

## To precast or not to precast

One of the common reasons construction practitioners give for not going precast is that it can be restrictive and does not allow them to be as creative as one could be, as opposed to using cast in-situ.

This assumption is not totally wrong. But the good news is there is an explanation and of course, a way around it. Prefabricated construction does not advocate fully precasting every element. Although the authorities extol the virtues of precast construction, it is undeniable, even to them that casting in-situ is an integral part of any job, making it just as buildable.

The projects featured in this issue of Prefab Architec-

ture are classic examples of just that. They demonstrate how the project team managed to use the best combination of precast and cast in-situ concrete to overcome the challenges to achieve the desired design. And if that is not convincing enough, one of the most forward looking design and build contractors in Singapore, shares with Prefab Architecture the who, what, why, when and how of using precast construction.

Balancing the use of precast and cast in-situ construction results in the developers, architects and engineers being happy at the end of the day, not to mention meeting the required buildability scores.

By Punitha Govindasamy

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EDITORIAL TEAM

The archway of  
Amaranda Gardens



# Living amidst lush landscape

By Juliana Lai Siu Ling  
Design Link Architects

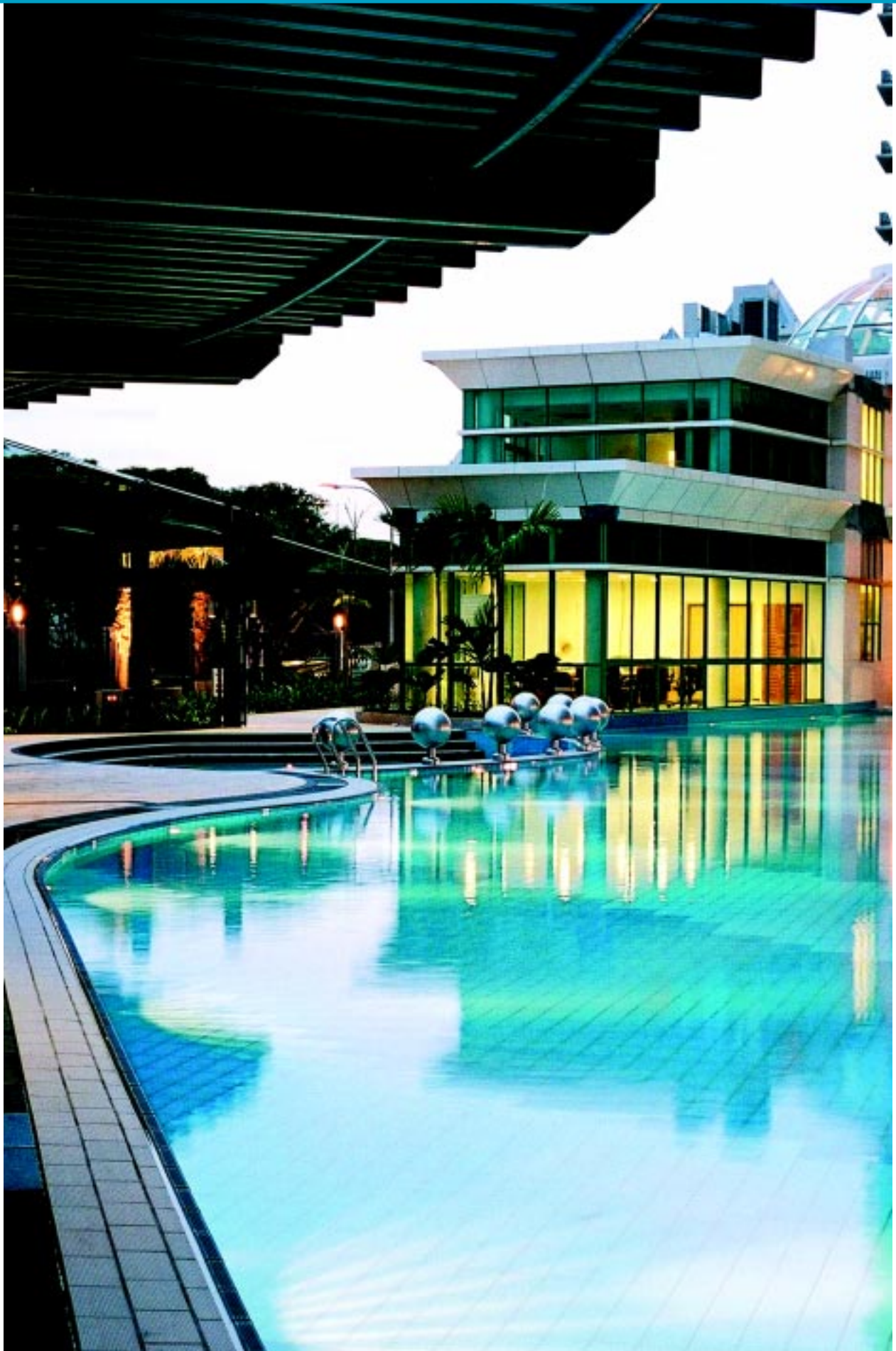


Amaranda Gardens nestled within serene Serangoon, features a 'garden living' theme with a vast area of lush landscape. The development comprises three 17-storey tower blocks with 189 apartment units, with a single storey basement carpark and a wide range of facilities for the family at the 1st storey. These facilities range from tennis courts and jogging paths to an adventure park complete with a tree-house and rope pyramid platform.

The elongated site that stretches from the east to the west forms a reference in the layout of the towers' footprint and floor plans. The three tower blocks are adjoined to form a linear building with two high level voids from the 1st to 5th storey. The high level voids serve as a relief for the basement carpark and also frame the picturesque view of the free form swimming pool from the jogging track.

The layering of planes with bay windows and planter boxes form transitions of space between the residential units and the landscape. The layering of façade also reduces the solidity of the building form. All the bay windows and planters are prefabricated and the modular components improve the buildability of the development. The bay windows are located at all bedrooms and some bathrooms, while the planter boxes are located at all living rooms and bedrooms.

Excellent quality control is ensured through prefabricated construction as precise alignment and smooth surface finishes are achieved with little or no touching up work required. The bay windows feature precise and consistent openings while maintaining straightness for the coping and canopies. In addition, though less time is spent on the construction of planter boxes, the high quality finish on the straight and square nature of the boxes facilitate installation of the glass parapet.



**The aluminium cladding and glass envelop of the clubhouse**





**Installation sequence of the precast archway**

The archways at the North and South elevation are a unique expression of the building as they form a relief to the adjoining buildings while creating scenic views of the landscape. Even though the archways do not have the number of repetition and economy, they are still prefabricated as the installation process is simpler and easier. The 5th storey column is cast first in order to receive the archway, which is then hoisted and secured into position. Next the planter is hoisted and tied to the archway after which prefabricated beams and planks are installed. Then topping is cast to form the floor slab.

Using prefabricated construction techniques, no support system is required below the archway when topping is done on the floor because the prefabricated archway, beams and planks are self-supporting. Therefore the space below the archway is freed up and is very neat and clean as construction materials and products are manufactured off-site and brought together on-site for assembly. The reduction in wet trades and number of unskilled workers also improves overall quality. The in-situ technique was not used as extensive scaffolding would have had to be erected from the ground to the 6th storey and this involved time consuming installation of formwork, rebar and concreting work. Furthermore, the quality of finishing may be affected.

With prefabrication, construction time is reduced with proper planning thereby increasing productivity with good wastage control. Neighbours also benefit as prefabrication causes fewer disturbances such as air and noise pollution while improving safety as well. Most importantly, homeowners benefit with the high quality of finishing which minimises the need for defects rectification.

## Project Team

Client	: Sherwood Development Pte Ltd
Design Consultant	: Smallwood, Reynolds, Stewart, Stewart & Associates Pte Ltd
Architect	: Design Link Architects
Structural Engineer	: KTP Consultants Pte Ltd
M&E Engineer	: Alpha Engineering Consultant
Landscape Designer	: PDAA Design Pte Ltd
Interior Designer	: Index Design
Quantity Surveyor	: KPK Quantity Surveyors
Main Contractor	: Poh Lian Construction Pte Ltd
Precast Consultant	: WP Brown Pte Ltd
Precaster	: Hong Leong Asia Ltd



# Sophisticated living

By Kim Loh Fong/Jimmy Neo  
Architects Vista Pte Ltd

**D**esigned to enthrall a sense of private retreat, Nuovo Executive Condominium, located off the junction of Ang Mo Kio Ave 6 and 9, represents sophistication that caters to the demand for increasing standards of contemporary living.

The site area is approximately 14,489 square metres and is relatively linear in profile. The three blocks of 18-storey residential units are strategically placed to take leverage of the site and the extended views beyond. In addition, the building blocks define a linear recreation space that takes full advantage of the length of the site, whereby, the hard and soft landscape carries a streamlined organisation to visually lengthen the space.

The communal-recreation area is designed with clean and simple forms, patterns and rhythms. With a huge area for water and intimate-resting spaces, the lush landscape

for retreat and renewal grants visual calmness and sensory pleasure.

The design concepts extend from environmental sensibility to the fundamental building block of the family unit. Floor areas of the units for the 2-, 3- and 4-bedroom types, range from 104 square metres to 244 square metres. The unit types are planned with pragmatic simplicity yet they exude elegance. Moreover, the implementation of modular-designs in all unit types meets the high expectation of efficiency, buildability and economic feasibility.

In the interior spaces, a streamlined uncluttered aesthetic look is adopted to create rooms that are light and generously spacious. In the living room, floor-to-ceiling windows highlight all 297 units. All bedrooms have projected bay windows that allow daylight to stream into the interior extending the spatial boundary visually. The light that brightens each room plays a huge role in communicating a sense of life and comfort.





**Creating variations using curved facade**



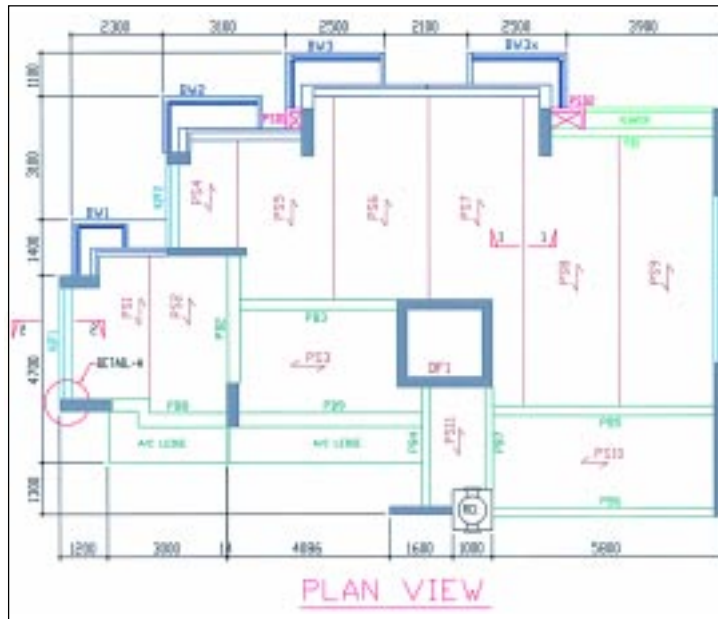
**Close-up of precast curved facade**

The unit layout is designed in a way that allows either interaction or privacy. The living room, the heart of family interaction is designed to have maximum view of the external surroundings. Bedrooms are designed as modules that can be combined into larger suites. The master bedrooms offer the conveniences of lavish attached bathrooms. Service yards and bathroom windows are purposely concealed, yet sufficiently ventilated within deep cleavages in the blocks.

Thorough and sensitive planning was also implemented before the construction commenced. Various construction methods and techniques were studied to address issues on buildability and quality. A combination of precast and cast-in-situ construction techniques was adopted as a result of the careful studies. With a combination of precast components, such as precast beams, slabs, bay windows, facades, household-shelter door frames, refuse

**Propping of precast facade**

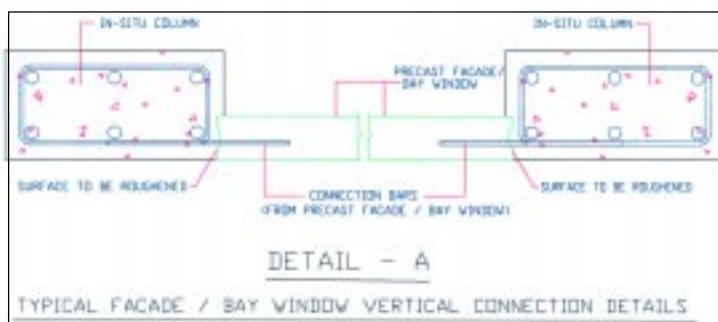
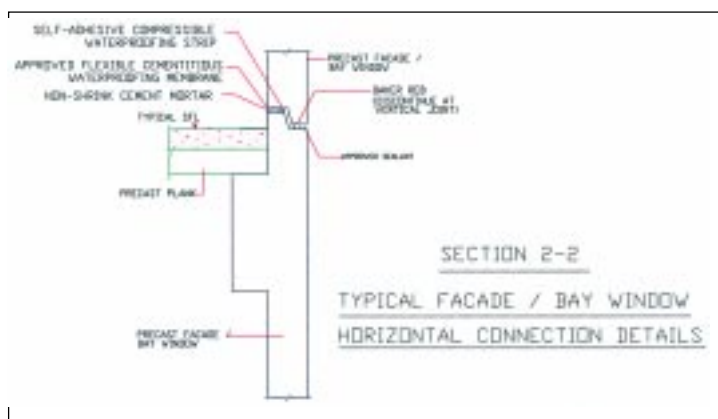
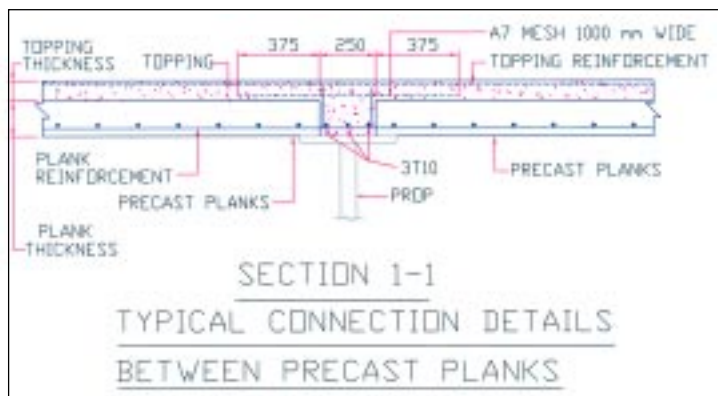




chutes, air-con ledges, etc., 48.5 percent of total concrete found in the apartment blocks was constructed using precast methods. Strict and constant monitoring of workmanship was also implemented to raise quality control.

One of the key concerns during construction was the consideration of acceptable access/egress requirements for the construction vehicles and the need to restrict impacts of the construction process on neighbouring uses and existing functions. As such, the workflow on site was constantly monitored. In addition, adopting precast construction also helped to address the issues of excessive site congestion.

With a multitude of considerations, Nuovo Executive Condominium has managed to promote an active contemporary sensibility and lifestyle that embraces the much popular tropical environment.



## Project Team

Client	: City Developments Ltd
Architect	: Architects Vista Pte Ltd
Structural Engineer	: KTP Consultants Pte Ltd
M&E Engineer	: Squire Mech Pte Ltd
Landscape Designer	: Cicada Pte Ltd
Interior Designer	: Index Design
Quantity Surveyor	: Davis Langdon & Seah Singapore Pte Ltd
Main Contractor	: Poh Lian Construction Pte Ltd
Precast Consultant	: WP Brown Pte Ltd
Precaster	: Hong Leong Asia Ltd



# Condo on a *slope*

By Low Tian Hin  
ADDP Architects



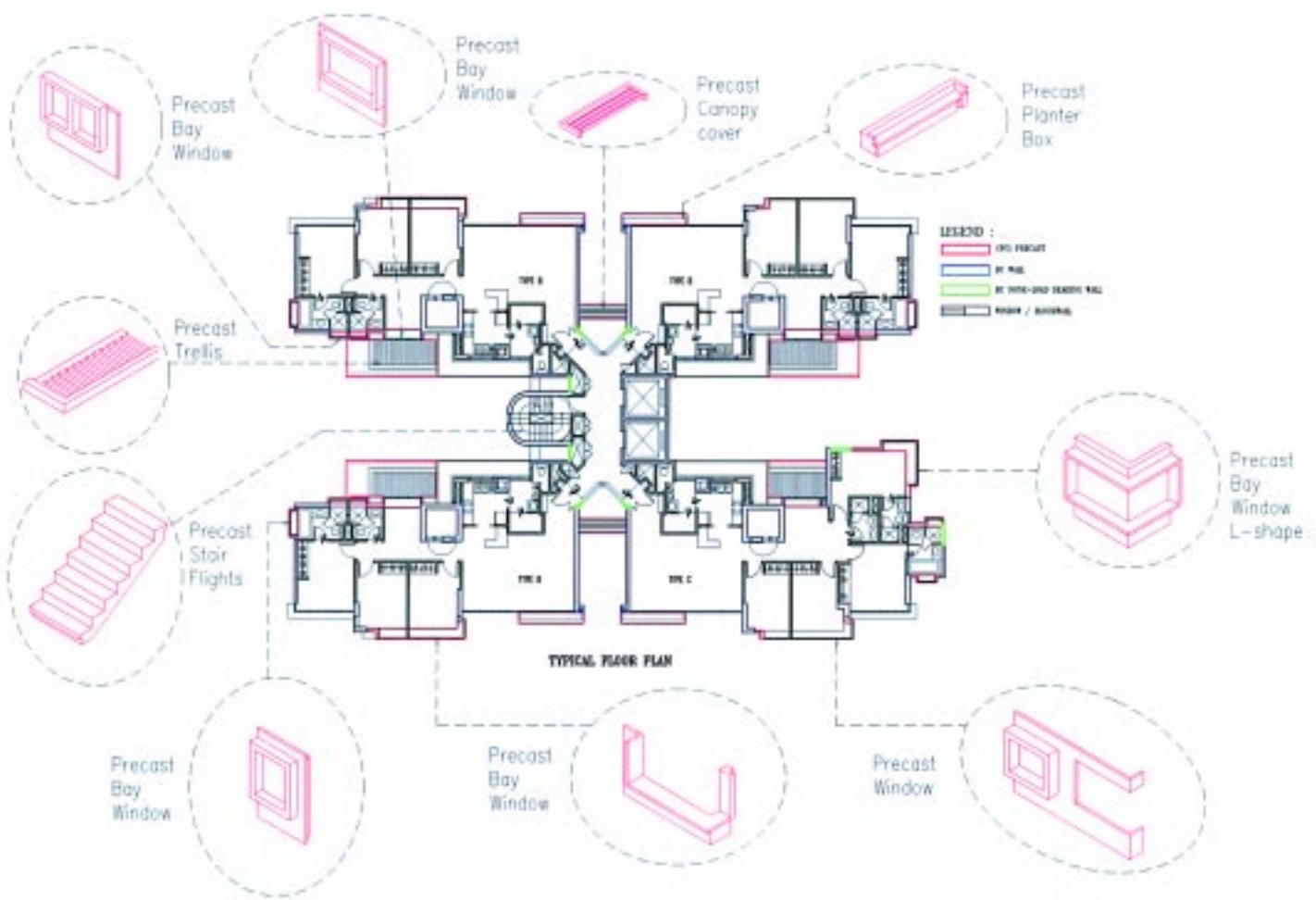
**T**he Goldenhill Park Condominium was conceptualised as a landmark in a predominantly mature landed housing estate. Nestled on a sloping hilly site, it offers a panoramic view beyond the surrounding landed houses, parks and high-rise buildings. Located along Mei Hwan Drive, bounded by Ang Mo Kio Ave 1 and Lorong Chuan, the development features a site area of approximately 2.4 hectares while the terracing site contours slope about 8.5 m from the highest to the lowest end. The condo-

minium comprises five 20-storey tower blocks with a total of 390 dwelling units, offering a choice of 2-, 3- and 4-bedrooms units as well as penthouse units.

## Design Concept

The typical unit has a rectilinear layout with standard sized living/dining room, bedrooms, kitchen, study/family area and bathrooms. The large span vision panels at the living/dining room and master bedroom maximised the views beyond the mesmerising landscaped pool area, surrounding parks and buildings.





## Types of precast components used

The rhythmic staggering windows on the building façade addressed the unique site condition and echoed the terracing site contours. The design details and sizes of the various elements were standardised so that the four tower blocks had similar design features. The remaining block was designed to look slightly different from the others.

## Construction

The contractor, Hyundai Engineering and Construction Co Ltd, proposed precast and cast in-situ concrete construction on the external building envelope for better control on the quality of finished work, consistency and buildability.

Hyundai used a flat plate floor system with perimeter beams supported by external shear walls and columns for the superstructure. Internal columns were not used so as to give homeowners greater flexibility for the interior layout.

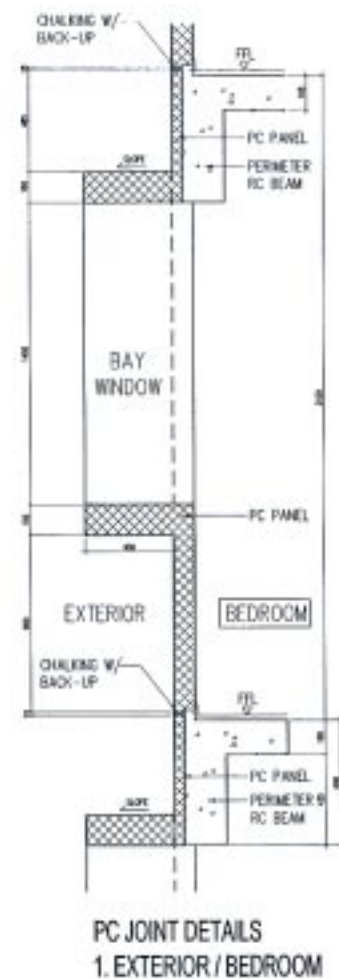
The internal walls were constructed with lightweight concrete blocks with skim coat finish to save manpower and to reduce the loading on the floors. Curtain walls with regular modules served as the vision panels for the living, dining and master bedroom.



**Integration of precast and cast in-situ construction**



**Simple and elegant elevations created using precast bay window, precast trellis and glass facade**



The structural components for this project were designed to facilitate ease of construction and to achieve higher quality finished products. The facades were formed using a series of precast bay windows, planter boxes, air-con ledges, trellises and cast in-situ flat walls. The horizontal joints between the precast components were leveraged on to produce aesthetically pleasing elevations giving the buildings a unique architecture.

The architectural design with a well-coordinated engineering and construction method resulted in better quality, higher buildability and cost efficiency. A number of valuable experiences were also gained during the design and construction of Goldenhill Park.

Firstly, precast components were used in combination with cast in-situ slab and wall to offer a complete integrated structure. As the facades at the lower floor were formed before construction progressed to the next higher floor, other interior trades could proceed quickly without being interrupted by bad weather. This would not have been possible if the facades had been constructed using conventional cast in-situ concrete frames with in-fill plastered brickwalls.

In addition, concrete is a denser material than brickwall and this would reduce the likelihood of rainwater leaking into the units.

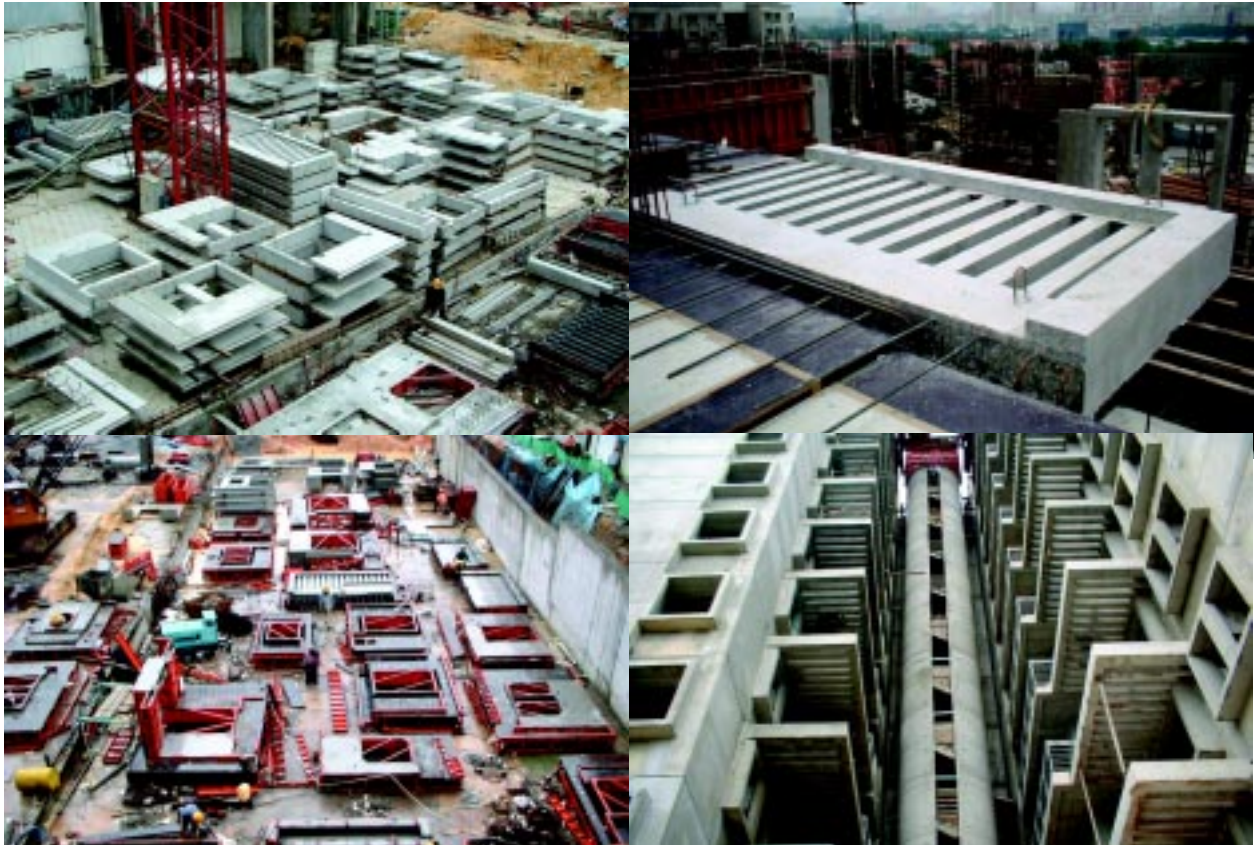
Secondly, the lifting points for the precast components were carefully designed to avoid excessive stress during the lifting operations. Besides, the lifting system was also strategically located for effortless lifting process.

Thirdly, it is ideal for precast components produced on site to have bigger dimensions to reduce the number of liftings. The precast components adopted in Goldenhill Park required only simple site production facilities. In doing so, the production of precast components and construction schedule were well-coordinated.

Fourthly, steel formwork was used to produce the precast components and the in-situ walls to achieve smooth concrete surfaces. Not only were there savings in plastering, steel formwork happens to be an environment friendly way of construction.

Practical, buildable and environment friendly – these sum up the effective design and construction work involved for the development of the Goldenhill Park Condominium.





**Precast trellis - from production to installation**

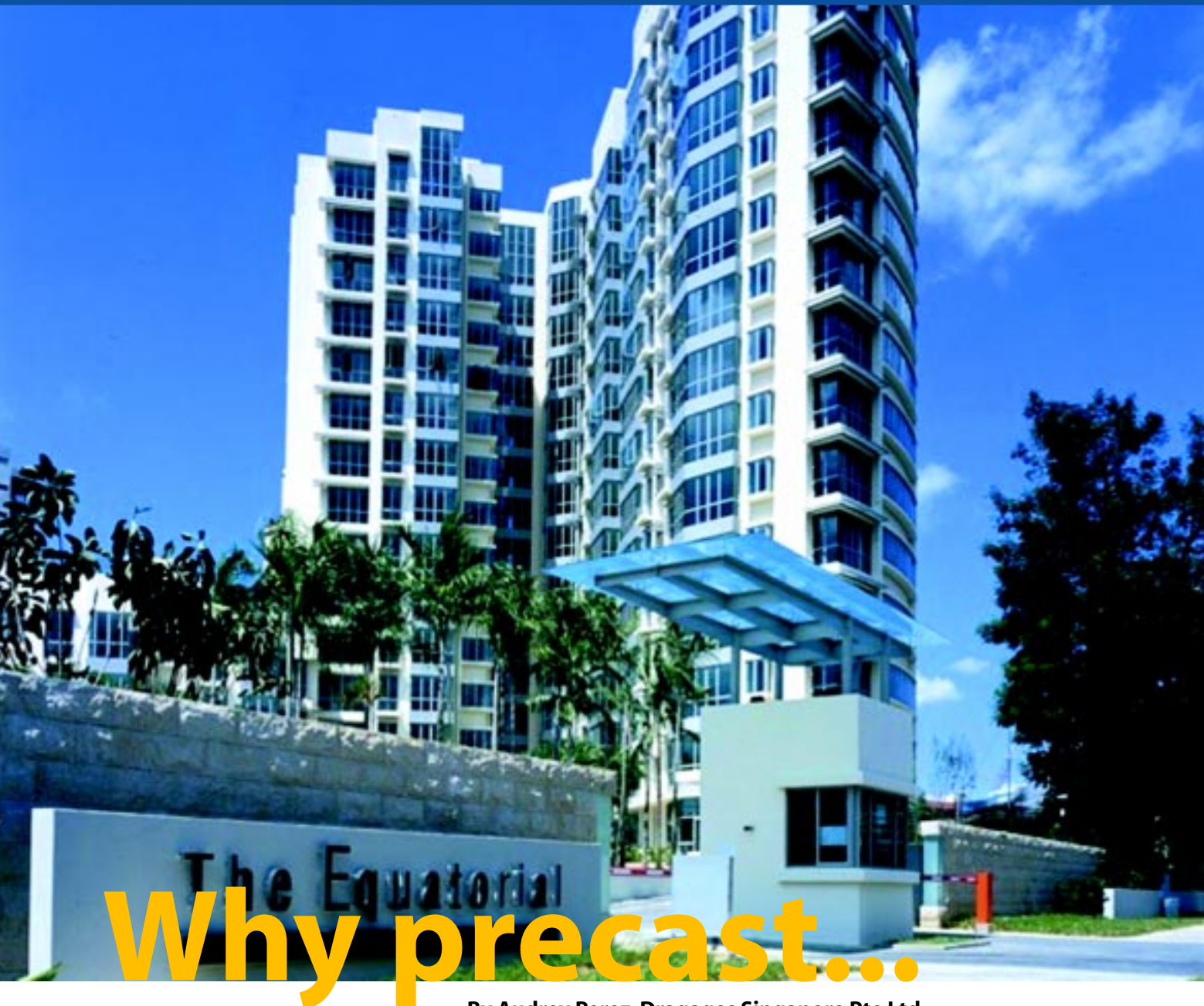
## Project Team

Client	: City Developments Limited
Architect	: ADDP Architects
Structural Engineer	: LSW Consulting Engineers
M&E Engineer	: Meinhardt (Singapore) Pte Ltd
Landscape Designer	: Site Concepts International
Interior Designer	: WhyteBy Design Pte Ltd
Quantity Surveyor	: Davis Langdon & Seah Singapore Pte Ltd
Main Contractor	: Hyundai Engineering and Construction Co Ltd
Precaster	: Asiarstar Technologies Pte Ltd / Poh Cheong Concrete Products Pte Ltd

**Extensive glass facade offering panoramic views**







By Audrey Perez, Dragages Singapore Pte Ltd

*The Singapore branch of global construction company Bouygues Construction, Dragages Singapore Pte Ltd, has earned a reputation as a reliable and innovative contractor. Set up in 1984, it is responsible for a number of high profile projects in Singapore, such as the historic Fullerton Hotel, the Ritz-Carlton Millenia Hotel, the Millenia and Centennial Tower office buildings, and a number of condominium projects. Currently it is engaged on The Belmont Green condominium and The Savannah CondoPark. It has won numerous awards over the years for achieving construction quality, productivity and buildability and shares with Prefab Architecture the benefits of precast construction.*

**D**ragages Singapore Pte Ltd's success in using precast concrete lies in its ability to engineer the development from the earliest stage of the project, and exploit its full potential to offer clients, architects and consulting engineers innovative solutions. As one of the pioneers in precast construction in Singapore's private sector projects, Dragages recognises the benefits of precast construction. These can be briefly summarised as Buildability, Cost Effectiveness, Construction Speed and Durability.

In terms of buildability, a good precast system simplifies the construction sequence without compromising the structural integrity of the building. Precast construction is safer and guarantees better temporary stability as work



progresses. Building up a pool of in-house skilled precast workers further facilitates smooth execution of construction works.

It is a common misconception that precast construction is more costly. Based on Dragages' experience, the overall construction cost has been moderate when precasting is carried out on site while keeping connection details simple. Time is a crucial element in every project. By producing precast components on site in a factory-like setting, a project can be completed quickly without compromising quality. In addition, savings on transportation time and costs can also be achieved. And by aligning precast production with the progress of construction works, storage space is minimised while overall construction sequence continues uninterrupted.

With well-designed simple connection details, precast buildings will be more durable and not susceptible to defects such as warpage and water seepage.

## What to take note of

It is important to note that precast structures are suitable for both repetitive building features as well as complicated architectural features. However, precast should not be imposed on all projects. It should be adapted to the needs of each project, in order to serve its true purpose, which is to ease the construction process. The types and shapes of precast should not affect the design theme or the architectural language. It should serve to better achieve creative architectural concepts.

Precast design is an interactive procedure, linking many aspects of the architectural design, detailing, fabrication and erection.

There are a number of considerations to note namely structural zones, temporary support and stability, sequence of erection, integration with services, and above all, the durability of the final structure.

Durability of precast structures is often a neglected

**A combination of structural steel, cast in-situ and precast concrete was used in the refurbishment of the Fullerton Hotel and the construction of the new One Fullerton**







**Precast beam, sunshade, parapet and A/C ledge are some of the precast components used at The LadyHill**

issue. Steps must be taken to evaluate the performance of different shapes and integrity of precast structure. Dragages' philosophy is that 'precast' is a temporary status of building components during the construction stage.

Once the construction of a building floor or section is completed, precast components cease to exist as individual elements and merge with the cast in situ components to form an overall building structure. The application of silicon at precast joints should be prohibited. With proper detailing of the joints, precast panels can be sealed with the in-situ structure so that common maintenance problems such as water seepage are then prevented.

Precast fabrication, transportation and installation should be properly planned and accounted for during scheduling. This way, productivity, cost effectiveness, quality, structural integrity, safety and construction speed will not be compromised.

**Hazel Park - one of Singapore's earliest precast condominiums**







**Site precasting in a factory-like setting at the Savannah CondoPark**



**The distinctly coloured system formwork used by Dragages**

### When to precast

The ultimate objective of using precast structures is to make the construction process practical. Precast concrete is an alternative way to ease the complicated aspects of construction. However, it must be acknowledged that precast concrete is not the only way to enhance productivity, buildability and quality as it all depends on the feasibility.

One of Dragages' strengths is its ability to concoct the right mix of precast and cast in-situ components to enhance productivity, buildability and quality. The prominent orange colored modular metal formwork system, unique to Dragages, is used both for precast and cast in-situ elements. Getting the right construction method helps to overcome the main limitation of precast concrete - its weight.

### What to precast

Common precast components found in Dragages' projects are slabs, beams, staircases and complicated 3-D or special features such as planter boxes, façade arches, curved beams and others. The use of these items has always been complemented with cast in-situ construction to optimise their benefits.

In this line, shear walls, household shelters and refuse chutes are cast in-situ, and are often referred to as 'precast in-situ' due to the excellent off-form quality comparable to that of their precast counterparts.

### Why site precasting

Contrary to popular belief, precast can be a viable and economical option when it is carried out on-site with your own workers. With site precasting, components' sizes are no longer an issue when it comes to transportation. Strict quality control, supervision and better coordination with the construction schedule are also made possible.

Over the years, Dragages has built highly skilled precast teams. As such, Dragages is 50 percent more competitive in producing the precast components it needs than if it involved other precasters.

However, this is only possible if the most competitive combination of precast and cast in-situ components could be studied and decided during the early design stage. Again, this is possible with the use of modular metal formwork system.



**The Savannah CondoPark - construction in progress**

### **The beginning of prefabrication**

The earliest prefabricated structures in France's construction history can be found during the industrialisation period and as early as 1889 (pre-assembled steel structures for the erection of a bridge). Precast concrete's history in France started in the late 40s to early 50s during the re-construction period after WWII.

In 1952, Dragages' parent company embarked on its first precast project and went full-force in 1959 when it formed its subsidiary EPI, specialising in prefabrication as well as special methods of concrete processing.

Precast structures and prefabrication are thus part of Dragages' construction culture and the company will not hesitate to incorporate extensively precast when it is necessary and beneficial to do so. In Singapore, Dragages' list of precast projects include residential developments such as Savannah CondoPark, Belmond Green, The Ladyhill, The Equatorial, The Sterling, Floravale and Hazel Park; and commercial developments such as The Fullerton, Ritz-Carlton, Centennial Tower, Millenia Walk and Millenia Tower.



**A 3-D precast bay window**





**Poh Lian Construction Pte Ltd**

**Forging  
ahead...**

**P**oh Lian Construction Pte Ltd (PLC), a wholly owned subsidiary of listed company United Fiber System Limited has been established in Singapore since 1975.

Registered as an A1 contractor with BCA, PLC's core business is in the construction of a wide range of residential, commercial, industrial and institutional projects. With more than 20 years of mileage, it has built up its capability to undertake the more challenging design-and-build as well as major upgrading projects for public and private sector clients. PLC prides itself on its significant contribution to the building and construction industry and its competitive pricing.

#### **Awards**

Over the years, PLC has earned numerous accolades from the national and international institutions. These include the then CIDB Construction Excellence Award, HDB Construction Quality Award, ISO 9001, 14001 and OHSAS Certifications. The most recent award was the 2004 BCA Construction Excellence Merit Award for the East Meadows Condominium project. PLC's notable innovative design contribution for this project was the introduction of the external cladding system using Masterclad to construct the external facade features, complex roof features and box-up for M&E services enclosure. PLC also made a conscious effort to convert the staircases, refuse chutes, manholes and linkway footings to precast.

#### **Condominium projects**

With its impressive track records of successfully completed HDB projects, PLC has amassed vast knowledge and experience in precast construction. This expertise was put into good use for the construction of two recently completed private condominium projects, the Amaranda Gardens and Nuovo Executive Condominium. Precast components were used extensively for the facades, bay windows and planter boxes for both projects. In addition, the Nuovo project also used a precast beam-and-slab system.

Being a forward-looking contractor, PLC is constantly keeping abreast with the latest in prefabrication techniques and construction technology to persevere in its objective to deliver high quality projects.



**Amaranda Gardens**



**Nuovo Executive Condominium**



**East Meadows Condominium**

**Poh Lian Construction Pte Ltd • Tel : 6487 3201 • Fax : 6284 1353 •  
Email : cencilim@pohlian.com.sg • Website : www.ufs.com.sg**





# Consultants Pte Ltd



(Clockwise from bottom left) The Savannah CondoPark, E-Centre@Redhill, The Bayshore and Grandeur 8

**C**ivil and structural consulting engineers, KTP Consultants Pte Ltd's motto is "To instil inspiration and innovation to meet our customers' needs". From the preliminary design stage to detailed design and detailing stage, KTP has been providing practical and reliable solutions to both developers and contractors.

With an impressive list of successful projects from The Bayshore, winner of 1997 BCA Best Buildable Design Award to E-Center@redhill, winner of 2004 BCA Best Buildable Design Award, this local-grown consulting firm's substantial experience and know-how has contributed to the success of the building industry's push towards more prefabrication and precast construction.

At the Savannah CondoPark that is currently under construction, Dragages Singapore (Pte) Ltd has been working closely with KTP to use customised precast half-slabs that act as both temporary working platforms and part of the final product. This design represented a great leap beyond the conventional precast planks and hollow core slabs which often do not provide the dexterity and high finishing standards required of residential buildings.

At the Grandeur 8 site KTP is working with Chip Eng Seng Contractors Pte Ltd on a customised precast load-bearing

wall system. This eliminates the need for cumbersome traditional in-situ formwork and avoid the tedious, messy and labour-intensive plastering work.

At another partial design-and-build project, the new Changi Prison Cluster 'A', the original cast-in-situ structure was redesigned into a predominantly precast structure. This included an innovative volumetric precast prison cell proposed by Eng Lim Construction and L&M Precast Pte Ltd. These, together with other innovative and often tailor-made design and construction methods, have enabled KTP to work with a number of

contractors to market the speed and economics of precast construction to forward looking developers.

With the increasing trend of design-and-build projects, KTP's trained staff work closely with developers and architects from the preliminary design stage to tender stage to improve the buildability of the project while maintaining economy.

KTP also has an established track record of excellent partnerships with contractors to introduce innovative and speedy construction methods without compromising the high product precision and quality.

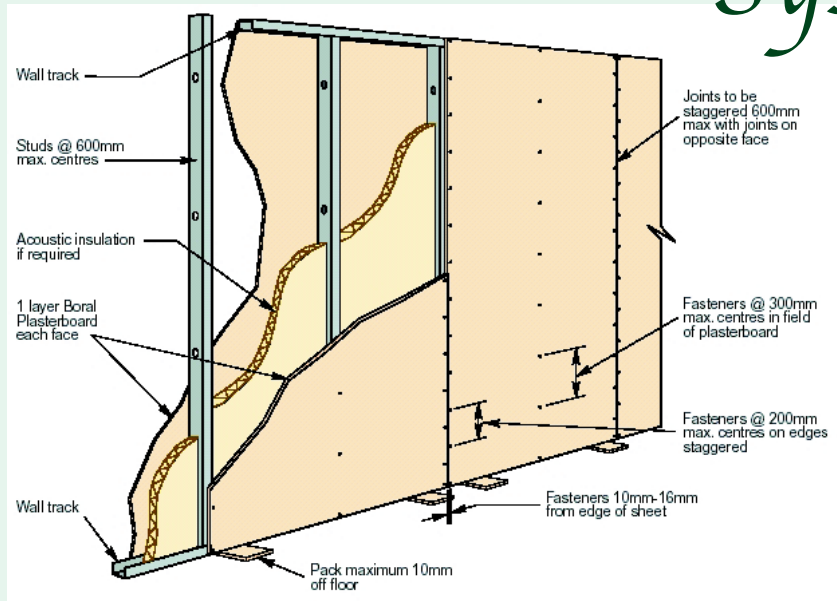


**Casablanca under construction by Chiu Teng Enterprises Pte Ltd**

KTP Consultants Pte Ltd • Tel: 6273 5622 • Fax: 6273 8454 •  
Email: [ktpcon@pacific.net.sg](mailto:ktpcon@pacific.net.sg)



# Boral Impact Panel System



**DRY TRADE  
CONSTRUCTION!  
LIGHTWEIGHT  
INTERNAL  
WALL!**



**The Pier at Robertson**



**Singapore Sports School**



**B**oral Impact Panel is the latest innovation in plasterboard lining designed to satisfy stringent regulatory requirements for severe duty applications in commercial, industrial, institutional and residential projects.

In the latest Buildable Design Code of Practice issued in January 2004 in Singapore, one of the key changes is the increase in the weightage of wall systems from 30 to 40 points. The Boral Impact Panel System, a highly buildable dry-wall system that enjoys a high Labour Saving Index of 1.0, is tailored to meet such requirements.

The Boral Impact Panel System, comprising 19 mm thick Boral Plasterboard sheets mounted on steel framing, is suitable for use as an internal drywall system. The lightweight and slender drywall partition offers significant reduction in dead loads and is economical in terms of floor area savings. Performance-wise, the system is suitable for severe duty use,

having passed the strength and robustness tests, such as Stiffness, Door Slam, Impact, Heavyweight Anchorages tests in accordance to SS492:2001 with flying colours. In addition, the Boral Impact Panel System also offers a wide range of fire resistance and acoustic ratings to meet design requirements.

One main advantage that Boral Impact Panel System has over most wall systems is the flexibility it can offer in terms of size and layout. The lightweight panels can be easily sawn on site and quickly replaced and relocated according to the respective projects' needs. The use of this system also facilitates dry construction as its smooth and even surfaces are ready to receive paint finishes directly.

Boral Impact Panel System has been successfully used and proven in projects such as the Mandai Camp, Red Swastika Primary School, Singapore Sports School, Keat Hong Camp, Savannah CondoPark and The Pier.



**Installation of the Boral Impact Panel system at the Savannah CondoPark**



**Savannah CondoPark**

**Boral Plasterboard (M) Sdn Bhd , Singapore Branch • Tel : 65 6272 9272 • Fax : 65 6278 5310  
Email : allen.chia@sg.lafarge.com • Website : www.plasterboard.boral.com.au**



# Prefab Cavity Wall Frame



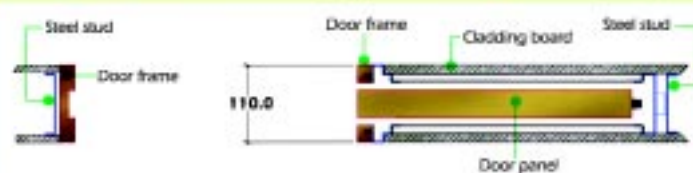
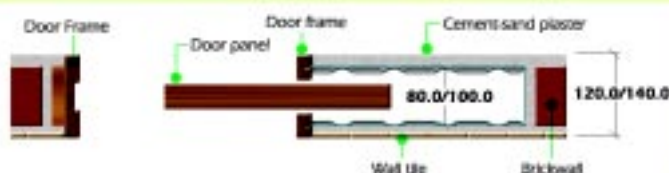
## FOR WET-WALL CONSTRUCTION

- Aluminium track is fixed within the pocket casing and not to the lintel
- Prefabricated steel pocket casing to hide door panels
- Electrical Switch & cable
- Steel wiremesh to reinforce cement-sand plaster
- Cement-sand plaster directly trowelled onto the casing surface
- Wall tile
- Bricks or lightweight concrete blocks



## FOR DRY-WALL CONSTRUCTION

- Aluminium track interlocked within pocket frame and NOT to lintel stud
- Whisper quiet & smooth rollers that can hang up to 100kg door
- Steel bracing (Can be switched to timber)
- 12mm wood or cement-based wall board



From SLIDE & HIDE System Singapore, SLIDEHIDE is a **FACTORY-ASSEMBLED CAVITY OR POCKET WALL FRAMING SYSTEM** that hides a sliding door panel inside a 140mm thick wall. The 140mm thickness is inclusive of cement-sand plaster and wall-tile finishes. SLIDE & HIDE System also offers another system catering for dry-wall thickness of 110mm (includes wood or cement-based cladding board).

The system's pocket frame is mounted within a wall opening provided. The installed pocket frame can be waterproofed; electrical switches/cables and water pipes can be fixed directly onto the casing surface and embedded within the plaster cover or cladding board layer. Any door frame and door panel design and material can be used with the pocket wall.

SLIDEHIDE lends itself to a wide variety of applications from bathroom to kitchen and is an ideal solution for tight interior space and to enhance the ergonomics of an interior. With an extensive range of models and sizes to choose from, SLIDEHIDE offers a practical and affordable solution for domestic and commercial interiors with different design requirement.

### Benefits

- No more cramped living space
- No more hassle determining door position
- No more wall-finishes sacrifice
- No maintenance required
- Door panel can be replaced easily
- No more doors hitting furniture
- No unsightly floor track
- No parasite or rodent problem
- No more poor quality sliding doors
- No more lack of ideas in interior layout

### Applications

- Kitchen
- Walk-in Closet
- Health & Spas
- Utility Room
- Hotel Bathroom
- Home Bathroom
- Study Room
- Recreation Room
- Healthcare Room
- Meeting Room
- Servery Counter
- Restaurant Private Room
- Office Executive Room
- Hotel Room Divider

