

# SJ GROUP SPARKLERS

Fast facts that demonstrate our impact on the world





Surbana Jurong Group is a global urban, infrastructure and managed services consulting firm, with over 70 years of track record in successful project delivery. Headquartered in Singapore, the group has a global talent pool of 16,500 across Surbana Jurong and our member companies AETOS, B+H, KTP, Prostruct, RBG, SAA, Sino-Sun and SMEC, based in more than 120 offices in over 40 countries. They include architects, designers, planners, engineers and other specialists driven by progressive thinking and creative ideas to help shape a better future.

Our tag line “Building Cities, Shaping Lives” expresses how every project or undertaking is, for the Group, an opportunity to fulfil aspirations and enrich lives. By designing and delivering quality housing, work spaces, roads, rail, hydropower, dams, underground and coastal protections and other critical infrastructure needed by our clients, we are redefining cities and transforming them into sustainable and liveable spaces where communities and businesses, present and future, can thrive.

**Surbana Jurong is ranked 27th in ENR 2019 Top 225 International Design Firms.**

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Designed Singapore's first new-build net-zero energy building

SJ Architecture designed the NUS School of Design and Environment 4, Singapore's first new-build net-zero energy building, in collaboration with Serie + Multiply Consultants. In addition to achieving the net-zero energy target, the building provides users with healthy spaces where staff and students can interact, creating the social quality desired to spur creativity and innovation.

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Designed world's first multi-tiered urban fish farm

SJ Architecture designed the world's first multi-tiered fish farm. When completed, this vertical farm which is modular and scalable is expected to increase local fish production by 50%, significantly contributing towards food sustainability in Singapore.

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Delivered over one million homes in Singapore

SJ Township and SJ Infrastructure have designed and delivered 26 townships with over one million homes in Singapore. Today, seven out of 10 Singaporeans live in homes designed by SJ Township. Surbana Site Supervisors have played an integral role in overseeing the construction and delivery of these homes in Singapore.

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### Master planning for 30+ countries

Surbana Jurong has developed master plans for more than 30 countries and over 100 industrial parks globally.

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### Developed Suzhou Industrial Park, home to 5,000 companies

One example is Suzhou Industrial Park, an integrated township with industrial parks development with housing, community, recreational and educational facilities. Surbana Jurong undertook the master planning (including the Development Guide Plan), for Phases 1, 2 & 3 and also Project Management of the entire site, which has been home to over 5,000 foreign companies since its inception in 1994.

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### Addressing persistent funding gap faced by greenfield urban and infrastructure projects

SJ Capital, the investment and asset management arm of Surbana Jurong, manages the group's direct investments and matches existing market liquidity with appropriate opportunities surfaced by Surbana Jurong and our external partners. Drawing on the core competencies of Surbana Jurong's technical consultants, as well as the ability to understand and manage risks associated with development-stage projects, SJ Capital is building a series of equity and quasi-debt instruments to address a persistent funding gap that most greenfield urban and infrastructure projects face.

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### Partnerships to secure significant urban development commitments

To date, SJ Capital has entered into two partnerships: (1) a US\$500 million Joint Venture Fund Company (“Mitbana”) with Mitsubishi Corporation from Japan that will invest in townships and transit-oriented developments (TODs) in ASEAN and South Asia; and (2) a USD\$500 million Co-Investment Agreement with the Silk Road Fund from China that will invest in greenfield and brownfield infrastructure projects in ASEAN. SJ Capital is also driving the asset management for the new SJ Campus, which is being funded 100% through a tailored ‘develop and lease’ model with M&G Real Estate, one of the world’s leading real estate investors.

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### Planning four new airports

SJ Aviation is currently involved in the planning of four new airports including:

- Bucharest, Romania
- Kediri, Indonesia
- North Bali, Indonesia

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### Expanding six airports

SJ Aviation is also involved in the expansion of six airports including:

- Lombok, Indonesia
- Labuan Bajo (Komodo), Indonesia
- Honiara, Solomon Islands
- Velana Airport, Maldives

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Managing the only fully integrated live firing range complex in Southeast Asia

SJ Defence, a homeland, civil and military defence infrastructure and training solutions provider, manages the only fully integrated live firing range complex in Southeast Asia.

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Built and managed facilities for training 800,000

SJ Defence has designed, built and managed facilities for the training of more than 800,000 soldiers, policemen and firemen over the last eight years in Singapore.

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Designed autonomous drones for security in urban areas

SJ Defence employs cutting-edge drone technologies to meet critical safety and security needs. The team collaborated with Singapore's Ministry of Home Affairs to deliver autonomous drones which can operate safely in urban areas and remote sites beyond visual line of sight.

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### Enhanced connectivity in Singapore's Civic District through tunnel project

SJ Underground Development is involved in the design of a pedestrian underground tunnel in the heart of Singapore's Civic District, adopting the "Rectangular Tunnel Boring Machine" method of construction. The tunnel between the Funan integrated development and Capitol Piazza has greatly enhanced connectivity in the Civic District and is the first time this advanced technology has been applied in a commercial project.

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### Deployed advanced technology for Deep Tunnel Sewerage System

SJ Underground Development is involved in the second phase of Singapore's Deep Tunnel Sewerage System, delivering a design which adopts the "Vertical Shaft Sinking Machine" method of construction. This advanced technology for shaft construction works is a first in Asia.

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### Created three million m<sup>3</sup> of bulk liquids storage capacity on Jurong Island

To help Singapore carry out its role as the largest bunkering hub in the world, Asia's Oil Product Pricing Centre and one of the top three independent storage bases, SJ Oil & Gas engineers developed over three million m<sup>3</sup> of bulk liquids storage capacity on Jurong Island, equivalent to 30% of the total third-party storage capacity in the island.

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Designed Jurong Rock Caverns, the first Undersea Hydrocarbon Storage Caverns in the world

SJ Oil & Gas engineers designed Jurong Rock Caverns, the first Undersea Hydrocarbon Storage Caverns in the world, designed to store crude oil, naphtha and condensate. Located more than 100 metres underground, the cavern provides safe and secure storage for liquid hydrocarbons and frees up usable land above ground.

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First to adopt Mobile Laser Scanning survey technique to map out flood prone areas in Singapore

SJ Land Survey is the first in Singapore to adopt the Mobile Laser Scanning survey technique to map out flood prone areas for Singapore's Public Utilities Board. SJ Land Survey also completed the largest cadastral land survey in Singapore, covering about 1,000 ha of land for the development of Changi Airport Terminal 5. *(Cadastral survey is a technical practice showing the extent, value and ownership of land.)*

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Expanded Singapore's land area by 25% through reclamation works

SJ Infrastructure has been involved in practically all of the land reclamation works in Singapore over the last four decades, an outcome of which is the expansion of Singapore's land area by some 25 per cent.



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### Created longest man-made waterway in Singapore

SJ Infrastructure engineers created Punggol Waterway, which at 4.2km is the longest man-made waterway in Singapore. Practising sustainability, the good earth dug up to form the waterway was used to fill up other low-lying areas within Punggol Town as part of the earthworks scope.

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### Secured inaugural ABC (Active-Beautiful-Clean) Waters Gold Certification

Surbana Jurong secured the inaugural ABC (Active-Beautiful-Clean) Waters Gold Certification from Singapore's Public Utilities Board for the Rivervale Shores residential project. With more than 50% of the area allocated to planting, the development offers lush greenery and recreational spaces. Among its sustainability features, the project maintains the pre-development peak stormwater runoff and keeps a rainwater harvesting tank to collect treated water for reuse in the irrigation of its gardens.

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### Project with largest GFA to participate in Green Mark Super Low Energy Study

SJ Campus is the project with the largest gross floor area to participate in the Green Mark for Super Low Energy (SLE) Building Pilot study. It was awarded Green Mark Platinum (SLE) by Singapore Building and Construction Authority in 2019.

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Key contractor for Singapore's Ministry of Defence for over two decades

SMM, the facilities management arm of Surbana Jurong, has been a key contractor for Singapore's Ministry of Defence (MINDEF) for over two decades. SMM provides facilities management, preventive and corrective maintenance, conservancy, project management and 24/7 emergency services for MINDEF's camps and operationally ready facilities.

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Transforming facilities management with Digital FM

SMM is transforming facilities management (FM) with Digital FM. By integrating 3D Building Information Modelling with FM processes, Digital FM provides the FM practitioner with real-time monitoring and analytical capabilities to make quick, well informed decisions about maintenance, utilities usage and equipment health. It is also a tool for diagnosing and predicting asset performance.

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First multidisciplinary consultancy in Asia to attain the new ISO 19650

Surbana Jurong is the first multidisciplinary consultancy in Asia to attain the new ISO 19650. The accreditation recognises standards in the organisation and digitisation of information about buildings and civil engineering works, including building information modelling (BIM).

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First large corporate organisation in Singapore to attain ISO 37001

Surbana Jurong is the first large corporate organisation in Singapore to attain ISO 37001. The accreditation specifies requirements and provides guidance for establishing, implementing, maintaining, reviewing and improving an organisation's anti-bribery management system

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Set up COVID-19 community care and recovery facilities in double-quick time

Surbana Jurong provided technical services to government agencies involved in the setting up and running of Community Care Facilities in Singapore. One such facility was the convention centre Singapore Expo. A 50-strong team of healthcare planners, architects, engineers, project managers, quantity surveyors and procurers completed two halls with 950 beds within three days and ten halls with 8,000 beds within four weeks.



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50+ years' experience in security and safety

AETOS has over 50 years of experience providing security and safety services to Singapore's key maritime, aviation and infrastructure installations.

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Security personnel play major role in world's busiest land crossing

AETOS's Auxiliary Police Officers and Security Officers play a major role in securing Woodlands Checkpoint, the world's busiest land crossing, where 300,000 travellers and 130,000 vehicles on average cross between Malaysia and Singapore every day.

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95% service level achieved in attending to expressway accidents

As traffic marshals assigned by Singapore's Land Transport Authority, AETOS has consistently achieved an outstanding 95% service level for ensuring that all accidents along expressways are attended to within 15 minutes.

**B+H**



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## Leading-edge zero carbon track record

B+H has a proven track-record of delivering leading-edge sustainable projects, including Canada's first Zero Carbon Building Design certified institutional building, Canada's first retrofit to achieve a Zero Carbon Building Design certification, and the first net-zero carbon facility dedicated to archival preservation in the Americas.

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## 50+ years of healthcare design experience

With over 50 years of healthcare design experience, B+H has designed over 1.2 million m2 of healthcare space across North America, Asia and the Middle East in the last 10 years.

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## One of the first foreign architecture firms to establish presence in China

B+H was one of the first foreign architecture firms to establish a presence in China in 1992 when the firm opened its Shanghai studio after winning a design competition for Xiamen International Airport.



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## Connecting northern and central Singapore through North-South Corridor

KTP and SJ Infrastructure are involved in the design and construction of Singapore's North-South Corridor (NSC) that will better connect the northern and central parts of Singapore. When completed in 2026, the 21.5km, largely underground expressway will intersect various expressways. The NSC is also designed to support Singapore's car-lite vision by catering to the commuting needs of non-motorists. Along the corridor, cycling routes will link up with the Park Connector Network and continuous bus lanes will cut commuter journey times by 15 minutes on average per trip.

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## Working on Singapore's seventh Mass Rapid Transit line to serve more than 500,000 commuters daily

KTP and SJ Infrastructure are involved in designing and constructing Jurong Region Line, Singapore's seventh Mass Rapid Transit line. The 24 km long elevated transit system will significantly expand the current rail network in Singapore and connect with the North-South Line and East-West Line to serve more than 500,000 commuters daily in the future.

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## Working on next-generation industrial hub where firms embrace Industry 4.0 capabilities

KTP and SJ Infrastructure are the main consultants in the development of Singapore's Jurong Innovation District, a 600-hectare next-generation industrial hub where enterprises involved in advanced manufacturing, urban solutions and smart logistics can embrace Industry 4.0 capabilities.



**PROSTRUCT  
CONSULTING**

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### Only lab accredited to conduct blast testing on building structures

Prostruct Consulting, a leading infrastructure consultancy specialising in protective security and blast protection, is the only laboratory accredited by the Singapore Accreditation Council to conduct blast testing on building structures.

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### Building resilience in a new generation of infrastructure

Prostruct has worked on the protective security design for many critical infrastructures and iconic buildings integrating security protection with essential functions and aesthetics. These include Jewel Changi Airport, Changi Airport Terminal 4, Thomson-East Coast MRT Line and Jurong Regional MRT Line Depot. Prostruct helped to secure the structure of JTC Chemicals Hub @ Tuas South, Singapore's first high-rise multi-tenanted development housing companies in manufacturing, blending and distributing chemicals, including those classified as Dangerous Goods. Prostruct is also contributing to building resilience in a new generation of infrastructure for electrical and water utilities, telecommunications and data centres.



Robert **Bird** Group

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Oversaw structural and civil engineering of the Southern Hemisphere's tallest residential building

RBG oversaw structural and civil engineering work, as well as 3D imaging / construction sequence visualisation of Australia 108, a skyscraper with 1,105 apartments over 100 floors. Australia 108 is the tallest building by roof height and the second tallest building by full height in Australia and the Southern Hemisphere's tallest residential building.

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Helped deliver world's tallest green wall and largest cantilevering heliostat

RBG helped deliver the world's tallest green wall and largest cantilevering heliostat on One Central Park, Sydney. Among its many awards, the building was awarded a 5-star Green Star – "Multi-Unit Residential Design v1" Certified Rating by the Green Building Council of Australia, making it the largest multi-residential building (by net lettable area) in Australia to receive such a designation. Cumulatively, there are over 250 species of Australian plants and flowers in the building, comprising both exotic and Australian native plants.

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## Helped lift the UAE's largest steel dome structure into place

RBG played a key role in the creation of Al Wasl Plaza, UAE's largest steel dome structure at the centre of the Expo 2020 site and an engineering marvel. Working within an international team of engineers and contractors, RBG developed the construction methodology and erection sequence for the installation of the 80m high, 150m diameter dome, and established monitoring protocols to safely lift the structure into place.

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## Developed stable platform for seabed hydro power in the North Sea

The Meygen Tidal Turbines, the first of their kind, are currently the largest planned tidal stream project in the world and is the only commercial multi-turbine array to have commenced construction. The site covers 3.5km in some of the fastest flowing waters in the UK. RBG developed the stable platform for seabed hydro power in the North Sea.

**SAA**



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Designed and delivered about one-third of Singapore's Mass Rapid Transit stations

Over the last three decades, SAA has helped to design and deliver close to 80 or over a third of the stations within Singapore's Mass Rapid Transit rail system.

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Designed and delivered Singapore's largest healthcare facility

SAA is the architect for Singapore's largest healthcare facility, the 1800-bed Woodlands Health Campus. The campus will be the first to feature an integrated acute and community hospital and a purpose-built park for patient healing.

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Orchestrated delivery of President's Design Award winning Changi Airport T4

SAA led the multidisciplinary team that orchestrated the delivery of the Singapore Changi Airport Terminal 4. The project won the President's Design Award in 2018.





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One of the seven civil engineering wonders of the modern world

The Snowy Mountains Hydroelectric Scheme, SMEC's namesake project, is one of the seven civil engineering wonders of the modern world. SMEC is proud to continue our involvement in the Snowy 2.0 expansion, which upon completion will be Australia's biggest green energy project and one of the world's biggest pumped storage plants, providing enough energy storage to power the equivalent of half a million homes.

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Completed feasibility studies dams and hydro generation capacity equivalent of 5% of Australia's annual electricity generation

SMEC completed feasibility studies for 3000MW of dams and hydro generation capacity in the past three years, the equivalent of 5% of Australia's annual electricity generation.

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Ulu Jelai Hydroelectric Project contributes 326 GWh to Malaysia's annual power supply

SMEC has played a key role for more than a decade in the Ulu Jelai Hydroelectric Project in Malaysia, which contributes 326 GWh annually to the country's power supply system and promotes clean air by reducing 250,000 tonnes of carbon dioxide equivalent per year.

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### Supplying clean water to 60,000 to 70,000 more households in Central Java

SMEC is helping improve the delivery of clean water in Semarang, the capital of Central Java in Indonesia. The project seeks to supply clean water to 60,000 to 70,000 more households. Currently, only 62% of households in Semarang have access to drinking water.

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### Increasing water supplies and flood protection in Pakistan

SMEC managed the Design Review and Construction Supervision of the New Khanki Barrage in Pakistan, completed in 2018. The project will increase water diversion capacity by 36 % for three million acres of irrigated agriculture, enhancing flood passing capacity at the barrage by 40% to 1,100,000 cusecs, thus providing flood protection.

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### Supplying sustainable, drought-resistant drinking water to 3.4 million in 1,400 villages in India

SMEC's water engineers are helping to design and implement sustainable, drought-resistant drinking water supply schemes for about 1,400 villages with a combined population of 3.4 million in the Vindhya (West Central India) and Bundelkhand (Central and North India) regions.



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## Designed one of the highest and longest main span balance cantilever bridges in the world

SMEC's bridge engineers in South Africa designed one of the highest and longest main span balance cantilever bridges in the world across the Mtentu River, and the second longest cable-stay span crossing in Africa over the Msikaba River.

These two mega-bridges form part of the greenfield section of the Wild Coast Highways project, a new highway that will reduce travelling time by more than three hours for travellers in South Africa.

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