Mode Gakuen Cocoon Tower

Facts

Official Name: Mode Gakuen Cocoon Tower
Other Names: The Giant Cocoon
Structure Type: Building
Status: Completed
Country: Japan
City: Tokyo
Street Address & Map: 1-7-3 Nishi-Shinjuku, Shinjuku-ku
Postal Code: 160-0015
Building Function: education
Structural Material: composite
  - Core: Concrete Filled Steel
  - Columns: Steel
  - Floor Spanning: Steel

Construction Start: 2006
Completion: 2008

Rankings
  - National Ranking: #33 Tallest in Japan
  - City Ranking: #22 Tallest in Tokyo

About Mode Gakuen Cocoon Tower

The design of Mode Gakuen Cocoon Tower offers a new solution for school architecture in Tokyo's tightly meshed urban environment. A new typology for educational architecture, the tower and accompanying auditoriums successfully encompass environmental concerns and community needs with an inspirational design.

Literally a vertical campus, the tower accommodates approximately 10,000 students across the three vocational schools sharing the building. These include: the fashion school Tokyo Mode Gakuen; HAL Tokyo, an information and technology school; and Shuto Iko, a medical welfare school. Mode Gakuen operates all three.

Companies Involved

Owner/Developer: Mode Gakuen
Architect: Tange Associates
  - Design
Structural Engineer: Arup
  - Design
MEP Engineer: Kenchiku Setsubi Sekkei Kenkyusho
  - Design
Main Contractor: Shimizu Corporation
The low-rise building, an intriguing egg-shaped structure adjacent to the high-rise tower, houses two major auditoriums. The halls are used for school, as well as public, functions. With approximately one thousand seats, the auditoriums bring to the area a wide and exciting mix of cultural events. The high-rise tower floor plan is simple; three rectangular classroom areas rotate 120 degrees around the inner core. From the 1st to the 50th floor, these rectangular classroom areas are arranged in a curvilinear form. The inner core consists of elevators, staircases and shafts. To ease the potential congestion that might be caused by vertical movement, the three schools are laid out in three parts of the building; lower tier, middle tier and upper tier.

Unlike a typical horizontally laid out school campus, the limited size of the site challenged the architects to develop a new typology for educational architecture. Student lounges are located between the classrooms, facing three directions; east, southwest and northwest. Each atrium lounge is three-stories high and offers sweeping views of the surrounding cityscape. As new types of schoolyards, these innovative lounges offer students a comfortable place to relax and communicate.

The tower is designed specifically with the environment in mind. This includes a cogeneration system, installed within the building, that produces about 40% of the structure’s power and thermal energy. This greatly increases the building’s operational efficiency and decreases energy costs. It also reduces potential greenhouse gas emissions that contribute to global warming. The elliptic shape allows for even distribution of sunlight, thereby limiting heat radiation to the surrounding area. The shape also ensures that it aerodynamically disperses strong wind streams; an important issue in this high rise district that attracts large and potentially damaging gusts of wind.

Enhancing the community was a major goal of the project. Positioned like a gateway between Shinjuku Station (Tokyo’s busiest train terminal) and the Shinjuku Central Business District, the building is revitalizing the area. A “3D Pedestrian Network” of inviting passageways below and above ground is open to the public, allowing a free flow of pedestrian traffic. Along with the addition of thousands of young students, the building is a magnet for businesses that will bring vitality to the area along with needed commerce.

The elliptic shape permits more ground space to be dedicated to landscaping at the building’s narrow base, while the narrow top portion of the tower allows unobstructed views of the sky. The nurturing forces of nature are close at hand to the student; an inspiring environment in which to study, learn and grow.

Research Papers

- **The Emergence of the Diagrid - It’s All About the Node**
  1 Dec 2016 – International Journal of High-Rise Buildings Volume 5 Number 4

- **BIM Applications to Large-scale Complex Building Projects in Japan**
  Dec 2014 – International Journal of High-Rise Buildings Volume 3 Number 4

- **Creating a Vertical University in an Urban Environment**
  Feb 2013 – CTBUH Journal, 2013 Issue 1

CTBUH Awards

- **Best Tall Building Asia & Australasia 2009 Award of Excellence**

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