

Acoustical Consultant	Nagata Acoustics
Architect	Herzog & de Meuron
Owner	HamburgMusik gGmbH – Elbphilharmonie und Laeiszhalle
Resident Ensembles	NDR Elbphilharmonie Orchestra Hamburg Philharmonic State Orchestra Symphoniker Hamburg Ensemble Resonanz
Cost	789 million EUR (entire building)

The Elbphilharmonie stands prominently on a 1963 warehouse facing directly to the Elbe river. The design keyword of the Grosser Saal is "intimacy". Because of the size of the Grosser Saal, the question of how to make the audience feel "not distant" from the performers became the most important theme of the design work. When Nagata Acoustics joined the design team, the project had already decided that the basic shape of the Grosser Saal would not be the "shoebox" configuration, but instead would use the so-called "vineyard" configuration to seat the audience as close to the stage as possible. In order to achieve acoustical intimacy, the design solution involved creating small groups of audience seats and designing effective, sound-reflecting wall surfaces for every group of audience seating.

The architect favored the seashell motif microshaping for the diffusing surface pattern, which were usually expected to create soft sound reflections. They were also used to eliminate the long path echoes. The depth of microshaping at each portion of wall and ceiling was defined through the acoustical test with a 1/10-scale physical model.

BUILDING DETAILS

Location Platz der Deutschen Einheit 4 20457
Hamburg Germany

Seating Capacity: 2,100

Room Volume: 23,000 m³

Finish Materials

Ceiling: HGF, milled MS (Mass 125kg/m²)

Walls: HGF, milled MS (Mass 125kg/m²)

Aud. Floor: Wood flooring on HGF

Stage Floor: Oregon pine 50 mm supported
with wooden joists and sleepers

Canopy: HGF, milled MS (Mass 125kg/m²)

Seat: Upholstered

Pipe Organ: 4-manual, 65 stops

Johannes Klais Orgelbau Bonn

HGF: High-density gypsum fibreboard panels

MS: Micro-shaping

ACOUSTICAL DATA

Reverberation Time, T30 in seconds

Unoccupied 2.4

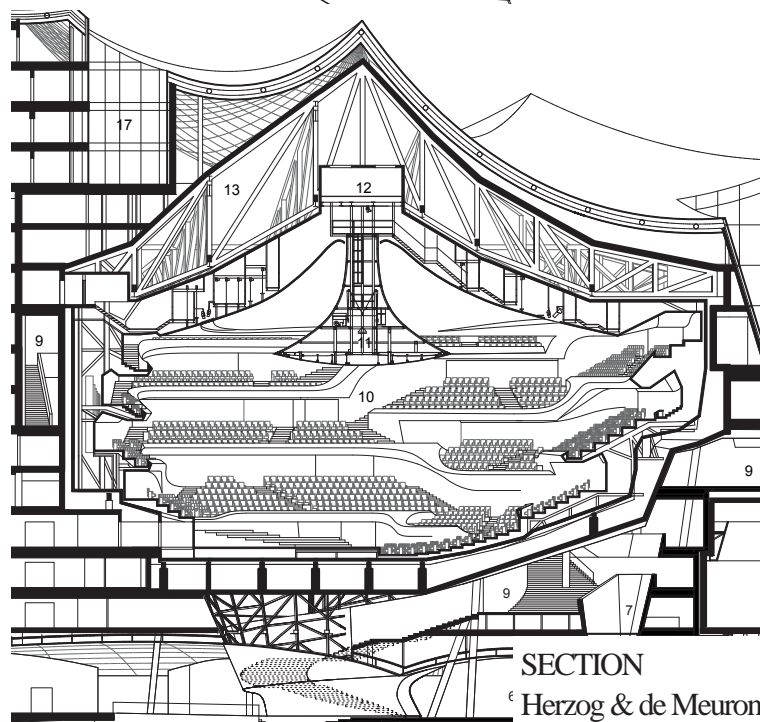
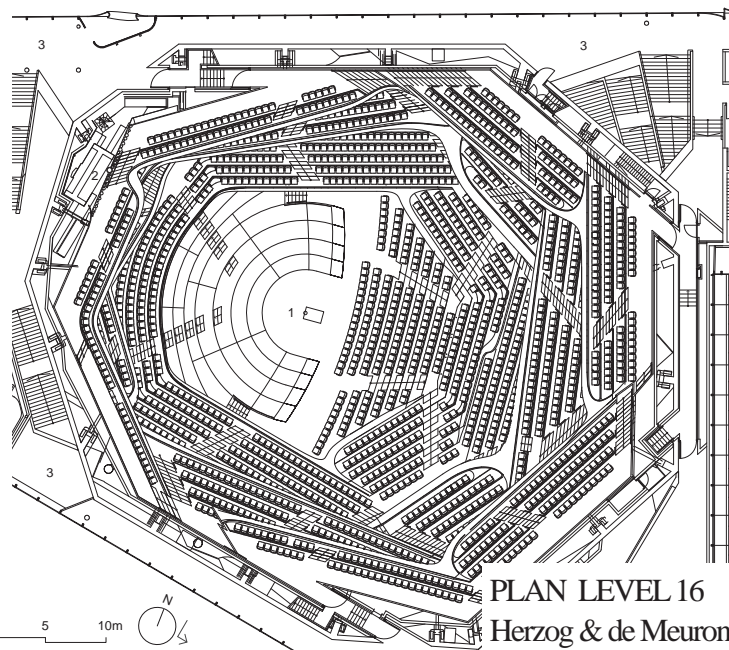
Occupied 2.3

Sound strength, G, in decibels 5.4

Early decay time (EDT) in seconds 2.3

Clarity, C80, in decibels 0.3

Centre time, TS, in milliseconds 135



ELBPHILHARMONIE HAMBURG, GROSSER SAAL

HAMBURG, GERMANY

2017

NAGATA
ACOUSTICS



Clockwise from Top

- View from Balcony
- Facility Cut-Model (Elbphilharmonie Web)
- Micro-shaping detail
- Building View from East