

Philharmonie de Paris Acoustic Design

By Dr. Yasuhisa Toyota

After the November, 2014 opening of L'Auditorium de la Maison de la Radio in Paris, France (featured in our January, 2015 newsletter), January 14, 2015 brought Paris the opening of another concert venue, Philharmonie de Paris, affectionately known as PdP. The new PdP venue adds a large concert hall to the Cité de la Musique spaces of La Villette cultural park. The park is located in a northeastern neighborhood of Paris.

PdP, with its Grande Salle of 2,400 seats, will henceforth be known as Philharmonie 1. The existing 1,200-seat hall of Cité de la Musique will be called Philharmonie 2.

French architect Jean Nouvel designed PdP's 2,400-seat Grande Salle. The project's acoustical consultant was Marshall Day Acoustics of New Zealand. Nagata Acoustics participated on the project as Mr. Nouvel's personal advisor for the acoustical design. The completed hall bears the names of both acoustical consulting firms, Marshall Day Acoustics + Nagata Acoustics. Bringing together multiple acoustical consultants created a complex design team rarely attempted on a hall project and points to the project's overall level of complexity. In France, such complexity may not be unusual as it would be in other countries. I can best elucidate the project structure by tracing the events that led to our participation on this project.



Figure 1: Philharmonie de Paris building exterior



Figure 2: Grande Salle interior view from auditorium side to stage

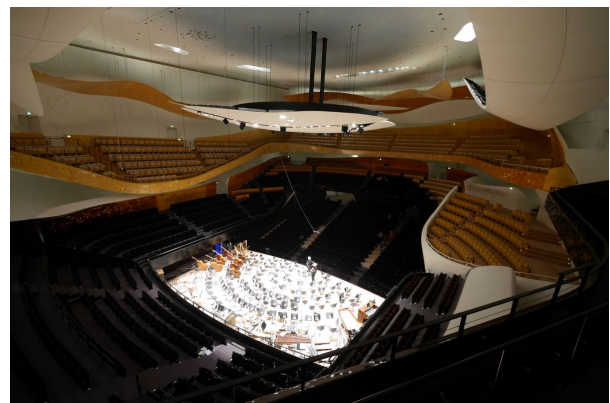


Figure 3: Grande Salle interior view from stage back to side auditorium

The Story of Our Joining this Project as the Architect's Personal Advisor

When the PdP project began in 2006, two rounds of competition were held to select the architect. The first competition for the architect role was open to anyone who wished to submit a proposal and the second round of the competition short-listed a number of proposals from the first round of submissions. The initial competition round required each architect to team up with an acoustical consultant. However, because the number of submitting architects far exceeded the number of available acoustical consultants, acoustical consultants were allowed to work on more than one architect's proposal.

For the first round of the competition, 8 architects — including Mr. Jean Nouvel — approached Nagata Acoustics about collaborating with them on their proposals. Another well-known architect among these 8 firms had already collaborated on a number of successful projects with Nagata Acoustics' Los Angeles-based U.S. office and is an architect with whom we have a well-established relationship. The Los Angeles architect requested an exclusive work agreement with us for the PdP competition proposal and that we decline to collaborate with the other 7 architects on their PdP competition proposals. This was a tough decision for us to make and, after serious consideration, we agreed to the Los Angeles-based architect's condition of exclusive collaboration for the PdP competition. One of the key factors in our decision was that we did not have the capacity to work with all 8 of the architects who approached us and selecting among the remaining 7 would not have been easy for us to do.

The competition received 98 proposals for the first round and the judges selected 6 of the proposals to progress to the second round. The Los Angeles architect with whom we collaborated on the first round was unfortunately not included in the second round. Jean Nouvel was, of course, among the 6 short-listed architects and on the day the short-listed names were announced he telephoned me directly. For the competition's first round, after we declined to collaborate with Mr. Nouvel, he had teamed up with Marshall Day Acoustics. Now, for the second round, Jean Nouvel asked Nagata Acoustics to join with him as his personal advisor to prepare their second round submission.

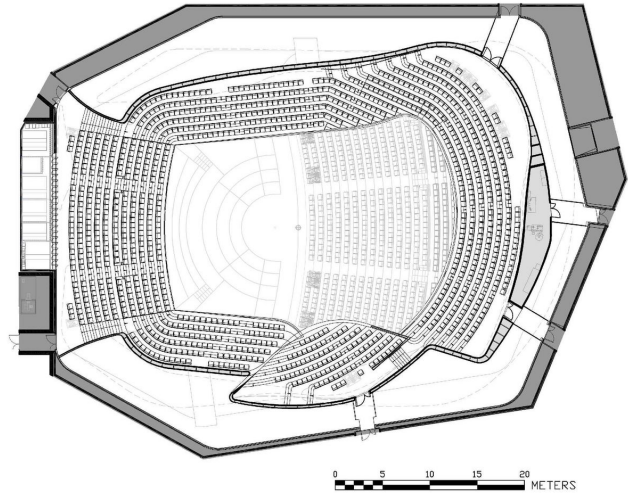


Figure 4: Grande Salle plan at main floor and 1st balcony level

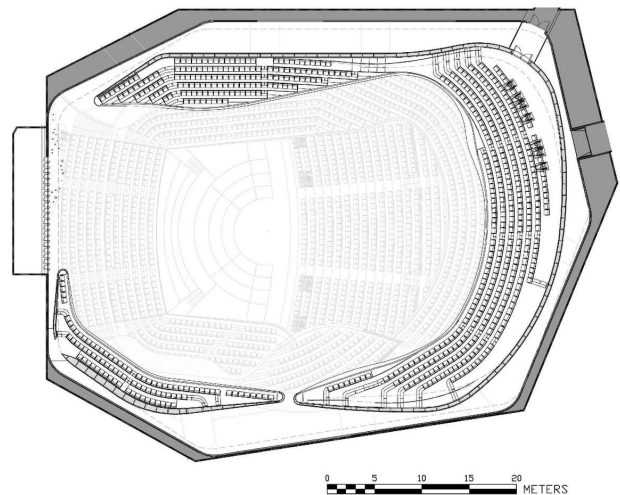


Figure 5: Grande Salle plan at 2nd balcony level

At the time, we asked ourselves how multiple acoustical design consultants would effectively collaborate and be involved in a single project if Mr. Nouvel's proposal won the competition. However, because we previously had declined Jean Nouvel's collaboration invitation for the first round, we could not decline this signature architect's invitation a second time. Mr. Nouvel won the second and final round of the competition and the acoustical design work for the project began. This was the unusual path that led to the project having multiple acoustical consultants.

The Smooth Process of Collaborating on this Project

When we began the actual design work, I was pleasantly surprised to find the process evolve much more smoothly than I expected it would. We preferred to avoid sitting around a table and trying to define the respective roles of Marshall Day as acoustical consultant and Nagata Acoustics as personal advisor. Instead, we proposed that our consulting work be a direct line of communication with architect Jean Nouvel and his office, that is, directly with the person who had requested our advice. With this approach, if our opinion on some matter were to differ from that of Marshall Day, the decision on how to proceed would be in the hands of the architect. As a result, throughout the entire design process Jean Nouvel and his office coordinated all technical communications and we never had a contentious meeting with Marshall Day.

We adopted this collaboration arrangement for the various acoustical design phases, including the computer simulation studies to determine the hall shape, selection of materials for the hall's interior, use of a 1/10 model to check for echoes and other more detailed tasks. I'm sure that Jean Nouvel and his office had numerous occasions to consider and resolve divergent ideas and opinions they received from us and from Marshall Day; Mr. Nouvel and his office made all decisions about such differences without ever involving us.

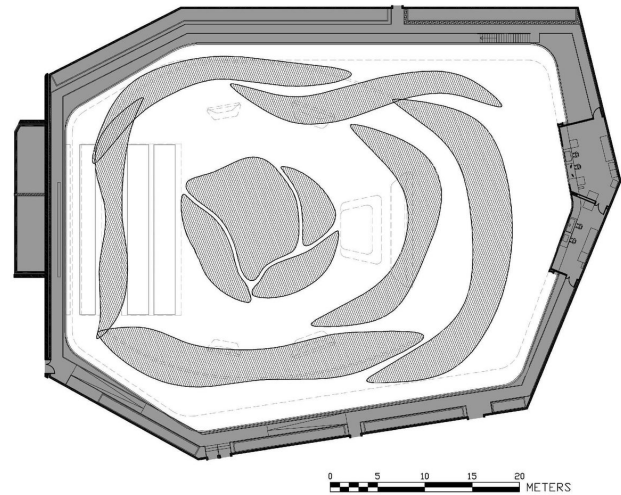


Figure 6: Grande Salle plan at stage canopy level

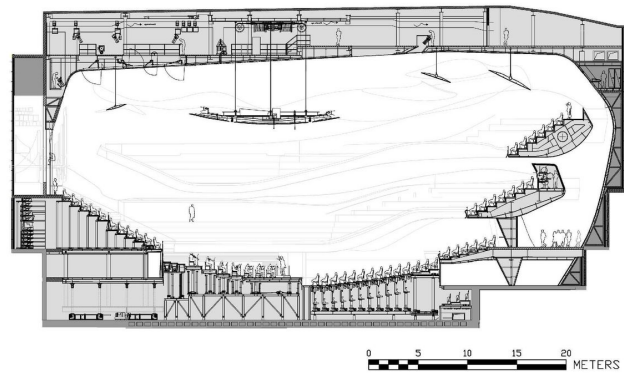


Figure 7: Grande Salle longitudinal section

Project Execution

Nagata Acoustics had only limited involvement in the project's on-site construction activities and, therefore, I do not have full knowledge of the issues that arose during that phase of the project. However, the project surely overcame numerous obstacles because the construction encountered rather significant delays until finally reaching completion and the recent January 14, 2015 opening of the hall. In fact, the new hall's resident Orchestre de Paris only heard the sound of the hall and played its first rehearsal there on January 13, the day before the opening concert. On opening night, the hall interior had somehow been made ready for the full, gala audience, but construction on the building exterior was not yet complete and some scaffolding remained visible.

The hall also opened without any acoustical fine tuning and the inaugural night's concert began a heavily booked schedule of concerts in the venue. As a result, completion of construction and acoustical fine tuning could only proceed intermittently when the hall's schedule had a brief lull in its use. In particular, when I heard the orchestra rehearse for the first time in the empty hall, it was obvious that the hall has too much reverberant and that this needs adjustment. Happily, however, during concerts with a full audience the acoustics' rich reverberations and the hall's good clarity of sound create an enjoyable concert experience. Given the unfortunate situation of having to open the hall without a period of acoustical fine tuning, I breathed a sigh of relief at my first impressions of this new hall's acoustics.

Philharmonie de Paris Website: <http://philharmoniedeparis.fr/en/>

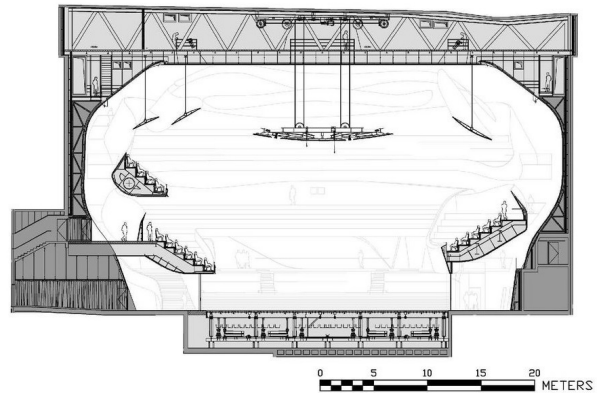


Figure 8: Grande Salle cross section