Curriculum vitae

CURRICULUM VITAE

Proposed role in the project:

1. **Family name:** **JAYES**
2. **First names:** **Wayne**
3. **Date of birth:** 1963
4. **Nationality:** South African
5. **Residence:** South Africa
6. **Education:**

Institution [Date from - Date to]	Degree(s) or Diploma(s) obtained:
University of Natal, Durban. Feb 1981 to Nov 1985	**Bachelor of Science in Engineering (Mechanical)**

7. **Language skills:** Indicate competence on a scale of 1 to 5 (1 - excellent; 5 - basic)

Language	Reading	Speaking	Writing
English	1	1	1
Afrikaans	2	2	3

8. **Membership of professional bodies:** South African Sugar Technologists Association (SASTA)
9. **Other skills:**
   - Certified Microsoft Office Specialist in Excel (https://goo.gl/GXlCHA) and Word (https://goo.gl/FJJxem).
   - Proficient in the use MS Project and PowerPoint.
   - Expert knowledge of CAESAR II pipe stress analysis software used for the design of steam piping in power stations and process plants.
   - Expert knowledge of 3D computer aided design packages including OnShape, and SolidEdge. Good knowledge of 2D AutoCAD software.
   - Expert with SmartDraw software used for creating process and utility flow diagrams.
   - Excellent computer skills, programming in VisualBasic, php , MySQL and C++.
10. **Present position:** Principal Consultant at *The Sugar Engineers,* my own engineering and project management consultancy.
11. **Years within the firm:** Eight years.
12. **Key qualifications:**
    - More than 25 years working at various levels and roles in the Sugar Industry, including as plant engineer in the factory, site project engineer, project manager, and as engineering consultant. I have expert knowledge of all aspects of sugar processing technology and engineering.
    - More than 20 years of this experience has included power station and energy projects for sugar factories.
    - This experience covered the *technical feasibility studies* of sugar factory power stations (including the calculation of fuel consumption, steam production, and electric power generation).
    - Also included in this experience is the preparation of *engineering specifications* for power station equipment such as fuel handling equipment, boilers (bagasse, coal and oil fired), steam turbine generators (back pressure, condensing and pass-out types), ash and effluent handling plants and equipment.
    - *Capital cost estimates* for sugar factory power stations have been a very important part of my work in these 20 years of experience. I use the techniques and methods of the I Chem^{E} and the ACostE for capital cost estimation.
    - I have a thorough knowledge of the FIDIC suite of project contract documents and I have 10 years of experience in drafting and administering the FIDIC Plant and Design Build Contract (yellow book), the FIDIC Construction Contract (red book), the FIDIC Consultancy Agreement (white book) and the FIDIC EPC/Turnkey Contract (silver book).
    - I have developed a flexible but robust Excel spreadsheet for analysing the *financial feasibility* of sugar projects including sugar factory power stations. The spreadsheet has been used in a number of projects I have been part of and calculates an income statement and cash flow model to estimate *nett present value (NPV)* and *internal rate of return (IRR)* of a project. The spreadsheet model takes into account all capital costs, revenue streams, operating costs (raw materials, process chemicals, utilities such as energy and water, labour, and overhead costs) and financing costs.
    - My 20 years' experience in sugar factory power station projects includes the management of the erection, commissioning and testing of the boilers and steam turbine generators and associated equipment.
    - More than six years of project management experience gained at Simunye and Nakambala sugar factories. I use the principles of the *Project Management Body of Knowledge (PMBOK)* for my project management assignments.
    - I have experience of EU FWC procedures in Guyana, South America, this experience was gained in 2010 working at Blairmont and Enmore factories, details below.
    - Excellent communication skills in English, in spoken and written language.
    - I have five years' experience as a project manager and leader of a team of engineering and project professionals.
    - I have 15 years' experience of working in many foreign countries, specifically developing countries and I have developed very good skills for undertaking this type of work.

- While I am a mechanical engineer and not an electrical engineer I have a good knowledge of the use of variable speed drives and how they are applied to the control of mechanical equipment in sugar factories. Specifically I have designed a number of vertical crystallizers in which I specified the motor to be driven by variable frequency drive (VFD) using *torque control*. This technique is very useful in keeping the shaft moving as fast as possible without overloading the gearbox and other mechanical equipment. Batch pans stirrers/agitators are also amenable to conversion to variable frequency drive using torque control: Massecuite viscosity increases during the boiling cycle causing the current in the stirrer drive to increase, by using a VFD the speed and torque can be optimised. I have designed and specified a number of these systems too.

13. **Specific experience in the region:**
    - In 2010 I was part of an EU funded team of four consultants which provided engineering advice to Guyana Sugar Corporation (Guysuco): My initial assignment was to do a study into the relocation of a mill from Skeldon I (SWR) to Blairmont (BCF). The objective of the study was to determine if it is technically feasible to relocate and install the Fletcher Smith (FS) four-roller mill which was at the old Skeldon factory (SWR) at BCF in place of the existing crusher at BCF.
    - Furthermore the feasibility of installing the mill during the three-month long mid-year maintenance period in 2011, without affecting factory operations, was investigated. The scope included the following work:
        - Identify and specify the mill components to be replaced in converting the mill from 66” to 78” roll length at 130 tch capacity
        - Prepare a foundation plan for the installation of the turbine, mill and gearing.
        - To liaise with Fletcher Smith in the acquisition of the mill erection drawings
        - Design the Donnelly chute from rubber belt conveyor to four-roller mill
        - Design a suitable inter-carrier from new mill to existing mills.
    - During the same assignment I was given an additional task of a study into the modification of a Punt Dumper at Enmore (EHP) The objective of this study was to identify the most suitable site for erection at EHP of the punt dumper, bearing in mind additional factory maintenance and operation costs, ease and versatility of operation and the most suitable canal layout at the proposed up-rated throughput of 180 tonnes cane per hour (tch). The scope of services included:
        - The design of additional carriers, feeder tables and associated equipment
        - Utilisation of carriers and punt dumper available at Skeldon where applicable
        - Advising on foundation plan and erection procedure.

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14. **Professional experience**

Date from - Date to	Location	Company	Position	Description
August 2016	Saris, Congo	Somdiaa GTADEBOIS@saris.somdiaa.com	Piping expert	Consulting to the Somdiaa Group at their Saris-Congo Factory regarding their sugar factory steam turbine generator; solving problems regarding steam piping and turbine vibrations.
Jun 2015 to Dec 2015	Sezela, South Africa	Sivest/Illovo Sugar didierr@sivest.co.za	Engineering expert	An energy improvement project at Sezela Sugar Factory, my involvement in this project was to design the layout of the turbine hall, coordinate with the steam piping designer, and coordinate with the turbine and generator suppliers. The purpose of this project was to expand the power station to improve energy efficiency at the plant.
Mar 2014 to Jun 2014	Gledhow, South Africa	Sivest/Illovo Sugar didierr@sivest.co.za	Engineering expert	In 2014 I did a bagasse fuel optimisation study for Gledhow Sugar Factory. The purpose of this study was to prepare a basic design and project feasibility for a new bagasse fired power station: Gledhow exports much of its bagasse to an adjoining paper factory and in return receives the equivalent amount of energy as coal. The paper factory was under threat of closure and this placed an enormous risk on the sugar factory as it had no facilities to generate steam from bagasse. The study included a fuel handling and boiler specification, and capital cost estimate and a financial feasibility of the project.
Dec 2009 to Aug 2011	Chisumbanje, Zimbabwe	Greenfuel joe@prozim.co.za	Engineering expert	Boiler and power station engineering project including piping engineering for Greenfuel ethanol from cane plant at Chisumbanje. This project was a green field project to produce ethanol from cane. A Brazilian made boiler and steam turbine generator was procured. My role was the layout and design of the boiler plant, turbine hall, ash and effluent handling and steam and other piping. I also did the detailed design of the boiler feed water plant including the deaerator.
Jun 2012 to Mar 2013	Khartoum, Sudan	Kenana Engineering and Technical Services ali.bakhreiba@kenana.com	Engineering expert	Sugar factory design and specification, Mauritania Sugar Project, El Redais sugar factory and El Rammash sugar factory, Sudan.
Oct 2010 to Dec 2011	Simunye, Swaziland	Royal Swaziland Sugar Corp/Sivest didierr@sivest.co.za	Engineering expert	Power station expansion project high pressure steam piping design and commissioning.

June 2009 to present	Grahamstown, South Africa	Self-employed technical consultant	Principal consultant	In addition to the above mentioned projects I have worked on many projects for multiple clients as a freelance consulting engineer, including: • Sugar factory design and price estimate, **Massingir**, Mozambique, 2012 • Boiler piping design review for **Komati Sugar Factory**, South Africa, 2012 • Boiler blowdown vessels design and engineering, **Royal Swaziland Sugar Corporation**, 2012 • **Ubombo Sugar**, Swaziland - pipe stress analysis of high pressure and exhaust steam lines • Design of Hilo Unloader and Whole Stick Cane Shredder for undisclosed client in India. May 2013 to Jul 2013
June 2007 to May 2009	Nakambala, Zambia	SiVEST (SA) Pty Ltd PO Box 1899, Umhlanga Rocks, 4320 South Africa Didier Regnaud, +27 31 581 1500, didierr@sivest.co.za	Project Manager	I worked as the **Project Manager and as the Technical and Contracts Manager** for the Factory part of the Zambia Sugar Expansion Project. This project was executed under an EPCM style of contract. In addition to the expansion of the sugar factory to almost double its size this project included the installation of a 160t/h boiler from ISGEC- John Thompson and a 30MW Steam turbine generator from TPDS, both companies from India. This was a cogeneration plant to provide power for loads external to the sugar factory.
July 2002 to May 2007	Simunye, Swaziland	Booker-Tate Limited Masters Court, Church Road, Thame, Oxon, OX 93 FA, England. Mr Peter Glaum pkglaum@iafrica.com	Project Manager, Project Engineer	While working for Booker Tate Limited I was seconded to the Royal Swaziland Sugar Corporation's two sugar factories namely Mhlume and Simunye. I was the **Client's project manager** for the expansion of the attached distillery at Simunye, the distillery project was a complex brownfield project that took the capacity from 40kl/day to 140kl/day. This project has successfully completed. Praj of India was the designer and supplier of equipment, A South African company did the construction of the plant.
August 1998 to June 2002	Durban, South Africa	Murray & Roberts Engineering Solutions 27 Jan Hofmeyer Road Durban.	Engineer	At Murray and Roberts Engineering Solutions (formerly Engineering Management Services (Pty) Ltd) I was involved in **all aspects of sugar engineering**.
Feb 1994 to July 1998	Durban	Tongaat-Hulett Sugar 1001 Umhlanga Rock Drive La Lucia Durban	Engineer	At Tongaat-Hulett's TMD my job was essentially that of an **internal consulting and design engineer**. I was involved in all aspects of **mechanical engineering related to the sugar industry.** I have had some exposure in the **electrical engineering** field.
May 1990 to Jan 1994	Maidstone, South Africa	Tongaat-Hulett Sugar	Engineer	**Plant engineer.**
Feb 1988 to 6 May1990	Darnall, South Africa	Tongaat-Hulett Sugar	Engineer	**Trainee Engineer.**

15. **Other relevant information** (eg, Publications)

- *The prediction of vibration forces from measured structural response*, read at Noise and Vibration 93 in Pretoria.
- *Investigation into the Performance of a Diffuser Dewatering Mill*, read at SASTA Congress 1994 in Durban.
- *Application of finite element methods to sugar industry equipment,* read at SASTA Congress 1998 in Durban.
- *Optimum Distribution of Heating Surface in a Multiple Effect Evaporator Train,* read at SASTA Congress 2004 in Durban.