MEINHARDT

50TH ANNIVERSARY

MEINHARDT

SINGAPORE

Contents

Foreword by

Dr S. Nasim

Executive Chairman
Meinhardt Group

Meinhardt Singapore was established in 1974 as a small 10-staff offshore office of an Australia Company. It has transformed today into the global headquarters of the Meinhardt Group International which now ranks amongst the top engineering companies in the world. Arguably, it is the largest global engineering company within the private sector, owned and headquartered in Singapore.

Meinhardt Singapore and the wider group indeed is known for its innovation, cutting edge technology and engineering excellence. Meinhardt Singapore is thankfully a highly acclaimed and respected name in the construction industry, having engineered the majority of the tall buildings, and many well-known infrastructure projects in Singapore and the region.

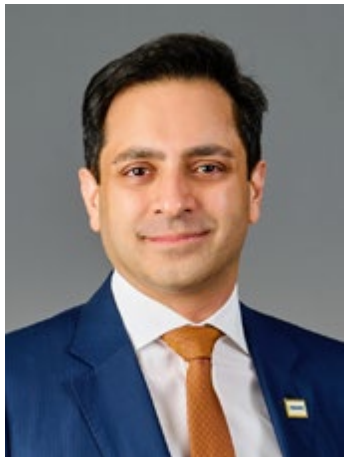
The focus of design engineers worldwide is no longer confined to safety which is a given; cost and constructability but now encompasses sustainability, resilience and maintainability. These aspects now constitute inevitable and key considerations of the design process. Equally important is the adoption of technology both in the construction process as well as the operations of each project during its life cycle.

In tandem with technological advancements, Meinhardt Group set up a “Smart City” team in 2015 which excels in providing integrated technology solutions for our mega-city projects starting from master planning to detail design of infrastructure and all other built environment projects, ranging from mobility to real estate.

Advances in the IT, AI and VR domains are rendering previous engineering analysis and design software obsolete with more advanced software that enable parametric analysis and design processes to be integrated resulting in 3D models that permit rapid optimisation and error detections for highly complex buildings and infra projects to be achieved. Meinhardt has heavily invested into this technology, training, and talent acquisition to be able to continue providing powerful and highly optimised design solutions which we are known for, to our Clients and Design and Build Contractors.

In addition to Digitalisation which is now inherent part of our design and operational processes, we are equally committed to ensuring that our designs are highly resilient and sustainable to meet our decarbonisation goals of 2030 and 2050. Meinhardt has received multiple Green Mark Awards and recognition from BCA and other international agencies for its sustainability promotion efforts.

We owe all our progress and standing in the industry to date, to our valued clients, trusted industry partners and indeed our highly dedicated staff, and thank them all for their unwavering support and trust in Meinhardt.



Foreword by

Omar Shahzad

Group CEO
Meinhardt Group

Transforming Cities, Shaping the Future: The Meinhardt Journey

Reflecting on Meinhardt Group's remarkable journey, I am filled with immense pride and gratitude. Founded in Melbourne in 1955 and operating in Singapore since 1974 as the Group's first office outside Australia, our firm has evolved into one of the world's largest independent engineering consultancies, now headquartered and owned in Singapore. With over 6,000 staff across 61 offices globally, we have consistently delivered innovative, sustainable, and resilient solutions that have transformed cities and shaped the future.

Our history is rich with achievements that highlight our expertise and dedication. From iconic projects like the One Raffles Place in Singapore and Dubai Mall in the UAE to Kuala Lumpur Sentral Station in Malaysia, Doha Airport Expansion, and One Tower Bridge in London, we have set new benchmarks in design and project management. A defining moment was the successful management buyout (MBO) in 2010, led by Dr S. Nasim, our then CEO and current Executive Chairman, which solidified our position as the largest privately held engineering company in Asia.

At the core of Meinhardt's success is our multi-disciplinary approach, allowing us to provide comprehensive solutions from planning and design to construction stages across all major real estate and infrastructure sectors. Our deep technical expertise and innovative mindset enable us to deliver complex projects on time and within budget.

Innovation is in our DNA. We have always been at the forefront of adopting new technologies. Our role in developing Singapore's Building and Construction Authority's productivity roadmap highlights our industry leadership. We now leverage digital tools such as Building Information Modelling (BIM) and artificial intelligence (AI) to enhance productivity, reduce risks, and deliver sustainable solutions.

Sustainability is a cornerstone of our work. The Moro Data Center in the UAE, the world's largest data centre, powered entirely by renewable energy, exemplifies our commitment to green engineering. Our global presence enables us to apply international expertise to local projects, maintaining high standards of quality and innovation.

As we look to the future, our vision and mission are clear: to continue transforming cities through innovative, sustainable, and resilient engineering solutions. We are addressing challenges like urbanisation, climate change, digital transformation, and sustainable development with a focus on smart cities. Our Smart Cities team designs and implements solutions that enhance connectivity, sustainability, and quality of life.

We are committed to achieving net carbon net zero status by 2050, participating in the Science Based Targets Initiative (SBTi) to reduce greenhouse gas emissions. Sustainable practices are integrated into every project, from reducing embodied carbon to enhancing operational performance.

Our strategic roadmap focuses on expanding our global footprint, enhancing capabilities, and fostering a culture of excellence. We are expanding in key markets across Asia but also newer markets across Americas, Europe and Africa. Investments in people and technology, including our Graduate Training Programme, ensure a steady talent pipeline and keep us at the forefront of industry trends.

As we celebrate Meinhardt's 50th anniversary in Singapore, we look back on our journey of growth, innovation, and commitment to excellence. Our vision is clear: to continue transforming cities and shaping the future through innovative, sustainable, and resilient engineering solutions.

I extend my gratitude to our dedicated staff, valued clients, and trusted partners. Together, we will continue to build a brighter, more sustainable future for generations to come.

Foreword by

Mr Go Yang San

Managing Director,
Meinhardt Singapore Pte Ltd

Commemorating the 50th Anniversary of Meinhardt in Singapore fills me with immense pride and a profound sense of responsibility. This landmark occasion not only marks half a century of engineering excellence but also reflects the collective achievements and tireless dedication of our global family.

At Meinhardt Singapore, the global HQ of the Group, we believe in the power of collaboration and seamless integration of our services across business units, disciplines, and geographies, enhancing our value proposition to our clients. This synergy has not only strengthened our client relationships but has also enabled us to deliver highly coordinated designs for all our projects.

Our focus on creating a close-knit culture and a people-centric workplace is pivotal to gaining the trust of our staff which is essential in winning the broader battle of delivering excellence. Our success hinges on our team's talent, dedication, and leadership. Ensuring leadership succession, nurturing talent, and valuing our staff are central to our ethos. Our people are our most valuable asset that define our strength and competitive edge in the industry.

Integrated engineering and project management services – the core of Meinhardt's business – remain central to our services, yet our vision extends beyond. The pursuit of expertise in smart cities, digital transformation, cost and contract management, and EPCM, reflect our commitment to innovation and expansion to serve the evolving needs of our clients. Celebrating our 50th Anniversary in Singapore is more than an observance of time; it is a celebration of our journey, achievements and the future we aspire to build together. This Golden Jubilee is not just a milestone but a testament to our collective commitment to a sustainable future, pioneering spirit, and the relentless pursuit of pushing boundaries.

Our unrivalled track record in engineering the majority of the tallest and sustainable buildings in Singapore, complex infrastructure projects covering air, land and sea transportation, environmental engineering and smart city solutions for mega projects globally are testament of our achievements over the past 50 years. The innumerable local and international accolades that the company has received substantiate our claims of innovative engineering.

As we reflect on our past achievements and look forward to the opportunities and challenges ahead, I recognise the importance of teamwork, continuous innovation, improvement, and the pursuit of excellence. Whilst our track record is enviable, resting on our laurels is not an option. We are committed to delivering powerful engineering solutions and maintaining our lead position in the built environment sector.

I extend my heartfelt gratitude to our valued clients and industry partners, and our dedicated staff. Their trust, support and partnership have been instrumental in our success.

Expo MRT station, Singapore

Meinhardt Singapore Key Leaders

Celebrating 50 Years of Excellence and Innovation

The 50th Anniversary of Meinhardt Singapore marks a significant milestone in our history, symbolising half a century of excellence and our unwavering commitment to shaping the future of cities.

This Golden Jubilee not only celebrates our rich legacy but also underscores our relentless pursuit of innovation, digital transformation, and sustainability. Our journey from Australian roots to becoming a globally recognised leader in engineering, project, and construction management is a testament to our dedication and the instrumental role played by our global family of over 6,000 professionals across 61 offices worldwide.

Reflecting on our remarkable journey, we acknowledge the hard work and dedication of our team, the strong support from the Government, our esteemed clients, and industry partners. Their collective efforts have enabled us to evolve and lead in the vital built environment industry, both in Singapore and globally. Over the past decades, Meinhardt has consistently delivered sustainable, cost-effective, and innovative designs, transforming cities and shaping the future.

Since our establishment in 1955, Meinhardt Group has been at the forefront of engineering, pushing the boundaries of what is possible in the built environment. As one of the world's few truly integrated engineering, infrastructure, and project management consulting firms, we are driven by our clients' commercial objectives and a steadfast commitment to addressing global environmental concerns.

Headquartered in Singapore since 1974, we undertake projects worth an estimated US$30 billion annually. Today, Meinhardt Group stands as a thought leader and trailblazer in the built environment industry, one of the most awarded engineering consultancy firms in Singapore, and the largest privately-held design and engineering firm in Asia.

Meinhardt Singapore has played a conspicuous role in the development of modern Singapore, engineering many of the nation's landmark buildings and infrastructure projects. Our portfolio includes iconic developments such as Marina Bay Financial Centre, Resorts World Sentosa, One Raffles Quay, The Sail@Marina Bay, Asia Square, numerous MRT projects, the remodelling of Terminal 1 at Changi Airport, interchanges along the AYE, and Gardens by the Bay, among others. Our contributions to Singapore's infrastructure landscape align with the nation's evolution and sustainable goals, underscoring our role in shaping the future of this vibrant city-state.

As we celebrate this significant milestone, we reaffirm our commitment to excellence, innovation, and sustainability. Meinhardt's journey is on a strong growth trajectory, and we look forward to many more decades of engineering brilliance and transformative impact on the built environment.

First row (from left to right): *Johnson Paul, Director of Business Development; Dr Juneid Qureshi, Executive Director of Strategic Project Delivery - C&S; Tony Tay, Executive Director & Regional M&E Director; Kam Mun Wai, Senior Executive Director of C&S; Omar Shahzad, Group CEO; Dr S Nasim, Group Executive Chairman; Go Yang San, Managing Director of Meinhardt Singapore & Regional Infrastructure Director, & Global Board Member; Riddhi Karmacharya, Senior Executive Director of C&S MGMT; Dr Lee Bee Wah, Group Director of C&S MGMT; Dr Uma Maheshwaran Cheyyar Ramanathan, CEO of South & Central Asia, Africa, Meinhardt Planners, & Global Board Member*

Second row (from left to right): *Terence Kok, Executive Director of Technology & Innovation, Smart & Sustainable Urban Infrastructure Transformation (SUIT); Bong Yiing Siong, Director (Division Head) of Water and Environment Division; Ruchi Bhatia, Executive Director of Energy & Sustainability, Smart & Sustainable Urban Infrastructure Transformation (SUIT); Yogalingam Vaithilingam, Project Director of Water and Environment Division; Philip Tan, Managing Director of Meinhardt Planners (MPS); Angeline Tan, Group Digital Marketing, Communications & Branding Director; Ling Chong Yuen, Executive Director of Geotechnical Engineering; Lam Chan Keen, Director of Meinhardt Infrastructure; Philip Pham, Director of C&S; Pong Kang Fong, Director of Meinhardt Infrastructure*

Third row (from left to right): *Wong Teck Hong, Director of C&S; Tan Geok Hwee, Group Finance Director; Choong Pei Nung, Executive Director of M&E; Joshua Heng, Executive Director of M&E; Rama Mohan Vedicherla, Director of C&S; Nicolas Boey, Executive Director of M&E*

Leading the Industry

In today's fast-paced environment, Meinhardt Singapore remains committed to offering fully integrated and diverse spectrum of engineering services which place us at the forefront of the built environment industry. Each of the services offered by Meinhardt holds leadership position in the industry. These include Civil, Structural; Mechanical & Electrical; Infrastructure Engineering; Urban Planning; EPCM (Engineering, Procurement and Construction Management); Smart Cities and Digital Transformation, Sustainability, and MGI Capital.

We are committed to developing the best solutions and overcoming challenges to meet our clients' specific needs and business goals, continually setting new benchmarks for excellence in our industry.

Marina Bay Financial Centre, Singapore

Awards and Accolades

All services offered by Meinhardt Singapore and the wider group are recipient of innumerable awards and accolades, both locally and internationally.

MEINHARDT HAS MOVED UP
ENR 2023 GLOBAL RANKINGS

ENR
THE TOP
225

40
INTERNATIONAL DESIGN FIRMS

11
INTERNATIONAL ENGINEERING FIRMS

GLOBAL RECOGNITION
750+ AWARDS

One of the most awarded engineering consultancy firms in Singapore

98
Green Mark / LEED / BEAM Awards

88
Construction Excellence / Productivity

133
Design

56 Platinum
21 Gold Plus
21 Gold

#1 LARGEST INDEPENDENT PRIVATE ENGINEERING FIRM IN ASIA

Mixed-Use
TOP 15

Aviation
TOP 10

Engineering
TOP 12

Commercial
TOP 13

General Building
TOP 16

Education
TOP 15

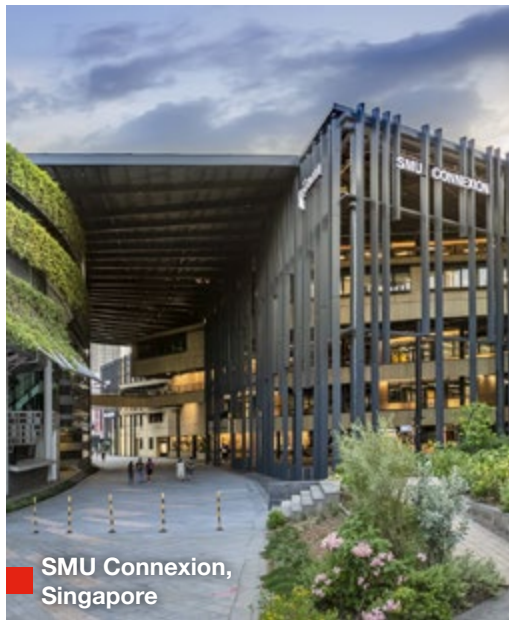
Telecommunications/ Data Centre
TOP 14

Logistics
TOP 6

Healthcare
TOP 14

Information is correct as of August 2024

Industry Leading Services


SMU Connexion, Singapore


The Sail, Singapore

Civil and Structural (C&S)

The Civil and Structural (C&S) team at Meinhardt Singapore has been instrumental in shaping the infrastructure and built environment both locally and globally. Our approach to C&S is anything but conventional. For every project, we strive to deliver the most efficient, optimised and buildable solutions. This commitment to excellence has earned us the trust of clients and contractors alike, particularly in the design of foundations and structural systems.

Our C&S Centre of Excellence is led by senior management with PhDs specialising in various fields. We pride ourselves on our Research and Development (R&D) efforts, including innovative analyses of complex structures. An example is our use of biomimicry, such as peanut-shaped basement walls for The Sail @ Marina Bay, a waterfront lifestyle condominium located in the Marina Bay area in Singapore, which provide cost-effective and optimal solutions for local soil conditions.


NS Square, Singapore


Asia Square Tower, Singapore

Mechanical and Electrical (M&E)

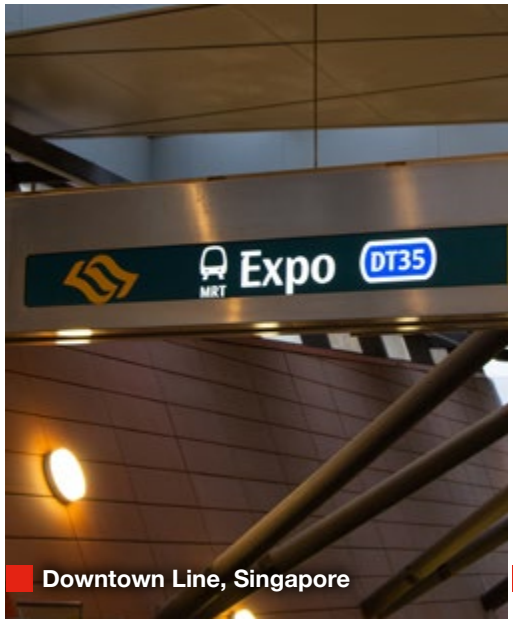
For over five decades, Meinhardt Singapore's Mechanical and Electrical (M&E) team has been at the forefront of engineering excellence, playing a crucial role in shaping Singapore's iconic business districts. Our journey began with transformative projects in Raffles Place, Shenton Way, and the Marina Business Financial District, where our innovative M&E designs laid the groundwork for some of Singapore's most significant developments.

Throughout these years, our team has not only adapted to but has also driven the evolution of the built environment. We have consistently integrated cutting-edge technologies and methodologies to meet the dynamic needs of modern urban development. Our contributions have gone beyond mere engineering; we have been instrumental in creating sustainable, efficient, and resilient infrastructures that have stood the test of time.

In recent years, our leadership in the industry has been further solidified by the Singapore Government's Built Environment Industry Transformation Map (ITM). This strategic initiative has positioned Meinhardt Singapore as a leading M&E consultant, tasked with spearheading industry transformation. Under this mandate, we have embraced and promoted groundbreaking innovations such as Design for Manufacturing and Assembly (DfMA). This approach has revolutionised traditional construction practices by enhancing productivity, improving quality, and significantly reducing construction time.

DfMA exemplifies our commitment to innovation and excellence. By prefabricating components in a controlled factory environment and then assembling them on-site, we have minimised waste, enhanced safety, and ensured higher precision and quality in our projects. This method aligns perfectly with our sustainability goals, reducing the environmental impact and fostering a more sustainable built environment.

Our M&E team's achievements reflect a legacy of engineering brilliance and a forward-looking vision.



Downtown Line, Singapore

Maju Station and Tunnels for Cross Island Line (Phase 2), Singapore

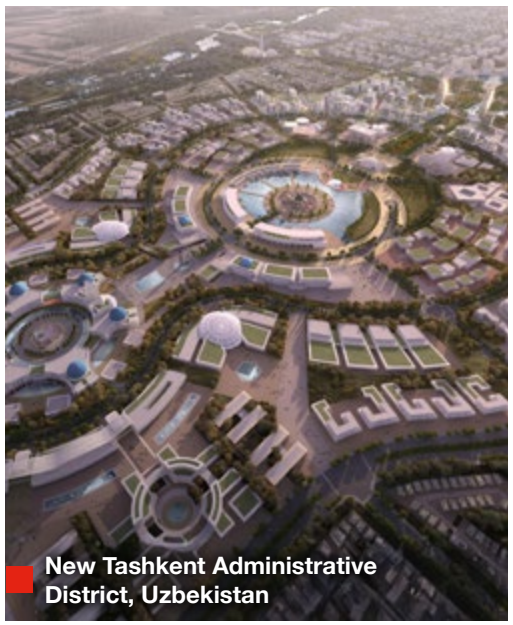
Infrastructure

Incorporated in 2005, Meinhardt Infrastructure Pte Ltd, a fully owned subsidiary of the prestigious Meinhardt Group of Companies, stands as a beacon of engineering excellence and innovation. Registered as a Licensed Corporation under the Professional Engineers Board (PEB), we offer a comprehensive suite of multi-disciplinary services encompassing civil, structural, mechanical, electrical, and geotechnical engineering.

Operating at the heart of Singapore with an extended presence across the region, Meinhardt Infrastructure has solidified its reputation as a dependable and innovative design partner. Our hallmark lies in delivering robust, forward-thinking solutions to the most complex infrastructure challenges Singapore faces.

Our diverse and esteemed clientele, ranging from government bodies to private developers and contractors, reflects the breadth of our expertise and versatility. As urban populations burgeon and cities expand, the demand for meticulous planning, design, and implementation of infrastructure projects intensifies. Meinhardt Infrastructure meets this demand head-on, excelling in every facet of civil and MEP infrastructure. Our projects span roads and bridges, water supply and sanitation systems, transportation, power, gas, industrial parks, and marine facilities.

Renowned for our technical prowess and extensive experience in international infrastructure engineering, we lead the charge in planning and designing projects of any scale. Our unwavering commitment to innovation and excellence ensures that we not only meet but exceed the evolving demands of urban development, positioning Meinhardt Infrastructure Pte Ltd at the forefront of the industry. Through our dedication to delivering cutting-edge solutions, we continue to shape the future of infrastructure, building resilient and sustainable urban environments for generations to come.


New Tashkent Administrative District, Uzbekistan


Long An Harbourfront City, Vietnam

Urban Planning

The Meinhardt Planners Singapore (MPS) designs comprehensive urban and infrastructure masterplans for cities and industrial townships at various stages of development. From concept to detailed masterplans, city visioning, positioning to capacity building, MPS provides full range of urban planning services. Delivering ‘meaningful value’ is central to everything we do. We offer our clients a unique perspective and depth of understanding, ensuring that the vision, ambitions, and aspirations of a project and not just its physical ideas, are fully realised.

We transform every planning challenge into a livable future, one that enriches lives for future generations.

Philip YM Tan, Managing Director of MPS said, “Successful urban planning is about community harmony and not just creating spaces to meet the physical needs of the people. It is planning for integrated communities that can thrive in an economically and socially vibrant environment.”

The Rapid Transit System (RTS) Link, Malaysia

Shell, Philippines

Engineering, Procurement and Construction Management (EPCM)

In the dynamic evolving landscape of built environment, technological innovations are reshaping the methodologies employed in project planning and execution. Traditional approaches are being superseded by advanced engineering, heralding a transformative shift in the industry. EPCM projects involve many stakeholders, intricate processes, and often unpredictable challenges. Employing innovative approaches can streamline the delivery process, enhance efficiencies, reduce costs, and lead to better quality and faster project completion.

Some of those innovative approaches include integrated project management systems, building information modelling, modular construction techniques, prefabrication, and off-site manufacturing, vastly improving the design and construction processes with significant value addition. As we navigate the complexities of the modern world by embracing innovation and digital technology, the EPCM team can overcome challenges, optimise performance, and deliver highly empowered results in today's competitive market.

Sohar New Smart City, Oman

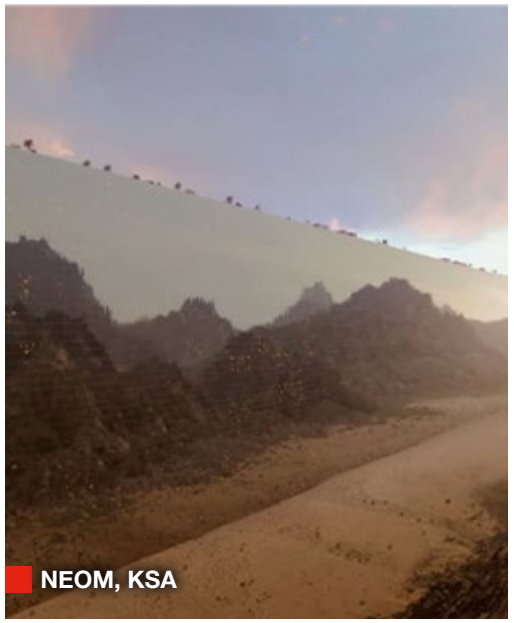
Smart Aerocity/Aerotropolis, Delhi, India

Smart Cities and Digital Transformation

The Information and Communication Technology (ICT) and Smart Cities divisions are at the forefront of urban innovation, with a multidisciplinary team skilled in security, IT, urban planning, data analytics, and sustainable energy. This division excels at creating customised strategies tailored to the specific needs of an evolving urban environment. It takes a comprehensive approach beyond mere technology deployment to integrate new insights into urban dynamics and socio-economic factors. Our work involves ICT, Smart Technology, Traffic and Energy Management, and Security Planning.

MDTS is dedicated to digitalisation across various sectors and stages of asset life cycle. It offers solutions for Integrated Digital Delivery (IDD), Security Systems, Digital Asset Management, Facilities Management, Integrated Operating Centres, Business Intelligence and Analytics, for a Digital City, Township and Estate. Our primary tool, the METAV Integrated Platform, is a dynamic and open data platform for purposes like Common Data Environment, IDD, Flexibility, Security, and System Integration.

Oxagon Innovation District, KSA



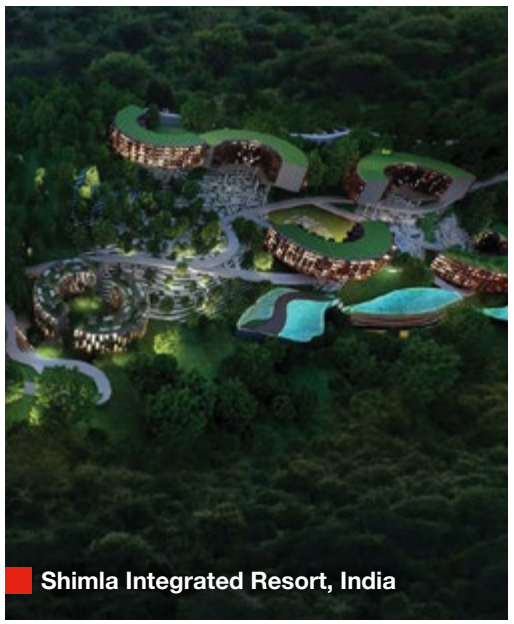
NEOM, KSA

Sustainability and ESD

The Sustainability and ESD division under Smart and Sustainable Urban Infrastructure Transformation (SUIT) focuses on delivering comprehensive and sustainable master planning and infrastructure services. It also develops KPIs and strategies, conducts ESD assessments for built environment to achieve green certifications, and creates renewable energy generation and storage strategies. We embrace a regenerative design approach, aiming to transcend traditional notions of sustainability from mere “protection and sustaining” to proactive “restoration and enhancement” of the environment.

Our team includes experts in sustainable infrastructure, water, waste, and energy management solutions, and green buildings technology. We leverage this expertise to identify unique sustainable development opportunities and craft strategies for landmark projects across the world. Our overall systems-thinking approach helps to drive sustainable development transitions making tangible impact on our built environment, communities, and cities.

Aerocity, India



Shimla Integrated Resort, India

MGI Capital

MGI Capital is a Meinhardt Group subsidiary specialising in advisory, project structuring, fundraising, and principal investments for real estate, infrastructure, and other related projects. We harness the Meinhardt Group’s network of offices, engineering expertise and cutting-edge technology to provide integrated solutions for our clients to improve feasibility and generate returns.

Increasingly large infrastructure, real estate, and urban development projects are being implemented using PPP, BOT, BOO, BOOT, and Design, Build, and Finance (DBF) models and requiring project financing. MGI Capital was founded in response to this massive market gap, combining Meinhardt’s renowned technical skills, global reach and financial advisory services to connect clients with capital around the world. Our fully integrated services across all real estate and infrastructure sub-sectors and asset lifecycles provide us with a competitive edge in providing superior long-term, risk-adjusted returns to our clients.

Global Timeline

1955 1965 1975 1985 1995

1955 (Founding) **William L. Meinhardt in Melbourne, Australia**

1974 New Offices
- **Singapore**
- **Hong Kong**

1975 Expanded into **Indonesia**

New Business **Aviation**

1988 New Business **Façade**

1990 **Meinhardt Asia & International incorporated**

1991 New Offices
- **Bangkok, Thailand**
- **Kuala Lumpur, Malaysia**

1992 Expanded into **Pakistan**

1994 New Business **Infrastructure & Environment**

1995 Expanded into **Vietnam**

1996 Expanded into the **Philippines**

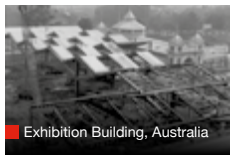
1997 Expanded into **Middle East**

2000 Expanded into the **UK**

2001 New Office **Shenzhen, China**

2002 New Office **Shanghai, China**

2003 New Office **Dubai, UAE**


Exhibition Building, Australia

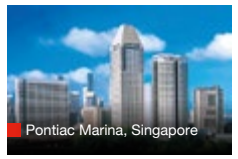

CIG, Australia

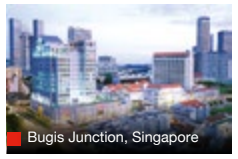

Glaxochem Pharmaceutical Plant, Singapore

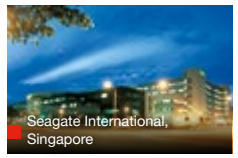

Coca Cola, Australia


Ayer Rajah Expressway, Singapore


One Raffles Place, Singapore

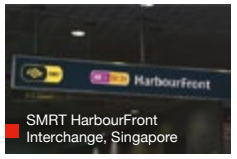

Pontiac Marina, Singapore


Bugis Junction, Singapore


Seagate International, Singapore


Capital Square, Singapore


Teletech Park, Singapore



SMRT HarbourFront Interchange, Singapore


The Sail@Marina Bay, Singapore

2004 — 2005 — 2007 — 2008 — 2009 — 2010 — 2011 — 2012 — 2013 — 2014 — 2015 — 2016 — 2017 — 2018 — 2019 — 2020 — 2021 — 2022 — 2023 — 2024

2005

Acquisition
Acquired Mouchel Parkman Asia Ltd

2015

2025

Expanded into
- **India**
- **US**

New Office
Ho Chi Minh, Vietnam

New Offices
- **Riyadh, Saudi Arabia**
- **Tripoli, Libya**

Acquisition
Acquired Eigen

New Office
Tianjin, China

New Office
Yangon, Myanmar

Acquisition
Acquired Bhundia Associates (Kenya) & Murchie Associates (Melbourne)

New Offices
- **Nairobi, Kenya**
- **Cairo, Egypt**
- **Bangalore, India**

New Office
Astana, Kazakhstan

Acquisition
Acquired Bonacci Group Pty Ltd (Australia and New Zealand)

New Office
Auckland, New Zealand

New Offices
- **Tokyo, Japan**
- **Penang, Malaysia**
- **Cebu, Philippines**

New Offices
- **Tbilisi, Georgia**
- **Denver, USA**

New Office
Beijing, China

New Office
Manam, Bahrain

MBO
HQ relocated to Singapore

Acquisition
Acquired Bradlees Civil Consulting (Australia)

New Office
Istanbul, Turkey

International HQ Award by EDB Singapore

CoE for Smart Cities & PM

New Offices
- **Johor Bahru, Malaysia**
- **Phnom Penh, Cambodia**

New Business
EPCM

New Offices
- **Ahmedabad, India**
- **Malta**

New Business
MGI Capital

Acquisition
Acquired iEngineers Singapore Pte Ltd (Vietnam) & Tham and Wong Vietnam

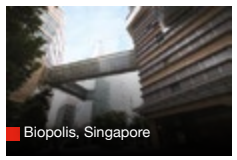
New Offices
- **Birmingham, UK**
- **Kathmandu, Nepal**
- **Surat, India**

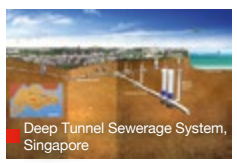
New Offices
- **Dublin, Ireland**
- **Glasgow, Scotland**
- **Pune, India**

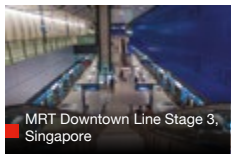
New Offices
- **Belo Horizonte, Brazil**
- **Abu Dhabi, UAE**
- **Coimbra & Lisbon, Portugal**

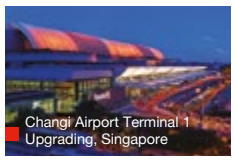
Expanded into
- **Bangladesh**
- **Uzbekistan**

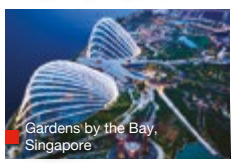

Kim Chuan Telecommunications Complex, Singapore


Biopolis, Singapore


Deep Tunnel Sewerage System, Singapore


MRT Downtown Line Stage 3, Singapore

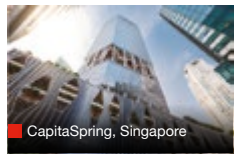

Changi Airport Terminal 1 Upgrading, Singapore


Gardens by the Bay, Singapore

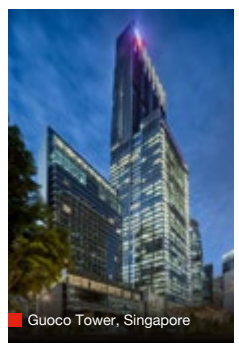

Marina Bay Financial Centre, Singapore

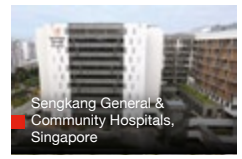

South Beach Mixed-use Development, Singapore


School of Law, SMU, Singapore


CapitaSpring, Singapore

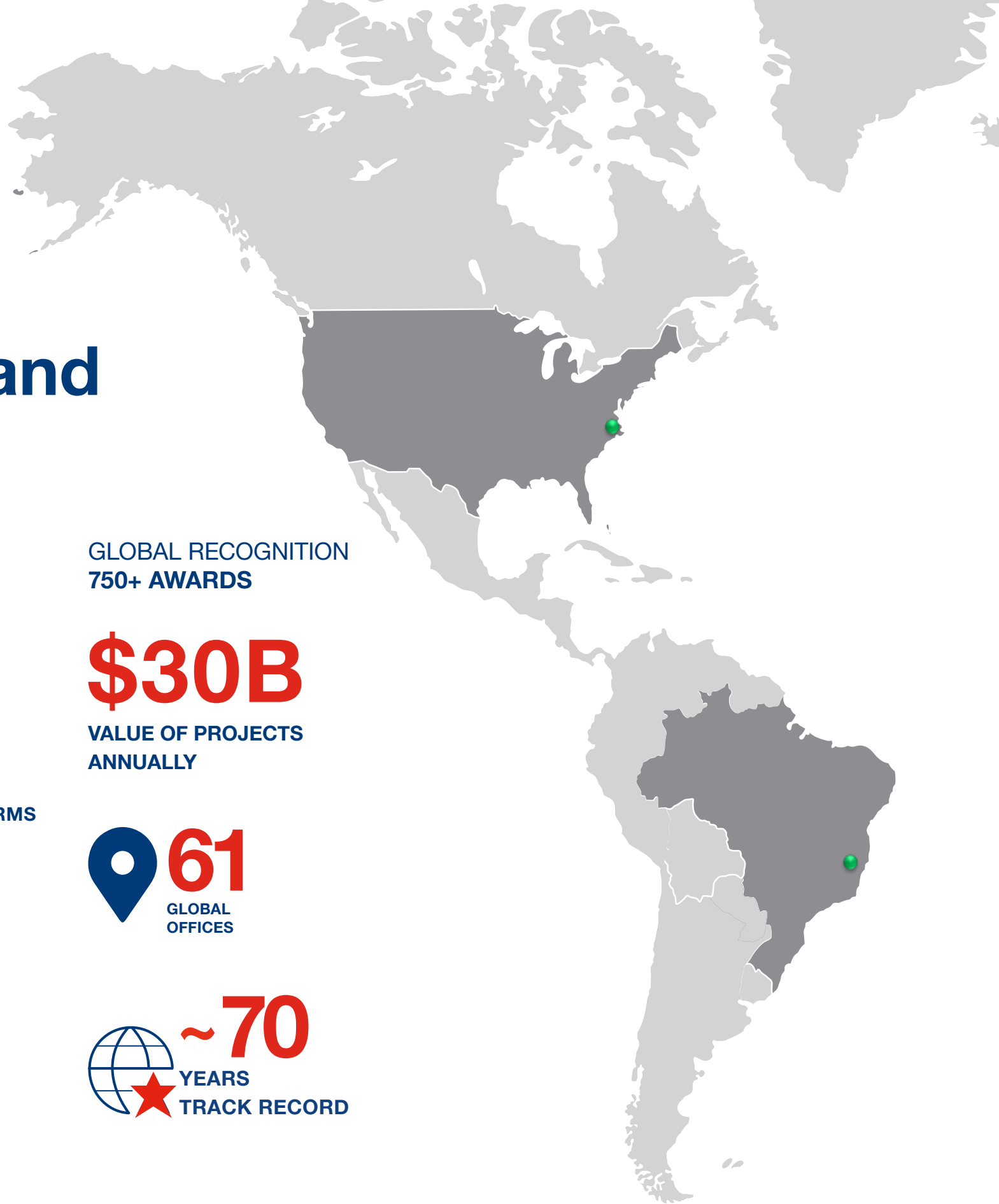

SMU Connexion, Singapore


Guoco Tower, Singapore


Sengkang General & Community Hospitals, Singapore


Telin3 Data Centre, Singapore

Global Milestones and Network



MEINHARDT HAS MOVED UP
ENR 2023 GLOBAL RANKINGS

ENR
THE TOP
225

40
INTERNATIONAL DESIGN FIRMS

11
INTERNATIONAL ENGINEERING FIRMS

6,300+
STAFF

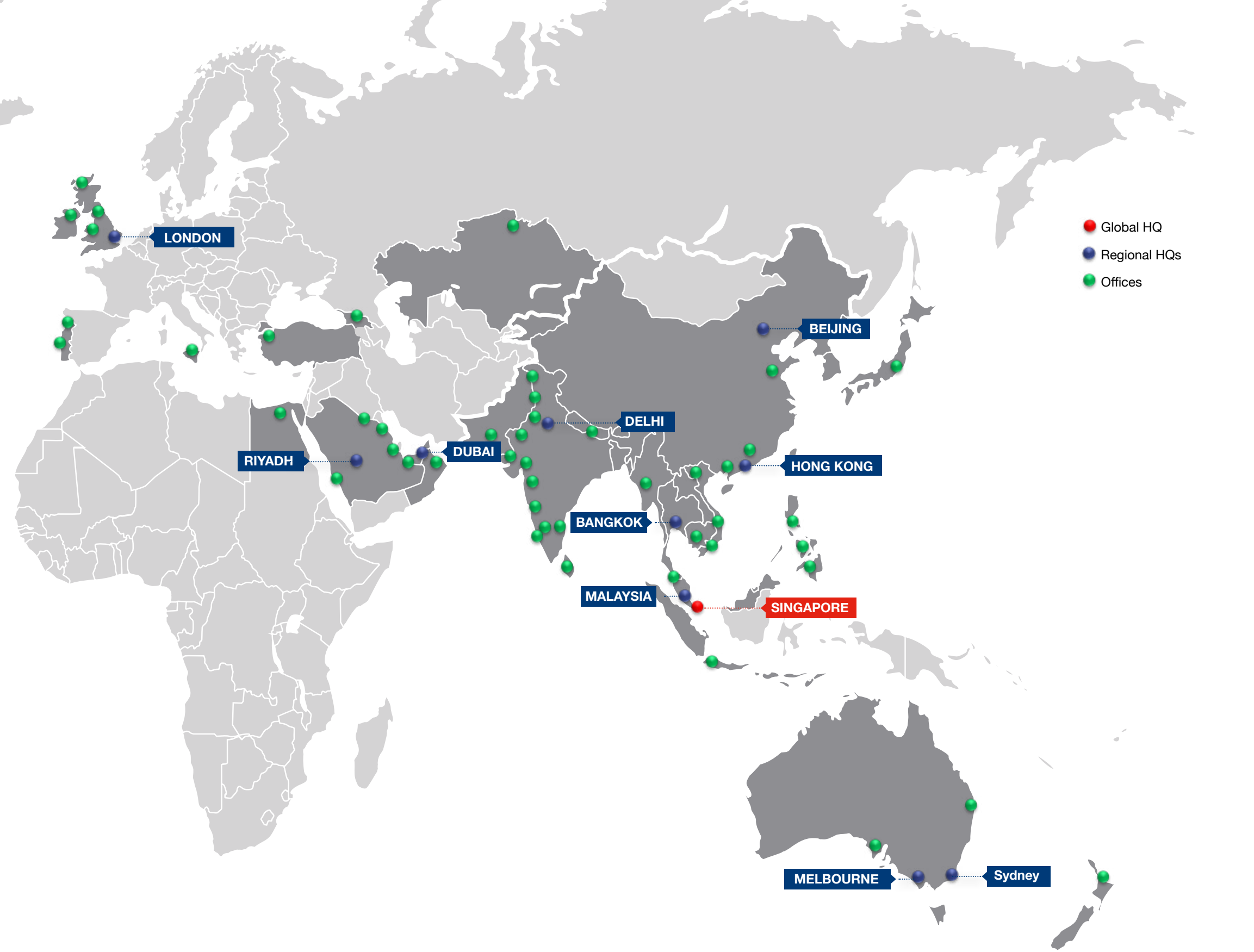
GLOBAL RECOGNITION
750+ AWARDS

$30B
VALUE OF PROJECTS ANNUALLY

61
GLOBAL OFFICES

~70
YEARS TRACK RECORD

Information is correct as of August 2024


Global HQ
Regional HQs
Offices
LONDON
BEIJING
DELHI
RIYADH
DUBAI
HONG KONG
BANGKOK
MALAYSIA
SINGAPORE
MELBOURNE
Sydney

Commitment to ESG

Meinhardt Group is committed to integrating Environmental, Social, and Governance (ESG) principles with its operations and aligning its mission in the broader imperative of responsible corporate citizenship.

This underscores the company's holistic approach to creating a sustainable future through its innovative engineering services, commitment to ethical practices, and a focus on the well-being of both its people and the planet.

Sustainable Business Conduct and Corporate Governance

At its core, Meinhardt is deeply committed to conducting business in a sustainable manner, adhering to the principles of good corporate governance. This philosophy is not just about compliance but is a reflection of a belief in creating shared value that encompasses economic growth, social inclusion, environmental balance, and the well-being of its employees and stakeholders.

Meinhardt's commitment is underpinned by its dedication to integrity, honesty, professionalism, and ethical behaviour across all its operations and subsidiaries. This foundation ensures that Meinhardt not only delivers superior engineering solutions but does so in a way that respects the law and promotes transparency and accountability.

Alignment with Sustainable Development Goals (SDGs)

Meinhardt's alignment with the United Nations Sustainable Development Goals (SDGs) exemplifies its role as a catalyst for positive global change. By focusing on key areas such as health and well-being, clean water and sanitation, affordable and clean energy, sustainable cities, and reducing inequalities, Meinhardt actively contributes to a more sustainable and equitable world. This commitment not only enhances the company's operational sustainability but also positions Meinhardt as a leader in driving the agenda for a resilient and sustainable future.

Environmental Stewardship and Climate Change Resilience

Environmental conservation and climate change mitigation are at the forefront of Meinhardt's sustainability efforts. Through comprehensive waste management practices, water conservation measures, and energy efficiency initiatives, Meinhardt demonstrates its commitment to reducing its carbon footprint and enhancing resource efficiency. The company's dedication to adopting renewable energy sources and its active participation in decarbonisation initiatives further underscore its commitment to environmental stewardship and its pursuit of a low-carbon future.

Towards a Carbon Neutral Future

Meinhardt's journey towards carbon neutrality embodies our commitment to combating climate change and supporting a low-carbon economy. Our adoption of the Science Based Targets initiative (SBTi) and our ambitious goal to become carbon net zero by 2050 highlight our dedication to environmental leadership in the engineering and construction industry.

Social Responsibility and Employee Well-Being

Meinhardt places a strong emphasis on social responsibility, advocating for human rights, labour standards, and fostering a culture of diversity, equality, and safety within the workplace. Through initiatives aimed at promoting employee development, occupational health and safety, and a supportive and inclusive culture, Meinhardt ensures the well-being of its employees and fosters a positive work environment. The company's stance against discrimination and harassment, and its commitment to freedom of association and collective bargaining, reflect its dedication to upholding the highest standards of social responsibility.

Governance, Ethics, and Compliance

Meinhardt's governance framework is built on a foundation of ethics and compliance, emphasising anti-bribery policies, internal controls, risk management, and fair dealing. The company's rigorous adherence to laws, regulations, and ethical standards ensures not only legal compliance but also promotes a culture of integrity and accountability. Meinhardt's efforts to maintain confidentiality, secure information, and prevent conflicts of interest further demonstrate its commitment to governance excellence.

Technological Innovation for Sustainable Futures

Meinhardt has long recognised the potential of Building Information Modelling (BIM) to revolutionise the design, construction, and management of infrastructure. By embracing BIM, Meinhardt ensures efficiency, cost savings, and enhanced project delivery, reflecting its commitment to innovation and sustainability. The use of cloud-based models further exemplifies Meinhardt's dedication to accessibility and collaboration, enabling stakeholders to access critical project information anytime, anywhere, thereby facilitating informed decision-making and efficient project execution. Notably, in 2023, Meinhardt became the first engineering company in Singapore to achieve full ISO 19650 compliance at the group-wide level encompassing its Singapore and overseas offices.

Supply Chain Sustainability and Stakeholder Engagement

Recognising the significance of sustainable supply chain management, Meinhardt has implemented measures to ensure environmental and human rights considerations are integrated throughout its supply chain. By engaging with suppliers and subcontractors who share its commitment to sustainability, Meinhardt amplifies its impact beyond its immediate operations. This collaborative approach extends to stakeholder engagement, where Meinhardt seeks to build strong relationships with clients, communities, and partners, fostering a shared commitment to sustainable development.

Shaping a Sustainable Tomorrow

As Meinhardt Singapore celebrates its 50th anniversary, its unwavering commitment to ESG principles stands as a testament to the company's role as a leader in sustainable engineering and corporate responsibility. Through its comprehensive approach to environmental stewardship, social responsibility, and ethical governance, Meinhardt not only sets a benchmark for excellence in the industry but also contributes significantly to the global agenda for sustainable development. Through our continued investment in innovative technologies, alignment with global sustainability goals, and adherence to strict governance standards, we are not only enhancing our business resilience but also contributing to a more sustainable and equitable world. As we look to the future, Meinhardt is poised to continue leading by example, transforming cities and shaping a sustainable future for generations to come.

Meinhardt Group's Technology Development and Digitalisation

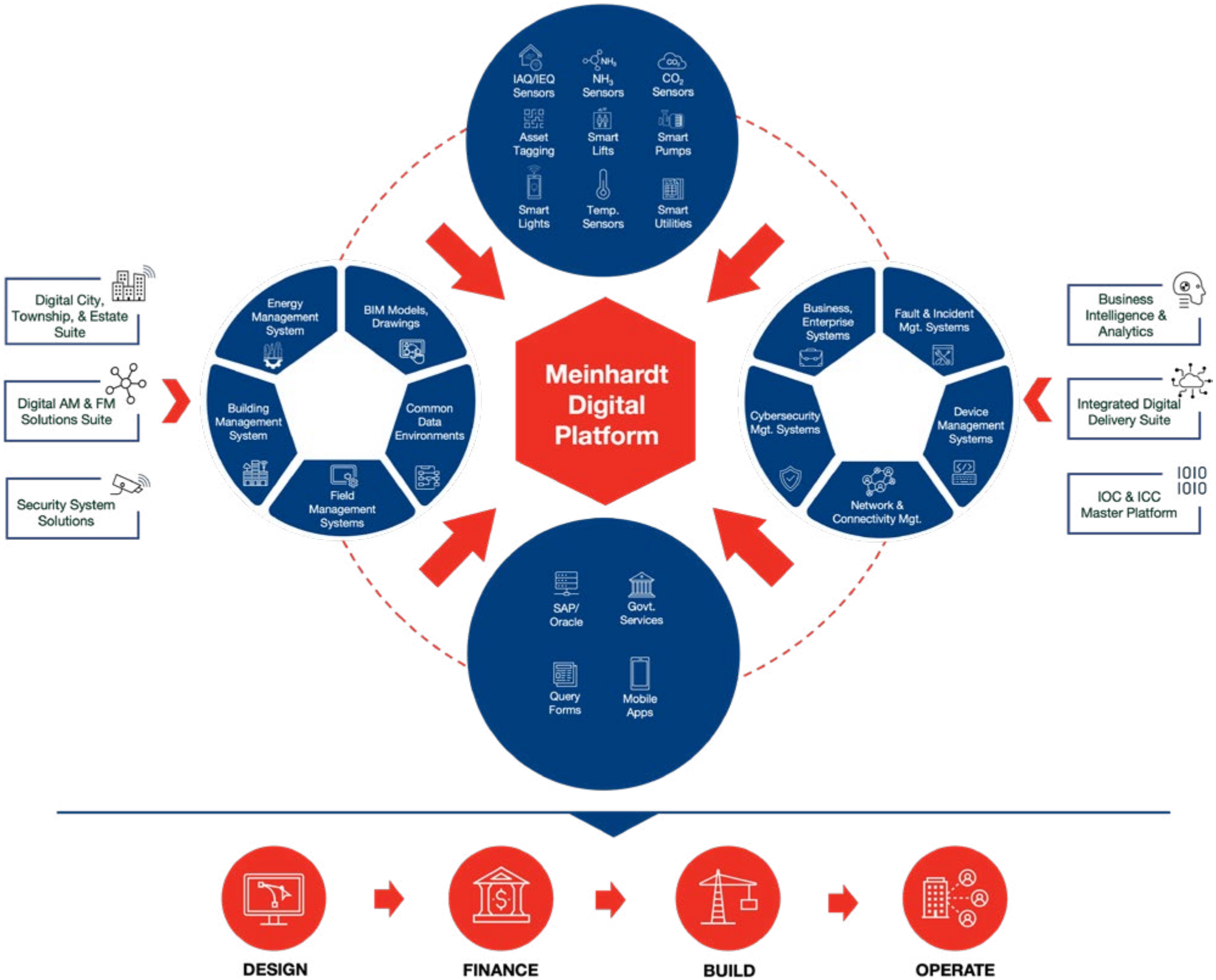
Meinhardt Group, as a leader in innovation and technology, has taken ground-breaking initiatives to digitalise its business operations, design processes and the construction stages and services across the group and all its projects.

Meinhardt is pursuing technological excellence through an array of key capabilities in data collection and project digitalisation. It has grown its internal GIS, BIM, and integrated digital delivery capabilities to support the creation of better project datasets. And in integrated data and project management, Meinhardt EPCM is setting up a first-of-its-kind digital platform to harmonise and orchestrate complex construction management workflows across multiple market. Within advanced technology applications, Meinhardt DTS is working on future-ready initiatives, ranging from machine learning for predictive construction, operation, and maintenance to generative artificial intelligence to support consultancy and tendering workflows.

The Meinhardt EPCM construction management digitalisation initiative brings together the best elements of Meinhardt's traditional engineering expertise and new technology capabilities to set a powerful template for the future: digitally-driven, automatable, and efficient project management to minimise delays and errors while maximising client satisfaction. Covering critical functions ranging from scheduling and process flows to document management and team coordination, the EPCM digital platform is scalable and modular, allowing for more cost-effective deployment, updates, and resizing to fit client and Meinhardt team needs.

Data — its capture, quality, storage, and transformation into insights — remains at the heart of Meinhardt's successful thrust forward into a digitally-enabled future. Meinhardt DTS is working on developing integrated data platforms for a variety of applications across the entire built environment value chain: from design and construction to operation and maintenance. This involves breaking down data siloes to unify lifecycle built asset data in one platform, unlocking efficiencies and unveiling areas for improvement to project managers, field teams, and owners.

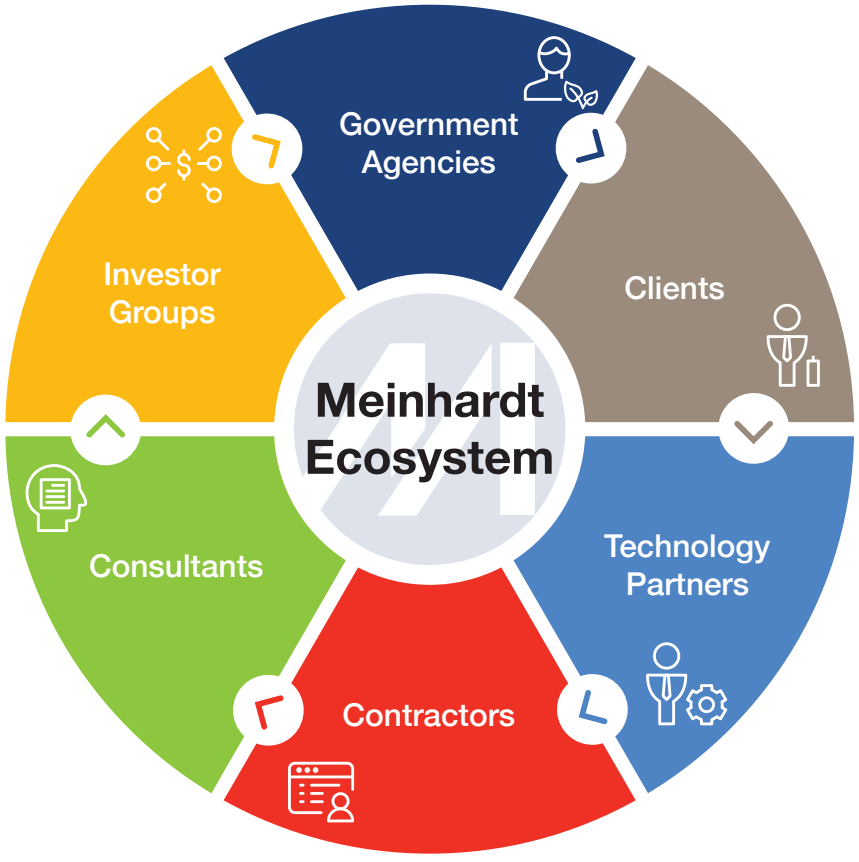
On top of the rich datasets that such integrated platforms provide, Meinhardt DTS is exploring value-added data products that can enhance client experiences, empower Meinhardt employees, and propel the smart cities and urban developments of the future.


IAQ/IEQ Sensors
NH_3 Sensors
CO_2 Sensors
Asset Tagging
Smart Lifts
Smart Pumps
Smart Lights
Temp. Sensors
Smart Utilities
Digital City, Township, & Estate Suite
Digital AM & FM Solutions Suite
Security System Solutions
Energy Management System
BIM Models, Drawings
Building Management System
Common Data Environments
Field Management Systems
Meinhardt Digital Platform
Business, Enterprise Systems
Fault & Incident Mgt. Systems
Cybersecurity Mgt. Systems
Device Management Systems
Network & Connectivity Mgt.
Business Intelligence & Analytics
Integrated Digital Delivery Suite
IOC & ICC Master Platform
SAP/ Oracle
Govt. Services
Query Forms
Mobile Apps
DESIGN
FINANCE
BUILD
OPERATE

Partnerships and Collaboration

Engineering Excellence Meets Global Reach: Meinhardt Group's Success Through Partnerships and Collaborations

At Meinhardt Group, our legacy of innovation is deeply intertwined with a robust network of industry partnerships that span across clients, technology firms, contractors, consultants, investor groups, and government agencies. This extensive ecosystem is not only a testament to our commitment to engineering excellence but also a driving force behind our global reach and success. By collaborating seamlessly with these vital stakeholders, we deliver tailored solutions across diverse sectors such as infrastructure, urban development, energy, and the environment.



Government Partnerships: Navigating Regulatory Landscapes

Our strategic alliances with government agencies, such as the Economic Development Board (EDB) and the Infocomm Media Development Authority (IMDA) in Singapore, are pivotal in staying ahead of regulatory changes and industry standards. These relationships ensure our projects are seamlessly integrated within the regulatory frameworks, enabling us to navigate complex landscapes efficiently. For instance, our collaborations with various governments around the world allow us to bring our engineering expertise to bear on critical infrastructure projects, ensuring compliance while fostering innovation and technology.

Global Collaborations: Bridging Borders for Innovation

Meinhardt Group's approach to global partnerships is centred on forging alliances with key international players and governments. These collaborations enable us to bring our engineering prowess to new markets and leverage local presence to tailor our solutions. By partnering with technology companies and industry leaders, we gain access to cutting-edge tools and methodologies that enhance our capabilities. This synergy between global expertise and local presence ensures that we deliver innovative, and sustainable solutions that meet the unique needs of each market, client and the project.

Collaboration with Consultants and Contractors, and Capacity Building

Our network of skilled contractors and renowned consultants brings together a wealth of expertise and diverse perspectives. This collaborative approach ensures that every project benefits from a comprehensive understanding of the challenges at hand, resulting in innovative and sustainable solutions. By working closely with these partners, we streamline processes, mitigate risks, and deliver projects that exceed client expectations. This synergy is evident in our Capacity Building Projects, where we have trained around 1,000 engineers from ASHGHAL, ADDC, and the Oman Ministry of Housing on various aspects of design, operations, and maintenance of buildings and infrastructure.

Investor Partnerships: Providing the Financial Backbone

Financial resources are crucial for pursuing groundbreaking projects, and our partnerships with forward-thinking investment groups provide the necessary backing. This synergy between financial solutions and technical expertise drives our continuous growth and development. By collaborating with global banking and financial institutions, we secure the funding needed to drive innovation and deliver large-scale projects that make a significant impact.

Supporting Startups and Smaller Companies: Expanding Horizons

Meinhardt Group is committed to fostering the growth of startups and smaller companies by offering them exposure and opportunities to expand overseas in collaboration with us. Our collaboration with these entities is designed to nurture innovation and provide the support they need to thrive in new markets. By leveraging our extensive network and industry expertise, we help these companies navigate the complexities of international expansion, ensuring they have the resources, support and guidance to succeed.

Capacity Building and Training: Empowering the Next Generation

Our dedication to capacity building extends beyond projects to include training and development initiatives. We have successfully trained engineers from various government agencies on the intricacies of design, operations, and maintenance, enhancing their skills and knowledge. This commitment to education and professional development is exemplified by our MOU with Ngee Ann Polytechnic which aims to integrate real-world engineering challenges into academic curricula and foster future-ready talents. Our leaders are closely connected with Singapore universities and actively participate in training and educational programmes.

Building an Ecosystem of Industry Partners

At Meinhardt Group, we are developing an extensive ecosystem of industry partners that contributes to our success and enables us to deliver exceptional value to our clients. By harnessing the collective strengths of our collaborators, we consistently exceed expectations and achieve sustainable success for all stakeholders involved. Our approach to partnerships is not just about collaboration but about creating a synergistic environment where innovation thrives and excellence is the norm.

In April 2024, Meinhardt Singapore Pte Ltd signed a Memorandum of Understanding (MOU) with Ngee Ann Polytechnic (NP), marking a significant stride towards integrating sustainability into the academic and industry landscape. This partnership aims to advance smart and sustainable facilities management, reflecting both organisations' dedication to nurturing future-ready talents and creating resilient urban solutions.

Under the MOU, both parties engage in discussions on sustainable buildings, carbon footprint reduction, infrastructure resilience, and digital twin technologies. This collaboration unfolds across various initiatives including joint research and consultancy projects, co-creation of systems and solutions, and specialised training programmes for NP students and faculty. This partnership represents a pivotal step in empowering the next generation of green leaders and setting new benchmarks for sustainable facilities management.

Flying the Singapore Flag

At Meinhardt, the Singapore office has been a trailblazer in championing a multi-disciplinary and lead consultancy approach, setting the gold standard for our global operations. This pioneering spirit has been instrumental in establishing Meinhardt as a renowned name in the engineering and consultancy industry, particularly across the Middle East, India, and Southeast Asia.

Our Singapore team has consistently demonstrated the immense value of integrating diverse expertise under one roof, fostering seamless collaboration, and ensuring comprehensive solutions tailored to each project's unique requirements. By bringing together professionals from various design disciplines, we have created a synergistic environment that promotes innovation and consistently delivers superior results.

This multi-disciplinary approach has been a cornerstone of our success in numerous landmark projects undertaken by Meinhardt, globally. From iconic skyscrapers and state-of-the-art commercial complexes to critical infrastructure projects and sustainable urban developments, Singapore office has played a pivotal role in driving these endeavours to fruition.

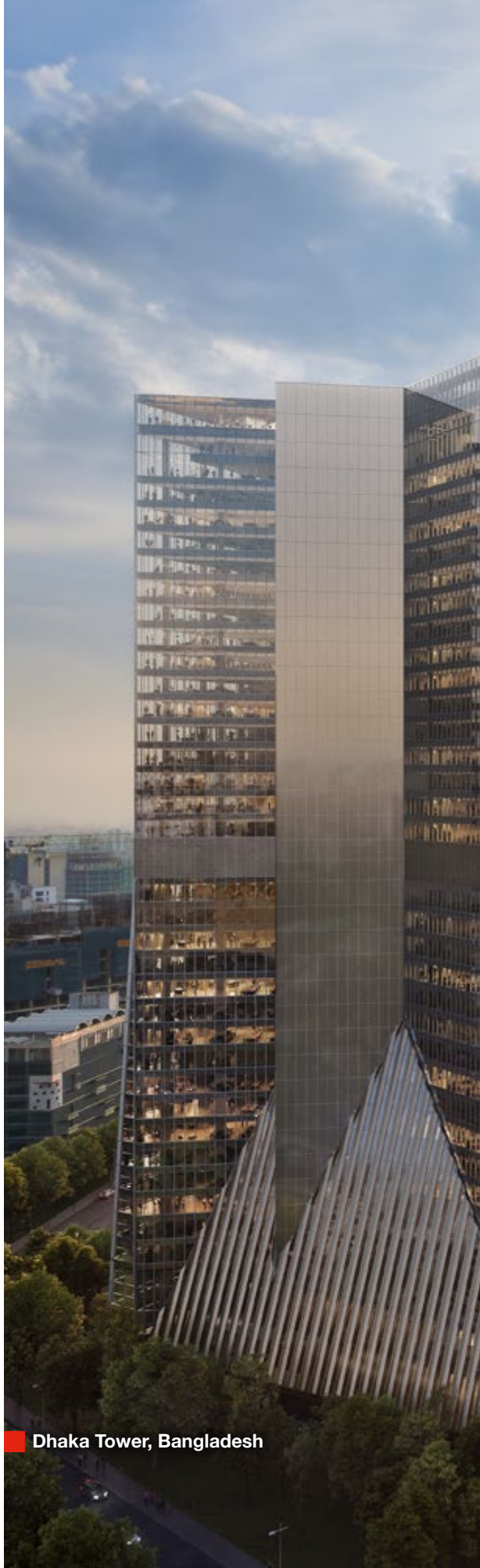
As Meinhardt expanded its global footprint, establishing branch offices in the Middle East, India, and Southeast Asia, the pioneering spirit and proven methodologies of our Singapore office served as a guiding light. Our multi-disciplinary and lead consultancy model has been adopted and adapted to local contexts, ensuring consistent delivery of excellence while respecting regional nuances and regulatory frameworks.

In the Middle East, our offices have showcased the triumph of this approach, contributing to numerous prestigious projects that have redefined skylines and set new benchmarks in construction and engineering. From iconic towers to sprawling mixed-use developments, our local teams have leveraged multi-disciplinary expertise and the lead consultancy model to ensure seamless integration of various engineering disciplines, delivering comprehensive solutions.

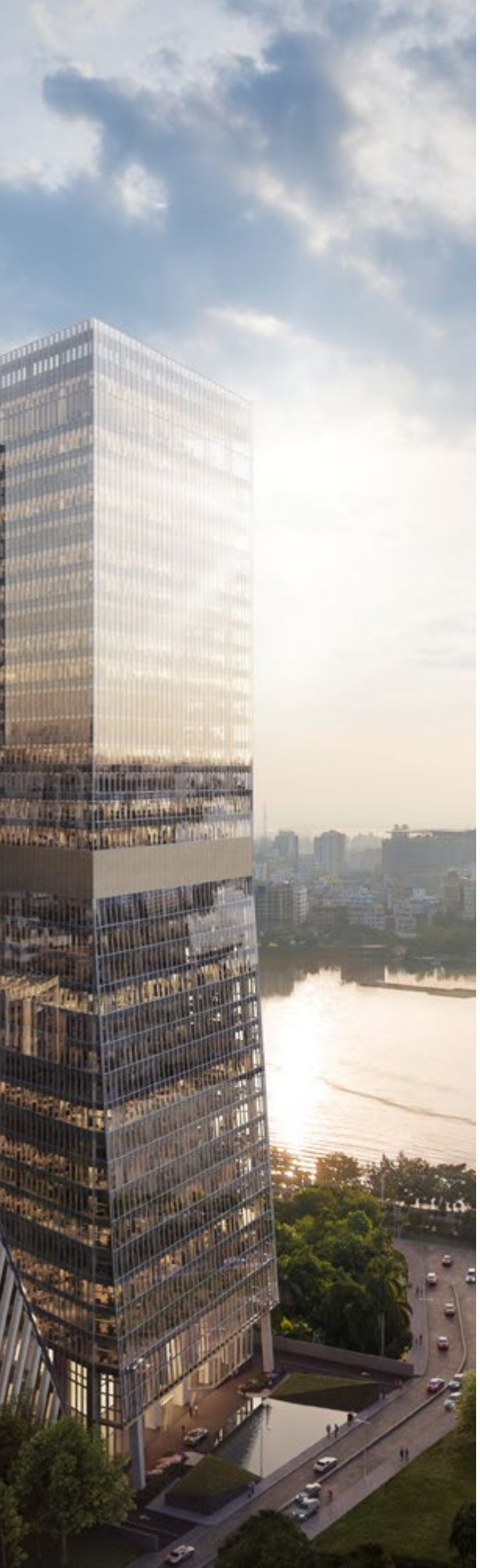
Similarly, in India, our offices across major cities have embraced the Singapore model, fostering collaborative environments that nurture innovation and drive project success. Our teams have played an instrumental role in shaping India's rapidly evolving urban landscapes, contributing to sustainable and resilient infrastructure that supports the nation's growth aspirations.

Throughout Southeast Asia, our regional offices have followed suit, adapting the multi-disciplinary and lead consultancy approach to local contexts while maintaining Meinhardt's unwavering commitment to excellence. From Malaysia and Indonesia to Vietnam and Thailand, our teams have left an indelible mark on numerous projects, ranging from transportation hubs to residential developments and commercial complexes.

The success of our multi-disciplinary and lead consultancy model is a testament to Meinhardt's commitment to innovation, collaboration, and client satisfaction. As we continue to expand our global footprint, the pioneering spirit and proven methodologies of the Singapore office will continue to guide our operations, ensuring that we deliver exceptional value and solutions to our clients, regardless of their location or project complexity.



Dhaka Tower, Bangladesh



Thamrin Nine, Jakarta, Indonesia

Client: **Thamrin Nine**
Services: **Structural, MEP Engineering, Facade, Specialist Lighting, and Traffic**
Year of completion: **2021**

Thamrin Nine was one of the most prestigious developments planned for the central business district of Jalan Thamrin in Jakarta, Indonesia. Meinhardt was commissioned to design this office-hotel-residential mixed-use development, which included four towers ranging from 35 to 71 floors (330m tall), with a total GFA of approximately 360,000 m². It comprises Autograph Tower, a Class A platinum certified skyscraper and the tallest building in the Southern Hemisphere.

TNB Headquarters Complex, Malaysia

Client: **Tenaga National Berhad**
Services: **Infrastructure, Civil, Structural, MEP Engineering, Façade, BMU, ESD, Specialist Lighting and Security Services**
Year of completion: **2021**

The new TNB Headquarters Complex was developed on a 13.79-acre plot located at Jalan Bangsar, Kuala Lumpur. It was designed to house TNB office functions and accommodate approximately 3,000 staff across an estimated floor area of 650,000 square feet. The complex is structured as a campus-style development that encompasses five primary functional zones: Office Zone, Conference Facilities Zone, Facilities Zone, General Services Zone, and Public Park/Green Zone.

Sathapana Bank Headquarter (HQ), Cambodia

Client: **Maruhan Group**
Services: **Civil, Structural, MEP Engineering**
Year of completion: **2022**

Sathapana Tower, situated on Norodom Boulevard in Phnom Penh's bustling Daun Penh district, offers premier Grade A office space for rent. This impressive building has become a key landmark in the city's rapidly expanding "banking belt" within the CBD. As the headquarters of Sathapana Banking Corporation, the tower boasts 19 floors of state-of-the-art office space, each with expansive 933 sqm floor plates.

Tenants benefit from six modern elevators, raised flooring, and centralised air-conditioning, ensuring a comfortable and efficient working environment.

With a total floor area of 33,135 square meters, Sathapana Tower is designed to support the bank's ambitious growth plans, providing a central hub for its expanding range of products and services. The building is poised to accommodate over 1,200 employees, reflecting its role in driving the bank's future success.

Jewar International Airport, India

Client: **Ministry of Civil Aviation Uttar Pradesh**
Services: **Techno – Economic Feasibility Study**
Year of completion: **2018**

The ambitious Jewar Airport project, which spans 3,000 hectares of greenfield land, emerged as a state-of-the-art aviation hub, set to transform air travel in the region. Upon becoming fully operational, it was projected to handle an impressive 30 to 50 million passengers annually over the following decade to decade and a half, significantly enhancing the area's transportation infrastructure and economic potential.

Delhi Airport T1 – T3 Automated People Mover, India

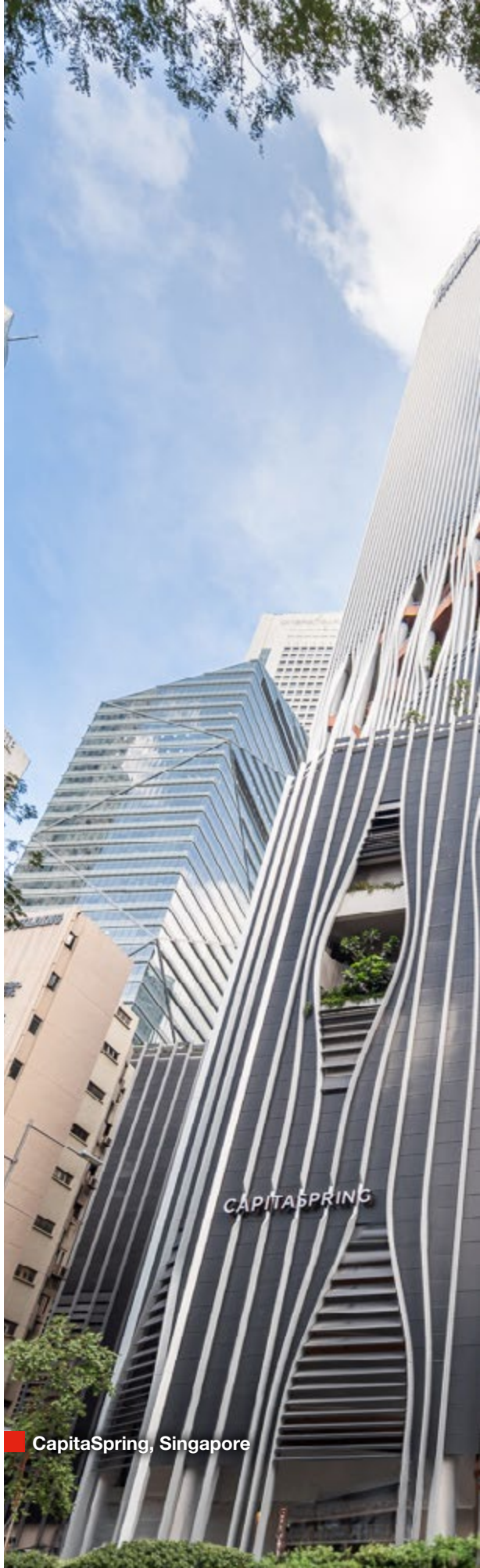
Client: **DIAL / GMR**
Services: **Feasibility Study**
Year of completion: **2020**

The study encompassed traffic forecasting, route planning, technology assessment, system review, operational planning, and infrastructure evaluation. This comprehensive analysis was designed to determine the most effective APM solution, enhancing inter-terminal connectivity at Delhi Airport. The project's findings guided the implementation of an advanced transit system, potentially revolutionising passenger movement within the airport.

The Dubai Mall & The Address Hotel, Dubai, UAE

Client: **Emaar Properties PJSC**
Services: **Civil & Structural, MEP and Facade**
Year of completion: **2010**

The Dubai Mall is a centerpiece of Downtown Burj Dubai, a 500-acre mega-development by Emaar Properties, described as the new heart of the city. Situated next to the iconic Burj Khalifa, the world's tallest tower, The Dubai Mall is the largest mall in the world, spanning over an area of 12 million square feet with 5.9 million square feet of internal floor area and 3.77 million square feet of gross leasable area. It houses over 1,200 stores, offering a retail mix unmatched by any other mall.



CapitaSpring, Singapore

Integrated Capabilities

Comprehensive Value Chain Solutions

We take immense pride in our lead positioning across the entire value chain of the built environment industry. Our commitment to delivering comprehensive and integrated solutions ensures we meet the diverse and evolving needs of our clients effectively. With a strong foundation in midstream services, we have strategically broadened our expertise to include upstream, downstream, and end-use-services.

This holistic approach allows us to offer a unique value proposition, setting us apart in the industry. Our leadership and innovative strategies have enabled us to navigate the complexities of the built environment, providing cutting-edge solutions that drive success and create lasting impacts. By leveraging our extensive global experience and deep industry knowledge, we continue to shape the future of the built environment.

Upstream: Visionary Planning and Conceptualisation

Meinhardt is at the forefront of delivering upstream services that lay the groundwork for successful projects through meticulous planning, comprehensive feasibility assessments, and strategic consulting. Our techno-commercial feasibility studies delve deep into project viability, uncover potential challenges, and offer cutting-edge solutions. We enhance project efficiency with our constructability advisory services, ensuring designs are optimised for constructability and cost. Our commitment to sustainability is reflected in our comprehensive services, including design for demolition & decommissioning, environmental design consultancy, sustainability, and ESG consulting.

We integrate sustainable practices into every phase, promoting environmentally responsible and resilient outcomes. Meinhardt's expertise also spans smart city consulting, infrastructure planning, and urban planning, where we contribute to the creation of intelligent, sustainable, and livable communities. Our commercial feasibility studies and bankability assessments equip clients with critical insights for informed decision-making. Additionally, our consortium-building and capacity development initiatives encourage collaboration and knowledge sharing among stakeholders, fostering a cohesive and innovative project environment.

Midstream: Design Excellence and Engineering Prowess

Meinhardt's operations are centred around our expertise in design development, engineering, and project leadership. Our civil and structural engineering capabilities ensure the safety and structural integrity of built assets. Additionally, our MEP engineering services integrate cutting-edge mechanical, electrical, and plumbing systems to provide optimal functionality and efficiency.

Meinhardt's façade engineering solutions focus on creating visually stunning and high-performance building envelopes that seamlessly blend aesthetics and technical performance. Our specialised services, including fire engineering, acoustics, and sustainability consulting, address niche project requirements with precision and expertise.

As lead consultants, we coordinate multidisciplinary teams to ensure seamless collaboration and project coordination. Our architectural services combine functionality, aesthetics, and sustainability to create built environments that inspire and enrich communities.

Meinhardt's commitment to delivering exceptional value to our clients underpins our comprehensive solutions spanning the entire value chain. Our integrated approach, combined with unmatched track record and capabilities, solidifies our position as a trusted partner.

Downstream: Seamless Project Execution and Management

Meinhardt's range of services ensures successful project execution, management, and procurement. Our office-based construction support services, provide technical expertise and guidance throughout the construction phase, while our site supervision teams ensure strict adherence to design specifications and quality standards.

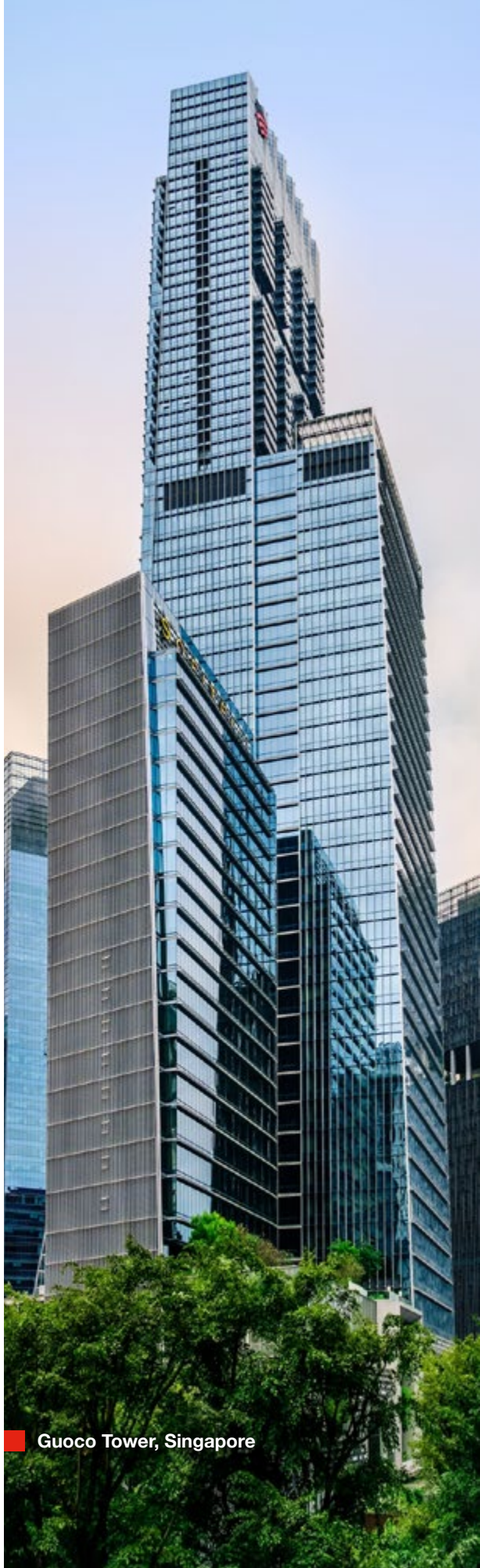
Our project management consultancy and programme management services offer comprehensive project and programme management solutions, ensuring efficient coordination, risk mitigation, and timely delivery. Our EPCM and EPC services provide turnkey solutions for complex projects, streamlining processes and minimising risks.

In addition, our testing and commissioning services verify the performance and functionality of built assets, while our process design and instrumentation offerings optimise industrial processes for enhanced efficiency and productivity. Meinhardt's façade management services ensure the long-term performance and maintenance of building envelopes, maximising their lifespan and minimising operational costs.

End-Use: Optimising Asset Performance and Longevity

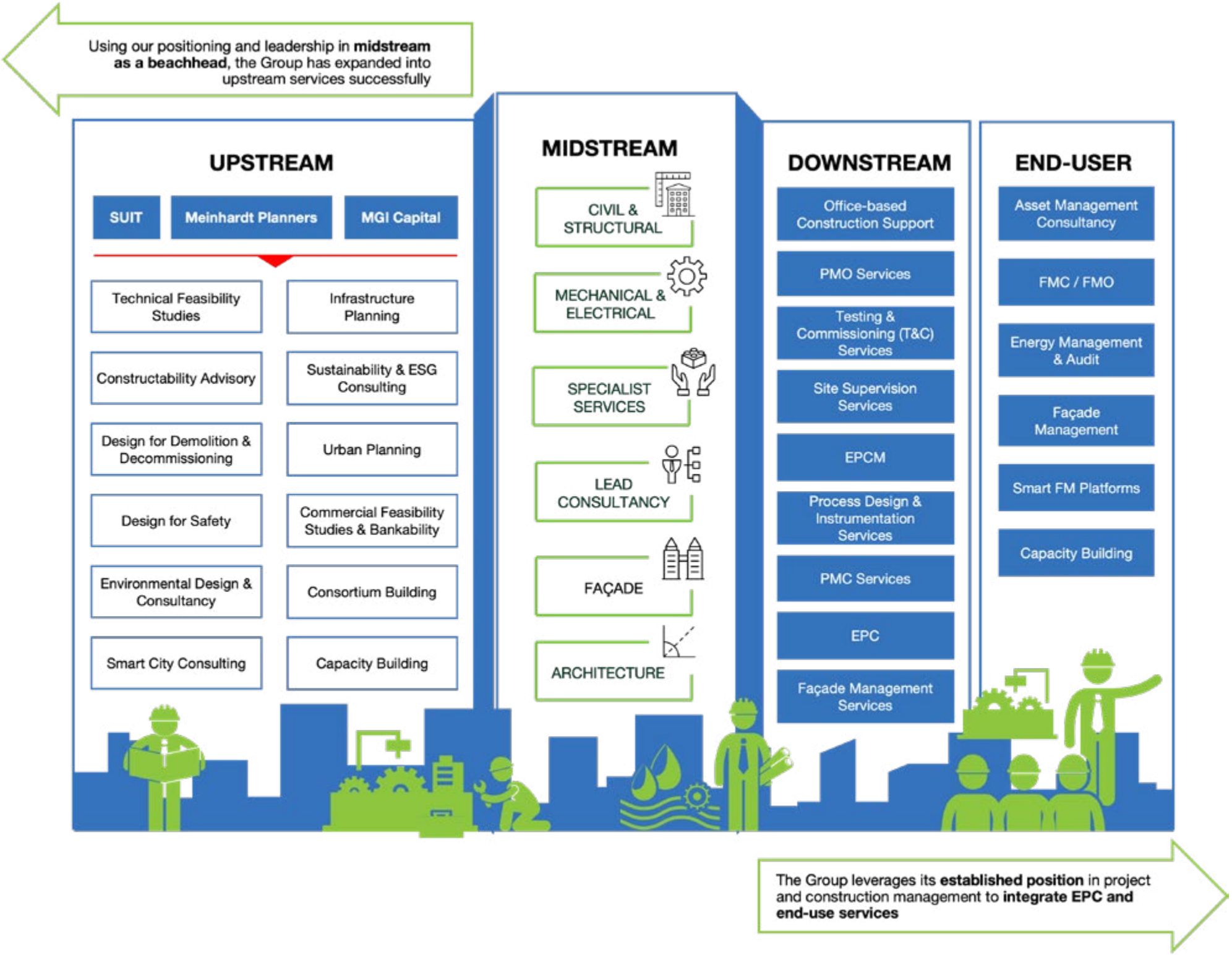
Meinhardt's end-use services are designed to support the ongoing operation and management of built assets, ensuring their long-term sustainability and optimal performance. Our asset management consultancy services provide strategic guidance on maximising asset value and minimising lifecycle costs. Our facilities management (FM) consultancy and FM services offer comprehensive solutions for the efficient operation and maintenance of facilities, ensuring compliance with regulatory requirements and enhancing occupant satisfaction.

Meinhardt's energy management and auditing services identify opportunities for energy optimisation, reducing operational costs, and minimising environmental impact. Our façade management solutions ensure the continued performance and longevity of building envelopes, while our smart facilities management platforms leverage cutting-edge technologies for enhanced operational efficiency and data-driven decision-making. Additionally, our capacity-building programmes empower clients and stakeholders with the knowledge and skills necessary to effectively manage and maintain their built assets, fostering long-term sustainability and self-sufficiency.



Guoco Tower, Singapore

Positioning



Upstream Capabilities

- Urban Planning
- Integrated Infrastructure
- Smart and Sustainable Urban Infrastructure Transformation (SUIT)
- FEED and Technical Studies
- MGI Capital
- Capacity Building

NEOM International Airport, NEOM, KSA

Upstream Capabilities: **Urban Planning**

As part of the Meinhardt Group's integrated multi-disciplinary engineering, planning and project management services, Meinhardt Planners Singapore (MPS) designs comprehensive urban and infrastructure masterplans for cities and industrial townships at various stages of development. From concept to detailed masterplans, city visioning, and positioning to capacity building, MPS provides a full suite of urban planning services.

Delivering 'meaningful value' is central to everything we do. We offer our clients a unique perspective and depth of understanding, ensuring that the vision, ambitions, and aspirations of a project—not just its physical ideas and tangible concepts—are fully realised. We transform every planning challenge into a liveable future, one that enriches lives into the next century.

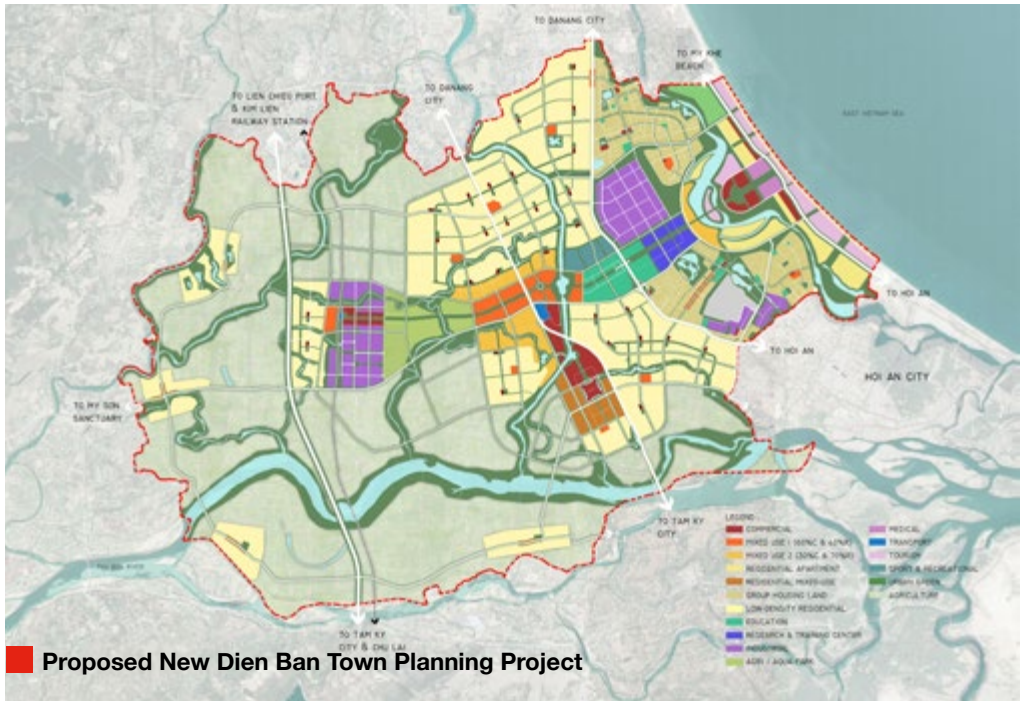
What Makes Places Great

Special places are meaningful for a multitude of reasons. They serve as focal points where innovation, growth, and community identity intersect, rooted in feelings of belonging, unity, and togetherness. Developing these spaces enhances the experiences of those who utilise them and cultivates a stronger bond with the surrounding urban environment. Through thoughtful consideration of community needs and the distinctive qualities of each location, we aim to elevate these areas into dynamic centres of activity and cultural importance.

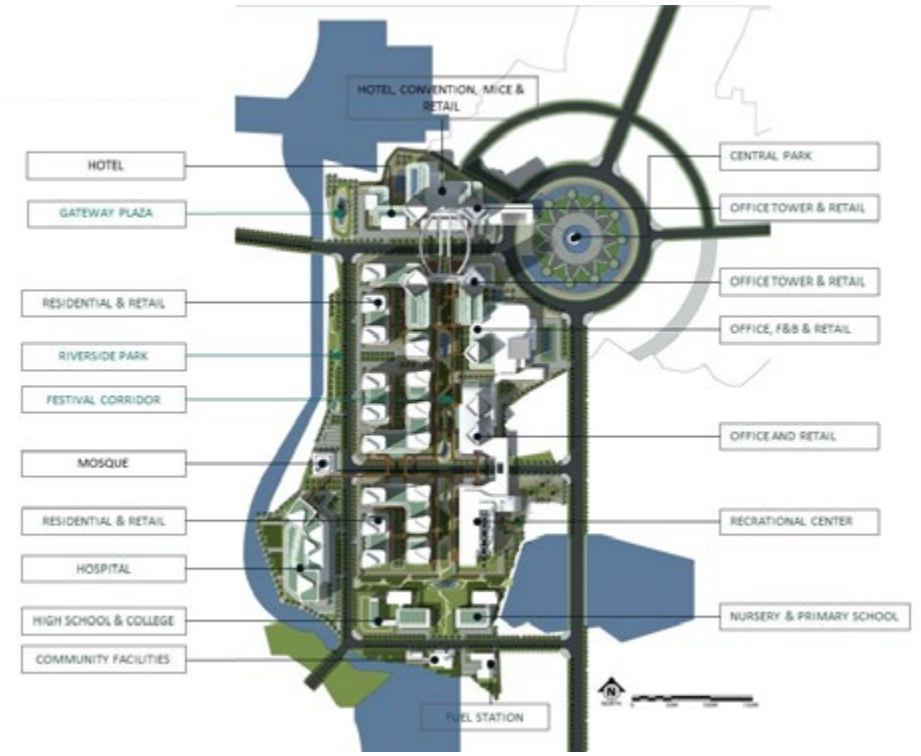
New Tashkent City, Uzbekistan is the convergence of innovation, growth, and community identity rooted in the sense of belonging, unity, and togetherness. It is envisioned as a city of symbiosis that is harmonious, dynamic, sustainable, community-centric, and future-ready. It will rejuvenate the Existing City, learn from the past, celebrate culture and heritage, and look forward to bringing new strength to the nation, positioning it as the heart of Central Asia.

Shaping Liveable & Conducive Environment To Thrive

Shaped by the myriad blend of social, cultural, and economic qualities, our varied global experience in urban planning makes placemaking memorable. Our identity is closely related to where we live, work, and play and where we develop social and community ties. We often introduce ourselves by associating with the place we come from.



Proposed New Dien Ban Town Planning Project



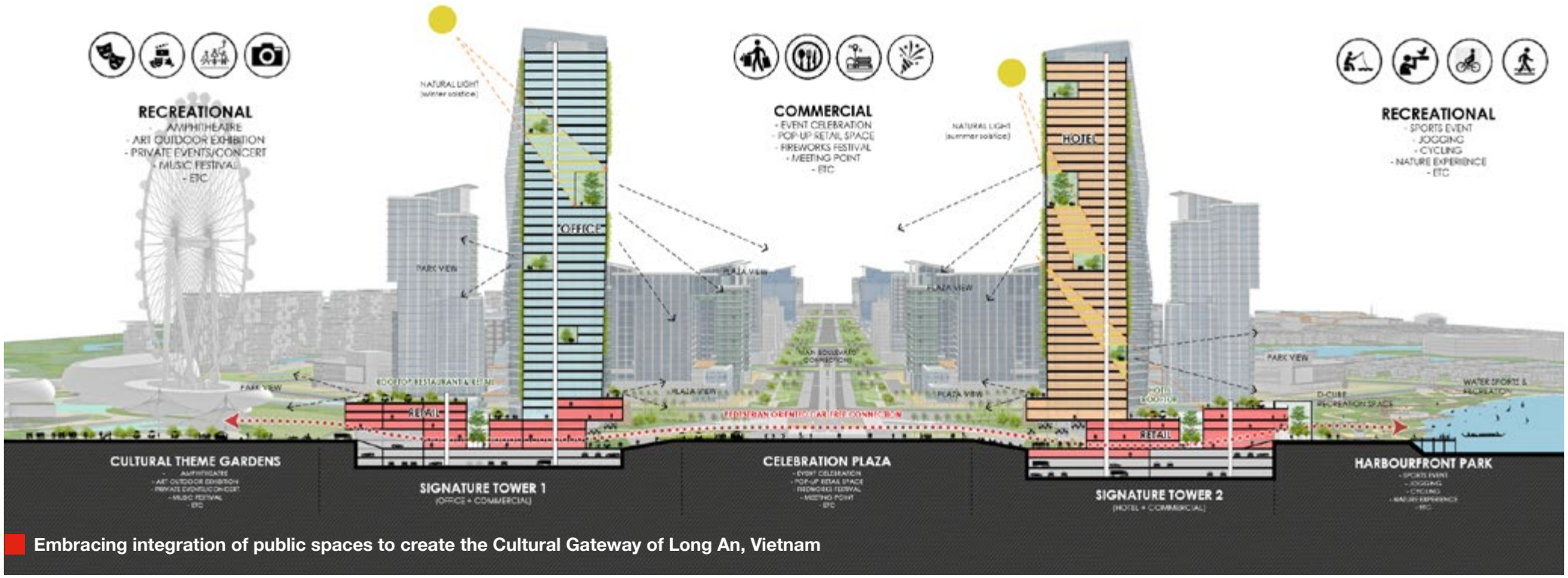
Illustrative Zone 1
Baunia Integrated Living Hub

Cultural Centre in New Kharkhorum City, Mongolia

Placemaking: Crafting Vibrant Communities and Fostering Connections

Placemaking is more than just design; it's about creating environments where communities can truly flourish. It involves a collaborative effort among stakeholders to shape spaces that not only enhance our connection to the city but also enrich our sense of identity and heritage.

By integrating a distinctive blend of values that honour nature, culture, and local traditions, placemaking creates harmonious spaces where community, environment, economy, and recreation are seamlessly interwoven. This holistic approach fosters both livability and sustainability, ensuring that the places we create today will continue to inspire and support future generations.



Embracing integration of public spaces to create the Cultural Gateway of Long An, Vietnam

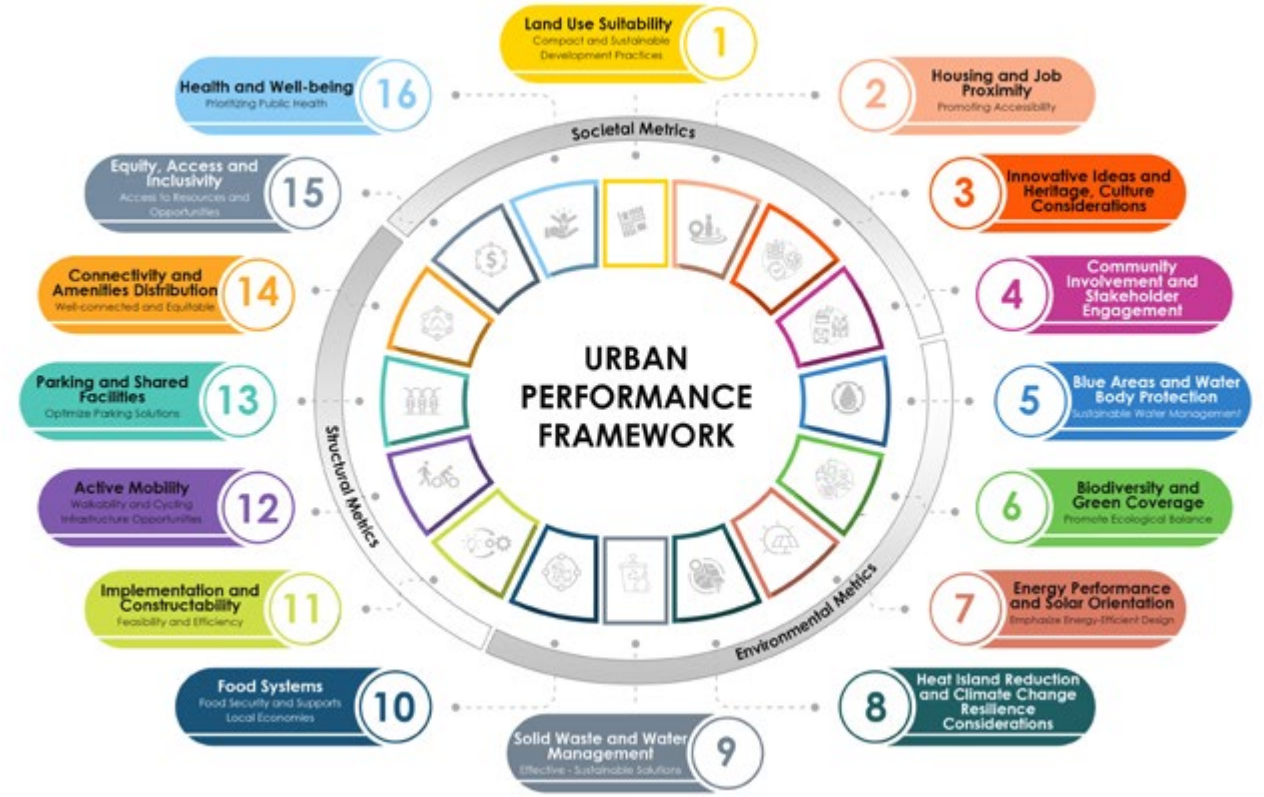
Lusail's Grand Courtyard, Doha

New Tashkent Farmer's Market

Digital Frontiers In Urban Planning Process

Developing Urban Performance Standards, Specifications Evaluation and Practice Codes, in the Urban Planning framework, offers unprecedented opportunities to enhance the efficiency, effectiveness, and inclusivity of the planning process.

Planners can navigate complex urban challenges with greater precision and agility by leveraging data-driven decision-making, GIS analysis, participatory platforms, VR/AR visualisation, and real-time monitoring. As we embrace innovation in urban planning evaluation and assessment, we aim to create more resilient, sustainable, and equitable cities that meet the evolving needs of residents and stakeholders in the 21st century.



Urban Planning Performance Evaluation For New Tashkent

Open Web GIS Portal as Innovative Approach to Better Communicate with the Public

GIS plays a critical role in the planning and decision-making process. Georeferencing data from different sources and visualising this data in a geospatial context allows the users to identify trends, patterns and relationships that would have been difficult to identify from tabular dataset.

Developing Urban Performance Standards, specification evaluation and practice codes assessment

Upstream Capabilities: **Smart and Sustainable Urban Infrastructure Transformation (SUIT)**

We envision a “smart city” as an immersive journey. The functionality of an intuitive city is knit around the citizen’s satisfaction, which is linked to city efficient operations, and interoperability.

A smart city provides a safe, seamless and convenient journey and experience to all, be it tourists or citizens, even before their arrival.

Established in 2016, Meinhardt’s “Smart Cities Centre of Excellence (CoE)” is dedicated to research, development, and strategising for various strategic projects in Singapore, Hong Kong, India, and the rest of Asia. In 2018, Meinhardt CoE established its strong footprint in the Middle East region, focusing on airports, large-scale townships, and integrated city infrastructure development projects. This pursuit encapsulates the firm’s unwavering commitment to driving the boundaries of urban development, with a particular emphasis on crafting smarter and more sustainable cities for future generations. The group was rebranded as “Smart and Sustainable Urban Infrastructure Transformation (SUIT)” in 2020 to manage Meinhardt’s global targets and ambition to bring front-end engineering strategy and service offerings under one group.

Today, developers, construction companies, government agencies, multinational corporations, and NGOs are on our 200-plus strong global strategic team in five offices worldwide, delivering smart city projects of the highest quality.

Team SUIT (Smart and Sustainable Urban Infrastructure Transformation) was formed with the mission to promote the overarching role of cognitive and sustainable infrastructure in large-scale integrated infrastructure projects.

The team is led by SUIT’s Group Director, Bhavya Kukrety, who aims to bring a fresh perspective by fostering interdisciplinary coordination across sectors. Its approach focuses on integrating one-water strategies, smart grids, multi-mobility solutions, and intelligent systems. These solutions are agnostic and adaptable across different sectors and geographies, effectively managing complex multisectoral entities.

Smart city solutions are ever-changing. There are no absolute definitions of smart cities but rather a process in which cities become more cognitive and predictive versus reactive and resilient, enabling them to respond quickly to new challenges in the environment.

As part of Meinhardt Group’s integrated multi-disciplinary engineering, planning, and project management services, we design comprehensive urban and infrastructure masterplans for cities and industrial townships at various stages of development. From conceptual to detailed masterplans, city visioning and planning to capacity building, Meinhardt provides a full suite of planning services.

What distinguishes Meinhardt’s services is our ability to develop strategic, integrated, smart, and sustainable plans that are aligned with a city development’s socio-economic objectives. We strongly emphasise improving the quality of life, growing communities, and promoting sustainability.

Tapping on the multi-disciplinary capabilities of Meinhardt Group, we are able to provide comprehensive solutions that span the entire project life cycle. This includes the stages ranging from planning and design to implementation, execution, and management. Additionally, we can conduct pre-feasibility and business plans to make strategic investment decisions.

Our projects are managed from the conceptual stage to the tendering stage. Some examples of ongoing or completed projects include:

- Confidential 1500 Ha development, KSA
- Gulf of Aqaba, NEOM, KSA
- 300 Ha highdensity development in Manila, Philippines
- Oxagon Jebel Village, OXAGON, KSA
- 1500 Ha Sultan Haitham City, Muscat, Oman
- 600 Ha Futuristic Smart City, Sohar, Oman
- OXAGON Innovation District Urban Plan, Riyadh, KSA
- Osool Digital City Master Plan, Riyadh, KSA
- Confidential futuristic Cognitive Airports in the KSA, Malaysia and India

Integrating advanced technology into urban environments can significantly enhance the overall quality of life. These improvements go beyond increased productivity and enhanced public services; they reduce the need for commuting and expand leisure time.

The core of this technological evolution is to conserve time, minimising the time spent on mundane tasks. This allows individuals to dedicate more time to fulfilling their essential goals and priorities.

NEOM Magna, Kingdom of Saudi Arabia

Client: **NEOM Group**
Services: **Complete design packages for all disciplines**
Year of completion: **Ongoing**

Magna, the breathtaking coast of NEOM, has officially been launched!
Nestled in the Tabuk region of Saudi Arabia, this pristine 120 km stretch along the Gulf of Aqaba will soon host 15 iconic hotels and offer 2,500 luxury homes for residents and guests alike.

“We are thrilled to contribute to NEOM’s Magna project, a testament to visionary planning and state-of-the-art infrastructure. At Meinhardt, we pride ourselves in delivering innovative solutions that harmonise with natural landscapes while elevating the overall guest experience.

This project underscores our commitment to smart, sustainable, and resilient infrastructure, setting a new benchmark for ultra-luxury developments worldwide.”

Mr Omar Shahzad, CEO, Meinhardt Group

The Magna project features distinctive mansions embedded within the hills and cliffs of the gulf coastline, based on a futuristic, science-fiction theme. It offers an array of high-end leisure facilities, luxury hospitality, and unique tourism experiences, all surrounded by natural and cultural assets. The development is divided into six distinct districts, defined by their geographical and topographical contexts, development opportunities, and stakeholder requirements. Our integrated smart and sustainable infrastructure services ensure seamless coordination and integration of all project elements, aligning with diverse stakeholder requirements to deliver holistic and successful engineering solutions from project initiation to completion. We cover complete design packages for all disciplines, including:

- Roads, Bridges, Culverts and Tunnels
- Coastal Studies and Marine Protection- Hydrology Management and Flood Mitigation
- Infrastructure Networks and Utility Buildings
- Climate Change, Urban Resilience, and Sustainability
- Smart, ICT, Communication and Security Systems
- Mobility and Transport Planning- Utility Buildings
- Solid Waste management
- Compliance to environmental, sustainability and dark night protocols
- Digital Delivery

Osool Digital City, Riyadh, Kingdom of Saudi Arabia

Client: **Digital City**
Services: **Master Planning**
Year of completion: **2024**

Digital City, located in the heart of Riyadh, is principally an office development which features an assortment of government and commercial tenants supported by residential, F&B and utilities infrastructure. The city was originally developed to cater to the needs of technology companies and create a major hub for IT activity, but over time has become the base for both government (78% of the offices) and general corporate entities.

Digital City can be divided into the following:

- Digital City 1 (DC1): plot area of circa 82 Hectares and is predominantly commercial land use.
- Digital City 2 (DC2): plot area of circa 31 Hectares and is predominantly residential land use.

The development is now managed by Osool, a new entity formed out of RAZA, GOSI, RE and Jawda, which is seeking to improve returns, values, and services across the portfolio. Osool's aim with Digital City is to upgrade the development and this scope is a first step to achieving this through updating the masterplan through the following steps:

- Review and update the existing Master plan for improvement and development.
- It includes integration of the new market assessment results and turning this development into a 24 by 7 destination.
- Provide logical, practical and reasoned plot regulation sheets for two plots with the option for three additional plots at the client's discretion.
- Assessment of the regional infrastructure, surrounding roads, public transportation inclusion, congestion and parking issues; Development of transport model, short term and long term interventions and mitigation measures and strategic proposals to ease, congestion, parking issues and delay at the surrounding junctions.
- Comprehensive assessment of existing infrastructure and redundancies to accommodate the increasing FAR and footfalls through the master plan change.
- Promote sustainable development, maximise commercial value and create a safe and efficient traffic and transportation network.
- Identify master planning and phasing priorities.
- Continuity and redundancy of utilities services within the forecasting demand.

NEOM International Airport Digital Strategy, Kingdom of Saudi Arabia

Client: **NEOM Air Mobility**
Services: **Consultancy services**
Year of completion: **2022**

NEOM International Airport (NIA) aims to be “Gateway to the land of the future” with its NEOM Airport design principles, focusing on passenger experience, efficiency and sustainability. The early growth of NEOM will be catalysed by the completion of a futuristic Smart Airport, essential for the region’s expansion handling 30 million passengers in the near future.

Leveraging artificial intelligence (AI), robotics (Robots), and machine learning (ML), this airport development aspires to become a cutting-edge “Smart Airport” that showcases the latest smart technologies in aviation and lay the foundation for all future strategic efforts at the Cognitive NEOM International Airport.

NEOM International Airport has the perfect size and footprint (up to 6 million PAX) to serve as a proving ground for cutting-edge smart airport technology solutions. These include smart gates, check-in, baggage monitoring, facial recognition, biometric identifications, airport terminal navigation via mobile devices, data analytics, data mining to study passenger behaviour, AI adaptations, and many more quality-of-service improvements.

Meinhardt provided consultancy services in the areas of Digital Airport Operations, Customer Experience, and Infrastructure.

Meinhardt’s Digital Strategy includes the following components:

- Develop a digital intent to drive growth and efficiency.
- Emphasise customer-centric focal point for the futuristic NEOM Bay Airport experience.
- Define digitalisation goals for each selected segment, such as Digital Airport Operations, Digital Airport Customer Experience, and Digital Airport Infrastructure.
- Road map - identify all actions, stakeholders, risks, and timelines required to achieve the defined strategy.
- Study a high-level business case and assess its viability.
- Develop integrated digital APOC systems and strategy of digital assistants, self-autonomous airport and identify related technical, operational and human challenges.
- Design and propose integrated sensory network.
- Establish and recommend the guidelines of a connected Airport Operations system.
- Assess key criteria of Airport Control Centre and ensure effective data sharing among all stakeholders using digital tools.

NEOM Bay Airport Digital Strategy, Kingdom of Saudi Arabia

Client: **NEOM Air Mobility**
Services: **Consultancy services**
Year of completion: **2021**

NEOM will offer a fully integrated, seamless and personalised end-to-end passenger experience by 2028. With a total estimated capacity of 6 million passengers, the NEOM Bay Airport (NUM) will act as a catalyst for NEOM's early development, positioning itself as an innovative Smart Airport that showcases the latest smart technologies using existing AI, robotics and ML to optimise every process step to the fullest extent possible.

The airport development will follow the framework established by the following:

- NEXTT (New Experience in Travel and Technologies) programme.
- NEOM digital technology standards, guidance and roadmaps. This alignment provides a strong foundation for the airport's security measures.

The insights gained from these initiatives will serve as a testbed for further advancements in AI and ML by the National Infrastructure Agency.

The digital strategy is comprehensive, addressing a 360-degree journey across all customer touchpoints while embracing the proposed digital concepts.

Meinhardt's Digital Strategy scope includes the following:

- Developed digital intent to drive growth and efficiency.
- Create and develop functional and technical requirements for the foundation layer of ICT infrastructure to accommodate current and future connectivity to NUM systems and third-party applications.
- Define digitalisation targets for each selected segment, namely Digital Airport Operations, Digital Airport Customer Experience and Digital Airport Infrastructure.
- Establish and propose spatial requirements, design guidelines, and seamless integration requirements to be laid out with the master plan/architectural layout.
- Study a high-level business case and assess its viability.
- Road Map – identify all actions, stakeholders, risks, and related timelines required to achieve the defined strategy.
- Identify critical data points for integrated operations and infrastructure management, including mobility, waste, water, environmental and safety management.

Smart Aerocity/Aerotropolis, Delhi, India

Client: **Delhi International Airport Limited (DIAL)**
Services: **Master Planning and Schematic Design**
Year of completion: **2020**

Preliminary Design and Feasibility studies;
The project is a prestigious project by a renowned developer in Asia. The intent is to go beyond the concept of a smart, safe and sustainable city.

The scope included conceptual master planning and schematic design for the following services:

- Traffic Impact Assessment.
- Public transportation strategy with feasibility of Tram/APM.
- SMART city master plan.
- IT and security master plan.
- Waste and wastewater management.
- Storm water management, bioswales and irrigation.
- District cooling.
- Power supply and distribution.

NS Square, Singapore

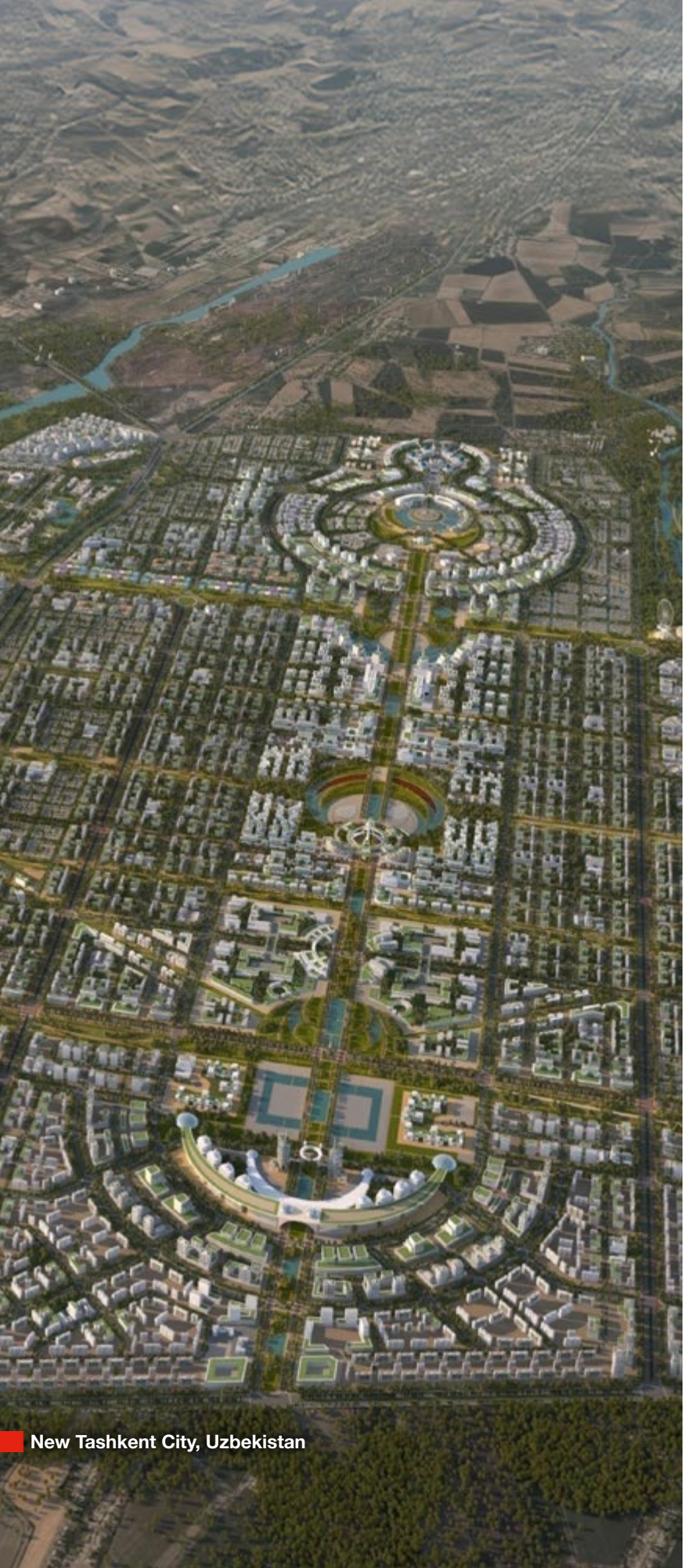
Client: **DSTA, Singapore**
Services: **Environmentally Sustainable Design Services**
Year of completion: **Ongoing**

The floating stadium complex at Marina Bay consisting of 8 storeys and 1 basement has achieved Green Mark (GM) Platinum rating + Super Low Energy (SLE) under BCA Green Mark 2021 Scheme which is in line with the GreenGov.SG initiative and Singapore Green Plan 2030. Our scope is to provide environmentally sustainable design services such as building energy efficiency strategies, envelope performance analysis and solar radiation and shading analysis for onsite PV installation. The development is designed with a series of environmentally sustainable initiatives that includes nearly 50% of the GFA being non-airconditioned; adoption of district cooling and integrated energy management system, and high-performance building façade as well as sustainable materials to reduce its energy consumption and embodied carbon footprint.

BWDC Residential Tower, Manila, Philippines

Client: **Bonifacio West Development Corporation**
Services: **Environmentally Sustainable Design Services**
Year of completion: **Ongoing**

BWDC Tower is a unique 54-storey residential building in Manila with a one unit per floor design for upscale living experience. The tower is targeting Green Mark Platinum rating under GM RB:2016 framework for its sustainable features such as enhanced natural ventilation through lanais; high performance building envelope; optimisation of thermal comfort, daylighting and views, and highly efficient VRF system for supplying cooling demand and rainwater harvesting for landscaping. Meinhardt is providing environmentally sustainable design services such as building energy efficiency strategies, solar studies, building envelope performance studies and CFD simulations.



New Tashkent City, Uzbekistan

Upstream Capabilities:
Integrated Infrastructure

Smart Cities: A Vision of Integration and Sustainability

We believe that a "smart city" is more than a concept—it's an experience. A truly smart, cognitive, or intuitive city doesn't rely on logos, marketing slogans, or branded assets. Instead, its essence is reflected in its seamless functionality, integrated operations, and emphasis on customer satisfaction.

Smart cities are designed to enhance urban efficiency and sustainability. They monitor and integrate the functionalities of critical infrastructure—roads, tunnels, airways, waterways, railways, and communication power supplies—while addressing security concerns. This level of integration requires specialised services, including Sustainable Drainage Solutions, 3D Drainage and Services Coordination, Flood Risk Assessment, International Masterplanning, Site Development, On and Off-Site Highways Design, Site Pre-Purchase Due Diligence and Feasibility, and Earthworks Cut & Fill and Site Logistics.

New Tashkent City: A Pinnacle of Integrated Infrastructure and Smart City Vision

New Tashkent City, an ongoing urban development project in Uzbekistan, is a shining example of how integrated infrastructure can bring the concept of smart cities to life. This project exemplifies a visionary approach that goes beyond mere urban planning to create a fully immersive experience of a “smart” and sustainable city.

In New Tashkent City, the essence of a smart city is not just a theoretical construct but a lived experience. The city is designed to function seamlessly, with every aspect of its infrastructure — roads, tunnels, railways, communication networks, and more — working in harmony. This level of integration is critical to achieving urban efficiency and sustainability, ensuring that all elements of the city are connected, monitored, and optimised for peak performance.

The development of New Tashkent City is grounded in a vision that prioritises ecological, spatial, and economic interaction. The city is being shaped to adapt to emerging trends, driving the growth of new economic sectors and attracting investment that will fuel innovation-driven urban developments. With master planning and urban design at its core, New Tashkent City will offer a conducive environment for workplaces, residences, amenities, and community connections, all while maintaining a focus on health and safety.

This project demonstrates the importance of specialised services in achieving a truly integrated city. From Sustainable Drainage Solutions to 3D Drainage and Services Coordination, from Flood Risk Assessment to International Masterplanning, every detail is meticulously planned to ensure the city’s infrastructure supports its long-term sustainability and resilience.

New Tashkent City is a forward-thinking urban environment where integrated infrastructure and smart city principles converge to create a sustainable, efficient, and livable community for the future.

Sultan Haitham City, Muscat, Oman

Client: **Ministry of Housing & Urban Planning**
Services: **Concept and Detailed Master Plan**
Year of completion: **2024**

Meinhardt team has been working on this prestigious 1560 Ha project which was adopted by the Sultan and renamed as Sultan Haitham City since the year 2022. Meinhardt initially did the Concept and Detailed Master Plan for the project with Skidmore, Owings & Merrill (SOM) and provided critical inputs to developing sustainable smart & integrated Infrastructure and transport master plan.

Following the preliminary and detailed design, tender & IFC packages and specifications were developed including detailed hydrology study; roads and levelling plans; inclusion of hardscape and landscape strategies in the parks and the public realm, and key indicators for smart city development.

Meinhardt's Scope includes:.

- Hydrology Study with Flood Risk Management.
- Geo Technical Analysis.
- Environmental and Biodiversity Analysis.
- Environmental Review and Sustainability Strategy.
- Earthworks and Grading Strategy.
- Water Resource Management strategy and Wastewater system including treatment.
- Fire-Fighting Systems.
- Sewage Collection, Treatment Plants & Reuse Of Treated Water.
- Stormwater Management & Flood Risk Management Strategy.
- Gas Supply.
- Energy strategy encompassing combined power, district cooling and energy management including design of primary and secondary substations.
- Smart City Strategy, ICT and Communications Strategy.
- Smart Waste Management Strategy.
- Traffic Impact Study, Transport studies, integrated land use transport planning and road geometric design.
- Safety & Security Strategy.

Upon the successful completion of the Detailed Master Plan in 2023, the Meinhardt team was engaged for preliminary, detailed and tender design for 430-hectare Phase 1 development. All the external road linkages and the associated infrastructure are included in the scope. The Meinhardt Construction Supervision team was also engaged in 2024 to manage an end to end delivery on the project.

The scope includes:

- Preliminary, detailed, tender design for all services in the Phase 1 i.e. 430 Ha.
- Construction Supervision for the Phase 1 development.
- Design of five bridges, including iconic bridge and the 80 Ha Big Park in the Phase 1.
- Road geometric design and detailed engineering for the regional linkages and the internal roads in Phase 1 development.

Delhi Smart Airport, Delhi, India

Client: **GMR**
Services: **Planning, feasibility studies and implementation**
Year of completion: **2021**

After a careful review of the global smart cities standards, and digital transformation initiatives, Meinhardt worked towards a unique definition, vision, goals and objectives for the Smart Airport City 4.0. The role of the integrated infrastructure and ICT team was to look at aspirational and accountable KPIs, various architectures (with a technical focus for implementation), and technical solutions for various areas such as transport, energy, environment, utilities and the APIs integration. The aim was for large scale implementation and interoperability. Meinhardt conducted ground surveys, sector-wide gap assessment and strategic visioning workshops to formulate comprehensive technical blueprints and tender documents for the development of terminals and an integrated smart city. The blueprints detailed two to six years of phasing strategies with respect to the seven pillars of innovations in data and communication management; terminal and landside operations; traffic management; energy management; water management; security management; smart lighting and wayfinding, and smart environmental management.

Furthermore, the scope covered:

- Review of individual data input, overviews of departmental operations and standard operating procedures to draw up corresponding action plans.
- Review of existing Terminal and landside master plans, business operations, organisational structure and business processes.
- Understanding and tailoring the passenger's journey from landside to terminal side and working towards the aspirations of Gen X.
- Gap Assessment on the smart city parameters and forming a unique scoring system.
- Visioning, strategy, goals and development of micro & macro KPIs.
- Review of existing SOPs and upgrading to improve response time and customer experience.
- Development of sector specific solutions for security surveillance (including detailed TVRA); intelligent transportation system (MaaS); water and wastewater management; drainage; urban resilience and sustainability; smart grid; data communications, and terminal and landside operations management.

Each pillar was deliberated in depth for various phases based on the following parameters

- Supported Protocols.
- Available Technologies.
- Software, Hardware, Regulatory and Privacy and Security Requirements.
- Datasets.
- Capital Cost & Lifecycle Cost.
- Targeted Timeframe fo Implementaton.
- Development of implementation framework, cost benefit analysis and phasing strategy.
- Development of 8 dashboards and Integrated Super App.
- Digital Twin and AR/VR development.
- Development of Tender document and tendering support.

Pasay, Manila, Philippines

Client: **SM Prime Holdings**
Services: **Sustainable, Smart & Integrated Infrastructure Master Planning**
Year of completion: **Ongoing**

This reclamation Project has been consolidated into two larger islands totalling 360ha. The north island accommodates exclusive residential waterfront neighbourhoods while the south island will become one of the premiere commercial and cultural hubs of Manila, building on the Mall of Asia success.

The planned development is adjacent to a highly developed onshore area which is accessible via Metro Manila's major road networks, transport hubs, and seaports. Envisioned as a residential and commercial magnet with various business and community service opportunities, the new city development aspires to create an indoor/outdoor experience, connecting the future world-class Waterfront of Manila with SM Mall of Asia through Central Park landmarks. Meinhardt was appointed to provide a Sustainable, Smart & Integrated Infrastructure Master Plan for Concept and Detail Master Plan Design stages.

The Integrated Infrastructure Design Scope includes:

- Potable water and Wastewater networks, in consideration of efficient water use and reuse through all its amenities such as desalination plant, sewage treatment plants, rainwater, and condensate water harvesting.
- Proposal of Sustainable Stormwater Drainage System analysed against climate change, flood analysis, and other hydrological factors concerned reclaimed islands.
- District cooling and heating network analysis considering Distribution Network availability, proposed demands, technology assessment, and energy storage.
- Efficient and sustainable eco-friendly solid waste management, emphasising awareness of prevention and reduction of waste, providing recycling solutions with the use of IoT- enabled solutions to manage the collection and sorting process.
- Evaluation of existing power supply infrastructure and assessment of alternative, renewable energy sources with potential energy storage.
- Analysis of utilities' opportunities and obstacles on reclaimed land; consideration of on-land resources and connectivity, and regulatory and supply constraints, while focusing on self-sustained resources within islands.
- Identifying and implementing suitable global standards, new technologies, and national/international benchmarking projects through comparative assessment with local guidelines and possibilities.

Sohar New Smart City, Oman

Client: **Ministry of Housing & Urban Planning**
Services: **Consultancy Services**
Year of completion: **Ongoing**

The Ministry of Housing & Urban Planning (MoHUP) envisions Oman Vision 2040 through Oman National Spatial Strategy (ONSS) and Regional Spatial Strategies (RSS).

Sohar is designated as a national gateway city in the north, undergoing transformation into a New Smart City. A consortium led by Meinhardt and including Hassell Studio, Knight Frank, HMR Consultants, and EIDC, was awarded the consultancy services for Sohar's Detailed Masterplan & Design establishment. This project aims to leverage existing urban infrastructure, foster commercial and industrial growth, and enhance global connectivity to make Sohar a regenerative and future-ready Smart City, boosting local economies and supporting future economic development.

The scope of services include:

- Tender design for all services in the Phase 1.
- Construction Supervision for the Phase 1 development
- Road geometric design and detailed engineering for the regional linkages and the internal roads in Phase 1 development.

New Tashkent City, Tashkent, Uzbekistan

Client: **Confidential**
Services: **Master Planning and Urban Design**
Year of completion: **Ongoing**

The New Tashkent City will be developed into a conducive environment for workplaces, residences, amenities, leisure, and community connections that sustain healthy and safe living. The vision aims to create an enabling environment for ecological, spatial, and economical interaction. The industries are built to adapt and embrace emerging trends. The vision drives to catalyse numerous emerging economic sectors and attract investors that will foster entrepreneurial and innovation-driven urban developments in the New Tashkent City.

Scope of Services:

Stage 1: Strategic Concept Masterplan.

- Project Inception, Data Collection, Site Analysis, Site Selection & Pre-feasibility Study.
- Land Sustainability Analysis.
- Socio-Economic Positioning & Recommendation.
- Benchmarking & Programming.
- Visioning, Strategy Objectives & Strategy.
- Concept Master Plan, Land Use Zoning Plan, Transportation Plan, Development Phasing Plan.
- Sustainable Strategies.

Stage 2: Detailed Master Plan & Urban Design.

- Urban Design Concept & Design Strategies.
- Development Guidelines for Catalyst Project.
- Zoning & Parcellation Plan.
- Illustrative Plan & Identity Plan.
- Schematic Infrastructure Plan.
- Land Sale/ Lease Programme.
- GIS Management & Online Database Website.
- Capacity Building.

Lim Chu Kang Agri- Food Park, Singapore

Client: **Singapore Food Authority**
Services: **Infrastructure design**
Year of completion: **2022**

The redevelopment of Lim Chu Kang is Singapore's initiative towards national food security mission. Meinhardt, alongside other consortiums including master planners, agricultural consultants and environmental consultants, is one of the five teams to be selected for this competition bid. Meinhardt's major scope of services is in mobility and logistics solutions, and infrastructure planning, sustainability, and circularity.

The mobility scope of services includes but is not limited to reconnecting the site to the city; enhancing transport networks; streamlining logistics, and increasing accessibility for workers and visitors through public transit and multi-modal mobility. Meinhardt's infrastructure design lays out the steps towards a self-sufficient and circular district, addressing the high energy and water demands of agricultural programmes. Alternative methods of energy generation; smart measures; digital infrastructure to reduce demand, and resource management strategies to increase efficiency at both district and individual scale are proposed.

King Saud University, Kingdom of Saudi Arabia

Client: **Riyadh Valley Co**
Services: **Master Planning**
Year of completion: **Ongoing**

Meinhardt's role is to provide Concept Master Planning for the various Infrastructure components including transport and mobility planning; sustainability; landscape planning; signage and wayfinding, lighting; water; wet utilities, and environment assessment study.

Since 1957, KSU has gone through many phases of development. Colleges for men and women are the main spine of the university and there are a variety of developments in KSU campus, such as the medical city, sport city, endowment, administrative building, and commercial strips etc.

Other types of development are in place and under construction. The development as per the master plan followed the developmental approach of the city itself. That is from an organic growth to a grid pattern.

King Saud University, Kingdom of Saudi Arabia

Upstream Capabilities:
FEED and Technical Studies

Major engineering projects often demand exploring multiple options to overcome complex challenges, and selecting the optimal design solution to overcome the complex challenges of major projects is frequently the most critical aspect of front-end engineering process.

At Meinhardt, our best and most experienced professionals lead the front-end engineering design through iterative and interactive processes that involves identifying challenges, generating ideas and evaluating different design alternatives before selecting the most suitable option. Our structured approach to front-end design leads to innovative design solutions with the optimum value for both initial and long-term investment.

At Meinhardt, our specialist professionals are also often appointed for peer-reviews and value-engineering studies of designs performed by others. Our approach to such studies involves a systematic and organised review of the necessary functions of a project, identifying critical design considerations and exploring alternative concepts, materials and methods with the aim to improve safety, performance, cost and constructability of projects. Projects where we carry out peer-reviews and value-engineering often result in improved functionality, accelerated construction and considerable savings in both initial and life-cycle costs, thereby assuring that the best value is obtained over the life of the building.

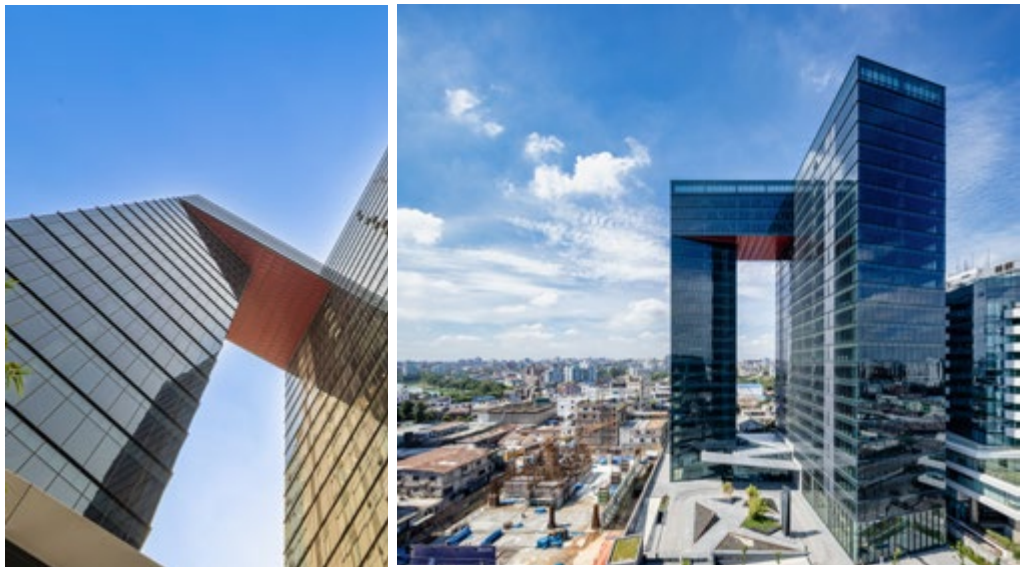
Thamrin Nine Tower 1, Jakarta, Indonesia

Client: **PT Putragaya Wahana**
Services: **Structural Peer Review and Value Engineering**
Year of completion: **2022**

Thamrin Nine Tower 1 is the first supertall building in Indonesia. The Tower is 385 meters tall with 75 floors above, and 6 floors below ground. It is a mixed use development with offices on the lower floors and a hotel on the upper floors. It is a class A platinum certified skyscraper and the tallest building in the Southern Hemisphere.

Forum One, Dhaka, Bangladesh

Client: **Shanta Holdings**
Services: **Structural Peer Review and Value Engineering**
Year of completion: **2022**



Forum One is a 25-storey building with three basements. It is the first twin towers in Bangladesh which has a unique link that connects the two towers.

TNB Platinum Headquarter, Kuala Lumpur, Malaysia

Client: **Tenaga Nasional Bhd (TNB)**
Services: **Front End C&S, MEP Engineering, Review of Down Stream Design, and full Façade Engineering**
Year of completion: **2023**

This landmark development consists of four cascading office towers ranging from 7 to 9 storeys high; a convention centre; a mosque; a childcare centre and a central plaza.

Four Seasons Place, Kuala Lumpur, Malaysia

Client: **Venus Assets Sdn Bhd.**
Services: **Front End C&S, MEP Engineering and Review of Down Stream Design**
Year of completion: **2018**

Four Seasons Place is a 75-story, 342m tall skyscraper which is Malaysia's fifth tallest building. The project comprises six stories of retail podium, a 204 room Four Seasons Hotel and 269 units of private and serviced apartments with unobstructed panoramic views.

Upstream Capabilities: **MGI Capital**

MGI Capital specialises in conducting techno-commercial feasibility studies and advisory, project structuring, fundraising, and principal investments, for real estate and infrastructure projects.

Leveraging our global network and technical expertise of the Meinhardt Group, we offer integrated commercial and technical solutions that meet the return expectations of our clients.

As large-scale infrastructure, real estate, and urban development projects increasingly adopt PPP, BOT, BOO, BOOT, and Design, Build and Finance (DBF) models, the need for project financing has become critical. MGI Capital was established to bridge this industry gap by combining Meinhardt's renowned technical expertise and global reach with its financial advisory services. Our access to clients and capital worldwide positions us uniquely to provide comprehensive solutions.

Our comprehensive expertise across all real estate and infrastructure sub-sectors and asset lifecycles provides us with a competitive edge in delivering superior long-term, risk-adjusted returns for our clients. At MGI Capital, our team of senior ex-investment bankers brings a wealth of experience including:

- Over 18 years at leading financial institutions (Citi, Lehman Brothers, Standard Chartered, HSBC, SMBC)
- US$5 billion in completed M&A and principal investment deals
- US$10 billion in equity capital raised
- US$30 billion in debt capital raised
- 60 deals successfully completed
- Transactions completed in over 15 countries

"Clients should not have to employ a battery of technical and commercial advisors to achieve their objective of making their projects profitable by optimising delivery cost and time, and connecting the projects with capital. Meinhardt Capital offers one-stop advisory services with a focus on creating return generating assets."

Mr Omar Shahzad, Group CEO, Meinhardt

MGI Capital has nine offices worldwide in Doha; Dubai; Kuala Lumpur; London; New Delhi; Nur-Sultan; Ridayh; Singapore, and Sydney, with an estimated AUM of US$600m.

Meinhardt Capital Focuses on Four Verticals:

Commercial & Investment Advisory: Financial Capital

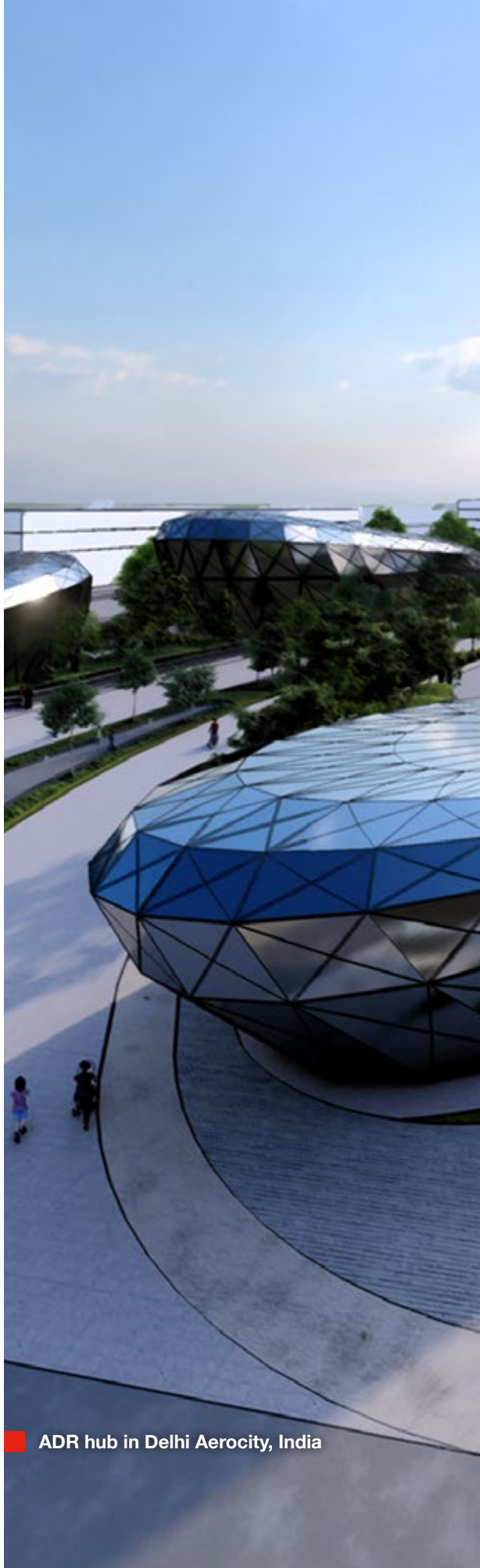
- Fund Raise Advisory
- "Go-to-market" Strategies
- Market Entry
- Introduction to key stakeholders
- Advise on transaction approach and bid dynamics
- Capital Raising
- Principal Investments

Infrastructure Advisory: Knowledge Capital

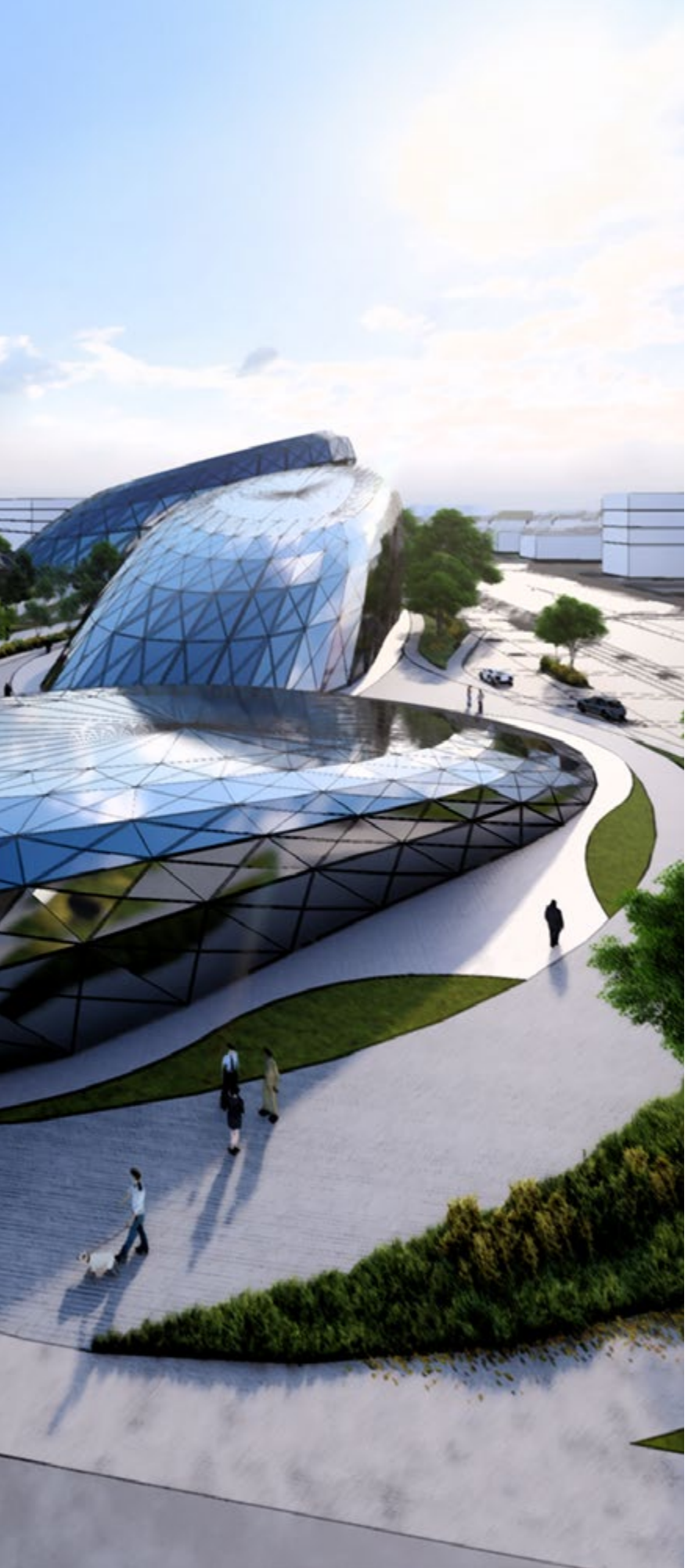
- Procurement Advisory
- Lender's technical advisory
- Feasibility and planning support
- Entity Design and Demand Planning Advisory
- Asset Management Consultancy

Consortia Building: Partnership Capital

- Building Project Specific Partnerships with Developers, Contractors, Financiers, Operators
- BuildTech/Infratech Partnerships
- Talent Sourcing Partnerships
- Capacity Building – Human Capital
- Tailored training programmes for organisations catered to build technical capacity
- Topics range from core engineering competencies to latest technology trends
- Strong commercial focus with applicability on projects



ADR hub in Delhi Aerocity, India



Key projects:

Integrated/Alternate Dispute Resolution Centre, Commercial and Investment Advisory

MGI Capital embarked on the development of a world-class and state-of-the-art Alternative Dispute Resolution (ADR) hub in the heart of Delhi Aerocity. Our comprehensive advisory services encompassed every facet of development, offering a meticulous strategy that addressed the latest trends, market expansion, optimal venue identification, and the critical push-and-pull factors driving the ADR industry.

Our holistic approach included:
Concept Development: Crafting a visionary blueprint for a world-class ADR centre.

Market Analysis: Conducting a detailed examination of market growth potential, demand for arbitration and mediation services, and the locality's inherent advantages.

Venue Assessment: Identifying and sizing optimal venues, benchmarking them against leading global ADR centres.

Legal Review: Evaluating current laws and legal frameworks to recommend improvements for effective dispute resolution.

Cost-Benefit Analysis: Analysing various real estate options to ensure financial feasibility and viability.

Market Readiness Assessment: Gauging the market's readiness and response to the proposed ADR hub.

Our study was comprehensive, involving an extensive survey of current demand for arbitration and mediation services, leveraging the strategic advantages of the chosen locality, and determining the optimal venue size. We also benchmarked our findings against the best global ADR centres, ensuring our recommendations were aligned with international standards.

Following this thorough analysis, we developed a precinct structure plan and architectural schematic designs tailored to the client's preferences. MGI Capital then played a pivotal role in facilitating the sourcing of international partnerships and investments, ensuring the project was poised for global recognition and success.

Our end-to-end service development strategy was instrumental in transforming the vision of a world-class ADR hub in Delhi Aerocity into a tangible and viable project ready to meet the demands of the global dispute resolution market.

Consortia Building

The Himachal Pradesh Housing and Urban Development Authority (HIMUDA) forged a strategic partnership by signing a Memorandum of Understanding (MoU) with MGI Capital, its consortium partners, and Singapore Cooperation Enterprise (SCE). This collaboration aimed to develop an innovative and smart livable township near Jubbarhatti airport, branded as the Shimla Smart Integrated Mountain Township. Situated in Jathiadevi, in close proximity to Jubbarhatti airport, it encompassed approximately 32 hectares (79 acres) with excellent accessibility to three National Highways and the airport. MGI Capital's vision for the township was anchored on three key pillars designed to create a sustainable and thriving community:

Livable Community:
Focused on creating a high-quality urbanised living environment
Emphasised modern amenities and infrastructure
Planned spaces for social interaction and community building

Green Environment:
Integrated eco-friendly practices and technologies
Preserved and enhanced the natural mountain ecosystem
Implemented sustainable waste management and energy-efficient systems

Attractive Resort Destination:
Developed tourism infrastructure
Showcased local culture and heritage
Established recreational facilities to attract visitors and boost the local economy

Shimla Integrated Resort, India

MGI Capital took a leadership role in assembling a consortium of expert consultants to ensure the project's design. Our approach centered on two main aspects: high construction efficiency and active socio-economic development. We proposed the utilisation of advanced construction technologies, sustainable building materials, and methods. The proposal included a comprehensive market analysis to understand local needs and demands, alongside a phased approach for gradual and sustainable growth of an international resort destination.

This project represented a significant step towards sustainable urban development in Himachal Pradesh, combining the expertise of international partners with local knowledge to create a model smart township. The Shimla Smart Integrated Mountain Township was poised to become a benchmark for future urban development projects in hilly regions, balancing modern amenities with environmental conservation and cultural preservation.

Similarly, MGI Capital presented a comprehensive report on Modern Methods of Construction (MMC) for development companies in the Kingdom of Saudi Arabia under the Public Investment Fund (PIF). The report included detailed global benchmarks on MMC/IC technologies by asset type, such as infrastructure, commercial, facades, hotels, and residential. Following this presentation, MGI Capital provided advisory services at the request of Rua Al Madina, focusing on a partnership for a 48-hotel MMC development with a Singapore consortium led by MGI Capital. This partnership included the Building and Construction Authority of Singapore (BCA), Saudi Holdings, Robin Village Development Pte Ltd, and TOM Engineering, among others.

In a subsequent engagement, MGI Capital offered advisory services to SEDCO Holdings, a prominent Saudi developer and investor. This market entry advisory aimed to identify and evaluate potential consortium partners in Singapore's construction sector for SEDCO-owned projects. This comprehensive advisory service demonstrated MGI Capital's ability to leverage its global network and deep understanding of both the Singaporean and international markets.
By facilitating these cross-border collaborations, MGI Capital played a crucial role in transferring advanced engineering technologies and practices to its global clientele, thereby enhancing competition in built environments.

Investment Climate Advisory

MGI Capital plays an instrumental role in seamlessly connecting investors with premium, meticulously master-planned or engineered assets by Meinhardt Group. This synergy between MGI Capital's financial acumen and Meinhardt Group's engineering excellence offers a distinctive value proposition for investors targeting opportunities in well-designed and sustainable projects. In 2024, the projects facilitated by MGI Capital have set a new benchmark for infrastructure investment, particularly in an era marked by escalating environmental challenges and a pervasive fog of uncertainty in mega-deal activities.
In the first half of 2024 alone, MGI Capital showcased its expertise by facilitating investments across four critical sectors: luxury real estate, hospitality, logistics, and infrastructure assets.

Some examples include:

- Logistics real estate in the Kingdom of Saudi Arabia
- Low-cost hotel accommodation in Rua Al Madina, Kingdom of Saudi Arabia
- Downtown Oman and Mountain Destination in Oman
- Integrated Resorts Development in Central Asia
- Light Rail Development in Central Asia
- Renewable Energy deployments in Central Asia
- Aerocity Development in Central Asia
- Logistics and Aerocity Investments in Jordan
- Residential and Commercial Properties in Australia
- Media infrastructure in Iskandar and Abu Dhabi
- Hospitality related investments in Singapore


Employee by Department

Upstream Capabilities: **Capacity Building**

Meinhardt Group has prioritised its intangible assets such as expertise and intellectual resources by fostering sharing opportunities, driving innovation, and nurturing relationships.

We have conducted training sessions for approximately 1,000 engineers from organisations such as Ashghal, ADDC, and the Oman Ministry of Housing.

This training aimed to enhance their capabilities in various aspects of buildings and infrastructure management, covering design, environmental sustainability, operation, and maintenance, including systems for water and electricity.

Ashghal, Qatar

Built Environment Engineering & Project Management Training Programme:

- Emphasising best practices in drainage and stormwater network management, including design and technology.
- Advanced training on the design, planning, and project management of smart public buildings.
- Two editions of Smart Drainage Networks training, covering design, operations, and maintenance.
- Exploration of modern construction methods and productivity technologies within the built environment.
- An introduction to health & safety, security, and environmental (HSSE) best practices in construction management.

ASHGHAL

- ASHGHAL Building Training Programme | 2019
- ASHGHAL Drainage and Stormwater Training Programme | 2019
- ASHGHAL Building Programme | 2022
- ASHGHAL Drainage Programme | 2022
- ASHGHAL HSSE Training, Kuala Lumpur, Malaysia | 2023

ADDC, Water Distribution Network

- Comprehensive courses on water distribution network management, from integrated management systems to design and performance.
- Detailed planning, design, and management of recycled water systems.
- Strategic maintenance planning, forecasting, and execution for water distribution networks.
- Implementation of leak detection techniques and process design and planning.
- Asset management strategies for maintaining and optimising water distribution networks.

ADDC – Electricity Distribution Network

- Modular training on conditioned-based monitoring of substations, including thermographic scanning, analysis, interpretation, protection fault analysis, partial discharge, and DC battery charger fault analysis.
- Operations training for electrical distribution networks, focusing on modular training approaches.
- This initiative underscores our commitment to advancing the skills and knowledge of engineers in managing and optimising infrastructure projects, ensuring they are well-equipped to meet current and future challenges.

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ADDC

- Integrated Water Network Management, Singapore | 2018
- ADDC Water Distribution Network Training, Abu Dhabi | 2019
- ADDC Water Quality, Wastewater Distribution components and infrastructure, Abu Dhabi | 2019
- Operations and Maintenance of Water Distribution Networks (online) | 2021
- Leak Detection Implementation (online) | 2021
- Process Design and Planning (online) | 2021
- Asset Management of Water Distribution Networks (online) | 2021
- Conditioned Based Monitoring of Substations | 2023
- Operations in Electrical Distribution Network | 2023

Capacity Development: Oman Ministry of Housing and Urban Planning; PIF, Saudi Arabia, SEDCO, Rua Al Madina, Abu Dhabi Presidential Court, etc

- Staff exchanges spanning over three months with structured exposure to Built Environment technologies and sustainability.
- Project assignment to ensure that the staff are equipped with the knowledge and skills associated with the new sustainable practices in the built environment.
- Exposure for senior officers on Singapore's model of sustainable built environment governance with tours to URA, PUB, EMA, JTC, LTA, CLC and HDB.
- Case Study presentations and interactions with scholars from NUS, NTU, SUTD, SIM and senior engineers from client groups to help them appreciate BE innovation in Singapore.

"I wanted to personally thank you for delivering and executing an exceptional inward trade mission to Singapore from China. Your unwavering dedication and hard work in guaranteeing the success of the Chinese delegation was exceptional. I was most impressed with meticulous coordination of every detail of the visit surpassed all expectations. From the careful planning to impeccable execution, every detail was handled with utmost precision and professionalism. Working with your team was a pleasure, and Meinhardt's unwavering commitment undoubtedly played a pivotal role in the remarkable success of the delegation's business objectives. The presentations and business discussions deeply impressed the Chinese Government delegation, revealing profound insights and fostering promising avenues for collaboration. The level of professionalism demonstrated exceeded even our highest expectations. I cannot thank you and the entire team enough and I look forward to working together in the near future."

Farah London
Founder & CEO, Back 2 Business International

"Meinhardt has been providing capacity building initiatives for ASHGHAL since 2019 and have provided high quality training for ASHGHAL design and maintenance engineers. They have an excellent curricula and experienced faculty to help engineers understand new building requirements based on environmental sustainability. Qatar engineers who have participated in the programme are truly grateful for the change that Meinhardt has made in their lives."

Seema Inayeth
Training & Development Specialist, Human Resources Dept
Public Works Authority, ASHGHAL

"Meinhardt has been instrumental in supporting BCA's internationalisation endeavours and advocating for Green Mark globally. Their exceptional expertise in eco-friendly and net-zero structures distinguishes them. They have worked well with BCA engineered knowledge transfer projects with foreign clients which have yielded positive outcomes."

John Tan
Director (Corporate), BCA International

"Meinhardt has a high impact knowledge transfer framework that has supported the learning activities of government officers and businesses from UAE. Their dedication, hard work, and commitment to assisting UAE visitors have significantly contributed to the success of our study visits. It is clear that their efforts have had a positive impact on the built environment of the UAE."

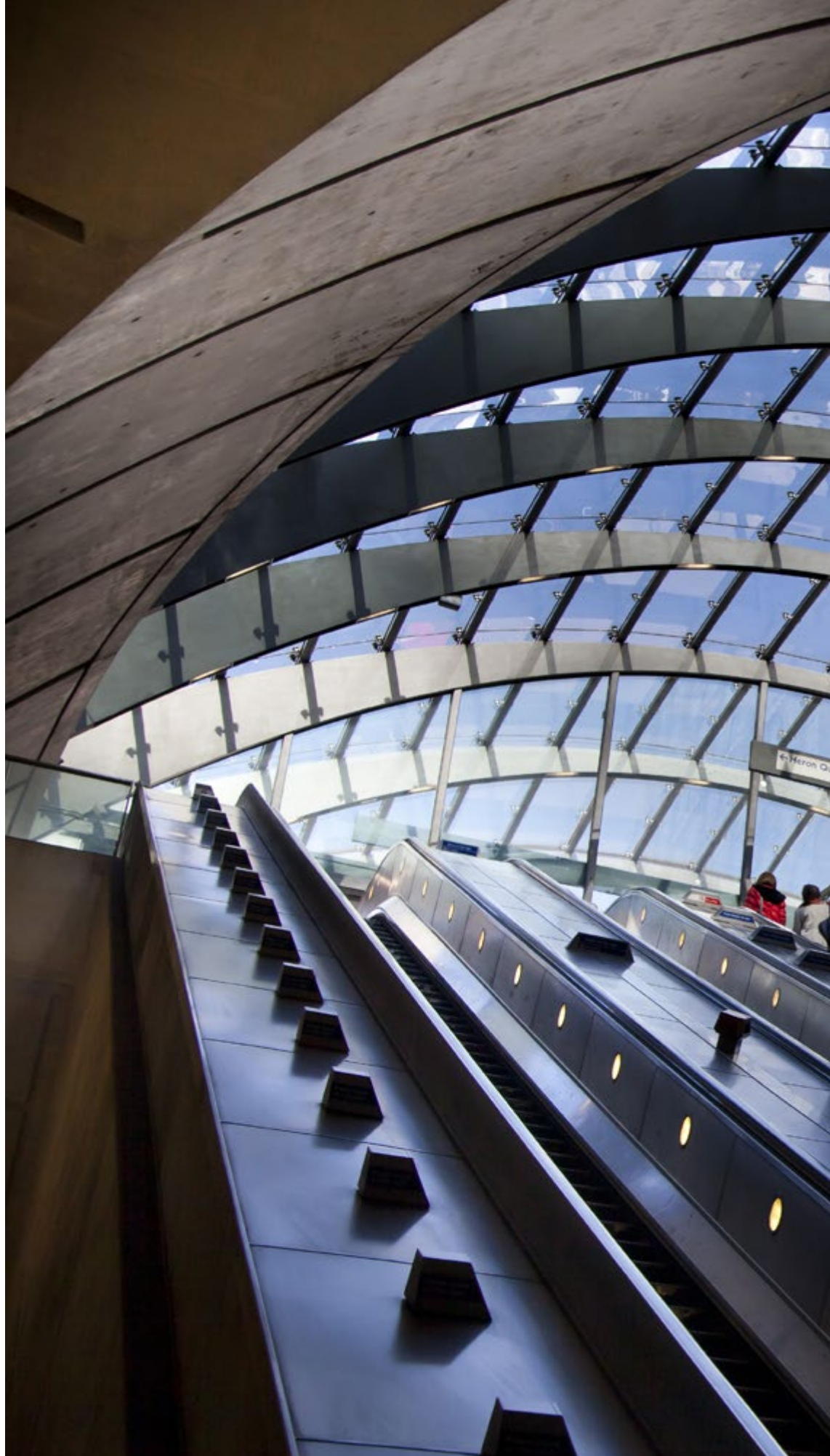
Bouchaib Silm
Media and Political Analyst, UAE Embassy

"It is evident from the training courses provided that you have accomplished remarkable work, and we would like to offer our support in enabling similar programmes in Saudi Arabia."

Mashael B. Alsaleh
Business Development Manager,
Ministry of Investment for Saudi Arabia (MISA)

Midstream Capabilities

- Lead Consultancy
- Multi-Disciplinary Engineering Capabilities
- Specialist Services



Midstream Capabilities:
Meinhardt's Lead Consultancy

For 50 years, Meinhardt has led many visionary projects, guiding them from inception to completion. As Lead Consultants, we do not just manage projects; we masterfully integrate diverse design disciplines under one roof, embodying a "one-stop shop" philosophy refined over decades.

Our lead consultancy role goes beyond traditional boundaries. We are not merely planners or designers; we are the custodians of our clients' vision, safeguarding its integrity throughout the project's lifecycle. From the first sketch to the final brick, from groundbreaking to grand opening, Meinhardt maintains a single line of responsibility. This continuity fosters confidence, providing our clients with peace of mind in an industry often fragmented by multiple vendors.

For our lead consultancy projects, digital delivery tools are crucial, uniting clients, stakeholders, and consultants through cloud-based platforms like Autodesk Construction Cloud, SharePoint, Aconex, and custom dashboards for project progress monitoring.

At Meinhardt, design leadership is not about authority; It is about accountability. Our rigorous project management goes beyond meeting deadlines — we exceed expectations. Our goal is not just to complete projects but to achieve excellence. This dedication to quality has enabled us to deliver assured outcomes, even in the most complex ventures.

Innovation lies at the heart of our lead consultancy services. In a constantly evolving urban landscape, yesterday's solutions often fall short. Our value-driven approach involves continuously pushing boundaries and discovering novel solutions that are optimal and sustainable.

Military Medical Complex, Qatar

Hamad International Airport Expansion, Doha, Qatar
Client: **HIAEPSC**
Services: **Lead Consultancy**
Year of completion: **2022**

Hamad International Airport's visionary expansion has propelled it to the number one spot in the 2024 Skytrax World's Best Airport rankings. The project more than doubles the airport's capacity to 53 million passengers annually, spanning 537,259 square meters. Featuring advanced facilities and future-ready infrastructure, this groundbreaking expansion redefines the airport experience, solidifying Hamad International's status as a global aviation leader.

Bhogapuram International Airport, Andhra Pradesh, India
Client: **GMR**
Services: **Masterplanning & Lead Consultancy**
Year of completion: **2024**

Meinhardt has spearheaded the design of the new Greenfield airport in Andhra Pradesh, set to replace Vishakhapatnam International. Spanning 2,300 acres, this visionary project features a 3.8 km runway with a parallel emergency taxiway. The initial terminal will accommodate 6 million passengers annually, with plans for expansion to handle up to 40 million. The development also includes a striking 60-meter ATC tower, essential ancillary buildings, and a 150-acre Aerocity designed to boost the airport's non-aeronautical capabilities.

Downtown Line Stage 3, Singapore

Client: **The Land Transport Authority (LTA)**
Services: **Lead Consultancy**
Year of completion: **2017**

This strategic segment of the Downtown Line – Contract 9181 Package C of Downtown Line Stage 3 (DTL3) – is a significant expansion of Singapore's MRT network.

This package includes an estimated route length of 9.5 km, encompassing six stations: Bedok Reservoir, Tampines West, Tampines, Tampines East, Upper Changi, and Expo, including two interchange stations. The scope of work also covers associated structures such as shafts, tunnels, and cross passages. All stations are designed as Civil Defence (CD) shelters, underscoring Singapore's dedication to safety and enhancing the city's preparedness for emergencies. This development exemplifies Singapore's vision for a connected and resilient transportation network.

The DTL3 connects with Downtown Line Stage 1 (DTL1) at Chinatown Station, traversing areas such as MacPherson, Bedok Reservoir, and Tampines, and culminating at the East West Line's Expo Station. The entire DTL3 consists of 16 stations and spans approximately 23 km, including a connection to Kim Chuan Depot.

The Downtown Line: A Game Changer for Singapore

The Downtown Line (DTL), Singapore's fifth MRT line, has revolutionised public transport in the city. It reaches previously underserved residential areas like Bukit Panjang, Bukit Timah, MacPherson, and Bedok Reservoir, providing an efficient alternative commuting route that connects these neighbourhoods to the city centre.

With 34 stations, the DTL significantly enhances urban mobility. Residents of Bukit Panjang and Bukit Timah benefit from a more direct route into the city, reducing travel time by up to 30 per cent. For those in the east, the DTL reduces reliance on buses, cutting travel time from Kaki Bukit to Tampines to just 10 minutes, compared to 25 minutes by bus.

The DTL also improves connectivity within the Central Business District (CBD), offering quicker routes between key locations such as Millenia Walk, Marina Bay Sands, and City Hall.

The 21 km DTL3, which opened on 21 October 2017, provides a vital travel alternative to the east, offering direct connectivity to Tampines Regional Centre and Changi Business Park without the need for bus transfers. With DTL3, the Downtown Line now extends 42 km, making it Singapore's longest underground and driverless MRT line, further cementing its role as a pivotal component of the city's transportation network.

Midstream Capabilities:
Multi-Disciplinary Engineering Capabilities

Multi-disciplinary engineering integrates services from various disciplines to address complex challenges in the built environment projects through a holistic and unified approach.

At Meinhardt, our in-house specialists are spread across an extensive range of engineering services. These encompass civil, structural, geotechnical, wind, seismic, electrical, mechanical, plumbing, sanitary, façade, lighting and sustainability engineering disciplines. This multi-disciplinary engineering capability allows us to leverage each discipline's strengths, and explore diverse solutions in our projects.

Our engineers work in a multi-disciplinary environment where our structural systems integrate the MEP and façade requirements as inherent part of our design philosophy.

They fuse MEP systems into the overall structure for efficient space utilisation, combine to produce optimised structural and building services zones to improve floor to ceiling heights, improve energy efficiency and indoor environment through the integration of building services and façade systems with the structural framework, for improved building aesthetics and efficiency.

This multi-disciplinary collaborative approach to engineering is an inherent part of our design philosophy, and enables us to consistently deliver exceptional projects with innovative engineering solutions.

Our multi-disciplinary engineering capability is showcased in the multiple landmark projects undertaken by Meinhardt as lead engineers in the Marina Bay area.

These comprise One Raffles Quay, The Sail, Marina Bay Financial Centre, Marina Bay Residences and Suites and Asia Square, which define the skyline of Singapore's CBD.

Our structural, MEP and façade engineers collaborated closely on these projects to brainstorm ideas for holistic solutions to create robust, cost efficient, highly buildable and sustainably efficient buildings.

By integrating their knowledge and skills, our engineers optimised the buildings' design through seamless integration of innovative structural systems, energy efficient MEP systems and visually stunning façades. The result are iconic towers that are a testament to our multi-disciplinary engineering excellence.

Asia Square Tower, Singapore

One Raffles Quay, Singapore

Client: **Consortium of Hongkong Land, Keppel Land and Cheung Kong (Holdings)**
Services: **Civil, Structural, Geotechnical, and MEP Engineering**
Year of completion: **2007**
Awards: **BCA Design and Engineering Safety Excellence Awards (Merit), 2008**
BCA Green Mark Gold Award, 2009
The Council on Tall Buildings and Urban Habitat (CTUBH) Honourable Nominee for Best Tall Building – Asia and Australasia, 2008
FIABCI Prix d'Excellence Awards (Winner in Office Category), 2008

The design and construction of One Raffles Quay is widely acknowledged as a major engineering feat due to the constraints of the site and the presence of subway lines at shallow depth running directly beneath its 50-storey North Tower.

Working closely with the architectural firms, KPF and Architects 61, and the contractor, Obayashi Construction, Meinhardt pioneered an innovative transfer system utilising the central box core as a transfer structure spanning across the subway tunnels. The unique transfer system along with a highly efficient outrigger braced steel-concrete composite structure and the novel skewing of the building mass over the subway tunnels – to reduce the transfer span – led to enormous cost and time savings on the project.

Today, the iconic landmark in the Singapore skyline located in the prime business district encompasses twin office towers with two basements, a multi-level podium, and an underground link to the Raffles Place Mass Rapid Transit (MRT) Station. It also features Singapore's first commercially applied District Cooling System, which not only effectively reduces urban heat, but also provides energy cost savings.

The North and South Towers, built for banking and financial corporations, add up to an estimated 1.3 million square feet of prime office space. The North Tower stands 50 storeys (245 metres) high, providing outstanding views and column-free space of approximately 18,000 square feet per floor. Standing at 29 storeys (140 metres) tall, the South Tower enjoys large regular column-free space of approximately 30,000 square feet on each floor.

Marina Bay Financial Centre, Singapore

Client: **BFC Developments Pte Ltd (Consortium of Hongkong Land, Keppel Land, and Cheung Kong Holdings)**
Services: **Civil, Structural, Geotechnical, and MEP Engineering**
Year of completion: **2010 (Phase 1) and 2012 (Phase 2)**
Awards:
BCA Design and Engineering Safety Excellence Awards, 2014
BCA Award for Construction Excellence, 2014
IABCI Prix d'Excellence 2012 (Office Category), 2012
BCA Award for Construction Excellence, 2012
BCA Design and Engineering Safety Excellence Awards (Merit), 2011
BCA Construction Productivity Award, 2011
FIABCI Singapore Property Awards (Winner in Office Category), 2011
FIABCI Singapore Property Awards (Winner in Residential Category), 2011
BCA Green Mark Gold Plus Award, 2009
BCA Green Mark Gold Awards, 2007, 2008

Occupying prime location at the waterfront along Marina Bay, the MBFC is a purpose-built development designed to be the epicentre of Singapore's financial and banking hub. Five high-rise towers and generous underground parking constitute the six million square feet complex: two towers of 66 and 55 storeys are for residential use, while the remaining three towers, ranging from 33 to 50 storeys, are for commercial use.

Meinhardt provided integrated engineering for the mega development – working closely with the architect, KPF, USA and DCA/A61 of Singapore, to ensure perfect integration of the structure and building technical services into the architecture. Meinhardt developed highly efficient and robust structural solutions, utilising dual lateral load resisting systems coupled with hybrid pre-stressed in-situ and pre-cast concrete floor systems to achieve exceptional building structural performance with high constructability and cost benefits. For excavation, an innovative island construction method was devised, comprising contiguous bored secant pile walls, deep cement mixed soil and treated perimeter soil berms. The system significantly reduced the quantum and extent of strutting, and allowed concurrent excavation and super-structure works.

The Sail, Singapore

Client: **City Developments Ltd and AIG Group, USA**
Services: **Civil, Structural, Geotechnical, and MEP Engineering**
Year of completion: **2008**
Awards: **BCA Design and Engineering Safety Excellence Award, 2009**
MIPIM Residential Developments Award, 2008
MIPIM Participants Choice Award, 2008
BCA Green Mark Gold Award, 2006

Asia Square, Singapore

Client: **Hyundai Engineering and Construction**
Services: **Civil, Structural, Geotechnical, MEP, and Facade Engineering**
Year of completion: **2011, 2013**
Awards: **BCA Green Mark Platinum Award, 2009**
Winner of BCA Design and Engineering Safety Excellence awards (Merit), 2012
LEED Gold Certification, 2009

Marina Bay Residences, Singapore

Client: **Marina Bay Residences Pte Ltd**
Services: **Civil, Structural, Geotechnical, and MEP Engineering**
Year of completion: **2010**
Awards: **Winner of BCA Design and Engineering Safety Excellence Awards (Merit), 2011**

Marina Bay Suites, Singapore

Client: **Marina Bay Suites Pte Ltd**
Services: **Civil, Structural, Geotechnical, and MEP Engineering**
Year of completion: **2013**
Awards: **Winner of BCA Design and Engineering Safety Excellence Awards, 2014**

Midstream Capabilities: Multi-Disciplinary Engineering Capabilities

Meinhardt Infrastructure

Founded in 2005 as a specialist company, Meinhardt Infrastructure Pte Ltd (MIPL) has become a vital pillar of the Meinhardt Group services. With 19 years of steadfast dedication to engineering excellence, MIPL epitomises innovation, quality, and reliability in infrastructure projects.

A Trusted Partner in Urban Infrastructure

As a fully registered Licensed Corporation under the Professional Engineers Board (PEB), MIPL specialises in providing integrated engineering services across Civil, Structural, Geotechnical disciplines, and Accredited Checking. Our expertise extends beyond Singapore to neighbouring countries, where we actively contribute to Urban Infrastructure Projects encompassing Energy, Transportation, Master Planning, and Infrastructure Design.

Innovative Solutions for Complex Challenges

MIPL has garnered a stellar reputation as a trusted design partner, providing robust and innovative solutions for some of Singapore's most technically challenging infrastructure projects. Our diverse clientele, including government bodies, private developers, and contractors, rely on us to address their unique project needs with precision and creativity.

Client-Centric Approach

At the core of our operations lies a simple yet profound philosophy: our clients' needs are paramount. We recognise the complexity of these needs and invest significant time and effort to understand our clients' businesses and all relevant factors. This meticulous approach ensures that we deliver cost-effective and efficient engineering solutions that are flexible, adaptable to changing conditions, and provide exceptional value to our clients.

Comprehensive Project Delivery

Our team of seasoned and responsive engineers adopts a "one stop" approach for total project delivery. We offer clients innovative and buildable design solutions that meet their cost and time requirements, ensuring seamless project execution from concept to completion.

State-of-the-Art Facilities

MIPL's offices are equipped with cutting-edge in-house computer systems, supporting the most advanced engineering analysis and design software available today. Our extensive use of computer-aided design and drafting facilities optimises our services, enhancing the efficiency of our design and documentation procedures.

As we look to the future, Meinhardt Infrastructure Pte Ltd remains committed to pushing the boundaries of engineering excellence, continually striving to exceed our clients' expectations and contribute to the development of world-class infrastructure projects.

Downtown Line Stage 3 Contract 925, Tampines East Station, Singapore

Client: **The Land Transport Authority (LTA)**
Services: **Civil/Structural & Geotechnical, and Mechanical & Electrical Consultancy Services**
Year of completion: **2017**

The Tampines East station is a 3 storey underground MRT station with 2 above-ground entrances and 2 vent shafts.

The dimension of the station box is approximately 171m (Length) x 40m (Width) x 24m (Depth) with a Cut & Cover tunnel length of 386m and Twin single track bored tunnel and 3 cross passages of approximately length of 1.6km.

TPE is one of the Singapore Downtown Line Stage 3 MRT Stations located at Tampines Avenue 7. It was designed in adherence with Civil Defence requirements. The subway linking Entrances C & D was constructed by piped roof mining method using micro-tunneling technology. The design of the subway and Entrances C & D was awarded the BCA Design and Engineering Safety Excellence Award (Merit) in 2018.

Challenges

- Location and Access: The station is located along Tampines Ave 7, near the junction at Tampines Ave 2 and Tampines Ave 9. Midway through construction, two additional entrances were incorporated, undercrossing the junction.
- Complex Construction Method: The initial design featured a double L-shaped subway linking the entrances to the station via the cut and cover method. This required multiple stages of traffic diversion at the road junction, potentially impeding site progress and delaying the DTL3 opening.
- Underground Utilities Conflicts: Numerous underground utilities clashed with the Excavation and Retaining Structure System (ERSS) of the original tunnel. Protecting these critical utilities during excavation posed a high risk of damage and safety concerns for road users.

Solutions

- Innovative T-shaped Subway Design: An alternative T-shaped subway design using a rectangular pipe roof tunnel and mining method was adopted. This trenchless construction method replaced the time-consuming braced excavation, avoiding major traffic and utility diversions, and enhancing efficiency and safety for road users.
- Optimised Temporary Tunnel Construction: The temporary tunnel was created using a series of interlocking steel pipes installed with micro-tunneling technology. The design featured steel pipes forming three sides of the tunnel (roof and walls) with a precast concrete footing substituting the bottom edge.

Downtown Line Stage 3 Contract 922 Expo Station, Singapore

Client: **The Land Transport Authority (LTA)**
Services: **Architectural, Civil/Structural & Geotechnical, and Mechanical & Electrical Consultancy Services**
Year of completion: **2017**

EXPO is one of the Singapore Downtown Line Stage 3 MRT Stations located at the road junction of Expo Drive and Changi South Avenue 1.

It is a 3-level underground Interchange Station which was designed in adherence with Civil Defence requirements. The station provides linkages to East-West Line Expo Station, Changi City Point and UE Biz Hub. The project involved major underpinning and transfer of East- West Line (Changi Airport Branch) MRT structures. The dimension of the station box is approximately 177m (Length) x 37-57m (Width) x 24m (Depth).

Challenges

- Location Constraints: The Interchange Station is strategically positioned beneath a complex T-Junction at Expo Drive and Changi South Avenue Its perpendicular alignment with the existing East-West Line (Changi Airport Branch) viaduct significantly impacts the current MRT structure.
- Foundation Obstructions: The station's construction faced significant hurdles due to the existing piles of the East-West Line piers. To mitigate this, a new foundation system had to be introduced to transfer the existing structural loads before any construction could commence.
- Pile Group Reinforcement: Some East-West Line piers, located within the station's influence zone, had short pile lengths, necessitating the strengthening of the pile group. This reinforcement was crucial to withstand the additional forces and deflection caused by deep excavation.
- Safety and Service Continuity: Ensuring safety and minimising disturbances to train services and operations during the strengthening and underpinning work was paramount. All activities had to comply strictly with the Authority's stringent requirements to avoid any compromises.

Solutions

- Preemptive Strengthening: The design principle of "Strengthening First Before Undermining" was adopted. The construction sequence was meticulously planned and adhered to, ensuring all activities progressed within a predictable and safe environment.
- Innovative Foundation System: A practical foundation system was selected to facilitate installation under the low headroom constraints imposed by the existing viaduct. The new foundation elements were designed to reach a competent soil stratum, capable of resisting the forces induced by excavation and the imposed loads from both the new and existing MRT structures.
- Load Transfer Mechanism: A transfer beam was constructed below the existing pile cap to enable preloading, ensuring effective load transfer before deeper excavation commenced.
- Controlled Demolition: The demolition of existing piles was executed only after the completion of the load transfer system, ensuring no unexpected structural deformation occurred during the process.
- Real-Time Monitoring: Incremental deformation of the affected MRT structures was predicted at every stage of excavation. These predictions were instrumental in assessing the structural performance through real-time monitoring, ensuring any potential issues were promptly addressed.

Maju Station and Tunnels for Cross Island Line (Phase 2), Singapore

Client: **KTC Civil Engineering & Construction Pte Ltd**
Services: **Architectural, Civil/Structural & Geotechnical, and Mechanical & Electrical Consultancy Services**
Year of completion: **2032**

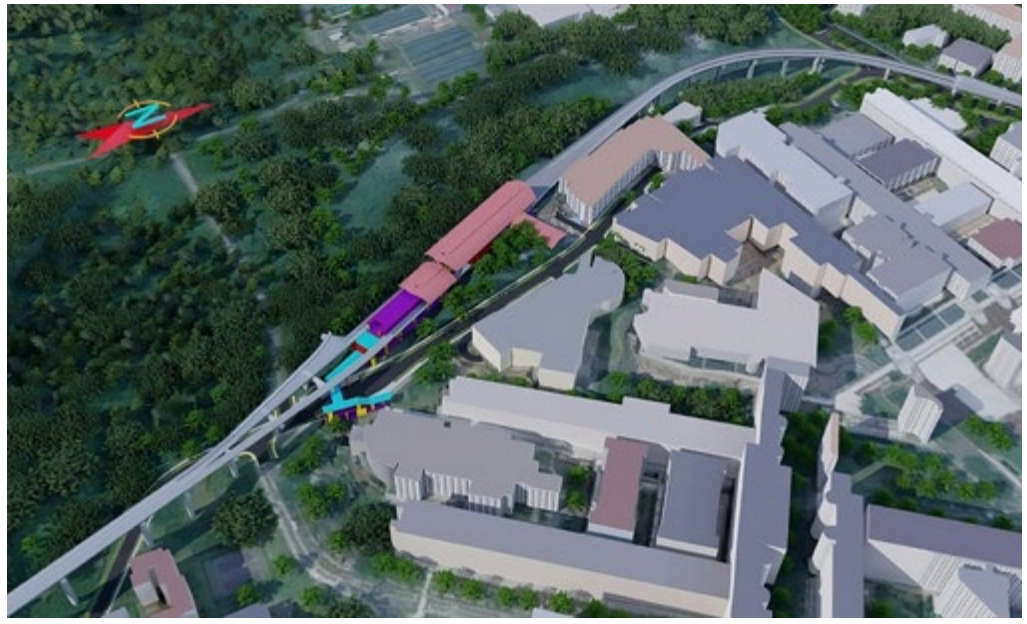
The proposed Cross Island Line Phase 2 (CRL2) is an underground Mass Rapid Transit (MRT) line of a total route length of approximately 15km. CRL2 starts at the contract boundary with CRL1 at Sin Ming and ends at Jurong Lake.

Contract CR206 comprises the design, construction and completion of Maju Station and Tunnels. The works include CR16 Maju Station, twin bored tunnel drive towards CR15 King Albert Park Station, and subway link connecting Station entrances.

The proposed station is located along Clementi Road adjacent to Clementi Forest. The Station will be an underground station and located within close proximity of the Singapore Institute of Management (SIM/Singapore University of Social Science (SUSS), Old Jurong Railway Corridor, Far East Flora, and Ministry of Defence (MINDEF) Maju Camp.

Peng Kang Hill Station and Viaduct for Jurong Region Line, Singapore

Client: **Hwa Seng Builder Pte Ltd**
Services: **Architectural, Civil/Structural & Geotechnical, and Mechanical & Electrical Consultancy Services**
Year of completion: **2029**



The proposed Jurong Region Line (JRL) is to serve Choa Chu Kang, Tengah, Jurong West, Jurong Industrial Estate, Nanyang Technological University (NTU) and Jurong East to West Coast. The length of the total route is approximately 23km. The JRL infrastructure is planned for a 4-car MRT with platform length of 75m.

The Contract covers the design and construction of JW5 station, and about 0.7km of elevated viaducts along Nanyang Drive.

Located within Nanyang Technological University (NTU), JW5 station enhances connectivity for existing developments on the NTU campus such as NTU South Spine, the Wee Kim Wee School of Communication & Information, the Lee Kong Chian School of Medicine and nearby Halls of Residences.

Serangoon North Station and Tunnels for Cross Island Line (Phase 1), Singapore

Client: **Hock Lian Seng Infrastructure Pte Ltd**

Services: **Architectural, Civil/Structural & Geotechnical, and Mechanical & Electrical Consultancy Services**

Year of completion: **2030**

The proposed Cross Island Line Phase 1 (CRL1) is an underground Mass Rapid Transit (MRT) line of a total route length of approximately 29km. CRL1 runs along the eastern corridor from Changi Airport to Bright Hill via Pasir Ris, Tampines, Hougang and Ang Mo Kio.

Contract CR113 comprises the design, construction and completion of Serangoon North Station with Civil Defence provision and one mined underpass link to entrance, cut & cover tunnels and one Pedestrian Overhead Bridge integrated with entrance and other associated structures.

Serangoon North station is located under the busy dual lanes of Ang Mo Kio Avenue 3 and the Yio Chu Kang Road vehicular bridge. The station is wider than usual as there will be three railway tracks instead of two, with the additional track being used to facilitate the withdrawal or parking of trains. Traffic diversions will be implemented at various stages of the construction to provide the required working space for the station construction works.

The underpass connection will be constructed by mining beneath the Yio Chu Kang Road vehicular bridge, instead of the typical cut and-cover method. This mining method will allow the construction of the underpass connection to be carried out without affecting the Yio Chu Kang Road vehicular bridge, hence minimising the inconvenience to motorists.

Loyang Station, Tunnels and Elevated Infrastructure for Cross Island Line (Phase 1), Singapore

Client: **Woh Hup-Dongah Geological Engineering Co Ltd Joint Venture**

Services: **Architectural, Civil/Structural & Geotechnical, and Mechanical & Electrical Consultancy Services**

Year of completion: **2030**

The proposed Cross Island Line Phase 1 (CRL1) is an underground Mass Rapid Transit (MRT) line of a total route length of approximately 29km. CRL1 runs along the eastern corridor from Changi Airport to Bright Hill via Pasir Ris, Tampines, Hougang and Ang Mo Kio.

Contract CR106 comprises the design, construction and completion of underground Civil Defence (CD) Loyang Station including a cripple siding, cut and cover tunnels, retrieval shaft for a large diameter TBM and approximately 1200m of twin bored tunnels (TBT) and 4 cross passages, and an elevated infrastructure.

Loyang Station is a three-level underground station located along Loyang Avenue between the intersections of Loyang Way. The station provides accessibility to the nearby industrial estate, residential developments and military areas.

Changi East Depot for Cross Island Line, Singapore

Client: **China Jingye Engineering Corporation Limited (Singapore Branch)**
Services: **Structural and Alignment Design Consultancy Services**
Year of completion: **2030**

The proposed Cross Island Line Phase 1 (CRL1) is an underground Mass Rapid Transit (MRT) line of a total route length of approximately 29km. CRL1 runs along the eastern corridor from Changi Airport to Bright Hill via Pasir Ris, Tampines, Hougang and Ang Mo Kio.

Contract CR101 consists of the design, construction and completion of Changi East Depot, Rail Bridge, widening of existing road bridge. The Changi East Depot site is located to the north-east of Changi Airport, bounded by Aviation Park Road, Tanah Merah Coast Road and Changi Collector Drain 2 (CCD2).

The Changi East Depot consists of various buildings and structures for the proper function of depot. It will provide Stabling Building, Main Workshop, P Way, Locomotive & Welding Workshop, Manual and Auto Train Wash, Admin Building, Chiller Building, Load Centres, 66 kV substation and other supporting structures for depot operation. The depot site is approximately 55ha, 1.45km in length and 380m wide.

Nanyang Gateway Station & Nanyang Crescent Station and Viaduct for Jurong Region Line, Singapore

Client: **Hwa Seng Builder Pte Ltd**
Services: **Architectural, Civil/Structural & Geotechnical, and Mechanical & Electrical Consultancy Services**
Year of completion: **2029**

The proposed Jurong Region Line (JRL) is to serve Choa Chu Kang, Tengah, Jurong West, Jurong Industrial Estate, Nanyang Technological University (NTU) and Jurong East to West Coast. The length of the total route is approximately 23km. The JRL infrastructure is planned for a 4-car MRT with platform length of 75m.

Contract J113 comprises the design, construction and completion of two stations JW3 and JW4, and about 1.35km of elevated viaduct linking the two stations.

The proposed JW3 Nanyang Gateway Station (NYG) and JW4 Nanyang Crescent Station (NYC) are located in the NTU campus.

Midstream Capabilities: Multi-Disciplinary Engineering Capabilities

Water and Environment

Water distribution as well as waste treatment is critical to any country, developed or developing. Therefore, no matter where our project is located, we place great emphasis on synchronising the infrastructure we plan and design with the environment.

The Water and Environment engineering group is now a key service in the Meinhardt Group, providing design solutions to address the critical end to end needs for Water for the entire water and waste water cycle.

Recognising that every drop matters, our services have evolved and expanded to include the design and engineering of treatment facilities, systems for water and waste management, and the requisite support infrastructure. Our multi-disciplinary team leverages state-of-the-art ICT technologies, digital tools, and coordination platforms such as BIM to deliver innovative design and engineering solutions.

Aligned with the United Nations Sustainable Development Goals and cognizant of the challenges posed by climate change – including rising sea levels and severe storms – our team specialises in creating resilient designs for flood protection, drainage, coastal defences, as well as the development of ports, harbours, dredging, and reclamation projects.

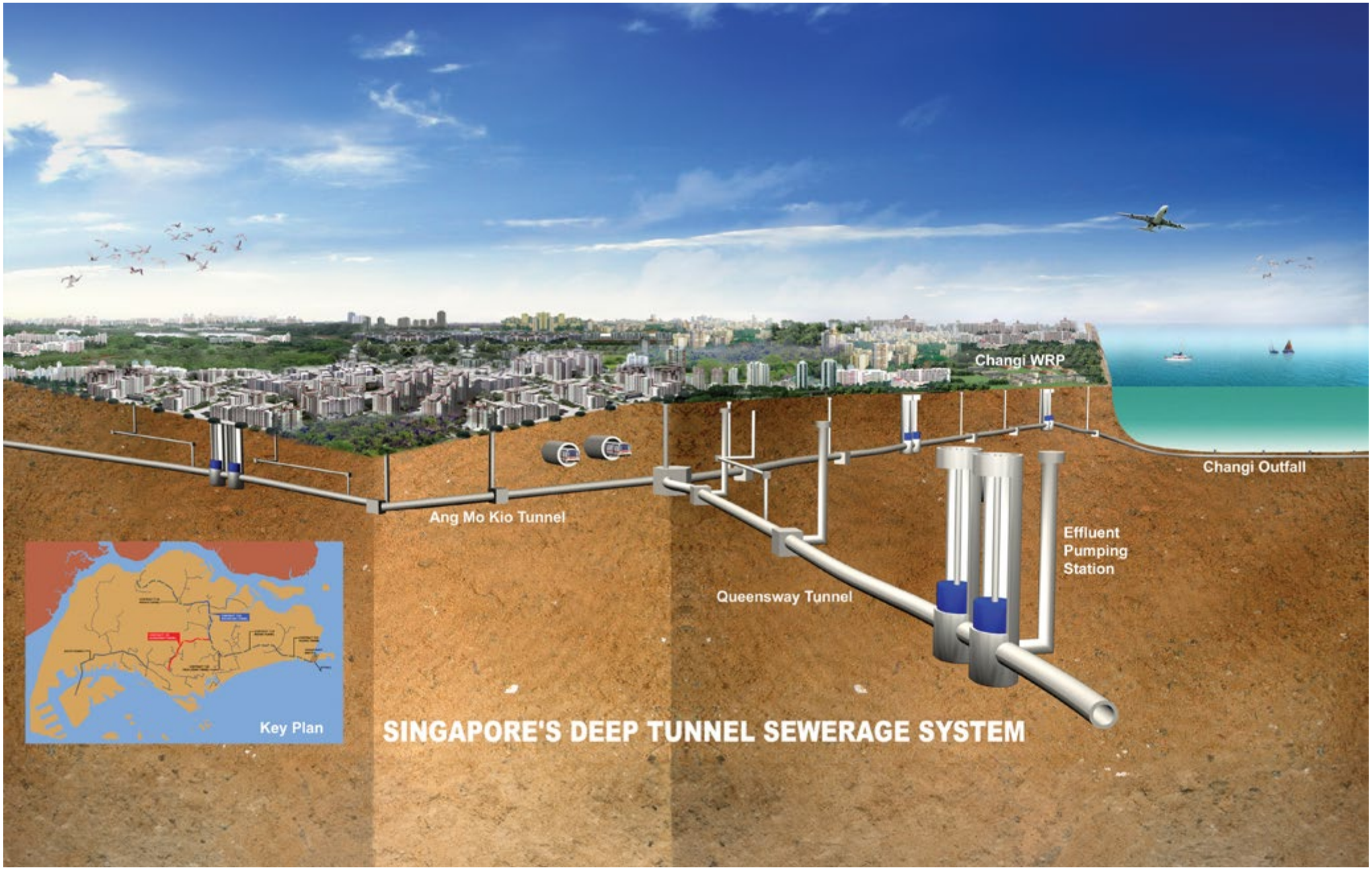
Our comprehensive approach extends to collaborating with trusted partners to offer integrated design services for fire safety, security, blast protection, and process engineering, making us a one-stop shop for our clients.

To ensure the highest standards of quality and innovation, we employ advanced software simulations and collaborate with leading experts in the field. This enables us to provide superior design solutions and insightful advice, adding significant value for our clients. Leveraging the Meinhardt Group's extensive network for planning, design, engineering, and technology, we consistently offer holistic solutions and alternatives that enhance our client's projects.

Our extensive network of clients has allowed us to contribute to a wide array of water and environmental projects globally, with a notable presence in Singapore. We take pride in our commitment to sustainability and resilience, and our active role in combating climate change, reaffirming our position as a leading partner in fostering a sustainable future.

Capabilities:

- Roads and drainage
- Drains and canals
- Coastal and seawalls
- Tunnel, railway, simple flyover and simple bridges
- Dredging and Reclamation
- Ports and harbours
- Potable water pipelines and chambers
- Firewater pipelines and hydrants
- Sewer networks and manholes
- Hydraulic analysis
- Service water reservoirs.
- Water pumping stations
- Water booster stations
- Water treatment plants
- Sewage treatment plants
- NEWater treatment plants
- Seawater desalination plants
- Building and services
- Solid waste facilities



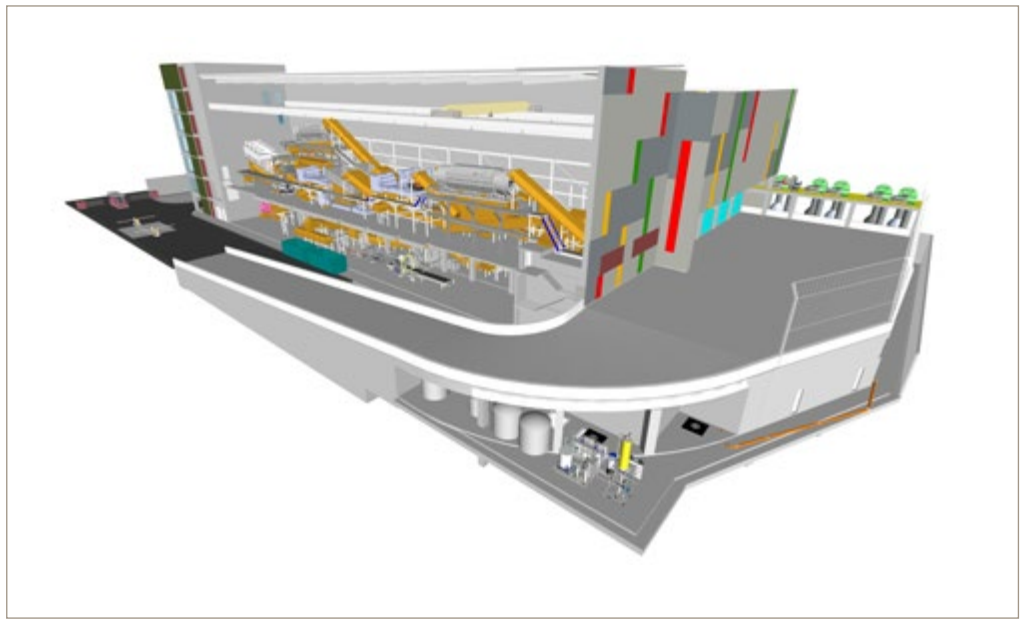
Deep Tunnel Sewerage System, Ang Mo Kio and Queensway Tunnels, Singapore

Client: **Samsung Corporation (Ang Mo Kio Tunnel) & Zublin (Queensway Tunnel)**
Services: **Principal Engineering Consultant**
Year of completion: **2005**

Ang Mo Kio Tunnel comprises a 7.2 kilometres long deep tunnel sewerage system with a 30-40 metres deep bored tunnel of 4.3 metres internal diameter.
Queensway Tunnel comprises a 9.7 kilometres long deep tunnel sewerage system with a 30-45 metres deep bored tunnel of 3.3 metres internal diameter.

Pilot Mechanical & Biological Treatment (MBT) Plant, Singapore

Client: **JE Synergy Engineering Pte Ltd**
Services: **Civil Engineering, Structural Engineering, Mechanical Engineering, Electrical Engineering, Fire Engineering, Architectural Services**
Year of completion: **2022**



Project Overview:
This is a cutting-edge facility designed to optimise the recycling and resource recovery from domestic waste. The centralised and integrated Mechanical Biological Treatment (MBT) facility has the capacity to process up to 500 tonnes of domestic waste per day, maximising the extraction of recyclables and reducing the volume of inert and residual waste destined for disposal and landfill.

The facility is engineered to handle a range of pre-sorted waste streams and is equipped to accommodate all types of non-articulated refuse collection vehicles currently and potentially used in Singapore. It features a storage bunker capable of holding the incoming domestic waste for at least four days of operation, complete with an integrated firefighting system. The design ensures that the storage and processing areas are fully enclosed to minimise noise, dust, and odour emissions, thereby mitigating public health, environmental, and safety concerns.

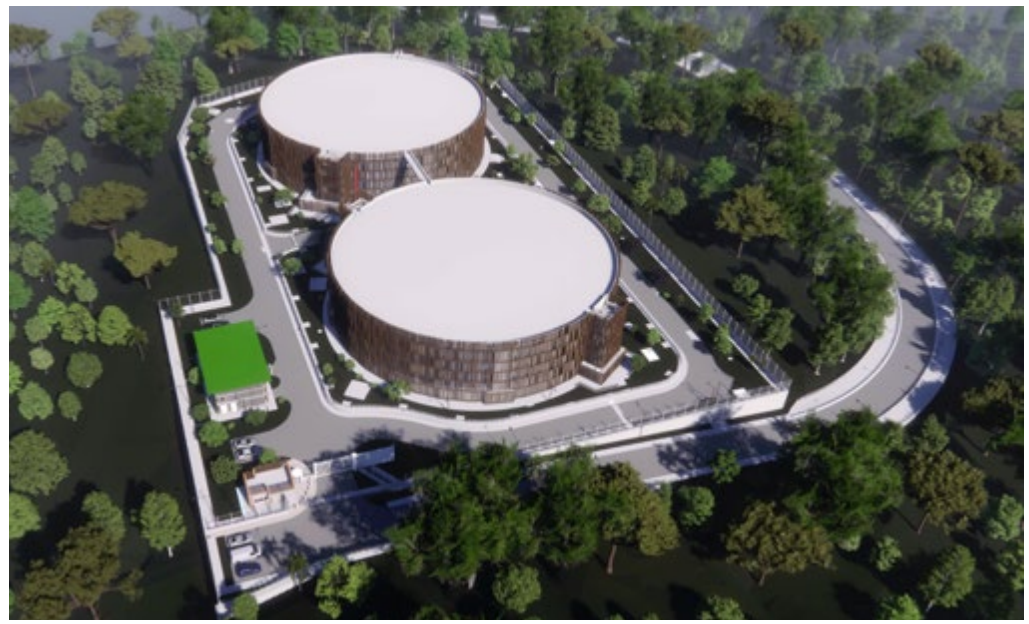
Recycling Performance:
The facility consistently achieves high recovery rates of recycled products including:

- 3D plastic materials: 30 tonnes/day
- HDPE (High-Density Polyethylene): 11 tonnes/day
- LDPE (Low-Density Polyethylene): 22 tonnes/day
- Glass: 0.7 tonnes/day
- Ferric metals: 13 tonnes/day
- Non-ferric metals: 1 tonne/day

This state-of-the-art facility underscores Meinhardt's commitment to sustainable waste management practices, aligning with environmental conservation efforts while supporting Singapore's waste management infrastructure.

Proposed Tengah Service Reservoir - Potable Water Service Reservoir at Tengah New Town, Singapore

Client: **PUB**
Services: **Overseeing detailed design, project management, and construction supervision**
Year of completion: **2025**



The Tengah Service Reservoir (TSR) project, situated in the newly developed Tengah New Town, commenced in May 2018 with an anticipated completion date of September 2025. Meinhardt (Singapore) Pte Ltd is at the helm, overseeing detailed design, project management, and construction supervision. The project is budgeted at SGD 125 million and aims to deliver potable water via gravity to residents of Tengah New Town and adjacent demand areas, including the Bulim Industrial Estate.

The TSR is strategically located on elevated terrain within Tengah New Town and is designed to house a 12-million-gallon capacity, equivalent to approximately one day's water supply for the town and surrounding regions. This capacity is crucial to satisfy the daily water demand and maintain a minimum water pressure of 135mRL consistently.

The reservoir will feature two cylindrical water tanks, each 60 meters in diameter and 15 meters in height, constructed from post-tensioned concrete with reinforced concrete (RC) flat roofs for maintenance activities. This design ensures that one tank can remain operational while maintenance is performed on the other. The roof structure employs a post-tensioned flat slab supported by RC columns with an 800mm diameter spaced 10 meters apart. The base of the tanks will utilize a standard RC flat slab system underpinned by piles.

Construction of the water tanks employs the Doka Slipform system, an advanced formwork technology that enables continuous upward building, allowing the completion of one tank wall within just eight days. This method enhances construction efficiency and ensures structural integrity.

Safety Inspection of Dams, Singapore and Johor, Malaysia

Client: **PUB**
Services: **Civil and Water/Environmental Engineering**
Year of completion: **2015**

Safety Inspection of dams, dykes, barrage, spillway, tidal gates, intake towers and pipe tunnel for 16 dams and reservoirs in Singapore and Malaysia.

Upgrading of Bukit Timah Water Works and 27 Sewer Pumping Stations, Singapore

Client: **PUB**
Services: **Civil, MEP and Water/Environmental Engineering**
Year of completion: **2015**

Upgrading works to increase pumping capacity from 20 MIG to 25 MIG.

Dredging of Waterways in the Western Watershed, Singapore

Client: **PUB**
Services: **Civil and Water/Environmental Engineering**
Year of completion: **2014**

Dredging works at Sungei Ulu Pandan, Sungei Pandan, Sungei Peng Siang and Sungei Tengah.

Kranji Water Reclamation Plant, Singapore

Client: **PUB**
Services: **Civil and Water/Environmental Engineering**
Year of completion: **2014**

Repair and modification of the dewatered sludge silo facility including re-designing and replacement of the odour treatment plant to cater for the higher capacity of extraction and treatment rate.

Jurong Rock Cavern, Singapore

Client: **JTC Corporation**
Services: **Accredited Checking**
Year of completion: **2014**

Southeast Asia's first underground rock cavern for oil storage located more than 100 metres below Jurong Island's Banyan Basin. The cavern is up to 27 metres high - equivalent to a 9-storey building. The project comprises 8 kilometres of tunnels and five caverns housing a total of nine storage galleries.

Sewerage & Drainage System for Bilaspur City, India

Client: **Bilaspur Municipal Corporation**
Services: **Project Management and Construction Supervision**
Year of completion: **2010**

267 kilometres sewer, 381 kilometres drainage and five STPs for population of 850,000 covering an area of 30,420 hectares.

Lussaily Mega Strategic Storage Service Reservoir Phases I and II, Dubai, UAE

Client: **Dubai Electricity and Water Authority**
Services: **Civil, Water and Environmental Engineering**
Year of completion: **2015**

Two semi-underground service reservoir, each with a capacity of 60 MIG (273,000 cubic metres).

Midstream Capabilities: Specialist Services

Meinhardt Lighting Studio

Meinhardt Light Studio (MLS) is a lighting design firm known for its innovative approach to lighting design covering all areas including architectural, internal and external lighting, and more. MLS approach to new-age and hi-tech lighting designs is to illuminate the interior, exterior and landscape of built environment infusing soul into these areas and minimising energy usage.

Concept Development:

Meinhardt Light Studio works closely with clients to develop lighting concepts that align with the project's objectives, style, and budget. This may involve brainstorming sessions, mood boards, and initial renderings to visualise ideas.

Lighting Design:

The firm offers comprehensive lighting design services, which involve selecting appropriate lighting fixtures, determining their placement, calculating lighting levels, and creating lighting layouts that enhance the architectural features and user experience of a space.

Daylighting Analysis:

Meinhardt Light Studio may conduct daylighting analysis to optimise the use of natural light within a space, minimising the need for artificial lighting during daylight hours while maximising energy efficiency and visual comfort.

Energy Efficiency Consulting:

The firm provides expertise in energy-efficient lighting solutions, including the selection of LED fixtures, lighting controls, and automation systems to minimise energy consumption and operating costs over the lifespan of the project.

Custom Fixture Design:

Depending on the project requirements, Meinhardt Light Studio may collaborate with manufacturers to design custom lighting fixtures that complement the overall design aesthetic and address specific lighting challenges.

Exterior Lighting Design:

In addition to interior spaces, Meinhardt Light Studio offers exterior lighting design services for architectural facades, landscapes, and outdoor environments, considering factors such as safety, security, and visual impact.

Lighting Control Systems:

The firm specialises in designing lighting control systems that allow for flexible control of lighting levels, colour temperatures, and lighting scenes to adapt to different activities, moods, and time of day.

Sustainability Integration:

Meinhardt Light Studio incorporates sustainable lighting practices into their designs, such as specifying energy-efficient fixtures, employing renewable energy sources, and utilising lighting controls to minimise light pollution and environmental impact. Renderings and Visualisation: The firm utilises advanced software tools to create photorealistic renderings and simulations that allow clients to visualise the proposed lighting design in various conditions and make informed decisions before implementation.

Nativity Church, Singapore

Client: **Nativity Church**
Services: **Lighting Design for Façade, Exterior and Interior**
Year of completion: **2022**

Nativity Church in Singapore stands as a place of spiritual solace and community gathering. Lighting design plays a pivotal role in enhancing the architectural beauty of the church while creating an atmosphere conducive to worship and reflection. Meinhardt Lighting Studio provided a comprehensive lighting design scheme tailored to accentuate the sacred ambiance of Nativity Church.

Façade Lighting:

Utilise warm-toned uplights to accentuate the intricate details of the façade, emphasising the grandeur of the entrance.

Landscape Lighting:

Employ subtle path lighting to guide visitors towards the entrance while maintaining a serene ambiance in the surrounding garden areas.

Interior Lighting:

Altar Illumination:
Employ a combination of warm and neutral lighting to illuminate the altar, emphasising its significance as the focal point of worship.

Nave Lighting:
Implement a balanced combination of ambient and accent lighting to ensure even illumination throughout the nave while drawing attention to architectural details and artwork.

Choir Loft Lighting:
Utilise adjustable lighting fixtures to provide adequate illumination for choir performances while minimising glare and preserving the visual focus on the altar.

Sacristy and Auxiliary Spaces:
Install task lighting solutions tailored to the specific functions of each area, ensuring optimal visibility for clergy and staff.

Specialised Lighting Effects:

Stained Glass Illumination:
Employ discreet lighting fixtures to enhance the vibrant colours of stained glass windows, creating a captivating interplay of light and colour within the sanctuary.

Candlelight Simulation:
Integrate LED candles with flickering effects in designated areas to evoke the traditional ambiance of candlelit prayer services without compromising safety or convenience.

LED Technology:
Specify energy-efficient LED lighting fixtures throughout the church to reduce energy consumption and minimise maintenance requirements.

Lighting Controls:
Encourage responsible energy usage through user-friendly lighting controls and awareness campaigns within the congregation.

The lighting design for Nativity Church in Singapore aims to enhance the spiritual experience of worshippers while accentuating the architectural beauty of the church.

By combining aesthetic appeal with functionality and sustainability, the lighting scheme seeks to create a sacred ambience that fosters prayers, reflection, and engagement.

Midstream Capabilities: Specialist Services

Façade

At Meinhardt Facade, we pride ourselves on delivering cutting-edge facade engineering solutions that seamlessly blend aesthetics, functionality, constructability, and sustainability. Our core strengths and USPs include:

1. **Comprehensive Expertise:** Our multidisciplinary team of seasoned engineers, architects, and designers offers end-to-end facade solutions, from conceptual design to final implementation.
2. **Innovative Solutions:** Leveraging cutting-edge materials and technologies, we create facades that are visually striking, highly functional, and environmentally sustainable.
3. **Sustainability:** Driven by a commitment to environmental stewardship, we integrate sustainable practices and materials into our designs, minimising energy consumption and ecological impact.
4. **Client-Centric Approach:** We prioritise close collaboration with our clients to fully understand their vision and requirements, ensuring each project is uniquely tailored to their specific needs and expectations.
5. **Quality and Safety:** We adhere to the highest standards of quality and safety across all our projects, ensuring the longevity and reliability of our facade solutions.

Methodologies

Meinhardt Facade employs a holistic approach to facade engineering, marrying state-of-the-art technology with innovative design principles. Our methodologies include:

- Integrated Design Process: We foster collaboration between architects, engineers, and clients from the initial design stage, ensuring all facets of the facade are considered and optimised.
- Advanced Simulation Tools: Utilising cutting-edge software for structural analysis, thermal performance, and daylight simulations, we predict and enhance facade performance.
- Sustainable Design Practices: We incorporate green building principles and materials to develop energy-efficient and environmentally friendly facades.
- BIM and Digital Fabrication: Employing Building Information Modelling (BIM) and digital fabrication techniques, we enhance precision, reduce waste, and streamline construction processes.

Client-Centric Approach and Mindset

At Meinhardt Facade, the client is central to everything we do. Our client-centric approach is characterised by:

- **Collaboration:** Engaging clients throughout the design process to ensure their vision is realised.
- **Transparency:** Maintaining open communication and providing regular updates on project progress.
- **Flexibility:** Adapting to client needs and preferences, ensuring personalised and satisfactory outcomes.
- **Support:** Offering post-completion support and maintenance to guarantee the long-term performance of our facades.

Scope of Services and Expertise

Meinhardt Facade offers a comprehensive range of services, including:

- **Facade Design and Engineering:** Custom facade solutions tailored to the unique needs of each project.
- **Material Selection and Testing:** Advising on and testing advanced materials for optimal performance.
- **Structural Analysis and Simulation:** Ensuring the structural integrity and performance of the facade.
- **Project Management:** Coordinating all aspects of the facade project from conception to completion.
- **Sustainability Consulting:** Providing expertise on sustainable design practices and materials.

Meinhardt Facade stands at the forefront of facade engineering, offering unparalleled expertise, innovative solutions, and a client-centric approach. Our unwavering commitment to quality, sustainability, and excellence ensures that we deliver facade solutions that improve visibility and daylight, reduce heat or cold penetration to optimise the capital and operating cost of the HVAC Systems.

One at Palm Jumeirah, Dubai, UAE

Client: **Omniyat Developments**
Services: **Full Scope Façade Engineering and Consulting, Façade Access Consultancy**
Year of completion: **2021**

One at Palm Jumeirah, Dubai, UAE - Elevating Luxury Living

One at the Palm, a flagship development by Omniyat under the Dorchester Collection, epitomises luxury living with its high-end residential penthouses and apartments. Strategically situated at the trunk of Palm Jumeirah, it offers unparalleled views of Dubai Harbour, Dubai Marina, and Jumeirah Beach.

Designed by renowned US architects Soma from their New York office, this project showcases cutting-edge architectural brilliance. Meinhardt contributed extensive expertise in Façade Engineering and Façade Access Consultancy, collaborating closely with Omniyat and Soma to ensure the project's high-end residential ambiance was flawlessly executed.

Upon release, the top two penthouses set a UAE record for the highest-priced penthouse sales. We facilitated glass-only façade solutions and eight-meter-wide opening doors, providing residents with the region's most exclusive views. The outcome is a breathtaking architectural masterpiece.

Meinhardt delivered comprehensive pre-contract engineering and consultancy services, alongside post-contract supervision during construction. This project exemplifies the immense value of full-scope façade consultancy. Addressing the challenge of the staggered façade arrangement, Meinhardt devised a bespoke integrated system for vertical and horizontal transitioning of the façade. Meeting the client's demand for high transparency in glazing, Meinhardt coordinated full-scale glazing mock-ups for client approval and meticulously specified the glazing, resulting in an extraordinary finish.

The Lana Residences, Dorchester Collection, Dubai, UAE

Client: **Omniyat Developments**
Services: **Full Scope Façade Engineering and Consulting, Façade Access Consultancy**
Year of completion: **2024**

The Lana Residences, Dorchester Collection, Dubai, UAE – Elegance Redefined

The Lana Residences, a premier development by Omniyat, is part of the prestigious Dorchester Collection, offering high-end residential accommodations and a luxury hotel. Situated in the prime Marasi Bay, Burj Khalifa district, this development enjoys direct access to the Dubai Water Canal promenade and marina.

Designed by the globally renowned Foster + Partners, from their UK and UAE offices, the project exemplifies architectural brilliance. Meinhardt collaborated closely with Omniyat and Foster + Partners on the intricate detailing of the facades and façade access solutions to achieve the desired aesthetic of this iconic development.

The 32-storey tower comprises exclusive penthouses and apartments, ranging from two to four bedrooms. Each unit features spacious layouts, private terraces, and floor-to-ceiling glazed facades, offering uninterrupted views of the Burj Khalifa District skyline.

The development also boasts a rooftop pool and bar, enhancing its luxury appeal. As a stunning addition to Dubai's skyline, The Lana Residences stands as a testament to Meinhardt's expertise in delivering exceptional facades. From our Dubai office, we provided comprehensive pre-contract engineering and consultancy services, followed by meticulous post-contract supervision throughout the construction phase.

The project featured large-scale sliding doors and required a high level of transparency in the glazing with a neutral colour, a challenging feat in the Middle East. Meinhardt's Façade team's regional expertise was crucial in specifying the glazing requirements in coordination with the design team. Additionally, Meinhardt offered valuable assistance with value engineering to ensure the original design intent was achieved without compromise.

One Bangkok, Thailand

Client: **One Bangkok Co., Ltd.**
Services: **Full Scope Façade Engineering and Consulting, MEP, Transport, Lighting**
Year of completion: **Phase 1: 2024, Phase 2: 2027**

The One Bangkok project, a monumental mixed-use development in Thailand, embodies both remarkable opportunities and complex challenges in facade engineering and consultancy. The project's vast scale and ambitious vision demand a comprehensive and innovative approach that transcends traditional engineering practices.

Meinhardt's role in this iconic development has been pivotal in ensuring that the building envelope seamlessly integrates with the architectural vision. This entails meticulous selection of materials, colours, and patterns that not only align with the project's aesthetic goals but also uphold the highest standards of structural integrity and performance.

Meinhardt has been instrumental in optimising thermal performance and energy efficiency, minimising solar heat gain, and maximising natural daylight, thereby ensuring compliance with stringent sustainability certifications such as LEED and WELL. Additionally, the facade design has been tailored to withstand various environmental stresses, including high winds, seismic activity, and heavy rainfall, while incorporating effective access and maintenance systems for each tower. The extensive facade engineering and consultancy work undertaken for the One Bangkok project showcases Meinhardt's technical expertise and innovative thinking, culminating in a facade that excels in performance, aesthetics, and sustainability.

ONE BANGKOK: The Heart of a Global City

One Bangkok is poised to become a landmark development, symbolising Bangkok's emergence as one of the world's influential global cities. With an investment exceeding THB120 billion, this expansive district covers 108 rai (42.7 acres) at the strategic intersection of Wireless and Rama 4 roads, offering direct connections to the city's burgeoning mass transit systems.

The development features three retail precincts, five premium office towers, five luxury and lifestyle hotels, three high-end residential towers, a world-class entertainment arena, and abundant green spaces totaling over 50 rai (19.7 acres). From its master planning and design to construction and business operations, One Bangkok is envisioned as 'The Heart of Bangkok'—a unique urban wonder. This development aims to provide extensive green spaces, inspire with art and cultural programmes, and enhance the quality of life through sustainable urban development. One Bangkok will elevate Bangkok's status as a leading international city, attracting the business community, investors and tourists alike.

Strategic Location in the Heart of Bangkok

Situated at the corner of Wireless Road and Rama IV Road, One Bangkok is positioned in one of the city's most sought-after locations, uniting major business districts like Sathorn, Silom, and Samyan. It enjoys direct access to the integrated public transport system and features six access points around the district. Complemented by over 50 rai of green spaces, it connects Lumphini Park and Benjakitti Park, creating a larger green canopy spread over 700 rai, serving as a significant green lung for Bangkok.Setting a New Standard for Smart & Sustainable LivingOne Bangkok is the first project in Thailand to achieve the highest certified LEED Platinum for Neighbourhood Development, alongside Platinum WiredScore and Platinum SmartScore certifications, ensuring excellent digital connectivity. The project is also striving to obtain the WELL Building Standard, enhancing the quality of life, convenience, and safety for all occupants and visitors.

Curated Experiences with Community Spirit

One Bangkok offers a multitude of urban living experiences, catering to diverse needs and fostering a vibrant community where people can work, live, and play. With learning spaces, creative venues, and world-class arts and cultural programmes, One Bangkok aims to redefine urban living and create a more fulfilling and comprehensive lifestyle for all.

The Henderson, Hong Kong

Client: **Henderson Land Development, Company Limited**
Services: **Full Facade Engineering Consultancy, Façade Project Manager**
Year of completion: **2024**

THE HENDERSON: A Showcase of Meinhardt Facade Technology's Excellence
The Henderson's facade features state-of-the-art elements like organic geometry and curved glass panels, distinguishing it from traditional skyscraper designs and emphasising contemporary aesthetics and sustainable practices. Our collaboration with top-tier contractors to execute flawlessly curved glazing projects with minimal image distortion highlights our dedication to delivering superior quality and precision in architectural solutions, solidifying our position as industry leaders in innovative facade design.

Pioneers in Free-Form Geometric Skyscrapers in Hong Kong:
We lead the way in innovative free-form geometric skyscrapers in Hong Kong. Our research on the capabilities of global glass manufacturers ensures a seamless transition from conceptual designs to construction-ready packages, showcasing our expertise in forward-looking architectural solutions.

Client-Centric Approach:
Acting as the facade statutory consultant and project manager for The Henderson, we collaborated with the project team and contractors to navigate the approval processes of government departments. Our meticulous efforts include full-time site and factory inspections, guaranteeing compliance with regulations and quality standards, all while prioritising client satisfaction.

THE HENDERSON
The Henderson, a 36-story skyscraper at 2 Murray Road in Hong Kong's Central district, stands as a beacon of architectural innovation. Acquired by Henderson Land Development for US$3 billion in 2017, the site was previously home to a multi-storey car park. Rising to 190 meters, The Henderson boasts a total floor area of 43,200 square meters. Our design features a distinctive curved and playful silhouette, a hallmark of Zaha Hadid's architectural style, setting it apart from conventional skyscrapers in Hong Kong's business district.

As one of Hong Kong's most anticipated new buildings, The Henderson is set to become a landmark, symbolising innovation and architectural excellence. Its completion boosts the commercial appeal of Central, attracting high-profile businesses and cultural institutions. The facade of The Henderson highlights our expertise in facade design and project management. We have seamlessly blended aesthetic appeal with high performance, using advanced materials and technologies to optimise energy efficiency and durability.

Organic Geometry
The facade showcases the signature fluid and organic geometry of Zaha Hadid Architects, creating a dynamic and flowing appearance that distinguishes it from traditional rigid skyscraper designs.

Curved Glass Panels
Our sleek curtain wall system envelops the building's exterior, featuring both single-curved and double-curved laminated insulated glass units (IGUs). These curved glass panels enhance the building's aesthetic appeal and maximise natural light penetration, providing a bright and open interior environment.

The Robinson Tower, Singapore

Client: **Tuan Seng Holdings Limited**
Services: **Full Scope Façade Consulting, Façade Access Consultancy**
Year of completion: **2019**

The Robinson Tower, a 24 000 m² boutique retail and office tower, was inaugurated in Singapore. Designed by the international firm KPF (Kohn Pedersen Fox Associates) in collaboration with Associate Architect A61, the building addresses the cultural and social aspects of the city, creating a unique and refined experience. The tower stands out in its context, showcasing novelty in form and function, changing the city's skyline. From each angle, the tower reveals a new face and merges differently within the city's urban fabric. The lower podium is similar in scale to adjacent structures, creating a contextual relationship with the angular roof form and terracotta of Lau Pa Sat. The green opening on the roof of this entity is publicly accessible due to Singapore's Landscape Replacement Policy of 2014. The atrium generates a meeting centre for the office lobby, retail, and food & beverage spaces. The building's main façade system consists of a unitised curtain wall with high-performance low-E coated insulated glass with diagonal ceramic fritted pattern to emphasise the building shape.

World Trade Centre 3, Indonesia

Client: **Jakarta Land (Hongkong Land & Central Cipta Murdaya)**
Services: **Full Scope Façade Consulting and Façade Access Consulting, Full Time Inspection**
Year of completion: **2019**

WTC 3: A Landmark in Jakarta's Cityscape
World Trade Centre (WTC) 3, strategically located on Jalan Sudirman, stands as the newest addition to Jakarta Land's World Trade Centre complex. This premier office tower is situated in the heart of Jakarta's "Golden Triangle" – the Central Business District. Jakarta Land is a prestigious collaboration between Hongkong Land and Central Cipta Murdaya (CCM). WTC 3, the tallest building within the complex, rises majestically to a height of 209 meters, encompassing 44 floors above ground and 5 floors below ground.

Designed by the renowned architectural firm Aedas, Singapore, this premium Grade A building exemplifies modern architectural excellence. It adheres to BCA Green Mark Gold standards, underscoring the developers' unwavering commitment to sustainability. The complex offers an array of top-notch facilities and amenities, making it a coveted address for businesses. The building's main façade is an architectural marvel, featuring a unitised curtain wall system with high-performance, low-E coated insulated glass. This design not only enhances the building's energy efficiency but also integrates lightweight, translucent glass panels within the curtain wall, providing varying degrees of light transmission and visual privacy for its occupants.

Meinhardt Façade played a pivotal role in this project, delivering comprehensive Façade Consultancy Services and Façade Access Equipment Consultancy Services. Our team also ensured meticulous oversight through Full-Time Site and Factory Inspections, guaranteeing that the highest standards of quality and safety are met. WTC 3 is not just a building; it is a testament to innovation, sustainability, and excellence in architectural and engineering design, solidifying its place as a landmark in Jakarta's skyline.

Downstream Capabilities

- Commissioning and Facilities Management Consultancy
- Energy Management and Audits
- Engineering, Procurement and Construction Management (EPCM)

Downstream Capabilities: Commissioning and Facilities Management Consultancy

Commissioning Management

Meinhardt Group offers a comprehensive range of services specialising in the MEP systems testing and Commissioning (T&C) Consultancy. Our expertise ensures that the commissioning process for all building services is conducted comprehensively, systematically, and safely.

Our T&C process ensures that the facility handed over to our clients is not only code and authorities compliant but will operate safely, optimally and energy-efficiently.

Comprehensive MEP Commissioning Management Service

At Meinhardt T&C department, we specialise in delivering tailored services for both singular and multiple building projects, ensuring they align perfectly with our clients' unique needs and requirements. Our MEP (Mechanical, Electrical, Plumbing) T&C team is committed to ensuring that the commissioning process for each project proceeds smoothly, safely, and in strict adherence to the design standards set forth. We guarantee that all MEP testing and commissioning activities for mechanical, electrical, and plumbing systems are conducted at the highest level of excellence. Our work complies with all relevant local and international standards and regulations, including those set by CIBSE, ASHRAE, BISRIA, NPFA, and BSEN, among others.

The Meinhardt Commissioning Team provides an extensive range of services that encompass every facet of the testing and commissioning process including:

- Reviewing of design and feasibility study
- Commissioning audits and site surveys
- Commissioning document review of all T&C documentation
- Commissioning plan and critical path analysis
- Pre-commissioning and setting to work
- Preparation / reviewing of test record packages
- Accurate progress monitoring
- Program for commissioning
- Chairing all T&C related meeting, including stakeholder and client meetings
- Commissioning testing and verification of all MEP systems
- System performance verification
- Energy efficiency reviews and audits
- Collation, compliance and handing over of commissioning record documentation.
- Reviewing and verification of O&M Manual

Documental Production and Review services:

The Meinhardt T&C Department provides a comprehensive suite of services for the production and review of commissioning documents. Our offerings encompass a broad spectrum of documents including:
Method Statements for all MEP equipment and systems, Commissioning Plan, Commissioning Programme, FAT/SAT Reports, Site Observations, Feasibility Study, Commission Ability Study, Commissioning Activity Schedule.

MEP Systems:

- Our expertise in Commissioning Management covers every aspect of MEP equipment and systems including: Mechanical, HVAC, AHU, PAHU, CHW systems, Chiller systems, Condenser systems, Cooling towers, smoke management, SPF, Fans
- Electrical, ATS, Busduct, MV & LV Panels, Generators, Earthing & Lightning Protection, UPS, Discrimination study
- ELV, BMS, Fire Alarm and Voice Evacuation, IT Infrastructure, Security and Access control, Carpark management, LCS, GRMS, Vertical transporters
- Public Health, Fire Fighting, Public Health and Drainage, Fire Fighting, LPG, DW systems, CO detection, Fire suppression, Drainage, Kitchen Equipment, Suppression Systems

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Meinhardt Group's testing and commissioning services are ideally designed to address the complex challenges of managing single and multiple projects in today's dynamic environment.

Through a combination of comprehensive planning, strategic approach, and a long history of testing and commissioning experience, Meinhardt Group is well-positioned to assist clients in ensuring their facilities will operate safely and efficiency.

Downstream Capabilities: Commissioning and Facilities Management Consultancy

Facilities Management

In collaboration with our joint venture partners, Meinhardt Group offers comprehensive Facilities Management Consulting (FMC) services.

A modern facility whether it is an industrial, hotel, hospital, residential or office building or an airport or metro system, operates on complex systems requiring continuous monitoring management and preventive maintenance.

Our FMC works in tandem with FM companies to keep such facilities safe and operating at all times minimising expensive repairs.

At its core, this consultancy service is all about optimising the environment in which people work or interact. The FM Consultant offers a new perspective, beginning with an assessment of the current (or planned) facilities and operations, analysing everything from design intent to manpower and workflows. Our service can be provided at any point in the life cycle of a project, and can start at any stage from design stage through construction and commissioning, to the operational phase.

Very often, the biggest project constraint is not the building design but the technical skills of the workforce that operate the building. Technology is developing at a faster pace than workforce upskilling, and with an aging population, the talent pool for FM staff is shrinking. FMC is thus the effective and intuitive application of technology for an integrated and symbiotic relationship between systems and system operators.

Outcomes

- Improved space utilisation
- Improved energy efficiency
- Improved safety protocols
- Improved maintenance schedules
- Improved comfort for occupants
- Improved Health & Wellbeing, leading to Improved Performance or Customer Satisfaction

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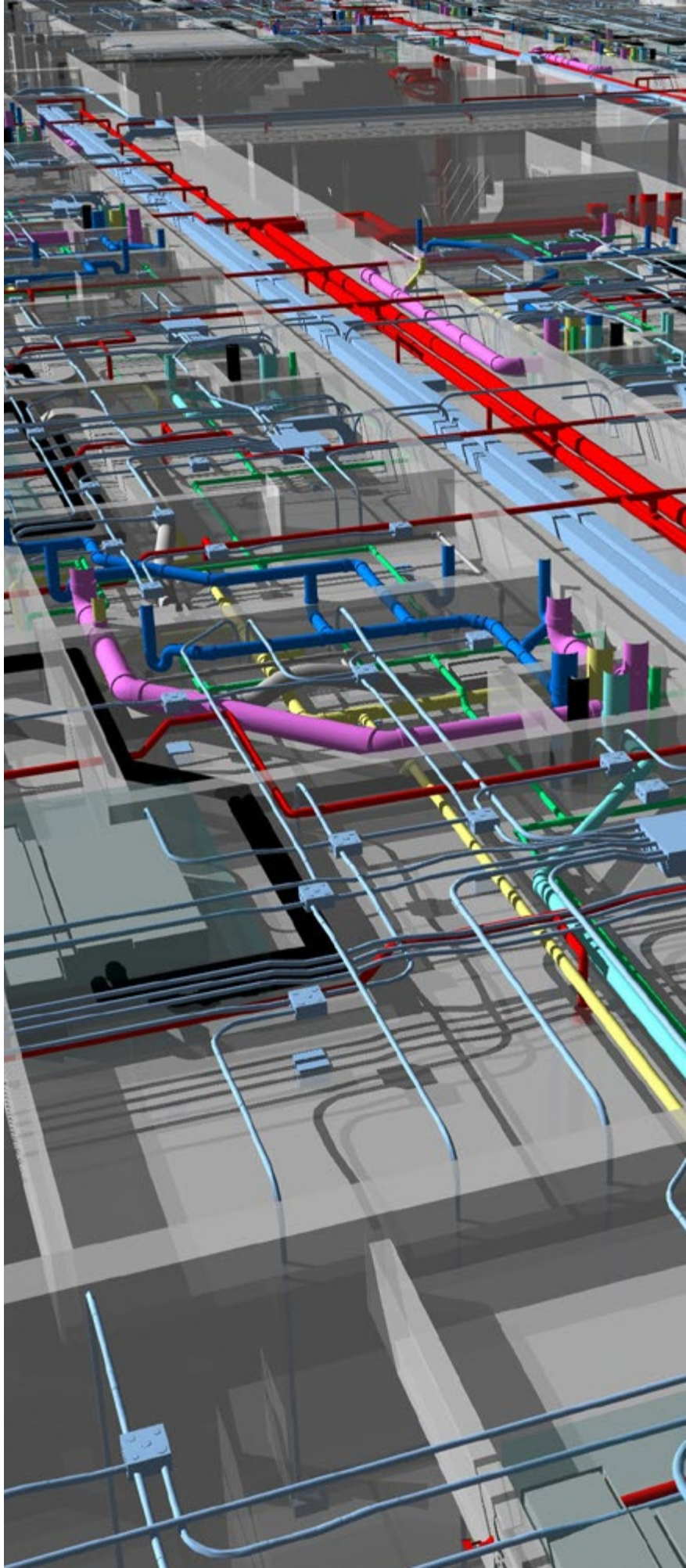
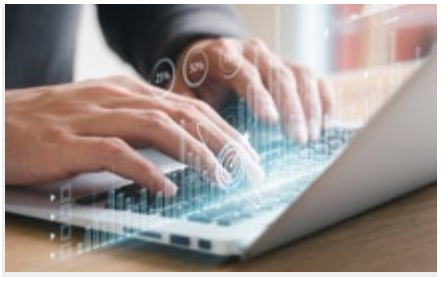
The FMC can be the clients' trusted advisor, accompanying and guiding them through every step of the transformation journey. They provide expertise, support, and ongoing monitoring to ensure that the implemented solutions deliver the desired outcomes.



Comprehensive FMC Service

The scope of services provided by a facilities management consultancy offered by Meinhardt can vary depending on the needs and requirements of clients, but will usually include some or all of the following:

Facilities Assessment and Analysis:
Consultants conduct a thorough evaluation of the existing facilities, infrastructure, and operations. This includes examining space utilisation, building systems, maintenance practices, safety protocols, and manpower.



Strategic Planning:
Based on the assessment findings and client objectives, consultants develop comprehensive strategic plans tailored to optimise the facility's performance. This involves setting clear goals, defining key performance indicators (KPIs), and outlining actionable steps to achieve desired outcomes.

Space Planning and Design:
For projects at design or renovation stage, consultants collaborate with the designers for optimised functionality and efficiency that can adapt to evolving needs.

Energy Management and Sustainability:
Consultants identify opportunities to enhance energy efficiency, reduce carbon footprint, and promote sustainable practices within the facility. This could include implementing energy-efficient technologies, enhancing HVAC systems, and incorporating smart technology to alleviate skills gaps or labour shortage.

Operations and Maintenance Optimisation:

Consultants develop strategies to streamline maintenance processes, minimise downtime, and extend the lifespan of assets. This may involve implementing preventive maintenance programs, conducting lifecycle analyses, and leveraging predictive maintenance technologies.

Technology Integration:
Consultants advise on the integration of smart technologies and digital solutions to enhance facility management processes. This could include implementing building automation systems, IoT sensors, and data analytics platforms to improve operations and decision-making.

Change Management and Stakeholder Engagement:

Consultants support clients in navigating organisational change and gaining stakeholder buy-in for proposed initiatives. This involves communication strategies, training programmes, and ongoing support to facilitate smooth transitions and maximise adoption.

Performance Monitoring and Continuous Improvement:

Consultants establish monitoring mechanisms to track progress against established goals and KPIs. They analyse performance data, identify areas for improvement, and implement corrective actions to ensure ongoing optimisation and efficiency gains.

Advisory and Support Services:
Consultants provide ongoing advisory and support services to address emerging challenges, provide guidance on best practices, and assist with the implementation of recommended solutions. This may include on-site support, technical assistance, and periodic reviews to ensure sustained success.

In summation, the scope of services offered by a facilities management consultancy is comprehensive and holistic, covering all aspects of facility planning, optimisation, and management to support client objectives and enhance the overall workplace environment.

Downstream Capabilities:
Energy Management and Audits

Meinhardt Group offers a comprehensive suite of services focused on energy management and auditing which not only aligns with global sustainability goals but also ensuring operating efficiency, cost savings, and environmental stewardship. We utilise smart strategies and tools designed to optimise energy usage and promote environmental sustainability, across multiple sectors.

Comprehensive Energy Management Strategy

Our strategy encompasses a holistic view of energy management, starting with Energy Auditing. This involves a one-time, in-depth analysis of energy consumption, reviewing a facility's energy use to identify significant opportunities for energy savings.

This is complemented by Energy Management, an ongoing process that involves the planning, monitoring, and controlling of energy usage to achieve outcomes such as cost savings, efficiency improvements, and environmental sustainability. Integral to this strategy is the Measurement and Verification (M&V) Plan, which quantifies and verifies the savings resulting from energy efficiency measures, ensuring that projected energy savings are realised.

These components are complementary, working together seamlessly to achieve our energy goals.

Bespoke Energy Auditing

Tailored to meet the specific needs of our clients, our bespoke energy auditing service conducts in-depth surveys of existing buildings to ascertain the age, operational status, and efficiency of equipment/systems, and to identify areas for improvement. This service not only focuses on energy usage and major loads but also offers opportunities for enhancing ventilation and air quality through innovative solutions like the incorporation of UV/ionization plants. Our comprehensive reports detail findings and suggest improvements including the replacement of plant/equipment and system modifications to enhance performance and energy efficiency. From design and specification for rectification scope to project management and new system performance reporting, our approach is thorough, utilising our skilled Testing and Commissioning Team and principal engineering team for utmost precision and effectiveness.

Certifications in Energy Management

Our commitment to energy management excellence is underscored by our certifications and affiliations. Meinhardt Singapore Pte Ltd (Dubai Branch) is not only a proud corporate member of the Emirates Green Building Council, promoting sustainable building development in the United Arab Emirates (UAE) but also a certified Energy Service Company (ESCO). Our professional certifications include significant numbers of Certified Energy Auditors (CEA), Certified Energy Managers (CEM), Certified Measurement and Verification Professionals (CMVP), and Performance Contracting and Funding Professionals (PCF) around the world and specifically in the UAE. These certifications, awarded by the Association of Energy Engineers, underscore our global and local expertise in energy management.

Meinhardt Group's energy management and auditing services are designed to address the complex challenges of managing energy consumption in today's dynamic environment. Through a combination of comprehensive strategies, bespoke solutions, and a robust framework of certifications, Meinhardt Group is well-positioned to assist clients in achieving their energy efficiency and sustainability goals. Our energy management and auditing services stand as a testament to our unwavering commitment to sustainability, innovation, and a more energy efficient world.

Downstream Capabilities:
Engineering, Procurement and Construction Management (EPCM)

The Meinhardt EPCM Group was established as a hybrid of consulting and construction, providing integrated engineering, procurement and construction management services.

With a track record that began with managing projects worth USD 60 million for Shell Oil Company in the Malaysian and Indian markets, we have consistently pursued excellence and growth. Expansion into new territories without limitation is a key part of our strategic evolution, with services extending as far as Canada, North and South America.

As the EPCM partner for the Shell Mobility Programme, the Meinhardt EPCM Group has successfully managed projects totalling over USD 650 million. This accomplishment underscores our adeptness at overseeing extensive and complex operations across multiple regions, ensuring that every facet of the project lifecycle is executed to the highest standards.

We did not sit on our laurels with Shell, we expanded our horizon beyond the Shell Mobility Program, engaging with a diverse clientele. This broadening of our portfolio reflects our adaptive approach and ability to cater to various industries with tailor-made solutions.

The Meinhardt EPCM Group offers a comprehensive range of EPCM services that cater to the needs of each project phase. These services include Site Assessment, FS Technical and Commercial, Constructability Review, DED, Project Management Consultancy (PMC), Project Management and Construction Management (PMCM), Construction Management (CM), and Construction Supervisory (CS).

Bolstered by our extensive expertise and experience, we not only offer a robust array of services to guide a project from the drawing board to the ribbon-cutting ceremony but also tailor these services to the unique demands and specifications required by the client. This client-centric approach is crystallised in our Tailor Engineering Service. Here, we meticulously align our engineering capabilities with the specific objectives, constraints, and requirements laid out by the client. This bespoke service can range from customising design elements to adapting procurement strategies, all while maintaining the integrity and vision of the project. Whether it is accommodating a particular technological preference or integrating sustainable practices and materials, our tailored engineering solutions ensure that the client's individual needs are not just met but exceeded.

As we look to the future, we continue to nurture our foundational partnership with the Shell Mobility Programme — a testament to our enduring commitment and expertise in the sector. This relationship remains a keystone of our identity.

Simultaneously, we are branching out with vigour into new and dynamic sectors, eager to apply our tried and tested EPCM prowess to a broader canvas of opportunities. Our expanding capabilities now encompass the fast-evolving Data Centre landscape, where the intricate dance of technology and infrastructure must be choreographed to perfection. In the realm of Renewable Energy, we are harnessing the power of natural resources to pave the way for a sustainable future, contributing to the energy transition with innovative and eco-conscious solutions.

Our reach further extends to the cutting-edge field of Advanced Manufacturing, where we are at the forefront of integrating complex processes and next-generation technologies to help shape the factories of tomorrow. Lastly, the Mining & Mineral Sectors present a unique set of challenges and prospects, and we are poised to delve into these depths, ensuring that we extract value responsibly and efficiently.

In these ventures and beyond, the Meinhardt EPCM Group brings the same rigour, precision, and customisation that has been our hallmark, ensuring that as we grow, we remain deeply attuned to the diverse needs of our clients across all sectors.

SHELL India Markets Private Limited, Retail Stations, Pan India

Client: **Shell India Markets Private Ltd., Bangalore**
Services: **End to End Engineering and Project Management Consultancy**
Year of completion: **2023**

Meinhardt has been providing engineering and project management consultancy services to SHELL for the company-owned and company-operated fuel retail outlets in India. Our extensive scope of work encompasses topographical surveys, geotechnical investigations, master planning, architectural and detailed engineering design. This includes the creation of a detailed project report (DPR) covering all aspects: civil, structural, fuel systems, mechanical, electrical, piping, and firefighting systems. Meinhardt also oversees bid process management, contract and procurement management, construction monitoring, quality assurance/quality control (QA/QC), commissioning, and project handover.

Our efforts have facilitated the development of various retail outlets (ROs) across India, with sizes ranging from 1,500 to 25,000 square meters.

To date, Meinhardt has successfully designed and delivered over 100,000 square meters of retail space in regions such as Gujarat, Maharashtra, Andhra Pradesh, Telangana, Karnataka, Pondicherry, and Tamil Nadu.

Ammonia & Urea Plant Infrastructure, West Papua, Indonesia

Client: **PT Pupuk Kalimantan Timur (PKT)**
Services: **Masterplan Review, Geotechnical and Geoelectrical Studies, and DED Services**
Year of completion: **Ongoing**

Since its founding in 1977, PT Pupuk Kalimantan Timur (PKT) has been a leader in Asia's fertilizer industry, producing urea and NPK fertilizers in Bontang, East Kalimantan. To meet growing domestic fertilizer demand, PKT has engaged PT Meinhardt EPCM Indonesia to conduct a Masterplan Review, Geotechnical & Geoelectrical Studies, and Detailed Engineering Design (DED) Services for a new ammonia and urea plant in Fakfak, West Papua. Designated a National Strategic Project (NSP), this development is crucial for Indonesia's food security and agricultural self-sufficiency, aiming to meet the projected urea demand of 6-7 million tons by 2030.

VALE Bahodopi Jetty Construction Project, Bahodopi, East Sulawesi, Indonesia

Client: **PT VALE Indonesia TBK.**
Services: **Construction Constructability Review, Construction Field Supervision and Technical Assistance Services**
Year of completion: **Ongoing**

VALE Indonesia has partnered with Meinhardt to ensure expert oversight for the BAHODOPI Block project, emphasising safety and efficiency throughout the construction process. Meinhardt's role includes conducting thorough evaluations, comprehensive risk assessments, and providing actionable recommendations to uphold the highest construction standards. Their on-site supervision guarantees compliance with international safety regulations, enhancing transparency and accountability. This collaboration underscores VALE Indonesia's dedication to regulatory adherence, worker safety, and quality construction, reinforcing its reputation as a responsible and industry-leading entity.

SHELL Retail Fuel Programme, Malaysia

Client: **Shell Malaysia Trading Sdn Bhd**
Services: **Project Management, Engineering, Procurement, Construction Management, Vendor Management, and HSSE Management**
Year of completion: **2026**

Meinhardt has been providing engineering and project management consultancy services to SHELL for the company-owned and company-operated fuel retail outlets in India. Our extensive scope of work encompasses topographical surveys, geotechnical investigations, master planning, architectural and detailed engineering design. This includes the creation of a detailed project report (DPR) covering all aspects: civil, structural, fuel systems, mechanical, electrical, piping, and firefighting systems. Meinhardt also oversees bid process management, contract and procurement management, construction monitoring, quality assurance/quality control (QA/QC), commissioning, and project handover.

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Employer's Representative Consultant (ERC) Services for Bukit Chagar Station Façade, Johor, Malaysia

Client: **Malaysia Rapid Transit System Sdn. Bhd.**
Services: **Façade, Architecture, Structural, MEP, Safety, Construction Supervision, BIM Support**
Year of completion: **2025**

The Rapid Transit System (RTS) Link is a shuttle service featuring double tracks on a standard gauge, stretching approximately 4 kilometres and connecting two stations: Woodlands in Singapore and Bukit Chagar in Johor Bahru. This innovative and cost-effective transport solution is seamlessly integrated with existing transport services in both cities.

Meinhardt EPCM has been appointed as the Engineering, Procurement, and Construction Management (EPCM) consultant. In this role, Meinhardt will deliver a fully designed, procured, constructed, integrated, and completed RTS Link Station Façade for the Bukit Chagar Station within the agreed Awarded Sum and Completion Date.

DB City Centre Development, St. George's Bay, St. Julian's, Malta

Client: **DB San Gorg Properties Limited**
Services: **Project Management and MEP Services**
Year of completion: **2020**

The City Centre project is an ambitious endeavour encompassing a multifaceted development aimed at transforming the urban landscape into a vibrant and dynamic hub in its location. It entails the construction of a 450-room Hard Rock 5-star Hotel, accompanied by a new Hard Rock Café, World Class Nightclub, Lido, Public Beach, and Hotel Concession, offering a comprehensive range of hospitality and entertainment amenities. Additionally, the project includes the establishment of a conference centre, casino, and restaurants, strategically located within a restored and restructured ITS building, blending historical charm with contemporary functionality. A retail mall adds further commercial vibrancy to the area, while a public car park addresses parking needs. The highlight of the development is a striking 38-storey Residential Tower, offering luxurious serviced apartments and commanding breathtaking views of the surroundings. With a total Gross Floor Area (GFA) of 218,000 square meters, the project represents a significant investment in urban infrastructure, catering to diverse needs and enhancing the city's appeal as a premier destination for residents and visitors alike.

Construction of an Underpass and Overpass at the Civil Aviation Roundabout, Gudja/Luqa, Santa Lucia, Malta

Client: **AIG**
Services: **Cost Certification Support Services**
Year of completion: **2020**

The Gudja/Luqa project in Malta is a crucial infrastructure initiative aimed at enhancing transportation efficiency and reducing congestion in the region. This project focuses on the construction of both an underpass and an overpass at the Civil Aviation Roundabout, a key intersection in the area. By implementing these structures, the project aims to streamline traffic flow, particularly for vehicles traveling to and from Gudja and Luqa. The underpass provides a direct route for vehicles to pass beneath the roundabout, while the overpass allows traffic to bypass the roundabout entirely, thereby reducing delays and improving overall road safety. Additionally, our involvement in providing cost certification support services ensures that resources are effectively managed and allocated throughout the project's duration, ensuring transparency and accuracy in budgeting and expenditure.

Revitalising Jinnah Terminal: A Triumph in Architectural Excellence, Karachi, Pakistan

Client: **Shell Pakistan**
Services: **Project Management Consultant, Procurement and Construction**
Year of completion: **2023**

Meinhardt EPCM Pakistan is proud to announce the successful enhancement of Jinnah Terminal, marking a milestone in architectural excellence. Our team's dedication to detail and innovation has transformed the terminal into a visually stunning and functional space.

Key Transformations:

Architectural Elements: Thoughtfully designed landscaping, dynamic lighting, and crafted seating areas create an inviting atmosphere.

Enhanced Facilities: New amenities include island dispensers; a car wash; a Select store; a lube change facility; a waiting area, and a tyre shop, all meticulously reimagined for a premium experience.

The revitalised Jinnah Terminal stands as a testament to our commitment to excellence and innovation.

EPCM & Design Consultancy Services for Shell Philippines Mobility, Philippines

Client: **Pilipinas Shell Petroleum Corporation**
Services: **Engineering, Procurement, Construction Management**
Year of completion: **2024**

Meinhardt has been a trusted partner to Shell, delivering comprehensive engineering, procurement, and construction management services for the company-owned and company-operated fuel mobility stations in the Philippines. Our responsibilities encompass bid process management, contract management, procurement management, construction monitoring, and rigorous quality assurance/quality control (QA/QC). Additionally, we oversee the commissioning and smooth handover of these projects. This initiative involves the development of multiple advanced mobility stations across the Visayas and Mindanao regions.

Infrastructure

- Transport
- Social and Strategic

One-North MRT Station, Singapore


MRT
CC23 one-north
B

Infrastructure

Transport

- Air Transport
  - Aviation
- Land Transport
  - Highways
  - Bridges
  - Metros and Railways
- Sea Transport
  - Ports and Marine

Changi Airport Terminal 1, Singapore


Terminal 1

Infrastructure: Air Transport
Aviation

Aviation projects require complex engineering solutions to suit their operational, technical and safety requirements. Some of the key challenges faced by airports today include large volume, column-free spaces, adaptive indoor environmental systems that cater to fluctuating passenger traffic, sophisticated IT and communication systems to continuously update the flights, gates and baggage information. Equally critical are security systems for passenger and baggage screenings.

Meinhardt offers a solid delivery base across the full spectrum of the aviation industry. Our in-house specialist teams are equipped with significant experience gained from major airport projects worldwide, and provide fully encompassing and integrated technical delivery. These include all airside and landside civil components such as runways, taxiways, aircraft parking positions and elevated roadways. We have also delivered a large variety of aircraft maintenance hangers including light maintenance, heavy maintenance, painting and engine test facilities.

Silver Kris Lounge and Krisflyer Gold Lounge at Changi T3, Singapore
Client: **SIA Properties**
Services: **Project Management, Civil, Structural, MEP Engineering**
Year of completion: **2022**

Designed by the internationally acclaimed Hirsch Bedner Associates (HBA), this project represents a transformative overhaul of the SilverKris Lounge and Krisflyer Gold Lounge. The renovation not only reimagines these spaces with contemporary elegance and cutting-edge design but also includes a significant expansion of 1,530 square meters.

Sydney 3rd Runway, Australia

Client: **Sydney Airport**
Services: **Principal Engineering Consultant**
Year of completion: **1995**

Development of a new runway including major reclamation in Botany Bay, construction of 2,400 metres IFR runway, parallel taxiway system and taxiway bridge structures.

KLIA Aeropolis Master Plan, Malaysia

Client: **Malaysia Airports (Sepang) Sdn Bhd**
Services: **Master Planning & Lead Consultancy**
Year of completion: **Ongoing**

As the Lead Consultant for the KLIA Aeropolis Master Plan, we are at the forefront of developing an innovative aviation-oriented smart city. This transformative project, initially spanning approximately 1,600 acres, holds the potential to expand to an impressive 8,500 acres. Positioned strategically around Kuala Lumpur International Airport, this master plan integrates cutting-edge technology and sustainable design, setting new standards for urban living and economic growth.

Manila International Airport, Bulacan, Philippines

Client: **San Miguel**
Services: **Master Planning & Lead Consultancy**
Year of completion: **2022**

Meinhardt spearheaded the master planning and lead consultancy for a groundbreaking, multi-billion USD greenfield international airport project in the Philippines. This state-of-the-art facility features a sprawling 500,000 sqm terminal, designed to accommodate 90 million passengers annually. The airport's initial configuration includes two runways, with plans for two additional runways to meet future demand.

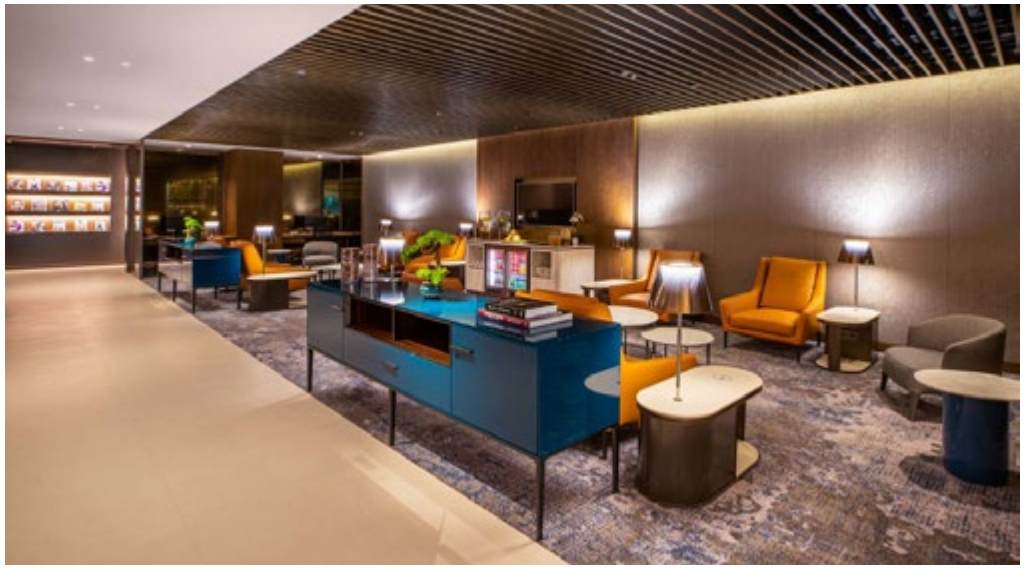
Rajiv Gandhi International Airport Expansion, Hyderabad, India

Client: **GMR**
Services: **Lead Consultancy**
Year of completion: **2021**

Hyderabad International Airport underwent a significant expansion to boost its annual passenger capacity to approximately 34 million. This project included the addition of about 1.8 million square feet, encompassing the main terminal, piers, and service areas. The apron and taxiways were also extended to increase remote stand capacity, ensuring a more efficient and seamless travel experience for all passengers.

Qatar Airways Lounge at Changi T1, Singapore

Client: **Qatar Airways**
Services: **Project Management, Civil, Structural, MEP Engineering**
Year of completion: **2020**



The Qatar Airways Premium Lounge, spanning an impressive 718 square meters, is situated in Terminal 1's airside area. Exclusively designed for First and Business Class passengers, this lounge transcends the typical airport experience, offering an ambience akin to a sophisticated boutique hotel.

Bhogapuram International Airport, India

Client: **GMR Vishakhapatnam International Airport Limited**
Services: **Master Planning & Lead Consultancy**
Year of completion: **Ongong**

The new Bhogapuram International Airport will replace the Vishakhapatnam International Airport in the state of Andhra Pradesh. The Masterplan provides for terminal expansion up to 40 million passengers per annum.

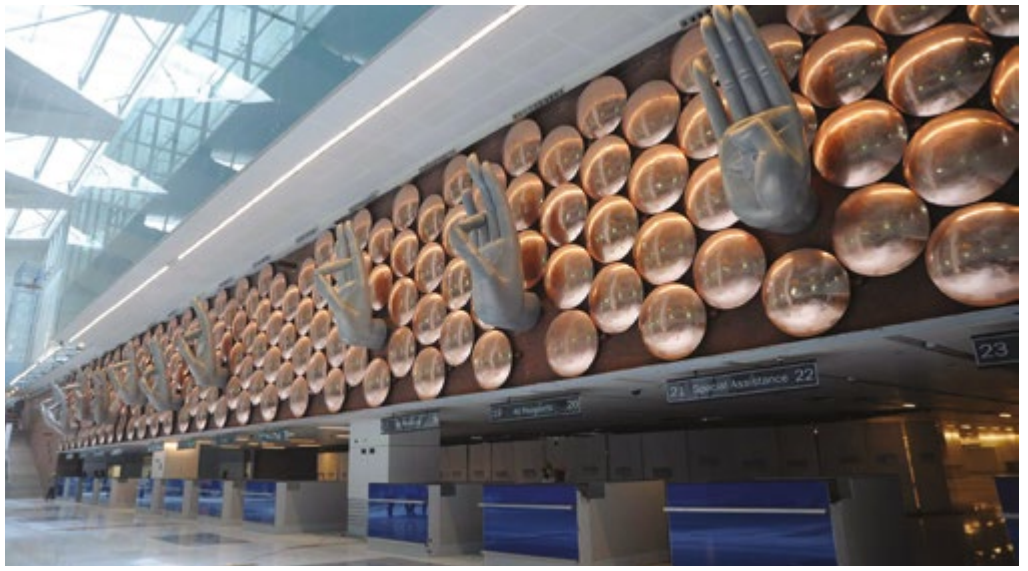
HAECO Hangars, Chek Lap Kok, Lantau, Hong Kong

Client: **Hong Kong Aircraft Engineering Co Ltd**
Services: **Project Management, Infrastructure, Airport Planning, Civil, Structural, Geotechnical, MEP Engineering**
Year of completion: **2010**

Three bay maintenance hangar to accommodate three wide body aircraft and a fully covered nose-in aircraft.

Restructuring and Modernisation of Delhi and Mumbai Airports, India

Client: **Airport Authority of India**
Services: **Aviation, Civil, Structural, MEP Engineering and Façade Engineering**
Year of completion: **2010**



Global Technical Advisor to the Ministry of Civil Aviation in carrying out the first Procurement Private Partnership (PPP) Project for the New Delhi and Mumbai Airports.

Virgin Aircraft Maintenance Facilities London Heathrow, UK

Client: **Bechtel & Bahwan Engineering**
Services: **Lead Consultant, Civil, Structural, MEP Engineering, Architectural, Specialist Equipment, Environmental , Feasibility Study, Construction Phase Quality Control and Design Management**
Year of completion: **2002**

Maintenance hangar to suit full aircraft fleet mixes with the capability for future expansion.

Melbourne Airport, Australia

Client: **Melbourne Airport**
Services: **Civil, Structural, MEP Engineering and ESD Engineering**
Year of completion: **2013**

Strategic terminal expansion.

Larnaca & Pafos International Airport, Cyprus

Client: **Bouygues International for Hermes**
Services: **Civil and Structural Engineering**
Year of completion: **2009**

Two terminals designed to cater for future aircraft types up to B747-400 and the growth of low cost airline operations expected at each airport with all airside and landside facilities.

Muscat International Airport, Oman

Client: **Bechtel & Bahwan Engineering**
Services: **Engineering and Lighting Design**
Year of completion: **2014**

New International Airport designed to handle 12 million passengers annually.

Infrastructure: Land Transport
Highways and Bridges

Central to the development of any city is the network of highways and bridges which drive the pulse of a city and keep it moving.

For highways design, the challenges include planning the optimum alignment, traffic forecast and modelling to deal with varying growth conditions and selecting the most appropriate pavement. Similarly for bridges, careful planning and placement of piers, abutments and the design of most efficient bridge deck whether post-tensioned beams, box girders or cable stayed are the key considerations.

Utilising our expertise in civil engineering, we have designed and supervised numerous highways and bridges, with technically innovative solutions, that have eased congestion, and bridged the distances between places and communities.

Marina Bayfront Bridge, Singapore
Client: **Urban Redevelopment Authority**
Services: **Accredited Checking**
Year of completion: **2009**

Pedestrian and vehicular bridge which span across the Singapore River linking the Bayfront area and the integrated resort.

Phu My Bridge, Vietnam

Client: **Phu My Bridge B.O.T Joint Stock Company**
Services: **Project Management and Construction Supervision**
Year of completion: **2009**

Interconnecting bridge at total length of 10.3 kilometres.

Marina Coastal Expressway (MCE), Singapore

Client: **Land Transport Authority**
Services: **Qualified Person (Supervision) Services, Engineering Review, Advisory Services, and Accredited Checker**
Year of completion: **2013**

Contract 485 and 487 includes a 1.4 kilometres of dual-carriageway twincell box vehicular tunnel of which 420 metres are below the Marina Bay Crossing.

Penang Third Link Undersea Tunnel, Malaysia

Client: **Confidential**
Services: **Civil & Infrastructure Engineering**
Year of completion: **2016**

The mega infrastructure project consists of a 6.5 kilometres undersea tunnel, a 8.8 kilometres bypass and a 12 kilometres road connecting Penang and Butterworth.

Oxley Rise Flyover, Singapore

Client: **Public Work Department (PWD)**
Services: **Principal Engineering Consultant**
Year of completion: **1990**

7-span 3-lane flyover forming a part of Central Expressway.

Ayer Rajah Expressway Phase IIA, IIB, IIC and IID, Singapore

Client: **Public Work Department (PWD)**
Services: **Principal Engineering Consultant**
Year of completion: **1988**

Turnkey design for Ayer Rajah Expressway includes flyovers with two independent carriageways.

Clemenceau Bridge, Singapore

Client: **Public Work Department (PWD)**
Services: **Principal Engineering Consultant**
Year of completion: **1990**

3-span 8-lane bridge and underpass forming a part of Central Expressway Project.

Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works – Contract 3, Hong Kong

Client: **Chun Wo Construction & Engineering Co. Ltd.**
Services: **Civil, Structural, MEP Engineering, Traffic, Water & Environment**
Year of completion: **2018**

Interchange with four link roads. Meinhardt's innovative alternative designs of the viaducts provided significant savings especially in foundations.

Yamuna Expressway, India

Client: **Yamuna Expressway Industrial Development Authority**
Services: **Master Planning and Detailed Project Report (DPR)**
Year of completion: **2012**

A six-lane, 165km long expressway connecting Agra with Greater Noida.

Hai Phong Expressway, Hanoi, Vietnam

Client: **Vietnam Infrastructure Development and Finance Investment Joint Stock Company (VIDIFI)**
Services: **Construction Supervision**
Year of completion: **2012**

105.5 kilometres expressway connecting Hanoi and Hai Phong expressway, Vietnam.

Infrastructure: Land Transport
Metros and Railways

Metros and railways are a crucial part of transport infrastructure in all major metropolitan centres.

Planning, designing and implementing railway projects require highly specialised experience and expertise in the areas of railway systems, tunnels and viaducts, construction technology, train control, signalling, communication and operations.

Meinhardt has successfully completed numerous metros and railway projects across many countries, and with the undertaking of each project, we add on to our wealth of expert knowledge and experience. We also stay in tune with the latest transportation technology available to devise smart systems efficiently and cost effectively.

Loyang Station, Tunnels and Elevated Infrastructure for Cross Island Line, Singapore
Client: **Woh Hup-Dongah Geological Engineering Co Ltd Joint Venture**
Services: **Lead Consultant to provide Architectural, Civil/Structural & Geotechnical and Mechanical & Electrical Consultancy Services**
Year of completion: **2030**

Loyang Station is a three level underground station located along Loyang Avenue between the intersections of Loyang Way. The station provides accessibility to the nearby industrial estate, residential developments and military areas.

Contract 9181 Package C Downtown Line Stage 3, Singapore
Client: **Land Transport Authority of Singapore**
Services: **Lead Consultancy (Architectural & Advanced Engineering Study and Architectural / Engineering Consultancy Services)**
Year of completion: **2017**

9.5 km tunnels and six underground stations (Bedok Reservoir, Tampines West, Tampines, Tampines East, Upper Changi and Expo) including other associated services and structures (shaft, tunnels and cross passages).

East Coast Rail Link, Malaysia

Client: **China Communications Construction (ECRL) Sdn Bhd**
Services: **C&S and M&E Engineering, Professional Engineer Endorsement and Planning Submission, Engineer Support for Stakeholder Management Matters**
Year of completion: **Ongoing**

Meinhardt is working on 4 of 5 ECRL design packages and Supervising Consultancy Services (Stations & Ancillary Building Works / Authorities Submission).

- Overall System – Submitting Engineer and Supervision Consultancy Services for trackworks, communication, information, signaling, nontraction power, traction power and all ancillary buildings.
- Traction Power Application Infra & Concept Design Works – Planning design for infrastructure between TNB and ECRL.

Serangoon North Station and Tunnels under Cross Island Line, Singapore

Client: **Land Transport Authority of Singapore**
Services: **Lead Consultant to provide Architectural, Civil & Structural and Mechanical & Electrical Consultancy Services**
Year of completion: **2030**

Serangoon North station is located under the busy dual lanes of Ang Mo Kio Avenue 3 and the Yio Chu Kang Road vehicular bridge. The underpass connection will be constructed by mining beneath the Yio Chu Kang Road vehicular bridge, instead of the typical cut-and-cover method.

Maju Station and Tunnels for Cross Island Line, Singapore

Client: **KTC Civil Engineering & Construction Pte Ltd**
Services: **Lead Consultant to provide Architectural, Civil & Structural, Geotechnical and Mechanical & Electrical Consultancy Services**
Year of completion: **2032**

The Cross Island Line Phase 2 is an underground Mass Rapid Transit (MRT) line of a total route length of approximately 15km. CRL2 starts at the contract boundary with CRL1at Sin Ming and ends at Jurong Lake.

Loyang Station and Tunnels under Cross Island Line, Singapore

Client: **Land Transport Authority of Singapore**
Services: **Lead Consultant to provide Architectural, Civil & Structural and Mechanical & Electrical Consultancy Services**
Year of completion: **2030**

Meinhardt is providing Lead Consultancy for the D&B Contractor for Contract CR106 Loyang Station and tunnels.

Rashidiya Main Depot and Jebel Ali Auxiliary Depot, Dubai, UAE

Client: **JT Metro JV**
Services: **Civil and Structural Engineering**
Year of completion: **2010**

Meinhardt provided structural design for the D&B Contractor.

Peng Kang Hill Station and Viaduct for Jurong Region Line, Singapore

Client: **Hwa Seng Builder Pte Ltd**
Services: **Lead Consultant, Architecture, Civil & Structural, Geotechnical and Mechanical & Electrical Consultancy Services**
Year of completion: **2029**

Jurong Region Line (JRL) is to serve Choa Chu Kang, Tengah, Jurong West, Jurong Industrial Estate, Nanyang Technological University (NTU) and Jurong East to West Coast. The length of the total route is approximately 23km. The JRL infrastructure is planned for a 4-car MRT with platform length of 75m.

MTRC Yau Tong Station, Kowloon, Hong Kong

Client: **MTR Corporation Ltd**
Services: **Lead Consultant, Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2003**

4-platform station with over 1 kilometre of stacked cut and cover tunnels and all adjacent infrastructure diversions and provisions.

Kuala Lumpur Sentral Stesen, Malaysia

Client: **Ekovest-KMZ Dragages JV**
Services: **Civil and Structural Engineering**
Year of completion: **2001**

Multimodal railway transit hub in Malaysia. The largest deck built over existing railway tracks.

One-North Station, Singapore

Client: **Land Transport Authority and Jurong Consultant Pte Ltd**
Services: **Lead Consultant, Civil, Structural, Geotechnical and MEP Consultancy Services**
Year of completion: **2012**

An underground MRT Station, and cut and cover tunnels integrating with the adjacent Fusionopolis Building.

Infrastructure: Sea Transport
Ports and Marine

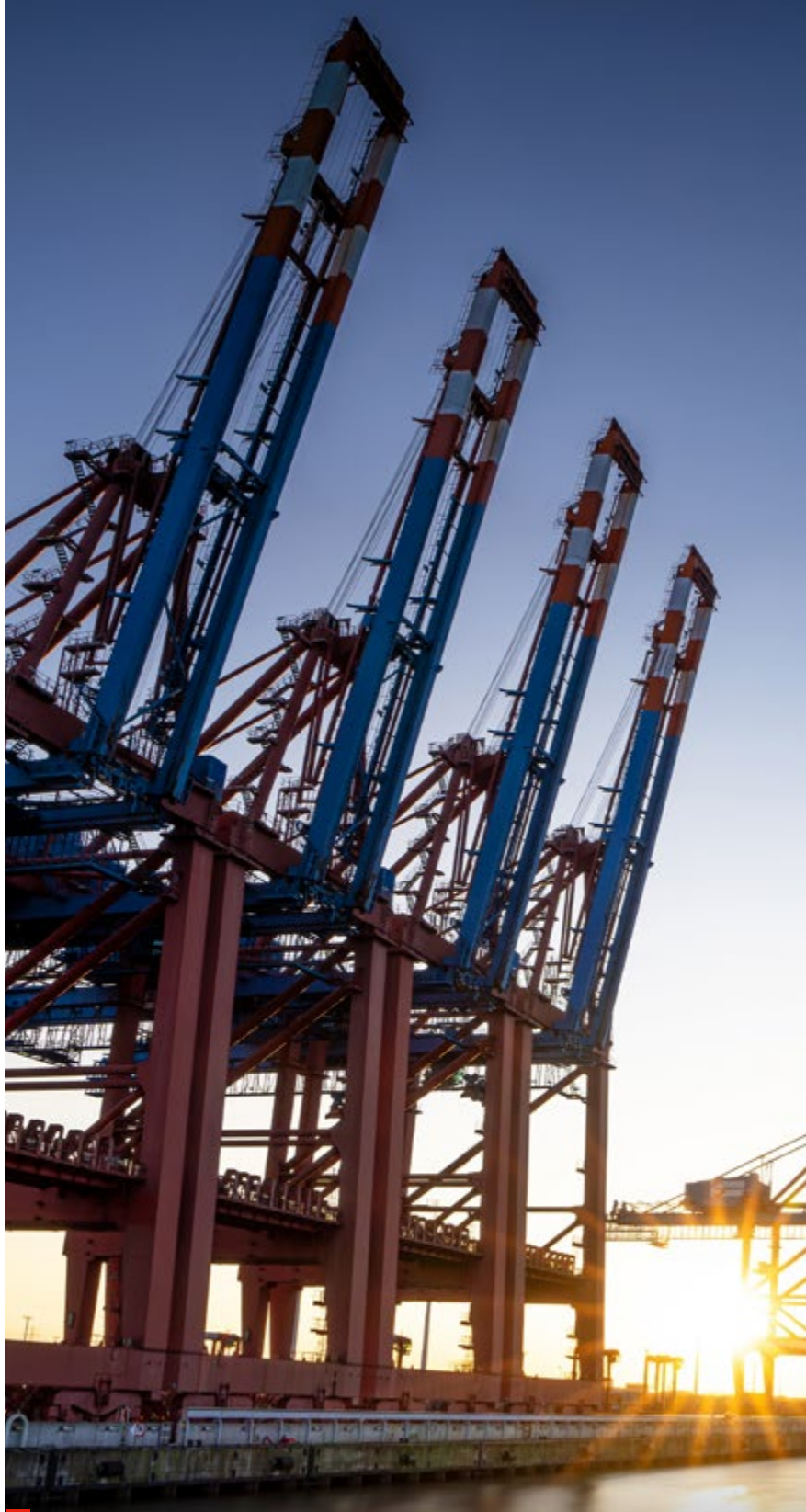
In today's interconnected world, the safety, security and sustainability of air, land and sea transportation links are crucial to economic development and global connectivity.

Ports and marine facilities cater to the needs of commercial and defence vessels of today and tomorrow. Designing such facilities requires highly specialised knowledge of berthing, as well as the loading and unloading facilities both on the sea and on land.

Meinhardt has successfully completed many such civil and naval facilities in the Asia Pacific region and have a group of experts ready to plan, design and implement projects of any size or complexity.

VALE Project Deployment Management, Lumut, Perak, Malaysia
Client: **VALE Malaysia Minerals**
Services: **Technical Specifications, Engineering Calculations, Civil & Structural Engineering, Mechanical & Electrical Engineering, Automation, Pneumatic & Hydraulics**
Year of completion: **Ongoing**

Project Management, Detailed Engineering Design and Permitting support for the development of the 40 MTPA expansion project for VALE.



SP-PSA International Port Project,Vietnam
Client: **State-owned Saigon Port (SP) and PSA Singapore**
Services: **Supervision**
Year of completion: **2010**

New international hub port to accommodate vessels of 80,000 tonnes.

North Lantau Transfer Station, Hong Kong

Client: **Swire BFI Waste Services Ltd.**
Services: **Civil and Environmental Engineering**
Year of completion: **1995**

Independent design review for structural design, infrastructural development of the site, environmental control systems, seawalls and berths.

Reclamation and Infrastructure Works in North East Lantau, Hong Kong

Client: **Hong Kong International Theme Parks Ltd**
Services: **Civil and Environmental Engineering**
Year of completion: **2010**

Independent advisor for 74 hectares of reclamation and infrastructure works for Disneyland.

Oil Pier II at Karachi Port, Karachi, Pakistan

Client: **Karachi Port Trust**
Services: **Civil, Structural and MEP Engineering**
Year of completion: **2000**

Designed to handle oil tankers up to 75,000 deadweight tonnage with tanker berthing facility.

Social and Strategic Infrastructure

- Data Centres
- Healthcare
- Education
- Civic and Government Buildings
- Arts, Museums and Heritage Buildings
- Defence
- Logistics
- Oil and Gas
- Sports Facilities and Stadiums
- Environmental

Social and Strategic Infrastructure: **Data Centres**

The technology for mission-critical facilities is constantly transforming, growing and diversifying.

Unique amongst our peers, we adopt the latest technology for engineering and IT solutions required for the development of new-age data centres. This allows for the optimisation of engineering systems to meet current and future technology needs. Meinhardt leads the market for the design and certification of multi-tier data centres. We optimise and integrate the engineering systems required to keep such facilities safe and operating at all times, whilst keeping in mind the variable multiple user requirements typical in a large data centre facility.

Moro 2.0 Data Centre (Moro Hub) Dubai, UAE
Client: **Moro**
Services: **Lead Consultancy & Construction Supervision**
Year of completion: **Phase 1, 2022 and Phase 2, Ongoing**

DEWA's Moro 2.0 Data Centre (Moro Hub) is officially the Largest Solar-Powered Data Centre in the world, according to Guinness World Records. Moro Hub aspired to build a net-zero energy facility (Data Centre) to host its clients and serve their carbon neutral mandate.

It was established to fulfil the need for an innovative and agile data centre that sets the benchmark for how these projects can be sustainably designed and constructed. Meinhardt is proud to have supported Moro and Huawei with the design and construction supervision of this innovative and game changing project, working towards a more sustainable and net zero carbon future for us all.

Telin Data Centre, Singapore

Client: **Telekomunikasi Indonesia International Pte Ltd (Telin Singapore)**
Services: **Lead Consultancy, Civil & Structural, MEP Engineering, ESD, Security & TVRA, Blast Effect, Standard OPS and Emergency Procedure, Tier III and IV Design Consultant**
Year of completion: **2016**

World's first Tier-III & IV co-certified data centre. A new build single tenant data centre with a gross floor area of 20,000 sqm. The 5-storey data centre was designed and built to meet Uptime Institute's Tier 3 and Tier 4 standards incorporating a multi-tier design with the flexibility to meet the desired operational requirements.

Global Switch Data Centre, Singapore

Client: **Global Switch**
Services: **Civil & Structural Engineering**
Year of completion: **2018**

A 6-storey single user data centre with underground fuel storage tanks. Global Switch's new Tier III data centre facility has a GFA of 24,800 sqm, with the possibility of future expansion.

Kim Chuan Telecommunications Complex, Singapore

Client: **Singapore Telecommunications Limited**
Services: **Structural Engineering**
Year of completion: **2002**

10-storey high-tech data centre.

Barclays Technology Centre India (BTCI), Pune, India

Client: **Barclays PLC**
Services: **MEP Engineering**
Year of completion: **2011**

Data centre was designed to meet LEED Gold requirements. Total floor area of 10,000 square metres.

Social and Strategic Infrastructure: **Healthcare**

The mission critical sector is constantly transforming, growing and diversifying. Modern hospitals of today are highly specialised both in terms of target patients as well as the type of medical care they render. These include dedicated hospitals for women and children, general teaching hospitals and facilities for specific areas such as dental care, cancer treatments, or infectious diseases. Medical technology is continuously being upgraded and the resultant imposition requires the hospitals to be able to accommodate these changes.

The building services and design technology for hospitals are complex and cutting edge, with differing requirements for different areas – from wards to intensive care units, clinical decision units and operating theatres.

Meinhardt has designed numerous major new hospitals and upgrades of existing medical units including operating theatres, leading edge BSL-2 and BSL-3 laboratories, animal research facilities, vivariums and other specialised medical areas.

Our specialist design expertise includes all types of medical imaging departments, operating theatres, mortuaries, burns units and infection control. We are also heavily involved in the design and delivery of many aged care facilities.

Mochtar Riady Comprehensive Cancer Centre (MRCCC), Jakarta, Indonesia
Client: **PT Lippo Karawaci Tbk**
Services: **MEP Engineering**
Year of completion: **2010**

This 29-storey hospital with two basement levels is Indonesia's first private comprehensive cancer treatment centre. The centre has 160 beds with total floor area of 37,933 square metres.

Lee Kong Chian School of Medicine, Singapore

Client: **Lee Kong Chian School of Medicine, Nanyang Technological University (NTU)**
Services: **MEP, Lighting & Audio Video Design**
Year of completion: **2017**

One of Singapore's newest medical schools, the Lee Kong Chian School of Medicine has two campuses: a seven-storey campus at NTU's Yunnan Gardens and a 20-storey building at Novena next to Tan Tock Seng Hospital. Strategically, the Experimental Medicine Building is located in the university's Yunnan Garden campus, close to NTU's science and engineering colleges to allow for close collaboration between students and researchers. The building is equipped with top-notch training facilities such as seminar rooms, learning studios, as well as teaching and research laboratories.

Concurrently, the Clinical Sciences Building at the Novena campus houses state-of-the-art learning spaces and advanced research facilities, serving as a hotbed for innovative medical education and research. A unique aspect of this building was that no electrical heater is used. Instead, heat recovery systems were designed to pre-cool outdoor air, harvesting energy from exhaust air from air-conditioned spaces. For both buildings, extensive coordination with architect partners ensured that space needs were met, while maintaining functionality and practicality.

Sengkang Integrated Regional Hospital, Community Hospital and Specialist Outpatient Clinics, Singapore

Client: **Ministry of Health**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2018**

Singapore's largest single hospital development which added 1,400 new beds when it was completed in 2018. Total floor area of 288,000 square metres.

Sengkang General & Community Hospitals, Singapore

Client: **Ministry of Health**
Services: **Civil, Structural & Geotechnical Engineering**
Year of completion: **2017**

Meinhardt was appointed by Ministry of Health to provide Civil, Structural and Geotechnical Engineering for the 1400 bed Regional Hospital, Community Hospital and Specialist Outpatient Clinics located at Sengkang. The development has a GFA of 288,000 sqm. It has been classified as a National Critical Installation (NCI) and Key Installation (KIN) by the Ministry of Home Affairs (MHA).

National Centre for Infectious Disease & Centre for Healthcare Innovation, Singapore

Client: **Kajima Overseas Asia Pte Ltd**
Services: **Civil and Structural Engineering**
Year of completion: **2018**

Meinhardt provided civil and structural engineering services for the design and build contractor of the National Centre for Infectious Disease & Centre for Healthcare Innovation (NCID). This state-of-the-art center aims to enhance Singapore's response to infectious disease outbreaks. The facility includes a screening center and ward cubicles that can be transformed into isolation rooms. The 14-storey, 300-bed NCID is designed to be locked down during major outbreaks, ensuring the safe management of highly infectious agents.

Integrated Care Hub at Health City Novena, Singapore

Client: **Ministry of Health**
Services: **Civil, Structural & Geotechnical Engineering**
Year of completion: **2023**

Meinhardt provided Civil, Structural and Geotechnical Engineering for the Integrated Care Hub at Health City Novena (ICH) comprising Dover Park Hospice and a second community hospital.

Box Hill Hospital Redevelopment, Australia

Client: **Department of Health Victoria**
Services: **Civil, Structural Engineering**
Year of completion: **2014**

11-storey new hospital with total floor area of 50,000 square metres. As a key and active participant in the design process, Meinhardt carried out alternative designs of civil infrastructure, assisting the client to work the project into the budget.

St. Andrew's Nursing Home, Singapore

Client: **Ministry of Health**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2012**

This 300-bed, 7-storey purpose-built facility is Singapore's largest pyschiatric nursing home.

Assisi Hospice, Singapore

Client: **Assisi Hospice**
Services: **C&S and MEP Engineering**
Year of completion: **2016**

Meinhardt provided integrated engineering consultancy for the proposed development of Assisi Hospice to replace the building located at 820 Thomson Road. It has a total of 85 in-patient beds consisting of 80 adult beds and 5 pediatrics beds, an Adult Day Care Centre and other ancillary and support facilities. Total GFA of 10,938 sqm.

Social and Strategic Infrastructure: **Education**

Provision of educational facilities and an environment that promotes learning and creativity, is at the heart of progress in any society.

Meinhardt, being a multi-disciplinary company, is able to balance the requirements of functionality, sustainability and learning environment of educational facilities – creating customised solutions for any educational institution from kindergartens, public and private schools and universities, to medical schools, IT training institutes and technology centres.

Yale-NUS College, Singapore
Client: **National University of Singapore (Office of University Town Development)**
Services: **Civil, Structural & MEP Engineering**
Year of completion: **2015**

The Yale-NUS College comprises three residence colleges to accommodate 1,500 students, Learning Commons Performance Hall (339-seat), Black Box Theatre (60-seat), Dining Hall, Student Commons, Academic/Education/ Administration Block, Library, Fitness/Recreation Facility and Basement Carpark. Total GFA of the whole development is approximately 75,000 sqm.

Singapore Polytechnic – School of Chemical and Life Sciences, Singapore
Client: **Singapore Polytechnic**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2010**

Twin six-storey building for School of Chemical & Life Sciences Teaching Block with Annex and Linkway at Singapore Polytechnic.

SMU Connexion, Singapore
Client: **Singapore Management University (SMU)**
Services: **Civil & Structural and MEP**
Year of completion: **2020**

The five-storey SMU AS-2 building, strategically situated between SMU's School of Accountancy and School of Law, boasts over 8,600 square meters of state-of-the-art teaching and learning spaces. This innovative structure exemplifies modern architectural and engineering advancements through several key design features:

Key Design Features:

- Pioneering "Hybrid Steel-CLT" Construction in Singapore
  - Incorporation of prefabricated modular column-beam stubs
  - Use of in-situ bolted connections, eliminating the need for site welding
  - Enhanced safety and accelerated construction timelines
- First On-Site Net Zero Energy Building (NZEB) in the City Centre
  - Achieves impressive energy savings exceeding 500 megawatt hours (MWh) annually
- Advanced MEP System Integration & Modular Design
  - Implementation of modular MEP installation techniques
  - Deployment of prefabricated MEP risers for improved efficiency and reliability

This cutting-edge facility not only provides a dynamic environment for education but also sets new benchmarks in sustainable and efficient building practices.

School of Law, Singapore Management University, Singapore

Client: **Singapore Management University**
Services: **Civil, Structural and Geotechinical Engineering**
Year of completion: **2016**

Dedicated teaching, faculty and administrative facilities for SMU's School of Law including a 1,400-seat auditorium. The building has been designed to meet BCA's Green Mark Platinum standards. Total floor area of 22,000 square metres.

Raffles Girls' School (Secondary), Singapore

Client: **Ministry of Education / Raffles Girl's School (Secondary) Board of Governors**
Services: **Civil & Structural and MEP Engineering**
Year of completion: **2019**

The redevelopment project for Raffles Girls' School (Secondary) at its location along Braddell Road is a transformative initiative poised to set new standards in educational facilities. This ambitious undertaking features an impressive blend of four to seven-storey buildings, collectively offering a substantial gross floor area of 44,000 square meters, thoughtfully distributed across a sprawling 7-hectare site. The new campus is designed to provide state-of-the-art amenities and an inspiring environment that fosters academic excellence and holistic development for the students.

Dulwich College at Bukit Batok West Avenue, Phase 1 and 2, Singapore

Client: **Dulwich College**
Services: **Civil, Structural and Geotechnical Engineering (Phase 1), MEP Engineering (Phase 2)**
Year of completion: **2017**

The development includes state-of-the-art education facilities, indoor and outdoor sports facilities, future performing arts centre and boarding school. Total floor area of 29,000 square metres.

Singapore Institute of Management (SIM) Phase 2, Singapore

Client: **Singapore Institute of Management SIM)**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2014**

Expansion to SIM Campus comprising 500-seat Performing Arts Centre (Theatre), Teaching Facilities, Specialised Laboratories and Administration Building. Total floor area of 35,500 square metres.

Ngee Ann Polytechnic Campus Expansion (Phase 7-B), Singapore

Client: **Ngee Ann Polytechnic**
Services: **C&S Engineering**
Year of completion: **2014**

The Ngee Ann Polytechnic Campus Expansion (Phase 7-B) marks a pivotal development in our commitment to providing a dynamic and state-of-the-art educational environment. This phase involves the strategic demolition of existing Blocks 22, 24, and 26, making way for the construction of an innovative new 4-storey building.

Republic Polytechnic Expansion Project, Singapore

Client: **Republic Polytechnic**
Services: **Civil, Structural, Geotechnical and Façade Engineering**
Year of completion: **2014**

Expansion of Republic Polytechnic including Singapore Institute of Technology (SIT). Total floor area of 20,000 square metres.

SMU School of Social Sciences & College of Integrative Studies, Singapore

Client: **Singapore Management University (SMU)**
Services: **Civil, Structural and MEP Engineering**
Year of completion: **2022**

This groundbreaking project features a five-storey teaching block with two basement levels, encompassing a total area of 12,700 sqm.

Social and Strategic Infrastructure:
Civic and Government Buildings

Public and Government buildings have accessibility, security and operational requirements that are intrinsically different from commercial buildings.

Based on our global experience with infrastructure and developments of different scale and complexity, Meinhardt is the appointed engineering firm for numerous public and government projects across the globe. Employing our comprehensive range of engineering and technology services, we have designed many such large facilities that stand today.

NS Square, Singapore
Client: **DSTA, Singapore**
Services: **Environmentally Sustainable Design Services**
Year of completion: **Ongoing**

The floating stadium complex at Marina Bay consisting of 8 storeys and 1 basement has achieved Green Mark (GM) Platinum rating + Super Low Energy (SLE) under BCA Green Mark 2021 Scheme which is in line with the GreenGov.SG initiative and Singapore Green Plan 2030. Our scope is to provide environmentally sustainable design services such as building energy efficiency strategies, envelope performance analysis and solar radiation and shading analysis for onsite PV installation.

National Library Board, Singapore
Client: **Nishimatsu – Lum Chang J.V.**
Services: **Structural Steel Designer**
Year of completion: **2005**

12-storey national library with three levels of basement. Meinhardt's alternative design reduced the steel tonnage from 9,500 tonnes to 4,800 tonnes. Winner of 2004 The Singapore Structural Steel Society – Design Awards Scheme.

Gardens By The Bay, Bay South, Singapore
Client: **National Parks Board, Singapore**
Services: **Civil and Construction Consultant, Structural Engineer (Conservatories Roof for NSC)**
Year of completion: **2012**

Spreading over 101 hectares, Gardens by the Bay is made up of three waterfront gardens – Bay South, Bay East and Bay Central. The largest at 54 hectares, Bay South showcases the best of tropical horticulture and garden artistry while Bay East at 32 hectares boasts a promenade frontage that embroiders the Marina Reservoir. The connector between Bay South and Bay East is known as Bay Central, and stands at 15 hectares with a three-kilometre waterfront promenade that allows for scenic walks stretching from the city centre to the east of Singapore.

As the Civil and Structural Engineer, Meinhardt worked in collaboration with Atelier One (UK) to design the two Conservatories (Flower Dome and Cloud Forest) and ancillary facilities, 18 Supertrees and devised a safe methodology for their construction. The team also undertook extensive analytical studies, including the study of the foundation system, with the use of some of the latest engineering software.

New Chancery for Singapore High Commission, Kuala Lumpur, Malaysia

Client: **Ministry of Foreign Affairs**
Services: **Structural and MEP Engineering**
Year of completion: **2014**

Re-development of Singapore High Commission in Kuala Lumpur comprises a 5-storey office building, a 2-storey residence and 1-level basement for car park.

Bishan Community Library, Singapore

Client: **National Library Board**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2006**

4-storey community library. Winner of President's Design Award in 2007.

Tamar Development (Programme No. 063KA), Admiralty, Hong Kong

Client: **Architectural Services Department**
Services: **Civil and Structural Engineering**
Year of completion: **2011**

Comprising Central Government Complex, the Legislative Council Complex, an open space and two elevated walkways.

Victorian County Court, Melbourne, Australia

Client: **Multiplex Constructions (Vic) Pty Ltd**
Services: **Civil and Structural Engineering**
Year of completion: **2002**

Judicial complex consists of three integrated buildings above two basement levels.

Kampung Baru Mosque Kuala Lumpur, Malaysia

Client: **NRY Architects Sdn Bhd**
Services: **Civil, Structural and MEP Engineering**
Year of completion: **2014**

Kampung Baru Mosque – Featuring a 85-feet minaret, this mosque can accommodate up to 5,000 people.

The Sikh Centre, Singapore

Client: **Central Sikh Gurdwara Board**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **1994**

7-Storey Sikh Temple and Community Centre.

NS Hub, Singapore

Client: **Defence Science and Technology Agency (DSTA)**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2028**

The National Service (NS) Hub, occupying a land area of about nine hectares, will centralise various services, such as NS registration and administration, medical services, recruitment, and fitness test facilities.

Methodist Church of Singapore, Upper Bukit Timah Road, Singapore

Client: **Methodist Church of Singapore**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2001**

The Methodist Church in Singapore including Trinity Theological College, St Francis Methodist School and Methodist School of Music.

Social and Strategic Infrastructure:
Arts, Museums and Heritage Buildings

Unveiling Masterpieces: Meinhardt Group's Expertise in Arts, Culture, Museums, and Heritage Projects.

Arts and cultural venues hold a unique place in any city, embodying its heritage, inspiring the human spirit, and serving as stages where dreams are realised. Whether these venues are newly built, refurbished, or repurposed, each brings its distinct set of challenges that require a delicate balance of specialised engineering skills, an eye for aesthetics, and a deep appreciation for a city's culture and the building's heritage value.

At Meinhardt Group, we excel in developing these complex venues. Our unique blend of design, engineering, lighting, and façade skills, combined with local knowledge and our partnership with heritage consultants, ensures that every precise detail is meticulously addressed.

Meinhardt Group's expertise in arts and cultural venues is rooted in our comprehensive approach, combining engineering prowess with cultural sensitivity. Our projects, from the awe-inspiring Statue of Unity to the culturally rich Xintiandi district, demonstrate our commitment to excellence and innovation. We take pride in creating venues that not only stand as architectural marvels but also resonate deeply with cultural and heritage values.

Our comprehensive suite of services includes Civil & Structural Engineering, Façade Engineering, Fire Safety, Mechanical, Electrical, and Plumbing (MEP), Project Management & Construction Management, and Sustainability & Environmental Sustainable Design (ESD). These capabilities allow us to deliver masterpieces that resonate with cultural significance and architectural brilliance.

Statue of Unity, Gujarat, India

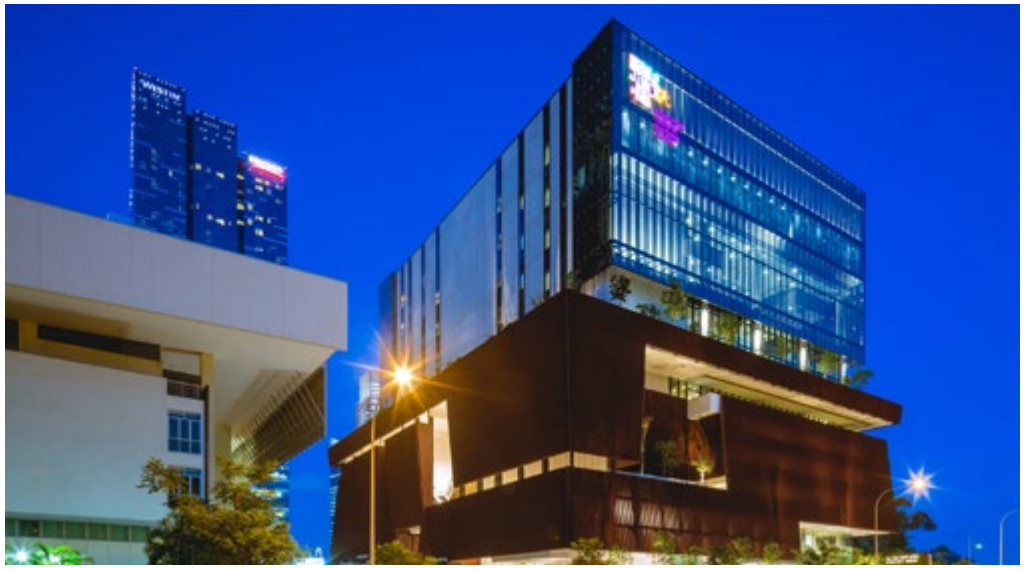
Client: **Government of Gujarat**
Services: **Integrated Engineering Consultancy – MEP, Structural, Infrastructure, Geotechnical, Facade, Fire Safety, Vertical Transportation**
Year of completion: **2018**

The development comprises: 182m high Statue of Sardar Vallabhbhai Patel on Sadhu Island, a bridge connecting Sadhu Island to mainland, 3.5 km highway connecting Sadhu Island to Kevadia Town and Hotel, Convention Centre, Memorial Garden and Visitor Centre building.

The museum in the first zone catalogues the life of Sardar Patel and his contributions. An adjoining audio-visual gallery provides a 15-minute long presentation on Patel and describes the tribal culture of the state. The concrete towers which form the statue's legs contain two elevators each. Each lift can carry 26 people at a time to the viewing gallery in just over 30 seconds. The gallery is located at a height of 153 metres (502 ft) and can hold up to 200 people.

Singapore Chinese Cultural Centre, Singapore

Client: **Singapore Chinese Cultural Centre**
Services: **Civil, Structural, MEP, Façade Engineering and Specialist Lighting**
Year of completion: **2017**



The 11-storey Singapore Chinese Culture Centre is home to a suite of modern facilities such as a 530-seat auditorium, a 500-seat multipurpose hall and a 150-seat recital hall. The Centre also has a visual arts gallery, an activity concourse and a 2000 sqm roof terrace garden.

Singtel Waterfront Theatre, Singapore

Client: **The Esplanade - Theatres on the Bay**
Services: **C&S Engineering**
Year of completion: **2022**

Meinhardt is part of the multidisciplinary team led by Architects 61 that won the tender design competition for the new 600 seats theatre. The 4-storey development - a purpose-built, mid-sized, multi-format performance venue - is located at the Esplanade Waterfront.

Victoria Theatre and Concert Hall, Singapore

Client: **National Arts Council**
Services: **Facade Engineering Consultancy**
Year of completion: **2014**

Refurbishment of the Victoria Theatre and Concert Hall which has retained the façade design.

Xintiandi, Shanghai, China

Client: **Shui On Properties Ltd**
Services: **MEP Engineering**
Year of completion: **2001**

Meinhardt provided MEP engineering services for the preservation and adaptive re-use of existing buildings, as well as the design of new blocks.

Social and Strategic Infrastructure: **Defence**

The defence sector covers a wide range of projects requiring close interaction with the end-users and embedding specific safety and operational requirements.

Standardisation, reliability interchangeability, and the use of latest technology solutions are critical for defence type projects, backed by rigorous quality requirements. Time constraints and programme criticality, together with the need for strict compliance with operational needs are some of the challenges faced by our design teams.

Meeting these challenges, Meinhardt has successfully delivered a variety of defence projects and made strong use of in-house design and project management processes, along with a strict application of quality control procedures. We understand key drivers in relation to the design process and have dedicated technical experts and management teams to service this highly specialised sector.

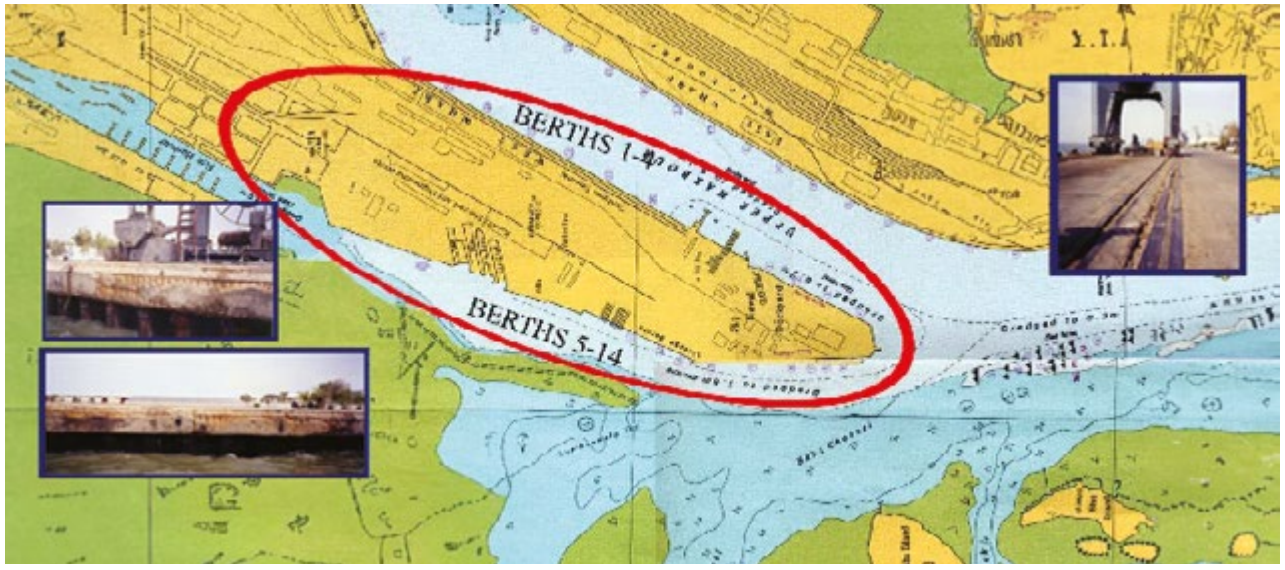
Victorian Air Wing and Air Ambulance Facility Essendon Airport, Victoria, Australia
Client: **Victoria Police Air Wing / Metropolitan Ambulance Service**
Services: **Civil and Structural Engineering**
Year of completion: **2009**

Two steel frame hangar to house and service aircrafts. The facility also houses flight control, workshops and training simulators.

Defence & Medical Research Centre, Singapore

Client: **Defence Science & Technology Agency (DSTA), Singapore**
Services: **Civil, Structural, Geotechnical Engineering**
Year of completion: **2003**

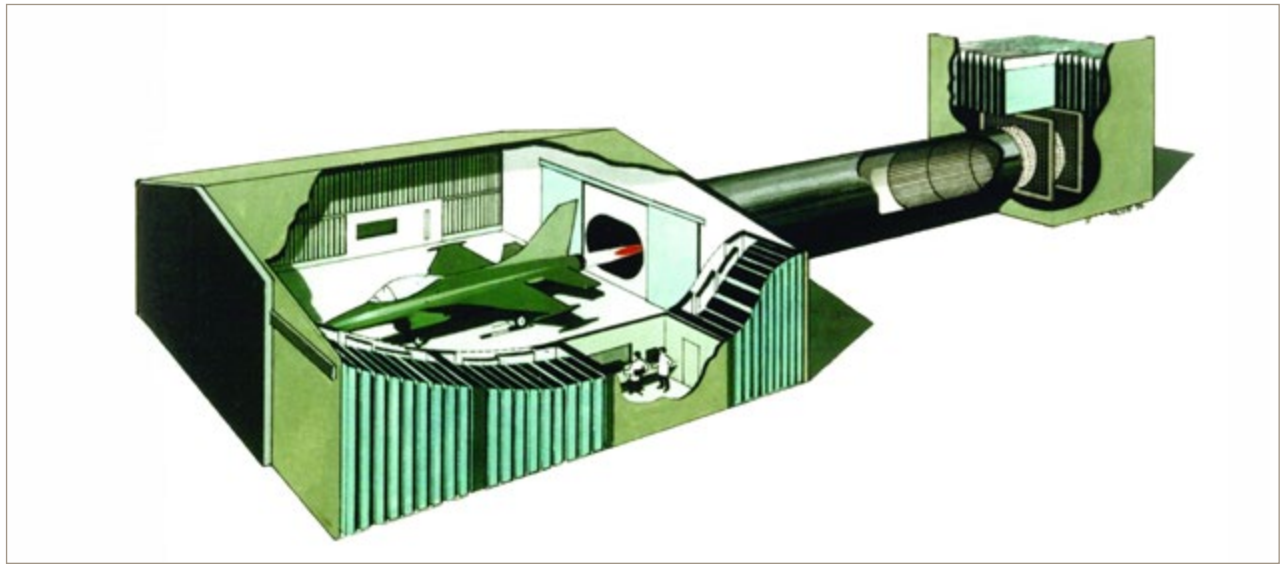
14-storey Defence & Medical Research Centre with three levels of basement was designed for high imposed loadings offering full flexibility for M&E services and reconfiguration of the labs with very stringent vibration requirements.



Naval Berths 5-14 at Naval Dockyard, Karachi, Pakistan

Client: **Director Works & Chief Engineer (Navy), Islamabad**
Services: **Civil, Structural, MEP Engineering**
Year of completion: **2000**

Rehabilitation and refurbishment of 900 metres Naval Berths at Pakistan Naval Dockyard, Karachi.



Hush House for SAF, Singapore

Client: **Singapore Armed Forces (SAF)**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **1988**

Meinhardt-Airplan provided integrated engineering services for the turnkey contract for SAF's engine testing facility. The test chamber comprises a 3-pinned prestressed concrete arch structure with 20 metres clear span. The design incorporates a highly sophisticated sound suppression exhaust and fire protection system.

Social and Strategic Infrastructure: **Logistics**

As a critical link between global supply chains, demand for logistics facilities has increased rapidly. In tandem, such facilities have become highly complex and automated requiring consultants who can integrate design with technology.

To support this growth, a transformation is taking place from the more conventional facilities to newer, larger and more modern technology-enabled facilities. At Meinhardt, we understand how logistic centres are integrated. We bring our expertise in the planning, design management, structural and MEP disciplines, as well as our project and construction management experts, to deliver fully integrated facilities that meet our clients' needs. Furthermore, as these facilities are large, requiring climate-controlled environments, we engage our in-house specialists to provide fire engineering solutions and computational fluid dynamic simulations to achieve the most optimised solutions.

Our in-house sustainability design and façade team of professionals work interactively with our design teams to achieve high efficient and economical buildings and systems for our clients. We work with our clients to create a win-win solution for both our clients and Meinhardt.

JTC Integrated Logistics Hub, Singapore
Client: **JTC Corporation**
Services: **C&S, MEP Engineering, Façade & ESD**
Year of completion: **2023**

JTC Logistics Hub @ Gul is a state-of-the-art integrated logistics facility designed to streamline and optimise operations for businesses. This cutting-edge development features a multi-storey inland container depot, expansive warehouses, and a dedicated heavy vehicle park, all seamlessly housed under one roof.

Cathay Pacific Cargo Terminal Chek Lap Kok, Lantau, Hong Kong

Client: **Cathay Pacific Airways**
Services: **Lead Consultant, Project Management, Civil, Structural, Geotechnical, MEP Engineering**
Year of completion: **2012**

World's largest air cargo terminal building – comprising an 8-storey building with total area of 25,000 square metres equipped with a complex materials handling system (MHS). The facility is designed for annual air cargo throughput capacity of 2.6 million tonnes.

Cainiao Logistics Hub at KLIA Aeropolis, Malaysia

Client: **CCYR Malaysia**
Services: **Design Management**
Year of completion: **2020**

Design Management services for the construction of the Cainiao Aeropolis Logistics Hub located in Sepang, Selangor. GFA: 1.25 million ft sq

IKEA Regional Distribution Centre Pulau Indah, Malaysia

Client: **IKANO**
Services: **Project Management, Procurement, Construction Management, HSSE Management**
Year of completion: **2020**

IKEA's Regional Distribution Centre in Pulau Indah stands as the largest of its kind in the Asia Pacific region, embodying a pinnacle of efficiency and scale for the global retailer.

DHL Central Asia Hub Chek Lap Kok, Lantau, Hong Kong

Client: **DHL Worldwide Express**
Services: **Project Management, Civil, Structural, Geotechnical, MEP Engineering, Traffic, Fire Safety and Environmental Engineering**
Year of completion: **2004**

DHL's regional hub for express cargo sorting and handling facility with total area of 18,000 square metres.

Social and Strategic Infrastructure: **Oil and Gas**

For an industry for which precision, safety and quality are critical, Meinhardt is undoubtedly the choice solutions provider, with an established track record, integrated approach and a strong professional team of engineers.

Naturally, we are steadily expanding our foothold within the oil and gas sector. Having worked on several notable projects in the region, we are poised to support the industry's growth.

Tanjong Agas Oil and Gas and Maritime Industrial Park, Malaysia

Client: **Perbadanan Kemajuan Negeri Pahang (PKNP) and Tanjong Agas Supply Base and Marine Services Sdn Bhd.**
Services: **Lead Consultant, Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2013**

The 4,098-acre development comprises liquefied natural gas and petroleum terminals, dredger yard, liquid bulk terminal and dockyards.

Jurong Island Oil Pipeline, Singapore

Client: **Wah Chang International Corporation**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **1999**

Oil pipeline, piping system and associated structures at Jurong Island.

Shell Retail Fuel Programme, Malaysia

Client: **Shell Malaysia**
Services: **Project Management, Engineering, Procurement, Construction Management, Vendor Management & HSSE Management, Authority Liaison Including Permits Handling**
Year of completion: **Ongoing**

We provide EPCM services for the entire retail network in West and East Malaysia as part of Shell Malaysia's Mobility Retail Downstream programme.

Italsing Petroleum, Singapore

Client: **Wah Chang Engineering Corporation Pte Ltd**
Services: **Lead Consultant, Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **1990**

Oil blending plant incorporating an office block, tank farms and other ancillary piping and infrastructure facilities.

Elf Lubricant Oil Blending Plant, Singapore

Client: **Wah Chang Engineering Corporation Pte Ltd**
Services: **Lead Consultant, Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **1990**

Oil blending plant incorporating an office block, tank farms and other ancillary piping and infrastructure facilities.

Social & Strategic Infrastructure: **Sports Facilities and Stadiums**

The requirement for sports facilities is constantly growing, around the world.

At Meinhardt, we see our role in this regard as planners, managers and designers of sports facilities around the globe. Over the years, we have been involved in the development of many sports facilities around the world, counting among their midst award-winning and innovative structures.

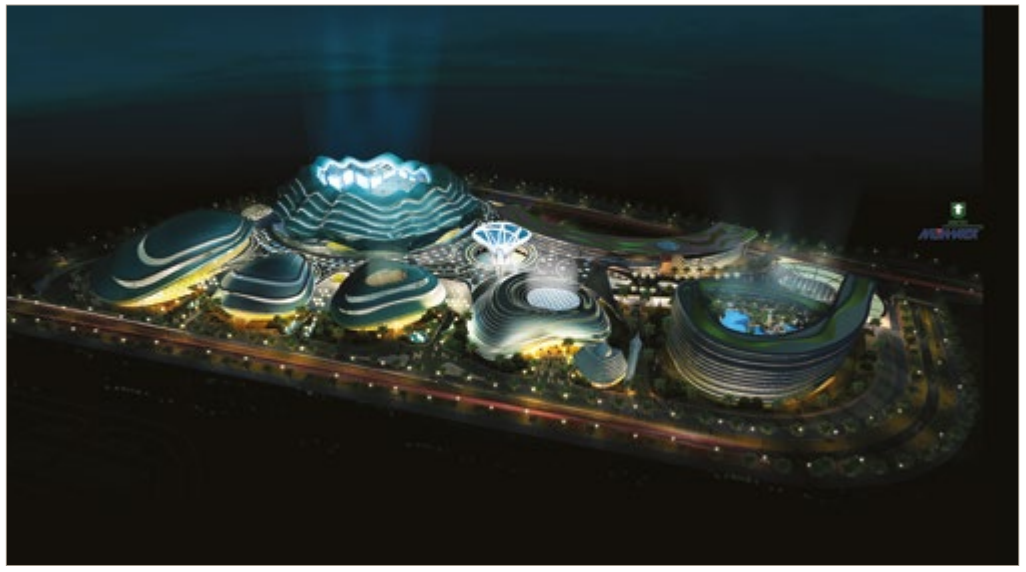
Sports Hub, Singapore

Client: **Dragages Singapore Pte Ltd**
Services: **Accredited Checking**
Year of completion: **2014**

A state-of-the-art 55,000-seat stadium with a moveable roof and retractable seating.

Kuwait Olympic Village, Kuwait

Client: **Public Authority for Housing Welfare**
Services: **Lead Consultancy, Civil, Structural, MEP, Architectural, Landscaping and Façade Engineering**
Year of completion: **2016**



Mega sports complex comprising 25,500-seat stadium, team and individual games halls, swimming complex, training track and field, international zone, athletes residential complex, mosque and Olympic flame tower with total built up area of 247,648 square metres.

Kigali Sports Arena, Rwanda

Client: **Summa Construction, Turkey**
Services: **Structural Engineering**
Year of completion: **2019**

Award-winning multi-use sports venue with 10,000-seat capacity.

NUS University Sport Centre, Singapore

Client: **National University of Singapore**
Services: **C&S, MEP Engineering and Specialist Lighting Design**
Year of completion: **2016**

This state-of-the-art, three-storey University Sports Centre which features a mezzanine level is engineered to accommodate diverse athletic activities.

Ras Abu Aboud Stadium, Qatar

Client: **Supreme Committee for Delivery and Legacy (SC)**
Services: **Peer Review**
Year of completion: **2022**

The 40,000-seat Ras Abu Aboud Stadium, a prominent venue for the 2022 FIFA World Cup in Qatar, showcases innovative and sustainable design.

Social and Strategic Infrastructure: Environmental
Renewable Power and Energy

Power provision is a key element of service infrastructure and as such forms the basis of a large variety of developments.

With significant focus on greenhouse gas abatement and the use of sustainable energy sources, Meinhardt is at the forefront of renewable energy generation system design including large scale solar and wind farms. We also design energy efficient major energy plants including co-generation and tri-generation solutions, thermal storage and smart grid systems.

Green Hdrogen Plant - 5000Nm3/Hr, India

Client: **JSW Energy**

Services: **HAZID, HAZOP and QRA studies, Technology Validation, Process design engineering, Mechanical design engineering includes static, rotary and piping design, Civil & Structural engineering, Electrical design engineering, Instrumentation & Control design engineering, Firefighting and HVAC design engineering, 3D Model**

Year of completion: **Ongoing**

Meinhardt is appointed as engineering consultant to design the green hydrogen plant of 5000Nm3/Hr capacity at one of the steel plants of JSW located at Bellari in Karnataka State in India.

Watabak Windfarm, Chaiyaphum, Thailand

Client: **DNV GL**
Services: **Civil and Structural Engineering**
Year of completion: **2016**

This project is for the construction of a 60MW windfarm in Chaiyaphum province, Thailand. The windfarm consists of 30 wind turbines. As part of the balance of plant, approximately 30km of permanent access roads are constructed. 30 wind turbines were erected on site, requiring the construction of foundations and hardstands.

PowerSeraya Cogeneration Combined Cycle Plant, Singapore

Client: **PowerSeraya Ltd**
Services: **Civil and Structural Engineering (QP)**
Year of completion: **2010**

Addition and alteration to an existing conventional steam plant to cogeneration of combined cycle plant capable of producing 2 x 400 megawatts electrical power.

Tembusu Multi-Utilities Complex, Singapore

Client: **Tuas Power Ltd**
Services: **Civil and Structural Engineering (QP)**
Year of completion: **2017**

Biomass Clean Coal (BMCC) cogeneration plant houses three Circulating Fluidised Bed (CFB) boilers that are capable of firing coal and biomass.

Building Sectors

- Business and Tech Parks
- Hospitality
- Industrial and Manufacturing
- Pharmaceutical
- High Rise Buildings
- Mixed Use
- Offices
- Residential
- Retail Malls

Guoco Tower, Singapore

Building Sectors:
Business and Tech Parks

The demand for business and tech parks is growing worldwide, as the focus shifts from traditional office environment to research, technology development and digitalisation.

Our teams are fully equipped to meet these challenges, having designed many integrated and standalone business and tech parks with state-of-the-art facilities, ambience and technology. Start-ups require an environment that promotes ideas, new approaches and research in technology. Such facilities therefore require different planning, design and infrastructure to support technology development.

Elementum one-north, Singapore
Client: **Ho Bee Land**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2023**

A state-of-the-art, 12-storey tower block complete with two basement carparks, meticulously designed to cater to the unique needs of biomedical sciences companies.

Hong Kong Science Park Phase 2, Hong Kong

Client: **Hong Kong Science and Technology Parks Corporation**
Services: **Civil, Structural, Geotechnical, MEP Engineering & Façade**
Year of completion: **2008**

World-class research centre consists of 10 seven-storey buildings, including energy towers, research and development offices, laboratory buildings, oval-shaped auditorium, an amphitheatre, a services tunnel, link bridges, a swimming pool and a musical water fountain.

Zhongguancun West, Beijing Science and Technology Park, China

Client: **Beijing Science Park Development Co Ltd**
Services: **Structural, MEP Engineering**
Year of completion: **2008**

In collaboration with Kohn Pederson Fox Associates, Meinhardt was the MEP engineer for the Zhongguancun West development which consists of an office tower, office podium and an exhibition bridge structure. Total floor area of 95,000 square metres.

Teletech Park, Singapore

Client: **Singapore Telecommunications Limited and Arcasia Land Pte Ltd**
Services: **Civil, Structural, Geotechnical Engineering**
Year of completion: **1996**

High-tech telecommunication facility with a total built up area of 140,000 square metres.

Biopolis, Singapore

Client: **Samsung Corporation**
Services: **Structural Engineer for Design and Build Contractor**
Year of completion: **2004**

Alternative superstructure design for 9-storey Bioinformatics Institute and Bioprocessing Technology Centre and alternative foundation design for 12-storey building for private research institute / companies.

Fusionopolis 5, Singapore

Client: **Ascendas**
Services: **Civil, Structural, Geotechnical Engineering**
Year of completion: **2016**

17-storey building providing quality business space, a 5-storey office block featuring the "Work Office Home Office" concept, and retail space. Total floor area of 67,490 square metres.

Mediapolis @ One North, Singapore

Client: **Kajima + Tiong Seng JV**
Services: **Value Engineering (Structural) and ERSS**
Year of completion: **2014**

12-storey Media Complex comprising theatres, studios and other media facilities with four levels of basement.

IT / IA Enabled Technology Park, Chennai

Client: **Ascendas (India) Pvt Limited and Tamil Nadu Industrial**
Services: **Civil, Structural, Geotechnical Engineering**
Year of completion: **2006**

Technology park with 165,000 square metres of floor space.

1A International Business Park, Singapore

Client: **Eurochem Corporation Pte Ltd**
Services: **Civil, Structural, Geotechnical Engineering**
Year of completion: **2009**

13-storey business park building with a basement carpark located at International Business Park. Winner of BCA Green Mark Gold Award, 2009.

Building Sectors:
Hospitality

Travelling has grown exponentially and travellers have become discerning. There is a growing demand for high quality hospitality infrastructure and facilities. The guest rooms, F&B, and meeting and convention facilities in most hotels have become more sophisticated and tech-enabled to meet the demand.

Providing technologically advanced design services from feasibility studies to operation, our engineers work with developers and all major international hospitality chain operators on projects ranging from boutique hotels to mega developments, incorporating a multitude of hospitality functions.

Designs of our MEP systems incorporate uninterrupted supply of hot and cold water, high-speed internet connectivity and other multiple building services required for environmental control. These systems are designed to be resilient and effectively fail-safe, whilst meeting the enormous energy demands required for such facilities.

In tandem, our façade and structural engineers work closely with all stakeholders to provide highly efficient building envelopes to minimise energy costs, whilst meeting the conflicting demand for parking, guest room layouts, column-free lobbies, ballrooms and convention facilities.

Meinhardt's extensive experience and knowledge of the requirements of most of the major international operators, make us the preferred consultant for such facilities worldwide.

Westin, Singapore
Client: **Hyundai Engineering & Construction**
Services: **Civil, Structural, Geotechnical, MEP and Façade Engineering**
Year of completion: **2013**

305-room five-star hotel located at Asia Square Tower 2.

Resorts World Sentosa, Singapore
Client: **Genting International**
Services: **MEP Engineers**
Year of completion: **2010**

At over S$6.5 billion in project cost, Resorts World Sentosa is one of the only two integrated resorts in Singapore. Featuring the casino and Universal Studios Singapore along with other key attractions such as the Marine Life Park – the world's largest oceanarium, Maritime Xperiential Museum, Equarius Water Park and FestiveWalk – the premise is a 24/7 bustling boulevard with endless dining, entertainment and shopping offerings. Universal Studios Singapore is also the region's first and only Hollywood movie theme park, and has seven themed zones offering 24 rides and attractions, of which 18 are specially designed for Singapore.

The premium resort features the world's only Hotel Michaels that is designed by one of America's best known architects, Michael Graves. The six hotels in total provide more than 1,800 rooms as well as full meeting and conference facilities. Providing MEP Engineering consultancy services for the resort, Meinhardt employed highly efficient and the most advanced technology for building services, including a canopy cooling system for outdoor areas to save 2.9 million kilowatt-hour per year. In addition, given the requirement to maintain sustainable casino operation during any power supply interruption, high capacity dynamic uninterruptible power supply was successfully introduced as a cost and space effective solution. High voltage generators with high voltage essential power distribution network were also successfully introduced to remotely locate all the generators.

W Hotel, Singapore

Client: **Cityview Place Holdings Pte Ltd**
Services: **MEP Engineering**
Year of completion: **2013**

7-storey 240-room luxury hotel at Quayside Sentosa.

The Grand Ho Tram Strip, Vietnam

Client: **Asian Coast Development (Canada) Ltd. (ACDL)**
Services: **Project Management, Civil, Structural and MEP Engineering**
Year of completion: **2013**

Vietnam's first integrated luxury resort featuring luxury hotels, Las Vegas-styled casinos and 18-hole golf course designed by Greg Norman.

THE EDITION, Singapore

Client: **Kajima Overseas Asia Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2021**

The Edition Hotel, an exquisite eight-story luxury establishment, is a prominent feature of a mixed-use development. This project also includes two towering 28-story high-end condominium blocks and an expansive six-level basement dedicated to parking.

St. Regis Hotel & Residences, Bangkok, Thailand

Client: **Minor Group**
Services: **Civil, Structural and MEP Engineering**
Year of completion: **2009**

46-storey hotel and residences

Okada Manila, Philippines

Client: **Tiger Resort, Leisure and Entertainment Inc**
Services: **Civil and MEP Engineering**
Year of completion: **2016**

An integrated resort development, consisting of three hotels (2,100 rooms), casino, water feature park and a retail mall with entertainment complex. Total built up area of 690,000 square metres.

Shanghai Peninsula Hotel, Shanghai, China

Client: **The Hongkong and Shanghai Hotels, Limited**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2009**

15-storey 250-room five-star hotel with helipad on roof and 13-storey service apartment. Total floor area of 96,000 square metres.

Pan Pacific Hotel, Singapore

Client: **Hotel Marina City Pte Ltd**
Services: **Civil, Structural, MEP Engineering and Specialist Lighting**
Year of completion: **2012**

Major retrofitting for 37-storey hotel.

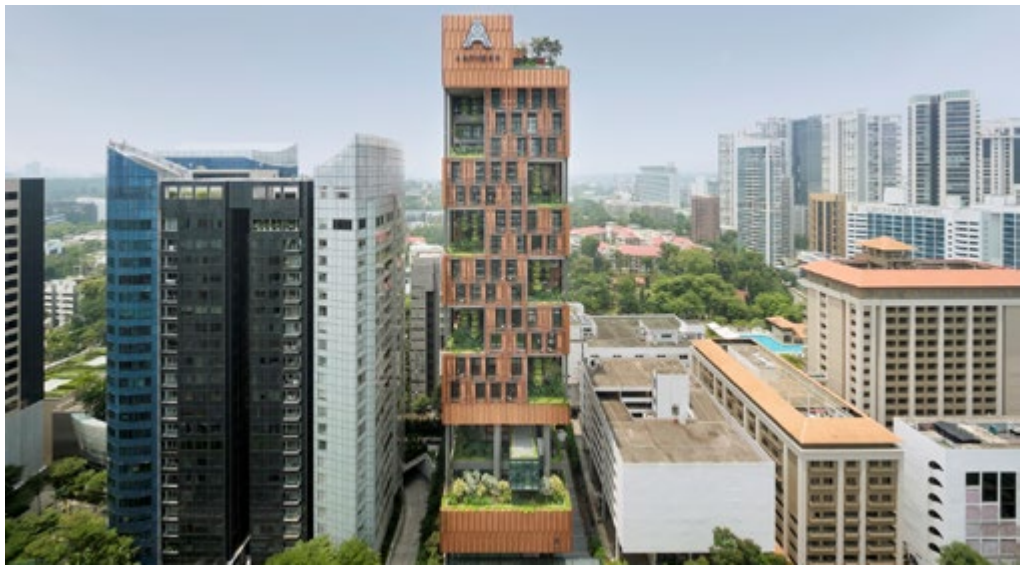
Grand Hyatt Upgrading, Singapore

Client: **Borneo Properties Sdn Bhd**
Services: **MEP Engineering**
Year of completion: **2024**

Significant Addition and Alteration (A&A) works are undertaken on both the 21-storey Grand Wing (GW) and the 16-storey Terrace Wing (TW) of the Grand Hyatt Singapore, as well as on the four-storey podium and the two levels of basement.

Artyzen Cuscaden Singapore

Client: **Shun Tak Real Estate (Singapore) Pte Ltd**
Services: **Civil, Structural, Geotechnical, MEP Engineering and Design for Safety (DfS)**
Year of completion: **2024**



A luxurious 20-storey hotel featuring two basement levels dedicated to parking, with a Gross Floor Area (GFA) of 10,043 square meters.

Hilton Singapore Orchard, Singapore

Client: **OUE Ltd**
Services: **MEP Engineering**
Year of completion: **2022**

The 1,080-room Hilton Singapore Orchard underwent significant A&A works, encompassing the renovation of the Lobby and Drop Off Areas, the reconfiguration of Level 5, and the upgrade of Guest Rooms.

Galaxy Starworld Hotel, Macau

Client: **Galaxy Resort & Casino**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2007**

Casino and hotel complex with total floor area of 97,000 square metres.

Shangri-La Pudong Kerry Centre, Shanghai, China

Client: **Shangri-La Pudong Kerry City Properties Co Ltd**
Services: **MEP Engineering**
Year of completion: **2011**

39-storey hotel and service apartments with 5-storey retail podium and two levels of basement. Total floor area of 340,000 square metres.

Fairmont Hotel and Raffles Suites & Residences, Manila, Philippines

Client: **Fairmont Raffles**
Services: **Civil, Structural and MEP Engineering**
Year of completion: **2009**

30-storey 330-room five-star hotel and service apartment.

Parkroyal Hotel at Melbourne Airport, Australia

Client: **Folkestone Limited**
Services: **Civil and Structural Engineering**
Year of completion: **2000**

9-storey 272-room transit hotel at Melbourne Airport. The hotel was built over an existing car park.

Building Sectors:
Industrial and Manufacturing

Industrial Plants and Manufacturing facilities are becoming more complex, and tech and process-driven, requiring customisation for each specific client, project and the market.

We work with our clients to understand and address their needs as early as possible by translating them into the most efficient and economical technical-delivery solution with confidence. Our philosophy is to customise our solutions to the needs of our clients, as one size does not fit all.

Our team is focused on the integration process, manufacturing and production systems into the overall design of our client's facility. Using our core skills of project and construction management, civil and structural, MEP, façade engineering and sustainable engineering, Meinhardt provides a 'one-stop' delivery experience to enable the development of leading edge facilities. The Meinhardt lead consultancy and EPCM approach provides a single point of responsibility and accountability for our projects, as well as solutions which are economically, enviromentally and striategically benificial to our clients.

Johnson Matthey, Malaysia
Client: **Johnson Matthey**
Services: **EPCM**
Year of completion: **Ongoing**

FEED Study, Basic Design and PMC Services for Johnson Matthey's Batching Optimisation project in Nilai.

Dyson MAM 736 Engineer & Project Management, Johor, Malaysia
Client: **Dyson Malaysia Sdn Bhd.**
Services: **EPCM**
Year of completion: **Ongoing**

Advanced manufacturing facility for Dyson’s proprietary vacuum cleaners and other air products.

SilTerra, Malaysia

Client: **Continental Tyres**
Services: **Project Management and Construction Management**
Year of completion: **2017**

FAB 1E Expansion with Central Utilities Building at Kulim Hi-Tech Park, Kedah, Malaysia

Continental Tyres, Malaysia

Client: **Continental Tyres**
Services: **Project Management, Construction Management, Vendor Management and HSSE Management**
Year of completion: **2017**

Expansion of the production facility to include the installation of new equipment and assets, covering a total Gross Floor Area (GFA) of 26,000 square meters.

STMicroelectronics (AMK8), Singapore

Client: **STMicroelectronics (Pte) Ltd**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2001**

60,000 square metres high-tech state-of-the-art wafer fab facility with 20,000 square metres of clean-rooms. Winner of BCA Best Buildable Design Awards in 2002.

McCormick, Malaysia

Client: **McCormick Malaysia Sdn Bhd**
Services: **EPCM**
Year of completion: **Ongong**

Development of a black pepper plantation and processing facility in Merang, Terengganu.

Caterpillar Underground Mining Project (UGM), Thailand

Client: **Caterpillar Thailand Ltd.**
Services: **Lead Consultant, Project Management, Civil, Structural, MEP Engineering and Construction Management**
Year of completion: **2012**

65,000 square metres production plant for heavy machines for underground mining and office space. This project is required to comply with FM Global requirements.

ST Kinetics at 249 Jalan Boon Lay, Singapore

Client: **Singapore Technologies Kinetics Ltd**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2010**

Extension to the existing ST Kinetics, consisting of nine blocks of industrial complex and a test track runway.

HP Plant at Tuas, Singapore

Client: **Hewlett-Packard Asia Pacific**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2014**

An extension to the existing plant consisting of a 3-storey industrial building and a link bridge.

Building Sectors:
Pharmaceutical

Meinhardt understands the importance of linking process technology and complex facilities. We work with a number of global companies to advise, design and deliver their facilities.

Facilities in this sector hinge on a set of stringent clean and safe requirements. Our industry knowledge, backed by a comprehensive suite of expertise, has seen our repeated engagements by global brands to provide them with our consulting and engineering services. To date, we have completed a sizable number of pharmaceutical facilities around the world – enriching our experiences within the sector.

These comprehensive solutions are offered for pharmaceutical and biopharmaceutical industry, industrial biotechnology, medical device industry, food and nutrition industry and consumer and beauty care industry. Whether our clients require brownfield or greenfield construction of new facilities, Meinhardt finds the best and most economical solutions to meet our clients' requirements.

P&G Technical Centre, Beijing, China
Client: **Procter & Gamble Asia Pte Ltd**
Services: **Project Management, Lead Consultant, Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2011**

High-tech innovation centre comprising 28,000 square metres of offices, laboratories and a single storey pilot manufacturing.

Becton Dickinson Factory, Singapore

Client: **Becton Dickinson**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **1989**

Medical product manufacturing plant. Winner of Best Buildable Design Award in 1991.

P&G Renaissance, Chachoengsao, Thailand

Client: **Procter & Gamble Asia Pte Ltd**
Services: **Lead Consultant, Project Management, Construction Management, Civil, Structural and MEP Engineering**
Year of completion: **2009**

17,000 square metres manufacturing facility for hair care products.

CIBA Vision (Alcon), Malaysia

Client: **CIBA Vision**
Services: **FEED and Basic Engineering Services**
Year of completion: **Ongoing**

Proposed expansion for CIBA Vision manufacturing facility in Johor.

GE Medical Supplies Production Plant, Beijing, China

Client: **General Electric Co (US)**
Services: **Civil, Structural and MEP Engineering**
Year of completion: **2003**

A pharmaceutical development consisting of two major buildings and two recreation buildings; a single-storey production/manufacturing, a 7-storey office block, a single-storey gymnasium building, and a single-storey sport hall. Total built up area of 668,115 square feet.

Building Sectors:
High Rise Buildings

Our approach of constantly pushing boundaries to deliver highly innovative and cutting-edge design solutions for complex structures has enabled us to engineer tall, slender and complex building landmarks across the globe. Looking ahead, we continue to shape some of the most ambitious buildings of the future.

Tall buildings require special technical expertise, such as mitigating the aerodynamic effects of wind, and controlling accelerations and drifts to ensure the stability of slender and complex geometrical forms. We also utilise performance based seismic design and the creative use of steelconcrete composite construction and high strength materials.

Our approach allows us to adopt a holistic approach for energy consumption and MEP design, making use of integrated solutions in vertical transportation systems. Furthermore, we devise sustainable and transparent energy efficient façade systems and develop designs to facilitate rapid construction.

Our diverse range of in-house tall building specialists is spread across varied fields of engineering. These encompass geotechnical, structural, mechanical and electrical, wind, seismic, façade, lift safety and fire, vertical transportation and sustainability. Our services are integrated across disciplines to deliver tall buildings that are safe, constructible, cost effective and sustainable, respecting the architects' vision and adapted to the needs of developers and end users.

118-Storey
Client: **Samsung CT (KL) Sdn Bhd**
Services: **C&S Engineering for Contractor**
Year of completion: **2020**

This 118-story tower in Kuala Lumpur is the second tallest building in the world and the tallest in Southeast Asia. The skyscraper is designed to resemble Tunku Abdul Rahman's right hand raised during the Merdeka Proclamation with an unclenched fist to signify the peaceful nature of the nation's struggle for independence. As one of the most visible icons defining the skylines of modern cities, it symbolises the economic vitality of a nation.

280m

CapitaSpring,
Singapore

51-Storey
Client: **Dragages (Singapore) Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2021**

Mixed-use development which comprises commercial office space, serviced apartments with two sky gardens and an observatory deck.

245m

Marina Bay Financial Centre,
Singapore

67, 56, 51, 50 and 33-Storey
Client: **BFC Developments Pte Ltd (Consortium of Hongkong Land, Keppel Land and Cheung Kong Holdings)**
Services: **Civil, Structural, Geotechnical and MEP Engineers**
Year of completion: **2012**

Mixed-use
(Office, Residential and Retail)

358m

Signature Towers,
Dubai, UAE

81, 65 and 52-Storey
Client: **Dubai Properties**
Services: **Lead Consultancy, Project Management, Civil, Structural, MEP Engineering, Façade and Fire Engineering**
Year of completion: **2009**

Mixed-use
(Office and Residential)

343m

Four Seasons Place,
Kuala Lumpur, Malaysia

76-Storey
Client: **Venus Assets Sdn Bhd**
Services: **MEP and Façade Engineering**
Year of completion: **2017**

Mixed-use
(Hotel and Residential)

342m

IFC Project Wu Xi,
China

65-Storey
Client: **Wharf Estate Wuxi Ltd**
Services: **MEP and Façade Engineering**
Year of completion: **2015**

Mixed-use
(Hotel and Residential)

330m

Thamrin Nine,
Jakarta, Indonesia

68 and 58-Storey
Client: **Thamrin Nine**
Services: **Structural and MEP Peer Reviewer, Technical Advisor, Façade Engineering and BMU**
Year of completion: **2016**

Mixed-use
(Office and Residential)

310m

Ocean Heights,
Dubai, UAE

82-Storey
Client: **Damac Properties**
Services: **Structural Engineering**
Year of completion: **2010**

Residential

300m

EX Tower,
Jakarta, Indonesia

55 and 44-Storey
Client: **China Sonangol International (S) Pte Ltd**
Services: **MEP Engineering**
Year of completion: **2016**

Mixed-use
(Office, Service Apartment and Retail)

298m

One Island East,
Hong Kong

70-Storey
Client: **Swire Properties**
Services: **EPM Engineering**
Year of completion: **2008**

Office

290m

Guoco Tower,
Singapore

64-Storey
Client: **Guocoland Property Management Pte Ltd**
Services: **EMP Engineering**
Year of completion: **2016**

Mixed-use
(Retail, Office, Hotel and Residential)

280m

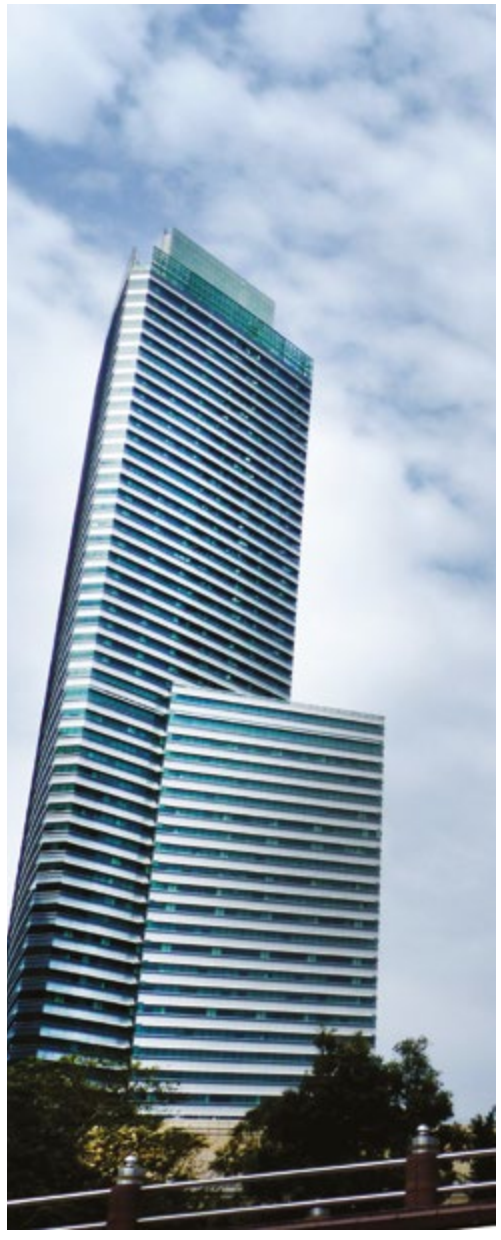
One Raffles Place,
Singapore

63-Storey
Client: **UOB Centre Ltd**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **1987**

Office

267m

Petronas Tower 3,
Kuala Lumpur, Malaysia



60-Storey
Client: **Arena Merdu Sdn Bhd**
Services: **Structural and Façade Engineering**
Year of completion: **2011**

Office

258m

The River, Bangkok, Thailand

74-Storey
Client: **Raimon Land Public Company Ltd**
Services: **Structural Engineering**
Year of completion: **2011**

Residential

251m

Rialto Towers, Melbourne, Australia

65-Storey
Client: **Rialto JV**
Services: **Structural Engineering**
Year of completion: **1985**

Office

245m

The Sail @ Marina Bay, Singapore

70 and 63-Storey
Client: **City Developments Ltd and AIG Group, USA**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2008**

Residential

245m

One Raffles Quay, Singapore

50 and 63-Storey
Client: **One Raffles Quay Pte Ltd (Consortium of Hongkong Land, Keppel Land and Cheung Kong Holdings)**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2007**

Office

Building Sectors:
Mixed-Use

Mixed-use developments represent one of the fastest growing market sectors with new trends regularly emerging. These developments adapt to the needs of those they are designed to serve, whether individual residents, businesses or retail tenants.

Developing different combinations of hotel, office, retail and residential space in one project poses multifaceted planning and engineering challenges, and as a result specialist expertise with multiple domain knowledge to deliver the right integrated product is required.

As a fully integrated engineering firm, Meinhardt's large and diverse pool of in-house experts for each building type are ideally suited to deliver the varied and often contrasting demands of such projects to accommodate multiple facility uses. We take into consideration varied parking needs, structural transitions and transfers, coordination of MEP systems, fire separation, sound attenuation, ventilation, egress and phased completions.

As one of the leading engineering firms in the sector, our success lies in the effective coordination of skills and ability to integrate varied functional and physical components of a mixed-use development into a seamless whole.

Orchard Gateway, Singapore
Client: **218 Orchard Private Limited and UE Orchard Pte Ltd**
Services: **Civil, Structural, Geotechnical and Façade Engineering**
Year of completion: **2013**

Redevelopment of Specialists' Shopping Centre and Hotel Phoenix and Orchard Emerald at Orchard Road connected by a sky bridge and underground link. Comprises retail, hotel and office.

Marina Bay Financial Centre, Singapore
Client: **Consortium of Hongkong Land, Keppel Land and Cheung Kong (Holdings)**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2012**

Occupying prime location at the waterfront along Marina Bay, the Financial Centre is a purpose-built development designed to be the epicentre of Singapore's financial and banking hub. Five high-rise towers and generous underground parking constitute the six million square feet complex; Two towers of 66 and 55 storeys are for residential use while the remaining three towers, ranging from 33 to 50 storeys, are for commercial use.

Meinhardt provided integrated engineering for the mega development – working closely with the architect to ensure perfect integration of the structure, and building technical services into the architecture. Meinhardt developed highly efficient and robust structural solutions, utilising dual lateral load resisting systems coupled with hybrid pre-stressed in-situ and precast concrete floor systems to achieve exceptional building structural performance with high constructibility and cost benefits. For excavation, an innovative island construction method was devised, comprising contiguous bored secant pile walls, deep cement mixed soil and treated perimeter soil berms. The system significantly reduced the quantum and extent of strutting and allowed concurrent excavation and superstructure works.

CapitaSpring, Singapore

Client: **Dragages (Singapore) Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2021**

A 280m tall, 51-storey mixed-use development which comprises commercial office space, serviced apartments with two sky gardens and an observatory deck. Total GFA of 100,000 sqm.

Keppel South Central, Singapore

Client: **Keppel Corporation**
Services: **Civil, Structural, Geotechnical Engineering**
Year of completion: **Ongoing**

32-storey commercial office building, five-Storey commercial podium with ancillary facilities and one level of basement. Total GFA of 60,000 sqm.

A26* Medini at Iskandar, Johor, Malaysia

Client: **Centurion Properties Sdn Bhd**
Services: **Structural, MEP and Façade Engineering**
Year of completion: **2018**

Three 50-storey towers with 1.3 million square feet of built-up space, featuring 250-room five-star hotel, residential apartments and lifestyle retail space.

CanningHill Piers and CanningHill Square, Singapore

Client: **China Construction (South Pacific) Development Co Pte Ltd**
Services: **Civil, Structural, Geotechnical Engineering**
Year of completion: **Ongoing**

A mixed-use development comprising 1 block of 180m tall 48-storey and 1 block of 100m tall 24-storey residential flats (total 696 units) with clubhouse, swimming pool & communal facilities, 1 block 21-storey hotel (477 guestrooms) and 1 block of 20-storey hotel (192 guestrooms), 2-storey commercial podium and 4 levels basement carpark with commercial space. Total GFA of 148,700 sqm.

Guoco Midtown & Midtown Bay Residences at Beach Road, Singapore

Client: **GLL Thrive Pte. Ltd. and GLL Prosper Pte. Ltd.**
Services: **Civil, Structural, Geotechnical, MEP Engineering and Design for Safety (DfS)**
Year of completion: **2024**

A 30-storey office tower;additions & alterations to existing 3 storey conservation building (former Beach Road Police Station); a 33-storey residential tower with a multi-storey carpark & subterranean connection across Beach Road. Total GFA of 90,029 m2.

Woodleigh Mall & Residences, Singapore

Client: **Elara 1 Pte. Ltd and Callisto 1 Pte. Ltd. (SPH & Kajima Development)**
Services: **Civil, Structural, Geotechnical and Design for Safety (DfS)**
Year of completion: **2023**

11 blocks of 11-storey residential towers, a 2-storey podium retail space, and three levels of basement for carpark. Total GFA of 89,043 sqm.

Guoco Tower, Singapore

Client: **Guocoland Property Management Pte Ltd**
Services: **MEP Engineering**
Year of completion: **2016**

290 metres, 64-storey tower for office, hotel, residential and retail.

The Hundred at Mega Kuningan, Jakarta, Indonesia

Client: **Farpoint**
Services: **MEP Engineering**
Year of completion: **2017**

The ‘H’ shaped building comprises 50-storey residential/hotel tower and 24-storey office tower with retail spaces.

Asia Square Towers, Singapore

Client: **Hyundai Engineering & Construction**
Services: **Civil, Structural, Geotechnical, MEP and Façade Engineering**
Year of completion: **2013**

43-storey twin towers for office, Westin Hotel and F&B space. Winner of BCA Design and Engineering Safety Excellence Awards (Merit) in 2012 and BCA Green Mark Platinum Award, LEED Gold Certification, 2009.

Hysan Place, Hong Kong

Client: **Hysan Development Co Ltd**
Services: **Structural and Geotechnical Engineering**
Year of completion: **2012**

40-storey office tower and 16-storey retail mall and three levels of basement for retail and carpark.

City Centre Najma, Doha, Qatar

Client: **AAMAL (Al Faisel Holding)**
Services: **Lead Consultancy, Civil, Structural, MEP and Façade Engineering**
Year of completion: **2016**

Two hotel and serviced apartment towers, 4-storey retail mall and four levels of basement for underground parking. Total floor area of 304,500 square metres.

South Beach Mixed-use Development, Singapore

Client: **South Beach Consortium Pte Ltd**
Services: **Accredited Checker & Specialist AC (Geo)**
Year of completion: **2015**

Two 45-storey office/hotel/residential towers.

Building Sectors:
Offices

As the most visible icons defining the skylines of modern cities, office buildings symbolise the economic vitality of a nation. For every office building project, our main goal is to create responsive spaces that people like to work in. This is crafted through fostering an environment that is adaptable, energy efficient, technologically advanced, safe, healthy and aesthetically-pleasing.

With this clear purpose, we set out to achieve high-performance workplaces through devising unobstructed spaces. This is done using long span structurally efficient solutions, integrating structural and service zones for higher ceilings, designing for whole-life operational efficiency and sustainability, providing technical connectivity through robust and flexible IT infrastructures and future-proof designs that can easily accommodate frequent renovations and alterations.

We are also involved in enhancing security and adopting appropriate design responses for extreme events, which integrate with surrounding amenities and respond to the needs of occupants through enhanced satisfaction, health and comfort.

We are at the forefront of technological change, paving the way for a new generation of office buildings and aiming to map out welcoming spaces with lasting performance and value – ready to receive a vibrant working community.

SBF Centre, Singapore
Client: **Far East Opus Private Limited**
Services: **MEP Engineering**
Year of completion: **2016**

31-storey commercial building for office and medical suites.

One Raffles Quay, Singapore

Client: **Consortium of Hongkong Land, Keppel Land and Cheung Kong (Holdings)**
Services: **Civil, Structural, Geotechnical and MEP Engineering**

The design and construction of One Raffles Quay is widely acknowledged as a major engineering feat due to the constraints of the site and the presence of subway lines at shallow depth running directly beneath its 50-storey North Tower. Meinhardt pioneered an innovative transfer system utilising the central box core as a transfer structure spanning across the subway tunnels. The unique transfer system along with a highly efficient outrigger braced steelconcrete composite structure and the novel skewing of the building mass over the subway tunnels – to reduce the transfer span – led to enormous cost and time savings on the project.

Today, the iconic landmark in the Singapore skyline located in the prime business district encompasses twin office towers with two basements, a multi-level podium, and an underground link to the Raffles Place Mass Rapid Transit Station. It also features Singapore's first commercially applied District Cooling System, which not only effectively reduces urban heat, but also provides energy cost savings. The North and South Towers, built for banking and financial corporations, add up to an estimated 1.3 million square feet of prime office space. The North Tower stands 50 storeys (245 metres) high, providing outstanding views and column-free space of approximately 18,000 square feet per floor. Standing at 29 storeys (140 metres) tall, the South Tower enjoys large regular column-free space of approximately 30,000 square feet on each floor.

Guoco Midtown, Singapore

Client: **GLL Thrive Pte. Ltd. and GLL Prosper Pte. Ltd.**
Services: **Civil, Structural, Geotechnical, MEP Engineering and Design for Safety (DfS)**
Year of completion: **2023**

A 30-storey office tower and a 3-storey conservation building (former Beach Road Police Station).

OUE Bayfront, Singapore

Client: **Clifford Development Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2010**

18-storey office tower including conservation of Change Alley Aerial Plaza.

The GEAR, Singapore

Client: **Kajima Development Pte Ltd**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2023**

A 6-storey business park development with one level of basement.

Frasers Tower, Singapore

Client: **Frasers Centrepoint**
Services: **C&S Engineering**
Year of completion: **2018**

A 38-storey office tower with underground pedestrian network connecting to Tanjong Pagar MRT Station. Total GFA of 77,162 sqm.

Parkview Square, Singapore

Client: **Chyau Fwu Development Pte Ltd**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2001**

24-storey office tower – one of the largest column free office buildings in Singapore. Winner of BCA Best Buildable Design (Merit) in 2003, ACES Engineering Design Excellence Award in 2002 and Singapore Structural Steel Society – Design Awards Scheme in 2002.

One Island East, Hong Kong

Client: **Swire Properties**
Services: **MEP Engineering**
Year of completion: **2008**

70-storey office skyscraper with high-speed passenger lifts.

Tornado Tower, Doha, Qatar

Client: **Qatar Investments & Projects Development Holding Company (QIPCO)**
Services: **Structural Engineering and Value Engineering**
Year of completion: **2009**

52-storey office tower with savings of 4,000 tonnage of steel from the original design.

Zuellig Office Building, Makati City, Philippines

Client: **Bridgebury Realty Corporation**
Services: **Civil, Structural, MEP and Façade Engineering**
Year of completion: **2014**

30-storey office tower.

World Trade Centre II, Jakarta, Indonesia

Client: **PT Jakarta Land**
Services: **Civil, Structural and Façade Engineering**
Year of completion: **2012**

30-storey office tower on an existing five levels of basement.

Vietcombank Tower, Ho Chi Minh City, Vietnam

Client: **Vietcombank and Bonday Investments Limited**
Services: **Civil, Structural and Façade Engineering**
Year of completion: **2013**

35-storey office tower.

One Raffles Place, Singapore

Client: **OUB Centre Ltd**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **1986**

63-storey office tower – tallest building in the world outside North America at the time of construction.

International Financial Centre Tower 2, Jakarta, Indonesia

Client: **Keppel Land**
Services: **Façade Engineering**
Year of completion: **2015**

40-storey office tower – fully enclosed with curtain wall and high performing low-E coated insulated glass.

Celcom Headquarters, Kuala Lumpur, Malaysia

Client: **Gapurna Sdn Bhd**
Services: **Civil and Structural Engineering**
Year of completion: **2015**

33-storey office tower.

EX Tower, Jakarta, Indonesia

Client: **China Sonangol International (S) Pte Ltd**
Services: **MEP Engineering**
Year of completion: **2016**

55 and 44-storey mixed-use tower for office, service apartment and retail.

Building Sectors:
Residential

Fostering a comfortable living environment is an evolving business as consumers lead increasingly sophisticated lifestyles.

Constantly looking from fresh perspective, our engineering solutions have helped customers realise their ideal lifestyles associated with bespoke residential buildings. By pushing the boundaries of engineering, we have earned prestigious awards both locally and abroad for our market-leading innovations in the residential sector.

Livia Condominium, Singapore

Client: **City Developments Ltd**
Services: **MEP Engineering**
Year of completion: **2010**

Ten blocks of 15 and 16-storey residential towers. Winner of BCA Green Mark Gold-Plus Award in 2009.

Les Maisons Nassim, Singapore

Client: **Times Development Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2023**

Three blocks of 5-storey luxury residential buildings, with two levels of basement for carpark.

The Venue Residences and Shoppes, Singapore

Client: **Dragages (Singapore) Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2017**

Four 16-storey residential towers and retail space at the podium. Total floor area of 29,000 square metres.

Cliveden @ Grange, Singapore

Client: **City Developments Ltd**
Services: **MEP Engineering**
Year of completion: **2010**

Four blocks of 24-storey residential towers with two levels basement parking. Winner of BCA Green Mark Platinum Award in 2007.

Concourse Skyline, Singapore

Client: **Hong Fok Land Ltd**
Services: **Civil and Structural Engineering**
Year of completion: **2014**

28 and 40-storey residential towers with total area of 110,080 square metres.

Marina Bay Suites, Singapore

Client: **Marina Bay Suites Pte Ltd**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2013**

67-storey residential tower. Winner of BCA Design and Engineering Safety Excellence Awards in 2014.

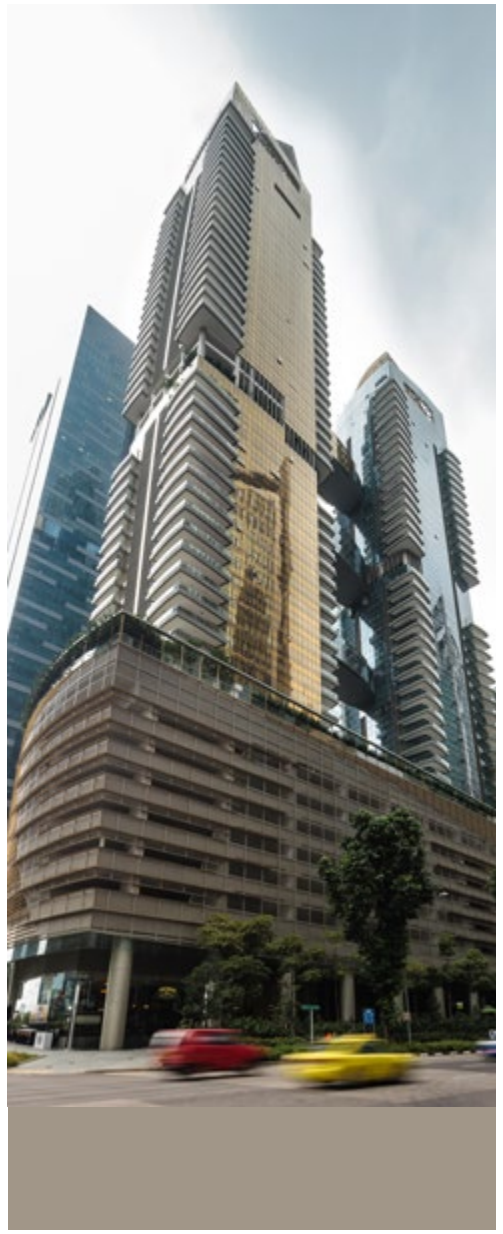
Marina Bay Residences, Singapore

Client: **Marina Bay Residences Pte Ltd**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2010**

55-storey residential tower. Winner of BCA Design and Engineering Safety Excellence Awards (Merit) in 2011.

One Shenton, Singapore

Client: **City Developments Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2011**



50 and 43-storey residential towers with 6-storey multi-level parking and retail podium; features three sky bridges.

The Sail @ Marina Bay, Singapore

Client: **City Developments Ltd and AIG Group, USA**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2008**

70 and 63-storey iconic residential towers with aspect ratios of 10.9 and 10.2 respectively – one of the most slender buildings. Winner of BCA Design & Engineering Safety Excellence Awards, 2009.

City Square Residences, Singapore

Client: **City Developments Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2008**

28/ 29/ 30-storey apartment towers, with three basement parking facilities.

Concorde 368 Condominium, Singapore

Client: **City Developments Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2014**

36-storey residential tower.

Commonwealth Towers, Singapore

Client: **Wealthall Development Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2017**

Two 43-storey residential towers with three levels of basement.

Amber Skye, Singapore

Client: **CS Land Pte Ltd and OKP Land Pte Ltd**
Services: **C&S and MEP Engineering**
Year of completion: **2017**

22-storey residential tower with two levels of basement for carpark.

Building Sectors:
Retail Malls

Our ability to balance both functionality and aesthetics appeal is a driving factor for our appointment in many of these projects.

Apart from ensuring a visually pleasing design externally, we also look to ensure that the layout internally is equally practical and self-reinforcing. Our goal is to create welcoming environments and pleasant retail experiences for the customers together with the resultant business success for our clients.

Mandarin Gallery, Singapore
Client: **Elara 1 Pte. Ltd and Callisto 1 Pte. Ltd. (SPH & Kajima Development)**
Services: **Civil, Structural, Geotechnical and Design for Safety (DfS)**
Year of completion: **2023**

11 blocks of 11-storey residential towers, a two-storey podium retail space, and three levels of basement for carpark. Total GFA of 89,043 sqm.

The ONE, Tsimshatsui, Hong Kong
Client: **Chinese Estates (The One) Limited**
Services: **MEP Engineering**
Year of completion: **2010**

Tallest retail complex in Hong Kong with 21 storeys of retail, F&B and entertainment space.

Vivocity, Singapore
Client: **Penta Ocean Corporation**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2006**

The largest retail mall in Singapore with total floor area of 150,000 square metres.

Paya Lebar Quarter, Singapore

Client: **Lend Lease**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2019**

Mixed-use development comprises a 7-storey shopping mall with 3 levels of basement; 13 & 14-storey office towers, and three blocks of 17-storey residential towers and multi-storey carparks.

Marina Square, Singapore

Client: **Marina Centre Holdings Pte Ltd**
Services: **Civil, Structural and MEP Engineering**
Year of completion: **2014**

Retrofitting for 4-storey shopping mall with 2-level basement for retail space and parking.

Seletar Mall, Singapore

Client: **The Seletar Mall Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2014**

4-storey retail mall and five levels of basements.

JEM, Singapore

Client: **Lend Lease Retail Investment 3 Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2013**

Singapore's third largest suburban mall with total floor area of 111,000 square metres of retail and office space.

Wisma Atria, Singapore

Client: **Wisma Development Pte Ltd**
Services: **Civil, Structural and MEP Engineering**
Year of completion: **2012**

4-storey retail mall and 13-storey office tower with total floor area of 21,000 square metres.

313 @ Somerset, Singapore

Client: **Bovis Lend Lease Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2009**

7-storey retail mall with three levels of basement at Orchard Road. Challenges include diverting the 10-metre wide Stamford canal and reconstructing the permanent canal to pass through the basement of the building. Winner of 2010 BCA Design and Engineering Safety Excellence Awards and IES Engineering Achievement Awards.

Triple One Somerset, Singapore

Client: **Pacific Star Group**
Services: **Civil, Structural, Geotechnical and MEP Engineering**
Year of completion: **2009**

Conversion of Singapore Power Building to a new retail mall and office development.

Paragon Shopping Centre, Singapore

Client: **Orchard 290 Pte Ltd**
Services: **Civil, Structural and Geotechnical Engineering**
Year of completion: **2009**

6-storey premier retail mall and 14-storey medical suite/office with total floor area of 94,500 square metres.

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