Changing Market Forces and their Impacts on Tall Building Planning and Design: A Case Study
市场趋势的变化及其对高层建筑规划设计的影响/个案研究

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The design evolution of a 355-meter tall luxury residential tower in Mumbai, India.
Fast Facts

- Mumbai aspires to be India’s version of Shanghai
- Maritime city with a colonial past
- Population base of 20 million, 40% of which live in slums
- Crumbling infrastructure and delayed improvements
- Wide gaps between the wealthy and the disenfranchised
Influence of Market Forces

- Vetting designs against fast-changing market demand
- Game of “chicken” played by developers and buyers
- Costing and sticker shock
- Changes in political structures and referendums
- Regulatory overhaul
Bureaucratic Roadblocks

- Notoriously corrupt systems and bureaucracies gradually morphing to greater transparency
- Underworld elements often control or influence real estate development
- Legal cases backed up for years due to over-worked judicial systems
Disputes and Delays

- Complex regulations often result in legal misinterpretations, leading to delayed completions

- Deliberate, albeit infrequent, disregard of laws and regulations cause projects to stall indefinitely

- Political interference, influence peddling, inefficient bureaucracy and legal backlog muddy up situations further
Cash Flows

- Developers refrain from lowering prices in soft markets and buyers keep waiting for optimal market conditions, leading to financial impasse and gridlock.

- Frequent cash crunches continually delay construction schedules and trigger penalties.

- Consultants often bear the brunt of slow-downs and unpaid fees.
Glut of Luxury
Residential
FAR Conundrums

- From 1980 to 2015, FARs were routinely 1.33

- Proposed new regulations could potentially increase FAR to 5 but with certain provisos (incorporation of hotels, public parking, etc.)

- Further clarity and transparency proposed by authorities to inhibit loopholes and misinterpretations
How Current Top Tier Luxury Residential Projects Compare Globally

- **NEW YORK**
  - $6,500 per sf
  - /250,000 HK$ per sm

- **HONG KONG**
  - $3,500 per sf
  - /250,000 HK$ per sm

- **SHANGHAI**
  - $1,500 per sf
  - /100,000 RMB per sm

- **MUMBAI**
  - $1,000 per sf
  - /Rs. 65,000 per sf
Current Supertall Towers Under Construction in Mumbai

World One, 452 meters  PEI COBB FREED
1973, 320 meters  FOSTER AND PARTNERS
360 West, 372 meters  KPF
Mumbai’s SRA (Slum Redevelopment Authority) Scheme
Co-existence of luxury towers and slum rehabilitation
Imperial Towers
2010, 254 meters
Imperial 3

- Winning Entry
- Adrian Smith + Gordon Gill Architecture
- 400 meters, 116 floors
Conceptual Idea and Section of Alternative Scheme
Typical Floor Plan
Explorations in Form
Sinuous
Less is More

© Council on Tall Buildings and Urban Habitat
Exoskeletal
Shades of White
Biophilic
Skyline Context
Context View
Context View
Structural Framing Options
Structural Framing Options
Alternative Structural Systems

- Clogged arterials inhibit timely concrete delivery
- Global glut of steel made steel framing competitive
- Hybrid systems carefully evaluated and competitively priced
- Conventional concrete systems ultimately adopted due to tried and tested methodologies, familiarity and lack of skilled labor
Composite Structure Framing
Foundation Section
Façade Studies
Lantern Studies

MAINTENANCE STRATEGY FOR ‘PURPLE ZONE’, PARAPET

OPTION 1: ABSEILERS

Canvass with permanent ladder along with fall arrest safety harness and means for the inside and rope access from outside of the parapet.
Foundation Section
Ongoing Design Evolution
Impacted by

- Marketability
- Price Points
- Regulatory Changes
- Construction Schedules
- Competitive Inventory
Questions?