SPORTS & LEISURE CENTRE BUILDINGS
CAPABILITY STATEMENT
WWW.RAMBOLL.CO.UK
OUR CLIENTS

In Buildings, our goal is to create client partnerships on every project we undertake.

Our clients want innovative design solutions, and we strive to pull the best of ourselves into every single project. This requires specialised competencies and unique skill sets. We foster these by facilitating multiple strong professional environments.

HOW WE WORK

We take a fully integrated multidisciplinary approach to our work. Specialised teams are assembled from across the entire Ramboll group on a project-by-project basis.

We have a genuine passion for engineering, and we apply the same rigour and enthusiasm to every project no matter the size.

Designing hundreds of buildings every year, Ramboll has a rich heritage in realising many landmark schemes.

Our passion for design and creativity has led us to work with an array of world leading architects and clients to realise the ambitions for their projects. As a result we are a leading global engineering and consultancy company.

Our unwavering commitment to design is married with a deep appreciation of a building’s function, buildability and adaptability. Whether it’s designing and engineering world class residential developments, sensitively modernising A grade commercial premises, or restoring priceless heritage assets, we have a great imagination for the future and a deep rooted sense of responsibility for the past.

Our Nordic heritage and founding principles underpin how we operate; we strive to create sustainable solutions where people and nature flourish.

Our deeply ethical standpoint ensures we consider the impact on the local environment, in a societal, cultural and sustainable context. Furthermore our Liveable Cities Lab in Copenhagen is spearheading research into improving liveability, providing further insight for our progressive solutions.

We pride ourselves in understanding a brief, so that what gets designed and built achieves a client’s aims. We believe the best outcomes are achieved when we challenge and are challenged, the winner is always the project, and is why we champion open and collaborative dialogue.

10 MILLION M²
Area of building Ramboll designs for 10,000 projects annually

01 Hastings Pier Conservation
2017 RIBA Stirling Prize winner, the much loved Victorian pleasure pier at Hastings has risen like a phoenix following decades of abuse. Image: Daniel Shearing

02 British Antarctic Survey
Appointed by NERC as Technical Advisors Ramboll is providing specialist engineering and consultancy services for seven years. Image: British Antarctic Survey

03 Tate Modern
Ramboll developed the engineering design of this landmark extension to accommodate the building’s structural specifications and realise the architect’s visions. Image: Daniel Shearing.

04 Queensferry Crossing
The Queensferry Crossing sits within a beautiful bridge-scape representing three centuries of bridge innovation. It is the UK’s tallest bridge and the world’s longest three-tower, cable-stayed bridge. Image: Transport Scotland / Graeme Peacock
ABOUT RAMBOLL
Ramboll is a leading engineering, design and consultancy company founded in Denmark in 1945. The company employs 13,000 across 300 offices in 35 countries with experts in the Nordics, North America, the UK, Continental Europe, Middle East and India, supplemented by a significant representation in Asia, Australia, South America and Sub-Saharan Africa.

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SPORTS AND LEISURE CENTRE BUILDINGS

Innovative design delivers more than a venue

The design of sport and leisure venues has changed significantly over recent years. With a growing need to maximise revenue venues require flexibility to host a varying cross section of events in addition to their primary use. Sports halls and are often multi-use with conferences, exhibitions and events regularly taking place.

The requirements of the end users have increased and consumers are demanding a more premium experience. Competition in the leisure market has increased significantly. The quality of sports venues has improved considerably to meet these increased demands of the consumer.

Sport and leisure venues can often be the catalyst for wider urban regeneration and hence need to be iconic or gateway to a wider development.

Ramboll has experience that encompasses major sports and leisure centres and training facilities. Our continuing experience in the design and development of these venues allow us keep up to date with changing client, user and society requirements.

The need for innovative designs that deliver solutions in this fast changing market is stronger than ever. We make this possible at Ramboll because our engineers and designers are committed to creating sustainable and long-term solutions for our customers and society making Ramboll a winning partner.

SPORTS & LEISURE CENTRE BUILDINGS

01 Haven Point Leisure Centre, South Shields
State-of-the-art leisure facility boasting 25 metre competition pool, 18 metre teaching pool and leisure waters with slide, sprays, bubble spa and water play.

02 Oldham Leisure Centre
Providing facilities for the local community including indoor bowls facility.

03 Knowsley Leisure Centre
Full competition pool with spectator facilities.

04 & 05 Sutcliffe Park Multi Sports Centre, Greenwich
Broadening the options for the end user are becoming wider with a range of activities being available such as skate parks & climbing halls.

06 Hengrove Park Leisure Centre, Bristol
Flexibility and increased revenue is provided with the moveable floor and rising booms allowing simultaneous multi activities.

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In addition to our core services we offer specialist expertise enhancing our offer in the sport and leisure market.

**Our Services**

**Core Services**
- Acoustics
- Building Services
- Digital Design
- Electrical Engineering
- Environmental Impact Assessment
- Facade Engineering
- Fire & Safety
- Ground Engineering
- Lighting Design
- Mechanical Engineering
- Refurbishment
- Structural Engineering
- Survey
- Sustainability Services
- Technical Due Diligence

**Pool Design**

Water resistance is typically achieved through the design of the reinforced concrete to control crack widths and in some cases with a waterproofing concrete additive. Where pools partially sit below the water table, they are also vulnerable to water ingress from outside. The use of a waterproofing concrete additive can remove the problem of back pressure on the tiles. By using the additive it is possible for the contractor to increase the size of the concrete pours which may have programme benefits.

The reinforced concrete 50m pool tank at Hengrove Park was designed to meet ASA / FINA competition standards for tank length and was designed to be water retaining using small diameter reinforcement at close centres, designed to limit crack widths. Achieving a water-tight pool tank was emphasised to the contractor and the concrete sub-contractor by site briefings. An in-situ test on site to test water-tightness is always recommended before the finishes are applied so that any remedial works can be carried out. The tests apply to the pools, the balance tanks and the backwash tank.

**Geotechnical and Foundation Design**

Having a high water level can present a major uplift pressure on the base of a pool and balance tanks especially when empty. This needs to be taken into account both locally such as in the design of the pool bases and globally in considering flotation of parts of the structure during construction and in the permanent case. High water levels also impose uplift pressures on drainage and attenuation systems. The choice of foundation solutions can also be driven by the presence of high water levels due to the potential flow of water into excavations. This is not only a buildability issue but can cause significant health and safety issues for workers in and around the excavations.

On the Formby Pool project completed by Ramboll sheet piles were installed to allow for dewatering of the site in the location of the pool and basements. Sheet piles were used in conjunction with ‘helical’ piles that were installed prior to excavating to formation level. Once at formation level the slab spans between the piles limiting further excavation for pile caps. The pool structures and the basement were designed to resist uplift in the construction case and to resist uplift in the permanent case in the pool tank when it is emptied.

**Vibration Engineering**

We offer a full vibration engineering service, from undertaking surveys for site selection to designing ultra-low vibration facilities.

We have in-house capability to conduct a range of vibration surveys with our own high-specification, regularly calibrated equipment that allows us to measure extremely low levels of vibration.

We work collaboratively with the whole team to ensure that the vibration strategy is considered holistically within the design, to achieve the full range of complex technical criteria.

**Acoustics**

Using our expertise in acoustic design, we have extensive experience of acoustic design to achieve a balance between quiet spaces and space with more interaction and collaboration between users.

We are pioneers in acoustic modelling and encourage clients to listen to aural demonstrations to experience their project during the design process.

**Fire Engineering**

Our team of fire engineering experts provides wide range of services from strategic fire engineering work to fire system design.

We take a scientific approach that uses the statistics of real fires, calculation tools and studies of human behaviour. Our designs provide value by applying an engineered approach to eliminate over-specification caused by conservative codes, allowing the fire protection to be deployed in the most critical locations.

Our team stays with the project throughout construction to ensure the strategy remains appropriate and is implemented correctly, and to provide on-going specification and construction advice.

**Environmental Engineering**

We deliver site-specific environmental solutions that address all aspects of the remediation process—from site investigation and feasibility studies to risk assessment, remedy selection, remedial design and construction management to site reuse.

We develop cost-effective, risk-based approaches to the evaluation, remediation and redevelopment of landfills and former industrial or hazardous waste facilities to return the land to productive use.

At the forefront of green and sustainable remediation, our innovative thinking and turnkey solutions have been applied successfully to thousands of industrial, mining, development and hazardous waste sites around the world. We have established an unsurpassed reputation with both public- and private-sector clients and regulators around the world for achieving cost-effective site closure.
FEATURE PROJECT
SUTCLIFFE PARK MULTI SPORTS CENTRE

Olympic and Paralympic legacy project responding to growing interest in athletics with additional teaching space for local community schools

Built as a commitment by the Royal Borough of Greenwich as part of its Olympic and Paralympic legacy all activities at the new centre are available to people with disabilities. The centre includes a 60m sprint track, long jump, triple jump, high jump and indoor throwing cage. The centre also incorporates a ‘clip and climb’ climbing hall, a BMX and skate park, classrooms for school use and an outdoor covered learning area linking to the park nature reserve.

The Ramboll design incorporates long span steel cell beams spanning up to 25m to provide large columns free space for the BMX/skate park, climbing hall and athletics area. Ramboll worked closely with the architect and building services contractor to coordinate all building services within the main spaces to ensure all services were maintained within the depth of the steel beams.

The approved scheme at planning stage included large areas of masonry facade. During detailed design this was changed from traditional cavity masonry to an insulated panel with brick slips on a lightweight frame. Ramboll worked closely with Buckingham Group driven by a strong health and safety culture from both companies and developed a shallower foundation solution, possible because of the lighter cladding system, which reduced the depth of excavation on a site with a very high water table.

The project was handed over to the Royal Borough of Greenwich and their operator Greenwich Leisure Limited ahead of programme in September 2017.

Built as a commitment by the Royal Borough of Greenwich as part of its Olympic and Paralympic legacy all activities at the new centre are available to people with disabilities. The centre includes a 60m sprint track, long jump, triple jump, high jump and indoor throwing cage. The centre also incorporates a ‘clip and climb’ climbing hall, a BMX and skate park, classrooms for school use and an outdoor covered learning area linking to the park nature reserve.

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PROJECT DETAILS
Customer
Buckingham Group Contracting Ltd
Architect
HTP Architecture
Location
London
Value
Confidential
Project Countries
United Kingdom
Period
2016 to 2017
Services Provided
Structural engineering
**FEATURE PROJECT**

**BRISTOL CITY FOOTBALL CLUB TRAINING GROUND**

New first class football training facility for Bristol City Football Club including an elite training pavilion for First XI & U23 teams

Bristol City Football Club have submitted formal planning permission for new training facilities at its Failand base. The state-of-the-art site will bring together the club’s First Team and Academy players and staff, further enhancing City’s player pathway programme.

Included in the new-look facility is a 500-seat floodlit show pitch, capable of hosting the club’s Under-23 matches, along with two other new full-size pitches and two more training areas. Ramboll are providing multi-disciplinary services and working with the club and KKA Architecture to design a building that complements the surroundings, encompassing a gymnasium, changing rooms, medical and rehabilitation facilities and office space for the first team and Academy staff.

**An Elite Performance Environment**

The training pavilion provides open plan column free spaces to create flexible space that brings the training facilities into the 21st century and will provide the football club’s Academy and first team with an elite performance environment. The new building is to be naturally ventilated where feasible with areas such as the main dining hall having natural cross ventilation with the option of openable sliding doors leading out on to the viewing terrace.

**Sensitive to the Rural Setting**

The design seeks to deliver a solution that has a sporting character, provides a forward-thinking image for the football club and is sensitive to the rural context and setting. The facility has a low profile and the lower levels are concealed through the manipulation of site levels and landscaped embankments.

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**PROJECT DETAILS**

- **Customer**: Bristol City Football Club
- **Architect**: KKA Architecture
- **Location**: Bristol
- **Value**: £10m
- **Project Countries**: United Kingdom
- **Period**: 2017 to 2018
- **Services Provided**: Building services and structural engineering
£35m PFI project for Bristol City Council and Parkwood Leisure includes a 10 lane 50m international standard swimming pool, a 20m teaching pool, sports hall, a dedicated spin studio, climbing wall, a 150-station fitness gym, two group exercise studios, a healthy living centre, café and crèche. The centre has full disabled access, free car parking for up to 321 cars, 12 of which are parent and child and 60 covered cycle racks.

Optimising Revenue
The Ramboll designed swimming pools maximise revenue for the client by allowing multiple swimming activities to take place at the same time. The moveable floor and rising booms change the size and depth of the pools to allow activities such as swimming competitions and mother and baby classes to run simultaneously.

Competition Standard Pool
The reinforced concrete pool tank is designed to meet ASA / FINA competition standards for tank length. The contractor was briefed on the importance of achieving this tolerance and on checking the pool length at each stage of construction. The pool is designed to be water-retaining using small diameter reinforcement at close centres, designed to limit crack widths. No water-proofing admixtures or tanking membranes are used in the tank construction – this realised significant cost savings for the client. The importance of workmanship in achieving a water-tight pool tank was impressed on the contractor and the concrete sub-contractor by a site briefing.

Structural Challenges
Ramboll overcame the challenge for the main structure to have a guaranteed life of 60 years with minimal maintenance. Not only were the structural elements in a corrosive chlorine atmosphere but also located in an area with difficult access for maintenance. Ramboll researched various alternatives and selected a shop applied hot dip galvanized solution which had significant maintenance benefits to a standard painted solution.

Ramboll enhanced the architectural appearance of the main pool hall by creating an impressive feature of natural light above the swimmers. The roof is supported on cell form beams spanning 37.5 metres with natural daylight introduced via an elliptical foil pillow rooflight.

THE FIRST LEISURE CENTRE IN THE UK TO ACHIEVE A BREEAM EXCELLENT RATING

The first leisure centre in the UK to achieve a BREEAM excellent rating

Customer
Kier Western

Architect
LA Architects

Location
Hengrove, Bristol

Value
£35m

Project Countries
United Kingdom

Period
2011 to 2013

Services Provided
Structural and civil engineering

PROJECT DETAILS

FEATURE PROJECT

HENGROVE PARK LEISURE CENTRE

The first leisure centre in the UK to achieve a BREEAM excellent rating
The Oldham Leisure Centre provides state-of-the-art competition level facilities for multiple sports including swimming, handball, boxing, basketball, along with many other sports.

The landmark building located on the main approach to Oldham is a significant step in Oldham Council’s drive to promote growth and regeneration in the area. The main sports hall provides a large 45x36m clear internal space designed to Sport England requirements. The swimming pools provide an 8 lane 25m pool with adjacent learner pool. Within the main building there is facility to play indoor bowls in the 42m by 21m clear span second floor indoor bowls hall or to undertake studio-based activities in the large 220sqm dance & fitness studios.

**PROJECT DETAILS**

**Customer**
Willmott Dixon Construction Ltd

**Architect**
GT3 Architects

**Location**
Oldham, Manchester

**Value**
Confidential

**Project Countries**
United Kingdom

**Period**
2013 to 2015

**Services Provided**
Structural, civil engineering, building services, flood risk and geotechnical engineering.

Ramboll provided Civil, Structural and Building Services engineering within an integrated design team working alongside the Council and Contractor lead project team to deliver a value for money facility. The structure is built over previously worked & remediated coal seams and is supported by bored piles. The steel frame with both composite metal deck floors and precast floors provides the best overall structural solution to the project needs. The building services provide integrated mechanical ventilation to critical large and small volume areas delivered from a combination of roof top plant equipment and discrete plantrooms on each floor level.

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A striking new leisure centre occupying a prominent location on the seafront

The RIBA North East 2015 Project of the Year, Haven Point, forms part of the wider regeneration of the South Shields seafront, and was intended to achieve high design standards.

Design quality is consistent, from the challenging external environment to the visibly inventive interior and the visual inter-relationship of the two. It provides a 25m pool with spectator seating, a learner pool and a free form leisure pool with flumes.

The leisure centre is built on the site of the Victorian swimming pool and will form the focus for regeneration of the seafront area adjacent to the North Marina Park.

The building has a steel frame supporting precast concrete floor slabs which allow the building’s entrance and circulation areas to feel light and generous. The pool tanks and substructure are of in situ reinforced concrete construction. Ramboll also provided design services for the glazed and terracotta tiled facades. The North-West elevation is almost fully glazed. Storey height double glazed units are supported by a two-way spanning steel grillage of hollow sections. The tiled façade brings a unique quality to the building and reinforcing its contribution to a much-enhanced civic realm.

Haven Point

A striking new leisure centre occupying a prominent location on the seafront

**PROJECT DETAILS**

- **Customer**: South Tyneside Council
- **Architect**: LA Architects
- **Location**: South Shields
- **Value**: £17m
- **Project Countries**: United Kingdom
- **Period**: 2011 to 2013
- **Services Provided**: Structural engineering and building services

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The new Horwich Leisure Centre shall provide excellent facilities to the local community for multiple sports. Ramboll provided the Building Services elements of the design, working alongside the Client and the rest of the project team to deliver a bespoke, value-for-money facility. Providing heating and cooling from rooftop plant and the main plant room at the lower level, the building services installation is energy efficient, fit for purpose, easily maintained and yet suitably discrete. Ramboll have engaged fully in Level 2 BIM through the use of Revit MEP in conjunction with pioneering use of Magicad to allow us to design within the 3D environment.

The new Horwich Leisure Centre shall provide excellent facilities to the local community for multiple sports, including swimming, badminton, netball and basketball along with many other sports. The building is providing an upgrade to the existing facilities, making better use of the space available and providing a more energy efficient solution to the town’s needs. The building also makes significant strides towards the council’s drive to provide growth and regeneration.

The main sports hall encompasses a large 690m² internal space. The swimming pool hall contains one 25m 6 lane pool and one 12 x 8m learner pool. On the upper level there is a new fitness suite facility, consisting of a proposed 100 stations and a spinning studio.

**PROJECT DETAILS**

**Customer**  
Willmott Dixon Construction Ltd

**Architect**  
GT3 Architects

**Location**  
Horwich, Bolton

**Value**  
£10m

**Project Countries**  
United Kingdom

**Period**  
2015 to 2017

**Services Provided**  
Mechanical and electrical engineering, building services and Level 2 BIM
The Royton Leisure Centre provides a state of the art, multi-purpose leisure facility for swimming, dance, fitness and other community uses.

Sensitively integrated into a residential area adjacent to Royton Park, the building delivers exceptional quality both internally and in the public realm surrounding it.

In conjunction with the larger Oldham Leisure Centre (also designed by Ramboll) this project is a significant step in Oldham councils drive to promote growth regeneration and community fitness in the area. The swimming pools provide a 6 lane 25m pool with adjacent learner pool. Within the building there is a large multi-purpose studio, a state of the art fitness studio, spinning studio, wet and dry changing facilities and associated ancillary spaces.

The building services provide integrated mechanical ventilation to critical large and small volume areas delivered from a combination of roof top plant equipment and discrete plantrooms on each floor level.

**PROJECT DETAILS**

**Customer**
Willmott Dixon Construction Ltd

**Architect**
GT3 Architects

**Location**
Oldham

**Value**
£8m

**Project Countries**
United Kingdom

**Period**
2013 to 2015

**Services Provided**
Building services, mechanical & electrical and sustainability engineering

**A new build leisure centre including swimming pool, gym and activity studios**