Ramboll is a leading engineering, design and consultancy company employing 15,000 experts. Our presence is global with a strong representation in the Nordics, UK, North America, Middle East and Asia-Pacific. We constantly strive to achieve inspiring and exacting solutions that make a genuine difference to our customers, end-users and society as a whole.

www.ramboll.com

MULTIDISCIPLINARY CONSULTANCY FOR AVIATION

BUILDINGS
Buildings form a fundamental part of our lives by shaping our communities and daily activities.

For these reasons, Ramboll’s design philosophy is to always make room for the human experience. As one of Europe’s top 3 buildings designers with decades of experience in the global market, we create visionary, sustainable, and award-winning buildings that improve life for users and enhance the surrounding landscape. Read more at www.ramboll.com/buildings

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. Read more at www.ramboll.com/transport

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. Read more at www.ramboll.com/environment-and-health

ENERGY
Security of power supplies, climate change, energy efficiency and resource scarcity are top priorities on the global agenda.

Ramboll is at the forefront of addressing these issues as the global market leader in offshore wind, waste-to-energy and district heating consulting and the leader in Scandinavia for large-scale thermal power consulting. We also have a specialist competence in designing power transmission masts and offshore wind met masts. Read more at www.ramboll.com/energy

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 benefit both industries and society. Read more at www.ramboll.com/water

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. Read more at www.ramboll.com/planning-and-urban-design

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 customers with expertise and powerful management tools. Read more at www.ramboll.com/management-consulting

AVIATION SERVICES
Ramboll offers holistic solutions to the aviation industry. From economic evaluations and masterplanning to the detailed design of terminals and pavements. Our services cover everything required to plan, design, implement and maintain aviation infrastructure and services.

Drawing of innovative roof design at Russia’s award-winning Pulkovo Airport.
Ramboll is a leading engineering, design & environmental consultancy at the forefront of innovation in the aviation industry.

Passion for design and clever engineering
Our passion for design and clever engineering drives creative, efficient, safe and sustainable construction. As a leading sustainable society consultant, we ensure our solutions successfully serve and connect societies, now and in the future.

World-wide experience and delivery
At airports large and small, we have worked in some of the world’s most demanding climates and constrained and complex operational environments. Our work at major airports includes Heathrow & Gatwick, US airports such as Washington DC & Los Angeles, and many others across the world from Russia to India, Africa to South America.

Significant aviation expertise
We have delivered 600+ aviation projects in over 45 countries encompassing 60 million m² of airside and landside development. This gives us an in depth understanding of airport processes, technology infrastructure and people. For example: New greenfield airports in India, the Philippines, Gabon and Uganda; Major city airports such as Heathrow, Copenhagen and Abu Dhabi; Remote regional airports in Greenland and Norway; Environmental consultancy for Gatwick, New Istanbul Airport and Charles de Gaulle Airports; Strategic advice for the New London Airport; Airspace management studies for the Single European Sky initiative; and In-house consultancy for all the maintenance, refurbishment and expansion needs of Copenhagen International Airport.

Since 1945 Ramboll has grown into a leading engineering, design & environmental consultancy serving airports worldwide. We understand the aviation industry. Our innovations and continual performance improvements enable us to deliver aviation projects to the required high standards of quality and safety while managing the critical risks of aviation investment.
Feasibility and masterplanning

Ramboll is well placed to advise clients on all aspects of the early planning stages of airport development. We have the in-house capability to undertake, either directly, or provide support for, masterplan development studies. Our full range of master-planning services includes: aviation traffic forecasts, site selection, obstacle limitations analysis, demand/capacity analysis, environmental and social impact assessments, airport layout planning, carbon impact and sustainability assessments.

We understand the need for a fully integrated approach that takes into account how aviation sits within a broader network of infrastructure provision. Landside, our transport and infrastructure teams enable the development of an integrated and coherent approach to a true transport interchange by advising on associated road and rail requirements.

Design and construction

From Heathrow to Copenhagen, Hyderabad to St Petersburg, we have engineered numerous new builds, expansion and refurbishments, often within constrained, live airport environments. Our multi-award-winning teams excel at delivering optimised terminal buildings and infrastructure from the layout and design of the building components to the use of materials and phasing of construction.

When it comes to airside infrastructure, we deliver high performance pavements for the most efficient delivery programme by taking a reasoned approach to phasing, composite materials use and future planning. We supply all the associated disciplines necessary, including: acoustics, lighting, facades, fire services, vertical & horizontal transportation, security planning, and airfield ground lighting. Clear communication both within the design team and amongst diverse stakeholder groups underpins our approach, ensuring effective integration across disciplines.
Our Services

Managing the design
Ramboll has successfully led the technical design of projects ranging from major £billion + infrastructure projects to the complex refurbishment and expansion of airport terminals in a live operating environment. To maximise benefit realisation on projects, we developed a common project management platform: ‘Project Excellence Lifecycle’ (PELC). This approach improves our ability to operate and satisfy customer needs by ensuring consistent and group-wide collaboration.

Operations and maintenance
Ramboll has a proven track record providing holistic operational and maintenance support to the aviation sector. We provide consultancy in change management and planning, environmental reporting and air traffic control and provide support to the long-term maintenance of key infrastructure. We are known for our numerous innovations in airside pavement engineering, ever advancing industry practise in the use of more elegant, less energy intensive solutions. Our research in this area has developed hand-in-hand with our work to develop AirPave, a cost saving pavement management system. The result is a fully integrated approach to safety and performance, one that supports clear asset management and long-term financial planning.

Environmental and social services
As a premier global consultancy, we are trusted by clients to manage their most challenging environmental, health and social issues. In response to the increasing complexity of critical environmental and human health issues, we have created a seamless worldwide network with more than 2,000 professionals to provide clients with strategic and technical support. We have earned a reputation for technical and scientific excellence, innovation and client service. Our independent science-first approach ensures that our strategic advice is objective and defensible. We apply integrated multi-disciplinary services and tailor each solution to our clients specific needs and challenges.

Energy sustainability
Low- or zero-carbon energy and sustainable design are the cornerstones of all Ramboll group-wide projects as we strive to become the leading sustainable society consultant globally. We have successfully integrated: combined heat & power; ground source heat; energy from waste; heat recovery from underground systems; energy storage; air source heat; photovoltaic; solar thermal and SolarWall® technology.

Technical services we provide from in-house resources include:

- Aviation market forecasting
- Airport Masterplanning
- Terminal, airside & transport planning
- Modeling & Simulation
- Business/economic planning
- Funding & project financing advising
- Civils, structures and building services (Vibrakes, Acoustics, Fire services, Vertical & Horizontal transportation)
- Airside pavement design (Airfield ground lighting, Navigation, Earthworks, Drainage, Galotechn, Utilities, Energy)
- Environmental & Social Impact Assessment
- Health Sciences
- Sustainability (Air Quality, Carbon management, Greenhouse gas emissions, Water and Soil contamination, BREEAM/LEED assessment)
- Design & Project Management (Site supervision, Commissioning & handover)
- Health & Safety

Stansted Airport
Over the past 15 years Ramboll has worked with Stansted Airport designing airside and landside infrastructure. We are currently working on airside and landside redevelopment to realise 25mppa capacity. Image: Pascall+Watson.
OUR APPROACH

REVOLUTIONISING AIRPORT DESIGN AND BUILD

Harnessing digital
Our rapid advances in computational design and continual innovations in utilising data, led to our development and roll-out of a suite of digital design tools for off-site manufacture, client early option analysis, building physics and compressing the design process. We are using digital design to help clients realise their dreams whilst managing risks. For car parks and new piers, ariside design or pier links, we can rapidly step through concept stage, speed up detailed design and improve buildability with system build and prefabrication.

Early proof of concept
Our bespoke digital tools enable clients to join us on the design journey. The tools demonstrate the robustness of the proposal in concept, price and programme earlier in the process. We collaborate with the architect to rapidly generate building options whilst simultaneously undertaking early engineering analysis to evolve them. Through our industry leading dynamic dashboards, clients are empowered to make informed value decisions about where to invest and where to save.

Offsite construction
Ramboll is a leader in offsite manufacture using a range of materials. Infrastructure and new terminal buildings can be built as regular modular system or could be approached as a ‘big box’ with smaller components within. We have applied offsite construction to airports for unlocking highly constrained sites. At Arlanda Airport, Stockholm we achieved operational, cost and programme benefits by using offsite manufacture and modular construction extensively in our design for a new pier. Benefits include: Shorter construction programmes; Reduced costs; Higher and more consistent quality of finishes; Reduced headcounts onsite with improved health and safety; and Reduced noise in live operational environments.

Improved liveability
We are committed to end-user well-being. Research from Ramboll’s Liveable Cities Lab informs how we approach design as sustainable society consultants. Our specialists are achieving the WELL Accredited Professional (WELL AP) credential, which signifies advanced knowledge and specialisation in the WELL Building Standard.

Digital Design for Lima Airport
Repetition of modules for a complex roof shape. Our digital design tools maximise value through optimisation, taking our clients and their projects further, faster. Image: Ramboll.
DESIGN IS NOT ONLY WHAT IT LOOKS AND FEELS LIKE, DESIGN IS HOW IT WORKS

We understand the aviation industry; its challenges and drivers. We ensure projects are delivered to the highest standards of quality and safety while managing the critical risks of aviation investment. From economic evaluations and masterplanning to the detailed design of terminals and pavements, our portfolio includes projects to plan, design, implement and maintain aviation infrastructure and services. Our projects cover four key areas:

• Masterplanning
• Terminals and airport structures
• Airside
• Environmental & social consultancy
Airport operator Swedavia has entered into a contract with Nordic Architects and Ramboll to help realise its vision and a strategy. To meet future market demands, especially in the long-haul market, the airport’s masterplan for all airside, landside and terminal facilities will be revised. Image: Nordic — Office of Architecture.
KABALE INTERNATIONAL AIRPORT, UGANDA

Following the discovery of oil and gas deposits near Lake Albert in Western Uganda, a new greenfield Airport was proposed to serve cargo aircraft in the initial phases and later passenger traffic. The Uganda Civil Aviation Authority commissioned Ramboll to conduct the Environmental and Social Impact Assessment (ESIA) and to provide masterplanning and detailed design support for the entire airport’s construction and operation, including runway, taxiways, apron, cargo facilities, ATC tower, landside roads and staff housing. This included designs for earthworks, drainage, geometry, pavements, AGL, building design etc. Furthermore, Ramboll made recommendations for fast track procurement approaches. Image: Ramboll.

ARLANDA AIRPORT, STOCKHOLM

In 2017 passenger numbers at Stockholm Arlanda reached a record high for the seventh consecutive year with 26.6 million passengers. It is one of Scandinavia’s leading airports and as many as 40 million passengers per year are forecast by 2040. To meet future demand, airport operator Swedavia has decided to review and possibly revise its masterplan for all airside, landside and terminal facilities. Together with Nordic Architects, Ramboll is assisting to provide overall strategic airport planning expertise as well as architectural and engineering services. Image: Nordic — Office of Architecture.

NEW LONDON AIRPORT, UK

Transport for London commissioned several studies to provide a solid input and contribution to the so called Davis Commission which will finally advise the British Government about the preferred solution and location of the required future London airport capacity. Ramboll was in 2013 assigned to several teams involved in the comprehensive project work including different feasibility studies, market studies, and transport studies. One of the options is a completely new mega airport located on a reclaimed island in the Thames estuary. Image: Gensler.

NEFAB - SINGLE EUROPEAN SKY

Ramboll is advising pan-European government bodies on the implementation of a Single European Sky to improve flight efficiency and cut CO2 emissions. In 2009 Ramboll was commissioned to produce a socioeconomic analysis of a proposed functional airspace block (FAB) uniting Denmark and Sweden. Our contribution influenced the subsequent political agreement to merge air traffic control organisations in the two countries. In 2010 we carried out a further study. This project (known as NEFAB) would see the entire Nordic and Baltic region united under a single sky, reducing aviation-related CO2 emissions across the region. Image: Ramboll.

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MASTERPLANNING AIRPORT PROJECTS

EXAMPLE ROUTE

Comprehensive functional airspace block
avoids restricted airspace

Restricted airspace

Direct route (as defined under the SES protocol)

Carried traffic

FAB (Functional Airspace Block) for Denmark & Sweden agreed & due for implementation by 2012

FAB (Functional Airspace Block) for Norway, Finland, Estonia & Latvia. Political discussion underway

SES aims to optimise flight patterns across the EU area and will give users safety, capacity and cost savings for all users

Single European Sky Area (SES)
COPENHAGEN INTERNATIONAL AIRPORT, DENMARK
Since 1992 Ramboll has served as in-house consultant for the airport’s maintenance, refurbishment and expansion needs. Our long-term alliance with this operator has provided fruitful opportunities to collaborate in innovative approaches to airport maintenance and design. For example, we developed the industry-leading airport pavement management system ‘Airpave’ in partnership with Copenhagen airport. Image courtesy of CPH.

LIBREVILLE INTERNATIONAL AIRPORT, GABON
Ramboll delivered the concept design for the new International Airport in Gabon’s capital Libreville and procurement services. Part of the project included the review, updating and value engineering of an earlier masterplan achieving substantial cost savings for the client. Forming part of the Republic of Gabon’s significant investment into its infrastructure, the airport will become an essential part of the development of the Special Economic Zone. These new and modernized links will help the region secure regional integration, increased trade and economic growth by connecting Africa’s economic capitals to one another, and to the rest of the world. Image: Architect MM Concept.

MANILA INTERNATIONAL, PHILIPPINES
The pre-feasibility study for the proposed ‘Gateway Asia 2030’ development at Ninoy Aquino International Airport was provided by Ramboll in partnership with Copenhagen Airports and Hamburg Port Consultants. Envisaged as the new gateway to Manila and the Philippines, the study was for a combined new Sangley Airport and Seaport project. The scope included all supporting traffic infrastructure and the urban development on the old airport island. We provided draft airport layouts and a draft business plan for a new gateway airport that could bring the Philippines to the forefront of development in South East Asia. Image: Ramboll.

RAJIV GANDHI INTERNATIONAL AIRPORT (RGIA), INDIA
In the tenth year of its operation, RGIA at Hyderabad has ambitious plans to emerge as the preferred hub airport for the entire south of India. Having designed RGIA as the country’s first greenfield airport under the public-private partnership model, Ramboll is currently providing design consultancy services for the realization of 32 new remote aircraft stands and the conversion of 18 existing remote stands into contract stands along the expanding terminal building. The works will also include seven overnight parking stands, six new apron taxiways, a parallel taxiway to the runway, four new rapid exit taxiways, and expanded GSE areas and service roads. Image: iStock.
TERMNASL
AND AIRPORT
STRUCTURES

Ramboll has won numerous awards for design innovation and excellence. We help architects realise their visions, whilst challenging assumptions to create more practical, sustainable and economic designs. Our portfolio includes all types of airport buildings: large and small, new build and existing expansion, passenger terminals and air traffic control towers, cargo facilities and multi-storey car parks.

PULKOVO AIRPORT
St. Petersburg rivals the best of airport terminals in terms of energy efficiency: a bespoke BREEAM assessment tool was developed to ensure that an inherent sustainable design ethos was applied to the project. Energy saving techniques including heat recovery and daylighting, digital lighting controls are examples of some of the many carbon reduction measures incorporated into the building. Image: Pascall+Watson
GATWICK NORTH TERMINAL, UK

Gatwick Airport is undergoing the biggest transformation in its history and we were appointed by Pascall+Watson architects to provide full multidisciplinary engineering consultancy services on the reconfiguration and refurbishment of the existing North Terminal building. One of a number of projects undertaken by Ramboll at Gatwick Airport. One of the key features of the project was a proposed five storey extension to revolutionise the shopping and eating experience at the airport. We proposed a detailed phasing strategy to provide temporary access routes for arrivals during construction. Additionally, we carried out an extensive feasibility and options study on the proposed relocation of the Level 20 check-in desks to Level 10, and created 3D BIM models to review potential clashes between new baggage routes and existing structures and services. Image: Pascall+Watson.

ARLANDA AIRPORT, STOCKHOLM

As part of Swedavia’s T2050 plan to develop the whole airport and prepare for an increase in passengers from 25 million to 40 million by 2040, a new pier in Terminal 5 was commissioned. Ramboll was employed as structural, mechanical and electrical engineering consultants through the Swedavia consultants’ framework to work with Nordic Office of Architecture on the new pier. This new pier is designed to handle the increased demand for more intercontinental routes and more passengers as well as larger aircraft models, for instance the Airbus A380. The pier includes an early baggage store in the basement, baggage handling system at ground floor level, while seven gates to service departures and arrivals for both Schengen and Non-Schengen destinations on floors three to five. Image: Nordic Architecture.

LUTON AIRPORT, UK

Ambitious plans for an expansion of London Luton Airport form part of a commitment to double passenger numbers over the next 10 years. We were appointed to provide a full multidisciplinary engineering service on the transformation of the airport terminal, which was remodelled and modernised. Our designs provided sustainable, economic solutions to extend and alter the existing buildings within a live airport environment. Transport links, infrastructure accessibility as well as a new parallel taxiway and work to the aprons were included in the project. Image courtesy of Luton Airport.

JERSEY AIRPORT, UK

Redevelopment plans include Ramboll in the role of engineering project manager along with architects and masterplanners, Chapman Taylor. The first stage of the works project for the new proposed Jersey airport building will see the construction of four new departure gates in the existing passenger pier. Subject to planning approvals, the major works programme will create an integrated arrivals and departures terminal. Ramboll has provided procurement support and engineering services for States of Jersey Government for several years including the Jersey airports cargo centre relocation. Image courtesy of Ports of Jersey.
JORGE CHAVEZ AIRPORT, PERU
Ramboll was an intrinsic part of a highly experienced team commissioned to design and engineer the expansion of Peru’s main airport in Lima. This included the refurbishment of the existing passenger terminal, development of a new 140,000sqm midfield terminal and associated ATC tower and Fire Station. The contract was awarded to Arcadis, with Ramboll, Grimshaw and Aertec acting as sub-consultants. We provided full multidisciplinary concept design including structural, services, façade, civil, fire, vertical transportation and acoustics engineering. Image: Lima Airport Partners.

HEATHROW AIRPORT, UK
Since the 1990s we have been involved with multiple projects supporting Heathrow Airport. Projects have included the Terminal 2 Airside and landside extension, the scheme design for Terminal 2B, integrating the new light rail passenger transport system and new baggage handling networks into the design. We are also responsible for the award-winning M25 J12-15 widening and T5 spur road that completed 3 weeks early and was praised as an exemplary delivery at the Highways Agency Major Projects. Image: BAA.

PULKOVO AIRPORT, RUSSIA
The ambitious expansion at Pulkovo set out to more than double passenger capacity. As lead design consultant our work spanned Terminal, Airside and Landside Facilities - all constructed in temperatures ranging from -36°C to 30°C. Our services included; structural, civil, MEP, façade, geotechnical, acoustics, fire and safety, sustainability, environmental and project management. Of note was the award winning long span roof where our optimised design resulted in a big reduction in steel tonnage and major cost savings, and the bespoke BREEAM assessment tool developed to ensure a sustainable design ethos was applied to the project. Image: Grimshaw.

STANSTED AIRPORT, UK
Since 2001, Ramboll has worked with Stansted Airport designing airside and landside infrastructure. Our current work includes the Stansted Transformation Project developing the airside and landside to realise 35mppa capacity. We’ve also recently designed the reconfiguration of the passenger set down and parking facilities. Our involvement in the reconfiguration from concept through to construction design incorporated a dynamic signage strategy, which was designed alongside the access controls to the forecourt, controlling the flow of vehicles. Image: Pascall+Watson.

TERMINALS AND AIRPORT STRUCTURES
AIRSIDE PROJECTS

From designing stand and runway layouts to refurbishment and maintenance, we bring innovation to airside design. Our approach to runway refurbishment ensures high performance while reducing long term maintenance costs for the operator. For example, our pavement maintenance programme AirPave can deliver 30% savings in pavement maintenance.

GIBRALTAR AIRPORT
Winston Churchill Avenue is the only road linking Gibraltar to mainland Spain, and the Gibraltar Airport runway was built across it in 1941. Ramboll has worked on several projects including the passenger air terminal development and runway refurbishment. We are currently working on a new scheme to carry road traffic under the airport runway.

Photo: RAF Command Photographer
ABU DHABI, UNITED ARAB EMIRATES
During the airport’s major programme of expansion, Ramboll has been involved with several design projects aimed at rapidly providing additional capacity. These include: the taxiways pavement design, a relocation of the aircraft stands, and the airfield ground lighting (AGL) design for the Midfield Airside Road Tunnel construction phase 2 that connects two existing terminals. The most recent project is the design and construction management of nine new hard stands including: design of pavements, AGL, fuel hydrant system, surface drainage, service roads and structures. Image: Abu Dhabi Airports Company.

AKROTIRI, CYPRUS
The whole airfield at RAF Akrotiri was refurbished to accommodate the RAF’s new Voyager fleet. Ramboll was appointed by Defence Infrastructure Organisation (DIO) to make technical and financial assessment of refurbishment options of the airfield pavement and airfield ground lighting (AGL) systems to military design standards. Ramboll developed the scheme design, tender documents and requirements for completion of the detailed design. Photo: © RAF Command Photographer, courtesy of DIO.

BRUNEI INTERNATIONAL AIRPORT, BRUNEI
Due to aging infrastructure and projected traffic growth, the existing Brunei International Airport requires substantial refurbishment and upgrade of airside infrastructure. We worked closely with the client to provide technical engineering services for the pavement rehabilitation for the single runway, two parallel taxiways and various aprons (passenger, cargo and military). Image: JetPhotos BAF07.

AIRSIDE PROJECTS

AIRPAVE IMPLEMENTATION, WORLDWIDE
AirPave Management is a pavement management system for airport pavements, which integrates management of pavements with a geographical information system interface. Developed in cooperation with Copenhagen International Airport in 1997, the system has since undergone several updates and comprises: inventories, conditions, traffic loads, maintenance works, M&R catalogue strategies, deterioration models estimating future pavement conditions, and the recommendation of an appropriate repair programme that ensures maintenance work is never over-engineered. By implementing AirPave, Sydney International Airport saved an estimated 30% on its yearly maintenance budget. AirPave is also used by other airports worldwide including: Muscat and Salalah, Vienna, Lisbon, Newcastle, Domodedovo, Athens. Image credit: Ramboll.
DUBROVNIK INTERNATIONAL AIRPORT, CROATIA
We provided a comprehensive range of services across the project cycle for the expansion programme at Dubrovnik Airport to support the client’s decision-making and ensure that the project objectives were met. Our contract involved a feasibility study including interface with key stakeholders, land purchase, relocation of equipment and construction preparation works, airside improvement works including a new firefighting station and fuel farm, as well as extension of the terminal including air bridges, new administration, catering and cargo buildings. Image: Ramboll.

DUBLIN AIRPORT, IRELAND
We developed a masterplan to accommodate a variety of differing future expansion scenarios in relatively modest incremental stages. The programme included a new runway and refurbishment of the existing runway and three taxiways. As logistics of major refurbishment are complex, particularly within a live airport environment, we proposed a minimised refurbishment until work on the new runway was completed. Our design offered a reduced design lifetime from 20 to 8 years without compromising safety or air traffic capacity. This innovative approach ensured high performance while reducing long term maintenance costs for the operator. Image: Dublin Airport Authority.

GIBRALTAR AIRPORT
Ramboll has been established in Gibraltar since 1998, providing a full range of services at the airport. Projects include the Airport passenger terminal and the design of a 2.3km dual carriage way road and tunnel around the airfield involving the relocation of over 100 facilities. In 2016 Ramboll designed and successfully managed the resurfacing of Gibraltar Airport’s runway, completing the project two weeks ahead of schedule. Image: Ramboll.

JORGE CHAVEZ AIRPORT, PERU
To accommodate growth in Peru’s national and international markets, expansion works will increase passenger capacity to almost 40 million passengers per year and cover an area close to 7 million sqm. Ramboll supplied the concept design for the airside works, including full pavement design, geotechnical and 3D vertical design for a new second runway, taxiways, and aprons and stands to serve the new terminal – over 1.5 million sqm of paved area. Technical challenges included designing in a highly active earthquake zone. Image: Grimshaw Architects.
ENVIROMENTAL & SOCIAL CONSULTANCY PROJECTS

Our environment and health scientists and engineers have strong experience in the aviation and infrastructure development sectors preparing reports that are streamlined, proportionate and suitable for use. Acting as environmental and social consultants, we manage and execute not only major Environmental and Social Impact Assessments (ESIAs), but other related projects and studies, such as Strategic Environmental Assessments and ESIA reviews on behalf of international financial institutions.
MAURITIUS AIRPORT EXTENSION, MAURITIUS
Ramboll was commissioned to conduct an environmental impact assessment (EIA) for the Expansion of Sir Seewoosagur Ramgoolam International Airport. Key issues for the EIA included: Interaction with sensitive environments such as wetlands/mangrove areas and a designated marine conservation zone; Increased noise and air emissions; Waste and wastewater management; Indirect impacts from car traffic growth. Image: Airport Terminal Operations Ltd.

BREEAM AIRPORT TERMINAL
CODE DEVELOPMENT
A series of workshops facilitated by Ramboll’s sustainability consultants refined collective thinking on sustainability in terminal design in collaboration with former British Airports Authority (BAA) and BRE Global, the internationally recognised developer of sustainability standards. Following the workshops the scheme design for BAA’s Terminal T2A replacement at Heathrow was updated. A biomass boiler, photovoltaics and CHP had already been incorporated into the design of the new terminal, and the team added water efficient fittings and leak detection systems to improve T2A’s sustainability performance. Image: photolibrary.heathrow.com.

JOHN WAYNE AIRPORT, USA
Ramboll assisted John Wayne Airport with air quality and greenhouse gas (GHG) evaluations for an environmental impact report (EIR) and the development of mitigation measures. This involved an airport emissions inventory for all sources related to airport operations. In a separate project, we assisted John Wayne Airport in coordinating with SCAQMD to ensure that the air quality management plan (AQMP) will properly reflect airport emissions. Image: iStock.

LONDON CITY AIRPORT, UK
Ramboll was retained to conduct an environmental due diligence review as part of the divestment of London City Airport. This involved both a detailed documentation review and site visit to identify actual and potential environmental, health and safety liabilities associated with the airport that could be relevant to the sale of the business. Prior to the due diligence review, Ramboll completed an environmental compliance and good practice review of the airport. Image: iStock.

ENVIRONMENTAL & SOCIAL CONSULTANCY PROJECTS
NEW BUGESERA INTERNATIONAL AIRPORT, RWANDA
The New Bugesera International Airport development on a greenfield site, some 25km south of Kigali, will replace the existing Kigali International Airport, which will remain operational for military purposes. We conducted an Environmental and Social Impact Assessment (ESIA) in compliance with Rwanda Regulations and International Finance Corporation (IFC) Performance Standards. The full range of physical and biological environment baselines, socioeconomic baselines and impact assessments were undertaken. Proximity to biodiverse wetlands, and resettlement were key issues. Ramboll also prepared the Environmental and Social Management Plans on behalf of the developer.

LOS ANGELES, USA
The American Airlines Los Angeles airport station appointed Ramboll to assist with air quality compliance. The project included the assessment of the site’s performance relating to its Title V permit requirements, and reporting of air emissions containing nitrogen oxides (NOx) and volatile organic compounds (VOC). We audited VOC material usage in spray booths and abrasive blasting systems including the compliance status of each of the hundreds of substances used at the station. Compliance was achieved to South Coast Air Quality Management District (SCAQMD) Regional Clean Air Incentive Markets (RECLAIM) standards. Image: iStock.

AIR QUALITY MODELLING, WORLDWIDE
Ramboll is currently providing strategic and technical support to Aéroports de Paris concerning air quality modelling and mapping. The project includes an international review of the air quality modelling systems implemented on other airport platforms, and technical assistance for emission calculation and dispersion modelling at the Charles De Gaulle Airport. We also conducted air quality impact assessment of The Istanbul New Airport project including: emission inventory, dispersion modelling, baseline assessment and compliance with IFC/WHO international standards. Image: iStock.

ISTANBUL NEW AIRPORT, TURKEY
The Istanbul New Airport Project is the largest airport development in the world. It is being constructed on 75km² site that varies from -37m to +200m above sea level. Ramboll was commissioned to undertake an ESIA for the development. The assignment included a large stakeholder engagement and biodiversity baseline assessment requirement, particularly focusing on wintering and migratory birds, endemic plant species, invertebrates, reptiles and large mammals, as well as noise, air quality, landscape and visual, and water resources assessments. An Environmental and Social Management and Monitoring Plan was also developed. Image: Nordic - Office of Architecture.

ENVIRONMENTAL & SOCIAL CONSULTANCY PROJECTS >
AN ECLECTIC PORTFOLIO
Supporting the world’s largest telescope. Conceiving the world’s longest road/rail tunnel. Driving low carbon heating. Designing the world’s first tilting bridge. Pioneering the use of cross laminated timber. Championing the world’s first tidal powered moon clock.

Our distinctive approach has seen us nurture and build a truly diverse, unique, world-class and award-winning portfolio, from the World Architecture Festival, to the People’s Choice Stirling Prize and the British Construction Industry Awards. Our portfolio is testament to the diversity and mix of skills and experiences of our people. More at www.ramboll.com/aviation

GET IN TOUCH
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SELECTION AIRPORTS WE HAVE WORKED WITH:
ABU DHABI BAHRAIN BANGALORE BARCELONA BRATISLAVA COPENHAGEN DELHI DUBLIN DUBROVNIK EDINBURGH GATWICK GLASGOW HEATHROW HYDERABAD ISTANBUL NEW KARASNOODAR KUALA LUMPUR LIMA LISBON LUTON MADRID MOSCOW NAIRI PULIKOVO RIO DE JANEIRO STANSTED STOCKHOLM SYDNEY VIENNA

WE HAVE COMPLETED AVIATION PROJECTS IN THE FOLLOWING COUNTRIES:
ALGERIA AUSTRALIA BAHRAIN BANGLADESH BANGALORE BRAZIL BRUNEI BULGARIA CYPRUS CYPRUS DENMARK ESTONIA FAROE ISLAND FINLAND FRANCE GABON GHANA GIBRALTAR GREENLAND GUYANA ICELAND INDIA IRELAND KENYA LATVIA LITHUANIA MALAYSIA MALDIVES MOLDOVA MOZAMBIQUE NAMIBIA NORWAY PERU PHILIPPINES REGION THAILAND TURKEY UGANDA UAE UK USA ZAMBIA