

GWILEN

MARINE RESOURCES FOR
SUSTAINABLE ARCHITECTURE

P R E S S K I T
2 0 2 5



TAKING ITS ROOTS BETWEEN LAND AND SEA

Yann grew up on the banks of Brittany's longest river: the Vilaine. In the 1970's, a dam was built on its estuary which, by slowing down the current, led to the gradual silting up of the area. It is now estimated that 100,000 cubic metres of sediment would have to be extracted each year to restore the river to its natural state.

As an architect and engineer, Yann saw this sediment as a potential resource for new building materials. He therefore developed an innovative process that transforms this material into an eco-friendly and sustainable alternative for one of the world's most polluting industries.

This is how GWILEN came to be, founded by Yann Santerre in 2019, named after the Breton name of the river by which he grew up.

SEDIMENTS

From harbour waste to renewable resource

Sedimentation is a natural process governed by a number of factors: the density of the liquid and its flow velocity, and the size and quantity of the particles in suspension within it.

Any external disturbance affecting one of these parameters can throw the system out of balance and cause excessive silting.

In the estuary of the Vilaine, it is the construction of the Arzal-Camoël dam that amplifies sediment deposits, but this is by no means an isolated case. In fact, every dam, lock, port or other infrastructure that alters the natural flow of a watercourse is affected by this problem.

Excessive silting leads to both economical and environmental consequences.

Heavy sediment accumulation reduces draught, hinders boat traffic and disrupts waterway activities.

Silting also threatens ecosystems, as silt stifles biodiversity and facilitates the development of invasive species.

It is therefore necessary to carry out dredging operations in order to remove any excess material. The sediments collected are then either dumped back into the sea or brought ashore and stored in landfills until a more suitable processing technique is developed.

To date, there is no established treatment method for this type of harbour waste.

Today, 60% of the world's population lives less than 60 km from a coastline. By 2045, 75% of the world's population will live in this coastal strip.

GWILEN's objective is to turn this waste into a renewable resource by proposing a locally-deployable repurposing pathway that is part of a circular economy initiative.



THE CONSTRUCTION INDUSTRY

Environmental challenges and decarbonisation

The construction industry is one of the most polluting industries. Globally, it is responsible for 23% of air pollution, accounts for 41% of energy consumption and 40% of raw material consumption.

Concrete is the most widely used material on Earth after water, but it is also the most environmentally damaging. Producing 1 metric tonne of cement requires firing at 1,450°C and emits 900 kg of CO₂. Producing 1 tonne of bricks requires firing at 1,150°C and emits 300 kg of CO₂.

There is now a need to find new building materials that are suitable for industrial production and capable

of meeting the growing demand caused by the increase in the world's population, while having a reduced environmental impact.

Recycling dredged sediments means using a renewable raw material while limiting the exploitation of finite resources extracted from quarries.

Furthermore, the eco-friendly nature of the GWILEN material also extends to its manufacturing process. Energy-efficient, low-emission and easy to implement, everything is designed to minimise its environmental impact for sustainable, reliable products suitable for industrial-scale production.



AN INNOVATIVE PROCESS

Inspired by Nature, developed by GWILEN

Sediments are a blend of clay, sand, salt, shell fragments, and algae residue. These 5 elements are represented in varying proportions depending on the geographic area where the raw material is sourced. The material is collected through dredging campaigns conducted throughout Brittany and then processed at our workshop in Brest.

To transform it, we have developed a process inspired by diagenesis. This term refers to the natural process of sediment solidification into sedimentary rock. By directly altering the structure of the clay contained in the sediments, we are able to reproduce in a matter of hours what nature takes millions of years to achieve.

This technique is carried out without heat and does not require the addition of resin or cement.

The material can be shaped in the same manner as concrete, offering endless possibilities for moulding. It can be poured, cast, mass tinted to achieve a homogeneous colour or patterns, or even machine-cut after curing.

The material obtained at the end of these operations has mechanical and thermal properties equivalent to those of terracotta. Its unique texture varies between concrete, stone and ceramic, depending on the surface treatments and finishes applied. Over time, it also acquires its own distinctive patina.

Furthermore, its low-carbon, low-energy manufacturing method emits 12 times less CO₂ than concrete and 4 times less CO₂ than terracotta.

GWILEN is a 100% natural, 100% mineral material, free from petrochemical by-products and volatile organic compounds (VOCs). These qualities make it a healthy, sustainable and versatile material that can be used for wall coverings, floor tiles and the production of household objects and furniture.

OUR PRODUCTS

A collection of wall and floor tiles for your interior

Our range of tiles is divided into two lines according to their use. Wall tiles and floor tiles differ in their surface treatment, which grants them the specific properties required for their respective applications.

Our wall tiles with their smooth and uniform surface allow the pigments to shine through, creating a subtle play of hues. Our 10 colours are available in both intense and pastel versions. Their water-repellent finish makes them highly resistant to moisture and stains, making them ideal for use in both kitchens and bathrooms.

Our floor tiles are characterised by their sanded finish, which reveals the distinctive granulometry of the sediments they are made from. The 10 colours available are softened to emphasize the grainy texture. A 100% mineral protective treatment increases the hardness of the material and helps prevent scratches, making it more resistant to the wear and tear of everyday use than traditional terracotta tiles.





OUR COLOUR CHART

*10 wall colours in intense shade
 10 wall colours in pastel shade
 10 floor colours with unique grain*

*1 natural colour
 for each use*

The natural colour of our material is a brownish-grey. Derived from a natural resource, its colours may vary, highlighting the diversity of the sediment compositions we are working with.

Our colour chart is the result of a selection process to identify pigments that are compatible with our material. We only use natural pigments, metal oxides or minerals, in order to offer you colours of exceptional quality and durability.

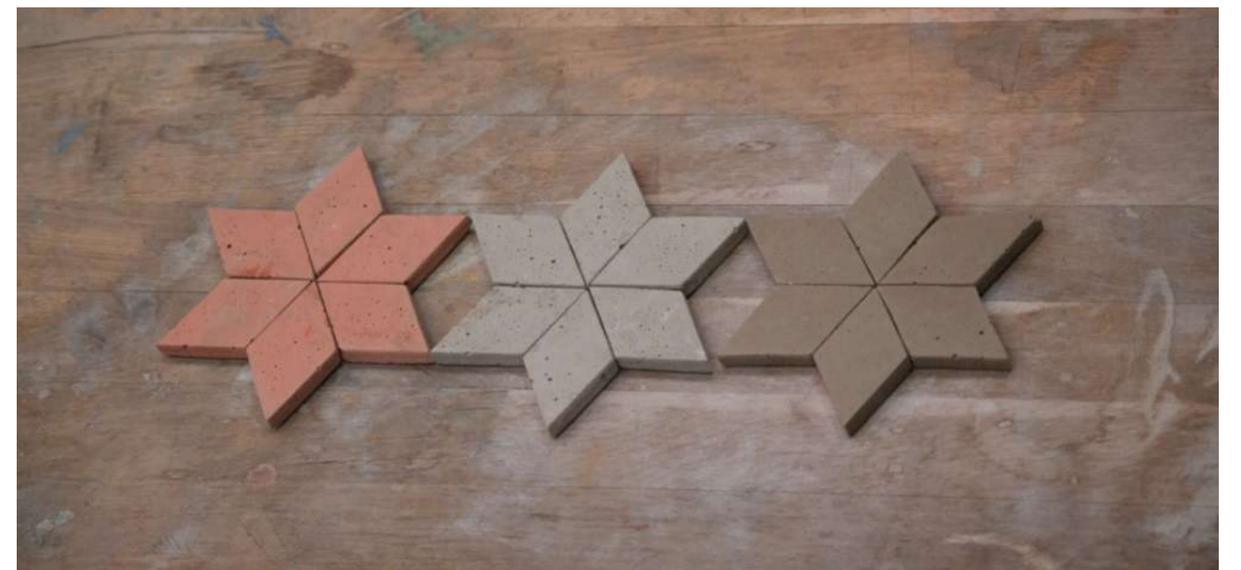
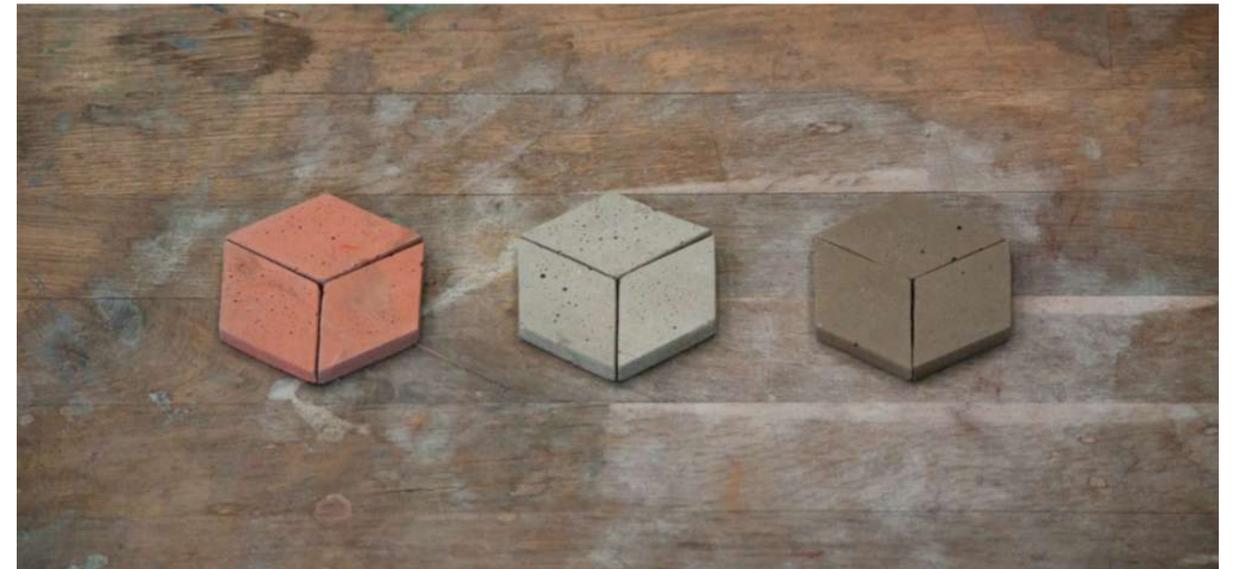
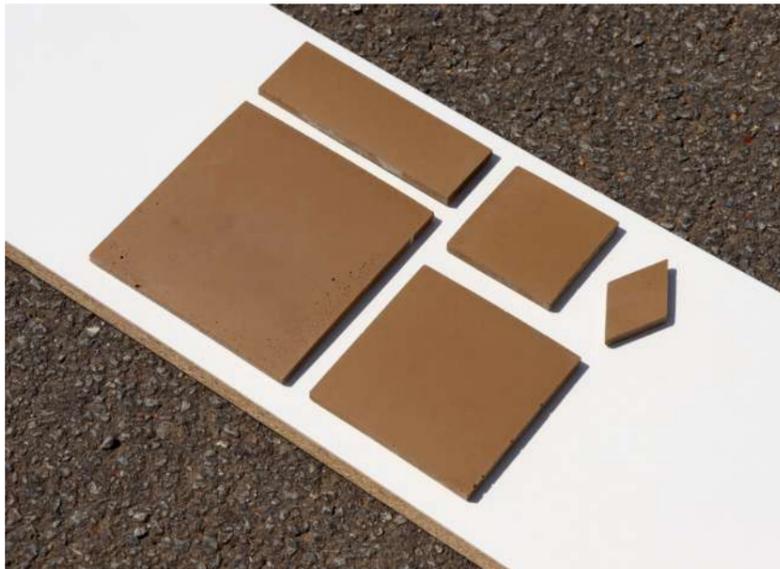
SHAPES AND SIZES

6 options, endless combinations

Our wall tiles are 1 cm thick and are available in 5 sizes.

Three square shaped options in various dimensions : 8 cm x 8 cm, 12 cm x 12 cm and 16 cm x 16 cm, a rectangular tile measuring 4 cm x 16 cm that can be combined with the previous formats, and a diamond shaped product measuring 4.4 cm x 7.6 cm that can be assembled to generate various patterns.

The floor tiles are available in a single size: a 16 cm x 16 cm terracotta tile with a thickness of 2 cm.





Installation is carried out in the same way as for conventional tiles and does not require any special equipment or techniques.

Once installed, GWILEN tiles can be tended to using a damp cloth. The use of overly acidic or alkaline products such as bleach is not recommended. Instead, use black soap to clean stained surfaces and apply linseed oil to nurture terracotta tiles.

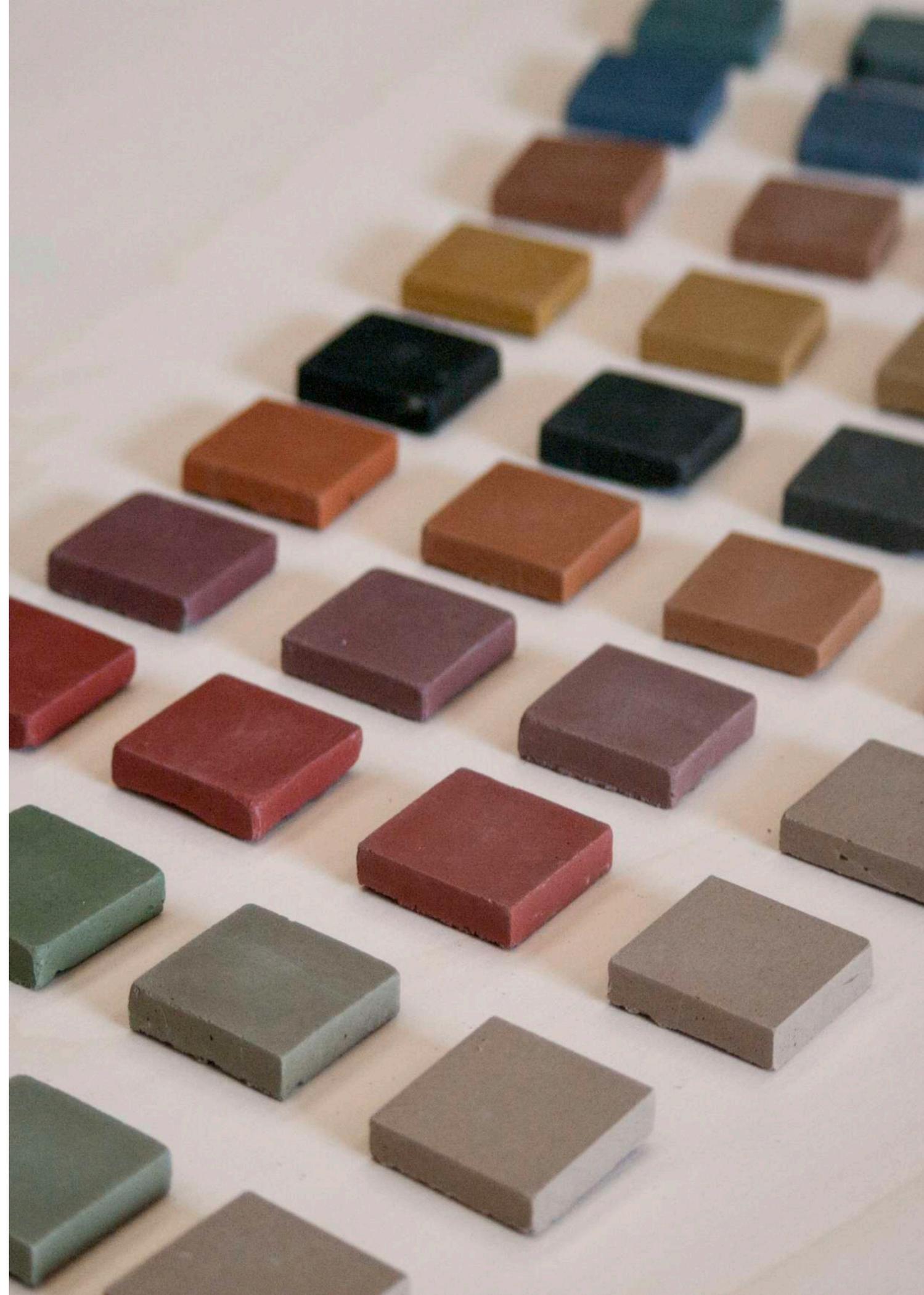
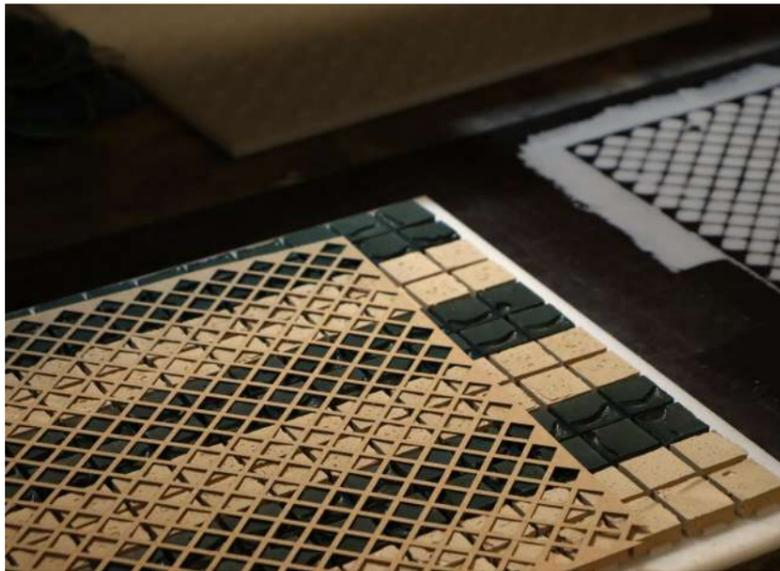
Although our tiles are currently intended for indoor use, we are working on developing solutions suitable for outdoor use.

LATEST DEVELOPMENTS

GWILEN comes in mosaics

A new format is being added to the wall tile range in 2025! These 2 cm x 2 cm tiles are 8 mm thick and are assembled on 30 cm x 30 cm cardboard grids (12 x 12 tiles per grid) for easy installation.

These mosaic panels are available in all the colours of our wall tile collection.



OUR OTHER OPERATIONS

Subcontracting and custom-made

GWILEN also conducts furniture and product developments on a subcontract basis for design editors. We can adapt an existing design by substituting stone or concrete with our material. We are also able to design a product from its initial sketch to mass production, as we have done, for instance, for the three-set of side tables distributed by the French editor Ralph M.



Occasionally, we can design custom pieces for projects that really reflect our values or that allow us to test the limits of our material by experimenting with new techniques.

The kitchen splashback we created for MORNING COWORKING was an opportunity to work together on developing new colours and a new casting technique to generate patterns. The four custom-made panels, with a total length of over 2.5 metres and a height of 30 cm, allowed us to demonstrate the material's suitability for larger formats.



OUR TEAM

Working to bring you the best products



The team brings together three founding partners: Yann (left), Mathieu (centre), and Delphine (right).

Yann and Mathieu are both architects and civil engineers. They met while studying architecture, with Mathieu coming from Polytechnique and Yann pursuing his studies at Ponts et Chaussées. With this dual expertise, they started GWILEN to tackle the huge environmental impact of the construction industry. Delphine, who graduated from Audencia Nantes and spent 10 years in business consulting at Accenture, completes the trio, handling the commercial and financial aspects of the company.

The team is completed by Guillemette and Luana, supported by Eléa, in the R&D department, who formulate, test and try out our material to ensure that it is ever more efficient while remaining environmentally friendly. Once formulated, the material goes to the design desk with Inès, in charge of product development, who shapes the material by conceiving the moulds and prototypes. Finally, Gwenvaël, the workshop supervisor, assisted by Keran, manages the ramp-up to production and ensures the smooth running of the workshop, the schedules and the production teams composed of Nathan, Maryline and Steven.

OUR SUPPORTERS

Trusting and guiding GWILEN

GWILEN has won several awards in innovation contests and has received financial support from several partners.

The project has been under the guidance of Technopole Brest Iroise since its inception and is part of ENSTA Bretagne's incubator: ENSTARTUP. Since the end of 2019, GWILEN has also been incubated within Matériaupôle, which specialises in the construction sector. In early 2020, GWILEN had the opportunity to join CSTB'lab, the incubator of the Scientific and Technical Centre for Building, which assists us with regulatory aspects.

GWILEN has been supported by the Emergys programme of Région Bretagne. At the end of 2020, the project was also supported by Brest Métropole as part of the call for projects "Réussir les transitions dans l'économie" (Successful transitions in the economy) and by the Région Bretagne for the establishment of our

pilot plant in Brest. In early 2021, we won the La Fabrique Aviva competition for entrepreneurship and societal impact, as well as the European Metabuilding call for projects on the future of construction. We were also laureates in the real estate and construction category of CleanTech Open France and the Med'Innovant contest organised by Euroméditerranée.

More recently, we were selected for ADEME's ORMAT call-for-projects and received support from Region Bretagne and BPI for an initial phase of R&D to develop new low-carbon products, building on our previous work.

We completed our first round of fundraising in early 2025. These funds will allow us to continue our R&D activities, expand our team and optimise our production facilities with new equipment for increased production capacity and more sediment recovery!

GUIDANCE



SUPPORTS

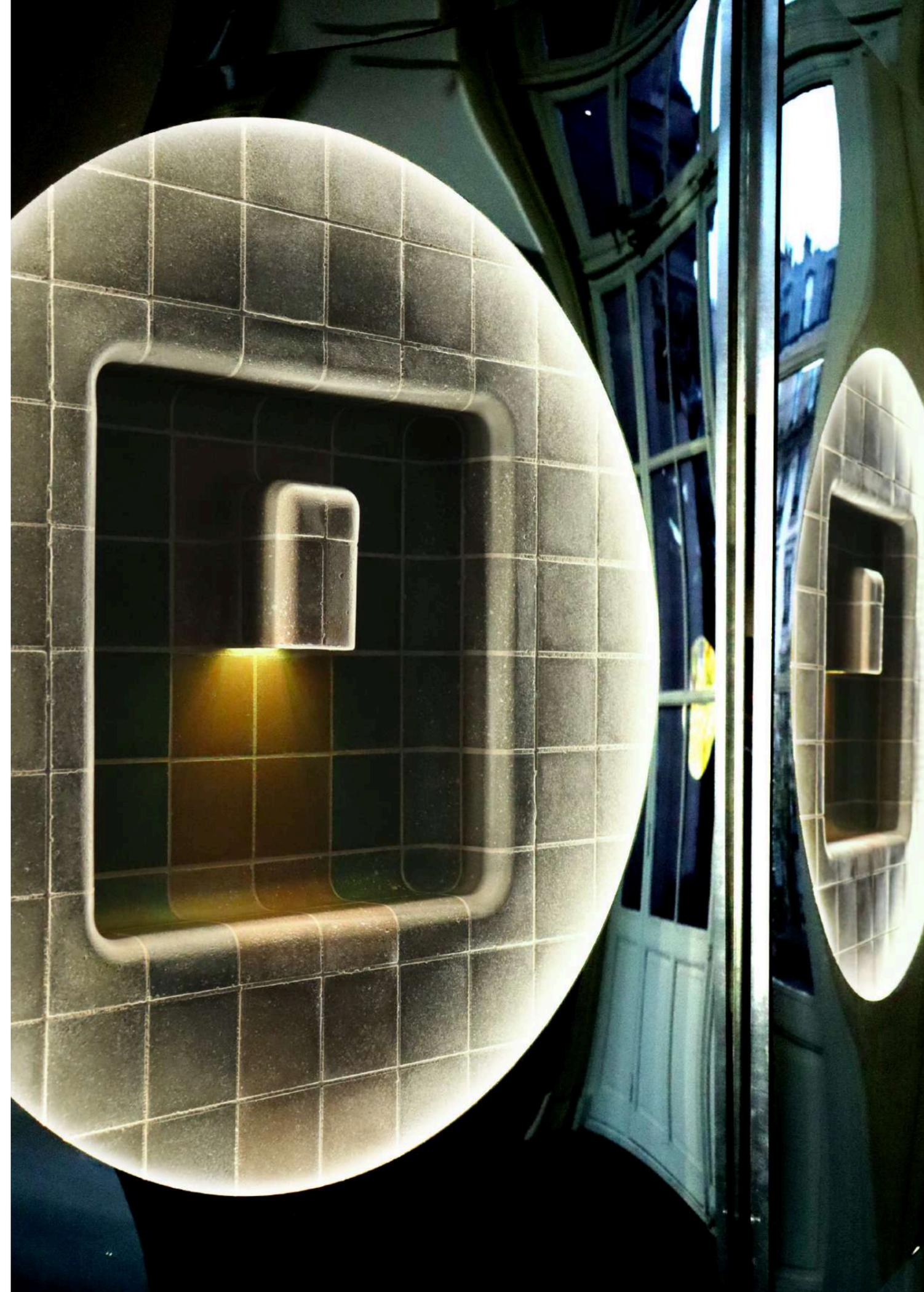


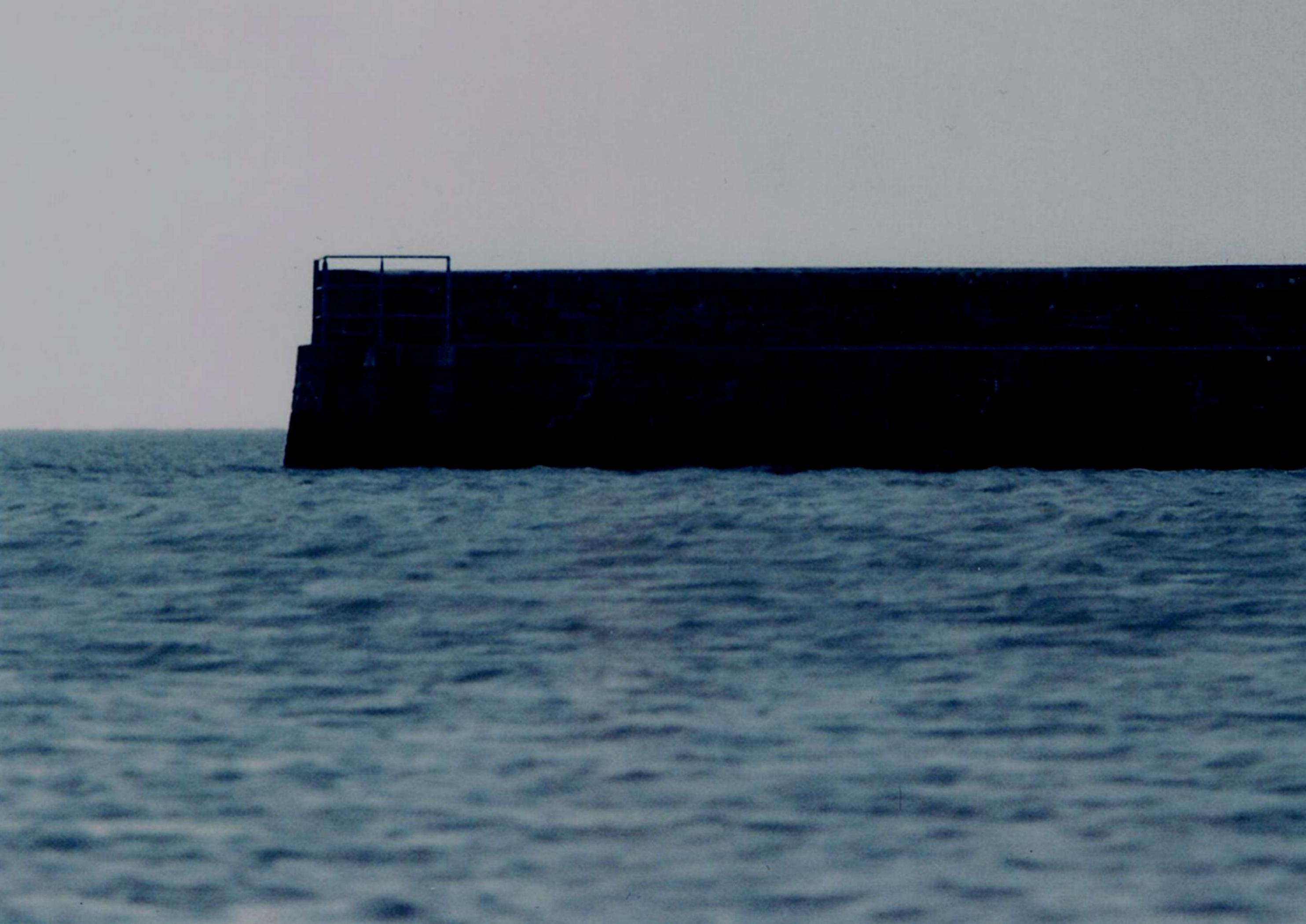
NEWS

The latest updates and where to find us

After winning the Startup Award at the Monaco 'Smart & Sustainable Marina Rendez-Vous Awards' at the end of September, Gwilen has now received the Formae Award in the 'Manufacture' category. This prize was presented to us at the 'Les Rendez-Vous de la Matière' trade fair, held on 9 and 10 October in Paris, where we were able to showcase our latest developments in sedimentary marquetry as well as exclusive tile layouts.

A collection of curved tiles is also on display from 14 October to 2 November at the Galerie des Gobelins in Paris during the "Salon des Nouveaux Ensembliers". The piece, exhibited at the invitation of the Laboratoire des Pratiques Durables, marks the beginning of a promising partnership with the Mobilier National, which will be one to watch in the coming months.





CONTACT

contact@gwilen.com
+33 6 65 49 46 24
www.gwilen.com