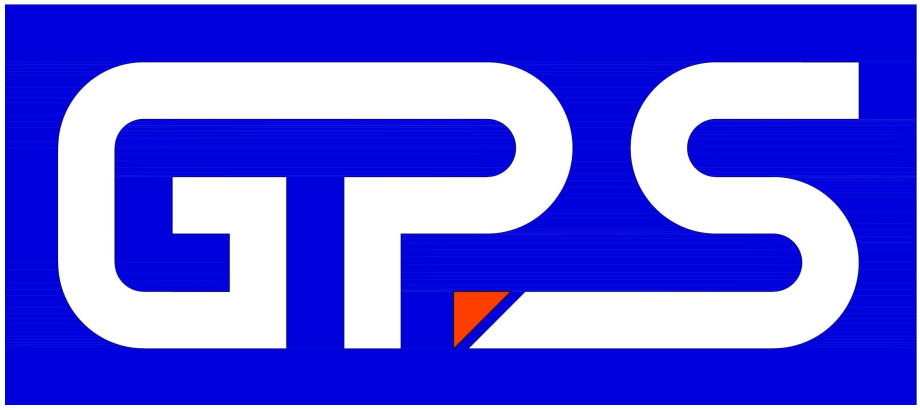
COMPANY PROFILE



GPS CONSULTING ENGINEERS SDN. BHD.
(Formerly known as G&P Structures Sdn. Bhd.)

No. 63-1, 1ST Floor
Jalan Tasik Utama 4
Medan Niaga Tasik Damai
Sungai Besi, 57000 Kuala Lumpur
Malaysia

Tel : +60(3) - 9544 1938
Fax : +60(3) - 9544 2389
Email : gnp-struc@gpsstructures.com.my
Website : www.gpsstructures.com.my

TABLE OF CONTENTS

COMPANY PROFILE

CORPORATE PHILOSOPHY

HIGH-RISE / COMPLEX STRUCTURES

CASE STUDIES – INNOVATION & VALUE ADDING STRUCTURAL SOLUTIONS

- SOLARIS 2 DUTAMAS (PUBLIKA)
- DAMANSARA UPTOWN PHASE II (STARLING MALL)
- RADIA BUKIT JELUTONG
- PLATINUM PARK KLCC

INNOVATION AND VALUE ADDING

- STRUCTURAL INNOVATION
- BUILDING INFORMATION MODELING (BIM)

ORGANIZATION CHART

KEY PERSONNEL

QUALITY ASSURANCE AND AWARDS

COMPANY PROFILE

GPS was established in Kuala Lumpur in 2003 and is recognized as one of the foremost consulting engineering firms in Malaysia.

Our reputation and track record for delivering successful projects is attributable to our ability to assemble superior quality personnel, combined with our constant striving to improve our processes and ultimately our product …… Your Project.

Our assembled team of professionals is highly trained and experienced, not only skilled in their specialist spheres of engineering, but also having an impressive knowledge base of local industry trends, authority approval processes and market conditions.

More than 20 years of success is testament to the fact that GPS has a well proven ability to deliver:

- A superior service
- Highly quality experienced staff, available now to add value to the project
- Cost effective design solutions for both initial capital outlay and whole of life operation
- Experienced team leaders with the ability to communicate clearly and concisely with all project stakeholders including the client, the project manager, the architect, other consultants, authorities and contractors
- A consulting business environment designed to engender loyalty and repeat business with clients through excellence in serving projects

GPS provide a broad scope of services encompassing the discipline of:

- Civil, Structural and Geotechnical Engineering
- Feasibility Studies
- Engineering Consultancy
- Value Engineering
- Accredited Checking
- Design and Build
- Construction Supervision

CORPORATE PHILOSOPHY

OUR VISION

To obtain the hallmark for Quality Services,

Technical Excellence, Reliability and Safety

OUR ASPIRATION

To provide Innovative and Economical Designs

To ensure Safety and Ease of Construction

OUR VALUES

To uphold Integrity in all aspect of Works and Communications

To value staffs' Creativity and Commitment to Quality

To provide Best Solution by inspiring Teamwork

HIGH-RISE / COMPLEX STRUCTURES

Our Experience

GPS has a highly experienced team with expertise in civil, structural and geotechnical engineering disciplines. We have received recognition for our capabilities; from our engineering peers, from the architects we work with, and from engineering professional associations.

GPS's expertise extends across a variety of construction materials, chosen to meet the requirements of a specific situation.

Our reputation has been built upon our engagement of sound practices, cutting edge technology and most importantly, creative thought.

Time and Cost are important, but Quality is forever.

The following examples of our success in high rise / complex structures projects were delivered with significant involvement of the key personnel. The examples are a sample of our relevant work portfolio selected to give a snapshot of how our expertise and experience has contributed to the success of a diverse range projects.

PROJECT EXPERIENCE



KL Midtown, KL Metropolis, a mix development consisting of 2 block of 10-storey signature office, 1 block of 55-storey office tower, 3 block of 51-storey apartment on top of 9-storey carpark podium, and 1 block of mixed commercial tower with 13-storey hotel, 30-storey service suite and 6-storey facilities on 8-storey of podium.

Client : Golden Suncity Sdn. Bhd. (Hap Seng Land)

Project Cost : RM 1.75 Billion

Services : Civil & Structural Engineering Consultancy



Damansara Uptown, Phase 2 Starling Mall, 1 block of 30-storey and 1 block of 32-storey apartment, 6-storey boutique mall, 1 block of 21-storey service apartment, 1 block of 30-storey office and 4 levels of basement carpark.

Client : Dutamasa Sdn Bhd (See Hoy Chan Group)

Project Cost : RM1.2 Billion

Services : Civil & Structural Engineering Consultancy



Solaris 2 Dutamas, Publika, 12 blocks of 6 to 8-storey shop office, 1 block of 21-storey office, 3 blocks of 24-storey twin residential tower and 7 levels of semi-basement carpark.

Client : Sunrise Alliance Sdn Bhd

Project Cost : RM750 Million

Services : Civil & Structural Engineering Consultancy



Radia, Bukit Jelutong, Phase 1-4 consisted of 2 blocks of 2 to 9-storey office and shop lot, 1 block of 2-storey shop lot, 3 blocks of 13-storey service apartments, 4 levels of basement carpark and tunnel connecting to Phase 5 and 2-storey of podium carpark.Phase 5 consisted of 2 blocks of 5 to 8-storey office and shop lot, 1 block of 4-storey office with covered boulevard, 2 levels pf basement carpark, 2-storey podium carpark with recreation and landscape park

Client : Sime Darby Sdn Bhd & Sunrise Sdn Bhd

Project Cost : RM804 Million

Services : Civil & Structural Engineering Consultancy

PROJECT EXPERIENCE



Agile Bukit Bintang, Kuala Lumpur, consisting of 1 block of 60-storey service apartment including 2-storey of recreation facilities, 2-storey of retail and 10-storey of carpark podium, 1 block of 53-storey and 1 block of 38-storey service apartment including 2-storey of retail on top of 2 level basement.

Client : Agile Tropicana Development Sdn. Bhd.

Project Cost : RM 650 Million

Services : Civil & Structural Engineering Consultancy



Solaris Parq Residensi, Kuala Lumpur, consisting of 2 blocks of 41-storey service apartment linked by 6-storey podium including 1-storey recreation facilities and 5-storey carpark podium.

Client : Ibarat Duta Sdn Bhd (UEM Sunrise Berhad)

Project Cost : RM310 Million

Services : Civil & Structural Engineering Consultancy



Platinum Park, Phase 3, 1 block of 38-storey and 1 block of 50-storey office towers, linked by 9-storey of retail and carpark podium, and 3 levels of basement carpark.

Client : Naza TTDI

Project Cost : RM500 Million

Services : Civil & Structural Engineering Consultancy



Serasi, Putra Heights Phase 6T1, consisting of 3 blocks of 28-33 storey service apartment, 8-storey carpark podium, 10 units of retail shops and 1-storey recreation facilities.

Client : Sime Darby Property (Bukit Raja) Sdn Bhd

Project Cost : RM 250 Million

Services : Civil & Structural Engineering Consultancy

PROJECT EXPERIENCE



Damayan, Putra Heights Phase 3J, consisting of 1 block of 31-storey service apartment, 6-storey carpark podium and 1-storey recreation facilities.

Client : Sime Darby Property (Bukit Raja) Sdn Bhd

Project Cost : RM 92 Million

Services : Civil & Structural Engineering Consultancy



AtWater, Petaling Jaya, a mixed development consisting of 1 block of 32-storey and 1 block of 36-storey service apartments, 2 blocks of 15-storey offices, linked by retail and carpark podium, and 3 levels of basement carpark. The development aim to achieve GBI Gold rating.

Client : Paramount Property Development Sdn. Bhd.

Project Cost : RM 400 Million

Services : Civil & Structural Engineering Consultancy



Symphony Square, Petaling Jaya, consisting of 1 block of 21-storey office tower link by 9-storey retail and carpark podium with recreation facilities.

Client : Vistayu Sdn Bhd (Symphony Life Group)

Project Cost : RM121 Million

Services : Civil & Structural Engineering Consultancy



Serini, Taman Melawati, Selangor consisting of 2 blocks of 38-storey service apartment linked by 6 ½ - storey carpark podium, 1-storey recreation facilities and 1 level of sub-basement carpark.

Client : Sime Darby Melawati Development Sdn Bhd

Project Cost : RM200 Million

Services : Civil & Structural Engineering Consultancy

PROJECT EXPERIENCE



Impiana, Nusajaya, Johor Bahru, consisting of 2 blocks of 12-storey and 2 blocks of 24-storey apartment linked by 3-storey carpark podium with recreational facilities.

Client : UEM Land Bhd

Project Cost : RM185 Million

Services : Civil & Structural Engineering Consultancy



The Mansions, Parkcity Heights. Kuala Lumpur, a development consisting of a prestigious Regal Parkhomes in a 19.6-acre gated and guarded hilltop enclave.

Client : Perdana Parkcity Sdn Bhd

Project Cost : RM196 Million

Services : Civil & Structural Engineering Consultancy



The Westside II, Desa ParkCity, Kuala Lumpur, consisting of 1 block of 41-storey prestigious condominium, 6-storey carpark podium and a distinctive double-storey link bridge.

Client : Perdana Parkcity Sdn Bhd

Project Cost : RM160 Million

Services : Civil & Structural Engineering Consultancy



Seringin Residences , Happy Garden, Kuala Lumpur, consisting of 2 blocks of 25-storey apartment including recreation facilities and 3-storey carpark.

Client : Utama Lodge Sdn Bhd (See Hoy Chan Group)

Project Cost : RM268 Million

Services : Civil & Structural Engineering Consultancy

PROJECT EXPERIENCE



Suasana Bangsar, Kuala Lumpur, consisting of 1 block of 26-storey condominium with recreation facilities and 5 levels of sub-basement carpark.

Client : UM Land Berhad

Project Cost : RM75 Million

Services : Civil & Structural Engineering Consultancy



Axis Pandan, Kuala Lumpur, consisting of 1 block of 33-storey and 1 block of 43-storey service apartments link by 10-storey of retail and carpark podium.

Client : Reliable Capacity Sdn Bhd (RK Group of Companies)

Project Cost : RM125 Million

Services : Civil & Structural Engineering Consultancy



Giant Distribution Centre, Sepang, Selangor, consisting of a 150m x 250m steel warehouse with flat floor and high racking storage.

Client : Gelanggang Harapan Construction Sdn Bhd

Project Cost : RM100 Million

Services : Civil & Structural Engineering Consultancy



Idaman Residence, KLCC, Kuala Lumpur, consisting of 1 block of 34-storey condominium, including 2-storey of recreation facilities and 4-storey of carpark.

Client : Orchard Park Sdn Bhd (TA Properties Sdn Bhd)

Project Cost : RM85 Million

Services Provided : Structural Value Engineering, Alternative Design & Engineering Review

PROJECT EXPERIENCE



The Residence, Mont' Kiara, Kuala Lumpur, consisting of 19 units of bungalow with 8 different architectural designs.

Client : Sunrise Berhad

Project Cost : RM30 Million

Services Provided : Civil & Structural Engineering Consultancy



Penang Time Square, Georgetown, consisting of 1 block of 11-storey podium with basement carpark and commercial area; and 2 blocks of 20-storey service apartment, 2 blocks of 25-storey office and 1 block of 25-storey hotel.

Client : Ivory Gleneary Sdn Bhd

Project Cost : RM400 Million

Services Provided : Structural Engineering Consultancy for Foundation and Basement Wall



Saville Residence, Kuala Lumpur, consisting of 1 block of 30-storey Service Apartment, including 3-storey shop office and 7-storey carpark podium.

Client : Gabung Wajib Sdn Bhd (Metro Kajang Group)

Project Cost : RM60 Million

Services Provided : Civil & Structural Engineering Consultancy



Ritze Perdana II, Damansara Perdana, Petaling Jaya, consisting of 3 blocks of 8 to 9-storey apartment on top of a 9-storey podium carpark and commercial area.

Client : Usaha Hartamas Sdn Bhd

Project Cost : RM66 Million

Services Provided : Civil & Structural Engineering Consultancy

PROJECT EXPERIENCE



Kiara Designer Suites, Mont' Kiara, Kuala Lumpur, consisting of 1 block of 29-storey service apartment, 1 block of 6-storey carpark with recreation facilities and commercial space, and 2-storey of service apartment on top of the carpark.

Client : Sunrise Paradigm Sdn Bhd

Project Cost : RM90 Million

Services Provided : Civil & Structural Engineering Consultancy

CASE STUDIES – INNOVATION & VALUE ADDING STRUCTURAL SOLUTIONS

Background

GPS since its inception in Kuala Lumpur, Malaysia over 20 years ago has found and retained a place at the forefront of Civil, Structural and Geotechnical Engineering.

The success in delivery of high quality creative, efficient and elegant building design collaborations, i.e. successful building projects, is attributable to:

- Culture established in very early days and still evident today that drives the pursuit of excellence;
- Being at forefront of I.T. & communications and a mandate to appropriate best possible resources on our projects to provide best possible outcomes.

The following Case Studies are large mixed development and high-rise building projects worked on by our Specialist Engineers and BIM Teams with innovation and value adding solutions.

CASE STUDY: SOLARIS 2 DUTAMAS (PUBLIKA)



This mixed-use development with a total construction floor area of 6.3 million ft² (587,480m²) featuring 12 blocks of 6-8 levels of shop cum office, 1 block 21-storey office, 3 blocks 24-storey twin residential tower with 780 apartment units and 5363 car parking spaces spreading over 7 levels of semi-basement car park was developed by Sunrise Alliance Sdn Bhd and located at the vicinity of prestigious Mont Kiara area.

A total of 1.3million m³ of earth were removed from 6.992 hectare (17.278 acre) former green hill to give way for this 750 million ringgit development. The whole project commenced in 2005 and completed in 2010. The upscale Publika retail mall was then opened in 2011.







The design development and construction works were carried out concurrently during the initial stage of this project. It was challenging to design and manage such a large development site together with developer's in-house Management Contractor, to ensure different trades of Contractors in earthworks, bored piling, micro piling, soil nailing and basement RC works were well coordinated, so that the works could be carried out simultaneously with minimum contractual implications. At the same time, we had to review the design and sequence of works continuously, to cater for the ongoing changes that were evolving from the design development.

The foundations were complex with different piling system adopted for different component of development, to ensure the selected systems were cost effective, safe, technically suitable and construction friendly. The piling systems comprised of 933 bored piles of different diameters ranging from 750mm to 1200mm, 306 micro-piles and raft foundation. Tension piles were installed in part of the basement to resist water uplift pressure. It is essential to ensure the differential settlements between the different foundation systems were within acceptable limits, and to prevent any adverse effect to the superstructure works.

The height of the semi- basement wall along the northern boundary was 31m high. Cost effective soil nail wall was adopted instead of the costly contiguous bored pile or diaphragm wall. The soil nail wall was the first and highest basement wall ever constructed in Malaysia. We had to work closely with the Architect, Geotechnical Engineer and Contractors to ensure that the sequence of construction for soil nail berms, pile points and drainage were well coordinated without obstruction, and that part of podium building structures could be founded on the formation of soil nail slope.

RC beam and slab system was adopted for the retail podium floors, which was an economical structural system and had flexibility in the sequence of construction works and could accommodate changes as required by the retail tenants. Post-Tensioned band beams were used in retail areas which required 15.6m span of column-free retail space. RC band beam and slab system was used for the basement carpark to reduce the overall floor depth while permitting longer spans and shorter time of excavation. The relatively wide and shallow cross section simplifies both the formwork and services which can pass under the beams and shortened the floor to floor construction time.

Flat slab and shear wall system was used for the apartment towers. The floor level between the above apartment and the below retail areas, act as a transfer floor allowing the transition from flat slab and shear wall system above to beam and column system below. With aluminium formwork system, the floor to floor construction cycle time can be reduced significantly comparing to the conventional construction time per floor. In addition, aesthetically pleasing vertical and smooth wall and ceiling finishes can be achieved by skim coating to the fair-face concrete surface.



Flat slab concrete floor will usually result in economics in the total construction costs because of shallower structural depth, resulting in reduced storey height. This can be very significant as any height reduction translates directly into savings in all vertical structural, architectural and building services elements.

Each of the twin 24-storey apartment towers was linked by a 4-level high sky bridge, starting from Level 5, that housed a triple volume multipurpose hall, spa room, gym room, M&E room and swimming pool. The lowest level of sky bridge was constructed by steel structures to minimise the use of temporary falseworks during construction. Detailed analysis and design were carried out to determine the complex support reactions between the two towers and sky bridge, including the impacts under severe wind load and lateral notional loads.



In order to optimize the traffic circulation and maximise the number of car parking space in basement floors, the columns of shop office blocks were transferred along the north-south direction at ground floor level.

The project team had to work proactively to accommodate the evolving changes from the architectural design development during the construction stage. The commitment of the project team to actively resolve the changes in a timely manner was essential to avoid disruption to the site progress and keeping the project within budget. Frequent interaction and coordination with the project team were carried out to ensure any structural solution derived due to the changes was well coordinated with the architectural and M&E services before the issuance of revised drawing for construction.







***** FIABCI MALAYSIA PROPERTY AWARDS 2014 – PUBLIKA – WINNER OF RETAIL CATEGORY *****

CASE STUDY: DAMANSARA UPTOWN (STARLING MALL)



Damansara Uptown Phase II is an integrated development with approximate 3.9 million ft^2 construction floor. It is the desire of the developer See Hoy Chan Sdn Bhd to transform the 16 acres area at the heart of Damansara Uptown into a "gateway to business, leisure and home".

The development comprises 1 block of 30-storey and 1 block of 32-storey apartments, a 6-storey boutique mall, 1 block of 21-storey service apartment (Somerset) and 1 block of 30-storey Multimedia Super Corridor (MSC) Status Green Grade-A office, with an estimated total construction cost of more than a billion ringgit. All the blocks were founded above 3 levels of basement car park. Carefully planned phasing strategy allowed the development to be completed in phases for early hand over and operation over a construction program of 8 years.



The development is surrounded by existing 4–storey shop houses founded on pad footing. Re-charging wells were used during dewatering and excavation to control the original high ground water table and to prevent ground settlement that can cause damage to existing shop houses. Cost effective secant pile walls tied back with temporary removable ground anchors were adopted for the 9 to 15m deep basement construction, which involved the removal of 500,000m^3 of earthworks.



To simplify the construction of lowest basement slab and overcome the high uplift ground water pressure, each podium column was supported by single tension bored pile. By doing so, pile caps were omitted and column loads were transferred directly into piles that were embedded into one metre thick lowest basement flat slab.

Various structural systems were studied and selected to meet the architectural design intents and floor usages within allowable budget and timeline.

Shear wall and flat slab system for apartment floor to avoid undesirable large columns or beams in apartment units; post-tensioned beam and slab system for long span structures in major area of retail floor and car park area with 2.85m shallow floor to floor height; light-weight composite steel beams and slabs for long cantilever at retail area in order to form retail center voids; steel trusses for 20 to 37m long pedestrian link bridges to create column free floor spaces below; precast hollow core slab for forming car park floors over an existing internal road; and r.c. beam and slab system for lift lobbies, toilets, landscaping areas and partial areas of retail that required flexibility in changes for future floor usage.



In addition, the project also involved the connection of new buildings to existing buildings, and several strengthening methods were carried out to strengthen the existing structures in order to accommodate new and additional floor usages. New micropile foundation was installed to underpin the basement of existing building in order to support the additional loadings of new mall structures.

This project has extensive infrastructure works which involves two tunnels, comprehensive upgrading of surrounding street scape and drainage, elevated driveway ramp joining to existing SPRINT highway and 2 km long of deep sewer line involving pipe jacking.

With our dedicated team of Engineers and collaborative approach during the design and construction stages, early identification of potential problems was possible and therefore avoided costly and delays during the progress of construction.







***** THE MALAYSIA CONSTRUCTION INDUSTRY EXCELLENCE AWARDS 2018 – STARLING MALL – THE BEST PROJECT AWARD (BUILDING PROJECT – MAJOR CATEGORY) *****

CASE STUDY: RADIA BUKIT JELUTONG

Situated in the heart of Bukit Jelutong, **Radia** is an integrated development by Sime Darby Sunrise Development Sdn Bhd. This distinguish project is a joint venture project between Sime Darby Property Berhad and UEM Sunrise Bhd, with an estimated gross development value of RM1.6 billion. Spread across 21 acres of freehold land, the development covers a construction floor area ("CFA") of 4.4 mil sq ft, comprising 640 units of serviced apartments (Radia Residences), a total of 305,000 sq ft of office space (Radia Offices) and an 880,000 sq ft retail area (Radia Retail).



Radia sits on primarily flat land with one level of sub-basement. The land itself contains good soil conditions thus an economical injection pile system was adopted for the foundation to minimise noise to the surrounding residential area.

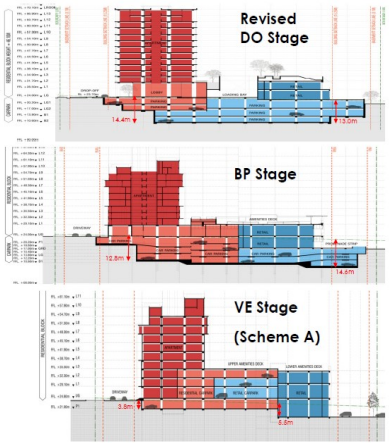
Due to limitation of building height by Department of Civil Aviation, post-tensioned flat slab system was adopted for carpark podium floors to achieve floor-to-floor height of 2.9m. This system allows for more flexible routing of mechanical and electrical services compared to conventional beam and slab system.



The design development of Radia has gone through several value engineering processes to achieve its feasibility. Initially designed with 3 basements levels, the construction time and costs were largely contributed by the expensive basement slab to resist uplift force from the underground water pressure and also large and deep excavation works. Consequently, Radia was then redesigned and value engineered to one level of sub-basement to reduce the overall costs and therefore brought back feasibility to the project.

Summary

	Deep Excavation	Lowest Basement Level
Revised DO Stage	5.0~14.4m	RL10.6 Maximum water pressure = 114kPa
BP Stage	5.0~14.6m	RL9.0~10.6~12.2 Maximum water pressure = 114kPa
VE Stage (Scheme A)	3.8~5.5m	RL18.00~21.00 Maximum water pressure = 0kPa



One of the greater challenges in the structural design of Radia was in the structural framing of Radia Residences. Beam and slab system was adopted in the structural framing for the residential blocks due to its non-typicality arrangement of the apartment units where it changes at every 2 levels. Thorough considerations were given when designing the beams at levels where the unit type changes to avoid aesthetic issues such as unsightly beam running at the top of living or dining area as well as pipe transfers in between the ceiling space. Coordination among the project team was crucial to ensure that the apartment units were able to achieve the Architect's design intent aesthetically.

***** ASIA PACIFIC PROPERTY AWARDS 2013 – RADIA BUKIT JELUTONG – BEST COMMERCIAL HIGH RISE DEVELOPMENT IN ASIA PACIFIC & MALAYSIA CATEGORY *****

CASE STUDY: PLATINUM PARK KLCC

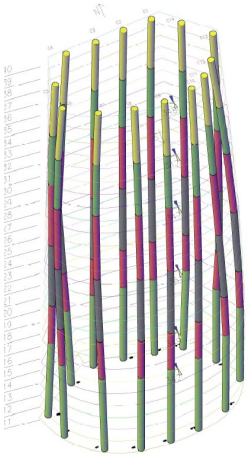




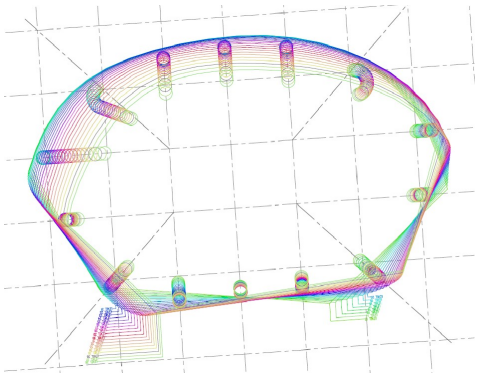
Platinum Park, situated in the heart of Kuala Lumpur, consist of one block of 38-storey and one block of 50-storey Office Towers. The two commanding Towers are connected by 9 floors of retail and carpark podium at the ground, in addition to hosting 3 levels of basement carpark. The project cost was estimated to be 500 Million Ringgit Malaysia. GPS Consulting Engineers Sdn. Bhd. was commissioned by the Client (Naza TTDI Sdn. Bhd.) as the consulting Civil & Structural Engineers for this prestigious project.

To achieve Architect's desired long-span column-free space for the offices, prestressed concrete beam and slab system was adopted. In turn, a shallow floor structure system was achieved and translated to significant cost savings for the Clients as any height reduction will have direct impact on savings in all vertical structural, architectural and building services elements, as well as a reduction in building volume with a consequent reduction in cooling loads.

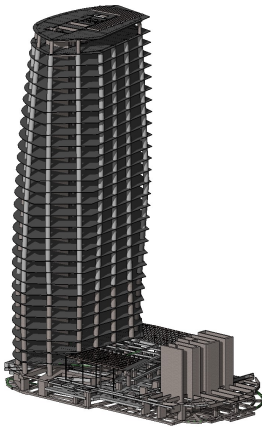




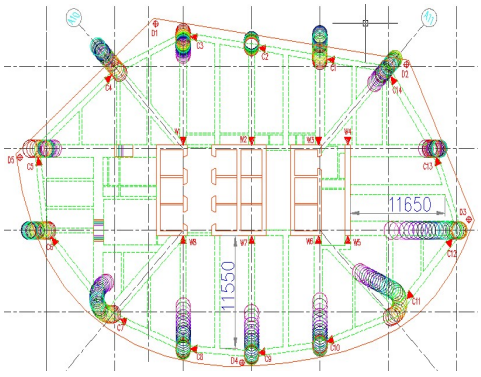
In view that both the Towers comprises of non-symmetrical and varying floor plates with slanting columns at each floor, the Towers were expected to experience more significant differential shortening of vertical elements, i.e columns and walls, at each floor during construction, depending on construction sequence and loadings.



If the shortenings were not given due consideration during construction, problems may develop in the performance of curtain walls and levelness of floor systems, and may cause distress to the mechanical and plumbing lines that are attached.



During the construction phase, it was essential to obtain data on how the building is actually moving compared to theoretical analysis hence floors was regularly surveyed to gain movement trend.



The Contractors were also guided to ensure their construction methods do not cause locked-in stress, which can reduce the design capacity of the structures significantly, and also do not result in overstressing of structural elements at any stage of the project.

***** ASIA PACIFIC PROPERTY AWARDS 2012 – PLATINUM PARK – MALAYSIA'S BEST COMMERCIAL HIGH RISE DEVELOPMENT *****

INNOVATION AND VALUE ADDING

Structural Innovation

GPS understands and embraces the fast-track delivery process.

We encourage the use advanced structural analysis to deliver simple, buildable and economical structures. This philosophy has delivered our clients many innovative design solutions with associated savings in time and costs.

In general, on our projects we promote the importance of carrying out value engineering studies on various schemes available in conjunction with the other consultants. However, the resulting structural solution is developed after taking consideration of all the design and construction governing factors which include:

- Fast-Track Construction Requirements
- Construction Speed
- Construction Technique
- Coordination with the Building Services
- Modularization of Systems
- Future Usage Flexibility

Based on the above we will evaluate and furnish recommendation on options for structural elements that we believe offer the best overall solution to the Clients. We do also provide a considerate number of varying alternative structural solutions for QS cost estimation. These examples include:

- Reinforced Concrete and Post Tensioned Systems
- Flat Slab and Band Beam Systems
- Load Bearing Wall System
- System Formwork
- Precast Structures

As the options and systems are evaluated, it is evident that there are many other competing parameters such as material cost and weight, construction time, building and floor to floor heights, services integration and planning constraints to be considered. This is where we believe the relevant experience of our Engineers can truly offer the Client a value-added proposition.

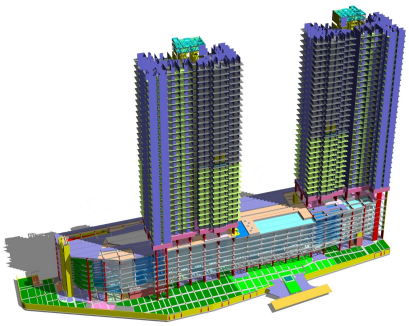
Building Information Modelling (BIM)

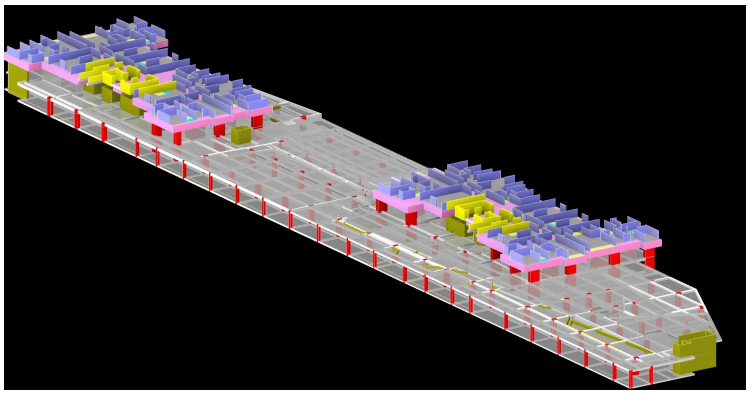


Building Information Modeling (BIM) is an intelligent model-based process that provides insight to help plan, design, construct, and manage buildings by capturing design information in digital prototype.

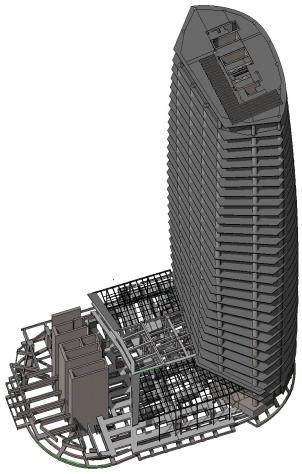
The BIM model is a database of information for all the elements of a Project. This information can be presented in numerous ways such as plans, elevations, sections, details and 3D. The change of an element in one view is automatically updated in all other views, providing us with a better coordinated documentation compared to the traditional 2D CAD process. This allows us to deliver the project faster and more economically.

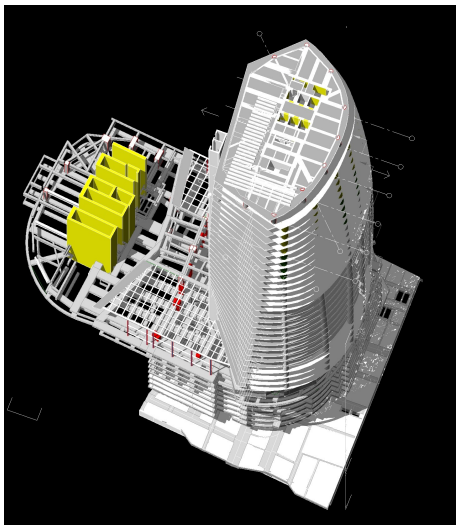
Knowing the benefits of BIM, wherever possible we model virtual prototypes of building projects in a 3D BIM environment using Revit Structure.



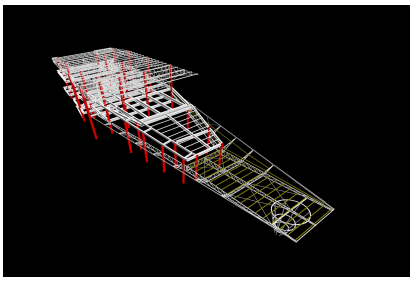


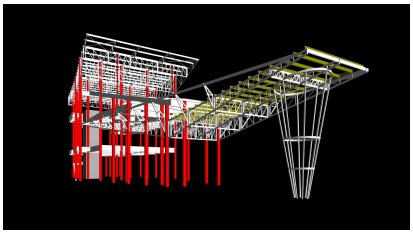
Serini Melawati





Platinum Park



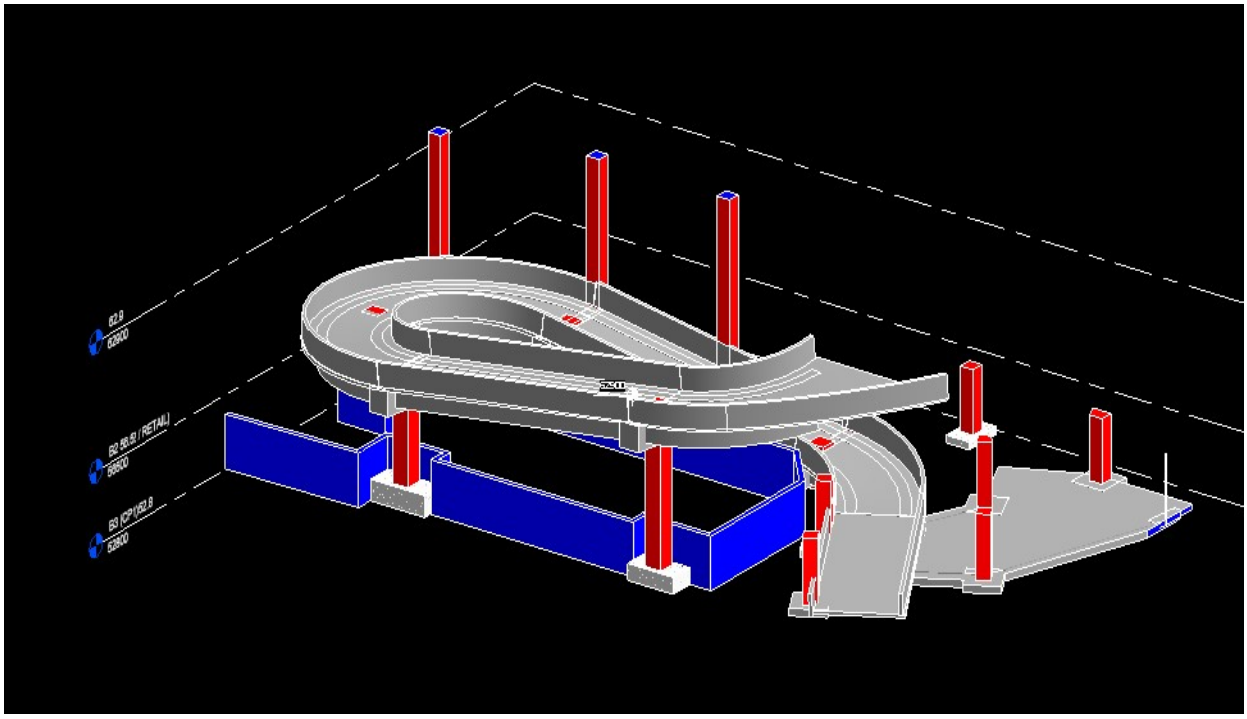


AtWater Sales Gallery

BIM offers added value in a number of other ways as well:

Better Coordination

When other consultants on a project are also using BIM software, the transfer of digital models leads to better coordination through the use of automatic interference checking. This process highlights clashes between elements (eg. Mechanical ductwork and structure).



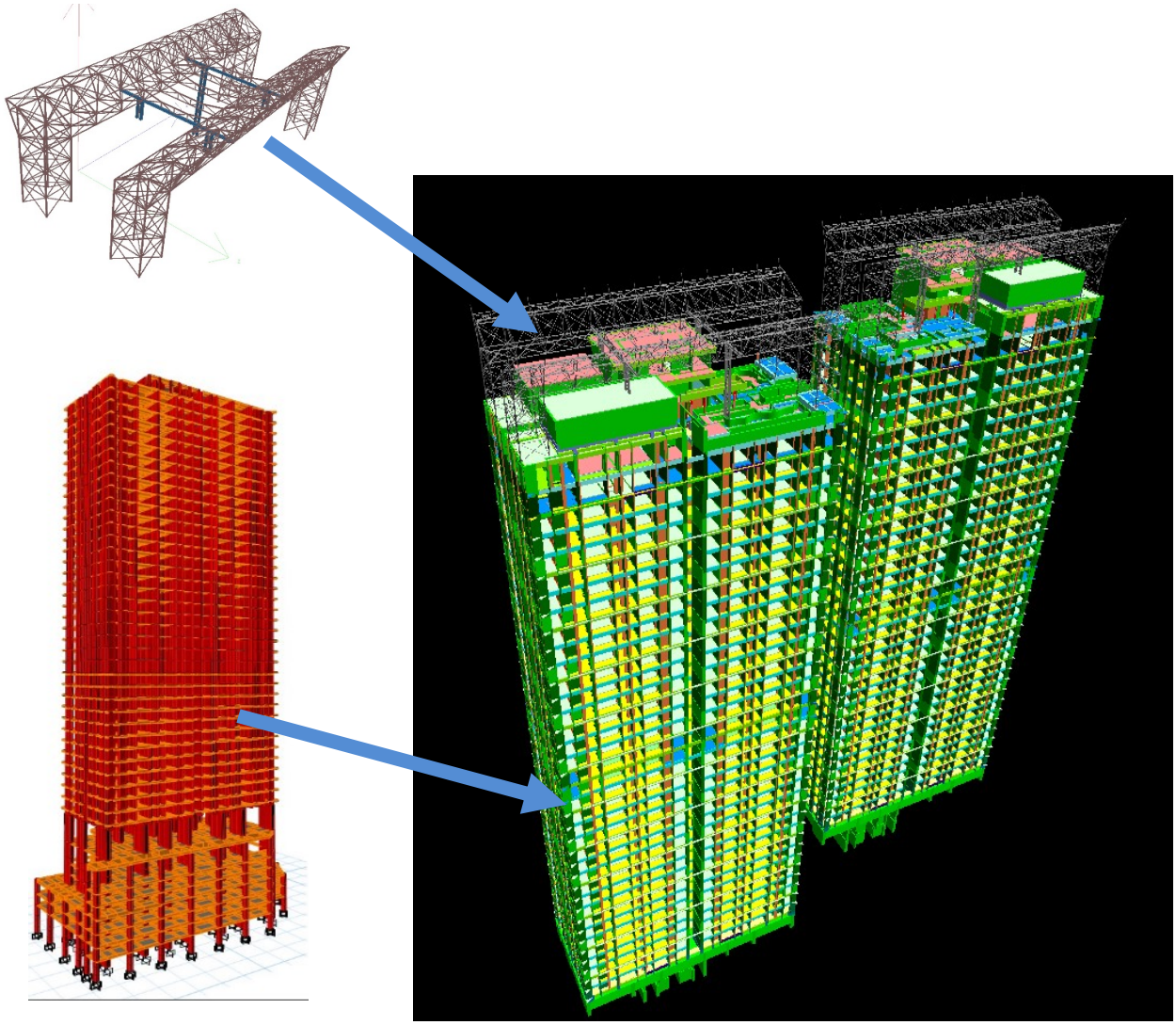
Revit 3D model of curve ramp for headroom and clearance coordination.

A More Efficient Design Process

BIM provides the ability to test various design options within a coordinated environment, ensuring all impacts of a particular design option are captured.

The key to this is the transfer of the BIM model to and from engineering analysis programs. GPS has experience with the transfer of Revit structure models to and from structural programs such as ETABS, RAM and StaadPro. The Revit BIM model is being automatically updated with the structural size after analysis /design. This process allows us to respond more quickly to design changes.

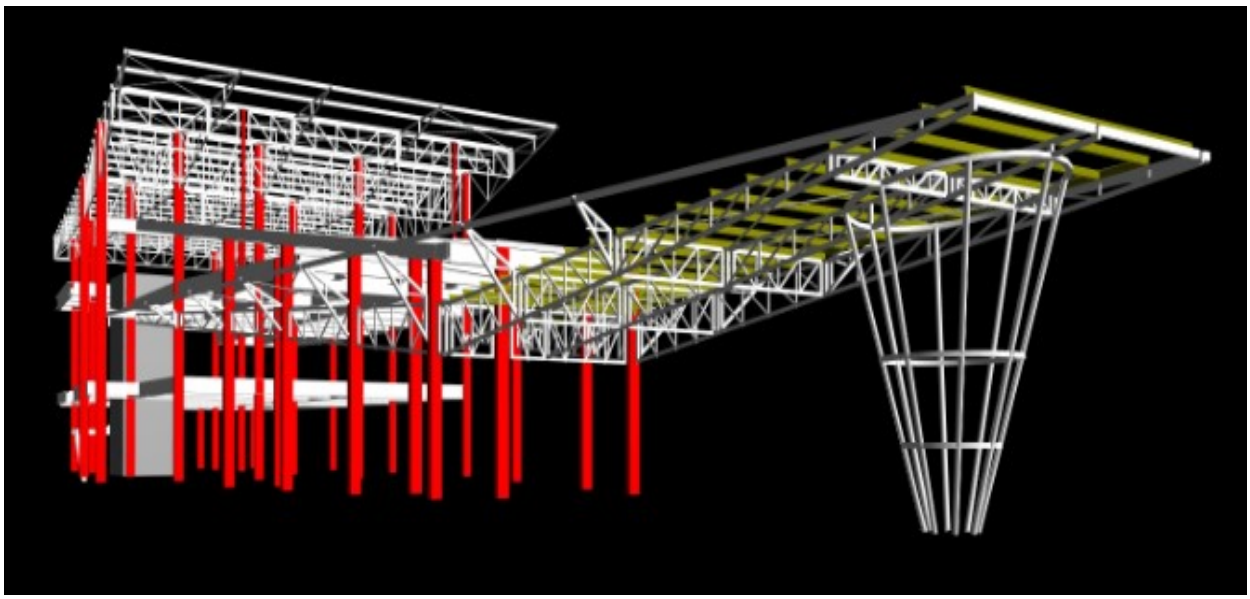
GPS use advanced structural analysis to deliver simple, buildable and economical structures. This philosophy has delivered to our clients many innovative design solutions with associated savings in time and costs.



Transfer of Solaris Parq Residensi structural analysis model using StaadPro and Etabs to Building Information Model.

Visualisation

3D views and fly-through visualisations can be quickly generated within the BIM model and maintained automatically as the design process.

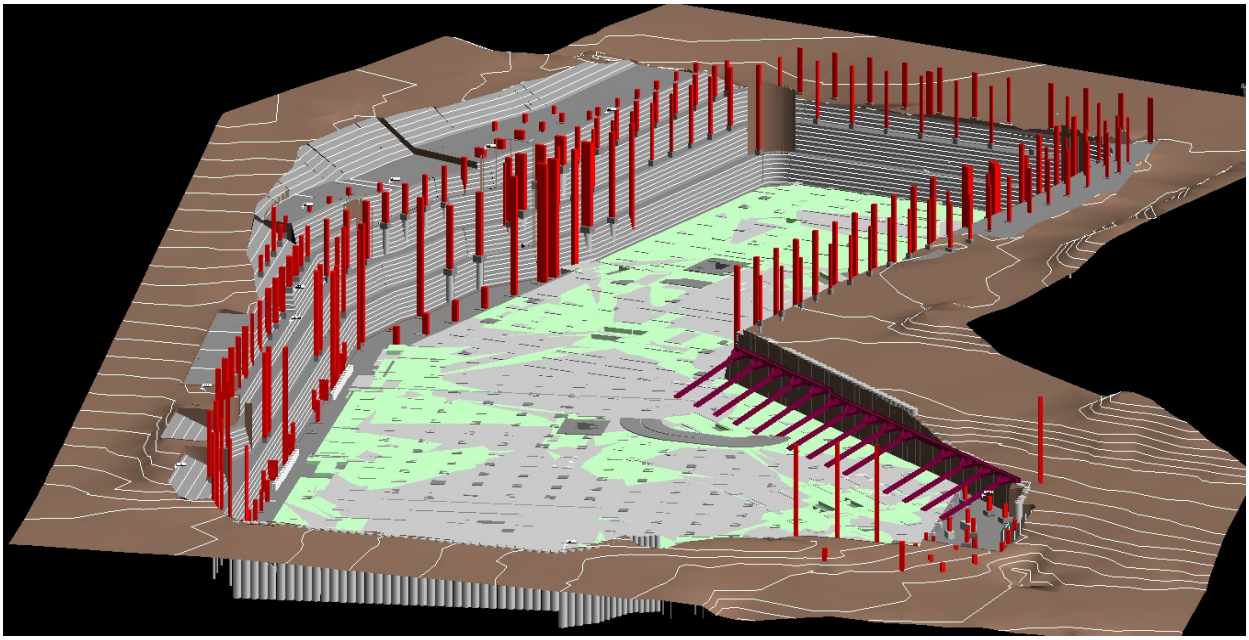




AtWater Sales Gallery from structural analysis and Revit models to completed building structures.

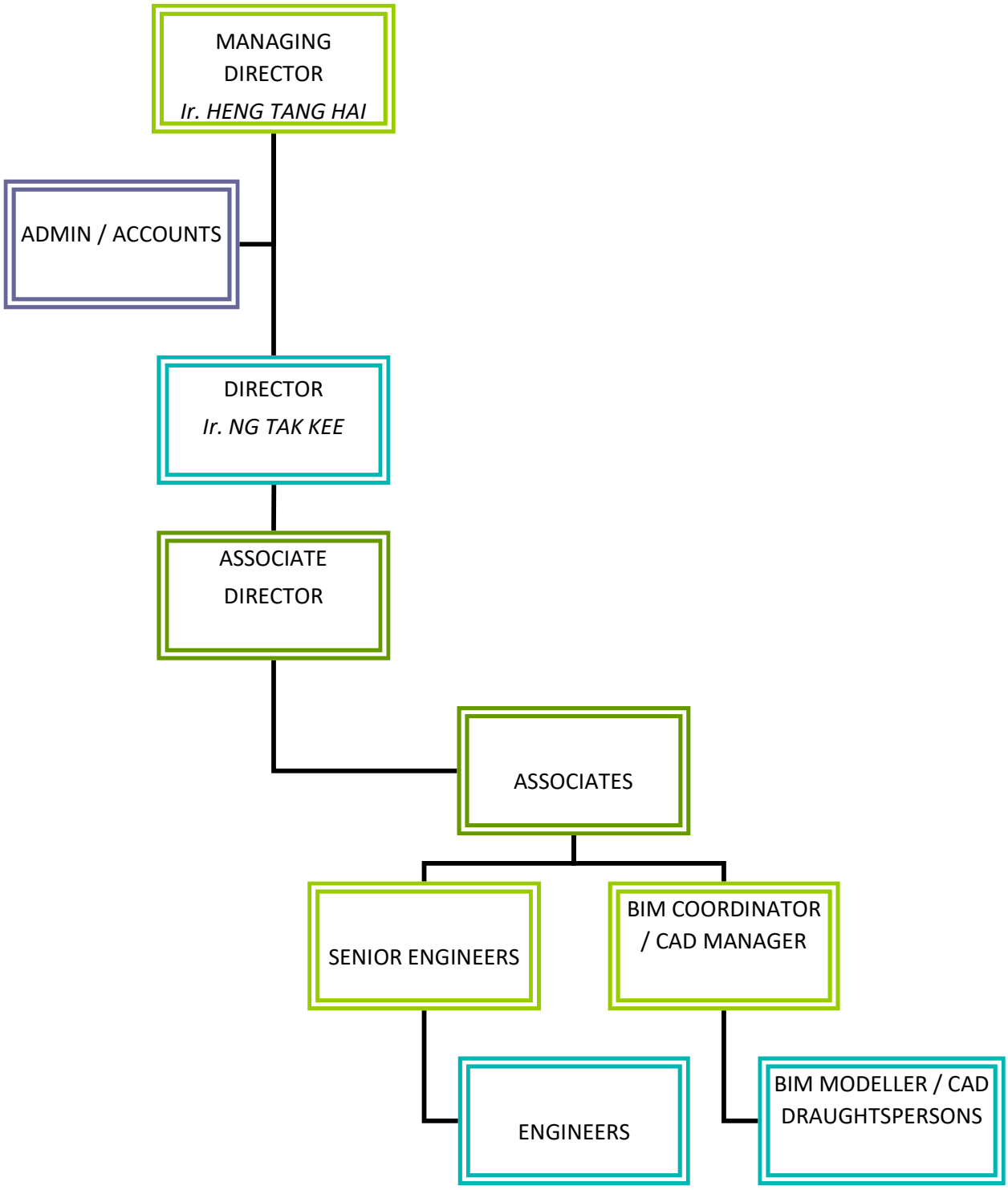
Time and Cost

The BIM model provides opportunities for more accurate quantification of time and cost. The model can be sent directly to the Quantity Surveyor to extract quantities directly from the model, allowing a more accurate estimate to be calculated faster.



Basement excavation and earthwork quantity measurement with Revit model.

ORGANIZATION CHART



KEY PERSONNEL

Ir. HENG TANG HAI



B.A.Sc. (Ottawa),
MIEM, MACEM,
PEPC, A.C. (Structural)

Ir. Heng has over 35 years of experience in structural, infrastructure and geotechnical engineering works with reputable engineering consultancy firms. This encompasses international operations environment in United Kingdom, Singapore and Malaysia.

Ir. Heng has hands-on experience in design, documentation and supervision of large-scale and high-rise concrete and steel building structures, with deep basement and pile foundation system, and associated infrastructure works.

His ability to lead, analyze and design of large-scale and high-rise building projects with economical and innovative solutions have been proven with the various projects that have been completed successfully.

Ir. NG TAK KEE



B.Sc., M.Eng. (A.I.T.),
MIEM, PEPC

Ir. Ng has in excess of 32 years of experience in structural and infrastructure engineering works in a wide range of projects, having worked in Taiwan, Guam (Territory of USA) and Malaysia.

His expertise is in the design and supervision of large-scale and high-rise residential and commercial building structures, airport and convention center with deep basement and various foundation systems. His vast experience has also provided much added value to the associated infrastructure works of the projects he has successfully completed.

QUALITY ASSURANCE & AWARDS

SURUHANJAYA SYARIKAT MALAYSIA
COMPANIES COMMISSION OF MALAYSIA

COMPANIES ACT 2016
(ACT 777)

CERTIFICATE OF INCORPORATION ON CHANGE OF NAME OF COMPANY

This is to certify that

G&P STRUCTURES SDN. BHD.
200301020221 (622641-U)

which was, on the 23rd day of July 2003, incorporated under the Companies Act 1965, as a private company, on the 18th day of June 2020 changed its name to

GPS CONSULTING ENGINEERS SDN. BHD.

and that the company is a private company, and is a company limited by shares.

Dated at **KUALA LUMPUR** this 10th day of January 2024.

DIGITALLY CERTIFIED TRUE COPY
SURUHANJAYA SYARIKAT MALAYSIA
COMPANIES COMMISSION OF MALAYSIA

MY2401103326929
Scan to verify

DATUK NOR AZIMAH ABDUL AZIZ
REGISTRAR OF COMPANIES
MALAYSIA

A copy or extract issued pursuant to Section 601(2).

MYDATA SSM

User Id: GPS622641 Date: Wed Jan 10 14:29:43 2024 Printing Date: 10/01/2024

This certificate is generated from MYDATA SSM Services as at 10/01/2024 14:29:43 1 / 2

MENARA SSM@SENTRAL, NO.7, JALAN STESEN SENTRAL 5, KUALA LUMPUR SENTRAL, 50470 KUALA LUMPUR.
TEL : 03-7721 4000 FAX : 03-7721 4001

Certificate of Incorporation on Change of Name of Company from G&P Structures Sdn. Bhd. to GPS Consulting Engineers Sdn. Bhd.



Certificate of The Best Project Award (Building Project-Major Category) from CIDB Malaysia to G&P Structures Sdn Bhd



SUNRISE

Building Dreams, Creating Value

Outstanding Performance Award 2009

This Certificate of Merit is awarded to

G&P Structures Sdn Bhd
(C&S Consultancy Services)

in recognition of the company's outstanding performance.

SUNRISE BERHAD (768S-V)

Dato' Allan Lim
Executive Deputy Chairman
Sunrise Berhad

Lum Tuck Ming
Executive Director &
Chief Operating Officer
Sunrise Berhad

Certificate of Outstanding Performance Award from Sunrise Berhad to G&P Structures Sdn Bhd

SIRIM QAS INTERNATIONAL

CERTIFICATE

SIRIM QAS International hereby certifies that

GPS CONSULTING ENGINEERS SDN. BHD.
NO. 63-1, 1ST FLOOR
JALAN TASIK UTAMA 4
MEDAN NIAGA TASIK DAMAI, SUNGAI BESI
57000 KUALA LUMPUR
WILAYAH PERSEKUTUAN
MALAYSIA

QUALITY SYSTEM
SIRIM

has implemented a Quality Management System complying with

ISO 9001 : 2015
QUALITY MANAGEMENT SYSTEMS - REQUIREMENTS

STANDARDS MALAYSIA
ACB 001

Scope of Certification

PROVISION OF CIVIL & STRUCTURAL ENGINEERING CONSULTANCY SERVICES.

UKAS MANAGEMENT SYSTEMS
0074

Member of
IQNET

Issue date	:	**07 October 2024**
Original certification date	:	**25 September 2018**
Expiry date	:	**24 September 2027**
Certificate no.	:	**QMS 03294**

Nur Fadhilah Muhammad
Chief Executive Officer
SIRIM QAS International Sdn. Bhd.

This certificate is granted subject to the terms and conditions as stated in the Certification Agreement.

SIRIM QAS INTERNATIONAL SDN. BHD.
(Co. No. 199601379B1 (410334-X))
1, Persiaran Dato' Menteri
Section 2, P.O Box 7035
40700 Shah Alam
Selangor Darul Ehsan
MALAYSIA
Tel : 60-3-5544 6000

https://www.sirim-qas.com.my
http://www.malaysiancertified.com.my

Certificate of ISO 9001 : 2015 certified by SIRIM QAS.



Member of

IQNET

Building trust together.

Certificate

SIRIM QAS International has issued an IQNET recognized certificate that the organization:

GPS CONSULTING ENGINEERS SDN. BHD.
No. 63-1, 1st Floor
Jalan Tasik Utama 4
Medan Niaga Tasik Damai, Sungai Besi
57000 Kuala Lumpur
Wilayah Persekutuan
Malaysia

has implemented and maintains a
Quality Management Systems

for the following scope:

Provision of civil & structural engineering consultancy services.

which fulfils the requirements of the following standard:

ISO 9001:2015

Issued on: **07 October 2024**
First issued on: **25 September 2018**
Expires on: **24 September 2027**

Registration Number: **MY — QMS 03294**

Alex Stoichitoiu
President of IQNET

Nur Fadhilah Muhammad
Chief Executive Officer of
SIRIM QAS International Sdn. Bhd.

SIRIM QAS INTERNATIONAL

This attestation is directly linked to the IQNET Member's original certificate and shall not be used as a stand-alone document.

IQNET Members*:
AENOR Spain **AFNOR Certification** France **APCER** Portugal **CCC** Cyprus **CISQ** Italy **CQC** China **CQM** China **CQS** Czech Republic **Cro Cert** Croatia **DQS Holding GmbH** Germany **EAGLE Certification Group** USA **FCAV** Brazil **FONDONORMA** Venezuela **ICONTEC** Colombia **ICS** Bosnia and Herzegovina **INTECO** Costa Rica **IRAM** Argentina **JQA** Japan **KFQ** Korea **LSQA** Uruguay **MIRTEC** Greece **MSZT** Hungary **Nemko AS** Norway **NSAI** Ireland **NYCE** México **PCBC** Poland **Quality Austria** Austria **SII** Israel **SIQ** Slovenia **SIRIM QAS International** Malaysia **SQS** Switzerland **SRAC** Romania **TSE** Türkiye **YUQS** Serbia

* The list of IQNET Members is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

Certificate of ISO 9001 : 2015 certified by IQ Net.