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CHUN WO MODULAR INTEGRATED CONSTRUCTION

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MiC

YOUR PARTNER IN MODULAR INTEGRATED CONSTRUCTION

Our mission is to deliver homes with unprecedented quality and transform the way we build contemporary housing using advanced and sustainable technologies. We believe in a future of liveable modular buildings that are individual and which complement their surroundings to a high level of workmanship that owners value. As your partner in modular construction, our systems unify technology, people and materials to improve lives in the community and industry.



MODULAR INTEGRATED CONSTRUCTION

Chun Wo is at the new age of engineering and construction technology where it offers prefabrication and modular construction as solutions for future cities

Modular Construction integrates the processes and technologies of design, manufacturing and construction to deliver higher-quality buildings in shorter time frames. Chun Wo has a proud legacy in Design for Manufacture and Assembly (DfMA), and we have applied our expertise in fabrication, logistics and installation of a building's components to modular construction.

We are the first in the industry to obtain an In-Principal Approval (IPA) from the Buildings Department of the HKSAR for our Reinforced Concrete MiC Connections. This authorises us to build up to 40-storey MiC buildings for both the public and private sectors.

Our modular projects may include a combination of volumetric and non-volumetric components utilising a combination of off-site and on-site construction that best suits the specific requirements of the design and site. At the early stage of a project, our engineers in Building Information Modelling (BIM) provide a clear view of every buildable detail and associated considerations related to logistics, environmental, health and safety, time and cost to ensure a well coordinated design, manufacture and assembly process.

Chun Wo's modular systems can offer more complex and detailed designs unlike traditional construction techniques as most of the building will be fabricated off-site in the controlled environment of a manufacturing facility, allowing for higher quality and consistency. This approach also helps to accelerate the construction schedule and assist in addressing the shortage of available skilled labour for on-site work in Hong Kong.

Furthermore, 6% of the floor area built using MiC will be exempted from the calculation of the Gross Floor Area (GFA)* making this an attractive option to private developers. Our innovations not only provide certainty in project completion to meet pressing demands for quality housing, but they also play a role in attracting future generations of professionals to our industry.

*According to the 'Exemption of Gross Floor Area for Buildings adopting Modular Integrated Construction' issued by the Buildings Department.

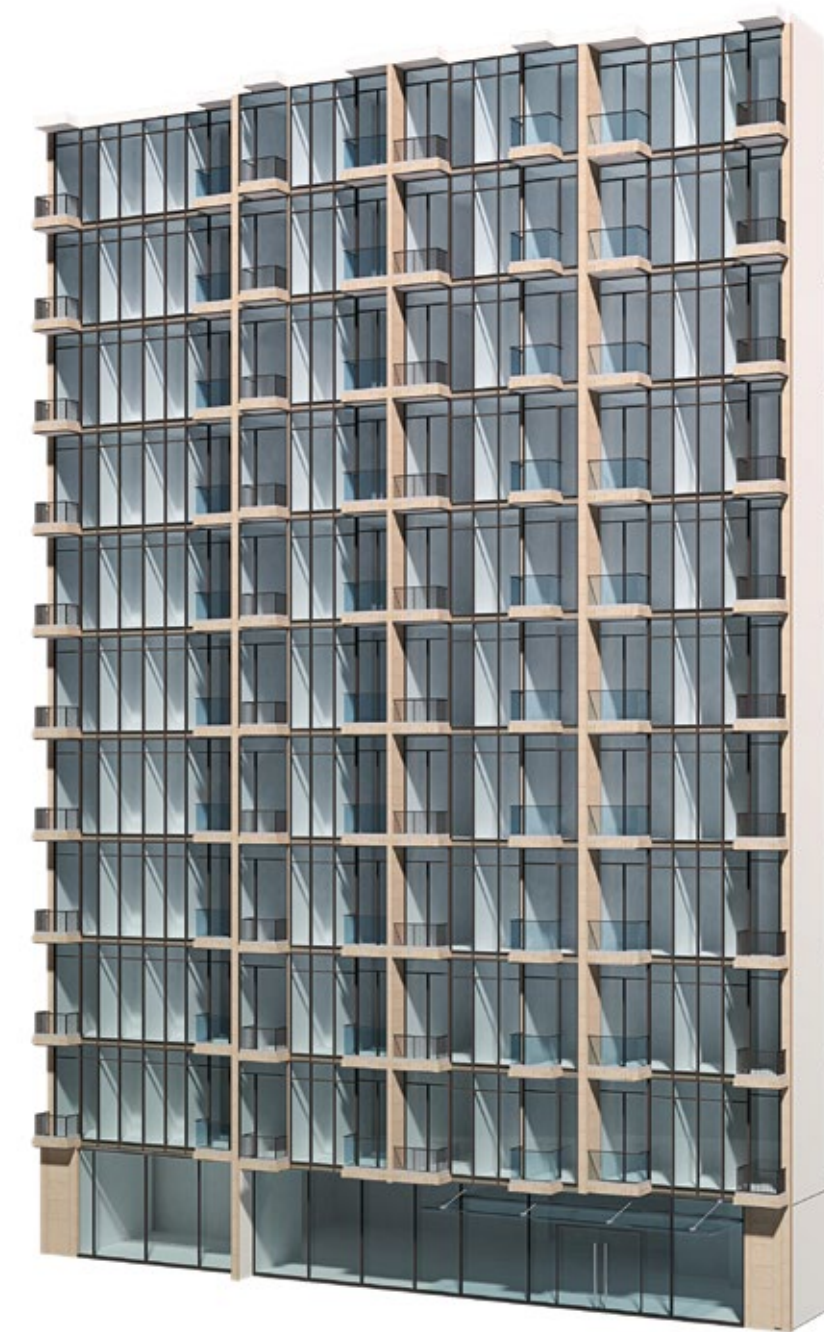
CHUN WO MIC ADVANTAGES

- Awarded IPA by Buildings Department for MiC (RC) System in partnership with the P&T Group
- Patented 'wall connection system' jointly developed with the P&T Group
- 1st contractor with capabilities to build high-rise 40-storey RC MiC Building in Hong Kong
- Mature and experienced BIM team
- Profound experience in DfMA



Chun Wo Concrete MiC Connection Systems animation

QUALITY LIVEABLE BUILDINGS



The elevator shaft provides core strength and rigidity to the tower construction, on which the modular flat units are assembled

Master bedroom modular unit with factory fitted HVAC systems air conditioning, window frames and RC steel balcony

Off-site DfMA precast RC fire escape stairwell

Modular Living Room unit with factory fitted kitchen HVAC systems air conditioning, window frames and RC glass balcony

Prefabricated modular façade units



Modular Fitted Bathroom and auxiliary MEP plant rooms with factory fitted piping and ducting systems

Modular 2nd Bedroom Unit
All modules are fitted with Radio Frequency Identification (RFID) for tracking and inventory

Modular fitted bathroom and auxiliary MEP plant rooms with factory fitted piping and ducting systems

Factory precast reinforced concrete delivers superior quality modules

Modular units carefully craned into position using Chun Wo own cranes with customised lifting frames

ONE-STOP SOLUTION

We foster a collaborative team environment using BIM from architects to engineers and fabricators to explore complex design solutions and avoid clashes and costly changes. Our BIM data are handed over to clients for operations, renovations and maintenance to provide long-term value throughout the building's life cycle.

CONTROLLED FABRICATION

Our MiC manufacturing partners in Mainland China specialise in producing and storing prefabricated components with a capacity for 100 volumetric units per week and 85% of the interior finishing and fittings completed off-site. Prefabrication enables higher standards of workmanship with testing and preassembly at factory, less waste and greater health and safety for staff.

QUALITY ASSURANCE

Accredited with ISO9001, Chun Wo fosters a culture of high quality and aims for zero defects. Construction materials are compliant and certified and safely stored to prevent damage from moisture. Superior weather protection and waterproofing membrane is used for transportation and Radio Frequency Identification (RFID) systems track and centralise our inventory.

DEDICATED LOGISTICS

Chun Wo's 20,000 sq.ft mock-up yard in Yuen Long is close to China's border to ensure on-time scheduling for the on-site assembly crew. Our logistics team is fully engaged in the precise loading of modules and setting out of the site for efficient assembly.

ON-SITE ASSEMBLY

To ensure speed, quality and precision of on-site installation, we deploy well-trained professional workers and specialists in our unique concrete MiC systems. The installation method reduces construction time to mitigate disturbance in the neighborhood. It also reduces debris and construction traffic and is safer for the on-site team.

FACTORY FINISHES

- Plumbing and tiling
- Installation of bathroom units
- Waterproofing works
- Wall finishes and painting
- Installation of electrical outlets
- Installation of air-conditioning units
- Installation of kitchen cabinets
- Doors and frames
- Installation of flooring





DESIGN FOR MANUFACTURE & ASSEMBLY (DfMA)

DfMA is integral to MiC and provides greater ease of manufacturing and efficiency in assembly. Many of Chun Wo's projects include elements of DfMA, and we have successfully adopted it in different types of projects including residential buildings and public facilities.

GREENHILL VILLA RESIDENTIAL PROJECT

The Greenhill Villa is the first full precast concrete building in Hong Kong comprised of three tower blocks of 36, 34 and 32-storey, a podium and two lower ground floors. With early implementation of BIM technology, the team identified and avoided clashes to reduce wastage of materials and mitigate the risk of external wall tiles spalling. Prefabricated components included structural and non-structural external walls, stairs, refuse chutes, partition walls, parapet walls, semi-prefabricated floor slabs and balconies.

- TIME SAVINGS**
- Capacity for handling 145 nos of precast units per floor
 - Time savings in formwork 36%
 - Time savings in plastering (tiling and rendering) 42%
 - Time savings in scaffolding 62%
 - Less labour 11%

TRANSPORTATION
Bar lengths were customised to accommodate the max 4.6 m vehicular height for transportation.

DESIGN MOULDS
Production feasibility and how components are connected with enough space for pouring concrete without affecting the structure.

INSTALLATION
Difference between using semi-prefabricated structural walls and traditional method is less temporary structural supports before pouring concrete. Implementation of BIM ensures installation fits savings of 40,000 man working days and reduces materials by over 50%.

- Top:*
1. **Greenhill Villa, Housing Society**
-
- Middle:*
2. **Typical Unit Living Room Interior**
-
- Below:*
- 3 + 4. **Fitted Wet Room Kitchen + Bathroom**
-

Typical factory fitted kitchen cabinets, appliances, floor and wall tiling and MEP connections.



HONG KONG INTERNATIONAL AIRPORT PUBLIC TOILETS

BIM design and DfMA off-site manufacturing were employed for the improvement works of public toilets in Terminal 1 and the Limousine Lounge of the Hong Kong International Airport. Volumetric units were factory prefabricated off-site and efficiently assembled on-site with minimal disturbance.

The improvement works comprised over 100 toilets.

2D Volumetric Toilets

The modular components were factory manufactured with designed connections for ease of on-site fitting.



BREAST CANCER FOUNDATION CENTRE

Design and build of a 2-storey clinic for the Hong Kong Breast Cancer Foundation Jockey Club Breast Health Centre (Kowloon).

2019 Hong Kong Institution of Engineers Excellence in Structure Award
In recognition of the project's outstanding performance in aesthetics, design concept and methods, unusual features, innovation & creativity, buildability and sustainability.

Off-site Prefabricication

Computer numerical control (CNC) technique was used for pre-fabricated feature wall/ aluminium cladding.



THE LUNA 27-STOREY TOWER

Construction of a 27-storey high quality building including 23-storey residential tower, 1-storey clubhouse and 3-storey podium with shops. The superstructure works including RC structure, ABWF, fittings, with a modular precast façade, plumbing, drainage works and E&M works. The external works including road & paving, planters, landscaping works and underground drainage.

Modular DfMA Façade Work

Employing modular precast construction for the façade enabled greater customisation during manufacture, accelerated efficiency and delivered an overall better quality product.





Top left: City of Dreams Retail Expansion, Macao
Below left: Development of Gleneagles Hong Kong Hospital at Nam Fung Path, Hong Kong
Right: Liantang / Heung Yuen Wai Boundary Control Point, Site Formation and Infrastructure Works - Contract 3, Hong Kong



PROVEN QUALITY

Founded in 1968, Chun Wo is principally engaged in core construction and property development businesses but also with the professional capability to undertake large integrated construction projects

Deeply rooted in Hong Kong for more than 50 years, Chun Wo has accumulated extensive experience and a strong position in the construction sector, enabling the Group to expand its businesses to countries along the 'Belt & Road' route in Southeast Asia and the Greater Bay Area in mainland China.

It has achieved a strong track record in managing and delivering large-scale construction projects, with specialisations in Building Construction, Civil Engineering, Civil Engineering Joint Venture, Construction Services and Overseas Construction Services.

Chun Wo Building Construction Limited, the building division of the company, was established in 1993 to engage in construction in the private sector and it has expanded to undertake a wide array of projects including government and institutional buildings, office, residential and industrial buildings, hospitals, schools, fire stations, and sports complexes.

QUALITY ASSURANCE

Chun Wo aims to deliver the highest quality products to customers and it has formulated an overriding Quality Policy with the commitment to meet customer's needs, expectations and statutory requirements. In line with its formulated Quality Policy, a Quality Management System which complies with ISO 9001 requirements is implemented within the Group to ensure successful fulfilment of our commitment to quality.

SAFETY MANAGEMENT

We commit to provide a safe and healthy work environment to all workers and to maintain an outstanding safety performance. Safety management models ISO 45001:2018 and OHSAS 18001 are applied to develop, implement and maintain the 17 elements of our Safety Management System, based on the Factories & Industrial Undertakings (Safety Management) Regulations.

ENVIRONMENTAL POLICY

Chun Wo is committed to contributing a green society by preventing environmental pollution, reducing waste and enhancing waste recycling from our operations. The Group has implemented an Environmental Management System which complies with ISO 14001 requirements for the provision of design, construction, and installation and maintenance services to our customers.



Above: Show flat built with 'Chun Wo Concrete MiC Systems'
Below: Patented 'Wall Connection System'

CHUN WO InnoBase

Set up in January 2021, 'Chun Wo InnoBase' is a demonstration centre in Yuen Long that displays Chun Wo's innovative technologies, including a show flat built with the unique 'Chun Wo Concrete MiC method' and our 'wall connection system', as well as 2 show flats built with steel MiC method.

More new technologies will be showcased at Chun Wo InnoBase in the future.







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