



I AM resin

resinLAB  
— CREATIVE RESIN SOLUTIONS

## BASICS FOR THE CORRECT CHOICE AND INSTALLATION OF RESINS & MICROCEMENTS

Designers and architects, challenged by the renovation or the building of new housing have always focussed on the functionality, the performance and aesthetics of floors.

Since 1950, the traditional cement-based solutions applied in the industrial sector have been integrated with resins systems to improve chemical and physical resistance of existing floors. In recent years, thanks to the product development, resins and microcements are no longer considered a simple surface to cement.

Today, they are appropriate for use in homes, shops, places of work, schools, surgeries, hospitals and even in areas where hygiene certification is required as proper floors, with performances and aesthetics which outclass any other available material.

Over time and, particularly in the civil and commercial sectors, resins and microcements have achieved a range of design options that no other product can meet and which represents one of the main strengths of these materials.

However, this variability implies a change in the customer's choice paradigm: the unique aesthetics of resins and microcements, combined with each specific handcrafted application, makes the classical sampling (typical of ceramics, carpeting, PVC, laminate, etc.) merely indicative and by no means exhaustive.

Choosing a resin or microcement floor, means starting a proper design process. The final effect will result from the aesthetics and performances required by the customer and from the ability and style of each professional installer or artist.

### **Choosing a seamless resin or microcement floor means taking into account:**

- the expected performance (physical, chemical and impact resistance)
- the expectancy on design & style
- the available budget
- the substrate on which resins are to be applied
- the environment and microclimate in the site where operations are planned.

After careful evaluation of these factors, definition and choice of the suitable resin cycle may come into play.

For these reasons, only qualified staff with an extensive knowledge and the right equipment are able to advice on this complex procedure. A do-it-yourselfer might do a very small surfaces area but cannot guarantee a correct assessment of the system needed state of the art and, consequently, of the correct choice of products and application systems. The availability of many resins and microcement based products, aggregates and additives, gives the customer an incredibly wide range of style options. The client's own creativity and RESINLAB's experience are the winning combination for a successful project.

While performance and aesthetics are no longer a constraint, it may occur that the customer's requests generate costs (products and installation) that go beyond his expectations.

There is no need to worry, as the range of options for a seamless resin or microcement surface is unmatched. RESINLAB can offer quality full resin systems from a few dozen pounds up to hundreds pounds per square meter of bespoke designs. It will be up to RESINLAB to balance technical and aesthetic needs of each client with the available time and budget.

### **The environment: where and how it is possible to install resins & microcements**

There are specific conditions to be considered before applying resins and microcements:

- the substrate,
- the environment in which operations will be carried out,
- the microclimate.

An incorrect evaluation of any of those conditions can seriously affect the final result and durability of the floor: bubbling, cracking, delamination, etc. can occur.

**The substrate:** Resins and microcements must be applied on surfaces with a high mechanical resistance: that is because they don't have a body of their own and thus, they can only ensure their performances if applied over a suitable substrate.

To be suitable, a substrate needs the following features:

- Rigid: dimensionally stable, or subject to minimal deflection,
- Cohesive: compact, resistant to tension and compression, not flakey,
- Spotless: free from detritus (dust, oils, grease, etc.).

Shrinkage cracks can be repaired with a careful sealing interventions, using polyurethane-based products. In order to apply resins and microcements on tiles, metals, wood, stones, etc., we need to ensure that these materials are securely attached to the substrate, intact and clean. Resins and microcements are fully compatible with underfloor heating, provided special consolidating primers are applied and only after having tested the screed for thermal shock in order to assess its suitability.

**The environment:** The analysis of site is crucial in order to deliver a lasting result. Only by taking into account laying and curing times, operational needs, presence of other workers and characteristics of building structures (type of material, flatness, dryness of substrates), can we ensure that final result is delivered on schedule and to meet the client's expectations in terms of mechanical performance and aesthetics.

**The micro-climate and environmental conditions:** Microclimate refers to the set of factors that occur on the site at the time of operations: temperature, humidity and air velocity, humidity and temperature of substrate, surface temperatures.

These factors can prevent works from starting or require a different application process. Temperature affects the curing time of the materials. If too low, it affects application times and it can prevent complete hardening. If too high, it dramatically reduces the time available to use a batch of the product. Temperatures between 10° and 30° are ideal for installation of most resins and microcements systems. There are special resins that can full set even at temperatures below zero; for example, ones for cold stores & freezer rooms.

Moisture impacts on the adhesion of resins to the existing substrate (relative humidity of substrate) and on the adhesion between the layers (environmental humidity/condensation). Humidity in the working area should be between 30% and 80%, while the humidity of the substrate shall not exceed 8%. Beyond this limit a special vapor barrier is required. Some products such as transparent polyurethane, require substrates to be very dry (less than 2% humidity), to prevent product from whitening.

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### **Aesthetics: a unique floor**

Once these technical conditions have been achieved, architectural and aesthetic evaluation comes into play.

**Color:** The range of colors available is virtually unlimited.

**Texture:** Cement based material may have a more textured finish, while self leveling epoxy products are completely smooth and seamless. Clear glossy finishes have a highly visual impact and allow the insertion of many kinds of decorative objects (such as leaves, photos, pebbles). The combination of resin and natural stone will generate natural looking floors with traditional vibe but with superior performance and resistance.

**Clarity:** Both the binders and the clear protective finishes allow different degrees of clarity, from matte to glossy, with a range of possibilities that covers the whole Gloss Scale (from 2% to 98%).

**Laying technique:** The personal style of every artisan is an integral part of the aesthetic result and can never be reproduced.

### **Budget: how much is a resin or microcement floor?**

As we have mentioned before, there are many factors that can affect the cost of a full resin system. First, the cost of labor. Applying a full resin system to a substantial area can take on average 5-8 days. This involves fixed costs which the contractor must insert in the final calculation. Not surprisingly, the majority of professionals quote small jobs on a fixed price bases.

Other things that have a major impact on costs are:

- preparation of unsuitable substrates,
- other works being carried out on the site,
- programme of operations,
- site logistics (ease of access and distance of site),
- overall size of job,
- terms of payment.

Other factors that may affect the final cost are related to aesthetics (the customer requires the "vitrification" or the incorporation of aggregates) or performance (non-slip surfaces or ones resistant to particularly aggressive agents).

Finally, cost range is influenced by the specific resin or microcements system chosen.

The difference in cost can be summarized as follows:

- embedded systems (impregnation, consolidation) have a minimal cost, up to £5/sqm,
- film systems come in around £30/sqm,
- multilayer systems reach £50-70 /sqm,
- self leveling systems cost around £80/sqm,
- cement based systems range from £80 to £200 sqm.

It is RESINLAB's main task, to design a resin or microcement system that meets the customer's expectations and that it is suitable to the site.



## Strengths of a seamless resin and microcement floor

**Seamless surface:** Resins or microcements floors result in seamless surfaces without joints which would otherwise limit the uniformity of the surface.

**Durability and resistance:** Resins and microcements are highly durable, seamless surfaces resistant to chemicals and to mechanical pressure.

**Reduced thickness:** Layers can be extremely thin, down to a minimum of 3mm. Resins and microcements can be laid over existing surfaces saving the expenses of removing the existing floors and this has the added benefit of no extra costs for the disposal of the arisings. Resin floors are compatible with existing or new underfloor heating systems.

**Unique design options:** Using resins brings a new and extraordinary potential for design allowing both expression and versatility. The unlimited range of colours, the facility to produce varied textures and degrees of clarity create completely unique effects.

**Hygiene and low maintenance:** Resins and microcements surfaces are seamless and waterproof. Therefore they cannot harbour bacteria and are easy to clean which makes them perfect for food preparation areas, healthcare facilities and for use in chemical/pharmaceutical laboratories. The majority of epoxy resins are non-toxic and free of harmful emissions (responding to requirements of law in case of contact with food).

**Easy to renovate:** A resin or microcement surface can be returned to its original state without having to re apply the full process. The application of new layers also allows one to easily change the style and final effect.

## To know about a resin floor

**Aging:** A resin floor needs to be viewed a normal floor, such as wood and stone, with the great advantage of it being completely water resistant and aesthetically unique. As great as resin floor can be, it is nevertheless subject to wear, more or less evident depending on the use made of it.

Aging generated from scratches, abrasions, accidentally dropped objects is within a normal life cycle of any material. Self leveling and clear gloss surfaces are more subject to wear, while a spatulated matte floor hides aging more easily. In area subject to heavy pedestrian traffic adequate filters are recommended, in order to minimize the risk of scratches and dulling.

In the commercial sector the original appearance can only be preserved with a simple aftercare.

**Unsuitable substrate:** Cracks and crazing can be caused by movement of the substrate unless the resin used is of poor quality.

**Yellowing:** Epoxy resins have a limited resistance to UV radiation, which cause their premature yellowing. RESINLAB offers a range of innovative products which are not subject to this phenomenon. Polyurethane, cement and acrylic resins do not suffer from discolouration.

Bespoke results are related to how resins and microcements systems are designed, prepared and applied.

RESINLAB selects as partners the leading manufacturers, formulators and suppliers so as to ensure the best performing systems and standards. We only work with highly qualified professionals and artists and we monitor quality, schedule and budget during the project.

RESINLAB is known and reputed to be professionally outstanding, a single reliable supplier and guarantor for the entire process, from selection and design to aftercare

 [www.resinlab.it](http://www.resinlab.it)