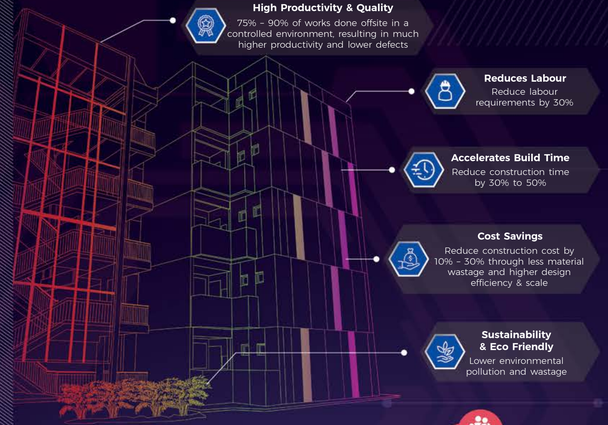
INNOVATION @WORK

MRCB has innovated the MRCB Building System (MBS), which combines a Prefabricated Prefinished Volumetric Construction (PPVC) system with our patented and unique Candle-Loc Connection System, allowing up to 90% of a project utilising this technology to be constructed offsite, then transported and installed into position at site.



High Productivity & Quality
75% – 90% of works done offsite in a controlled environment, resulting in much higher productivity and lower defects

Reduces Labour
Reduce labour requirements by 30%

Accelerates Build Time
Reduce construction time by 30% to 50%

Cost Savings
Reduce construction cost by 10% – 30% through less material wastage and higher design efficiency & scale

Sustainability & Eco Friendly
Lower environmental pollution and wastage

POSITIVE IMPACT TO STAKEHOLDERS

GOVERNMENT
- Provides faster delivery times for home buyers
- Offers higher quality and choice of homes for the public
- Provides design flexibility to meet consumers' requirements and demands

WORKFORCE
- Enlarges pool of local talent with improved wages and quality of life
- Reduces dependency on foreign labour
- Higher degree of technology integration eliminates the perception of "dangerous, dirty and difficult" (3D) jobs, elevating the status of the construction sector

PUBLIC & SOCIETY
- Enhances socio economic growth
- Faster speed of construction, resolving affordable housing supply issues
- Enhances labour productivity and creates a new supply chain within the construction industry

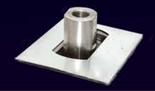
ISSUES IN THE MALAYSIAN CONSTRUCTION INDUSTRY

High Dependency on Foreign Labour	High Incidence of Defects	Harsh Working Conditions	Significant Environmental Impact	High Material Waste	Delays and Cost Overrun
Challenges					
3D work is unappealing for local labour participation Labour shortages Foreign labour is unskilled Additional, upfront regulatory costs Potential social issues	Dependence on manual work and unskilled foreign labour results in inconsistent product quality	Extended exposure to harsh outdoor weather conditions Long working hours with high physical demands Compliance with HSE standards High worker turnover	Conventional construction activities affect the surrounding environment (i.e. traffic disruption, noise and dust) Site cleanliness and potential breeding ground for Aedes mosquitoes	Inefficient material planning and inventory management Manual processes and unskilled labour lead to higher material wastage Material pilferage	Managing extensive changes throughout the construction process (i.e. drawing revision, material and labour planning)
Impact					
Currency outflow to origin countries Low productivity Minimal/no skill retention within the local economy High industry defect rate	High costs to resolve product defects	Increases the probability of HSE related incidents Extensive fines and stop work orders for HSE violations	Risks of compliance related costs and delays Reputational risk	Higher project costs Higher waste disposal costs Higher risks of breach in environmental laws	Extended project duration with high risk of financial loss i.e Liquidated Ascertained Damages (LAD), additional resource deployment

ADVANTAGES OF MRCB BUILDING SYSTEM

Skilled Local Labour	High Quality Assurance & Control	Improved Site Safety	Lower Environmental Impact	Lower Material Waste	Faster Construction Time
Advantages					
Less dependency on unskilled foreign labour Upgraded labour skill levels and value add Better communication skills	Higher quality control at the point of construction	More conducive working conditions All work conducted at ground level, reducing risk of injuries from working at height	Less noise, dust, truck and other heavy equipment movements at site Higher level of cleanliness in a factory environment	Shift towards manufacturing approach with streamlined processes and effective, "just in time" inventory management	Fabrication of building components offsite run concurrently with onsite activities, reducing construction time by up to 50%
Impact					
Higher participation and improved wages for local workforce Higher workforce skill levels facilitate continuous technology adoption and innovation	Good reputation for higher quality products Lower cost and higher margins resulting from lower defects	Lower worker turnover Lower costs due to reduced fines and stop work orders	Minimal disruption to the public and community Improved HSE standards Aligned to sustainable practices	Improved accuracy of material planning and usage Lower costs due to energy and resource efficiency Reduced risk of pilferage	Faster cash generation and reduced funding costs

HOW DOES MBS WORK?



The Candle-Loc system is MRCB's proprietary joint connection system, which consists of a stainless-steel pin and a cast iron lateral tie plate used in between each module to set and lock each module in place both vertically and horizontally.

KEY DIFFERENCES BETWEEN TRADITIONAL CONSTRUCTION AND MBS

TRADITIONAL	MBS	BENEFITS OF MBS
Construction can only begin once the site is excavated and the foundation is completed Onsite development must be completed before construction of building begins.	**Minimal work done onsite, while modules constructed concurrently offsite** Only the foundations, lift core and central core is built onsite following conventional construction methods.	**30-50%** faster project delivery
Construction is done onsite, under harsh weather conditions This increases HSE related risks as not only are works done at great heights, workers are also exposed to extreme heat and rain, which may cause accidents, delay projects and affect quality.	**Modules are completed offsite, with all immovable parts – fittings, wirings and plumbing – completed** The building itself is constructed as prefabricated prefinished modules in a controlled environment, with more stringent quality controls and less labour.	**30%** reduced labour requirement **90%** QLASSIC achievable
Construction workers play an important role in determining quality and safety standards Work is mainly done manually by unskilled foreign labour, resulting in poor quality and safety standards.	**Prefabricated prefinished modules are installed onsite via the Candle-Loc system** Modules are connected to each other quickly and accurately as the Candle-Loc system's tolerance levels ranges from **0.03% to 0.05%.**	Less dependency on unskilled foreign labour


MBS Prototype at our Kwasa site


The living room


The kitchen

THE MBS PROCESS