

NYON FOOTBRIDGES COMPETITION A TWIN EXPERIENCE

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Summary

In 2018 the city of Nyon (Switzerland) launched a two-stage design competition for a couple of elevated walkways to improve soft mobility (“mobilité douce”) to and from the city’s train station. The walkways were to be built on steep embankments along railways. The city asked that teams requesting for participation include (in that order) a lead engineer, an artist, an architect and a landscape architect. The requirement for an artist was part of a local policy to enhance public realm projects. The process that ensued pushed the boundaries of interdisciplinary collaboration and explored a renewed approach to user’s experience on a footbridge. The design was submitted under the name “Gradian” and went on to win the competition in the spring of 2019.

Keywords: design competition; visual artist; disruption; modularity; minimalism; perception; genius loci.

1. Introduction

In 2018 the city of Nyon (Switzerland) launched a two-stage design competition for two elevated walkways to improve soft mobility (“mobilité douce”) to and from the train station. The walkways were to be built on steep embankments along railways. They would allow cyclists and pedestrians to travel through the city center in a safe and direct manner.

The city asked that teams requesting for participation include (in that order) a lead engineer, an artist, an architect and a landscape architect.

The requirement for an artist was part of a local policy to enhance public realm projects. The presence of an artist from the beginning of a building project is seldom required. There are even fewer examples with a bridge project because of the obvious technical constraints and the close relationship between the architectural shape and the structural form. The intervention of artist is often limited to installing a predefined piece or working on small details. During the Nyon competition, the artist disrupted the usual design process. He pushed the boundaries of interdisciplinary collaboration and aimed for a renewed approach to user’s experience on a footbridge.

1.1 The site

The city of Nyon sits on shallow slopes along lake Léman, approximately halfway between Geneva and Lausanne. The city’s geography is structured by 3 main axes running parallel to the lake: the lakeside road, the railway line, and the more recent highway further up on the hills. The city centre is also framed by two rivers and green corridor which flow straight into the lake.



Fig. 1. Geography of Nyon with the two competition sectors

The competition site is split in two sectors, each one of them measuring approximately 600m long. On the south side on the station, sector Bois-Bougy is a dense and sunken wooded area where the main purpose of the new walkway is to make the area accessible for cyclists and disabled people. On the north side of the station, sector Nyon-Prangins is a more urban site combining residential and office buildings. The main purpose of the new walkway is to make the crossing of a busy road easier (route de l'Etraz). Both sectors include very steep railway embankments and a complex topography.



Fig. 2. Aerial views of sectors Bois-Bougy (left) and Nyon-Prangins (right)

1.2 The design team

Explorations Architecture contacted the Paris office of structural engineers Bollinger+Grohmann with whom they have collaborated for many years on innovative buildings and infrastructures in France and abroad. Considering the brief requirements and preliminary site analysis, they decided to team up with landscape architect Ana Marti Baron who is very experienced at the regeneration of ecologically sensitive sites.

They decided to contact renowned contemporary artist Xavier Veilhan because of his strong interest in architectural forms and landscape interventions, besides his renown art pieces with faceted human figures. He agreed to join on the condition that his contribution be fully embedded within the design intent and not a supplementary component like traditional sculpture. He asked to attend all design workshops from the onset and intervene on all aspects of the project.



Fig. 3. Xavier Veilhan « Carosse » sculpture at the Château de Versailles (2009)

2. The designer's experience: a Gesamtkunstwerk process

For over twenty years now, footbridges have come out of the realm of pure engineering to become the focus of successful joint ventures between architects and engineers working to bring together technology, architecture, and visionary urban thinking.

Perhaps more than in any other European country, the engineering of bridges and roads in Switzerland has always meant a specific engagement with the pristine quality of the landscape. Even though the Nyon project sits in low density urban environment, the grander scale of the lake and surrounding mountains cannot be ignored. Though his own photographs, the books by Jürg Conzett explicitly demonstrate how his designs are informed by the quality of the Graubünden forests and valleys, extending a tradition that includes the Grubenmann family or Christian Menn more recently. All these famous bridge designers did not however include any artist in their work.

The team's approach to the Nyon project included from the start two disciplines which were called upon as equal to architecture and engineering. The art intervention is eventually "invisible" though it can be perceived in all the bridge components through modularity, repetition, and an innovative use of colour. The landscaping concept was not to add anything to the existing sites but to reveal their underlying patterns and ecosystems. In retrospect, the team's approach matched the 19th century concept of Gesamtkunstwerk ("total work of art") applied to a contemporary piece of infrastructure.

Introducing a new member into a stable and tightly knit community of infrastructure designers sharing the same basic philosophy of lightweight and meaningful structures always creates a certain degree of apprehension. It calls into question the past while projecting towards some unknown future. Unaccustomed to a design approach wavering between technological tools (structural modelling, form finding) and budget constraints, Xavier Veilhan initially kept to himself, almost as if he were just a curious and attentive onlooker trying to understand the "rules of the game". He barely drew anything but surely told his own experiences looking at bridges, admiring Robert Maillart and traveling in that Swiss region, especially on trains.

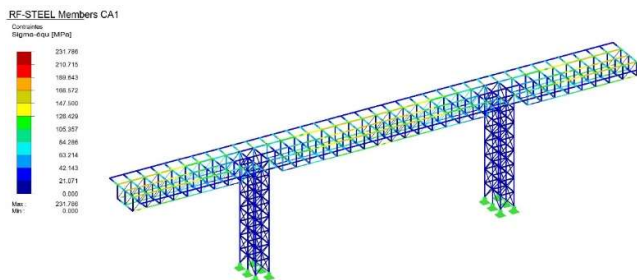


Fig. 4. Structural analysis of a 20m span by Bollinger+Grohmann

Because the budget was relatively low and the construction constraints complex, the team adopted a very pragmatic approach to engineering without preliminary architectural or artistic intent. This quickly meant resorting to a series of 20m spans minimizing both the size and weight of the structure, so that excavation

work destabilizing the railway embankments, or the existing forestry was reduced to an absolute minimum. The aim was not to create an iconic crossing with a dramatic structure but to simply raise “another” pathway above the existing topography. The architectural form was to be as simple as possible (no curve, no variation), every component was to be visible, nothing was to be clad. This approach was also considered in the long tradition of minimalist swiss builders such as Max Bill or Peter Zumthor.

This approach meant keeping all the existing on-grade pathways and making them integral with the project concept. The existing paths would be used for construction to erect the new footbridges, defining the size of tools and structural members to be transported on site. They would eventually become a new way to enjoy the forest floor and regenerated ecosystems underneath the new bridges.

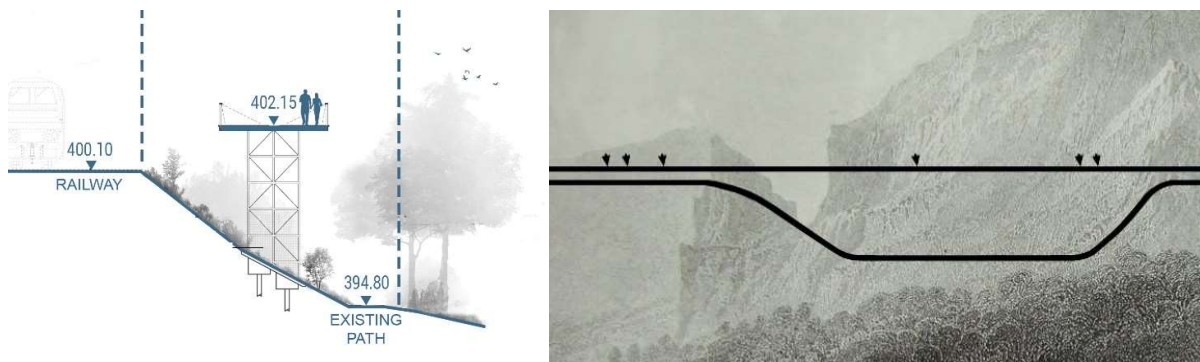


Fig. 5. Section (left) and concept montage of the existing/ new pathways above the landscape

As the engineers focused on the structural sizing of a straightforward timber girder solution, a collective feeling emerged that the bridge should look “temporary and frail” in order to instil an increased sense of lightness in the landscape. This counter-intuitive thought became the trademark of the design.

The discussion came about the timber scaffolding that Richard Coray built for the Salginatobel bridge to be erected in 1929 by Robert Maillart. The motto became: What if this temporary structure had been kept instead of the iconic concrete structure? What would be today’s experience of this magnificent alpine gorge?

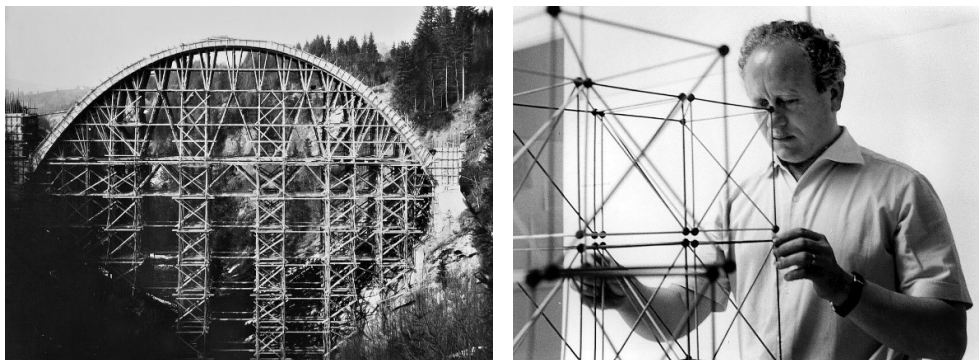


Fig. 6. Salginatobel construction scaffolding by Richard Coray (left) and Fritz Haller with a model (right)

The team therefore worked on the idea of a “permanent” scaffolding based on standardization and simple connection details. The scheme evolved from a traditional deck and pier arrangement to a reticular spatial system with structural continuity at the supports. The eventual structure is a kind of tribute to Fritz Haller, a swiss architect most famous as the designer of the minimalistic and timeless USM modular furniture system. This resulted in a lighter, slenderer, and diaphanous structure that almost seemed to vanish amidst the trees while offering the potential for modification and additional uses.

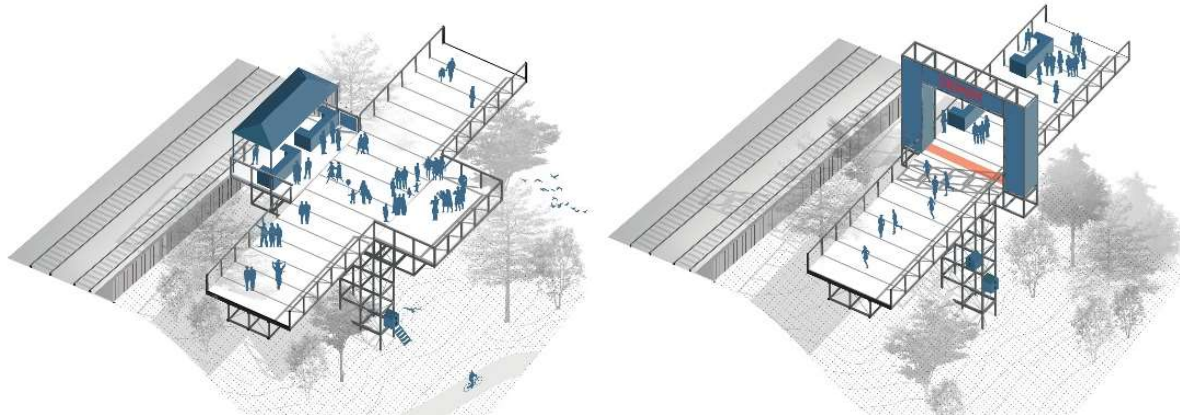


Fig. 6. Axonometric views of additional uses which could be developed on the bridge

The user's experience: color and speed



Fig. 7. View from below the Bois-Bougy walkway

As soon as the design process started, the team delved into future user's experience, not only for people walking or cycling on the footbridges but for all users getting close to them, i.e. people walking underneath or riding on trains along.

For each of the sites, the bridge length is close to 300m. Because of the topography and vegetation, the bridges can never be seen in their entirety from a single viewpoint as is often the case for iconic structures (think about London Tower bridge or the Golden Gate in San Francisco). Their perception will only exist in the user's mind who experiences their full length.

Like the designer's, the user's experience is informed by cultural references (visual arts, movies, travels) as well as the genius loci surrounding the bridges (lake, rivers, trees). It was at this point that Xavier Veilhan really came to the fore as he began to imagine colour variations as an artistic countertheme supported by the reticular structure. He devised a doppler concept where speed would influence the user's experience of the structure.

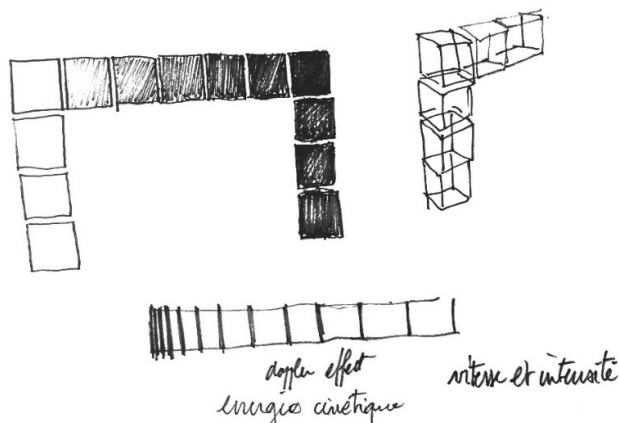


Fig. 8. Doppler concept sketch by Xavier Veilhan

Even though the bridges are carefully designed to minimize disruption on a sensitive site, the team never considered blending them in the landscape. As the structural design evolved to a reticular system, Xavier Veilhan linked the form to space exploration technology and singularly the NASA Apollo missions. He devised a colour scheme that initially included shades of blue changing from clear to dark sky blue along the walkway parapets. It evolved to a colour gradient which is extended along the entire length of both bridges.



Fig. 9. Concept model with its gradient of colours by Xavier Veilhan



Fig. 10. View of the Nyon-Prangins bridge against the lake background

This gradient, going from dark blue to white, is linked to the transition from the city centre (station) to the countryside. It is applied to the whole reticular structure: deck, piers, parapets. It creates nearly imperceptible variations in colour when one walks. It becomes much more distinctive with speed and acceleration, from a moving train for instance, creating a visual Doppler effect. The colour scheme also enhances the bridge response to the sky and weather conditions. At certain locations, the proximity of the lake makes for exceptional light conditions which will make the structure disappear or stand against its background.



Fig. 11. View from a train looking through one of the bridges

The abstraction of the Nyon design eventually reminds of the “Continuous Monument” project designed by Superstudio in the 1960’s. While this was a theoretical paper study, the square module of the Nyon footbridges brings together the small scale of industrial design (repetitive component) with a large scale appreciation of the landscape around lake Léman. It combines pragmatism and idealism to create a new pathway linking local neighbourhoods but also city and nature in a new paradigm.

3. Conclusion

The design was submitted under the name “Gradient” (with an a) and went on to win the competition in the spring of 2019. Pending political approvals, design development shall resume in the fall of 2020 with construction expected in 2022/23. The actual misspelling of the word gradient was after all meaningful to the team. It expressed both the project aesthetics, its functionality (“make the sites accessible”) and a certain sense of disruption within a culturally diverse team.

The competition requirement to include an artist within a “professional” design team created the conditions to develop a truly unique design whose technical and maintenance challenges (approximately 40 shades of colour will be used) only compare to its unique visual quality. The fully embedded artistic input shall drastically enhance the user’s experience of these fairly long structures while offering a very large piece of public art, comparable in size to the “land art” projects of the 1960’s. In France, where most of the design team is based, the mandatory collaboration between architects and selected artists for public buildings has been established for many decades under the name “1% artistique”, meaning 1% of the construction budget is allowed for a piece of art. It has very often proven successful for both disciplines, enhancing indoor and outdoor spaces. While the Nyon scheme benefits from an exceptional site and an enlightened client, this approach could be repeated in many locations in Europe if public sector clients took a more “off the beaten track” approach to infrastructure design. They should consider more thoroughly the democratic acceptance of such projects in the public realm. Nowadays, many artists work on collaborating with the population, implementing new ways to include and serve the communities. Their “expertise” and vision could be mobilized along architects’ and engineers’ to make more radical and sympathetic bridges.

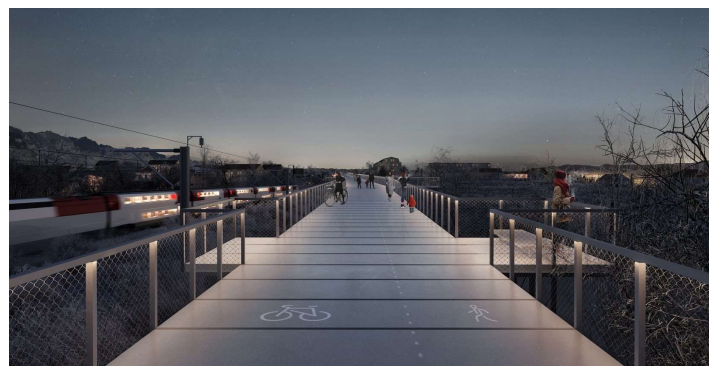


Fig.12. View from the Nyon-Prangins deck at night