

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/236213211>

La Philharmonie de Paris concert hall competition, part 2 : The competition

Conference Paper · January 2007

CITATIONS

2

READS

589

5 authors, including:



Eckhard Kahle

36 PUBLICATIONS 186 CITATIONS

[SEE PROFILE](#)



Thomas Wulfrank

Kahle Acoustics s.p.a.

18 PUBLICATIONS 36 CITATIONS

[SEE PROFILE](#)



Yann Jurkiewicz

Kahle Acoustics s.p.a.

16 PUBLICATIONS 37 CITATIONS

[SEE PROFILE](#)



Brian F G Katz

Pierre and Marie Curie University - Paris 6

217 PUBLICATIONS 1,899 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



SoundDelta [View project](#)



HAIR (Haptic with Air) [View project](#)



International Symposium on Room Acoustics
Satellite Symposium of the 19th International Congress on Acoustics
Seville, 10-12 September 2007

**LA PHILHARMONIE DE PARIS CONCERT HALL COMPETITION,
PART 2: THE COMPETITION**

PACS: 43.55.Fw

Kahle, Eckhard; Wulfrank, Thomas; Jurkiewicz, Yann; Faillet, Nathalie; Katz, Brian FG
Kahle Acoustics; Avenue Molière 188, 1050 Brussels, Belgium; kahle@kahle.be

ABSTRACT

An international architectural competition was organized for a new 2'400 seat concert hall to be constructed on the site of the Parc de la Villette, next to the existing Cité de la Musique. Six teams were invited to participate in the second round of the competition and present their design concepts. As French legislation defines architectural competitions as being design team competitions, it was required for each architect entering the competition to have their own acoustic consultant and theatre planner.

The different competition entries are presented and briefly discussed from an architectural, theatre planning and acoustic point of view. Studying the entries shows both similarities and differences in the lines of thought of current architects, theatre planners and acoustic consultants in how to respond to a challenging, innovative architectural and user brief.

THE TEAMS

The six entering teams are listed in Table 1 in loosely alphabetical order of the architects. Plans, sections and 3D renderings of the submitted projects can be found at the back of this paper. In April 2007 the entry of Ateliers Jean Nouvel (AJN) was elected by the jury as the winning project.

Architect	Acoustic Consultant	Theatre Planner
Ateliers Jean Nouvel (AJN)	Marshall-Day / Toyota	dUCKS Scéno
Coop Himmelb(l)au	Artec	Artec
Zaha Hadid	Arup Acoustics New York	Arup New York
MVRDV	Artec	Artec
Christian de Portzamparc	Xu / Arup Acoustics Cambridge	Theatre Projects Consultants
Francis Soler	Lamoureux / Malcurt	Architecture & Technique

Table 1: Team compositions of the six entering teams, in alphabetical order of the architects.

ACOUSTIC TRENDS

In responding to the acoustic brief, a large and interesting range of different concert hall designs was submitted, revealing different geometries and concepts. All projects were innovative and to different degrees featured novel design elements. A good indicator of the variety in geometry is the maximum hall width, which varied significantly between 31.5m and close to 50m. The narrowest designs with frontal seating arrangements inherited some elements of the shoebox paradigm, while the widest could be said to be developments of the vineyard terraces typology. Other submissions had more irregular geometries and seating arrangements, not directly comparable to existing concert hall typologies and therefore representing a greater break with the traditions of concert hall design.

The projects replied with a varying degree of success to the brief's request for sufficient early (lateral) reflections, which is one of the more difficult and ambitious challenges in a concert hall with 2,400 seats. Some of the projects came up with interesting provisions for early reflections throughout the hall, and/or with concepts that suggest the possibility of straightforward optimisation at a later stage. Other entries proposed designs that would be a challenge to optimise in terms of early reflection coverage during the subsequent design stages.

The suggestion in the acoustic brief that acoustically coupled volumes are allowed, in order to combine sufficient volume and proximity of reflective surfaces, was taken on board by all six teams: all entries featured some form of additional reverberation volume, mostly with variable coupling between the inner and outer acoustic volumes. In several projects this consisted of distinct and dedicated “reverberation chambers”, which can be coupled to the internal volume to a controllable degree by opening or closing doors. Other projects took a different approach, where the coupled volumes are not lumped into separate rooms, but lie behind acoustic reflectors that define the internal volume. One project was unique in locating a reverberation volume above the ceiling reflectors and another inscribed the internal audience volumes inside a larger external acoustic volume, still allowing variations of the size of the openings to vary the degree of coupling between both volumes.

The brief suggested a total acoustic volume of between 28,000m³ and 32,000m³, or about 12 - 13m³/person, including any associated coupled volumes. Surprisingly, all of the submitted projects exceeded this range, with half of the submissions having a total acoustic volume of more than 35,000m³. One project exceeded the acceptable volume range even when not including the coupled reverberation volumes.

Due to the different prospected uses of the Paris Philharmonie including World Music and amplified events, acoustic variability was pointed out in the brief as a key requisite. While all teams mention the existence of variable acoustic absorption, few projects had a detailed indication of its location in the plans and only one project had allowed for variable absorption around or near the stage. The duration of the architectural competition having been extremely short at only two months, it is understandable that it is not always possible to include the details and exact location of variable absorption in the plans, and the mention of a good and interesting concept in the accompanying text was considered sufficient at this stage. Acoustic variability included curtains in both the main and coupled acoustic volumes, pivoting ceiling elements with absorption, reverberation chambers with doors, and acoustic “valves”, allowing adaptation of the openings between the main and coupled acoustic volumes. In addition, most designs feature adjustable ceiling reflectors, some in height, others in height and angle; some only above the stage, others extending throughout the auditorium; some with regular geometries, others highly irregular in shape. One project defended the choice of having fixed ceiling reflectors.

As a side comment, it is worth noting that half of the submissions demonstrated that they had included acoustic computer modelling exercises as part of the competition, showing the results of various objective acoustic parameters such as EDT, G and LF, both numerically and as graphical plots. On the other hand, RT was not always presented.

THEATRE PLANNING TRENDS

In order to respond to the required flexibility of use, the architectural brief requested two stage locations, a first central stage, enveloped by the audience and with choir and/or audience seats behind and to the sides of the stage for the classical music concerts, and a second stage created by lowering the choir balcony so that for amplified events a more frontal (or end) stage is created. In addition, the architectural brief requested all theatre equipment necessary for world music and amplified events to be incorporated into the design. One competition entry featured multi-functional ceiling reflector elements, containing and hiding theatre technical equipment such as lighting and trusses, which in many existing halls are typically cluttered around the ceiling area.

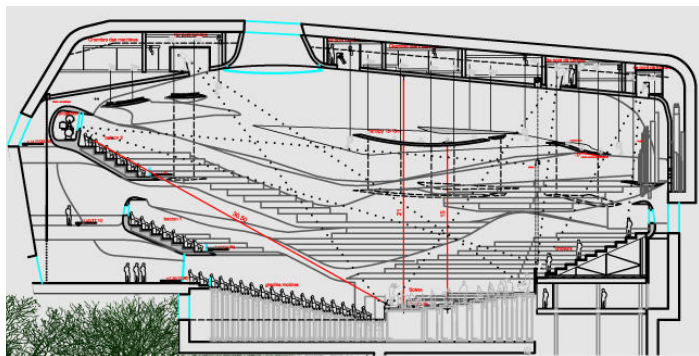
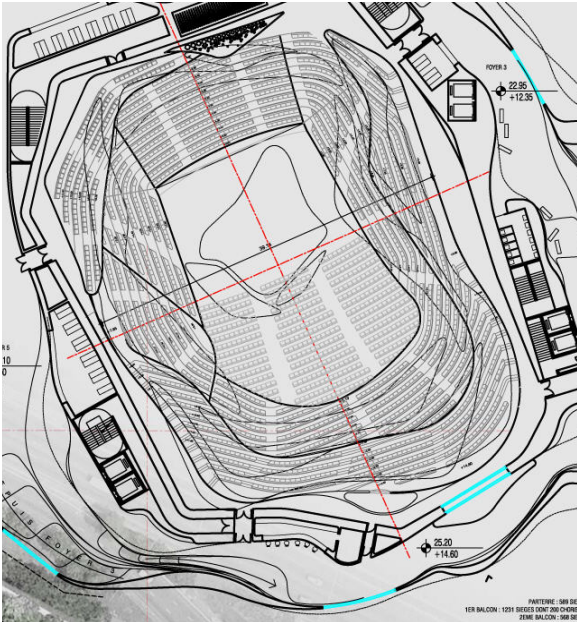
What is interesting to note is the difference – either in understanding of the brief or in deliberate design intent – between French teams and Anglophone teams. The former have placed the stage nearly exactly in the centre of the room, with between 10 and 15 rows of choir and/or audience behind the platform, whereas the latter have limited the number of seats behind the orchestra stage to 5 or 6 rows of choir seating, hence not following the brief requesting a 10m deep second stage for world music. Is this a partial misunderstanding of the brief, or is it that those architects and/or Theatre Planners deliberately chose to not follow the requirements as they consider that the brief’s suggestions will lead to a bad concert hall design?

ARCHITECTURAL ENTRIES

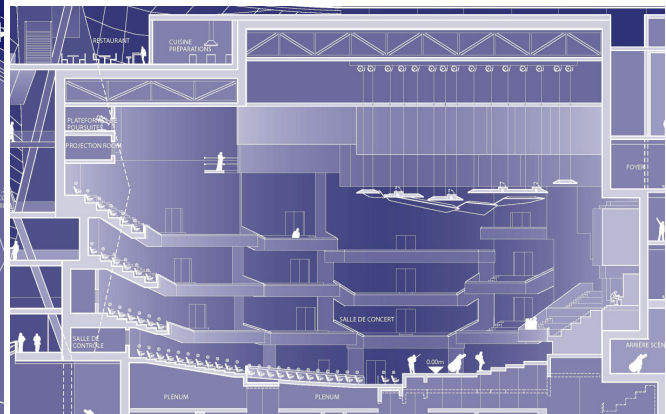
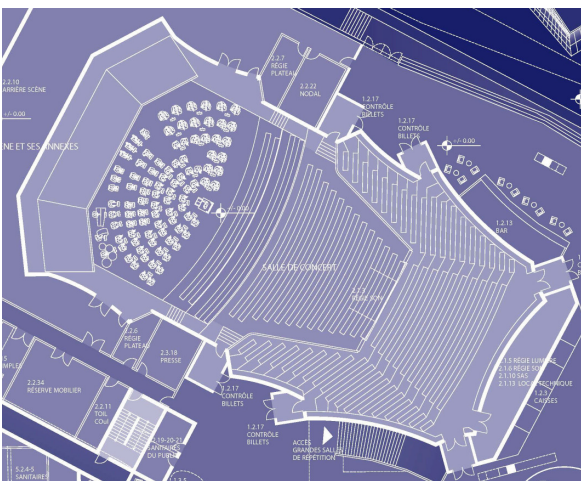
One plan and the longitudinal section of the individual architectural entries, as well as one rendered image of the concert hall, are reproduced on the following pages. Further information may be available on the architects’ web sites, or at www.philharmoniedeparis.fr. An exhibition of the six architectural entries is currently on display in the Foyer of the Cité de la Musique at La Villette in Paris.

PLANS AND SECTIONS OF THE COMPETITION ENTRY PROJECTS

Note: the below plans and sections are not reproduced to scale.



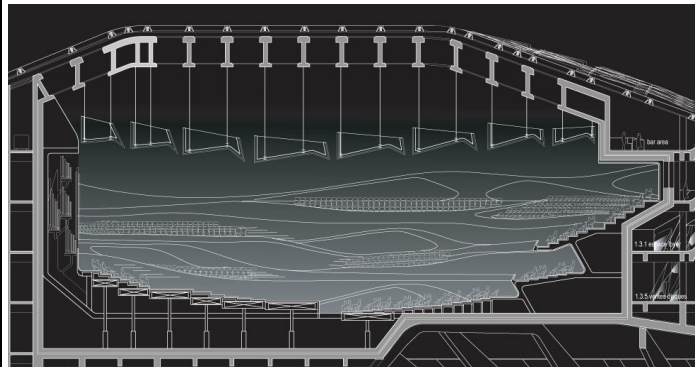
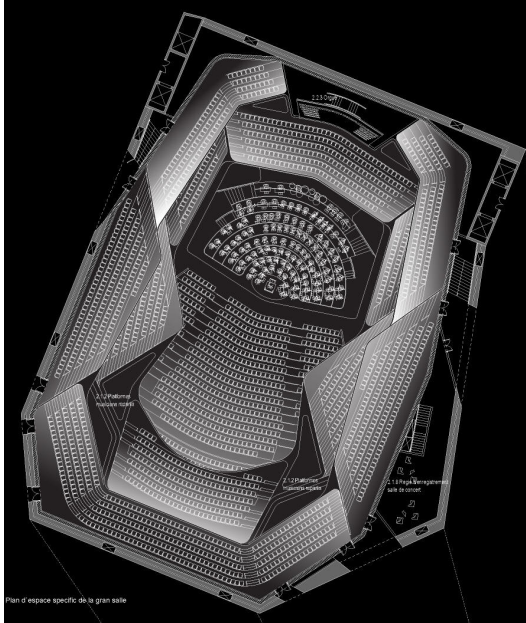
© Ateliers Jean Nouvel



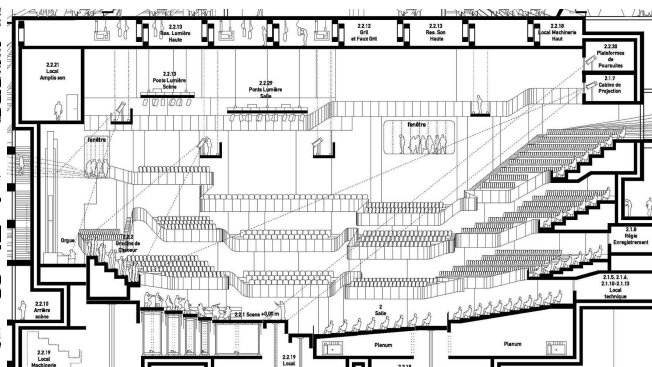
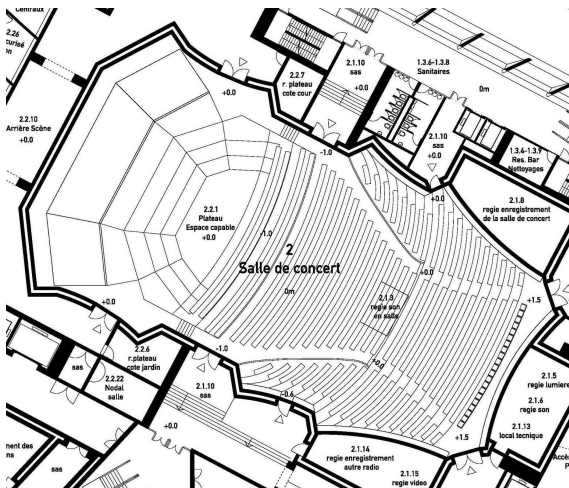
© Coop-Himmelblau

La Philharmonie de Paris Concert Hall Competition

Note: the below plans and sections are not reproduced to scale.



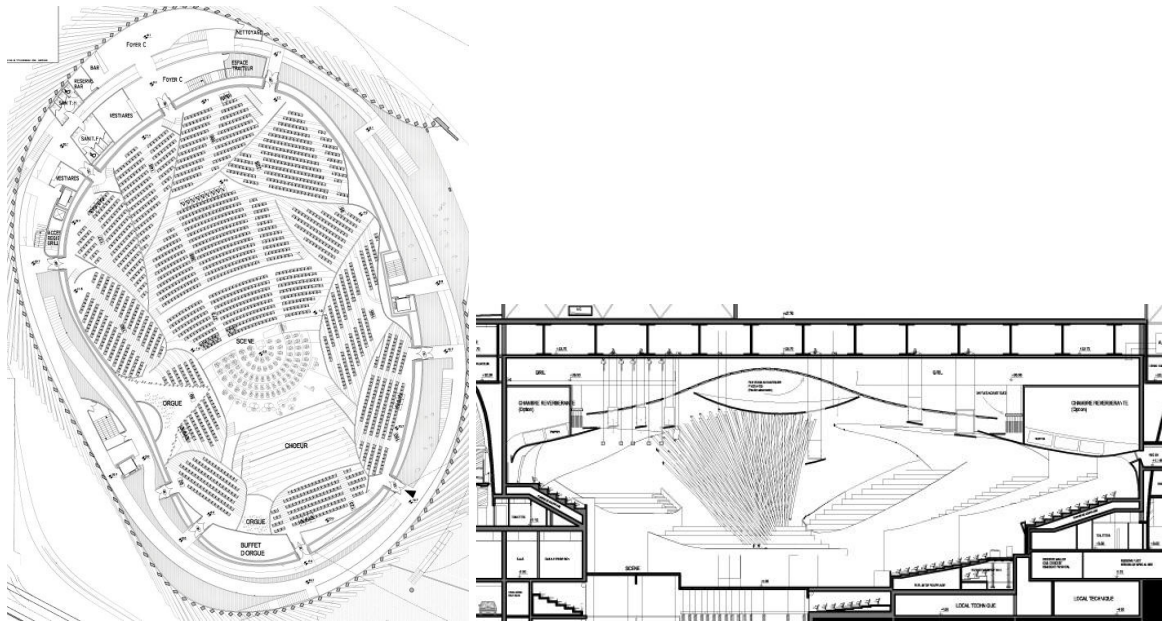
© Zaha Hadid



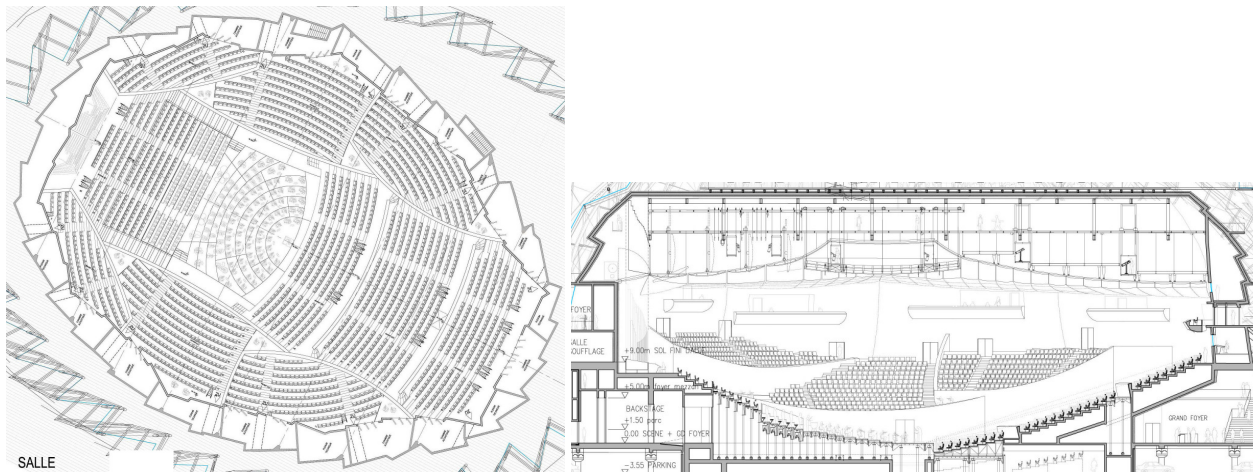
© MVRDV

La Philharmonie de Paris Concert Hall Competition

Note: the below plans and sections are not reproduced to scale.



© Christian de Portzamparc

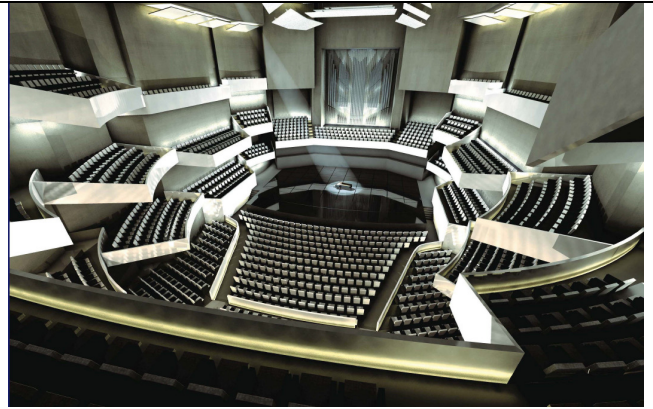


© Francis Soler

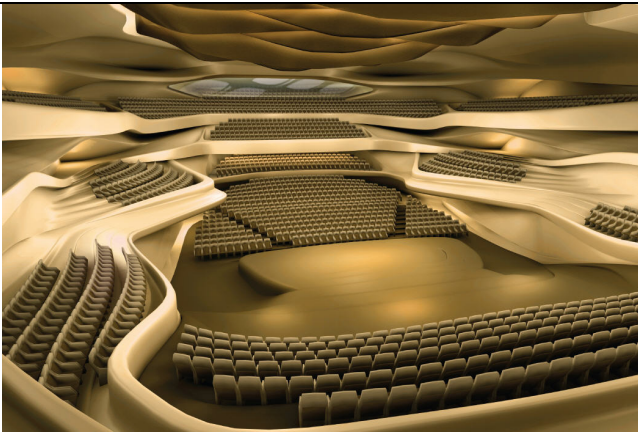
3D RENDERINGS OF THE COMPETITION ENTRY PROJECTS



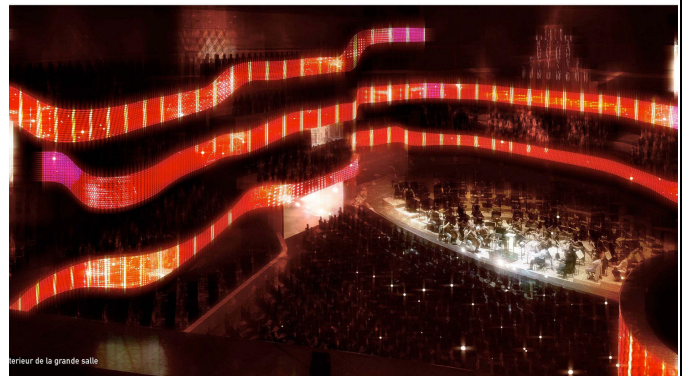
© Ateliers Jean Nouvel



© Coop-Himmelblau



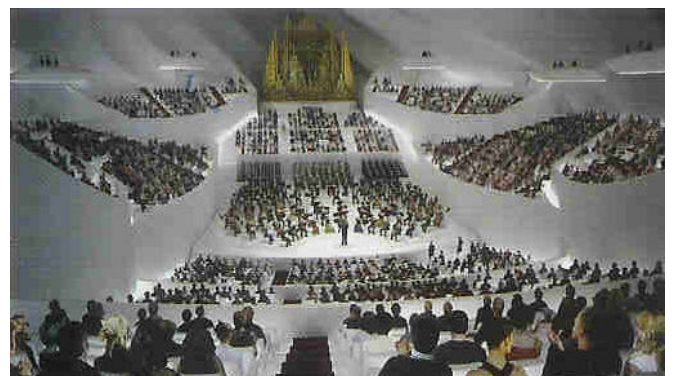
© Zaha Hadid



© MVRDV



© Christian de Portzamparc



© Francis Soler