

The tower features custom daylight harvesting blinds



The Duke Energy Center is recognised for its uniquely chiselled upper quadrant and crossbeam more than 20 metres above roof level. Architects Thompson, Ventulett, Stainback & Associates designed a glass and aluminium curtain wall, all of which required BMU access, including the crossbeam.

The solution was complicated by the need to achieve a large reach of more than 38m, whilst still being able to compress the machine sufficiently so it could be lowered into a very tight parking pit for storage.

In order to reach all parts of the building including the extreme corners, the five-stage jib assembly is capable of luffing up to a maximum angle of 60 degrees when at maximum outreach.

To access the sloping roof areas on either side, the cradle is fitted with a soft rope system, which stabilises the cradle against wind loads as it moves down the slope, thereby maintaining compliance with the relevant safety codes.

In an effort to maximise rearward clearance as the machine travels around the roof, and to allow the system to position itself correctly to reach all cradle positions, it was not possible to fit any counterweight on the system. Instead, a system of powerful hydraulic jacks lock the BMU onto the building structure at three predetermined work positions to achieve the required 4:1 stability ratio.

All objectives were satisfied with the innovative design that included a 70-tonne lift platform that lowers the BMU approximately six metres into the parking pit when not in use.

FACTS & FIGURES

Commencement	2006
Completion	2010
Building height	240m
Floor count	54
No. of BMUs	1
Outreach	38.8m
Building type	Office



Technical Data - Duke Energy Center, USA

BMU type	1 set Roof top BMU
Service area	From roof top to the ground
Jib type	5-stage luffing jib
Outreach	38m
Jib retracted length	8.9m
Jib luff angle	60 deg
Cross bar slew angle	+/- 70 deg
BMU slew angle	Continuous 360 deg
Drum hoist type	16-layer drum hoist
Actual hoist height	240m
Cradle SWL	340kg in platform
Cradle length	4m
Cradle restraint system	ISA
Track system	Wheel track locking system
Track gauge	12m
Communication	Radios
Emergency retrieval	Hydraulic brake manual release
Features	Glass channel

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