

WSP Africa, *Green by Design*

Capability Statement

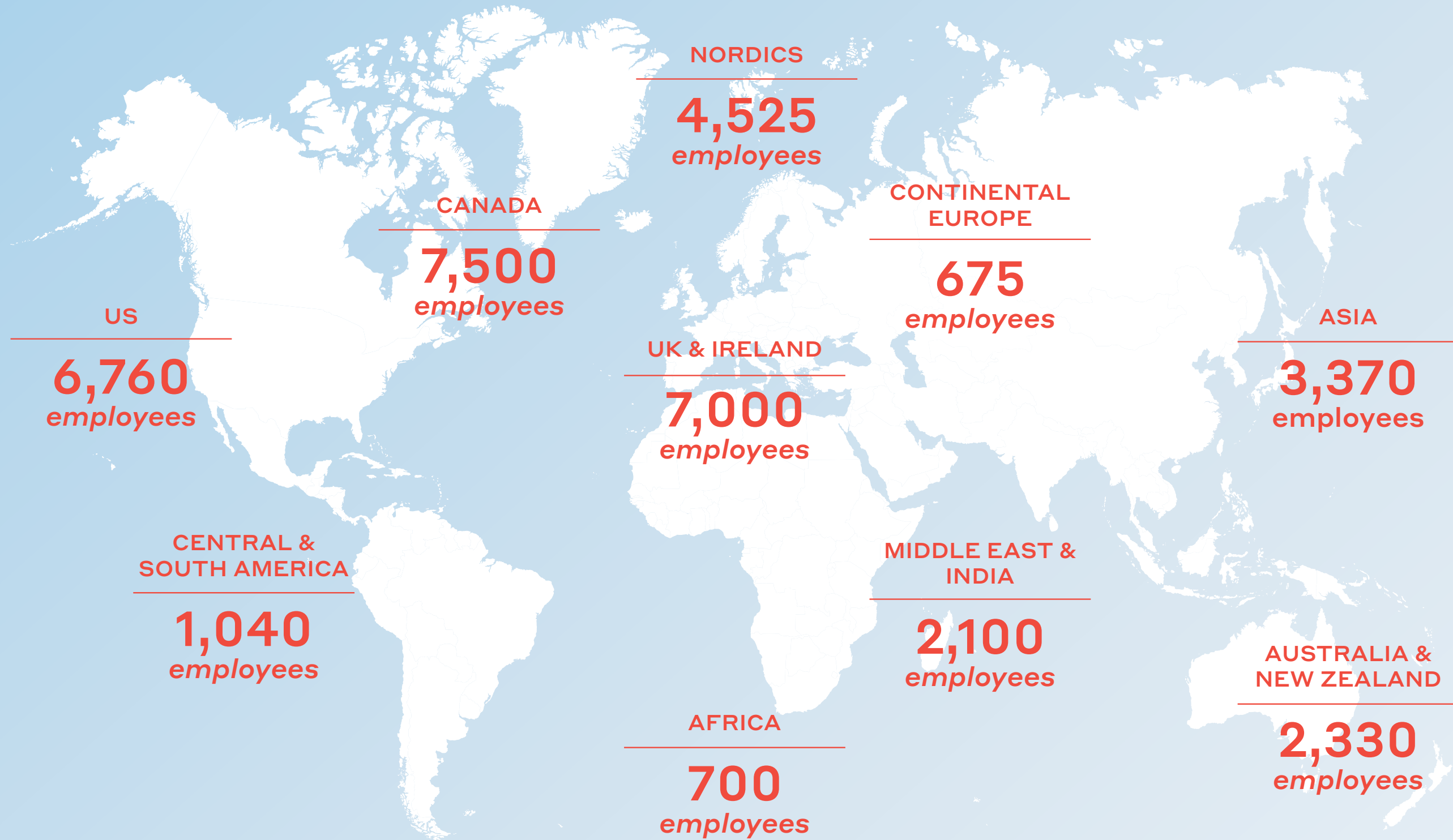




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Our People



Figures at December 31, 2016

Who we are

WSP is one of the world's leading engineering professional services consulting firms.

We bring together our 43 000 staff, based in more than 550 offices, across 40 countries to provide engineering and multidisciplinary services in a vast array of industry sectors, with a focus on technical excellence and client service.

WSP's GREEN-by-DESIGN team is Africa's leading provider of sustainability advice. Part of our Property team, GREEN-by-DESIGN provides specialist sustainability consultancy services in different sectors of the built environment.

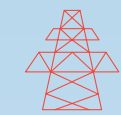
We continuously improve our services in line with the latest developments in green building design and strive to be the outstanding supplier of integrated services.



“We place an emphasis on achieving innovative, sustainable solutions for our clients, relishing the challenge of unusual projects and ensuring these achieve a high rating by the Green Building Council of South Africa.”

Alison Groves, WSP, Africa, Head of Green-by-Design

What we do



Power

Power System Studies / Power Economics & Generation Planning / Project Management / Power Line Design / Substation Design / HVDC & FACTS Studies & Design / Renewable Energy Studies & Design / Owners Engineer Services / Due Diligence Services / Lender's Engineer Services



Transport & Infrastructure

Rail / Traffic / Roads / Water / Ports & Marine / Telecommunications



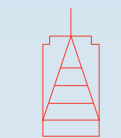
Environment & Energy

Acoustics / Air Quality / Applied Sustainability / Contaminated Land / Environmental & Social Impact Assessments / Environmental Health & Safety Systems & Compliance / Hydrogeology / Hydrology / Waste



Major Project Management

FIDIC Engineer Capability / Construction Management / Project Management / Programme Management / Lean Planning Techniques / Commercial Management / BIM / Computerised Analysis & Visualisation Environment (CAVE) / Design Development & Implementation / Engineering Support / QA/QC Management & Implementation / Risk Management



Property

Electrical / Fire / Heating & Ventilation & Air Conditioning (HVAC) / Structures / Façade Engineering / IT & Electronic / Wet Services / Sustainability & Green Buildings / Vertical Transportation / Bulk Earthwork / Development Infrastructure / Traffic Engineering & Transportation Planning / Infrastructure Financing / Contract Management & Project Facilitation



Industrial

Electrical / Utilities / Industrial & Commercial Refrigeration / Control & Instrumentation

Our Services

200+

*Green Stars awarded to us on more than
50 different submissions*

With over 50 diverse sustainability projects under our belt in the past 11 years across the retail, residential, commercial property, healthcare, sport and public sectors, our expertise in sustainable building is unrivalled. In addition to new building projects, we have also consulted on existing buildings ratings and refurbishments and conducted specialist sustainability research studies.

Sustainability Consulting

- Passive Building Design Review
- Building Optimisation Review
- Development of Best Practice Guidelines
- Building Performance Benchmarking
- Construction Monitoring
- Certification Compliance Monitoring

Building Optimisation and Compliance Modelling

- Fabric Optimisation Modelling
- Thermal Modelling
- Daylight Modelling
- Energy Modelling
- Computational Fluid Dynamics Modelling
- SANS 10400 XA Compliance Modelling

Certification

- Green Star Facilitation
 - Green Star SA New Buildings – Green Building Council South Africa
 - Green Star SA Existing Buildings – Green Building Council South Africa
 - Green Star SA Interiors – Green Building Council of South Africa

Software Expertise

- Sefaira
- IES
- Design Builder
- Ecotect

Our Achievements

- **WSP is a Gold Founding Member of the Green Building Council of SA (GBCSA).**
- **We are the author of the Gauteng Partnership Fund (GPF) Green Building Guide for Low Cost Medium Density Housing document.**
- **We are proud of our 100% success rate with Green Star certifications.**
- **We have provided Sustainability Consulting Services on several SAPOA Award winning projects:**
 - **2015 Winner Commercial Office Development – 90 Grayston; Corporate Office Development – Group Five Head Office; Overall– Newtown Junction; Mixed Use Development – Newtown Junction; Transformation Award – Newtown Junction;**
 - **2015 Nomination Commercial Office Development – 102 Rivonia Road**
- **African firsts include:**
 - **The first 6 Star Green Star Design Rating in Africa (Vodacom Innovation Centre, Midrand)**
 - **The first 6 Star Green Star Design Rating in Africa outside SA (Nobelita Office Towers, Rwanda)**
 - **The first 5 Star Green Star Office As-Built building in South Africa (ABSA Towers West)**
 - **The first Green Star certification in Office Design, and As-Built, for a building in South Africa (Nedbank Phase II)**
 - **The first Green Star certification in Retail Design for a building in South Africa (Villa Mall)**
 - **The first Green Star Existing Building Performance Pilot Rating in Gauteng 2011 (WSP House).**



Our Projects

Standard Bank ROSEBANK, SOUTH AFRICA

1

Standard Bank Rosebank is a multi-level office building located on the corner of Baker Street and Oxford Road in Rosebank, Johannesburg. Completed in 2013, this innovative building has been designed to substantially reduce operational energy requirements, while promoting a people-centric work environment.

Our team provided Building Sustainability Consulting and Building Performance Benchmarking to guide the project towards achieving the client's expressed goals. Our services included full Energy Modelling of the building, Thermal Modelling to establish whether occupants would be thermally comfortable, and Daylight Modelling. In addition we ran a computational fluid dynamics model of air movement within the building to assist the HVAC consultants in reducing areas that may experience low air quality.

We monitored the construction of Standard Bank's new offices, issuing monthly compliance reports on sustainable design issues to ensure the client's targets would be met, and adjustments could be made timeously if needed. Our GREEN-by-DESIGN team assisted the projects professional team with developing appropriate commissioning documents and was active in reviewing progress through the commissioning period. In addition to full close out, handover and operation of the project, we provided guidance on the building tuning on all services post occupancy.

We are extremely proud to have received a 5 Star Green Star SA v1 Office Design and As Built rating for Standard Bank at 30 Baker Street.

Nobelia Office Tower RWANDA

2 102 Rivonia SOUTH AFRICA

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The Nobelia Office Tower in Kigali, Rwanda, will be a 19 storey high rise, of which 16 floors are dedicated to office space. The client wanted to achieve a high rating for Rwanda's first Green Star building.

We offered Green Star Facilitation; developing the Local Context Report for Rwanda, Building Sustainability Consulting and Building Performance.

It was important to the client that we demonstrate reasonable comfort levels using a passive design approach to reduce the need for auxiliary heating and cooling and reduce the building's overall energy usage. The building will be 88% more energy efficient than a notional building. Optimum daylight will be experienced for over 90% of the usable area. To address direct solar glare, an external planted shading device will cover the external face of the building, the effectiveness of which was demonstrated through a solar glare analysis model. The building will include an on-site black water treatment system, which will treat both grey and black water for reuse, resulting in a 100% reduction in water discharge.

The façade can be disassembled, thus the materials can be reused. To ensure sustainability of the living façade, there is an on-site composting facility to improve soil quality and support plant growth and biodiversity.

The building achieved a 6 Star Green Star v1 Office Design rating from the Green Building Council of South Africa (GBCSA) – a first for any building outside of South Africa.

Situated in bustling central Sandton, 102 Rivonia is a landmark building with an exceptional repertoire of environmentally responsible design initiatives. Completed in 2014, Eris Property Group wanted to ensure that the development achieved Green Star ratings for Design and As-Built.

WSP provided the Sustainability, Electrical and Electronic Engineering consulting services for the project. Our sustainability consultants provided Passive Building Design input, proposing glazing options and optimum shading.

We provided sustainability advice on water efficiency in the building through rainwater harvesting and low flow fittings, resulting in the building achieving a 66% reduction in potable water use. To ensure a working environment that supports productivity and employee well-being for the building's tenants, high natural light infiltration, high fresh air rates and low Volatile Organic Compound finishes were installed to achieve a high quality indoor environment.

Our team provided Green Star Design Certification services, which led to the building receiving a commendable 4 Star Green Star Office v1 Design Rating in 2013. An equally admirable 4 Star Green Star As Built rating was achieved in 2016, demonstrating that the building has been constructed in line with its initial design and operates in a sustainable manner.



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Our Projects

Group Five Head Office SOUTH AFRICA

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Group Five's new Head Office is located in Waterfall Estate, a large CBD in Gauteng comprising offices, retail, industrial and residential space. WSP was appointed Sustainability Consultant for Guidance and Certification of a Green Star SA Office Design and As-Built rating. The building was designed to substantially reduce operational energy requirements, while ensuring a comfortable and inspiring work environment.

The mechanical system includes a thermal storage facility, reducing peak energy demand on the national grid and lowering overall energy consumption in the building. Detailed energy modelling allowed our team to prove this reduction on the energy grid. Smart external lighting designs were incorporated to limit light pollution, mitigating effects on animal and bird life in the estate.

To meet the client's request for a people-centric work space, there are dedicated tenant exhaust risers that extract printer fumes from the open plan office spaces. A dedicated storage area for the separation and collection of office consumables and recyclable waste enables tenants to better manage their waste. The building provides bicycle storage racks, showers and lockers for occupants, providing the opportunity for Group Five's employees to reduce their personal carbon footprint and allowing for improved well-being within the building system.

The GREEN-by-DESIGN team achieved one of the highest 5 Star Green Star Office Design Ratings in 2013, as well as a 5 Star Green Star Office As Built rating in 2014.



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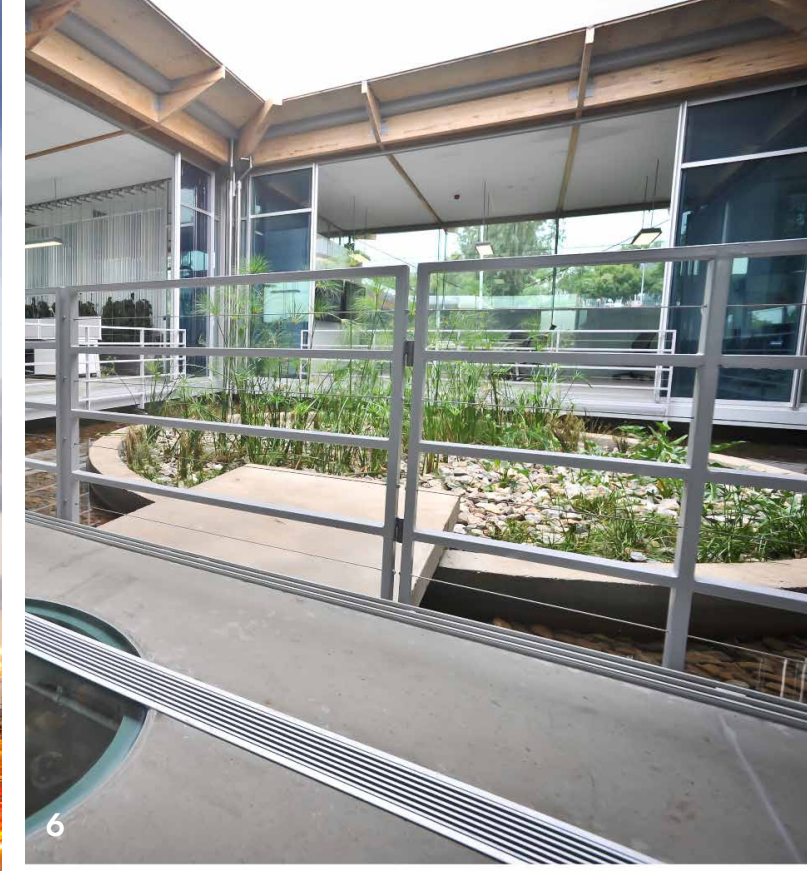
FNB @Parkside WINDHOEK, NAMIBIA

The FNB @Parkside building is located in the heart of the Windhoek CBD. The building is the first to achieve a Green Star SA-Nam Design v1 Certification. The building consists of 5 floors, the ground floor and a portion of the first floor is reserved for retail banking divisions, while the remaining area is reserved for FNB Namibia administration offices. The building is integrated into the greater Freedom Plaza development. The building is characterized by vertical glazing panels, running from the podium to the top floor. Two water wise roof gardens flank the roof terraces.

To offset the pressure on energy generation, promote sustainability and lower long-term operating costs, FNB Namibia Holding's aim was to develop the first Green Star Certified building in Namibia. As it was the first building of its kind being constructed in the southern African country, the construction team had little knowledge of the criteria which had to be met.

WSP hosted regular teleconference project meetings in Johannesburg, and provided monthly construction monitoring services to ensure environmental metrics were met. We provided Sustainability and Green Star certification services, all the while establishing Green Building principles in the Namibian construction market.

The project achieved a 4 Star Green Star SA-Namibia Design Rating, and a 5 Star Green Star Africa Rating through the GBCSA.



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5 Vodafone Site Solutions Innovation Centre MIDRAND, SOUTH AFRICA

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Vodafone identified the Vodacom Campus in Midrand, South Africa as the ideal location to host their Innovation Centre. The building is the the centre of tower and telecom experimentation, developing technologies that are appropriate for environments which are poorly served by conventional infrastructure and future proofing technology for a resource constrained future. The brief required that the building be a reflection of the activities that will take place in the Innovation Centre and embrace passive design, renewable energy, water sustainability and locally appropriate materials and technology. The building is designed to serve as a "concept building", exploring the feasibility of the various design initiatives employed in the building and assessing their replicability for future developments within both the Vodafone and Vodacom fold.

WSP provided Mechanical, Wet Services, Structural and Sustainability services to the project.



Contact US

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Our Projects

Knightsbridge Office Park Development 7 **SOUTH AFRICA**

WSP was appointed for the strategic masterplanning, concept development, viability, design and construction monitoring on the new 30,000m² Knightsbridge Office Park. The park has a 4-star Green Star rating.

The development includes seven individual office buildings, a conference centre and communal coffee shop. Knightsbridge is the new headquarters for WSP's operations in Africa. The building houses all Johannesburg-based employees.

WSP has been involved since masterplanning stage. We are managing all engineering disciplines.

Our sustainability team is leading the Green Star facilitation by investigating passive and sustainable design initiatives. Our aim was to reduce the building's reliance and impact on water and energy resources, while increasing functional resilience. We ensured certification requirements were met.

We provided a holistic and integrated design complement. This allowed the project team to be proactive, collaborative on solutions, and to lead coordinated construction phases. Our intent on this project was to prove it is possible to have a well-designed, efficient building that is cost effective to build and maintain, when compared to a non-rated building.

wsp