

Project name **Tradeport Logistics Centre**

Location **Chek Lap Kok, Hong Kong**

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Tradeport Logistics Centre

Maximum flexibility

by Tim Youngs

Tradeport Logistics Centre is located in the South Commercial District next to Hong Kong International Airport at Chek Lap Kok. Targeted towards manufacturers and logistics providers who use airfreight services, the centre encapsulates the new direction of industrial building development, where architecture and planning components reflect the processes conducted inside.



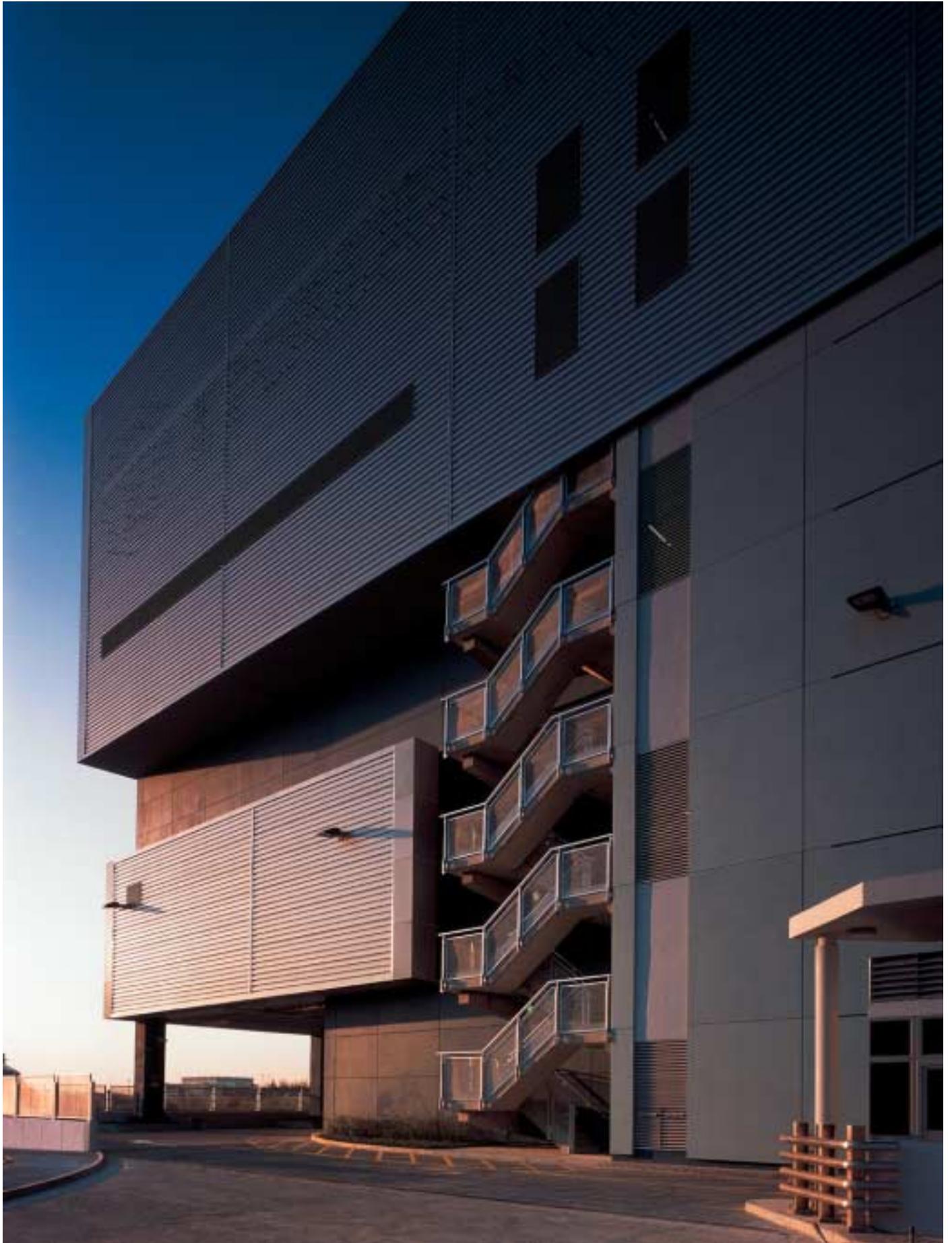
The original concept for Tradeport Logistics Centre was to create a building with maximum flexibility for logistics operations. During the design process there were no specific tenants and therefore no specific uses in mind, meaning that the building had to be flexible enough to take multiple tenants or a large single tenant. Furthermore, the design had to take into account the potential for very large areas of high-bay racking and the likelihood of the building being a second or third-line logistics centre. As the building is not airside, logistics operations envisaged for the facility included assembly and repackaging of electronics products for export. As such, designing a building for these needs was a challenge, said Architectural Project Director David Roberts of Aedas LPT Ltd.

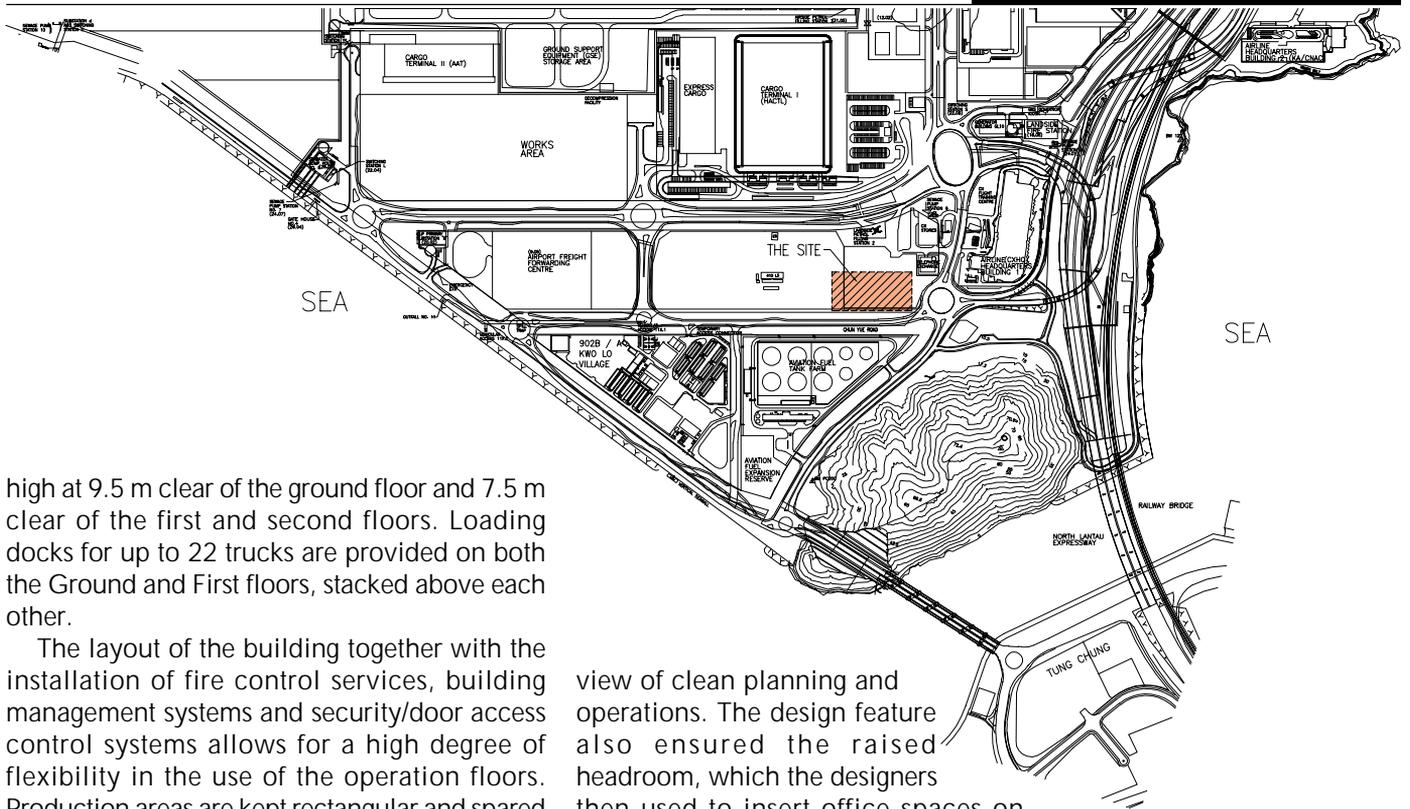
"This building is very much reflecting logistics, which tends to be more electronics, tends to be more with e-commerce, and tends to be building of the new millennium," he said. "We've had industrial buildings over the last two centuries and this is more a building for technology."

In essence, the Tradeport Logistics Centre design facilitates the activities to be conducted within. The building is adaptable to change in a very fast-moving industry, and is set up for those rapid changes to occur.

The building is a simple reinforced concrete structure housing 26,000 sq m of operation floor area on three floors and 5,000 sq m of office space and support facilities on three mezzanine floors. The gross floor area totals 34,200 sq m. The operation floor headroom is







high at 9.5 m clear of the ground floor and 7.5 m clear of the first and second floors. Loading docks for up to 22 trucks are provided on both the Ground and First floors, stacked above each other.

The layout of the building together with the installation of fire control services, building management systems and security/door access control systems allows for a high degree of flexibility in the use of the operation floors. Production areas are kept rectangular and spared of obstructions by placing staircases outside the building.

“The reason that the staircases are external is we didn't want to have the floor spaces impeded in any way,” explained Mr Roberts. “Putting these staircases outside the rectangular floor space means maximum flexibility in the future.”

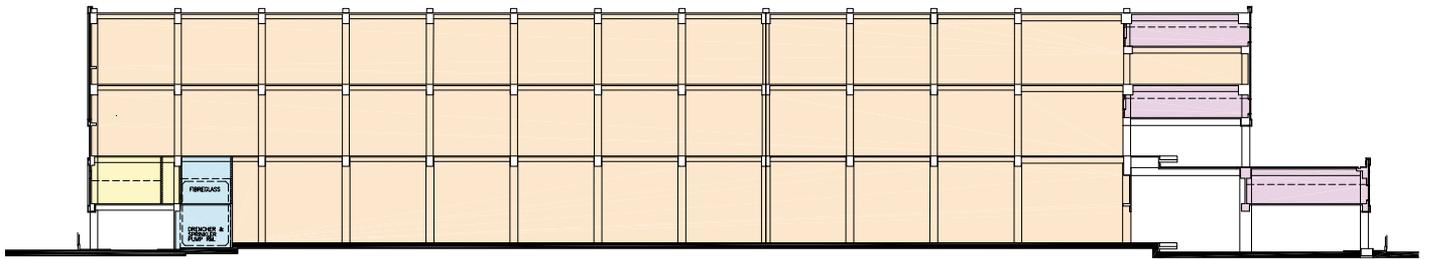
In terms of accessibility, having the sets of truck docks above each other at the same end of the building was seen as better from the point of

view of clean planning and operations. The design feature also ensured the raised headroom, which the designers then used to insert office spaces on mezzanine levels at the other end of the building.

The various components of Tradeport Logistics Centre and the process behind its planning is legible on the exterior. Elements read three-dimensionally on the elevations, with features such as heavy frames pulled around from the front elevations identifying components and showing how the building is assembled.

The architectural concept is in part developed from the appearance of cargo containers, and



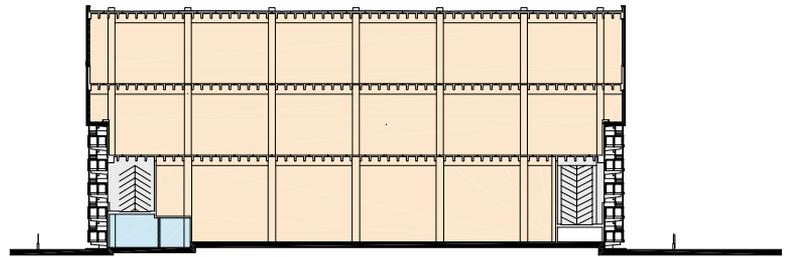


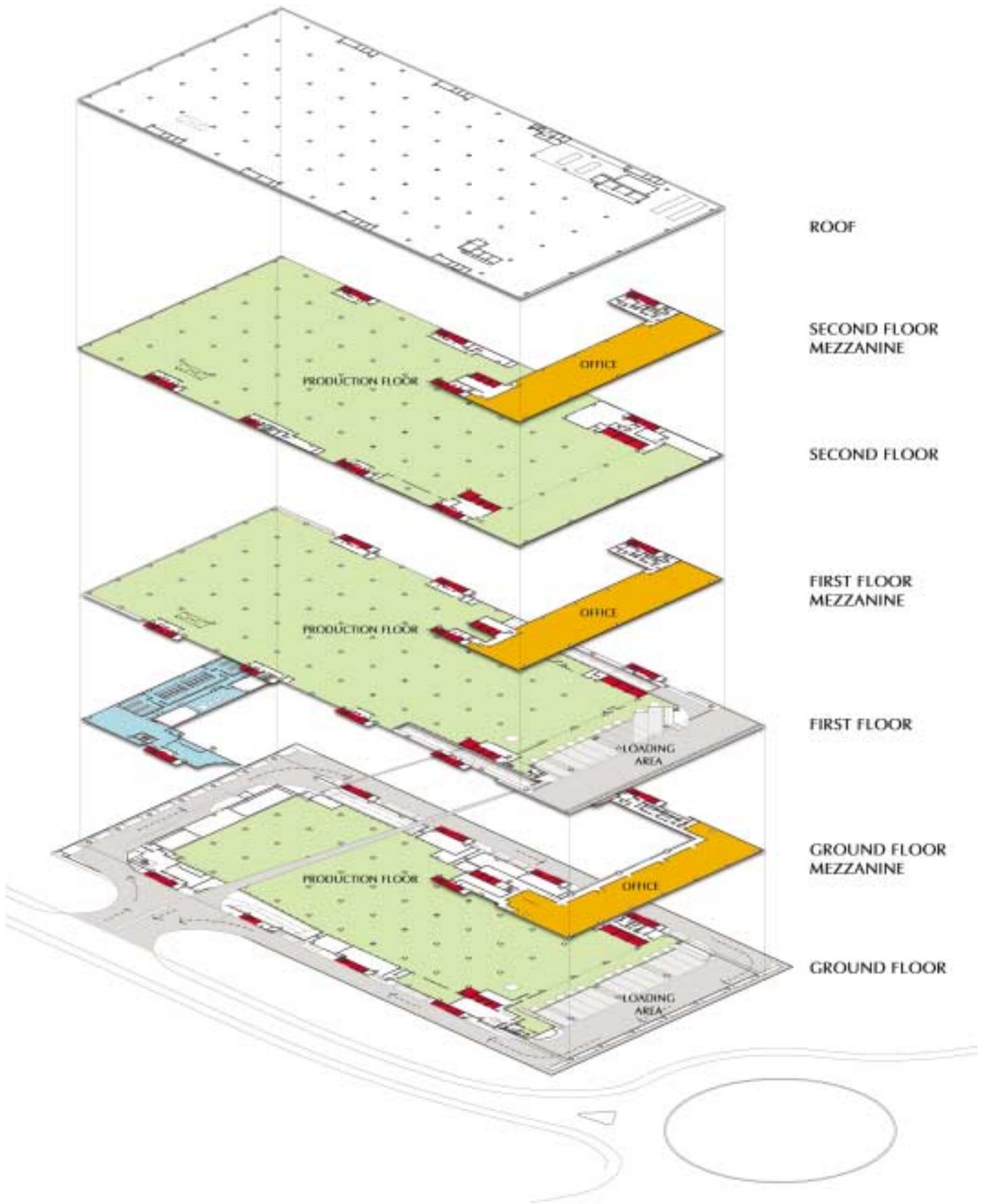
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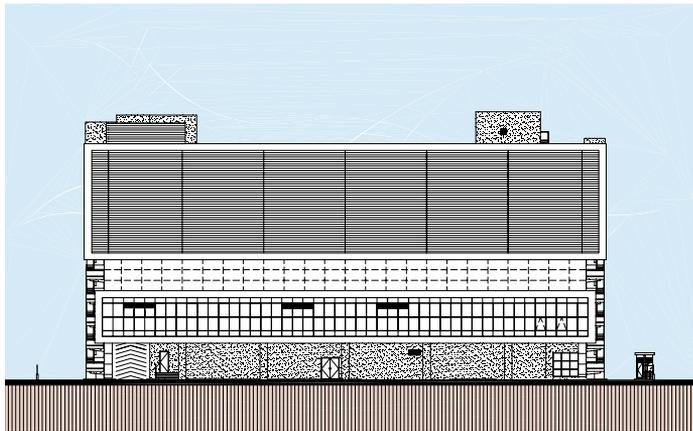


the repeated use of profiled metal cladding at the lower mezzanine floors expresses the movement of the 'containers' sliding towards east and west.

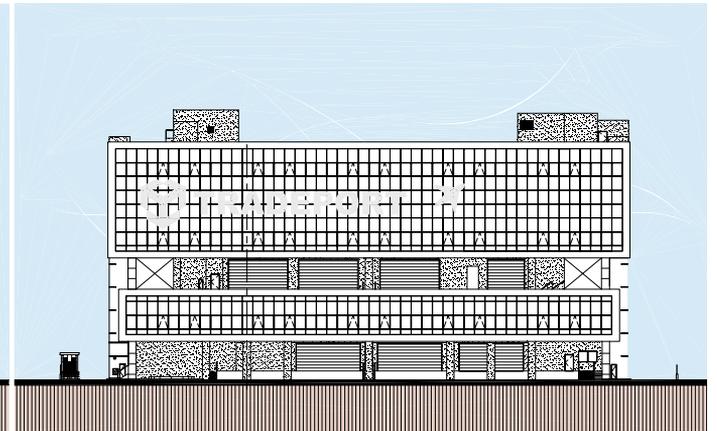
The expression of the external skin contains a modern blue-toned palette of profiled metal cladding on the upper half of the building and precast lost form panels on the lower half. The lost form panels added a degree of difficulty in that they were blue — one of the hardest colours to achieve in concrete. The north and south elevations feature eight stair cores-cum-fireman's lifts as a functional design feature.







west elevation

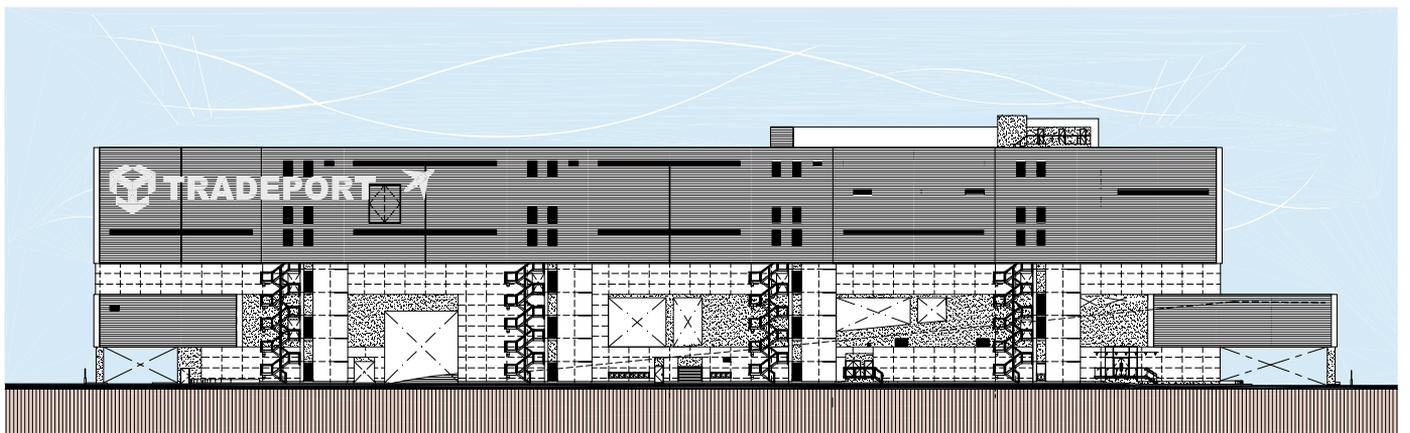


east elevation

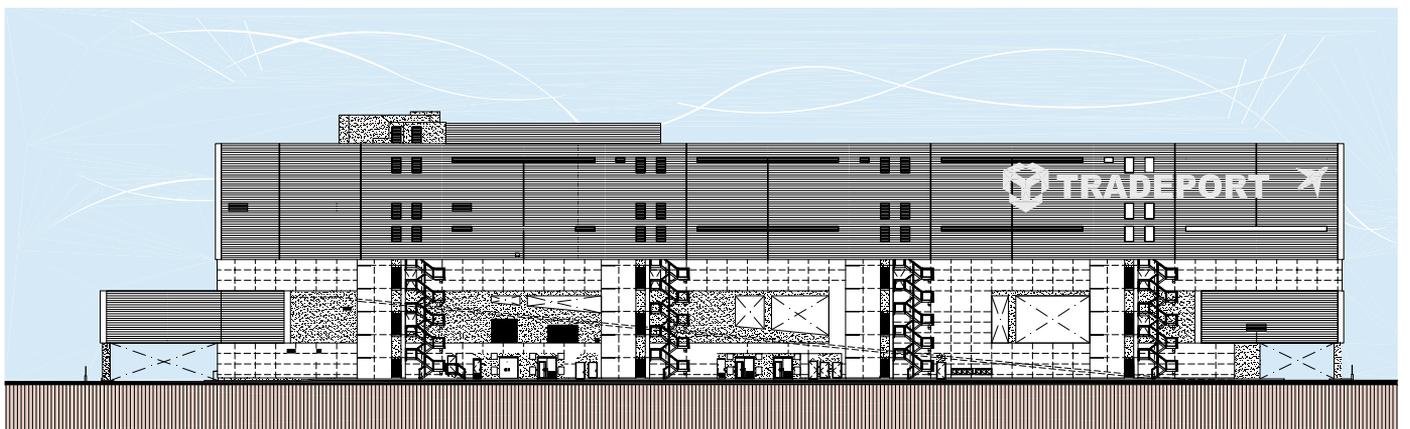
The east elevation looks towards Tung Chung and the Lantau coastline, providing excellent views for office occupants in the three mezzanine floors. A rain screen system with the Tradeport logo silk-screened on and lighting clearly identify the office elevation. Low-E double-glazing is used behind the screen to gain a low OTTV value and provide sound mitigation from airport noise.

When selecting materials, the architects were careful with interface details. Particular attention

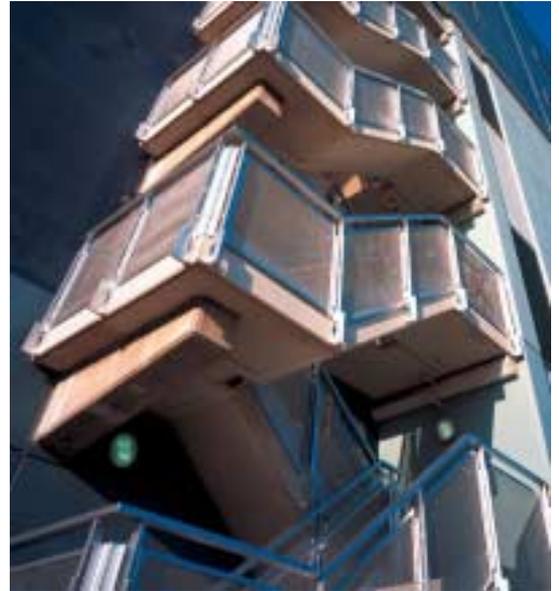
was paid to these, such as detailing doorways, louvres and windows to interface with the profiled aluminium cladding, as a precise meeting with the surrounding elements was needed. The profiled aluminium cladding on the upper level was also considered fast to put up and low-maintenance. Durability was an issue in considering the building's life cycle costs to the client, and this concern was also taken into account with the use of coloured lost form panels.



south elevation



north elevation



The Tradeport Logistics Centre project followed green construction principles with precast concrete beams, precast staircases and lost form wall panels all greatly reducing the need for traditional timber formwork and allowing a quicker construction program. All floor slabs inside the building were made from pre-constructed T-beams barged in from China.

Suitably, for a building designed with flexibility prioritised, Tradeport Logistics Centre is currently partially complete in terms of its overall design vision, said Mr Roberts. "There is intended to be, for the future, the opportunity to add an extra floor to this building. We have a lightweight design solution with curved roofs finishing the top of the building. The building right now is in the first sage of its life and there is another stage where it will grow up and realise its full potential." 

Hongkong Land Ltd
client

Aedas LPT Ltd
architect

Gammon Skanska Ltd
main contractor

Mott Connell Ltd
civil, structural and building services consultant

WT Partnerships (Hong Kong) Ltd
quantity surveyor

Urbis Ltd
landscape consultant

MVA HK Ltd
traffic consultant

Advanced contract features at Tradeport Logistics Centre

Tradeport Logistics Centre was developed under a guaranteed maximum price (GMP) contract, which initially allowed the design to be taken to a certain point — far enough to define the building such that main contractor Gammon Skanska could price against it. The opportunity then presented to the contractor, the consultants and the client was the ability to work collaboratively as a team throughout the project's development. In addition, a partnering approach was adopted as a key element in the project's success.

"Partnering and the GMP contract together worked very well because we carried out a number of changes through the detailed design period and construction, and these would not have been possible had we not had partnering and the GMP contract," Mr Roberts said.

"For instance, the staircases in the very early drawings were internal and we identified the flexibility and preferred them on the outside. The lost form panels were actually a proposal by the contractor to speed up construction and actually saved about three months in the construction programme. The prefabrication of staircases again was the consultant's idea and achieved great quality, a certain aesthetic and importantly saved time for the contractor. With GMP it's the case that you achieve a win-win situation. There are certain trade-offs in the design and certain trade-offs against client requirements, and you can pull these together to find the best solution."

GMP was adopted for the Chater House project, which brought together Hongkong Land, Gammon Skanska and Aedas LPT previously. The architects are now following the GMP system for Hongkong Land's

Alexandra House refurbishments, with main contractor Hip Hing Construction.

"Hongkong Land, as one of our clients, has certainly been at the forefront of introducing this type of procurement into Hong Kong and Gammon Skanska as a contractor has been involved in a number of GMP contracts and contributed significantly to the success of this project," Mr Roberts said. "We finished slightly ahead of programme, we achieved the occupation permit on 2 December 2002 and that was a collective effort by all the team members. The partnering philosophy was very strong in achieving a very fast turnaround because from the beginning of design to OP it was less than two years."

Other advanced construction initiatives adopted at Tradeport Logistics Centre were M4i and ECL. M4i (Movement for Innovation) is a benchmarking system used in the UK that covers safety and efficiency. While the project team didn't use M4i in the UK model, it took the principles and applied them to benchmark issues including safety, quality, green construction and wastage in the Hong Kong context. ECL is an electronic procurement management system applied by Gammon Skanska, whereby all drawings and correspondence were processed electronically, enabling a much faster turnaround of information. Other benefits included the ability to compare one issue of drawings against the previous issue to identify changes on screen with the press of a button. ECL was fully implemented on the project, leading the way for its further application in future Gammon Skanska projects.

