

THE DESIGN SOURCEBOOK VOLUME 2 2018 PHP250

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MATERIAL MATTERS

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French multidisciplinary workshop Métalobil swirls rattan into freeform solutions



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French company Métalobil are pioneers in the non-traditional use of rattan. This staircase at the School of Arts in Saint Herblain, France by Tetrarc is given a vibrant shell of natural and multi-colored stalks, enlivening the all-white entrance hall. Image from SChalmeau.

INTERIOR DESIGN

Cane Enabled

Technology and innovation entwine to elevate the design profile of an age-old material

Written by Nick Ramos Images courtesy of Métalobil, SChalmeau, Guillaume-Satre and Charly Broyez



The challenge posed by creating a complex piece of furniture for *Le Lieu unique* music listening salon in Nantes, France, led to Métalobil's initial investigation into rattan. As the form stretches, banks, and arches, it morphs from bench to recliner to electronics compartment. Image from Métalobil.

Rattan is a natural resource abundant in areas predominated by rainforests such as Africa, Asia and Australasia. It's a material about as old as humanity itself. Examples go as far back as the Ancient Egyptians who plaited its fibers into baskets as well as cushions for various seating. Throughout history, it has been used extensively worldwide yet its technology hasn't evolved much beyond the role to which tradition has relegated it. Why isn't it enjoying wider use in conjunction with current preoccupations in design?

A French company has been exploring new possibilities for this rather overlooked material for new applications in architecture, interiors, industrial design, and scenography. Métalobil is a design engineering firm established in Nantes, France in 2004. The company specializes in the fabrication of unique objects in the field of environmental design: architectural installations, poetical machines, furniture, interiors, signage systems, etc. Known for their imaginative, tongue-in-cheek approach to design, it is this very playfulness that has fuelled the development of the company's expertise and technical prowess in a wide range of materials. Backed by a research department and a full production workshop, Métalobil is able to control the entire production process, thus optimizing the end results.

Mother necessity

In 2004, a unique design for a large lounging bench for an audio video salon launched a search for specialist craftspeople who could execute the sinuous, muscular furniture. The hunt proved fruitless and Métalobil was compelled to build it themselves. After extensive research and experimentation, the idea of reinvesting in rattan was born and led to its use on the ad hoc appointment. This is furniture that imposes or recognizes no prescribed way of use and is defined depending on how the users position themselves upon it. The material and construction method allowed for the conservation of the number of rattan threads despite the piece's complex undulations.



The underside of the School of Arts staircase seems to spin with imbedded streaks of color. Image from SChalmeau.



The entrance hall for the Manny Building in Nantes by French architects, Tétrarc is clad in rippling horizontal strands, encouraging both movement and touch. **Below:** Métalobil created numerous rattan benches for *Centre Commercial Beaulieu* in Nantes, one of the biggest commercial centers in France. The material allowed the design to align with the horticultural theme of architecture. Images from Métalobil.

Since then, Métalobil have then been pushing the possibilities for rattan and continues to develop proprietary techniques for treating, shaping, supporting, and installing the types that they use. (There are two: the rugged brown Malacca; and rattan which has been peeled to reveal its blond core. Each requires specific handling but both are routinely fireproofed by the French company, Woodenha prior to use.) “It’s a perfect material to realize organic and complex forms,” declares Métalobil business developer, Lola Niccolai. “With rattan,” she continues, “we enable architects, artists, and designers to appropriate forms that are freed from double-curvature constraints. They are free to create from infinite possibilities of layouts and furniture.”

Métalobil uses software such as Rhinoceros 3D and Grasshopper to design their specialty pieces and to maximize efficiency in production and use of material. Projects that presently range from individual pieces to large-scale architectural installations are lavished with the same attention throughout the production process. While most firms outsource building expertise to design consulting companies, thus losing the thread of the process, Métalobil can integrate the entire process of design from conception, through the necessary technical research, through manufacture, and to installation on site.

Poetic pursuits

The success of their initial foray into rattan emboldened the company to move into exploring further possibilities with the material. They managed to find their stride with commissions for public seating and signage totems such as those for the *Centre Commercial Beaulieu* in Nantes. Soon after, Métalobil began to focus on larger spatial interventions such as aesthetic enhancements

for entry vestibules and staircases for various establishments. Due to its flexibility and lightness, rattan continued to prove an exceptional material for realizing organically sculptural forms. Furthermore, it provides an engaging and warm tactility in what could otherwise be cold, impersonal spaces. The entrance hall for the Manny Building in Nantes by French architects, Tétrarc is clad in rippling horizontal strands, encouraging both movement and touch. For a more involved project for Aquatonic spa, Metalobil designed the entire layout for the luxury recreational space within a building by Enet-Dolowy Architecture. The project further entailed the cladding of an entry hall, the upper portion of a central swimming pool column, and the outer surfaces of a hammam and sauna structure. Even though they have yet to find a means for fully waterproofing rattan, it performs very well in humid atmospheres



such as swimming pools and spas. For the reception area, Métalobil clad the ceiling and back wall with rattan waves that, in conjunction with the machined, geometric KRION® surfaces of the front desk and remaining walls, evoke the anticipation of embarking on an ocean cruise.

For the last 15 years, Métalobil has made its expertise available to architects, designers, and artists to help realize even the most complex of schemes. They are often approached with ideas that are more poetic than technical and they work with the client to materialize these concepts. Rattan has frequently proven to be the right material for certain jobs, though one not often considered by clients at the onset. Architect Joseph Grappin approached Métalobil for a project to transform an existing staircase at the Mercure Hotel, Toulouse. Equipped with a 3D model and a brief that called for organic stairs that play with transparency, and a balustrade that transforms into seating at the base, Métalobil were confident that they could realize this idea with rattan.

The old steps were polished and varnished. Two balustrade bolsters were designed for either side of the stairs that will give the flight its new overall form. Each bolster is made from a series of CNC-cut plywood profiles, onto which fireproofed, shaped, and varnished 20mm diameter rattan stalks are attached. As it ramps down, the left balustrade banks around to form a banquette that leads to another, shaped like a comma. “When clients approach us with a project, they don’t necessarily have rattan in mind,” explains Niccolai. “They often want to work again with this material after they first try it with us. When the projects are our own creation, we know from the very beginning when rattan is the right answer.”



At the lobby for Spa Aquatonic in Nantes, the ceiling and back wall are lined with a billowy sail of rattan. The impression created by the gentle waves against the machined, geometric Krion™ surfaces combine to evoke the welcome mood of an ocean cruise. **Below:** In the Aquatonic pool area, upper portions of the hammam and sauna exteriors as well as the central swimming pool column are wrapped in blonde rattan core, providing warmth and contrast in the aquatic environment. Rattan’s affinity with the element it adeptly mimics is undeniable. Images from Guillaume-Satre.





The ability of rattan to absorb sound vibrations makes it a perfect material for the harps room at the School of Arts in Saint Herblain, France, by Tetrarc. The distinction between architecture and furniture is once again blurred in a whirlwind of a space in which walls bulge into seating. **Below:** Circulation and seating as cascade and flash-flood: side pieces were added to the existing stairs at the Mercure Hotel by Joseph Grappin to create an installation that is at once functional, organic, and transparent. A stair balustrades whips back to morph into two separate seating areas. The transparency afforded by the material keeps the assemblage feeling light despite the flamboyant gesture.

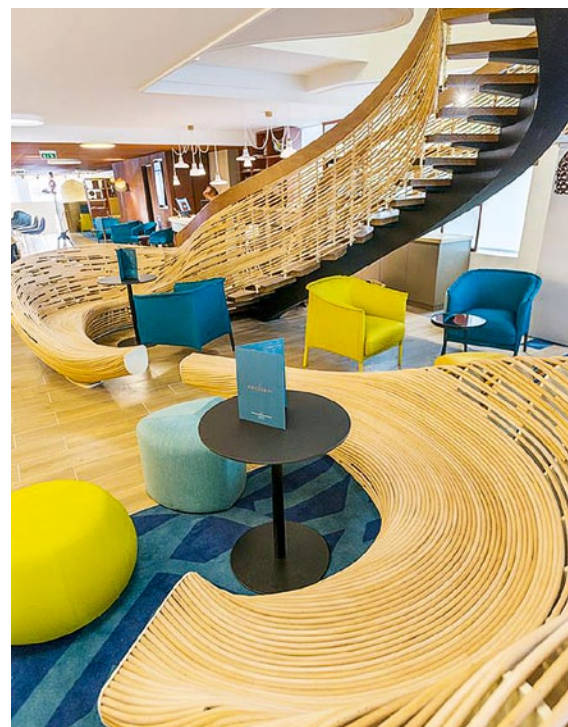
With Métalobil continuing to explore ways to use rattan, from making it fully waterproof for exterior utility to examining potentials for structural applications, it seems only a matter of time until even more new breakthroughs for this material will be made.

New tricks

While Métalobil was tasked with cladding a staircase in a multi-colored rattan swirl for The School of Arts in Saint Herblain, France by Tetrarc, a commission elsewhere in the building for the design and construction of a harp room allowed for the non-traditional use of rattan to be legitimized by another inherent quality. Rattan has a high Noise Reduction Coefficient (NRC), which makes it ideal for acoustic applications as it readily absorbs sound. To maximize its effectivity, the rattan can be assembled with other materials to provide complete sound isolation and absorption. The end result is a spinning, hive-like construction that both defines an area for a specific function and provides optimum auditory conditions for a music rehearsal space.

All together now

All of Métalobil's experiences with rattan to date recently culminated in a project for an acoustic ceiling of an auditorium at the Congress Center of The Haute Saintonge in the southern French town of Jonzac. In order to fully realize the design intent, original sketches from architects, Tetrarc were adapted in consideration of the various constraints imposed by materials, construction systems, construction site, stakeholders, mechanical sizing, scenography demands, technical paths, networks, etc. The total acoustic ceiling surface area of 790 sqm was modeled digitally using Rhinoceros and Grasshopper. The construction is composed of seven overarching shell segments, each divided into

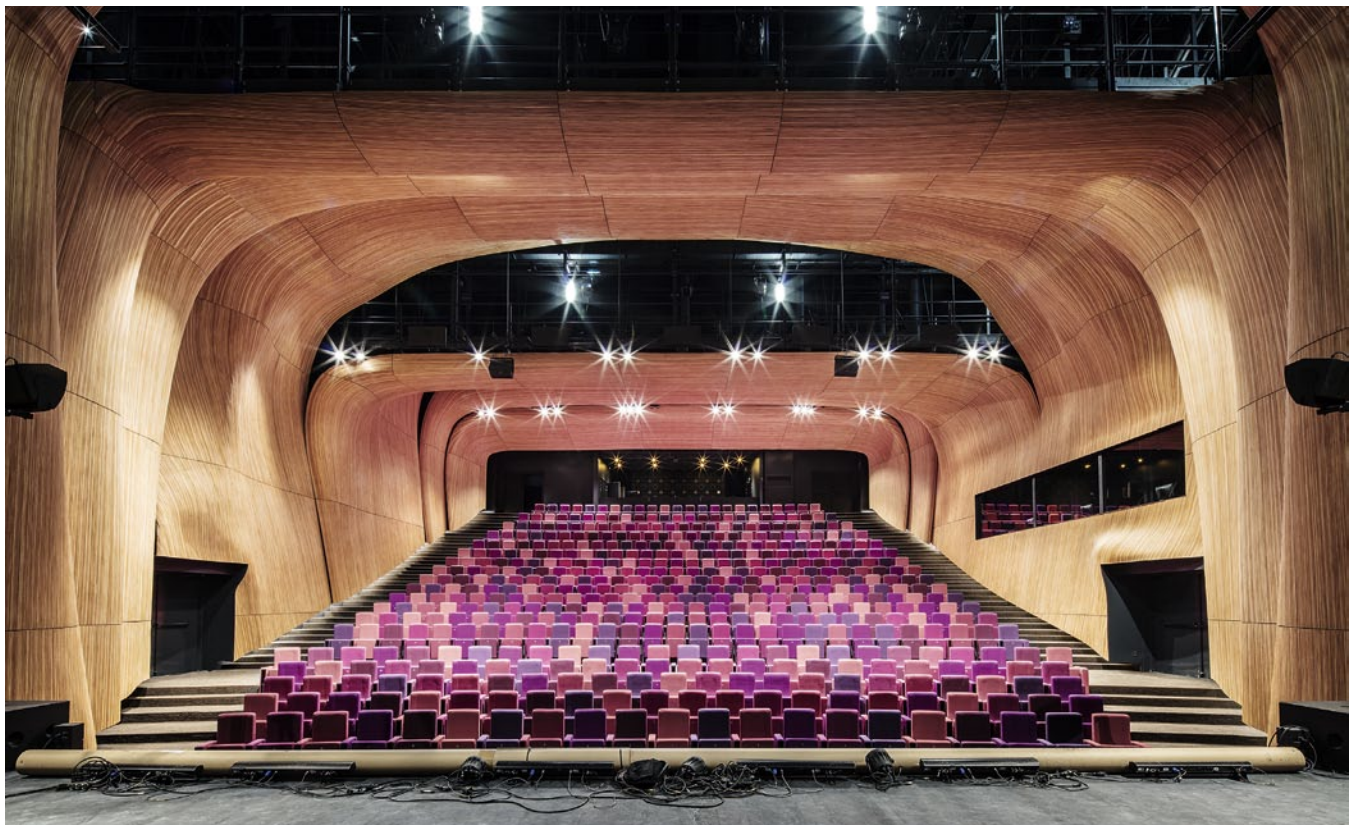


sections following the common joints plans. Each of the resultant 235 sections is made of a fireproof plywood framework. The entire construction represents 3,500 unique elements onto which 26,000 fireproof rattan pieces are fixed. While utilizing what is essentially the same design system invented by Métalobil for its first rattan project, it has been upgraded somewhat in order to ensure the utmost control over the rattan stalks schedule.

Moreover, since the theater was designed to house performances unaided by electric amplification, the acoustic rattan shell is lined with an outer jacket of plaster to optimize acoustic conditions. (The plaster backing also contributes to further fire resistance.) Once the design was finalized, the various components of the layout were fabricated and assembled in sections at their workshop. These sections were then delivered and installed on the interior walls and ceiling of the new auditorium. This project represents one year of specialized studies, laboratory tests, prototypes, and eight months of production and installation—a testimony of its large scale and complexity. With Métalobil continuing to explore ways to use rattan, from making it fully waterproof for exterior utility to examining potentials for structural applications, it seems only a matter of time until even more new breakthroughs for this material will be made.

Given the present enthusiasm for parametric form and space, it is as difficult to imagine why this versatile, robust, and flexible material hasn't been employed more widely. The only disadvantage to using rattan from Métalobil's point of view is the high

importation cost into France from its tropical sources. (Though the long man-hours it takes to install each stick could be seen as a close second.) Many of these sources are in developing countries with economic development requirements which rely on rattan exports in the form of crafts and wicker furniture as part of their economic strategies. If the value and potential of this material can similarly be recognized in these places as in France, innovation and technology such as those spearheaded by Métalobil can expand the use of rattan in order to increase demand for both the raw material and its products, and thereby help boost economic development. ■



The ability of rattan to muffle noise finds an elegant expression at the auditorium for the Congress Center of the Haute Saintonge by Tetrarc at the town of Jonzac, in southern France. The interior of the auditorium house is lined with a shell of rattan arches designed to optimize the acoustics for non-electronically amplified performances. It represents a culmination of Métalobil's experience with rattan to date in terms of advancement and scale. Photographed by Charly Broyez. **Top:** 3-D rendering of the auditorium interior for the covention center in Jonzac. Image courtesy of Tetrarc

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