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DECKING

INSTALLATION PROCEDURE

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INSTALLATION PROCEDURE

Introduction

It has recently been 40 years since the creation of the first RENOLIT ALKORPLAN reinforced PVC membrane. This was a milestone that marked a before and after in the pool world. The use of this type of interior coating allowed the use of different types of building structures instead of the more classic concrete, while always guaranteeing the watertightness of the pool.

It has also been 10 years since RENOLIT ALKORPLAN launched the Touch Collection. That was the first stage of a line of products that combined style, easy installation, and safety in a single product. The market demanded alternatives to unicolor or printed products. Today, the Touch Collection continues to be the benchmark in the market. It is so successful that many people have wondered whether it could be used in other environments.

We are thrilled to introduce RENOLIT ALKORPLAN DECKING line of products with the aim of going beyond the pool basin. This product could be defined as DECKING MATERIAL FOR WET FLOOR AREAS, made of a reinforced PVC membrane, but its reach goes much further. It is not intended to be yet another vinyl coating, but rather an alternative to traditional ceramics in the entire pool and living environment, whether indoors or outdoors.

This document details the steps to follow in the installation of a SOLID reinforced PVC membrane, following the current guidelines for the installation of vinyl flooring. This is a very different methodology from what we know in the pool area.

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SURFACES

RENOLIT ALKORPLAN DECKING
INSTALLATION PROCEDURE – REV. 1.0

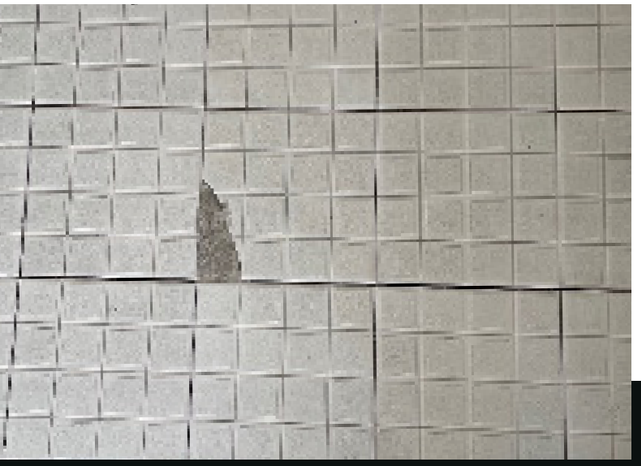
INDEX

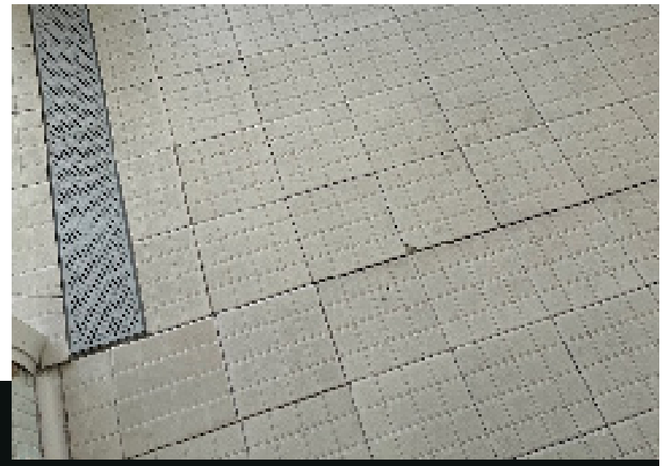
1.0 Initial Site inspection

This is the first inspection the installer conducts when contacted by a client. All the checks that the installer will have to carry out during the first visit are listed below. A task inspection checklist form, dedicated to this section, is available to guide the installer through the entire process.

1.1 Existing floor type check

It is essential to do a thorough inspection of the existing set-up, to determine the type of preventive interventions needed to prepare the area to the installation of RENOLIT ALKORPLAN Decking reinforced PVC membrane. If an existing synthetic floor is being replaced, the installer must determine the conditions of the floor underneath to understand the type of interventions that should be carried out to adapt it to the new installation. In this phase it is essential to understand the conditions of the slabs, the slopes and the type of glue used to secure the existing floor.





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POOL
SURFACES

RENOLIT ALKORPLAN DECKING
INSTALLATION PROCEDURE – REV. 1.0

1.2 Existing floor slope check

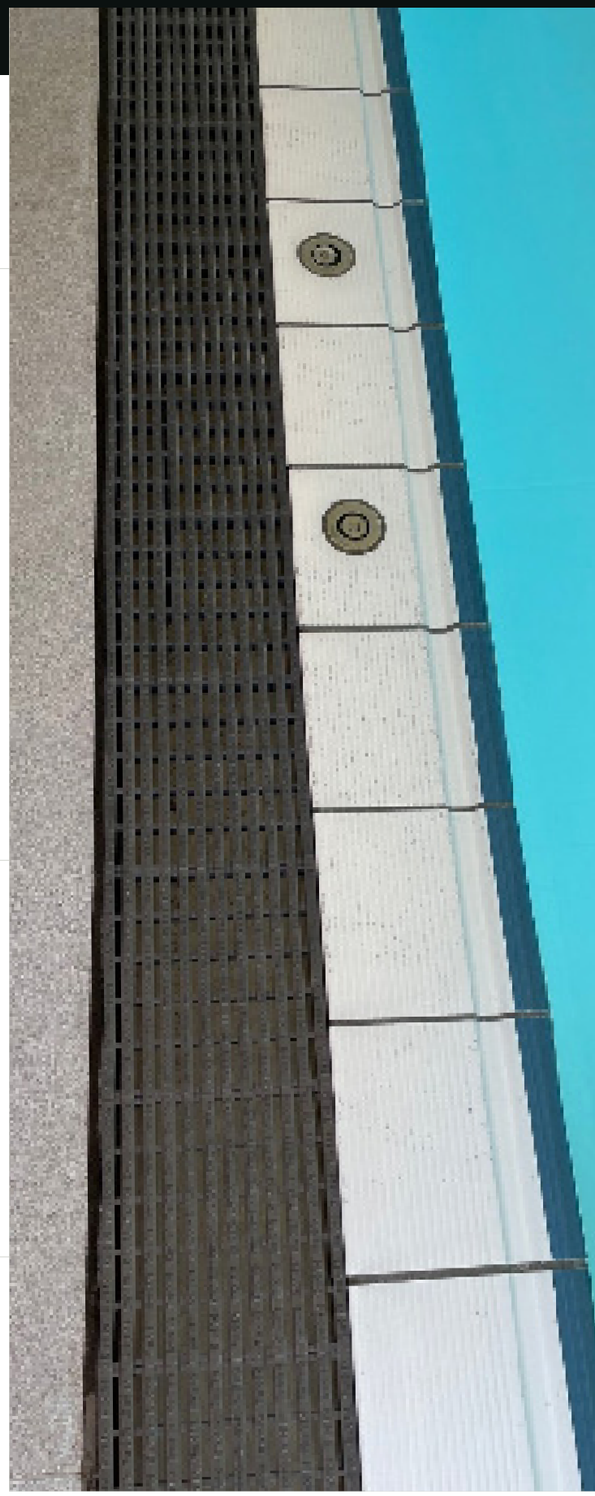
In the case of a new installation or a membrane overlay on an existing floor, the installer must make sure that the surface is solid, smooth, in good condition and with adequate slopes for water drainage and in compliance to local codes, identifying any areas where water can accumulate in a depression on the surface, forming puddles. If the installer is building the support on which RENOLIT ALKORPLAN DECKING will be installed, the same criteria mentioned above should be applied to this work. It is essential to prevent any water accumulation by promoting natural draining by proper floor leveling.

1.3 Existing drainage type check

This procedure involves analyzing the existing drainage type to check its condition and ensure that the material is compatible with PVC. If the material is not compatible, the installer will replace the drains with new compatible ones.

1.4 Existing pool coping check

The installer should check the pool's coping stone. If there is a connection with the membrane, the installer should study it in detail to ensure a total waterproofing solution.



1.5 Existing integrated elements check

The installer should verify the presence of any element that needs to be integrated with the RENOLIT ALKORPLAN Decking Membrane, such as a pool ladder, railing, parapets, or others, with the aim of studying the appropriate connection detail, and ensuring a total waterproofing solution.

1.6 Existing walls check

In case the area is surrounded by a wall, the installer will have to check the wall surface, the type of material and finish, the moisture (as described in the specific section) and study the connection detail between wall and membrane to ensure total waterproofing solution.

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INSTALLATION PROCEDURE – REV. 1.0

1.7 Floor moisture test

A floor moisture test must be carried out on the surface where the membrane will be installed. This procedure is crucial in the installation process, since any humidity will cause, at the very least low adhesion of the membrane and its possible un-gluing or movement. A moisture test must be performed on any surface, either horizontal or vertical, on which the membrane is to be glued. The moisture check is also needed to help choose the primer coat layer that needs to be applied between the slab and the leveling layer. The following images show the operation of a typical moisture meter, which consists of two electrodes that are in contact with the pavement or surface to be measured. If moisture is detected, a red light will flash in the meter (see second image). If no moisture is detected (see third image), a green light will flash.

The green zone lights up
if there is humidity.

2.0 Working area preparation and safety

2.1 Introduction

A good preparation means doing work ahead of the next steps. Make sure you approach situations with all the information you need beforehand. Being prepared is the best way to deliver the best results, and understanding your environment will increase your workers safety and well-being.

2.2 How to prepare a safe working area

Ensure you prepare the space necessary to receive and handle the materials well in advance.

For safety and efficiency, ensure you keep your work area and equipment tidy and organized. Any hazards should be dealt with immediately and all necessary steps must be taken to avoid risk.

Take all necessary precautions to prevent people or materials falling from open edges, fencing or guard rails. Although falling from a higher surface is always dangerous, (e.g., falling into an empty pool), you should remember that trips and falls on the same surface area can also be a risk. Make sure there is enough space for safe movement and access.

Use safety equipment such as a helmet, reflective vest, work gloves, safety glasses and safety shoes. Eye protection such as goggles can help, even when indirectly working with floor levelling or mortar. All safety glasses should be kept clean and clear of dust before they can be used. Avoid wearing contact lenses.

Make sure floors, corridors and stairs are free of obstructions, e.g., trailing cables. Provide good drainage in any work involving water. Make sure all windows can be opened, closed, or adjusted safely. A good amount of lighting is necessary but try to avoid glare.

Always provide safe passages for workers and remember that different types of work may need separate routes. Provide adequate signaling for damp floors, slippery and uneven surfaces.
Provide containers for waste materials and empty them regularly of any dirt, refuse, or trade waste. Make sure spillages are wiped promptly.

Ensure good ventilation, and a sufficient supply of fresh, clean air drawn from outside or a ventilation system.

For outdoor works you should consider the weather, temperature (both hot and cold) and sun exposure. Consider using tarps for extreme heat and tents with heat in cold temperatures. Use sunscreen cream when exposed to direct sunlight.

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INSPIRING
POOL
SURFACES

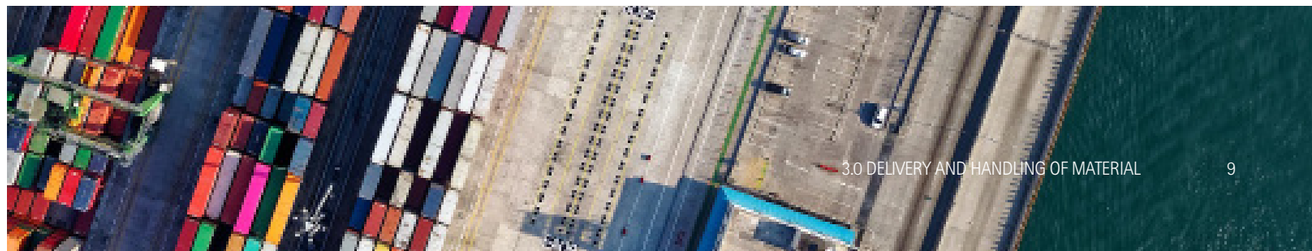
RENOLIT ALKORPLAN DECKING
INSTALLATION PROCEDURE – REV. 1.0

3.0 Delivery and handling of material

3.1 Delivery and handling of material

When the PVC membrane rolls are delivered, the Certified Installer must ensure that they are in good condition. He or she should specifically check that the membrane rolls have been transported correctly and in their original packaging. The Certified Installer must also check that the weight of the roll has been supported along its entire length, avoiding any overhang. In fact, an incorrect positioning of the load could cause a crushing of the membrane roll, which would impact the product's performance as well as create aesthetic problems.
The certified installer should also check the quantity of material received as well as the product label in each package, and make sure that these data coincide with both material order and Packing List. A signature will be required on the Packing List and a copy of this document will be provided by the Certified Installer to Renolit.

The installer should then unload the material into a safe storage area set aside for this purpose, avoiding crushing and damage of any kind, making sure that the material arrives at the job site in excellent condition for its installation.



3.2 Safety procedures for handling of materials

Material handling is a form of logistics movement that includes any process that involves the movement between vehicles, conveyors, storerooms, and other forms of logistics support where employees are involved. The maximum weight that workers can handle manually is regulated by law in each country. In general, it is suggested that each worker does not lift more than 55 lbs. (25 kilos).

When safety procedures are consistently followed, the day-to-day handling of material is safe and accident-free. Procedures start with awareness of risks involved in the handling of each specific material and the proper safety equipment for each situation. Procedures should cover the types of material, and the conditions of the work area.

Ensure the work area is free of obstacles. Maintain the correct posture: avoid bending over and keep heavy loads close to your body. Lift in a careful, deliberate manner and avoid any sudden lifting movements. Never lift materials from a sitting position, ands do not twist to pick up a heavy object. Use the correct grip on objects; lifts should be shoulder high and with a full grasp of the hands. Get assistance from co-workers to avoid lifting heavy objects repeatedly. Always make use of a dolly or hand-truck, co-workers, conveyors, slides or other devices, to avoid unnecessary lifting or pushing of objects.

Always go around a blocked pathway, never step over an obstacle while carrying material. Maintain a clear line of sight; objects should not block vision; only lift objects in areas with sufficient lighting. Whenever possible, reduce load sizes, adjust bulky objects to ease movement. Regularly stretch back and forth leg muscles during the day to increase flexibility and safety.

Safety for material handling gear means the proper fit and use of personal protection including eye-protection, steel toed boots, and other personal safety equipment.

Always use the safety equipment for handling of material included, including the proper tools for transporting material. This will typically include loaders, conveyers, forklifts, and other aids to transport material safely.

A company's day-to-day operation and its customers are dependent on efficient logistics, and the employees involved must be trained and equipped to consistently work safely in meeting the material handling requirements of the business.

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SURFACES

RENOLIT ALKORPLAN DECKING
INSTALLATION PROCEDURE – REV. 1.0

4.0 Installation

4.1 Floor moisture test

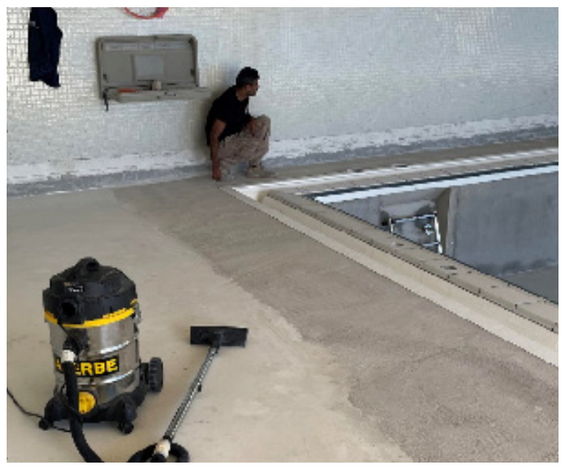
Although a floor moisture test would have been completed during the first site visit, it is necessary to have updated data before proceeding with the installation. As regards the procedure, refer to what is explained in chapter 1.0 - SITE INSPECTION, Section 1.7 - FLOOR MOISTURE TEST.

4.2 Drains replacement

All drains and special elements that are not compatible with PVC must be replaced with new ones that ensure compatibility with the RENOLIT ALKORPLAN DECKING system.

4.3 Floor preparation and cleaning

It is essential to carry out a thorough clean of the entire surface, as well as of the pool area. It is important to remember that the reinforced PVC membrane will replicate the shape of any imperfection or impurity. For this reason, and given that the decking area is usually large, it is recommended to use an industrial vacuum cleaner, to remove both solid and liquid waste. Several extensive cleans will be carried out after each stage prior to the membrane application.



4.4 Primer coat application

The primer coat (also known as moisture blocker or bonding layer) is essential in the membrane application. In fact, moisture coming from the subsoil is the great enemy of this type of product, affecting both the overall appearance and membrane adherence with the laying surface. Note: If there is no moisture problem, the primer coat will still improve the adhesion.

Depending on the result of the moisture test, we can use a compound or another blocker. If humidity is higher than 4%, the compound used will be epoxy or other specific treatment.

Example of products used:

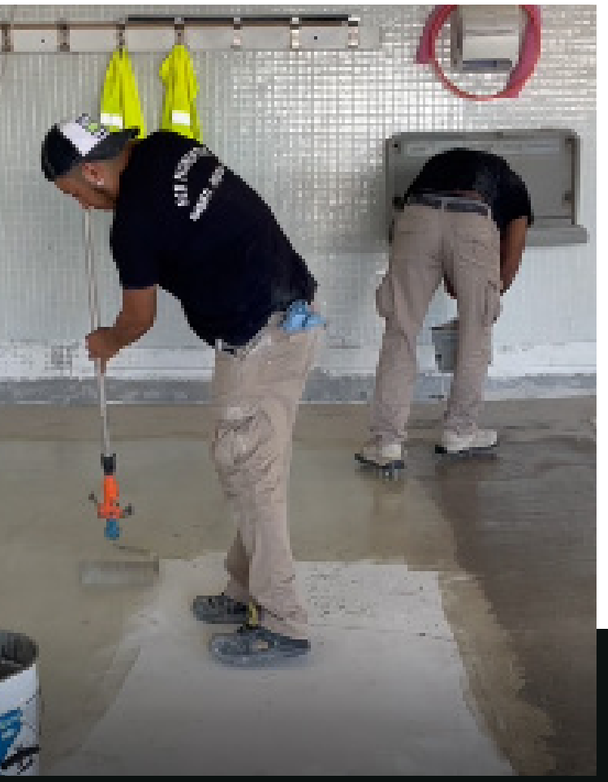
- **MAPEI PRIMER G** – For dry and porous surfaces, for example, mortar. Liquid product. To be diluted 50% with tap water. This product does not block moisture, it only favors the adherence of the leveler on the surface and reduces the possibility of bubble formation.

- **MAPEI ECO PRIM GRIP** – Primer resin with silica sand. This product indicated for application on smooth surfaces, for example, an existing ceramic floor or smooth concrete.

- **MAPEI PRIMER SN** – This is a primer coat with an epoxy composition that works in cases of up to 4% humidity, according to the manufacturer, or if humidity is suspected. If a testing of the subsoil cannot be performed, the use of this type of blocker is highly recommended. This product is combined with a layer of aggregate (silica sand) sprinkled on the joint bridge.

- **EPOVAL PRIMER FL 120B** – Adhesion enhancer for epoxy and polyurethane resin floors.

The application of this layer is carried out with a roller, which means that before proceeding, all adjacent areas, such as the pool's reinforced PVC membrane in the overflow or other surfaces must be protected against stains. In the image below we can see how the first operator applies the epoxy resin while the second, wearing crampons, sprinkles the aggregate.



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INSPIRING
POOL
SURFACES

RENOLIT ALKORPLAN DECKING
INSTALLATION PROCEDURE – REV. 1.0

4.5 Perimeter solutions special parts and ancillaries

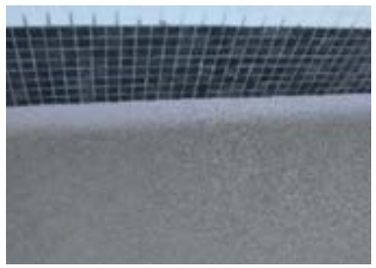
FLAT PROFILE

One of the main differences with respect to a swimming pool is the use of flat profiles, half rounds, and accessories on the walls. It is recommended to install the membrane vertically in the connection between the perimetral wall and the floor, for a full watertightness. To fix the membrane to the wall, it is necessary to previously install a flat PVC profile that is first glued and then mechanically fixed.

The membrane is then measured and cut to obtain membrane strips that will be glued around the perimeter and then welded to the flat PVC profile.

CORNER PROFILES

It may be necessary to use rounded corner profiles. This type of installation detail is common in critical areas (bathrooms, kitchens, changing rooms, operating rooms, and other wet areas). The pool decking area and surroundings, as well as other wet floor areas, always need to be treated as critical areas.



CLOSED ANGLES

To prevent the flooring reinforced PVC membrane from sinking into the gap between the two half-round profiles, it is important that one is installed over the other, as seen in the image on the left.
The reinforced PVC membrane is positioned by making a vertical cut from the meeting point of the 3 planes (walls and floor) and eliminating the excess material, so that the flooring that goes up on the wall meets the other plane cleanly. This meeting will be finished off at the end by welding the 4mm cord with hot air. This will guarantee watertightness in the seam.

OPEN ANGLES

In this case it is not necessary for any of the profiles to overlap, although it is recommended to eliminate the excess corner edge of the lower plane. Both in the open and closed angles, the reinforced PVC membrane in the vertical planes should be secured using double-sided tape.

You can then proceed with the application of the reinforced PVC membrane.

In an open angle, you want to complete the corner using the same section of reinforced PVC membrane, which will require adding a section in the open angle. To do this in a way that is aesthetically pleasing, two cuts are made at 45º degrees, in a V shape, on both planes of the open angle, as shown in the following image.

You will then cover the gap with a membrane piece cut-to-size. This will initially be attached with double-sided adhesive tape. Finally, we will seal both pieces with hot air and the 4 mm. cord. The cut-to-size piece will overlap. To correct this, cut off the excess material so that each section meets the next.

Unlike existing flooring products, the RENOLIT ALKORPLAN DECKING reinforced PVC membrane allows overlap welding, one section over another. This solution has several advantages, such as total waterproof sealing and the completion of some critical details.

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RENOLIT ALKORPLAN DECKING
INSTALLATION PROCEDURE – REV. 1.0

4.6 Butt-welding strip application

The butt-welding strip is the element that allows two pieces of membrane to be joined by means of a heat seal, resulting in a single element, and preventing water infiltration.

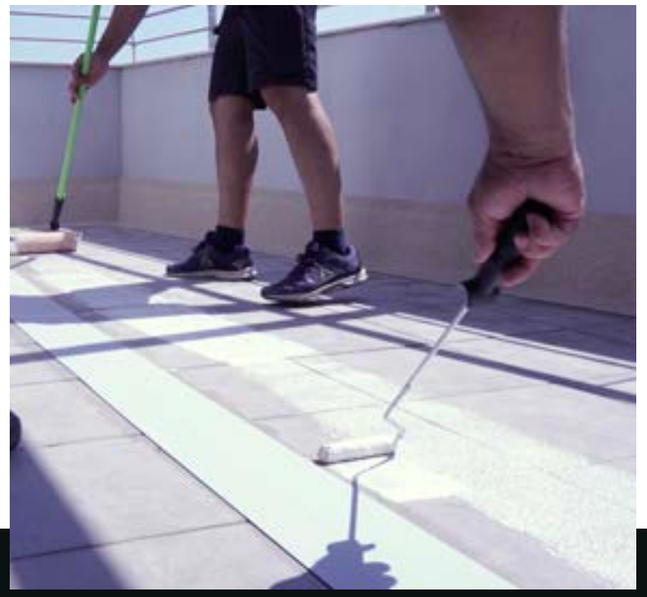
For the correct installation of this element, it is necessary to have previously planned the positioning of each synthetic membrane piece, according to the roll dimensions and design.

The butt-welding strip is then cut to size and welded to the perimetral membrane.

4.7 Geotextile layer application

The geotextile layer has the dual function of filling the step generated by the butt-welding strip, and of attenuating eventual irregularities in the underlying floor. If the existing floor should have strong irregularities, it is recommended to provide for prior repairs.

Before applying the floor adhesive, the surface must be thoroughly cleaned again, removing any debris from the leveler and other impurities that can cause both aesthetic and adhesion problems. Once the pavement is leveled and free of impurities, we can proceed with the application of the pavement adhesive.



RENOLIT
ALKORPLAN
INSPIRING
POOL
SURFACES

RENOLIT ALKORPLAN DECKING
INSTALLATION PROCEDURE – REV. 1.0

Adhesives used indoors are usually made specifically for this indoors application, as they do not contain organic or volatile solvents in their formulation that could compromise fire resistance.

The RENOLIT catalog includes the RENOLIT ALKORGLUE Zero Solvents, which is suitable for this type of application. Glue application should be carried out using a paint roller.

Unlike contact glue, this product should be only applied on the pavement. It is important to adhere to the drying times indicated in the technical sheets. If the geotextile is placed immediately after applying the glue, bubbles or permanent marks under the flooring may appear.

The geotextile layer is glued to the floor, making sure it coincides perfectly with the butt-welding strip, taking good care of not overlapping it, nor leaving any space between.

The geotextile layer is then cut to size to make a perfect fit with the perimetral membrane and pressed with a floor-roller to ensure its full adherence.

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INSTALLATION PROCEDURE – REV. 1.0

4.8 DECKING MEMBRANE APPLICATION

In this step we will explain how to glue the Decking membrane to the geotextile. Before applying the floor adhesive, the surface must be thoroughly cleaned again, removing any debris and impurities that can cause both aesthetic and adhesion problems. Once the geotextile is free of impurities, we can proceed with the application of the glue.

As mentioned before, adhesives used indoors are usually made specifically for this indoors application, as they do not contain organic or volatile solvents in their formulation that could compromise fire resistance. The RENOLIT catalog includes the RENOLIT ALKORGLUE Zero Solvents, which is suitable for this type of application. Glue application should be carried out using a paint roller.

Unlike contact glue, this product should be only applied on the geotextile. It is important to adhere to the drying times indicated in the technical sheets. If the Decking membrane is placed immediately after applying the glue, bubbles or permanent marks may appear. Do not apply any glue on the butt-welding strip.

If some glue ends up on the butt-welding strip it needs to be cleaned using a solvent such as ethyl acetate, MEK or THF. These products could stain the membrane, so this cleaning process must be carried out before bringing the membrane closer to the installation area.

The butt-welding strips, like any other membrane already installed, can be protected with painter's tape or any other masking if needed. It is now possible to apply the membrane over the glue, taking care to position it correctly, following the installation plan. The membrane needs to be cut to size and pressed with a floor-roller to ensure its full adherence.

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INSTALLATION PROCEDURE – REV. 1.0

5.0 Post installation checks

5.1 Visual check

It is necessary to carry out a first visual inspection of the entire surface, paying special attention to the most critical details. In this phase it is necessary to make sure that the membrane is flat, without wrinkles or raised areas. It is also necessary to make sure that all the welding and connection details are solid and flat.

5.2 Testing tools

There are different useful tools to carry out all the tests needed. A membrane welding test can be carried out by means of a hook. This tool, introduced into the joint between two sections of welded membrane is used to check the continuity of the weld.

Another useful tool is the PVC membrane suction tool. This tool is used on the membrane, creating a vacuum through which it remains attached to the membrane itself, allowing you to check that it has been glued in a strong and uniform way.

6.0 Cleaning

Once the installation work has been completed together with the relative checks, the final cleaning must be carried out. After any waste from the installation is removed, the surface is vacuumed, and a complete wet cleaning is carried out using special non-aggressive detergents.

7.0 Final delivery

The certified installer is now ready for final delivery to the customer.

8.0 Tools

- Broom and Shovel
- Hygrometer
- Industrial vacuum cleaner (with liquid suction capacity, as well as medium-sized solids).
- Paint roller for glue and primer application.
- 20 mm. welding nozzle (Leister), commonly used for pool membrane application. 15° or 60°
- Tube nozzle Leister
- Air Slide Leister for tube nozzle
- Pressure roller for welding (Romus)
- Groover for welding Leister o Romus
- "Mozart" trimming knife (Leister)

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INSTALLATION PROCEDURE – REV. 1.0

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