

“The Mountain Dwellings” – Futuristic Architecture from Copenhagen

The Utmost in Mountain Living

With a view of Mount Everest, the car drives up to the sky-blue, sixth floor of an illuminated car parking cathedral and comes to a halt at the apartment door. The apartment’s roof terrace is part of a landscape of hanging gardens and provides open views over Copenhagen’s newest suburb, Ørestad.

This building concept is not a Danish dream, but a project completed in the summer of 2008: “The Mountain Dwellings” by architects Bjarke Ingels and Jakob Lange of the Bjarke Ingels Group (BIG). The idea was to create a symbiotic relationship between the traditional components of living and parking and reach a new level of residential comfort. This was achieved by combining the two functions – 450 parking spaces and 80 apartments – with one over the other to create a terraced system.

Such a solution enabled a ratio of living to parking of 1:3. If the two had been placed side by side on the allotted area, the result would have been a small building shadowed by a large car park. Instead, the single-storey L-shape houses cascade down an artificial mountain of 34 metres in height, covering a total area of 33,000 square metres, with the terraces facing southwards. The roofs of the apartments, which range from 80 to 150 square metres in size, act as the roof terraces for the apartments above, as well as the roof of the four-storey car park. The apartment building therefore provides a good mixture for those residents who enjoy the vibrance and density of urban living, but at the same time wish to benefit from a retreat where they can relax in their own garden.

Award for best residential building

At the World Architecture Festival (WAF) 2008 in Barcelona, BIG was awarded first prize in the “Housing” category for this project. Its success is astounding because, on account of the specifications laid down by the By & Havn development company, the building could only look this way or be very similar. For instance, the apartments had to face south and the height of the building was restricted, as were the living and parking areas.

A little background: Ørestad is a new suburb between the city centre and airport which was fully completed as part of a far-reaching infrastructure programme for Copenhagen in the next 20 to 30 years, providing dwellings for about 20,000 residents as well as about 60,000 jobs.

A feature of the suburban development was that the basic transport infrastructure – including the metro line and road layout – had already been laid out prior to construction. Architects were and still are faced with the challenge

of utilising the available space in the best possible way. Construction next to the metro line necessitated a new way of thinking due to the specified scope of the building and diversion of the apartment views away from the tracks. The spatial limitation on the one hand, and artistic freedom on the other, provide justification for the surprisingly original and imaginative architecture as presented by the “The Mountain Dwellings”.

Technical and architectural fireworks

The car park alone is an attraction all by itself: nothing grey, dark or oppressive here. Colourful and light, supported by dozens of stanchions – at some points the roof is up to 16 metres high – it radiates the style of a cathedral and in its design contributes to a new living culture. From the street, the residents reach their front doors either by foot or by car, via a sophisticated system of ramps and elevators.

The north and west facades are both covered by perforated aluminium panels which let light and air into the car park. In their entirety, the holes form a huge reproduction of Mount Everest, which during the day resembles that of a roughly rasterised photo as a result of the effect of the black holes on the bright aluminium. At night the facade is illuminated from the inside by the different colours of the various storeys and corridor walls. Mount Everest then emerges as a colourful photo negative.

Mount Everest under the rainbow

The effect and intensity of colours are achieved by the material used to clad the ceilings of the car park, as well as the ceilings and walls of the corridors which lead to the apartments. The said materials are Reynobond® Architecture aluminium composite panels by Alcoa, painted with DURAGLOSS® 5000 in the architect’s chosen colours. DURAGLOSS® 5000 is a new type of high-tech coating which has a number of benefits. “Instead of choosing one single colour for the roof of the car park, we decided to start with grass green at the base and end with sky blue at the peak”, said Jakob Lange, director of “The Mountain Dwellings” project.

Several designs were initially investigated for the perforated facade, but most would have been outdated in a few years. Because the building was constantly being likened to a mountain, however, the architects ultimately opted to take the largest of them all – Mount Everest.

In contrast to the atmospheric and highly attractive architecture on the inside, outwardly the building tends to radiate simple and clear lines. Such a creative contrast between warm and cold, as well as even ground and upward movement, lends the “Mountain Dwellings” a dynamic, dual character.

Aluminium – a sign of technology and urban flair

Three underlying design elements are found on the exterior: perforated aluminium for the Mount Everest design covering a total area of 2,510 square metres, wood panelling with glazing for the south-facing terraces as well as aluminium with glazing for the building's facade. Reynobond® aluminium composite panels in bright colours and Natural Aluminium Brushed were used to cover roughly 15,000 square metres. The cladding of the side facades of the apartments with aluminium composite panels can be viewed as the continuation of a design concept. The exterior facade of BIG's predecessor project, the VM Houses, was also covered entirely in aluminium and glass. "With 'The Mountain Dwellings', we took aluminium for the facade as a throwback to the 'VM Houses' opposite", Jakob Lange explained.

Facts in brief:

Project:	The Mountain Dwellings
Address:	Copenhagen-Ørestad, DK
Total area:	33,000 m ²
Fabricator:	Vink A/S
Product:	Totalling 15,000 m ² , 4 mm Reynobond® Architecture aluminium composite panels with FR core
Surface:	Natural Aluminium Brushed and 10 special colours (yellow, red, green, blue, violet) in DURAGLOSS® 5000
Status:	Completed summer 2008
Architect:	BIG – Bjarke Ingels Group, responsible partner: Bjarke Ingels, project architect: Jakob Lange, project director: Finn Nørkjær, project manager: Jan Borgstrøm, contributors: Annette Jensen, Dariusz Bojarski, Dennis Rasmussen, Eva Hviid-Nielsen, Henrick Poulsen, Joao Vieira Costa, Jørn Jensen, Karsten V. Vestergaard, Karsten Hammer Hansen, Leon Rost, Louise Steffensen, Malte Rosenquist, Mia Frederiksen, Ole Elkjær-Larsen, Ole Nannberg, Roberto Rosales Salazar, Rong Bin, Sophus Søbye, Søren Lambertsen, Wataru Tanaka

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Appendix

Material:

Windows:	Jatoba wood/aluminium frames in the apartments
Flooring:	Oak wood with underfloor heating
Ceilings:	Painted concrete
Perforated facade:	3 mm aluminium panels
Decking wood:	IPE untreated hardwood
Bathroom:	Complete bathroom units by "EJ-badekabiner"

Companies:

Construction company:	Høpfner A/S
Construction:	DS Elcobyg A/S /PH Montage
Technical flooring system:	M.J. Eriksen
Windows:	SA facades
Facade construction:	PPE Enterprise AIE + Klug AIE
Steelworks:	HB-trapper
Roofing:	Montak
Exterior facade:	PPE Enterprise
Interior joinery in car park:	KLUG
Technical services:	ENCO
Ventilation:	Klimodan
Wood decking construction:	Drewcom
Road layout:	Dansk Auto-værn
Perforated aluminium facade:	Nettoperforering
Coating:	Svend Aage Sørensen