Arup in Greater China

Bringing a global vision to local needs
We shape a better world

Arup is the creative force at the heart of many of the world’s most prominent projects in the built environment and across industry.

We offer a broad range of professional services that combine to make a real difference to our clients and the communities in which we work.

We are truly global. From 91 offices in 39 countries our 11,000 designers, engineers, planners and consultants deliver innovative projects across the world with creativity and passion.

Founded in 1946 with an enduring set of values, our unique trust ownership fosters a distinctive culture and an intellectual independence that encourages collaborative working. This is reflected in everything we do, allowing us to develop meaningful ideas, help shape agendas and deliver results that frequently surpass the expectations of our clients.

The people at Arup are driven to find a better way and to deliver better solutions for our clients. We shape a better world.
Over 35 years
ing Greater China

Drawing upon global expertise, we help local and international clients meet their business needs by adding value through technical excellence, efficient organisation and professional service.

Arup has more than 35 years of experience in Greater China. The Hong Kong office was established in 1976 as the firm’s East Asia headquarters, and since then we have opened offices in Beijing, Chongqing, Guangzhou, Macau, Shanghai, Shenzhen, Taipei, Tianjin and Wuhan in the region.

We undertake projects of all types and any size, providing a full range of designing, engineering, consulting, planning and specialist technical services across building, consulting, and infrastructure sectors.

Arup has worked on many of the most iconic structures in the Greater China region including Beijing Olympic venues, Shanghai Expo pavilions, Canton Tower, Stonecutters Bridge, International Commerce Centre and Taipei Performing Arts Center.

We are also taking a major role in delivering mega cross-boundary projects that ensure the long-term prosperity of the region. These include planning and engineering study on Lok Ma Chau Loop, Hong Kong-Zhuhai-Macao Bridge and Guangzhou-Shenzhen-Hong Kong Express Rail Link Hong Kong section.
We adopt a holistic approach to any project, which enables us to offer an integrated design service to our clients.

Introduced by our founder, Sir Ove Arup, the integrated design concept requires the involvement of all professional design and engineering disciplines in the design process, in which all design aspects are considered thoroughly and integrated into a whole.

We are renowned for our multidisciplinary skills from planning and architecture to building design incorporating structural, civil, MEP engineering and other specialist skills.
Arup’s work in the built environment leaves a significant legacy to subsequent generations. This power, to design and influence the built environment, carries with it a responsibility to do the best possible job for current and future generations.

We are experienced in conducting sustainability assessment and certification by using LEED® (Leadership in Energy and Environmental Design) and Arup’s in-house SPeAR™ (Sustainable Project Appraisal Routine). Our ‘sustainability toolkit’ also includes integrated resource management and ecological footprinting to manage natural resources efficiently.

We identify sustainability as a driver in all our designs, seeking to minimise environmental impact, maximise economic and social benefits, and efficient consumption of natural resources.
Since its beginning, quality has become a hallmark of Arup’s work, whether it be the structural design of the iconic Sydney Opera House in the 1960s, or engineering the stunning venues for the 2008 Beijing Olympics.

Arup has established an effective management system, which we believe is essential to offer our clients the quality of product that they require. A quality system subject to regular third party audits has also been developed to provide clients with confidence that their needs will be met.

Arup has a reputation for quality design: and our commitment to excellence has been there from the very beginning.
Arup is the creative force behind many of the world’s most innovative and sustainable designs. In technology, we focus on state-of-the-art computer modelling and material applications. Taking advantage of our computational skills and considering the latest in materials and construction systems, we are always able to work within the parameters of any given project.

We are responsible for many technological firsts in the region and the world, including the use of high-strength concrete in Hong Kong’s tall buildings, a rigorous fire engineering approach to enhance safety of the building in use and advanced seismic analyses of the National Stadium and the CCTV Headquarters in Beijing.

A strong tradition of research and the desire to find innovative methods has led Arup to develop a number of unique design tools and applications.
Our commitment to community lies in our unique culture and our founder’s vision: we shape a better world.

We have applied this to everything that we do. We put society and environment at our core, and focus on how our expertise and skills can bring about positive changes in the communities we work and live.

Arup engineers have taken part in field assignments to provide help at the scene of disasters such as the Sichuan earthquake, Japan earthquake and tsunami, and hurricanes Gustav and Ike in the US. We are also doing pro bono works for a range of charities and NGOs including the Crossroads, Wu Zhi Qiao Charitable Foundation and Sowers Action.
This enables us to maintain our reputation for imaginative, cost-effective and reliable deliveries.

Arup brings together professionals from diverse disciplines and with complementary skills, on a uniquely global scale. The depth of expertise and the sheer numbers of specialists allow Arup to take on complex, strategic projects that no other firm could have delivered.

Arup has a mix of people with different perspectives and from many cultures, working together, learning from each other and generously sharing their knowledge and ideas. Clients trust Arup’s people to question a vision as well as help to realise it.

Our employees have **first-class qualifications** in a wide range of applied science and engineering disciplines and management skills.
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Arup has an honest and open proactive culture, working to achieve the best total solution for our clients. Our range of skills and capabilities frequently go beyond the direct needs of an individual project but benefit all through the understanding and abilities they provide.
Beijing Capital International Airport
Terminal 3

Terminal 3 is one of the world’s most sustainable airport terminal buildings designed to cope with Beijing’s cold winters and hot summers. Skylights in the roof capture natural daylight and the sun’s heat in winter, allowing minimal energy use to heat, cool and light the building. The terminal also sets new standards for passenger experience and operational efficiency.

Project owner/client:
Beijing Capital International Airport

Design consortium:
Arup
Foster + Partners
NACO

Arup services:
Structural engineering, MEP engineering, building physics, IT/communications, airport systems, fire engineering, vertical transportation, façade, acoustics and daylighting studies

Canton Tower, Guangzhou

Embracing a mix of sightseeing, entertainment and cultural activities, it is one of the world’s tallest towers – soaring 600m in height. Unlike traditional skyscrapers that are often angular, heavy and clumsy, the tower is designed to be smooth, curved and graceful – featuring a twist and narrowing elliptical waist of only about 22m.

Project owner/client:
Guangzhou New TV Tower Construction Co Ltd

Architect:
Information Based Architecture

JV partner:
Guangzhou Design Institute

Arup services:
Architecture, masterplanning, structural engineering, MEP engineering, wind engineering and seismic engineering
China Central Television (CCTV) Headquarters, Beijing

The unconventional skyscraper is a 234m tall ‘three dimensional cranked loop’ formed by two leaning towers, bent 90° at the top and bottom to form a continuous tube. The building was specifically designed to house the entire television-making process, including a number of large studios. We made this gravity-defying structure economical and buildable through innovative engineering design and analysis.

Project owner/client:
China Central Television

Architects:
Ole Scheeren and Rem Koolhaas, OMA Stedebouw BV

Arup services:
Structural engineering, geotechnics, fire engineering, lighting design, seismic engineering, wind engineering, security and MEP engineering

China Zun, Beijing

China Zun will become Beijing’s tallest building with a height of 528m. The design was inspired by the traditional Chinese water vessel Zun. Arup introduced a highly efficient dual system for lateral force resistance composed of a fully braced mega frame and a concrete core. Composite steel-concrete material is also extensively used to minimise structural member size and increase usable floor area.

Project owner/client:
CITIC HEYE Investment Co Ltd

Architect:
Kohn Pedersen Fox Associates

Arup services:
Structural, fire engineering and security consultancy
CIC Zero Carbon Building, Hong Kong

Arup has adopted an integrated approach to design the first zero-carbon building in Hong Kong. The design specially addresses local challenges in achieving zero carbon through more than 90 environmental strategies. The building goes beyond the traditional definition of zero carbon. It generates more renewable energy than required for its own operation needs, and the excess is exported to the grid to offset embodied energy in the construction process and structural materials.

**Project owner:**
Hong Kong Construction Industry Council

**Architect/client:**
Ronald Lu and Partners

**Arup services:**
Green building design, structural engineering, MEP, geotechnics, civil engineering, environmental consulting, transport consulting and renewable technology

Dachong CRC Rebuilt, Shenzhen

One of the largest urban regeneration developments in China, the project comprises seven office, hotel and serviced apartment towers with a 7-level retail podium and a 3-level basement car park, creating a self-contained community. We are providing structural engineering services for the four office towers to set a benchmark for future urban regeneration in China.

**Project owner/client:**
China Resources Holdings

**Architects:**
Foster + Partners, RTKL

**Arup services:**
Structural engineering and geotechnics
Foshan Line 2 and 3 TOD studies

This landmark project with more than 104km of railway and 52 stations aims to forge stronger links between Foshan and the Greater Pearl River Delta Region. The study covers a wide scope ranging from city planning, site selection, land value optimisation, property market research and finance modelling on land and property investment.

Project owner/client:
Foshan Railway Investment Construction Group Co Ltd

Arup services:
Masterplanning and operation consultancy

Goldin Finance 117, Tianjin

Goldin Finance 117 is a mixed-use development named after the tower’s 117 floors. The diamond-shaped glazed top is the centrepiece of this spectacular design. Given the overwhelming height of this skyscraper, Arup conducted rigorous testing and analysis to demonstrate to the national expert panel that the 597m tall tower is structurally adequate and efficient.

Project owner/client:
Goldin Properties Holdings Limited

Architects:
Palmer & Turner Consultants (Shanghai) Ltd
East China Architectural Design & Research Institute Co Ltd

Arup services:
Structural engineering, façade engineering, geotechnics and wind engineering
Guangzhou CTF Finance Center
(East Tower)

The 530m tower is one of the tallest in the world. Despite its extreme height, the structure of the tower comprises only eight mega columns at the tower perimeter, a central core and four levels of outriggers acting in conjunction with the core and megacolumns. The outrigger design was a first in China and a seismically active zone.

Client:
New World Development Co Ltd

Project owner:
Chow Tai Fook Enterprise

Architect:
Kohn Pedersen Fox Associates

Arup services:
Structural engineering, geotechnics, fire engineering, resilience, security and risk

Guangzhou-Shenzhen-Hong Kong Express Rail Link

The Express Rail Link will provide high-speed rail transport between Hong Kong, Shenzhen and Guangzhou. The Hong Kong section is 26km long, all of which is in underground tunnels, and connects the boundary at Huanggang to the new terminus at West Kowloon. Arup carried out the feasibility design, the preliminary design of the tunnel section, and detailed design for all of the northern contracts. Complex ground conditions demanded innovative, safe and cost-effective design, given the sensitive residential areas in close proximity to the proposed tunnel alignment.

Project owner/client:
MTR Corporation Ltd

Key collaborators:
Atkins China Ltd
Terry Farrell and Partners
Davis Langdon & Seah

Arup services:
Architecture, geotechnics, civil and structural engineering, MEP engineering, fire engineering, route alignment, landscaping, security, quantity surveying, transport consulting, demand forecasting and other specialist support
Hanjie Wanda Square, Wuhan

This is Wanda Group’s landmark retail property in central China housing international brand stores, world-class boutiques, catering outlets and cinemas. We successfully delivered a sophisticated façade and a funnel-shaped atria which became the signature of this mega shopping mall. The façade is clad with over 42,000 stainless steel orbs each embedded with an LED light turning the steel skin into a dynamic colourful screen.

Project owner/client:
Wanda Donghu Commercial Property Co Ltd

Architect:
UN Studio

Arup services:
Structural and façade engineering and lighting design

Harbour Area Treatment Scheme (HATS) Stage 2A, Hong Kong

The project will provide additional facilities to divert all remaining sewage from Victoria Harbour area to Stonecutters Island Sewage Treatment Works (SCISTW) for chemically-enhanced primary treatment and disinfection. Arup is upgrading eight Preliminary Treatment Works along Hong Kong Island and the SCITSW, as well as undertaking the challenging interfaces with other projects, existing treatment works operation, and provisions for the future HATS Stage 2B.

Project owner/client:
Drainage Services Department, The Goverment of Hong Kong SAR

Arup services:
Water engineering, civil engineering, programme and project management, MEP engineering and controls engineering
Hong Kong-Zhuhai-Macao Bridge

This is the first major combined bridge and tunnel sea-crossing project in China. The 29.6km main section in Zhuhai waters comprises 22.8km of bridge work including three cable-stayed bridges with spans ranging from 280m to 460m, viaducts spanning 80m and 110m, a 6km tunnel and two artificial islands. Arup is responsible for designing the bridge works, review and assess on the artificial islands and reclamation works of the Hong Kong Boundary Crossing Facilities.

Project owner/client:
Hong Kong-Zhuhai-Macau Government Liaison Office

Design consortium:
Arup
Highway and Planning Design Institute
COWI
The First Harbour Engineering Investigation and Design Institute
Shanghai Tunnel Engineering and Rail Traffic Design and Research Institute

Arup services:
Bridge engineering, geotechnics, civil engineering, maritime engineering, environmental consulting, management consulting, aviation planning, materials science, transport consulting and sustainability consulting

HSBC Shek Mun Backup Data Centre, Hong Kong

This new facility acts as a back-up centre to HSBC’s existing data centre at Tseung Kwan O. The building comprises approximately 5,500m² computer equipment rooms, operation command and large printing centres, all configured to provide high resilience service and future usage capacity. Several advanced technologies were adopted in order to achieve low carbon emissions leading to achievement of a LEED® Platinum rating in a cost-effective manner.

Project owner/client:
The Hong Kong and Shanghai Banking Corporation Limited

Arup services:
Programme and project management, IT and communications systems, resilience, security and risk, transport and acoustic consultancy
International Commerce Centre, Hong Kong

The tallest building in Hong Kong boasts cutting-edge geotechnical and tall buildings design, with stunning 360° views of Victoria Harbour. Facing the challenging ground conditions, Arup engineers conducted a series of detailed studies and comparison of various foundation types, and finally chose shaft grouted friction barrettes as the foundation system for its satisfactory load carrying capacity and settlement performance.

Architects:
Wong & Ouyang (HK) Ltd
Kohn Pedersen Fox Associates

Arup services:
Civil engineering, structural engineering and geotechnics

Project owner/client:
Sun Hung Kai Properties

International Trade and Commerce Center, Chongqing

A centrepiece of Chongqing Tiandi development, the complex comprises three towers and a retail podium with grade-A offices and a five-star hotel. The tallest tower will rise 468m, becoming the tallest building in West China upon completion. Arup married tall building expertise with sustainable green building design considerations from concept to implementation to target LEED®-CS Gold certification.

Architect:
Kohn Pedersen Fox Associates

Arup services:
Structural engineering, geotechnics, MEP engineering, fire engineering, building physics and sustainability consulting, acoustic consulting and rail engineering

Project owner/client:
Chongqing Shui On Tiandi Property Development Co Ltd
Kingkey 100, Shenzhen

At 442m tall, Kingkey 100 is currently the tallest building in Shenzhen, and an iconic landmark addition to Caiwuwei, Luohu District in Shenzhen. Arup’s integrated design approach and performance-based design helped the architect and project owner realise the tower’s slender silhouette that is resilient under the wind and seismic conditions of Shenzhen. A sophisticated environmental skin allows the tower to maintain an optimum interior environment whilst minimising potential solar heat gain.

Project owner:
Kingkey Group

Architect/client:
Terry Farrell & Partners

Arup services:
Building physics; façade, fire, structural and wind engineering

Kaohsiung Port Terminal and Cruise Service Center

The centre is part of Kaohsiung’s strategic infrastructure to drive economic development. It’s design disregards the conventional linear form of ports, and aims to create a dynamic icon for the city. Arup and the design team have developed a wide range of passive and active sustainable design solutions including a seawater cooling system and streamlined façade to encourage stacked ventilation.

Project owner:
Kaohsiung Harbour Bureau

Architect/client:
reiser + umemoto
Fei & Cheng Associates

Arup services:
MEP engineering, sustainable building design, fire engineering and transport consulting
Kunming Changshui International Airport

The Arup team won the international design competition for masterplanning the new airport and terminal building which – the fourth largest in China when completed. The terminal design integrates the topography of the site with transportation strategy, efficient land and airside operations and a unique architectural form reflecting the rich culture of Yunnan Province. After the schematic design, Arup also provided performance-based fire engineering design for the terminal.

**Project owner/client:**
Civil Aviation Administration of China

**Architects:**
Skidmore Owings & Merrill LLP
Beijing Institute of Architectural Design & Research

**Arup services:**
Masterplanning and fire engineering

Lok Ma Chau Loop, Hong Kong

The Loop is the first low-carbon development in South China to be jointly developed by the Hong Kong and Shenzhen governments. Arup is leading this high profile strategic planning study and preliminary design study. The study will formulate a comprehensive plan for development and implementation of a low carbon masterplan and infrastructure, taking into consideration public engagement feedback and an environmentally friendly, sustainable and people-oriented community.

**Client:**
Planning Department, and Civil Engineering and Development Department, the government of Hong Kong SAR

**Project owner:**
Hong Kong-Shenzhen Joint Task Force on Boundary District Development

**Arup services:**
Urban planning, urban design, public engagement, economics, traffic consulting, civil engineering, environmental engineering, geotechnics and building physics
Macau LRT East Line

The East Line will connect the Macau Peninsula and Taipa Island via reclaimed land to ease congestion and improve the traffic condition. Arup transport consulting team constructed a cross-regional transport model and comprehensive LRT model to forecast the travel pattern and passenger volume for the selection of appropriate routes. Our economics and planning team also advised on ‘Rail + Property’ development models to finance the rail projects and ensure the associated social and economic benefits.

Project owner/client:
Transportation Infrastructure Office, The Government of Macau SAR

Arup services:
Economic planning and transport consulting

Maggie’s Cancer Caring Centre, Hong Kong

The first Maggie’s Cancer Caring Centre outside of the UK offers counselling services to people diagnosed with cancer on a one-to-one basis outside of the normal ‘sterile’ hospital environment. Arup provided multidisciplinary services on a pro-bono basis. The centre comprises a series of six inter-connected pavilions within a Chinese garden. The A-frame timber roof structures give unity to the buildings and a sense of volume.

Project owner/client:
Maggie’s Centre Hong Kong

Architects:
Frank Gehry Partnership
Ronald Lu & Partners

Arup services:
 Structural engineering, acoustic consulting, civil engineering, façade engineering, geotechnics and MEP engineering
This mega manufacturing campus built to LEED® certification standards was developed from a vast Greenfield site of 700,000m² in the Yangtze River Delta. It’s a vivid illustration of Arup’s total design solutions from site selection due diligence, engineering design, to commissioning and delivery. We designed a series of sustainable systems to ensure low carbon manufacturing operations. From inception to completion, it took only 18 months – unprecedented for a project of this scale.

Parkview Green is a LEED®-CS registered mixed-use plaza with grade-A office space, a six-star hotel and retail facilities, encased in a glass and ETFE plastic glazed ‘envelope’. The envelope creates a microclimate with various zones that are relatively uniform and easily controlled, thanks to an Arup-designed air ‘buffer zone’. Arup’s integrated energy strategy will keep the building’s energy bills to a minimum for its lifetime.
Qianhai infrastructure consultancy, Shenzhen

Qianhai is one of the Chinese government’s designated strategic areas to drive the nation’s economic and social development and support the long-term prosperity of Hong Kong and Shenzhen. As part of the ambitious plan, Arup in a consortium with China International Engineering Consulting Corporation was appointed to undertake the infrastructure planning consultancy. Leveraging our global expertise and full skillset, we are helping Qianhai build up its international brand.

Raffles City, Chongqing

With a GFA of over 1,100,000m², this huge scale development contains eight super high-rise towers connected with a 3-floor hanging garden offering office, hotel, serviced apartment and retail space. The design was inspired by the historic images of great Chinese sailing vessels on the river, paying tribute to Chongqing’s noble past as a trading centre.

Client:
Shenzhen Qianhai Development & Investment Holding Co Ltd

Project owner:
Qianhai Management Authority

Key collaborator:
China International Engineering Consulting Corporation

Arup services:
Urban planning, infrastructure consultancy, economics, transport consulting, geotechnics, railway, maritime, geographical information system and landscape design
Rivera TwinStar, Shanghai

Sitting on the edge of the Huangpu River, this iconic project is composed of a pair of slender towers with façades that curve towards each other. Special structural features such as inclined columns are used at the curved elevations and steel reinforced columns are introduced in the lower section of the two towers. By minimising column sections, a higher floor efficiency is achieved.

Client:
Shanghai Ruiming Real Property Co Ltd

Project owner:
CITIC Pacific Group

Architect:
Arquitectonica

Arup services:
Structural engineering, geotechnics, wind engineering and façade engineering

Shanghai International Cruise Terminal

Arup is the multidisciplinary engineering consultant for this 900m long terminal that can berth three international standard cruise liners simultaneously. It is the first commercial development in Shanghai to employ the district cooling concept of heat rejection into the Huangpu River. Phase 1 and Phase 2 of the terminal were designed concurrently, and both feature a one-level underground shopping arcade, and two-storey parking lot beneath a landscaped deck.

Project owner/client:
Shanghai Port International Cruise Terminal Development Co Ltd

Architects:
Frank Repas Architect PLLC
Alsop Architects Ltd

Arup services:
Structural engineering, MEP engineering, fire engineering, civil engineering, transport consulting, geotechnics and communications
Shanghai Expo UBPA redevelopment

The 15ha former Shanghai Expo site is being developed into a world leading showcase of low carbon and eco-friendly cultural development. We established an integrated set of sustainable development strategies providing low carbon and eco-design guidelines and devised an implementation framework for the entire redevelopment. It has become the first LEED® Neighbourhood Development Platinum project outside of North America.

Project owner/client: Shanghai World Expo (Group) Co Ltd

Arup services:
- Building physics, environmental consulting,
- masterplanning, mechanical engineering
- and sustainability consulting

Shanghai Jing’an Kerry Centre

The twin-tower development is located at the heart of Shanghai’s business area with complicated ground conditions and various site constraints such as delicate heritage buildings. To minimise the client’s exposure to costly yet unclear requirements in relation to the nearby metro lines, we suggested swapping the two towers in order to reduce foundation load and excavation. In response to the changing market, we successfully redesigned the entire internal structure without changing any of the tower’s design, to a tight timeframe.

Client: Shanghai Ji Xiang Properties Co Ltd

Project owner: Kerry Properties Ltd

Architects:
- Kohn Pedersen Fox Associates
- Wong & Ouyang (HK) Ltd

Arup services:
- Structural engineering, geotechnics and IT/communications
**Shatin to Central Link Environmental Impact Assessment, Hong Kong**

Arup carried out an environmental impact assessment study for this new rail link. To minimise the environmental impacts as much as practicable, close liaison was made with the railway designer and operator to integrate environmental measures and initiatives into the design. These include noise barriers along new track sections, rationalising sizes of above-grade structures, use of green roof, aesthetic design of building fabric of stations and adjustment of vertical alignment to minimise impacts on streams.

**Project owner/client:**
MTR Corporation Ltd

**Arup services:**
Environmental impact assessment

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**Shenzhen Metro Line 4 Phase 2**

The first ‘build-operate-transfer’ railway project in mainland China, the extension comprises a 6km underground section with two underground stations, and a 10km elevated section with eight stations. Arup provided services for all aspects of the extension – the underground section, elevated section, train depot, trackwork and railway systems.

**Project owner/client:**
MTR Corporation (Shenzhen) Limited

**Arup services:**
Project management, civil engineering, alignment & trackwork, structural engineering, architecture, fire engineering, MEP engineering, railway system, transport consulting and urban planning
Shenzhen Stock Exchange

The unconventional structural design of this tower encompasses a three-storey cantilevered podium that houses the trading floor and clearing houses. The structural design is robust, passing stringent seismic tests and capable of withstanding typhoon wind loads. Upon completion, the building will be one of the first buildings in China to achieve a three-star rating by the Green Building Code in China.

Architect:
OMA Stedebouw BV

Arup services:
Structural engineering, geotechnics, façade engineering, MEP engineering, fire engineering, building intelligence, vertical transportation and lighting design

Project owner/client:
Shenzhen Stock Exchange

Sludge Treatment Facility, Hong Kong

This is the first facility of its kind in Hong Kong and upon commissioning will be the largest sludge incinerator in the world. The facility is self-sustaining: heat generated in the incinerators will be recovered for power generation and surplus power will be exported to the regional electricity grid. Arup, together with the JV, overcame the challenge of constructing on a previous pulverised fuel ash lagoon, and achieved the client’s desire for an iconic architectural design whilst meeting stringent building and fire services requirements for the process buildings.

Project owner:
Environmental Protection Department,
The Government of Hong Kong SAR

Key collaborator/client:
Veolia-Leighton-John Holland JV

Arup services:
Civil engineering, geotechnics, structural engineering, MEP, HV electrical engineering, mechanical engineering for pipe and ductwork, fire engineering, landfill gas assessment, energy strategy and transport consulting
Stonecutters Bridge, Hong Kong

With a highly distinctive form, the bridge’s key design features include a 1,018m-long steel main span supported by stay cables anchored on two 290m-tall mono-towers with lower concrete section and upper composite section with stainless steel skin. Arup worked on the bridge from feasibility study to managing the competition design; and as lead consultant from concept to detailed design with an on-site team providing construction supervision.

Project owner/client:
Highways Department, The Government of Hong Kong SAR

Arup services:
Civil engineering, structural engineering, geotechnics, wind engineering, maritime engineering, MEP engineering, construction supervision, durability detailed engineering design, lighting design and transport consulting

Taipei Performing Arts Center

Inspired by the traditional Chinese wooden block, the Taipei Performing Arts Center is a feat of structural engineering. The superstructure consists of a central cube, housing the backstage facilities, surrounded by three projecting auditoria. Arup’s engineers placed braces around the perimeter of the Cube to provide a strong stability system whilst freeing up the interior for the theatre spaces. They also base isolated the structure from its foundations, significantly reducing the earthquake forces that the building in the highly seismic city will experience.

Project owner/client:
Department of Cultural Affairs, Taipei City Government

Architect:
OMA

Arup services:
Structural engineering, MEP engineering, fire engineering and building physics
Taipei Pop Music Center

The complex comprises three major zones – the Main Concert Hall, the Hall of Fame and the Outdoor Amphitheater. The star feature is a ‘mobile theatre’ that offers performance spaces in various formats and a cable-net LED canopy that provides shading options. Drawing upon its global expertise, Arup is providing full engineering services to the project and will be leading the project development with acoustics and theatre consulting.

Project owner:
Department of Cultural Affairs,
Taipei City Government

Architect/client:
reiser + umemoto

Arup services:
Structural engineering, MEP engineering, acoustics, lighting design and theatre consulting

Taoyuan Aerotropolis

Leveraging on Taoyuan Airport’s nexus position at the international logistics networks, the Aerotropolis provides a comprehensive spatial and mobility system that energises the flows of people, capital and information. It is designed to be a future model city integrating concepts of ‘smart, green and resilient’ we developed for Asian cities through years of research and experience, and the ‘air-rail synergised development’ concept to integrate land use with green mobility.

Project owner/client:
Taoyuan County Government Urban & Rural Development Bureau

Arup services:
Masterplanning and urban design, sustainability, landscape and environmental planning, economic and financial advice, transport consulting and public engagement
Urban strategies for WEF Champion Cities

Arup has been a project champion for the World Economic Forum’s Future of Urban Development Initiative since 2012 to develop strategies for urban development of Chinese cities. Working with multiple stakeholders, we identified specific challenges and provided practical solutions for the Champion Cities: Tianjin, Dalian and Zhangjiakou. Our findings and recommendations will provide Chinese cities with a handy reference for similar urban issues.

Client:
World Economic Forum

Key collaborator:
Accenture

Arup services:
Economics, planning and transport consulting

West Kowloon Culture District, Hong Kong

Located at the southern tip of the West Kowloon Reclamation Area, the 40ha West Kowloon Cultural District will be developed into an integrated arts and cultural hub with world-class facilities and iconic architecture for residents and tourists. Arup has been involved in the project since its very inception, providing a wide range of engineering services from the conceptual plan to the district-wide extra low voltage systems, district cooling system and the iconic M+ museum.

Project owner/client:
West Kowloon Cultural District Authority

Key collaborators:
Foster + Partners
TFP Farrells
Herzog & de Meuron

Arup services:
Civil engineering, environmental consultancy, MEP engineering, building physics, sustainability consulting, geotechnics, structural engineering, IT and communications and landscape design.
Yujiapu Traffic Hub, Tianjin

The first LEED®–ND Pilot Gold certificated development in China with retail outlets, restaurants, hotels, offices, residences and public amenities occupying a GFA of 1,500,000m². As the leading sustainability consultant, Arup adopted a holistic approach based on smart growth, new urbanism and green building design principles to realise the project vision and objectives.

Project owner/client:
The 3rd Railway Survey and Design Institution Group Corporation

Arup services:
Structural engineering, architecture, façade, building physics, MEP engineering, and acoustic consulting

Yujiapu traffic hub will serve as a terminal for the Beijing-Tianjin high speed railway and an interchange for three underground lines connecting Binhai to downtown Tianjin. One of the most technically challenging areas of this project is its iconic roof which is the largest single-layer roof in China. Arup used its experience of long-span roof design to realise this groundbreaking architectural concept.

Project owner/client:
Shui On Land

Arup services:
MEP engineering and sustainability consulting

Wuhan Tiandi
Contact us

Hong Kong
(Regional headquarters)
Level 5, Festival Walk,
80 Tat Chee Avenue,
Kowloon Tong, Kowloon,
Hong Kong

t +852 2528 3031
f +852 2865 6493

Shanghai
39/F-41/F, Huaihai Plaza,
1045 Huaihai Road (M),
Xuhui District,
Shanghai 200031, China

t +86 21 3118 8888
f +86 21 3118 8882

Beijing
Room 3008, 30/F,
Jing Guang Centre, Hu Jia Lou,
Chaoyang District,
Beijing 100020, China

t +86 10 5960 1188
f +86 10 5960 1111

Shenzhen
6/F, Duty Free Building,
No 6 Fuhua Yi Road,
Futian CBD,
Shenzhen 518048, China

t +86 755 2388 9000
f +86 755 8203 1518

Chongqing
Room 1, 47/F, Yingli IFC,
28 Minquan Road, Jiefangbei,
Yuzhong District,
Chongqing 400010, China

t +86 23 8988 8288
f +86 23 8988 8299

Guangzhou
Room 1301, Tower A,
Center Plaza,
161 Linhexi Road,
Tianhe District,
Guangzhou 510620, China

t +86 20 3718 9900
f +86 20 3831 0799

Tianjin
Room 2805,
The Exchange Tower 2,
189 Nanjing Road,
Heping District,
Tianjin 300051, China

t +86 22 6028 0558
f +86 22 8319 5115

Wuhan
Room 2215, 22/F, Tower I,
New World International Trade Centre,
568 Jianguo Avenue,
Jianghan District,
Wuhan 430022, China

t +86 27 8575 3388
f +86 27 8555 8177

Macau
Avenida Dr. Mario Soares,
Finance and IT Center of Macau,
10-C&D, Macau

t +853 8506 5800
f +853 2875 5477

Taipei
9/F, No. 65, Sec. 2,
Tun-Hua S. Road,
Taipei 106, Taiwan

t +886 2 2706 3113
f +886 2 2706 3133