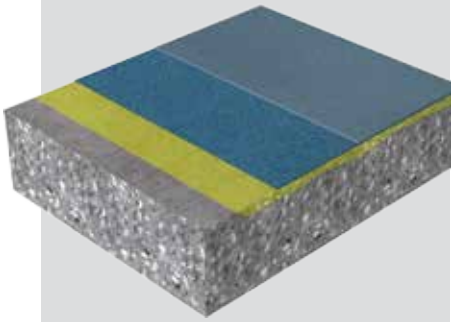


Sika System / Performance

Primer: **Sikafloor®-156/-161**
Coating: **Sikafloor®-264 Thixo**, 2-part, total solids, coloured, epoxy resin binder for textured coating systems.
Total system thickness: **0.6 – 0.8 mm**

Broadcast, Decorative Screed

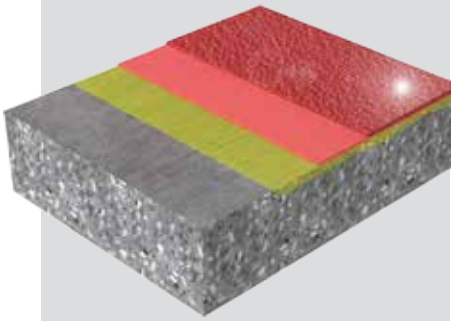
- High wear resistance
- Medium thermal shock resistance
- Slip resistance
- Coloured



Primer: **Sikafloor®-156/-161**
Base layer: **Sikafloor®-263 SL**, 2-part, total solids, coloured, epoxy resin binder for self-smoothing screed systems.
Broadcast layer: Coloured quartz sand.
Seal coat: **Sikafloor®-169 N**, 2-part, total solids, transparent epoxy resin coating.
Total system thickness: **1.5 – 3 mm**

Broadcast, Coloured, Rigid Screed

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



Primer: **Sikafloor®-156/-161**
Base layer: **Sikafloor®-263 SL**, 2-part, total solids, coloured, epoxy resin binder for self-smoothing screed systems.
Broadcast: Quartz sand
Seal coat: **Sikafloor®-264**, 2-part, total solids, coloured, epoxy resin coating.
Total system thickness: **2 – 4 mm**

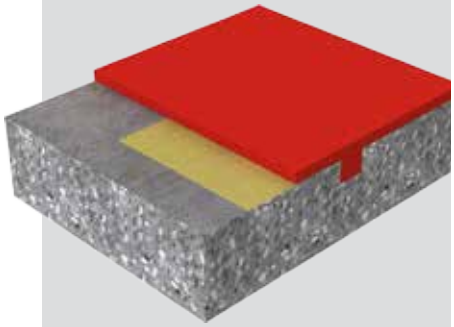
Production and Processing Areas
Extreme Exposure (Combinations of Wet Conditions, Chemicals, Temperatures and Abrasion)

Requirements

Heavy Duty, Resistant Screed

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

Design / Build-up

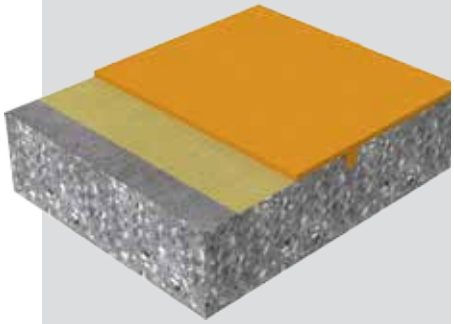


Sika System / Performance

Primer: Generally not required. If necessary, use **Sikafloor®-156/-161** broadcast with quartz sand.
Screed: **Sikafloor®-20 PurCem®**, 3 / 4-part, easy trowel, polyurethane modified, cement based floor screed.
Total system thickness: **6 – 9 mm**

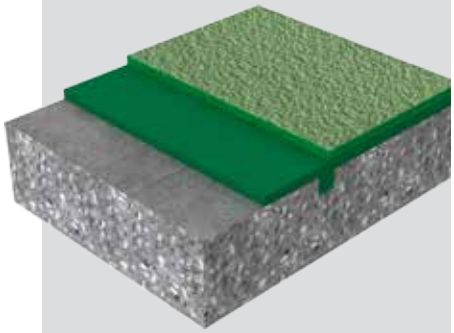
Medium Duty, Resistant Screed

- High wear resistance
- High chemical resistance
- Medium thermal shock resistance
- Slip resistant
- Odour-free
- Hygienic
- Easy to clean
- Coloured



Primer: **Sikafloor®-156/161**
Screed: **Sikafloor®-21 PurCem®**, 3-part, self-smoothing, polyurethane modified, cement based screed.
Total system thickness: **3 – 6 mm**

Primer: Generallynot required
Base layer: Sikafloor®-22 PurCem® 3-part, polyurethane modfied, cement based screed.



Primer: Scratch coat of **Sikafloor®-21 PurCem®** or **Sikafloor®-156/161**
Screed: **Sikafloor®-21 PurCem®**, 3-part, self-smoothing, polyurethane
Broadcast: Coloured or natural quartz sand (for enhanced slip resistance).
Seal coat: Optional with 1 – 2 x **Sikafloor®-31 PurCem®**, 3-part, water dispersed, polyurethane sealer coat.
Total system thickness: **4.5 – 6 mm**

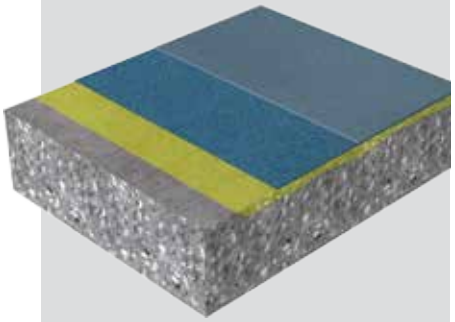
Production and Processing Areas
Minimum Down Time for Production

Requirements

Broadcast, Fast Curing, Screed

- High wear resistance
- Medium chemical resistance
- Rapid curing
- Slip resistant

Design / Build-up

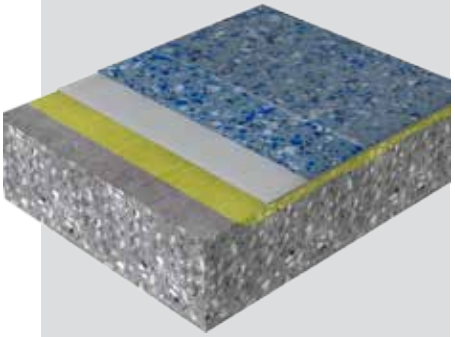


Sika System / Performance

Primer: **Sikafloor®-10/-11/-13 Pronto**
Base layer: **Sikafloor®-14 Pronto**,
3-part, acrylic resin binder for broadcast systems.
Broadcast: Coloured or natural quartz sand.
Seal coat: **Sikafloor®-16 Pronto**,
2-part, fast curing, solvent-free, acrylic sealer
(optional: **Sikafloor® Pronto** Pigments)
Total system thickness: **2 – 4 mm**

Smooth, Fast Curing, Decorative Screed

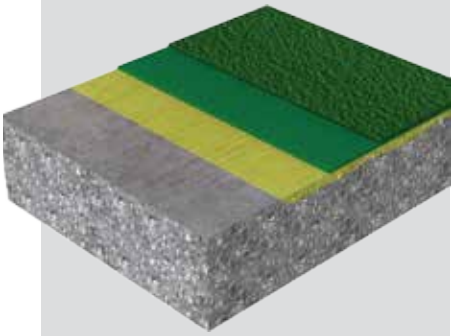
- Medium wear resistance
- Medium chemical resistance
- Rapid curing
- Decorative



Primer: **Sikafloor®-10/-11/-13 Pronto**
Base layer: **Sikafloor®-14 Pronto**,
3-part binder for self-smoothing, reactive acrylic resin systems.
Broadcast: Coloured flakes (to excess)
Seal coat: **Sikafloor®-16 Pronto**,
2-part, fast curing, solvent-free, acrylic sealer.
Total system thickness: **2 – 4 mm**

Broadcast, Fast Curing, Elastomeric Screed

- Medium wear resistance
- Medium chemical resistance
- Thermal shock resistance
- Rapid curing
- Slip resistant
- Decorative



Primer: **Sikafloor®-10/-11/-13 Pronto**
Base layer: **Sikafloor®-15 Pronto**,
3-part, elastomeric acrylic resin binder for broadcast systems.
Broadcast: Coloured or natural quartz sand.
Seal coat: **Sikafloor®-17 Pronto**,
2-part, fast curing, solvent-free, flexible acrylic sealer
(optional: **Sikafloor® Pronto** Pigments)
Total system thickness: **2 – 4 mm**

Production and Processing Areas
Decorative Solution

Requirements

Smooth, Low VOC, Coloured Granite Effect System

- Low VOC emissions
- Low particle emissions
- Coloured granite effects
- Highly aesthetic appearance
- Food contact compliant

Smooth, Low VOC, Decorative Flake System

- Low VOC emissions
- Low particle emissions
- Slip resistance possible
- Food contact compliant

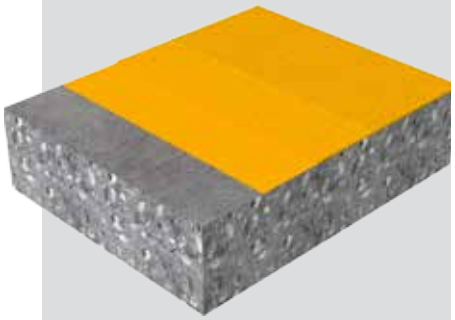
Slip Resistant, Low VOC, Decorative Quartz Finish

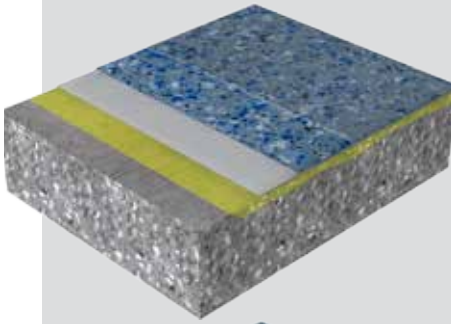
- Low VOC emissions
- Low particle emissions
- Slip resistant
- Good mechanical resistance
- Food contact compliant

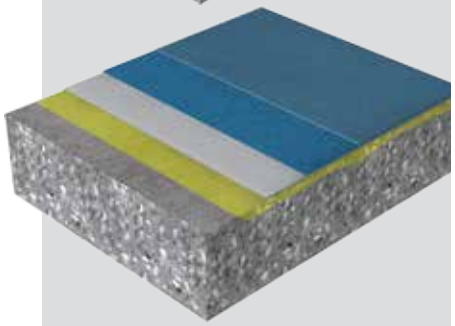
Highly Mechanically Resistant, Power Float, Finished, Coloured Quartz Screed, Low VOC

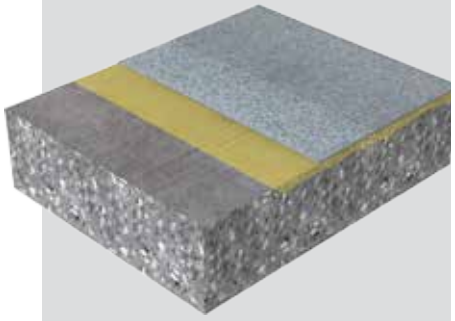
- Low VOC emissions
- Low particle emissions
- High impact resistance
- Very good mechanical resistance
- Slip resistance possible
- Food contact compliant

Design / Build-up









Sika System / Performance

Sika® DecoFloor System
Primer: **Sikafloor®-264**
Base layer: **Sikafloor®-169** filled with **Sikafloor® DecoFiller**
Top coat: **Sikafloor®-304 W**
Total system thickness: **2 – 3 mm**

Sika® DecoFlake System
Primer: **Sikafloor®-156/-161/-169**
Base layer: **Sikafloor®-264** broadcast to excess with **Sika® PVA ColorFlakes**
Seal coat: **Sikafloor®-169** (x2)
Top coat: **Sikafloor®-304 W**
Total system thickness: **2 – 3 mm**

Sika® DecoQuartz System
Primer: **Sikafloor®-156/-161/-169**
Base layer: **Sikafloor®-264** broadcast to excess with **Sika® PU Colored Quartz**
Seal coat: **Sikafloor®-169** (x2)
Total system thickness: **2 – 3 mm**

Sika® CompactFloor System
Primer: **Sikafloor®-156/-161/-169**, broadcast with **Sika® PU Colored Quartz CF** (0,3 – 1,2 mm)
Base layer: **Sikafloor®-169** with **Sikafloor® CompactFiller** and broadcast to excess with **Sika® PU Colored Quartz** (0,3 – 1,2 mm), power float finished
Seal coat: **Sikafloor®-169**
Top coat: **Sikafloor®-304 W**
Total system thickness: **~3 mm**

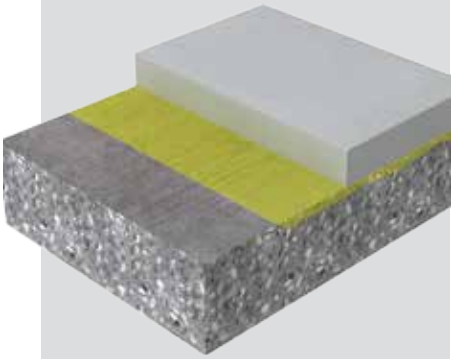
Sikafloor® Solutions for Underlayment
Cementitious Systems

Requirements

Underlayment, Cementitious Levelling Screed

- Cementitious self-levelling, highly fluid
- Vibration resistant
- Easy to mix
- Fast setting and drying
- Non toxic and non-corrosive
- for commercial or domestic areas

Design / Build-up



Sika System / Performance

Primer: **Sika® Latex**
Base layer: **Sika® Leveling Mortar®**
Topping: wood floors, tiles, carpet, vinyl sheets, Timber Sport Floors
Total system thickness: 5 – 9 mm

Sikafloor®, Sikaflex® and Sikagard® Solutions for Cleanroom Areas

Introduction

In recent years Sika has developed a new generation of advanced flooring, wall coating and joint sealant solutions for cleanroom environments. Manufacturing under cleanroom conditions, is becoming increasingly more widespread and demanding, with particular regard to VOC / AMC emissions (Volatile Organic Compounds / Airborne Molecular Contaminants), particle emissions and biological contamination.
The number of products which have to be produced and processed under cleanroom conditions is constantly growing, from electronics and automotive components to food, pharmaceuticals and cosmetics. In many of these industries, cleanroom manufacturing plus a high degree of component cleanliness are now essential to achieve their desired product quality.
Many **Sikafloor®**, **Sikagard®** and **Sikaflex®** systems are the 'State of the Art' in cleanroom solutions, specifically developed and certified for cleanroom environments ranging from those in the Semi-conductor and Electronics industries to those in the Life Science industries. Therefore we are the ideal partner to help you select the best solutions for your individual processes and cleanroom requirements and with the unique CSM product qualification.

Certification

Most of the **Sikafloor®**, **Sikagard®** and **Sikaflex®** systems in this brochure are tested and certified for their use in a cleanroom environment.
Furthermore, in depth test reports and proof statements are available for each certified product or system, which contain all of the relevant information regarding the testing parameters and standards. Please ask your local Sika representative for specific details and you can also refer to the public database of the Fraunhofer IPA Institute where all of the tested and certified Sika solutions are listed: www.tested-device.com

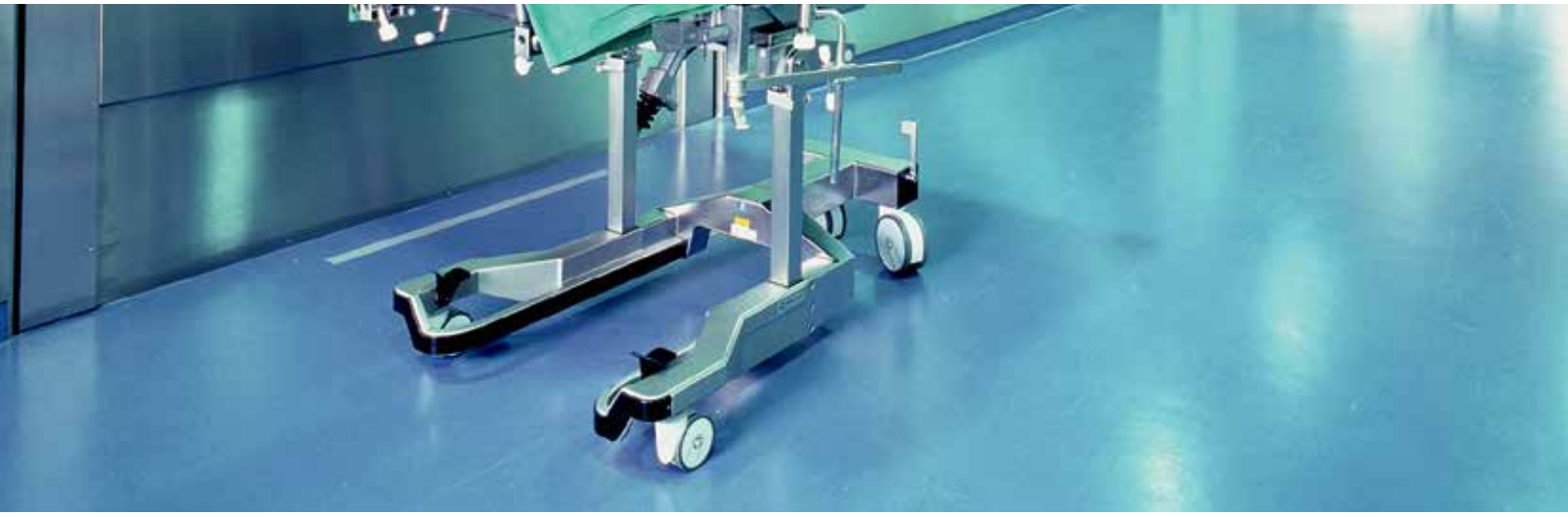
Cleanroom Suitable Materials CSM

CSM – Cleanroom Suitable Materials are the world's first standardised product qualifications according to the ISO 14644 and GMP standards for all cleanroom and life science markets.

Cleanroom® Suitable Materials
Sika AG Industrial Alliance Membership

Fraunhofer Institut Produktionstechnik und Automatisierung

The **Fraunhofer IPA** founded the Industrial Alliance CSM and organises their main work topics and coordinates the required research, including the recording and analysis of all relevant data. The aim of founding the industrial alliance "Cleanroom Suitable Materials" was to form a sound scientific basis for assessing the cleanroom suitability of materials and for determining the material selection criteria for cleanroom applications. Sika was a founding member of this alliance and plays an active role in the development of these standards and regulations.



CSM – Certified Cleanroom Suitable Materials for Specific Industries

Electronics and related Industries

The following industries are particularly aware of particle and TVOC emissions according to the global **ISO 14644** standard.

- Solar panels
- Hard discs
- Flat panel screens
- Semiconductors
- Optical equipment
- Microsystems
- Automotive
- Aerospace

Requirements

1. Low particle emissions
2. Low VOC emissions
3. Chemical resistance*
4. Conductivity

Sika Solutions:

One label contains all the information for clients or specifiers working in the cleanroom industries!

3 * Chemical resistance depends very much on the process and the cleaning regime, which needs to be checked individually. Please refer to the **Sikafloor**® Chemical Resistance Chart available from your local Sika Organisation.

Life Science Industries

The following industries are particularly aware of particle emissions and biological resistance according to the global **GMP** standard.

- Food
- Biotechnology
- Medical devices
- Pharmaceuticals

Requirements

1. Low particle emissions
2. Biological resistance
3. Chemical resistance*
4. Conductivity

Sika Solutions:

One label contains all the information for clients or specifiers working in the cleanroom industries!

3 * Chemical resistance depends very much on the process and the cleaning regime, which needs to be checked individually. Please refer to the **Sikafloor**® Chemical Resistance Chart available from your local Sika Organisation.

Cleanroom Areas

Examples for the Electronic and Related Industries

Requirements

Wall Coating Solution

- ISO 14644 compliant
- Low VOC emissions
- Good chemical resistance
- Smooth surface

Cleanroom® Suitable Materials
Sika AG
Report No. SI 0908-494
Sikafloor-269 ECF CR
Particle (vs. PA6): ISO 4
TVOC (23°C/50°C): ISO -9.6 / tested
Flooring & Coating

Design / Build-up

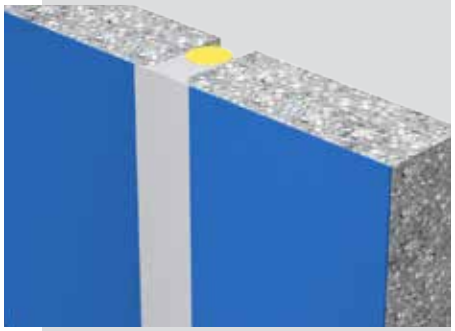
Sika System / Performance

Primer: **Sikagard® Wallcoat N**
(diluted with 5% water)
Top coat: **Sikagard® Wallcoat N**

Joint Sealing Solution

- ISO 14644 compliant
- Low VOC emissions
- Good chemical resistance
- Excellent adhesion

Cleanroom® Suitable Materials



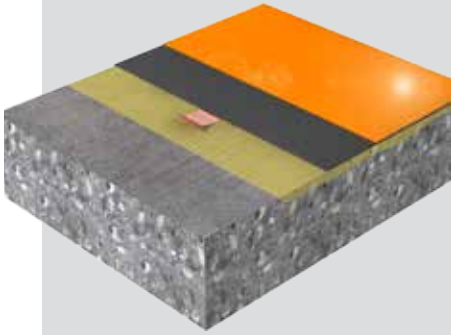
Sikaflex® PRO-3 WF,
1-part polyurethane based floor sealant

For Food

Flooring Solution

- ISO 14644 compliant
- Low particle emissions
- Ultra-Low VOC emissions
- Good chemical resistance
- Electrostatically conductive
- Smooth surface

Cleanroom® Suitable Materials
Sika AG
Report No. SI 0908-494
Sikafloor-269 ECF CR
Particle (vs. PA6): ISO 4
TVOC (23°C/50°C): ISO -9.6 / tested
Flooring & Coating



Primer: **Sikafloor®-144/-161**
Conductive layer: **Sikafloor®-220 W** Conductive
Top coat: **Sikafloor®-269 ECF CR**, 2-part, total solid, electrostatically conductive, ultra-low emissions, coloured, epoxy resin binder for self-smoothing screed systems.
Total system thickness: **~ 2 mm**

For Food

Examples for Life Science Industries

Requirements

Wall Coating Solution

- GMP compliant
- Biological resistance
- Hygienic
- Resistant to disinfectants

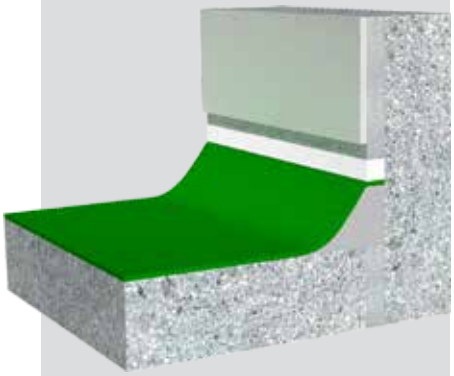
Joint Sealing Solution

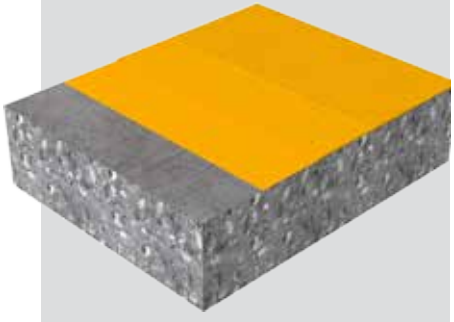
- GMP compliant
- Biological resistance
- Odourless
- Resistant to disinfectants

Flooring Solution

- GMP compliant
- Biological resistance
- Hygienic
- Seamless
- Resistant to disinfectants

Design / Build-up





Sika System / Performance

Primer:
1x **Sika® Bonding Primer**
Intermediate coat:
1x **Sikagard®-203 W**
1x Reemat lite
1x **Sikagard®-203 W**
Top coats:
2x **Sikagard®-205 W** or
2x **Sikagard®-206 W** or
2x **Sikagard®-307 W**

Sikaflex® AT Connection,
1-part, polyurethane hybrid based sealant for construction, connection and isolation joints

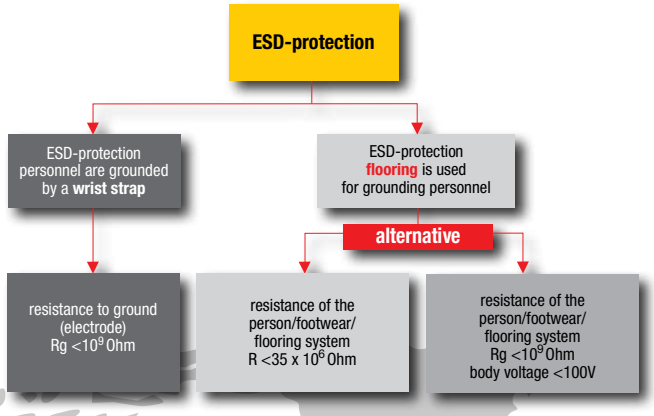
Primer:
Sikafloor®-264
Base layer:
Sikafloor®-169 with
Sikafloor® DecoFiller
Top coat:
Sikafloor®-304 W
Total system thickness: **2 – 3 mm**

Sikafloor® Solutions for ESD Protection and Electro Static Discharge Control

Introduction

In industries where electronic components or volatile chemicals are involved, static electricity can result in significant damage, injury and financial loss. All active electronic components and equipment e.g. micro-chips, integrated circuits and machinery are sensitive to electrostatic discharges (also known as ESD events). Even when areas and people are equipped to handle such static-sensitive devices, inadvertent contact and damage can occur. **Sikafloor®** ESD (Electro Static Discharge), DIF (Dissipative Flooring) and ECF (Electrically Conductive Flooring) Systems, can safeguard your entire process. These systems can be designed to produce a floor tailored to meet your specific needs.

Resistance Ranges According to IEC 61340-5-1 or ANSI/ESD S 20.20



US-Standards: / Systems:	ANSI/ESD S 20.20 (ANSI/ESD STM97.1) System Test: < 35 M Ω	ANSI/ESD S 20.20 (ANSI/ESD STM97.2) Walking Test (BVG) < 100 Volt	ANSI/ESD S 20.20 (ANSI/ESD S7.1) Resistance to Ground R_g < 10^3 Ω	ASTM F 150 (ECF) Surface to Ground Test: >2.5x10^4 – <1x10^6Ω	ASTM F 150 (ECF) Surface to Surface Test: >2.5x10^4 – <1x10^6Ω	ASTM F 150 (DIF) Surface to Ground Test: >1x10^6 – <1x10^9Ω	ASTM F 150 (DIF) Surface to Surface Test: >1x10^6 – <1x10^9Ω
Smooth ESD roller coating (Epoxy)							
Sikafloor®-200 ESD	▲	▲	▲	–	–	▲	▲
Sikafloor®-200C ESD	▲	▲	▲	▲	▲	–	–
Roller coating for high chemical resistance (Epoxy Novolac)							
Sikafloor®-700 ESD	▲	▲	▲			▲	▲
Sikafloor®-700C ESD	▲	▲	▲	▲	▲	–	–
Smooth ESD roller coating (Polyurethane)							
Sikafloor®-340 ESD	▲	▲	▲	–	–	▲	▲

▲ Meets the Standard – Does not meet the Standard

Specification

None of the specific conductivity or electrical resistance values mentioned in any of the International or National Standards in the table shown above are mandatory. The values can be adapted to meet local requirements by the responsible authorities. Before applying an ESD or dissipative/conductive flooring system, Sika always recommends a detailed assessment of at least the following parameters, then the most appropriate values can be determined and agreed by all of the parties involved:

- Limits for the electrical resistance and body voltage generation
- Methods and conditions of measurement
- Equipment to make these measurements
- Any applicable Standards or specifications

What is an ESD Event and What Does it Do?

An ESD event is an Electrostatic Discharge. This is basically a spark (a micro lightning-bolt in effect), which passes from one charged conductive surface to another. This incredibly rapid transfer of what had previously been a static (non-moving) charge can cause fires or explosions, create heat, light and even sounds. It is this potentially unseen, unfelt or unheard 'micro lightning' spark that can occur without warning, which must be prevented or controlled.

Definition: Conductive/Dissipative Flooring Material (ECF/DIF)

- Conductivity refers to the ability of a material to conduct a charge to ground. In non-absolute technical terms, this means its ability to conduct an electrical current.
- Conductive floors and electrostatic dissipative floors are classified according to their electrical resistance to ground.

Conductive Flooring Material (ECF) (e.g. according to ASTM F150)

▲ A floor material that has a resistance to between 2.5 x 10^4 and 1.0 x 10^6 ohms

Dissipative Flooring Material (DIF) (e.g. according to ASTM F150)

▲ A floor material that has a resistance between 1.0 x 10^6 to 1.0 x 10^9 ohms

European-Standards: / **Systems:**	**DIN EN 1081** Resistance to Ground RG < 10^8 Ω	**IEC 61340-5-1** (IEC 61340-4-5) System Test: < 35 M Ω	**IEC 61340-5-1** (IEC 61340-4-5) Walking Test (BVG) < 100 Volt	**IEC 61340-5-1** (IEC 61340-4-1) Resistance to Ground R_G < 10^9 Ω	**ATEX 137 / TRBS 2153** European Standard Resistance to Ground R_G < 10^8 Ω	**DIN VDE 0100-410 (IEC 60364-4-41)** Isolation Resistance > 50 kΩ
Smooth and textured, hygienic ECF floors						Any insulating self-smoothing layers e.g. **Sikafloor®-263 SL**
Sikafloor®-262 AS N	▲	–	–	▲	▲	
Sikafloor®-262 AS Thixo	▲	–	–	▲	▲	
High chemical resistance						
Sikafloor®-381 AS	▲	–	–	▲	▲	
Sikafloor®-390 AS	▲	–	–	▲	▲	
Aprooved for clean rooms						
Sikafloor®-266 ECF CR	▲	–	–	▲	▲	
Sikafloor®-269 ECF CR	▲	–	–	▲	▲	
ESD systems with very low body voltage generation						
Sikafloor®-235 ESD	▲	▲	▲	▲	▲	
Sikafloor®-262 AS N + Sikafloor®-230 ESD TopCoat	▲	▲	▲	▲	▲	

▲ Meets the Standard – Doesn't meet the Standard

Standards used in Asia: / **Systems:**	**SJ/T 11294-2003** (ECF) Resistance to Ground R_G >5 x 10^4 – < 1 x 10^6 Ω	**SJ/T 11294-2003** (DIF) Resistance to Ground R_G >1 x 10^6 – < 1 x 10^9 Ω	**IEC 61340-5-1** (IEC 61340-4-5) System Test: < 35 M Ω	**IEC 61340-5-1** (IEC 61340-4-5) Walking Test (BVG) < 100 Volt	**IEC 61340-5-1** (IEC 61340-4-1) Resistance to Ground R_G < 10^9 Ω
Smooth, hygienic floors					
Sikafloor®-262 AS N	▲	–	–	–	▲
Sikafloor®-239 EDF	–	▲	–	▲	▲
High chemical resistance					
Sikafloor®-390 AS	▲	–	–	–	▲
Sikafloor®-381 AS	▲	–	–	–	▲
ESD system with very low body voltage generation					
Sikafloor®-235 ESD	–	–	▲	▲	▲
Sikafloor®-262 AS N + Sikafloor®-230 ESD TopCoat	–	–	▲	▲	▲

▲ Meets the Standard – Does not meet the Standard

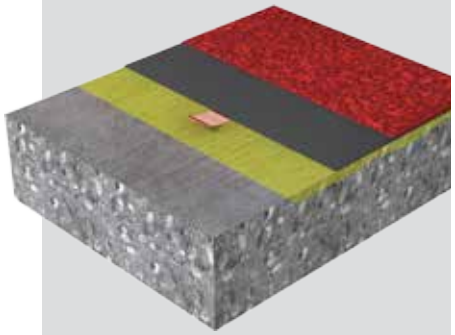
ESD Protection and Electro Static Discharge Control

Requirements

Textured Conductive Coating

- Good wear and abrasion resistance
- Good chemical resistance
- Slip resistant
- Easy to clean
- Conductive

Design / Build-up

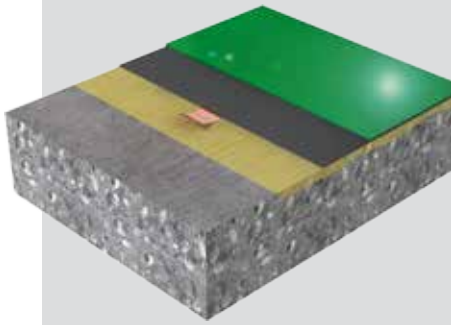


Sika System / Performance

Primer: **Sikafloor®-156/-161**
Conductive layer:
Sikafloor®-220 W Conductive
Top coat: **Sikafloor®-262 AS N Thixo**, 2-part, total solids, electrostatically conductive, coloured, epoxy resin based binder for textured coating systems.
Total system thickness: **0.6 – 0.8 mm**

Smooth, Conductive Screed

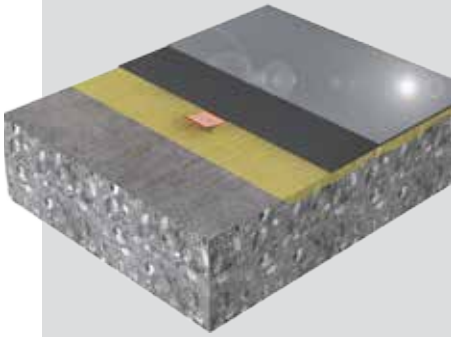
- High wear and abrasion resistance
- Good chemical resistance
- Coloured
- Easy to clean
- Conductive



Primer: **Sikafloor®-156/-161**
Conductive layer:
Sikafloor®-220 W Conductive
Top coat: **Sikafloor®-262 AS N**, 2-part, total solids, electrostatically conductive, coloured, epoxy resin based binder for self-smoothing screed systems.
Total system thickness: **~2 mm**

Smooth, ESD Floor Screed

- High wear and abrasion resistance
- Good chemical resistance
- Coloured
- Easy to clean



Primer: **Sikafloor®-144/-161**
Conductive layer:
Sikafloor®-220 W Conductive
Top coat: **Sikafloor®-235 ESD**, 2-part, total solids, ESD, low emissions, coloured, epoxy resin based binder for self-smoothing screed systems.
Total system thickness: **~ 2 mm**

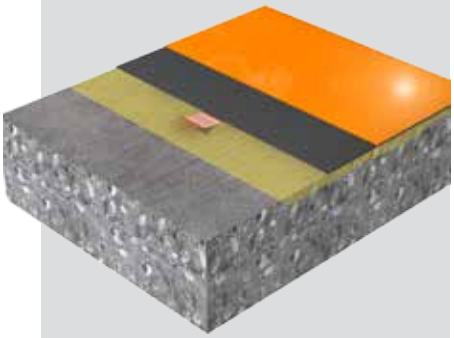
* **Note:** 1) The 3D graphics in this brochure are not to scale and they are only intended to illustrate the system build-ups.
2) The symbols such as ☒ represent typical project related performance requirements and these are all listed and discussed on Pages 52 to 54 of this brochure.

Requirements

Smooth, Chemically Resistant, Conductive Screed

- High wear and abrasion resistance
- High chemical resistance
- Coloured
- Easy to clean
- Conductive

Design / Build-up

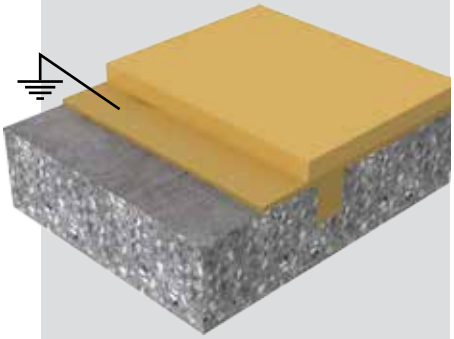


Sika System / Performance

Primer: **Sikafloor®-156/-161**
Conductive layer:
Sikafloor®-220 W Conductive
Top coat: **Sikafloor®-381 AS**, 2-part, total solids, highly chemically resistant, electrostatically conductive, coloured, epoxy resin based binder for self-smoothing screed systems.
Total system thickness: **~ 2 mm**

Conductive, Medium Duty, Chemically and Wear Resistant Screed

- High wear resistance
- Conductive
- High chemical resistance
- Medium thermal shock resistance
- Coloured
- Hygienic



Primer/scratch coat:
Sikafloor®-25 S PurCem® ECF
Wearing course:
Sikafloor®-25 PurCem® ECF
A 3 or 4 part, PU modified cementitous screed, electrostatically conductive and high chemical and mechanical resistance.
Total layer thicknes: approx. **4.5 – 6 mm**

Sikafloor® Solutions for Multi-Storey and Underground Car Parks

Parking Structures Today

Parking has become a vital part of today's mobile community, especially in metropolitan areas including airports, all of which are growing at an ever faster rate. This means continually providing more parking spaces by building new car parks and frequently extending and refurbishing existing ones.

Where Do You Like to Park?

Successful parking structures are designed to meet the user's demands, which include feeling safe and welcome, plus knowing that their cars are in a secure environment. Given the choice, people always park in a brightly lit car park, where they feel their property is best looked after and safe.

Investigation and Survey of Existing Parking Structures

Multi-storey and underground car parks are both subject to many different stresses. In order to discover the root causes of distress and deterioration, it is therefore essential to carry out a professional Condition Survey and assessment. It is obviously important to balance the cost of the investigative work with the benefits that the information derived will provide; but an appropriate survey and assessment is often key to successfully maintaining and extending the service life of an existing parking structure.

New Build

Modern parking structures are essential and integrated into a cities' architecture. They are frequently built using 'fast-track' construction techniques, with as much off-site construction as possible, to reduce the disruption in these areas.

Therefore precast and prefabricated sections of steel frames with reinforced concrete decks and stairways are usually combined in composite structures for new car parks.

The adequate protection of new build car parks will prevent cost intensive refurbishment being required in the future.

Refurbishment

Most of Europe's existing multi-storey car parks have been built since 1950 and they are predominantly of reinforced concrete construction, many of which have a history of early deterioration, structural defects and shortcomings in safety. This is due to poor design, poor construction, low standards of maintenance and repair, or a combination of all three. Their exposure is more similar to that of bridges than the building codes they were designed to, and as a result they have deteriorated quickly, particularly due to reinforcement corrosion following the ingress of water and de-icing salts. The closure of many areas and even whole car parks for costly repair or replacement has been necessary. These bad experiences have served to emphasise the need for improved performance in car park design, construction and the materials used, in order to ensure the increased durability and safety of both new and existing structures.

Multi-Storey and Underground Car Parks
Systems for Ground Bearing Slabs

Requirements

Hardened Concrete Floor Finish

- Economic solution
- Good abrasion resistance
- Good impact resistance
- Vapour permeable
- Coloured

Broadcast ECC Screed

- Medium wear resistance
- Medium thermal shock resistance
- Slip resistant
- Coloured

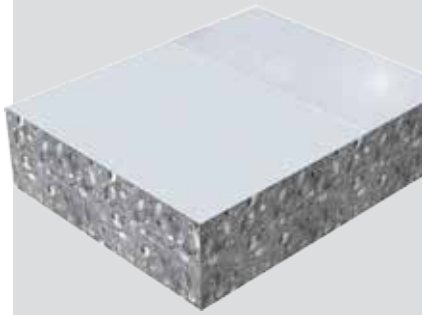
Broadcast Coloured Rigid Screed

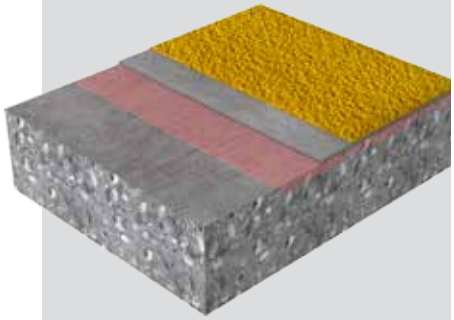
- Waterproof
- Abrasion resistant
- Impact resistant

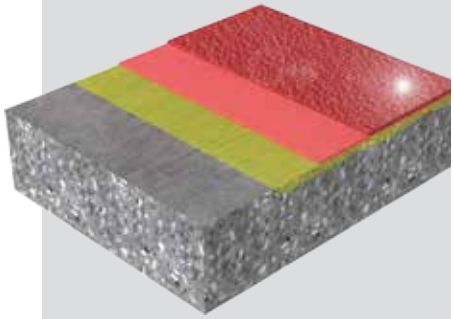
Water Dispersed Coloured Roller Coating

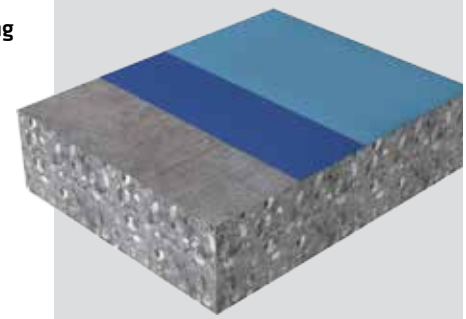
- Light to medium wear resistance
- Surface stabilization
- Prevent concrete dusting
- Coloured

Design / Build-up









Sika System / Performance

Concrete slab: Using **Sikament®**, or **Sika® ViscoCrete® SCC** Technology
Dry shake: **Sikafloor®-3 QuartzTop** applied on the fresh concrete and power float finished Curing and Sealing: **Sikafloor® ProSeal W**, or **Sikafloor® ProSeal-22**.

Primer: **Sikafloor®-81 EpoCem Module**
ECC screed: **Sikafloor®-81 EpoCem**
Broadcast: Quartz sand
Seal coat: **Sikafloor®-264**, 2-part, total solids, coloured, ECC-binder for levelling and broadcast systems for ground floor slabs with high moisture content.
Total system thickness: **2 – 3 mm**

Primer: **Sikafloor®-156/161**
Base layer: **Sikafloor®-263 SL**
Broadcast: Quartz sand
Seal coat: **Sikafloor®-264**, 2-part, total solids, coloured, protective waterproofing and wearing surface.
Total system thickness: **2 – 4 mm**

Coating: 2 x **Sikafloor®-2530 W**, 2-part, water dispersed, coloured, epoxy resin based coating.
Total system thickness: **0.15 – 0.25 mm**

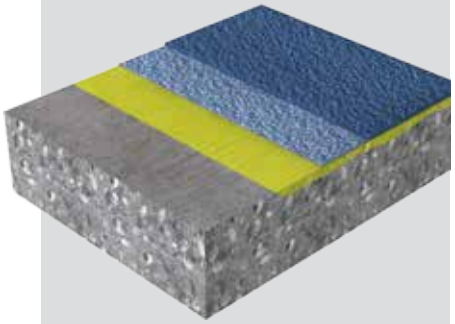
Multi-Storey and Underground Car Parks
Systems for Intermediate Decks

Requirements

Broadcast, Tough-Elastic Screed

- Static crack-bridging properties
- Waterproof
- Abrasion resistant
- Impact resistant

Design / Build-up

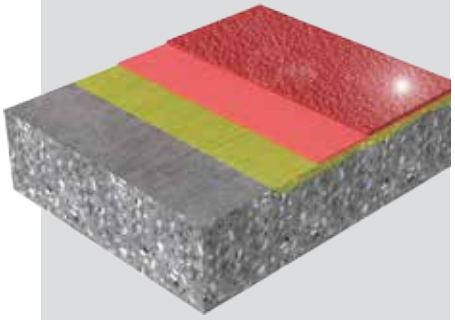


Sika System / Performance

Primer: **Sikafloor®-156/-161**
Base layer: **Sikafloor®-326**
Broadcast: Quartz sand
Seal coat: **Sikafloor®-358/-359 N**, 2-part, total solids, coloured, static crack-bridging, protective waterproofing and wearing surface.
Total system thickness: **2 – 3 mm**

Broadcast, Coloured Rigid Screed

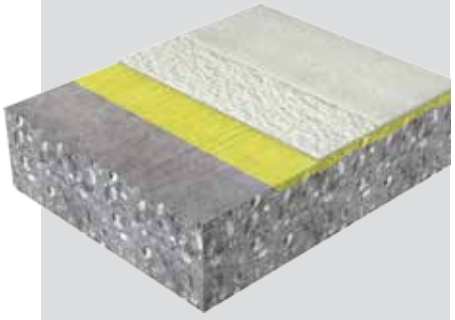
- Waterproof
- Abrasion resistant
- Impact resistant



Primer: **Sikafloor®-156/-161**
Base layer: **Sikafloor®-263 SL**
Broadcast: Quartz sand
Seal coat: **Sikafloor®-264**, 2-part, total solids, coloured, protective water proofing and wearing surface.
Total system thickness: **2 – 4 mm**

Broadcast, Fast Curing Screed

- Waterproof
- Fast curing
- Abrasion resistant



Primer:
Sikafloor®-10/-11/-13 Pronto
Base layer: **Sikafloor®-14 Pronto**
Broadcast: Quartz sand
Seal coat: **Sikafloor®-18 Pronto**, 2-part, fast curing, coloured, protective waterproofing and wearing surface.
Total system thickness: **2 – 4 mm**

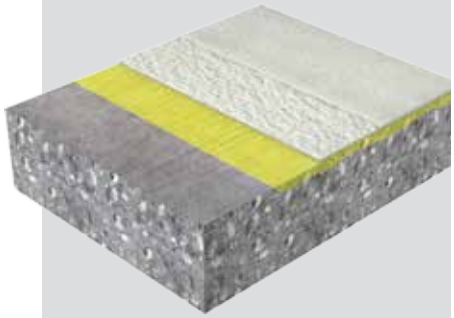
Multi-Storey and Underground Car Parks
Systems for Top Decks and Exposed Areas

Requirements

Broadcast, Fast Curing, Crack-Bridging, Screed

- Crack-bridging properties
- Coloured
- Waterproof
- Abrasion resistant
- Fast curing

Design / Build-up

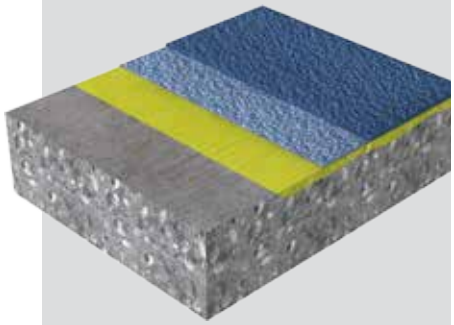


Sika System / Performance

Primer: **Sikafloor®-10/-11/-13 Pronto**
Base layer: **Sikafloor®-15 Pronto**
Broadcast: Quartz sand
Seal coat: **Sikafloor®-18 Pronto**, 2-part, total solids, coloured, fast curing, elastomeric, protective waterproofing and wearing surface.
Total system thickness: **2 – 4 mm**

Broadcast, Tough-Elastic Screed

- Static crack-bridging properties
- Waterproof
- Abrasion resistant
- Impact resistant



Primer: **Sikafloor®-156/-161**
Base layer: **Sikafloor®-326**
Broadcast: Quartz sand
Seal coat: **Sikafloor®-358/-359 N**, 2-part, total solids, coloured, static crack-bridging, protective waterproofing and wearing surface.
Total system thickness: **2 – 3 mm**

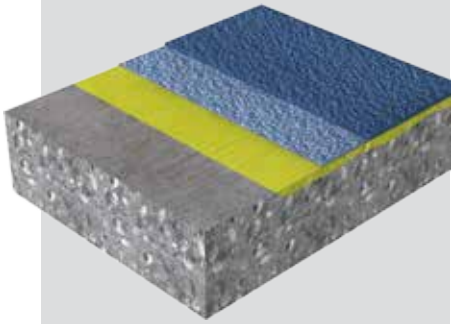
Multi-Storey and Underground Car Parks
Systems for Ramps

Requirements

Broadcast, Tough-Elastic Screed

- Static crack-bridging properties
- Waterproof
- Abrasion resistant
- Impact resistant

Design / Build-up

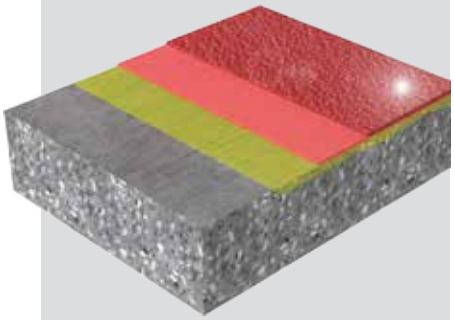


Sika System / Performance

Primer: **Sikafloor®-156/-161**
Base layer: **Sikafloor®-326**
Broadcast: Quartz sand
Seal coat: **Sikafloor®-358/-359 N**, 2-part, total solids, coloured, static crack-bridging, protective waterproofing and wearing surface.
Total system thickness: **2 – 3 mm**

Broadcast Coloured Rigid Screed

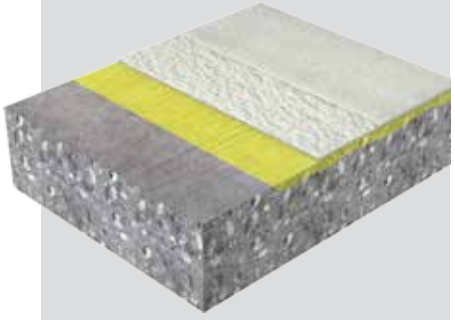
- Waterproof
- Abrasion resistant
- Impact resistant



Primer: **Sikafloor®-156/-161**
Base layer: **Sikafloor®-263 SL**
Broadcast: Quartz sand
Seal coat: **Sikafloor®-264**, 2-part, total solids, coloured, protective waterproofing and wearing surface.
Total system thickness: **2 – 4 mm**

Broadcast Fast Curing Screed

- Waterproof
- Fast curing
- Abrasion resistant



Primer:
Sikafloor®-10/-11/-13 Pronto
Base layer: **Sikafloor®-14 Pronto**
Broadcast: Quartz sand
Seal coat: **Sikafloor®-18 Pronto**, 2-part, fast curing, coloured, protective waterproofing and wearing surface.
Total system thickness: **2 – 4 mm**

Sikafloor® Solutions for Commercial, Public and Residential Areas

Introduction

Sika has designed special flooring solutions for the use in schools, museums, retail, leisure and healthcare facilities, plus many other commercial and public buildings.

This Sika flooring range combines individual design with health care including comfort underfoot and the lowest VOC emissions, in order to create a unique flooring experience.

Individual Design

The **Sika® DecorativeFloor®** range meets the need for individual and decorative designs in commercial, retail and leisure facilities using coloured chips, aggregates and other special fillers. These floors allow you to create many different and unique surface designs, ranging from textured broadcast and smooth power float finishes. **Sika® ComfortFloor®** systems can be produced in a wide range of different colour shades, with additional special colours available to order. This allows you to create your own individual designs or extend your Corporate Identity onto your floors.

Comfort and Care

Sika® ComfortFloor® systems for commercial and public building areas are soft enough to provide underfoot comfort in those areas where personnel stand for long periods of time. These resilient flooring solutions not only reduce footfall noise and horizontal noise transmission, but also resist scratching by their elastic deformation and recovery.

Sika® ComfortFloor® Solutions

- Low VOC emissions
- Noise absorbent
- Good impact sound insulation
- High comfort underfoot
- Good wear resistance
- Good impact resistance
- Crack-bridging
- Decorative

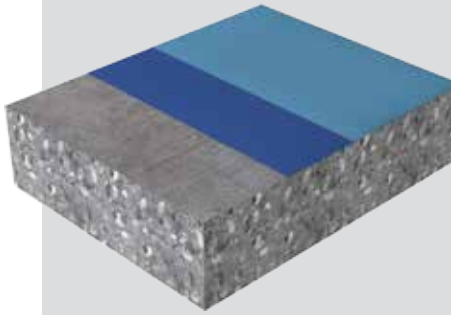
Commercial, Public and Residential Areas
Decorative Flooring Systems

Requirements

Water Dispersed, Coloured Roller Coating

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

Design / Build-up

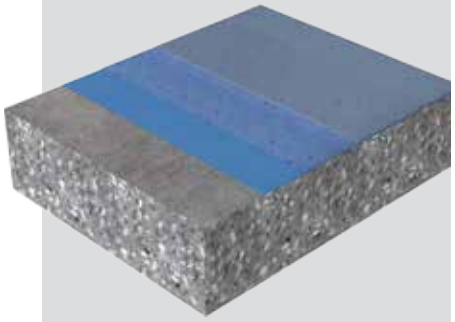


Sika System / Performance

Coating: 2 x **Sikafloor®-2530 W**, 2-part, water dispersed, coloured, epoxy resin based coating.
Total system thickness: **0.15 – 0.25 mm**

Decorative Roller Coating

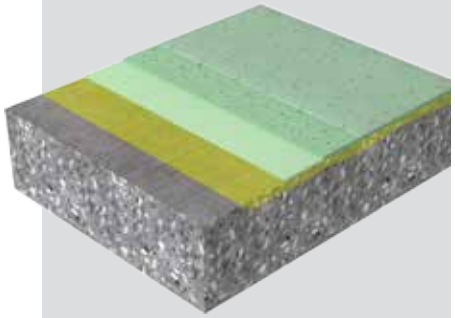
- Wear resistance
- Easy to clean
- Decorative



Base coat: 2 x **Sikafloor®-264**, 2-part, coloured, high build epoxy resin based coating, sprinkled with coloured flakes.
Seal coat: **Sikafloor®-304 W**, 2-part, water dispersed, polyurethane based matt sealer.
Total system thickness: **0.6 – 0.8 mm**

Smooth Decorative Screed

- Good wear resistance
- Easy to clean
- Decorative



Primer: **Sikafloor®-156/-161**
Base layer: **Sikafloor®-263 SL**, 2-part, total solids, coloured, epoxy resin binder for self-smoothing screed systems, sprinkled with coloured flakes.
Seal coat: **Sikafloor®-304 W**, 2-part, water dispersed polyurethane based, matt sealer.
Total system thickness: **1 – 2 mm**

* **Note:** 1) The 3D graphics in this brochure are not to scale and they are only intended to illustrate the system build-ups.
2) The symbols such as ☒ represent typical project related performance requirements and these are all listed and discussed on Pages 52 to 54 of this brochure.

Commercial, Public and Residential Areas
Comfort Flooring Systems

Requirements

Smooth, Low VOC, Coloured, Elastic Screed

- Low VOC emissions
- Good wear resistance
- Good impact resistance
- Crack-bridging
- Coloured

Smooth, Low VOC, Coloured, Sound Insulating Screed

- Low VOC emissions
- Noise-absorbent
- Good impact sound insulation
- High comfort underfoot
- Good wear resistance
- Good impact resistance
- Crack-bridging

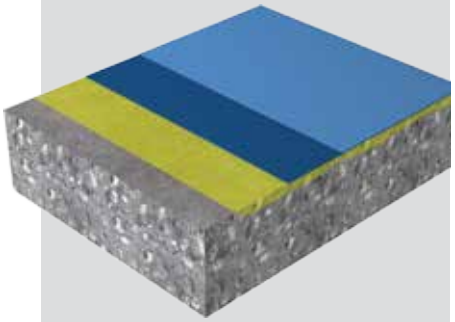
Smooth, Low VOC, Decorative, Elastic Screed

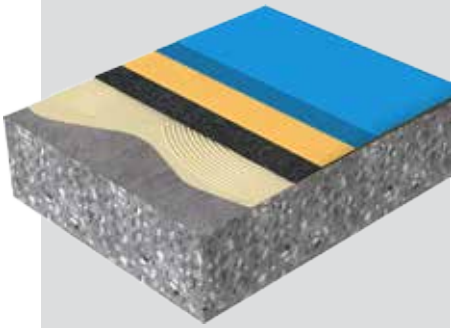
- Low VOC emissions
- Good wear resistance
- Good impact resistance
- Crack-bridging
- Decorative

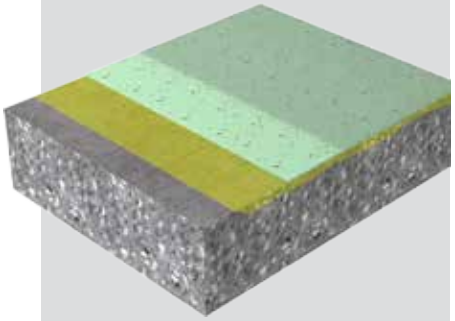
Smooth, Low VOC, Decorative, Sound Insulating Screed

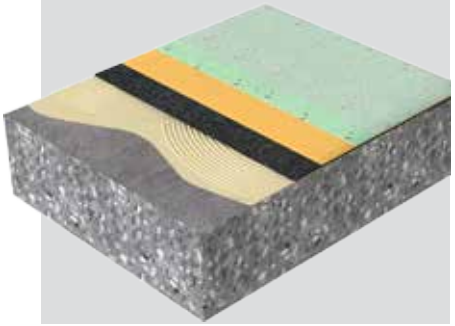
- Low VOC emissions
- Noise-absorbent
- Good impact sound insulation
- High comfort underfoot
- Good wear resistance
- Good impact resistance
- Crack-bridging
- Decorative

Design / Build-up









Sika System / Performance

Sika® ComfortFloor® System
Primer: **Sikafloor®-144/-161**
Base layer: **Sikafloor®-330**
Seal coat: **Sikafloor®-305 W**
Total system thickness: **2 – 3 mm**

Sika® ComfortFloor Pro® System
Adhesive: **Sikafloor® Comfort Adhesive**
Rubber mat: **Sikafloor® Comfort Regupol-6015 H**
Pore filler: **Sikafloor® Comfort Porefiller**
Intermediate coat: **Sikafloor®-330**
Sealer: **Sikafloor®-305 W**
Total system thickness: **6 – 8 mm**

Sika® ComfortFloor Decorative® System
Primer: **Sikafloor®-144/-161**
Base layer: **Sikafloor®-300 N**
Broadcast: Coloured flakes (optional)
Seal coat: **Sikafloor®-304 W**
Total system thickness: **2 – 3 mm**

Sika® ComfortFloor Decorative Pro®
Adhesive: **Sikafloor® Comfort Adhesive** Rubber mat: **Sikafloor® Decorative** Regupol-4580
Pore filler: **Sikafloor® Comfort Porefiller**
Intermediate coat: **Sikafloorv-300 N**
Broadcast: Coloured flakes (optional)
Seal coat: **Sikafloor®-304 W**
Total system thickness: **6 – 8 mm**

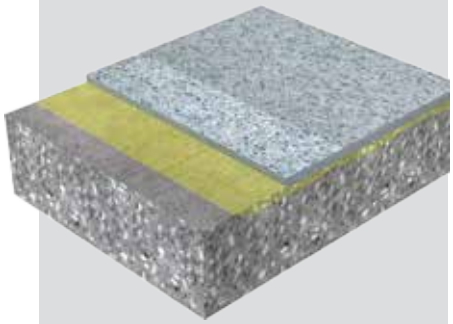
Commercial, Public and Residential Areas
Balconies and Stairways

Requirements

Broadcast, Fast Curing, Crack-Bridging Screed

- Medium wear resistance
- Medium chemical resistance
- Crack-bridging
- Rapid curing
- Slip resistant
- Decorative

Design / Build-up



Sika System / Performance

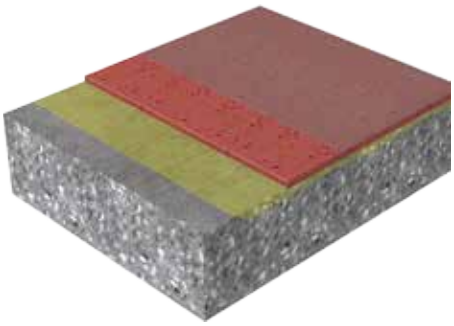
Sika Balcony Fast Cure II System
Primer: **Sikafloor®-10/-11/-13 Pronto**
Base layer: **Sikafloor®-15 Pronto**, 3-part, elastomeric, acrylic resin based binder for broadcast systems.
Broadcast: Coloured quartz or natural quartz sand.
Seal coat: **Sikafloor®-18 Pronto**
(optional: **Sikafloor® Pronto** Pigments).
Total system thickness: **2 – 4 mm**

Requirements

Smooth, Crack-Bridging, Decorative Screed

- Medium wear resistance
- Highly crack-bridging
- Dec orative
- UV-stable

Design / Build-up



Sika System / Performance

Sika Balcony Standard System
Primer: **Sikafloor®-156/-161**
Base layer: **Sikafloor®-400 N Elastic**, 1-part, coloured, highly elastic, moisture curing, polyurethane resin binder for self-smoothing systems
(option: sprinkle with coloured flakes).
Seal coat: **Sikafloor®-410**, 1-part, moisture curing, polyurethane resin based matt sealer.
Total system thickness: **1 – 2 mm**

Sikafloor® and SikaCor® Solutions for Secondary Containment Areas

Secondary Containment Areas

Secondary Containment Areas are bunded areas designed to contain any spillages of oils, chemicals or pollutants from their primary containment tanks or vessels. This is in order to protect the soil and the groundwater from pollution, which is an increasing demand following the legislation of governments and other authorities to protect the environment.

There are two main requirements for protective coating systems in these secondary containment areas: Firstly to waterproof the structures to protect the soil and groundwater. Secondly, as many of these chemical materials are also aggressive to the concrete and reinforcement steel that the structures are built from, the secondary containment structures themselves must also be protected, in order to prevent any damage or even loss of structural integrity.

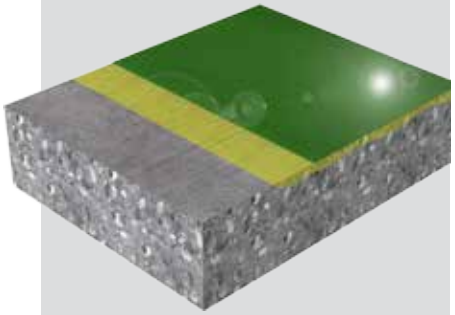
Based on our extensive experience of handling many different kinds of chemicals, i.e. acids, alkalis, oils and solvents, Sika has led the development of many specialist epoxy and other resin based coating systems to waterproof and protect secondary containment structures, so that they can fulfil their function. As required and in accordance with some national and International Standards, many of these Sika systems also have defined crack-bridging properties and their chemical resistance has been fully tested against the various different chemicals that they are to be used to resist and keep contained.

Requirements

Smooth, Flexible, Chemically Resistant Screed

- High wear and abrasion resistance
- High chemical resistance
- Waterproof
- Coloured

Design / Build-up

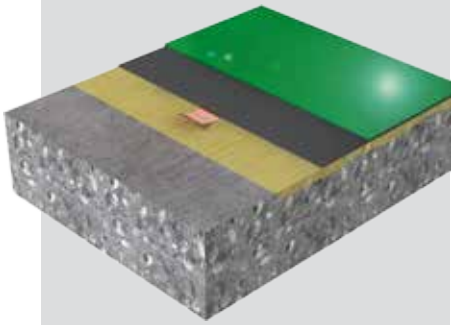


Sika System / Performance

Primer: **Sikafloor®-161** (optional)
Screed: **Sikafloor®-390**, 2-part, flexible, highly chemically resistant, coloured, epoxy resin based protective coating.

Smooth, Flexible, Chemically Resistant, ECF-Screed

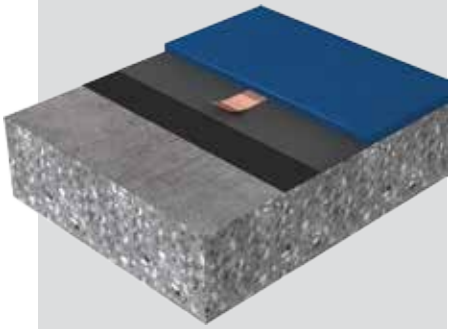
- High wear and abrasion resistance
- Electrically conductive
- High chemical resistance
- Waterproof
- Coloured



Primer: **Sikafloor®-161**
Conductive layer: **Sikafloor®-220 W** Conductive
Screed: **Sikafloor®-390 AS**, 2-part, electrically conductive grade of this flexible, highly chemically resistant, coloured, epoxy resin based protective coating system for areas where flammable or explosive goods are stored.
Total system thickness: **2 mm**

Smooth, Flexible, Highly Chemically Resistant, Glass Fabric Reinforced Coating

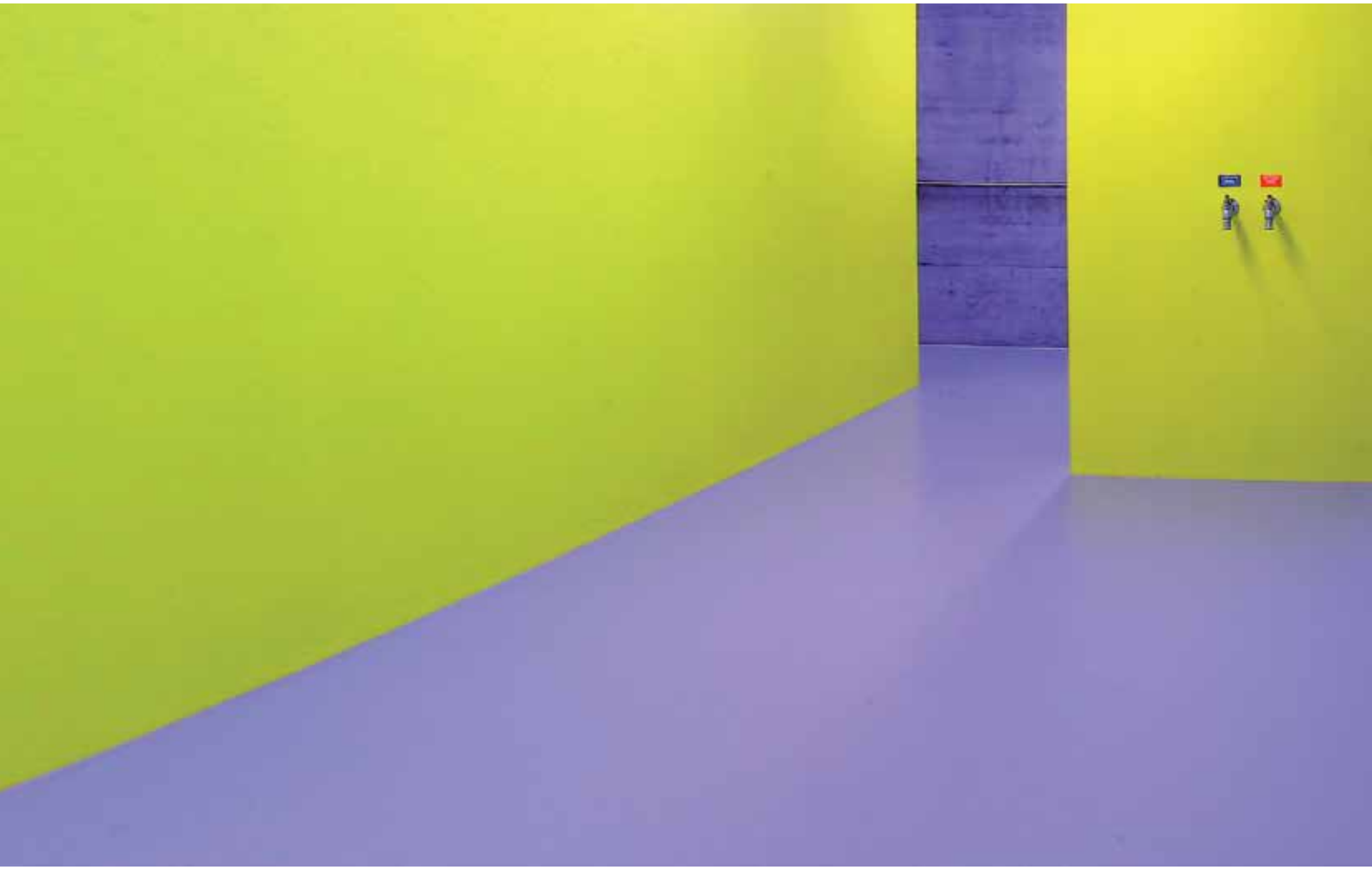
- High wear and abrasion resistance
- Highest chemical resistance
- Waterproof
- Glass fabric reinforced



Primer: **SikaCor® VEL levelling mortar**
Top coat: **SikaCor® VEL Conductive** + glass fabric, 2-part, highly chemically resistant, crack-bridging, vinyl ester resin based protective laminate system for containment areas.
Total system thickness: **2-3 mm**

Another very important matter, to achieve tight and proof surfaces is to do the right detailing, especially at joints and penetrations. The following drawings will show, that also detail work is supproted by Sika´s technical experts to give s full range support.

Sikagard® Solutions for Walls and Ceilings



For a great many different exposure and performance requirements in industrial and commercial facilities, the application of a protective wall coating is frequently necessary. The specific demands on the wall can obviously vary according to the specific industry and the function of the area and the processes that are carried on inside it.

The electronic and optical industries need to have Cleanroom conditions on the wall surfaces, with minimal VOC's / AMC's or particle emissions, plus they must be easy to clean and ensure the area remains dust free. For this increasingly demanding market **Sikagard® Wallcoat N**, a waterborne epoxy coating, already has all of the necessary certification and approvals. **Sikagard® Wallcoat N** is also the ideal solution for food & beverage plants in the areas where foodstuffs are produced, these usually have a cleaning regime using high pressure water-jetting with strong detergents and cleaning agents. **Sikagard® Wallcoat N** perfectly combines good chemical resistance, mechanical resistance and the required ease of cleaning.

Breweries and other drink production areas, together with many other food production and processing facilities have areas where the humidity is constantly very high. The walls in these areas require wall coatings with integral anti-fungal and anti-bacterial protection. The **Sikagard® Hygienic** Coatings range has the ideal characteristics and performance properties for these important areas, plus they are also easy to apply by brush, roller or airless spray and adhere to most common wall building substrates. **Sikagard® Hygienc** Coatings are resistant to moisture and elastomeric, so they are able to accommodate thermal or structural movement without cracking or flaking. These coatings have been fully tested in accordance with many European standards including EN 13501 (Behaviour in Fire), ISO 846 (biological resistance), EN 18033 (Wet scrub resistance and opacity).

Requirements

Design / Build-up

Sika System / Performance

Low VOC / AMC Emissions Wall Coating

- Low particle emissions
- Medium wear resistance
- Medium chemical resistance
- Easy cleaning
- Coloured

Primer: **Sikagard® Wallcoat N** ~ 10% thinned with water
Top coat: **Sikagard® Wallcoat N**, 2-part, water dispersed, epoxy resin based wall coating.
Total system thickness: **0.25 mm**

Lightly Textured, High Build Acrylic Dispersion Coating

- Permeable to water vapour
- Easy to apply
- Anti-fungal and anti-bacterial protection
- Coloured

Primer: **Sika® Bonding Primer**
Intermediate coat: **Sikagard®-203 W**
Top coat: **Sikagard®-203 W**, 1-part, acrylic dispersion based coating for walls and ceilings in areas with constantly high humidity.
Total system thickness: **0.60 mm**

Elastomeric, Impact Resistant, Acrylic Dispersion Coating

- Permeable to water vapour
- Glass fabric reinforced coating
- High impact resistance
- Anti-fungal and anti-bacterial
- Coloured

Primer: **Sika® Bonding Primer**
Base coat: **Sikagard®-203 W** + embedment of **Sika® Reemat** Standard glass fibre fabric.
Intermediate layer: **Sikagard®-203 W**
Top coat: **Sikagard®-205 W**, 1-part, acrylic dispersion based coating for walls and ceilings in hospitals, healthcare facilities, food & beverage plants etc., providing a mid-sheen finish.
Total system thickness: **0.80 mm**

Sikagard®, Sikalastic® & Sika® Permacor Solutions for Tank Lining and Water Treatment Facilities

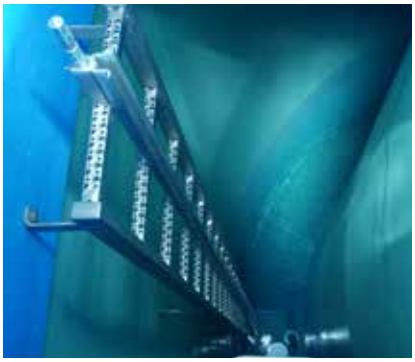
Tank Lining

Reinforced concrete tanks are used almost everywhere in infrastructure and industry today, in clean and dirty water and sewage plants, power plants and transmission networks, chemical plants, food & beverage plants, wineries, pulp & paper production and in agricultural facilities. They are exposed to many different mechanical, chemical and thermal stresses; many of these are imposed simultaneously, for example chemicals at different concentrations and temperatures in different volumes and loadings. The level of exposure and the combination of the resultant stresses can also vary greatly over time.

Dependent on your specific project requirements, Sika can always provide the best protective coating system to protect the structure of the tank; this is because of the wide range of synthetic resin technologies that we formulate our products from. In refurbishment or maintenance situations, Sika can also provide the most appropriate repair solutions, prior to applying the selected protective coating system to bring the tank, back into service after the minimum down time, and then provide a long future service life.

Drinking Water Facilities

The internal protection of tanks and pipes in potable (drinking) water facilities is also a very specialised application. Almost all countries now have their own or regional legislation and materials certification procedures for the materials for this purpose, which must be strictly adhered to. The objective of these protective coating systems is to preserve the quality of the drinking water and protect the concrete and steel structures that contain and transport it at the same time. Sika products and systems have all the necessary International and National approvals for contact with potable / drinking water.

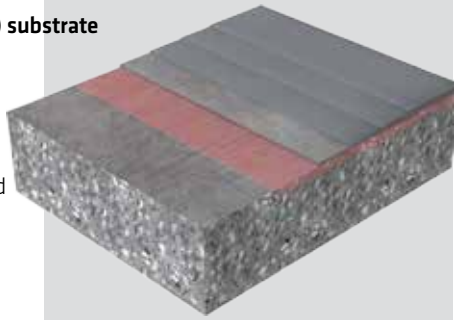


Requirements

Primer: **None, Saturated Surface Dry (SSD) substrate**
Base coat: **Sikagard® 720 EpoCem®**

Top coat: 3 x **Sika Poxitar® F**, 2-part, high solids, black, elastomeric, cost-effective, epoxy – anthracene oil combination based coating for sewage and waste water treatment plants.
Total system thickness: **3 mm**

Design / Build-up

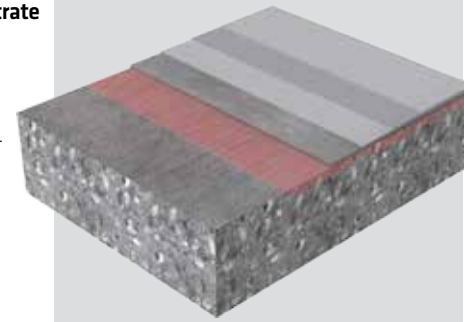


Sika System / Performance

Primer: **Saturated Surface Dry (SSD) substrate**
Base coat: **Sikagard® 75 EpoCem®**
Top coat: 3 x **Sika Poxitar® F**, 2-part, high solids, black, elastomeric, cost-effective, epoxy – anthracene oil combination based coating for sewage and waste water treatment plants.
Total system thickness: **3 mm**

Primer: **Saturated Surface Dry (SSD) substrate**
Base layer: **Sikagard® 75 EpoCem®**
Seal coat: 3 x **Sikagard®-63 N**, 2-part,

high solids, coloured, rigid, highly chemically resistant epoxy coating for sewage and waste water treatment plants.
Total system thickness: **3 mm**



Primer: **Saturated Surface Dry (SSD) substrate**
Base layer: **Sikagard® 75 EpoCem®**
Seal coat: 3 x **Sikagard®-63 N**, 2-part,
Seal coat: 3 x Sikagard -62, 2 part,
high solids, coloured, rigid, highly chemically resistant epoxy coating for sewage and waste water treatment plants.
Total system thickness: **3 mm**

Your Guide to Sustainable Flooring with Sikafloor®

Sustainable development responds to trends that will shape our future. These so-called megatrends also foster future economic growth. The key to future success will lie in the development of intelligent solutions to these challenges.

Energy efficiency solutions

Resource efficiency solutions

Climate protection solutions

Air quality solutions

Specifying Sika Flooring Systems Contributes to Green Building Certification

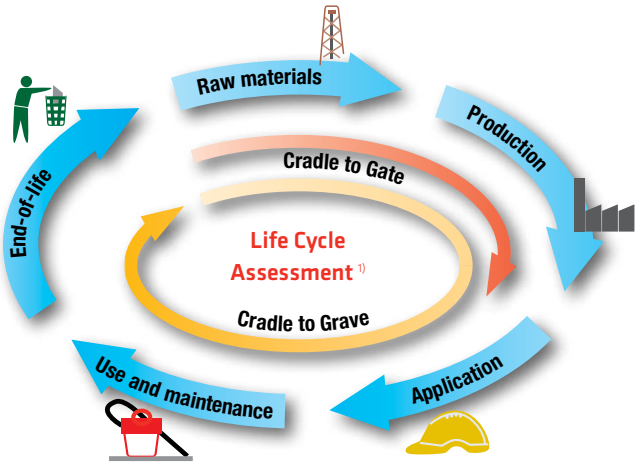
Sika flooring systems contribute to multiple points in Green Building Certification systems. This is because:

- Low VOC emitting **Sikafloor**® systems provide LEED points and improve the indoor air quality.
- Underfoot comfort and noise reduction with **Sika**® **ComfortFloor**® **Pro** systems improves the Building Acoustics in programs such as the French HQE and the German DGNB.
- Visual design effects and aesthetics with an unlimited choice of colour can be achieved with the liquid applied **Sikafloor**® systems.

Evaluate the Sustainability of Your Flooring with Life Cycle Assessment

[1] Life Cycle Assessment (LCA) is a standardized method to assess and compare the inputs, outputs and potential environmental impact of products and services over their whole life cycle. It is also the basis on which Sika develops and evaluates the environmental performance of our flooring solutions:

- **Sikafloor**® LCA's are available for flooring systems in accordance with ISO 14040 and EN 15804 the Standards.
- The LCA's for **Sikafloor**® systems have been independently reviewed and approved by the Swiss Federal Laboratories for Materials Science and Technology (EMPA).
- Tailor-made LCA's can also be calculated for specific projects, where the **Sikafloor**® system build-up and thickness is adapted to the specific requirements of the project – for further information, please contact your local Sika organization.



Select Sika Flooring Systems to Reduce Your Floors Life Cycle Cost

Sikafloor® system can be maintained at lower cost with "on-site" refurbishment techniques.

- Over-coating with a fully compatible refresher coat (e.g. **Sikafloor**®**-264**, **Sikafloor**®**-305 W** etc.).
- Regeneration of smooth **Sikafloor**® systems with diamond grinding pads.
- By using these techniques, you extend the life of the floor and further reduce the Carbon Footprint.
- A fully bonded **Sikafloor**® system is the basis for long lasting floors with only intermediate re-coating required for maintenance operations.
- **Sika**® **ComfortFloor**® systems can also be over-coated and given a facelift to effectively give them a second life without losing your original investment.

Install Sikafloor® Systems That Respect Your Indoor Air Quality

Many people now spend more than 80% of their time in indoor environments: home, office, factory, retail, leisure, education and transportation. There are various initiatives around the globe to reduce VOC emissions from building materials and improve the indoor air quality. These VOC's (Volatile Organic Compounds) have been identified as having potential long term health impact and an adverse effect on the environment.

- For public buildings, the complete **Sika**® **ComfortFloor**® range complies with the most stringent standards with regard to controlling the emission of VOC's including from:
  - Germany: Germany: DiBt/AgBB
  - France: legal labelling AFFSET
  - Finland: M1
  - USA: California CDPH "Section 01350".

A complete list of the specifically tested **Sikafloor**® systems and their approvals are available from your Sika local organization.

Design an Industrial Floor That Will Last

- **Sikafloor**® **PurCem**® uses hybrid polyurethane flooring technology that shows the lowest environmental impact compared to any other flooring polymer:
- The lowest Carbon Footprint per kg in the production.
- Higher resistance to chemical, mechanical and thermal attack.
- Longer lasting flooring systems that further reduce the Carbon Footprint.
- Seamless surfaces that require less cleaning and maintenance which therefore requires less energy and less cleaning materials.

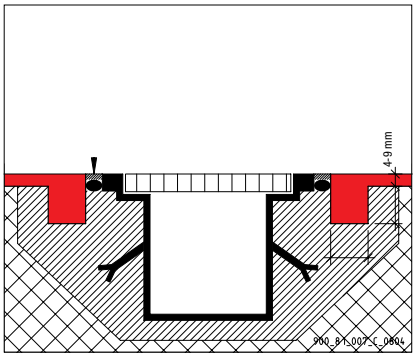
Select an Approved Sikafloor® "Cleanroom Suitable Material"

Sika provides a range of flooring systems that are specifically tested and approved as 'Cleanroom Suitable Materials'

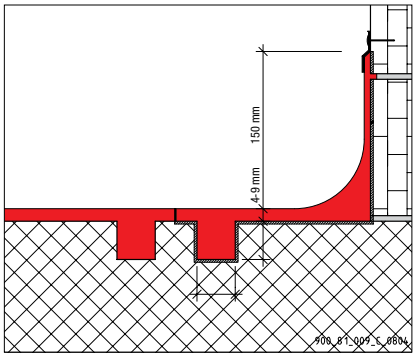
Cleanroom® Suitable Materials
Sika AG Industrial Alliance Membership

- These **Sikafloor**® systems comply with demanding requirements with regards to:
  - VOC emissions
  - Airborne Molecular Contaminants (AMC) emissions
  - Particulate emissions.
- The carbon footprint of a **Sikafloor**® 'Clean Room Suitable' system, such as **Sikafloor**®**-269 CR**, is lower than an equivalent PVC Safety Floor System (including its levelling compound and adhesive) and has the additional advantages of being:
  - Seamless – with no joints and no welding
  - Monolithic with the concrete substrate – with no possibility of underflow.

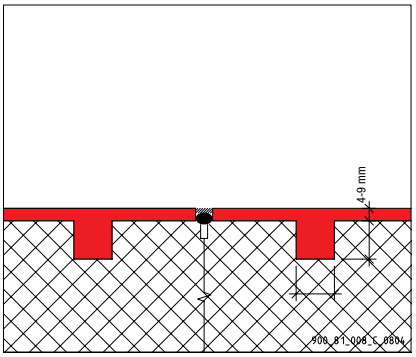
Detailing and Jointing for Flooring Applications



Details for **Sikafloor® PurCem®**



Details for **Sikafloor® PurCem®**



Details for **Sikafloor® PurCem®**

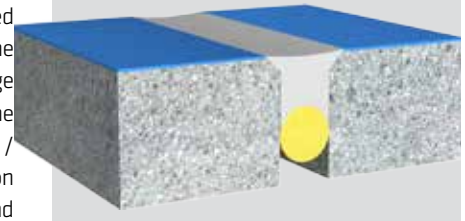
Drainage Channels / Gullies

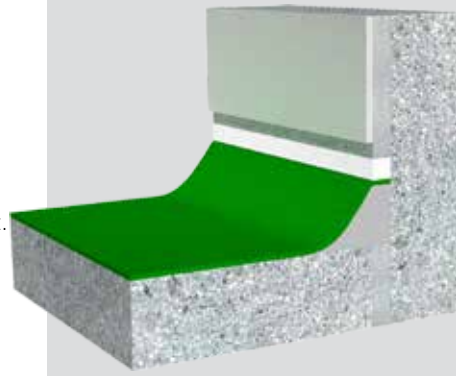
Drainage channels / gullies should always be designed to be outside of trafficked areas wherever possible. Falls on the floors should be adequate to discharge liquids as quickly as possible to the channels. When traffic over channels / gullies is unavoidable, considerable attention should be given to the channel arises and cover grating fixings, as these are the most susceptible areas for premature failure.

Jointing

There is no way to prevent all of the joints in floors, but they are causes of the major damages in flooring applications due to different reasons. Therefore, the proper planning, design of a floor joint, has to be performed with specific precautions to prevent future damage. Furthermore, industrial floors require reliable joint sealants to resist chemical and mechanical wear, particularly floors designed for vehicular traffic, or cleaning machines, etc. **Sika®** solutions for these joint sealants include the well proven and reliable **Sikaflex® Pro-3 WF**, polyurethane sealant that is suitable for many types of floor joints including connecting joints between different materials.

Design / Build-up





Sikaflex® Pro-3 WF High Performance Floor Joint Sealant

- Approved for contact with foodstuffs, i.e. ISEGA
- In accordance with relevant international guidelines and standards
- Can be used on damp substrates in floor joints
- High mechanical resistance
- Resistant to floor cleaning machines
- Excellent tear resistance
- Movement capability up to 25%
- Resistant against most cleaning agents
- Compatible with **Sikafloor®** Systems
- Bubble-free curing
- Easy to apply

Primer: **Sika® Primer-3 N**
Joint sealant: **Sikaflex® PRO-3 WF**
A moisture curing, 1-part elastic sealant based on polyurethane resin and designed specifically for flooring.
Joint Dimensions:
min. / max. width = **10 / 35 mm**

Design Sustainable Construction with Sika High Performance 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 p specification must obviously be designed to meet this life expectancy and durability, including the intended maintenance-free periods.

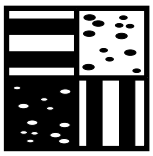
* **Note:** 1) The 3D graphics in this brochure are not to scale and they are only intended to illustrate the system build-ups.
2) The symbols such as ⊠ represent typical project related performance requirements and these are all listed and discussed on Pages 52 to 54 of this brochure.

Structural Requirements

The static and dynamic loadings that will be imposed during both construction and service have to be considered. The 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.

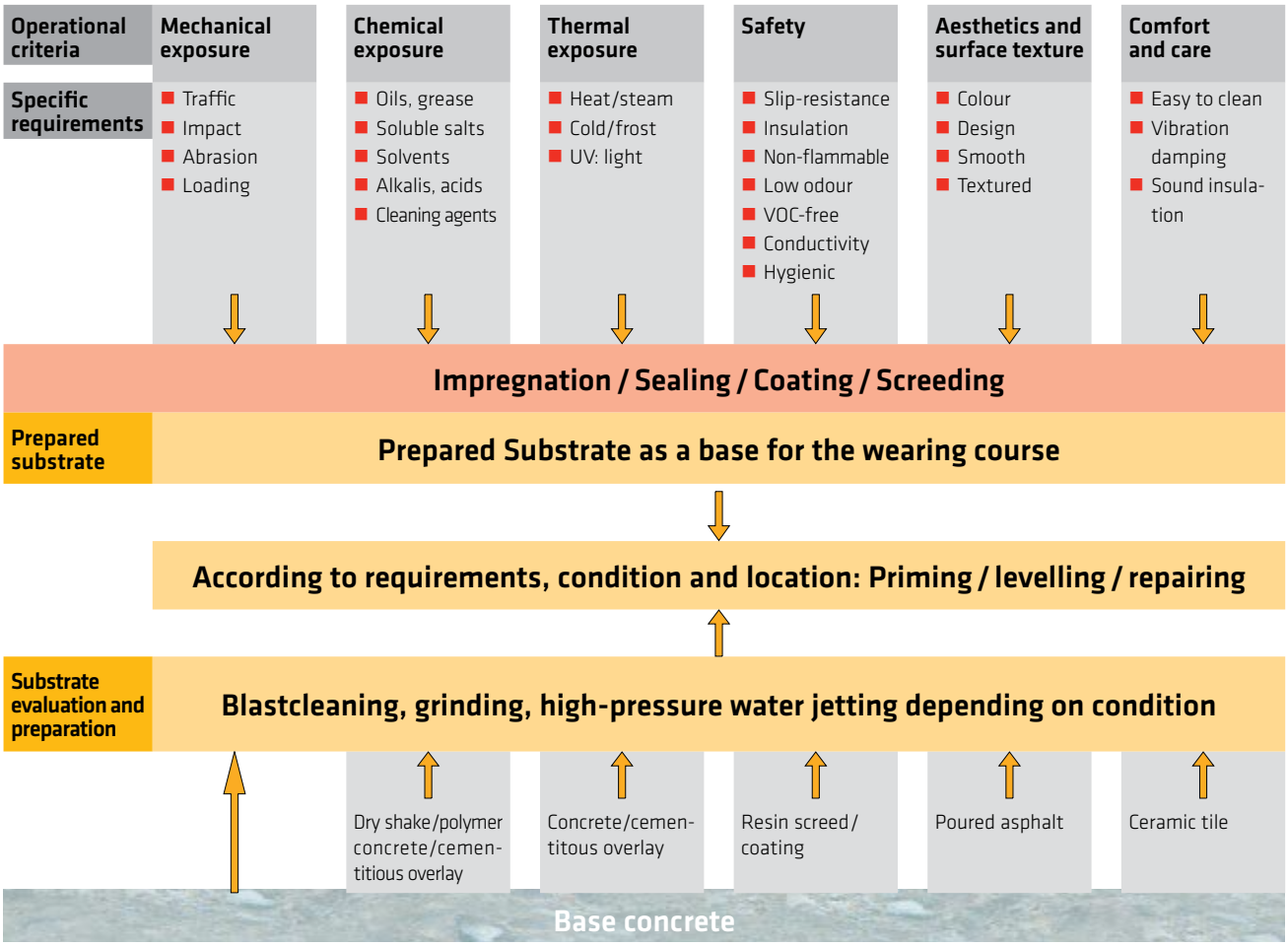
Note: In some instances the floor slabs may require additional structural strengthening – for example with **Sika**® **CarboDur**® Composite Strengthening systems.

Colour and Appearance

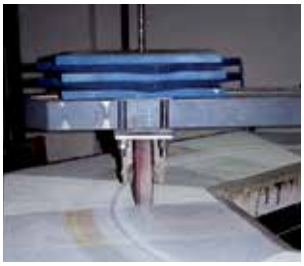


In addition to providing seamless concrete protection against corrosive liquids and mechanical wear, flooring systems should also meet easy-care, hygiene, safety and durability requirements with the appropriate colour for the environment. Achievement of both the architect and the owner's requirements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

Key Requirements for Consideration in Selecting a Floor System



Project Related Performance Requirements



Traffic and Mechanical Wear

Heavy and frequent traffic increases the physical requirements for mechanical resistance measured as abrasion. Often the greatest wear or exposure occurs in localised areas. Trucking aisles or sections around specialised plant for example, may require different or additional treatment to the surrounding general floor area.

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. Higher temperatures usually increase the aggressive nature of chemicals.

Service Temperature

Thermal shock resistance can be a major requirement for floors. 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. At either end of the scale, the temperature extremes from hot water or steam used for cleaning and cold from blast freezers for example can create extremely demanding| environments; fortunately many **Sikafloor**® systems can durably accommodate these.

Slip Resistance

Floor areas may require different degrees of slip resistance, dependent on their environment, i.e. 'wet' or 'dry' processing areas. This is principally a question of reconciling the floor's surface profile and finish, with the demands for ease of cleaning and the type and likelihood of spillages. Generally speaking the greater the profile, the greater the slip resistance.

Fire Resistance

Fire classifications for floors are generally given in Building Regulations by the responsible national and local authorities and cover such aspects as their difficulty to ignite and their actual behaviour in the event of a fire. Floor finishes produced with liquid polymers obviously also have to meet these requirements and limitations, which is no problem for **Sikafloor**® systems.

Hygiene

Today's floors have to fulfil the highest hygiene demands and increasingly very specific requirements for the prevention of contamination, particularly in the nuclear, pharmaceutical, cosmetic, food, beverage, chemical and electronics industries. There are many **Sikafloor**® systems designed to meet even the strictest requirements of the latest cleanroom hygiene conditions.

Impact Resistance, Point Loading

In areas where goods are mechanically handled such as production areas, warehouses, loading bays and the like, compressive and dynamic loads are generated by the movement of these goods on the lines, forklifts and pallet trucks etc. It is essential to ensure that the stresses generated are not higher than the strength of the floor topping material and / or its bond to the substrate, which is reliably achieved with **Sikafloor**® systems.

Waterproofing

Sikafloor® systems can provide an impermeable seal to protect both the concrete from attack by aggressive liquids and the underlying groundwater and the environment from the leakage of pollutants. This includes flexible and crack-bridging systems that help to ensure the reliable containment of any ecologically harmful materials, or conversely to maintain the purity of contained drinking water.

Rapid Curing

Flooring systems with rapid curing characteristics can be of tremendous benefit in reducing the necessary delays due to waiting times in new construction and in keeping the downtime in refurbishment and maintenance situations to a minimum. Fast curing systems are also an advantage for applications that have to be undertaken at lower temperatures. **Sikafloor**® systems therefore include a wide range of fast curing and accelerated systems.

Floor Coating on Green and Damp Concrete

No Osmosis

In new construction the delay before fresh concrete slabs can be coated and allow the building works to continue, or the area to be put into service is a major problem. In refurbishment projects waiting for existing concrete moisture content to reduce to an acceptable level for over coating with impermeable resin coatings is also a big problem. **Sika**® **EpoCem**® Technology is an innovative solution that can be used to reduce all of this waiting time dramatically.

Crack-Bridging Ability

Static and dynamic crack-bridging properties are often required for floor coating systems in order to adequately protect the substrate and accommodate movement and vibration. This is a particular requirement on exposed car park decks for example. The crack-bridging properties of selected **Sikafloor**® systems can safely accommodate this movement and the Sika systems are tested for crack-bridging performance down to at least -20 °C.

Damping of Impact Noise

Public transit and gathering places, such as entrance halls, corridors and display or sales areas require higher underfoot comfort levels and protection against the transmission of both impact noise and airborne noise. For this reason, flexible Sika flooring systems are recommended, plus **SikaBond**® elastic adhesives are available for wood floor systems to meet these same standards, including European Part E sound transmission regulations.

Neutral Odour, VOC-Free

Total solids, 100% solids, or solvent free flooring systems that also have neutral odour and low VOC emissions should now always be considered wherever possible to be sustainable and help to meet Green Building objectives, which all helps to protect the environment. This is especially the case in occupied indoor / internal or closed areas, where **Sika**® **ComfortFloor** systems are the ideal solution.

Electrical Conductivity/ ESD

There is an increasing demand for conductive flooring solutions, including ESD, DIF and ECF systems. These types of flooring systems are used to protect sensitive devices from damage or to avoid the potentially explosive effects in flammable atmospheres. Sika is a world leader in this technology for both floor and wall coatings. Please also see Pages 26 to 29 of this brochure.

Cleaning and Maintenance

In order to ensure that Sika flooring solutions stay in good condition and continue to perform and function as required to protect your investment and give years of satisfaction, we also provide fully detailed cleaning and maintenance advice and guidelines. These are available for your assistance in the **Sikafloor**® Cleaning Regime, which is available to download from: www.sika.com.

Thermal Conductivity

Users can perceive the warmth of a floor to their feet very differently and subjectively. In addition to the ambient room and floor surface temperatures, the thermal conductivity of the substrate is usually the most significant factor. Sika provides the highly insulated and elastic **Sika**® **ComfortFloor**® solutions where this is a requirement. – Please also refer to Page 36 of this brochure.

Project Related Performance Requirements (continued)

Multiple Colour Shades

The **Sikafloor**® range is available in almost every colour shade with stable pigments available and special colours can be made to order or matched to a client's specific requirements. This includes Sika flooring systems produced to all major national and international colour standards including RAL, BS 4800 and NCS.

UV Light Resistance

Where colour is important and / or where high UV Light radiation exposure is anticipated, suitably resistant and light fast **Sikafloor**® Systems are available. This can be particularly important on exposed or partially exposed car park or balcony decks for example. Equally UV light and colour stability should always be considered for any floors with doors or windows where natural sunlight enters the building for significant periods of time.

Resistance to Furniture Castors

The wheels or castors on many chairs and other furniture and equipment are relatively small in diameter and therefore they can create heavy point loads on the floor. Only highly abrasion resistant or resilient flooring systems with proven performance such as many of the **Sikafloor**® systems should be used in these situations for long term durability.

VOC/AMC Emissions

One of the main objectives for flooring and wall coatings in cleanrooms is to prevent the potentially damaging effects of VOC/AMC's (Volatile Organic Compounds/ Airborne Molecular Contaminants) being released into the atmosphere and affecting the quality of the sensitive materials produced in these areas.
The **Sikafloor**® **CR** systems are the 'state of the art' in this technology and have been tested to give the best performance on the global market.

For Food Contact

Flooring in the food and beverage industry has to be suitable for direct contact, or to be in close proximity to food stuffs, without adversely affecting them: as well as being able to withstand the extremely intensive cleaning regimes and frequent exposure to aggressive chemicals. Many **Sikafloor**® Systems have full foodstuffs and potable water contact approvals.

Particle Emissions

Cleanroom suitability also considers all of the additional parameters relevant to the manufacture of the specific products under clean conditions, such as particle emissions, which are tested and assessed for this purpose in accordance with ISO 14644. Sika has developed special floor and wall systems with the lowest particle emissions results. Please also refer to the **Sikafloor**® **CR** systems on Pages 22 to 25.

Flatness and Level

Underlayments required for providing a smooth (flat) or horizontal (level) surface for low performance requirements, such as prior to the application of carpets, resilient flooring, wood floors, sports floors or tiling in indoor residential areas; plus for high performance specifications requiring extreme values, such as for forklift traffic in high bay storage facilities for example.

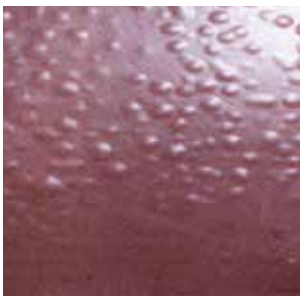
1-Component systems

1-Component polyurethane based systems incorporate a unique technology that allows the material to use atmospheric moisture to trigger the curing process. This means these moisture curing 1-component polyurethane coatings can be applied almost without dependence on the weather (temperature, humidity or dew point) and they dry quickly.

Time is Money – Cut the Waiting Time in Both New Construction and Repair Works

The scheduled flooring 'start' and 'finish' on site, does not always match the overall construction time required (i. e. necessary waiting times / delays due to substrate condition or environmental limitations etc.).

The floor finishes on most construction sites are one of the last applications and so they are usually done under time pressure. If you have to wait until the ideal conditions (pull-off strength 1.5 N/mm²) and humidity (<4 % pbv) in the concrete slab are achieved, then most flooring materials require a waiting time of at least 28 days, according to their data sheets and the respective standards. You can cut this waiting time significantly by using the unique intermediate layers **Sikafloor®-81** or **-82 EpoCem®**. These can be applied directly onto the new concrete after just 7 to 10 days and also directly on concrete substrates recently prepared by high pressure water-jetting, in refurbishment works for example.



Sika® "EpoCem®" technology prevents or overcomes coating failures related to coating fresh and damp concrete.

An additional opportunity for the use of **Sikafloor® EpoCem®** is when you are not sure if the concrete slab has an intact waterproofing membrane underneath it or not. Rising moisture can cause serious problems on ground bearing slabs for many types of resin based floor coatings, frequently leading to blistering or delamination.
The advantages of **Sikafloor® EpoCem®** are based on the unique system components. It consists of an epoxy dispersion in a cementitious self-leveling mortar screed. Application thickness varies from 2 to 8 mm, dependent on the system. With this material you can achieve a fully homogeneous, sound and smooth substrate for the floor topping. The combined epoxy-cement matrix forms a temporary barrier against rising moisture and damp concrete; it also provides a high strength substrate.
This uniform and homogeneous intermediate layer allows over-coating with vapour impermeable high solids and high build resin based coatings within a short waiting time of 18 to 36 hours after application. There is no additional surface preparation and conditioning necessary to achieve a pore free smooth floor.

Schematic of Planned Time Savings with Sika® EpoCem® Technology:

The installation of the floor finishes and the time before additional works can continue or they can be put into operational service, represents a major time factor on many projects. The time saving and cost advantages obtained with **Sika® EpoCem®** Technology can be very substantial

EpoCem®
No more Waiting. No more Delays.

Sikafloor® Application Procedures
Substrate Inspection and Preparation

The concrete substrate is the basis of a new floor, whether it is new or existing.
Thorough inspection and assessment are essential to determine its condition and the necessary surface preparation for a successful flooring system to be applied.
A durable bond must be achieved between the new flooring system and the substrate, which requires a clean and contaminant free, dry (according to the system requirements) and sound surface to be mechanically prepared to remove any cement laitance, loose or friable particles and provide the profile required for the selected floor system. The final surface should be vacuumed to remove any dust prior to the application.

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 the compressive strength i.e. with a Schmidt hammer.

Measuring the Cohesive Strength

Concrete floors generally have some cement laitance with low cohesive strength in the top few mm. This weak layer must always be removed during the substrate preparation. Withstanding stresses from concrete shrinkage, thermal shock or loading requires a minimum cohesive strength. This should be: ≥ 1.5 N/mm² (≥ 1.5 MPa) and this is usually measured by a number of Pull-off tests across the floor.

Substrate Moisture Content

It is extremely important to measure the substrate moisture content because cement bound substrates should normally only be over-coated at a moisture level of < 4% pbv. ASTM D4263 is a simple test with a Polyethylene-sheet of at least 1 m² taped to the concrete surface. This should be left in position for at least 24 hours, prior to removal and testing. Moisture Meters such as the Tramex Concrete Encounter CME 4 can then give a clear reading of the moisture content as a % pbv. Moisture content > 4% by volume, or visible rising moisture (condensation) on the bottom of the sheet, indicates the need for additional drying time or the use of **Sikafloor® EpoCem®** Technology.

Ambient Conditions

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

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

Preparation and Cleaning

If not fully removed, any weak areas or cement laitance on the substrate will reduce the adhesion, performance and durability of any floor system. Concrete surfaces must therefore always be mechanically prepared to a sound substrate. Any dirt, dust, oils, grease or any other contaminants will also reduce or prevent adhesion of any topping, so these must also be removed by thorough cleaning and vacuuming of all residues.

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 mixing equipment is recommended for unfilled binders and the mixing of liquid components of filled screeds and mortars (for filled screeds and mortars please use the Double Mixing Paddle or Forced Action Pan Mixer equipment outlined below). First of all premix Component A. Then add Component B and mix thoroughly 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 types of filled binder systems, including screed and mortar mixes. First of all, mix Components A + B together, then put the premixed A + B Components or the liquid binder into the mixing pail, and then add the powder Component C whilst slowly stirring constantly. 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 larger quantities of all types of heavily filled mortars and screeds. First of all, put the powder component in the mixing pail, and then add the premixed A + B Components or liquid binder whilst slowly stirring constantly ly and slowly. Mix for a minimum of 3 minutes until the mix is fully homogeneous.

Sikafloor® Application Procedures
Application Tools

Barrel-cart: modified for drum handling with the Application Trolley.

Application Trolley: allows easy movement of drums on site.

Mixing gauge: adjustable for every mixing ratio and every drum size.

Sealing of broadcast layers with a straight trowel or a “squeegee” blade.

Primer application with a medium pile roller.

Spiked Rollers: Left a steel spike – right a plastic spike, to remove entrapped air.

Application of **Sikafloor®-264 Thixo** high build coating with a textured roller.

Wet Film Thickness gauge for coatings application thickness control.

Typical pump for premixed cementitious screeds such as the **Sikafloor®** Level range.

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

Note: For more detailed information, please refer to: www.sika.com

Sika® Solutions from the Basement to the Roof
Case Study

Suvarnabhumi Airport, Bangkok, Thailand – The Passenger Terminal Complex

Project Description
The Suvarnabhumi airport site covers an area of 3'100 hectares with a current capacity for 45 million passengers, but long-term plans for 2 main terminals and 2 satellite buildings with an eventual capacity of up to 100 million passengers and 6.4 million tonnes of cargo.
The main passenger terminal has 7 storey's and a basement giving a total floor area of more than 500'000 square metres, making it the largest in the world.

Project Requirements
The building consists of long span, lightweight steel support structures, with exposed precast concrete elements, clear and low e-coated glass, an innovative 3 layer translucent membrane with integrated water cooling and displacement ventilation. This means the system requires
minimal air changes and the occupants are protected from the intense tropical sun and heat, plus noise transmission is greatly reduced.
The joints between these components and dissimilar materials therefore also had to be durably waterproofed with an elastic sealant. As an overall finished result, the air conditioning costs were designed to be reduced by around 50% and the overall energy efficiency of the building has been greatly increased.
The anticipated high numbers of passengers, their baggage and other cargo, necessitated highly wear resistant floor finishes to be produced in the designated high traffic areas.

Sika Solutions
- The structural steel framework support columns, partitions and canopies, were securely grouted into the concrete foundations and bases with non-shrink, non-metallic **SikaGrout®** and high strength **Sikadur® Epoxy Grout** according to their intended loadings.
- Concrete floor surfaces within the terminal building that are likely to be subject to extreme abrasion and wear from traffic, were given an abrasion resistant topping with **Sikafloor® Syntop** Dryshake floor hardener. More than 150 tonnes were applied on the project.
- External façade component movement joints and isolation joints between dissimilar materials, were sealed with **Sikaflex®** sealant.
- **Sarnafil®** mechanically fastened system
  Sarnafil® S327-15 was used for fl at roof area 31, 560 m²
  Sarnafil® G410-18 was used for fl at roof area 270 m²

Sika Full Range Solutions for Construction

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Sika® Retarder®
Sika® SikaAer®

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Sikaplan® Sikalastic®
Sika® & Tricosal® Waterstops
Sika® Injection Systems

Flooring

Sikafloor®
SikaBond®

Corrosion and Fire Protection

SikaCor®
Sika® Unitherm®

Concrete Repair and Protection

Sika® MonoTop®
Sikagard®
Sikadur®

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Sika® CarboDur®
SikaWrap®
Sikadur®

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Sikaflex®
Sikasil®

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