

Perini Building Company
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Perini Building Company CityCenter Construction Stats

- Perini signed a construction contract with MGM MIRAGE in March of 2005
- Majority of 2005 was spent planning the project in detail, including budgeting, scheduling, site logistics, procuring long-lead items, interviewing and hiring craftspeople, subcontractors, and additional Perini personnel.
- Perini started construction on CityCenter's major facilities in April 2006 and delivered the project three years and eight months later in December 2009.
- CityCenter is equivalent to building over a dozen properties all opening at one time.
- Perini tracked a record 50 million construction hours to complete the project, employed 230 subcontracting firms, over 10,000 craftspeople and a professional staff of over 500 people at CityCenter.

CityCenter's Major Structures Built by Perini:

- *ARIA Resort & Casino – construction start date April 2006*
 - Aria is CityCenter's largest structure
 - 61-story hotel tower with 4,004-guest rooms
 - Approximately 4 million square feet
 - Approximately 220,000 cubic yards of concrete
 - Approximately 150,000 square feet of gaming
 - 300,000 square feet of meeting and convention space
 - 215,000-square-foot pool deck, which includes four pools
 - 80,000-square-foot spa
 - 1,800-seat-theater
- *Mandarin Oriental, Las Vegas – construction start date November 2006*
 - 47-story non-gaming resort with 400 rooms and 227 condominiums
 - Approximately 1.2 million square feet
 - Approximately 88,000 cubic yards of concrete
 - Over 12,000 square feet meeting and event space

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- *Vdara Hotel & Spa – construction start date November 2006*
 - 57-story hotel tower with 1,495 suites
 - Approximately 1.5 million square feet
 - 82,000 cubic yards of concrete
 - 10,000 square feet of conference space
 - 40,000-square-foot landscaped park
- *Veer Tower West – Construction start date December 2006*
- *Veer Tower East – Construction start date January 2007*
 - Two 37-story leaning residential towers, each housing 335 residences ranging from studios to penthouses
 - Approximately 853,000 total square feet for both towers
 - Approximately 56,000 cubic yards of concrete for both towers
- *The Harmon Hotel – construction start date January 2007*
 - 400-room non-gaming hotel tower
 - Approximately 600,000 square feet
 - Approximately 35,000 cubic yards of concrete
 - Perini completed the core and shell of the hotel in December 2009
- *Crystals – construction start date May 2007*
 - 500,000-square-foot retail and entertainment district
 - 13,900 tons of structural steel
 - Approximately 85 retail and restaurant venues

Other major CityCenter building components constructed by Perini include:

- Central plant – construction start June 2006
- Five parking garages
 - There is enough parking at CityCenter for 19,000 vehicles.
- Excavation of the 76-acre site, including demolishing the existing Boardwalk Hotel
- Las Vegas Boulevard improvements
- Pedestrian bridge over Las Vegas Boulevard
- New road construction, road overpass, road improvements, and service drives
- On-site fire station
- Nevada power substation
- Site utilities, including relocating a main Las Vegas sewer line
- Project hardscape (sidewalks, water features, public spaces)
- Project landscape

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Diversity leadership

- Perini Building Company spent more than \$625 million in construction contracts with minority-owned firms. Over 200 minority firms participated.

LEED environmental leadership

- Perini's impact on earning LEED credits was substantial. CityCenter is one of the world's largest environmentally sustainable developments to receive Leadership in Energy and Environmental Design (LEED) Certifications from the U.S. Green Building Council.
- Perini managed LEED compliance for over \$1 billion dollars worth of building materials at CityCenter.
- The sustainable efforts that Perini performed were construction waste management, site pollution prevention, construction indoor air quality, regional and recycled content, material procurement, and the use of Forest Stewardship Council (FSC) wood.

Technology leadership

- CityCenter is the largest project in the history of Las Vegas to implement Building Information Modeling (BIM) and three-dimensional modeling for construction coordination.

Project management

- Success of CityCenter attributable to quality, experienced people.
- Perini's approach was divide and conquer. MGM MIRAGE in conjunction with Perini divided the project into three manageable blocks. Each block had its own executive team; each project within each block also had its own project management team. Executive and management teams collaborated closely with one another to maintain a coordinated construction effort.
- Perini's CityCenter staff totaled over 500 professionals.
- Perini project executives consisted of seasoned professionals, the majority of whom have been with Perini prior to CityCenter.
- The general contractor recorded a record 50 million construction hours, including 230 subcontractors and over 10,000 craftspeople. Perini interfaced with over 2,000 vendors/material suppliers on the project.

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Construction logistics

- 76-acre property is completely land locked. Property is flanked on four sides by major roads, including the busy Las Vegas Boulevard, structures and in progress Cosmopolitan Resort and Casino.
- Perini is also building The Cosmopolitan Resort and Casino, which borders CityCenter and shares Harmon Avenue, a major access road for both properties. Building simultaneous side-by-side projects resulted in a more streamlined coordination effort for both projects.
- Majority of construction was planned starting in the middle of the property working outward.
- As construction progressed, the site became less accessible. To maintain access for incoming materials and outgoing equipment, critical pathways or “leave outs” were strategically planned and completed in the final stages of construction.
- Site had only four primary access points requiring intense orchestration among thousands of people, equipment and supplies.
- Limited access combined with a congested site precluded material storage on site.
- Off-site storage and prefabrication staging areas were secured before construction started.
- Crane placement was critical to planning and building the project. CityCenter required a total of 20 tower cranes and over 30 truck and crawler cranes.
- Scenarios for all major crane functions were calculated in advance of construction for accurate and maximum functionality. Sizing was critical to avoid overlap during operation.

Fire and life safety systems

- Perini was responsible for commissioning all of the structures’ fire and life safety systems on the 18-million square foot project.
- Perini worked with third-party consultants over the past two years to ascertain that all of CityCenter’s operating systems are functioning as designed to handle varied emergency situations.
- Fire life safety system included the monitoring of over 50,000 devices.
- All fire and life safety systems were tested, retested and verified using different scenarios.

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