



AT THE TOP
BURJ KHALIFA

FACT SHEET





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Described as both a 'Vertical City' and 'A Living Wonder,' Burj Khalifa, developed by Dubai-based Emaar Properties PJSC, is the world's tallest building and described as a 'Global Icon' by the Council on Tall Buildings and Urban Habitat, an honour bestowed on tall structures only once in 10 or 15 years.

Rising gracefully from the desert, Burj Khalifa honours the city with its extraordinary union of art, engineering and meticulous craftsmanship.

At 828 metres (2,716.5 ft), the 200 plus storey Burj Khalifa has 160 habitable levels, the most of any building in the world. The tower was inaugurated on January 4, 2010, to coincide with the fourth anniversary of the Accession Day of His Highness Sheikh Mohammed Bin Rashid Al Maktoum as the Ruler of Dubai.

Arguably the world's most prestigious address, Burj Khalifa is responsible for a number of world-firsts. The tower became the world's tallest man-made structure just 1,325 days after excavation work started in January 2004.

Burj Khalifa utilised a record-breaking 330,000 cubic metres of concrete; 39,000 tonnes of steel reinforcement; 103,000 square metres of glass; and 15,500 square metres of embossed stainless steel. The tower took 22 million man hours to build.

With a total built-up area of 5.67 million square feet, Burj Khalifa features 1.85 million square feet of residential space and over 300,000 square feet of prime office space. That is in addition to the area occupied by the Armani Hotel Dubai and the Armani Residences.

The tower offers luxurious recreational and leisure facilities including four swimming pools, excluding the pool in the hotel, lounges for home owners and office owners, health and wellness facilities, a public observation deck and At.mosphere, the world's highest fine dining restaurant on Level 122 that is scheduled to open early 2011.

The Armani Hotel Dubai opened doors to the world on April 27, 2010, with a ribbon cutting ceremony by fashion maestro Giorgio Armani and Mohamed Alabbar, Chairman of Emaar Properties. The hotel is home to eight unique dining experiences including Armani/Privé, an upscale lounge. The hotel additionally features the world's first in-hotel Armani/SPA and retail offerings - Armani/Dolci, an elegant Italian sweets shop; Armani/Fiori for flower arrangements with a difference; and an Armani/Galleria boutique for fashion accessories from the Armani Privé collection.

The At the Top, Burj Khalifa observation decks on level 148, 125 and 124 are a must-see attraction and offer breathtaking views of the city and the surrounding emirates.

Over 1,000 pieces of art by prominent International and Middle Eastern artists adorn the interiors of Burj Khalifa and the surrounding Emaar Boulevard. Many of the pieces have been specially commissioned by Emaar as a tribute to the spirit of global harmony.

With the opening of Armani Hotel Dubai and handover of homes in Armani Residences, and

owners moving into The Residence and The Corporate Suites, Burj Khalifa has now come to life – indeed, a true living wonder.

In 2011, Dubai welcomed the New Year with an unprecedented spectacle – the world's highest fireworks at Burj Khalifa. The celebration, which also marked the first anniversary of the grand inauguration of Burj Khalifa, was the centre of attention for a global audience as it marked New Year's Eve with a spectacular laser-lights-fireworks show, attended by over 600,000 people and telecast live to over 2 billion people around the world.

TALLEST OF THE TALL

Burj Khalifa is ranked number one all three criteria for tall buildings of the Council on Tall Buildings and Urban Habitat (CTBUH). The CTBUH ranks the world's tallest buildings based on 'Height to Architectural Top,' 'Height to Highest Occupied Floor' and 'Height to Tip.'

Height to Architectural Top:

- Burj Khalifa – 828 metres (2,717 ft)
- Taipei 101, Taiwan – 508 metres (1,667 ft)
- Shanghai World Financial Centre, China – 492 metres (1,614 ft)
- Petronas Towers, Malaysia – 452 metres (1,483 ft)

Height to Highest Occupied Floor:

- Burj Khalifa – 535 metres (1,918 ft)
- Shanghai World Financial Centre, China – 474 metres (1,555 ft)
- Taipei 101, Taiwan – 438 metres (1,437 ft)
- Willis Tower, Chicago – 413 metres (1,354 ft)

Height to Tip:

- Burj Khalifa – 828 metres (2,716.5 ft)
- Willis Tower, Chicago – 527 metres (1,729 ft)
- Taipei 101, Taiwan – 508 metres (1,667 ft)
- Shanghai World Financial Centre, China – 494 metres (1,622 ft)

WORLD RECORDS

Burj Khalifa holds the following world records:

- **Tallest building in the world** – surpassing Taipei 101 in Taiwan, which at 508 metres (1,667 ft) had held the title of the 'tallest building in the world' since it opened in 2004
- **Tallest man-made structure in the world** – surpassing the KVLV-TV mast in North Dakota, USA, which stands at 628.8 metres (2,063 ft)
- **Tallest free-standing structure in the world** – breaking the 31-year-old record of CN Tower, which stands at 553.33 metres (1,815.5 ft)
- **Largest number of storeys in the world** – 200 plus with 160 habitable storeys
- **Highest occupied floor in the world** – Level 160

- **Highest outdoor observation deck in the world** – Level 124
- **World record for vertical concrete pumping** – 605 metres, beating the previous record held by Taipei 101 (448 metres or 1,470 ft)
- **Tallest service elevator in the world** – 504 metres (1,654 ft), more than the height of Taipei 101 (448 metres) and almost one-and-a-half times that of the Empire State Building in New York (381 metres)
- World record for the **highest installation of an aluminium and glass façade**
- World's **highest swimming pool** on Level 76 (over 270 metres; over 885 ft)

Milestones

Excavation started	January 2004
Piling started	February 2004
Superstructure started	March 2005
Level 50	June 2006
Level 100	January 2007
Level 110	March 2007
Level 120	April 2007
Level 130	May 2007
Level 141 (world's tallest building)	July 2007
Level 150 (world's tallest free-standing structure)	September 2007
Level 160 (world's tallest man-made structure)	April 2008
Completion of spire pipe jacking & Burj Khalifa tops out	January 2009
Cladding completed	September 2009
Grand inauguration	January 4, 2010

FACTS AT A GLANCE

Final height	828 metres (2,716.5 ft)
Final number of floors	200 with 160 habitable storeys
Built-up area	5.67 million sq ft
Weight of empty building	500,000 tonnes
Total concrete used	330,000 cubic metres
Total reinforced steel used	39,000 tonnes
Total glass used for façade	103,000 square metres
Total stainless steel used for cladding	15,500 square metres
Total man hours	22 million
Developer	Emaar Properties PJSC
Architects and Engineers	Chicago-based Skidmore, Owings and Merrill (SOM)
Designer	Adrian Smith
Main Contractor	South Korea's Samsung Corporation
Project & Construction Manager	New York-based Turner International

PUBLIC ACCESS

The public have access to At the Top, Burj Khalifa, Armani Hotel Dubai, The Park and the amenities offered at The Club. Owners of The Residences, The Corporate Suites and Armani Residences will have unique privileges including access to the many lifestyle amenities within the tower.

A LOOK INSIDE: THE MAIN COMPONENTS OF THE TOWER

Total built-up area – 5.76 million sq ft

- The Residence (900 homes)
Levels – 19 to 37; 43 to 72; 76 to 108
Sky Lobby – Levels 43 to 44; 76 to 77
- The Corporate Suites (37 floors)
Levels – 112 to 121; 125 to 154
The Corporate Suites/Residential Lounge – Level 123
- Armani Hotel Dubai (160 rooms)
Levels – concourse, ground, and Levels 1 to 8; 38 to 39
- Armani Residences (144 suites)
Levels – 9 to 16
- At the Top, Burj Khalifa SKY
Level 148
- At the Top, Burj Khalifa
Level 125 and 124
- Leisure and other Amenities
Parking – Levels – B1 and B2
Swimming pools (five) – Armani Hotel, The Club [Concourse], The Club rooftop, Level 43 and Level 76
Cigar Club – Level 1
Library – Level 123
Health club – The Club – annexure
At.mosphere – Level 122
Armani/SPA – Level 3

The Residence

The world's most prestigious address is home to a select few. With 900 residences including studios and one, two, three and four-bedroom apartments, The Residence, Burj Khalifa are designed for the connoisseur. The homes are spread over levels 19-108 of the tower, and the first residents are currently moving in.

The lobby reception area will feature World Voices, an intriguing installation by renowned artist Jaume Plensa. Composed of 196 cymbals representing the 196 countries of the world, it symbolises the global collaboration that made Burj Khalifa a reality. For the convenience of



homeowners, the tower is divided into sections with exclusive Sky Lobbies on Levels 43, 76 and 123. There are state-of-the-art fitness facilities including jacuzzis on Levels 43 and 76.

The Sky Lobbies on 43 and 76 both have swimming pools and a recreational room that can be utilised for special gatherings and receptions.

The Corporate Suites

The Corporate Suites are located on the highest levels of the tower. They occupy 37 floors, with the top three floors merged into a single office. The entrance lobby is at the Concourse of the tower. In addition to valet parking, express lifts take office visitors directly to a lounge lobby at Level 123.

Armani Hotel Dubai

The world-first Armani Hotel Dubai opened doors to the world on April 27, 2010. From the room designs to the carefully selected textiles and fabrics, to the impeccable service, every aspect of the Armani hotel experience will bear the signature of fashion legend Giorgio Armani.

Armani Hotel Dubai targets connoisseurs, who value excellence, understated style and elegance. Offering 160 guest rooms and suites, restaurants and a spa, Armani Hotel Dubai brings to life the Stay with Armani promise, an exceptional lifestyle experience defined by the highest standards of aesthetics and service excellence.

Armani Residences Dubai

Armani Residences Dubai has been designed personally by Giorgio Armani, and is a reflection of his personal approach to elegance and style. Located on levels 9 to 16, the 144 one and two-bedroom suites, highlight Armani's smooth, understated style combined with space and furnishings that focus on the compatibility of materials, form and lighting, in a superb, softly luminous setting. In addition to the full access to services offered by the Armani Hotel Dubai such as concierge, 24/7 room service, housekeeping, library, spa, gym and swimming pool, residents of Armani Residences also have access to recreational facilities and entertainment venues within Burj Khalifa. The first residents have moved in to Armani Residences Dubai.





At the Top, Burj Khalifa

Soaring high at 555 metres (1,821 ft), At the Top, Burj Khalifa SKY, is a one-of-its-kind, must-experience journey for every individual to the highest man-made vantage point on earth. Situated on Level 148 of Burj Khalifa, it offers visitors unprecedented views of the city and beyond from an outdoor terrace, and features a premium lounge. The deck also features a beautiful outdoor terrace and holds the Guinness World Record for the highest observation deck in the world.

At the Top, Burj Khalifa located on Levels 125 and 124 offering visitors majestic, sweeping vistas of Dubai, and serving as an evocative and interactive journey through the history and evolution of Dubai and Burj Khalifa.

A ten-part journey, At the Top starts at The Dubai Mall, where visitors can buy timed tickets at an elegant welcome area featuring monumental fields of LED displays reflecting the three-core design inspiration of Burj Khalifa.

Visitors can enjoy several interactive features including 'Dubai Then and Now', charting the evolution of modern Dubai and reveal how Burj Khalifa dramatically alters the city skyline. Travelling at a speed of 10 metres per second, the journey to Level 124 takes approximately 60 seconds.

In addition to the magnificent views offered of Dubai and beyond from At The Top, Burj Khalifa, visitors can also learn more about the landmarks in the region through the innovative Viewfinder. The interactive Viewfinder replaces the traditional coin-operated telescopes in other observatories, and features a video camera and touch-screen to provide information supported by advanced graphics and 3D animation.

At.mosphere

At.mosphere, the world's highest restaurant is envisaged as one of the finest luxury dining and lounge experiences in the world, and is only two levels below 'At the Top, Burj Khalifa,' the tower's observatory deck, At.mosphere presents a unique dining concept that appeals to all epicureans – from fine dining connoisseurs to lounge lovers.

Integrating two choices - lounge & grill – At.mosphere can host over 210 guests and features a spacious arrival lobby, a main dining floor, private dining rooms and display cooking stations. Exuding style and personality, the grill at At.mosphere, open for lunch from 12.30pm to 3pm and for dinner from 7pm to 11.30pm, serves prime cuts of beef, organic poultry and seafood with emphasis on fresh products and healthy, simple cooking – grilled, broiled or baked. The food choice is complemented by an extensive beverage selection.

The upscale lounge, with a seating capacity of 130 and a private area for 35, is open from 12pm to 2am, pushing the boundaries of conventional lounges, and serving as an ideal stopover for a mouth-watering light lunch or even an afternoon tea. At night, the mood shifts by opening to glittering views of the city.

Leisure and Retail

Burj Khalifa has a variety of lifestyle amenities offering a myriad of choices for residents, guests and visitors. The recreational facilities and entertainment venues include luxurious swimming pools, exclusive residents' lounge and a lounge for The Corporate Suites owners, serviced residences, a wellness facility and healthclub.

Moreover, residents can shop at Downtown Deli, a gourmet and convenience store located within The Residences lobby or relax and unwind at the state-of-the-art fitness facilities and elegant meeting spaces located on the Sky Lobbies on Levels 43 and 76.

Parking

For the convenience of residents and visitors, Burj Khalifa has 3,000 car parking spaces on two basement levels.

The Offices

A complement to The Corporate Suites is The Offices, a 12-storey annex with direct access to Burj Khalifa and The Dubai Mall. Parking spaces for The Offices will be offered at the mall and the tower for the convenience of tenants.

The Club

The Club is a four-storey health and recreation annex to Burj Khalifa spread over 22,000 sq ft. Although priority is given to Burj Khalifa residents, it is also open to the public. The extensive facilities include two luxurious pools – one indoor and one on the rooftop, two gymnasiums with a dedicated ladies-only gym and a contemporary spa facility.

Armani/Pavilion

An open-air venue designed to host events, the Armani/Pavilion provides spectacular views of The Dubai Fountain and is exclusively managed by Armani Hotel Dubai.

The Park

Burj Khalifa stands tall amidst The Park, an 11-hectare green oasis that surrounds the foot of the tower. The Park has six spectacular water features, lush green gardens and colourful flowering trees.

As part of Burj Khalifa's 'green' initiative, the landscaping is irrigated using a unique condensation collection system. Water condensation from the tower's cooling equipment is recovered, providing an estimated 15 million gallons of water a year, enough to fill 20 Olympic-sized swimming pools.

Celebrating the theme 'A Tower in a Park,' the landscaping of Burj Khalifa has distinct divisions that serve the tower's hotel, residential, spa and corporate office areas.

At the core of The Park's design is a 'water room' located at the base of the tower defined by walls of dancing jets and pools.

Water Features:

The Park's 11 hectares include seven, one-of-a-kind water features, designed by California-based WET, the creators of The Dubai Fountain and the Fountains of Bellagio in Las Vegas.

These include: Strata, Stricia, Mimeo, Onda and Alluvion.



DESIGN, CONSTRUCTION AND ENGINEERING

Design

The contract to design the world's tallest tower was awarded to the global leader in creating ultra-tall structures, the Chicago office of Skidmore, Owings & Merrill LLP (SOM) with Adrian Smith as consulting design partner.

The architecture features a triple-lobed footprint, an abstraction of the six-petalled desert flower, Hymenocallis. The tower is composed of three elements arranged around a central core.

The modular, Y-shaped structure, with setbacks along each of its three wings, provides an inherently stable configuration for the structure and provides attractive floor plates for residential space. Twenty-six 'helical' levels decrease the cross section of the tower incrementally as it spirals skyward.

The central core emerges at the top and culminates in a sculpted spire. The Y-shaped floor plan maximizes views of the Arabian Gulf.

Interiors

The interior design of Burj Khalifa's public areas was done by the Chicago office of SOM and was led by award-winning designer Nada Andric. It features glass, timber, stainless steel and polished dark stones, together with silver travertine flooring, Venetian stucco walls, handmade rugs and stone flooring.



Burj Khalifa is truly the product of international collaboration; over 60 consultants including 30 on-site contracting companies from around the world were involved in the project.

At the peak of construction, over 12,000 professionals and skilled workers from more than 100 countries were on site every day. The world's fastest high-capacity construction hoists, with a speed of up to 2 m/sec (120 metres/min), were used to move men and materials.

Over 45,000 cubic metres (1.59 million cubic ft) of concrete, weighing more than 110,000 tonnes, were used to construct the concrete and steel foundations, which feature 192 piles buried more than 50 m (164 ft) deep.

Burj Khalifa employs a record-breaking 330,000 cubic m (11.6 million cubic ft) of concrete; 39,000 m³ of reinforced steel; 103,000 sq m (1.1 million sq ft) of glass; 15,500 sq m (166,800 sq ft) of embossed stainless steel; and the tower took 22 million man hours to build.

The amount of reinforced steel used at the tower, would if laid end to end extend over a quarter of the way around the world. The concrete used is equivalent to a sidewalk 1,900 kilometres (1,200 miles) in length, and the weight of 100,000 elephants. The weight of the empty building is 500,000 tonnes.

Work on the exterior cladding of Burj Khalifa began in May 2007 and was completed in September 2009. The vast project involved more than 380 skilled engineers and on-site technicians. At the initial stage of installation the team progressed at the rate of about 20 to 30 panels per day, before increasing to as many as 175 panels per day.

The tower accomplished a world record for the highest installation of an aluminium and glass façade, at a height of 512 metres (1,679.8 ft). The total weight of aluminium used on Burj Khalifa is equivalent to that of five A380 aircraft, and the total length of stainless steel 'bull nose' fins is 293 times the height of the Eiffel Tower in Paris.

Burj Khalifa's high performance exterior cladding system is designed to withstand the UAE's summer temperatures. In all, the 24,348 cladding panels cover a curtain wall area of 132,190 sq m, and Burj Khalifa's shimmering exterior minimises heat transmission and saves energy.

In November 2007, the highest reinforced concrete core-walls were pumped using 80 megapascals (MPa) concrete from ground level. The concrete was pumped to a height of 605 metres (1,971.8 ft), breaking the previous pumping record held by Taipei 101. The concrete pressure during pumping to this level was nearly 200 bars.

STRUCTURAL ELEMENTS

Burj Khalifa pushes the frontiers of engineering, construction and design expertise. Its structure employs the latest advances in wind engineering, structural engineering, structural systems, construction materials and construction methods.

Foundation

The superstructure is supported by a large reinforced concrete mat, which is in turn supported by bored reinforced concrete piles. The mat is 3.7 metres thick, and was constructed in four separate pours totalling 12,500 cubic metres of concrete.

Podium

The podium provides a base anchoring the tower to the ground, allowing access from three different sides to three different levels of the building. Fully glazed entry pavilions built with a suspended cable-net structure provide separate entries for the Corporate Suites at B1 and Concourse Levels, the Burj Khalifa residences at Ground Level and the Armani Hotel at Level 1.

Structural Core

In addition to its aesthetic and functional advantages, the spiraling "Y" shaped plan was utilised to shape the structural core of Burj Khalifa. This design helps to reduce the wind forces on the tower, as well as to keep the structure simple and enhance 'constructability'. The structural system can be described as a "buttressed core", and consists of high-performance concrete wall construction.

Wind Engineering

The shape of the Burj Khalifa is the result of innovative research by SOM's architects and engineers to vary the shape of the building along its height, thereby minimising wind forces on the building. Each uniquely-shaped section of the tower causes the wind to behave differently; preventing it from becoming 'organised' and therefore minimising lateral movement of the structure.

High-performance, reinforced concrete core walls are linked to the exterior columns through a series of reinforced concrete shear wall panels at the mechanical levels. Extensive wind tunnel testing ensured that the tower design is able to resist high wind loads while minimising vibration. As well as wind tunnel studies, the team performed a detailed climatic study which considered the unique meteorological conditions of Dubai. These studies evaluated both frequently occurring and rare wind events to address occupant comfort and building strength.

Spire

The crowning feature of Burj Khalifa is its 'telescopic' spire comprising more than 4,000 tonnes of structural steel. It can be seen from 95 km (60 miles) away. The spire was built inside the building and jacked to its full height of over 200 metres (700 feet) using hydraulic strand jacks. The spire is integral to the overall design, creating a sense of completion for the landmark. The spire also houses communications equipment.

Mechanical Floors

Seven double-storey mechanical floors house the equipment that bring Burj Khalifa to life. Located every 30 storeys, the mechanical floors house the electrical sub-stations, water tanks and pumps, air-handling units etc, that are essential for the operation of the tower and the comfort of its occupants.

Broadcast and Communications Floors

The top four floors have been reserved for communications and broadcasting. These floors occupy the levels just below the spire.

Elevators & Lifts

Burj Khalifa features 57 elevators and eight escalators to meet the travel needs of the residents and visitors to the tower. The building service/fireman's elevator has a capacity of 5,500 kg and is the world's tallest service elevator.

Burj Khalifa is the first 'mega-high rise' building in which certain elevators are programmed to permit controlled evacuation for certain fire or security events. Burj Khalifa's observatory elevators are double deck cabs with a capacity for 12 to 14 people per cab. They travel at 10 metres per second.

The total number of stairs to Level 160 of Burj Khalifa is 2,909; to climb even higher, ladders are used.

MAINTENANCE

Mechanical, Electrical & Plumbing

To achieve the greatest efficiencies, the mechanical, electrical and plumbing services for Burj Khalifa were developed all together during the design phase of the tower in cooperation with the architect, structural engineers and other consultants.

The tower's water system supplies an average of 946,000 litres (250,000 gallons) of water daily. At peak cooling, Burj Khalifa will require about 10,000 tonnes of cooling, equal to the cooling capacity provided by about 10,000 tonnes of melting ice.

Dubai's hot, humid climate combined with the building's cooling requirements creates a significant amount of condensation. This water is collected and drained in a separate piping system to a holding tank in the basement car park. The condensate collection system provides about 15 million gallons of supplement water per year, equal to about 20 Olympic-sized swimming pools. The tower's peak electrical demand is 36mW, equal to about 360,000 bulbs of 100 watts operating simultaneously.

Window Washing Bays

Access to the tower's exterior for both window washing and façade maintenance is provided by 18 permanently installed track and fixed-telescopic, cradle-equipped building maintenance units. The track-mounted units are stored in garages, within the structure, and are not visible when not in use. The manned cradles are capable of accessing the entire facade from the top of the tower down to level seven. Window washing is done vertically from the top to the ground and it takes approximately four months to clean the whole exterior.

Fire Safety & Security

Fire safety and speed of evacuation were prime consideration in the design of Burj Khalifa. Concrete surrounds all stairwells and the building service and fireman's elevator has a capacity of 5,500 kg and is the world's tallest service elevator. There are pressurized, air-conditioned refuge areas located approximately every 25 floors.