

Building Information

General Building Data

Building Name: Trump Taj Mahal New Hotel Tower

Building Location: Atlantic City, New Jersey on the 1000 block of the Boardwalk

Building Owner/Occupant: Trump Hotels and Casino Resorts

Building Function: Hotel that serves as an expansion to the existing Taj Mahal hotel

Building Size: 732,231 square feet

Number of Stories above Grade: 40

Height of Building above Grade: 460'-10" (Structural Redesign: 490'-10")

Project Team:

- **Owner's Representative:** *Trump Hotels and Casino Resorts*
- **Architect/Interior Designer:** *Friedmutter Group*
- **Construction Management:** *Bovis Lend Lease LMB, Inc.*
- **Interior Designer:** *Hirsch Bedner and Associates*
- **Civil Engineers and Fire Suppression:** *Arthur W. Ponzio and Associates*
- **M.E.P Engineers and Fire Suppression:** *Giovanetti, Shulman Associates*
- **Structural Engineering Consultant:** *The Harman Group*
- **Parking Consultant:** *Schoor Depalma*
- **ADA Consultant:** *Endelman and Associates*
- **Lighting Consultant:** *John Levy Lighting Productions, Inc.*
- **Building Envelope Consultant:** *Edwards and Company*
- **Technical Specifications:** *Focus Collaborative, Inc.*
- **Reflective Glare Consultant:** *University of Michigan, College of Architecture and Urban Planning, Advance Monitoring and Control Management, Inc.*
- **Code Consultant:** *Rolf Jensen and Associates, Inc.*
- **Acoustical Consultant:** *Chips Davis Designs*
- **Low Voltage Wiring Consultant:** *Michael Raiser Associates, Inc.*
- **Vertical Transportation Consultant:** *Lerch, Bates Associates, Inc.*
- **Landscape Architect:** *Cairone and Kaupp, Inc.*

Construction Dates:

- **Start Date:** July 31, 2006
- **End Date:** July - September 2008

Overall Project Cost: \$200 Million

Project Delivery Method: CM at Risk



Taj Mahal Hotel Architecture

History and Overview

Atlantic City is known as the “Las Vegas” of the east coast. It is home to some of the largest and finest hotels, resorts, and casinos, as well as one of the largest boardwalks in the world. Donald Trump came to Atlantic City with a vision to create one of the world’s finest casinos along with Atlantic City’s most luxurious hotels. At the 900 block of the Atlantic City boardwalk in 1990, Trump unveiled the first Taj Mahal Hotel, unprecedented in craftsmanship and opulence. Its stern use of iconic architecture, rich with lights and signage, matches that of the rest of Atlantic City.



Figure 1: Rendering of the New Trump Taj Mahal Hotel Tower (Right)

Architectural Styles

The Taj Mahal Hotel Tower resembles a powerful type of iconic architecture, signifying the power and wealth of Donald Trump along with the luxury you can expect from such a hotel. Such iconic characteristics that are clearly expressed on the building include large, bold signage (Both the Taj Mahal running down the east and west sides of the building and Trump across the top of the building.), a unique and pure geometric plan that rivals its neighboring predecessor, and it’s overwhelming height as compared to the neighboring buildings along the ocean front skyline. The facade of the building is constructed with mostly modern materials, comprised of a reflective glass curtain wall, metal panels, and architectural pre-cast concrete panels.

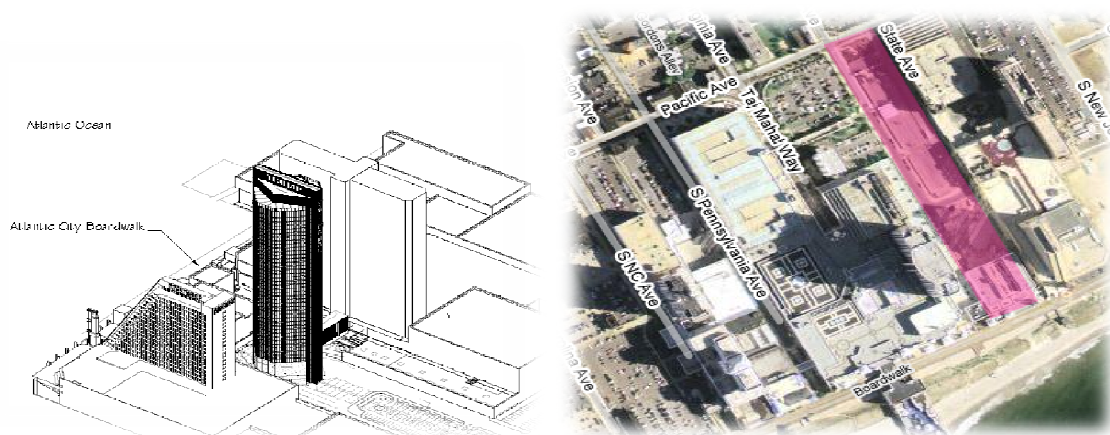


Figure 2: Layout and Site of the Trump Taj Mahal Hotel (provided by The Harman Group, Friedmutter Group, and Google Earth)



Spaces and Functionality

The hotel will serve as an expansion to Trump’s older Taj Mahal tower and will be connected to the older hotel via a steel framed bridge. Floors 1 thru 2 contain some the tower’s mechanical and electrical equipment, loading docks, and housekeeping services. Floor 3 serves as the main lobby and has several meeting areas. Floors 4 thru 39 contain the guest rooms. And finally, floor 40 furnishes the remaining mechanical and electrical equipment. There are services, such as laundry and housekeeping, located in the central concrete core on every floor of the tower.

The new hotel will provide an additional 786 rooms, ranging from single and double rooms to 3 bay super suites. Some of these rooms will provide special accessibilities for handicapped and hearing impaired, per ADA. Circulation through located within the concrete core of the building. This circulation service elevators.

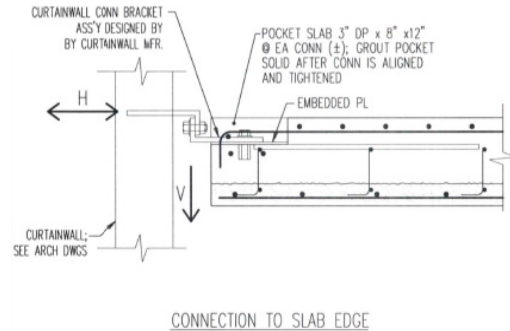


Figure 3: Curtain Wall Connection Detail

Building Envelope

The building envelope utilizes two different systems; a curtain wall and architectural pre-cast concrete panels. The curtain wall system houses most of the exterior of the building, from the 1st level all the way to the top of the large Trump sign on the roof. The architectural pre-cast concrete panels are used only at the base of the building, located around the building entrances and the loading docks.

The curtain wall system uses four different types of glazing; a clear and slightly reflective glass, an opaque glass finished in light blue, an opaque glass finished in orange, and metal wall panels. Panels of the glazing are framed out using horizontal and vertical mullions. These mullions are attached to the structural framing system using a series of embeds that must be furnished during construction of the structure. At each level, metal panels or opaque glass is used to conceal the concrete structure of the building within. These spandrel panels also provide continuity and fuse the different levels of the curtain wall together. Metal panels are also used on the east and west sides of the building to form the sharp corners.

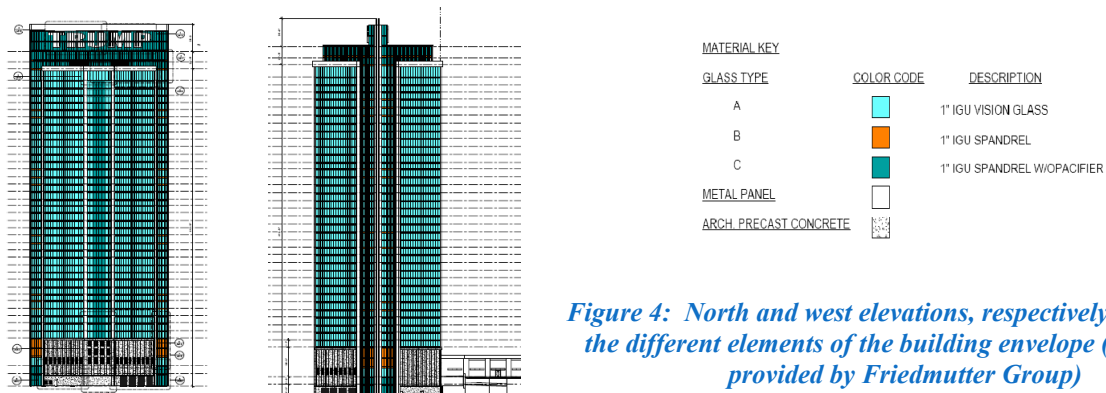


Figure 4: North and west elevations, respectively, illustrating the different elements of the building envelope (Elevations provided by Friedmutter Group)



Roof Description

The roof will be framed using the same concrete floor system as the hotel floors below. A 3” layer of insulation is applied on top of the concrete roof deck, followed by a single-ply fully adhered roofing membrane on 5/8” gypsum sheathing. The roofing membrane will form the exposed surface of the roof, providing protection from water and other environmental elements. To provide rainwater drainage, the roof is sloped at ¼” per foot and two roof drains are located within each valley.

Governing Building Codes

- 2000 International Building Code, New Jersey Edition
- International Mechanical Code, 2003 Edition
- International Standard Plumbing Code, 2003 Edition
- National Electrical Code, 2005 Edition

Zoning Occupancy Group

- Non-separated mixed use types R-1 and B
- Storage and assembly area accessory to main type A-2

Construction Type 1A

Building Systems

Construction

Bovis Lend Lease is acting as the Construction Manager at Risk on the Trump Taj Mahal Hotel. All of the work is being subcontracted. Bovis Lend Lease has two superintendants on site at all times; a general superintendant and a concrete superintendant. Groundbreaking of the new Taj Mahal Hotel Tower commenced on July 31st, 2006 and is scheduled for completion in the third quarter of 2008. The estimated cost of the building is valued at \$250 Million.

For extra quality control assurance, The Harman Group is providing an in house inspector on site at all times. This inspector is used to better the quality and construction of the structural system.

One tower crane is located on the north side of the tower and a mechanical lift on the west side of the tower. A staging area will be located to the northwest of the tower, where a proposed parking lot will be located once construction is complete. A roadway with direct access from Pacific Avenue will provide an easy delivery



Figure 5: Construction Photo



route into the staging area. Project trailers and a storage area are located in the lot adjacent to the staging area, where another parking lot will exist once construction is complete. Jacking gang forms are being used to construct the concrete core of the building.

Mechanical

The HVAC system of the guest rooms of the Trump Taj Mahal Hotel are comprised of individual International Environmental fan coil units, ranging in output from 330cfm to 870cfm. Each unit is supplied with a hot and chilled water supply. Air is exhausted from each level using ceiling registers located in the hallways, lobbies, and other common/service areas. The exhaust air travels down ducts located in the central core and exits the building at the north side of the building on the 3rd floor.

Service areas, such as corridors; lobbies; mechanical rooms; etc, are supplied and exhausted via air handling units. Units gather supply air at the roof and exhaust at the north side of the building on the 3rd floor. VAVs are used to distribute the air at different temperatures for each supplied spaces.

Bathrooms for the guest rooms are exhausted by local ceiling vents. The air travels through ducts enclosed in the walls between adjacent guest rooms. The exhaust air travels down to the 3rd level, where it exits the building on the north face. Small kitchens in some of the larger suites are exhausted in a similar manner.

The hot water will be produced from four boilers located in the 1st level mechanical room. The supply water is circulated throughout the tower via four water pumps, two 345gpm pumps for the low-rise and two 1680gpm pumps for the hi-rise. These pumps are located in the mechanical room on the 1st level.

Electrical/Lighting

The main electrical room of the Trump Taj Mahal Hotel is located on the 1st level of the building. Main power is fed from a 23 kV primary switchgear station located in the adjacent Xanadu Building. Main power is split between four unit sub-stations, 1500kVA and 750kVA stations on the 1st level and 1000kVA and 2000kVA stations on the 40th level.

The typical floor of the Taj Mahal Hotel has two electrical rooms located in the central core of the building, at the north and south sides. Typical panel boards used have a 200amp main breaker and a 22,000 ampere interrupting capacity. Bus ducts are used to feed the panel boards located in these electrical rooms. All risers and penetrations for the electrical system for the low and hi-rise portions of the building are only located in the core.

Emergency power is generated via a 1,000kW/1240kVA 480V diesel fired emergency generator, located in the generator room of the 1st level. The emergency power is distributed throughout the building using three switchgears, two located in the 1st level electrical room, the other in the 40th level electrical room. From the switchgears, emergency power is fed to separate panel boards on every level of the tower. Emergency power is primarily used for fire pull stations and emergency lighting (including strobe lights) supplied on every floor of the tower, installed and per building code.



Fire Protection System

Fire protection of the Trump Taj Mahal Hotel tower is provided by a sprinkler system. These sprinklers are installed per NFPA standards.

Siamese fire department connections line the perimeter of the tower when located more than 50 feet from the nearest fire hydrant. 6 inch standpipes with 2 ½ inch fire hose connections are located on each of level of the tower. Standpipes are provided in each of the 3 stairwells and raise the entire height of the building.

Transportation

The main entrance of the Trump Taj Mahal Hotel is located on the south end of the 3rd level. A new bridge will connect the existing hotel to the new hotel. This bridge and entrance open into the hotel lobby.

Straight ahead of the lobby are the guest elevator lobbies, located in the central core of the building. A total of twelve electric elevators will service the hotel. Eight passenger elevators provide guest transportation to the tower. Four elevators are designated to serve levels 3 - 21, the other four for levels 3, 22 - 39. Four service elevators provide transportation to levels 1 – 39.

Two stairwells at the east and west corner of the central core service all levels of the hotel. One stairwell located on the east side of the 1st and 2nd levels provides employee access to sensitive service areas of the building. Access to the roof is gained via stairs.

