

COMPANY PROFILE

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Company Profile – GAP Project Engineers

To Whom It May Concern

GAP Project Engineers is a multi-disciplinary engineering company, offering specialist skills and solutions for data centre infrastructure developments to the various telecommunications networks and IT players throughout Africa.

Our services range from the investigation and design of solutions, through to their turnkey implementation and commissioning into service in the following fields of the construction / building services industry;

- Specialized power systems for data / switching centers,
- Electrical and electronic services and the distribution thereof,
- Standby power installations,
- Precision climate control systems,
- Fire detection and suppression systems,
- Interior and perimeter security systems,
- Electrical distribution boards and associated cabling.
- Raised access flooring,
- Asset management and tracking,
- Other ancillary building services,
- General project management.

GAP Project Engineers also operates in all sectors of the construction industry, and we have developed large cooling systems for hydro-electric power stations. We have a successful track record in delivering such solutions throughout Africa, as is highlighted in our company profile.

Considering our track record, as well as our previous experience as Consulting Engineers, we believe that GAP Project Engineers is well positioned to assist you in the development of future projects.

Our attached company profile is indexed as follows;

- Company structure and staffing,
- Areas of specialization,
- A selection of current and completed projects, where we have acted as consultants, turnkey contractors or as project managers, depending on the Client's requirements.
- Our background in design as consulting engineers,

We invite you to visit our website www.gaptech.co.za .

Yours sincerely,

Computer generated document.
Thus no signature.

Nicholas Boyle
Managing Director

1. Company Structure and Staffing

1.1 Company Directors

Nicholas Boyle
Managing Director

BSc (Mechanical) Engineering
Professional Engineer

1983 – University of the Witwatersrand
Reg no: 950147

Professional Societies
ECSA
SAIME

Engineering Council of South Africa
South African Institute of Mechanical Engineers

Career History

1984 – 1987

Everite Limited

Industrial Engineer

1988 – 1996

Spoormaker & Partners (mechanical &
electrical consulting engineers)

Associate

1996 – present

GAP Project Engineers (Pty) Ltd

Managing Director

John Cook
Director

MDp Technology, Mechanical
Professional Technologist
Bachelor of Commerce.

1985 – Vaal Triangle Technikon
Reg no: 9070150
1996 – University of South Africa

Professional Societies
ASHRAE
SAIRAC
IPET

American Society of Heating & Air Conditioning Engineers
South African Institute of Refrigeration & Air Conditioning
Member of Board of Control for Professional Technologists

Career History

1980 – 1987

SA Post & Telecommunications

Design Engineer &
Section Manager

1988 – 1990

Improvair (Pty) Ltd

Design Engineer &
Estimator

1989 – 1997

Spoormaker & Partners (mechanical &
electrical consulting engineers)

Associate & Branch
Manager

1997 – present

GAP Project Engineers (Pty) Ltd

Director

1.2 Technical Personnel

Contract Managers

James Hart NTC 6	Project Management, Site Administration
Adrain Levell Matric, NTC 6	Project Management, Site Administration
Jaco Coetzee Matric, NTC 4	Project Management, Site Administration

Technicians / Site Personnel

Jan Deysel Matric	Site Installation and management
Valentine Oberholzer Matric	Site Installation and management
Jose and Miro dos Santos Qualified Artisans	Site Installation Personnel, with many years in the field covering all aspects of our business.

Drawing Office (we use AutoCAD, latest version)

Marc Wessels A Levels, NTC 6	Drawing office manager, our artist.
Boet du Plessis Matric, NTC 4	Draftsman

Subcontractors

We have tried and tested teams of subcontractors to utilise on projects, depending on which specific skills are required. These have been selected based on their skills, reliability and dedication to achieving the desired results.

All of them understand the need to have the project completed on a “**right first time**” basis.

2. Areas of Specialization / Working Practices

The projects that GAP typically work on vary from ‘green-field’ sites to upgrades of existing facilities, and comprise of all or some of the services mentioned in the subsequent pages of our profile. Consequently, GAP is able to provide a package of services which can include any or all of the following, working either directly with the Client, or in conjunction with a Professional Team, Developer or Building Contractor;

- Development of the brief,
- Evaluation of possible solutions,
- Design of agreed solution,
- Supply, installation and commissioning into service of agreed solution, or,
- The supply only of the required plant and equipment, and its commissioning into service once its installation has been completed by the Client’s agents,
- Management of project through all its phases,
- **A turnkey solution encompassing all of the above – our preference.**

In addition to the above, we will assist Clients in the assembling of specialists from all disciplines to create the appropriate team to tackle any new building / refurbishment related project on a turnkey basis.

3. Current and Recently Completed Projects

3.1 High Precision Installations – for Computer Rooms and Telecommunications Facilities - as Turnkey Contractors

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
Ericsson, and their various Clients MSC (main switching center) infrastructure	Botswana - Mascom MSC's in Gaborone & Francistown Zimbabwe - Econet MSC in Harare Nigeria - Econet MSC's in Lagos Nigeria – MTN MSC's in Lagos, Abuja and Port Harcourt Lesotho - Econet MSC in Maseru Ivory Coast - Telecom Atlantique MSC, Abidjan	+ 6 500	<p>Turnkey solutions for the various cellular operators, or in association with Ericsson, Emerson & others.</p> <p>On occasion, some Clients commissioned GAP to perform audits on their existing infrastructure as a prelude to the following project work.</p> <p>Turnkey design and/or supply, integration & implementation of all or some of the following services;</p> <ul style="list-style-type: none"> • Design of building(s) housing the MSC and associated facilities, • Project management, • UPS / rectifier and standby power generation systems, • Automatic voltage regulation systems, • Electrical distribution systems, • Electronic systems, • Electrical distribution boards, • Air conditioning / cooling systems, • Raised access flooring, • Data reticulation systems, • Fire detection and gas suppression systems, • Security systems (access control, CCTV), • Ancillary building works.
Zain, Africa - various countries	Networks in 11 countries	+ 10 000	
MTN, Africa Main switching centre & office infrastructure	Rwanda Cell MTN Uganda -1998 MTN Uganda -2002	+ 2 400	
Bank of Uganda	Uganda - 2 x new data / server facilities, Kampala	660	
V-Mobile, Nigeria	Nigeria – new V-Mobile MSC in Lagos	400	
And in South Africa – the following;			
MTN - New MSC's	Sandton, Durban Bloemfontein, Pretoria, Germiston & Pietersburg	+ 2 500	
Telkom – New & refurbished MSC's	Nelspruit, Secunda, Sunninghill + others	+ 2 500	
Cell C - New MSC	Midrand	+ 1 200	
MTN Network Solutions	Internet Hotel - Data Hosting Facility	750	
M-Net (satellite TV broadcaster)	Various high tech rooms for control of operations	+ 750	
Gauteng Central Government	+/- 400 m ² Gauteng Data Centre	300	
Various Clients, and many of them	Rennies Bank, DiData, EDS, IBM, Orbicom, ++	+ 6 000	

3.2 High Precision Installations – for Computer Rooms and Telecommunications Facilities
- as Consultants

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
Nokia, South Africa	Peru network bid	2 300	Assistance to Nokia in developing their bid for this network in South America
Mobile Telephone Networks, South Africa	Sandton Durban Doomfontein Bloemfontein	+ 2 400	<ul style="list-style-type: none"> Design & management of installation of all or some of the following services; Civil works, Power systems, Electrical and electronic services, Data reticulation systems, Fire detection / gas protection systems, Air conditioning and ventilation systems, Access Flooring.
Ericsson, South Africa	Second National Operator switching centers	+ 4 000	<ul style="list-style-type: none"> Fire detection / gas protection systems, Air conditioning and ventilation systems, Access Flooring.
Vodacom, South Africa	Audits of existing MSC sites, and development of proposals for new MSC facilities.	+ 12 000 (value of upgrades under development)	Auditing of existing facilities and design of services upgrades for Telecommunications Switching Centres per; <ul style="list-style-type: none"> Air conditioning systems, Raised access flooring, Associated building works.
Vodacom, South Africa	New concept master switching center, Silverton, Pretoria Upgrades and extensions to this project	+ 1 800 + 2 250	<ul style="list-style-type: none"> Participation in development of this new concept MSC, with chilled water based cooling, a high degree of modularity, flexibility and expandability, and the capacity to handle extremely high heat loads (up to 3 000 W/m²). Design of HVAC system.

3.3 Telecommunications Networks in Africa - Remote Base Stations

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
Telkom, South Africa	Passive Cooling for DECT Containers	10 100 (cancelled)	Design, supply and Installation of Passive Cooling Systems
	Passive Cooling Test Site	30	Test site installation into shelter at Onseepkans, Northern Cape
MTN, Africa Remote base stations	MTN South Africa, Rwanda, Uganda, & Cameroon	Multiple orders for networks in Africa	Turnkey design, supply and installation of specialised air conditioning systems for these base stations.

3.4 General Project Management

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
M-Net, South Africa	Various projects and studios	+ 1 800	Turnkey design, supply and installation of; <ul style="list-style-type: none"> Electrical and electronic systems, Data reticulation systems, Fire suppression and security systems, Air conditioning and ventilation systems, Raised access flooring, Ancillary building works.
Council for Scientific / Industrial Research, South Africa	New laboratory complex	90	

3.5 Design & Supply with Technical Assistance & Commissioning Type Contracts

In such instances, the project installation work is done by local contractors, with GAP Project Engineers providing the design and supply of equipment and materials, project oversight and system commissioning.

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
JA Jones (USA)	Tanzania – new office building, Dar es Salaam	300	Design and Supply of HVAC system components
JA Jones (USA)	Kenya - new office building, Nairobi	1 500	Brokering of contract for design, supply and installation of architectural external aluminium cladding system
V-Mobile, Nigeria	Nigeria - new MSC in Lagos	400	Design and supply of HVAC system components, assistance with commissioning.
Department of Public Works, South Africa	Marion Island, South Atlantic - new weather station	800	Design and supply of HVAC system components.
Barra Beach Hotel Group	Mozambique - new hotel at Inhambane	1 250	Design and supply of HVAC system components, assistance with installation and commissioning.
Alstom France Refurbishment of large cooling systems for Hydro-Electric Power Stations	Zambia - Kariba North power station	4 500 (> 3 MW of cooling)	Typically these project comprise the; <ul style="list-style-type: none"> • Design of the most appropriate cooling systems, based on actual site conditions, • Design of their controls routines, and the associated electrical control panels • Specification & supply of the various systems' components, • Monitoring of their installation, • And the commissioning into services of the various sub-systems.
	Zambia - Victoria Falls power station	700	
	Romania - Lotru-Ciunget power station	2 700 (bid only)	

3.6 Hospitals and Medical Installations – all in **South Africa**

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
Basil Read	Tonga Hospital Mpumalanga	1 100	Design, supply, installation and commissioning of HVAC system
Basil Read	Shongwe Hospital, Mpumalanga	500	
Group 5	Tzaneen Hospital, Limpopo	300	
Visiomed	Visiomed Eye Clinic, Johannesburg	80	Design, supply and installation of specialized HVAC system for eye surgery / laser surgery

3.7 Raised Access Flooring Installations

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
MTN Uganda	Uganda - new MSC's in Kampala	100	Design, supply, installation and sometimes maintenance of raised access floors in data centers and main switching centers (MSC's).
Bank of Uganda	Uganda - new data centers in Kampala	100	
Ericsson	Botswana, Lesotho and Zimbabwe – new MSC's	200	
And in South Africa – the following;			
MTN South Africa	MTN Doornfontein	130	
Telkom	Telkom Secunda	20	
Various Clients, - many of them	Small Access Flooring Projects	1 750	

3.8 Large Cooling Systems for Hydro-Electric Power Stations

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
Alstom France Refurbishment of large cooling systems for Hydro-Electric Power Stations	Zambia - Kariba North power station	4 500 (> 3 MW of cooling)	Typically these project comprise the; <ul style="list-style-type: none"> Design of the most appropriate cooling systems, based on actual site conditions, Design of their controls routines, and the associated electrical / control panels Specification & supply of the various systems' components, Monitoring & assisting during installation, And the commissioning into services of the various systems / sub-systems.
	Zambia - Victoria Falls power station	700	
	Romania - Lotru-Ciunget power station	2 700 (bid only)	

3.9 General Air Conditioning Installations – all in South Africa

- Commercial or other buildings – new developments

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
Dimension Data	Second National Operator HO	110	Turnkey design and/or supply & installation of all or some of the following services; <ul style="list-style-type: none"> Project Management, Air conditioning / cooling systems, Electrical and electronic services, Architectural & building works.
Arrow Altech	Offices & warehouse	150	
ARC Architects	Erf 602 Parktown – 3800 m ² office bldg.	125	
Abcon	Bruma Auto Park – motor Dealerships	150	
Basil Read - bids only	Colesburg and Upington casino's	750	
	3 x Prisons for SA Government	1 600	
VW franchise	New Concept VW Dealership	75	
Various Clients, - many of them	Small HVAC Projects	+ 4 000	

- Commercial buildings - refurbishments

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
Citizen Newspaper	Offices for Citizen Newspaper	425	Turnkey design and/or supply & installation of all or some of the following services; <ul style="list-style-type: none"> Project Management, Air conditioning / cooling systems, Electrical and electronic services, Architectural & building works.
MTN	MTN Head Office Relocations	450	
75 to 78 Fox Street	Gauteng Province	280	
Various Clients, - many of them	Small HVAC Projects	+ 800	

- Warehousing / storage facilities

CLIENT	PROJECT DESCRIPTION	VALUE (US\$ x1 000)	NATURE OF WORK
MTN	MTN Warehouse Sandton	60	Air-conditioning and Gas Extraction Systems
Neil Muller Construction	Clicks Warehouse Centurion	100	Ventilation and Gas Extraction Systems for Flammable Stores

4. **Consulting Experience and Central Plant Air Conditioning Systems** – all in **South Africa**

This section relates primarily to the experience gained by Nicholas Boyle (a Professional Engineer and graduate of the University of the Witwatersrand, 1983) and John Cook (a Professional Technician) during their tenures as Associates at Consulting Mechanical and Electrical Engineering practices.

PROJECT DESCRIPTION	SIZE	PERIOD	VALUE (US\$ x1 000)	INVOLVEMENT
Standard Bank – Phase 2, No.5 Simmonds Street • HVAC system	+/- 40 000m ² a/c space +/- 55 000m ² gross	1988 -1990	Phase 1: 2 000 Phase II: 2 000	Management of; • construction of phase II, • cost control, QA, • design of special areas
Standard Bank – No. 6 Simmonds Street; Phased upgrade of • HVAC system • BMS system	+/- 45 000m ² a/c space	1994 - 1996	1 300	• Detailed heat load survey, • Planning of upgrade, • designs and management for all stages, • cost control, QA
Standard Bank Centre Complex Overseeing of HVAC systems maintenance	135 000 m ² treated space 190 000 m ² gross	1989 - 1996	Ongoing	• Tender documents, • Management of contractor • Inspection and reporting • Meetings and liaison between all parties
Building Management Systems for Standard Bank buildings; • 78 Fox Street • 5 Simmonds Street • 6 Simmonds Street	+/- points 1450 1800 1200	1990 - 1996	 200 450 200	Design and management of ; • installation of new • upgrading of existing Building Management Systems
<u>Other HVAC systems;</u> • Steinmuller HQ • Surrey Place • SBSA East London • Menlyn Shopping Centre & Cinema's • Schering HQ • MacRib Restaurant • La Montagne Hotel and Timeshare Revamp	+/- 6 000 m ² +/- 12 000m ² +/- 3 000 m ² +/- 25 000 m ² +/- 2 000 m ² +/- 500 m ² +/- 135 rooms	1992–93 1991-92 1991-92 1991-92 1993 1995 1996-97	450 125 55 1 400 140 90 600	Management of; • construction phase, • cost control, QA,
Gencor Headquarters • Smoke Detection and Evacuation	+/- 35 000m ² treated space	1993 - 1995	200	Design and management of; • construction phase, • cost control, QA,
Siemens Headquarters - • HVAC System • Raised Floor	+/- 24 000m ² treated space	1994 - 1996	18	Design and management of; • construction phase, • cost control, QA,
SA Reserve Bank - Johannesburg Branch • HVAC • Cold / freezer room • Waste Extraction	+/- 14 000m ² treated space	1994 - 1996	1 400	Design and management of system refurbishment contract; • construction phase, • cost control, QA,
Other Projects		1988 - 1996	4 000	Many projects of a small and varied nature including several computer rooms