NATIONAL INNOVATION AND CREATIVE ECONOMY
EXPO 2017 (NICE’ 17)
TECHPITCH

- HC PRECAST WALL PANEL -

13th OCTOBER 2017

HC PRECAST SYSTEM SDN BHD
(556697-M)
FAST • FEASIBLE • FLEXIBLE

Office
No. 23B, Jalan Seri Sarawak 20B/KS2,
Taman Seri Andalas
41200 Klang, Selangor
Darul Ehsan

Factory
Lot 1, Jalan Zurah 8, Pusat Perindustrian Zurah
Mukim Rasa, Daerah Hulu Selangor 44200 Rasa,
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SYSTEM

DESCRIPTION
System Description

- Has been patented in United States (US), Malaysia Patent (MyIPO), and Indonesian.
  - 3 MyIPO:
    1. Improvement In Building Method
    2. Panel Formwork System
    3. Earthquake Proof Wall Panel
  - 1 Indonesia Patent: Panel Dinding Yang Tahan Terhadap Gempa Bumi

- 5 patents represent: Column, Beam, and Modular Shear Keys

- 100% Malaysian invention & IBS 1 stop solution.
US Patent: Building Method

MyIPO 1/3: Improvement In Building Method
MyIPO 2/3 : Panel Formwork System

Malaysia
Certificate of Grant of a Patent

In accordance with Section 31 (2) of the Patents Act 1983 a patent for an invention having grant number MY - 139712 - A has been granted to HC PRECAST SYSTEM SDN. BHD. in respect of an invention having the following particulars:

Title : PANEL FORMWORK SYSTEM

Filing Date : 27 May 2003

Priority Date : NONE

Name of Inventor : TEO W. BEN HUR

Patent Owner : HC PRECAST SYSTEM SDN. BHD.
No. 1, (GRD. FLOOR) JALAN SINGA 20/E
SEKSYEN 20
40000 SHAH ALAM
SELANGOR DARUL EHSAN
MALAYSIA

Date of Grant : 30 October 2009

Dated this 30 day of OCTOBER 2009

SHAMSIAH BINTI KAMARUDDIN
For Registrar of Patents
MALAYSIA

MyIPO 3/3 : Earthquake Proof Wall Panel

Malaysia
Certificate of Grant of a Patent

In accordance with Section 31 (2) of the Patents Act 1983 a patent for an invention having grant number MY-157696-A has been granted to HC PRECAST SYSTEM SDN. BHD., in respect of an invention having the following particulars:

Title : EARTHQUAKE PROOF WALL PANELS

Filing Date : 22 July 2010

Priority Date : NONE

Name of Inventor : TEO W. BEN HUR

Patent Owner : HC PRECAST SYSTEM SDN. BHD.
NO. 23B, JALAN SERI SARAWAK
20B/KS 2, TAMAN SRI ANDALAS
41200 KLANG
SELANGOR DARUL EHSAN
MALAYSIA

Date of Grant : 15 July 2016

Duration of Patent : 22 July 2010 until 22 July 2030

End of Protection : 14 July 2017 (SUBSEQUENT ANNUAL FEE SHALL FOLLOW AS STATED IN THE SCHEDULE OF FEES AT THE BACK OF THIS PAGE)

Dated this 15 day of JULY 2016

(DATO’ SHAMSIAH BINTI KAMARUDDIN)
Registrar of Patents
MALAYSIA
Indonesia Patent : Panel Dinding Yang Tahan Terhadap Gempa Bumi

KEMENTERIAN HUKUM DAN HAK ASASI MANUSIA
REPUBLIK INDONESIA
DIREKTORAT JENDERAL KEKAYAAN INTELEKTUAL
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Laman: http://www.dgpi.go.id Surel: dopatent@dgpi.go.id

Nomor : HKI-3-HI.05.02.04.P00201000903-DP
Lampiran : 1 (setu halaman)
Hal : Pemberitahuan dapat diberi Paten
Yth. Ir. Migni Myriasastra, S.H., M.IP., M.SEL
PT. Oktroi International,
Kantor Taman A-6, Unit A8 & A7
Jl. Mega Kuningan, Kuningan, Jakarta 12950

Dengan ini diberitahukan, bahwa sesuai dengan hasil pemeriksaan substantif terlampir, permohonan paten berikut ini dinyatakan dapat diberi Paten:

Nomor Permohonan : P00201000903
Tanggal Penerimaan : 20 Desember 2010
Pemohon : HC PRECAST SYSTEM Sdn. Bhd
Judul Invenisi : PANEL DINDING YANG TAHAN TERHADAP GEMPA BUMI

09-09-13-022600

Tembusan:
1. Direktur Jenderal Kekayaan Intelektual (sebagai Laporan)
2. Adilia Meiriza Ashibi, ST.

Form HKI/3/03/2013
31 Agustus 2013

Lampiran 1

HASIL PEMERIKSAAN SUBSTANTIF TAHAP AKHIR (Diberi Paten)
Nomor Permohonan: P00201000903

1. Dengan ini diberitahukan bahwa:
   a. deskripsi yang diterima adalah deskripsi:
      [ ] halaman 1-12 sesuai surat Saudara tanggal: 14 Agustus 2017
   b. klaim yang diterima adalah klaim:
      [ ] nomor 1-10 sesuai surat Saudara tanggal: 14 Agustus 2017
   c. gambar yang diterima adalah gambar:
      [ ] nomor 1-10 sesuai surat Saudara tanggal: 14 Agustus 2017
   d. gambar untuk publikasi B adalah: Gambar 8


Adilia Meiriza Ashibi, ST.
NIP. 19810502200801101021
System Description

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

CIDB : Sijil Perolehan Kerja Kerajaan
Certificate of Registration

Certificate Number: 10898
Initial Registration Date: 25 April 2013
Re-issue Date: 20 September 2016
Expiry Date: 15 September 2018

This is to certify that the Management System of HC Precast System Sdn. Bhd. has been approved by ISOQAR to ISO 9001:2008.

Scope of Activities:

Design, Outsource Manufacture and Supply of Precast Concrete Wall and Panel Formwork System

Certificate No. 10898
ISO 9001

Signed (on behalf of ISOQAR)

HC Premix Sdn Bhd
No. 23, Jalan Seri Sarawak 20B/KS2, Taman Seri Andalas, 41200 Klang, Selangor Darul Ehsan, Malaysia.
System 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.
System 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
System Description

- **37.7 kN per key**

- Independent checker by JKR for HCPS Modular Shear Keys Wet Joint

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

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Cadangan Pembinaan Kompleks Bank Gen Biji Benih Pertanian Di Ibu Pejabat Mardi, Serdang, Selangor

Prepared By:
41A, Jalan Jempol 2
Taman Murni
Cheras
56100 Kuala Lumpur
10 January 2010

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A is the minimum area of dowel reinforcement

φ is the angle of internal friction between the faces of the joint.

\[ \tan \phi = \frac{1.7 \text{ from Table 5.3 of BS 8110, Part 1. However, this} \tan \phi \text{ is best determined by tests under Research and Development if possible.} \]

It is interesting to note that if \( \phi \) = 1.0 and \( V = F_p \),

\[ A = \frac{V}{4F_p} \]

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

From (c) above, for R10 dowel, \( V_c = 24.7 \text{ kN} \)

From (d) above, for R10 dowel, \( V = 13 \text{ kN} \)

Total, \( V = 37.7 \text{ kN per key} \)

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.
System Description

• 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
Case Studies in Structural Engineering

Unclear text: "UTM Nanyang Technological University, Singapore Earthquake Resistance Test of Scale-Down Double Storey Building System Description 14"
System 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
Wet Work Joint
Wet Work Joint

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: RM 900.00 per m³
Volume: 13.16 m³ / unit
Amount: RM 11,844.00 per unit
GFA: 800 ft²
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 others.
All walls & common party walls at 100 mm thick.
Project Using HC Precast System

2

PROJECT USING HC PRECAST SYSTEM
Project Using HC Precast System

• **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
PROJECT USING HC PRECAST SYSTEM

3 Storey Shop Office, Klang

Shop Lot, Kota Putri
PROJECT USING HC PRECAST SYSTEM

Bungalow, Shah Alam

Bungalow, Jalan Kebun
PROJECT USING HC PRECAST SYSTEM

Semi-D, Shah Alam

Semi-D, Bukit Botak
PROJECT USING HC PRECAST SYSTEM

Single Storey, Kota Putri

Single Storey, Bernam Jaya
PROJECT USING HC PRECAST SYSTEM

Show Unit, Rasa

Training Unit, Rasa
Future Plan

3

FUTURE PLAN
Future Plan

• 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

• Strategic Planning
  Setup 4 production plant to access the entire Malaysia strategically.

Existing
  Rasa, Hulu Selangor (Main Plant)

Future Plan
  1) Melaka
  2) Pahang
  3) Perak
  4) Kedah
Future Plan

HCPS IBS Factory : Capacity

- Existing production : 1,800 – 2,500 units of single storey (1000 ft2) per year
- Supply & Install : 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
PROPOSE TO GOVERNMENT & PRIVATE DEVELOPER

Invite industrialized building system provider with manufacturing facility (flexibility to suit all architectural demands) to participate to built 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.
CONCLUSION

4

CONCLUSION
CONCLUSION

• Out flow currency
• Reduce foreign worker - 40%
• Built faster & cheaper
• Saving up to 15% - 30% (superstructure / frame & wall)
• Suite 100% architect demands
• Full responsibility of building
Innovative & Revolutionary Precast System

THANK YOU