

BANK OF CHINA

GENERAL INFORMATIONS

- Official Name:** Bank of China Tower
- Location:** 1 Garden Road, Hong Kong, China
- Use:** Office (Bank Of China-18 floors, Rent for Commercial-52 floors)
- Structural Height:** 367 m (Antenna), 305 m (Roof)
- Number of Stories:** 70 (below ground), 4 (under ground)
- Floor Area:** 135,000 m²
- Site Area:** 6700 m²
- Construction Start/End:** April 18, 1985/ May 17, 1990
- Architect:** Ieoh Ming Pei & Partners
- Structural Engineer:** Leslie E. Robertson Associates
- Mechanical/Electrical Engineer:** Jaros, Baum, and Balles; ACE
- Wind Tunnel Test:** University of Western Ontario WTL
- Structural System:** Space Truss / Trussed Tube System*, Braced Tube System**, Cross Braced Space Truss System***.

* BS 536 Lecture Notes, Günel and Igin
** A Proposal for the Classification of Structural Systems of Tall Buildings
*** Economics Planning of Super Tall Buildings in Asia Pacific Cities



- Architecture:** Structural Expressionism, Futurism, Feng Shui, Crystalline Euclidean
- Structure:** Composite Structure
- Client:** Bank of China
- Contractor:** Kumagai Kumi
- Cost of The Building:** 150,000,000 \$
- Number of Elevators:** 45
- Number of Mechanical Floors:** 6
- Number of Carparks:** 370
- Structural Materials:** Steel, Concrete
- Facade Materials:** Aluminum, Glazed Window, Granite
- Ranks of Highest Building:** #14 in World, #7 in China, #3 in Hong Kong

SOURCE: Architectural Record, www.skyscraperpage.com, www.ctbuh.org.

SITE CONDITIONS

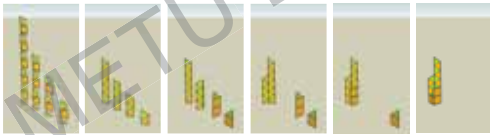


Bank of China Tower is constructed with the increasing demand of central headquarter for BOC, on financial capital of China. Hong Kong Building is designed by Chinese Architect, I.M. Pei and his partners as a prestigious landmark of Hong Kong with its height and futuristic expression.
The site that is considered for building is jammed between two elevated highways; and it has 6700m² area with 9m-level difference between its two edges. To meet the floor area demand and create a glorious view through city, high rise building was necessarily needed for the site. Surrounding district is surrounded with high rise buildings that meets the commercial functions of financial capital of China.

SOURCE: LERA PUBLICATIONS, www.wikipedia.org

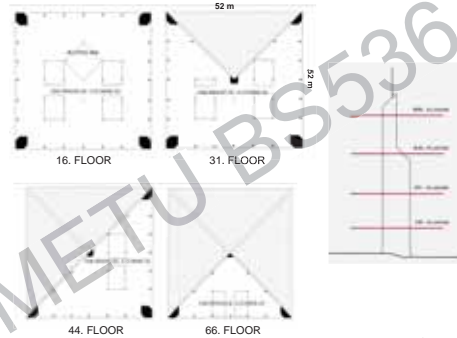
ARCHITECTURAL DESCRIPTIONS

CONCEPT: The square is divided to four quadrants by crossing it with two diagonals. Those quadrants are rising with triangular prisms which mounts over and over. Each quadrant includes different numbers of prisms, respectively: 3, 5, 7, 11. In another aspect, quadrants are existing by 1, 2, 3, and 5 unit of facades in same respect. As a result, building is tapering step by step, which also gives the sense of rising bamboo, conceptually. Those triangular shapes are reinvented as huge structural frames by structural engineer.



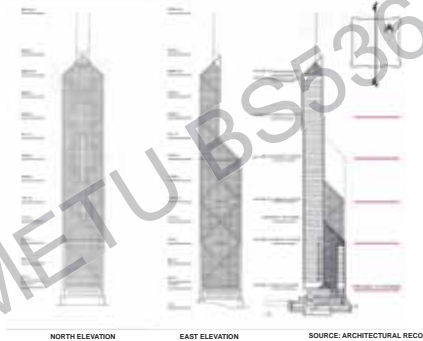
DRAWN BY: BURAK CELEBI

FLOOR PLANS



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SECTION AND ELEVATIONS



SOURCE: ARCHITECTURAL RECORD

FENG SHUI CONSIDERATIONS

- * Building has 'Structural Expressionism' attitude with aluminum cladding on structural components. The belt floors existing in 4., 18., 31., 44., 57., and 69. floors were also expressed with same method beside the diagonal bracings at first. But the unexpected statement of 'X Shape' which means death in Feng Shui terms, the architect decided to hide belt truss structures. Instead diamond shape with bright materials symbolized richness, which is more suitable.



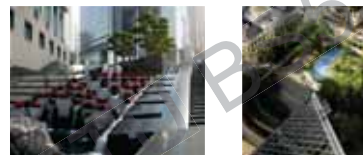
SOURCE: HOW FENG SHUI EXPLAINS ITS SUCCESS OR OTHERWISE

- * 17 storey atrium existing in building is directed to the north side, which recalls the situations of courtyard in traditional forest houses.



SOURCE: HOW FENG SHUI EXPLAINS ITS SUCCESS OR OTHERWISE
DRAWN BY: BURAK CELEBI

- * The entrance to the building is provided with continuous walking path directed on east-west axes. With the fountain existing on path, traditional Water Dragon Road is reinvented, which is believed to bring wealthy to the building.



- * Opening ceremony was held on 08.08.88. Number of eight is a symbol of good fortune and prosperity in Feng Shui beliefs.

SOURCE: HOW FENG SHUI EXPLAINS ITS SUCCESS OR OTHERWISE

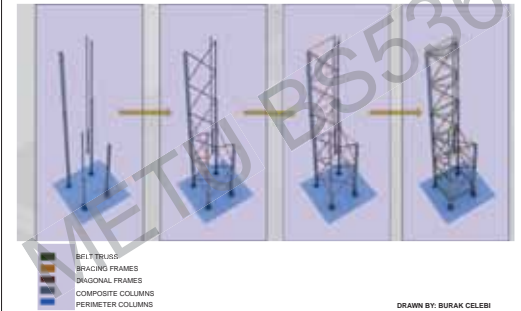
STRUCTURAL DESCRIPTIONS



Five columns are transmitting the load in vertical axes. Corner columns have a granite base on the ground, while the central column is uprising from 25th floor. The fact that makes the central column intermit in 25th floor is existing 20 bracing frames connected to the corner columns. These bracing frames connects in opposite ways on central columns and create a balance for central column. On the other hand, square facades has diagonal frames, which create resistance for vertical loads.

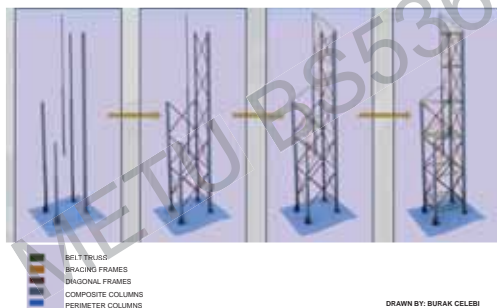
SOURCE: ENR, ARCHITECTURAL RECORD, LERA PUBLICATIONS

3D VIEW OF STRUCTURE



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3D VIEW OF STRUCTURE



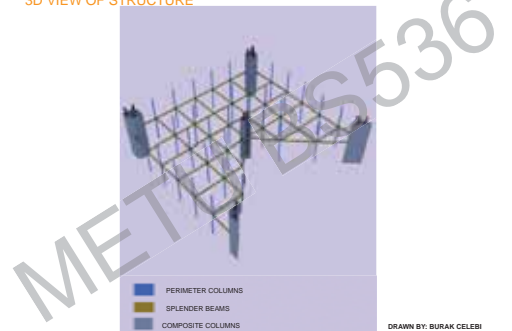
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3D VIEW OF STRUCTURE



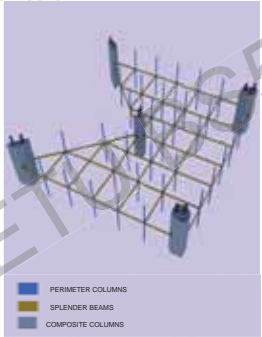
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3D VIEW OF STRUCTURE



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3D VIEW OF STRUCTURE



- PERIMETER COLUMNS
- SPLENDOR BEAMS
- COMPOSITE COLUMNS

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SPLIT CORE



16. FLOOR

31. FLOOR

44. FLOOR

66. FLOOR

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13800 tonnes of steel and 40900 m³ of concrete is used in construction of the building. *

*www.skyscraperpage.com



SYSTEM DETAILS



SOURCE:ENR, LERA PUBLICATIONS



AWARDS GIVEN TO BUILDING

- *2002 EXCELLENT AWARD OF HK BUILDING ENVIRONMENTAL ASSESSMENT METHOD
- *1999 TEN BEST ARCHITECTURE IN HONG KONG
- *1992 MARBLE ARCHITECTURAL AWARD
- *1991 AJA REYNOLDS MEMORIAL AWARDS
- *1989 AWARD FOR ENGINEERING EXCELLENCE
- *1989 CERTIFICATE OF ENGINEERING EXCELLENCE.

SOURCE:www.bochk.com/web

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