



Cundall Healthcare Capability

July 2019



CUNDALL



About Cundall

As a multi-disciplinary engineer, Cundall is helping transform communities globally.

We take our responsibility to minimise the environmental impact of everything we do very seriously. That means integrating environmental considerations into our solutions to encompass everything from transport and energy use, to how people will ultimately use buildings, so that positive links with the community are developed.

Our fresh approach to design produces award winning buildings that embody sustainability and innovative thinking. Throughout our business, Cundall has a commitment to excellence. This is demonstrated by our expertise in delivering world-class sustainable solutions while maintaining strong links with local communities.

Our philosophy is that each project we work on should be better for our involvement.



Our services

Cundall's engineering consultancy services cover the entire life cycle of any building project. Clients find our 'total solutions' approach saves them time, money, effort and creates successful projects.

We add value to our projects by opening our minds, exchanging ideas and thinking creatively.

We offer a full range of integrated engineering services with core services in building services engineering, civil and structural engineering and sustainable design

Cundall by the numbers



20

OFFICES GLOBALLY



PROJECTS DELIVERED IN

50+

COUNTRIES



1st

CONSULTANCY IN THE
WORLD TO BE FORMALLY
ENDORSED AS A

ONE PLANET COMPANY



ESTABLISHED IN

1976



700+

EMPLOYEES



45+

NATIONALITIES



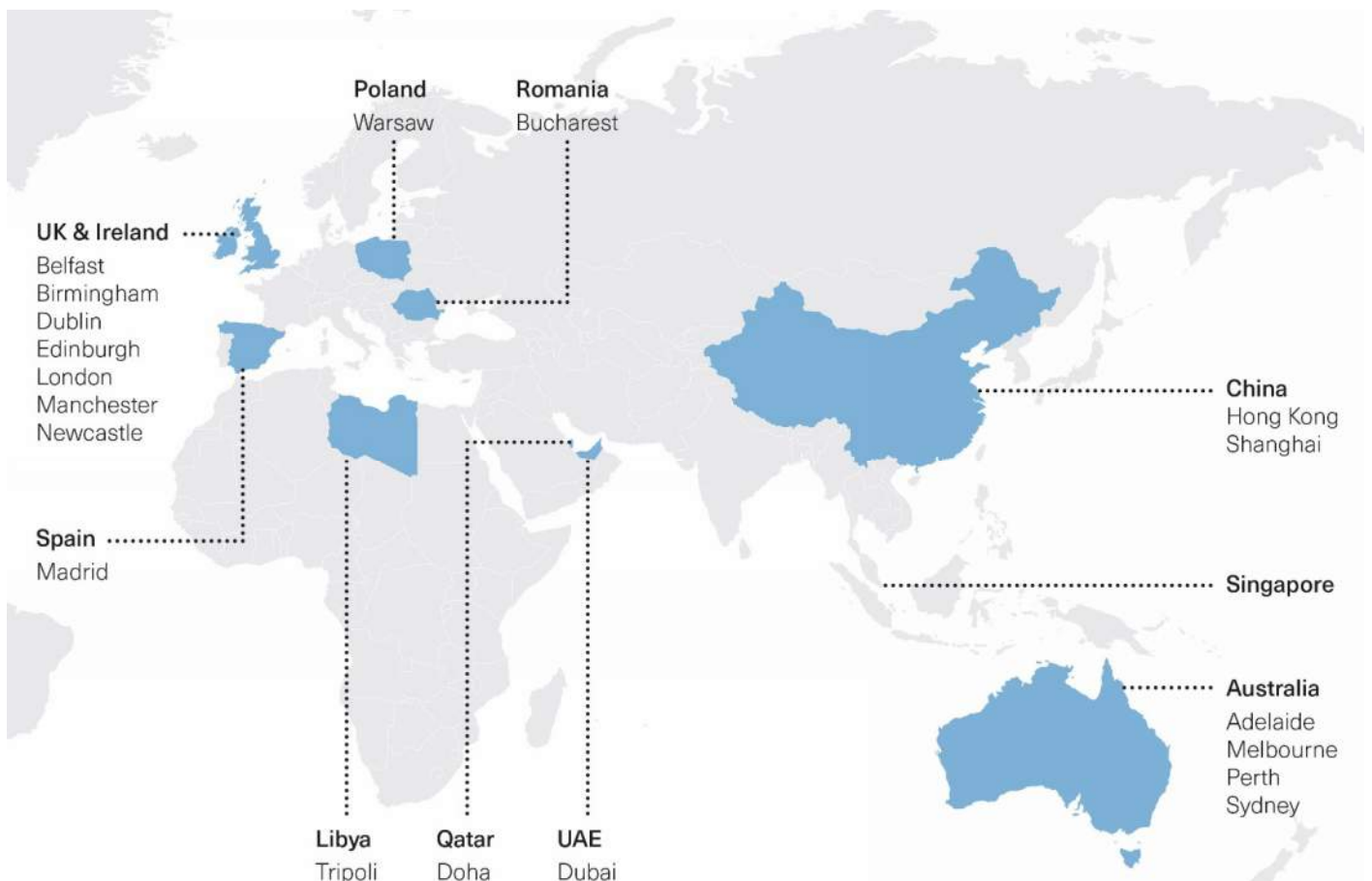
35+

LANGUAGES



350+

AWARDS WON





Core services

Building services engineering

Cundall offers an end-to-end service, extending from initial planning to construction fit-out, plus lifetime facilities management. Our mission is to play a key role in designing sustainable buildings which are more energy efficient and cost-effective to operate. Integration with our in-house civil and structural engineering and other specialist teams enables us to devise the best possible solutions to ensure your building is holistic, sustainable and future-proofed.

Our approach is focused on giving best value: we analyse what you want from your building, consider the appropriate design options and work out what is most appropriate for your particular location, development and budget, to deliver sustainable business benefits.

Structural engineering

Cundall provides structural engineering design services with our renowned analytical creativity and ingenuity which our clients come back for repeatedly.

To deliver the maximum value to our clients, we seek to be involved in their projects from the outset, allowing us to contribute our innovative solutions. This creates the greatest benefit and minimises the risk to budget and programme. We make a difference when it matters; from the start to the finish of a project.

Civil engineering

Civil engineering is one of Cundall's core services and covers all sectors of the construction industry. We help to create, improve and protect the environment in which we live and provide the facilities for day-to-day life and for transport and industry to function effectively.

We aim to help you identify both the constraints placed on development by regulatory requirements and site conditions and the opportunities that can be created by practical and innovative design. We will work closely with the project team and stakeholders to ensure the project deliverables and goals are achieved or exceeded while providing sustainable solutions.

Sustainable design

Positioned at the forefront of sustainability in the built environment, Cundall takes a refreshingly positive approach to engineering design, fostering collaboration and creativity. Driven by the consideration of people, design, environment and technology, Cundall has proved that 'going green' and commercial pragmatism can happily coexist.

We can provide a service to suit your aspirations - from cost-effective compliance with the latest energy and environmental legislation and/or achieving a specific green rating through to the delivery of a zero carbon building.



Specialist services



Acoustics

Cundall's team has significant experience in all aspects of acoustics, noise and vibration, covering site planning, infrastructure, architecture and engineering. We provide pragmatic engineering solutions, ensuring that our clients meet the necessary standards and legislation by offering practical and cost-effective solutions that add value, exceeding client expectations.



Building Information Modelling (BIM)

BIM facilitates an integrated approach. It assists in collaboration during the design process, construction and the maintenance of the project. Cundall has adopted a practice-wide BIM strategy to assist us to produce world class projects. The utilisation of BIM enables the project team to have a joined-up approach and now sits at the forefront of all that we do.



Building automation

Cundall's team provides expertise in the design and implementation of control and building management systems. The objective of our designs is to make sure that a building provides the occupants with an optimised environment which they can easily monitor and control whilst ensuring that capital expenditure is minimised and operational savings and building efficiencies are maximised.



Data Centre Infrastructure Management (DCIM)

DCIM software has the potential to reduce energy consumption and reduce the management overhead associated with planning the deployment of new IT systems within existing data centres. It provides a more granular approach to data centre energy management and potentially unites the IT and Facilities view.



Fire engineering

Cundall's team works with our clients to ensure that their buildings not only comply with the relevant legislation, but also provide a safe environment in the most cost-effective manner, without compromising the architectural integrity of the design. Fire protection is one of the most important investments a company can make in defending its business and its people from the destruction that fire causes.



Geotechnical engineering

Cundall's specialist geotechnical engineers bring together technical expertise in the disciplines of environmental science, environmental engineering, engineering geology, foundation engineering and geotechnics. We provide geotechnical and geoenvironmental consultancy services to both our international clients and throughout the UK.



IT and audio visual

Information, telecommunications and audio-visual systems are important parts of any new building. Our team enables our clients to ensure that these systems are designed into the building from the outset - improving flexibility, reducing costs and avoiding compromise.



Lighting design

Light is an essential component in defining what we see, how we feel, how we interact with one another and the environment around us. We offer specialist lighting design and expertise, carefully considering all the elements of the process - landscape lighting strategies, daylight design, architectural lighting design and ultra-efficient lighting design and commissioning.



Planning

Cundall offers a planning service that is comprehensive, well-informed and good value for money. We advise and guide you through the planning system, working as part of your team and managing the process. We carry out public consultations and prepare specialist reports to justify schemes and secure planning consent.



Survey solutions

Survey solutions provides developers, building owners/occupiers and contractors with a one-stop shop for a broad selection of surveys relating to the built environment, covering the entire lifecycle from concept, through completion to operation. We can provide surveys and reports to provide information you need to take things forward.



Transportation

All developments require access, no matter how large or small and Cundall Transportation have a passion for promoting and delivering sustainable transport solutions, acknowledging the need for private car use. We support clients through the development process, providing pragmatic solutions to transportation problems, which can reduce client risk and project costs.



Vertical transportation

Cundall's team offers a full range of services, and has extensive knowledge and experience in the design, modernisation, installation and maintenance of

all types of lifts, escalators and moving walkways. We work in flexible roles ranging from surveys, producing specifications, project management and witness testing through to whole lifecycle planning, costing and facilities management.



Healthcare: selected projects



Ulster Hospital Phase B, Belfast

Client:
Health Estates

Value:
£300 million

Completion Date:
2017

Architect:
Avanti Architects and Kennedy
Fitzgerald

Building services engineering and IT and audio visual

Ulster Hospital is one of the major Acute Hospitals serving the Belfast area. The building stock subject to a refurbishment and new build program to make suitable for the future health care provision in Northern Ireland.

Cundall was appointed as M&E engineers for phase B of the redevelopment of the site producing outline business case, full business case, exemplar design / public sector comparator. Cundall also produced the output specification forming part of the ITN documentation for a prospective PFI project.

The outline brief for phase B of the redevelopment was the linking together of the buildings constructed under phase A as well as providing emergency, radiology, AHP, outpatients, assessment wards, HDU/ITU wards, pharmacy, kitchen / dining, mortuary, in patient wards (20), paediatrics and laundry. Five day theatres are provided in the facility and these have been designed to full theatre standards to be used in the event of failure of the adjacent critical care unit theatres.

The existing site is built on the side of a hill as most suitable sites for the redevelopment were taken by the phase A. Phase B redevelopment works required the decant of existing buildings to vacate appropriate sites. Significant upgrade of site infrastructure and provision of temporary plant was required to enable the proposed phasing. A £10m enabling package to allows the new build works to proceed without interruption to the existing hospital.

The energy strategy for the site followed a "semi central" approach with individual buildings containing dedicated boiler, generator, substations etc.

The use of base load CHP, biomass boilers and ground source heat pumps making use of an existing borehole were incorporated into the final energy strategy. A further investigation into a large scale wind turbine installation discounted on site generation but did identify suitable local offsite locations subject to resolution of land issues.

A mechanical ventilation philosophy was also adopted throughout patient areas allowing for good year round internal conditions and control, infection control and also minimising pollution risk during the phased construction / demolition of the site.



Rotherham Mortuary and Bereavement Centre

Client:
[Client]

Multi Disciplinary Design

Value:
£1.6m

Completion Date:
2011

Architect:
Keppie Design

The design of a new two storey building located within the grounds of Rotherham General Hospital. The purpose built facility will provide modern facilities in a sensitive environment that considers the needs of bereaved relatives, visitors and staff. This bereavement centre has been designed to provide a safe and convenient facility for grieving relatives and friends with a dedicated entrance. There are also enhanced mortuary facilities and dedicated collection space for funeral directors and private ambulances.

Large column free areas were required to the PM room to provide open and flexible spaces. This was achieved using the steel and concrete floor structure compositely. The building was intensively serviced and so the structure had to be kept to a minimum depth. Again the composite design reduced the depth of down stand beams required allowing a suitable service zone.

Foundations were concrete pads founded at varying levels due to the variability of the ground conditions. The ground floor slab was ground bearing concrete on engineered fill.

Dedicated air handling plant is provided to the facility and the post mortem and dissection tables are provided with down flow tables, here are also 80+ body fridges.

Business continuity was a key driver for the engineering services design with dual power feeds from the existing hospital infrastructure.



Blaydon Primary Care Centre, Tyne and Wear, UK

Client:

Gateshead Primary Care Trust

Value:

£9 million

Completion Date:

2010

Architect:

P&HS Architects

Building services, civil, structural and geotechnical engineering

One of a number of new primary care centres to be built in the North East, Blaydon PCC is adjoined to a new leisure centre building. Both buildings share external car parking and landscaped areas, front and rear entrances, two-storey, part-glazed atrium and a detached energy centre building. The PCC building includes a walk-in unit, planned care unit, diagnostics, general practice consulting rooms, dental and orthodontics, rehabilitation, outreach services, minor surgery unit and staff accommodation.

The combined building complex achieves an 'A' rated energy performance certificate and the PCC building has been awarded a BREEAM 'Excellent' rating. Headline sustainable features include:

- Wood burning boiler installation with efficient gas-fired condensing boilers
- Combined heat and power plant sized to absorb all generated heat and power on site into the site wide systems
- Air source heat pump, heat recovery, technology providing heating and cooling in clinical and public spaces
- High efficiency ventilation heat recovery systems with cross flow recuperators
- Variable speed drives on all fan and pump motors
- Rainwater recovery and distribution system for flushing cisterns and urinals
- Naturally ventilated atrium space
- High efficiency lighting installations incorporating automatic switching

We carried out flood risk assessments for the project to determine critical levels to the facility's operation during extreme events. The building is located on a historical floodplain and weak soils, so the foundations were piled with a fully suspended ground floor structure. The structure was designed with in-situ concrete floors designed to act compositely with the steel frame.

We created a low zero carbon feasibility report with a single page option appraisal to allow the client to easily see the benefit of different types of renewable strategy. CHP and Biomass was selected, achieving an EPC of A+.



Whitley Bay Joint Services Centre, Tyne and Wear, UK

Client:
North Tyneside Council

Value:
£11 million

Completion Date:
2013

Architect:
Ryder

Building services, civil and structural engineering, BREEAM assessment

The Joint Services Centre provides a heart for the community of Whitley Bay and the wider regeneration of the seaside resort. It brings together a range of services delivered by North Tyneside Council and North Tyneside PCT under one roof.

The varied facilities include;

- Full customer services suite with play area giving people access to council services
- A new state of the art library split over two floors providing a full printed word, audio and visual media service, as well as comprehensive internet facilities for public use
- A self-contained Primary Care Services suite on the first floor containing three counselling rooms, reception, waiting area and back office space / utility area. This will be a Social Prescribing Hub - a new holistic approach to mental health provisions and social wellbeing
- Flexible community rooms and event space
- A tourist information service, dealing with inquiries from visitors as well as residents
- Facilities for an Adult Social Care team, dedicated to working with older people and the disabled in the area

An ambitious energy target of 30GJ/100m³ necessitated the design team to deliver an energy-efficient design, including optimising natural lighting and providing a number of renewable energy technologies. The project achieved a BREEAM *Excellent* rating.



South Australian Health and Medical Research Institute, Adelaide, South Australia

Client

SAHMRI / Woods Bagot

Value:

AUS\$200 million

Architect

Woods Bagot

Sustainable design

The South Australian Health and Medical Research Institute (SAHMRI) is the first project in South Australia and the first laboratory building in Australia to achieve LEED Gold certification.

In another first, the visually striking SAHMRI is the first project to be completed in Adelaide's health and bio-medical precinct, the largest precinct of its kind in the Southern Hemisphere. SAHMRI will accommodate a team of more than 600 local and international researchers working together in the search for better treatments and cures for some of the world's most challenging diseases.

Cundall provided sustainable design advice and LEED consultancy services on SAHMRI from schematic design phases through to commissioning and handover. Works included initial owner and stakeholder workshops to define project goals and aspirations for energy efficiency, water efficiency, human health and environmental outcomes, design reviews, contractor coaching and liaison, development of an operational energy measurement and verification plan, LEED management and submission delivery.

Key attributes of the facility include passively designed floor plates that respond to functional requirements while providing maximum daylight where needed, optimised façade orientation and an innovative solar shaded dia-grid envelope skin. The unique facade is designed to improve daylight, reduce heat gain and solar glare and maintain visual connection to the exterior for a healthy indoor environment.

By taking a systematic and whole-of-life approach to building related environmental impacts and human benefits, SAHMRI joins a select group of LEED Gold certified buildings worldwide.

SAHMRI has won a number of national and international design awards including being a 2015 Sustainability Awards Finalist in the Large Commercial category



Banbridge Health and Care Centre, Northern Ireland

Client:

The Southern Health and Social Care Trust

Value:

£12 million

Architect

Kennedy Fitzgerald & Associates /
Avanti Architects

Building services engineering, planning and CDM consultancy

Banbridge Health and Care Centre is part of the Northern Ireland Primary Community Care Infrastructure framework of primary care projects for the Southern Region. This flagship centre represents a new building model for the delivery of healthcare services for the Banbridge Community.

The centre conceived as one “combined” building that would provide facilities for a range of primary care, community care and diagnostic services at a single location. The aim of this approach was to provide efficiencies by sharing accommodation and services and reducing travel by bringing services together onto one site.

The new 4-storey multi-purpose centre provides a range of healthcare services to the local community Banbridge and the surrounding areas, the treatments facilities including:

- Daycare services for physical and mental impairments
- ICT and primary care facilities for children, young persons and the elderly
- GP, primary care and treatment facilities including two dental labs, rehab, OT, physiotherapy and pharmaceutical services

The health centre is designed to be a low energy, sustainable building and designed to achieve an ‘Excellent’ BREEAM rating.

The centre is fully equipped with outstanding facilities to meet the needs of each patient including a rehabilitation suite; sensory rooms; two dental clinics; health promotion programmes; specialist nursing services and a landscaped garden with wheelchair access.

Awards:

- RSUA Design Awards 2016, Best Public Building of the year, winner
- RIBA Regional Awards 2016, Northern Ireland, winner
- RIBA National Award 2016, winner
- RIAI Irish Architecture Awards Health 2016, winner
- European Healthcare Design Awards 2016, highly commended



Houghton-le-Spring Primary Care Centre

Client:

Durham Primary Care Trust

Value:

£14.5 million

Architect:

P&HS Architects

Awards:

Constructing Excellence in the North East Awards (2012), The Legacy Award-Sustainability, Winner

BREEAM (2012), Healthcare, Winner

LABC (2012), Innovation in Sustainability, Winner

Constructing Excellence National Awards (2012), Legacy Award, Shortlisted

Civil, geotechnical and structural engineering

This new build Primary Care Centre includes GP practices, a Minor Injuries Unit and Supporting Diagnostics Dementia Services including Physical Exercise and Outreach Services CVD Services Musculoskeletal Services Health Living Services. It was Durham PCT's aspiration from the outset of the scheme that the project shall become an exemplar site for low carbon construction techniques.

The project has been designed with a low energy ventilation system, a Ground Source Heat Pump, a substantial array of photovoltaic and solar thermal panels and a 5.5kw wind turbine, which helped significantly towards achieving a BREEAM *Outstanding* rating.

A number of structural elements to the building have assisted to reducing the energy consumption on the building. Precast concrete soffits have been incorporated into the design to contribute to the building's thermal mass. A below ground structural plenum passively pre-cools air in the summer and warms in winter. A thermal wall along the spine of the building circulates the air from the plenum throughout the internal space, to achieve this innovative solution we have worked closely with a specialist design company from Cambridge University.

Externally the roof has been designed to support a green roof to encourage local biodiversity. Sustainable Urban Drainage Solutions (SUDS) include attenuation draining outflows using tanks reducing the run-off from site. A large amount of excavated land has been reused to create landscaping and a skate park.

The design has been carried out to HTM 08-01 and achieves the requirements for the ward areas by taking vibration does into account, helping with patient comfort during recuperation.

The scheme was the first healthcare building in the UK to achieve a BREEAM rating of *Outstanding*. In recognition of this achievement the team were presented with the BREEAM certificate at the 2011 IHEAM conference.



Healthcare selected projects



Akerman Road Health Centre, London, UK
Client Lambeth, Southwark, Lewisham NHS Tranche 2 Lift Schemes
Services Building services and fire engineering and sustainable design
Architect Henley Halebrown Rorrison



Barrhead Health and Social Care Facility, Scotland, UK
Client NHS Glasgow/Renfrewshire Council
Services Building services, civil, structural, fire and geotechnical engineering
Architect Avanti Architects



Cleadon Park, South Tyneside, UK
Client Inspiredspaces
Services Building services, civil, structural and fire engineering, BREEAM assessment and transportation
Architect Ryder Architecture



Euneva Avenue Community Health Facility, Victoria, Australia
Client City of Monash Council and Department of Health
Services Sustainable design
Architect Group GSA



Garrison House, Isle of Cumbrae, Scotland, UK
Client Cumbrae Community Development Company
Services Building services engineering
Architect Lee Boyd



Grangewood Acute Mental Health, Belfast, Northern Ireland, UK
Client Western Health and Social Care
Services Building services engineering and sustainable design
Architect Avanti Architects and Kennedy Fitzgerald Architects



New Royal Adelaide Hospital, Adelaide, Australia
Client SA Health Partnership
Services Sustainable design
Architect sthDI



Portladow Community Treatment & Care Centre, Northern Ireland, UK
Client Craigavon and Banbridge HSST/Health Estates NI
Services Building services engineering
Architect Kennedy FitzGerald & Associates/Avanti Architects



Royal Children's Hospital, Melbourne, Australia
Client AHW/Department of Human Services
Services Sustainability technical advisor
Architect Billard Leece/Bates Smart/UKS



The London Clinic Cancer Centre, London, UK
Client The London Clinic
Services Building services engineering, vertical transportation, IT and audio visual
Architect Ashen + Allen



Maryhill Health and Care Centre, Glasgow
Client Morgan Sindall
Services Building services engineering
Architect Page and Park



IMI Ward, Rotherham Hospital, Rotherham
Client Rotherham NHS Foundation Trust
Services Building services engineering and lighting design
Architect ASL



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