



Trump Taj Mahal Hotel

Stephen M. Reichwein

Atlantic City, New Jersey

Structural

<http://www.engr.psu.edu/ae/thesis/portfolios/2008/smr322/>

Project Team

- **Owner's Representative:** Trump Hotels and Casino Resorts
- **Architect/Interior Designer:** Friedmutter Group
- **Construction Management:** Bovis Lend Lease
- **Interior Designer:** Hirsch Bedner and Associates
- **Civil Engineer:** Arthur W. Ponzio & Associates
- **M.E.P Engineer:** Giovanetti, Shulman Associates
- **Structural Consultant:** The Harman Group
- **Parking Consultant:** Schoor Depalma
- **Lighting Consultant:** John Levy Lighting Productions
- **Building Envelope Consultant:** Edwards and Company
- **Acoustical Consultant:** Chips Davis Designs
- **Low Voltage Wiring Consultant:** Michael Raiser Associates
- **Vertical Transportation Consultant:** Lerch, Bates Associates
- **Landscape Architect:** Cairone and Kaupp

Structural System

- Cast-in-place **concrete core** acts as **shear wall**, providing **lateral force resistance**
- **10" Filigree** flat slab floor system outside of concrete core
- **12" Flat plate concrete** floor system inside of concrete core
- **Steel framed** bridge with **composite metal deck** connects the new tower to the existing tower
- **6' to 9' deep** reinforced concrete **mat foundation** system
- **Wind tunnel test** performed for wind loading

Mechanical/Plumbing System

- Individual International **fan coil units** provide heating and cooling for each guest suite
- Guest room air is exhausted into registers located in lobbies, corridors, and other common areas
- Common areas are supplied air via AHU units; VAV boxes are located in each of the serviced spaces
- Plumbing is separated into a **low** (up to level 22) and **high** (level 23 to 40) **zone**
- Hot water is provided by Patterson Kelly hot water generators, 6 for the low zone and 9 for the high zone
- Water is pumped throughout the tower using one Triplex domestic water booster pump system per zone
- Chilled water is supplied from the existing hotel

General

- **Cost:** \$250 Million
- **Size:** 730,000 Square Feet
- **Height:** 430 ft
- **Occupancy:** Hotel/Resort
- **Function:** Expansion to Existing Hotel
- **Construction:** July 2006 to Summer 2008

Architecture

- **Iconic** style architecture
- **Square, centralized** floor plan
- Short-story **core and shell** concrete high-rise hotel
- Reflective glass curtain wall encompasses the shaft of the tower
- Architectural precast concrete panels form a solid base
- Metal crown and Trump sign at the top of the tower
- Large, bold **signage** spans the vertical of the east and west corners
- Located on the **Boardwalk** of Atlantic City



Construction

- Bovis Lend Lease is acting as the **CM at Risk**, all of the work is being sub-contracted
- One tower crane is located on the north side of the tower
- **Self-jacking slip forms** will be used to form the concrete core
- Staging areas are located on the northwest area of the site, where a parking lot will be later constructed

Lighting/Electrical System

- **120/208V and 277/480V** 3 phase 4 wire systems
- Main power is fed from a **23kV switchgear station** located at 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
- **Six (6) 100 to 200 amp panel boards** service each floor
- Diesel fueled 1,000kW/1240kVA 480V emergency generator
- Guest room lighting fixtures are typically incandescent lamps



The Pennsylvania State University

Department of Architectural Engineering