

## National Library of Latvia

Complete	Area	Client	Architect
2014	Latvia	Ministry of Culture of the Republic of Latvia	Gunnar Birkerts Architects

The new building for the National Library of Latvia was designed by Latvian-born American architect Gunnar Birkerts as a 'Castle of Light'. The building is one of Riga's most impressive and instantly recognisable landmarks located in a prime location along the Daugava River in the city centre.

It provides library and exhibition space, conservation and restoration laboratories, audio studios and reading rooms housing six-million titles, all arranged around a central atrium. Each successive floor slopes back to the peak at level 12 containing an event space and observation deck.



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## Services provided

Sandy Brown was engaged to provide the full acoustic design, including consideration of:

- sound insulation
- acoustic finishes
- building services noise and vibration
- façade performance.

## Special acoustic features

The library sits close to the Uzvaras Bulvaris (Victory Boulevard), the main busy thoroughfare through the centre of Riga. The proximity to this main road meant there was a risk that intrusive noise break in could affect the peaceful library atmosphere. By using computer modelling software to produce noise contours map of the external sound levels and facade sound levels, we were able to specify the necessary façade performance across all areas.

A key component of the conference centre on the ground floor of the library was a 330 seat auditorium (now called the Ziedonis Concert Hall). As the space was to be used for lectures, cinema, concerts, music and theatre, there was a need to provide varying acoustic characteristics for each type of event. We developed a number of options for providing variable sound absorption elements including vertical slat arrangements, both rotating and sliding options. These were later abandoned due to cost, so computer modelling was used to optimise the space to be appropriate for the most speech and music uses possible.

Another challenge in the auditorium was the skylight feature located over the proscenium area, which due to its shape had the potential to decouple the stage from the audience acoustically. We suggested either a hinge arrangement or permanent shell elements to resolve the issue while still allowing the key feature of the room to remain.

The auditorium also had a series of simultaneous interpretation booths looking down from the upper back walls. Care was taken to ensure the room elements complied with the strict international standard guidelines needed to ensure these rooms are fit for the stressful work undertaken by the language interpreters. This also included adequate sound insulation for the glazing between the booths and the auditorium.

The central atrium was a key space to get right acoustically, as it is the first major space to be experienced by each visitor, and as it connects nearly every room in the building. We recommended reducing reverberation through the use of sound absorbing panels on the solid faces of the ceilings and bulkheads of each floor level. Sensitive areas opening on to the atrium were screened using glazed panels, while exhibition space, seating and circulation all remained open to it.

A feature of the library was the Arts, Audio Visual and Music Reading Room areas where audio and video recordings could be experienced without disturbing others. A series of sound booth rooms were developed to allow this, and also a small recording studio.

The two-storey events space at the peak of the building provided excellent views of the surrounding city. Its internal reverberation time needed to be controlled to allow as many event types as possible to use the space, so sound absorbing finishes using perforated timber were installed. The areas were also adjacent to noisy roof plant areas, so appropriate control of mechanical systems noise was recommended.



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