

# Perfect balance

Concrete and wood were used to create rich acoustic environments in two Belgian venues

**D**espite having a rich cultural and musical scene, Wallonia, the French-speaking, southern-most region of Belgium, somewhat surprisingly didn't have any contemporary concert halls dedicated to classical music until recently. The most recently constructed concert hall was the 19<sup>th</sup>-century Salle Philharmonique in Liège, architecturally inspired by the shape of an Italian horseshoe theatre.

Driven by the strong vision of a number of ambitious musicians, and backed by political and financial support from the Fédération

Wallonie-Bruxelles, over the last decade two concert halls have been built in the Belgian cities of Mons and Namur, with the latter opening in 2021. In both cases, a protected, historic former army barracks has been transformed on an extremely tight budget.

Namur has long been the home of internationally reputed musical ensembles specialised in early and baroque music, including the Choeur de Chambre de Namur and the Millenium Orchestra directed by Leonardo García Alarcón. Having toured the world's most famous concert halls, their performances in their home city were typically



Over the years, Kahle Acoustics has collaborated with architects including Renzo Piano, Jean Nouvel, Rafael Viñoly, Paul Andreu, Rem Koolhaas, Eduardo Souto de Moura, David Chipperfield and Pekka Salminen



**Main:** The 800-seat Namur Concert Hall as seen from the balcony choir, with the acoustic banners in place

**Left:** A rehearsal with Leonardo García Alarcón at Namur Concert Hall, assisted by Kahle Acoustics acousticians, a few hours before the opening concert

**Inset:** Rotating and sliding acoustic panels on stage at Namur make it possible for the acoustic projection to be adjusted according to the orchestra's needs

## ACOUSTICS



confined to either churches – having a very reverberant but often muddled acoustic – or to the Théâtre de Namur with an acoustic much too dry for choral music.

### Rich but clear

Kahle Acoustics and the architects – Cabinet d'architectes pHD in collaboration with Architectes Associés – set out to design an entirely new 800-seat concert hall within the ancient walls of the 19<sup>th</sup>-century Grand Manège. The overall ambition was to create a novel acoustic inspired by the rich reverberation of churches while adding the high musical clarity of a good shoebox-type concert hall. To achieve the desired 2.7-second reverberation time, considered ideal for choral music, a volume of more than 10,000m<sup>3</sup> (353,147ft<sup>3</sup>) was required. This meant raising the ceiling significantly, leading to a new architectural volume with a contemporary white finish projecting above the historic walls.

By integrating acoustically optimised early-reflection surfaces into the architectural design, high musical clarity and an enveloping experience were ensured for all seats. In addition to the acoustically projecting wooden canopy panels above the stage and audience, a balcony was added, wrapping around all four sides of the concert hall and creating a dedicated choir balcony behind the orchestra. The concrete balcony fronts were cast with acoustically optimised shaping and texture to provide efficient yet slightly diffused reflections to both the *parterre* and the rear balcony seats.

**Above:** The Arsonic concert hall with the audience on three sides of the stage

**Below:** The Arsonic project involved embedding a contemporary, small concert hall within and adjacent to a 19<sup>th</sup>-century military building

while retaining warmth in the early reflections from the open-pored wooden surfaces.

To adapt the acoustics to different music genres – ranging from symphony orchestras to chamber music and even jazz and world music – large quantities of acoustic curtains and motorised banners were provided on the walls, as well as movable panels on the sidewalls of the stage. These can slide in and out to change the acoustic width of the stage, as well as rotate around their axis to change the acoustic projection angle.

### Chapel of silence

Some years earlier, in 2015, the Arsonic project opened its doors in Mons. Designed by Holoffe & Vermeersch Architects, theatre consultant Architecture & Technique, and acoustician Kahle Acoustics, it can be seen as the smaller sibling of the Namur Concert Hall. Having only 250 seats,



this small but well-crafted concert hall is the home of the contemporary music ensemble Musiques Nouvelles, which dreamt of a hall with very present and reverberant acoustics, a ‘chapel of silence’, which – perhaps surprisingly for contemporary music – is not so dissimilar to the ideal acoustic situation for vocal music as designed for Namur.

The Arsonic concert hall also consists of a contemporary concrete volume, inserted into the listed 19<sup>th</sup>-century Caserne Léopold, the existing plan of which inspired the designers to develop a unique layout with audience zones on three sides of a central stage. There are two large audience blocks in front and behind the stage, and a smaller balcony to the side.

**Rotating staves**

The tight €4m (US\$4.2m) budget pushed the design team to make careful use of the sparse quantities of wooden finishes available, using the wood in the most acoustically critical areas such as for the stage floor, the acoustic reflectors and a pattern of timber ‘staves’ on the walls. The staves around the stage platform can be rotated to tune



Above: A small amount of wood was used within the concrete box at the Arsonic concert hall, to create a warmer and rounder sound

acoustic reflection paths to the audience and back to the musicians, while visually transparent, sound-absorbing screens can be lowered in front of the staves to decrease the reverberation time from 2.9 to 2.0 seconds unoccupied.

Both Arsonic and Namur Concert Hall have quickly come to be appreciated by music lovers, audiences, critics and musicians alike for their exceptional, characterful acoustic qualities. In contrast to a diffuse acoustic design, which is becoming ever more common today, these are both spaces with a strong acoustic personality, tailored and optimised for the ensembles that instigated these projects.

In addition to serving as performance venues, both concert halls are now also in high demand with musicians and recording engineers from all over Europe for use as studios to record music. This is not only for the vocal music or contemporary music for which they were originally designed, but for all kinds of music where musicians wish to feel inspired and ‘breathe freely’ in a rich acoustic environment. ■

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Grand Manège Namur Belgium

Arsonic Mons Belgium

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Images: Lino Bencardo, Rino Novriello, Jean-François Berthin