

TOKYO METROPOLITAN ART SPACE

TOKYO, JAPAN
1990

NAGATA
ACOUSTICS

Acoustics Consultant:	NAGATA ACOUSTICS, Inc.
Architect:	Y. Ashihara Architect & Associates
Owners:	Tokyo Metropolitan Government
Theatre Consultant:	Stage Technical : Professor Hiroyuki Shimizu Stage Lighting : Sumio Yoshii
Sound & Communications:	NAGATA ACOUSTICS, Inc.
Construction Cost:	¥ 29,100 Million JPY

Tokyo Metropolitan Art Space was planned as the second Tokyo Bunka-Kaikan at the west front of Japan Railroad's Ikebukuro station. The facilities consist of a concert hall of 1999 seats, a drama theater of 841 seats, two small halls and six rehearsal rooms. The Space opened in October 1990.

The acoustical design started at the beginning of the schematic design stage in 1985. The control of subway noise, the sound isolation between the halls and the room acoustical design of the Concert Hall were the main subjects of the project.

The organ at the rear end of the stage was manufactured by Marc Garnier in France. The organ is composed of two styles of the pipe groups, baroque and modern that are mounted on either side of three turntables with separate consoles.

DESIGN CONCEPT : In acoustical design of the Concert Hall, the acoustics of the two concert halls, Tokyo Bunka-Kaikan and Suntory Hall was referred to. Both halls are well regarded, not only by concertgoers, but also by domestic and foreign musicians. As a design goal of the acoustics, a new sound based on Bunka-Kaikan rather than Suntory Hall was intended. Early reflections from multi directions over the seating area, rich reverberant energy (particularly in low frequencies) and good communication on stage were the major themes of the design of the room acoustics.

The following requirements were proposed to the architects. (1) End stage with separate seating blocks, (2) Movable reflectors on the stage with a tall space for the organ, (3) Thick, vibration damped panels on walls and ceilings

ACOUSTICAL DESIGN : The study of the room shape was conducted in two stages, first in the schematic design stage and again in the design development stage. In the first stage, computer simulations, ray-tracing techniques and ray experiments in 1/50th scale model were employed. In the latter stage, acoustical tests with a 1/10th scale model were used. The effective room shape and seating area arrangement was studied with the computer simulation and model experiments.

BUILDING DETAILS AND ACOUSTICS DATA

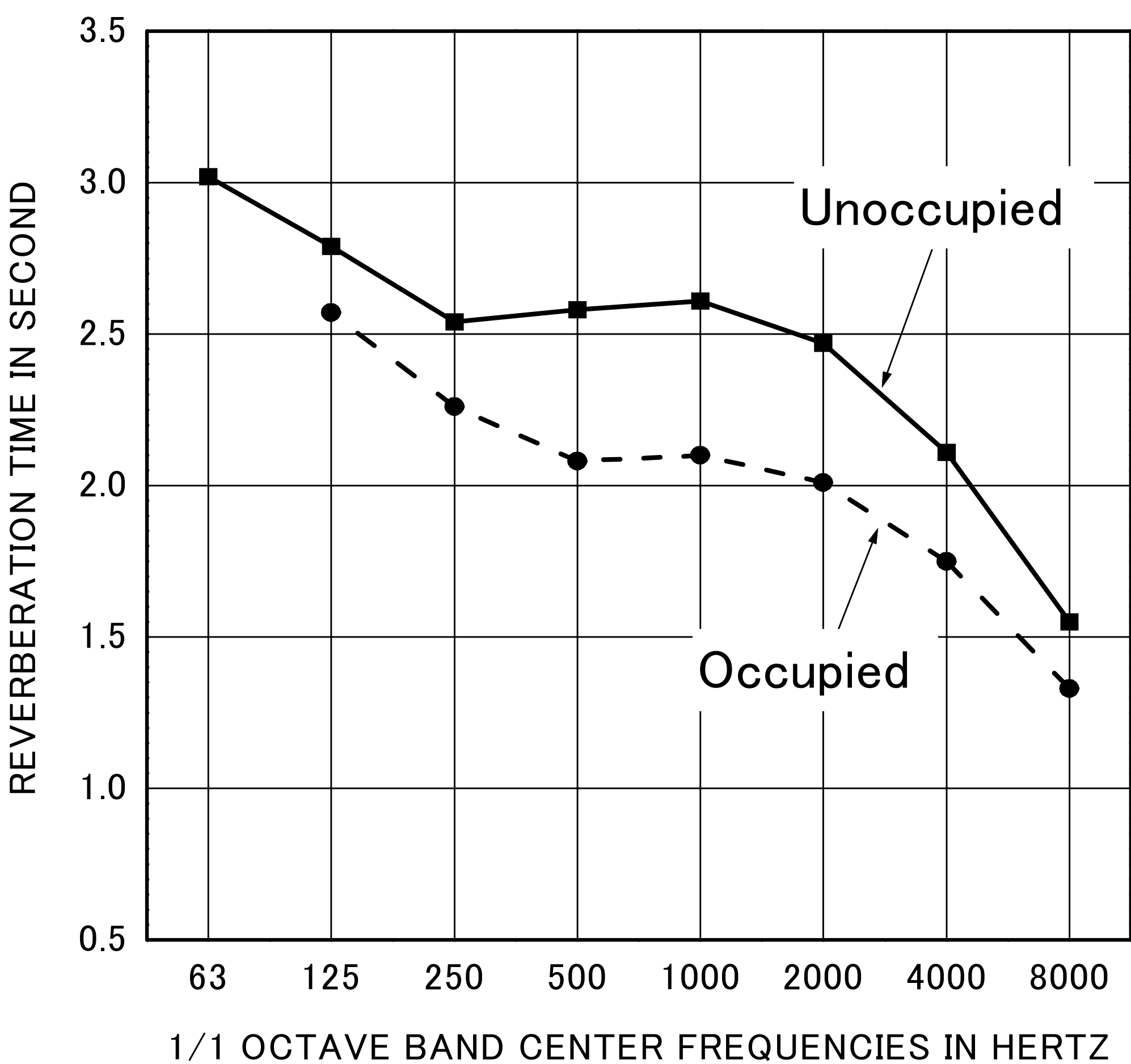
Location	1-8-1 Nishi-ikebukuro Toshima-ku Tokyo 171-0021, Japan
Tel	03-5391-2111
Seating Capacity	1999
Room Volume	25,000CM
Surface Area	7,700SM
Stage Area	225SM
Reverberation Time (Mid-Frequency)	
Unoccupied	2.6sec
Occupied	2.1sec

Finishing Materials

Ceiling	: 2 layers of gypsum board (21mm x 2)
Upper Wall	: 25mm marble on concrete
Lower Wall	: 10mm wooden surfaced board on concrete
Floor	: 30mm wooden on concrete
Seat	: Upholstered
Miscellaneous	: suspended movable canopy (530SM)
Organ	: 126 stops (Mark Garnier)
Noise Level	: NC-20
Other Facilities	: Theater(841seats), Mini theater (300seats) x 2, Gallery, Rehearsal room x 6

Total Cost : ¥ 29,100 Million JPY

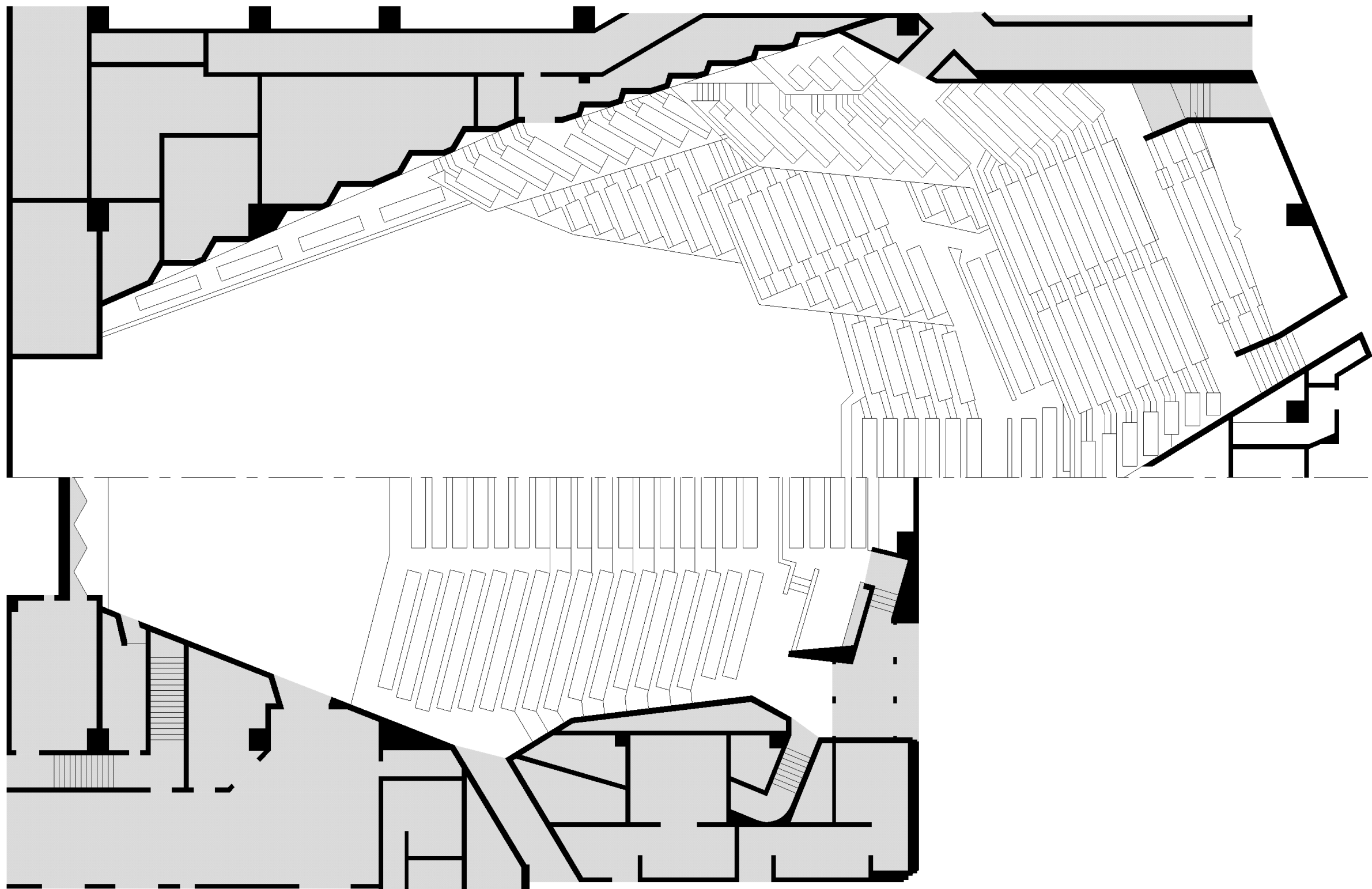
Total Floor Area : 49,739SM



REVERBERATION TIME



LONGITUDINAL SECTION



0 5 10 15 20 METERS

PLAN

