

**The world's
tallest building
redefines the
possibilities**



As the world's tallest building, the Burj Khalifa sets the standard for what architecture and design should be. At 828 metres, the building houses the highest swimming pool, mosque and observation deck in the world. A desert flower native to the region, Hymenocallis, inspired the petal shaped footprint of the building. Skidmore, Owings & Merrill Architects incorporated traditional Islamic patterns throughout the towering contemporary structure.

CoxGomyl accepted the challenge to design an integrated BMU solution to keep the world's tallest building looking immaculate, developing no less than 13 bespoke machines to achieve full facade access.

The unique tri-petal footprint and lack of roof or terrace space prevented a conventional BMU solution from being adopted.

Instead, a unique combination of mobile, wall-mounted machines was designed specifically for this application. The solution consists of three wall-mounted machines located at each of levels 40, 73 and 109 (nine in total). These complex machines launch from within their internal parking space through a retracting panel, and travel along a set of tubular stainless steel rails.

The wall-mounted machines typically have an outreach of 9m and a SWL of 250kg in addition to a material hoist capacity of 600kg.

The mid-levels of the building between level 109 and tier 21 (624.1m) are accessed from longer telescopic boom machines located at tier 19, 20 and 21 with a specially designed knuckle jib with an outreach of 21.5m. The tower space above tier 21 is maintained by a series of six smaller machines located from tier 22 through to tier 27 with small outreaches that begin at 1.8m and 4m.

FACTS & FIGURES

Commencement	2004
Completion	2010
Building height	828m
Floor count	162
No. of BMUs	18
Outreach	Up to 21.5m
Building type	Mixed Use





Technical Data - Burj Khalifa, Dubai, UAE

BMU type	9 BMUs Wall Mounted machine	3 BMUs Telescopic Boom	3 sets Hawk Gantry
Service area	G/F to 109/F	109/F to 624m	Spire tower at the top
Jib type	2-stage telescopic	4-stage telescopic with 3.2m knuckle	2-stage telescopic
Outreach	9.5m	21.6m	4.5m
Jib retracted length	2m	9.1m	3m
Jib luff angle	15 deg to 90 deg	/	/
Cross bar slew angle	Fixed (has -30 deg reverse butter y movement)	+/- 100 deg	+/- 45 deg
BMU slew angle	+/- 35 deg	+/- 100 deg	+/- 140 deg
Drum hoist type	MLH 200	MLH 300	Traction Hoist
Actual hoist height	Up to 200m	Up to 300m	50m
Cradle SWL	250kg	250kg	250kg
Cradle length	3m	2m	2.3m
Cradle restraint system	Lanyard and Transfer Mullion	Lanyard and Transfer Mullion	Mullion Guide
Track system	Twin 250 diameter SS tubes	Fixed	Fixed in position
Track gauge	3.8m	Fixed	/
Communication	Intercom	Intercom	/
Emergency retrieval	Provided by separate Emergency Retrieval Trolley together with Manual Cradle Decent from BMU	Manual Cradle Decent from BMU	Manual Cradle Decent from Cradle
Features	600kg glass handling hoist capacity	600kg glass handling hoist capacity	300kg glass handling hoist capacity

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