

THE TECHNOLOGY DETAILS



3D Monolithic Precast
Construction Technology Solution

TECHNOLOGY DETAILS

The building system is a sophisticated modular precast building method providing a concrete structure finish which is accurate and with a high quality which dramatically reduces overall construction time and provides superior acoustic, thermal and fire rating properties.

Underpinning the construction method is the unique smart moulds employed to produce each module. Each mould is an intricate piece of machinery, manufactured to Project design and specifications and is fully customizable, except for its fixed internal dimensions.

This means every time a new unit is made, the mould can be customized to meet the architectural requirements. Furthermore the doors, windows and any provision for services (electrical, plumbing, etc.) can be cast into the outer concrete walls. Each mould is fully automated and hydraulically driven with fine tolerances (+/- 2mm – 5 mm) to allow accurate, repetitious casting on a daily basis.

Durable concrete, reinforced with steel, super-plasticized with a low shrinkage rate is poured into a pre-made three dimensional mould and when set forms the block containing the main components of the structure – the walls and ceilings or walls and floor. These monolithic 3D modules can then be

simply arranged and stacked as rooms to produce a self-supporting building structure up to 10 storeys high.

The system is ideal for repetitious building projects such as apartments; high end, as well as medium to low end villas, motels / hotels, labour camps, housing units, age-care villas, student accommodation, site offices, industrial building and schools – all built to the highest environmental specifications.

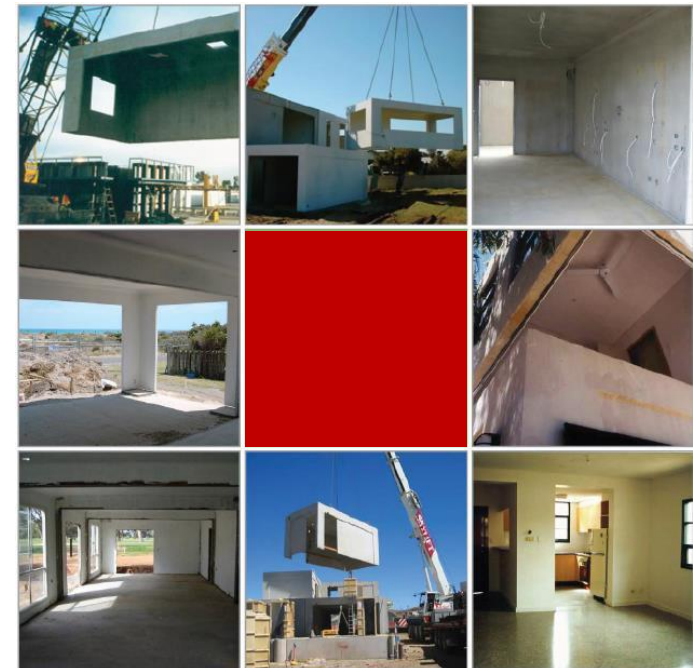
The salient features of the building technology is detailed out in the following sections

SPEED

The technology delivers construction times up to 80% faster than traditional superstructure systems and is ideal for large and repetitious projects where onsite manufacturing delivers optimum benefits.

STRENGTH

The inherent load bearing strength of each module means that multi-level constructions of up to 10 storeys can be economically and more safely achieved than using tilt slab or traditional practices. The system provides a highly flexible precast building that is strong, durable, fire, termite, cyclone, water and weather proof.





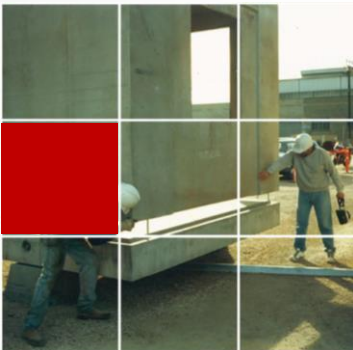
Thermal Insulation



Surface Finish



Wastage Free



Precise Engineering

DURABILITY

The structure has a longevity of 50+ years with low Maintenance and operating costs. Precast concrete is more durable than other materials; it is fire-proof, termite proof and water-proof. The superior finish achieved with controlled manufacturing processes means that the concrete may be left in its natural state and not finished, painted or covered at all, if so required.

SAFETY

The self-supporting system provides a safer work environment than traditional tilt slab construction methods requiring no propping, brackets or expensive scaffolding.

DESIGN FLEXIBILITY

The technology provides architects and developers with endless design options with wall openings and windows, doors and stairwells that can be pre-moulded into each module. The modules are assembled on the site according to the plans and the rest of the structure is added - roofing, veranda, façade decoration, flooring, plumbing and finishing touches such as light fittings, final painting, tiles, carpet etc.

Modules can be arranged to create design structures including multi-level.

ONSITE PRODUCTION

Daily controlled production, fully committed to each individual project with a customized plant per project.

PRODUCTION EFFICIENCY

The factory is an all-weather production facility and provides faster construction time regardless of weather conditions.

Onsite factory controlled fit-outs such as windows, doors, joinery, insulation and even painting can be pre-installed prior to installation to reduce onsite labour and construction costs.

RE-LOCATABLE

Both the manufacturing plants and the individual modules can be re-located to another location.

The mobile factories can be set up on site to save on transport and gas emission, to secure a better production rate, a faster delivery rate, a better pricing outcome.

SURFACE FINISHES

With a Class 1 finish, the off-form quality of wall and ceiling means that plasterwork is eliminated.

The surfaces are so well finished that it is ready to receive paint.

The flooring also does not require screeding and the tiles can be fitted directly using adhesive.

THERMAL & ACOUSTIC

The thermal and acoustic qualities of the modules are tremendous, with insulation being embedded within each concrete sandwich.

High external finishes further enhance efficiencies.

WASTAGE FREE

Virtually wastage free, the system utilizes lean manufacturing processes incorporating precise control of mix formulations, materials and labour input.

Tight controls of quantities of materials and precise mix proportions mean the optimum use of materials. The modules are manufactured repeatedly in the same moulds meaning little or no wastage of materials.

PRECISE ENGINEERING

The System delivers a highly accurate output within 2mm – 5mm of exact specifications.

Internal dimensions being with a tolerance of 1-3 mm, enables pre-ordering of all joinery work which

results in savings throughout the construction management process.

ENVIRONMENTAL BENEFITS

Unlike traditional building methods that utilise precious raw materials that are highly wasteful, highly labour intensive and costly, this Precast System is a unique - highly flexible 3 dimensional modular precast building system that utilizes lean manufacturing processes to produce an eco- efficient, energy efficient, acoustically efficient, structurally efficient more durable low maintenance building solution.

Precast concrete is environmentally friendly in a variety of ways. The ingredients of concrete (water, aggregate and cement) are abundant in supply and take a lesser toll in their extraction than other construction materials.

As a nearly inert material, concrete is an ideal medium for recycling waste or industrial bi- products. Many materials that would end up in a landfill can be used instead to make concrete; blast furnace slag, recycled polystyrene and fly ash are among materials that can be included in the recipe for concrete and further enhance its appeal.

ENERGY EFFICIENT

Another environment plus for concrete is energy efficiency.

From manufacture to transport to construction, is modest in its energy needs and generous in its payback. Additionally, once in place concrete offers significantly higher energy savings over the lifetime of a building. In homes and buildings concrete thermal mass, bolstered by insulating materials, affords high R-factors and moderates temperature swings by storing and releasing energy when needed for heating and cooling and the light reflective nature of concrete makes it very easy to illuminate.

RECYCLING

Further commendable characteristics of concrete are waste minimization and long life. Whether cast- in-place or precast, concrete is used on as needed basis. Leftovers are easily reused or recycled and concrete is a durable material that actually gains strength over time, conserving resources by reducing maintenance and the need for reconstruction.



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