



YOUR FLOOR. OUR PROMISE.

SUBSTRATE PREPARATION GUIDE

FOR THE APPLICATION OF UZIN
PRODUCT SYSTEMS



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Gensler Architects' Washington D.C. offices
Products: UZIN® 460, UZIN NC 170, UZIN NC 172,
UZIN NC 688, UZIN RR 201, UZIN RR 203
Contractor: Mid-Atlantic Flooring, Sterling, VA

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INTRODUCTION

Substrate preparation is the base or foundation which provides a platform for any floor covering to be installed. Proper substrate preparation starts with an in-depth inspection of the jobsite conditions, assessment of current substrate, and identification of any potential hazards.

The key to success is achieving a proper bond between all materials through correct substrate assessment, preparation, and application. The flooring contractor must take into consideration the type of floor covering being installed, overall area in which the floor covering will be used, and what type of stresses the floor covering will be subjected to. Improper assessment and preparation of substrates may lead to project delays, costly repairs, or even failure of the flooring system.

This guide is intended to communicate jobsite qualification requirements, common industry surface preparation methods, surface preparation equipment, and items to consider in order to produce a substrate ready for the use of an UZIN product system.

MOISTURE TESTING



JOBSITE QUALIFICATION

Before selecting a floor covering, a thorough jobsite inspection should be conducted along with appropriate substrate testing to meet installation requirements. Once the conditions are inspected and documented, the flooring contractor then may recommend a floor covering and preparation products for the substrate and installation.

MOISTURE TESTING

Excessive moisture is one of the leading causes of floor covering failures. Appropriate substrate testing must be conducted to meet the floor covering manufacturer's requirement. Refer to ASTM F2170-11 "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes" and ASTM F1869-11 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride". Concrete substrates that exceed flooring manufacturer's maximum allowable values for moisture must be addressed through mitigation before application of UZIN leveling compounds or floor coverings.

SURFACE PREPARATION METHODS & EQUIPMENT

CAUTION: Do not sand or grind adhesive residue, as harmful dust may result. The inhalation of asbestos dust may cause asbestosis or other serious bodily harm. Refer to the Resilient Floor Covering Institute's publication "Recommended Work Practices for Removal of Resilient Floor Coverings" for instructions. Comply with all local and federal laws. Listed below are frequently used methods and equipment for the surface preparation of concrete. The material being removed, floor covering type to be installed, and environmental conditions must all be considered before choosing a method of mechanical preparation.

Shot Blasting is the most common form of removing laitance, old coatings and other contamination from cement substrates. It is a dry process that may allow for sub-floor preparation products to be applied immediately after shot-blasting.

Grinding is a useful method for smoothing out level floors to remove laitance and some curing compounds or sealers. Particular attention must be paid to compacted dust in the pores of the concrete which could inhibit a good bond. It may require mechanical brushing or vacuuming of the concrete substrate for removal.

Abrading is generally done with an STR multi-purpose floor preparation machine, which uses abrasive papers or carborundum blocks. These machines are lightweight and typically used in small areas.

Concrete Planers may be equipped with various concrete cutting wheels that will create proper surface profiles for sub-floor preparation products to be applied to. This method is slower, noisier, and produces more jobsite dust than shot blasting.

Methods to Avoid:

On any substrates (including wooden substrates) it is recommended to avoid acid washing, solvent removers, or adhesive removers. These types of chemical preparation processes pose a high risk for contamination to be driven down further into the substrate only to migrate back to the surface after products have been applied, potentially causing a failure.

Things to Consider:

Existing surfaces often contain damage, contamination, or moisture issues that often present a greater risk than new substrates. It is recommended that all substrates regardless of age or condition be inspected and tested to determine if they are in acceptable conditions for their intended use. In some cases it may be necessary to contact an independent inspector for evaluation.

SUBSTRATE PREPARATION / SOLUTIONS

CURING COMPOUNDS / SEALERS / COATINGS / LAITANCE

Curing compounds, sealers, coatings, and laitance will cause adhesion issues with sub-floor preparation products and must be mechanically removed. All substrates must be clean, solid, and sound prior to application of any sub-floor preparation products. Substrates that exceed moisture requirements of floor covering type that will be installed may have one of UZIN's Moisture Vapor Retarders applied followed by a suitable UZIN patching, smoothing, or self-leveling compound. Please always refer to floor covering manufacturer's specific installation requirements and UZIN Product Data Sheets (PDS) for further application guidelines and instructions.



DEALING WITH CRACKS AND JOINTS IN CONCRETE SLABS

All moving joints in the concrete slab such as expansion and isolation joints must not be covered and must be honored up through the finished floor covering. Dormant cracks or joints can be filled using UZIN KR 518 2-Component Joint Filler (refer to Product Data Sheets). Larger cracks should be thoroughly cleaned out, chased, and filled using a suitable UZIN patching or repair compound. UZIN RR 203 Substrate Crack Bridging Material, a highly tear-resistant reinforcing layer with extreme tensile strength, may be used for bridging substrate cracks and construction joints (saw cuts) up to 1/4" wide. UZIN RR 201 Substrate Reinforcing Mesh may be used in conjunction with UZIN RR 203 as a composite system for floor areas in need of renovation. Refer to product data sheets regarding specific usage and instructions. Contact the UZIN Technical Services Department for specific product recommendations.

POWER TROWELED CONCRETE SLABS

Power troweled concrete is the most common finishing technique used today. It provides a very smooth, dense, slick surface. Most power troweled slabs are cured with a curing agent rather than using the wet cure method. The curing agent may be acrylic-based, wax-based, or silicate-based. These products, including the so-called "dissipative curing compounds" are all well-known bond breakers and will inhibit the bond performance of materials applied directly on top of them. These should be removed by mechanical means. In addition, power troweled slabs and especially those cured with curing agents will take considerably longer to dry.

ADHESIVE RESIDUES

Any weakly bonded or soft surface material, such as loose adhesive residues, leveling compounds, floor coverings or coatings must be removed by shot blasting, abrading, grinding or wet scraping.* UZIN PE 460 Moisture Vapor Retarder or UZIN PE 414 Turbo Surface Strengtheners/MVR may be used over a properly prepared solvent and non-solvent (water-based), well-bonded residual adhesive stains. They may also be used for mitigating residual high substrate moisture prior to the application of self-leveling compounds. To create a mechanical key for leveling compounds, broadcast sand into the final MVR coat while still wet using the roller application method. When using the one coat trowel/squeegee application method for MVR's, the application of UZIN PE 280 Super-Fast Primer may be used in lieu of broadcasting sand. Only use PE 280 when applying leveling compound at a depth of no more than 1"**. Always use the sand broadcast system when installing hardwood flooring. A full system bond test is always recommended. Refer to product data sheets regarding specific usage and instructions. Contact the UZIN Technical Services Department for assistance.

*NOTE: Some previously manufactured asphaltic "cutback" adhesives may contain asbestos. Other flooring adhesives may contain crystalline silica. Removal instructions can be found in RFCI, Resilient Floor Covering Institutes "Recommended Work Practices for the Removal of Resilient Floor Covering".

**See Uzin PE 280 Product Data Sheet Technical Data for additional information



SUBSTRATE PREPARATION / SOLUTIONS

NON-ABSORBENT SURFACES

Surfaces that will not allow or significantly slow the passage of water through them are considered non-absorbent. Paint, ceramic tile, terrazzo, and power troweled concrete are examples of non-absorbent surfaces.

A. Surface Moisture Vapor Retarders

Membranes such as UZIN PE 460 2-Component Epoxy Resin or PE 414 Turbo 1-Component Polyurethane Moisture Vapor Retarder are non-absorbent surfaces and can be covered with leveling and smoothing compounds. When applying leveling compounds over these UZIN moisture vapor retarders, broadcast sand into the final coat using the roller application method. When using the one coat trowel/squeegee application method and in cases where the leveling compound depth is not to exceed 1", UZIN PE 280 Super-Fast Primer may be used instead of broadcasting sand. Always use the sand broadcast (grit-binding) system when installing hardwood flooring. Refer to product data sheets regarding specific usage and instructions. Contact the UZIN Technical Services Department for assistance.

NOTE: UZIN dispersion primers, leveling compounds or patching products are not moisture barriers and should never be used as such.*See UZIN PE 280 Product Data Sheet Technical Data for additional information

B. Curing Agents and Admixtures

These types of products are designed to repel water and prevent dusting or water from escaping from the concrete slab. Adhesion will be compromised if leveling compounds or adhesives are applied directly on top. The substrate should be prepared by mechanical means such as shot blasting before the application of moisture vapor retarders or smoothing compounds. A full system bond test should always be performed before the final application.

C. Terrazzo, Ceramic and Quarry Tiles

These materials may be covered provided they are sound, well-bonded to the substrate, and free of moisture. Cracked or loose material should be removed. The surface must be thoroughly cleaned and all traces of contamination completely removed. Prime the surface with the appropriate UZIN primer before the application of self-leveling compound. Refer to product data sheets regarding specific usage and instructions. Contact the UZIN Technical Services Department for specific product recommendations.

SUBSTRATE PREPARATION / SOLUTIONS

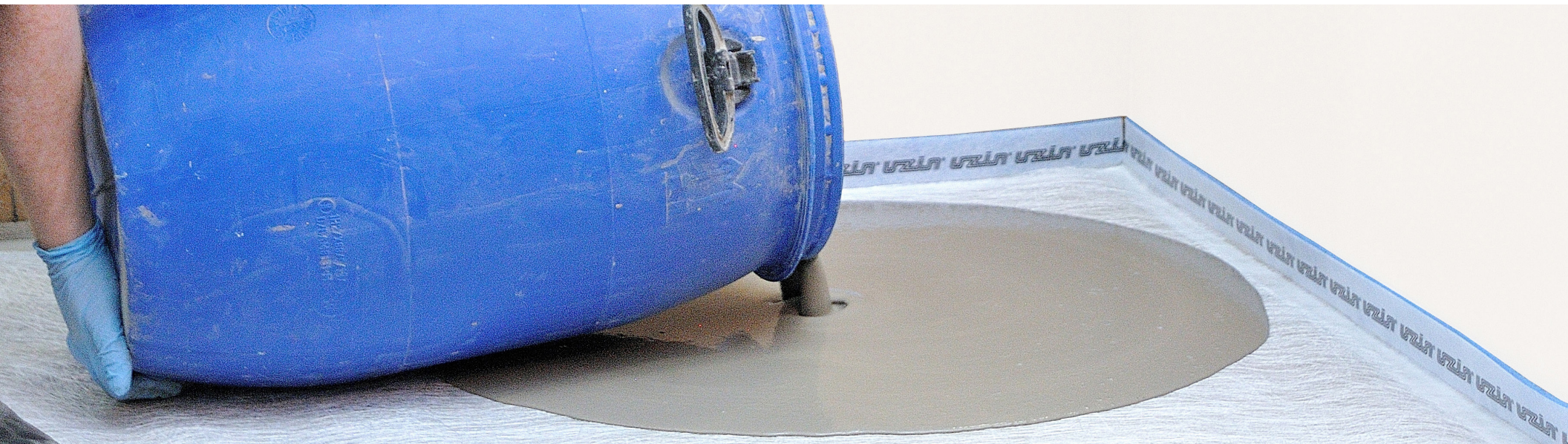
Gypsum Substrates

Gypsum-based materials are a popular option for use over wood substrates. Standard gypsum materials usually require a minimum thickness of ¾". Often, old gypsum substrates (and sometimes new) are found to be distressed and suffering from degradation.

Before the application of UZIN subfloor preparation products all gypsum substrates should be clean, solid, sound, and dry. All laitance should be removed by grinding or sanding and vacuumed thoroughly to remove all dust. Cracks in lightweight concrete/gypsum topping that are directly over subfloor panel joints may indicate excessive subfloor movement and should be checked, and corrected if necessary. Substrates should be tested per the floor coverings manufacturer's instructions. Refer to product data sheets regarding specific usage and instructions. Contact the UZIN Technical Services Department for specific product recommendations.

Existing Floor Coverings

Some floor coverings such as non-cushion-backed sheet vinyl, VCT, VAT, ceramics, terrazzo, and stone may provide a suitable base provided they are clean, solid, sound, and dry. UZIN PE 460 may be considered for use as a bonding agent and strengthener on abraded ceramic tile, stone and, terrazzo surfaces. Refer to product data sheets regarding specific usage and instructions. Contact the UZIN Technical Services Department for specific product recommendations.



SUBSTRATE PREPARATION / SOLUTIONS

Wooden Substrates

Wooden substrates must be clean and free of all contaminants such as dust, dirt, oil, grease, wax, varnish or shellac. It may be necessary to sand the substrate to bare wood. Never use solvents, strippers, or cleaners to remove contamination from the surface of a wood substrate. Adequate ventilation must be provided under suspended wood substrates to maintain equilibrium. Perform moisture tests per floor covering manufacturer's requirements.

Wooden substrates must meet the following structural requirements for the application of UZIN self-leveling compounds; wood substrates must be a minimum thickness of ¾ inch tongue and groove, APA-rated, Type 1, exterior grade or OSB equivalent. UZIN patching and repair compounds can be used over wood substrates (excluding pressure-treated or fire-rated) to patch seams, fill voids or for smoothing. The use of UZIN RR 201, RR 203 and/or UZIN Reinforcing Fibers will help to mitigate the effect of deflection in the floor. Refer to product data sheets regarding specific usage and instructions. Contact the UZIN Technical Services Department for specific product recommendations.

NOTE: Refer to ASTM F1482-04(2009)e1 - "Standard Practice for Installation and Preparation of Panel Type Underlayment's to Receive Resilient Flooring." Consult the individual resilient flooring, underlayment or adhesive manufacturer for specific recommendations. Manufacturer's instructions supersede the recommendations included in this practice.

CONCLUSION

The information provided in this document is to be used as a general guide for preparing substrates for UZIN sub-floor preparation systems. Floor covering manufacturer installation recommendations and usage of area must be taken into consideration during evaluation phase. For best results it is recommend to always perform small test areas.

Detail application instructions of specific UZIN products may be found on Product Data Sheets which can be found at **us.uzin.com**. The UZIN Technical department can be reached at 866-505-4810 or uzin.us@uzin-utz.com

REFERENCES / PUBLICATIONS

Always refer to the floor covering manufacturer's specification or requirements and applicable industry publications such as the ones listed below for industry best practices and guidelines. Conform to all local, state, and federal building codes and laws.

- ASTM F710 – "Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring"
- ASTM F2170 – "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes"
- ASTM F1869 – "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride"
- ASTM F1482-04(2009)e1 – "Standard Practice for Installation and Preparation of Panel Type Underlayment's to Receive Resilient Flooring"
- American Concrete Institute (ACI) "ACI 302.1R-04, Guide for Concrete Floor and Slab Construction" / www.concrete.org
- Resilient Floor Covering Institute (RFCI) – "Recommended Work Practices for Removal of Resilient Floor Coverings, October 2011" / www.rfci.com
- Resilient Floor Covering Institute (RFCI) – "RFCI IP #1, Recommended Installation Practice for Homogeneous Sheet Flooring, Fully-Adhered" / www.rfci.com
- Resilient Floor Covering Institute (RFCI) – "RFCI IP #2, Recommended Installation Practice for Vinyl Composition Tile (VCT)" / www.rfci.com
- Carpet & Rug Institute (CRI) – "CRI Carpet Installation Standard 2011, First Edition" / www.carpet-rug.org
- Tile Council of North America (TCNA) – "2013 TCNA Handbook for Ceramic, Glass and Stone Tile Installation - Version 2013.1" / www.tcnatile.com

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