

# Acoustical Design of Yokosuka Arts Theater

Akira Ono, Hideo Nakamura, Chiaki Ishiwata  
Nagata Acoustics Inc.

**NAGATA  
ACOUSTICS**

The Yokosuka arts theatre is in the complex institution called The Bay Side Square Yokosuka. It has opened in February 1994, after decade of its conception. There is the Yokosuka art theater other than, office, a hotel, shops, gathering residences in this institution.

The Yokosuka arts theatre, with 1,806seats, is designed as opera house. It is a horseshoe in plan with four layers of high balconies. The small hall called "The Bay Side Pocket" is designed for multipurpose space, having capacity of 600seats, can be used as a flat level floor for a variety of performances. This paper reports on the acoustical design and results of acoustical measurements of the two halls.

Yokosuka-City is at the center of Miura Peninsula and there is the distance of about 50 km from Tokyo. The site for The Bay Side Square Yokosuka was the former site of the EM Club (Enlisted Men's Club) which is an U.S. navy personnel meeting place at one time. The plot was returned from U.S. in 1983. The EM club was the birthplace of the jazz of Japan in the postwar, as it was continued in the EM club, a concert was carried out. Such a performance was supporting development of the music world of Japan.

The Bay Side Square Yokosuka was planned in this plot as the facilities that have the central role of the development of the culture and industry of Yokosuka-City. The Yokosuka Arts Theater is in the Bay Side Square Yokosuka. The Yokosuka arts theatre is designed as opera house with 1,806seats. The small hall called "The Bay Side Pocket" was planned as the multi-purpose hall.

## BUILDING DETAILS AND ACOUSTICS DATA

Location 3-27Honmachi Yokosuka-City  
Kanagawa, Japan

Tel 046-828-1601

Architect: Kenzo Tange & Associates

Acoustic Consultant: Nagata Acoustics, Inc.

Owner: City of Yokosuka

### The Yokosuka Arts Theater

Seating Capacity 1,800

Room Volume 19,700CM

Surface Area 5,300SM

Reverberation Time (Mid-Frequency)

- With Orchestra Shell (Classic Concert)

Unoccupied 2.3 sec

Occupied 2.0 sec

- Without Orchestra Shell (Opera, Drama)

Unoccupied 1.7 sec

Occupied 1.4 sec

### Finishing Materials

Ceiling : gypsum board(12mm×2 layers)

Wall : Marble pitching (30mm), exposed concrete

Floor : flooring block

Seat : Upholstered

Noise Level : NC -20

### The Bay Side Pocket (Small Hall)

Seating Capacity 500seats

Room Volume 6,700CM

Surface Area 2,200SM

Reverberation Time (Mid-Frequency)

Unoccupied 1.4 sec

Occupied 1.2sec

### Finishing Materials

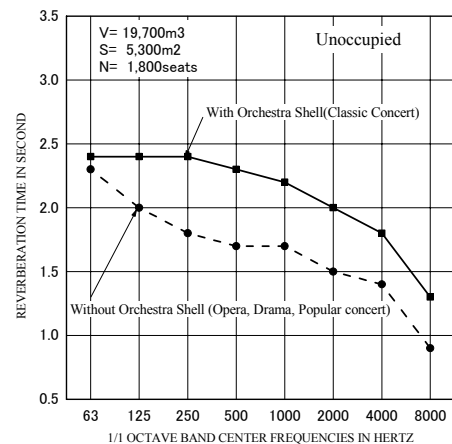
Ceiling : gypsum board(12mm×2 layers)

Wall : steel metal panels (3.2mm)

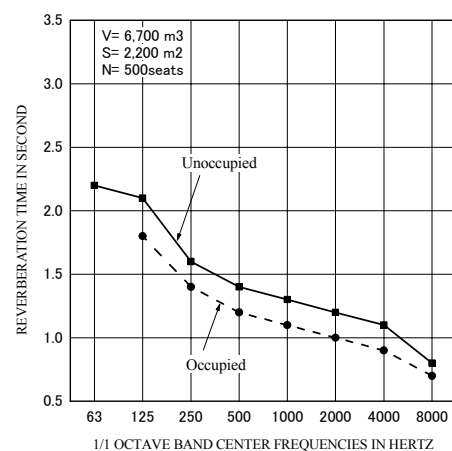
Floor : flooring block

Seat : Upholstered

Noise Level : NC -20



**The Yokosuka Arts Theater**

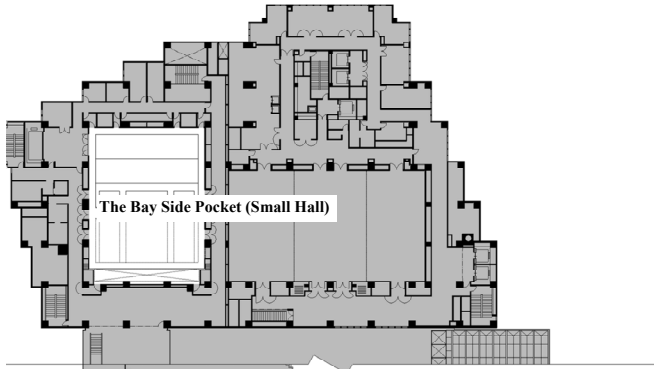


**The Bay Side Pocket (Small Hall)**

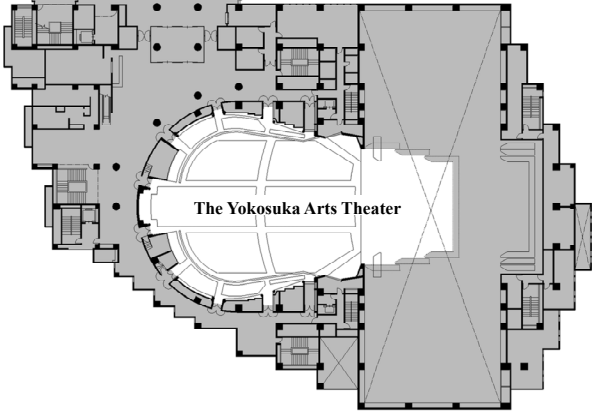
**REVERBERATION TIME**

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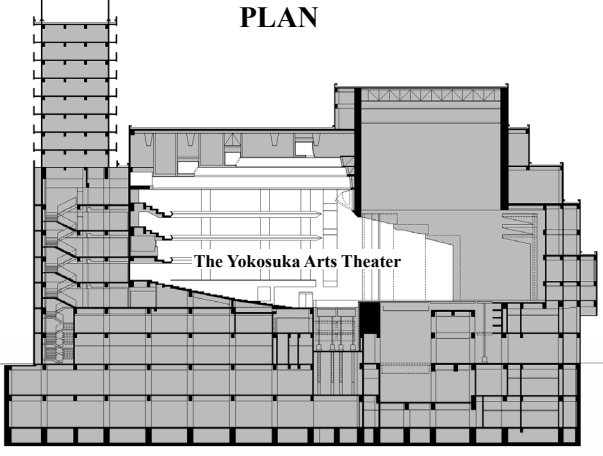


The Yokosuka Arts Theater View from the Audience Area



The Yokosuka Arts Theater View from the Stage

## PLAN



5 0 10 20 30 METERS

## LONGITUDINAL SECTION



The Bay Side Pocket (Small Hall)

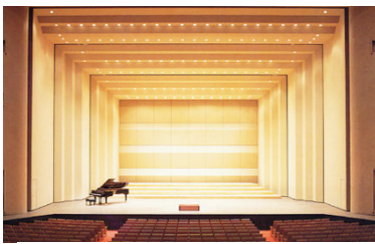


Orchestra pit is narrowed.



Orchestra pit is widened.

## ORCHESTRA PIT



Consisting of three telescoping flat arches

## ORCHESTRA SHELL