



Auditorium
India Prime Minister Narendra Modi delivering inauguration speech on May 25 2018



Bangladesh Bhavan building



Glass roof hall



Library

High volume air conditioning challenge met by SET FREE

 **Bangladesh Bhavan,
Visva Bharati University**

The Bangladesh Bhavan center celebrates the cultural links between India and Bangladesh. At over 44,000sq.ft. the prestigious two storey building includes a 450 capacity auditorium, museum, library, research center, two seminar halls and a cafeteria.

SET FREE Kyosho Series was chosen to cool down the large air volumes housed in the building. Even cool air distribution and fresh air intake units, combined with low noise level, create an ideal atmosphere for an enlightening visit.



Bangladesh's Prime Minister Sheikh Hasina, India's Prime Minister Narendra Modi and West Bengal Chief Minister Mamata Banerjee at inauguration ceremony

“Very happy to see and feel the performance of the entire project, especially the air-conditioning and sound system”

Ms. Mamata Banerjee, Chief Minister of West Bengal

Solution

Application



VRF



CULTURAL AND HERITAGE BUILDING

Key outcomes

- ✓ Full comfort even at high temperature – up to 45°C that can be experienced in summer
- ✓ Quiet operation ideal for conference and library atmospheres
- ✓ Fresh air circulation maintaining a healthy environment
- ✓ A consistent indoor temperature of 22°C achieved for the building inauguration, in the presence of India's Prime Minister Narendra Modi and Bangladesh's Prime Minister Sheikh Hasina

Issues to be addressed

The 450 seat auditorium room, with high ceiling (30ft/9.1m), was particularly challenging in terms of a high airflow and humidity control.

In addition, the air conditioning system had to suit the needs of the other rooms in the building, including a 6,000 book library, two seminar halls, a cafeteria and a glass roof hall.

In this region of India, high ambient temperature can be a big challenge, requiring superior air conditioning performance and reliability.

Key stakeholder requirements

- The Visva Bharti University — required low noise level air conditioning. The acoustic quality is critical for this auditorium where conferences and speeches are delivered.
- The architectural consultant ACME and HVAC consultant Mr Manoj Chakraborty — stressed the requirement of the air distribution system to prevent hot air pockets within the auditorium. Supporting product data was supplied to accurately size the VRF system.

Our solution

The SET FREE Kyosho Series by Hitachi Cooling & Heating was ideal to meet the cooling demands of this project.

- **300HP total capacity** – the building includes a glass-roofed central hall bathed in sunlight.
- The auditorium required a **large air flow**, the ducted indoor units produced an air flow velocity of 3,400CFM (Cubic Feet per Meter), one of the highest in the market. This solution prevented excessive overcooling whilst meeting the required air flow.
- For effective ventilation, the system was combined with four **Hitachi fresh air indoor units**. With 3,540CFM air flow rate, they offer the highest capacity in the market.
- Hitachi **unique energy saving technologies** employed in the SET FREE Kyosho Series were a key consideration in the bidding process.
 - 27 step speed control: continuous precise adjustment of the air conditioning operation to meet indoor demand reduces the power input.
 - 2 stage oil separator: less oil is transmitted to the oil separator minimizing the quantity of oil in the second stage, resulting in a 3.45% increase in energy efficiency.

GENERAL INFORMATION

Customer

Bangladesh Bhavan at
Visva-Bharati university

Location

Santiniketan, West Bengal, India

Project

Construction of Cultural Building
(44,261sq.ft/4,112m²)

Date of installation

2018

SYSTEM DESCRIPTION

Outdoor Units

SET FREE Kyosho series
Heat Pump type | 400MF/TR

- 6 units
(18HP)



- 4 units
(48HP)



Indoor Units

In-The-Ceiling (High Air Quantity)

- 6 units
(18HP)
3,400CFM



- 8 units
(3HP)
1,000CFM



4-Way Cassette

- 4 units
(2HP)



Wall-mounted

- 4 units
(2HP)



All Fresh Air Indoor Unit

- 4 units
(20HP)
3,540CFM



Individual Remote Controllers

PC-AR

- 20 units



PC-LH3B

- 32 units

