BENGKEL DUE DILIGENCE SIRI KETIGA
TAHUN PENGKOMERSIALAN MALAYSIA 2017 (MCY 2017)

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Product Description

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PRODUCT DESCRIPTION
Product Description

- Has been patented in United State (US) and Malaysia Patent (MyIPO). 4 patent is represent to column, beam and modular shear keys

1 US

![US Patent Building Method]

3 MyIPO

![MyIPO Improvement In Building Method]

![MyIPO Panel Formwork System]

![MyIPO Earthquake Proof Wall Panel]
Product Description

• Register with CIDB Gred G7, Sijil Perolehan Kerja Kerajaan, Sijil Pengeluar IBS
• ISO 9001 : 2008
Product Description

- HCPS IBS flexibility to suit all architectural demands by using Modular Mould System. In the construction of a building, there are always 4 types of joint namely L-shape, T-shape, Cross shape and Straight joint.

- Provide speedier construction, cost effectiveness, high quality and easy standardization.
Product Description

• HC Precast System (HCPS) is a **system provider** with **manufacturing facilities** specialist in Industrialized Building System (IBS)

• Supply and Install Superstructure (Frame & Wall)

### 3 in 1 in Malaysia

- Load bearing wall
- Modular shear keys (wet joint)
- Box system
Product Description

- 37.7 kN per key:
  - Independent checker by JKR for HCPS Modular Shear Keys Wet Joint

Supplementary Independent Checker
Engineer's Report No. 5-1 on Shear Key Joints For Precast R.C. Wall Panels

Prepared By:
41A, Jalan Jaya 2
Taman Marini
Cheras
56100 Kuala Lumpur

16 January 2010

The total ultimate shear capacity of the shear key joint is assessed as follows:

From (a) above, for R10 dowel, $V_d = 24.7 \text{kN}$
From (d) above, for R10 dowel, $V_d = 32.7 \text{kN}$
Total, $V_d = 37.7 \text{kN}$ per key

The number of effective keys times 37.7 kN shall determine the ultimate shear capacity of the shear key joint of a precast r.c. wall panel.
• HCPS has been collaboration with Agency CREAM, UTM, UiTM for earthquake test and with Nanyang Technological University, Singapore to published journal. International magazine in precast has been published in previous years.

**UTM**
Earthquake Resistance Test of Scale-Down Double Storey Building

**Nanyang Technological University, Singapore**

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**Case Studies in Structural Engineering**

Certificate of publication for the article titled:

“Case study of load-bearing precast wall system subject to low seismic intensity by linear and nonlinear analyses”

**Author(s):**
Patrick Li Yee Tong, Sing Ping Chiew and Beng Hur Teow

**Published in:**
Volume 6C, 2016, Pages 11-21
Product Description

- Ability to address challenges and resolve critical construction issues
  a) No leaking
  b) No crack

Training unit:
- 9 years expose precast wall, precast staircase, half slab & precast beam with in-situ column.
- No Maintenance
- No Touch-up
- No Water proofing
- No Leaking
- No crack
HCPS IBS Factory: Capacity

- Existing production: 1,800 – 2,500 units of single storey (1000 ft²) per year
- Supply & Lay: RM900/m³ ex-factory

- Future development 13 acres: 2,500 to 3,500 units of single storey (1000 ft²) per year
- Existing production 8 acres: 1,800 to 2,500 units per year
Commercialisation Status of Product

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COMMERCIALISATION STATUS OF PRODUCT
Problems / Challenges

• **Sales Revenue**

  Total Sales : RM219,163,983.20

  Quantity
  - Single Storey : 1,163 units
  - Double Storey : 451 units
  - 3 Storey : 1 unit
  - 3 Shop Lot : 42 units
  Total : 1,657 units

• **Licensing Agreement**

  We are ready to engage and cooperate with all parties government and private sector

• **Royalty**

  In discussion on technology transfer to China and Indonesia
Commercialisation Status of Product

- Intellectual Property

1. United State (US)
   - Patent Number: US 6,829,870, B2
   - Building Methods
   - Year Filed: 1/11/2002
   - Year Granted: 14/12/2004

2. Malaysia (MyIPO)
   - Patent Number: MY-124213-A
   - Improvements In Building Method
   - Year Filed: 25/7/2002
   - Year Granted: 30/6/2006

   - Patent Number: MY-139712-A
   - Panel Formwork System
   - Year Filed: 25/7/2002
   - Year Granted: 30/10/2009

   - Patent Number: MY-157696-A
   - Earthquake Proff Wall Panels
   - Year Filed: 22/7/2010
   - Year Granted: 15/7/2016
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PROBLEMS /
CHALLENGES
Commercialisation Status of Product

- Low knowledge of developer regarding open system and proprietary system
- Assumption that building built with IBS cannot be renovated
- Low enforcement of IBS
4
INTERVENTION / FACILITATION REQUIRED
Intervention / Facilitation Required

- Standardize uniform building by law to local authority
- Conquas or Qlassic should be carried-out upon the completion of the superstructure works (frame & wall) instead of upon completion of finishing work.

- Responsibility of the building:
  - System Provider or Manufacturer should provide installer of the building precast element.
PROPOSE TO GOVERNMENT & PRIVATE DEVELOPER

Invite industrialized building system provider with manufacturing facility (flexibility to suit all architectural demands) to participate to build the show unit with work below and superstructure without finishing for the Government & Private Developer to identify the system in terms of green, environment, quality and speed for supply in its development.

1. Architect
   • Appointed by the Government & Private Developer.
   • Design of single storey bungalow of 1,000 ft2 (affordable home), up to superstructure without finishing.
   • With M&E requirement.
   • Wall finishing with plaster or skim coat only.
   • Door and window frame opening.
   • Ground floor without tiling.

2. Industrialized building system manufacturer have formed their BQ for superstructure (in terms of wall area) and to submit work program with sequence of work for record purposes.

3. Proper record by the Government & Private representative during construction, in terms of labour and machinery involved per day up to completion (superstructure only).

4. Cost Comparison for each Industrialized Building System Manufacturer by the Government & Private Developer (for superstructure only). Cost will be fixed for the selected manufacturer and supply to its development.
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OTHERS
HC Precast System has been used for the listed project:

1. WISMA HC PRECAST SYSTEM 5-storey Office
2. 42 units 3-Storey Shop Office at Klang
3. 156 units Single Storey at Batu Arang
4. 7 units Shop Lot at Batu Arang
5. 10 units banglo at Shah Alam
6. 112 units Single Storey at Batu Arang
7. 119 units Double Storey at Shah Alam
8. 1234 unit Semi Detached at Bukit Botak
9. 119 units Single Storey at Bernam Jaya
10. 34 units Semi Detached at Shah Alam
11. 118 units Double Storey at Batu Arang
12. Single Storey Show Unit at Rasa
13. Training Unit at Rasa (Double Storey)
Bay Window, Grove Line, Arch

- Bay Window
- Grove Line
- Arch
- Arch
- Precast staircase with in-situ landing slab

- Precast staircase with in-situ landing slab
Lowering Of Building Cost.
The best way is to build faster and cheaper.

- One of the ways is by using Industrial Building Systems (IBS).
- System Provider or Manufacturer should provide installer of the Building Precast Element.

Completed in 7 days with 6 workers:

- Precast Element: 88%
- Wet Work: 12%

Ex-Factory:
- Volume: RM 900.00 per m³
- Amount: RM 11,844.00 per unit

GFA:
- Cost: RM 14.805 per ft² GFA

Responsibility:
- System Provider or Manufacturer should provide installer of the Building Precast Element.
- The wall is designed to provide adequate fire resistance according to demand (with minimum 2 hours as per BS8110).

Note:
- All works below lowest floor finish, ground floor slab & footing by other.
- All walls & common party walls at 100 mm thick.
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CONCLUSION
Conclusion

• Built faster & cheaper
• Saving up to 15%-30% (superstructure)
• Full responsibility of building
• Suite 100% architect demands
• Reduce foreign worker - 40%
• Out flow currency
THANK YOU

Innovative & Revolutionary Precast System