

MAKING A MARK

**Wits School of Construction Economics and Management
and its contribution to the construction and property fields**



**Samuel Laryea,
Alexandra Smit-Stachowski
& Bongi Mphuti**

MAKING A MARK



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& Bongi Mphuti**



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Peer-review declaration

The publisher (AOSIS) endorses the South African 'National Scholarly Book Publishers Forum Best Practice for Peer-Review of Scholarly Books'. The book proposal form was evaluated by our Social Sciences, Humanities, Education and Business Management as well as Science, Engineering and Technology editorial boards. The manuscript underwent an evaluation to compare the level of originality with other published works and was subjected to rigorous two-step, single-blind peer-review before publication by two technical expert reviewers, who did not include the authors and were independent of the authors, with the identities of the reviewers not revealed to the authors. The reviewers were independent of the publisher and authors. The publisher shared feedback on the similarity reports and the reviewers' assessments with authors to improve the manuscript. Where the reviewers recommended revisions and improvements, and authors responded adequately to such recommendations. The reviewers commented positively on the scholarly merits of the manuscript and recommended that the book be published.

Research justification

The centenary of the University of the Witwatersrand (Wits) in 2022 offered a valuable opportunity to reflect on the historical contributions of its faculties and schools to society. For the School of Construction Economics and Management (SCEM), this milestone highlighted significant gaps in its documented history, underscoring the need for thorough research into its origins, evolution and impact on South African society and the global construction industry.

Upon investigation, it became clear that only a handful of in-depth reports had been published detailing the history of the School. In 1953, JS Lewis authored 'The Institute of South African Architects: Its First Twenty-Five Years – An Historical Essay', a supplement for the *South African Architectural Record*. Respected Wits architect Monte Bryer filled in the gaps with *The Faculty of Architecture of the Witwatersrand, Johannesburg and its role in the community*, published in 1977. Doug Calderwood then highlighted the Department of Building Science in 'The Department of Building Science of the University of Witwatersrand', published in the *Architectural Science Review*, vol. 21, nos. 1–2, pp. 34–35. It was only in 2011 that Graeme Jay, a student who later became a lecturer at the SCEM, analysed the School's curriculum of Property Studies in relation to market demand in his work, 'The views of the property industry on the curriculum of the undergraduate Property Studies degree in the School of Construction Economics and Management at the University of the Witwatersrand'.

A deeper investigation into the pivotal role of Quantity Surveying and Building Science education in South Africa is essential. The research documented in this book aims to bridge gaps in historical knowledge and provide a comprehensive account of the School's contributions to academia, industry and society. The authors declare that no part of this work has been plagiarised or published elsewhere, and necessary acknowledgements to previous publications have been included where applicable.

By tracing the evolution of these academic disciplines, analysing previously published work and historical records, interviewing alumni and academics, and assessing its impact on statutory councils and the construction sector, the study presents a rich narrative of innovation, resilience and global recognition. It also celebrates the achievements of graduates who have shaped the construction industry both locally and internationally.

This work pays tribute to the inspiring academics and students of Wits and serves as a testament to the enduring legacy of the School in advancing the built environment professions. By reconstructing its history through university archives, alumni insights and external records, this research fills a critical void, ensuring the preservation and recognition of the School's significant role in shaping South Africa's academic and industrial landscape.

The book includes chapters and sections based on historical records and previously published material. Where necessary, an acknowledgement is provided at the beginning of each relevant chapter, citing the historical records and sources on which it is based.

Ethical clearance was obtained from the Wits Research Office (ethical clearance number: R14/49), and permissions to reuse participant interviews were granted by the interviewees.

The authors affirm that this book is crafted by scholars for scholars, particularly those studying Quantity Surveying and Building Science, as well as for those interested in the history of how higher education institutions evolved and were influenced by the development of local societies.

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Acknowledgements

This book, titled *Making a mark: Wits School of Construction Economics and Management and its contribution to the construction and property fields*, presents a historical narrative that relies heavily on historical records and previously published materials to assemble and narrate the history of the University of the Witwatersrand (Wits) School of Construction Economics and Management (SCEM) within the context of South Africa's evolving socio-political and economic landscape. To facilitate uninterrupted reading, acknowledgements are placed at the beginning of relevant chapters, listing the materials that have significantly contributed to the development of this narrative. In other instances, in-text references have been included. Additionally, this work features original material from interviews and first-hand accounts. While some historical records may appear incomplete by modern standards, the available information regarding first names, authorship, dates and locations has been included wherever possible.

This celebratory piece from the SCEM pays tribute to the scholars and students who have been instrumental in its development. It includes anecdotal stories that offer an informative, unique and personal account of the School's historical journey from its origin to the present day.

Biographical notes

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FIGURE I.1: Photograph of Professor Samuel Laryea.

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FIGURE I.2: Photograph of Alexandra Smit-Stachowski.

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FIGURE I.3: Photograph of Bongi Mphuti.

Dedication

Samuel Laryea - I dedicate this work to my late father, Henry DA Laryea, who was a building engineer. I also dedicate this book to my family and to the various generations of students, staff and friends of the University of the Witwatersrand's School of Construction Economics and Management.

Alexandra Smit-Stachowski - I would like to dedicate this work to Ellery, Rob and my father, PDH Stachowski, who worked in construction. I also want to thank my partner, Kurt Swart.

Bongi Mphuti - I would like to thank God, my husband Daniel, my sons Thato and Keketso, and Dolly Msibi and her family. I also extend my sincere gratitude to my colleagues and everyone who contributed to the success of this project.

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Abbreviations and acronyms, figures and tables appearing in the text and notes

■ List of abbreviations and acronyms

4IR	Fourth Industrial Revolution
AMEC	International Association for Measurement and Evaluation of Communication
ANC	African National Congress
ARC	All Residence Council
ARIBA	Royal Institute of British Architects' Certificate in Architecture
ARM	African Rainbow Minerals
AS	Associated Scientific
ASQS	Association of South African Quantity Surveyors
BA	Bachelor of Arts
BAQT	Builders, Architects, Quantity Surveyors and Town Planners
BArch	Bachelor of Architecture
B-BBEE	Broad-Based Black Economic Empowerment
BCom	Bachelor of Commerce
BIFSA	Building Industries Federation of South Africa
BIM	building information modelling
BPAC	Building Performance Assurance Council
BSc (QS)	BSc in Quantity Surveying
BSc	Bachelor of Science
CEM	Construction Economics and Management
CEO	Chief Executive Officer
CIDB	Construction Industry Development Board
CIOB	Chartered Institute for Building
CLM	Commerce, Law and Management
CM	Construction Management
CMS	Construction Management Studies
COO	Chief Organisational Officer

COVID-19	coronavirus disease 2019
CSIR	Council for Scientific and Industrial Research
DArch	Doctorate in Architecture
DBA	Doctor of Business Administration
DFA	<i>Development Facilitation Act</i>
DSc	Doctor of Science
DUT	Durban University of Technology
DVC	Deputy Vice-Chancellor
EBE	Engineering and the Built Environment
EFF	Economic Freedom Fighters
EGO	Examinations and Graduation Office
FC	football club
FEBE	Faculty of Engineering and the Built Environment
FIFA	<i>Fédération Internationale de Football Association</i>
FNB	First National Bank
FRICS	Fellows of the Royal Institution of Chartered Surveyors
FRSS	Fast Response Survey System
GUBL	Gauteng University Basketball League
GDP	gross domestic product
IAB	Industry Advisory Board
IPD	Integrated Project Delivery
IREM	Institute of Real Estate Management
ISAA	Institute of South African Architects
IT	information technology
ICT	information and communication technology
KFC	Kentucky Fried Chicken
MA	Master of Arts
MArch	Master of Architecture
MBA	Master of Business Administration
MCP	Master of City Planning
MIT	Massachusetts Institute of Technology
MITRP	Molecular Imaging and Translational Research Program
MRICS	Member of the Royal Institution of Chartered Surveyors
MRT	Mass Rapid Transit
MSA	<i>Municipal Systems Act</i>
MSAICE	Member of the South African Institute of Civil Engineers
MSc	Master of Science
NASU	National Architectural Student Union

NBRI	National Building Research Institute
NCF	National Curriculum Framework
NP	National Party
NPSL	National Professional Soccer League
NRF	National Research Foundation
NSFAS	National Student Financial Aid Scheme
NUSAS	National Union of South African Students
NYC	New York City
OAU	Obafemi Awolowo University
OSM	off-site manufacturing
PASMA	Pan Africanist Student Movement of Azania
PDM	Property Development and Management
PG	postgraduate
PGCAP	Postgraduate Certificate in Academic Practice
PGD	Postgraduate Diploma
PhD	Doctor of Philosophy
PMP	Property Management Programme
PROCSA	<i>Professional Consultants' Services Agreement</i>
PrQS	professional quantity surveyor
PSL	Premier Soccer League
PYA	Patriotic Youth Alliance
QQR	Quinquennial Quality Review
QS	quantity surveyor/quantity surveying
QS Dip	Quantity Surveying Diploma
REITs	real estate investment trusts
RIBA	Royal Institute of British Architects
RICS	Royal Institute of Chartered Surveyors
ROSS	Research Visibility and Open Scholarship Services
RSA	Republic of South Africa
RSW	registered social worker
SAAF	South African Air Force
SAAR	The South African Architectural Report
SABTACO	South African Black Technical and Allied Consultants' Organisation
SACPCMP	South African Council for Project and Construction Management Professions
SACPVP	South African Council for the Property Valuers Profession
SACQSP	South African Council for Quantity Surveying Profession

SADF	South African Defence Force
SAFA	South African Football Association
SAPOA	South African Property Owners Association
SASCO	South African Students Congress
SBDS	Southby, Bihl, Detert and Slade
SCEM	School of Construction Economics and Management
SETA	Sector Education and Training Authority
SLT	School Leadership Team
SoAP	School of Architecture and Planning
SRC	Student Representative Council
TS	technical societies
TSP	Thabo Senyolo and Partners
TUT	Tshwane University of Technology
TVET	Technical and Vocational Education and Training
UCT	University of Cape Town
UFS	University of the Free State
UJ	University of Johannesburg
UK	United Kingdom
Unisa	University of South Africa
UP	University of Pretoria
USA	United States of America
USSA	University Sports South Africa
VC	Vice-Chancellor
VUT	Vaal University of Technology
WABER	West Africa Built Environment Research
Wits	University of the Witwatersrand
WWI	First World War
WWII	Second World War
ZAR	South African rand

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Foreword

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It is with great honour and immense privilege that I provide the foreword to this remarkable and unparalleled publication by the esteemed School of Construction Economics and Management (SCEM). The SCEM is one of the seven distinguished schools within the Faculty of Engineering and the Built Environment (FEBE), boasting the largest student enrolment.

To contextualise, the Faculty currently accommodates nearly 7,000 students, with an undergraduate to postgraduate student ratio of 70:30. Remarkably, almost 20% of these students hail from the SCEM.

The SCEM is the sole School in the Faculty that maintains an almost equal split of 50:50 between undergraduate and postgraduate students.

The overarching goal for the entire Faculty is to achieve a 60:40 ratio within the next three years, and Construction Economics and Management (CEM) is already leading the way in this endeavour. Furthermore, the School has implemented numerous initiatives since the arrival of the new Head of the School, Professor Samuel Laryea, who assumed the mantle from Professor David Root, having set the School on a highly positive trajectory. Many of these initiatives directly align with and contribute to the Faculty's vision and core values.

In November 2021, the Faculty adopted a vision to produce 21st-century global leaders of local significance in Engineering and the Built Environment.

At the core of this vision is to educate our students to be globally competitive without losing sight of national challenges.

This vision is underpinned by four pillars, or strategic objectives, stated as:

- Diversity, equity and inclusion
- Transforming the undergraduate curriculum

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- Improving the impact of our research and innovation
- Digitalisation of administration.

■ Diversity, equity and inclusion

Diversity, equity and inclusion are essential elements that contribute to creating a fair and inclusive society where everyone is valued and respected for their unique characteristics and experiences. Diversity acknowledges the presence of differences within a group, such as race, ethnicity, gender, sexual orientation, age, abilities and more. Equity promotes fairness and ensures all students have equal opportunities and resources. Inclusion goes beyond mere tolerance by actively inviting and valuing diverse perspectives and fostering a sense of belonging for all our students. Embracing diversity, promoting equity and fostering inclusion are key components in building a more just and empathetic community that celebrates and thrives on the richness of its differences.

■ Transforming the undergraduate curriculum

If we intend to produce 21st-century graduates as articulated in the vision, then our curriculum ought to reflect that ambition. We cannot see this vision through 20th-century thinking and approach. As an initial step in this regard, we have introduced Data-driven Decision-making for Engineering and Built Environment professionals as a course offered to all our first-year students from 2024 onwards. This is aimed to be a 4-year course that will be rolled out over the next three years and will constitute a key part of our undergraduate offering.

■ Improving the impact of our research and innovation

Our Faculty is at the forefront of research and innovation on the continent. However, we cannot rest on our laurels. To sustain our relevance, our research must be impactful at all levels. In particular, we have identified societal engagement as an area that will demand our heightened attention in the long term. While conducting ground-breaking research, we should also be mindful of the immediate needs of the societies we seek to serve. Issues of water, energy and digitalisation come to the fore in this regard. For this reason, the Faculty has adopted these three areas as core themes that underpin most of what we do in research and innovation. A strategic fund has been set aside, and collaboration with African Rainbow Minerals (ARM) has been initiated to drive this objective.

■ Digitalisation of administration

Very little can be achieved efficiently in an environment where administration is not streamlined, hence this strategic pillar. We have embarked on a steep drive to ensure that Faculty administration processes are fully digitalised to ensure smooth performance in all our operations. Foremost in our objectives are the reduction of turnaround times for theses and dissertation submissions, as well as the digitisation of all our students' and personnel records.

The SCEM has demonstrated a strong commitment to these strategic objectives, leading to significant transformation within the Faculty and possibly the entire University.

Notably, the School boasts a diverse academic staff, with 12 South African black women contributing to its Faculty. This reflects the School's ability to attract top talent both locally and globally, enhancing its reputation and influence. Additionally, the School has set a precedent within the Faculty by establishing an internally resourced and managed postdoctoral programme. Moreover, under the guidance of Professor Samuel Laryea, the School has implemented writing retreats to support early career academics in enhancing the quality and quantity of their publications. Furthermore, all academic programmes offered by the School are fully accredited by relevant governing bodies.



Source: Copyright 2025 © Thokozani Majozi. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE II.1: Photograph of Dean Thokozani Majozi.

Preface

Samuel Laryea

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The School of Construction Economics and Management (SCEM) began with a humble handful of Quantity Surveying (QS) students in 1928 and has grown exponentially to its current student population of 1,400.

From offering only one programme resulting in a diploma, the SCEM now offers 14 programmes in the undergraduate and postgraduate categories in 2024. The Institution has grown from a department into a School, currently the largest among the seven schools in the Faculty of Engineering and the Built Environment (FEBE). It has produced over 10,000 graduates who are all over the world, making their mark!

The SCEM's student profile comprises 49% undergraduate and 51% postgraduate students (2023). It hosts almost 30% of the postgraduate student population across FEBE and about 20% of the entire FEBE student population. The remarkable story spanning almost a century has been collected and written up for students, alumni and the public alike to see the growth, contribution, impact and how the SCEM left a mark on the community (see Chapter 13 for a detailed statistical breakdown).

The story began when the University of the Witwatersrand (Wits) celebrated its centenary in 2022. It saw the centenary as a time of reflection and celebration for the global university community. It was a chance for each of the five faculties and 33 schools within the University to reflect on their individual history and contributions to society.

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The SCEM embarked on a seemingly simple exercise to identify the people who had served as the Head of the School from its inception to the time of the University's centenary. This proved to be an inconclusive and challenging task, and we faced many obstacles. This gap in historical knowledge was why we chose to invest time and resources in the research and write this book.

Wits was the first university in South Africa and the wider African continent to offer formal university education in the form of diplomas and degrees in the fields of QS and Building Science. This book traces the history of the SCEM back to its roots, founded in the Building Science and QS courses offered by Wits in 1928.

The historical developments around the development of QS and Building Science education from then to now need to be properly documented, given the important roles of these professions in the development of South Africa from the post-Anglo-Boer War era to now. That was a primary reason for writing this account.

This book provides a historical account of the SCEM, highlighting its contributions and impact on society. Despite facing historical hurdles, the SCEM has made significant strides, leaving a positive impression on academic and industry development. It examines the School's past, present and future within the broader context of South African history and the overall development of the University.

The process of writing this book has been both challenging and exciting, with interesting discoveries about the academic disciplines and the growth trajectory of the School. Uncovering information from various sources within the University and external sources proved to be a significant challenge.

Ethical clearance was obtained from the Wits Research Office (ethical clearance number: R14/49), and the interviewees granted permission to reuse participant interviews.

This book chronicles the careers of graduates from the School who have held prominent leadership and management roles, leaving an indelible mark on the construction industry both locally and internationally. The School's alumni have made significant contributions to the growth and advancement of the South African construction and property sectors, as well as to their respective statutory councils, including the South African Council for Quantity Surveying Profession (SACQSP), the South African Council for Project and Construction Management Professions (SACPCMP) and the South African Council for the Property Valuers Profession (SACPVP).

The School's graduates have also played leading roles in major construction firms that have built some of the iconic buildings in South Africa and other parts of the world. In recent years, many of the School's graduates have been increasingly recruited by firms in Europe, the Middle East, Australia and the United States of America (USA), indicating the quality of their education and their value to employers and the global construction industry.

A meticulous search through the Wits archives and available published material could produce a considerable amount of history and contributions of the School in this book. As these sources spoke their minds, many of their quotes are produced *verbatim* so that we can appreciate their wisdom.

When gaps emerged in the historical chronology, we consulted those who studied and taught at Wits during various phases of our Faculty. The alumni and former academics, many of whom continue to play vital roles in shaping our country, took time from their busy schedules to answer several questions, share their fondest memories and discuss their perspectives on the current state of the industry.

The original 15-page manuscript has expanded and evolved – much like the School itself – into a comprehensive volume of interviews, previously unheard stories and a dynamic, essential record intended to be read and shared widely.

The narrative presents the factual history of the SCEM from its inception to the present day, enriched with engaging anecdotes and photographs. Student awards are also included, where such information is available.

This account also honours the inspiring academics – among them Professors Harry Bell-John, Geoff Pearse, Doug Calderwood and Ronnie Schloss – as well as the dedicated lecturers who guided today's leaders in QS, construction management, building sciences and property development, setting them on the paths they have carved to make their mark.

This story is filled with *chutzpah* (Yiddish for boldness), grit, determination, humour and a few mishaps. It clearly demonstrates that the time students spend at Wits and the SCEM leads to lasting friendships, business acumen and the emergence of professionals in the built environment who are making their mark across the country, continent and world. This is their story and the journey of the SCEM.

Genesis of this book

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Tasked with uncovering the history of the School of Construction Economics and Management (SCEM), the researchers chose a mixture of archival research, a literature review (primarily online), interviews (face to face, online and email) and questionnaires with those who worked and studied at the School to give their bird's-eye view.

The journals, edited by the students and staff instrumental in the Faculty, included *The African Architect*, *South African Architectural Journal*, *The South African Architectural Record*, *Wits Review*, *Future Build*, *University of the Witwatersrand Gazette* and *Wits Vuvuzela*. As these are directly linked to the School, they have proven invaluable and given voice to the School at that time.

Student dissertations and online articles were also included. Table I.1 lists the publications used in the research.

Upon completing the archival review, the researchers conducted interviews with former staff members and alumni to address gaps in the

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TABLE 1.1: Academic journals used as sources in researching the University of the Witwatersrand's School of Construction Economics and Management.

Academic journals, theses, online publications and historical and business websites	Publication date and edition(s)
<i>The African Architect</i>	1911 – August edition
<i>The African Architect</i>	1912 – January, June & August editions
<i>The African Architect</i>	1913 – September edition
<i>The African Architect</i>	1914 – July edition
<i>The South African Architectural Journal</i>	1924 – March, June & December editions
<i>South African Architectural Record</i>	1925 – September edition
<i>South African Architectural Record</i>	1927 – September edition
<i>South African Architectural Record</i>	1928 – December edition
<i>South African Architectural Record</i>	1931 – June, September & December editions
<i>The South African Architectural Journal</i>	1932 – March, April, May & September editions
<i>South African Architectural Record</i>	1940 – May edition
<i>South African Architectural Record</i>	1942 – April & July editions
<i>South African Architectural Record</i>	1944 – January, April editions
<i>South African Architectural Record</i>	1945 – December edition
<i>South African Architectural Record</i>	1946 – February, May, June & December editions
<i>South African Architectural Record</i>	1947 – February, June, July, August & December editions
<i>South African Architectural Record</i>	1948 – March, August & October editions
<i>South African Architectural Record</i>	1950 – September & October editions
<i>South African Architectural Record</i>	1951 – February, May, September & November editions
The Institute of South African Architects and Chapter of South African Quantity Surveyors Fifth Congress	1951 – May edition
<i>South African Architectural Record</i>	1952 – January & June editions
W Duncan Howie with Ugo Tomaselli, Gilbert Herbert, <i>Man-Made Johannesburg, South African Architectural Record</i>	1952 – January
<i>South African Architectural Record</i>	1953 – January, May & September editions
<i>The Institute of South African Architects: Its first twenty-five years – An historical essay</i> , JS Lewis, supplement to the <i>South African Architectural Record</i>	1953 – May
<i>South African Architectural Record</i>	1954 – May edition
<i>The Faculty of Architecture of the University of the Witwatersrand, Johannesburg and its role in the community</i> , Monte Bryer	1977
DM Calderwood, 'The Department of Building Science of the University of the Witwatersrand', <i>Architectural Science Review</i>	1978
Metropolis Architectural Students Congress	1986 – April edition
<i>FutureBuild</i>	1983, 1984, 1993 & 1994 editions
'The views of the property industry on the curriculum of the undergraduate Property Studies degree in the School of Construction Economics and Management at the University of the Witwatersrand', Graeme Michael Jay, MSc thesis, University of the Witwatersrand	2011
'Apartheid politics and architecture in South Africa', Walter Peters, Thesis, University of the Free State	2014 – July
'Wits introduces property degree', <i>News24</i> [online article]	2001 – 01 November

Table 1.1 continues on the next page→

TABLE I.1 (cont.): Academic journals used as sources in researching the University of the Witwatersrand's School of Construction Economics and Management.

Academic journals, theses, online publications and historical and business websites	Publication date and edition(s)
'Property management course proves popular', <i>Bizcommunity</i> [online article]	2010 – 24 February
'Building bridges', <i>Wits Vuvuzela</i> [online article]	2012 – 30 March
'Communication skills', <i>Wits Vuvuzela</i> [online article]	2012 – 24 May
'Charting the pioneering women in academia', <i>Wits Vuvuzela</i> [online article]	2013 – 20 April
'Teamwork makes the dream work', <i>Wits Vuvuzela</i> [online article]	2014 – 29 August
'Mens Res expected to slaughter a cow', <i>Wits Vuvuzela</i> [online article]	2017 – 28 September
'Obituary – Judith Frankel Lipkin BSc QS', <i>Wits Review</i> [online article]	2018 – April
'New ARC Chairperson hailed as a champion of students', <i>Wits Vuvuzela</i> [online article]	2018 – 06 April
'Mens Res celebrates graduating Raiders', <i>Wits Vuvuzela</i> [online article]	2018 – 07 April
'Fees Must Fall Protests cost universities R800m', <i>Wits Vuvuzela</i> [online article]	2018 – 18 August
'Witsie is first black woman to conquer edge in real estate', <i>Wits Vuvuzela</i> [online article]	2019 – 10 August
'Basketball Wits Tournament celebrates women in sport', <i>Wits Vuvuzela</i> [online article]	2019 – 12 August
'Braam Hotel to be converted to student accommodation', <i>Wits Vuvuzela</i> [online article]	2019 – 16 August
'Witsie moves mountains for young athletes', <i>Wits Vuvuzela</i> [online article]	2019 – 09 September
'Rethinking Black Tax', <i>Wits Vuvuzela</i> [online article]	2019 – 27 September
'Demystifying the Fourth Industrial Revolution', <i>Wits Vuvuzela</i> [online article]	2019 – 04 October
Harry Bell-John, Doug Calderwood, University of the Witwatersrand's School of Architecture and Planning (SoAP), ArteFacts [historical and business website]	www.artefacts.co.za
Thabo Senyolo biography [historical and business website]	www.senyolo.co.za/about-us.html
Franco Frescura biography [historical and business website]	www.sahistory.org.za/people/franco-frescura
David Gurney biography [historical and business website]	https://gurneyplanninganddesign.co.za/

Source: Data tabulated by the authors.

historical narrative. While a few interviews were conducted face to face, the majority were completed via email using a semi-structured format comprising five core questions, allowing respondents the flexibility to elaborate and revise their answers. Many participants opted for email interviews because of professional commitments, time constraints and the ability to reflect more thoroughly on their responses. The Heads of School and their biographies are listed (Appendix 1), with the lecturers who worked at the School (Appendix 2). Graduation and staff photographs from 1976 to 2018 are included (Appendix 6).

Initially, a Google Form questionnaire was distributed to approximately 50 alumni, resulting in three responses. Following reminder emails, the librarian circulated the form to additional staff and alumni, generating two more responses. Further contacts – identified through interviews and background research – led to a final cohort of 17 respondents.

The anecdotal data collected through these interviews offered rich, previously undocumented insights and professional reflections, many of which have been included in the dedicated appendix ‘In their own words’ (Appendix 3). Table I.2 provides a list of individuals who participated in the interviews.

TABLE I.2: List of interview respondents contributing to the historical review of the University of the Witwatersrand’s School of Construction Economics and Management.

Name	Relation to the School	Qualification	Interviews
Academics			
Ronnie Schloss	Head of the School (and alumnus) (1983–2002)	BSc QS (1968)	Face-to-face interview (04 and 11 August 2023; 15 September 2023)
Elizabeth Pienaar	Head of the School (2003–2006)	BSc QS (1979)	Face-to-face interview (21 February 2024)
David Root	Head of the School (2011–2020)	BSc (1989) MSc (1992) PhD (2000)	Face-to-face interview (08 August 2023)
Ehsan Saghatforoush	Academic	BSc (2006) MSc (2009) PhD (2014)	Email interview (12 September 2023)
Alumni			
Fred Bihl	Alumnus	BSc QS (1959)	Email interview (30 August 2023; 01 September 2023)
Aziz Tayob	Alumnus	BArch (1969)	Email interview (09 October 2023)
Ronald Smith	Alumnus	BSc QS (1972)	Email interview (12 and 14 August 2023; 02 October 2023)
Mark Osborne	Alumnus	BSc QS (1970s)	Face-to-face interview (04 and 24 August 2023)
Franco Frescura	Alumnus	BArch (1977) MArch (cum laude) (1978) PhD (1986)	Email interview (21 and 22 September 2023)
Karl Trusler	Alumnus	BSc QS (Hons) (1980)	Online Zoom interview (31 August 2023); email clarification (27 October 2023)
Thabo Senyolo	Alumnus	BSc QS (1986)	Email interview (02, 04 and 05 November 2023)
Shoayb Loonat	Alumnus	BSc QS (1999) BCom Management (cum laude) (2005) MBL (2017)	Face-to-face interview (20 August 2023); email clarification (22 September 2023)
Mabuse Moja	Alumnus	BSc Property Studies (2006) MSc Building and Real Estate	Email interview (August)

Table I.1 continues on the next page→

TABLE I.2 (cont.): List of interview respondents contributing to the historical review of the University of the Witwatersrand's School of Construction Economics and Management.

Name	Relation to the School	Qualification	Interviews
Mosha Senyolo	Alumna	BSc QS (2009) MSc Building Science (2019)	Online Zoom interview (14 August 2023); email clarification (02 November 2023)
Thapelo Tlhapane	Alumnus	BSc QS (2011)	Email interview (06 and 08 September 2023)
Nyiko Chris Mathebula	Alumnus	BSc QS (2011)	Email interview (04 September 2023)
Administrative staff			
Raymond Ndlovu	Employee (1985–present)	-	WhatsApp audio interview (30 October 2023)

Source: Data tabulated by the authors.

Key: BSc, Bachelor of Science; QS, Quantity Surveying; MSc, Master of Science; PhD, Doctor of Philosophy; BArch, Bachelor of Architecture; MArch, Master of Architecture; BCom, Bachelor of Commerce.

Chapter 1

Forged in gold: The formation of Johannesburg and its built environment¹

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'In Johannesburg, we have a town, which has its history reflected in its patchwork plan'. – Brayshaw, *The South African Architectural Journal* [SAAR] September, 1925, p. 70.

■ Introduction: Proclamation and early settlement

Diving deep into the history books reveals that Johannesburg's origins were officially established on 08 September 1886 when President Paul Kruger of the Republic of South Africa (RSA) proclaimed certain

1. This chapter is based on the following published work: Stoloff, CA 1948, 'Student's forum – The historic buildings of Johannesburg: The market square', *South African Architectural Record*, vol. 33, no. 3, pp. 60–64, viewed 05 August 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/a8eb7637-f898-49b9-95d5-e519310ad6ea/content>>.

How to cite: Smit-Stachowski, A 2025, 'Forged in gold: The formation of Johannesburg and its built environment', in S Laryea, A Smit-Stachowski & B Mphuti, *Making a mark: Wits School of Construction Economics and Management and its contribution to the construction and property fields*, ITUTA Books, Cape Town, pp. 1–5. <https://doi.org/10.4102/aosis.2025.BK544.01>

portions of farms, where Johannesburg now stands, as public diggings. At that time, the population of Johannesburg was recorded at just 50 people.

The Witwatersrand was abuzz with gold mining, and Colonel Ignatius Ferreira was among the diggers during this fervent gold rush. He set up his wagon near the site of the former Stock Exchange, and other pioneers began to settle around him (*Man-Made Johannesburg* 1952, p. 4). This area became known as Ferreira's Camp, marking the beginning of Johannesburg.

■ Laying out the city: Early surveyors create streets

In December 1886, President Kruger visited Turffontein and proclaimed it a township. The name Johannesburg is a hybrid tribute to three influential figures: Johann Rissik, a surveyor of the old South African Republic who later became the Administrator of the Transvaal; General Johannes Joubert, the first government mining official; and Johannes Meyer, a former field cornet (Stoloff 1948, p. 60).

The city was managed by a mining commissioner responsible to the Republican government. In 1890, the first semblance of local government emerged, allowing the community to elect members to the Sanitary Board. Mr JE de Villiers was responsible for laying out the township (see Figure 1.1).



Source: Copyright 1948 © South African Architectural Record (Stoloff 1948, p. 63). Public domain.

FIGURE 1.1: Photograph of Market Square in 1900.

De Villiers initially wanted to establish Johannesburg at Langlaagte but discovered that the preference was to settle closer to Ferreira's Camp. Consequently, Johannesburg was laid out in two narrow strips, with a mine owned by the Oranjeslaagte Syndicate located in the centre, where the Law Courts now stand.

The central area of Johannesburg included this mining property and was designed by Mr W Auret Pritchard. He noticed that the streets in these sections did not align, so he subsequently adjusted the centre strip to align with the southern side. De Villiers and Pritchard were given the option to receive payment for their work in stands or cash. De Villiers chose stands and later resold them for a significant profit. In contrast, Pritchard had little faith in the town's future at the time and opted for cash. However, he later changed his mind and purchased his first property in 1891, believing that the South African rand (ZAR) would remain strong for another 100 years.

■ Naming the city and its streets

Mr Simmonds laid out various sections of Johannesburg, and Simmonds Street was named in his honour. Mr Harry Marshall, who was very interested in the city's early development, had Marshall's Town and Marshall Street named after him. This practice of naming streets illustrates how quickly the story of the town's beginnings was forgotten, even by its early residents.

Mr WA Martin, a pioneer of Johannesburg, was offered the Carlton Hotel stand for £1,500 at the time the first streetlamps were erected in Market Square. The Johannesburg Lighting Company installed the first gas lamp in front of the Landdrost's Court on 17 November 1892.

■ Urban growth and infrastructure

During the Anglo-Boer War (1899-1902), from May 1900 to May 1901, a military governor oversaw the town's affairs under martial law. Following Lord Milner's *Proclamation 16 of 1901*, a nominated Town Council was established, composed of prominent men from Johannesburg. The first civic elections in Johannesburg took place in December 1903, after the conclusion of the war.

■ Governance under martial law and the aftermath

Subsequent academic scholars further investigated the birth of Johannesburg as a metropolis. NL Hanson (Bachelor of Architecture [BArch], Royal Institute of British Architects' [RIBA] Certificate in Architecture [ARIBA] and Master in Architecture [MIA]) described the

construction of this former mining town at the Man-Made Johannesburg Exhibition, organised by the Transvaal Provincial Institute of Architects and the Council of Architectural Students of the University of the Witwatersrand, held in 1952.

Hanson noted that the city's origins as a mining camp contributed to the compactness and simplicity of its initial organised layout, which left a lasting imprint. The subsequent rebuilding that occurred over many decades did not create a new layout; instead, it resulted in overbuilding on existing subdivisions and encroachment on open spaces, shaping the city we see today. He believed that the city's character arises from its unique history:

[...] a fortune-hunter's paradise and graveyard. In the early days, this character led to the building of substantial 'magnates' homes and congested blocks of cottages, the latter to deteriorate to slums. (*Man-Made Johannesburg* 1952, p. 3)

■ From mining camp to metropolis: A city takes shape

In those days, building resources were scarce, so 'houses' were made from imported corrugated iron, supplemented by the paraphernalia of the Victorian cast-iron era. By historical coincidence, the crude street layout aligned with its contemporary American gridiron, which explains the affinity often noted by visitors. The city's foundation on gold left an indelible mark in the mines and their dumps, which penetrated and divided the city, as well as in the varied manifestations of rapid industrialisation, reminiscent of a delayed industrial revolution. This period also marked the birth of the tradition of the single-detached dwelling.

■ The architectural response to rapid urbanisation

After the First World War (WWI), significant changes emerged as the Witwatersrand expanded because of wartime and post-war industrial growth. This expansion shaped Johannesburg's metropolitan character and contributed to the sporadic and unpredictable nature of its development.

In this climate of change, the first fully organised School of Architecture, which later introduced Quantity Surveying (QS) and Construction, was established at Wits.

Simultaneously, the effects of contemporary architectural movements were felt throughout the Western world, including South Africa. Not long

before, the first students had recognised these changes and initiated them locally. Johannesburg became linked to its urban satellites to the east and west, expanding north and south across its renowned ridges. Industrial expansion occurred to the south, while residential development took place to the north. Consequently, the working-class suburbs, townships, locations and slums were primarily established in the south, whereas broad suburban development unfolded in the north. On this foundation, modern Johannesburg has grown.

■ Urban sprawl and segregated development

Hanson wrote about the heavily built-up city that emerged from the original early mining town, where city planning had failed, resulting in overcrowded streets in the town centre. He noted, 'On the other hand, the metropolitan spread – industrial and residential – has dispersed the city over a very large area' (*Man-Made Johannesburg* 1952, p. 4).

In a speech to the Associated Scientific (AS) and Technical Societies (TS) Club in 1925, the retiring President of the Town Planning Association (Transvaal), Mr BW Brayshaw, explained that Johannesburg is 'a town built in haste, its individual parts bearing no relationship to the main body, ignoring all obstacles to reach an objective – profit – its development absolutely uncontrolled' (The Town Planning Association [Transvaal] 1925, p. 70).

■ Birth of built environment education at Wits

It was a pivotal moment for town planners and building industry professionals to begin sharing their skills with young men studying at Wits. These students would later help shape the foundations of the Johannesburg we know today. Education in the built environment became deeply intertwined with the efforts of individuals who played key roles in shaping South Africa – many of them pioneers who left a lasting mark.

Chapter 2

The birth of formal training for quantity surveyors and architects²

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2. This chapter has sections that are based on a historical narrative that is based on and was developed from the following published work:

Adams, HA 1911, 'Quantity surveying and the quantity surveyor', *The African Architect*, vol. I, no. 3, pp. 65-67, viewed 21 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/e1effae4-f422-423a-81c4-1d16820ab237/content?>>.

African Architect: The Journal of the Association of Transvaal Architects 1913, 'Quantity surveyors' section', *African Architect: The Journal of the Association of Transvaal Architects (Materials to specify)*, vol. III, no. 4, pp. 249-262, viewed 21 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/f9d355b6-6829-47ca-9678-c74e9574a2d1/content?>>.

Harris, FC 1953, 'President's address: The chapter of South African quantity surveyors', *The South African Architectural Journal*, vol. 38, pp. 40-46, viewed 20 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/76794162-4151-4d20-8091-65f3e8779735/content?>>.

Lewis, JS 1953, 'The Institute of South African Architects: Its first twenty-five years', *South African Architectural Record - Supplementum*, pp. 7-25, viewed 20 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/3bc6cc9d-c2dc-48e4-b48c-28c42f768fba/content?>>.

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■ Introduction

'Very thorough training on the technical side' (SAAR April 1924, p. 94)

There was fierce pride among those involved in various aspects of the building industry in Johannesburg and across the country. As early as the 1900s, these leaders would gather as a community to recount the origins of the birth of the School of Construction Economics and Management (SCEM).

One of these legends was the President of the Chapter of South African Quantity Surveyors, Fred C Harris, who addressed the QS Chapter in 1953 (Harris 1953, pp. 40–42) and spoke of the early years.

In 1892, the young architect Mr Herbert Baker immigrated to Cape Town, where he was ably assisted by Mr Fricker, who handled much of the QS work. Fricker had hoped to improve his health in the warmer climate, but he sadly passed away in 1897 (Harris 1953, p. 40).

■ Pioneering quantity surveyors lobby for education

Baker's QS work was then taken over in 1898 by Mr AT Babbs, who was the first trained and experienced QS in Cape Town (Lewis 1953, p. 7).

The first recorded QS in Johannesburg was Tommy Moore. Babbs and Moore accomplished a lot. Others joined them in their hard work. When

(footnote 2 continues...)

The African Architect 1912, 'Architects' visit to union buildings', *The African Architect*, vol. II, no. 1, pp. 6–12, viewed 19 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/4ccc6b3c-03c6-4366-b1e0-bd621ae6d323/content>>.

The African Architect 1914, 'The South African Architects' surveyors' and builders' Christmas number', *The African Architect*, vol. iv, no. 2, pp. 20–28, viewed 28 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/ffe4ca88-d7f7-4d96-a407-40d822d96ab5/content>>.

The South African Architectural Journal 1924a, 'Architectural education in South Africa', *The South African Architectural Journal*, vol. 34, no. IX, pp. 35–62, viewed 28 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/9a912489-fc79-4af3-a66d-90832700e69e/content>>.

The South African Architectural Journal 1924b, 'The South African Institute of quantity surveyors', *The South African Architectural Journal*, vol. 34, no. IX, p. 57, viewed 29 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/9a912489-fc79-4af3-a66d-90832700e69e/content>>.

The South African Architectural Journal 1924c 'The School of Architecture – University of the Witwatersrand', *The South African Architectural Journal*, vol. 36, no. IX, pp. 94–101, viewed 29 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/f90ff4e8-6445-469a-9e65-da55eb77e5c5/content>>.

The South African Architectural Record 1927, 'Sir Herbert Baker', vol. XII, no. 47, pp. 59–60, viewed 29 July 2024, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/14bf136a-1e63-478a-86db-718e078a20c4/content>>.

The South African Architectural Record 1942b, 'University of the Witwatersrand School of Architecture', *The South African Architectural Record*, vol. 27, no. 7, pp. 186–192, viewed 17 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/c40638d0-cf55-4b51-b6d4-f12a5fa5e256/content>>.

conditions normalised, after the disruption at the turn of the century, employment resumed in Johannesburg and their numbers increased.

These early innovators were praised by DF Hugo-Naudé, the President of the Chapter of South African Quantity Surveyors, in their 1953 Annual General Meeting, 'These Elder Brethren of the Professions, because of previous experience of professional legislation, might almost be termed "pioneer pioneers"' (Lewis 1953, p. 7).

Johannesburg was not the birthplace of building education in South Africa (SAAR 1924a, p. 37). According to the *South African Architectural Journal* (SAAR August 1953, p. 38), it started in Cape Town in 1902 at the School of Art. This effort consisted of classes in Building Construction, drawing on the lines of technical education in the United Kingdom (UK).

After the Anglo-Boer War, a building boom attracted several fledgling architects from the UK and Australia. The Public Works Department and established architects' offices followed the guidelines of institutions offering technical education in the UK. Durban and Johannesburg soon adopted the same, and a number of students decided to embark on the profession.

■ Founding of the South African Institute of Quantity Surveyors and Early Classes at Tin Temple (1903)

The Natal Institute of Architects was incorporated by statute in 1902, and the South African Institute of Quantity Surveyors created in 1903. This was when architectural training began in Johannesburg. – Lewis (1953, p. 7)

The roots of what would become the SCEM were firmly entrenched in the streets of the northern suburbs of Johannesburg, and soon, budding Qs, builders and constructors learnt the trade.

The first classes were given in the old Tin Temple, under the then Transvaal Technical College, the forerunner of Wits. Professor Pearce, Head of the School, said, 'I well remember those days, as I was one of the first architectural students!', during a speech for the 21st Anniversary Exhibition and Prize-Giving of the School of Architecture in 1942 (The University of the Witwatersrand School of Architecture: Twenty-first anniversary exhibition 1942, p. 186).

Lectures in design were given by scholar and artist, EW Sloper, a partner of Mr (later Sir) Herbert Baker. His work had a significant influence on later domestic architecture in Johannesburg.

In 1903, the Transvaal Technical Institute was established, and classes in Architectural History, Design and Building Construction began the following

year, led by Mr H Seton Morris, supported by Johannesburg's practising architects. Adequate facilities were lacking, and many students left for Europe to complete their studies. The classes, however, continued (The University of the Witwatersrand School of Architecture: Twenty-first anniversary exhibition 1942, p. 186).

However, the first major attempt at obtaining statutory registration for architects resulted in the passing of a *Transvaal Act* in 1909, when the Association of Transvaal Architects was brought into being. There were, in addition, privately organised bodies of architects in the Cape, Port Elizabeth and the Orange Free State. Their efforts at obtaining a South African *Architects and Quantity Surveyors (Private) Act 18 of 1927* were hampered by members of the Union Parliament of 1927, 'insufficiently appreciative of the true function and value, in the national economy, of the professions of architecture and quantity surveying' (Lewis 1953, p. 7).

In 1905, the Transvaal Public Works Department began a QS branch, and the first association of Qs was known as the Transvaal Society of Quantity Surveyors (Harris 1953, p. 40). According to Mr Harry Bell-John (later Head of the School from 1929 to 1942), at the second annual banquet of the South African Institute of Quantity Surveyors in 1913, there were initially 14 members. 'There were croakers at that time, but the pessimism had proved to be unfounded' (*African Architect* 1913a). The Institute was incorporated under the *Transvaal Ordinance 56 of 1904*, under the presidency of Captain Pownall, with Mr I Quail, Secretary (*African Architect* 1913a, p. xi).

In 1906, the Transvaal Association of Quantity Surveyors issued 'The Standard System of Measurement of Builders' Work and Billing of Quantities'. It was the first attempt to standardise the work done and was deemed 'an exceedingly elementary document' (*African Architect* July 1914, p. 24).

In 1908, the original Transvaal Institute amalgamated with the other provincial bodies and was renamed the South African Institute of Quantity Surveyors. The Qs anticipated this, as Fred Harris quipped at the Chapter of South African Quantity Surveyors gala address, 'Our profession is well-known for thinking today what the rest of the world thinks tomorrow, and it is, therefore, not surprising to find that we anticipated [*this*]' (Harris 1953, p. 40).

■ Architectural courses at the School of Mines and Technology in 1909

When the *Transvaal Architects' Act* was passed in 1909, courses began under the aegis of the Association of Transvaal Architects at the then School of Mines and Technology. These were conducted by several lecturers

who furthered architectural education, and the Society of Architects, London (South Africa branch), generously supplied books and equipment (Lewis 1953, p. 7).

In 1910, the registered body, the Association of Transvaal Architects, arranged with the South African School of Mines and Technology (successors to the Technical Institute) to establish a course in architecture for students to qualify to register as architects in Transvaal. This was implemented by Messrs. Howden, Waugh and Dowsett and later by Messrs. Marshall, Leith and Heir. The course embraced architectural history and design, building construction, sanitation, professional practice, etc. (SAAR 1924c, p. 39).

The role and rights of QSs were debated in 1911 by HS Adams, Chief Quantity Surveyor, Public Works Department of the Union and President of the Society of Quantity Surveyors. He advocated for a job description of the building profession and continued that for the man on the street, 'Only experience or knowledge of quantity surveying occurs when he is directly or indirectly connected with some building operation, the introduction to which is, generally, not a happy one' (Adams 1911, p. 65).

At the annual banquet of the South African Institute of Quantity Surveyors, held in July 1911, QS Francis Black raised the point of the need for the QS to be treated as equals and not controlled. He insisted that there be no clause giving architects power over QSs. 'We would welcome a Bill dealing jointly with our interests - we maintain that a QS is a separate entity to the architect' (*African Architect* June 1912, p. 11).

Mattheus Carel August Meischke, the President of the Transvaal Master Builders Association and builder of the Johannesburg City Hall, described the symbiotic but often acrimonious relationship between architects, QSs and builders.

When speaking to members of the Association of Transvaal Architects during a visit to Pretoria at the invitation of the Union Department of Public Works, he said that while there was a close relationship between builders and architects, this was not the case with QSs. He suggested that architects be responsible for the design and QSs focus on the business part. Speaking to the audience, he concluded, 'Architects should be designers only and have nothing to do with money [*Laughter*]. That should be left to the contractors [*Loud laughter*]' (*African Architect* June 1912, pp. 8-10).

In 1914, the third annual banquet of the South African Institute of Quantity Surveyors was held at the New Club, and the outgoing Chair, Mr Everard White, told the crowd that he felt that the roles of architect and QS are so 'closely connected, even more than a surgeon and a physician, that no real

progress can be made without cooperation between the Institutes representing the two professions' (*African Architect* July 1914b, p. 27). He also raised concerns about friction between the two professions and asked for open discussions and cooperation to resolve disputes.

Harry Bell-John, who later became instrumental at the School, raised the point of an Arbitration Board that had already been publicly discussed, 'but nothing tangible appeared to have been done' (*African Architect* July 1914b, p. 27). He felt it was worth the effort to establish such a Board and to establish a Town Planning Board for larger municipalities, where architects and Qs would be represented. Bell-John said at the banquet that those in the building industry:

'Should be able to leave their mark, not only in individual buildings, but in the streets, parks and general layout of their towns and cities'. He added that this did not only include large cities but also 'those small townships which were constantly being laid out'. (*African Architect* July 1914b, p. 27)

One of the first Building Surveyor lecturers at the Transvaal University College was Cecil Alder (*Artefacts*, Alder n.d.). His day job was Assistant Building Surveyor to the Johannesburg Municipal Council, and he was described as one of the Council's busiest officials. Born and educated in the UK, he left Dover during the early stages of the Anglo-Boer War with the first contingent of Yeomanry and was subsequently attached to the 77th Battery of Field Artillery.

During his two and a half years at the front, he saw active service and was awarded the King's and Queen's medals with seven bars. After the war, he returned with Messrs. Stucke and Bannister of Johannesburg, after which he entered the Town Engineer's Department, where he served for many years.

Known to the architectural and building community as his chief, Mr Waugh, Alder framed the existing local by-laws to control cinemas. He was also an honorary secretary of the Transvaal Institute of Architects and registrar of the Association of Architects. Alder conducted evening sanitation classes at the Transvaal University College and was credited with a 75% success rate with his students (*Artefacts*, Alder n.d.).

The first student to earn his architectural diploma was Cyril Walter Reid in 1915 (*SAAR* September 1927, p. 82). After leaving school in 1910, he joined his father's business and started taking classes in Architecture. The Polana Hotel and the Wits Medical School were among his most famous works. Apart from his reputation as an architect, Cyril Reid was well-known as a sportsman, Rotarian and stamp collector (*SAAR* September 1927, p. 82).

During WWI (1914–1918), there were few students, and very little development took place. Ellis and Spicer continued with lessons the following year (SAAR June 1924, p. 39). In 1920, the courses were reorganised and several architects assisted with evening classes. In that year, requests were made to the University College by the Association of Transvaal Architects and the Society of Architects to create a Chair of Architecture.

■ Duncan Burton helps establish the School of Architecture in the Tin Temple

The predecessor to the SCEM was the School of Architecture, with its humble beginnings in 1921, in a tiny, cramped and barely furnished room in the Tin Temple, 'with one student taking the degree course, and a small group of part-time students who were working for what was known as the Architects' Registration Course' (SAAR July 1942, p. 186).

Duncan M Burton assisted financially in its foundation. There was little or no equipment and no library. Lady Florence Phillips, an art patron with a keen eye, came to the School's rescue, donated a number of casts and contributed towards the purchase of the library of the late architect, Joseph Michael Solomon (SAAR July 1942, p. 186).

The Witwatersrand Council of Education and Burton also added to the collection, forming the library's nucleus. Messrs. Gordon Leith, Freddy Williamson, Harold Wolseley Spicer and MJ Heir offered their services as lecturers part-time.

The degree course began in 1922 with three students, increasing to seven students in 1923 and eight students in 1924. The course arranged for pupils in architects' offices was continued and amplified to provide a diploma in Architecture (SAAR July 1942, p. 187).

Freddy Williamson assisted as a part-time lecturer in architectural design in the Department of Architecture from 1921 to 1925. Several years later, he became a senior examiner. Williamson was chiefly responsible for introducing cast concrete facing blocks, which were used for the first time in Johannesburg in the University buildings (SAAR September 1928, p. 64). Burton also pressed for the establishment of the first Chair of Architecture.

■ Geoffrey Pearse is the first Chair of Architecture

In 1921, the University College, with the assistance of the Association of Transvaal Architects, established a Chair of Architecture and instituted a

course for a BArch degree. Geoffrey Pearse, ARIBA, was appointed the first professor (SAAR June 1924, p. 39).

Born in South Africa, Professor Geoffrey Pearse trained as an architect in Johannesburg and London. Elected as an Associate of the RIBA in 1912, he worked with Sir Herbert Baker in Johannesburg. During WWI, he served with the Royal Engineers in Mesopotamia and resumed practice in Johannesburg upon his return. In 1921, he was appointed to the newly established Chair of Architecture at Wits.

‘The energy and high ideals he has given to his academic work have been well rewarded, and the results of his steadfastness are known beyond the confines of this country’, said then student Rex Martienssen (later Head of Architecture) about Professor Pearse (SAAR April 1942, p. 100) (see Appendix 4 for rare student works by Martienssen).

Geoffrey Pearse served on the Transvaal Provincial Committee for many years and on the Central Council of the Institute of South African Architects (ISAA). He supported all reforms leading to better and more adequate codes for town planning on a national scale and worked hard for the recognition of the younger architects by responsible bodies – government and private.

■ Wits Football Club is the first football club in South Africa

In 1921, the University’s Student Representative Council (SRC) formed Wits Football Club (FC), the first football club in South Africa. Nicknamed the Clever Boys, it predated the Zulu Royals (Amazulu), Moroka Swallows and Orlando Pirates (Mokoena 2020). This FC saw future Head of the School, Ronnie Schloss, play for them in the 1960s, before it was later renamed Bidvest Wits FC. The club was sold at the end of the 2019–2020 Premier Soccer League (PSL) season (Mokoena 2020).

■ Architects and quantity surveyors work together to pass a communal bill

Registration talks began in earnest in 1922 or 1923. The architects and the QSs joined forces and together drafted a bill to cover all eventualities. This was withdrawn and redrafted in short form, leaving the details to be covered later by regulations. In 1927, the *Architects’ and Quantity Surveyors’ (Private) Act 18 of 1927* was passed (SAAR March 1927, p. 27).

The Chapter of South African Quantity Surveyors accepted the passing of the Act, which meant that it was one of the five Constituent Bodies of

the Institute, but not equal to one of the four Provincial Institutes. With the Act, the Chapter could act as its own Registering Authority, negotiate directly with the Minister of Education as the Examining Authority to be appointed by the Minister, issue its own Certificates of Membership and advise the Minister on what should constitute a 'qualifying examination' (SAAR March 1927, p. 27).

■ South Africa is the first country to establish professional Quantity Surveying courses

Few know that the Chapter of South African Quantity Surveyors was the first body of QSs in the world to establish professional training courses leading to university degrees and diplomas (Lewis 1953, p. 13). In those days, Johannesburg was seen as the centre of the Architectural and QS sector by those in the industry from Cape Town, Port Elizabeth, Durban, Bloemfontein, Pretoria and Johannesburg. Plea after plea was made (especially by Freddie Williamson) to take a wider South African view of things.

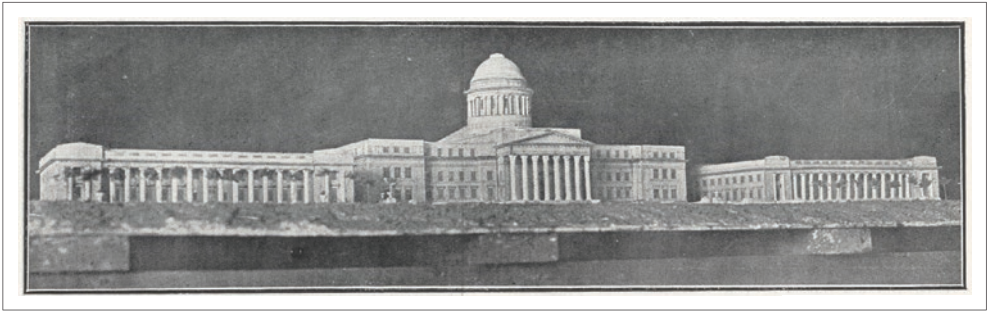
The idea of the enrolment of students and the forming of an Associate Class, and the holding of surveying classes at Wits, was mooted in 1923, during the Third Council Meeting of the South African Institute of Quantity Surveyors (SAAR March 1924a, p. 12).

The following year, the Council again gave considerable time to the advisability of starting classes in QS at Wits. However, considering that the 1924 session had already started, it was decided to leave the matter (The South African Institute of Quantity Surveyors 1924b, p. 57).

A diploma course for part-time students who were students or assistants in architects' offices was begun in 1924 at the University. The Association of Transvaal Architects accepted the course for registration.

The courses were under the Department of Architecture, with Professor Pearce, who assisted in the degree course, aided by Gordon Leith in History and Design. Messrs. Williamson and Heir led the diploma course. Harold Spicer was awarded a Silver Medal in Construction and Design, and Harold Tomkyns was lauded as the Junior Assistant in Construction (Architectural education in South Africa 1924, p. 39).

The Departments of Mathematics and Civil Engineering at the University conducted the more technical side of the course. Both the degree and diploma courses extended over five years, based on the courses laid down by RIBA and its recognised schools of architecture.



Source: Copyright 1924 © South African Architectural Record (SAAR June 1924, p. 37). Public domain.

FIGURE 2.1: University of the Witwatersrand, North Front to Campus in 1924.

At the beginning of 1924, a mere 29 students attended the architectural classes at Wits. The classes were held in temporary buildings adjoining the School of Mines and Technology and later transferred to the eastern bloc of the three main university buildings at Milner Park (see Figure 2.1).

The Chapter of South African Quantity Surveyors was brought into being by the *Architects and Quantity Surveyors (Private) Act 18 of 1927*, and the title 'Quantity Surveyor' was now statutorily protected in South Africa. The Chapter had permanent representation on the Central Council of the Institute and the Institute's Board of Education. It provided degree and diploma courses in QS at the Universities of the Witwatersrand, Cape Town, Pretoria and Natal. As a national body, the Chapter was governed by a Board, elected annually by its members throughout South Africa. In 1928, the Chapter had 140 members (*Man-Made Johannesburg* 1952, p. 25).

In December 1924, the *South African Architectural Journal* described the two courses of study in architecture, one of which was a full-time day course leading to the BArch degree. The other was specifically for part-time students, leading to a diploma in Architecture. These courses aimed to give the student a sound training for the architecture profession, so as 'to make him fit to enter an architect's office as a fully qualified assistant, and to lay the foundation for the ultimate undertaking of practice on his own account' (SAAR April 1924, p. 94).

The basis of monumental planning and the theory and development of architecture were taught with a 'very thorough training on the technical side'. Preliminary mathematical and scientific studies were emphasised, and the problems of construction and materials were thoroughly dealt with. Methods and processes are investigated in the laboratory through visits to workshops, factories and buildings. This practice continued into the 1980s, and many graduates subsequently stated how it equipped them for the practical side of the business.

The degree course extended over five academic years, with portions of the fourth and fifth years being spent in an architect's office. The subjects were:

- *First year:* Mathematics, Applied Mathematics, Physics, Chemistry (short course), Graphics, History of Architecture, Elementary Architectural Design and Construction.
- *Second year:* Pure Mathematics (short course), Applied Mathematics, Graphics, Geology (short course), Materials of Construction, History of Architecture, Architectural Design and Construction.
- *Third year:* Strength of Materials, Geology of Building Stones, Sanitation and Hygiene, Theory of Architectural Design and Planning, History of Architecture, Architectural Design and Construction.
- *Fourth year:* Theory of Structures, Interior Decoration, Colour and Furniture or the History of the Fine Arts, Architectural Design and Construction.
- *Fifth year:* Structural Design, Professional Practice, including Specifications, Contracts, Estimates and Quantities, Architectural Design, Civic Art, lectures on special subjects, such as Acoustics and Mechanical Plant of Buildings.

The diploma course was somewhat similar to the degree course, but not as extensive. There were seven day students and 25 evening students. Gordon Leith, a part-time lecturer in Design and History for the degree course, assisted the professor of Architecture. The lecturers for the diploma course in Design were Spicer and Williamson, while Heir taught the Building Construction course. Other departments provided lectures in Mathematics, Sanitation, Theory of Structures and Strength of Materials. A full-time senior lecturer in Architecture was appointed at the beginning of 1925 (SAAR April 1924, p. 94).

■ Recognition of degree and diploma courses

When the *Architects' and Quantity Surveyors' Private Act 18 of 1927* was passed, it gave an additional impetus to the School. The RIBA gave full recognition to the degree course and partial recognition to the diploma course, as exempted from the examinations for their Associateship. Degree students could automatically obtain the Associateship of the RIBA, and diploma students, on submission of a thesis, could do the same (SAAR July 1942, p. 187).

The first meeting of the Elected Central Council with South Africa's pioneer architects and Qs took place at the University in 1928 (see Figure 2.2). It recognised the RIBA and the Surveyors' Institution as equivalent societies. This 'produced a sarcastic editorial comment in a



Source: Photograph exhibited at the University of the Witwatersrand School of Architecture: Twenty-first-anniversary exhibition. Copyright © *South African Architectural Record*, September 1928. Public domain.

FIGURE 2.2: Group photograph of the first Congress of the Institute and Chapter held at the University of the Witwatersrand in 1928.

Johannesburg Sunday newspaper, which, typical of several ill-informed Press criticisms, failed to appreciate the legal necessity of the “recognition” thus afforded’ (Lewis 1953, p. 8).

The Elected Central Council spent much time on the question of architectural education, which involved a visit to the Architectural School of the University of the Witwatersrand. Several months later, a special meeting of all interested in architectural and QS education was arranged with the Secretary for Education, Dr Stefanus François Naudé Gie (Lewis 1953, p. 9).

The first Union Congress of Architects and Quantity Surveyors was held in Johannesburg from 03 to 08 December 1928 and was well attended by delegates from the four provinces of the Union. Robert Howden, Freddie Williamson, Edward Henry Waugh and Professor Pearse argued to win the day and firmly establish the University’s professional status in architecture and QS. As a result, the Minister of Education gazetted Wits and the University of Cape Town (UCT) as ‘examining authorities’ under the Act (Lewis 1953, p. 22).

Professor Pearse spoke at the first Congress, urging Architecture and QS students to meet and work together. He firmly believed that a well-rounded education was vital, adding that those without knowledge of the Fine Arts or Science would be ‘no more competent to produce good

architecture and protect the public, than the modern speculator in property and the speculative builder' (SAAR December 1928, p. 160).

However, delegates wondered about the future of QS education. Colonel Walter Ernest Puntis, an acclaimed military man and prominent architect, spoke up and registered his concern that QS education was not being addressed. Reported in the December 1928 issue of the *South African Architectural Record*, Puntis raised the point that South Africa lacked qualified QSs, and that the government had considered training students to meet the requirements. He said many prospective students were forced to travel overseas to receive accredited training or take the expensive International Correspondence School course. He stated, 'The sooner we in South Africa arrange for the education and training of Quantity Surveyors, the better for the country' (SAAR December 1928, p. 165). He continued that it was not only a lack of qualified QSs here, but also abroad and that he was 'being inundated month after month by parents of boys leaving school, just matriculated, asking if they can be advised as to how they can become Quantity Surveyors' (SAAR December 1928, p. 165). He pleaded for the University to consider what lines it proposes to work on to educate young South Africans in QS.

Cape Town's QS and architect, Norris Cowin, agreed with Puntis, adding that he felt that these students should also take three years of architectural training, coupled with practical work, and this would 'be all that is necessary to turn them out as finished Quantity Surveyors' (SAAR December 1928, p. 165).

Pearse explained that 60% of the part-time students, between the ages of 20 and 25 years, could afford their education if their parents financed it. But for the full-time course, most could only afford a year or two of it. Many had to give up their employment to study. He agreed to meet the QSs and even offer land surveying. 'Quantity Surveying students have come up here on Wednesday afternoons, and we have arranged with our Professor of Surveying to give them what they require' (SAAR December 1928, p. 175).

Freddie Williamson, then a lecturer at Wits, proposed to the Central Council that a curriculum be drawn up defining the educational facilities available for the training of QSs in South Africa and that, if such facilities were unsatisfactory, immediate steps be taken for the establishment of an adequate course for the training of QSs. Port Elizabeth's William John McWilliams seconded his motion (SAAR December 1928, p. 173).

In 1929, Tommy Moore published *A brief history of quantity surveying institutions in South Africa*, which recorded the development of standard measurement systems in South Africa between 1905 and 1928.

■ Friction between architects and quantity surveyors

Disharmony sometimes prevailed between the architect and the QS (Lewis 1953, p. 13). In 1930, when Tommy Moore was proposed for the President-in-Chiefship of the ISAA, the delegates asserted that a QS should not be President-in-Chief of an Institute of Architects. They protested that QSs should have their own Council and not be members of an Architects' Council (Lewis 1953, p. 13).

Despite the controversy, Moore was elected President-in-Chief and was well respected by those under his care, steering the Institute of Architects effectively, according to his peers (Lewis 1953, p. 13). The legislation had been passed, industry structures were established and the path was being paved for the education of future South African QSs.

Focus on Quantity Surveying

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■ Diploma and degree in Quantity Surveying

In 1930, Wits established courses for a diploma in QS, and two years later, opportunities to qualify for a degree were introduced. Before this, architecture courses were offered in Pretoria, but in 1932, the University of Pretoria (UP) launched its own programmes in both Architecture and QS (SAAR May 1940, p. 169).

Architects and QsS urged the government to pass legislation to prevent the sprawl and haphazard development that was destroying historic cities and hindering the establishment of new towns (The Town Planning Association (Transvaal): Council's Annual Report 1931, p. 125). The Minister of Public Health, who had the authority to address town planning under the *Public Health Act*, invited a committee of architects, land surveyors, town engineers and health officers to draft town planning regulations for his department. A draft was subsequently submitted to the Secretary for Public Health.

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When no progress was made, the Transvaal Administrator, Jan Hendrik Hofmeyr, was approached to advocate for the introduction of provincial legislation. This effort led to the enactment of the Transvaal Town Planning and Townships Ordinance of 1931 (Town Planning Association [Transvaal]: Annual Report 1944-1945 1945, p. 255).

In recognition of his academic prowess, Professor Pearse was awarded a prestigious Carnegie Grant in 1931 from the Carnegie Corporation in New York City (NYC) to study architectural education in the USA and Canada. He departed at the end of the year and visited key universities where architecture was taught. After his time in the USA, he travelled to the UK, the Netherlands, Sweden and Germany to explore various systems of architectural education, as well as modern architectural planning and design. In the UK, he arranged for the publication of a comprehensive work on 18th-century architecture at the Cape (*SAAR* June 1931, p. 72).

During Pearse's absence overseas, Stanley Furner was appointed Acting Head of the Department of Architecture, while Rex Martienssen was appointed lecturer in Architecture for the same period (*SAAR* December 1931, p. 110).

At the Annual Exhibition and Prize-Giving of the School of Architecture in 1931, Professor Pearse informed guests that a 4-year diploma in QS would be offered, replacing the existing 3- and 5-year degree courses. Assisting Professor Geoffrey Pearse and Mr John Trevor Lloyd as lecturers were Professors Harry Bell-John and William Friedrich Armstrong, along with Messrs. Kenneth Gardiner, [...] Lawrie, William G McIntosh, Henry Eddy and Miss [...] Anderson. That year, there were 20 QS students (*SAAR* September 1931, p. 83).

In 1932, the 5-year degree course in QS was introduced at Wits and UP. The 3-year diploma course in QS was replaced and included the final examination of the Chartered Surveyors' Institution. By the end of 1931, the number of QS students had increased to 45 (*SAAR* March 1932, p. 72).

The Chapter of Quantity Surveyors presented prizes to William Gordon McIntosh, EF Allen and JS Hodge at the Graduation Ceremony in March. The Chapter of South African Quantity Surveyors annually offered three prizes: a book prize (valued at one guinea [note: currency unit equal to 21 shillings, historical value adjusted for inflation c. 1900-2025: ± ZAR3,500]) to the most successful first-year student, a book prize (valued at two guineas [note: historical value adjusted for inflation c. 1900-2025: ± ZAR6,400-7,750]) to the most successful second-year student and a gold medal to the most successful third-year student (*SAAR* March 1932, p. 72).

The University of the Witwatersrand, UP and the Standing Committee on Education and Examinations of the Institute discussed the establishment of a Chair of QS. Subsequently, the Minister of Education approved the final examination of the Chartered Surveyors' Institution as a qualifying examination (SAAR March 1932, p. 72).

Ironically, despite efforts to establish educational measures for young students in the QS profession, the Central Council issued an official statement in 1932 indicating that the professions of architecture and QS in South Africa were becoming overcrowded (SAAR May 1932, p. 134).

■ Students unwind at grand dances

The Seventh Annual Dance of the architectural students at Witwatersrand University was held in the Wanderers Hall in 1932. Willem de Sanderes Hendrikz, John Fassler, Gordon Tudhope Chalmers, Bernard Cooke, G Glanville Allen, Montague Leo (Monty) Bryer and William McIntosh were responsible for the arrangements and served as the evening's masters of ceremonies. 'There was a good attendance, and the ballroom looked most attractive with multi-coloured lights playing on the dancers' (SAAR May 1932, p. 137). The event was deemed 'most successful' by the students who authored the *South African Architectural Record* (SAAR May 1932, p. 137) (see Appendix 4 for a rare Fassler student drawing, c. 1942).

Professor Bell-John was elected President of the Chapter of South African Quantity Surveyors for 1932–1933 (SAAR April 1932, p. 106). That year, the Eighth Annual Exhibition of Students' Work and Prize-Giving took place at the University in August 1932. Professor Pearce took the opportunity to thank Mr Furner for his role as Head of the School. Mr Gardiner also assisted with evening work and lectures during the day. Professor Bell-John 'carried on with his arduous work in connection with the QS classes and the advanced professional subjects in Architecture' (SAAR September 1932, p. 237).

Professor William Friedrich Armstrong contributed to Fine Arts, along with Mr Conrad Harvey Sayce and Mr Rex Martienssen, who were credited with bringing a 'new atmosphere of enthusiasm' to the School, reflected in the students' work. He revitalised the almost moribund Architectural Students' Society (SAAR September 1932, p. 237)

The number of students increased considerably, leading to an agreement between Wits and UP, whereby UP would oversee QS education while Wits would manage Architecture.

Professor Bell-John was subsequently appointed by UP to take charge of their courses after assisting Wits with QS classes in a part-time capacity for 10 years (SAAR March 1932, p. 72).

■ Tobie Louw in the first group of quantity surveyor graduates

The first group of graduates to receive their diploma in QS included Tobie Louw (later of the acclaimed QS firm Borkenhagen & Louw), EF Allen, EV Kohler, R Law, F Sturdy, ET Dobson, RJL Pattison and JB Williams (SAAR September 1932, p. 240). The QS Prizes presented by the Chapter were awarded to the first-year student, J Law (who also received a gold medal), while the second-year student prize went to ARD McIntosh. Professor Bell-John praised L de la Cour, stating, 'For the first time in my experience, a student has obtained one hundred per cent in an examination paper!' (SAAR September 1932, p. 240).

■ Friendship of Brownlee and Williamson tested in building collapse case

The firm friendship between Freddie Williamson of the Transvaal Provincial Institute and John Brownlee of the Cape Provincial Institute was tested when they were called to testify in a building collapse case that injured a member of the Cape Provincial Institute (Lewis 1953, p. 9). They were among several professional witnesses officially appointed to provide expert evidence at the trial of this member on a charge of culpable homicide. This case prompted Brownlee to recognise the futility of continuing any acrimony between the two provinces – the Cape and the Transvaal – and highlighted the need for the architectural profession, now statutorily organised, to speak with one voice (Lewis 1953, p. 9).

Developments after the Second World War³

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■ Introduction

‘Little doubt that the training of quantity surveyors in South Africa is equal to, if not better than, anywhere in the world.’ – Austin (SAAR August 1947, p. 226)

As the Second World War (WWII) began in 1939, students left their studies to join the war effort, and a new dawning of the South African construction industry followed.

3. This chapter has sections that are based on a historical narrative that is based on and was developed from the following published work:

South African Architectural Record 1942a, *South African Architectural Record*, vol. 27, no. 4, pp. 91-114, viewed 18 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/3ef5ddc3-33f6-4685-a7cc-eb5c40f16002/content?>>.

South African Architectural Record 1942b, ‘University of the Witwatersrand School of Architecture’, *South African Architectural Record*, vol. 27, no. 7, pp. 186-214, viewed 18 July 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/c40638d0-cf554b51-b6d4-f12a5fa5e256/content?>>.

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■ Second World War and its impact on South African building education

At the 16th Annual Exhibition and Prize-Giving in 1940, Professor Pearse told the guests that WWII had had a 'serious effect upon the building industry of South Africa' (SAAR May 1940, p. 170). After adding that some students and graduates had joined the war effort, he added, 'One can only express the hope that this will not be a long drawn-out conflict, but that common sense will prevail in the end' (SAAR May 1940, p. 170).

Two years later, Professor Pearse paid tribute to those students who joined the forces, saying that 90 were in the war effort and some were serving in senior posts. One of the first students, Lieutenant (Lt.) RE Cole-Bowen was awarded the Military Cross. 'Four have, unfortunately, made the supreme sacrifice: George Abbott, who was on the threshold of a brilliant professional career, EA Ralph, Wilton Miller and EJ Knight' (SAAR July 1942, p. 188).

Rex Martienssen was awarded the first degree of Master of Architecture (MArch) in 1940 (SAAR May 1940, p. 170). Monte Bryer distinguished himself as the first Rhodes Scholar Architect. After excelling at Oxford, he was awarded a Commonwealth Fellowship, which took him to Columbia University, NYC. In the USA, he travelled and studied housing conditions and methods of practice. Roy Kantorowich was awarded a University postgraduate (PG) scholarship and worked in the USA under Professor Burchard at the Massachusetts Institute of Technology (MIT) in Cambridge, Massachusetts, as a research assistant on a regional survey of the City of Cambridge (SAAR May 1940, p. 170).

Postgraduate and then-President-in-Chief of ISAA, David Strachan Haddon paid tribute to Mr Burton on his retirement to the Western Cape in 1940. Haddon called Burton 'the father' of the School, as it was because of his 'enthusiasm and energy that the School came into being' (SAAR May 1940, p. 171).

In 1941, a Doctorate in Architecture (DArch) was instituted, and the Registration Council of Great Britain, under the *Architects Registration Act of 1938*, gave full recognition to the degree, diploma and certificate courses (SAAR April 1942, p. 187).

In 1942, there were 106 students enrolled in Architecture and 24 students in QS. The married couple, Dr Rex and Heather Martienssen, who would later become the University's first female professor, were awarded research grants by the Union Government to study Bantu dwellings and pottery (SAAR April 1942, p. 188).

Three PG scholarships were awarded. These went to Roy Kantorowich, who continued his studies in the USA; to RE Hope, who joined the forces and took up the scholarship after WWII; and to Kurt Jonas, whose untimely death in WWII interrupted a brilliant career (SAAR July 1942, p. 188).

At the time of his death, Jonas was in Palestine on a Union Government PG scholarship to investigate the development of domestic architecture in the Near East. He came to Wits in 1934 and graduated with a BArch in 1939. He was a strong advocate of group work and an enthusiastic co-worker in research and design projects. In remembering him, Rex Martienssen wrote that together with four colleagues, he presented a thesis for the Bachelor's degree on Native Housing, which was published by the University and widely reviewed. He remarked that Jonas strove to let all know of the broader impact of architectural work. Martienssen added that it was 'brutally clear, the indisputable necessity of vision and a capacity to collaborate in the architect, who is to shoulder the burdens of protection and reconstruction' (SAAR April 1942, p. 111).

In 1942, Professor Geoffrey Pearse was elected as the President of the AS and TS of South Africa.

The students at the *South African Architectural Record* described the degree and diploma in QS courses in the July 1942 issue (SAAR July 1942, p. 191). Potential applicants were assured that the Surveyors' Institution recognised the qualifications. Aspiring applicants were informed that the programme includes a comprehensive course on general planning principles, along with an analysis of the detailed requirements for current building types, which were incorporated into relevant design subjects.

The students conducted research into the various challenges encountered in practice, closely correlating different branches of architectural design and construction. As a result, lecture and studio work were tightly integrated, encouraging students to develop rational solutions to the assigned problems. Visits to brick, cement and other building material factories were a regular part of the course on materials, and buildings in the course of construction are studied at various stages under the guidance of a lecturer (SAAR July 1942, p. 191). Short courses were also offered in the theory and application of acoustical principles in building and electrical illumination.

For the degree of Bachelor of Science (BSc) in QS, full-time attendance was required for the first two years. For the remaining three years, students were expected to be employed in the office of a QS. The diploma in QS was also offered for part-time students, and the course extended over four years. Tuition in Quantities, Specifications and Building Construction

Drawings was given, and in the final year, courses were offered in Professional Practice and Analysis of Prices. In addition to these, students completed courses in Surveying and Levelling, Geology, Theory of Structures and Architectural Drawing (SAAR July 1942, p. 191).

The 1941-1942 period marked the qualification of new QSs, including the first female QS, Mrs SM Borkenhagen, married to Carl Borkenhagen (later of Borkenhagen and Louw) (SAAR July 1942, p. 186). Her cohort included Messrs NR Law, Alexander Robert Willcox, DW Hall, WT Welsford, William Gordon McIntosh, AT Jones, OL Ward and GE Beckwith.

The 21st School of Architecture Exhibition opening was attended by approximately 500 guests and honoured by the presence of the University's Chancellor, the Hon. Jan Hendrik Hofmeyr. By this time, a prominent figure in the industry, Carl Borkenhagen, served as Vice-President of the South African Institute of Architects and generously donated the prizes (SAAR July 1942, p. 186).

In 1943, there was a noticeable decline in the number of South African students registering for the professional examinations of the Chartered Surveyors' Institution. Among the QS students, three pursued a degree, while 12 students were enrolled for the diploma. JP Lowe successfully completed his diploma in QS (SAAR April 1944, p. 109).

■ Other major developments during the epoch of the Second World War

Professor Pearse wrote in the *South African Architectural Record* in January 1944 that town planning control was necessary. He said members of the profession 'are largely responsible for the present town planning ordinances, and the Institute is taking steps to form a South African Town Planning Institute' (SAAR January 1944, p. 3).

The universities were approached to establish courses in the subject. The University of the Witwatersrand then instituted a Postgraduate Diploma in Town Planning, along with UCT. According to Prof. Pearse, many of the South African university graduates are well equipped as town planners, not taken seriously 'because they do not possess an overseas diploma issued for work, and experience totally different from that prevailing in the Union of South Africa' (SAAR January 1944, p. 3)

The impact of WWII was felt on 06 November 1944, when QS student, Lt. Reginald Roebuck Linsley (22) died in an air battle over Sarajevo, Yugoslavia, when his aircraft was shot down by anti-aircraft fire (SAAR February 1946, p. 53). After matriculating with distinction from Jeppe High School, Linsley was a pupil in the Johannesburg City Engineer's

Quantity Surveying Department in 1940 and began his studies for the BSc in QS at Wits. In June 1942, he interrupted his studies to join the South African Air Force (SAAF) as a student pilot. He received his wings in October 1943, and in February 1944, he was posted to his squadron, where he saw service in North Africa and Italy before his untimely death (SAAR February 1946, p. 53).

Turning to sport among the students, the Clever Boys played their first match on grass in the early 1930s, persevering in playing against other soccer teams. Their hard work paid off in 1943, as the Wits University soccer stars, the Clever Boys, won the Southern Transvaal First Division title (Mokoena 2020) (see Figure 4.1).

The sudden death of Freddie Williamson in 1945 was a great shock to the profession. Born in the UK, he served in the Royal Navy throughout WWI and survived several perilous experiences aboard minesweepers in the North Sea. He emigrated to South Africa in 1920 to join Frank Emley, who had won the competition to design Wits' main buildings. Williamson later took over Emley's practice and went on to design many of the University's principal buildings (SAAR December 1946, p. 28).

In the same year, a Joint Committee comprising two architects and two Qs was appointed to meet the Provincial Administration to address the complex issue of provincial work. At a special meeting of the Transvaal Provincial Institute, Douglas Maurice Cowin and William Gordon McIntosh



Source: Copyright 1943 © Bidvest. Photograph from the Bidvest Wits FC website, reproduced and published with permission from Professor Schloss via the Premier Soccer League.
Key: FC, football club.

FIGURE 4.1: Rare photograph of the Clever Boys in action in 1943.

were elected to represent the Institute on the Liaison Committee. McIntosh was nominated to serve a 2-year term, and Cowin was nominated to serve a 1-year term (SAAR April 1945, p. 75).

In 1945, at the first annual Transvaal Town Planning Association meeting, the President of the Association, Professor Geoff Pearse, gave a speech, predicting South Africa's spatial land issues (SAAR December 1945, p. 258). He said that he had personally seen approved layouts for townships, as approved by the Townships Board, adding that these were 'contrary to all the best town planning principles, which are mere caricatures of town planning. The sooner this sort of thing is stopped, the better' (SAAR December 1945, p. 258). He felt that the *Slums Act 53 of 1934*, the *Ribbon Development Act 21 of 1940*, the construction of Peri-Urban Areas Boards and a National Roads Board 'are mere palliatives, not cures. It is a case of Nero fiddling, while Rome burns'. With foresight, Professor Pearse commented that he felt 'more damage has been done by Government departments to our towns, than at any time in this country's history – damage that will cost the taxpayers many millions to remedy' (SAAR December 1945, p. 259).

The Physical Planning and Housing Congress, held in July 1946, was organised by the University in collaboration with the South African Association for the Advancement of Science, the ISAA and the Association of Scientific Workers of Southern Africa (SAAR February 1947, p. 26). Among the speakers was Dr H Sonnabend, who addressed the ethical concerns surrounding African urbanisation in his talk titled 'Sociological Approach to Housing and Town'. He drew a comparison between urban growth in South Africa and the English Industrial Revolution, stating:

One could say that the speed of Bantu urbanisation is paralleled in history only by the drift to towns and the industrialisation of Soviet Russia, particularly in its Asiatic territories. (SAAR February 1947, p. 26)

He further cautioned that increased government funding for housing was essential 'if a country wants to avoid complete disorganisation of the family structure' (SAAR February 1947, p. 26).

At the Annual Meeting of the Central Council of the ISAA in April 1946, it was announced that 18 of the 22 newly qualified Qs joined as salaried members, while four joined as practising members (SAAR June 1946, p. 147). Of the 18 salaried members, three later transferred to practising membership. Among the group, one qualified with a degree in QS, 14 obtained diplomas, three passed the special final examinations and four passed the final examination of the Chartered Surveyors' Institution (SAAR June 1946, p. 147).

TABLE 4.1: School of architecture veterans and non-serving students (1945).

Academic year	Ex-veteran	Non-serving	Total
First year	25	17	42
Second year	23	4	27
Third year	10	4	14
Fourth year	4	-	4
Fifth year	-	1	1
Total			88

Source: Created by authors using data from *South African Architectural Record* (May 1946, p. 117).

At the 22nd Annual Exhibition and Prize-Giving held at the School of Architecture in 1946, Professor Pearse confirmed the full-time appointment of senior lecturer Mr J Castleton and extended thanks to WA McKechnie for his dedicated service as a part-time lecturer in QS, despite his ill health (SAAR May 1946, p. 116).

Student numbers had increased significantly because of the return of ex-service men and women. During the ceremony, Professor Pearse expressed deep gratitude to the military veterans for ‘the loyal service they have rendered to South Africa during the war, and to congratulate them on their safe return’ (SAAR May 1946, p. 117). Table 4.1 presents the demographics of both veterans and non-serving students in 1945 to recognise the contribution and presence of student veterans.

The first BSc in QS graduate at Wits was JJ Pansegrouw, who received the degree in 1946 (Bryer 1977).

■ The Durban Congress in 1947 addresses education

Male and female architects and QSs were invited to jointly address several topics at the Fourth Congress of the ISAA and Chapter of South African Quantity Surveyors held at the Marine Hotel in Durban in May 1947 (SAAR June 1947, p. 148) (see Figure 4.2).

Expert speakers led the discussions, followed by open debate on the presented content. Held from 12 to 17 May, the event featured Sonny Tomkin, President of the Transvaal Provincial Institute, who spoke on the role of the architect within the community. He addressed the importance of architectural education, emphasising that students must remain responsive to societal changes and collaborate effectively with other professionals in the built environment sector (SAAR June 1947, p. 150).

David Strachan Haddon, Chairman of the Board of Education, delivered a paper on inspections of Architecture and Quantity Surveying Schools



Source: Copyright June 1947 © South African Architectural Record, p. 148. Public domain.

FIGURE 4.2: Photograph of the delegates at the 1947 Durban Congress.

in South Africa. These inspections primarily assessed whether the schools met statutory requirements and considered whether the institutions in Pretoria and Cape Town would be granted accreditation by RIBA (SAAR June 1947, pp. 159-162).

■ Developments in the post-Second World War era

Ugo Tomaselli, co-author of the June 1947 issue of the *South African Architectural Record*, paid tribute to QS educator Tom Moore, who passed away that year. The obituary noted that in 1902, Sir Aston Webb offered Moore the post of Chief Quantity Surveyor in the Transvaal Colony, which he accepted immediately. His first task was to introduce a system for preparing Bills of Quantities, which became widely adopted across Africa (SAAR June 1947, p. 186).

Moore was registered as an architect in all four provinces of the Union and became a member of the Chapter in 1928, remaining so until his

retirement in 1944. He was elected President of the Board of the Chapter of South African Quantity Surveyors and represented it on the Central Council of the ISAA, serving as President-in-Chief in 1931 (SAAR June 1947, p. 186).

In the obituary, Tomaselli remembered Moore as a constant source of guidance to students and concluded by noting that Moore 'was a never-failing source of assistance to the many students by whom he so frequently was approached for advice'. He concluded the obituary by saying that Moore had trained 'several of the best known quantity surveyors in South Africa' (SAAR June 1947, p. 186).

At the 23rd Annual Exhibition in 1947, it was announced that senior lecturer Mr Castleton had resigned to join a partnership in the UK but agreed to continue part-time on his return from WWII. During his absence, Mr McKechnie and Mr HR Law covered his duties (SAAR August 1947, p. 221).

That year, there were 101 QS students: 16 first years, 44 second years, 27 third years, 13 fourth years and one fifth year. HA Livingstone won the Farrow, Laing and McKechnie Prize in QS (SAAR August 1947, p. 222).

The Chapter of South African Quantity Surveyors Book Prizes were awarded to LJ MacDonald as the Top First-year student, RO Veale as the Best Second-year student and RF Sage as the Top Third-year student. SE Hall was awarded Top Honours in his fourth year. The Bell-John Prize was given to DA Anagnostu, SE Hall won the Farrow, Laing and McKechnie Prize and the WH Gresty Prize in QS was awarded to DH Harris (SAAR August 1947, p. 222).

■ Wits' quantity surveyors are sought worldwide

When Leo Austin awarded PGB Borchards and BE Basson, with the South African Quantity Surveying Chapter prizes, as the first and second years who earned the highest marks in Quantities, he pointed out that he had many overseas enquiries (SAAR August 1947, p. 226). He shared that the Board of the Chapter had multiple enquiries from other Commonwealth countries about the QS education being taught in South Africa. Proudly, he said it showed our training was well respected and added:

Rightly so, for there can be little doubt that the training of quantity surveyors in South Africa is equal to, if not better than, that obtainable anywhere in the world. (SAAR August 1947, p. 226)

Women were gaining a voice, and the Chairman, Students' Architectural Society, Mr M Sheridan, wrote in the July issue of the 1947 *South African*

Architectural Record. She explained the society's three primary objectives at the Fourth Congress held in May, earlier that year (SAAR July 1947, p. 200). The first objective was to supplement the education of the student with a regular series of papers and discussions dealing directly or indirectly with the courses they are required to study at the University.

The second objective was the fun side of student life, 'but it carries with it a very serious purpose' (SAAR July 1947, p. 200). She stated that varied social functions created unity and a group spirit. Sheridan commented that she had 'the sincere hope that such a spirit will continue to exist among them when they have entered the body of the profession'. The final objective was to improve the public relations image of the University (SAAR July 1947, p. 200).

The *South African Architectural Record* received a letter in December 1945, exempting QS students from the Royal Institution, from the Secretary, Royal Institution of Chartered Surveyors (SAAR December 1947, p. 327). It acknowledged that JS Lewis, the Secretary of the Chapter of South African Quantity Surveyors, had written (on 05 February 1945) requesting that the QS education offered by Wits be recognised.

The response, following deliberation, confirmed that the Council would recognise both the QS degree and diploma. Qualified candidates could be elected as Professional Associates, provided they had 'received the requisite amount of practical training in the quantity surveying profession' (SAAR December 1947, p. 327).

At the 24th Annual Exhibition and Prize-Giving of the Wits School of Architecture, the newly appointed Dean Professor John Fassler paid tribute to his predecessor, Professor Gerald S Pearse, who retired after 27 years of service (SAAR August 1948, p. 234). Professor Fassler honoured Pearse's pioneering role, saying: 'From the beginning in 1921, he founded architectural education at the old Tin Temple. In those distant days he lectured in every subject, in every year of the course' (SAAR August 1948, p. 234).

His teaching style proved effective, and early graduates were enthusiastic with well-founded knowledge of architecture, which 'formed the pivotal point in the swing away from the Baker tradition, which was predominant up to 1930' (SAAR August 1948, p. 234).

Despite the School's later shift towards contemporary European and American architecture, Pearse remained an advocate for a distinctly local architectural identity, one shaped by South Africa's historical background, Sir Herbert Baker's legacy and his own educational contributions. Fassler noted that this formed 'the pivotal point in the swing away from the Baker tradition, which was predominant up to 1930' (SAAR August 1948, p. 234).

Meanwhile, Leo C Austin, President of the South African Chapter of Quantity Surveyors, addressed interprofessional relations in the June 1948 *SAAR* issue. He expressed concern over a proposal at the Durban Congress that only architects be permitted to attend, a move that caused frustration among other built environment professionals and suggested strained relations between sectors. Austin clarified that Norman Hanson, President-in-Chief of the Institute, had worked diligently to promote the interests of QSs (*SAAR* June 1948, p. 180).

To highlight camaraderie across the professions, Austin shared results of sports fixtures between the Institute and the Master Builders' Association: 'We suffered a severe defeat at golf, but won a modest victory at bowls and tennis', he quipped, adding humorously, 'No doubt because the tape measure used at bowls was frequently in the hands of a quantity surveyor!' (*SAAR* June 1948, p. 180).

The Student Congress at the Congress of Student Architectural Societies held in July 1948 raised the sensitive issue that schools were not providing an opportunity for QS students to give their input on the policy and outlook of architects, and vice-versa. Admitting that both types of students had common subjects, it was noted that 'Quantity Surveying students are often unaware of the objects of architecture, and Architectural Students are often ill-informed on the professional role of quantity surveyors' (*SAAR* October 1948, p. 296).

The Congress agreed that if the Profession and Chapter were to extend their scope and influence, they would gain a mutual understanding and respect for each other's problems. Resolutions were passed, and these included the following:

- Each society tries to ensure that both architectural students and QS students are active members of the society.
- Each delegation approaches their university's staff to ask to include lectures in the senior student curriculum, designed to give both groups of students an insight into each other's problems (*SAAR* October 1948, p. 296).

In 1948, Rex Milford supported Castleton in a part-time capacity in the Department of Quantity Surveying (*SAAR* August 1948, p. 235). A year earlier, Milford co-founded the firm Venn + Milford Incorporated with fellow QS Oliver Venn. The practice was key in shaping Johannesburg's skyline, contributing to significant landmarks such as the Standard Bank Centre building (1960s) and the Carlton Centre building (1970s) in the city's central business district.

A total of 104 students were enrolled in the QS degree and diploma programmes that year. The President of the Chapter of South African

Quantity Surveyors, Leo Austin, presented the annual prizes in QS (*SAAR* August 1948, p. 243). Chapter prizes were awarded to:

- HF Ross (first-year student)
- GB Harvey (second-year student)
- IN Leshnick (third-year student)
- GRF Campbell (fourth-year student).

Campbell further distinguished himself by winning the Farrow Laing and McKechnie Prize for excellence in the subject of Quantities in the final year and the prestigious Bell-John Prize for Best Overall Quantitative Surveying Student across all years of study (*SAAR* August 1948, p. 243).

As the 1940s drew to a close, Wits students were increasingly poised to leave their mark on a country entering a new era – one that would soon be starkly divided by racial legislation, but nonetheless open to large-scale construction and development.

Students show their mettle in the 1950s⁴

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■ Introduction

'I wished to study at Wits, due to its impressive worldwide reputation.' – Bihl (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email, 30 August 2023)

The 1950s opened with a decline in student enrolments (SAAR October 1950, p. 200). At the 26th Annual School of Architecture Presentation and Prize-Giving, Professor John Fassler, Dean of the Faculty of Architecture,

4. This chapter has sections that are based on a historical narrative that is based on and was developed from the following published work:

Howie, D 1953, 'South African Architectural Record', *South African Architectural Record*, vol. 38, no. 1, pp. 20–42, viewed 21 August 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/d5e456afb85a-40aa-a9d8-898fbcd0f649/content?>>.

Wits 2024, 'Judith Frankel Lipkin (1936–2017), in Memoriam 2024', *Wits*, viewed 26 March 2025, <<https://www.wits.ac.za/alumni/obituaries/obituary-content-by-year/?>>.

How to cite: Smit-Stachowski, A 2025, 'Students show their mettle in the 1950s', in S Laryea, A Smit-Stachowski & B Mphuti, *Making a mark: Wits School of Construction Economics and Management and its contribution to the construction and property fields*, ITUTA Books, Cape Town, pp. 36–46. <https://doi.org/10.4102/aosis.2025.BK544.05>

reported that 24 students were pursuing the BSc in QS, 38 were enrolled for the diploma and only four were registered for the certificate in QS – a total of 66 students, marking a decrease of 17 compared to 1949 (SAAR October 1950, p. 200).

Recognising the importance of practical experience in producing capable graduates, the School introduced a new initiative: a practical building exercise incorporated into the second year of study. Students were tasked with designing and constructing a tennis shelter on campus. Completed over the course of two weeks, the project provided valuable hands-on exposure to preliminary site work and practical building processes (SAAR October 1950, p. 203).

The hands-on project encompassed a wide range of construction activities, including setting out, excavating foundation trenches, preparing reinforcement, mixing and placing concrete, constructing foundation and superstructure brickwork, and designing and erecting shuttering for the reinforced concrete slab that formed the roof. The work concluded with the laying of paving slabs, simple joinery and painting. At the graduation ceremony, Professor Fassler proudly remarked, ‘this comprises, I think, a very complete experience in building methods and site work for any young student!’ (SAAR October 1950, p. 203).

At the beginning of 1951, the Faculty Board resolved to discontinue the certificate programmes in Architecture and QS, which had primarily served students residing in rural towns distant from university centres (SAAR October 1950, p. 206).

That year, Tobie Louw awarded the Chapter of South African Quantity Surveyors prizes to RHC Small (first year), N Murray (second year) and BH Zipp (third year). Zipp also received the Bell-John Prize for best overall student in QS. The top-performing final-year student was GR Senior, who was also nominated for the Chapter’s prestigious Gold Medal Award (SAAR October 1950, p. 206).

■ **Urban inequalities in focus: A 1950s snapshot of township life in Orlando East and Sophiatown**

In an effort to raise awareness of life in the burgeoning townships, the editorial team of the *South African Architectural Record* commissioned social worker A Mokhetle to conduct a comparative study of the living conditions of municipal tenants in Orlando and private tenants in Sophiatown in 1950 (SAAR October 1950, p. 231).

Mokhetle observed that tenants in Orlando occupied larger houses with space for gardening and paid lower rent. In contrast, most families in Sophiatown lived in single-room dwellings, which had to accommodate all members of the household. Despite the spatial advantage in Orlando, residents shared a single water tap with approximately 20 other households, and the structures were often substandard, with inadequate flooring, no roofing and no compensation provided for any home improvements if residents relocated (SAAR October 1950, p. 231).

She further noted the challenging circumstances faced by African women, many of whom were the primary breadwinners, working in laundries or factories. Mokhetle highlighted the daily burden of commuting, remarking that 'they rush for trains for which they pay 1s 6d [R20-R25 in today's money (2025)] for a monthly ticket' (SAAR October 1950, p. 231).

Key challenges that shaped township life included persistently low incomes, the rising cost of living, job insecurity and the difficulties of raising children 'according to socially desirable standards' (SAAR October 1950, p. 231). Mokhetle's reflections paint a stark picture of the socio-economic hardships experienced by African families in urban South Africa during the 1950s. Illustrating the complex lives of Africans in the 1950s, Mokhetle said that men would:

[... *leave*] very early for work and have no tea. These men on their way to work buy a 3d. mug of tea and 1d. slice of bread from the coffee carts. When evening comes, the workers rush back home. A fire is made, rooms are swept and supper prepared. This meal generally consists of mealie-meal porridge and steak. (SAAR October 1950, p. 232)

■ Around 125,000 state houses built since 1920

In 1951, the ISAA and Chapter of South African Quantity Surveyors held a public session on national housing (SAAR August 1951, p. 183). Architect Norman Leonard Hanson stated that local authorities had built about 25,000 dwellings (through economic housing schemes, excluding individual houses built by the government) as state-financed economic housing since 1920. Half of these were for Europeans and half for non-Europeans.

About 56,000 houses had been constructed as assisted housing, since 1930, 'of which one-eighth has been for Europeans and seven-eighths for non-Europeans' (SAAR August 1951, p. 183). This worked out at 80,000 homes, 'although I think the total would more closely to approximate the 100,000 mark', Hanson said (SAAR August 1951, p. 183).

■ Challenges and opportunities of the 1950s

■ Student life, academic growth and admission pressures in the 1950s

In March 1951, the number of registered QSs at the Chapter of South African Quantity Surveyors had grown to 296 (*Man-Made Johannesburg* 1952, p. 25).

Four students from the Council of Architectural Students were invited to attend the annual National Union of South African Students (NUSAS) congress held in Grahamstown in the Eastern Cape province of South Africa. The Council of Architectural Students' annual report reported in the February issue of the *SAAR* that meeting students from other institutions was 'very stimulating, and it is there that one realises how much we lose through having so little contact with students from other Universities' (*SAAR* February 1951, p. 43).

When not busy studying, the students enjoyed playing team sports and played soccer, rugby and tennis. However, to improve relations between teachers and students, the staff decided to play against the students. With tongue firmly in cheek, the students reported that the second-year students were beaten by staff at tennis, but the tables were turned by the third-year students, who then beat the staff. 'These matches were very popular, and improved student-staff relationships considerably. The examinations prevented any further challenges being issued' (*SAAR* February 1951, p. 43). Social life was not just sports but also included dancing as a record number of people attended the Annual Architectural Ball (*SAAR* September 1951, p. 203).

At the 27th Annual Exhibition and Prize-Giving in 1951, Dean of the Faculty of Architecture, Professor Fassler, said that 13 students were studying towards the degree in QS, 40 for the diploma in QS and one individual enrolled for the certificate in QS (*SAAR* September 1951, p. 203).

At the March ceremony, eight graduated with a BSc in QS and 12 with the diploma in QS. Twelve students in the Faculty earned the distinction of qualifying as scholars of the University. Because of the reduction in the number of students, as the post-war influx of ex-servicemen had almost passed through, the staff complement was reduced (*SAAR* September 1951, p. 203).

The President of the Chapter of South African Quantity Surveyors, Mr A Bjorkman, presented the Chapter of South African Quantity Surveyors prizes to FG Mayston in their first year, F Meyer in his second year and DJ Will in his third year. The Fourth-year Student Prize went to BH Zipp, who also won the Bell-John Prize and the Farrow, Laing and McKechnie Prize (*SAAR* September 1951, p. 208).

In 1952, at the 28th Annual Exhibition and Prize-Giving, Professor Fassler admitted that there were not enough places for students wanting to study Quantity Surveying and Architecture. He explained that there was pressure on the University as it was in the metropole of Johannesburg, with the biggest population. In 1952, there were only 35 vacancies for students to study Architecture and 84 students applied. In QS, there were only 15 available spaces and 27 applied. 'The Selection Committee had a difficult task to perform!' (SAAR June 1952, p. 140).

In that year, there were nine students studying for the degree in QS and 41 students studying for the diploma in QS. The total number of QS students was 50. At the March ceremony, two graduated with a degree in QS, and three with a diploma in QS. The Chapter of South African Quantity Surveyors book prizes were awarded to LJ MacDonald in first year, RO Veale in their second year and RF Sage in third year. SE Hall won the Fourth-year Student Prize and also received the Farrow Laing and McKechnie Prize. The Bell-John Prize went to DA Anagnostu and the WH Gresty Prize in QS was awarded to DH Harris (SAAR June 1952, p. 148).

Seeing growth ahead and based on the number of students admitted to courses in 1952, Professor Fassler warned during the Annual Prize-Giving that 'the size of the architectural profession will more than double itself over the next 20 years' (SAAR June 1952, p. 142). He said that the Architectural Board felt that the number of qualified graduates from universities was not enough, in view of South Africa's rapid expansion. The Board proposed to review the South African architectural and QS education after inspecting the universities providing training facilities in June of that year (SAAR June 1952, p. 142).

The degree in Architecture was extended to five and a half years, and the diploma to six years. The additional half year was added because not many students were able to complete the course in the allocated time. According to the SAAR June 1952 issue, a major stumbling block for the students was the completion of the thesis for the degree (SAAR June 1952, p. 144). The Board of Education of the ISAA requested that the preparation of a thesis be included in the diploma requirements. This made it possible for diploma graduates to apply for membership of RIBA without needing to prepare a design thesis subsequent to qualifying, which meant at least an additional year.

The diploma course was also extended to five years. An additional year of QS was introduced, plus several ancillary subjects. These were made in accordance with requests from the Board of the Chapter of South African Quantity Surveyors after the University inspected facilities offering courses in QS (SAAR June 1952, p. 144). Part-time lecturers were thanked – Rex

Milford for Quantity Surveying, NP Smit for his courses in Sanitation and Hygiene, and Electrical Illumination, and M Marcus for his continued assistance in Theory of Structures.

The Institute's Architectural Science Committee proposed the establishment of a Postgraduate Summer School in September 1952. A series of afternoon and evening lectures for architects and Qs was projected to let them get their hands dirty with many aspects of building technique and practice, which they may not have had time to follow up on since graduating. This took place with much success (*SAAR* June 1953, p. 39).

In 1952, the full-time second-year students designed and built a cricket scoreboard adjacent to the University cricket field. This was the third building that the students had designed and built for the University. 'All have been very competently carried out and are a credit to the Department', said Professor Fassler during his address to students at the 29th Annual Prize-Giving (*SAAR* January 1953, p. 31).

JWS Castleton, the Senior Vice-President of the Chapter of South African Quantity Surveyors, described the QS students in the 1950s at the Annual Exhibition and Prize-Giving, Faculty of Architecture, in April 1952. He said they are almost all part-time students, and their tutorials and studies must take place over evenings and weekends. He praised their dedication, saying being awarded prizes as a student 'is no indication of possible success in the outside world later. But I think it does indicate one thing, and that is ambition' (*SAAR* June 1952, p. 150).

Castleton reflected on his practice, noting that while office assistants appeared to have a lighter workload, those involved in building and construction were extremely busy. Many were part-time students, and, as he explained, 'their professional courses represent the theory of the work. Their practical experience must be obtained in their offices. And that is the part which is up to them' (*SAAR* June 1952, p. 150).

In 1952, an inspection committee from the South African Institute of Architects and the Chapter of South African Quantity Surveyors visited the Faculty. Although they were satisfied with the academic quality, they expressed concern about the inadequate facilities. Half of the Faculty operated out of temporary structures on campus, while the other half was housed in the main University building (*SAAR* August 1953, p. 32).

The division between junior and senior students also posed challenges, preventing the formation of a cohesive academic community. 'The very good collection of books, which we have acquired over the years, cannot play its part fully in the life of the Faculty', remarked Professor Fassler in 1953 (*SAAR* August 1953, p. 32).

Doug Calderwood – who would later play a pivotal role in shaping the academic structure of the School – was awarded his MArch degree in 1952. That year, he was part of a cohort that included two graduates with QS degrees and seven with QS diplomas. At the time, 23 students were enrolled in the degree programme for QS, with a further 40 pursuing the diploma (SAAR May 1954, p. 44).

In 1953, the National Building Research Institute (NBRI) published a series of Building Science Reports, two of which were authored by Calderwood. Focused on non-European housing, his work addressed critical challenges in urban planning for African communities – offering insights that would later prove remarkably prescient. His first report, ‘Site selection in non-European housing estate layouts’, examined the role of strategic site selection in reducing construction costs and fostering liveable environments. The second report, ‘The planning of non-European residential areas in South Africa’, argued for the essential inclusion of community amenities in low-income residential developments (SAAR January 1953, p. 31) (see Appendix 4 for two rare drawings by Calderwood).

In 1954, Calderwood earned his DArch degree. That same year, Professor Geoffrey Pearse, the School’s Head, was honoured with an honorary DArch (SAAR May 1954, p. 44).

JWS Castleton, who served as Director of Education and Training in the QS sub-department within the Faculty of Architecture, retired at the end of 1958. He was succeeded by RB Milford in 1960. That same year, the part-time lectureship in QS was filled by Clyde Walker, who would go on to become Wits’ first Professor of Quantity Surveying 12 years later (Bryer 1977, p. 19).

■ **Breaking barriers: Judith Frankel Lipkin’s path in a male-dominated field**

Judith Eda Frankel Lipkin (BSc QS, 1958) was among the first women in South Africa to qualify as a QS. Born in 1936, she chose what was then an unconventional path for a woman – entering the male-dominated field of QS (*Wits Review* 2018, p. 93).

Her son, Jonathan, recalls her describing the demanding examinations at Wits, where students had to complete hundreds of technical calculations using only a slide ruler, pencil and paper.

At the time of her graduation, the profession remained largely male-dominated, and she was often assigned to domestic projects rather than high-profile developments (*Wits Review* 2018, p. 93). Nevertheless, her



Source: Copyright 1958 © Jonathan Lipkin. Reproduced and published with permission from Jonathan Lipkin.

FIGURE 5.1: Photograph of Judith Frankel Lipkin on her graduation day.

work in South Africa frequently involved travel to remote and challenging locations (see Figure 5.1).

Paying tribute, the April 2018 issue of *Wits Review* noted that she was admitted to the Royal Institute of Chartered Surveyors (RICS). Her pioneering status in the profession was recognised when she was twice invited to London for the ‘Woman of the Year’ event in the 1960s (*Wits Review* 2018, p. 93).

■ Fred Bihl (BSc QS, 1959) looks back at his time at Wits

Who better to describe student life at Wits during those formative decades in the built environment disciplines than the graduates themselves? Born in 1937, Fred Bihl chose QS as a career path, drawn by a longstanding interest in building design and construction. After finishing high school, he studied Building Construction for three years at a school in Bulawayo (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email interview, 30 August).

■ Early influences

As a young boy, Bihl was inspired by a QS, a family friend who gifted him a copy of *A history of architecture* by Sir Bannister Fletcher in 1952. The book left a lasting impression, exploring architectural styles from around the world and highlighting the challenges involved in constructing iconic historical buildings (see Figure 5.2).



Source: Copyright 2023 © Fred Bihl. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 5.2: Photograph of Fred Bihl.

Bihl was also introduced to Professor Tobie Louw, who headed the QS Department at UP, while still working as co-senior partner of his practice, Borckenhagen and Louw. Louw outlined the opportunities for a QS in the building industry, and in his firm, in particular (*Artefacts* n.d.c; University of Pretoria n.d.).

Louw explained the various courses of study leading to the degree of BSc QS and that there were vacancies for ‘entering into articles of pupillage in his Johannesburg office’ during the part-time study period at the University. ‘I wished to study at Wits, due to its impressive worldwide reputation, and highly thought-of Department of Quantity Surveying’, Bihl shared during an interview for this book. In 1955, Bihl enrolled at Wits to study QS and joined the Johannesburg office of Borckenhagen and Louw (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email interview, 30 August).

■ Curriculum and academic experience

The degree of QS at the time involved full-time study for the first two years and three years of part-time study thereafter. Bihl explained that the subjects taught in the course included Building Construction 1–3, Mathematics, Physics, Quantities 1–5, Land surveying, Theory of Structures 1 and 2, Economics, Building Materials, Analysis of Prices, Building Financial Valuations and Estimates, and Professional Practice and Specifications (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email interview, 30 August).

His favourite lecturer was Mr BA Eagle in his first year, who lectured on Physics. ‘He was inspirational and was able to explain complicated issues simply and clearly’ (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email interview, 30 August).

■ Student life and traditions

In the 1950s, the students were required to wear long trousers, collar, tie and jacket to class and had to 'swot each year from when the blossoms appeared at the start of Spring'. Bihl passed each year, obtaining 10 A's out of the 24 subjects written (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email interview, 30 August).

His 5 years at Men's Res were where he made lifelong friends, served on several committees, including the House Committee, and ended up as Chairman in his final year, 1959. The freshmen at res had to wear red buttons in their lapels to identify themselves and were subjected to initiation by the older students. This included having to take part in the freshers' concert produced by the seniors.

A particularly spooky initiation practice was introducing the students to the Phineas Wits mascot, which was decorated with human skulls and candles inside (supplied by second-year medical students). It was housed in the cavernous stormwater drain running next to Empire Road!

Bihl shared that the first years were mandated to learn the personal details of all senior students living in his residence from the third year and had to recite these if confronted by a senior (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email interview, 30 August). 'We also had to learn the rude poem about Zorro the Cat, to whom a statue had been erected outside the front entrance to College House', he said. Initiation was banned from 1956.

■ Intervarsity raids and student rivalries

Student activities included raids against UP (Tuks) students. This took place before the rugby intervarsity each year on campus rugby fields, 'where we had to try to remove the trousers of our opponents', Bihl laughed (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email interview, 30 August).

He was captured during one of the raids in Pretoria and taken to one of the residences. All the captives were stripped, made to jump into baths filled with cold water and ice, and run the gauntlet on their hands and knees through the legs of ten students, who slapped them hard on their backsides (Bihl, F 2023, *Interview with Bihl*, Unpublished email interview, 30 August). The young students 'were given a wet towel to "dry" ourselves, got dressed and slept on the floors in the corridors of the residence. This was in the middle of winter!' Bihl recounted. He and his friends hitchhiked back to Wits the next day.

■ Capture of the Tukkies and Rag traditions

The Capture of the Tukkies – referring to UP – occurred in 1958 and involved the capture of a cheerleader. This event was conceived by a team of brilliant strategists, led by Ray Greenland, a good friend from res and a contemporary, who later earned his doctorate in Nuclear Engineering overseas. Bihl shared the anecdote of how the cheerleader had to run onto the Loftus Rugby Stadium's field in Pretoria, 'dressed in a nappy, before the start of the main match, to signify that he had been captured by Witsies' (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email interview, 30 August).

The annual practice of building floats each year, which involved dressing up to participate in the yearly Rag processions to sell fundraising tickets, was among his fondest memories as a student. He and other freshmen earned 'the necessary credits to qualify to proudly buy and wear a Wits blazer at the end of our first year' (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email interview, 30 August).

■ Final year highlights and graduation

In Bihl's final year at Wits, he joined the Choral Society and sang as the male chorus lead in *The Gondoliers*, opposite the female chorus lead, Clarissa Bozzoli. She was one of Professor Bozzoli's three daughters and the couple fell in love and married in 1962. His graduation in the Great Hall at the end of 1959 was also a fond memory for Bihl.

Fred Bihl's life path continues in Appendix 3, 'In their own words' (Smit-Stachowski, A 2023, *Interview with Bihl*, Unpublished email interview, 30 August).

Chapter 6

The 1960s and 1970s: Resistance and growth⁵

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'The apartheid system planned, I planned, but the Almighty had other plans, and I graduated as South Africa's first architect of colour in 1969'. – Aziz Tayob (2023)

5. This chapter has sections that are based on a historical narrative that is based on and was developed from the following published work:

Artefacts n.d., 'Lexicon University of the Witwatersrand School of Architecture and Planning (SoAP)', viewed 24 March 2025, <https://www.artefacts.co.za/main/Buildings/style_det.php?styleid=299>.

Artefacts n.d., 'Douglas McGavin Calderwood', viewed 24 March 2025, <<https://www.artefacts.co.za/main/Buildings/archframes.php?archid=2679>>.

Frescura, F 2007, 'Franco Frescura: Biography', *SA History*, viewed 05 January 2024, <<https://www.sahistory.org.za/people/franco-frescura>>.

Calderwood, DM 1978, 'The Department of Building Science of the University of Witwatersrand', *Architectural Science Review*, vol. 21, nos. 1–2, pp. 34–35. <https://doi.org/10.1080/00038628.1978.9696394>

How to cite: Smit-Stachowski, A 2025, 'The 1960s and 1970s: Resistance and growth', in S Laryea, A Smit-Stachowski & B Mphuti, *Making a mark: Wits School of Construction Economics and Management and its contribution to the construction and property fields*, ITUTA Books, Cape Town, pp. 47–69. <https://doi.org/10.4102/aosis.2025.BK544.06>

■ Apartheid restricts building work and education for ‘non-whites’

The system of apartheid was implemented by the ruling National Party (NP), which won the election in 1948, under the slogan of apartheid (Afrikaans for ‘separateness’). This divided South Africa on racial lines.

The country entered the period of ‘separate development’, divided on racially segregated lines, following the *Natives Land Act of 1913*, which restricted the black ownership of land to the ‘reserves’, later the homelands, the *Native (Urban) Areas Act of 1923* and the *Native Law Amendments Act of 1937*, which enforced residential segregation (Peters 2004, p. 537).

Entrenched racism was legislated and enforced with the *Population Registration Act of 1950* (classifying citizens, according to the colour of their skin), the *Group Areas Act of 1950* (designated areas for specific racial groups and set the spatial landscape we experience today) and the *Reservation of Separate Amenities Act of 1953*, dictated how the country was run.

Closer to home, the *Native Builders Amendment Act of 1955* made it illegal to hire a ‘native’ (read, non-white person) on a skilled building site in an urban area without special permission, proving that no white person was available to do the job. The *Bantu Education Act of 1953* limited black people from studying for jobs reserved for white people. The *Extension of University Education Act of 1959* had a white-only policy for admission to universities and schools of architecture or construction. Ministerial permission was required to admit students who were deemed non-white (Peters 2004, p. 545).

■ Major changes introduced in the 1960s

In 1964, the Doctor of Science (DSc) in QS was introduced. According to Bryer, the maximum annual intake for QS education was only 35 students. It was ‘not likely to change appreciably, due to the current depression in the building and construction industries’ (Bryer 1977, p. 20).

■ Growth and new departments

In 1964, the Building Industries Federation (South Africa), the South African Council for Scientific and Industrial Research (CSIR), the ISAA and the Association of South African Quantity Surveyors (ASQS) honoured Professor Norman Leonard Hanson by establishing a notable bursary in his name (Bryer 1977, p. 84). This commemorated his service to the building and allied industries and his contribution to national housing needs.

Change came in 1965 at Wits, when Rex Milford retired and was succeeded by Clyde Walker. The University decided to separate the departments, establishing Building and Quantity Surveying as distinct entities offering undergraduate courses. The Department of Building was also founded in 1969 (Bryer 1977, p. 23).

The Building Industries Federation South Africa (BIFSA), supported by a generous subsidy from its National Development Fund for the Building Industry, introduced a 4-year BSc in Building degree in 1965. This course prepared candidates for technical, executive and managerial roles in the building and allied industries.

■ Building Science and Professor Calderwood's leadership

When the degree course began, only ten students enrolled, supported by one full-time and one part-time lecturer. Then, Professor Douglas Calderwood was invited to manage the new Building Science course at the NBRI.

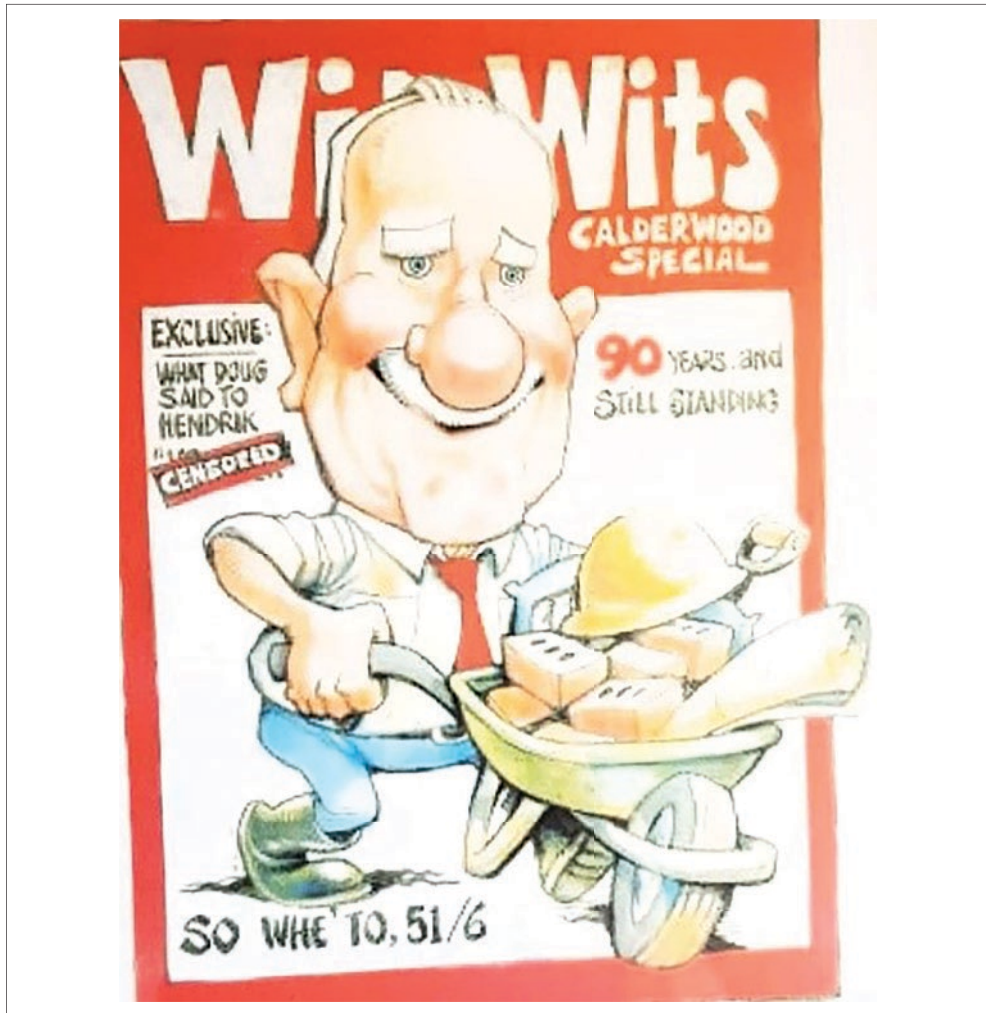
As the Division of Building Science gained autonomy within the Faculty of Architecture, student numbers grew to 106, supported by five full-time and three part-time staff members (*ArteFacts* n.d.c).

Frank Wright (BSc 1968) praised Calderwood's leadership, noting the curriculum was overhauled and made more relevant. Rooted in Calderwood's father's mine management techniques, the course emphasised industrial organisation and, importantly, human relations, covering conflict management and body language (Wright, Wits Obituary 2010) (see Figure 6.1).

Wright recalled Calderwood's genuine care for his students, including delightfully pushing graduates around in a wheelbarrow after exams. Calderwood was also fondly remembered for 'that pipe!' and his distinct pronunciation of words like 'mimi skirts', 'mininim' and 'wits', not 'vits' (Wright, Wits Obituary 2010).

■ Recognition and expansion of the Faculty

In 1966, Sonny Tomkin, a Wits graduate and partner at QS firm Hanson, Tomkin & Finkelstein, was honoured by the City of Durban for nearly 40 years of contributions to town and regional planning. In 1970, he was elected Honorary Fellow of the University of Natal (now known as the University of KwaZulu-Natal) for his services to education and training in Architecture, QS, Building Science and Planning.



Source: Copyright n.d. © Calderwood family. Reproduced and published with permission from the Calderwood family.

FIGURE 6.1: Professor Douglas Calderwood immortalised as a cartoon by his Witsie students in the Wits Calderwood Special.

That same year, Professor Calderwood was appointed Chair of Building Science, funded by the National Federation of Building Trade Employers through its National Development Fund (Bryer 1977, p. 20).

In 1967, total student enrolment in the Faculty of Architecture was 255 – an increase from previous years, but still predominantly male, with 239 male students and 16 female students. Reflecting the era’s systemic racism, the racial demographics were 235 white students, 18 Asian students, two mixed-race students and no black students (Bryer 1977, p. 21).

■ Leadership transitions and departmental growth

TJ Olivier joined as a part-time lecturer in 1967, assisting Calderwood in developing the BSc in Building course. Olivier was appointed Chair and became Head of Department in 1976 (Bryer 1977, p. 26).

In 1968, Professor Geoffrey Eastcott Pearse passed away. Duncan Howie, editor of the *South African Architectural Report*, documented Pearse's distinguished career in a 1954 SAAR issue (Howie, 'Two Doctorates in Architecture', SAAR 1954, p. 44).

Pearse was born in February near Verulam, Natal, in 1885. He came to Johannesburg and was educated at Marist Brothers School and the Weenen County College in Natal. His architectural training began in 1903, when he was articled to Messrs. Brown & Cottrill. In 1907, he travelled to London and qualified as an Associate of the RIBA (Howie, 'Two Doctorates in Architecture', SAAR 1954, p. 44).

Returning to Johannesburg in 1920, he joined Sir Herbert Baker's staff and worked on the Union Buildings in Pretoria. He won three competitions and began to practise in Johannesburg in 1913. When WWI began, he returned to the UK and enlisted in the Middlesex Regiment. After being transferred to the Royal Engineers, he had active service in Mesopotamia until the war's end. Remaining in Mesopotamia, he took part in the Afghan Campaign (SAAR May 1954, p. 44). He resumed practice in Johannesburg and began lecturing in Architecture at the University College. In his later years, he initiated the establishment of a postgraduate diploma in Town Planning, a significant career milestone.

Professor Pearse held numerous leadership roles in architectural and planning associations: President of the Association of Transvaal Architects, the Transvaal Provincial ISAA, the Transvaal Town Planning Association and the AS and TS of South Africa. On his retirement, he was appointed the University's architect (SAAR May 1954, p. 44).

His architectural contributions with his colleagues included key University buildings and medical facilities: The layout of the grounds of the University, the design of the swimming pool, the old library, the Great Hall and extensions to the Central Block, the Bernard Price Institute of Geophysical Research, the Hillman Block, Douglas Smit House, the first and second dental hospitals, extensions to the Medical School and the Women's Residence. His other buildings included Electricity Supply Commission (Eskom) House, a Diamond Research Laboratory, the Polio Research Laboratory, St John Ophthalmic Hospital and the Orange Free State (OFS) University Library (SAAR May 1954, p. 44).

Howie considered Pearse a pioneer in architectural education and town planning, praising his influence on students and dedication to South African heritage: 'He instilled the highest ideals in his students, and never failed to stimulate enthusiasm in those about him for the charm and character of our historic South African tradition' (SAAR May 1954, p. 44).

Pearse's protégé, Professor WD Howie, was appointed Head of the Department of Architecture, Quantity Surveying, Building Science and Town and Regional Planning in 1969 (Bryer 1977, p. 21).

By 1970, Building Science gained full departmental status under Professor Calderwood and Quantity Surveying under GW John, who was appointed Associate Professor and became Head of Department in 1971. At that time, the Quantity Surveying department had 65 students, supported by two full-time and four part-time staff (Bryer 1977, p. 23).

■ Reflections and legacy

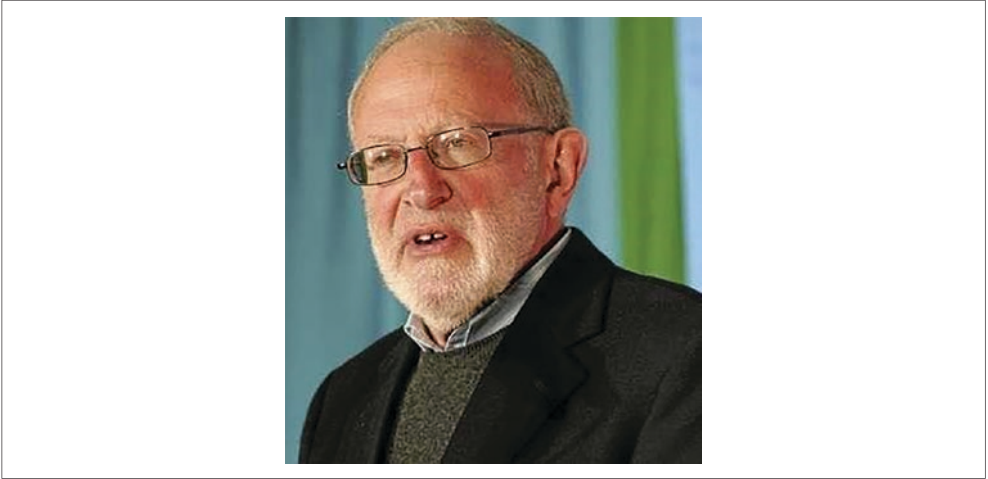
Wits SCEM alumnus Mark Osborne (QS 1971) remembered Professor Calderwood as a remarkable character. Osborne shared that during his second year, Calderwood was invited to a low-cost housing conference in Sweden, where King Gustav V Adolf was so impressed and asked Calderwood to summarise the event. Osborne noted, 'If the government had implemented his low-cost housing ideas, it would have alleviated the housing problem at the time' (Smit-Stachowski, A 2023, *Interview with Mark Osborne*, Unpublished in-person interview, 24 August).

■ Ronnie Schloss (BSc QS, 1968) juggled life on site and football

■ From concrete to the classroom

When reflecting on the history of the SCEM, one cannot overlook the contributions of Professor Ronnie Schloss. Recalling the beginnings of his professional journey, Schloss laughed that when he first decided to pursue a career in construction, 'my family didn't even know what it was!' (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August).

He enrolled in a 5-year QS programme during the 1960s, which included two years of full-time study, followed by three years of part-time study. During one December vacation, he worked on the Alice Street Bridge in Durban, helping to pour concrete. 'I messed up the signalling for the Johannesburg-Durban train,' he chuckled. 'I shorted the signals, and all the trains stopped!' (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August) (see Figure 6.2).



Source: Copyright 1989 © Ronnie Schloss. Photograph from the Bidvest Wits FC website, reproduced and published with permission from Ronnie Schloss.

Key: FC, football club.

FIGURE 6.2: Photograph of Ronnie Schloss in the 1980s.

■ Choosing football over a desk

While building his QS career, Schloss also pursued a passion for football. He played as a right-wing full-back for the Wits U-19 team and Ramblers until injury cut his playing days short. He fondly remembered the day Wits beat Rangers for the Cup: ‘We didn’t have a grandstand big enough to accommodate the spectators, so we all just stood around the field!’ (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August).

While employed at Eric Gaisford, he asked to leave early on Tuesdays and Thursdays for soccer training, and an ultimatum followed: football or the firm. Without hesitation, he chose football. Fortunately, civil engineer Stan Armstrong, then a director of Durban City Football Club, quickly found him a new job with Strickland Chomley and Morgan, thanks to shared office ties.

Schloss thrived on site, enjoying the energy, planning and programming involved in construction. One early project was building a factory for Cardies in Aeroton, Johannesburg. ‘I was in charge of that site and accidentally cut through the cable that supplied Baragwanath Hospital’, he recalled, with a rueful smile (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August).

■ Building a career in education

While lecturing on Contract Law through the Master Builders Association, Schloss was approached by Professor Calderwood – formerly of the CSIR and a prominent figure in housing research – to take up a post at Wits. Initially, lecturing proved daunting. ‘Some students were older and more experienced than I was’, Schloss admitted. Luckily, those mature students maintained discipline. ‘They told the younger ones, “We’re on bursaries and we’ve got families – we want to finish this course”’ (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August). In time, he built up a good rapport with the students, and there was no conflict.

Class sizes were modest, eight to 10 in Building Science and 20 in QS. That number was halved by the second year. Subjects ranged from Physics, Chemistry and Maths to Commercial Law, Geometrical Drawing and Quantities. When Calderwood went on leave for 6–8 weeks, he asked Schloss to cover his Building Science 1 lectures. ‘He had perfect handwriting and even included notes like, “When I was in Abyssinia [...]” – all neatly labelled Lecture I, Lecture II,’ Schloss recalled (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August).

By 1974, Schloss was promoted to Senior Lecturer. He undertook several 6-month international courses, including one on Construction Failures at Wharton in Pennsylvania and another at Heriot-Watt University in Scotland. He was later appointed Associate Professor of Building Science.

■ Football, resistance and legacy

Football never left his heart, and Schloss became deeply involved with the Wits football team – famously the first all-white side to play in a black township, breaking apartheid-era sporting codes. ‘We were the first white team to join the NPSL [National Professional Soccer League], leaving the all-white league behind,’ he recalled (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August).

Life in South Africa in those days meant that intermingling of white people and black people was frowned upon and illegal at times. Despite legal and societal threats, Wits faced off against teams like Kaizer Chiefs and Moroka Swallows in Soweto. ‘If we beat the Chiefs, their fans would stone our bus. The players would rip seat covers off and hide under them!’ Schloss remembered (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August). The Wits team had much

support from Sowetans. Moroka Swallows also played against the Clever Boys.

He himself was arrested with his sons en route to Orlando Stadium. Jack Sello, Moroka Swallows' Chairman and a policeman, intervened to get them released. 'Many who ran football at the time were actually in the police force,' Schloss noted (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August). After the 1976 Soweto Uprising, the team continued to play with no incidents – despite increasing police harassment.

Once, authorities caught wind of a black groundsman being paid. Schloss was summoned to Hillbrow Police Station, called a derogatory Afrikaans term meaning someone who loves black people [...] and accused of 'trying to be clever' (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August). The intimidation escalated, calling him names, with anonymous calls coming in the early morning hours.

Still, Schloss pressed on. Wits brought out Manchester United legend Paddy Crerand for a 6-week stint to strengthen the Wits team side. Among the matches included was playing against an Argentinian university team at Rand Stadium. They then played another game in Orlando, Soweto, and were stopped by the army. 'Paddy was taking pictures. They arrested the whole bunch and confiscated his camera; he didn't get the pictures!' (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August).

Travelling as a racially mixed team during apartheid presented many challenges. At a Kentucky Fried Chicken (KFC), the white players were allowed inside, but the black players were told to go to the back. 'I told them to stick their food – we travel and eat together as a team', Schloss declared (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August).

Their unity paid off. The Wits team, affectionately known as the Clever Boys, went on to win the Mainstay Cup by beating Kaizer Chiefs. They travelled extensively, playing in Durban, Bloemfontein and even Windhoek.

One of Schloss's proudest moments was getting the team promoted from the second to the first division. When Vice-Chancellor Bozzoli asked how he planned to fund their move to the Professional League, Schloss said, 'That won't be a problem'. Their first sponsors were *Encyclopaedia Britannica*, African Life Insurance and Holiday Inns through his personal contacts (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 11 August).

■ Breaking barriers: Aziz Tayob – the first Wits architect of colour

Vital for the School's history was to highlight those who came first and paved the way for others to make their mark in the built environment.

Among these pioneers is Aziz Tayob, the first student of colour to graduate with a degree in Architecture from Wits. Locating him took considerable effort, but thanks to his sons, who relayed the request, Tayob graciously shared his journey with the authors (Smit-Stachowski, A 2023, *Interview with Tayob*, Unpublished email interview, 09 October).

Tayob had initially planned to become a doctor after matriculating in 1960. He went abroad to pursue medical studies but later returned to South Africa with hopes of continuing his education. His aspirations, however, faced systemic hurdles. As Wits was classified a 'white university', Tayob was required to apply for ministerial consent under apartheid legislation in order to study there (Smit-Stachowski, A 2023, *Interview with Tayob*, Unpublished email interview, 09 October).

Despite this, the University provisionally accepted him into the Architecture programme, even before the ministerial approval had come through. His intention was to transfer to Medicine once admitted, but fate had other plans. 'The apartheid system planned, I planned, but the Almighty had other plans, and I graduated as South Africa's first architect of colour in 1969,' Tayob reflected (Smit-Stachowski, A 2023, *Interview with Tayob*, Unpublished email interview, 09 October) (see Figure 6.3).



Source: Copyright 2023 © Aziz Tayob. Permission to reproduce and publish this photograph has been granted by the photographed individual.

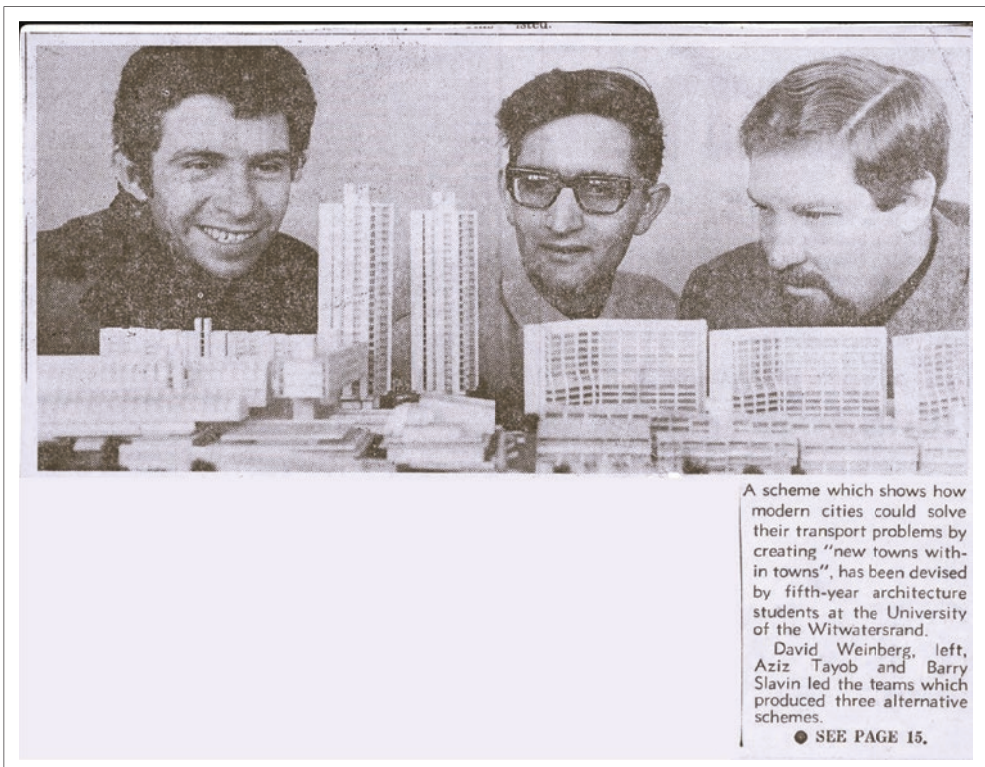
FIGURE 6.3: Photograph of Aziz Tayob.

■ Mentors who nurtured talent

In the early years, his favourite lecturers included Don Lennard (for his second and third years), Professor Fassler (who was Head of the Department), Ivan Slapobersky and Professor WD Howie (his thesis master).

Tayob acknowledged that, at the time, architecture was not a widely appreciated or supported career path in his community. 'Let alone employ them,' he remarked about architects' lack of cultural recognition. Instead of dismissing him, his lecturers identified and nurtured his potential, helping to shape his future (Smit-Stachowski, A 2023, *Interview with Tayob*, Unpublished email interview, 09 October) (see Figure 6.4).

In his final year, Tayob collaborated with fellow students David Weinberg and Barry Slavin on a forward-looking urban design project, aimed at solving urban transport problems by developing 'new towns within towns' (Smit-Stachowski, A 2023, *Interview with Tayob*, Unpublished email interview, 09 October). Their project, which offered three alternative schemes, was featured in the *Rand Daily Mail*.



Source: Copyright n.d. © Rand Daily Mail.

FIGURE 6.4: *Rand Daily* newspaper clipping depicting Aziz Tayob, David Weinberg and Barry Slavin.



Source: Copyright 1969 © Aziz Tayob. Permission to reproduce and publish this photograph has been granted by Aziz Tayob.

FIGURE 6.5: University of the Witwatersrand Class of 1969 depicting Aziz Tayob (fifth from the right) with his fellow graduates.

Additionally, Tayob partnered with Ivan Slapobersky on the Jeppestown Urban Renewal Project, which garnered media attention and professional interest. Field trips to brick manufacturers and glass plants proved deeply formative. The socio-political environment of the 1960s, including Robert F Kennedy's 1966 visit to South Africa, left a lasting impression on him during his formative years as a student (see Figure 6.5).

■ Graduation and a reserved welcome into the profession

After graduating, Tayob was eager to make a difference in his career, advance and be treated equally. However, South Africa was not yet ready. His achievement created a stir in professional circles. 'Some wondered if I would need to establish a solo professional institute,' he said, illustrating how unprecedented his entry into the profession was (Smit-Stachowski, A 2023, *Interview with Tayob*, Unpublished email interview, 09 October). Despite challenges, Tayob benefited from the relationships he built at Wits, particularly with Glen Gallagher and Professor Mallows, which opened doors for architectural training opportunities.

Still, racial exclusion lingered in subtle but harmful ways. 'Discussions about workplaces lacking facilities for non-white individuals persisted,' he recalled (Smit-Stachowski, A 2023, *Interview with Tayob*, Unpublished email interview, 09 October).

Standing out came at a cost. 'When you stand out, people often become less forgiving of any mistakes you might make,' he explained. The pressure was immense: he had to outperform expectations and demonstrate professionalism beyond reproach.

'This is why I had to put in extra effort and employ a more intelligent approach to my work,' Tayob explained (Smit-Stachowski, A 2023, *Interview with Tayob*, Unpublished email interview, 09 October).

His story continues in Appendix 3, 'Their own words' (Smit-Stachowski, A 2023, *Interview with Tayob*, Unpublished email interview, 09 October).

■ Franco Frescura challenges authorities

■ Awakening to injustice

Acclaimed artist and academic, Franco Frescura, now living in the Western Cape province, was also approached to tell his story for this book (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September).

After matriculating in 1964, Frescura spent some time in an architectural office before enrolling at Wits in 1966. Like many young students of the time, he initially accepted much of what he was taught without question. However, his worldview began to shift at the end of his second year. He discovered social theory, began reading about postmodernism and started questioning the core principles of the modern architectural movement (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September) (see Figure 6.6).

His growing awareness of South Africa's social, economic and political turmoil led him to doubt whether architecture could meaningfully address these issues. With a group of like-minded students, he came to see architecture not as a 'freedom to build' but rather as 'bondage in a self-perpetuating system', Frescura stated (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September).

Despite this realisation, he continued with his studies towards his first degree in Architecture, a long period broken by four years of practical experience. His fellow students rated him highly, and in 1969 and 1971, he was elected to the Wits SRC to advocate for student rights and address issues. During the Class of 1969 parliamentary elections, he met Lesley-Anne Morton; they fell in love, married in 1970, and soon after, their daughter Gabriella was born (SA History n.d.).



Source: Copyright 1969 © Franco Frescura. Permission to reproduce and publish this photograph has been granted by Franco Frescura.

FIGURE 6.6: Franco Frescura as a student activist.

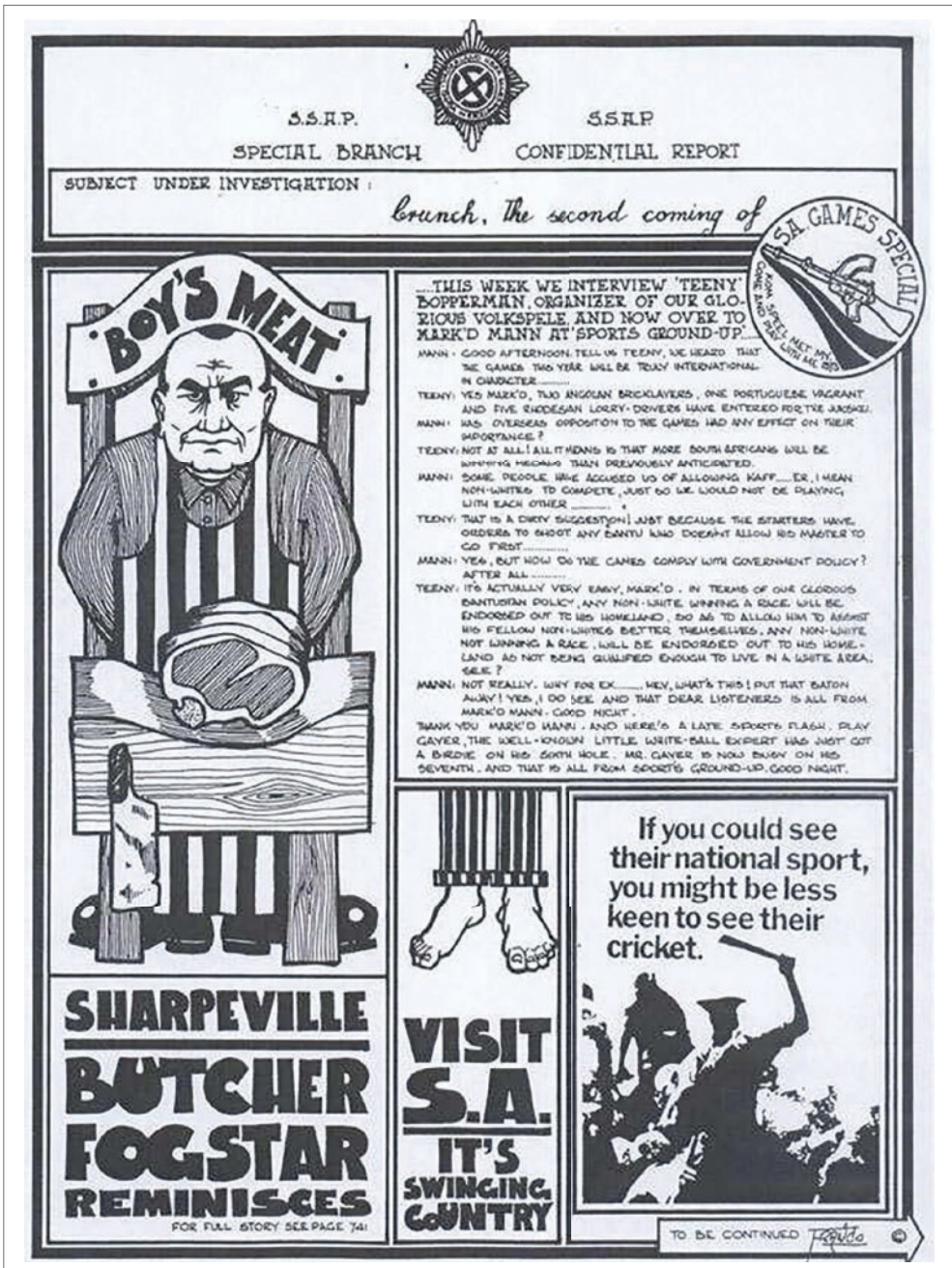
■ Speaking out through satire

University politics during apartheid were volatile, as Frescura illustrated when the NP Minister, Dr Marais Steyn, ended up with ripe avocado dripping from his glasses while addressing the students (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September).

On another occasion, Security Police ‘tried to raid the SRC offices and found their way barred by angry students who, literally, threw them down the stairs of the Student Union [...] Sigh! Oh, happy days!’ (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September).

Frescura was elected to the Wits SRC in both 1969 and 1971, advocating for student rights. His activism intensified in 1972, when he began drawing ‘The John Burger Saga’, a satirical cartoon series published in *Wits Student*. His sharp political commentary did not go unnoticed. The cartoons portrayed the NP Prime Minister John Vorster as engaging in sexual relations with his wife with a police baton, Sir de Villiers Graaff with a yellow streak, and Parliament as ‘a pack of Neo-Nazis’ (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September) (see Figure 6.7).

These cartoons led to his arrest, a highly publicised trial, a large fine and a suspended prison sentence. The University followed suit, charging him with bringing Wits into disrepute. He suspected this reaction was motivated



Source: Copyright 1972 © Franco Frescura. Permission to reproduce and publish this photograph has been granted by Franco Frescura.

FIGURE 6.7: Sharpeville Butcher, Fogstar, comic published in the *Wits Student* newspaper.

by a donor withdrawing funding because of the controversy. In 1973, he was rusticated for the year and banned from publishing either words or drawings on campus while registered as a student (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September). This suspension marked a turning point in his political and professional journey.

■ Working on the margins

The lack of institutional support and the realities of a racially segregated profession made it clear to Frescura that his political background would limit his architectural opportunities to receiving ‘the kind of work that keeps an architectural practice solvent. Other than designing hospitals and schools, you had little choice, as to your potential clients’ (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September). Despite his meagre options, he opened an office in Braamfontein.

Frescura designed houses began designing for friends and political allies. Among his early projects were homes for figures like Ramarumo Monama, Colin Smuts and Percy Qobosa. However, when he was asked to design a garden wall for Geoff Budlender’s ex-wife, he felt he had reached ‘the nadir’ of his architectural career (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September).

Some lecturers recognised his anarchic talent. Bill Spooner allowed him the freedom to take ‘the route less travelled’, while still awarding passing marks. Another influence was Pancho Guedes, whom Frescura dubbed ‘the Prince of Manipulators’ and regarded as the finest architect South Africa ever produced. Their unconventional bond culminated in the two dancing on stage at the Great Hall during Frescura’s PhD graduation ceremony – ‘The Deans were not amused’, he recalled (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September).

■ From rebellion to research

Despite external rejection, Frescura’s iconoclastic energy found refuge in academia. In 1977, then Head of the School of Architecture, Professor Guedes, invited Frescura to continue his academic path through an MArch.

He accepted, completing his MArch (cum laude) in just nine months and later earning a PhD in 1986. His MArch research emerged from an undergraduate interest in popular housing, focusing on self-built architecture in rural South Africa. Over time, this academic interest expanded beyond conventional architectural boundaries into archaeology, history and anthropology.

This evolution laid the foundation for a scholarly career that challenged orthodoxies and celebrated South African vernacular traditions.

His story continues in Appendix 3, 'In their own words' (Smit-Stachowski, A 2023, *Interview with Frescura*, Unpublished email interview, 22 September). Readers can also view his provocative artwork from 1972 in Appendix 4.

■ Further developments in the 1960s

■ Building Science gains ground

At the School, Building Science tuition began in 1968. These new lectures emphasised applying the scientific method to understand why certain building-related conditions occur, such as climate effects, moisture control, frost action, and heat gains and losses. Initially, class sizes ranged between 80 and 90 students, but as the lectures began exploring the psychological and social dimensions of human interaction with buildings, attendance ballooned to over 200, despite only 120 students being formally registered (Calderwood 1978, p. 34).

However, a clear division emerged: Architecture students found the technical focus too heavy on formulae, while still being intrigued by the human aspects. Meanwhile, Building and Quantity Surveying students voiced concerns that the course lacked sufficient focus on practical application. They wanted more emphasis on 'how' to implement knowledge in real-world construction, rather than only on understanding 'why' things occurred.

As a result, the curriculum was adjusted. BSc (Building) students were required to understand material properties, chemical reactions between construction materials and how to support pre-cast or in situ concrete work. They also had to grasp techniques to combat moisture penetration, condensation and manage thermal efficiency.

A course structure eventually was developed that satisfied the Architectural Faculty and the Board of Education of the ISAA (Calderwood 1978, p. 35)

■ Early degrees awarded

In 1968, the University conferred the first five BSc in Building degrees. This milestone marked a turning point in formalising the academic study of construction. The following year, R Levy became the first to earn an MSc in Building in 1969. That same year, Julian Karel Evenwel of the NBRI received the first PhD in Building – a significant achievement for the field (Bryer 1977).

■ University friends for life for Mark Osborne

■ Carefree days at Wits

‘All our nearest and dearest friends are still from our University era – almost without exception!’ stated Mark Osborne, who gave several in-person interviews about his time at Wits in the 1970s. For him, these were wonderful, happy, carefree years, free from real stress or pressure (Smit-Stachowski, A 2023, *Interview with Osborne*, Unpublished in-person interview, 04 August) (see Figure 6.8).

Osborne recalled that campus life revolved around the canteen, playing bridge and occasionally water polo. Student life was a balance between study and social outings. ‘I remember well our Friday nights, going to the Devonshire Hotel after our interfaculty rugby matches’ (Smit-Stachowski, A 2023, *Interview with Osborne*, Unpublished in-person interview, 04 August).

Money was tight, but manageable. He had just one ZAR to spend each week. In those days, a packet of cigarettes cost 19 cents, matches 1 cent and a beer 20 cents. ‘Back then, a hamburger and chips in Hillbrow was 75 cents’ (Smit-Stachowski, A 2023, *Interview with Osborne*, Unpublished in-person interview, 04 August).



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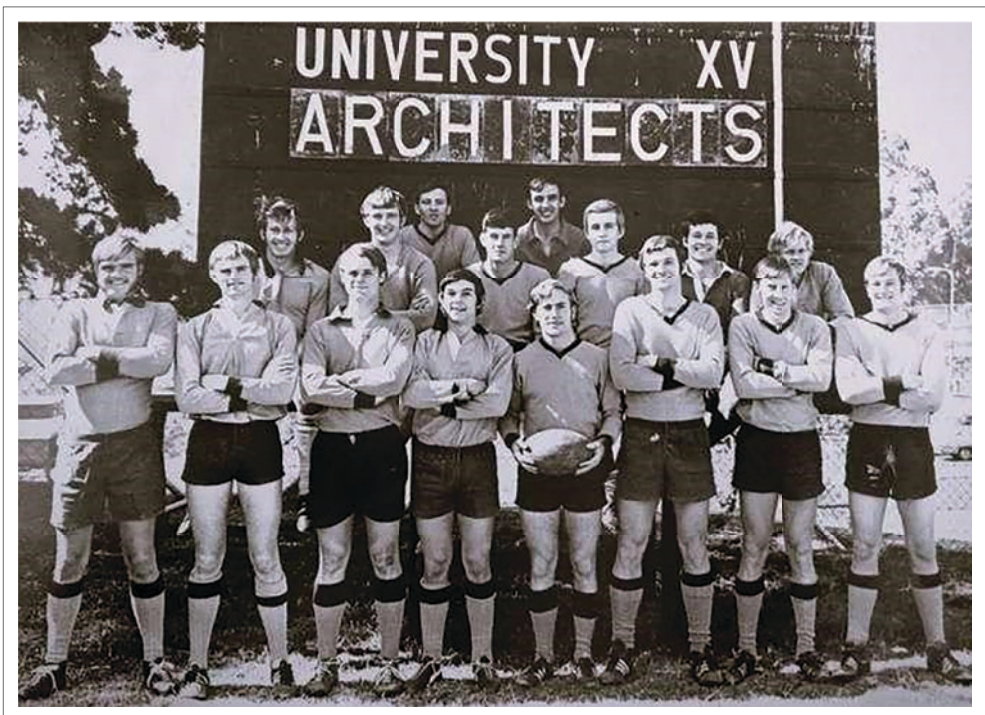
FIGURE 6.8: Photograph of Mark Osborne.

■ Rag and romance

Rag Week was a highlight of the student calendar. Osborne remembered the buzz as students spent a week building floats, which lined the streets during the Rag Saturday parade. Although short-lived, Rag raised funds for student causes and brought people together. In fact, it was during Rag that he met his future wife (Smit-Stachowski, A 2023, *Interview with Osborne*, Unpublished in-person interview, 04 August).

■ Sport, camaraderie and lifelong bonds

Sport was central to Osborne's student life. He fondly remembered playing bridge in the Architecture Drawing Room and spending time on the sports fields. Rugby was his main passion: he helped manage the Architects Rugby Team and later took on the responsibility for the Faculty Rugby Team at Wits (see Figure 6.9).



Source: Copyright n.d. © Supplied by Mark Osborne. Permission to reproduce and publish this photograph has been granted by the photographed individual.

Note: (L to R) Back row: Brian Jarvis, Ralph Farinha. Middle row: Pat Canepa, John Hawkings, Andy Dane, Craig Paton-Ash, Monkey Malan, John Craig. Front row: John Davies, Richard Rice, Richard Turner, Louis Hack, Mark Osborne, Haupt van der Zee, Norman Esterhuizen, Neville Clarence.

FIGURE 6.9: Photograph of the Architects Rugby Team.

‘The sport was where I made lifelong friends and connections, which served me well for the rest of my life,’ Osborne concluded (Smit-Stachowski, A 2023, *Interview with Osborne*, Unpublished in-person interview, 04 August).

His story continues in Appendix 3, ‘In their own words’ (Smit-Stachowski, A 2023, *Interview with Osborne*, Unpublished in-person interview, 04 August).

■ Interdisciplinary exposure ‘proved invaluable’: Ronald Smith

■ A builder’s path at Wits

‘Wits was seen to be the centre of technical excellence, not only in South Africa, but in the world,’ recalled Ronald Smith (BSc Building 1972), who originally considered architecture before opting for the more dynamic BSc Building programme under the guidance of the renowned Professor Doug Calderwood (Smith, R, 2023, Unpublished email, 14 August).

Smith noted that builders were especially skilled at executing what architects envisioned. He fondly remembered Calderwood as a true academic leader, despite his habit of smoking unfiltered cigarettes. ‘He lived to more than 90!’ (Smith, R, 2023, Unpublished email, 14 August).

The Wits Building course in the 1970s was rigorous and multidisciplinary, including subjects such as Surveying, Mathematics, Law, Building Construction, Physics, Accounting and Management. Some modules were taken through other faculties, enabling ‘Building students move around the campus and meet – not only the instructors in the different disciplines, but also their own students’ (Smith, R, 2023, Unpublished email, 14 August). This interdisciplinary exposure ‘proved invaluable’ for these ‘academically-qualified builders, where professional contact was all-important’, cultivating a wide professional network essential for success in the field: Wits was seen to be the ‘centre of technical excellence, not only in South Africa, but in the world’ (Smith, R, 2023, Unpublished email, 14 August) (see Figure 6.10).

■ From Rag to real-world success

Smith was also an enthusiastic participant in Wits Rag. He described it as ‘a breeding ground for business competence’, with fellow organisers like Doug Smollan, Brian Joffe, Steven Koseff and Willie Brouze (who would



Source: Copyright 2024 © Ronald Smith. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 6.10: Photograph of Ronald Smith.

later graduate with a BSc Building), all becoming highly respected business leaders. Rag also raised substantial funds for charity (Smith, R, 2023, unpublished email, 14 August).

Applying Professor Calderwood's management principles, Smith helped ensure that all copies of *Rag Magazine* were sold, 'outselling all of the newspapers on that day' (Smit-Stachowski, A 2023, *Interview with Osborne*, Unpublished email interview, 12 August).

The Building cohort was a diverse student body with different backgrounds and jobs. Smith recalled a humorous incident with stern lecturer Tommy Cairns, who was lecturing on the importance of punctuality and warned that inattentiveness might land students 'working as traffic cops'. At that exact moment, Colin Eisenstein walked in late, still dressed in his part-time traffic officer gear. 'Mr Cairns was aghast!' Smith chuckled (Smith, R, 2023, Unpublished email, 14 August). Eisenstein later completed the degree and went on to become a physician.

Smith's story continues in Appendix 3, 'In their own words' (Smith, R, 2023, Unpublished email, 14 August).

■ A brief look at the post-1960s era

■ Leadership, lectures and international links

In 1972, Professor Calderwood became a Fellow of the Royal Society of Arts in the UK, in recognition of his contribution to architecture, building and building science. That same year, esteemed architect Monte Bryer, later author of *The Faculty of Architecture of the Witwatersrand, Johannesburg and its role in the community*, was elected a Special Member of the South African Institute of Building for his service to the industry (Bryer 1977).

The 1970s marked a period of strong academic leadership. In 1973, Professor Clyde Walker was appointed Professor and Head of the Department of Quantity Surveying. He represented Wits at the International Symposia of the American Association of Cost Engineers in the USA, where he presented two papers. While abroad, Walker also discussed QS education with notable UK institutions such as the RICS, the University of Reading and the Building Research Establishment (Bryer 1977). On 05 May 1975, he delivered his inaugural lecture titled 'A philosophy of quantity surveying', the first recorded professorial lecture in the School's and South Africa's QS history (see Appendix 5).

■ Reforming programmes and rethinking priorities

In 1974, the structure of the BSc in QS changed from two full-time and three part-time years of study to a minimum of four full-time academic years. During the same period, the Department of Building Science staff contributed to the Building Research Congress in Durban, organised by the NBRI (Bryer 1977, p. 31).

Academic enrichment extended beyond core disciplines. In 1975, Wits' Institute for Adult Education and External Studies hosted a 1-week summer school titled 'Planning places for living', coordinated by Professors Patricios and Schlapobersky. This progressive course brought together psychologists, sociologists, economists, builders, 'black and brown' community representatives, politicians, developers, engineers, architects and planners – a testament to the School's inclusive and forward-thinking ethos (Bryer 1977, p. 58).

Looking ahead, Professor Calderwood warned of urgent sustainability concerns in his thesis on the Department of Building Science. He reflected that irreplaceable resources were being consumed too rapidly and that Architectural Science needed to address this challenge directly. He called for 'the creativity of the scientist', proposing solar energy, water conservation, salt water for irrigation and strategic building orientation as key areas for sustainable innovation (Calderwood 1978, p. 35). (See Appendix 4 to see Calderwood's visionary solar charts for the design of sunlight and shade for buildings [1951].)

The pre-democracy era⁶

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■ Introduction

'Learning practical lessons from weathered and experienced tradesmen.' – Karl Trusler (2023)

The 1980s saw some activity politically in the building environment, but 'many were too busy nibbling at the apartheid cheese', according to former lecturer Paul Schlapobersky, quoted by Peters (Peters 2004, p. 545). Contractors were accepting and working on 'structures of separate development', which included sprawling government buildings used to propagate policies and police headquarters.

6. This chapter has sections that are based on a historical narrative that is based on and was developed from the following published work:

Senyolo and Associates n.d., *About TSP*, viewed 24 March 2025, <<https://senyolo.co.za/about-tsp.html?>>.

Elk, C (ed.) et al. 1986, *Metropolis: Architectural students congress*, University of the Witwatersrand, Johannesburg, viewed 15 July 2023, <<https://wiredspace.wits.ac.za/items/653d1028-5e3d-43f1-92ac-f3f54d0926c5>>.

How to cite: Smit-Stachowski, A 2025, 'The pre-democracy era', in S Laryea, A Smit-Stachowski & B Mphuti, *Making a mark: Wits School of Construction Economics and Management and its contribution to the construction and property fields*, ITUTA Books, Cape Town, pp. 70–83. <https://doi.org/10.4102/aosis.2025.BK544.07>

Wits introduced a Development Planning Master's programme to complement the Bachelor's degree, in response to international trends and local social issues. It has formed a major focus of the planning programme (Wits School of Architecture & Planning n.d.).

■ Practical training made the man: Karl Trusler

■ Learning from the ground up

Former Executive Director of the ASAQS, Karl Trusler, chose to study QS after spending time in an office and on site with a practising QS (Smit-Stachowski, A 2023, *Interview with Trusler*, Unpublished email interview, 31 August & 27 October).

His decision was shaped by hands-on experience and by his appreciation for grounded, practical teaching. Among his most memorable lecturers was Hamilton Hoole, whom Trusler described as 'humble, with a great sense of humour'. He particularly valued 'learning some very practical lessons from these weathered and experienced tradesmen' (Smit-Stachowski, A 2023, *Interview with Trusler*, Unpublished email interview, 27 October).

The importance of traditional roles, such as site foremen who had risen through the trades, was also emphasised. For Trusler and his classmates, this blend of technical and real-world learning formed a critical part of their development (see Figure 7.1).



Source: Copyright 2020 © Karl Trusler. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 7.1: Photograph of Karl Trusler.

■ Student life and lasting memories

The well-known Builders, Architects, Quantity Surveyors and Town Planners (BAQT) Organisation was a popular student hangout in the 1980s. It raised funds for student international trips to see construction practices in action.

‘I do remember BAQT!’ Trusler recalled. ‘I also remember the “Dev”, the Devonshire Hotel, as a regular meeting place for Wits students,’ he said during a Zoom interview for this book (Smit-Stachowski, A 2023, *Interview with Trusler*, Unpublished email interview, 31 August). He added warmly, ‘We’d go to the Dev once in a while, and the Bread & Butter for a sandwich and a beer – those were very happy times’.

Students also appreciated the Wits campus itself. ‘The Architectural Faculty was well-placed in this setting,’ Trusler reflected (Smit-Stachowski, A 2023, *Interview with Trusler*, Unpublished email interview, 27 October).

His story continues in Appendix 3, ‘In their own words’ (Smit-Stachowski, A 2023, *Interview with Trusler*, Unpublished email interview, 27 October).

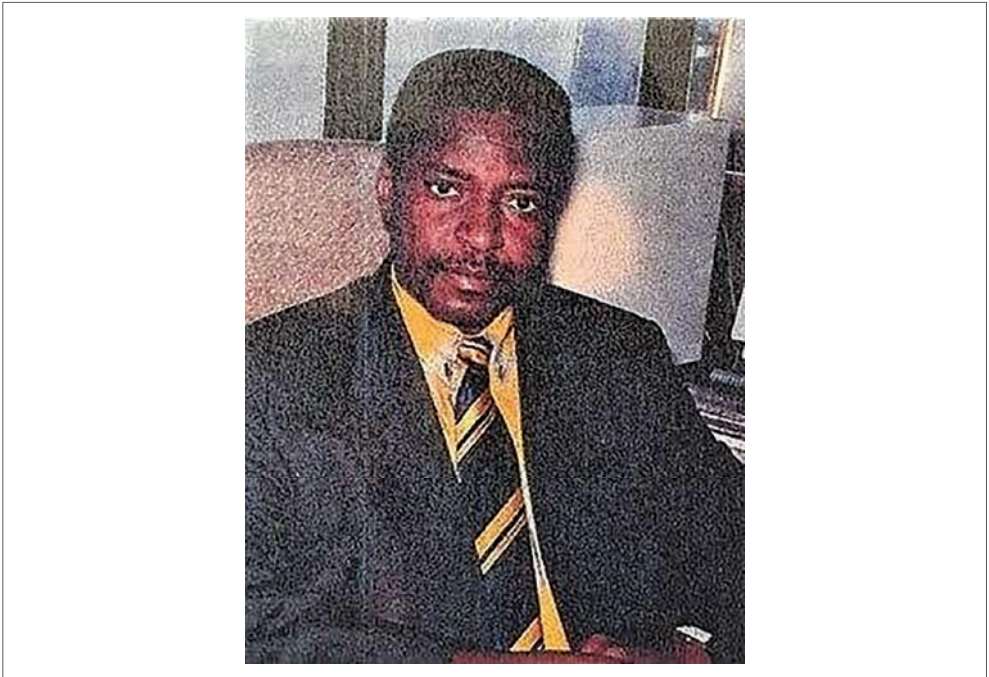
■ Thabo Senyolo becomes the first black African quantity surveyor in South Africa

■ Breaking barriers in an exclusionary system

In 1981, Thabo Senyolo made history in South Africa, as he graduated as the first black African QS at Wits (see Figure 7.2). Tracking him down took persistence, as his contributions had been overlooked in the University’s official records. With the help of online research and determination, he was located and generously shared his story for this publication (Smit-Stachowski, A 2023 *Interview with Senyolo*, Unpublished email interview, 02, 04 and 05 November).

Senyolo broke ground as he faced apartheid legislation and an antagonistic academic staff. Armed with excellent Joint Matriculation Board Examinations results and scholarships, including one from Anglo American, among others, he enrolled in architecture, and he switched to QS (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November).

‘The regime’s de facto exclusion of the Africans from the built infrastructure-related professions exemplified the landless status of a conquered people who could not be permitted to acquire the skills needed to grow South Africa,’ he recalled (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November).



Source: Copyright 1981 © Thabo Senyolo. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 7.2: Photograph of Thabo Senyolo.

As a black student, Senyolo was subjected to deeply racist assumptions: one lecturer claimed, 'Africans cannot even perceive the world in three dimensions – how then is it expected for them to interpret three-dimensional drawings?' The same academic confessed, 'It is difficult to resist the temptation to mark as incorrect an examination paper of an African student, irrespective of the correctness of the answer' (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November).

In his final year, a professor unjustly failed him in QS, a subject he mastered. His fellow classmates were dismayed because his tuition helped them achieve top marks and excel. 'This travesty spurred me to decide to apply to Wits Medical School,' Senyolo said (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November).

Only when Wits Medical School intervened with the School about the anomaly of his intention to switch courses midstream, a mere six months before writing the degree's final year examinations, did that same professor convince Senyolo to stay and complete his degree (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November).

Years later, he met the man at a conference. When Senyolo reminded him of the detestable incident, he said, 'I did what I did to build your character.

Look how merrily you have progressed. We both knew it was a bluff' (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November).

■ A mentor who made a difference

However, Thabo Senyolo hastened to add that not all the lecturers were villains. Amid the prejudice, one lecturer stood apart: Mr Ian Cochran, whom Senyolo described as both mentor and friend. Cochran insulated himself from the apartheid-induced prejudices [...] and went beyond the call of duty. His grounded, compassionate manner 'made him a darling of every student' (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November).

Cochran was both protector and friend with a mellow voice who 'was always ready to assist in wiping out moments of cruelty'. Cochran remained a lifelong supporter. Years later, when Senyolo's daughter Mosha enrolled at Wits for QS, Cochran again stepped in: mentoring her, helping her win the ASQS' Best Student Prize and overseeing her professional registration process (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November). Cochran was like a father to Senyolo, and they remained friends who continued to meet for lunches until Cochran's untimely death. 'I hope my inadequate words may be an everlasting eulogy to the lecturer who demonstrated leadership,' Senyolo added (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November).

■ Building legacy against the odds

Upon graduating, Senyolo co-founded the South African Black Technical and Allied Consultants' Organisation (SABTACO) and became involved in key industry bodies such as *Professional Consultants' Services Agreement* (PROCSA) and professional QS registration panels (Graphix 1989).

Thabo Senyolo and Partners (TSP) was the first registered African-initiated QS firm in South Africa. During its formative stages in 1986, it faced formidable obstacles in apartheid South Africa. It grew out of Multidimensional Associates, a pioneering black multidisciplinary practice with an architect, engineer and actuarial scientist (Senyolo and Associates n.d.).

'At the time, we felt it would be more feasible to link up to form a firm of associated built environment professionals with the dictum, "Unity is strength",' according to Senyolo (Graphix 1989). Despite state resistance, with political allies such as Bantustan leaders like Enos Mabuza, they could weather the political storm. By 1987, they were appointed consultants for the iconic Mandela House in Orlando West, Soweto (Graphix 1989).

In 1989, TSP became a wholly independent QS firm. The firm, which had offices in Johannesburg, Mpumalanga, Mafikeng and Port Elizabeth (Gqeberha), rendered services in a wide variety of projects, some of which were enormous joint-venture undertakings (Graphix 1989).

His story continues further in Appendix 3, 'In their own words' (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02, 04 and 05 November).

■ **Ronnie Schloss promoted to the Head of Building Science and Quantity Surveying (1983)**

■ **Leading through change: Renaming and repositioning the School**

After time in the field and learning from those in the industry, Ronnie Schloss had worked his way up the ladder to be appointed the Head of Building Science and Quantity Surveying. He held this post for almost two decades, during which time he witnessed and led significant transformation within the country and the School.

He began early in the history of the Building Science course and initiated one of the first significant changes: renaming the discipline. He explained that the term 'Building Science' caused confusion, 'because everybody thought we were scientists!' So, Schloss led the transition to rename the discipline Construction, a more accurate reflection of the programme's practical focus. Though people were resistant at first, he successfully implemented the name change across the School (Smit-Stachowski, A 2023, *Interview with Schloss*, In-person interview, 15 September).

Schloss believed the programme belonged in the Engineering Faculty. 'They didn't want to take our department out of Architecture, so they took the whole Architectural Faculty and put it under Engineering. Now it's Engineering and the Built Environment' (Smit-Stachowski, A 2023, *Interview with Schloss*, In-person interview, 15 September).

■ **Practical foundations: Learning the trades first-hand**

First-year students were sent to vocational colleges like Springs College during the long university holidays for eight weeks of hands-on training. This included plumbing, electrical and the wet trades, plastering,

bricklaying and pouring concrete and more – to get a feel for it. Schloss insisted this approach was essential: ‘We need to understand the problems of an artisan’ (Smit-Stachowski, A 2023, *Interview with Schloss*, In-person interview, 15 September). The School offered this for all the first-year students, and it worked wonderfully, but the colleges they worked with have since closed down.

The most important factor was that the students stayed in residence during this time, fostering camaraderie and eliminating any social distance between them and the artisans. They interacted with individuals from diverse backgrounds and connected with people they might not have encountered otherwise. Schloss described the aim as instilling humility and understanding: ‘I’ve worked with a plumber, I’ve worked with an electrician, and I’ve learnt to understand their problems, and now I know it is not that easy’ (Smit-Stachowski, A 2023, *Interview with Schloss*, In-person interview, 15 September).

■ Expanding the vision: Civil Construction and Project Management

For Schloss, construction education was not just about QS but about preparing graduates to manage major civil projects. ‘My definition of construction is civil – roads, bridges, it could be anything!’ (Smit-Stachowski, A 2023, *Interview with Schloss*, In-person interview, 15 September). He continued that in his mind, graduates should be able to ‘project manage civil construction – whether it be roads, a bridge or a high-rise building’ (Smit-Stachowski, A 2023, *Interview with Schloss*, In-person interview, 15 September). With this at the forefront, the School redeveloped its teaching to include more subjects related to civil construction.

Industry experts like the late Eddie Roeburt, a retired director of a construction company, were brought in, and students were exposed to plant and equipment management. To entrench the experience, students would take field trips to Barlows and major Caterpillar site projects within a 50 or 60 km radius of the University, which helped them understand heavy machinery use, servicing and problem-solving. Schloss explained that the School would bring in their technical team to show how the equipment could be serviced, in case repairs would need to occur during the project lifecycle. ‘You are talking about heavy earthmoving equipment, which costs millions, so you needed to have a proper understanding of when it has to be serviced, the oil, etc.’ (Smit-Stachowski, A 2023, *Interview with Schloss*, In-person interview, 15 September).

The programme also evolved to equip students with contract administration and claims documentation skills, preparing them to

collaborate effectively with QSs, as the builders knew how to do quantities, but still needed to work with the QS. 'If they wanted to be paid, [*students needed*] to be able to work with the quantity surveyor to substantiate their claim' (Smit-Stachowski, A 2023, *Interview with Schloss*, In-person interview, 15 September).

His story continues in Appendix 3, 'In their own words' (Smit-Stachowski, A 2023, *Interview with Schloss*, In-person interview, 15 September).

■ Intriguing events in the 1980s

■ International exposure and the value of pre-construction planning

Students increasingly travelled abroad to visit foreign countries and learn from international developments in the field. In 1983, *Future Build* reported on the third-year student tour to Japan. The students observed that the Japanese had significantly invested in education and training and noted that they 'are now leaders in many technical fields'. Impressed by their encounters, the students concluded that 'education and training are the absolute kernel of our survival' (*Future Build* 1983).

In December 1984, third-year students undertook an exploratory study tour to the USA. This followed a guided tour of nine Johannesburg shopping centres, organised by a local tile manufacturer. The international tour was made possible through contributions from Specialised Exhibitions and the South African Hire Association. The tour party comprised lecturer Henk Mantel and students Robert Lockett, Ian Lowe, Andrew Schedler, Colin Duberry and Ian McDougal. In 1985, a similar group of third-year students travelled to South America (*Future Build* 1984, p. 39).

Pre-construction planning emerged as a particularly significant topic during the 1980s. Building and Quantity Surveying lecturer Craig Stavelly noted the emphasis placed on this subject in his review of student research papers submitted for *Future Build* publication. According to Stavelly, the papers highlighted the importance of thorough pre-construction planning, particularly regarding the effective employment of subcontractors. A key concern in risk management was the need to clearly define 'the scope and the key activity relationships (also termed "logic")'. He concluded that preparing a detailed methodology statement before commencing a project would greatly assist in identifying and mitigating potential risks (*Future Build* 1993, pp. 34–35).

■ **Breaking barriers and building careers in the 1980s**

In the 1980s, the Clever Boys were the first white FC to sign black players, 'forming an uncomfortable multiracial environment at the headquarters in Milpark', according to online soccer outlet, Tagged. The club signed superstars such as Mike 'Nanana' Ntombela, Mike 'Sporo' Mangena and Leonard 'Wagga Wagga' Likoebe, mixing well with their established stars, such as Rodney Bush, Frank McGrellis, former Tottenham Hotspur and Glasgow Rangers captain Richard Gough and Davy Jacobs, to mention but a few (Mokoena 2020).

Faculty staff member and lecturer on History of Construction, David Gurney, graduated in 1978 with a BSc Building from Wits and then worked at several companies for over 13 years. These included James Thompson, Lewis Construction, Steeledale Reinforcing and Trading Company, AMCO (LTA), Stocks Construction, George Wimpey, Bolstone, Wynford Management Centre, and Withers and Gerke Architects, before starting his own firm, Gurney Planning & Design. He worked in the role for two years. He continued his involvement with the University as an external examiner for the Department of Building and Quantity Surveying for a further 12 years (Gurney 2017).

■ **Linda Raymond Ndlovu joins the School in 1985 as a concrete lab assistant**

■ **From humble beginnings to concrete expertise**

Armed with his matric qualification, Linda Raymond Ndlovu applied for a position at Wits under the guidance of Professor Schloss. Recognising his potential, Schloss immediately arranged for Ndlovu to receive foundational training at BIFSA in Springs, enabling him to gain practical insight into the construction industry (Smit-Stachowski, A 2023, *Interview with Ndlovu*, Unpublished WhatsApp interview, 30 October).

Upon earning his certificate, Ndlovu proceeded to the School of Concrete in Midrand, where he undertook specialised courses in concrete. Given the School's strong focus on concrete-related laboratory work, this training directly led to his appointment as a laboratory assistant (see Figure 7.3).



Source: Copyright 1985 © University of the Witwatersrand. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 7.3: Staff photograph of Linda Raymond Ndlovu.

■ A legacy of mentorship and practical learning

In the 1980s, the Wits campus experienced a significant police presence, with security forces searching for those deemed ‘unruly’. As Ndlovu recalled, ‘This was before the unbanning of the African National Congress [ANC] and all the other political organisations’. Reflecting on the demographics of the time, he added, ‘Back then, the campus was only one colour – it was white [...]’. Interviewed in 2023, he compared this to the present, noting: ‘It is about 80% black people and 20% white people’ (Smit-Stachowski, A 2023, *Interview with Ndlovu*, Unpublished WhatsApp interview, 30 October).

Professor Ronnie Schloss played a pivotal role in Ndlovu’s life, both professionally and personally. Describing him as a father figure, Ndlovu fondly remembered that Schloss had known his family since his children were young. ‘I still meet with him. He knows my family; he knows my children.’ End-of-year celebrations hosted by Professor Schloss at his home were cherished events, where students and staff came together to mark the end of the academic year and the holiday season (Smit-Stachowski, A 2023, *Interview with Ndlovu*, Unpublished WhatsApp interview, 30 October).

Ndlovu also spoke warmly of Building Science lecturer Derek Blanckensee, who later became the Chief Executive Officer (CEO) of the Orlando Pirates FC:

He was a Building Science lecturer and when he left the School, he worked as an administrator for the University football club. Blanckensee eventually moved to the Premier Soccer League and now serves under Dr Irvin Khoza at Orlando Pirates FC. (Smit-Stachowski, A 2023, *Interview with Ndlovu*, Unpublished WhatsApp interview, 30 October)

Since joining the School in 1985, Ndlovu has maintained enduring friendships with former students, many of whom continue to visit the campus. These visits often include alumni such as architect Hank Montero. 'Some come by and can't believe that the School has grown so much!' Ndlovu exclaimed. Several of these alumni, especially those who studied during Schloss's tenure, have expressed interest in giving back to the community through donations and support (Smit-Stachowski, A 2023, *Interview with Ndlovu*, Unpublished WhatsApp interview, 30 October).

Ndlovu currently works in the Concrete Laboratory, where students gain hands-on experience with various testing procedures. These include slump and compression tests and the curing of concrete in water baths for 7-28 days at a controlled temperature of 22-26 degrees Celsius. Once cured, the concrete is crushed to assess its compressive strength.

In 1985, the Laboratory accommodated 24 students. Today, that number has increased to over 220. 'We have to do it in groups. You cannot take all the students in one go' (Smit-Stachowski, A 2023, *Interview with Ndlovu*, Unpublished WhatsApp interview, 30 October). Each workstation now typically hosts six or seven students, with sessions running over 1-3 weeks, on Tuesdays and Thursdays, until every student has had the opportunity to mix concrete. These activities must be conducted in a controlled environment to ensure research integrity.

When asked to share a memorable anecdote, Ndlovu recounted a visit from the RICS. During a walkabout in the laboratory, the visiting team was astonished to find students physically mixing concrete. 'In the UK, if the lab is full, then the students go; they don't wait for their chance, but here in South Africa, everyone is prepared to mix concrete!' (Smit-Stachowski, A 2023, *Interview with Ndlovu*, Unpublished WhatsApp interview, 30 October).

His story continues in Appendix 3, 'In their own words' (Smit-Stachowski, A 2023, *Interview with Ndlovu*, Unpublished WhatsApp interview, 30 October).

■ The Architectural Students Congress of 1986

■ Challenging inequity in architectural education

By the mid-1980s, 'mounting internal and external pressures' compelled students to express their dissatisfaction with systemic racism and the international boycotts that were affecting quality of life in South Africa (Peters 2004, p. 545).

Demonstrating a willingness to confront these issues, students introduced a series of progressive motions at the Architectural Students Congress held in April 1986. On the fifth day of the Congress, they raised concerns about the racial composition of student cohorts and the direction of architectural education. At the time, such open criticism was considered politically risky and could have resulted in imprisonment.

'We are of Africa, and have been misguided and misled into thinking that our cultural and architectural aspirations should coincide with other Western Nations of the world', wrote editor Clifford Elk in the student publication. He added that this was 'best demonstrated by not only the content of our education, but also by the state of the architectural profession' (*Metropolis: Architectural Students Congress*, University of the Witwatersrand; April 1986, p. 6).

The Congress strongly critiqued the dominance of imported imagery and architectural paradigms, calling instead for a renewed focus on local relevance, symbolism and meaning in the built environment. Students questioned the architect's role in the 1980s and how professional training shaped their worldview. In Motion 1: Architectural Education, they observed that architectural schools were 'overwhelmingly that of white students'. Reflecting on their own marginalisation under apartheid, they asserted, 'we are divorced from the full realities of this country' (*Metropolis: Architectural Students Congress*, University of the Witwatersrand; April 1986, p. 148).

Delegates to the Congress called for fundamental reform in architectural education, advocating that training be made 'as accessible as possible to all the people of South Africa'. They acknowledged that 'apartheid and its educational structures are the root cause of the unequal access to architectural education'. As immediate steps, they proposed the implementation of architect-in-education schemes and the provision of bursaries.

■ Architects of change: Students demand a democratic future

With 'Motion 3: Alternative to SADF Conscription', students acknowledged the compulsory military service required of all-white males, mandated to serve four years in the South African Defence Force (SADF). In response, they called on the University administration to investigate how this time might 'best [*be used*] to serve the people of our country in an alternative form of community service' (*Metropolis: Architectural Students Congress*, University of the Witwatersrand; April 1986, p. XX).

In Motion 4: Public Buildings, students demanded that public sector projects not be 'awarded to single architectural firms who, on their past record, have not addressed people in the street' (*Metropolis: Architectural Students Congress*, University of the Witwatersrand; April 1986, p. 149). Instead, they proposed opening such projects to competition, ensuring a more inclusive approach that would better serve the broader public.

Through 'Motion 5: National Education Crisis Congress', the Congress resolved to 'apply themselves to working towards a truly democratic, non-racial South Africa' and urged the National Architectural Student Union (NASU) to issue a letter of support to the NECC.

The most politically charged declaration emerged in Motion 6, which addressed the centenary of Johannesburg. Students highlighted the city's legacy of 'forced removals and urbanisation, impoverishment, exploitation and division', concluding that there was 'little to celebrate in the history of Johannesburg'. They noted widespread societal opposition to the centenary celebrations. They urged the Centenary Committee to recommend the abolition of apartheid-era policies, such as the *Group Areas Act* and influx control, as well as the dismantling of the separate education system. Instead, they advocated for implementing tangible development projects to improve living conditions in Johannesburg's townships (*Metropolis: Architectural Students Congress*, University of the Witwatersrand 1986, p. 149).

Master's student Anton Gonnissen offered a poignant reminder in the publication: 'I would like to remind every member of the architectural profession, especially the students, that the muscle of reform lies in their pencils, and not in their tongues' (*Metropolis* 1986, p. 150).

Acknowledging international pressure on the apartheid regime, students also cited RIBA's derecognition of South Africa's architectural education

institutions, 'motivated by its concern with the apartheid system and the inadequate representation of black students in our schools'. They resolved not to reapply for RIBA recognition until education was 'equally accessible to all South African people and when we are satisfied that the general architectural profession is actively addressing the needs of all South Africans'.

In closing, student Mark Palmos contextualised the Congress's actions as a necessary response to systemic injustice. He recalled how the audience challenged a speaker for addressing the female chairperson as 'Chairman': 'This, although seeming petty, is a stance taken because of the desire to change attitudes of the past'. He reflected that while language would evolve in time, such symbolic gestures were crucial. 'In the same way, an idyllic stance about the position of architects building police stations and state buildings is also necessary to help force change' (*Metropolis* 1986, p. 150). These students were, indeed, laying the groundwork for a future democratic South Africa.

A new dawn in South Africa

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‘Wits compares very favourably with MIT.’ – *Future Build* (1994, p. 101)

■ Apartheid falters because of boycotts and internal pressure

After insurmountable resistance to apartheid, the NP conceded in 1990 and unbanned the opposition groups, and released political prisoners, including Nelson Mandela, from his 27-year time in prison.⁷

7. Refer to McKenna, A n.d., ‘Banning’, *Encyclopaedia Britannica*, viewed 19 May 2025, <<https://www.britannica.com/topic/banning-South-African-law>>.

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The *Separate Amenities Act of 1953* was repealed, and a new Constitution was implemented. In 1994, the first democratic election in which all citizens in South Africa were allowed to vote took place. In lieu of the new dispensation, apartheid legislation was being shelved and replaced with:

- *Township Establishment Act 113 of 1991*
- *Constitution of the Republic of South Africa 108 of 1996*
- *Development Facilitation Act (DFA) 67 of 1995*
- *Less Formal Township Establishment Act 113 of 1991*
- *Municipal Systems Act (MSA) 32 of 2000*
- *National Building Regulations and Building Standards Act 103 of 1977.*

■ Key events in the transitional era

■ International exposure and student development

The students continued to travel abroad to gain insights from international counterparts. In 1992, third-year students from the Department of Building and Quantity Surveying embarked on a study tour to explore innovative construction methods in the Far East. In Singapore, they were hosted by the Singapore Contractors Association, which facilitated various site visits, including private and government housing developments and a 12-storey office and department store (*Future Build* 1992, p. 61). The students also visited the Kent Ridge Campus at the National University of Singapore, allowing them to compare their Wits education with degrees offered abroad.

In Malaysia, the group visited two major construction sites, including the Sogo development, which was at the time one of the tallest buildings in Asia, at 90 storeys. While in Taiwan, they were met by Wits MSc graduate Mr Derek Wang, who ‘played a role in organising the site visits during their six-day long stay in Taipei’ (*Future Build* 1992, p. 61).

The itinerary included the new Mass Rapid Transit (MRT) System or Taipei Metro, a visit to the dragon boat station with its remarkable 200-metre-long suspended roof, and site inspections of freeway construction and expansions. The students took a boat ride from Hong Kong into ‘Communist China, on a one-day site visit to a power station in the Guangdong province’. They were struck by the sight of over 1,000 workers excavating ‘pile foundations between 35 and 40 metres deep with the use of their traditional hoes, and on the odd occasion with the help of a jackhammer’ (*Future Build* 1992, p. 69).

In the 1993 edition of *Future Build*, editor Rowan Williams noted that over 500 companies had been approached to support the publication – a process that demanded extensive telephonic outreach and meetings.

Each student was responsible for developing marketing and management competencies to secure his or her funding for the tour. 'These skills are essential to graduates exposed to the outside world.' For students with confidence and professional networks, this effort was rewarded with the opportunity to travel abroad (*Future Build* 1993, p. 70).

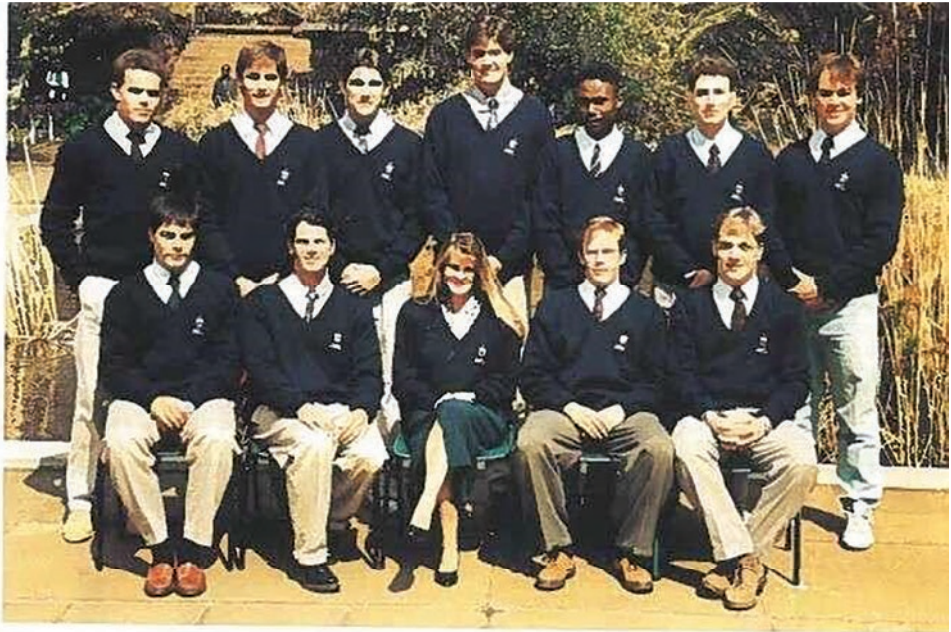
In 1993, students embarked on another international tour, this time to the USA. The trip began in November with 12 students and a lecturer departing for John F Kennedy International Airport in NYC. *Future Build* reported that the group was well prepared for the sub-zero temperatures and was awestruck upon arrival in Manhattan. 'The scale of the world-famous buildings, only read about or seen on screen, impressed the group', who explored iconic landmarks such as the Empire State Building, the New York subway, Central Park and Times Square (*Future Build* 1994, pp. 101-102).

While in Boston, the students visited the Construction Engineering Department at MIT in Cambridge, USA. A full day was dedicated to learning about current research initiatives and the structure of academic programmes. They also attended a final-year student presentation on traditional housing in Pakistan. Reflecting on the experience, the Wits students concluded that their own degree held strong international merit, writing, 'I am proud that the course given at Wits compares very favourably to the construction course given at MIT, a world-renowned educational institution' (*Future Build* 1994, p. 101) (see Figure 8.1).

■ Research initiatives and topical concerns

In 1993, final-year students addressed the challenging issue of low-cost housing for impoverished communities. Fatima Wadiwalla conducted a study evaluating the effectiveness of financing methods for low-cost housing. Recognising that housing provision was primarily the government's responsibility at the time, she expressed concern over the significant housing backlog. Her research on financing highlighted that 'without access to credit or subsidies, most South Africans are too poor to afford even the lowest priced housing options'. Wadiwalla assessed existing systems' effectiveness and recommended improving South African housing finance mechanisms (*Future Build* 1994, p. 104).

Fellow final-year student Darrel D Bergesen investigated the fineness and reactivity of pozzolanic fly ash, while Barry Roy Lewis examined the strength and thermal conductivity of cellular lightweight concrete at densities of 200, 400 and 600. Another classmate, Geoffrey George William Moore, analysed the market segmentation of cluster housing buyers in Johannesburg's Randburg/Sandton area. Moore sought to



*From top left: Brian Lynch, Jerome Nixon, James Southern, Andrew McClaggan, Cromwell Qina, David Hanson, Travis Murphy.
From bottom left: Michael Luyckx, Rowan Williams, Natalie Harrison, Collen Gibbs, Graeme Jones.*

Source: Copyright 1993 © *Future Build* [1993, p. 62]. Permission to reproduce and publish this photograph has been granted by *Future Build*.

FIGURE 8.1: Photograph of the 1993 third-year student tour to the United States of America.

understand the needs and preferences of cluster village occupants, identifying the advantages and disadvantages of this housing form. By segmenting the market, he provided a nuanced analysis of individual motivations, explaining the surge in demand for cluster housing (*Future Build* 1994, p. 104).

■ Advancing postgraduate and staff research agendas

In 1993, Professor Schloss introduced the Postgraduate Programme in Construction. The course was advertised as leading towards an MSc degree with specialisations in Building Management, Construction Management (CM) and Project Management in Construction. The programme could be pursued full-time over one year or part-time, designed to provide advanced instruction in management principles and their application within the construction process. Applicants were required to hold a first degree in a

relevant discipline and possess industrial or professional experience (*Future Build* 1993, p. 58).

Among the major courses offered were:

- Commercial and Legal Procedures in the Construction Industry
- Cost Engineering
- Cost and Financial Management in Construction
- Plant Management in Construction
- Construction Environment
- Operations Management for Construction
- Industrial Statistics
- Human and Organisational Behaviour
- Introduction to Construction Law
- Project Management in Construction
- Human and Organisational Behaviour
- Environmental Control of Buildings
- Property Management and Development
- Project Management in Developing Areas
- Project Management Principles
- Industrial Marketing
- Quality Management.

In 1993, fourth-year students undertook investigations into diverse topics, including conflict resolution on building sites, training for low-level management in the construction industry, financial implications of inconsistent fire regulation applications on building costs, the influence of room design on lecture theatre acoustics, the relationship between solar radiation and polymer degradation, and the design of a computer model to predict solar angles for energy-efficient building applications (*Future Build* 1993, pp. 59–60).

Ongoing research primarily focused on improving the efficiency of the building process and developing suitable management techniques that address the educational and social disparities present on construction sites. According to *Future Build*, several studies examined materials, their chemical and physical properties, and their suitability for ‘appropriate’ construction technologies. The editors noted with satisfaction ‘the growth of research activity among the staff has attracted an increasing number of postgraduate students, who are responding to many of the intellectual challenges they face’ (*Future Build* 1993, p. 70).

■ Students urged to retain the element of fun

At the 1993 graduation, a guest speaker urged students ‘to retain the element of fun in their research’. Williams concurred, noting that the Faculty

endeavoured to uphold this principle. He observed that the combination of skills and camaraderie proved ‘invaluable in the business environment. This will be the case – even if the individual is never again faced with a formal research task’ (*Future Build* 1993, p. 70).

However, Williams also called upon the teaching staff to demonstrate greater enthusiasm in their classes to convey knowledge to students effectively. He emphasised that ‘thus, they will be better able to respond to the dictum that “the mind of a student is not a pail to be filled but a fire to be kindled”’ (*Future Build* 1993, p. 70).

■ The post-1994 democratic context

A new South Africa was dawning – the Rainbow Nation – which, while symbolising hope, also tested boundaries and witnessed significant activity in the construction field. South Africa entered a new dispensation as institutionalised racism was systematically dismantled in 1994. All citizens cast their votes for the very first time in 1994, and under the leadership of President Mandela, the country was optimistic about a future marked by equal opportunities for all.

While the nation struggled to overcome numerous obstacles, the School similarly faced challenges from the advent of democracy through the early 2000s. These difficulties were attributed to multiple weaknesses identified in the University’s quinquennial reviews of the School in 1997 and 2008.

In 1994, students travelled to the Far East, visiting Singapore, Hong Kong and Malaysia. The tour focused on mass housing construction projects underway and included council visits to major commercial construction sites and academic institutions (*Future Build* 1994, p. 108).

During the 1990s and 2000s, the Bidvest Wits Clever Boys FC produced prominent players such as Bafana FC stars Zane Moosa, Bradley Carnell, Manqoba ‘Shakes’ Ngwenya and Eric Tinkler – who played a key role as a resolute central midfielder in the national team’s 1996 African Cup of Nations (Afcon) victory – along with Ashley Makhanya and Lovers Mohlala (Mokoena 2020).

Academic staff were engaged in teaching and actively conducting research to support the building sector. For instance, Building and Quantity Surveying lecturer Raymond Nkado explored models to predict construction time in *Future Build’s* 1994 issue. Aware of delays between construction phases, he investigated how these phases could be reliably and objectively assessed in advance to reduce uncertainty, thereby benefiting clients and process management (*Future Build* 1994, p. 107). Nkado proposed several

models for predicting or evaluating construction time: 'These models may be considered as Blackbox models, statistical or regression models, realistic models, simulation models and expert systems'. He further discussed the development of a construction time information system (*Future Build* 1994, p. 108).

■ **Leading the way in project economics: The contributions of Muslim quantity surveyor Shoayb Loonat**

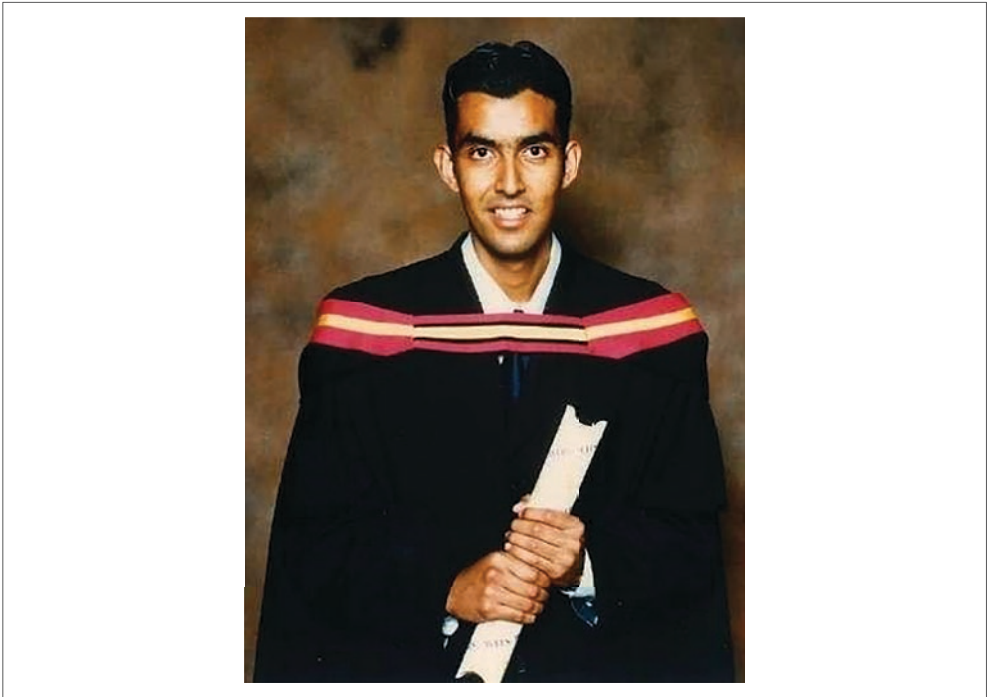
■ **Early inspirations and academic journey**

Respected Muslim QS Shoayb Loonat generously took time from his busy business schedule to share his journey at Wits in the late 1990s with Smit-Stachowski for inclusion in this book (Smit-Stachowski, A 2023, *Interview with Loonat*, Unpublished, in-person and email interviews, 29 August and 27 September). He shared that as a youth, he worked alongside his father, who owned a hardware store, where he was introduced to construction materials and costs, igniting his curiosity for QS.

His choice to attend Wits was straightforward, given the Institution's legacy of providing high-quality education across various disciplines, alongside a history of academic excellence and notable alumni in Construction and Economics. He was also following in the footsteps of his elder brother. Loonat's decision to study QS stemmed from the profession's capacity to 'offer the ideal bridge between mathematical analysis and real-world construction, allowing me to be at the forefront of Project Economics and collaborate closely with architects and engineers' (Smit-Stachowski, A 2023, *Interview with Loonat*, Unpublished, in-person interview, 29 August).

When he first began his studies at Wits in 1996, witnessing other students arriving for their graduation ceremonies 'felt like glimpsing a distant horizon. The thought of reaching that point myself seemed like a goal far off in the future' (Smit-Stachowski, A 2023, *Interview with Loonat*, Unpublished, in-person interview, 29 August).

Beyond the lecture halls and textbooks, Loonat cherished the social interactions and joyful moments with friends. He enjoyed gathering with peers on the iconic East Campus stairs, engaging in spirited card games and sharing laughter, illuminating university life's vibrant tapestry. He agreed that those friendships 'have transcended time, enhancing both personal and professional dimensions of life' (Smit-Stachowski, A 2023, *Interview with Loonat*, Unpublished, in-person interview, 29 August) (see Figure 8.2).



Source: Copyright 1999 © Shoayb Loonat. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 8.2: Photograph of Shoayb Loonat at his graduation in 1999.

■ Professional reflections and industry transformation

With his enthusiastic and youthful approach to teaching, Economics lecturer Justin Cohen left a lasting impression. ‘Instead of merely presenting theories and concepts, he brought Economics to life with real-world examples, case studies, and relatable scenarios.’ His teaching extended far beyond the classroom, and his dedication to sharing knowledge has continued to influence Loonat’s current goals of imparting skills to new QS graduates (Smit-Stachowski, A 2023, *Interview with Loonat*, Unpublished, in-person interview, 29 August).

When Loonat first entered the field, a lack of diversity characterised it, with a strong presence of the Afrikaner community. He is pleased to note that a positive push has been propelled by ‘various government initiatives, such as preferential procurement and B-BBEE [Broad-Based Black Economic Empowerment]’ to level the playing field. ‘These measures have played a pivotal role in reshaping the industry landscape, promoting inclusivity, and breaking down barriers.’

While the private sector was once dominated by long-established firms, changing demographics have fostered a more diverse and dynamic industry. Though many key players remain, the faces and backgrounds within the sector have evolved, reflecting broader shifts in South African society. Loonat concludes, 'In essence, the industry has made significant progress in becoming more representative and inclusive, and it continues to adapt to the changing times' (Smit-Stachowski, A 2023, *Interview with Loonat*, Unpublished, in-person interview, 29 August).

His story continues in Appendix 3, 'In their own words' (Smit-Stachowski, A 2023, *Interview with Loonat*, Unpublished, in-person interview, 29 August).

■ Mogodi and Mfelang enrol as the first two black female quantity surveyors

Many notable achievements have faded from collective memory over time. Nevertheless, the newspaper *Rand Daily Mail* featured a photograph and caption marking a significant milestone: The first duo of black women to enrol in the QS course at Wits. The pioneering students were Miss Maphefo Mogodi (21) (now Keafisha Maphefo Ernestina Mogodi-Malete) and Miss Puseleto Mfelang (21) (*Rand Daily Mail* 07 March 1978).

Although little else is documented about these trailblazers, their enrolment paved the way for other women of colour to demonstrate their capability and resilience within the profession (see Figure 8.3).

■ Challenges and opportunities in a new era

A quinquennial review of the Department of Building and Quantity Surveying was conducted in 1997. The resulting report highlighted several critical challenges, including concerns about curriculum relevance, the need to restructure degree offerings and declining student enrolments. Key issues raised included limited research output, staffing constraints and the absence of a coherent strategic plan guiding the School's operations. Further difficulties encompassed funding shortfalls and complications arising from amalgamating the School's degree programmes.

Nevertheless, this period marked the threshold of a new chapter in the School's evolving history.



Source: Copyright 1999 © Doug Pithey, *Rand Daily Mail*. Permission to reproduce and publish this photograph has been granted by the photographed individuals.

FIGURE 8.3: Photograph of Maphefo Mogodi and Puseleto Mfelang at Wits in 1999.

The School of Construction Economics and Management is born in the millennium⁸

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8. This chapter has sections that are based on a historical narrative that is based on and was developed from the following published work:

Bizcommunity 2010, 'Property management course proves popular', *Bizcommunity*, 24 February, viewed 26 March 2025, <<https://www.bizcommunity.com/Article/196/186/45077.html?>>.

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■ Introduction

'[...] the undergraduate degree in Property Studies would 'expose students to the most up-to-date thinking in the field of property investment and development while acquiring skills required by property practitioners'. – Professor Ronnie Schloss (*News24*, 2001)

In 2000, the School was renamed from the Department of Building and Quantity Surveying to the SCEM. The choice to rename the School was to more accurately reflect the Department's objectives. A year later, the University restructured, and the Faculty of the Built Environment joined with the Engineering Faculty to become the Faculty of Engineering and the Built Environment (FEBE).

■ Bachelor of Science Property Studies degree launched in 2002

In 2001, Professor Ronnie Schloss, then Head of the SCEM, announced to *News24* that the property sector required more professionals, prompting the introduction of a new undergraduate programme in Property Studies at Wits, set to launch in 2002 (*News24* 2001). This 4-year, full-time degree was designed to equip students with the knowledge and skills required to contribute to the property industry actively. Speaking to the press, Professor Schloss noted that the programme would 'expose students to the most up-to-date thinking in the field of property investment and development while acquiring skills required by property practitioners'. He further emphasised that the lecturers were considered leading property experts in the country.

Property economist Francois Viruly was appointed to teach Property Finance and Property Economics modules. A well-regarded adviser to both government and the private sector, Viruly underscored the importance of property as a key component in any investment portfolio, adding, 'the property environment needs a new level of expertise – if it is to be taken to the same level as equity and bond investments' (*News24* 2001).

The programme focused primarily on the commercial property sector, including investing in and managing shopping centres, industrial buildings and office spaces. The Faculty needed to acknowledge that, as an emerging economy, South Africa presented unique opportunities in the built environment not typically found in more industrialised nations. Additionally, the programme aimed to support the increasing participation of females in

the sector. Core subjects covered in the curriculum included Finance, Law, Town Planning, Construction Technology, Risk Management, Economics and Property Valuations.

Elected by the government to serve on the Council for Project and Construction Management, Professor Schloss encouraged prospective students to apply, highlighting that the degree would provide 'career opportunities in finance, property asset management, letting and leasing property, banking, property development, valuations' and would facilitate employment in both the public and private sectors (*News24* 2001).

■ Professor Elizabeth Pienaar appointed Head of School

■ From private practice to academic leadership

After graduating from UP as a QS, Elizabeth Pienaar pursued further studies, earning both a Master of Business Administration (MBA) and a PhD in Business Administration. While managing her own QS practice, she was approached by Wits in the mid-1980s to lecture once or twice a week in the evenings on the topic of QS (Mphuti, B & Smit-Stachowski, A 2024, *Interview with Pienaar*, Unpublished in-person interview, 21 February).

She was later invited to join the School's academic faculty and asked Professor Ronnie Schloss to assist her with lecture content. He kindly agreed, as the two had been friends for many years.

After a 6-month vacancy in the position of Head of School, Professor Ramon – then Head of the School of Architecture and serving as Acting Head of the SCEM – announced that Professor Elizabeth Pienaar would assume the role.

Having managed her own firm, which had completed 35 hospital building projects, including Sandton Clinic (Sandton, South Africa), Fourways Hospital (Fourways, South Africa) and Waterfall City Hospital (Midrand, South Africa), in a QS capacity, she was eager to share her practical knowledge. 'A computer can count bricks – quantity surveying is really about management and managing the money on the project,' she said to the authors during a visit to her home (Mphuti, B & Smit-Stachowski, A 2024, *Interview with Pienaar*, Unpublished in-person interview, 21 February) (see Figure 9.1).



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FIGURE 9.1: Photograph of Professor Elizabeth Pienaar.

■ Disillusionment and departure

As a professional still actively involved in the private sector, Professor Elizabeth Pienaar found the internal politics within the academic environment challenging. ‘People were backstabbing one another, and I’m not used to working in an environment like that,’ she shared. When asked how she navigated these dynamics, she laughed and responded, ‘I’d stab them back! No, I always made sure that I’m covered, and I know what I’m doing’ (Mphuti, B & Smit-Stachowski, A 2024, *Interview with Pienaar*, Unpublished in-person interview, 21 February).

Although the academic performance at the School improved significantly during her tenure, Professor Elizabeth Pienaar observed a

decline in student discipline. Reflecting on her own student days, she recalled being reprimanded for eating fruit in class. In contrast, as Head of School, she recounted an incident in which a student left the lecture hall without permission and returned with a full meal, which he proceeded to eat with his hands in the front row. This moment became a turning point for her. 'This place is not for me anymore,' she realised. 'Because the problem is, you couldn't discipline the students. I could do nothing to him' (Mphuti, B & Smit-Stachowski, A 2024, *Interview with Pienaar*, Unpublished in-person interview, 21 February).

Her story continues in Appendix 3, 'In their own words' (Mphuti, B & Smit-Stachowski, A 2024, *Interview with Pienaar*, Unpublished in-person interview, 21 February).

■ Property graduate Mabuse Moja graduates twice

Mabuse Moja, a graduate from 2006 to 2019, was among the alumni who responded to five questions about his experience as a student at the SCEM. As a Grade 11 learner, he was introduced to Wits when University representatives visited his school to discuss the degrees offered (Moja, M 2023, *Alumni questionnaire*, Unpublished mail, 20 August).

His interest was particularly piqued by the property qualification, with Wits being one of only two institutions at the time to offer a BSc degree in the field, which influenced his decision to enrol at the University.

Moja completed two separate academic stints at Wits: First as an undergraduate, graduating in 2006, and later as a PG, graduating in 2019. During his PG studies, his favourite lecturer was Professor Sam Azasu, who brought the real estate sector vividly to life, especially for 'someone who had worked in the industry for some time, as a totally new concept and also impart fresh knowledge' (Moja, M 2023, *Alumni questionnaire*, Unpublished mail, 20 August).

Among his most cherished memories of Wits are arriving on campus on his first day of lectures, 'with a nervous anticipation and excitement'. Another highlight was 'graduating twice at the University'.

His story continues in Appendix 3, 'In their own words' (Moja, M 2023, *Alumni questionnaire*, Unpublished mail, 20 August) (see Figure 9.2).



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FIGURE 9.2: Photograph of Mabuse Moja.

■ African female quantity surveyor Mosha Senyolo paves her way

Faced with the impressive legacy of her father, Thabo Senyolo, the first black African QS at Wits, Mosha Senyolo has carved her own path in the field of QS, leading from the front (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished virtual and email interviews, 14 August and 02 November).

Born and raised in Alexandra Township in Johannesburg, a career in the built environment held strong appeal for her, offering a vision of the impact she could make within her community. As a young girl, she was inspired by her father's work, 'as I saw how meaningful his work was, it not only made a positive impact in the home, but to the community at large' (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November).

During her undergraduate studies, Ian Cochran was her first-year Construction lecturer. The seasoned and respected QS was patient and deeply committed to helping all students grasp the construction cycle, and 'wanted to see each and every student do well'. Senyolo credits him with playing a significant role in her career development, stating, 'I would really not be where I am today – if not for him' (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished email interview, 02 November).

As a PG student (graduated 2018), she was further inspired by Professor Sam Azasu, whose international experience helped transform the Wits Property Studies programme with 'revolutionary concepts'. She described him as an academic who believed 'in paying it forward', noting that much of her voluntary work with the School stems from the attitude he instilled in his students.

Senyolo earned the accolade of Best QS Student in her first year and achieved the highest marks in the second-year Economics supplementary examinations. Outside of academics, she enjoyed socialising at BAQT (the Construction Economics and Management [CEM] pub) on Friday nights with friends and classmates. A memorable highlight was walking onto the Great Hall stage for the first time at her graduation ceremony.

Her story continues in Appendix 3, 'In their own words' (Smit-Stachowski, A 2023, *Interview with Senyolo*, Unpublished virtual and email interviews, 14 August and 02 November) (see Figure 9.3).



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FIGURE 9.3: Photograph of Moshia Senyolo.

■ Remarks on challenging years

■ Leadership and institutional challenges

A series of interventions was required to stimulate the revival of the School, including a key recommendation from the School's Quinquennial Quality Review (QQR) to appoint a full-time academic Head of the School. In 2009, Associate Professor Francois Viruly was appointed as Acting Head of the SCEM in the interim (Western Cape Property Development Forum 2019). Professor Mitchell Gohnert, then Head of the School of Civil and Environmental Engineering, also served briefly as Acting Head of the School (Wits 2023).

In the same year, Professor Viruly, in collaboration with the South African Property Owners Association's (SAPOA) Property Management Committee, developed the Property Management Programme (PMP). The near doubling of applications for 2010 demonstrated the apparent demand for this course (SAPOA 2010). According to the online media outlet Bizcommunity, the PMP programme commenced in February 2010 with over 30 prospective students enrolled, under the direction of course director Jay Junkoon (SAPOA 2010). This 8-month professional course targeted property managers and included modules on Property Law, Economics and Finance, Marketing, Technology, Facilities and Property Management. The curriculum featured weekly lectures from academics and industry professionals, alongside continuous assessment.

The PMP formed a central component of the SAPOA Education Strategy, which aimed to standardise industry education and align it with sector needs. The programme collaborated closely with the Services Sector Education and Training Authority (SETA) and the Estate Agents Affairs Board to establish effective learning pathways within the commercial property industry. It also actively participated in the Services SETA Employer Association, the Commercial Property Chamber Board, the Organising Framework for Occupations and the Committee of Expert Practitioners (SAPOA 2010).

Despite these developments, the SCEM lagged considerably behind the Wits' 2010 targets, which aimed for 70% of permanent academic staff to hold doctoral qualifications and to meet research productivity norms.

An inconclusive review was conducted in 2007, with a recommendation to postpone the review process until a revised School report could be released the following year. The 2008 review covered the period from 1998 to 2007, during which the School experienced three different headships.

The 2008 review revealed that many significant issues remained unaddressed. However, the School had seen a substantial upsurge in

undergraduate enrolments, increasing from 241 students in 1998 to 556 students in 2007 – a 130% increase – demonstrating sustained demand for the scarce skills offered by the School's programmes. All programmes maintained their accreditation, providing a strong foundation for the School's continued existence.

By 2009, the School had only six full-time academic staff members, half of whom were junior staff. It offered undergraduate and PG programmes across five areas (Quantity Surveying, CM, Property Studies, Property Development and Management, and Building). The total undergraduate population remained at 556 students, with QS as the most extensive programme.

Unfortunately, PG throughput rates were low, and the School suffered from inadequate infrastructure and information technology (IT) facilities for teaching and learning. These challenges were compounded by the temporary loss of RICS accreditation in 2007, attributable to 25% of the student intake failing to meet the RICS minimum requirement of 17 unweighted *National Curriculum Framework* (NCF) (matric final marks) for admission into the CM programme. The School described this as a threat arising from university admissions criteria jeopardising international accreditation.

In 2007, the School had only 28 PG students, equally split between 14 master's and 14 PG diploma candidates, with a graduation throughput rate of approximately 32%.

The academic staff comprised three senior academics (associate professors), supported by six permanent staff members, three full-time and four sessional staff for undergraduate programmes, and four sessional staff for PG programmes. Each senior academic led one of the School's three principal disciplines: Quantity Surveying, CM and Property Studies.

The 2008 report reaffirmed the weaknesses highlighted in the 1997 review. These challenges threatened the School's capacity to function effectively and fulfil its mandate as a Centre of Excellence in Quantity Surveying, CM and Property Development and Management within the broader built environment.

The report identified eight principal threats: Staff retirements and resignations; relatively low academic remuneration; increasing student intake without proportional staff growth; inconsistent student quality; insufficient teaching and tutorial venues; and a general lack of resources. Additionally, five key weaknesses were highlighted: Low research output, governance issues (particularly School committee functioning), poor infrastructure, low PG output and insufficient staffing.

■ Towards renewal and empowerment

Following the 2008 School review, a 12-member Review Committee was appointed. This committee comprised seven senior academics, two industry professionals and three students, who collectively recommended addressing the identified significant weaknesses. The Committee concluded that the problems relating to undergraduate teaching and learning were serious and required urgent attention to restore the School's reputation and ensure that students received quality degrees.

Both the 1997 and 2008 reviews revealed that many of the School's challenges were rooted in leadership, governance and management issues. The 2008 Review Committee emphasised that the longstanding practice of appointing a part-time Head of the School had had a profoundly negative impact on the School's functioning. A key recommendation to the Faculty was to appoint a full-time Head of the School to lead the necessary turnaround.

This recommendation was enacted with the appointment of Professor David Root in January 2011, marking the beginning of a new era and the rebuilding of the School. Over the following decade, the SCEM concentrated its efforts on academic excellence, particularly empowering females and nurturing young, talented emerging students.

2011 until 2020: Focus turns to academics⁹

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9. This chapter has sections based on a historical narrative developed from the following published work:

Jay, GM 2011, 'The views of the property industry on the curriculum of the undergraduate property studies degree in the School of Construction Economics and Management at the University of the Witwatersrand', *University of the Witwatersrand Report*, viewed 26 September 2023, <<https://wiredspace.wits.ac.za/jspui/bitstream/10539/11796/2/Graeme%20Michael%20Jay-Research%20report%20Final%20Dec%202011.pdf>>.

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■ Introduction

‘The School of Construction Engineering and Management is the biggest player in the South African market.’ – Professor David Root (Unpublished, 2023)

This decade marked a new chapter for the SCEM with the appointment of Professor David Root, who joined from UCT. His leadership coincided with a strategic effort to revitalise the School through the recruitment of several international academics. This period also saw a notable increase in student enrolments, alongside the development of South African scholars who were supported in pursuing doctoral studies and subsequently appointed to the School’s permanent academic staff.

■ ‘Wits is the lottery of life’: Head of the School Professor David Root

■ Transforming the School’s academic strength

Professor David Root relocated to Johannesburg, Gauteng, in 2011 to assume the role of Head of the School, following a tenure in Cape Town (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August).

He reflected that the School was markedly different at the time, noting that he had ‘seven full-time staff and only one other, besides me, who had a PhD’ (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August). As an experienced academic, Professor Root immediately challenged the status quo, guided by a clear vision for transforming the SCEM.

During his tenure, he focused on developing the academic team and regards this advancement as ‘probably one of the greatest successes in my time, plus the growth in our postgraduate numbers’ (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August).

(footnote 9 cont. ...)

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■ Education as a catalyst for socio-economic change

Matter-of-fact and down to earth, Professor David Root draws attention to the stark contrast between the unemployment rate of school leavers – approximately 60–70% – and that of graduates, which is ‘about 7%. So, if you look at the figures of graduates – people with higher education backgrounds, it drops dramatically, it’s a massive shift’ (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August). He explains that once a student is accepted into Wits, ‘you’re unlikely to fall out of Wits, so you will end up in a decent well-paying job, and you will end up with a middle-class income’ (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August).

He further notes that if school leavers pursue technical qualifications, particularly those considered scarce skills, and do so at Wits, ‘it adds a certain cache – you’re pretty much sorted’ (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August). For many young students, a university education not only transforms individual prospects, but also brings upliftment to entire families: ‘not just you, but your parents, your brothers, mother, sisters who also have also won the lottery of life – you’re succeeding’ (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August).

Among his proudest achievements as Head of the SCEM is the 40% increase in undergraduate female enrolment, ‘which is pretty good for a male-centred industry’ (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August). Professor David Root is also particularly gratified by the growth in academic staff qualifications. By 2022, the School had four PhD graduates, ‘all through our working academia, all four who are back here at Wits as lecturers – and three of them are black African females’ (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August). Considering the University’s segregated recruitment history, he regards this as a remarkable milestone.

He concludes that the SCEM is now the leading institution in its field in the South African context, ‘by some way’ (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August). This standing, he believes, confers on the School ‘a certain energy and a voice, which we didn’t previously have, it gives us a position to actually respond to pressure and that’s probably a big thing’ (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August).



Source: Copyright 2025 © David Root. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 10.1: Photograph of Professor David Root.

His story continues in Appendix 3, 'In their own words' (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August) (see Figure 10.1).

■ Thapelo Tlhapane (BSc QS 2011) sold sweets in a mining town

Quantity surveying entrepreneur Thapelo Tlhapane shared in his alumni questionnaire that growing up in a mining town meant being surrounded by engineers. However, his innate passion for numbers ultimately led him to pursue a career in QS (Tlhapane, T 2023, *Alumni questionnaire*, Unpublished questionnaire and email interview, 06 and 08 September).

As a young man, Tlhapane sold sweets and operated a small business, an experience that, he explained, gave him 'a passion for numbers and calculations'. Quantity Surveying was the ideal fit, combining his technical interests with his commercial instincts. Wits, he recalled, had always been 'the first preference for top achievers' at his high school. He described his decision to enrol: 'One of the best decisions of my life. I was following those I idolised and admired' (Tlhapane, T 2023, *Alumni questionnaire*, Unpublished questionnaire, 06 September).

Tlhapane's favourite lecturer was Head of the School, Professor Francois Viruly. Tlhapane admired 'how he carried himself and gave the school so much confidence and energy. He is a true academic. Till today, I still remember that tobacco pipe of his' (Tlhapane, T 2023, *Alumni questionnaire*, Unpublished questionnaire, 06 September).



Source: Copyright 2011 © Thapelo Tlhapane. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 10.2: Photograph of Thapelo Tlhapane with teachers.

During Orientation Week, he met a group of peers ‘who are still my friends to this day, some of whom are even working together’. In his final year, 2011, he served on the BAQT committee – one of five students selected to manage the student pub. When prompted to share more about those days, he was coy, saying: ‘The rest of the memories I will reserve them for my grandchildren, during storytelling around the bonfire!’ (Tlhapane, T 2023, *Alumni questionnaire*, Unpublished questionnaire, 06 September).

His story continues in Appendix 3, ‘In their own words’ (Tlhapane, T 2023, *Alumni questionnaire*, Unpublished questionnaire, 06 September) (see Figure 10.2).

■ A study of the School’s curriculum for Property Studies

In examining how the property industry evaluated the SCEM curriculum for Property Studies, Graeme Michael Jay noted in 2011 that employers constitute a critical group of stakeholders in the education of graduates they will eventually employ (Jay 2011). Now a respected academic in the property field, Jay emphasised that any revision of the undergraduate Property Studies curriculum should incorporate the perspectives of the

property industry. This conviction motivated his research, the findings were subsequently considered, and some suggestions were implemented.

Jay conducted his study in two parts. Firstly, he engaged with senior management from prominent property companies operating in South Africa. Secondly, he surveyed alumni who had completed their Property Studies degree within the SCEM.

The research sought to identify the knowledge and skills that the South African property industry expects from Property Studies graduates. Findings indicated that while graduates demonstrated specific strengths, there were notable gaps, particularly in their practical readiness for the workplace. Respondents from both groups identified an overemphasis on Construction subjects in the 2011 curriculum (Jay 2011).

Jay recommended a greater emphasis on property finance, investment and asset management. The data further suggested that the degree programme should be structured to meet the academic requirements for professional registration as a valuer. Both respondent groups advocated for the introduction of an internship programme to bridge the gap between theoretical knowledge acquired at university and the practical competencies required in the workplace.

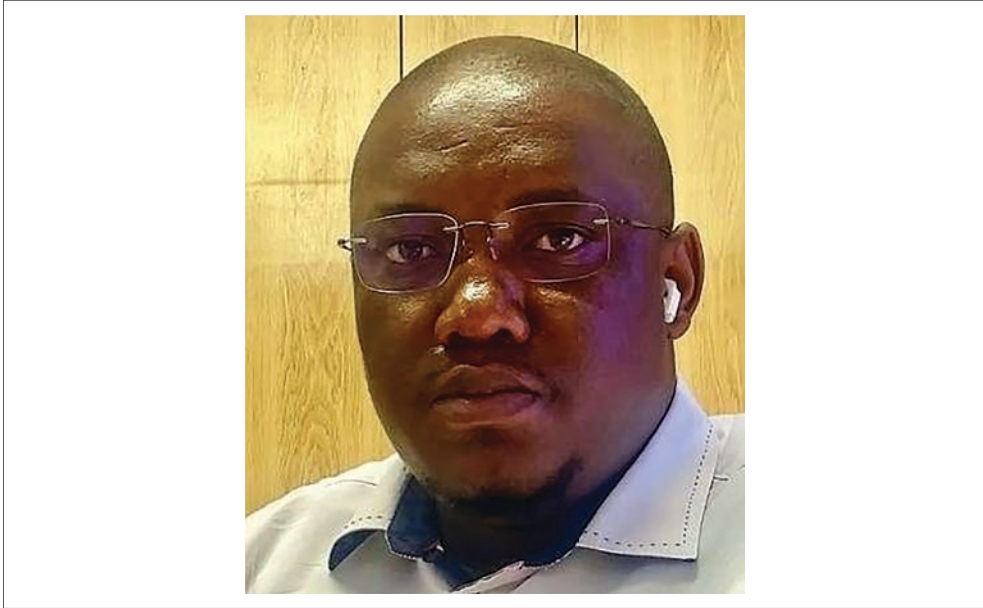
It was also proposed that the Property Studies curriculum should shift its focus more decisively towards finance, valuations and economics, while reducing the emphasis on QS and Construction-related content then present in the curriculum. The Faculty engaged with these findings and discussed their incorporation into the curriculum (Jay 2011).

■ **‘Passion for numbers and construction’: Nyiko Chris Mathebula (BSc QS 2011)**

Quantity surveyor Nyiko Mathebula responded to the alumni questionnaire and reflected on his academic journey at Wits University, which he described as ‘one of the best, if not the best in Africa’ (Mathebula, C 2023, *Alumni questionnaire*, Unpublished questionnaire, 04 September).

Pursuing a degree in QS was Mathebula’s most suitable path. During his secondary school years, he demonstrated a strong aptitude for numerical reasoning and developed a passion for construction projects. This made QS a natural and fulfilling choice, allowing him to align his academic strengths with his personal interests while ‘following my passion’ (Mathebula, C 2023, *Alumni questionnaire*, Unpublished questionnaire, 04 September).

He named Mr Obinna Ozumba as his most impactful lecturer, stating, ‘He was the embodiment of order and hard work. He gave credit where it is due, and taught us how to follow simple instructions’ (Mathebula, C 2023, *Alumni questionnaire*, Unpublished questionnaire, 04 September).



Source: Copyright 2023 © Nyiko Chris Mathebula. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 10.3: Photograph of Nyiko Chris Mathebula.

Mathebula's story continues in Appendix 3, 'In their own words' (Mathebula, C 2023, *Alumni questionnaire*, Unpublished questionnaire, 04 September) (see Figure 10.3).

■ Associate Professor Ehsan Saghatforoush (2017–present)

Associate Professor Ehsan Saghatforoush (Project Management), MSc (Project Management), BSc (Civil Engineering), shared his motivations for joining the SCEM and reflected on his academic experience (Saghatforoush, E 2023, *Staff questionnaire*, Unpublished questionnaire, 12 September).

From his early years in primary school in Iran, Associate Professor Saghatforoush aspired to become a teacher. 'And what can be better than being a lecturer in a top university, such as Wits' (Saghatforoush, E 2023, *Staff questionnaire*, Unpublished questionnaire, 12 September).

He particularly values the feedback received from students at the end of each semester. 'Nothing is more enjoyable than seeing people satisfied with your efforts after a full semester.' These moments provide a sense of fulfilment, as he finds peace knowing he has made a meaningful impact on a student's academic journey (Saghatforoush, E 2023, *Staff questionnaire*, Unpublished questionnaire, 12 September) (see Figure 10.4).



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FIGURE 10.4: Photograph of Associate Professor Ehsan Saghatforoush.

■ The School is in the news: A kaleidoscope of events

■ Critical thinking, soft skills and building ethical foundations

Angelo Fick, a senior lecturer within the FEBE, was interviewed by the student online publication *Wits Vuvuzela* in 2012. He discussed the newly introduced Critical Thinking and Language Development course, which had become both a compulsory subject and a standalone credit for first-year students (Meda 2012a).

The introduction of this course necessitated restructuring the former FEBE degree curriculum. Professor David Root explained the rationale at the time: to enhance literacy levels among students in response to employer demands for graduates who could conduct themselves professionally and demonstrate strong writing and critical thinking abilities.

Fick elaborated that the course aimed to strengthen the critical thinking capacities of first-year FEBE students, with a particular emphasis on analysis, argumentation, presentation and elements of creative thinking. However, not all students embraced the course. 'The course helps me to understand how the world works, but I get higher marks for Physics than I do for critical thinking', commented Kiren Hurun, a first-year BSc Construction Studies student, in his interview with *Wits Vuvuzela* (Meda 2012a).

Another student, Regothabetse Mashishi, noted his challenges in the course, particularly because English was not his native language. The course was implemented across several FEBE schools at the first-year level and was offered during the first semester of the Wits academic year. Assessment comprised both written and oral examinations.

In 2012, Fick also played a pivotal role in organising a Communication Skills class in collaboration with Maria Wanyane, Wits' sexual harassment officer. This class focused on equipping first-year Construction Studies students with essential soft skills, including understanding behaviours that may constitute sexual harassment (Meda 2012c).

According to *Wits Vuvuzela*, many students were surprised to learn that explicit and derogatory language could be classified as harassment. Wanyane's explanation that persistent, unwanted advances, such as repeatedly asking someone on a date, could amount to harassment, left many students visibly shocked. First-year student Nkateko Ncube reflected that she had learnt the distinction between flirting and sexual harassment during the session.

Wanyane reminded students of their responsibility to foster a respectful and inclusive learning environment by avoiding harassing language and conduct. The talk was well received, with several students attentively listening and taking notes.

Fick told *Wits Vuvuzela* that the classroom can serve as 'the space in which we can guide people's understanding about appropriate and inappropriate behaviour, before they have to learn it the hard way' (Meda 2012a).

Subsequent discussions focused on the power dynamics between lecturers and students and among peers, particularly where some students expect favours in exchange for help with assignments. Fick emphasised, '[/]f university education becomes simply about exams, then it's a failure and a tragedy. It's a holistic education, about becoming a well-rounded human being' (Meda 2012a).

■ Innovation, sport and student excellence

In 2012, the School moved into its new home, the SCEM Building. This facility helped establish a refreshed image and environment, positively contributing to the School's growth. Subsequently, in 2024, a new Link Building was developed to connect the School of Architecture and Planning (SoAP), housed in the John Moffat Building, with the SCEM Building. This Link Building now serves as a physical and symbolic bridge between the two schools, fostering closer collaboration between SoAP and CEM.

Universities in Johannesburg occasionally partnered to challenge their students and promote camaraderie. In March 2012, Wits Construction lecturer Gerald Chungu and Denver Hendricks of the University of Johannesburg (UJ) organised a joint project for first-year students. The event occurred at the Wits SoAP, where students were tasked with designing a cardboard box without staples or glue (Meda 2012b). The challenge pitted Wits students against their UJ counterparts.

The box was designed to contain an egg and would be dropped from the top of a building. A well-engineered box would prevent the egg from breaking (Meda 2012b). *Wits Vuvuzela* covered the project. An additional twist required teams to swap designs and construct each other's boxes. Chungu explained that the exercise aimed to simulate real-world construction processes: 'Somebody designs and somebody else builds. Then we meet to see how successful the built object is' (Meda 2012b).

Students quickly recognised the practical lessons. First-year student Aeron Stipanov reflected that the project was a learning curve: 'It showed us how the real world is; if your designs aren't accurate, then your building will potentially kill people' (Meda 2012b).

Sport continued to unify students across gender and class lines. In 2014, Modiegi Mokoka, a third-year BSc Construction Studies student and captain of the Women's Basketball team, the Wits Lady Bucks, led her team to outstanding success on the court (Omarjee 2014).

The Wits Lady Bucks outperformed their male counterparts, securing gold in the national league and contending for first place in the provincial league, as reported by *Wits Vuvuzela* (Omarjee 2014). They won the University Sports South Africa (USSA) basketball national championships in July that year. The team also competed in the Gauteng Women's Basketball League and the Gauteng University Basketball League (GUBL), tying with Vaal University of Technology (VUT) for first place. The men's team, by contrast, finished third in their division of the USSA national championships.

Mokoka noted that the women's team adopted a 'win at all costs' approach, a departure from the 'everyone must play' philosophy of previous years. Their success was attributed to teamwork, emphasising listening, confidence and performance. Mokoka stated, 'We played for each other. We went from fourth place to number one in the country. There's no better progress than that' (Omarjee 2014). After years of competing in the USSA championships, this was the first time the team captured the top title, having climbed from sixth place in 2011 to first in 2014.

The Devonshire Hotel in Jorissen Street, once the beloved drinking venue and hangout for students in the 1960s, 1970s and 1980s, was turned

into a new private student accommodation in January 2020 (Mokoka 2019). In a masterful decision, Zenprop, in partnership with Consolidated Urban Corporation (Conurban)'s Campus Africa division, decided to upgrade the facility to house over 600 students in affordable housing (Mokoka 2019).

■ Student leadership, protests and social justice

The #FeesMustFall student protests in 2015 emerged in opposition to the fees charged to students aspiring to a free university education. These protests have persisted over subsequent years. The 2015 Quinquennial Review indicated that many previously identified weaknesses had been significantly addressed, facilitating a turnaround that placed the School on a positive growth trajectory.

In September 2017, Wits's oldest residence, Men's Hall of Residence (Res), commemorated its 95th anniversary. At the time, Sizwe Bhengu, a BSc Construction student and Men's Res House Committee Chairman, humorously remarked to *Wits Vuvuzela*, 'I cannot deny nor confirm that we will be slaughtering a cow, but there will be a braai' (Peter 2017). The celebration featured a formal dinner and various sporting activities held at Diggz field between alumni, seniors and freshmen, culminating in a braai at the residence.

Men's Res has been home to many notable figures, including Advocate Dali Mpofu, former Wits SRC president and Thusanani Foundation founder Morris Masutha, the South African political party Economic Freedom Fighters (EFF) national spokesperson Dr Mbuyiseni Ndlozi, as well as the former chair of the bank, ABSA and CEO of Murray and Roberts, David Brink (Peter 2017). Although its traditions have evolved over time, the residence has remained a vibrant community known for spirited, prank-playing and hard-fought games, often sanctioned by the University (Peter 2017).

Bhengu highlighted that brotherhood, unity, social responsibility and a shared culture among residents underpin the residence's strength. While Men's Res historically faced criticism regarding patriarchal attitudes, Bhengu and his peers adopted progressive initiatives such as #NotInMyName. The 'Raiders', as the students are known, also took proactive measures to ensure safety by escorting female students living off campus to their residences during periods of heightened abductions and crime in Braamfontein (Peter 2017).

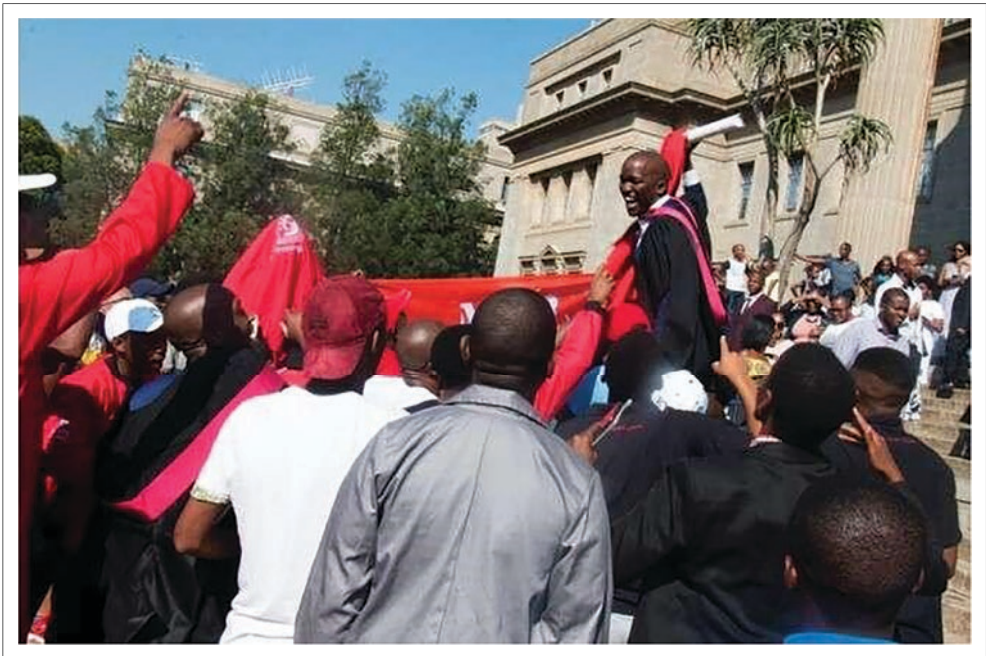
The residence's traditions and crests date back to the 1950s and include ceremonies such as the solemn introduction to 'Phineas' conducted in a partially darkened room. Other traditions involved early morning rituals

where freshmen paraded around campus in white lab coats and little else, occasionally serenading the Dean and Assistant Deans. Bhengu also emphasised the tradition of singing at graduations of fellow Raiders and female residents during Orientation Week and throughout the academic year (Peter 2017).

In 2018, Bhengu experienced this cherished practice first-hand upon graduating with his BSc in Construction Studies alongside approximately 5,000 fellow students (Mokgabudi 2018). *Wits Vuvuzela* described how the Men's Res Raiders flooded the Great Hall steps and piazza, dressed in red, singing and dancing as graduates exited the ceremony (see Figure 10.5).

'It was pretty overwhelming; it was pretty amazing to be honest,' Bhengu reflected. 'Because it's overwhelming, it's something we've always been doing over the past couple of years and then suddenly it's your turn. It really makes graduation that much more amazing' (Mokgabudi 2018).

In 2018, Mookameli 'MK' Moeketsi, a BSc Honours student in QS, was elected chairperson of the Wits All Residence Council (ARC). The ARC comprises 17 student representatives from each Wits residence, alongside a seat occupied by the SRC. The ARC serves as the residence students' collective voice, presenting their concerns to Wits management.



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FIGURE 10.5: Sizwe Bhengu is celebrated by Raiders.

The SRC president, Orediretse Masebe, noted that Moeketsi's prior service on the Wits Junction House Committee equipped him with valuable experience to fulfil his responsibilities (Dlamini 2018). Moeketsi identified mental health as a key focus for the ARC, also condemning inhumane living conditions experienced by some students, such as sleeping in the library, and expressed his commitment to seeking viable solutions (Dlamini 2018).

During his term, the Wits SRC and ARC jointly called for an academic shutdown in protest against a 10% increase in residence fees for 2019 (Mashishi 2018). The protest united multiple student political formations, including South African Students Congress (SASCO), Patriotic Youth Alliance (PYA), EFF and Pan Africanist Student Movement of Azania (PASMA), along with students from UJ and Central Johannesburg College, marching under the banner #AccommodationIsLand (Mashishi 2018).

Demands articulated by the protesters included abolishing council rates for universities and Technical and Vocational Education and Training (TVET) colleges; capping council rates for private student accommodation providers such as South Point to stabilise prices; transferring some of the 71 hijacked buildings identified by the City of Johannesburg for expropriation to universities, alongside funding to develop these into student accommodation; and establishing a satellite clinic and police station in Braamfontein.

Demonstrators gathered at the Wits Theatre before marching across campus, disrupting lectures by pulling fire alarms and singing in lecture halls until evacuation (Mashishi 2018).

Academic staff increasingly recognised the impact of technological developments on the future of work. In 2019, the SCEM lecturer Dr Josephine Llale reassured students in an interview with *Wits Vuvuzela* that jobs would not necessarily be lost because of the Fourth Industrial Revolution (4IR), but would instead evolve into different forms (Madubela 2019) (see Figure 10.6).

As 4IR gradually reached Africa, Dr Llale explained that while machinery would replace specific work sectors, it would simultaneously create new roles such as urban ecologists, living systems designers, medical equipment designers, online doctors and medical robot operators (Madubela 2019).

She noted that commercial pilots (55%), health care practitioners (40%), and accountants and auditors (92%) are most likely to be replaced. Accountants and retail workers are particularly vulnerable to the automation of tasks involving repetitive numerical calculations, which puts banking jobs, cashiers and Qs at particular risk.



Source: Copyright 2023 © Josephine Llale. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 10.6: Photograph of Josephine Llale.

Consequently, Dr Llale advocated for an academic curriculum that evolves in tandem with the changing world. ‘Universities are preparing students for a future that does not yet exist or for jobs that do not currently exist. It is imperative that universities start embracing the 4IR,’ she concluded (Madubela 2019).

■ Navigating heritage, identity and legacy in a changing South Africa

As institutionalised racism diminished, children from previously disadvantaged families found that while their families were immensely proud of their admission to Wits, they also expected financial contributions from their offspring – a phenomenon known in South Africa as ‘black tax’. Wits alumnus Mookameli Moeketsi, who graduated with an Honours degree in QS, elaborated on this dynamic (Senne 2019b). ‘A lot of our parents or guardians have raised us and gotten into a lot of debt [...] some of our parents have had to sell houses and cars (for us) to go to university,’ he explained. Because of these sacrifices, it is seen as only fair ‘that when we start working and start making some money that we do take care of the people who always took care of us’. Moeketsi began paying black tax early in 2019 and acknowledged the considerable burden of care it entails. Upon entering the workforce, he found both family homes severely in debt and on the brink of repossession. To address the situation, he obtained a

personal loan of ZAR120,000 but admitted, 'R120,000 of debt in your first year of working is not easy', offering this as advice to fellow students (Senne 2019b).

In the same year, Tlangelani Baloyi, a Master's student in Construction and Project Management and the Lady Bucks basketball team captain, expressed hope that the team's success would inspire and shift perceptions (Mothata 2016).

Nicholas Meinel prepared a team of 22 athletes, aged between 14 and 19 years, to compete against participants from over 50 countries. At just 20 years old, he was interviewed by a *Wits Vuvuzela* sports journalist and reflected on the shift from athlete to coach. Having competed in four similar competitions himself, he noted that coaching presented new challenges. 'The main challenge was trying to keep them all focused on the competition,' he said.

His role primarily involved strength-based training and teaching the athletes how to 'read' climbs, which requires skills such as interpreting the structure and strategy of a climbing route. Drawing on his academic background, he explained, 'Reading climbs involves understanding how actually to do the climb. At the competition, my main job was trying to get them mentally prepared' (Gatticchi 2019).

■ End of an era for Bidvest Wits Football Club

Nearly a century after its founding, the historic Bidvest Wits FC was sold in 2020, marking the end of an era and leaving a significant void in the South African football community (Mokoena 2020). The club's PSL status was sold to Tshakhuma Tsha Madzivhandila, a Limpopo-based first division team.

'Wits played a massive role and it is very upsetting to see such an institution disappearing into oblivion', remarked Raymond Hack, former South African Football Association (SAFA) CEO and Wits FC Chairman for over 27 years (1977–2004), underscoring the club's historical significance (Mokoena 2020).

Figure 10.7 is a rare Clever Boys FC photograph featuring Roger de Sa, Neil Winstanley, Raymond Hack (CEO), Derek Blackensee and Professor Schloss (both serving as officials), along with Stanton Fredericks and Bradley Carnel.

Bidvest Wits FC was highly regarded within the football fraternity for its exceptional youth development structures, which began training players from as early as the Under-9 level. The club's facilities at the University were state of the art and supported player development across all junior



Source: Copyright 1986 © Wits Bidvest FC, PSL. Permission to reproduce and publish this photograph has been granted by Ronnie Schloss via the Premier Soccer League.
Key: FC, football club.

FIGURE 10.7: Photograph of Clever Boys *circa* 1986.

divisions, culminating in the First Team. In an interview with the sports publication *Tagged!*, Raymond Hack noted that leading figures in South African football, Kaizer Motaung and Jomo Sono, enrolled their sons – Bamuza Sono and Kaizer Motaung Jr – at the Wits Academy, where they were groomed into top-tier PSL players (Mokoena 2020). Following the sale of the club, no replacement institution assumed its role.

■ Dr Thabelo Ramantswana juggles motherhood to become the first African female Real Estate PhD

Wits alumna Dr Thabelo Ramantswana began her academic journey with a degree in Town and Regional Planning and later returned to the University for an MA in Housing. However, after entering the workforce, the demands of balancing her professional responsibilities, studies and later teaching at Wits proved overwhelming. As a mother of three, she found the pressures unsustainable and could not complete the degree (Rapoo 2019) (see Figure 10.8).

In 2005, after spending time with her family in the USA, Ramantswana returned to South Africa and decided to pursue a doctoral degree. Balancing multiple roles – mother, wife, student and educator – she approached Professor Sam Azasu in 2013 to explore the possibility of returning to Wits. As part of her return, she agreed to undertake MA courses alongside



Source: Copyright 2019 © Wits Vuvuzela. Permission to reproduce and publish this photograph has been granted by the photographed individual.

FIGURE 10.8: Photograph of Thabelo Ramantswana at her graduation.

her PhD in order to bridge the disciplinary gap between her earlier qualifications from the SoAP and her new academic path within the SCEM.

Ramantswana successfully completed her PhD in Real Estate after the introduction of the new programme in 2014. Reflecting on her journey in an interview with *Wits Vuvuzela*, she credited her determination for her success: ‘When I want to get something done, I fight until I get it done [...] it was not easy, but I had to fight’, she explained.

At the time, Head of the School Professor David Root praised her dedication to students and recognised her as a role model. He also

acknowledged the increasing number of female academics and noted that Ramantswana was the first woman of colour to emerge from the Construction Education and Training Authority Development Programme (Rapoo 2019).

Following her graduation in 2019, Dr Ramantswana expressed a desire to cultivate future scholars: 'We need to target and groom future academics. I am not comfortable being the only one. I am uncomfortable being among a few; I want more' (Rapoo 2019).

■ **Alumnus Loonat involved in ZAR60-million Commerce, Law and Management Faculty Building**

Wits alumnus Shoayb Loonat exemplifies the transition from student to professional, as he returned to contribute to his alma mater meaningfully. After graduating, Loonat tendered for a position and was successfully appointed as one of eight companies on Wits University's panel of QS (Smit-Stachowski, A 2023, *Interview with Loonat*, Unpublished in-person interview, 29 August). Reflecting on the selection process, he noted that inclusion on the panel signifies that a contractor has 'the capabilities, you have the capacity, the skill and the resources to work there at campus' (Smit-Stachowski, A 2023, *Interview with Loonat*, Unpublished in-person interview, 29 August).

Once appointed, panel members were allocated University projects, and one of Loonat's was the development of the Commerce, Law and Management (CLM) Faculty Building on West Campus, adjacent to the Tower of Light. Loonat described the significance of the assignment, stating, 'It was one of the projects, which in some ways, saved my business through [*the*] COVID[-19 pandemic]' (Smit-Stachowski, A 2023, *Interview with Loonat*, 29 August).

Planning for the ZAR60-million CLM project began in March 2020, construction began later that year, and the University occupied the completed facility in 2021. The project comprised new office space for the CLM Faculty, executed in collaboration with contractors from other firms working across the CLM precinct (Smit-Stachowski, A 2023, *Interview with Loonat*, 27 September).

As the global COVID-19 pandemic reshaped industries and institutions alike, the SCEM also began experiencing a period of transformation (see Figure 10.9).



Source: Copyright 2021 © Shoayb Loonat. Permission to reproduce and publish this photograph has been granted by the photographer.
FIGURE 10.9: Photograph of Wits Commerce, Law and Management Building, West campus.

Shaping the present: The School of Construction Economics and Management from 2021 onwards

Samuel Laryea

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'Many of the new South African academics are colleagues who completed their doctoral qualifications in the School.' Professor Samuel Laryea (Unpublished 2023)

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■ Professor Samuel Laryea appointed Head of the School of Construction Engineering and Management

Professor Samuel Laryea, who joined the SCEM as a senior lecturer in 2012 from the University of Reading in the UK, was appointed Head of School in 2021.

Laryea demonstrated a clear determination to build upon the School's growth over the preceding decade and articulated a new vision aimed at enabling the School to function more effectively, productively and with greater societal impact. This period was characterised by the introduction of formal structures to strengthen governance, leadership and management, including the establishment of a formalised School Leadership Team (SLT) and the creation of various strategic committees. A 20-member IAB was also established, fostering stronger ties between the School and industry, while the School successfully completed its QQR in 2021.

The School also achieved renewed accreditation of its programmes with five different professional bodies and councils, including, for the first time, RICS accreditation for the Property Studies programme. A new Postgraduate Diploma in Construction Management was introduced, offering five specialised fields. This era also witnessed the emergence of the SCEM Student Council, a 50% increase in academic staff and a marked expansion in the School's research activity. Notably, a postdoctoral fellowship scheme was initiated, and a new Centre of Excellence was established, supported by a ZAR4.5 million grant from the Construction Industry Development Board (CIDB).

■ Governance structures established in May 2021

Laryea recognised the importance of ensuring the School's healthy and sustainable functioning by implementing effective, modern leadership, management and governance structures. This strategic priority led to formally establishing an SLT in May 2021, functioning as the School's Executive Committee. According to internal documentation, 'The primary responsibility of the SLT is to collectively provide the leadership required to achieve the School's vision and strategic priorities' (SLT 2021).

To support this mandate, the SLT was organised around six key portfolios, each designed to oversee and drive specific strategic and operational functions of the School. The SLT was structured into the following roles (SLT n.d.):

- Head of School (Chair)
- School Coordinator for Executive Education, Short Courses and Fundraising

- School Coordinator for External Engagement
- School Coordinator for Postgraduate Affairs
- School Coordinator for Teaching, Learning and Quality Assurance
- School Coordinator for Research and Innovation
- School Coordinator for Undergraduate Affairs.

As the leader of the SLT, the Head of the School holds primary responsibility for providing the academic vision and leadership necessary to position the School as a Centre of Excellence within the University and the broader educational landscape. This includes leading and managing the School to pursue its strategic objectives and participating in institutional decision-making processes aligned with the University's overarching goals.

The Head of the School's role encompasses four key duties: Academic and research leadership, student affairs, human resource management and overall administration of the School. To support these functions, SLT members are assigned specific portfolios, enabling them to assist in the day-to-day operations of the School and to represent the School within various Faculty structures.

The SLT convenes monthly to deliberate on matters concerning all aspects of the School's functioning. In the absence of the Head of School, an SLT member assumes the role of Acting Head. This leadership structure not only ensures continuity and operational efficiency but also contributes to long-term succession planning.

■ A 20-member Industry Advisory Board inaugurated in 2021¹⁰

A 20-member IAB, comprising distinguished leaders from the construction and property sectors, was inaugurated in July 2021 by Professor Ian Jandrell, then-Executive Dean of the Faculty of EBE (see Figure 12.1). The Board was established to support the School's vision and growth trajectory. The founding members of the Inaugural IAB were:

- Professor Raymond Nkado, Managing Director, QualConsul Chartered Quantity Surveyors (Chairperson)
- Ms Lebogang Shole, Executive Head: National Facilities and Property, Vodacom South Africa

10. For further reading, refer to: 'Wits School of Construction, Economics and Management (SCEM) is equipping Honours Graduates with excellent skills for the Industry by Building World Class Academic Programmes in the Construction and Property Fields', *Daily Maverick*, 30 August, viewed 21 May 2025, <<https://www.dailymaverick.co.za/article/2024-08-30-wits-scem-is-equipping-honours-graduates-with-excellent-skills-for-the-industry-by-building-world-class-academic-programs-in-the-construction-and-property-fields/>>.



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FIGURE 11.1: Photograph of the Founding Industry Advisory Board of the School of Construction Economics and Management.

- Mr Saul Gumede, CEO, Dijalo Property Group
- Ms Mpho Papo, Managing Director, DuvhaQS Quantity Surveyors & Project Managers
- Ms Zama Ngcobo, Managing Partner, WMN Attorneys Inc.
- Ms Maphefo Mogodi, Deputy Chair, Council for the Built Environment
- Mr Andy Dunn, Director, Professional Cost Consultants
- Mr Andrew Murray, Chairman, Murray & Dickson (Pty) Ltd
- Mr Priyesh Daya, Partner, Webber Wentzel
- Mr Rob Morson, Partner, Pinsent Masons LLP
- Mr Rowan Crowie, CEO, Enza Construction
- Mr Rukesh Raghur, CEO, Murray & Dickson Construction (Pty) Ltd
- Mr Thobani Mnyandu, Director, MNS Attorneys
- Dr Ron Watermeyer, Director, Infrastructure Options
- Ms Amelia Beattie, CEO, Liberty Two Degrees
- Mr Malusi Mthuli, Head of Valuations, First National Bank (FNB)
- Mr Estienne de Klerk, CEO, Growthpoint Properties
- Mr Kerry Millar, CEO, RealFMG
- Ms Nonkululeko Sindane, CEO, Mariswe (Pty) Ltd
- Professor Thokozani Majozi, Executive Dean, Faculty of EBE.

The IAB plays a significant role in enriching the School's academic and professional landscape. Its contributions include facilitating practical training opportunities for students, advising on curriculum development, contributing to strategic planning and offering expert guidance to support the School's advancement.

The Board convenes annually and serves as the 'voice of industry' in shaping the School's academic vision and strategic direction. In addition to the IAB's advisory role, the School has initiated a variety of industry engagement activities, including visits from CEOs and senior executives who meet with staff and students to share insights on emerging trends and developments within the sector.

■ A 50% growth in academic staff¹¹

A key development during this period was the substantial increase in academic staff posts within the School, which grew by nearly 50% to align with rising student enrolment numbers. This expansion has been particularly notable because of the appointment of many South African academics as permanent full-time lecturers. Most of these new appointments are black female academics, contributing markedly to transforming the School's staff profile and enhancing its equity objectives. Notably, many of these new academics are former doctoral graduates of the School, possessing a deep understanding of its vision and positioning the School to advance more robustly in the future.

Simultaneously, the School's research profile and activities have expanded considerably, exemplified by the appointment of an increasing number of postdoctoral research fellows – five as of 2024 – several of whom are supported through the School's own CEM postdoctoral fellowship initiative. The 2021 Quinquennial Review affirmed the School's positive growth trajectory and strong reputation.

By 2024, the School comprised 29 full-time academic staff members, five postdoctoral research fellows, and a dynamic community of approximately 1,400 students enrolled across its undergraduate, Honours and postgraduate programmes.

The CEM Student Council also remains a vibrant and active body, with a record of notable achievements in recent years. In 2022, under the leadership

11. For further reading, refer to 'Wits School of Construction, Economics and Management (SCEM) is equipping Honours Graduates with excellent skills for the Industry by Building World Class Academic Programmes in the Construction and Property Fields', *Daily Maverick*, 30 August, viewed 19 May 2025, <<https://www.dailymaverick.co.za/article/2024-08-30-wits-scem-is-equipping-honours-graduates-with-excellent-skills-for-the-industry-by-building-world-class-academic-programs-in-the-construction-and-property-fields/>>.

of Shaun Malema Morepiwa, the Council received the Award for Best Student Council at the University. The following year, in 2023, Tyler Anthony, Chairperson of the CEM Student Council, was honoured with the University's Award for Most Outstanding Student Council Leader (see Figure 11.2).

Between 2021 and 2023, the School successfully renewed its accreditation with several key professional bodies, including:

- *SACPVP (2021)*: BSc Property Studies, PG Diploma Property Development and Management, MSc Building (Property Development and Management), October 2021
- *South African Council for Quantity Surveying Profession (SACQSP) (2022)*: BSc Construction Studies, BSc (Hons) Quantity Surveying, August 2022
- *CIOB (2022)*: BSc Construction Studies, BSc (Hons) Construction Management, BSc Honours Quantity Surveying, MSc Building (Project Management in Construction), November 2022
- *SACPCMP (2023)*: BSc Construction Studies, BSc (Hons) Construction Management, MSc Building (Project Management in Construction), March 2023
- *RICS (2023)*: BSc Construction Studies, BSc (Hons) Quantity Surveying, BSc Honours Construction Management, November 2023.

The successful completion of these national and international accreditation exercises confirms the robustness of the School's programmes and its positive academic environment. This achievement is a significant testament



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FIGURE 11.2: Photograph of Construction Economics and Management Student Council in 2022.

to the dedication of the School's staff and the University, particularly given the challenges recounted in Chapters 8 and 9, which the School has overcome with notable resilience.

Notably, the Property Studies programme received RICS accreditation for the first time since its introduction in 2002, enabling its graduates to qualify for RICS membership. With all programmes now fully accredited, the School stands in a strong and healthy position, well poised to advance and grow as a leading institution in its field.

■ Shared vision and strategy for the future

□ Co-creating a shared vision and strategic priorities

Without a vision, there can be no clear direction. Leading organisations and people without a shared vision is especially challenging, particularly within an academic environment that values a collegial culture. This underscores not only the importance of having a vision but also the necessity of co-creating that vision with staff to foster greater ownership and accountability. This principle was extensively discussed by Laryea in collaboration with the School's IAB member, Amelia Beatty, who offered valuable insights on organising a strategy workshop to develop a strategic plan for the School.

On 13-14 February 2023, the School's staff participated in a 2-day strategy workshop, which provided an opportunity to reflect on the School's current status and to chart its future direction. This productive session culminated in the articulation of the School's current vision: to become a collaborative, healthy and self-sustaining team that works effectively to achieve high research output and deliver impactful education on an international scale (see Figure 11.3).

Aligned with this vision for the next five years, four strategic priority areas were identified to guide the School's efforts in achieving its goals:

- Research
- Quality curriculum
- Healthy work environment
- Efficient administrative processes.

□ Research strategy and future focus areas

This development occurred within the broader context of the University's overarching vision and strategic framework, Wits 2033, as well as the Faculty of EBE framework, articulated by the Dean in the preface of this book. The synergies and alignment with these wider frameworks provide firm anchors for the School's pursuit and achievement of its goals.



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FIGURE 11.3: Photograph of Output from Construction Economics and Management Strategy Workshop in 2023.

In 2021, a key priority was to develop a 5-year research strategy aimed at transforming the School from being the least research-productive within the Faculty to becoming more research-active. This initiative was led by Professor Kola Akinsomi, the School Coordinator for Research and Innovation.

The resulting strategy document, titled 'A 5-year research strategy for the School: Where we are now and steps to elevate our research performance', was developed collaboratively by the academic staff to guide the School's progress in 'moving from low performance to high performance'. The strategy encompasses several initiatives, including encouraging the National Research Foundation's (NRF) ratings, recruiting research-active staff, appointing visiting professors to provide mentoring and establishing a School-funded postdoctoral research fellowship scheme. Staff members are encouraged to maintain active research profiles and produce annual research reports. Additionally, the School plans to introduce a Research Award, establish an incentivised journal list to reward publications in high-impact journals and promote the application for research grants.

By the end of 2023, the School's research productivity had nearly doubled, expanding from 7.88 units in 2021 to 14.68 units. This increase

improved the School's ranking from seventh out of seven Schools in 2021 to fourth out of seven Schools in 2023. The growing research activity and the emergence of staff with expanding international research profiles suggest that this upward trend in research outputs will continue.

With the improvements in staffing and the continued efforts of its academic members, the School is poised to become one of the leading producers of research outputs within the Faculty of EBE.

In 2024, the School conducted an exercise to identify its core research expertise based on publications over the preceding three years. This exercise led to the identification of four principal research areas that will shape the School's future research direction:

- Digitalisation in the built environment
- Infrastructure procurement and delivery management
- Real estate and infrastructure finance and management
- Sustainability in the built environment.

These four areas reflect the research interests and strengths of the School's predominantly research-active academic staff. The next steps involve designing innovative research programmes within these themes, alongside developing funding proposals and initiatives aimed at attracting industry partners for collaborative research projects.

Notably, these research areas align broadly with the Faculty's strategic research priorities, which include energy transition and sustainability, water resources management and digitalisation. This significant alignment and synergy offer promising opportunities to access Faculty funding for postdoctoral research fellowships and other research initiatives.

Royal Institute of Chartered Surveyors lauds the School of Construction Engineering and Management

In November 2023, Mike Cox, RICS Education and Accreditation Manager, conducted a site visit with an accreditation panel to evaluate the suitability of the following programmes for reaccreditation or accreditation ('RICS accreditation report: University of the Witwatersrand' 2023):

- Project Management Pathway: BSc (Hons) – Construction Management
- Quantity Surveying and Construction Pathway: BSc (Hons) – Quantity Surveying
- Valuation Pathway: BSc (Hons) – Property Studies.

These BSc Honours programmes are offered following a 3-year undergraduate degree, with students having the option either to exit with the undergraduate qualification or continue to complete the Honours degree. Royal Institute of Chartered Surveyors accreditation applies exclusively to the BSc Honours degree.

The School's student composition – 49% undergraduate and 51% PG – positions it as having the largest PG cohort within the Faculty of EBE. The 2023 RICS Accreditation Report noted a growing enrolment, with a current total of 1,422 students, and highlighted that the programmes were accredited locally and internationally by agencies such as SACQSP, SACPVP, SACPCMP, CIOB and the Institute of Real Estate Management (IREM).

During the visit, Cox engaged with a sample of 14 students, many of whom initially expressed limited interest in working outside South Africa or pursuing RICS membership. However, some reconsidered upon learning of the professional benefits. Feedback on academic staff was predominantly positive, with praise for their experience and teaching quality. Students also expressed a desire for increased one-on-one contact time with lecturers ('RICS accreditation report: University of the Witwatersrand' 2023). Class representatives reported feeling heard and valued the support provided by tutors.

The report detailed that the School had 25 academic staff members, with ongoing recruitment for additional permanent positions. Notably, 85% of staff held PhDs, with the remainder possessing at least an MA qualification. Professional designations among staff included four MRICS, two Fellows of the Royal Institution of Chartered Surveyors (FRICS) and one AssocRICS, alongside memberships in other bodies such as CIOB and IREM. The high qualifications of the SCEM staff were commended ('RICS accreditation report: University of the Witwatersrand' 2023).

Interactions with senior representatives from six leading firms employing the School's graduates confirmed that the SCEM alumni are 'well-prepared for employment with strong independent thinking skills, which is noticeably more than graduates from other universities'.

The report also acknowledged the School's significant investment in state-of-the-art computer laboratories equipped with current software such as Revit (Autodesk), CostX (RIB) and Navisworks (Autodesk). Lecture theatres were praised for their modern facilities, including live streaming and recording capabilities. The library was described as modern, with extensive online resources complemented by comprehensive in-person support ('RICS accreditation report: University of the Witwatersrand' 2023). Student spaces were noted for supporting collaboration and social interaction, with most students residing on campus.

Following their evaluation, the RICS panel recommended that the programmes be reaccredited for a further five years, covering student intakes from 2024 to 2029. Significantly, the Property Studies programme received RICS accreditation for the first time ('RICS accreditation report: University of the Witwatersrand' 2023).

Growth for the future

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■ Introduction

'[The] School's progress can build a superstructure to move the School forward.' – Professor Samuel Laryea (2023)

■ A legacy of graduates and resilience

To provide a clearer perspective, Chapter 13 presents statistics illustrating that the SCEM has produced 5,948 graduates over nearly a century. These alumni, trained in QS, CM and property, have made significant contributions both within South Africa and internationally: Africa, the Middle East, the Americas, Asia and Europe.

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Although the School's longstanding success was challenged by difficulties in the 1990s and early 2000s, timely and collective corrective measures were implemented, enabling the School to overcome these challenges and demonstrate remarkable resilience.

■ Vision for sustainable growth and leadership

The School's remarkable progress in recent years provides a stable foundation upon which it can construct a superstructure for the next phase of growth beyond the global COVID-19 crisis. The vision, mission and strategic priorities outlined are designed to advance the School by elevating its stature, performance and impact both nationally and internationally. Achieving this requires the School to function in a healthy, productive and impactful manner.

The School's strategic vision, driven by committed staff, must underpin sustainable excellence across all its activities. To this end, a Leadership Team has been established to guide the School's advancement within the framework of its articulated vision and governance structures.

From the birth of Johannesburg as a dusty mining town, through the 1930s and 1940s as global war reached South Africa's shores, to the 1950s and 1960s as young Qs began to establish their professional identity, and into the 1980s and 1990s as political unrest reverberated through society, the School evolved in step with the country.

Since 1994, South Africa's democratic era has witnessed 30 years of rapid growth, during which the SCEM has led from the front: Adapting, evolving and educating the individuals who continue to shape the nation into the leading powerhouse it is today on the African continent.

■ Key questions to consider

The key questions we reflect on in bringing this book to a close are as follows: Firstly, what will the School look like by the time of its centenary in 2028? Secondly, what will the School look like at the time of its second centenary in 2128?

The challenging years of the 1990s and early 2000s, following a period of considerable success from the School's inception, demonstrate that institutional progress and achievement are often delicate and fragile. Sustaining success requires continuous diligence and commitment across all domains: leadership, management, governance and day-to-day operations. Any lapse in focus or decline in quality may have far-reaching and detrimental consequences.

In this regard, the governance reviews and the multiple accreditation exercises undertaken during the School's recent trajectory must serve as critical checkpoints: opportunities for institutional reflection and assessment of organisational health.

■ Governance

Governance exercises such as the University's QQR system – intended to occur every five years – can serve as a vital dashboard for assessing the institutional health of the School, provided they are conducted rigorously and taken seriously. When treated as strategic diagnostic tools, these reviews offer an opportunity to evaluate core operations and implement timely corrective measures. The outcomes of such institutional health checks must be regarded with due seriousness by all stakeholders and should be followed by robust and accountable action.

In the case of the School, the 1997 QQR revealed considerable weaknesses that were not adequately addressed by the relevant stakeholders. By the time of the 2008 QQR, many of these issues had deepened significantly, some to a critical, even existential, level. A key lesson for the future is clear: Institutional challenges must be confronted early and decisively by leadership across all levels to prevent deterioration.

■ Accreditation exercises

A second key consideration concerns the value of accreditation exercises in sustaining the growth and development of academic institutions. The nature of the standards typically evaluated during such reviews suggests that, when rigorously conducted and overseen by suitably qualified panels, accreditation exercises can offer valuable insights into the institutional and academic health of schools and their programmes. Institutions should take these evaluations seriously, treating them as opportunities for continuous improvement, and should address any identified shortcomings promptly and through sustainable interventions.

The vitality of an academic school is rooted in the collective strength of its students, staff, academic programmes, and internal and external stakeholders, including alumni, employers and professional bodies. Well-established indicators reflect institutional health, such as staff-to-student ratios, graduate employability, per capita research output, student evaluations of courses, the quality of programme documentation and enrolment standards. It is incumbent upon all stakeholders, particularly those in leadership positions, to consistently monitor these indicators as part of their stewardship of the School's wellbeing and advancement.

■ Leadership

□ The role of leadership in academic excellence

The final point relates to leadership. As John Maxwell aptly states, 'everything rises and falls on leadership'. Leadership quality plays a critical

role in determining the success of any organisation, including academic institutions. A central aspect of effective academic leadership is modelling the expectations placed upon academic staff, particularly in the realm of research.

It is difficult for a leader to demand research productivity from colleagues if they are not actively engaged in research themselves. Even if such a leader were to make the demand, they would likely face challenges regarding moral authority. Staff may reasonably question the legitimacy of a leader's expectations if the leader does not exemplify those expectations. Effective leadership must therefore lead by example.

This underscores the importance of appointing individuals with the right qualities to serve in academic leadership roles. While the selection process is complex – balancing multiple imperatives and institutional needs – it is essential to recognise that an individual's leadership strength is often correlated with their academic capabilities and personal integrity.

No single individual is likely to possess all the qualities of an ideal academic leader. The practical response is to appoint someone who possesses most of the necessary attributes and complement their leadership with a strong team that can compensate for any gaps. Leadership functions best when it is a collaborative endeavour. However, successful collective leadership requires a head with a clear sense of direction and who can articulate a coherent vision for the organisation.

With respect to vision, academic leadership differs in some notable ways from corporate leadership. In the corporate sector, leaders often exit the organisation upon the end of their tenure, making way for successors. In academia, however, leadership roles frequently rotate among peers within the same Department or School. This dynamic necessitates a collegial rather than an executive style of leadership. Academic institutions function more effectively in a 'first among equals' setting, where co-creating a vision fosters greater ownership and willingness among staff to implement that vision.

□ Looking to the future: Growth, impact and centenary goals

Reflecting on nearly a century of existence, the SCEM has made a tangible impact on the fields of construction and property. As evidenced by alumni and staff testimonials and historical documentation, the School has demonstrated significant progress and influence. From its early days of offering a single diploma programme to a small cohort of students, the School has grown to offer 14 undergraduate and PG programmes, serving over 1,400 students in 2024. It has transitioned from being part of a

department to becoming the largest of seven Schools in the Faculty of EBE, producing thousands of graduates who contribute meaningfully globally.

Looking ahead to the School's centenary, the expectation is that it will continue along its current growth trajectory and consolidate its position of excellence. By its 100th anniversary, the School is anticipated to be stronger in research, curriculum development, staffing, infrastructure, funding and student endowments. The approaching centenary presents a strategic opportunity for institutional fundraising and long-term capacity building.

As to the School's position by the time of its second centenary, a law academic might respond, 'It depends' – and rightly so. The relevance of the School's programmes will continue as long as humanity has infrastructure and built environment needs. This enduring demand ensures that SCEM's academic offerings and its graduates will remain pertinent in a world that is constantly evolving and expanding.

■ The future belongs to those who prepare for it today

However, as Malcolm X powerfully reminded us in 1962, 'The future belongs to those who prepare for it today'. The future of the SCEM, or any institution, 100 years from now, will be shaped by the vision, decisions and actions taken today. These steps must be intentional, future-focused and guided by a commitment to relevance, excellence and adaptability.

The difficult years will remain behind if the School remains anchored in strong leadership, driven by innovation, and committed to delivering quality education and research. With these foundations in place, the SCEM is well positioned to meet tomorrow's demands and lead.

Here is to the next 100 years of bold strides, enduring impact and a legacy that continues to build a better world.

Statistical collation of the School of Construction Economics and Management graduates from 1930 to 2024

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■ It began with a single diploma in 1927

To truly appreciate the journey of the Wits SCEM, the numbers tell a powerful story. Charting its progress from a single diploma awarded in 1927 to a thriving portfolio of Bachelor's degrees in 2024, the data

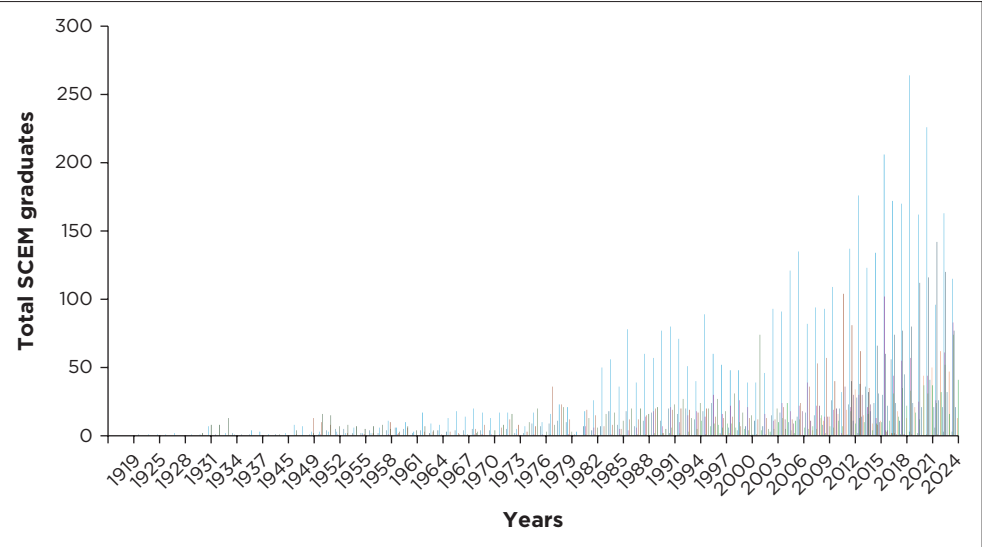
How to cite: Mphuti, B & Smit-Stachowski, A 2025, 'Statistical collation of the School of Construction Economics and Management graduates from 1930 to 2024', in S Laryea, A Smit-Stachowski & B Mphuti, *Making a mark: Wits School of Construction Economics and Management and its contribution to the construction and property fields*, ITUTA Books, Cape Town, pp. 139-145. <https://doi.org/10.4102/aosis.2025.BK544.13>

(Wits Examinations and Graduation Office 1919–2024) in Figure 13.1 vividly capture the School’s evolution, milestones and growing impact over nearly a century.

Figure 13.2 shows the total number of QS graduates, while Figure 13.2 shows that the first two graduates in the Quantity Surveying Diploma (QS Dip) qualified in 1930, followed by eight in 1932. In 1933, 13 students graduated with the QS Dip. The School’s first graduate with a BSc in Quantity Surveying [BSc (QS)] emerged in 1946, with 13 graduating in 1949 and ten in 1950.

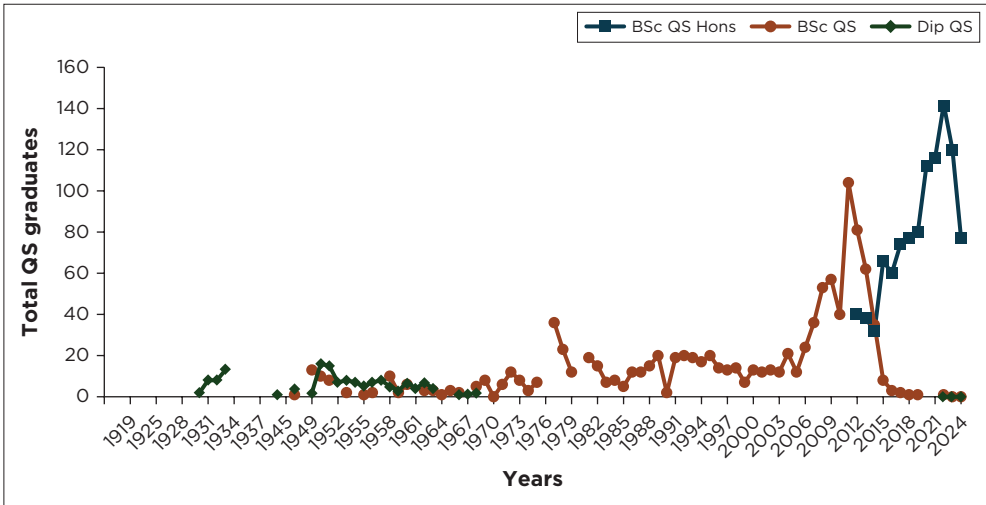
In parallel, there were two QS Dip graduates in 1949 and 16 in 1950. The increase in graduate numbers during this period can be attributed to the end of WWII in 1945. Between 1930 and 1950, the School produced 24 BSc (QS) and 54 QS Dip graduates.

The period from 1951 to 1970 saw notable expansion. The BSc in Building was introduced in 1965, with its first three graduates in 1968 and four more in 1970. During this time, 70 students graduated with the BSc (QS) and 91 students received the QS Dip in 1968. However, no further QS Dip



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FIGURE 13.1: Total School of Construction Economics and Management graduates from 1927 to 2024.



Source: Copyright 2024 © Compiled by Pheello Nhlapo with information from Wits Examinations and Graduation Office. Permission to produce and publish this figure has been granted by the Wits Examinations and Graduation Office. Key: QS, Quantity Surveying.

FIGURE 13.2: Total of the Quantity Surveying graduates.

graduates are recorded from 1969 to 2011, as the diploma was discontinued in 1967 and replaced by the BSc (QS).

From its inception in 1965 until 2005, the BSc in Building produced a total of 562 graduates. Thereafter, the programme continued as the MSc in Building. The final QS Dip graduates were in 2012, concluding with a total of 145 graduates between 1930 and 2012.

South Africa's economy experienced rapid growth in the 1960s and 1970s, while growth slowed during the 1980s. During the 1970–1990 period, the School contributed significantly to the national economy by producing 222 BSc (QS) and 238 BSc in Building graduates.

Between 1990 and 2024, 734 students completed the BSc (QS), with the highest number of graduates recorded in 2011 (104) and 2012 (81). From 2011 onward, the School began awarding both BSc (QS) and BSc in Quantity Surveying Studies degrees. However, BSc (QS) numbers declined because of the transition to the BSc (Hons) model in 2011.

Graduate numbers dropped to 35 in 2014, followed by eight in 2015, three in 2016, two in 2017, and one in both 2018 and 2019. By 2022, the BSc (QS) programme had been fully phased out. The lone graduate in 2019, Pheello Nhlapo, was instrumental in compiling the statistical data for the figures presented in this chapter.

■ Postgraduate success from 2012

From 2012 to 2024, the School produced 1,034 Honours in QS graduates over 12 years – surpassing the 842 BSc (QS) graduates accumulated over the 76 years prior.

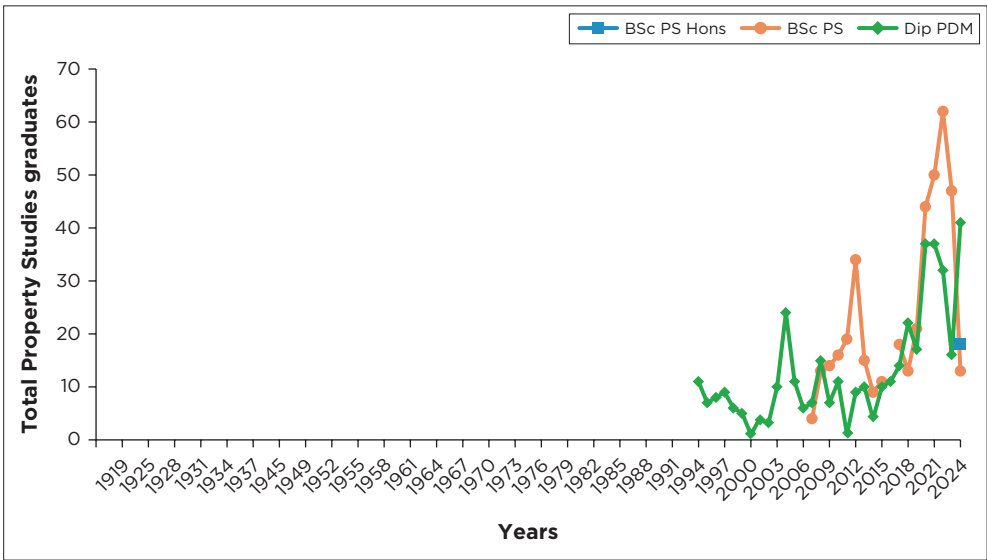
Figure 13.3 shows that the Postgraduate Diploma in Property Development and Management (PG Dip in PDM) produced its first 11 graduates in 1994 and has since graduated a total of 406 students as of July 2024.

The BSc in Property Studies, introduced in 2007, awarded its first four degrees that year and has conferred a total of 403 degrees up to July 2024.

The newly introduced Honours in Property Studies celebrated its inaugural graduating class of 18 students in 2024.

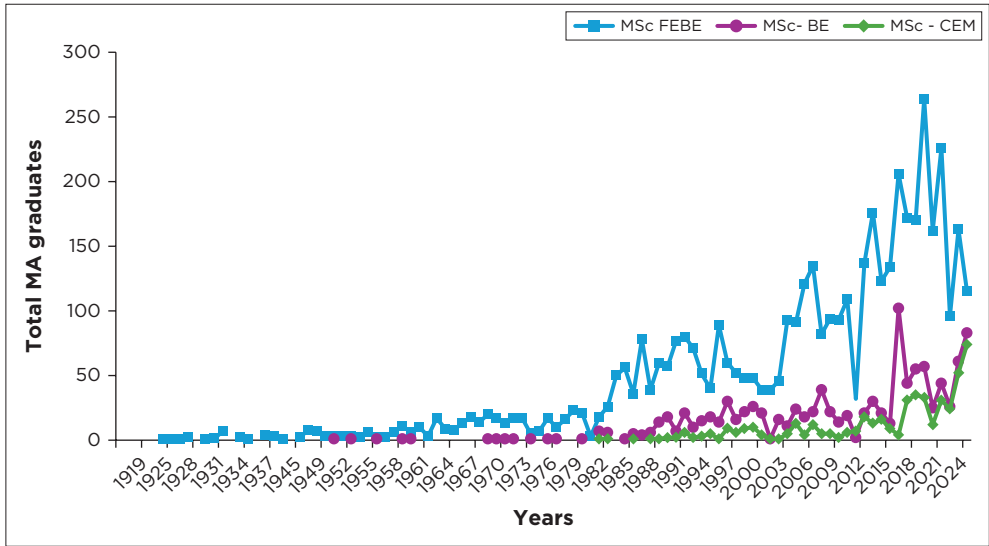
As shown in Figure 13.4 (July 2024), the SCEM has produced graduates across a range of PG qualifications, including:

- 26 PhD graduates
- 477 MSc Building graduates
- 4 MSc Quantity Surveying graduates
- 1,034 BSc (QS) (Hons) graduates



Source: Copyright 2024 © Compiled by Pheello Nhlapo with information from Wits Examinations and Graduation Office. Permission to produce and publish this figure has been granted by the Wits Examinations and Graduation Office. Key: PDM, Property Development and Management.

FIGURE 13.3: Total Property Studies graduates.



Source: Copyright 2024 © Compiled by Pheello Nhlapo with information from Wits Examinations and Graduation Office. Permission to produce and publish this figure has been granted by the Wits Examinations and Graduation Office. Key: MA, Master of Arts; CEM, Construction Economics and Management.

FIGURE 13.4: Total master's graduates.

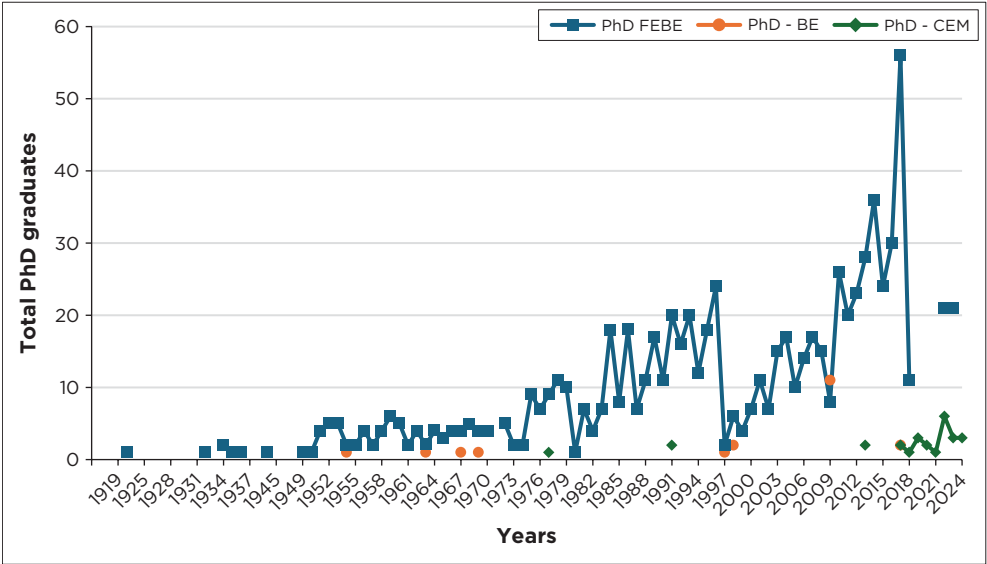
- 330 BSc Construction Management Honours graduates
- 18 BSc Property Studies (Hons) graduates
- 406 Postgraduate Diploma in Property Development and Management graduates.

The undergraduate graduates produced by the CEM School from 1927 to 2024 are as follows:

- 145 QS Dip graduates
- 562 BSc Building graduates
- 1,036 BSc Quantity Surveying graduates
- 241 BSc Construction Management/Construction Management Studies graduates
- 1,266 BSc Construction Studies graduates
- 403 BSc Property Studies graduates.

Figure 13.5 illustrates that the School has produced 26 PhD graduates, up to 2024.

From the early 2000s, the SCEM introduced the BSc in Construction Management (BSc in CM), while continuing to offer the BSc in Building and BSc in QS programmes. In 2004, the School produced its first 12 graduates in BSc CM, with this number increasing to a total of 241 graduates between 2004 and 2018.



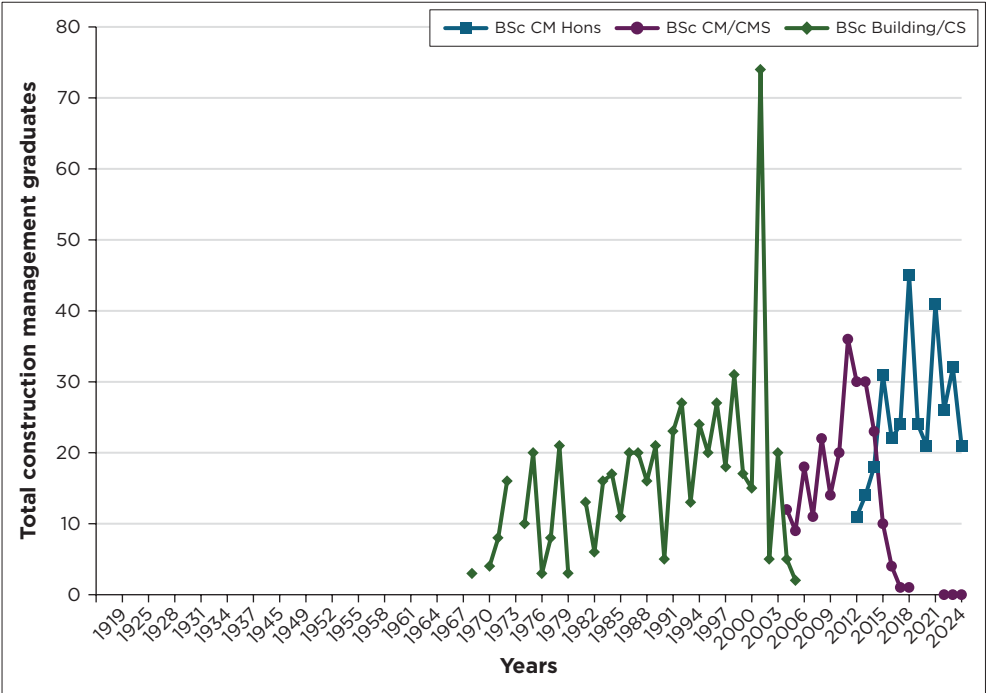
Source: Copyright 2024 © Compiled by Pheello Nhlapo with information from Wits Examinations and Graduation Office. Permission to produce and publish this figure has been granted by the Wits Examinations and Graduation Office. Key: PhD, Doctor of Philosophy; CEM, Construction Economics and Management; FEBE, Faculty of Engineering and the Built Environment.

FIGURE 13.5: Total PhD graduates.

In 2011, the degree title was adjusted to BSc in Construction Management Studies (BSc in CMS), which later evolved to BSc in Construction Studies (BSc in CS). The first graduates under the BSc in CS title emerged in 2014. From 2019 onwards, the BSc in CM and BSc in CMS were replaced by the BSc in CS.

The BSc Honours in CM had its first 11 graduates in 2012, and by 2024, a total of 330 graduates had completed the programme (Figure 13.6).

Between 2011 and 2018, the School awarded degrees under all three titles – BSc in CM, BSc in CMS and BSc in CS – with BSc in CS becoming the sole title from 2019 onwards.



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FIGURE 13.6: Total Construction Management graduates.

Building Johannesburg: Stories behind the bricks¹²

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■ Introduction

Professor Emeritus Gilbert Herbert (Bachelor of Architecture [BArch], Diploma in Town Planning [DipTP], ARIBA, MIA), who had lectured at the School, wrote an excellent piece in January 1952 for the *South African Architectural Record's* supplement, *Man-Made Johannesburg* (Herbert 1952, p. 23). He illustrated that the history of the SCEM would have been incomplete without the stories of all those involved:

If this story of building Johannesburg were to be complete, it should tell of the mergers and syndicates, negotiations and haggings, bargains struck and pressures exerted, shares sold and companies formed, before the finances of a large building project are arranged: and it should also tell of the painfully slow saving, that doing without long-wanted luxuries, the years of flat-dwelling

12. The following chapter is a republication of Herbert, G 1952, 'Of the building industry', in *Man-Made Johannesburg*, supplement to the *South African Architectural Record*, p. 23, viewed 5 August 2023, <<https://wiredspace.wits.ac.za/server/api/core/bitstreams/bf73ac39-dd60-41cf-b0c3-e5bbaf2b97fd/content>>.

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or house-renting, that precede the accumulation of the necessary amount of capital for the average middle-class home. (*Man-Made Johannesburg* 1952, p. 23)

Something, too, had to be said about the wavering, doubts and sudden failures of courage: To build? To buy? To rent? To continue living with Mother? – before the fateful decision was made.

Nor was the story complete without recounting a long day's work under the hot Johannesburg sun – of aching back muscles, pouring sweat, sandwiches, a billy of tea and a quick glance at the *Mail* or the *Transvaler*. It included difficult foremen, impossible demands, dust-laden air and the sweet scent of freshly sawn timber that worked cleanly and planed smoothly.

■ The people behind the stories

The story of building was the tale of Jan the bricklayer, whose father and grandfather had not been artisans but farmers, drawn to the city as boys. It was also the story of Harry the carpenter, whose Polish father had enjoyed working with his hands. Additionally, it was the story of Nkamando, whose father had been a headman in the lush fields of the Transkei.

■ Challenges and triumphs in building

The story of building encompassed more than just bricks and mortar; it also included strikes and lockouts, negotiations and awards. It narrated a new way of life and the industrialisation of a community.

To tell the story of the building, we had to focus not only on the Institutes and the Chapters but also on Andy, who had dedicated five years of hard work to save enough money to attend the School of Construction and Economic Management.

We shared the years of study and heartbreak, the projects that fell through and the lost commissions. We spoke of the struggle for integrity and the fight against prejudice.

■ Craftsmanship and industry

Our story had to portray the architect, the quantity surveyor and the builder in all their facets: the suave diplomat who skilfully managed his client's wife, who, though she knew little about architecture, was clear about her preferences; the relentless sleuth who had uncovered clues in the Case of the Smoking Chimney; the temperamental artist who had

discarded crumpled sheets of butter paper in the elusive quest for design perfection; and the harried mathematician who had grappled with the perplexing processes of penultimate certifications.

As a complete story, we needed to learn about the men and women who dedicated years to studying issues such as timber disease, paint discolouration and shear forces in steel. We also highlighted the men who had extracted clay and fire bricks, those who had sold sandpaper and ceiling boards, the craftsmen who had created windows and the blacksmiths who had forged steel. Additionally, we recognised the drivers of lorries and the operators of cranes.

We needed to spend an 8-hour day with the mechanic at his bench and the clerk in his office. We also spent the entire day with the estate agent, addressing the building's very foundation and the site itself. To make our story complete, we gained a deeper understanding of people and their emotions.

We recognised the profound joy of creation that had inspired those in the built environment. We appreciated the pleasures of ownership to fully grasp the intense thrill that a potential homeowner had felt when the first sod was turned.

■ Conclusion: Action and accomplishment

We distinguished between the housewarming party, which represented possession, and the roof-wetting ceremony, which signified action and accomplishment. To fully recount the story of Johannesburg's development, it was essential to share both narratives (Herbert 1952, p. 23).

Appendix 1: Heads of the School

■ Harry Bell-John (1929–1942)

- *Qualifications:* MC, FSI, LRIBA
- *Position:* Professor of Quantity Surveying (Pret); Part-time Lecturer in Quantity Surveying, Department of Architecture and Quantity Surveying
- *Tenure:* 1929–1942

Born in Wales in 1874, Harry Bell-John trained as an engineer. Bell-John completed his articles in Cardiff with a firm of architects and quantity surveyors (Qs), qualifying as a professional associate of the Surveyors' Institute. In 1902, upon the recommendation of Sir Aston Webb, he relocated to South Africa to take up a position as a quantity surveyor (QS) in the Public Works Department.

Bell-John actively served during First World War (WWI), primarily in East Africa, and was awarded the Military Cross in 1917. Later that year, he was recalled to South Africa and appointed District Engineer in Johannesburg. In 1925, he was elected as a Licentiate member of the Royal Institute of British Architects (RIBA), and in 1927, he was promoted to Chief Engineer in the Public Works Department.

Bell-John retired from public service in 1929. That same year, in response to a request from the Central Council of the Institute of South African Architects (ISAA) and the South African Chapter of Quantity Surveyors, the Transvaal University College in Pretoria established a Department of Architecture and Quantity Surveying within its Faculty of Science.

Bell-John was appointed part-time Professor of Architecture and Quantity Surveying in this new department. The University of Pretoria (UP) established a dedicated Chair of Architecture only in 1943, the year following Bell-John's death (*ArteFacts* n.d.a).

■ Geoffrey Eastcott Pearse (1921–1947)

- *Qualifications:* ARIBA Hon D Arch (Wits)
- *Position:* Professor and Head of the Department of Architecture
- *Tenure:* 1921–1947

How to cite: Smit-Stachowski, A, Laryea, S & Mphuti, B 2025, 'Appendix 1: Heads of the School', in S Laryea, A Smit-Stachowski & B Mphuti, *Making a mark: Wits School of Construction Economics and Management and its contribution to the construction and property fields*, ITUTA Books, Cape Town, pp. 149–156. <https://doi.org/10.4102/aosis.2025.BK544.AP1>

Geoffrey Eastcott Pearse was born in South Africa and trained as an architect in Johannesburg and London. Pearse was elected an Associate of RIBA in 1912. After gaining professional experience with Sir Herbert Baker, he established his own architectural practice in Johannesburg.

During WWI (1914-1918), Pearse served with the Royal Engineers in Mesopotamia before resuming his practice upon returning to South Africa. In 1921, he was appointed to the newly established Chair of Architecture at Wits.

Pearse made significant contributions to the architectural profession through his service on the Transvaal Provincial Committee and, over many years, on the Central Council of the ISAA. A strong advocate for reform, he supported the development of improved national town planning codes and worked tirelessly for the recognition of younger architects by both government and private institutions.

As an architectural historian, Pearse played a pivotal role in fostering a rigorous and respectful understanding of significant historical epochs in architecture among his students. His most renowned scholarly contribution is his seminal work, *Eighteenth century architecture in South Africa*, published in 1934 (AA Balkema, Cape Town). This landmark publication provided a definitive study of a key aspect of South African architectural heritage and established a benchmark for scholarly precision. As noted in the *South African Architectural Record* (April 1942, p. 100), Pearse's work 'set at the same time a standard of scholarly accuracy, which must always remain a guide to those who would follow with similar works'.

■ Stanley Furner (1931-1932)

- *Qualifications:* ARIBA
- *Position:* Senior Lecturer, Department of Architecture; Acting Head of the Department of Architecture
- *Tenure:* 1925-1928; 1931-1932

Stanley Furner was appointed as a full-time senior lecturer in 1925, a fitting choice given his aptitude for teaching and broad cultural interests. Furner's appointment coincided with the School's relocation from the Tin Temple to the Wits campus at Milner Park.

That same year, part of the new Central Block was completed and formally opened by the Prince of Wales (Prince Edward, later King Edward VIII and subsequently the Duke of Windsor). The School was housed in the

Science Block, a structure characterised by a Tuscan colonnade across its northern façade, located to the northeast of the Central Block.

Furner played a pivotal role in elevating the academic standards and cultural tone of the School. He resigned in 1928 to enter private practice in Johannesburg. However, when Professor Pearse was awarded a Carnegie Grant in 1931, Furner was appointed Acting Head of the Department of Architecture for the duration of Pearse's absence (Bryer 1977, p. 7, 12).

■ John Fassler (1948–1967)

- *Qualifications:* BArch, ARIBA, AMTPI, MSITP (Wits)
- *Position:* Lecturer, Department of Architecture; Senior Lecturer, Department of Architecture; Professor of Architecture and Head of the Department of Architecture
- *Tenure:* 1933–1943; 1944–1947; 1948–1967

In 1933, John Fassler joined the staff of the School as an assistant lecturer. Following the retirement of Professor Pearse from the Chair of Architecture in 1947, Fassler, his protégé, was appointed Head of the School of Architecture and Quantity Surveying in 1948 (Bryer 1977, p. 12, 17).

In 1959, the Faculty of Architecture and the Department of Fine Arts relocated to a new building on campus, designed by Professor Fassler in collaboration with WD Howie, Gilbert Herbert, Morgenstern, Shunn and Ugo Tomaselli (see Appendix 4 for a 1939 student drawing by Tomaselli), all of whom were staff members of the Department of Architecture. This structure was the first completed as part of the University's post-war building programme. Known as the John Moffat Building, it honoured Mr John Abram Moffat, a Johannesburg architect who died in 1941 and bequeathed £100,000 to the University. The bequest was payable 15 years after his death, with the stipulation that it be used for a purpose such as a building (Bryer 1977, p. 19).

In 1960, RIBA awarded Fassler its Distinction in Town Planning, recognising his contributions to town planning education and training in South Africa.

In 1971, Fassler resigned from his academic post to focus on the design and construction of the new Senate House, serving as the University's architect for this significant project. His untimely death in 1971 was a profound loss to the University, tempered only by the fact that he had completed the Senate House design prior to his passing (Bryer 1977, p. 19).

■ Doug Calderwood (1966–1974, 1979–1982)

- *Qualifications:* ARIBA, MSAITRP, MSAIB, FRSA
- *Position:* Part-time Lecturer, Department of Town and Regional Planning; Professor, Department of Building Science; Head of the Department of Building Science
- *Tenure:* 1964–1966; 1966–1982; 1966–1974

Born in 1919 in Johannesburg, Doug Calderwood was the son of DY Calderwood, a mine manager. Calderwood studied architecture at Wits and later received a foreign student scholarship to attend Massachusetts Institute of Technology (MIT) in Massachusetts, United States of America (USA).

Upon returning to South Africa, Calderwood was appointed Chief Research Officer at the National Building Research Institute (NBRI) of the Council for Scientific and Industrial Research (CSIR), where he was subsequently promoted to Head of the Architectural Division. His thesis, published in 1953 with support from the CSIR, focused on implementing the post-WWII township building programme of the 1948 Nationalist government in a cost-effective manner.

In his role at the CSIR, a state-funded organisation tasked with addressing what was termed the ‘native housing problem’, Calderwood was responsible for formulating national standards for state-subsidised housing. These standards, designed to reduce costs, were widely adopted by the government and housing authorities and replicated on a mass scale throughout South Africa for three decades, beginning in the 1950s.

Calderwood also served as President of the Transvaal Provincial Institute of Architects. In 1967, while at the NBRI, he was invited to lead the newly introduced Building Science course. He emphasised industrial organisation and management, drawing on techniques from his father’s background in mine management. Calderwood passed away in 2009 (*ArteFacts* n.d.b).

■ TJ Olivier (1974–1976)

- *Qualifications:* BArch; MArch (Wits) MSAIB, MISAA
- *Position:* Part-time Lecturer, Department of Architecture; Lecturer, Department of Architecture; Senior Lecturer, Department of Building Science; J C Bitcon Professor of Building, Department of Building Science; Acting Head of the Department of Building Science; Head of the Department of Building Science
- *Tenure:* 1967; 1968–1969; 1970–1972; 1973; 1974–1975; 1976–1983

TJ Olivier and Prof. Calderwood were, according to Bryer (1977, p. 26), key driving forces in the development of the Department of Building from its inception. Recognising that building is inherently a multidisciplinary endeavour, they assembled a diverse academic team comprising graduates in Architecture, Quantity Surveying, Physics, Civil and Structural Engineering and Business Administration. This multidisciplinary foundation reflected their commitment to fostering a holistic approach to building education.

They actively encouraged students, staff and members of the building industry to engage in advancing higher education in the field. As Head of the Department, Prof. Olivier introduced the concept of 'housemanship', a model that integrated practical training into the academic programme. He believed that:

[7]he nature of building dictates that education, if it is to be meaningful, should have a practical component so that theory may be tested and its limitations understood in a live situation. (Bryer 1977, p. 32)

■ Ronnie Schloss (1983–2002)

- *Qualifications:* BSc QS (Wits); MCQS, ARICS, RQS, MSAIB
- *Position:* Lecturer, Department of Building Science; Senior Lecturer, Department of Building Science; Head of the Department of Building Science and Quantity Surveying
- *Tenure:* 1971–1973; 1974–1982; 1983–2002

After completing a BSc in QS at Wits, Ronnie Schloss joined the Department of Building Science as a lecturer in the early 1970s. In both 1974 and 1975, groups of students led by Building Science lecturers HG Irwig and Schloss undertook study visits to the UK and the Netherlands to examine and report on modern methods of building (Bryer 1977).

Schloss was promoted to senior lecturer in 1974. During this time, he also began developing a parallel career in professional football, ultimately leading to his appointment as Chief Organisational Officer (COO) of the Professional Soccer League.

From 1983 to 2002, Schloss served as Head of Building Science and Quantity Surveying. During his tenure, he introduced a property course and a part-time postgraduate course in construction (Smit-Stachowski, A 2023, *Interviews with Schloss*, Unpublished in-person interview, 15 September).

■ Elizabeth Pienaar (2003–2008)

Elizabeth Pienaar graduated from UP in 1979 as a QS. Pienaar later completed a Master of Business Administration (MBA) and a Doctor of Business Administration (DBA), focusing her doctoral research on the

intersection of construction and business. At the age of 28, she was appointed as a director at Basil Read, a listed construction company, becoming one of the first female directors in the sector.

In the 1980s, Pienaar was invited to lecture part-time at Wits in the evenings, a role she balanced with her professional practice. In 2002, she was conferred a professorship and appointed as Head of the School, serving in this leadership role until 2008 (Mphuti, B & Smit-Stachowski, A 2024, *Interview with Pienaar*, Unpublished in-person interview, 21 February).

■ Francois Viruly (2008–2009)

Property economist François Viruly had over 25 years of experience analysing the South African property market prior to his role as Acting Head of School of Construction Economics and Management (SCEM) at Wits. Viruly previously served as Chief Economist at the Chamber of Mines and as Head of Research at consulting company, JHI Professional Services, specialising in valuations, research and legal services. Additionally, he held the position of Acting Head of the School at Wits.

Viruly lectured in Urban Economics, Property Development and Portfolio Management at the University of Cape Town (UCT) within the SCEM. He is the Director of Viruly Consulting (Pty) Limited, a Fellow of the Royal Institution of Chartered Surveyors (RICS) and previously served on the RICS Marketing Advisory Panel for sub-Saharan Africa.

Viruly is the immediate past president and executive director of the African Real Estate Society and chairs the UCT Senate Ethics in Research Committee. He also leads the UCT-Nedbank Urban Real Estate Research Unit and is a member of the Institute of Directors in Southern Africa. Viruly's research has extensively focused on the South African property cycle, the key drivers of the national property market, and the intersection of urban economics and real estate markets in sub-Saharan Africa. He also serves as a non-executive director of the Accelerate Property Fund (Western Cape Property Development Forum 2019).

■ Beatrys Lacquet (2009)

Beatrys Lacquet was appointed Deputy Vice-Chancellor at Wits in November 2013, overseeing infrastructure, services, maintenance, information technology, security and the Wits libraries. Before this role, Lacquet served as Dean of the Faculty of Engineering and the Built Environment (FEBE) for six years, making history as the first woman to hold the position of dean in an engineering faculty at a South African university. In 2003, she was appointed to the prestigious De Beers Chair of Electronics in the School of Electrical and Information Engineering (Zidepa 2015).

■ Mitchell Gohnert (2009–2010)

Mitchell Gohnert earned his BSc in Civil Engineering from Brigham Young University in Utah, USA, in 1985. Gohnert subsequently completed an MA in Engineering Management in 1987 and obtained his PhD in Structural Engineering from Wits in 1995. He has served as Acting Head of the School while also holding the position of Head of the School of Civil and Environmental Engineering. As a professor of Structural Engineering, he has published extensively in academic literature, with recent work focusing on shell structures in engineering (Gohnert 2010).

■ David Root (2011–2020)

David Root is a professor of Construction Management (CM) who served as Head of the SCEM from 2011 to 2020. Root continues to contribute to the School through teaching, supervision and research.

Before 2011, Root was an associate professor and, prior to that, a senior lecturer in the Department of Construction Economics and Management at UCT, where he began his academic career in 2003. Originally trained as a building surveyor, Root worked in both private practice and various public and private sector client organisations in the UK before transitioning to academia.

Root holds an Honours degree in Building Surveying from the University of Salford, as well as MSc and PhD degrees in CM from the University of Bath. His postdoctoral research was conducted at Loughborough University's Department of Civil and Building Engineering, focusing on design management and supply chain management in collaboration with organisations such as the International Association for Measurement and Evaluation of Communication (AMEC) and their supply chain partners.

Root is a chartered builder and chartered surveyor and he is registered with the SACPCMP as a Construction Project Manager in South Africa (Smit-Stachowski, A 2023, *Interview with Root*, Unpublished in-person interview, 08 August).

■ Samuel Laryea (2021 until now)

Samuel Laryea is a full professor and the current Head of the SCEM at Wits, a position he has held since 2021. Laryea joined the School in 2012 as a senior lecturer, having previously lectured at the University of Reading in the UK, where he also completed his PhD in CM and a Postgraduate Certificate in Academic Practice.

From 2013 to 2017, Laryea served as Postgraduate Coordinator for Research Degrees (PhD and Master's by Research) and from 2017 to 2021 for the MSc (Building) Project Management in Construction Programme. He was promoted to Associate Professor in 2013 and became a Full Professor in 2021 through the *ad hominem* process.

Notably, Laryea is the first black African to be appointed as Full Professor and Head of the School in the history of the SCEM.

Laryea is also the co-founder and Chair of the West Africa Built Environment Research (WABER) Conference, a rated researcher by the National Research Foundation (NRF) and a fellow of the Higher Education Academy. Additionally, he is a chartered builder, chartered surveyor and registered construction project manager with the South African Council for Project and Construction Management Professions (SACPCMP) (Laryea 2023).

Appendix 2: Lecturer list

Appendix 2 presents an alphabetical list of all academics who have served as educators in the School and the Faculty since the inception of the former School of Architecture and Quantity Surveying, now known as the SCEM. We wish to convey our profound gratitude to these esteemed individuals for their commitment and invaluable contributions to the education and development of graduates who continue to serve our nation.

Table A2.1 lists the lecturers who have taught students throughout the years.

TABLE A2.1: List of lecturers at the School.

Name	Qualification(s) (Q) and role(s) (R)	Year(s)
Adewunmi, YA	Q: BSc (Est Man) Obafemi Awolowo University, Nigeria; MSc (Est Man) Obafemi Awolowo University, Nigeria; PhD University of Lagos, Nigeria R: Associate Professor	2014
Akinsomi, O	Q: Dip (Arch. Techn) Federal Polytechnic; BSc Hons (Real Est. Man.) Oxford Brookes; Cert. Mktng CIOM; MSc (Real Est.); PhD (Real Est) NUS PMI R: Associate Professor	2014
Allan, JT	Q: BSc Eng. (Glasg); MSc Eng. (Wits); A MIEE R: Honorary Lecturer in Electrical Illumination, Dept. of Architecture	1940-1941
Anderson, PR	Q: BSc (Wits); AMICE, MSAITRP, MTPI R: Part-time Lecturer, Dept. of Town and Regional Planning	1964-1973
Armstrong, FW	Q: ARCA R: Professor of Fine Arts Part-time Lecturer, Dept. of Architecture	1930-1932
Azasu, S	Q: BSc Hons (Econ. with Stats), Ghana; MSc (Env. Eng. & Sust. Infra.); MSc (Real Estate & Con. Man.); PhD (Real Estate Management) Royal Institute of Technology KTH R: Associate Professor	2012-2022
Babatunde, O	Q: BSc Hons & MSc (Architecture) OAU, Nigeria; MSc & PhD (Project Management) NUS; PGDip Ed. (Higher Education) with Distinction Wits; CPM (SPM Singapore); CIPM & FAAPM (AAPM, USA) R: Senior Lecturer	2013-2022
Beinart, J	Q: BArch (CT); MArch (MIT); MCP (Yale) ARIBA R: Senior Lecturer, Dept. of Architecture	1959-1964
Bell, GF	Q: BA (Wits); TTHED R: Part-time Lecturer, Dept. of Architecture	1972-1975

Table A.2.1 continues on the next page→

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TABLE A2.1 (cont.): List of lecturers at the School.

Name	Qualification(s) (Q) and role(s) (R)	Year(s)
Bell-John, H	Q: MC FSI LRIBA R: Professor of Quantity Surveying (Pret) Part-time Lecturer in Quantity Surveying, Dept. of Architecture and Quantity Surveying	1929-1942
Benedikt, ML	Q: BArch (Wits) R: Part-time Lecturer, Dept. of Architecture	1972-1974
Bihl, JF	Q: BSc QS (Wit); ARICS, MAQS R: Part-time Lecturer, Depts. of Architecture and Quantity Surveying	1967-1972
Birkhead, EG	Q: BSc QS (Wits); MAQS R: Part-time Lecturer, Dept. of Quantity Surveying	1973
Booden, BG	Q: BSc QS (Wits); MBA Land Econ (Br Col); RQS ARICS MAQS R: Part-time Lecturer, Dept. of Quantity Surveying Senior Lecturer, Dept. of Quantity Surveying	1972-1974 1975
Boden, RT	Q: BArch Dipl TP (Wits); MISAA R: Part-time Lecturer, Dept. of Town and Regional Planning Lecturer, Dept. of Town and Regional Planning	1974 1975
Brink, ABA	Q: BSc (Pret) R: Honorary Lecturer, Dept. of Town and Regional Planning	1967-1970
Britsius, O	Q: BA Hons (Wits); FCIS, FR, Econ S R: Part-time Lecturer, Dept. of Town and Regional Planning	1960-1962
Britz, BJ	Q: BArch (Pret) R: Part-time Lecturer, Dept. of Architecture	1974-1975
Bruce, RA	Q: Dipl Arch (Wits); MISAA R: Part-time Lecturer, Dept. of Architecture	1929-1930
Buffler, SJ	Q: BArch (Wits); MISAA R: Part-time Lecturer, Dept. of Architecture	1976
Bullard, RK	Q: ARICS, MRIS, FRGS R: Part-time Lecturer, Dept. of Quantity Surveying	1970
Burde, CD	Q: BArch (Wits); MArch; MCP (Penn); ARIBA AA Cert P & UD (Lond); MSAITRP AIP(Associate) R: Senior Lecturer, Dept. of Town and Regional Planning	1975
Calderwood, DM	Q: BArch; MArch; D Arch; Dipl TP (Wits); ARIBA, MSAITRP, MSAIB, FRSA R: Part-time Lecturer, Dept. of Town and Regional Planning Professor of Building Science, Dept. of Building Science Head of Dept. of Building Science	1964-1966 1966 1966-1974
Canes, RM	Q: BArch (Wits) R: Part-time Lecturer, Dept. of Architecture	1974-1975
Castleton, JWS	Q: FSI, MCQS R: Senior Lecturer, Dept. of Architecture and Quantity Surveying	1946-1958
Clarke, AD	Q: BSc Hons (Lond); AMICE, AMI, Mech E R: Honorary Lecturer in Theory of Structures and Sanitation and Hygiene, Dept. of Architecture and Quantity Surveying	1932-1944
Cochran, JM	Q: BSc QS (Wits); ARICS, RQS, MAQS R: Part-time Lecturer, Dept. of Architecture and Quantity Surveying Lecturer, Dept. of Architecture and Quantity Surveying	1968 1969
Cockhead, PJ	Q: BS Econ (Lond) R: Lecturer, Dept. of Town and Regional Planning	1970-1971
Cohen, LJ	Q: BSc Eng. (Wits); MSAIB R: Honorary Professor of Building	1976

Table A.2.1 continues on the next page→

TABLE A2.1 (cont.): List of lecturers at the School.

Name	Qualification(s) (Q) and role(s) (R)	Year(s)
Cohen, M	Q: BSc Hons R: Honorary Lecturer, Dept. of Town and Regional Planning	1967-1970
Cooke, CJ	Q: BArch Dipl TP (Wits) R: Lecturer, Dept. of Architecture	1974-1975
Coulson, MH	Q: BA; BCom R: Part-time Lecturer, Dept. of Town and Regional Planning	1967-1970
Cowen, JP	Q: BArch (Wits); ARIBA, MISAA R: Part-time Lecturer, Dept. of Architecture	1961
Czitanich, M	Q: BSc Eng.; MBA (Wits) R: Part-time Lecturer, Dept. of Building Science	1973-1974
Dalgleis, J	Q: BSc R: Part-time Lecturer, Dept. of Town and Regional Planning	1967-1969
Davey, AJ	Q: BSc Bldg. (Wits) R: Part-time Lecturer, Dept. of Building Science	1974-1976
Davis, PT	Q: BSc (S Illinois); MSc (Illinois) R: Part-time Lecturer, Dept. of Town and Regional Planning	1967-1970
De Gruchy, GF	Q: Dipl Arch (Wits) R: Lecturer, Department of Architecture	1958-1960
De Swardt, WPD	Q: BSc; LS Dipl TP R: Part-time Lecturer, Dept. of Town and Regional Planning	1969-1972
De Vries Robbé, C	Q: BSc Eng.; Dipl Arch (Wits); ARIBA, MISAA R: Part-time Lecturer, Dept. of Architecture	1969-1970
Dlamini, S	Q: ND (Arch. Tech.), Technikon Northern Transvaal PGD (Int. Con. Man.); MSc (Int. Con. Man.), Bath; PhD (Con. Man.), Reading R: Senior Lecturer	2016
Doherty, AC	Q: BArch (Wits); MISAA R: Part-time Lecturer, Dept. of Architecture	1972-1974
Draper, BG	Q: BSc Hons (Natal) AIA R: Lecturer, Dept. of Quantity Surveying	1974-1975
Du Plessis, LP	Q: BA Fine Arts (Wits) R: Part-time Lecturer, Dept. of Architecture	1973-1975
Ehlers Diana, M	Q: BA (Wits); MURP (CT); MSAITRP R: Lecturer, Dept. of Town and Regional Planning	1974
Faccio, RL	Q: BSc TRP (Wits); MRTPI, MITRP R: Lecturer, Dept. of Town and Regional Planning	1973-1974
Fair, TJD	Q: MA (SA); Ph D (Natal); FSAGS R: Professor, Dept. of Geography and Environmental Studies Director of Urban and Regional Research Unit Honorary Lecturer, Dept. of Town and Regional Planning	1960-1966 1975
Farrer, RG	Q: BSc Hons; MSc (Natal); PhD (Wits); MSAIP, AM Illum, ES FILESA R: Lecturer, Dept. of Building Science	1972
Fassler, J	Q: BArch (Wits); ARIBA, AMTPI, MSITP R: Lecturer, Dept. of Architecture Senior Lecturer, Dept. of Architecture Professor of Architecture and Head of Dept. of Architecture	1933-1943 1944-1947 1948-1967
Frieslich, JG	Q: BSc Eng. (Wits) R: Honorary Lecturer in Surveying, Dept. of Architecture and Quantity Surveying	1944-1947
Furner, AS	Q: ARIBA R: Senior Lecturer, Dept. of Architecture Acting Head of Dept. of Architecture	1925-1928 1931-1932

Table A.2.1 continues on the next page→

TABLE A2.1 (cont.): List of lecturers at the School.

Name	Qualification(s) (Q) and role(s) (R)	Year(s)
Gardiner, KEF	Q: ARIBA R: Part-time Lecturer, Dept. of Architecture	1930-1932
Golden, JM	Q: SAIMechE R: Part-time Lecturer, Dept. of Architecture	1970-1974
Goldsmith, A	Q: BA (CGH); BSc Eng. (Wits) R: Honorary Lecturer in Electrical Illumination, Dept. of Architecture	1941-1945
Guedes, Ad'AM	Q: BArch (Wits); MISAA R: Professor of Architecture and Head of Dept. of Architecture	1975
Hales, S	Q: Dipl QS (Wits); MAQS R: Part-time Lecturer, Dept. of Architecture and Quantity Surveying	1969
Heher, J	Q: BA LI B (Natal) R: Part-time Lecturer, Dept. of Town and Regional Planning	1970-1973
Henderson, RD	Q: BArch (Wits); ARIBA R: Part-time Lecturer, Dept. of Architecture	1973-1974
Hendrikz, WdeS	Lecturer in Fine Arts, Dept. of Architecture	1936-1945
Herbert, G	Q: BArch; MArch; Dipl TP (Wits); D Litt et Phil (Pret); FRIBA, FRAIA, MRAPI R: Lecturer, Dept. of Architecture	1947-1960
Hoole, HJ	Q: BSc QS (Wits); RQS, MAQS R: Lecturer, Dept. of Quantity Surveying	1971
Howie, WD	Q: BArch Dipl TP (Wits); ARIBA Lecturer, Dept. of Architecture R: Senior Lecturer, Dept. of Architecture Professor of Architecture and Head of Dept. of Architecture	1936-1948 1949-1968 1969-1973
Ijasan, K	Q: BSc Hons (Est. Man), FUTA; MSc (Real Est and Dev), Greenwich; PhD, Salford R: Associate Professor	2014
Irwig, HG	Q: BArch (Wits) R: Lecturer, Dept. of Building Science	1970
Israelite, C	Q: BSc Bldg. (Wits); MSAIB R: Junior Lecturer, Dept. of Building Science Part-time Lecturer, Dept. of Building Science	1973-1974 1975
Jackson, RI	Q: BSc Eng.; MSc (Wits); AMIWPC, AMSAICE R: Part-time Lecturer, Dept. of Town and Regional Planning	1967-1973
Jackson, SP	Q: MA; DIC; PhD (Lond); Hon LI D (Wits) R: Honorary Lecturer, Dept. of Town and Regional Planning	1960-1967
Jay, G	Q: BCom Witwatersrand; BCom (Hons), Unisa; LLB, Unisa; PGDip (Prop. Dev & Management); MSc (Building), Witwatersrand R: Lecturer (60% appointment)	1995
Jennings, JEB	Q: BSc Eng. (Wits); SM Civil Eng. (MIT); MICE, MASCE, MSAICE R: Honorary Lecturer, Dept. of Town and Regional Planning	1967-1970
John, GW	Q: Dipl QS (Wits); MAQS R: Senior Lecturer, Dept. of Architecture and Quantity Surveying Associate Professor and Head of Dept. of Quantity Surveying Associate Professor, Dept. of Quantity Surveying	1967-1969 1970-1973 1974
Jordan, RJP	Q: BA; LI B (Dublin), R: Part-time Lecturer, Dept. of Town and Regional Planning R: Honorary Lecturer, Dept. of Town and Regional Planning	1960-1963 1964-1970
Kabolin, J	Q: BArch; Dipl TP (Wits); MSAITRP, DM Cost MCRP (CT) R: Part-time Lecturer, Dept. of Town and Regional Planning	1975

Table A.2.1 continues on the next page→

TABLE A2.1 (cont.): List of lecturers at the School.

Name	Qualification(s) (Q) and role(s) (R)	Year(s)
Khatleli, N	Q: BSc (Hons); (Quantity Surveying) Salford; MSc (Property Studies); PhD (Con Man) UCT R: Associate Professor	2014
Laryea, S	Q: BSc (Hons); PGCAP (Reading); PhD (Con. Man) Reading; MRICS, MCIOB, MA, SAQS, MSCLA, Pr.CPM FHEA R: Professor and Head of School	2012
Lauf, GB	Q: BSc Eng.; DSc Eng. (Wits); FRICA L (SA) R: Honorary Lecturer in Surveying, Dept. of Architecture and Quantity Surveying	1942-1943
Lazenby, M	Q: BArch (Wits); MISAA R: Junior Lecturer, Dept. of Architecture	1974
Lea, JP	Q: MA (Cantab); Dipl TP (Poly); PhD (Wits); MRTPI, MSAITRP R: Lecturer, Dept. of Town and Regional Planning Senior Lecturer, Dept. of Town and Regional Planning	1969 1970-1976
Lennard, MD	Q: BArch (Wits); ARIBA, MSIAA R: Lecturer, Dept. of Architecture Part-time Lecturer, Dept. of Architecture	1961-1965 1970
Leonard, J	Q: ARCA (Lond) R: Lecturer in Fine Arts, Dept. of Architecture	1941-1944
Liber, CMA	Q: Dipl Arch; ARIBA R: Part-time Lecturer, Dept. of Architecture	1972-1973
Lloyd, DAB	Cert QS (Natal); ARICS, MIQRS R: Part-time Lecturer, Dept. of Quantity Surveying	1970-1972
Lloyd, JT	Q: ARIBA R: Senior Lecturer, Dept. of Architecture	1929-1931
Lofts, NR	Q: BSc Elec Eng. (Alta); MSc (Lond); DIC R: Lecturer, Dept. of Quantity Surveying	1972-1973
Long, MK	Q: BA Fine Arts (SA) R: Lecturer in Fine Arts, Dept. of Architecture Honorary Lecturer in Fine Arts, Dept. of Architecture	1947-1950 1951-1963
Mallows, EWN	Q: MA (Cantab); AA Dipl SP Dipl (Lond); MSAITRP, MTPI, FRIBA R: Senior Lecturer, Dept. of Architecture Professor and Head of Dept. of Town and Regional Planning Part-time Lecturer, Dept. of Town and Regional Planning	1957-1964 1965-1969 1970-1972
Marcus, M	Q: AMICE R: Honorary Lecturer in Theory of Structures, Dept. of Architecture	1949-1950
Margoles, S	Q: Dipl Arch (Wits); MISAA R: Part-time Lecturer, Dept. of Architecture	1959-1960
Marsh, HM	Q: BSc Surveying (CT); L (SA) AMTPI R: Part-time Lecturer, Dept. of Town and Regional Planning	1960-1962 1964-1970
Martienssen, HM	Q: BArch BA Hons; MArch (Wits); PhD (Lond) R: Professor of Fine Arts Temporary Junior Lecturer, Dept. of Architecture Honorary Lecturer, Dept. of Architecture	1941-1943 1944-1967
Martienssen, RD	Q: BArch; MArch DLit (Wits) R: Lecturer, Dept. of Architecture	1931-1942
Maseko, L	Q: BSc (QS), Witwatersrand; MSc (Proj Man) Greenwich PrQS R: Lecturer	2016
Mason, W	Q: BA Hons (Strath); MSc (Edin); C Eng. R: Lecturer, Dept. of Town & Regional Planning	1976
Matshidze, L	Q: BSc (QS), NMMU; MSc (Con Man); Northumbria, PrQS R: Lecturer (60% appointment)	2016

Table A.2.1 continues on the next page→

TABLE A2.1 (cont.): List of lecturers at the School.

Name	Qualification(s) (Q) and role(s) (R)	Year(s)
McCormick, HC	Q: BA Fine Arts (Wits) R: Part-time Lecturer in Fine Arts, Dept. of Architecture	1973-1974
McKechnie, WA	Q: Dipl QS FSI R: Part-time Lecturer, Dept. of Architecture and Quantity Surveying	1939-1946
Meyer, OH	Q: Dipl Ing (Berlin) R: Part-time Lecturer, Dept. of Town and Regional Planning	1961-1964
Midgley, DC	Q: BSc Eng.; PhD (Natal); MICE, MASCE, MSAICE R: Professor of Engineering Honorary Lecturer, Dept. of Town and Regional Planning	1967-1970
Milford, RB	Q: BScQS (Wits); MAQS R: Part-time Lecturer, Dept. of Architecture and Quantity Surveying	1948-1965
Moir, A	Q: Pr ng MI Mech E; MSAI Mech E; MIHVE R: Part-time Lecturer, Dept. of Building Science	1974-1975
Mompoti, L	Q: BSc (Con Man); MSc (PD & M) Wits R: Lecturer	2017
Morgenstern, J	Q: BArch Dipl TP (Wits); ARIBA, AMTPI, MSAITRP R: Lecturer, Dept. of Architecture	1950-1956
Mpofu, B	Q: BSc (Hons) (Rural and Urban Planning), Zimbabwe; MSc (International Finance), Westminster; PhD (Man Studies), St Andrews R: Senior Lecturer	2015-2022
Muller, JG	Q: BArch Dipl TP (Wits); MA (Princeton); ARIBA R: Lecturer, Dept. of Town & Regional Planning Senior Lecturer, Dept. of Town and Regional Planning	1967-1969 1970-1972
Natas, D	Q: BArch (Wits) R: Part-time Lecturer, Dept. of Architecture	1970-1971
Naudé, SV	Q: BArch (CT) ARIBA R: Lecturer, Dept. of Architecture	1967-1970
Moloi, N	Q: ND (Real Estate), CPUT; BEd. (Econ and Man Sci) Wits; PGD (PD & M); MSc (PD & M) Wits R: Lecturer	2017
Ndlovu, P	Q: ND (Building), Johannesburg; BTech (QS) TUT; BSc Hons (Technology Management), Pretoria; MSc (Building), Witwatersrand R: Lecturer;	2017
Nelson, JP	Part-time Lecturer, Dept. of Architecture	1927
Norton, MCE	Q: BArch MSc (Penn); ARIBA, AMTPI R: Part-time Lecturer, Dept. of Town and Regional Planning	1969-1971
Oakenfull, LJ	Q: BSc R: Part-time Lecturer, Dept. of Town and Regional Planning	1970-1971
O'Brien, TM	Q: RTC R: Part-time Lecturer, Depts. of Building Science and Quantity Surveying	1969-1974
Olivier, TJ	Q: BArch; MArch (Wits); MSAIB, MISAA R: Part-time Lecturer, Dept. of Architecture Lecturer, Dept. of Architecture Senior Lecturer, Dept. of Building Science JC Bitcon Professor of Building, Dept. of Building Science Acting Head of Dept. of Building Science Head of Dept. of Building Science	1967 1968-1969 1970-1972 1973 1974-1975 1976

Table A.2.1 continues on the next page→

TABLE A2.1 (cont.): List of lecturers at the School.

Name	Qualification(s) (Q) and role(s) (R)	Year(s)
Ozumba, AOU	Q: BSc (Hons) (Architecture) Nigeria; MSc (Architecture) Nigeria; PG Cert in (Practical Project Mgt); PhD (Con.Man.); NMMU Cert (Bldg. Performance Analysis); BPAC AutoDesk, ICIOB, Pr.CM., Sfp R: Associate Professor	2009–2022
Parsons, RWK	Q: BCom; BA Hons (CT) R: Part-time Lecturer, Dept. of Town and Regional Planning	1962–1967
Patricios, N	Q: BArch (Wits); Dipl T and CP (Manc); PhD (Lond); FRTPI, MSAITRP R: Lecturer, Dept. of Town and Regional Planning Senior Lecturer, Dept. of Town and Regional Planning Professor and Head of Dept. of Town and Regional Planning	1970 1971–1973 1974
Patterson, R	Q: MIA R: Part-time Lecturer, Dept. of Architecture	1973–1974
Pearse, GE	Q: ARIBA Hon D Arch (Wits) R: Professor and Head of Dept. of Architecture	1921–1947
Pelunsky, A	Q: BSc Eng. (Wits); PrEng. MSAIEE R: Part-time Lecturer, Dept. of Building Science	1974–1975
Piazza, PJ	Q: Spec Qual Exam (Wits) R: Lecturer, Dept. of Architecture	1969–1975
Pike, ARM	Q: BA LI B (CT) R: Part-time Lecturer, Dept. of Town and Regional Planning	1976
Pilcher, D	Q: MArch (Wits); ARIBA R: Temporary Lecturer, Dept. of Architecture	1947–1949
Pincus, EM	Q: Dipl Arch (Wits); MISAA R: Lecturer, Dept. of Architecture	1961
Pinfeld, HC	Q: Cert Arch (CT); MIA R: Temporary Lecturer, Dept. of Architecture Lecturer, Dept. of Architecture	1948–1954 1955–1958
Prentice, JRTC	Q: BSc QS (Pret); RQS, MAQS, ARICS, MRSH AI Arb R: Part-time Lecturer, Dept. of Architecture	1973–1975
Price-Hughes, G	Q: BArch (Pret); ARIBA R: Part-time Lecturer, Dept. of Architecture	1967–1970
Prins, HMJ	Q: BArch (Wits); ARIBA, MISAA R: Part-time Lecturer, Dept. of Architecture Senior Lecturer, Dept. of Architecture	1967 1969 1970
Quail, GP	Q: Dipl QS (Wits); FRICS FI Arb; RQS MAQS R: Part-time Lecturer, Dept. of Architecture Part-time Lecturer, Dept. of Quantity Surveying Honorary Professor of Quantity Surveying	1973–1974 1975–1976 1977
Rathouse, SA	Q: BArch (Wits); ARIBA R: Part-time Lecturer, Dept. of Architecture	1970–1971
Ramantswana, T	Q: BSc MSc (Town and Regional Planning), Witwatersrand; PhD (Real Estate), Witwatersrand R: Senior Lecturer	2014
Rowiel, RF	Q: MSc Eng; Dipl Ing (Berlin) R: Part-time Lecturer, Dept. of Quantity Surveying	1970–1971
Rich, BRP	Q: BArch (Wits); MISAA R: Part-time Lecturer, Dept. of Architecture Lecturer, Dept. of Architecture	1975 1976
Rippon, RV	Q: Dipl Arch (CT); ARIBA R: Part-time Lecturer, Dept. of Architecture	1967–1970 1972, 1974, 1976

Table A.2.1 continues on the next page→

TABLE A2.1 (cont.): List of lecturers at the School.

Name	Qualification(s) (Q) and role(s) (R)	Year(s)
Robertson, SC	Q: BSc Eng. (Wits); MSAICE R: Part-time Lecturer, Dept. of Town and Regional Planning	1960–1970
Roome, KPS	Q: BA; LI B Dipl PA R: Part-time Lecturer, Dept. of Town and Regional Planning	1967–1968
Root, DS	Q: BSc (Hons) (Building Surveying), Salford; MSc (Con.Man.); PhD (Con. Man); Bath MRICS, FCIQB Pr.CPM R: Faculty Member	2011
Rosmarin, JR	Q: BSc TRP (Wits); MITRP R: Part-time Lecturer, Dept. of Town and Regional Planning	1974
Rudzinske, P	Q: BSc (Building), Witwatersrand; MSc (Eng.), Witwatersrand	1995
Saghatforoush, E	Q: BSc (Civil Eng.), Tehran; MSc (Con Proj Man) University Putra Malaysia; PhD (Con Proj Man); QUT R: Associate Professor	2016
Saitowitz, S	R: Junior Lecturer, Dept. of Architecture	1974–1975
Sandrock, K	Q: BSc (SA); BSc Hons (RAU) R: Part-time Lecturer, Dept. of Town and Regional Planning	1976
Schirmacher, HJ	Q: Spec Qual Exam (Wits); BArch (Pratt Inst NY) R: Part-time Lecturer, Dept. of Architecture	1971–1972
Schlopobersky, I	Q: BArch (Wits); MArch MCP (Penn); ARIBA, MSAITRP R: Part-time Lecturer, Dept. of Architecture Honorary Professor, Dept. of Architecture	1968 1969–1975
Schloss, RI	Q: BSc QS (Wits); MCQS, ARICS, RQS, MSAIB R: Lecturer, Dept. of Building Science Senior Lecturer, Dept. of Building Science Associate Professor and Head of School	1971–1973 1974–1981 1982–2002
Scholes, MK	Q: BArch (Wits) R: Lecturer, Dept. of Architecture	1971–1972
Schroen, D	Q: BSc Mech Eng. (Natal); MBA (CT) R: Part-time Lecturer, Dept. of Building Science	1974
Schwartz, HI	Q: BSc Eng.; PhD DIC; AMICE, AMSAICE R: Part-time Lecturer, Dept. of Town and Regional Planning	1968
Sebehela, T	Q: BCom and MSc (Building) Wits; MSc (Finance), Frankfurt; PhD (Finance), Reading; PgDipE Wits R: Senior Lecturer	2015–present
Seagull, J	Q: BSc Eng.; MBA (Wits) R: Lecturer, Dept. of Building Science	1976
Seid, C	Q: BSc Bldg. (Wits) R: Part-time Lecturer, Dept. of Building Science	1974–1975
Shunn, J	Q: BArch Dipl, TP (Wits); RIBA, MISAA R: Lecturer, Dept. of Architecture Senior Lecturer, Dept. of Architecture Associate Professor, Dept. of Architecture	1946–1965 1966–1970 1971
Silberman, L	Q: BSc Econ (Lond); FRSS Nat Eng. Dipl R: Honorary Lecturer in Architectural Sociology, Dept. of Architecture	1943–1946
Simbanegavi, P	Q: BSc (Hons) (Economics), Zimbabwe; BCom (Hons) (Financial Analysis & Portfolio Management), Cape Town; MSc (Real Estate Management), KTH R: Senior Lecturer	2014–present
Sinclair, CM	Q: BArch (Wits); ARIBA, MIA R: Part-time Lecturer in Professional Practice, Dept. of Architecture	1967–1973

Table A.2.1 continues on the next page→

TABLE A2.1 (cont.): List of lecturers at the School.

Name	Qualification(s) (Q) and role(s) (R)	Year(s)
Skudder, RTC	Q: BSc QS (Wits); ARICS R: Part-time Lecturer, Dept. of Architecture and Quantity Surveying	1968-1970
Smit, NP	Q: BSc Eng. (CT); AMIEE, AM (SA) R: Part-time Lecturer, Dept. of Architecture	1952-1970
Snell, JH	Q: BSc Eng. (Wits); AMICE, AMI, Munic Eng. R: Part-time Lecturer, Dept. of Town and Regional Planning	1960-1972
Spence, E ('Betty') M	Q: BArch (Wits) R: Lecturer, Dept. of Architecture	1945-1958
Spies, SW	Q: BArch (Wits) R: Part-time Lecturer, Dept. of Architecture	1974
Spooner, TW	Q: A Dipl (Lond); ARIBA R: Lecturer, Dept. of Architecture	1971
Squire, R	Q: MA (Cantab) R: Part-time Lecturer, Dept. of Town and Regional Planning	1967-1972
Stewart, AG	Q: BArch (Wits); ARIBA, MIA R: Temporary Lecturer, Dept. Of Architecture	1946-1948
Strickland-Cholmley, GJ	Q: Dipl QS (Wits); MAQS R: Part-time Lecturer, Dept. of Quantity Surveying	1974
Suchard, HT	Q: BA (Wits); BA Hons (SA) R: Part-time Lecturer, Dept. of Town and Regional Planning	1976
Summerley, HG	Q: BArch Dipl TP (Wits); ARIBA, MISAA, AMPTI, MSAITRP R: Part-time Lecturer, Depts. of Architecture and Building Science	1974-1975
Swardt, WRP	Q: BSc LS; Dipl TP, MITRP R: Part-time Lecturer, Dept. of Town and Regional Planning	1971-1972
Taylor, RB	Q: BSc Eng. (Natal); Dipl TP (Wits); Pr Eng. MSAITRP, MRTPI R: Part-time Lecturer, Dept. of Town and Regional Planning	1975
Terblanche, R	Q: BSc (QS); BSc (Hons) (QS); MSc (QS) UFS; PhD (Wits), PrQS R: Lecturer	2017-2023
Tindale, DF	Q: BArch (CT); MISAA R: Lecturer, Dept. of Architecture	1971
Tomaselli, U	Q: BArch (Wits); ARIBA, MISAA R: Temporary Lecturer, Dept. of Architecture Lecturer, Dept. of Architecture	1946-1949 1950
Unterhalter, B	Q: BASoc Work; MA; PhD (Wits); Dipl Comm, Org RSW R: Honorary Lecturer, Dept. of Town and Regional Planning	1960-1967
Van Eyssen, W	Q: BSc QS (Pret); ARICS, MAQS R: Part-time Lecturer, Dept. of Architecture and Quantity Surveying	1964-1969
Van Heerden, W	Q: Dipl Arch (CT); MSAIPE R: Part-time Lecturer, Dept. of Building Science Honorary Lecturer, Dept. of Building Science	1972-1973 1974
Veale, HT	Q: Dipl in Law (cum laude) R: Part-time Lecturer, Dept. of Town and Regional Planning	1968-1969
Venn, OC	Q: FRICS, MAQS R: Part-time Lecturer, Dept. of Architecture and Quantity Surveying	1958-1966
Verster, J	Q: BA Dipl TP (Wits) R: Lecturer, Dept. of Town and Regional Planning	1971
Viljoen, CJ	Q: Dipl TP AMTPI R: Part-time Lecturer, Dept. of Town and Regional Planning	1969-1970

Table A.2.1 continues on the next page→

TABLE A2.1 (cont.): List of lecturers at the School.

Name	Qualification(s) (Q) and role(s) (R)	Year(s)
Vloothuis, B	Q: Cert Arch (Wits) R: Part-time Lecturer, Dept. of Architecture	1970-1973
Von Broembsen, ML	Q: BArch; MSc Arch (Illinois Inst Tech) R: Lecturer, Dept. of Architecture Part-time Lecturer, Dept. of Building Science	1967 1971-1973
Walker, C	Q: BSc QS (Wits); Dipl QS (Pret); FRICS, MAQS, RQS R: Part-time Lecturer, Dept. of Architecture and Quantity Surveying Honorary Professor, Dept. of Quantity Surveying Professor and Head of Dept. of Quantity Surveying	1958-1965 1970-1973 1974
Walker, D	Q: Dipl QS (Wits); ARICA, MAQS, RQS R: Part-time Lecturer, Dept. of Quantity Surveying	1973-1975
Wallace, WC	Q: BSc Eng (Wits); AM (SA); IEE R: Part-time Lecturer, Dept. of Architecture	1970-1972
Warren, RHW	Q: BSc; TRP, MSAITRP R: Part-time Lecturer, Dept. of Town and Regional Planning	1975-1976
Watt, IB	Q: BSc Eng. L(SA); BSc Phot Eng. (ICT) R: Honorary Lecturer, Dept. of Town and Regional Planning	1967-1970
Webb, M	Q: BCom MBA (CT) R: Part-time Lecturer, Dept. of Building Science	1971-1973
Williams, HS	Q: BSc Eng.; MSc (ICT); FRICS (SA) R: Honorary Lecturer, Dept. of Town and Regional Planning Senior Lecturer, Dept. of Town and Regional Planning	1967-1969 1970-1971
Woolley, JC	Q: BArch (Natal); MArch (Wits); MISAA R: Lecturer, Dept. of Building Science Senior Lecturer, Dept. of Building Science	1971-1973 1974
Wozniak, K	Q: Dipl Cart Eng. (Berlin) R: Part-time Lecturer, Dept. of Town and Regional Planning	1974-1975
Zungu, Z	Q: BSc (QSS); BSc Honours (QS); MSc (PMC) Wits R: Lecturer	2018
Zwane, S	Q: BSc (Physiology & Biochem); BSc (CS); BSc Hons (QS); MSc (PD & M) Wits R: Lecturer	2018

Source: Wits Archives and current staff records (Bryer 1977, pp. 39-51).

Key: BSc Building/CS, Bachelor of Science in Building/Construction Studies; BSc CM Hons, Bachelor of Science (Honours) in Construction Management; BSc PS Hons, Bachelor of Science (Honours) in Property Science; BSc PS, Bachelor of Science in Property Science; BSc QS Hons, Bachelor of Science (Honours) in Quantity Surveying; BSc QS, Bachelor of Science in Quantity Surveying; Dip PDM, Diploma in Project Development and Management; Dip QS, Diploma in Quantity Surveying; MSc CEM, Master of Science in Construction Engineering and Management; MSc BE, Master of Science in Built Environment; MSc FEBE, Master of Science in Faculty/Department of the Built Environment; PhD CEM, Doctor of Philosophy in Construction Economics & Management; PhD FEBE, Doctor of Philosophy in the Faculty/Department of the Built Environment.

Appendix 3: In their own words

■ Friedrich (Fred) Bihl (1959)

'I was employed by Borckenhagen and Louw as a student during my part-time years of study, and for a further two years as a professional assistant after qualifying.

The Sharpeville massacre occurred in 1960, and the building industry, in particular, suffered a major downturn. In 1961, I was offered and accepted a quantity surveyor (QS) position in Aden, a British Protectorate in the Middle East, by a multidisciplinary practice (architects, engineers and QSs) who had been appointed by the British Air Ministry to design military bases in Aden, Bahrain and Sharjah. Forty thousand troops were stationed in Aden alone!

The appointment was for a period of two years and commenced at the beginning of 1962. This was cut short by six months as the United Kingdom (UK), under pressure from the Yemen, decided to grant Aden its independence and return it to the Yemenis, closing its military bases in Aden as well as in Bahrain and Sharjah.

In any event, the UK had decided, a short time before independence, to purchase Polaris missiles from the United States of America (USA) – fired from submarines, so the air force in Aden closed down, rendering the magnificent Vulcan bombers, Valiants, Victors and Hawker Hunter fighter planes obsolete in the Middle East.

My wife and I returned to South Africa in July 1963, and I rejoined Borckenhagen and Louw as a professional assistant for two years and then entered into private practice from 1965 to 1987, finally becoming joint senior partner in 1971 in the practice of Southby, Bihl, Detert and Slade (SBDS).

During my time in practice, I specialised in complex structures, commercial and corporate projects, amongst which were the Hillbrow and Pretoria microwave towers, new milling complexes for Tiger Oats throughout the country, including the head office for Premier Milling in Killarney, 11 Diagonal Street, and the new JCI head office in Johannesburg.

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SBDS handled the QS services for clients – such as Anglo American Property Services (Ampros), The Schlesinger Organisation (Townsvie Estates), Anglo Alpha Limited, Buchner Holdings, the Dept. of Community Development and the Union Lime Company Limited. SBDS expanded to five branch offices with their head office in Johannesburg.

In 1987, I was invited to join Ampros as an executive director on their Board with specific responsibility for the Design and Development division, which was responsible for the development and project management of commercial and corporate buildings for Amaprop [part of Ampros] and other group companies. I was also appointed Deputy Managing Director to Gerald Leissner, the MD of Ampros, in 1993.

I retired from Ampros in 2002, when I turned 65 years of age. After retirement, I started a small consulting practice – Fred Bihl Property Services – finally retiring in 2017, aged 80. I consulted to ApexHi Properties, Redefine and Broll on property management issues specialising in building valuations and the insurance thereof.

I also assisted in opening a property management office in Ghana for Broll, and lectured part-time for UP in property management subjects under the auspices of The Broll Academy.

The biggest change in the world of construction in my lifetime is the impact of continuing advances in technology, in particular the development and use of PCs and computers in general.

Insofar as the future of the construction industry is concerned, I believe that AI will develop into a major source of inputs in design, property economics and management, and in construction.

Based on my own experience (I am now 86 years old with 62 years of active involvement in the property industry), I would recommend a career in QS, as it offers opportunities in becoming a registered practising professional (PrQS), or becoming part of a construction company as a QS, specialising in tendering (contract conditions, pricing, preparation and negotiation of contract claims, contract administration and preparation of progress payment claims).

One can specialise in construction management, project management, property development and property management. A career could result in one specialising in consulting work such as property valuations (replacement cost, for building insurance purposes and market valuations) and in arbitrations/mediations in the settlement of contractual claims, and joining the academic world and lecturing at technikons or universities’.

■ Professor Ronnie Schloss (1968)

[Phone rings, during an interview at the Professional Soccer League (PSL), where Professor Schloss is the Chief Operations Officer. *Hello? Hello, Prof.? Is this for Bloemfontein? It's Mandla! It's the FIFA checklist, I'll send this afternoon. Thank you so much, Prof.!*]

How does a typical day in Schloss's life begin?

'I get up normally at 06:00. I have three dogs, I used to jog when I was younger. Then I come into the office, but it depends – quite often I go to the airport or catch the Gautrain to the airport'.

Has the architecture of Johannesburg changed a lot in your lifetime?

'Massively! It's a big city and has about five or six million people. The North has developed the most. Midrand is part of Joburg, so it's stretched from the railway line, which divides the city. The South went backwards in a lot of ways, except the far South. The sad thing, in my opinion, is to see how parts of the city have deteriorated – it's a great shame'.

Do you believe we can rejuvenate the old buildings, or do you think they should be razed to the ground so we build new ones?

'No, I think it is a waste of money, unless the building is in a really poor condition. I think we could keep what we got, you also need to look at your heritage – there's some lovely buildings in Joburg and they've each got a story to tell. My favourite is the Post Office in town'.

[Phone rings. Hello? *Hi Prof.? It's Andre from Athlone Stadium, we just want to have a chat? I hear you are enquiring about a letter from us for a permit ...* (Schloss) From a safety point of view, there's a number of items that are very limited. If the council doesn't want games, they must say so ... Two stadiums being used as stadiums, one as a rugby stadium and the other ... Suites are not compliant ... How do we resolve the situation between now and Sunday? We're carrying a public liability for R1.5 billion, I have to sign it off and the City has to sign it off. If we don't have the certificate, we have a problem ... We have to have full capacity... *Okay, I'll address it to the ED*]

How do you think we can teach youth who have no university education?

'I think (former Education Minister) Kader Asmal in some ways destroyed our education system, because the technical colleges are now gone.

Who trained the foreman on site? A foreman doesn't have to go to university but he needs certain exposure to certain courses: he would have exposure to a bit of quantities, he would have exposure to a bit of plant. What training is there today just to train a simple bricklayer?

I think we got carried away with graduates – if we look at European models, specifically Germany, you have five technicians for one university graduate. A lot of youngsters don't want to go into construction, they don't want to get their hands dirty.

I think it's essential that we need to start training people in the trades, and then you become an apprentice electrician, and you work to get hands-on experience on the site, and go in the afternoons or evenings (which used to happen), for courses, and the next stage would be to go to, what in those days used to be, technical colleges.

The man in the street doesn't realise what the risks are – if you take someone who isn't trained, for instance, in gas installation.'

How do you see the way forward for construction in South Africa?

'I think we're a developing country. The future is great. We've got so much to do, such as upgrading our infrastructure, maintenance of the infrastructure and providing for people who never had anything. We have a very high birth rate, but we've got to provide facilities – whether it's hospitals or prisons, or whatever it is.

We've got problems – water – power stations – more sewage plants to prevent sewage into rivers and there's the additional costs that we incur.

I was in Soweto today – there's so much to do, we don't have a train service. Now that there are no trains running, the costs to come to work have rocketed. We have to look at doing maintenance on infrastructure – we're allowing infrastructure to deteriorate and the cost consequences are huge. The big word here is maintenance, maintenance.'

On meeting Nelson Mandela: 'First time I was invited to dinner at his official residence in Pretoria with a few of the soccer people. He had done his homework. He knew I was working at Wits and said, "I never played at Wits!"

In 2006, Schloss took time from the university to train with FIFA in Germany for the World Cup® to be held in South Africa in 2010, 'I worked on the stadiums for the World Cup, as project manager in Germany. My favourite is FNB Stadium – by that time, I had left the university.'

Why apply at the SCEM for a career?

'It's exciting, you see a legacy unfold, it's a monument and doesn't matter if you just coloured-in the drawing ... People in construction are much more relaxed, rough and ready'.

■ Aziz Tayob (1969)

How do you see the world of construction, building and property in South Africa currently?

‘Without meaning to sound too negative, professionals and especially the role of architects is not always fully appreciated. Building properly is critical for our country. To come up with a good building requires a full professional service that tries to understand the clients’ needs and steer that to realisation.

Many architects, willingly or unwillingly, pass on their responsibility to developers or contractors. This sees corners being cut, that not only short changes the clients, but also has a negative impact on the built environment.’

■ Mark Osborne (1970)

Why did you choose this as a career?

‘In my year at the Navy, when considering suitable career choices, I was leaning towards QS, which I was familiar with through my father’s involvement in the building industry.

I heard about a course that had just recently started at Wits, and I lived in Johannesburg. I had a look at the syllabus, which interested me and I applied and was accepted. As I was on an LTA [historic South African construction and engineering group] bursary while studying, I had to work for LTA for four years, and I ended up working for them for nine.’

What projects did you work on that you can say, ‘I did that’?

‘Firstly, it is important to note that all jobs I was involved in were always as a member of a team and not entirely my own. When new to the industry, I was very proud of working on the Ermelo Civic Centre with LTA, which at the time seemed like an enormous project.

Then, in my painting and decorating days, with a company called Décor, and later my own decorating company called Dreamcoat, we did all these great buildings in the city centre in the 1980s, when the city centre was in its heyday of development. We also did all the Southern Sun, Sun International Hotels and City Lodges.

Having sold Dreamcoat, I then went into the fixed seating industry, and we were a major player in stadium seats in Africa. In addition, we put seats into most universities and various civic centres, large churches, cinemas and theatres.

Since then and currently I am involved in property development. It's industrial properties and I can't help but enjoy still being part of the building process and industry – my daughter is an architect, she designs them, and my son-in-law built a whole lot of them.'

What did you learn in your building course that you have applied in your career or that gave you the extra edge?

'Every single subject that was part of our curriculum became totally relevant in my working career. They taught you the intricacies of building – to the point that you even spent time at technical colleges and training schools for artisans, learning skills like plastering, bricklaying and carpentry.

The value of networking with fellow students, academically, socially and on the sports fields, cannot be underestimated either.

In my Dreamcoat days, I was very involved with the Master Builders Association (MBA), and I was very involved with BIFSA (Building Industries Federation of South Africa), and BIFSA had training schools all over the country, where they trained up artisans. Currently, we don't have that, which is sadly very detrimental to the industry.

Franco Frescura was a good friend of ours, studying architecture. He was responsible for cartoons in the Wits student newspaper, which was a University publication. The cartoons were always of a political nature. He produced one complete satirical issue of the newspaper on his own. The powers that be found this completely anti-government and decided to arrest him and charge him under the *Suppression of Communism Act*. He was rusticated by the University due to pressure from the government. He was also sentenced to nine months in jail, which was suspended for three years.

Another obviously significant Wits memory is that it was here that I met my wife-to-be. She came to Wits to complete her studies. I married Susan, a Wits BA graduate, and we had four children, and later a guardian daughter joined our family. My daughter is an architect from Wits, and my three sons are all accountants. My guardian daughter is doing her Master's at Wits. My architect daughter is 47, went to Wits in the 90s and runs her own architectural practice in Johannesburg.

I said to all my kids, each and every one of them, when trying to give them parental guidance and vocational advice, "If you find your passion, follow it with your heart – that will lead to happiness and success and finances won't be relevant. So if you want to sell ice-creams on the street or be a lawyer, or be a game ranger or a teacher – if you have a passion for it, follow it because that will bring you peace of mind and contentment in your life." So that was my advice, but I qualified it by saying, "However, if you do not have a passion, if you don't know what you want to do, every

single business in this world needs an accountant!” Born two years apart, all my three sons decided to become accountants, doing their articles for major auditing practices.’

■ Ronald George Smith (1972)

BSc (Building), Witwatersrand, 1972 ('Scientiae Baccalaurei in Artem Aedificandi MCMVXXII'); MSc, Wits 2019

‘I’ll start this view of the early days of the Building courses at Wits with something even earlier: the ancient Egyptians. Carved in stone on the walls of a temple (Kom Ombo, I think) are the requirements for the knowledge of an Egyptian builder. Mathematics, law, building construction, surveying and, surprisingly, music. (It took me years to find out that “music” probably meant “harmony” in the sense of aesthetics).

Professor Calderwood was a very eminent Wits alumnus; a full Doctor of Architecture in Architectural Engineering, who had headed up one of the country’s leading research institutes. (He always called the university “Wits”, as in “*brain*”, not “*Vits*” as did the rest of us). The course he gave, called Production Planning and Design, was in fact a management course. The content was excellent (much later in my career, I had the opportunity to attend lectures for a few days at the Harvard Business School. The course content was the same as what he had given us). After listening to Prof. Calderwood, we neophyte builders felt we could take on anything!

Here I must interject something about the word “building”. The name of the course has altered to and fro over the years: Building Science, Construction Management, and Construction Economics and Management, each tending to move away from the basic concept of the word “building”.

But “building” is a good word. You build up confidence, you build trust, you build on solid foundations. We, at that time, called ourselves just “builders”. (Again, much later, when I was running my own company, I was asked by a senior accountant what my academic qualifications were. “BSc Building,” I said. “Isn’t that overkill?”, he remarked.)

One can tell more about the people involved in the early Wits Building course: Rod Wilkinson, who blew up the Koeberg nuclear power station for the ANC; Jim Henrey and Sean Flannigan who eventually ran major international construction companies. There were many more.

As Frank Wright, one of the earliest Wits Building graduates, said at Prof. Calderwood’s 90th birthday party given to him by people who had been involved with him in the Building course: “It was as if all the tribal chieftains were returning to report on the success of their doings to their old king.” The king was, of course, Professor Doug Calderwood’.

Life after Wits

‘After graduating, I joined LTA, then one of the big construction companies, specialising in industrialised building using heavy pre-cast concrete elements. My knowledge proved useful when I later joined a professional QS firm (on a trip to the USA, I was welcomed to the New York World Trade Centre, then under construction. Even then, flaws in the design were apparent).

Later, for 34 years, I ran a wonderful company, Guncrete (now defunct) that did specialised mining geotechnical, civil engineering work, mostly involving sprayed concrete. Doug Calderwood had said of long experience: “Was it 40 years of experience, or was it the same year repeated many times?” Not so, in my case. Each year was a novel experience. My Building grounding was invaluable.

At the present, construction in South Africa is sadly gutted. Most of the specialists have taken their experience overseas. The big construction companies with whom I worked are shadows of their former selves. But that might be about to change. Racial discrimination is a crime against humanity. Once we get rid of that, the sky’s the limit.’ (Smith 2023)

■ Franco Frescura (1979)

BArch; MArch cum laude (1981); PhD (1981)

‘For as long as I can remember, I have always wanted to draw, to design buildings and to build things. At an early age, I was given an Italian Lego set, which I could use to build all sorts of fanciful structures, mostly with arches and columns, and by shaking their base, I was able to duplicate earthquakes of biblical proportions.

This allowed me to reduce my models to handsome ruins, which I could then “excavate”. At the time we lived in Rome and were surrounded by all sorts of antique buildings and partial buildings, so it is no accident that the built environment played an important role upon my early education. I can remember vividly making the Baths of Caracalla and the Roman Forum my personal playground, something I did regularly thanks to my mother, who took us on field trips at every possible opportunity. Twenty-five years later, I rediscovered my memories of the antique in the work of Piranese, reportedly “the best architect in Rome who never built a single building”. Today, I believe that had I remained in Italy I may still have ended up as an architect, but with a strong preference for the historical built environment.

Despite its liberal pretensions, the Faculty of Architecture did not encourage debate upon the role of a designer in a democratic society, and

as I later found out, its Dean was an expert in the design of segregated urban landscapes, and his batman during the war was now his faculty secretary and ran a network of Security Police informers on campus. When this was discovered, thanks to a penitent recidivist, the University would (or could) not fire the man, and instead put him in charge of *Room Bookings*. Later on, his position was redefined as *The Man in charge of Campus Parking*.

After two years, I had also realised that I was surrounded mainly by dreary people who would have been much happier in the Faculty of Accountancy, and I began to suspect that life as an architect might not be as interesting as I had hoped for. Sadly, I now know this to be true, but it took four years working in offices as a student assistant, and then another couple of years after my graduation to realise that my future life as a practising architect would generally consist of short spells of design-based excitement followed by long periods of mindless management boredom.'

Why did I choose Wits?

'Well, it was on my doorstep, all my friends were also studying there, my parents were paying for my tuition fees, and the option of studying overseas never came up. There were also constant objections from my father as to my choice of a career path. He had wanted me to study civil engineering, which he considered to be "manly" and openly disapproved of architecture, which he thought to be effeminate! This was, no doubt, the outcome of his many pre-war years lived under Mussolini! Later on, after I inevitably began to be involved in opposition politics, he used this as an excuse to cut off my funding, and thereafter I had to fend for myself, which I did by working as a freelance commercial artist. But still, I stuck with architecture in the fond belief that I could still become an architect, a different kind of architect, but an architect nonetheless. In those days, we talked a lot about barefoot architects, about community agency, and about building an architecture that was responsive to the needs of a people. We read Paul Oliver, Victor Papanek and Amos Rapoport, visited the Byker Wall in Newcastle, and studiously ignored le Corbusier.'

After the trouble with the apartheid government, were you allowed to graduate?

'Yes, you have to understand that I soon learnt that politics the world over is a very strange animal, and that I had wondered unknowingly into a world which was totally alien to most sensible people. Professional politicians could cut each other's throats in the debating chamber, and still go for a good meal together afterwards. I can narrate many very strange anecdotes on this subject, and, as a result, later on, I found myself being accepted in the weirdest of places. Today, this is a world that still exists.

Do you know that I have recently been awarded the Simon van der Stel Gold Medal for Heritage Conservation? The first winner was Prime Minister Johannes Balthazar Vorster, a Nazi sympathiser during WWII, the second was Punt Jansen, Administrator of the Cape, and somewhere along the line it was also given to Philip Tobias, the doyenne of South African academia who chaired the University Committee that rusticated me from Wits, and who, towards the end of his days, used to pat my cheek and call me “My dear boy!” The *Wits Review* of October 2019 did a whole feature on my work as a student, which you might want to look at, as it has a number of previously unpublished drawings.’

Memories of Wits?

‘I do have one really bad memory of this one man who taught a course in management in the Department of Building Science. At the end of the year I was widely expected by my classmates to get a First, having had a year’s average of 90% but ended up with a 58%. He refused to discuss the matter or to show me my examination paper. I do not recall his name, but I once did a drawing of his face. Please publish it?’

Kindly share a paragraph about your career path with some highlights?

‘When I started my undergraduate career, I was going to be a hot-shot design-based architect. S’ttruth! Then, after second year, and a dismal record of not passing Physics, I decided I needed some practical experience, and having worked in about ten offices over a period of five years, I came to the conclusion that in this country, I was never going to be the architect I had wanted to be.

There have been a few projects along the way, like a (pioneering) home for tetraplegics in Port Elizabeth, a couple of churches in the Transkei, and the campus for the Department of Trade & Industry in Pretoria, but the project I have the fondest memories of is the tarred road I directed from King Williams Town to Keiskammahoek, in the Eastern Cape.’

How do you see the world of construction, building and property in South Africa currently?

‘This is a difficult question as, since the 1990s, the academic teaching of architecture has been shuffled around, to such a degree that today the essence of what is required on an architectural syllabus has been tampered with, to such a degree by any number of different interest groups that it is now a difficult to determine what constitutes an architectural education.

For example, should an architect be a building scientist, or a technician, or an artistic, or a designer? Or perhaps an academically based conservationist concerned with the historical environment, or a social scientist concerned with issues of economic development and social housing? Or even a low-

tech activist concerned with issues of environmental preservation and the size of carbon footprints in the construction process?

These are all areas of different specialisation which, in reality, already exist in the architectural profession and yet receive scant attention in the teaching process. It is true that some universities, such as UCT, do offer a few postgraduate diploma courses, but these are few. In the meantime, other disciplines have slowly and quietly annexing territory which, historically, has been the preserve of individual architects. As a result, archaeologists are now doing historical conservation work, town planning is being done by unqualified bureaucrats, all structural concrete work is the preserve of engineers, and given the development of new building materials, few architects know or understand how to build using new technologies.

In academia, cross-disciplinary research is met with institutionalised suspicion and is thus avoided altogether, and attempts to introduce courses in postgraduate specialisation are usually blocked by obsolete university rules. In Architecture, postgraduates are not exposed to University standard courses in Theory or Research Methodology, the MArch degree is a dressed-up version of the old BArch degree, and postgraduates accepted for a doctoral programme are lacking all the necessary background intellectual tools necessary for a PhD research programme. If anything, they are being set up for failure.

Finally, I believe that the profession of architecture has given way, finally, to the practical demands of the profession as well as its client base for a service-based industry, where artistic talent and social symbolism are usually optional (and expensive) extras.

The process began in the 1970s when Doug Calderwood, Dean of Architecture at Wits, and Dr Pluto Webb, of the NBRI in Pretoria, put forward the idea of a separate discipline they called Building Management, their intention being that a management and technologically-based project leadership would emerge, eventually supplanting the traditional roles of architects, Qs and planners. Although in the long run they failed in their efforts, the traditional roles of architects in the building process has suffered greatly, and may never recover, leaving behind a faculty in academia devoid of any great strength and with many, many weaknesses.

Part of the problem, which needs to be recognised and corrected, is the current theoretical base of architecture. Primary among its many problems is the support given, within academia, to the Modern Movement, a school of thought devoid of basic principles of aesthetics, unwilling to accept the historical and cultural nature of the built environment, and dominated by pseudo-thinkers obsessed with their own mortality and need for

peer-group recognition. As a result, since the early years of the 20th century, the world has been conducting a war against its historical cities, and the genocide of countless built cultures in the Soviet Union, China and other totalitarian regimes must be laid at the door of Modernist Architecture.

Despite the pronouncements of a well-known collaborator with the Nazi regime of his time, less is not more; it is just bloody boring and lacking in talent, and in the blind belief that modern buildings can be anything other than cheap and nasty, modern designers have embraced a lack of character as being somehow a display of democracy.

The fallacies of such an approach are self-evident to all but the most obtuse, and for this, also, the schools of architecture must accept their share of the blame’.

#FeesMustFall

‘The #FeesMustFall movement has allured support. Education is a matter of national patrimony and investment, and any funds spent on a student’s education is rapidly recovered by the national fiscus, if not through the taxation system, then through education and development. BUT! Such a system needs to be met by a “hardass” attitude of attainment on the part of the students. Two strikes and you are out! Besides, there is already a partial system in place at most universities where getting a First gets you a rebate in your fees; top of the class ranking gets you onto the Dean’s list and a full reduction of fees, etc.

Finish your Master’s or your PhD within the stipulated time, and all your fees are written off (I did my MArch in nine months and got a cum laude, whereas Peter Rich took 14 years to do it). Not difficult if you do not “fart” about. When I was Dean of Research in the Arts, I once had 106 postdoc bursaries to award, and I could only fill about 64 of them, for which I was called into the VC’s office to explain myself!’

■ Karl Trusler (1980)

BSc (QS) Honours

‘In my final year, I started working, it was an absolute treat. Halfway through the year, I joined a construction company. One of my largest projects was the Standard Bank Superblock in Simmonds Street, Johannesburg. I started there and stayed, it set me up to do large projects and gain experience in the development of supporting systems.’

‘This was followed by a number of years in a professional practice until I took a career change and spent 23 years in the ministry, before arriving at the Association of South African Quantity Surveyors.

Now I combine my technical skills with my ministry skills – we serve our professional members, we serve the built environment, and society at large.’

How do you see the world of construction, building and property in South Africa currently?

‘Construction in the built environment is undergoing change. Back then, we were familiar with the regular large construction firms; now, many of these companies no longer exist. There is a whole new generation of contractors emerging. The impact of COVID-19, a struggling economy and political uncertainty have all contributed to a reduction in both private sector and public sector infrastructure spending. This, in turn, has accelerated the need for change and adaptability. Like Gordon Donald, the Founder of Liberty Life, said, “Watch for big problems, they disguise big opportunities.”

Similarly, QS has also experienced change. The traditional role of a QS is now enhanced by the inclusion of additional forms of construction contract and procurement strategies. Speed and efficiency supported by technology and sharp business skills are essential to ensuring the delivery of an excellent service, despite the competition for a reasonable portion of the professional fees basket. Smaller practices appear to be giving way to larger practices and multidisciplinary practices with a global footprint.

Quantity surveyors are capable of filling a diversity of roles in property investment, development, management, finance, insurance or valuations, etc., to name a few. Quantity surveyors enjoy a wide range of career options because of their unique skill sets, which are not limited to the built environment only.’

If you were speaking to a youngster wanting to embark on this career – what would you say to recommend it?

‘You’re going to learn and be taught a skill set and be engaged with a discipline that is a platform for a wide variety of options. It does not even have to be in the building environment; it is a business career skill. My career takes me to different countries in the world where I engage with local QSs, cost engineers and construction economists. I am regularly told that South African QSs are held in high regard because we are well-grounded in traditional QS skills, we are good at what we do, we are enterprising, and we are hard workers. South African QSs are in demand and can be found all over the world.

In conclusion, “hats off” to the South African academic institutions that continue to produce world-class QSs. By sticking to the basics and teaching

the traditional skills, graduates are equipped for a great future with plenty of opportunity to upskill and specialise later on in their careers through postgraduate programmes.'

■ Thabo Senyolo (1981)

BSc (QS)

'I am not the type to play the victim, but as an African, applying for admission to Wits in the middle to late 1970s was like trying to clear a minefield. Firstly, it was mandatory that my admission at the university be specially approved by the Minister of Bantu Education.

It is worth noting that switching my preferences from Bachelor of Architecture to Bachelor of Science in Quantity Surveying meant that I became the first African in South Africa to have been admitted in both departments at Wits.

During this period and the one before it, Africans could only aspire to be lawyers, teachers, doctors, policemen, or any other profession that kept them out of the so-called "European-only creative occupations".

I had been taught through the inferior Bantu Education system, which was specifically conceived to spawn obsequious Africans. The case in point was when I was lectured on cross and longitudinal sections. All the while, I was erroneously thinking about the apartheid legal terminology that pertained to the dreaded "Pass Laws"!

■ Linda Raymond Ndlovu (1984)

How did the School change during your time?

'The School has grown so much – it's unbelievable. Remember, back then we had four departments, which were Architecture, Town Planning, Department of Building and Department of Quantity Surveying.

So, the two merged to form the Department of Building and Quantity Surveying. And the other two merged, which was now the Department of Architecture and Town Planning.

And then, as the years went by, the names changed again. First, it was Departments and now, it changed to Schools, which became the School of Construction Economics and Management, and then the other one became Architecture and Building as it is today'.

■ Shoayb Loonat (2000)

PrQS, MRICS, PMAQS, MBL, BSc (QS); BCom

Why did you choose this career path?

‘From a very young age, I exhibited a natural affinity for mathematics and problem-solving. These skills not only fascinated me but also sparked a desire to apply them practically. This profession offered the ideal bridge between mathematical analysis and real-world construction, allowing me to be at the forefront of project economics and collaborate closely with architects and engineers.’

Kindly share a paragraph about your career path with some highlights?

‘In 2000, I commenced my career as a Junior Quantity Surveyor at AIM Quantity Surveyors, followed by a position as an Associate at Venn & Milford Project Services. I gained fundamental experience in cost estimation and cost control. I acquired practical skills through hands-on involvement in various projects, honing my ability to collaborate effectively with project teams.

In 2004, I registered as a Professional Quantity Surveyor and demonstrated a commitment to upholding the highest standards of the profession. By collaborating closely with clients, architects and contractors, I gained a reputation for delivering excellence in service and exceeding project expectations. In 2007, I established and currently lead Enumerate Consulting Quantity Surveyors, overseeing projects spanning multiple industries and fostering lasting relationships.

One of my most significant accomplishments was the opportunity to return to Wits two decades after graduating, but this time as a seasoned business owner entrusted with a pivotal role.

I had the privilege of overseeing the cost management of the new CLM (Commerce Law and Management) Building on the west campus, adjacent to the iconic Tower of Light. This achievement was a testament to both personal and professional growth. It demonstrated that I had not only established myself within the industry but had also earned the trust to contribute to a project of such significance within my alma mater.’

What has been the biggest change in construction in your lifetime?

‘The integration of technology and specialised software has been a transformative change in the field of QS. The introduction of on-screen take-off and specialised software for bill production stands as a defining

moment in the profession. On-screen take-off has streamlined the process of quantity estimation with enhanced accuracy and a reduction in time.

The ability to digitally analyse and measure drawings has not only improved efficiency but also minimised errors, thus contributing to project success.

This shift towards technology has been transformative, allowing Qs to focus more on strategic decision-making, data analysis and collaborative project management.'

How do you see the world of construction, building and property in South Africa currently?

'Despite its significant contribution to the GDP, the construction industry faces complexities that impact its outlook. The challenges we face aren't insurmountable; they are opportunities for innovation and change. From sustainable construction practices to inclusive infrastructure development, the industry has the potential to address unmet needs, foster social upliftment and pave the way for a more equitable future.

I acknowledge the pivotal role our profession plays in ensuring transparency and accountability in public expenditure. As guardians of financial prudence, we have the power to root out corruption and inefficiencies. The construction industry, with its vast scope and potential, has the capacity to drive economic growth, job creation and infrastructure development. It remains a cornerstone of progress, creating opportunities that ripple across various sectors.'

If you were speaking to a youngster wanting to embark on this career – what would you say to recommend it?

'I wholeheartedly recommend the career path to new students who possess a passion for construction and analytical thinking. The field offers a rewarding blend of strategic planning, financial acumen and creative problem-solving.

Quantity surveyors have the power to shape the built environment for the better. This impact extends beyond construction; it reaches communities and individuals who lack infrastructure or homes, creating opportunities for upliftment and empowerment.'

Are you hopeful with new development with BRICS?

'Definitely, the talk of South Africa producing more completed, finished products within the country, will definitely be a benefit – we import a lot in the construction industry, and all of these nations being the developing nations, we can learn from each another. We will benefit, why must we

reinvent certain research from other countries, when other countries have passed that research?’

Do you recommend distance learning for future education?

‘Most South Africans do not have that benefit of coming to a place where accommodation is provided, where there’s structure, where there’s libraries, where there’s internet – because they don’t have those facilities. I’m using the phrase distance learning, but it’s more around part-time and after-hours learning. If you’re an employed individual, at that time, no family, with spare time in the evening, then you can do some additional studies. The other thing of distance learning is that you can watch a video of a lecture two times. And if you didn’t get it the first time, you can get it the second or third time.’

■ Professor Elizabeth Pienaar (2003)

‘When I get back to University, after being a director at Basil Reed – do you know what the guys said to me?

“You sit on your fortune. Use that – you don’t have to be a quantity surveyor.”’

How do you see the world of construction, building and property at the moment?

‘Terrible. [...] Don’t tell me, “Oh, you’re a woman and bla. Don’t treat me any different to a male colleague.” I should receive the same as what a male would – the same remuneration, I don’t want to be treated differently.

When I mark a paper, I don’t look at the name and go, “Oh, the person is female or black.” I mark the paper and at the end of the day, I have to fill out a sheet and put the name. Unfortunately, there’s a lot of pressure not to adhere to that.’

■ Mabuse Moja (2006)

‘After graduating in 2006, my career path took me into property valuation within the banking environment. I pivoted completely and moved into a more financial role within the property space, becoming an investment analyst in Real Estate Investment Trusts (REITs) with an asset management company.

This journey would take me to being a portfolio manager years later. Following my investment career, I would once again pivot into becoming a real estate investor, raising capital to acquire a portfolio of assets to form a fund. I now work in the real estate sector, helping raise capital and structuring of transactions.’

How do you see the world of construction, building and property in South Africa currently?

'In South Africa, real estate still remains largely polarised, and there are parts of the country that compare with cities globally and others where underdevelopment remains poor. This creates a fracture in the economic system, as a country like ours, individual wealth creation is by and large underpinned by real estate. Be that as it may this presents an opportunity for development which supports further building and construction in our country. For the overall property universe, it means there is still scope for further investment which creates a product for capital looking for a home to invest. The sector is now producing the right quality of professionals to aid this future development – thus I remain largely positive on the sector's growth.'

■ Mosha Senyolo (2009, 2018)

The world of quantity surveying has traditionally been white males, what was your experience as a female person of colour quantity surveying student?

'I had the privilege of studying at the Institution at a time when there was a fair amount of equality and integration between the genders and various races. It pleasantly surprised me to see so many females of colour taking up interest in the built environment studies, as this suggested a deliberate effort by the education system as a whole to increase access and opportunities to the majority of the population.'

Having a staff component that included experienced female lecturers and professors also indicated that the shift in embracing females of colour was slowly but surely materialising at all levels.'

Kindly share a paragraph about your career path with some highlights?

'I started off my career in 2010 working for Thabo Senyolo and Partners, a QS practice founded by my dad in 1989. My experience gave me a great foundation of the practicalities of the QS profession and allowed me to apply all the fresh knowledge I had received from Wits.'

It was exciting and challenging at the same time, as I had to make a quick shift from the student mentality to taking ownership and accountability on projects that I was assigned to. This helped develop my experience with diverse clients very quickly, and truly shaped my professional confidence and independent thinking.

After eight years working for my father, I then moved to Turner and Townsend while simultaneously completing my postgraduate studies. I got

in-depth exposure to the commercial world and how our profession has an impact on the day-to-day decisions that big companies make. My QS soft skills were also sharpened during this time, due to the fast-paced environment and various stakeholders that we had to engage on a day-to-day basis.

The biggest highlight of my career to date is my vice presidency with the ASAQs, which is a unique platform to bring more positive contributions in the built environment at a larger scale, which goes beyond my day-to-day work.'

How do you see the world of construction, building and property in South Africa currently?

'As a developing country, South Africa has a lot of untapped opportunities. We are in a privileged position where there are prospects to bridge the gaps between traditional ways of construction and digitalisation of the industry, for sustainable and cost-effective development.

Through research and robust industry stakeholder collaborations (including our global counterparts), coupled with robust government intervention and partnerships, the South African space has an opportunity to reach the untapped markets that will solve a lot of socio-economic challenges not only of the country, but of the wider African context.'

If you were speaking to a youngster wanting to embark on this career – what would you say to recommend it?

'Quantity surveyors play a very important yet fulfilling role, not only in the built environment, but to the society at large. Our decisions have direct and indirect, long-term impacts.

With the ever-evolving world, there is an increasing demand for innovation and collaborations across the globe on how to streamline the construction process and allocate budgets (government expenditure), reduce carbon emissions and improve the quality of life of the society. If they get into the space, understand what to do and how to do it right, it will help solve a majority of the problems that the world is currently facing, which is a legacy that will stand the test of time.'

■ Professor David Root (2011)

Tell us about the SCEM as a School now, versus 60 years ago.

'If you go back 60 years, you were graduating about 25 Honours students a year, as opposed to turning out between 230 and 250. This massification is mirrored across the entire education sector; it applies everywhere.

The intake numbers are sitting with a first-year class of 160 in construction alone, and probably another 60 or 70 in property, and if you go to any of the engineering schools, you'll see a similar size.

I think the difference between us and them is that they have physical limits – in terms of the labs, which they do with their physically-based learning, so you can only take in the number of people that the studio can accommodate.'

Why did you choose this particular sector?

'I was quite interested when I was in school in becoming a surveyor or an engineer. I had no contact with the industry at all. It was just something I fell into. I didn't think my Maths was going to be strong enough to get into engineering, so I went down into Building Surveying, Land Surveying, Estate Management, which is like Property Studies for us here'.

Tell us about your academic path?

'I ended up at Salford University in 1985. They had a good selling point at the career expo in the buildings side, rather than engineering, so I actually stuck with Building Surveying, and did that. It was a good time to graduate; I graduated into a booming industry. I worked in the industry for about ten years. I did a Master's at Bath and that was during a downturn in the industry, so I managed to negotiate a nice redundancy package, which covered my academic fees. The guys who taught me wanted me back and asked if I would be interested in doing a PhD. I said yes, but that was when entering an industry that was pretty dire in the 1990s.

So about two or three years later, I travelled to Hong Kong, where my cousin was living and he was working on the airport there, I took a whole bunch of CVs and stuck them in people's letterbox and got told by one guy in the industry, "You're doing the right thing, just go home – quit your job and come out here, and you'll get a job in no time."

At that point, I was a registered Member of the Royal Institution of Chartered Surveyors (MRICS) and I was professionally qualified and I had a Master's, so I wouldn't have found it particularly difficult to get a job out there.

I came back and there was a letter waiting for me, saying "We've got funding, would you be interested in applying for a job at Bath University and coming back and do your PhD?" So I came back, did that for a few years, went back into industry afterwards, working while I was trying to finish off my PhD, which was actually quite difficult'.

When did you come to South Africa?

'In 2003. I did my PhD, and to finish it, I had to quit industry and move back into academia. I was working as a researcher at Loughborough University, which is a very research-active institute. The way it works at Loughborough is that they want you to stand on your own two feet – it shows you can find funding, and it shows you can supervise students. I got a few offers from UK universities – but I thought maybe I should go abroad, the one that advertised was UCT and I thought I would go here for a couple of years, and I just never left!'

What was it that you like about the industry?

'There's constant problem-solving. You see the physicality of your contribution. It's very visible, in a way that doesn't happen in other industries. And it's very varied.'

Highlights?

'I still remember having discussions 15 years ago, with directors of construction who said, "Why do people need any more than a BTech and a diploma, why would they even need an honours degree for what we need them to do?" Some time ago, you did a PhD because you wanted to become an academic – now increasingly, people are recognising that a PhD provides you with a certain skill set that is as applicable in industry, as it is in academia.'

So in a country like Germany, the CEO of a manufacturing factory is a doctor and has a PhD – there's a change in the contribution that exists outside of academia – it's not just training for academics any longer. There is a change in understanding that is the global knowledge-based economy that is thriving – and that is reflected in the growth in our graduates, the growth in our PhD numbers, the numbers we are graduating now.'

How has the student life changed?

'One of the key things is the cost of failure has risen hugely for students. If you come from a middle-class family and you go in and you bomb out, it's not that big a deal. If you're here on NSFAS and you fail, your funding falls away.'

The thing you've got to bear in mind is the disposable income for a student, it costs ZAR70,000 or ZAR80,000 to do a degree here, and then there's accommodation is probably another ZAR70,000 – or ZAR80,000 – and you could be having more disposable income in the years coming here, than your parents have had in their life, and you get some quite skewed behaviours as a result of that.'

Some people go completely off the rails, and then you get kids who live on absolutely nothing, and give all their money back to their parents. You get a bursary and you're fully funded here, and your quality of life dramatically improves, compared to where you might have come from.

The pressure from your family and black tax is probably the same as the transition in any society when you move from a very poor society to a middle class – I can see that in my own parents. From my father's side, we were the first generation to go to university, and that transition puts huge pressure on you, especially in the absence of good social welfare, which we don't have.'

Where do graduates find employment?

'Graduates who tend not to have jobs are the ones who go home to rural areas, because there's no work there. Construction is an urban phenomenon.

So the bigger cities have big construction industries, Northwest is not going to have much of a construction industry, Mpumalanga is not going to have much of a construction industry, Bushbuck Ridge is not going to have much of a construction industry, and no demand for Qs or engineers. Those who go home are the ones that tend to struggle.

If they stay out here, they tend to get jobs. That's also where the networks exist. The pressure is high but the rewards are there!'

What is the future of education?

'There will be a lot more online. I think the established universities will increase their focus on postgraduate and less undergraduates – we're seeing that transit already here at Wits.

Certainly my attitude has always been, try and position yourselves as the finishing schools for the professions, and if you did your first degree at UFS or Free State or UJ or TUT, we don't mind – come here and we'll finish you off as a finishing school, and position ourselves as a finishing school.

I think the idea of universities all being research active, all producing the same quality of students, which seems to have been pushed by the government for the last 15 or 20 years, is not sustainable.

You need to recognise that you've got a few universities that are not going to be focused on research, but a few that are focused on undergraduate teaching and there will still be research taking place.

The fact is that you can't level up everyone to be on the same level, because the network effects of having high-functioning academics together in one place is actually what generates the research. Not trying to spread it over 25 institutions.'

What is the purpose of research?

‘One would say it is the creation of new knowledge – my attitude is completely different – my attitude is about building human capital. The important thing is the development of the individuals and what they then go on to do.

This is especially true in our industry, in construction, because you see where innovation takes place and it happens on projects, it doesn’t happen in university.

If you can produce people who are very creative, innovative thinkers through research, the activity of research, which is why all undergraduates have to do research, they take that into industry and able to identify problems, they are able to conceptualise answers to these problems – they are the ones that make the difference in the industry. It is not us sitting here – we can capture it, we have a role in capturing and documenting it and disseminating those changes, but the idea that the actual knowledge is created in these walls that actually influences the industry is utter nonsense.

It might be true for biomedical sciences and it might be true in a concrete lab for civil engineering, or it might be true in a physics lab when they’re doing experiments, but for an applied discipline like us, or architecture, or accountancy, or law – the reality is that a lot of the stuff is developed out there, in the physical industry. We are able to document that, capture that, but our core role, as far as I’m concerned, is actually to provide the physical capital to the people out there.

We provide them the opportunity to reflect or come up with an idea to see how they could have done it a little better, but anything I published is not going to change the industry.’

■ Thapelo Tlhapane (2011)

‘Since I got the edge from Wits, my career has been a blessing. The universe has really been on my side. On my completion, I immediately joined a very vibrant company, where the foundation of TT Holdings was founded and nurtured. My biggest highlight is our 10-year milestone at TT Holdings, and the day my previous boss/mentor agreed to mentor me.

I believe one strong aspect of human beings is our ability to adapt to any situation faced with. We made friends where we felt comfortable and could easily relate and communicate, but difficulties of the courses made us unite and try share researches and notes, as much as possible. And through that lifetime friendships where created.’

How do you see the world of construction, building and property in South Africa currently?

‘The economy in general, not just construction, is not in good shape at the moment, due to various reasons. However, we are of the view that it is picking up – and as it does, we should all be ready to play our part.

We have been blessed enough to provide services within various sectors in our 11 years’ existence from mining, commercial, residential and public sectors, and have seen the importance of construction in working towards building the economy and reducing unemployment. To property funders, developers, budget allocators, etc. – the future that we used to talk about growing up is now. Looking forward to seeing an increase in the visibility of cranes! Always remember, success meets preparation.’

■ Nyiko Mathebula (2014)

‘I was an average student during my days at Wits, as long as I passed with 60s, I was okay.’

Kindly share a paragraph about your career path with some highlights?

‘Some of the perks that comes with being a Wits graduate is employability, I secured my first job after graduation as a QS trainee with Worley Parsons RSA, after three years there was unfortunate Section 189 where the company was downscaling and I joined WBHO for additional three years where I got my professional registration with South African Council of Quantity Surveying Professions. For professional growth, I joined Eskom as a senior adviser QS’.

How do you see the world of construction, building and property in South Africa currently?

‘The environment is changing, and has changed for the better.’

■ Associate Professor Ehsan Saghatforoush (2017)

‘I am an Associate Professor and Coordinator for Postgraduate Affairs at the SCEM. I earned my PhD in Project Management from Queensland University of Technology, Brisbane, Australia in 2014, and my background Bachelor’s study is in Civil Engineering.

I have worked in South Africa since 2017, while I went through the journey of being promoted from Senior Lecturer to Associate Professor, in 2020. In parallel, I am a Construction Management Consultant actively involved in

application of Building Information Modelling (BIM) in projects. I am also a senior adviser in the area of Project Integration, ranging from theories to practice. I have also collaborated actively in several industry/research projects adopting BIM, Integrated Project Delivery (IPD), Off-Site Manufacturing (OSM), Automation, and Constructability, Operability and Maintainability Reviews.'

How do you see the world of construction, building and property in South Africa currently?

'South Africa is a fast-growing country with lots of opportunities both for academics and industry practitioners. There is still a high level of mass construction required to be implemented, so that people can have their own homes in future. I can see that the banks are helping with providing home loans, which I strongly believe is helping the construction industry grow quicker, compared to other industries.'

■ Alumni keynote address by Mark Osborne (2023)

Good afternoon to you all.

Firstly, I wish to thank Professor Laryea and Dr Dlamini for asking me to address such a respected audience at this reunion; it really is flattering.

When I was first approached to speak at a reunion, it reminded me of the story of a group of 40-year-olds who were discussing where to have their ten-year reunion. They decided on the Ocean View Restaurant because of the pretty, young waitresses, with their low-cut tops and short skirts.

Ten years later, they once again got together and decided on the Ocean View again, but only because the food was so good, and there was a great wine selection.

Another ten years later, when they were now 60, they needed to decide once again. Finally, they agreed on the Ocean View, because they could eat in peace and quiet, and because of the beautiful view.

At 70, they chose the Ocean View Restaurant on the basis that it had an elevator and was wheelchair friendly. Also, the toilets were close to the tables.

Ten years later, at 80, they once again discussed where to go for dinner. Finally, they agreed to the Ocean View Restaurant, because none of them had ever been there before!

Fortunately, Professor Laryea and Dr Dlamini got hold of me before I reached that threshold, so I can happily share with you some anecdotes

from my times at Wits and experiences in the building industry, and jog all of our memories about some of the interesting things about both this remarkable University and this interesting Faculty and building industry.

All of us already know Wits is this wonderful University which has incredible alumni to show for it. The *Wits Review Magazine* comes out twice a year – see for yourselves.

Mandela, Thuli Mandosela, Mary Malahlela, who in 1948 became the first black woman to qualify from a University in South Africa. She was also South Africa's first African woman to graduate as a doctor. Other business leaders all to be found at Discovery, Liberty, Bidvest, Imperial, Anglo were all at Wits. As well as its impressive alumni and stature as the largest university in South Africa, Wits was always the most liberal and progressive.

The apartheid government hated Wits, and all the students were labelled '*Pienk Liberale*'. The government saw the communists as Red, so this was just one level below. Wits students regularly held protests with placards on Jan Smuts Avenue. They were always bombarded from the other side of the road with tomatoes and eggs from the conservative right-wing government supporters, while the police would only look on.

Occasionally, the police would race across the road and beat any retreating students that they could catch. They would chase them right into the campus. Wits' swimming pool was open to all races, and this was completely against the apartheid government law. They tried to put a stop to this, but Professor Bozzoli opposed this on the grounds that the University was private property and that we could do as we like. Under massive threat by the government, they had to retract their stance and comply with the government's demand.

Interesting characters in those early years were: Peter Hain, whose parents were jailed and banned for campaigning against the racist laws and eventually were forced into exile. In the UK, he became a Member of Parliament and was to become a Baron and is now Lord Peter Hain.

On the other side of the coin, we had a guy called Craig Williamson in our era. Despite his privileged schooling at Johannesburg's finest private school, he turned out to be an apartheid spy and subsequently an assassin. He infiltrated the SRC and kept his master's informed of all the anti-apartheid activities.

Another interesting character who was with us in the Architectural Faculty was Franco Frescura, now a professor, a talented artist and a brilliant cartoonist. He didn't hold back with his anti-government cartoons, so the government took away his passport (for ten years) and put pressure on the University to take measures. They rusticated him, which meant he

was banned from continuing his studies for the rest of the year. He was arrested and sentenced to nine months in jail, which was suspended for three years. Such was the power of the government.

Better memories are that in 1971, Wits had their very own Woodstock. It was called the Free People's Concert and was open to black people and white people. It was one of the only places to have mixed bands and audiences. A place where townships and suburbs came together.

It was in these interesting times that I came to the university in 1968 after a year's compulsory military service in the Navy. I joined about 30 others to study Building Science, which was a brand-new course in the Architectural Faculty. We were the fourth intake ever for this course. The very first intakes were in their fourth and final year, the second only to UP who started the Building Science degree just prior to Wits. They called it Boubestuur.

Our course in Building Science had subjects where we had to attend lectures in other facilities. Law we did with legal students, Accounting with the accounting students, Theory of Structures with the Engineers. The Law and Accounting degrees were for part-time students in those faculties who worked during the day. So, these lectures were at night.

The Architecture Faculty consisted of Town Planning, Architecture, Quantity Surveying and Building Science. We were all collectively known as the architects on campus, as were all our sport teams.

We were housed in the John Moffat Building, which was designed by a former graduate in Architecture, Professor John Fassler, and built in 1959. He also designed the Senate House (now Solomon Mahlangu), the Wits Dental Hospital, The Gate House and the Tennis Shelter. We had wonderful staff and they all enjoyed a fantastic relationship with the students.

The Head of the Faculty was Professor Doug Calderwood, who was ably assisted by Professor Ronnie Schloss. Professor Calderwood was asked to represent South Africa by the Institute of Architecture at an international convention in Sweden on low-cost housing. At the end of the convention, his contribution was of such significance that he was asked to give the closing address at the end of the week by the King of Sweden. He came back to South Africa with some amazing ideas which he assured our government would alleviate the housing shortage for years to come. The government, needless to say, ignored his findings.

Professor Ronnie Schloss, when not lecturing, was the saviour of our PSL. Dare I say, the management there was shambolic, until he took control and organised their finances so as to secure a solid future for soccer South Africa and solvency for the PSL. He also single-handedly put Wits soccer

on the map. Unfortunately, the sponsors decided that they had gained sufficient exposure to the marketplace and eventually withdrew once their contract expired and that was the end of our very own PSL team. We had some players who were worth R30m at the time...

The Architecture Faculty was well respected in the late sixties and early seventies for their sporting prowess, as well as their academics. There was a lot of interfaculty sport and the architects (as we were collectively referred to) competed in them all. On the hockey field, we had a town planner by the name of Steve Jaspan. He later became the captain of the South African team. We also had a few water polo provincial players, one of whom is a QS, Neville Clarence who is still playing senior provincial water polo well into his late seventies.

Rugby was probably the sport that we were best known for. Interfaculty rugby was very popular at the campus. Matches were on Friday nights and there were always masses of spectators. After the game, everyone would jam-pack the Devonshire Hotel in Braamfontein to quench their thirst. The Civil Engineers, Mining Engineers, Arts and Commerce Faculties all had very strong teams, which made for such an interesting and competitive competition. The architects, who were the only faculty to field two teams and reserves, won the interfaculty trophy three times in four years.

Another really happy side of university life was Ragtime. Float building went right through the night, and on the Rag day, Wits magazines were sold on the street by hundreds of students, and the procession of floats went from the campus, all the way to Rosebank, with the drum majorettes marching in the front. My future wife included.

Another highlight of the year was the annual intervarsity rugby match against Tukkies. This was a sell-out game, but Tukkies eventually decided they no longer wanted to play against the anti-government liberals.

You can never underestimate the value that university networking contributed to the various enterprises in our industry, particularly any would-be entrepreneurs. I was never too familiar with the Town Planners and where they finished up after varsity, but I did have contact all my working career with the architects, Qs and builders. Without exceptions and to the very best of my knowledge all the students went on to have successful careers (and in this industry no doubt also very interesting ones). Major QS firms were headed by past Witsies and so too many architectural practices. Almost all of the major construction companies were led by Building Science graduates.

Although there are many of our contemporaries, who ended up heading the large construction companies, one of my personal favourite examples was the late Jimmy Henry a good friend and a Building Science graduate

who became the youngest ever Managing Director (today known as CEO) of one of the largest construction companies in the country, M&R.

The courses we did covered every aspect of construction, and this put the graduates in great demand. Somehow, our professors managed to prepare us for the technical and more soft-skilled side of what the dealings in our industry required, once we were in business.

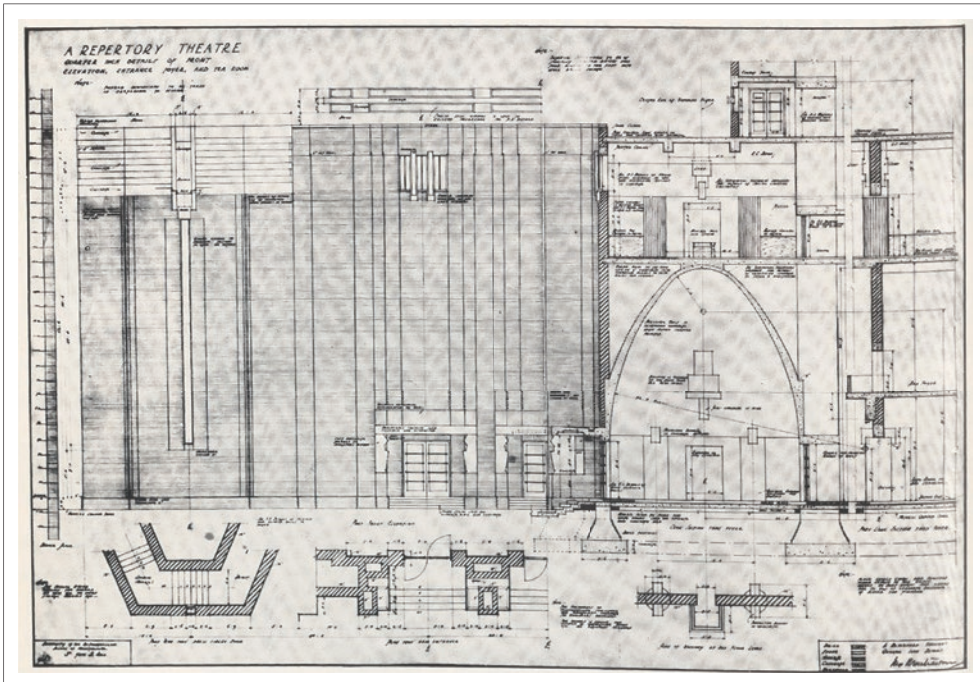
After working for a main contractor for nine years, I chose a career that was in the subcontracting industry, in painting and decorating. This company was called Dreamcoat and employed over 600 painters and artisans. We coated buildings with trowelled or plasticised coatings, did large wallpaper contracts and worked on major buildings, hotels, etc. with our paint crews.

One such job was Sun City, where we were engaged phase-by-phase as it was built. I got a call from Sol Kerzner's secretary, who asked me to meet her boss at 9:00 am on a Sunday morning in the Sun City car park. When I got there, he was waiting for me and looking at the monorail structure, which went from there all the way to the Superbowl. He told me he wanted this painted. I implored him not to paint it and said that it was the finest off-shutter concrete I had ever seen. I spoke at length about the value of leaving the concrete in its natural state. There was silence, then turning his back on me and walking away, he said: 'Paint it white, please'.

Thank you for your attention and for letting me share the memories with you.

Appendix 4: Selected work by students and lecturers

■ Rex Martienssen, fifth-year student (1928)

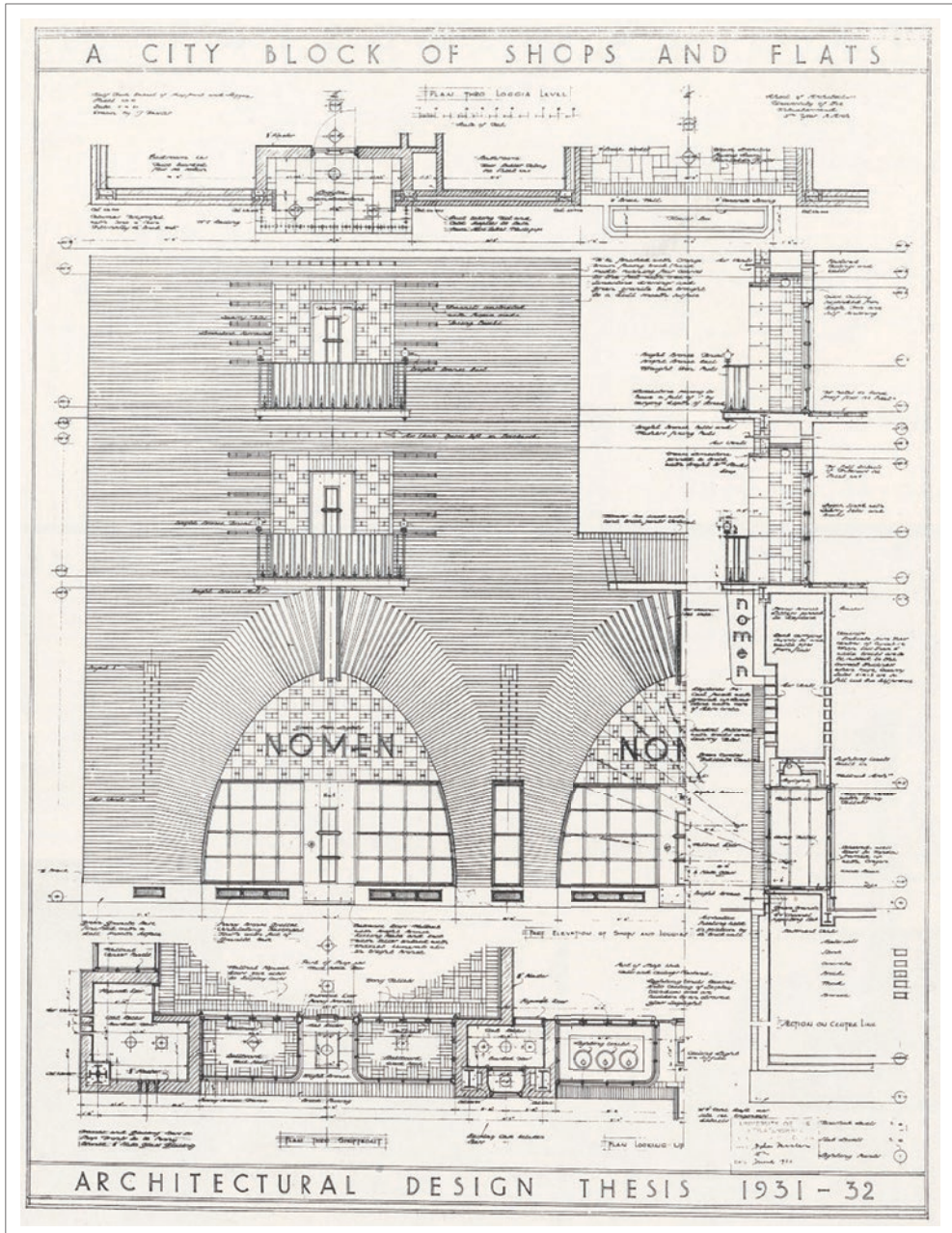


Source: Copyright 1942 © SAAR. Permission to produce and publish this figure has been granted by the SAAR (SAAR 1942b, p. 194).

FIGURE A4.1: Rex Martienssen: Quarter inch drawing (1928).

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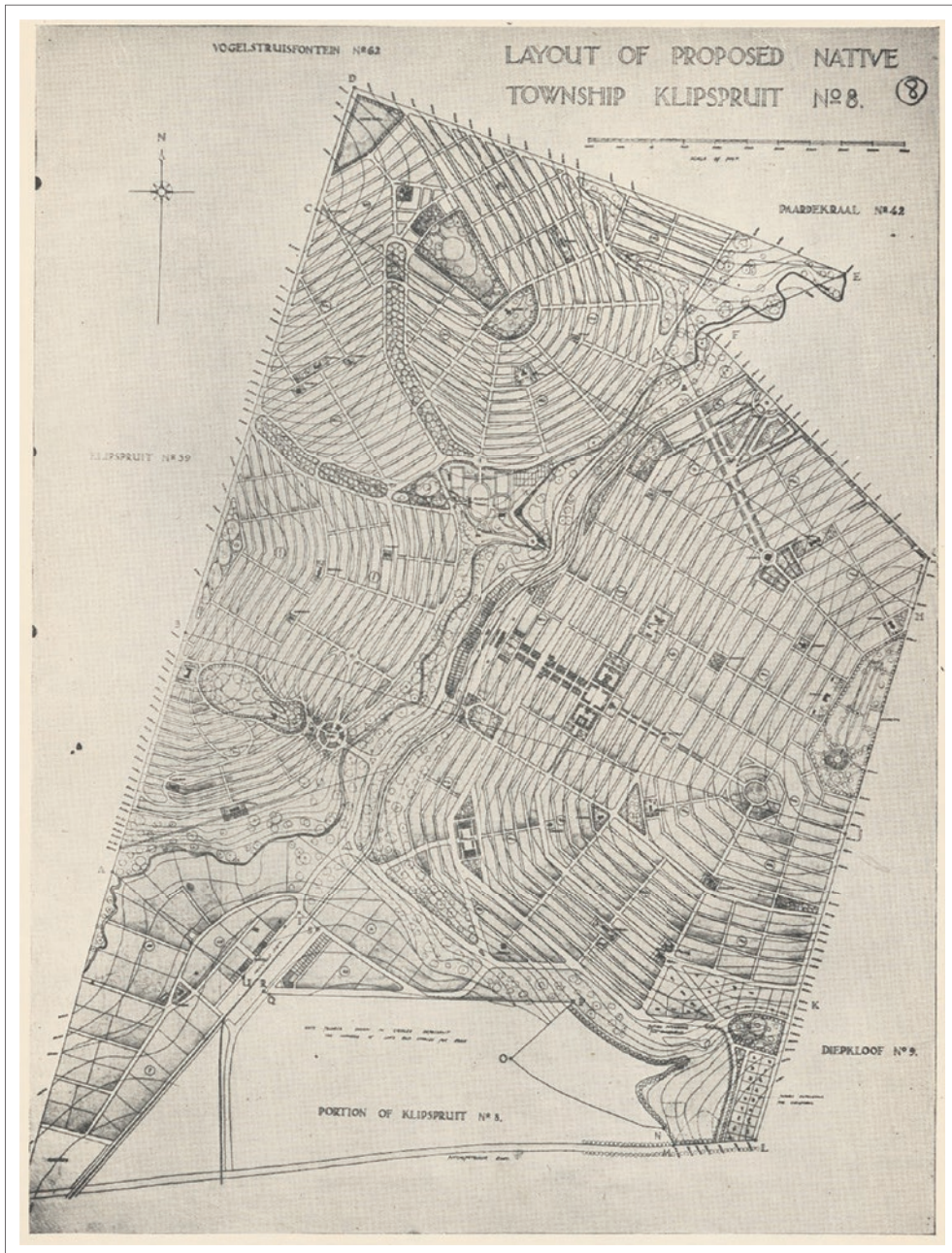
■ John Fassler, third-year student (1932)



Source: Copyright 1942 © SAAR. Permission to produce and publish this figure has been granted by the SAAR (SAAR 1942, p. 196).

FIGURE A4.2: J Fassler: A city block of shops and flats (1932).

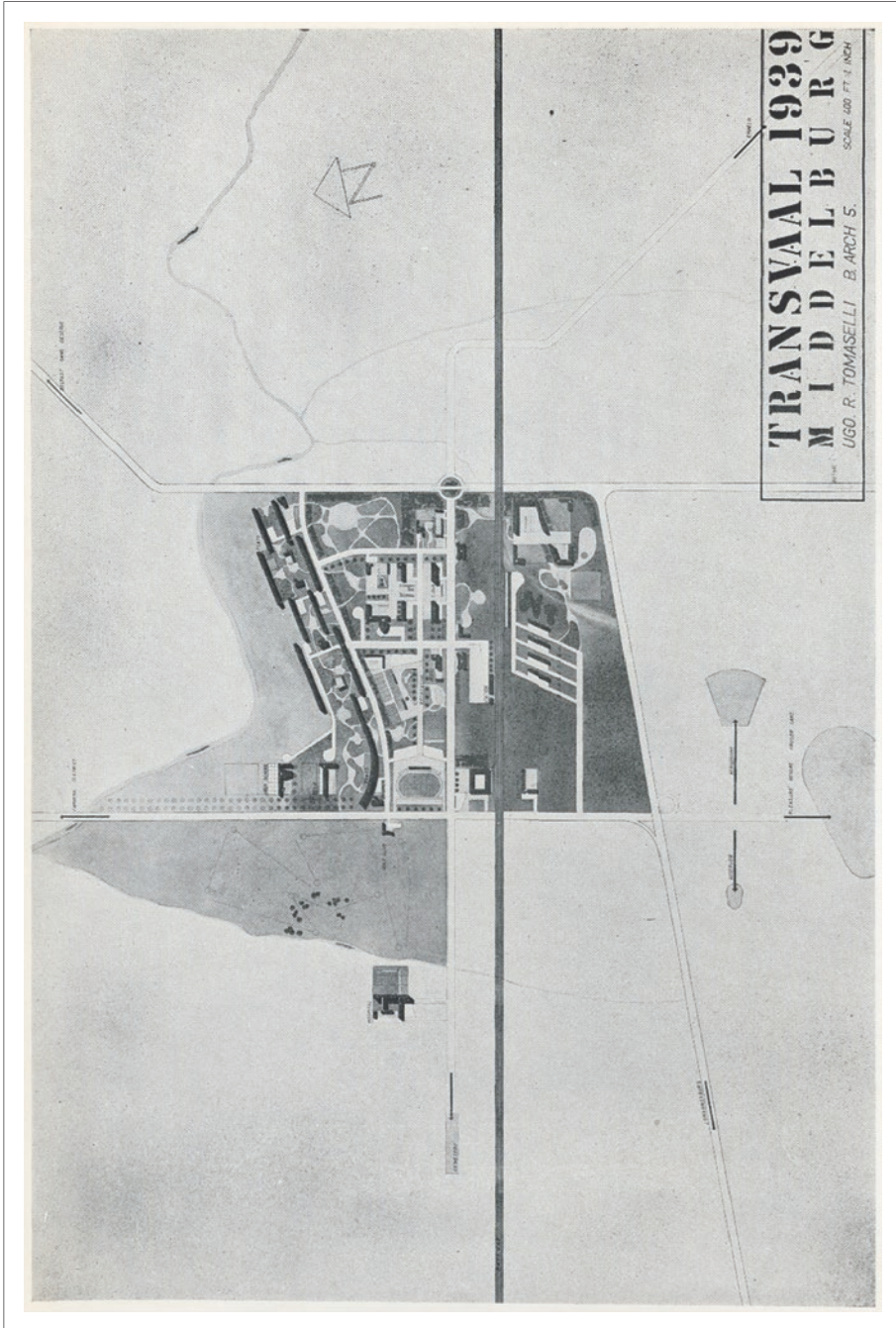
■ Rex Martienssen, Design for Klipspruit Town Planning Competition (1931)



Source: Copyright 1931 © SAAR. Permission to produce and publish this figure has been granted by the SAAR (SAAR 1931, p. 89).

FIGURE A4.3: Rex Martienssen: Layout for proposed native township, second premiated design (1931).

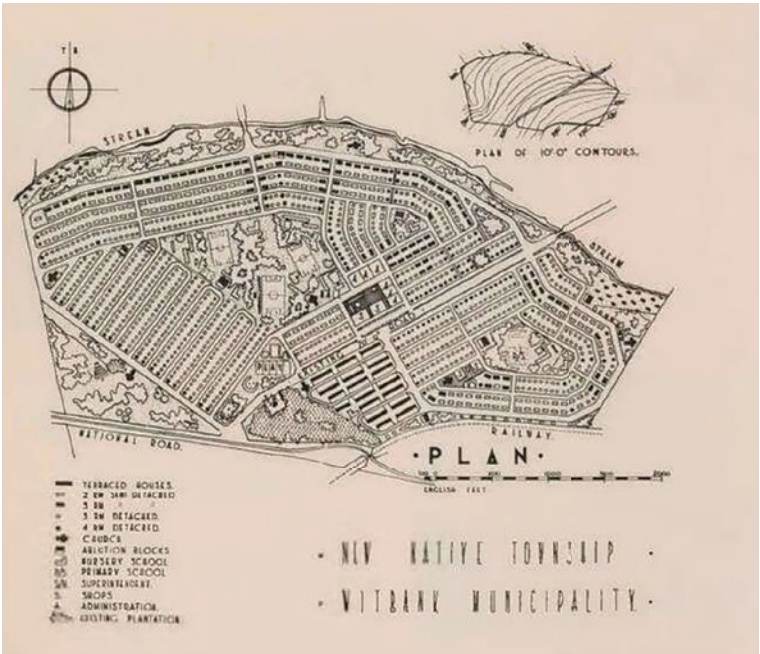
■ Ugo Tomaselli, fifth-year student (1939)



Source: Copyright 1940 © SAAR. Permission to produce and publish this figure has been granted by the SAAR (SAAR 1940, p. 180).

FIGURE A4.4: Ugo Tomaselli: Middelburg, Transvaal (1939).

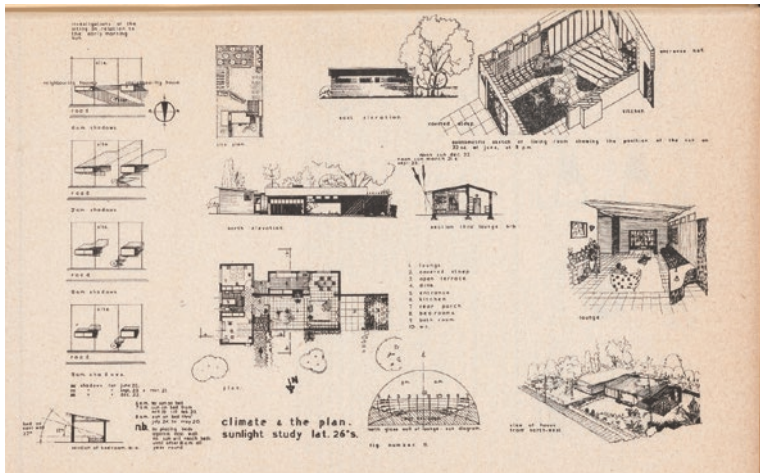
Doug Calderwood, a new native township for Witbank (1951)



Source: Copyright 1951 © SAAR. Permission to produce and publish this figure has been granted by the SAAR (SAAR 1951 May, p. 124).

FIGURE A4.5: Calderwood: A new native township for Witbank (1951).

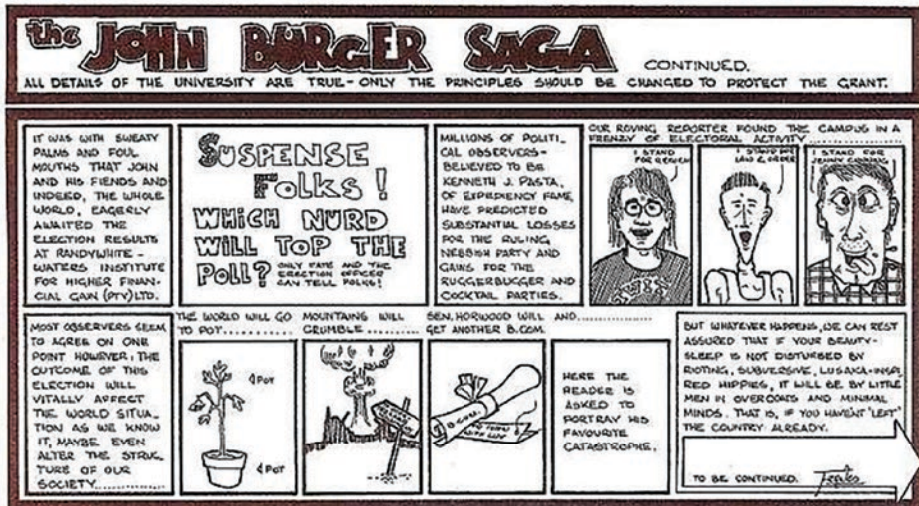
Doug Calderwood, solar charts (1951)



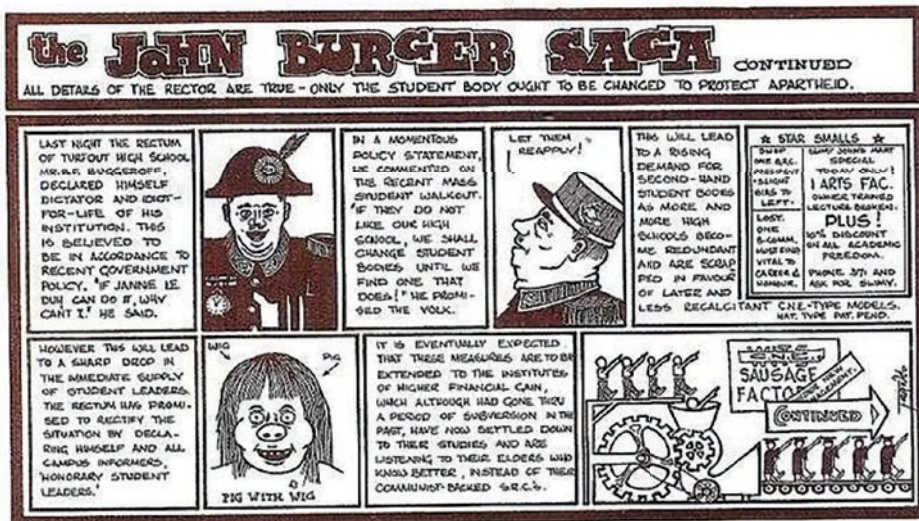
Source: Copyright 1951 © SAAR. Permission to produce and publish this figure has been granted by the SAAR (SAAR 1951 November, p. 261).

FIGURE A4.6: Calderwood: Solar charts for the design of sunlight and shade for buildings in South Africa (1951).

■ Franco Frescura, The John Burger Saga (1972)



REPUBLIC FESTIVAL IS A RAG STUNT!



Source: Copyright 1972 © Franco Frescura. Permission to produce and publish this figure has been granted by Franco Frescura (Frescura 1972).

FIGURE A4.7: Frescura: John Burger Saga (1972).

Appendix 5: Inaugural addresses

■ Inaugural addresses in the history of the School: Clyde Walker and Samuel Laryea

Refer to the online sources to view the inaugural lectures by the Heads of Schools, Clyde Walker and Samuel Laryea. The inaugural addresses by Clyde Walker in 1978 and Samuel Laryea in 2023 are available online:

- Walker, Clyde 1975, A philosophy of quantity surveying. [Inaugural lecture, University of the Witwatersrand, Johannesburg]. WIReDSpace. <https://hdl.handle.net/10539/43810>
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Appendix 6: Graduation and staff photographs (1976–2018)

Refer to the online source to view the graduation and staff photographs from WIReDSpace, <https://hdl.handle.net/10539/44629>.

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During the 2022 centenary celebrations of the University of the Witwatersrand (Wits), it became strikingly clear that the rich history and societal contributions of the Wits School of Construction Economics and Management (SCEM) had remained largely undocumented. This revelation sparked a comprehensive effort to uncover and preserve the School's legacy – its origins, evolutions and impacts on the South African and global construction industry.

While a handful of historical accounts had surfaced over the years – from JS Lewis's 1953 retrospective and Monte Bryer's 1976 faculty history, to Calderwood's departmental reflection and Graeme Jay's 2011 curriculum study – no complete narrative had yet captured the SCEM's pivotal role in shaping Quantity Surveying and Building Science education in South Africa.

In this landmark volume, three scholars at Wits set out to fill that void. Drawing on University archives, interviews with influential alumni and academics, and a deep analysis of the SCEM's engagement with professional councils and industry stakeholders, they offer a detailed and compelling portrait of the School's contributions to higher education and the built environment industry.

This book stands as both a tribute to the visionary educators and students who shaped the SCEM and a vital record of Wits' enduring and inculcating legacy in advancing knowledge, practice and transformation in the construction industry.

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