



SKAB3123 CONSTRUCTION TECHNOLOGY: Industrialised Building System (IBS)

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INDUSTRIALISED BUILDING SYSTEM (IBS)

Application of construction technology using prefabrication of separated components in the construction project.



Upstream Activities



Downstream Activities



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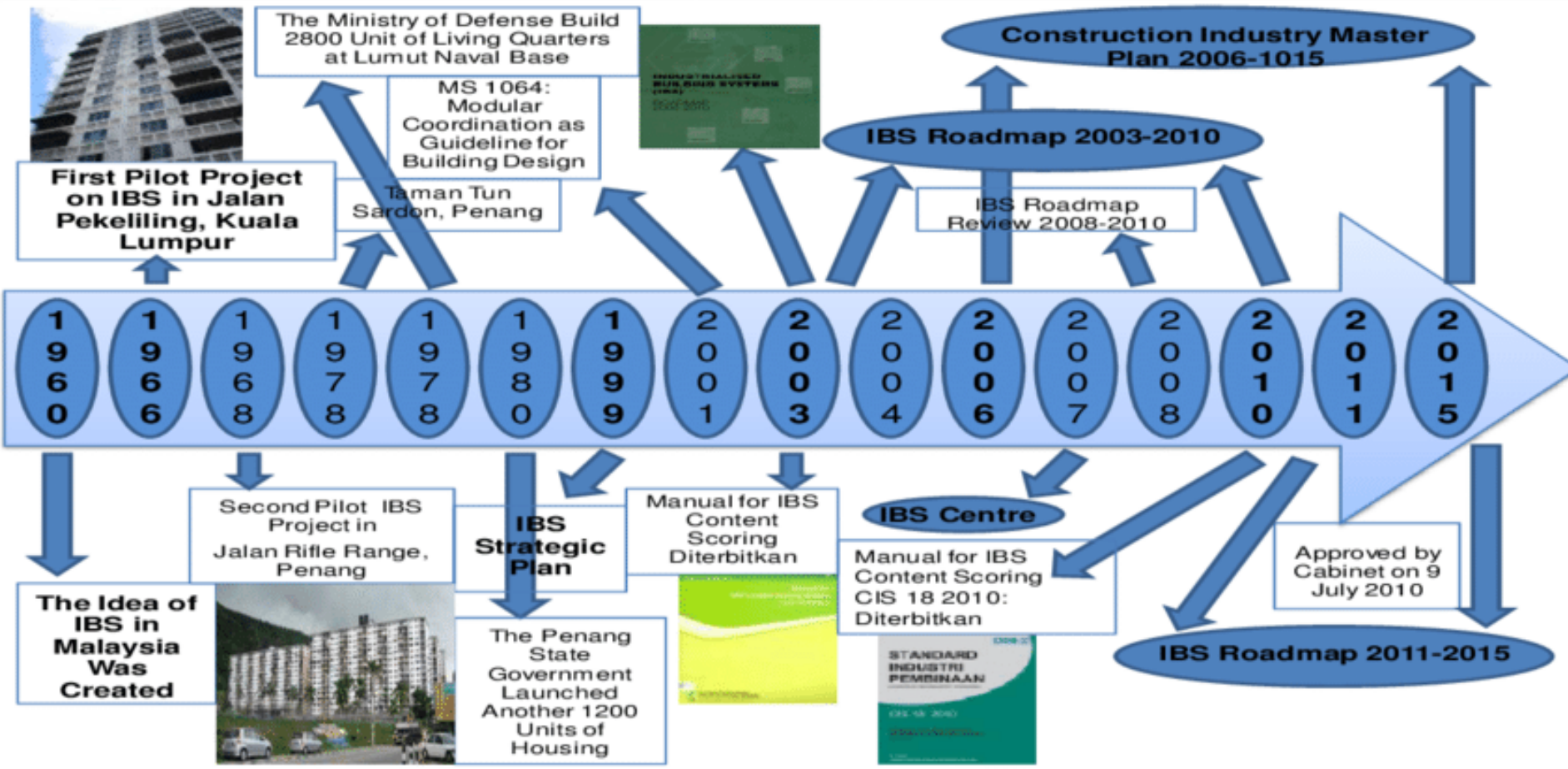


INDUSTRIALISED BUILDING SYSTEM (IBS)

IBS is defined as a construction technique in which components are manufactured in a controlled environment (on or off site), transported, positioned and assembled into a structure with minimal additional site work (CIDB, 2007)



IBS History in Malaysia



Sustainability



Concept of IBS

Assemble a building using prefabricated component which design to attach and connect to each other without cutting and expanding the component



Environment

Reduce material wastage (timber and plywood)

Reduction of pollution from runoff



Social

Less dependent on foreign worker (semi-skilled and unskilled)

Better health and assurance for worker



Economy

Shorter completion period for project (Reduce int.payment)

Reduce labour and material cost

Online resources

- Video: Introduction of IBS -
<https://www.youtube.com/watch?v=vEYUcwBiOxQ>
- Video: The importance of IBS -
<https://www.youtube.com/watch?v=dgPn3ql6ktQ>

Type of IBS used in Malaysia

Precast Concrete Framing, panel and box systems

Steel Framing system

Steel Formwork system

Fabricated Timber Framing System

Blockwork system

Precast Concrete Framing, panel and box systems



Frame System

-bridges construction, warehouse, sport facilities, parking lots, industrial building etc.

Panel System

- Apartment house construction, hostel construction and hospital construction

Box system

-requires only large prefabricated sections to be transported or handled at once

Type of IBS used in Malaysia

Precast Concrete Framing,
panel and box systems

Steel Framing system

Steel Formwork system

Fabricated Timber Framing
System

Blockwork system

Steel framing system



Commonly utilized with **precast concrete slabs, steel columns and beams.**

Wistron Factory, uniKL MITEC, Masjid Besi and KLIA 2.

Type of IBS used in Malaysia

Precast Concrete Framing,
panel and box systems

Steel Framing system

Steel Formwork system

Fabricated Timber Framing
System

Blockwork system

Steel Formwork System



Generally involves **site casting**, and therefore subjected to structural quality control.

Tunnel forms, tilt-up systems, beam and columns moulding forms

It offer high quality finishes and fast construction with less site labour and material requirement

Type of IBS used in Malaysia

Precast Concrete Framing,
panel and box systems

Steel Framing system

Steel Formwork system

**Fabricated Timber Framing
System**

Blockwork system

Fabricated Timber Framing System



Buildings required **high aesthetical values**

Glulam Gallery Johor Bahru.

Type of IBS used in Malaysia

Precast Concrete Framing,
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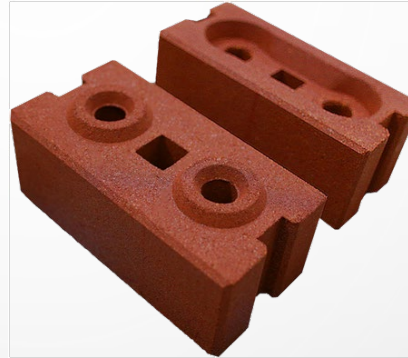
Steel Framing system

Steel Formwork system

Fabricated Timber Framing
System

Blockwork system

Blockwork system



Usage of **interlocking concrete masonry units (CMU)** and **lightweight concrete blocks**.

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Benefits



Cost saving

- Reduce construction wastage
- Reduce unskilled worker



Quality Building

- High quality components
- Temperature controlled steam curing

Shorter time needed for Completion



Shorter time needed for Completion

- Production of IBS components starts during pre-construction period

Quality Building

Safe working environment

安全

- More assembly-type operation
- Provide cleanliness at site

Cost saving

Safe working environment

Challenges

- Lack of understanding about IBS

Lack of knowledge about IBS

- Required 12% higher investment
- Required payment upon delivery

High investment and pre-payment needed

- 90% of original design need to be changed if IBS method is used instead of conventional method

Additional Consultation Fees

- Lack of IBS training

Lack of skilled worker

Other references

- Issues and barriers of IBS in Malaysia - <https://iopscience.iop.org/article/10.1088/1757-899X/271/1/012031>
- IBS CIDB Malaysia - <https://cidbmyibs.com.my/>
- CIDB IBS Web Portal - <http://ibsportal.cidb.gov.my/>
- IBS Implementation in Malaysia - <https://www.planningmalaysia.org/index.php/pmj/article/view/486>

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THANK YOU!