

Project name **Highcliff**

Location **Stubbs Road, Hong Kong**

Publication **Building Journal** February 2003

Highcliff, Stubbs Road

The high life

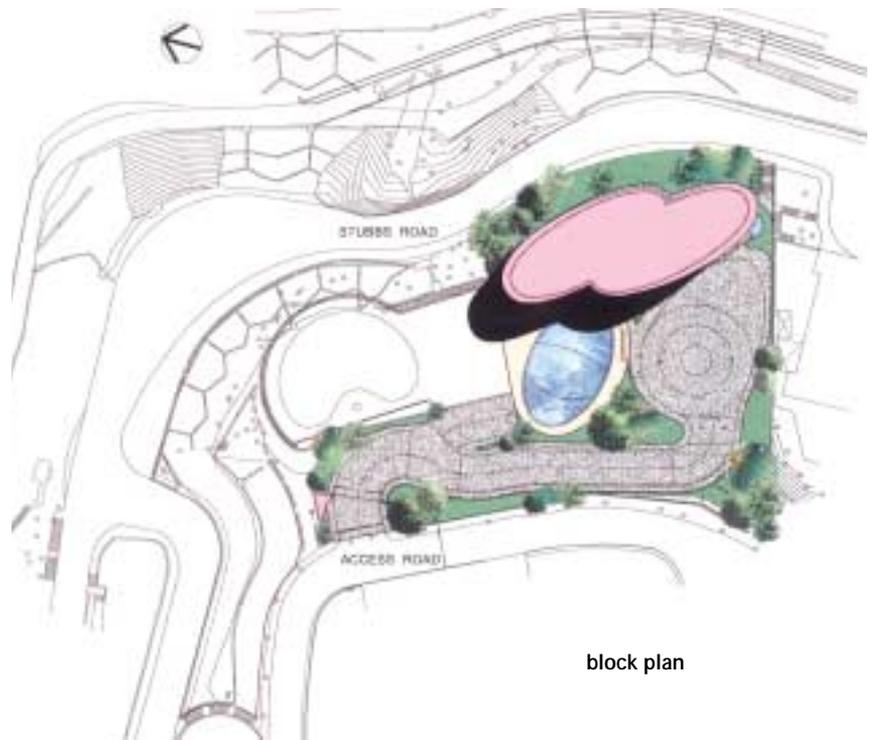
by Tim Youngs

The completion of Highcliff at 41D Stubbs Road has taken Hong Kong's luxury residential development to new heights. Dennis Lau & Ng Chun Man Architects & Engineers (HK) Ltd were responsible for the designing distinctive 73-storey building on its mountainside site.



The Highcliff development stands as the tallest purely residential building in the world, not least due to planning requirements. At the outset developers Highcliff Investment Ltd and Central Development Ltd set a target size for typical units of 3,000 sq ft on the tight site and the architects accordingly decided to place two flats per floor — any more would be too many for a luxury residential project, they reasoned, and would be less attractive to future tenants. Thus with a maximum of more than 6,000 sq ft of residential space per floor locked into the program, design for a single tall tower moved ahead.

While a commercial decision, the approach to build a single skyscraper has presented benefits in the surrounding environment. An alternative plan for a squat lower-rise development with the same GFA would have presented a wall-like effect, blocking views from buildings behind the site and presenting a large frontage for people looking up from the Stubbs Road approaches. The tall single-tower design also relieves site constraint for residential facilities at the foot of the tower.



block plan





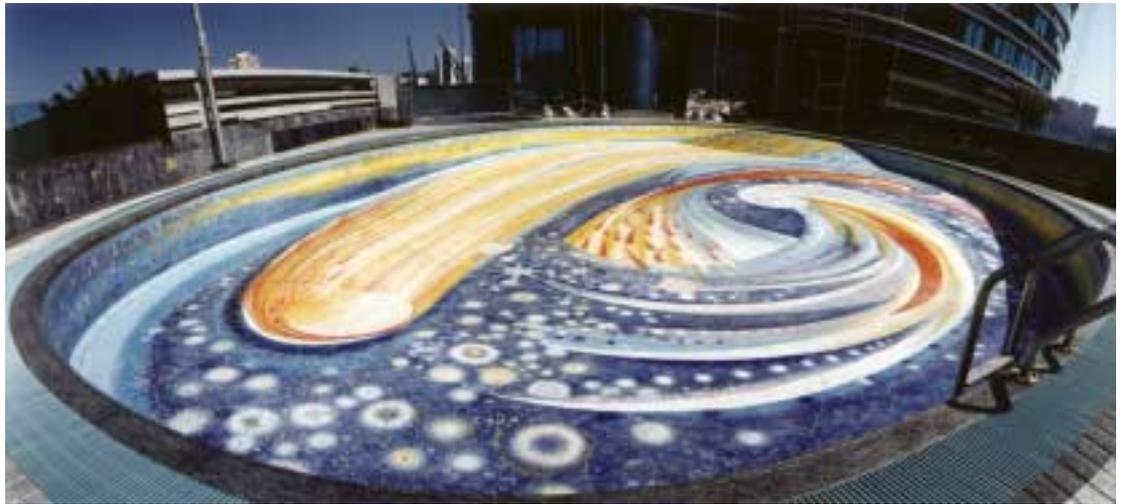
The design represents not only an approach in keeping with the project brief and site location but also a move towards luxury residential development stripped of unnecessary building ornamentation. The client gave the architects a free hand with the design — a measure that resulted in the distinct shape of Highcliff. Before choosing the double-ellipse plan, the designers ensured that the building's views would not be obscured by adjacent development at the 41C Stubbs Road site, which went to auction after planning for Highcliff began. The orientation of

the building was accordingly positioned to look out over the Happy Valley and Jardine's Lookout areas. The smoothly curved profile was decided on next, using the pure form of two ellipses overlapping. The form is a first of its kind in Hong Kong, if not the world, and results in an all-enclosing curtain wall facade.

Because of the height of the building and future maintenance concerns, screw-on metal cladding and curtain wall is applied. Had there been tiling on the tower, the risk of debonding would rise when Highcliff bends under heavy winds. The cladding continues around the building envelope without interruption — there is purposely no readily identifiable rear to the tower, which makes a difference to residents living in adjacent buildings.

Being the designer for both Highcliff and the adjacent building at 41C Stubbs Road, the architect was in a position to choose curtain wall colours suiting each tower to the environs. Taking into consideration the height of Highcliff and the fact that the sky would reflect on the glass when





looking up at the tower, the designers decided on a metallic blue that diffuses the visual impact. A complementary greenish tint was decided on for the project next door, in keeping with the green hills around the Stubbs Road area.

One of the largest challenges faced during planning was the natural phenomenon of tall buildings bending under wind load. During typhoon conditions, a building may sway at a ratio of 1:500 — one foot to the side for every 500 feet of height. While a similar effect applies to office towers, it's not as problematic because floorplates are typically larger and tenants stay home during extremely bad weather. In a residential building, however, people would be unnerved if each building movement takes

up to nine seconds to complete.

As a designer cannot fight nature by building an uninhabitable structure with immense columns that wouldn't bend, a damper tank system was designed to complement the building's streamlined form. Although typically applied in shipbuilding to stabilise hulls, damper systems have been applied to minimise building movements in Japan. However, while the systems in Japan are computer controlled the project team decided to design a passive and maintenance-free system for Highcliff.

Under a system designed by US-based consulting engineer Magnusson Klemencic Associates (formerly Skilling Ward Magnusson Barkshire), a rooftop damper tank system with





9th floor plan

the same coverage as the building floorplate features water tanks in layers and compartments positioned in a grid form. With openings strategically placed within the system, the flow of water automatically counteracts the effects of strong wind. In experiments, the system has proven capable of reducing movements from eight seconds each to just 4.7 seconds. The difference in residents' comfort is significant: by the time someone notices any movement it has stopped. The damper system is the first of its kind for a residential building in the world.

Residents and visitors enter the building at the ninth floor, having approached via an access road from the rear. The atrium reinforces the ellipse as a theme in the design, featured not only in the shape of the floor plan but also in the elliptical glass staircase leading from the lobby to the podium carpark below. Elevators to the units above do not feature a high-zone and low-zone configuration as the project team felt it was unnecessary in this setting. Among the features of the typical floors' rental units are end bathrooms with spectacular views through curved glass and living rooms with large full width glazing. 6,000 sq ft units occupy the top four residential floors. Two refuge floors are provided.

A two-storey residents' clubhouse is designed to maximise the unobstructed views from Highcliff's elevated vantage point. Centrepiece to the facilities is an eye-catching ellipse-shaped swimming pool. Featuring tile art specially commissioned from UK-based Craig Bragdy Design Ltd the swimming pool is, like the rest of Highcliff, a one-of-a-kind experience in Hong Kong's luxury residential market. 

Highcliff Investment Ltd, Central Development Ltd
client

Dennis Lau & Ng Chun Man Architects & Engineers (HK) Ltd
architect

Hip Hing Construction Co Ltd
main contractor

Associated Consulting Engineers
e&m consultant

Maunsell Geotechnical Services
geotechnical consultant

Canwest Consultants (Int'l) Ltd
structural design consultant

Magnusson Klemencic Associates
structural consultant

Davis, Langdon & Seah (HK) Ltd
quantity surveyor