

# **Jacobus Lodewicus Uys – B.Eng (Mech)**

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**The applicant is well experienced in the design, installation and maintenance of mechanical building services, having worked as a maintenance manager and as a senior design engineer for consulting firms in the Building Services sector. He has a solid understanding of electronic controls and BMS, the programming thereof, systems integration, as well as energy management. Supplementary skills includes 10 years design experience of electronic circuits, as well as CNC manufacturing including 3D parts design. Due to his broad exposure in the design and maintenance of different systems, he has the ability to easily adapt to systems new to his field of experience. He appreciates and understand old systems, while keeping pace with the latest technology.**

## **SUMMARY OF MOST IMPORTANT SKILLS**

- ◆ **Design Specialist on Thermally Activated Building Structures**
- ◆ Maintenance management for mechanical services at the UFS which included HVAC, live steam, pneumatics, electric and diesel driven steam and hot water boilers, heat pumps and thermal storage systems.
- ◆ HVAC Consulting and design – Building construction projects
- ◆ Global Energy Management for the UFS campus
- ◆ BMS systems: design, programming and installation
- ◆ Conditional Assessments – Including designing and creating mobile platforms for surveys.
- ◆ Raised flooring, Fire detection, Fire suppression (Gas and Water), LP-Gas installations, Medical Gas, Lifts
- ◆ Centralised Fume Hood Extraction Systems
- ◆ Solar water heating design
- ◆ Excellent computer literacy on PC and mobile devices. Fluent in desktop use of Linux, Windows and DOS with some experience on Apple. Strong Desktop and basic Server experience. Database development.
- ◆ Electronics Hardware Design and product development
- ◆ 3D Modelling, CNC Machining, 3D Printing.
- ◆ ECSA Registered (Reg. No: 20080396)

## **CAREER & ACHIEVEMENTS**

### **.Delta Solar CC**

**April 2011 - Current**

- All my electronics design work was done through Delta Solar.
- Fully developed Electronics Products: Basic Fume Hood Flow Alarm, Advanced Fume Hood Flow Alarm, Engine Monitoring Alarm, Booster Pump Set Controller, 2 Types of Water Storage Tank Intelligent Level Controllers, Electronic Automatic Air Bleeder for Closed Loop Pipe Systems, Micro Greens Cabinet Controller, Musical Fountain Controller, Solder Bath Controller, Electric Trailer Brake Controller and some more.
- I use this entity for all consulting and development work.
- Compiled and presented a personalised chiller training course for a fellow HVAC engineering Consultant who did not have the in-house expertise.

- Appointed as Lead Designer by SPK Projects for HVAC design, specification, Revit Drawings and BOQ for the New Engineering Building at the University of Zululand. Chilled Water System.
- Currently developing a continuous flow pyrolysis plant for upcycling of waste plastic. Complete design of the entire plant, including mechanical, electrical and electronic systems. Custom designed electronic controller and programming by myself. All parts are custom manufactured to our drawings. Manufacturing all done in-house.
- Added skills in Solid Works and FreeCAD.
- Retrofitted CNC machine with a new stand alone controller.
- Developed a fully integrated controller for a Microgreens Growth Plant, with 54 Digital I/O's and 16 Analogue Inputs, as well as touch screen. Controls temperature with 2x AC units in duty/standby configuraion, 4 light channels, 6 spray channels, 4-axis solar tracking, generator start/stop, tank level controls and fresh air dampers.

**.CA du Toit, Pretoria**

**October 2018 – June 2021**

*SPU Framework Contract - Key Person*

- TABS systems and passenger lifts of buildings C005, C006, C08, C010, S003 and S015
- Gatehouses N001, S001 and S002. HVAC.
- Bulk Services Plant C015, CX05
- Building R001 – Chilled Water System.
- Building R004 – Packaged Unit
- Building R002 – Domestic Hot Water.
- Implementation of BMS system for SPU campus.

**.DeltaMech, Bloemfontein**

**October 2018 – Current**

*Senior Engineer*

- Nelson Mandel Academic Hospital Umthatha: New chillers for the operating theatres.
- Nelson Mandel Academic Hospital Umthatha: New theatre units for the maternity ward.
- Nelson Mandel Academic Hospital Umthatha: Repair and replacement of Kitchen and Laundry Equipment
- Frere hospital: Replacement of piping services for a 5 storey hospital block. Steam, Domestic Hot and Cold Water, Fire Water, Waste Water.
- Mall: Preller Plain Bloemfontein: Specialist mechanical, electric and electronic design of water feature.
- St. Lucia Island: St. Jude Hospital, 100 Beds: Chilled HVAC System, as well as 3-part specifications for all mechanical services.
- Limpopo Academic Hospital, 480 Beds: TABS system, 3-part specifications for Kitchen, Laundry, Medical Gas and TABS.

**.Royal HaskoningDHV, Bloemfontein**

**Nov 2013 – September 2018**

*Principal Associate* – The candidate was made an attractive offer by RHDHV and decided to take up the opportunity.

- Sol Plaatje University: Buildign C007. This building is a pre-graduate science LAB and required a high density of services. The Candidate was responsible for the specialised HVAC system, as well as the fume hood extraction system and the passenger lift.
- Sol Plaatje University on NEC framework Contract. Initially awarded 3 Land Parcels of an envisaged 12 for mechanical works. Appointment eventually extended to cover 8 Land Parcels as well as appointments for renovations of existing buildings. Current value of building projects involved with: R 800 million.
- Sol Plaatje Univeristy: **Thermally Activated Building Structures**. The applicant is one of the pioneers to have implemented this technology in South Africa. He devised installation methods unique to South Africa. Covering over 30 000m<sup>2</sup> between 4 buildings all supplied from a central plant room, this is by far the largest application of this technology in South Africa, and rank under the major implementations world wide.
- Sol Plaatje University and University of Mpumalanga: BMS and Electronics Services Master Plan.
- Sol Plaatje University: District Chiller Plant Room, Lifts, Fume Hood Extraction, HVAC, Master Plan for District Heating / Cooling.
- UFS Arena: Installation of new HVAC system for a 5000 seater arena.
- UFS Van der Merwe Scholtz Hall: Installation of a new HVAC system in this Heritage Building. Including obtaining of heritage council approval.
- UFS Agriculture: Glass house for Dept. Agriculture.
- UFS SHU5: Domestic hot and cold water for hostel.
- UFS: Various remedial works.
- ACSA: Energy Efficiency project for Upington, Kimberley and Bloemfontein
- Barberton Prison: Complete survey and documentation for repair and renovations contract. Final Remeasurement and inspections.
- Designed and implemented the software mobile platform for conditional assessment of hospitals surveys.
- Conditional assessment for Mimosa Mall, which resulted in an extension of the appointment to design a new Fire Detection and Voice Evacuation System.
- Saturday School Initiative: Voluntary Teacher for Chemistry for grade 11 and graded 12 learners in township schools.

### **.Mekan Engineering Services, Bloemfontein**

**Oct 2011 – Oct 2013**

*Senior Engineer* – Due to a significant drop in work at Experto Designa in 2010, the applicant accepted a position at Mekan Engineering Services, also in the Consulting Engineering Environment.

- This move was done to gain experience in Geothermal systems and the design of mechanical services for Hospitals.
- The applicant enrolled as a Mentor under ECSA to train Candidate Engineers.
- Involved with managing large projects like Repair and Renovations for 8-SAI and Lohatla Army bases.
- Designed mechanical services for various hospitals (Port Nolloth, Kimberley High Care, Tshwaragano) including HVAC, Medical Gas, Fire Detection, Patient Monitoring, Smoke Detection and Domestic Wet Services.
- Specified and manage the HVAC maintenance contract for Mimosa Mall.
- Involved with various projects for Department of Arts and Culture to include stadiums, theatres and indoor sport centres.
- Involved with upgrading and renovations of existing schools, as well as services for new schools.

- Involved with services for a number of new Libraries. (Clarens, Oranjeville, Hobhouse, Oppermansgronde, Winburg)
- Commissioning of large central systems. (Kimberley Conference Centre.)

**.Experto Designa, Bloemfontein**

**Apr 2004 – Feb 2011**

*Director* – A father and son business focussed on mechanical consulting engineering. The applicant was an equal partner.

- The applicant moved into this business when he developed a Biltong Drier system based on the refrigerant principle, for the commercial market. The product was fully developed under Experto Designa and sold commercially. Due to a small demand in the market, active production was limited to about 4 years, but the system itself was a huge success in terms of working principles and reliability and is still supported.
- In this time, the applicant also focussed on general consulting work in the building services industry where HVAC design made out the bulk of the work.
- Between June 2008 and June 2010, Experto Designa was sub-contracted by Dihlase Consulting Engineers to work on all 10 Soccer stadiums, where they managed the mechanical consulting for the BTS rooms for MTN. This included HVAC, fire detection, FM200 fire protection and raised floors. This resulted in excellent exposure to computer rooms and data centres.
- Other works included compressed air installations, gantry cranes and effluent plants.
- The applicant was fully involved in the daily running and administration of Experto Designa.
- The client base included the University of the Free State, Department of Works, Department of Health and other consultants.

**.Sunsa, Bloemfontein**

**Jan 2008 – Jul 2011**

*Director* – A Small company focussing on design and installation of solar hot water systems.

- The business was originally formed with 3 other partners due to the passion of the applicant for renewable energy sources.
- While the business was not a financial success due to an overall low demand for solar water systems, the applicant gained solid background and design experience in this field for later reference.

**.ZC Airconditioning, Bloemfontein**

**Apr 2000 – March 2004**

*Maintenance Manager* – The applicant was responsible for running the privatised mechanical maintenance contract for the University of the Free State.

- The position entailed the implementation of the specification for this project that the applicant compiled when still working for CA du Toit (PTY) Ltd prior to closing.
- The applicant managed a workshop with six technicians and twelve labourers.

- The applicant developed a complete database system to automate the administration of the maintenance project. That included full automated service scheduling for maintenance schedules, quoting and invoicing. The system was used for many years after the applicant left the position and became unserviceable due to outdated software.
- The entire Johnson controls BMS system on the campus was designed and to a large part, physically installed and programmed by the applicant.
- Energy management formed an integral part of the above BMS system and the applicant was responsible for managing this.
- During this time, the applicant was exposed on a daily basis to the contracting side of HVAC and have in depth knowledge of the challenges of the business.

### **.CA du Toit PTY (Ltd), Bloemfontein**

**Jan 1999 – March 2000**

*Candidate Engineer* – The position the applicant held directly after completion of studies and which introduced him to consulting engineering and HVAC.

- The applicant gained broad experience in the consulting engineering industry and became responsible for some of the smaller projects which included HVAC, Fire Detection, Fire Sprinkler Systems and LP-gas installations.
- Developed a computer system to help manage projects and general office administration like time sheets. This system was used in most branch offices.
- CA du Toit had to close down due to a local economic collapse in 2000.

### **.EDUCATION, QUALIFICATIONS & PROFESSIONAL MEMBERSHIPS**

- Professionally registered with ECSA (Reg. No.: 20080396)
- University of Stellenbosch: B.Eng (Mech) 1998
- Member of SIAMECHE

### **.FURTHER PROFESSIONAL ACTIVITY**

- The applicant was involved in some lecturing at the Technikon of the Free State in 2000 (Fluid Dynamics) , as well at the University of the Free State in 2004 (Airconditioning for architectural students).
- An Access 97 training course was done in 1999

### **.PORTFOLIO OF COMMERCIALLY DEVELOPED ELECTRONIC PRODUCTS**

- Basic Fume Hood Controller with touch screen. Fully Customisable programming. On/Off fan control. Lights Control. Single Speed Flow Alarm. Fire Interlock.
- Advanced Fume Hood Controller with touch screen. Fully Customisable programming. VAV control on fan. Touch Screen. Fire Interlock. Night Mode. 3-speed Flow alarm.
- Water Storage Tank Manager. Manage a single water storage tank to allow for both backup water and rain water harvesting functions. 5-Level Water Control.
- Water Storage Tank Manager. Manage a single water storage tank to allow for both municipal and borehole as sources. Backup water and rain water harvesting functions. 2-Level Water Control.
- Electronic Air Bleeder for large piping systems. Controller will automatically bleed air from a supply and return line of water. Pipe size independent. Affordable.
- Engine Water level monitor.

- Musical Fountain Controller. 6-channel. Pump Control. Tank level control. Custom Programmable.
- Drag Race Christmas Tree.
- Automotive Lights On Buzzer.

## **.PERSONAL**

Date of birth: 1976-11-03

Status: Married, 2 children

Nationality: South African

Driving licence: EB

Hobbies/Leisure-time activities & interests : Photography, Overlanding, Peak Oil, Renewable Energy, Reading

## **.REFERENCES**

Eon Kruger: Client UFS	082 407 6905
Debbie Bresler: Office Manager – RHDHV	082 899 0892
Mpho Thabane: Office Manager – Mekan	076 484 3449
Chris Aslet: Client SPU	083 290 6175
Elré van der Walt: QS	083 281 8373

# KEY WORDS

## **.Building Services Sector**

- HVAC Design
- Chilled Water Systems
- Custom DX System Design
- Thermally Activated Buildings Structures
- Domestic Bulk Water Storage and Supply
- Maintenance Management
- BMS Systems
- Energy Management
- Fire Detection
- Voice Evacuation
- Patient Monitoring Systems
- Nurse Call Systems
- Access Control Systems
- Fire Sprinklers
- Fire Suppression Systems (Gaseous Systems)
- Raised Flooring
- Solar Hot Water Systems
- LP-Gas Installations
- Medical Gas
- Compressed Air
- Effluent Plant
- Industrial Reverse Osmosis Systems
- Gantry Cranes
- Vertical Transport (Lifts)

## **.Complimentary Skills**

- Excellent Computer Literacy
- Dexterity
- Product Development
- Technical Fault Finding
- Electricity and Electronics. Understand electronic controls well and can program PLC devices.
- Electronics Hardware Design and Development.

## **.Personal Traits**

- Tenacious
- Analytical
- Self Motivated
- Critical