Precast Façade Presentation
for
The Hong Kong Institute of Surveyors
14 July 2012

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Why Prefabrication? (1)

- **Green Construction (Global Trend)**
  - Less Formwork & Falsework
  - Less Construction Waste
  - Less Wastewater (i.e. Less on-site Wet Trade)
  - Less Scaffolding

- Standardize Installation Procedure

- Accelerate Construction Programme
  4 or 5 day construction cycle

- Shorten On-site wet trades time after concrete structure completion
Why Prefabrication? (2)

- Good Quality
- Product Consistency
- Better Waterproofing
- GFA and/or SC exemption – JPN No. 2
  (Non-structural prefabricated external walls)
- Aging Skill Labours in Hong Kong
Permit maximum 150mm thickness in GFA exemption

GFA accountable to this face (for in-situ)

GFA accountable to this face (under JPN2)
Design Concept

- Gravity load supported by upper level floor beam
- Horizontal gap between precast façades to prevent load transfer
- Lateral wind load support by a combination of upper level floor beam and two side walls/columns (3 sides support)
Design Concept - Waterproofing (Horizontal Joint)

Above Floor Level

Level with Floor

Below Floor Level

Horizontal Joint
Design Concept - Waterproofing (Vertical Joint)

1. (Not Recommended) Precast to Precast
2. Stitch to insitu column
3. Add post to form insitu stitch

**Vertical Joint**
Precast Facade Temporary Support Details
Types of Precast Elements

- Precast Lost Form
- Precast Balcony / U.P.
- Precast Façade – Bay Window
- Precast Façade – Wall Panel
- Precast Staircase
- Precast Slab (semi-precast)
- Precast Bathroom (volumetric precast)
- Precast Beam
- Precast Wall/Column
Transportation
Traffic Regulation in Hong Kong

Total **Height** of the load and the vehicle : Max. 4.6 m

Total **Width** of the load and the vehicle : Max. 2.5 m

Maximum Permitted Gross Combined **Weight** : 24 – 44 tonnes

*(depends on types of vehicle)*

Information from :

(1) Road Traffic (Traffic Control) Regulations, &

(2) Road Traffic (Construction and Maintenance of Vehicles) Regulations
Site Storage Area

- Recommend to store one storey per tower
Lifting Method

(I) Lifting “C” Frame (「C」卡)

(II) Lifting Beam (吊担)
Other Issue

Tower Crane

a. Number of tower crane

b. Tower Crane Capacity

Mock Up

a. What to choose? Critical / Difficult Units

b. What material to use? Timber / Metal Formwork
Consideration

1. Sufficient Site Storage Area
2. Early award of aluminum window contract (6 mths prior delivery)
3. Plumb & drain and electrical embedment layout need to be approved before mass production
4. Finishing details (tile, al. cladding, granite, glass) need to be approved before mass production
Production
Production
1. Steel Cage fixing
Production
2. Installation of window
Production

3. Installation of steel cage
Production

4. Installation of cast-in items
Production
5. Concreting

Slump test

Making concrete cubes
Production
6. Concreting
Production
7. Demoulding
Setting out line for tile application
Production
9. Delivery of precast elements
Thank you