

The Building Team Magazine

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# LOFTY AMBITIONS



With its lantern-like entryway capturing the attention of patrons, the Mori Arts Center elevates art and culture to new heights.

By Larry Flynn, Senior Editor

**D**rawing 26 million visitors in its first six months of operation last year, Tokyo's gargantuan Roppongi Hills mixed-use development may be the biggest thing to hit the city since Godzilla. Located in the upscale Roppongi neighborhood on a site where 400 homes once stood, the \$4 billion, 28-acre development is replete with retail, restaurants, movie theaters, a residential complex, and office and cultural space, with Japanese and English gardens interspersed between its buildings.

Anchoring the development is Mori Tower, a 780-foot, 54-story office structure sheathed in glass and steel and rounded at the corners. Designed by Kohn Pedersen Fox Associates, New York, and constructed by the Japanese joint venture of Obayashi/Kajima, the tower gets its name Minoru Mori, president of Mori Building Co., developer of Roppongi Hills, and Japan's answer to Donald Trump.

It's hard to imagine what penthouse space in one of the tallest office buildings in the world's most expensive city might command. Yet, in a symbolic gesture of his commitment to art and culture, Mori reserved the top five floors in the tower for the Mori Arts Center.

Dedicated to the display of world-class contemporary art by Japanese and international artists, the galleries of the Arts Center's Mori Art Museum occupy the prestigious 52<sup>nd</sup> and 53<sup>rd</sup> floors of the \$2.5 billion tower. Design architect Gluckman Mayner Architects, New York, which also designed the Arts Center's public spaces, approached the museum as a building within a building. "The main building is complex, with sharp angles and broad, sweeping curves," says Gluckman Mayner project manager Sam Brown. "The kinds of spaces we feel work best for galleries are simple, well-proportioned rectangular spaces." Thus, a simple, two-story rectilinear

building has been set within the more sophisticated geometries of the tower.

This simplicity extends to the light-colored maple floors and whitewashed walls of the galleries, intended to provide a serene environment for the enjoyment of art.

The museum's primary exhibition venue, on the 53<sup>rd</sup> floor, contains 24,000 sf of skylit exhibition space divided into four L-shaped galleries. Three galleries on the 52<sup>nd</sup> floor total 11,000 sf and are encircled by a public observation deck — the Tokyo City View — which offers skyline watchers and museumgoers a 360-degree view.

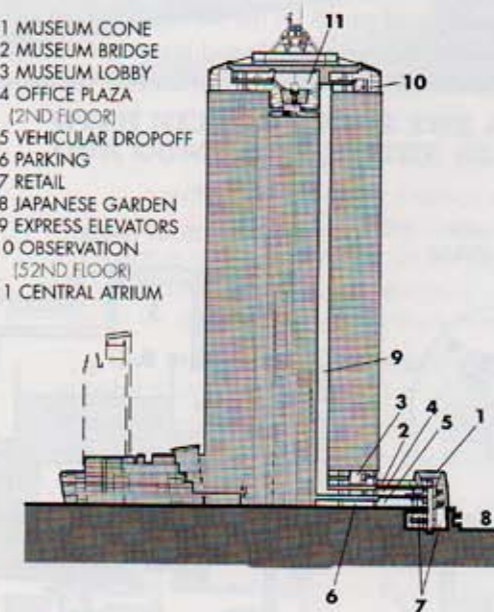
Suspended from the 53<sup>rd</sup>-floor roof structure, two innovative 2,000-sf art and technology galleries comprised of glowing, translucent glass boxes float above the 52<sup>nd</sup> floor observation deck, extending out to the edges of the building. Intended for multimedia technology displays, "the spaces give artists the opportunity to address the view and the wider city," says Brown.

While many new galleries boast of flexible space, the Mori makes no such claim. "Flexibility is a myth," says Gluckman Mayner principal Richard Gluckman, FAIA.

Project manager Brown agrees with his boss.



- 1 MUSEUM CONE
- 2 MUSEUM BRIDGE
- 3 MUSEUM LOBBY
- 4 OFFICE PLAZA (2ND FLOOR)
- 5 VEHICULAR DROPOFF
- 6 PARKING
- 7 RETAIL
- 8 JAPANESE GARDEN
- 9 EXPRESS ELEVATORS
- 10 OBSERVATION (52ND FLOOR)
- 11 CENTRAL ATRIUM



SECTION THROUGH TOWER AND MUSEUM CONE

From the museum cone (1), visitors cross a 70-foot-long bridge (2) to the museum lobby (3), where five express elevators (9) transport them up to the central atrium (11). Section: Gluckman Mayner

Carved from the core of the building in space where some of the elevators top out, a 56x56x63-foot central atrium ties together the Arts Center's top four levels: the two museum floors, a private club on the 51<sup>st</sup> floor, and the Arts Center offices on the 50<sup>th</sup>. Between the observation deck and the galleries, banners promoting museum exhibits line the walls of rough red Indian sandstone, and artwork is displayed on the honed dark granite floor.

Photo: Mori Art Museum

- PROJECT SUMMARY**
- Mori Arts Center**  
Tokyo, Japan
  - Building Team**
  - Owner/developer:** Mori Building Co. Ltd.
  - Museum design architect:** Gluckman Mayner Architects
  - Museum local architect:** Irie Miyake Architects & Engineers
  - Academy Hills (educational component) architect:** Kengo Kuma
  - Roppongi Hills Club architect:** Conrad and Partners
  - Structural engineer:** Dewhurst Macfarlane and Partners; Yoshinori Nito/Yumi Fujikawa
  - Mechanical engineer:** Altieri Sebor Wieber
  - Local engineers:** Kozo Keikaku (structural); Kenchiku Setsubi (mechanical)
  - General contractor:** Obayashi/Kajima (joint venture)
  - Museum cone façade prime contractor:** Asahi Glass Building Component Engineering Co. Ltd.

**General information**

- Area:** 100,000 sf (10,000 square meters)
- Number of stories:** 54
- Construction time:** April 2001 to October 2003
- Construction cost:** Withheld by owner
- Museum cone:** Glass, tempered laminated ceramic frit, stainless steel fittings, structural steel, GFRc panel, stone
- Museum finishes:** Back-painted glass wall panels, translucent-interlayer laminated glass, split-faced Indian red sandstone, honed black Chinese granite, gray pre-cast simulated terrazzo floor tile
- Elevators:** Nippon Otis Elevator Co.
- Escalators:** Mitsubishi Electric Corp.



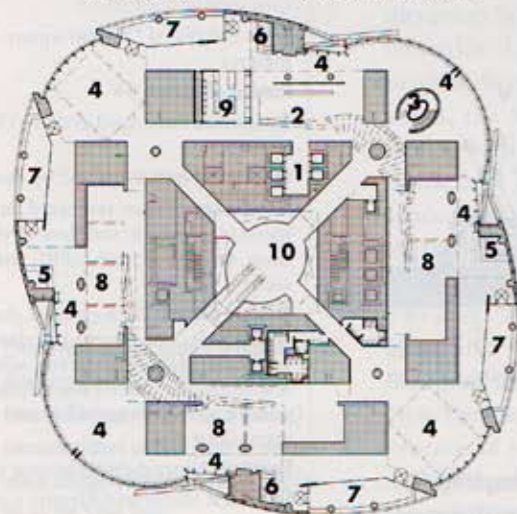
Encircling the art museum galleries on the 52nd floor, the Tokyo City View observation deck affords visitors 360-degree views.

Photo: Mori Art Museum

The office tower's 52nd and 53rd floors contain the gallery spaces for the Mori Art Museum, observation deck, and the Arts Center's central atrium.

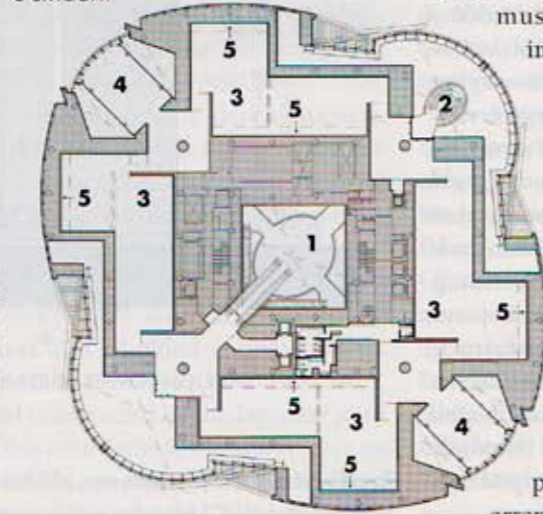
Floor plans: Gluckman Mayner

- 1 EXPRESS ELEVATORS
- 2 ARRIVAL LOBBY
- 3 COAT CHECK
- 4 OBSERVATION
- 5 GIFT SHOP
- 6 CAFE
- 7 TERRACE
- 8 GALLERY
- 9 MUSEUM SHOP
- 10 CENTRAL ATRIUM



52ND FLOOR PLAN

- 1 CENTRAL ATRIUM
- 2 SECONDARY STAIR
- 3 GALLERY
- 4 ART AND TECHNOLOGY GALLERY
- 5 SKYLIGHT



53RD FLOOR PLAN

director David Elliott says the art spaces are actually "very forgiving and flexible."

### High-rise art has its hang-ups

Designing a museum suspended 780 feet in the air was a new endeavor, even for Gluckman Mayner, a firm known for urban museums dedicated to the likes of Andy Warhol, Georgia O'Keefe, and Pablo Picasso. "An observation deck by itself didn't feel like enough of a destination," says Brown. "Mori felt that the deck and the museum reinforced each other."

Attendance figures lend credence to this theory. While visitors are initially drawn to the spectacular view, they also take time to stroll through the galleries. Since opening last October, 850,000 people have visited the museum.

The museum is experimenting with further integrating the viewing deck and museum space, says director Elliott. A current exhibit can only be accessed from the viewing deck. "The view is wonderful and it means that we have to show art that is strong in its own way," he says.

During the design process, the Mori Building people expressed concern that the series of vertical trusses connecting to the mullion looked too much like a birdcage. Gluckman Mayner and structural engineers Dewhurst Macfarlane changed the original structural design of the curtain wall, which reduced the size of the aluminum mullions and gave the appearance of greater glass surface from the observation deck.

### Lantern-inspired entrance cone

Circulating people and art through the high-rise tower was the biggest challenge posed by the museum's lofty location. "The siting imposes difficulties in getting visitors up and down, convincing lenders of the safety of their artworks, and in the sizing of the freight elevator," says Brown. Large double-decker freight elevators were installed, with one of the two cabs set aside for transporting artwork.

A more ingenious solution was Gluckman Mayner's creation of a freestanding, 100-foot-high cone-shaped building made of open-jointed overlapping rectangular glass panels constructed in a shingle arrangement, which Brown says acts like "a circulation machine."

Within the glass enclosure, a glass-fiber-reinforced-concrete-clad steel funnel contains elevators and provides the primary vertical support for the building, says structural engineer Yoshinori Nito, who worked on the project for Dewhurst Macfarlane and later as an independent contractor. The elevator funnel, together with a spiral stairway that coils around it, provides a vertical axis connecting the sloping site's Japanese garden, shopping promenade, vehicular drop-off, and office plaza levels to a 70-foot-long glass-clad bridge at the office tower's third level. The bridge guides museum and observation deck visitors across the office tower, where five high-speed express elevators whisk them up to the 52nd floor.

The distinctive cone serves "pragmatic as well as poetic functions," says Gluckman. The overlapping glass panels shed water and provide shelter but not climate separation, while the laminated tempered safety glass panels, printed with a translucent ceramic frit dot pattern, allow for views of the garden during the day. "But at night the lighting on the surface makes it glow like a Japanese lantern," says Gluckman.

"It looks wonderful at night," says the museum's Elliott. The museum is taking advantage of the popularity of the cone by siting artwork in it as an introduction to the main exhibits in the tower.

The cone's glass and lightweight steel façade operates on a principle Nito calls a "cable net shell" to resist wind, seismic, snow, and thermal loads. A single layer of diagonal net consisting of galvanized cables 17.5mm in diameter acts in tension, stabilizing 22mm-thick horizontal steel rings in compression, which hold the elliptical conical form of the glass façade in place. The main compression loads imposed by the cable net are resolved into the elevator funnel at the top of the cone.

Dewhurst Macfarlane president Tim Macfarlane compares the solution "to a 19th-century bustle support for a dress, which gives it its bell shape."

While the cone beckons visitors,

Elliott says that many are confused by the signage, which is written in both Japanese and English. "A number of eminent designers worked on the signage and that may be the problem," he says. However,

the iconic cone and the museum's logo, designed by font and graphic designer Jon Barnbrook, have "been very successful in establishing the museum's identity," says Elliott. **BDC**



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