Buildings form a fundamental part of our lives by shaping our communities and daily activities. As one of the top eight building designer’s worldwide (ENR 2015), we have designed inspiring, efficient, and award-winning buildings for several decades and we are the preferred partner for some of the world’s leading architects and developers. Our design philosophy is to always consider the human experience and we challenge assumptions to create the most practical and economic designs.

Transport
Mobility fuels economic and social development and with 50% of the world’s population now living in urban areas, efficient and reliable transport systems are essential.

To meet this need, Ramboll has been working on some of the world’s largest, most innovative infrastructure projects and is the leading consultancy in the Nordic market. We create value for transport authorities, contractors and local authorities by providing multidisciplinary technical excellence and minimising resource usage.

Water
Water is essential to life and one of our most precious resources. Working with municipalities, utilities, and industrial clients Ramboll draws on proven multidisciplinary expertise to manage the most challenging water resources, wastewater, and storm water issues. We integrate treatment process selection and engineering, operational services, and regulatory management and planning to deliver innovative solutions that gain both industries and society.

Energy
With security of supplies, climate change, energy efficiency and resource scarcity as top priorities on the global agenda, there is a general push towards renewables, although conventional energy will continue to play a significant role in the energy mix in the coming years. As a consultancy, Ramboll is at the forefront of addressing the green transition and offers a holistic approach to energy that supports the sector on the journey towards more sustainable solutions.

Ramboll is a leading engineering, design, environmental and consultancy company employing 14,000 experts. Our presence is global with a strong representation in the Nordics, United Kingdom, Northern America, Middle East and Asia Pacific. We constantly strive to achieve inspiring and exacting solutions that make a genuine difference to our clients, the end-users, and society as a whole.

www.ramboll-mea.com
PLANNING & URBAN DESIGN
Ramboll’s holistic approach to urban development encompasses strategy, planning, and world class technical design services and is based on an integrated multidisciplinary skills base. We have an extensive track record working with a number of the world’s largest cities to create liveable, sustainable, and implementable urban development solutions that are fully adapted to the local context.

ENVIRONMENT & HEALTH
As a globally recognised environmental and health consultancy, we have earned a reputation for technical and scientific excellence, innovation and client service. Advances in science and technology and evolving regulatory, legal and social pressures create increasingly complex challenges for our clients. We evolve to keep pace with these changes - by adding new services, contributing to scientific advances or expanding geographically.

MANAGEMENT CONSULTING
National, regional and local authorities are responsible for issues that affect us all: from health care, education and day care to strategic planning of infrastructure and climate initiatives. Drawing on 500 management experts, Ramboll acts as a trusted partner to public administrations, creating the insights needed to make informed strategic decisions that promote stronger societies. With unprecedented levels of competition in the global economy, Ramboll focuses on empowering private sector clients with expertise and powerful management tools.
TOWERS AND TELECOM

An indispensable part of modern-day civilisation, the towers and telecom sector draws special attention to Ramboll where we constantly evolve our technology and systems in line with the ever-stretching needs of society.

KEY HIGHLIGHTS

RANKINGS
Ramboll is ranked 3 in “Towers and Antennae” category among the international design firms in worldwide (Source: ENR Source book December 2017)

Enabling efficient connections for development
Today none of us can pass a day without communicating with others or receiving information from the web, television or the radio. These modern conveniences are supported by masts and towers that are properly designed, constructed and maintained for that purpose, and Ramboll leads the way in this space.

India is becoming the world’s fastest-growing telecommunications market with more than one billion subscribers. This is driving the rapid development of related infrastructure, which Ramboll supports by supplying telecom solutions to mobile operators and network service providers.

With almost seven decades of experience in creating innovative, cost-effective designs for telecom infrastructure, smart city solutions and special structures, Ramboll is one of the world leaders in this category. Our expertise is renowned for offering sustainable telecom structures with optimised solutions that can be customised as per the client’s requirement.

Powering Towers and Masts for decades
Liveable cities are healthy, safe places in which people can thrive, communities can grow, and the environment can flourish. With the invasion of technology, there is an increasing need for cities to also be smart. World over, there are significant efforts to develop smart cities which will help create a sustainable and intelligent environment.

01 Monopoles
Ramboll-designed monopole is an undisputable leader in the passive infrastructure space. We work closely with tower companies and operators to help meet the best standard and aesthetically design for their key clients. Ramboll designed monopoles also have an elevated platform for telecom equipment such as BTS, battery banks, power banks, etc. and to optimally utilise the tower’s foot print.

02 Camouflaging solutions
Every city has different aesthetic requirements depending on its location, historical values and local sentiments. Ramboll offers designs like the lotus monopole, palm tree, pine tree and many other solutions, which blend in with the city’s requirements. These designs can be flexibly customised as required by the administrative authorities.
03 Measurement of electromagnetic radiation
Ramboll can perform electromagnetic measurements with highly specialised equipment, which are certified every second year. A very broad range of E-field frequencies and H-field (magnetic) frequencies are covered. Ramboll was appointed as the lead consultant to assess the Electromagnetic Field (EMF) radiation across the country of Oman. The assessment established if the level of EMF exposure to the public was within the internationally prescribed limits across the country of Oman.

04 Smart site solution
Our smart site solution is a process improvement which incorporates optimum utilisation of the tower site. A built-in equipment platform (EPF) is designed to host and support all the needed equipment within the footprint of the tower itself. The equipment platform is mounted at a certain height from the base of the tower and fences are used to protect against any intrusion.

05 Software Engineering services
A steady focus on the development and improvement of computer programmes for design and analysis of towers makes us a premium software service provider in this niche area. Engineering software like iTOWERS TL, iTOWERS mw, iSWITCHYARD are globally recognised for the design of lattice towers within telecom and transmission structures and has a worldwide client base.

In a unique Public Private Partnership (PPP) between Department of Telecommunications (DoT), Pan India Telecom Service Providers and Ramboll in India, National Electro Magnetic Frequency (EMF) Portal brings together members of public, telecom service providers and DoT regulatory enforcement cells to create transparent and effective process to ensure regulatory compliance of EMF guidelines at tower sites.

06 Tower assessment service
Ramboll has delivered valued engineering service to utilise the existing towers optimally to peak the tenancy utilisation with or without strengthening towers. We have extensive experience in this area having successfully implemented such projects for major clients in India and abroad.

07 Tubular towers
Our team of experts at Ramboll have developed a Tubular profile tower, where the use of tower structural steel and foundation is relatively less than other tower configurations. Ramboll’s Tubular profile tower is eco-friendly as all the required resources are optimally utilised. We have deployed more than 100,000 tubular towers in India and have also catered to many other countries.
SMART SOLUTIONS

Ramboll offers customised solutions to clients depending on their requirement after assessing all the factors involved. Our Smart city solutions are designed to be futuristic to be able to cater to the needs of today and the future. These can further be upgraded with newer technology as they evolve.

World over, there is a significant effort to develop smart cities which will help create a sustainable and intelligent environment. Designing Ramboll’s smart city solutions have showcased our team’s capabilities from providing telecommunication infrastructure to offer much more than just that.

Ramboll is actively contributing to the Smart cities mission which is in line with the Indian Government’s broader agenda of Digital India. We are rapidly progressing towards this goal, with some municipal cities already being in the pole deployment stage. We are on our growth path and have some remarkable projects in the pipeline that will establish Ramboll in a big way in this area.

Ramboll’s smart city solutions have the potential to be fitted with numerous capabilities and functions depending on the client’s need. Our smart city solutions are flexible and can be upgraded or modified with new and evolving technology and devices.

Our multifunctional Smart city solutions can be integrated with:
• LED Lights
• Wi-Fi antennae, environmental sensors and emergency announcement system
• High Definition surveillance cameras
• Electrical Vehicle charging and mobile charging points
• IP rating 19” cabinet rack to support telecom equipment like battery bank, power bank, BTS (Base Transceiver Station), etc.
• Traffic Signal and Display screens
• Space to host multiple cellular technologies

SMART SOLUTIONS

World over, there is a significant effort to develop smart cities which will help create a sustainable and intelligent environment. Designing Ramboll’s smart city solutions have showcased our team’s capabilities from providing telecommunication infrastructure to offer much more than just that.

Ramboll is actively contributing to the Smart cities mission which is in line with the Indian Government’s broader agenda of Digital India. We are rapidly progressing towards this goal, with some municipal cities already being in the pole deployment stage. We are on our growth path and have some remarkable projects in the pipeline that will establish Ramboll in a big way in this area.

Ramboll’s smart city solutions have the potential to be fitted with numerous capabilities and functions depending on the client’s need. Our smart city solutions are flexible and can be upgraded or modified with new and evolving technology and devices.

Our multifunctional Smart city solutions can be integrated with:
• LED Lights
• Wi-Fi antennae, environmental sensors and emergency announcement system
• High Definition surveillance cameras
• Electrical Vehicle charging and mobile charging points
• IP rating 19” cabinet rack to support telecom equipment like battery bank, power bank, BTS (Base Transceiver Station), etc.
• Traffic Signal and Display screens
• Space to host multiple cellular technologies

Making Cities Smarter

Designing infrastructure that enhances life

Smart cities mission

Digital India initiative aims at providing universal access to mobile connectivity and internet to the farthest corners of India. The smart cities mission is in line with this vision and telecommunications is the backbone of anything that relates to smart technology and development.
THE RAMBOLL SMART CITY APPROACH
Ramboll is addressing the dynamic needs of smart cities with its new and optimised designs with minimal tower-footprint, camouflaging solutions and self-sufficient sites.

Assess overall strategic goals

Focus on challenges

Establish cross-organisational public partnerships

Co-create a list of initiatives

EVALUATE INITIATIVES
Select the most important Smart City initiatives and conduct feasibility studies

ENGAGE IN PARTNERSHIPS
Examine the possibilities for engaging in value creating partnerships with stakeholders from private sector and academia

PRIORITISE BENEFITS
Prioritise and select the Smart City initiatives with the largest socio-economic benefit

IDENTIFY POTENTIAL SOLUTIONS
Identify conceptual or technological solutions for the prioritised initiatives
GLOBAL EXPERTISE
Our experience in catering to projects globally helps us apply our global expertise to local challenges and offer holistic solutions. Our smart city solutions are of international standards and yet can be aesthetically tailored to suit local requirements.

8 SMART CITY SOLUTIONS
Ramboll’s structural designs of masts and towers are internationally recognised, we influence international codes & standards and are currently chairing the IASS Group (International Association for Shell and Spatial Structures) on Towers & Masts. Our poles are distinctly superior in design, detailing, quality and durability.

- Aesthetic appearance
- High-quality
- Optimised as per the project’s requirement
- Light-weight
- Easy to transport
- Easy and fast assembly
- Robust and durable
- Low-maintenance
- Simplistic

High Quality
Ramboll’s services reflect high quality standards and our experts follow a stringent process to test the same. The smart poles that are designed by Ramboll undergo a check for wind loads, drag coefficient, durability of the foundation and for optimum footprint size. All poles are galvanised to ensure durability.

Customised solutions
Our experts have designed our Smart city solutions to be sleek, multifunctional and simplistic. These designs are flexibly customised to be integrated with additional functionality as per the needs of the city.

Ramboll offers tailored solutions to clients depending on their requirement after assessing all the factors involved. Our Smart city solutions are designed to be futuristic to be able to cater to the needs of today and the future. These can further be upgraded with newer technology as they evolve.

Each city has its local flavour and cultural inclinations which determine its need. Ramboll’s smart city solutions are versatile and can be customised as per the needs of the city and its people.

PRODUCT INNOVATION
We look beyond today for solutions that are innovative and ahead of the future. We improve the physical environment, strengthen social cohesion and development and minimize the negative impacts and environmental degradation related to modern life.

PRODUCT INNOVATION
We look beyond today for solutions that are innovative and ahead of the future. We improve the physical environment, strengthen social cohesion and development and minimize the negative impacts and environmental degradation related to modern life.
ENABLING CITY LIFE IN A SMART WAY
OUR DESIGNS

Standing tall, our Smart city solutions are capable of powering cities with the functionality they need, to enable easy access to facilities for residents.
01 Smart pole 01
Fitted with a circular luminar lighting system and a hexagonal screen for commercial use, this design is a geometric treat.

02 Smart pole 02
This ancient design can be fitted with the most modern IoT equipment to power smart cities. They are designed to flexibly include or exclude features as per the needs of the city.

03 Smart pole 03
Ramboll's smart city solutions are designed to ensure that city residents feel more secure as the structure can be fitted with surveillance camera, emergency call box, public addressing system and other such functionalities.

04 Smart pole 04
This sleek design is ideal for city streets where space is limited. This pole can be fitted with multiple IoT based equipment to suit the needs of the city.

05 Smart pole 05
Ramboll's smart city solutions are designed to be environmentally friendly and can be powered by Solar or wind energy.

06 Smart pole 06
Our smart city solutions offer more than lightning up streets with additional services like cellular network access, Wi-fi, electrical vehicle charging and a range of other features.

07 Smart poles 07
Standing tall, these structures are capable of powering cities with the functionality they need, to enable easy access to facilities for residents.

08 Smart pole 08
Progressing towards a greener tomorrow, our smart city solutions have a provision for Electrical Vehicle (EV) charging enabling a pollution-free environment.
01 Water tank type design
This is a roof-top solution ideal for residential and commercial locations

02 Intricately designed
Our experts design structures intricately to blend in with the ethnic preferences of a city

03 Roof top solution
Smart city structures encased in tailor made designs to camouflage the equipment

04 Smart traffic signalling solutions
Traffic signals that are multi-functional and can be fitted with telecom cells

05 Sleek structural design
Aesthetically designed monopole

06 Smart bus station solutions
Equipment storage box camouflaged inside the bus station and there is a provision for solar panels