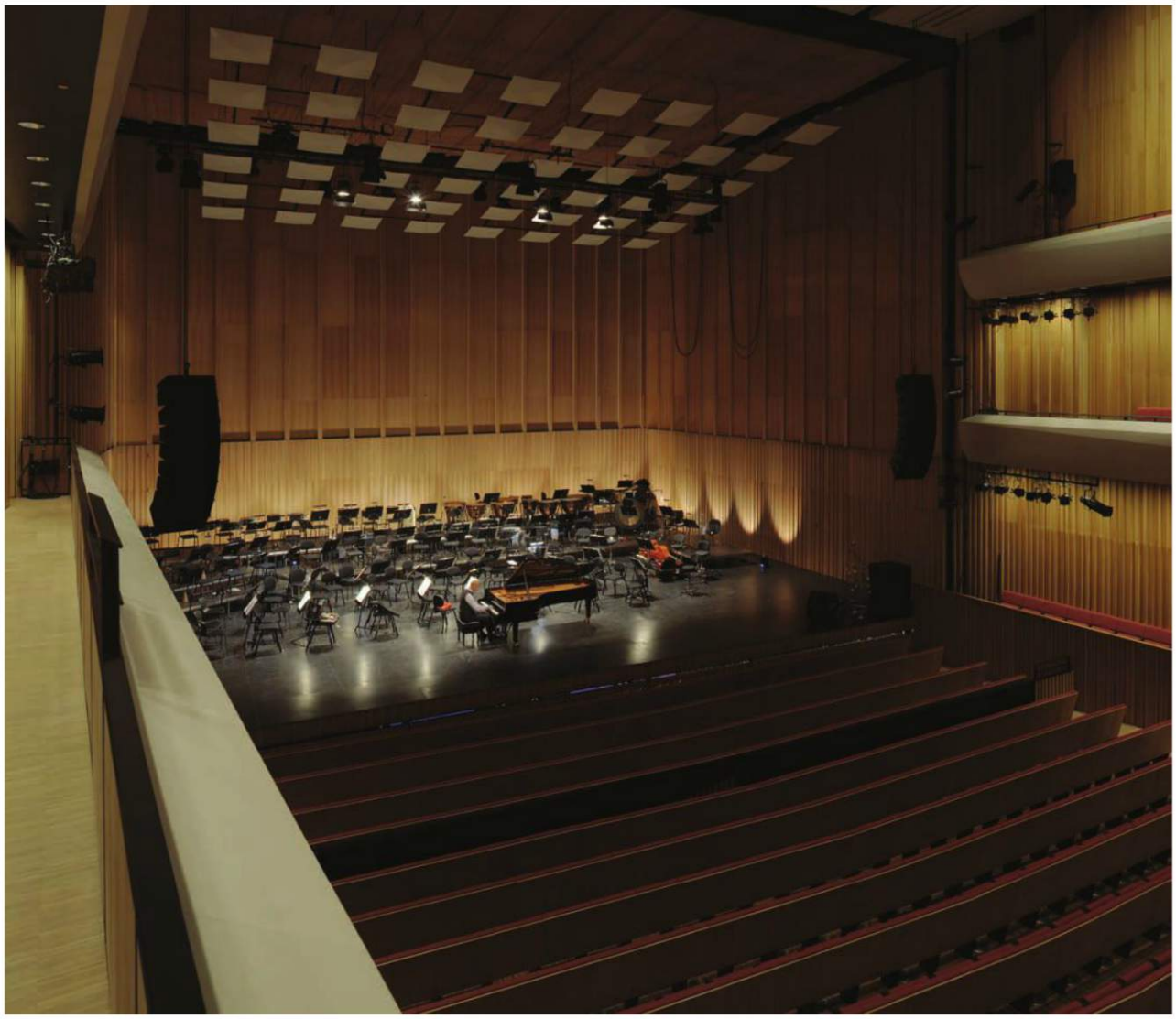
STORMEN CONCERT HALL, BODØ, NORWAY

A three-auditorium concert hall was tasked not only with complementing the character of this Norwegian town, but navigating the acoustic challenges that come with a multi-purpose space, writes **Hugh Strange**



All photos: David Grandorge

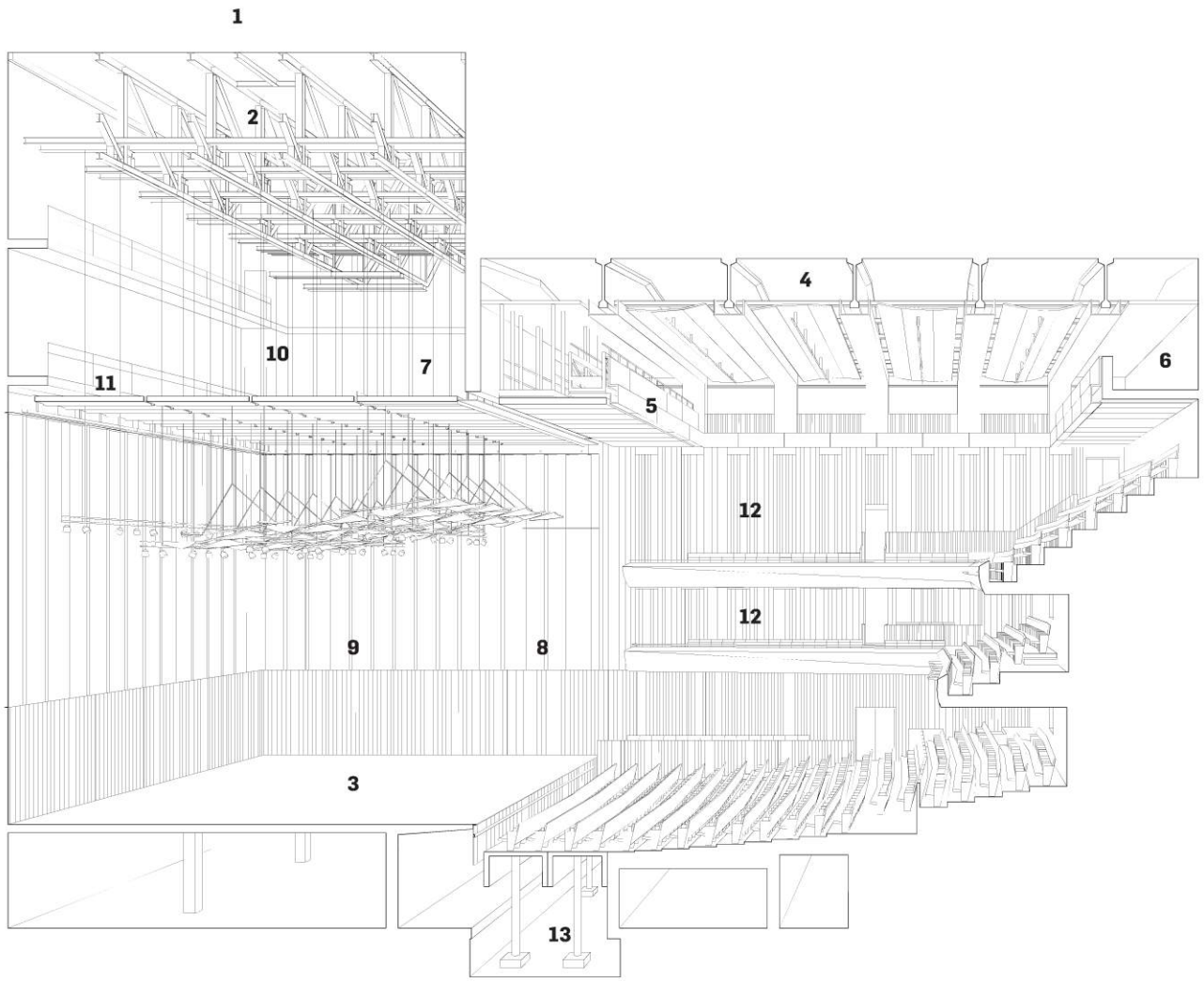
Project Stormen Concert Hall
Architect DRDH
Location Bodø, Norway
Completion November 2014

One-hundred kilometres inside the Arctic Circle, London-based practice Drdh Architects have recently completed a new cultural quarter in the Norwegian town of Bodø. Comprising a 6,300m² library and an 11,200m², three-auditorium concert hall, their competition-winning proposals were distinctive for locating the two buildings within the existing fabric of the city, rather than as freestanding pieces in the harbour.

As such, the buildings are inherently urban in character, responding to the particular scale and character of the neighbouring streets and buildings, but also mediating between their edge-of-city condition and a dramatic surrounding landscape of mountain and ocean. In this distinctive context the two buildings ask to be read as a single composition, comprising an ensemble of forms described by the architects in their masterplan proposal as 'a city of towers'.

Of the two buildings, the library is the lower and more expansive, and is located towards the waters' edge, whilst the concert hall, more inward-looking by nature, is taller and rises above and behind its smaller neighbour, its flytower forming the tallest of the towers. The concert hall's main entrance is off the high street, Storgata. Here, the flytower, and its height, are made evident within the urban setting, meeting the ground amidst a family of elements of varying scales, the smallest of which is a

Above: Main Hall shown in concert mode



Section

1 Flytower
2 Grid
3 Stage
4 Ceiling reflectors
5 Movable rigging bridge
6. Follow spot gallery
7. Hinged proscenium header
8. Hinged proscenium wall panel
9. Sliding side-wall panels
10. Flown ceiling panel
11. Hinged ceiling panel
12. Sliding absorbing wall panels
13. Orchestra pit with two orchestra lifts

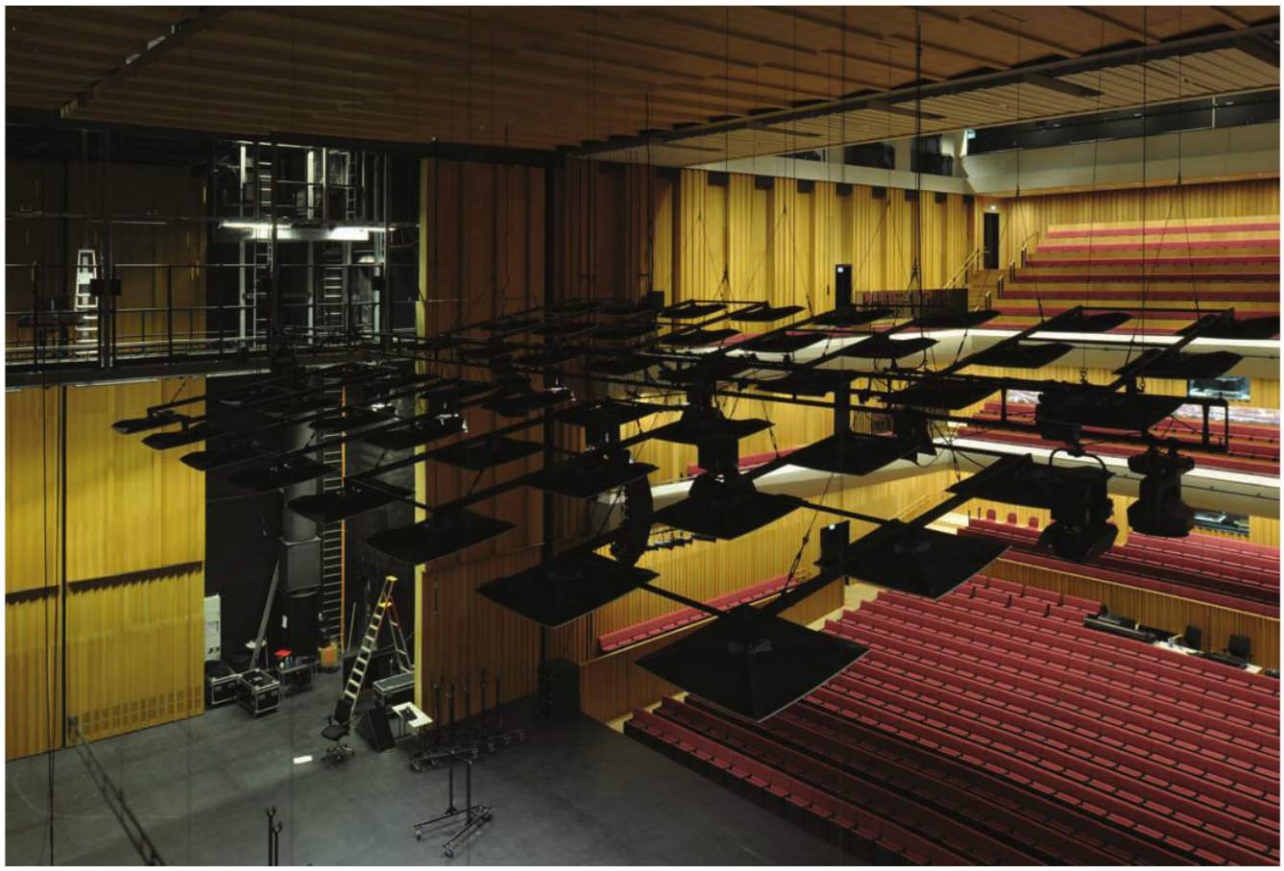
loggia through which one enters.

Inside are three auditoria: the main hall with 944 seats, a smaller hall seating 260, designed for chamber music and as a multi-purpose auditorium, and a jazz / rock space for amplified music with capacity for 460 people. To the south-west of the building, facing the city's principal streets, an L-shape of public accommodation wraps the centrally located stage, flytower and auditorium of the main hall, while a second L, comprising back-of-house dressing rooms, instrument storage, offices, technical and loading areas lies to the north and east sides.

Leading up from the entrance foyer, a sequence of public rooms ascends the building, from stair hall to main foyer, where one can enter the main auditorium, and up again to a higher foyer with access to the upper balcony levels, but also at this level opening out onto a roof terrace. As one moves up, windows frame views out to the surrounding city, until this final terrace space, where the library creates a new horizon, blanking out the urban, and connecting the audience with the natural landscape beyond.

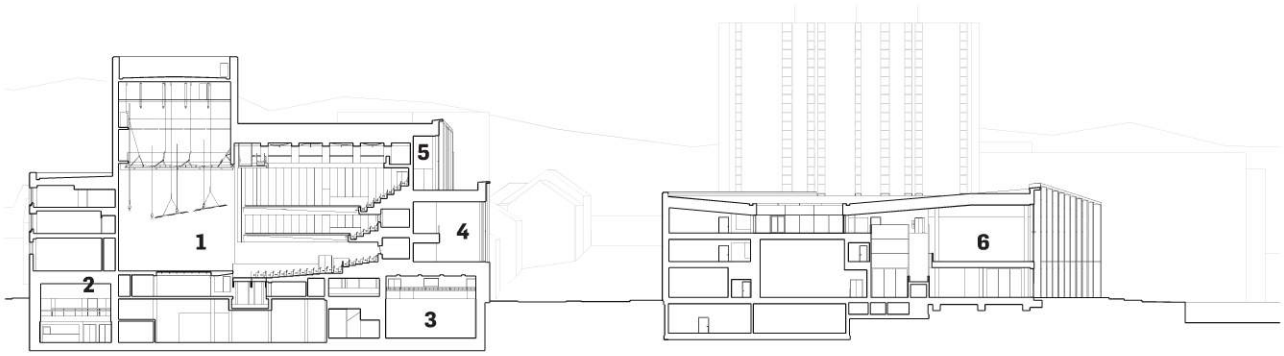
To accommodate all the spaces within the tight urban site the two smaller music spaces are located at lower ground floor but, in order to preserve acoustic isolation, the concrete structure between the three halls is discontinuous, with the chamber music and jazz/rock spaces each designed to sit independently as a box in a box. A fourth space, a recital room for chamber music, spoken word and rehearsals with a capacity for 100 is located on the third floor.

The main hall, or Stor Sal, will be home to the newly formed

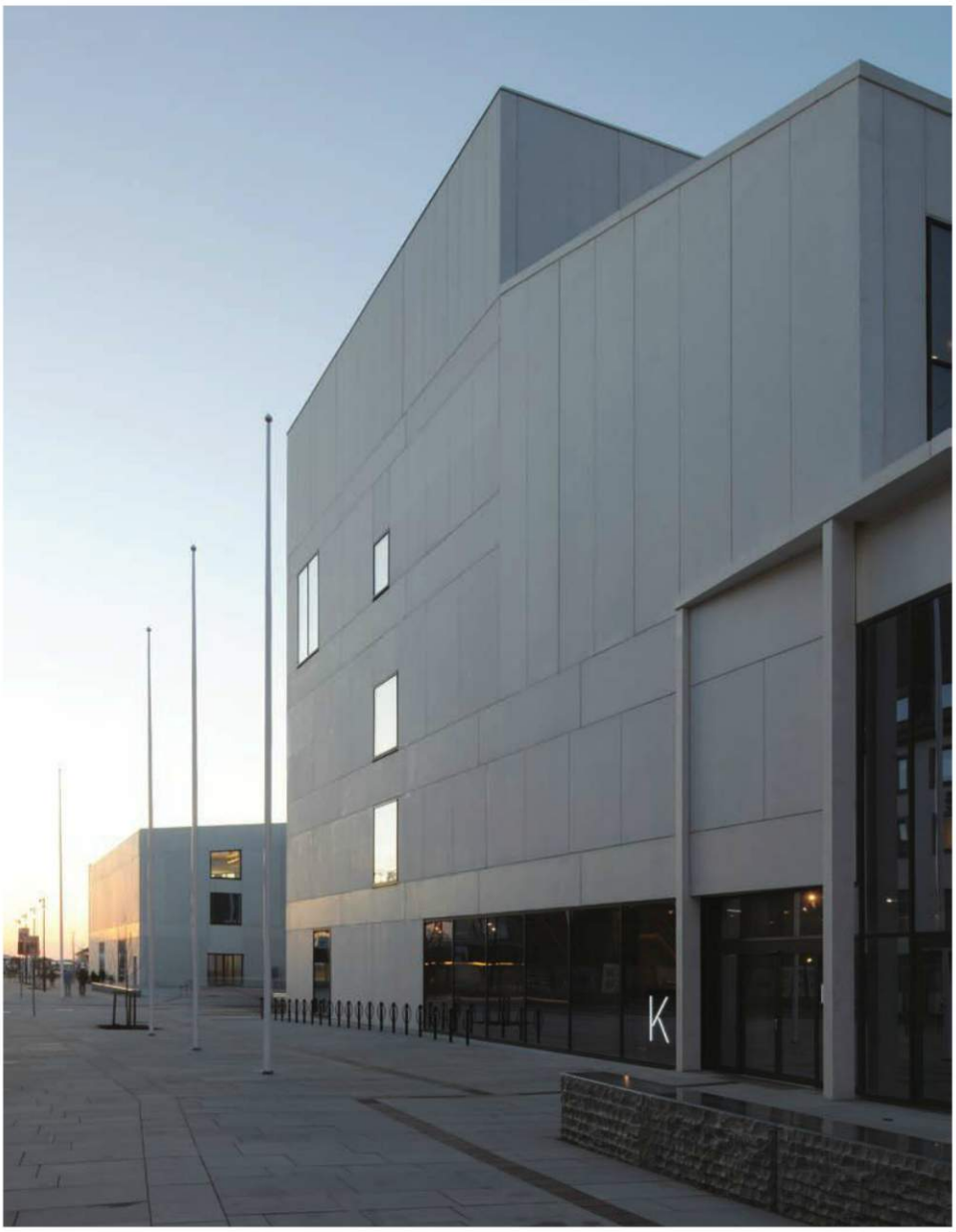


Section

1 Main hall
2 Amplified music venue
3 Second hall
4 Main foyer
5 Upper foyer
6 Library



"The acoustic requirements of each mode are demanding and, as with the configurations, significantly different"



Opposite page: View through acoustic reflectors above the orchestra and proscenium wing, showing one wall panel moved into place in preparation for the concert hall mode

Left: View along Storgot of concert hall with library in background

Arctic Philharmonic, a joining of the existing Bodø and Tromso Sinfonietta. Combining two radically different typologies and functional requirements, the hall provides on one hand a state-of-the-art concert hall, allowing full symphonic performances, and on the other a theatre space that can also be used for dance, opera and amplified music.

In order to change between the two, the stage space is provided with adjustable and removable wall and ceiling panels. In concert mode the space resembles a traditional 'shoe box' design, a singular volume with matching height and width so as to maintain acoustic properties between stage and audience. To switch to theatre mode, 14m-high hanging wall panels on ceiling tracks line both sides of the stage and can be removed to allow a proscenium with wings, whilst 18m-wide ceiling panels can be rotated and lifted to provide a technical ceiling void. To allow technical access and flexible lighting arrangements, a technical gallery and moveable technical bridge are provided at high level.

To optimise sound diffusion and increase musical clarity in concert hall mode, the ceiling above the audience has been formed with a series of curved profiles, each individually modelled, and the balcony fronts to the two upper tiers of seating have been modelled, with two curved planes intersecting along a diagonal line. In addition the design of the audience seating, whilst forming continuous rows so as to emphasise the geometry of the hall, has a variety of heights of timber backs so as to further improve the sound quality.

The acoustic requirements of each mode are demanding and, as with the configurations, significantly different. Beyond volumetric adaption, additional acoustic flexibility between modes is provided by an 8 x 6 matrix of 1.1m x 1.1m folded square ceiling reflectors above the orchestra, and removable felt-lined acoustic wall panels in the walls of the upper level seating. In combination these allow a shift between an RT (reverberation time) of between 1.8 and two seconds in concert mode, depending on occupancy and orchestra size, and 1.1 seconds in theatre mode.

Whilst the two buildings' exteriors are defined by slender fins and the monolithic character of massive, stacked elements of white, pre-cast concrete, the inside of the concert hall's auditoria and the main stair are lined with oak-faced plywood. The material palette suggests a particular lineage of Scandinavian modernism, Asplund's Gothenburg Law Courts for instance, where the coolness of a civic-minded exterior counterpoints the sumptuousness of a richly lined timber interior.

PROJECT TEAM

Client (concert hall) Bodø Kulturhus
Architect DRDH Architects
Structural and services engineer Norconsult AS/Arup
Acoustic consultant Arup Acoustics / Brekke Strand
Theatre consultant Arup Venue
Facade engineer Ramboll Facades
Cost consultant Bygganalyse AS
Main contractor Gunvald Johansen AS