Tung Chung Traction Substation Residential Development

CCG MiC 2.0

MiC = In-situ

MTR

CHINACHEM GROUP
華懋集團


TUNG CHUNG TRACTION SUBSTATION
PROPERTY DEVELOPMENT


Tung Chung New Town Extension
Future Tung Chung East Station (completed by 2029)
To HK Int'l Airport & Hong Kong-Zhuhai-Macao Bridge
Coastal Skyline
Caribbean Coast
North Lantau Highway
Site Location
(10 min. walk from Tung Chung East Station)
Tung Chung Station



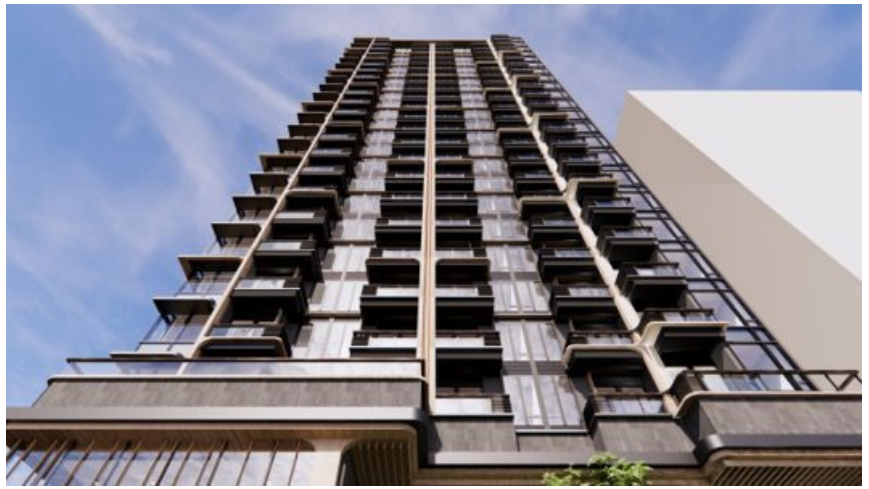

5 nos. 44 storey residential towers
MiC to be adopted for all residential units
Total 6,255 modules to be used
Tallest concrete MiC building in Hong Kong upon completion

Tung Chung Traction Substation Residential Development

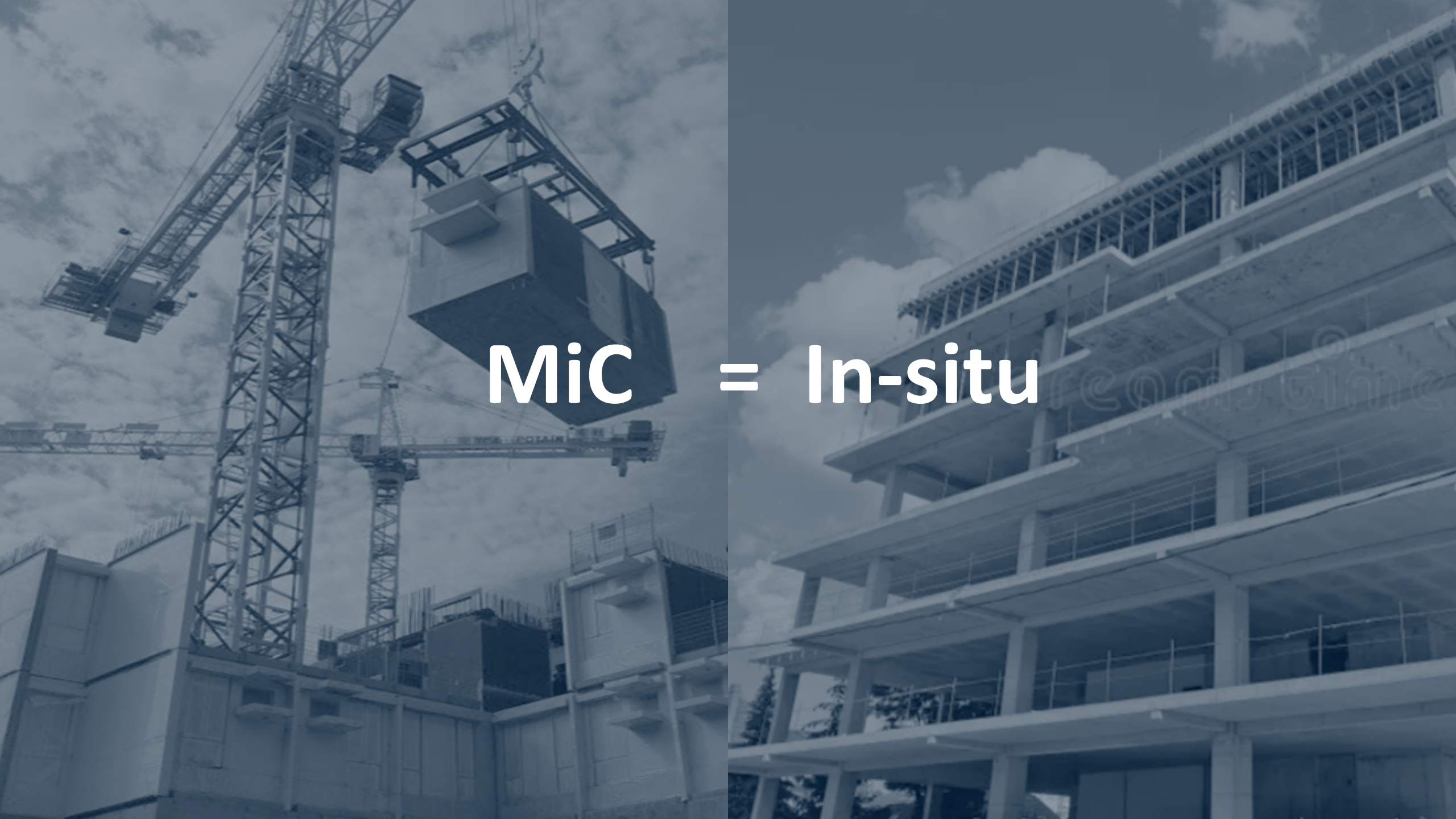


ECHO House (瑜悅)

- 1st MiC Residential Development in Private Sector
- 28 storeys high with MiC structure above transfer plate
- 198 units with more than 700 MiC modules

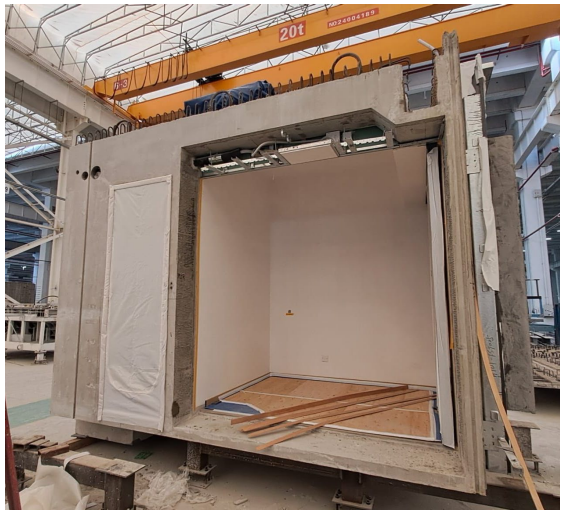




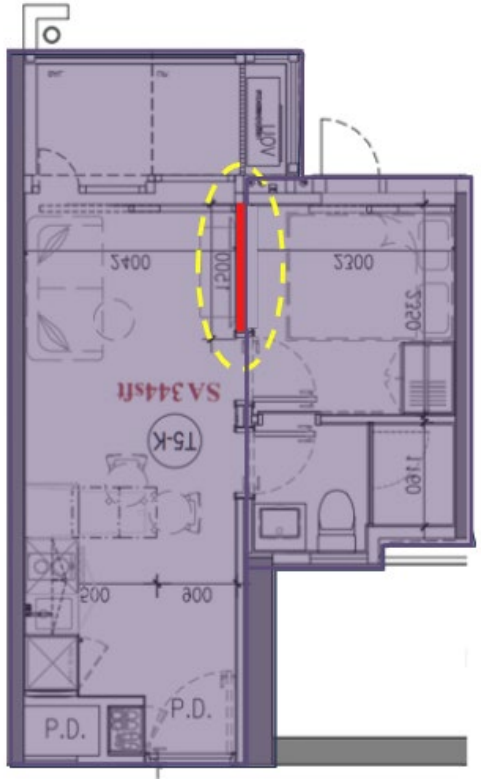

MiC = In-situ

Eliminating differences between MiC and In-situ structure

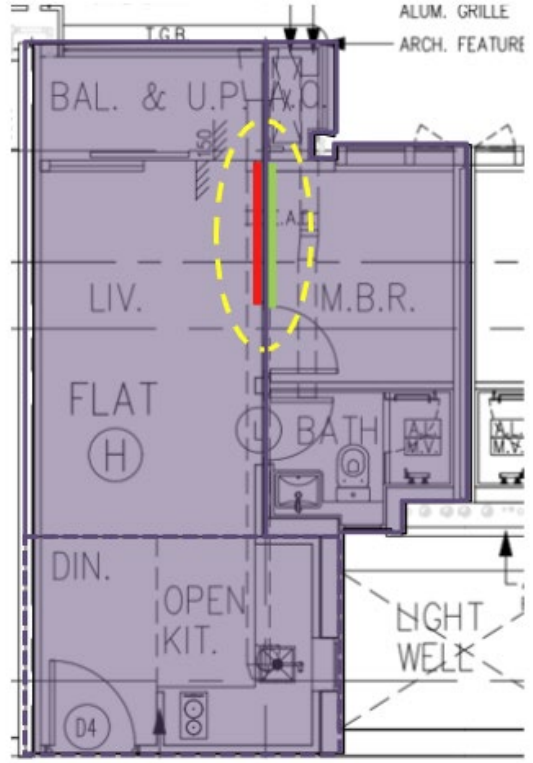
R.C. MiC Challenges and public misconception	Innovation & Creativity in TUT
1. Layout of unit will be limited by MiC and spatial quality will be sacrificed.	Architectural layout come first and division of modules to fit the spatial design. Early appointment of MiC design consultant to ensure the layout is MiC achievable.
2. Structural members of MiC would be larger than the in-situ because of additional module walls and loading.	All configuration including structural members and wall thickness would maintain the same as in-situ structure by using innovative connection details.
3. Walls will become double-layered once two modules are assembled, resulting in reducing the usable area.	Eliminate unnecessary double partition walls.
4. There is concern the watertightness between modules.	Special detail design between elements and modules to improve the watertightness performance.
5. Construction method and connections between module are complicated, especially for R.C. MiC, and therefore elongating the construction programme.	Simplify connection details will be used to ease the MiC installation and target to achieve 5-days cycle which is the same as in-situ cycle.
6. MiC is expensive.	Nominated Sub-contractor contractual arrangement is adopted .



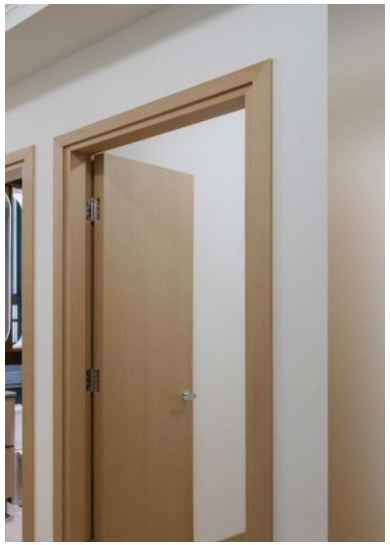




TUT
(Single Wall)

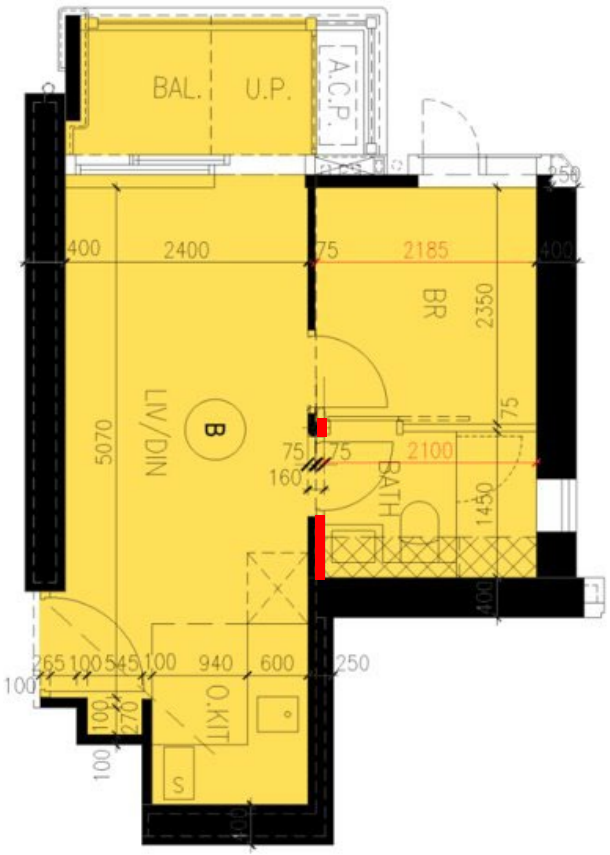


Tonkin Street
(Double Wall)

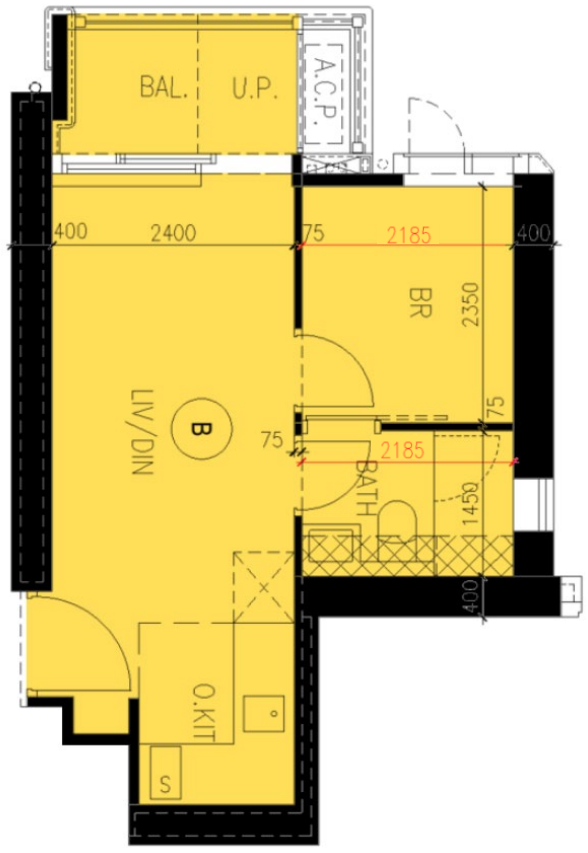


Carpet Area Comparison

MiC



Conventional



– FOR TYPICAL FLOOR

CONVENTIONAL

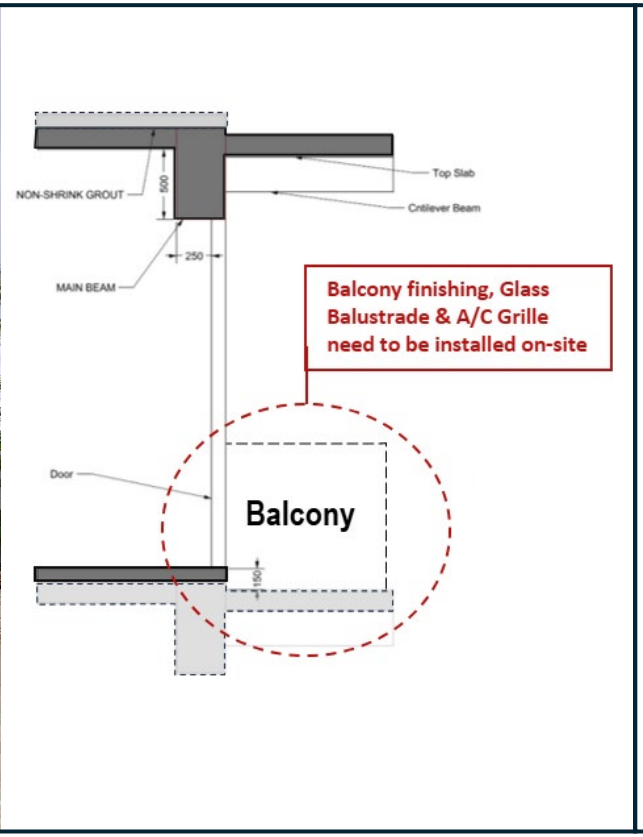
SALEABLE AREA = **28.1 sq.m (302 sq.ft.)**
CARPET AREA = **20.2 sq.m (218 sq.ft.)**
CARPET AREA/SALEABLE AREA = **72.1%**

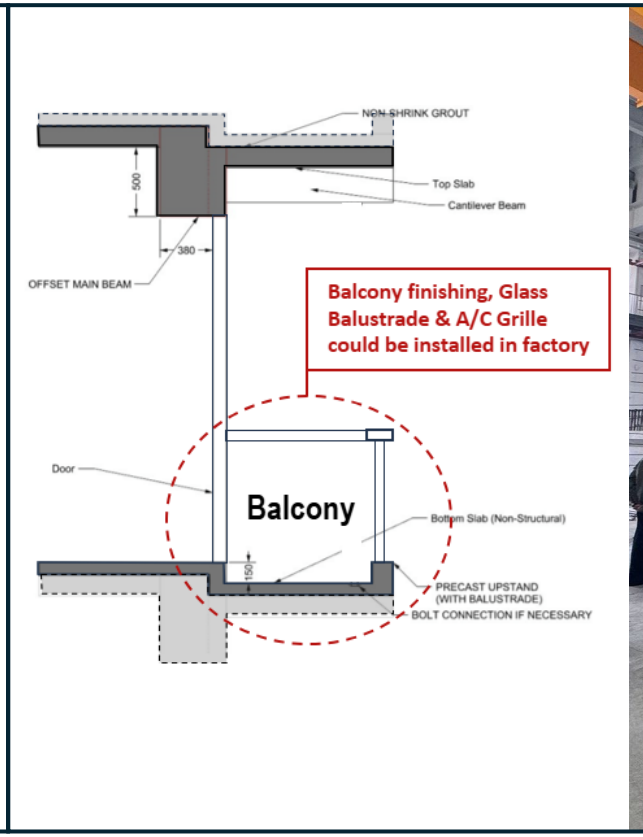
MiC

SALEABLE AREA = **28.1 sq.m (302 sq.ft.)**
CARPET AREA = **20.1 sq.m. (217 sq.ft.)**
CARPET AREA/SALEABLE AREA = **71.7 %**

(CARPET AREA % COMPARED WITH CONVENTIONAL SCHEME) ↓ **0.4 %**



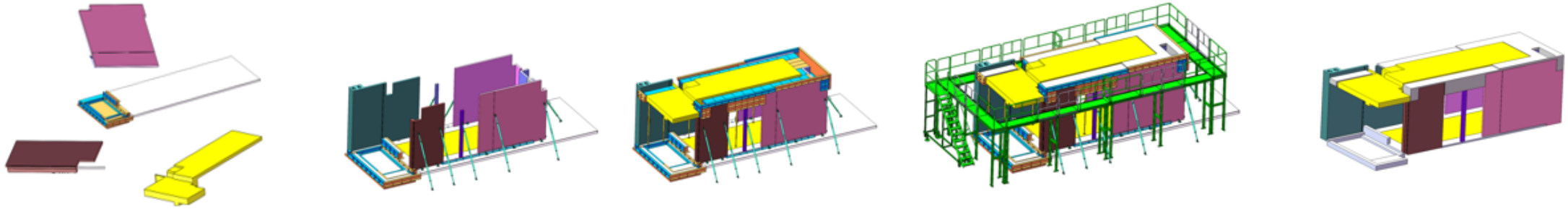

NON-SHRINK GROUT
500
Top Slab
Cntilever Beam
250
MAIN BEAM
Balcony finishing, Glass
Balustrade & A/C Grille
need to be installed on-site
Door
Balcony
150


NON-SHRINK GROUT
500
Top Slab
Cantilever Beam
380
OFFSET MAIN BEAM
Balcony finishing, Glass
Balustrade & A/C Grille
could be installed in factory
Door
Balcony
Bottom Slab (Non-Structural)
150
PRECAST UPSTAND
(WITH BALUSTRADE)
BOLT CONNECTION IF NECESSARY



Tokin Street - Concrete Mould

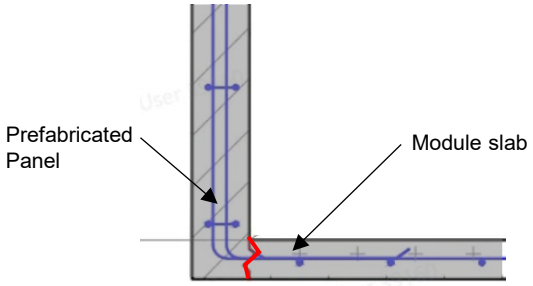




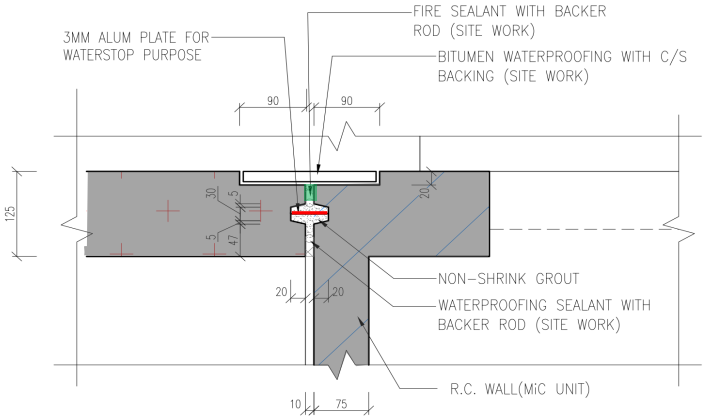
1 → 2 → 3 → 4 → 5

1. Prefabrication of wall and slab elements
2. Erect prefabrication elements and cast bottom remaining slab and wall
3. Erect the prefabricated upper slab
4. Cast remaining upper slab and beam
5. Completed

1st Concreting | **2nd Concreting** | **3rd Concreting**



Panel joint facing down



Waterstop between modules

Tung Chung Traction Substation
Residential Development







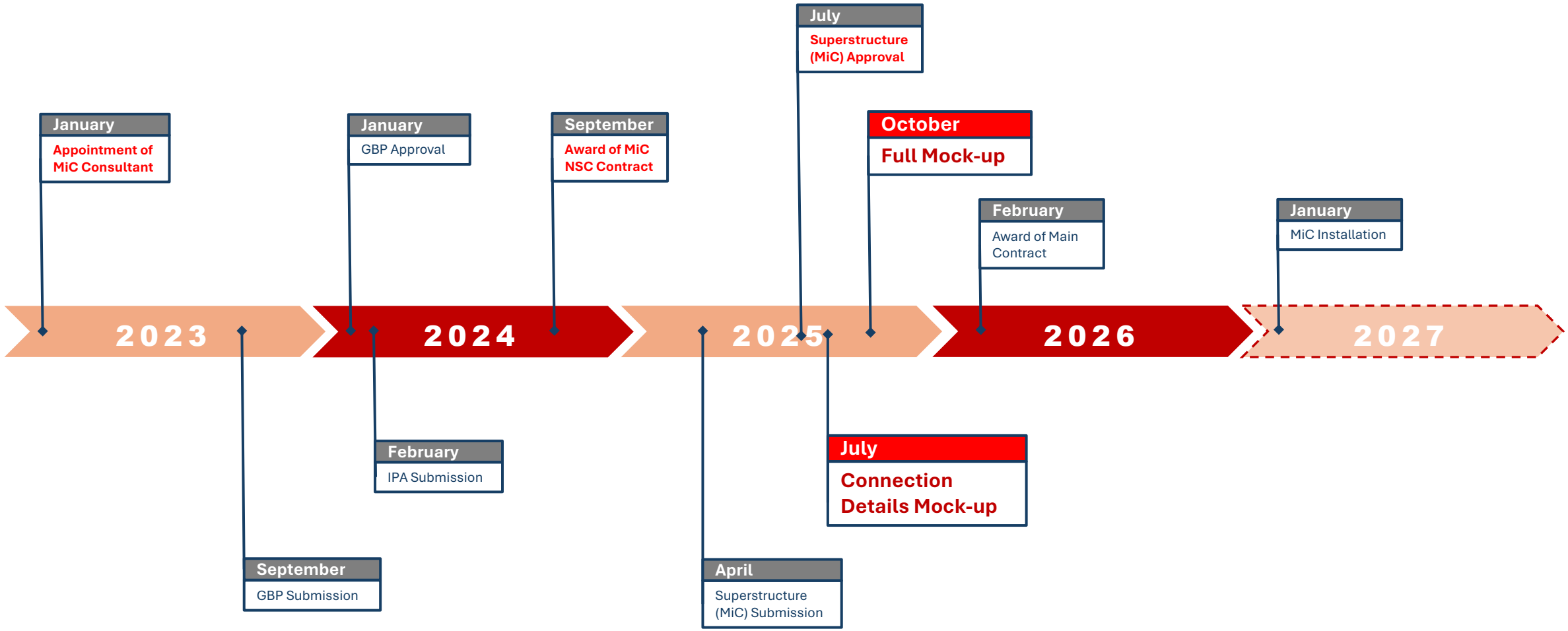


Tung Chung Traction Substation
Residential Development

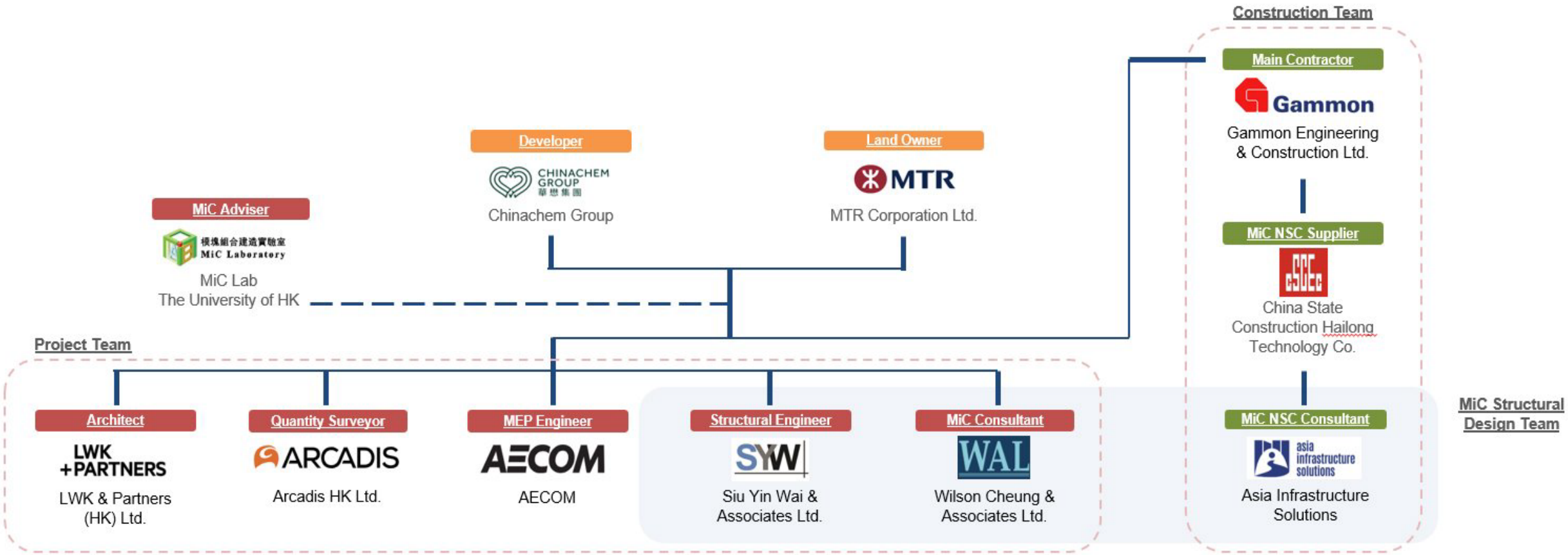


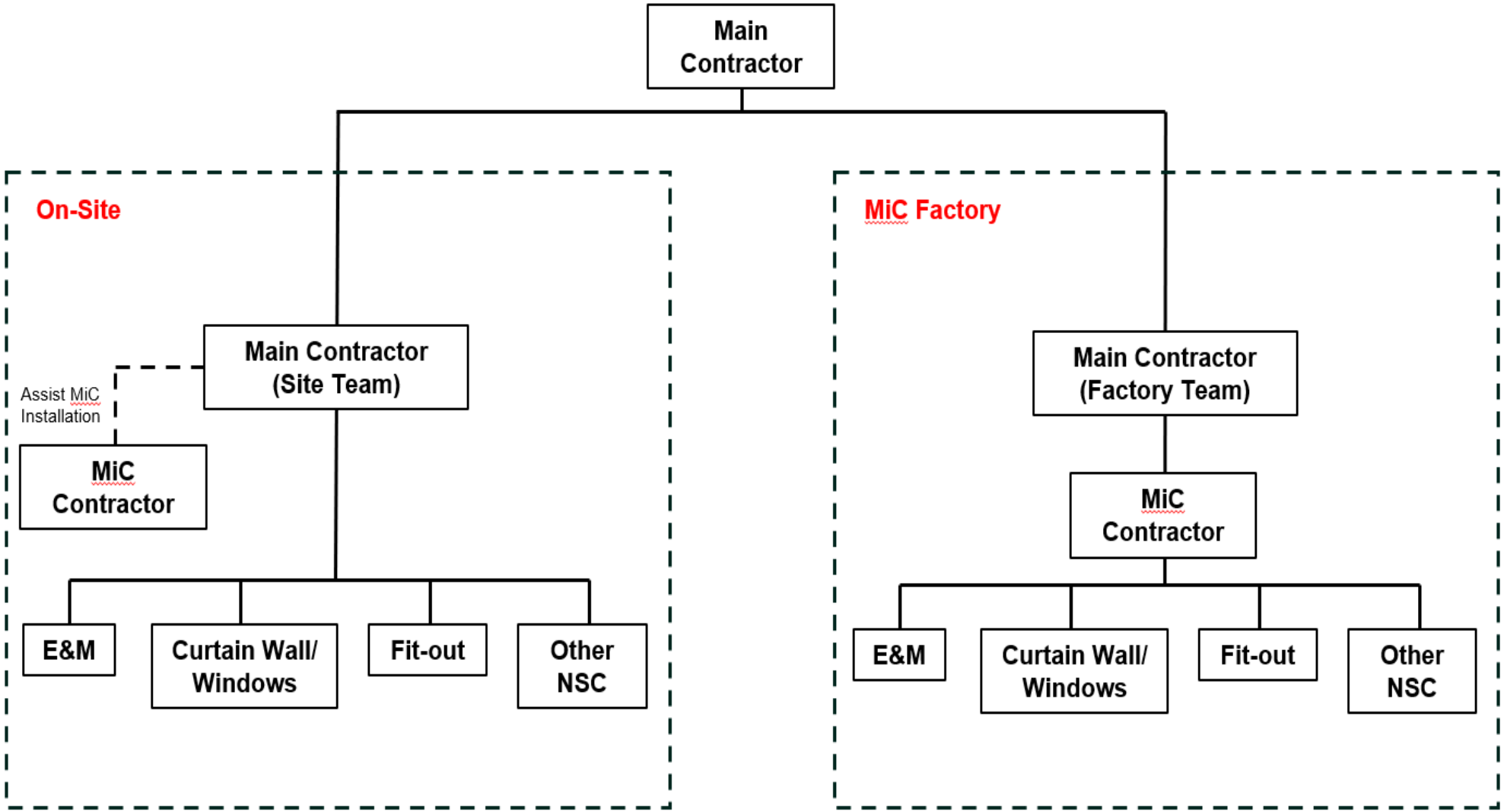


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Tung Chung Traction Substation
Residential Development




Main Contractor
On-Site
Main Contractor (Site Team)
Assist MiC Installation
MiC Contractor
E&M
Curtain Wall/ Windows
Fit-out
Other NSC
MiC Factory
Main Contractor (Factory Team)
MiC Contractor
E&M
Curtain Wall/ Windows
Fit-out
Other NSC

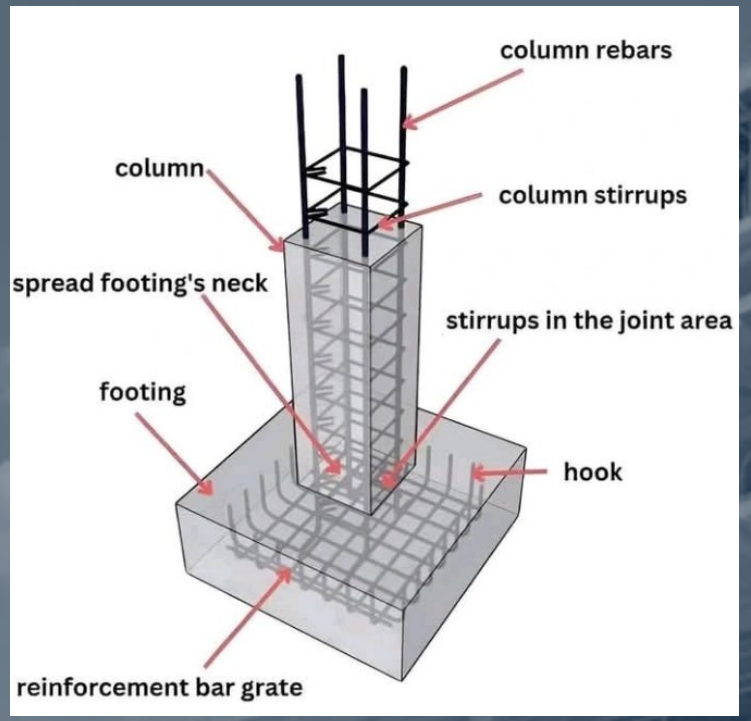


MiC

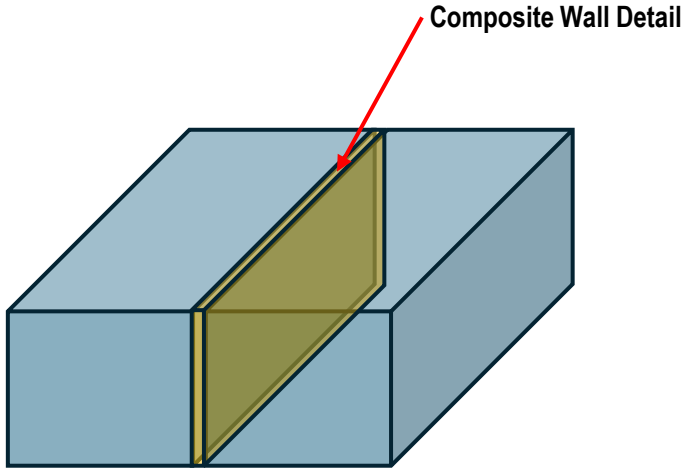




In-situ


column rebars
column
column stirrups
spread footing's neck
stirrups in the joint area
footing
hook
reinforcement bar grate

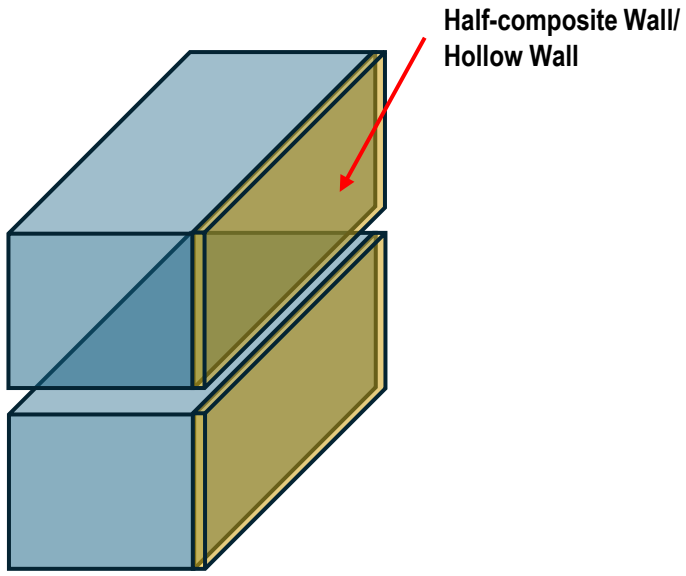

regular stirrup spacing
close spacing of stirrups
Lap Length
Lapping zone



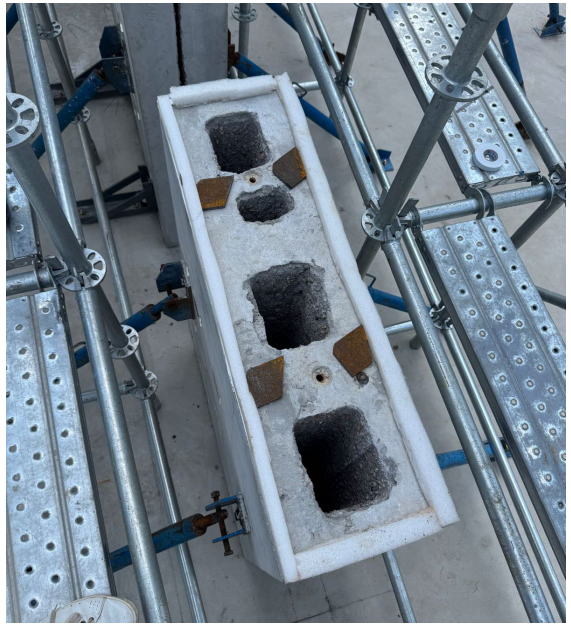




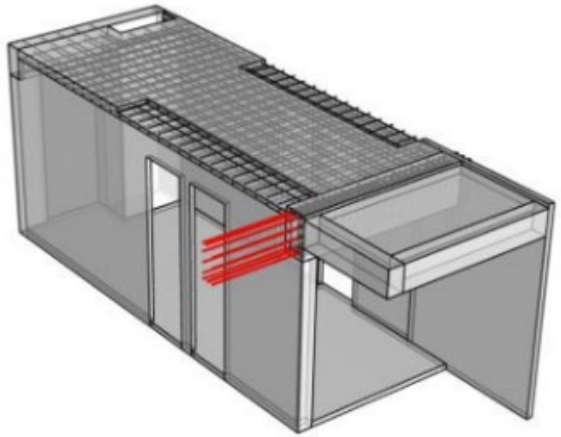
Composite Wall Detail
(Internal structural wall)







Half-composite Wall/ Hollow Wall Detail
(External structural wall)

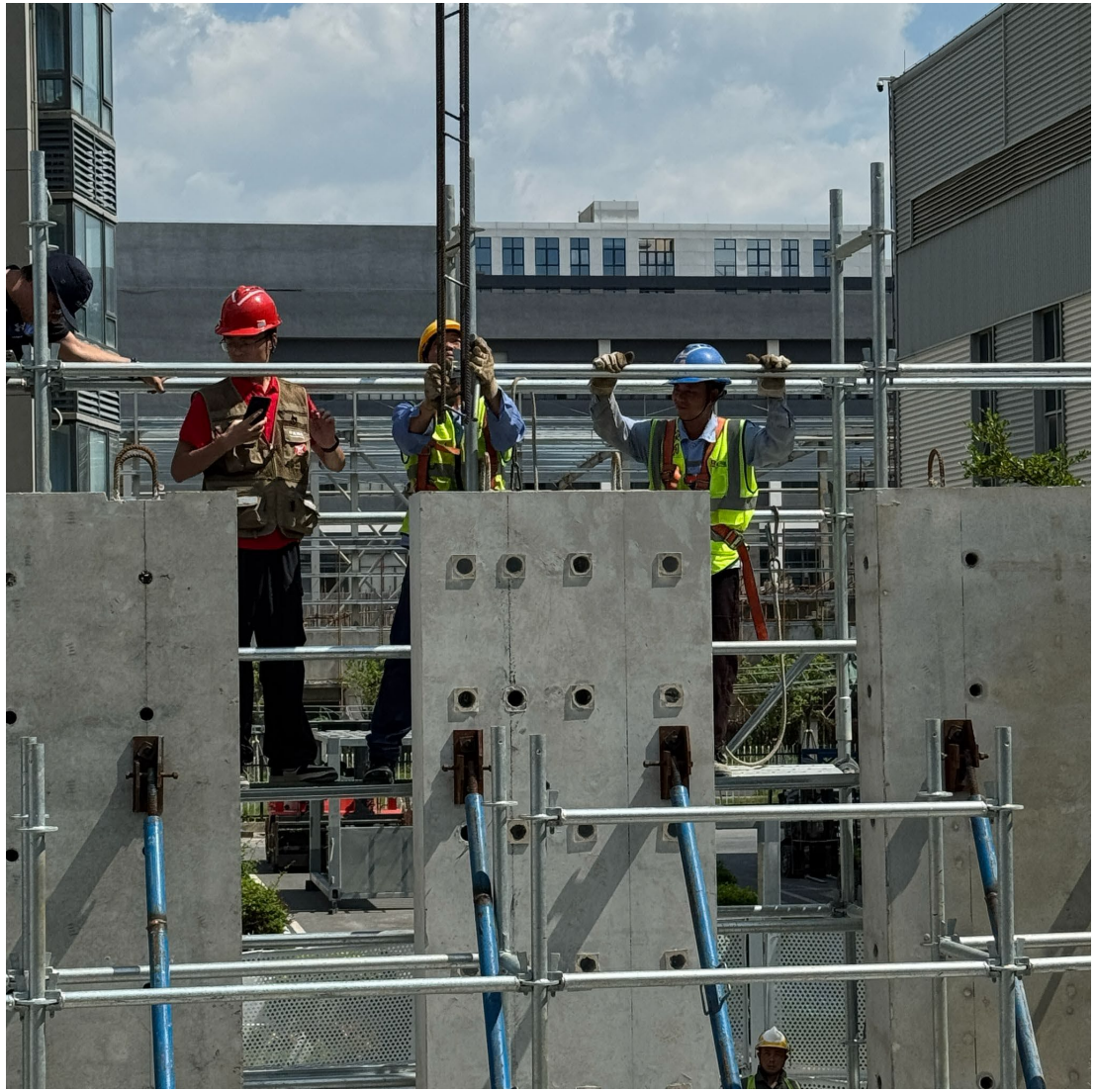






Composite Beam Detail

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The Story Continues ……

Together, we walk further

