New Universities Project Management Team

Close out Report

of the New Universities Project Management Team on the

Development of New Universities in Mpumalanga and the Northern Cape

01 NOVEMBER 2011 - 31 JULY 2017

UNIVERSITY OF MPUMALANGA

SOL PLAATJE UNIVERSITY

WITS UNIVERSITY

higher education & training
Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

New Universities Project Management Team

Chapter 12

Architecture and buildings at Sol Plaatje

12. Architecture and Buildings at Sol Plaatje University

At SPU three large buildings were completed, and Building C004, the library, was designed to Stage 6, with the design and construction completed under SPU's client supervision.

12.1. CAMPUS BUILDING C001

Architects:	Activate Architecture
Project Team:	Siviwe Mvumbi, Leane Fernandes, Mamisa Sokhela, Brian McKechnie, Binayka Rama, Michael Magner, Reon van der Wiel
Structural Engineers:	Element Consulting
Mechanical Engineers:	Royal Haskoning DHV
Electrical Engineers:	Civil Sense Consulting
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Limco Quantity Surveyors
Urban Design:	Ludwig Hansen
Sustainability:	PJCarew Consulting
Acoustics:	Linspace
Contractor:	Qualicon Construction
Photographer:	Tristan McLaren
Text:	Michael Magner

The building on the corner of Scanlan Road and Bishops Avenue in Kimberley is predominantly a student residence for students attending the Sol Plaatje University. All residential rooms are located on the first four floors, accommodating a total of 290 beds, with mixed-use facilities on the ground floor.

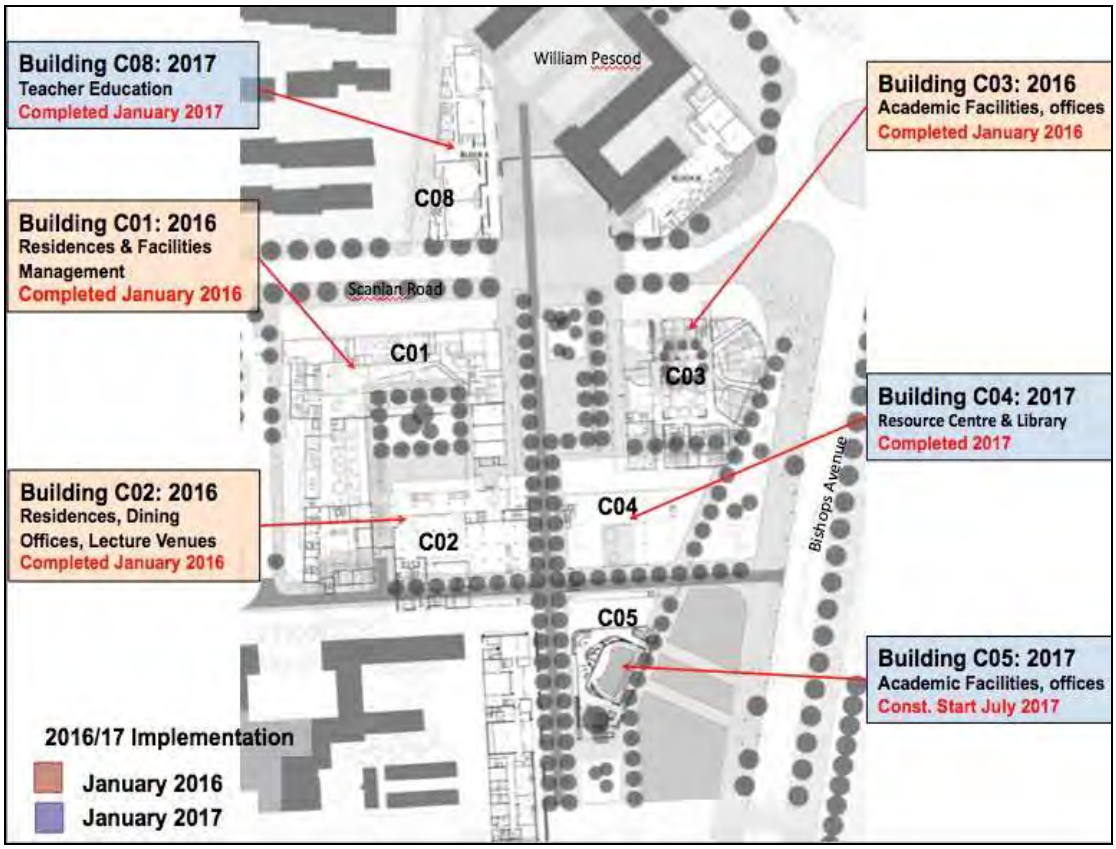
The Urban Design Framework set the urban spatial parameters for the project, with the objective of creating a well-defined, lively urban environment. The large communal spaces of the residence are located on the ground floor, facing the semi-public square. Small retail shops, a laundromat and offices are located on the ground floor, facing onto the main public square and Scanlan Road. These facilities were positioned to activate the building edges and public spaces in order to establish a connection between the city and university as an urban campus.

The residence provides a comfortable and safe home for students on campus, in a setting that stimulates learning and development, both individually and collectively. All spaces are considered to be learning spaces: learning and thinking can happen anywhere – in a tranquil garden, during a heated information discussion, at a study desk or in a lecture hall. The layout of the residence is designed to promote formal and informal interaction between the residents. These spaces do not prescribe how they are to be used, but rather invite people to personalise the occupation of communal space, contributing to a sense of belonging.

Two types of residential accommodation are provided: shared apartments with six to eight individual bedrooms, sharing ablutions, a kitchenette and a living area, and dormitory type rooms with communal ablutions, kitchenettes and social spaces.

An effort was made to give the building contextual relevance by including a unique narrative depicting the landscape of the Northern Cape. Images and markings of human endeavour particular to the region's rich heritage have been laser-cut into 375 m of balustrades and a sunscreen of 74 m running along the length of the public square.

The optimised response of the building to its environment is integral to all aspects of the design. One of the primary objectives was to minimise the need for electrical and mechanical heating and cooling to keep the spaces thermally comfortable. This was best achieved by rooms that are exposed to direct sunlight in winter and shaded from the sun in summer, for which a north orientation is ideal. Optimising the number of north-facing rooms had an overriding impact on the layout and image of the building.



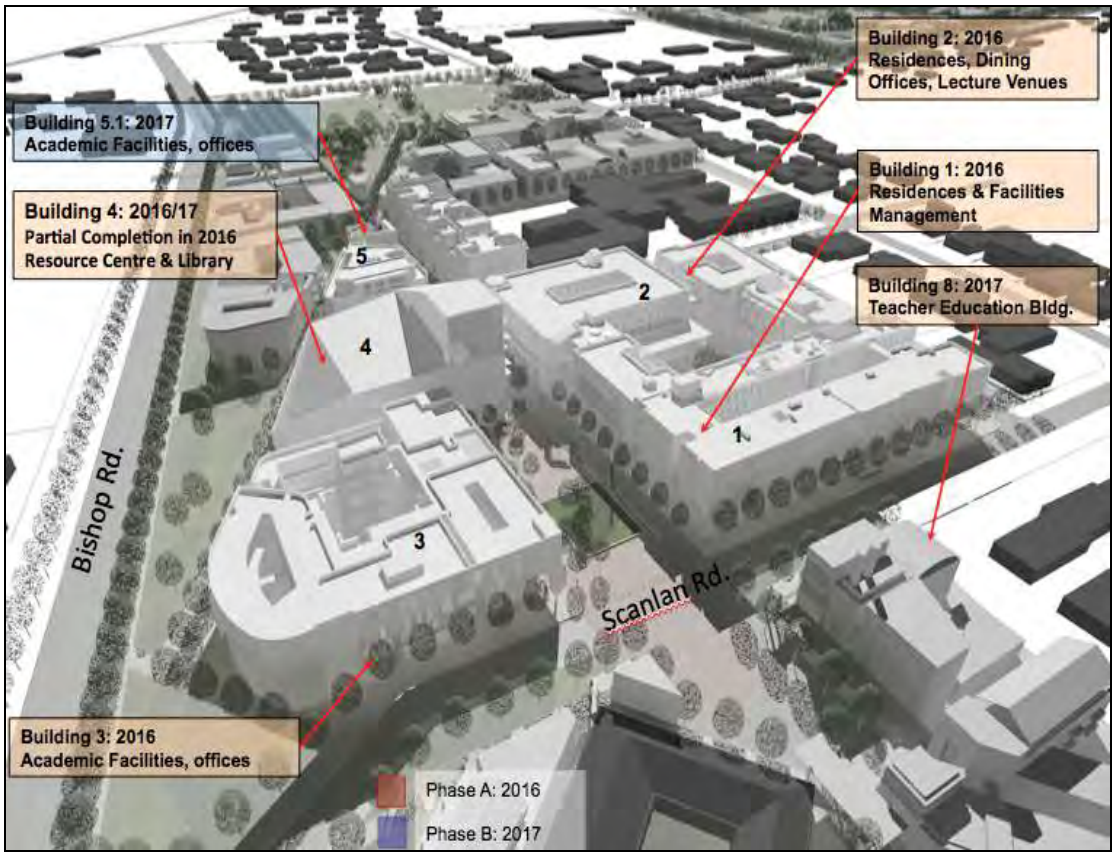


Fig 12.1 and 12.2: Sol Plaatje University 1st two phases of implementation. Phase completed during the 1st Quarter of 2016. The Wits PMT oversaw the development of the designs for structures completed in 2017.

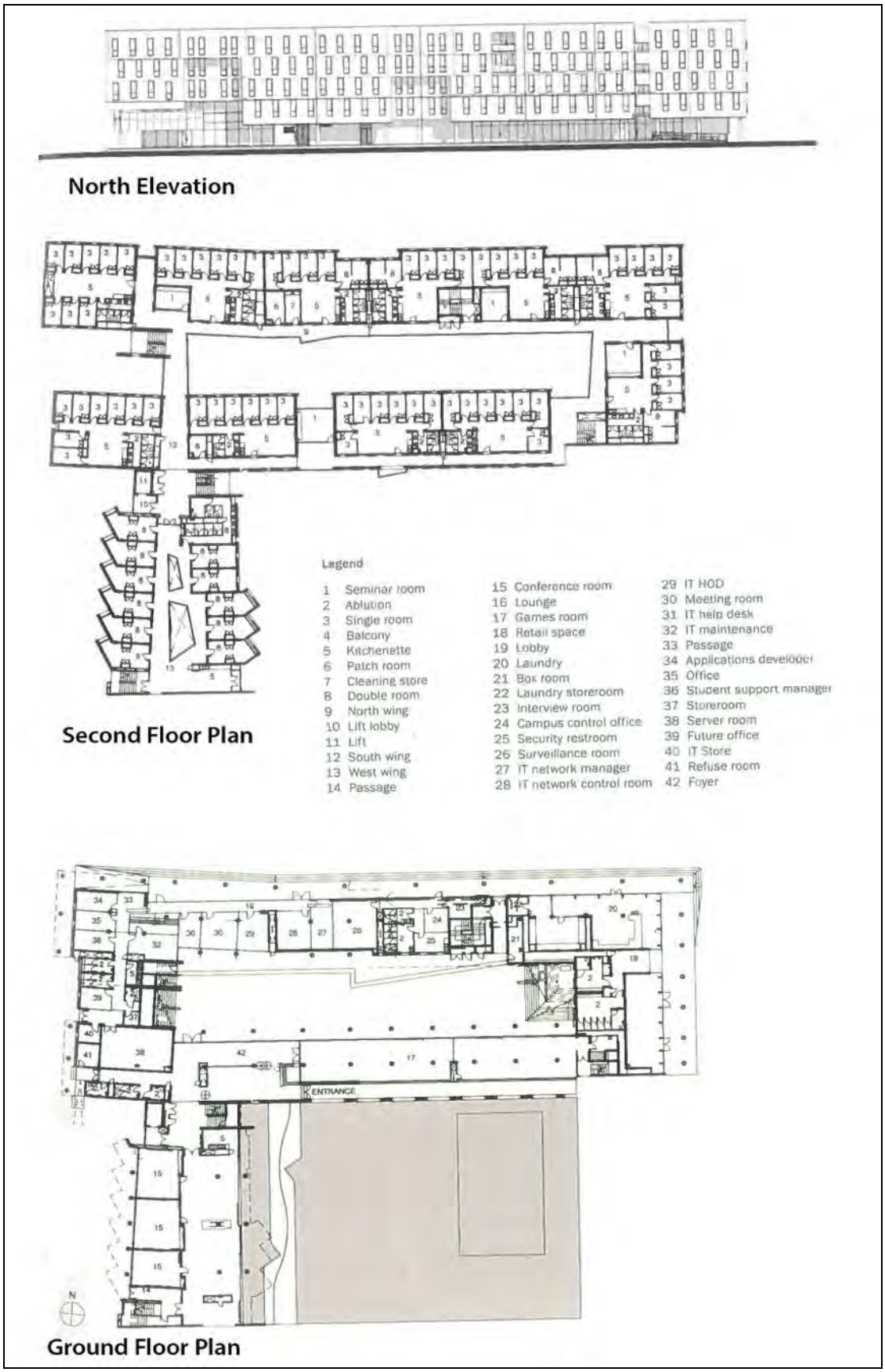


Fig 12.3: Sol Plaatje University Campus Building L001 Floor Plans and Elevation (Activate Architects).

Fig 12.4: Sol Plaatje University Campus Building 01 on the corner of Scanlan Road and facing the Central Square. Residence for 290 students with retail, game rooms, seminar space, a laundry and the universities ICT facility.

Fig. 12.5: Sol Plaatje University Campus Building 01. View of the Internal Courtyard (T. McLaren)

12.2. CAMPUS BUILDING C002

Architects:	Savage and Dodd Architects
Project Team:	Colin Savage, Heather Dodd, Dale Scott, Robin Theobald, Melissa de Billot, Thabiso Leeuw
Structural Engineers:	Element Consulting Engineers
Mechanical Engineers:	Royal Haskoning DHV
Electrical Engineers:	Civil Sense Consulting
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Limco Quantity Surveyors
Acoustics:	Linspace
Wet Services:	Aurecon
Fire Consultant:	Aurecon
Environmental:	PJCarew Consulting
Contractor:	Trencon Construction
Photographer:	Tristan McLaren
Text:	Heather Dodd

The design of the new Sol Plaatje University in the Northern Cape was undertaken as a two-stage design competition. The campus is located in the heart of Kimberley and the development of an urban campus integrated into the urban fabric of the city was seen as key to the urban regeneration of Kimberley.

The first phases of the university consisted of three land parcels, catering for a variety of building types and uses d-esigned by different architectural practices. Building 2 is a multi-purpose building that faces onto the urban square and, together with the adjoining Building 1, wraps around the central internal courtyard.

Building 2, yet to be formally named, consists of three parts that articulate different uses and relate to the placement of the building on the site. The building comprises a 174-room student residence, dining hall and kitchen, teaching venues, academic offices, and ground-floor retail space.

The competition phase explored these questions: what it is that makes architecture specific to its place; the nature of the urban fabric of Kimberley and its influence on the nature of the proposed university; and what typologies would encourage the connectivity and social learning which drive new modalities of teaching and learning.

The architects chose to explore these ideas through a narrative that attached voices and people to the kinds of spaces they imagined. They thought the architectural language of the new university should be driven by a contemporary response to an environmentally appropriate architecture that places the buildings in the landscape of the city. It had to be low-key and modest with certain iconic high points that identify the university as a special place. This is the concept of balancing ‘background’ and ‘foreground’ buildings, highlighting these high points against the background of an urban field. Iconic moments are those that become ingrained in the memory of the city and give its users a sense of belonging and ownership. The public spaces of the university may become a meeting point for friends, a place to skateboard, focal points where iconic buildings are used as backdrops for wedding photos and where graduation photos are taken.

New university building types – multi-purpose buildings that encourage sharing of resources and unite disciplines – are the heart of the student experience. These typologies, which contain a mix of uses and integrate both formal and informal social spaces, are integral to the concept of multi-functional precincts.

Fig 12.6: Sol Plaatje University Campus Building 02. The Building accommodates residences, a multi-purpose hall, seminar and lecture venues, offices and retail spaces. View of the Internal Courtyard.

Fig. 12.7: Sol Plaatje University Campus Building 02. West facing residential façade, with sun screening elements.

12.3. CAMPUS BUILDING C003

Architects:	Wilkinson Architects, Mashilo Lambrechts Architects, GXY Architects
Project Team:	Chris Wilkinson, Storm Stolle, Manie Lambrechts, Eugene Bagley
Structural Engineers:	Aurecon
Mechanical Engineers:	Element Consulting Engineers
Electrical Engineers:	Aurecon
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Koor Dindar Mothei QS
Urban Design:	Ludwig Hansen
Project Managers:	AECOM
Environmental:	PJCarew Consulting
Fire Consultant:	Aurecon
Contractor:	Murray & Dickson
Photographers:	Chris Wilkinson, Tinus van der Merwe, Tristan McLaren
Text:	Chris Wilkinson

The framework of this building at the Sol Plaatje University in Kimberley was very specific in terms of the urban codes, prescribed height restrictions, 'build to' lines, a 'perimeter-block' typology, predetermined courtyards of various scales and a street interface on ground-floor level.

The accommodation requirements comprised retail space on the ground floor, flat-floor classrooms, four raked auditoriums, a health and wellness centre, academic and open-plan offices, Student Representative Council offices, a gymnasium and flexible multi-purpose classrooms.

The building was to be an infill rather than a landmark building, hence the adoption of an understated perimeter-block design consisting of a simple form with recessive features. Subtle landmarks at specific points were 'carved out' of this neutral form, such as the main entrance and recessed balconies.

The west façade has a second brick skin punctured by narrow slivers, spanning from the first to the third floor to block out the western sun and provide an activity generator that affords surveillance of the square. Apertures on the east façade were treated in a more sculptural and playful manner by using deep, recessed openings with varied angled reveals and sills. The language of the narrow slivers was continued on the north façade, while the building opens up with larger glazed surfaces on the south side.

The planning diagram consists of a central landscaped courtyard surrounded by a covered walkway, connecting all spaces. One is guided into the auditoriums by the use of soft curves, which simultaneously express the function of the internal layouts. Brise-soleil walls around the central walkway provide sun protection and soften the glare while allowing the light summer breeze to cool the building.

Materials are limited to a light-coloured mottled face-brick, exposed off-shutter concrete, slate floors and painted steel. This palette reflects the Northern Cape landscape. Mosaic tiles emphasise important elements.

The building adopts strategies of passive design by making use of small openings, brick screens, insulated cavity walls, brise-soleil walls, cross-ventilation, covered walkways and courtyards. Raked auditoriums are cooled by means of an energy-efficient pressurised displacement system in which cool air enters from a plenum space below the seating, forcing the hot air out at a higher level via chimneys. Offices are cooled by means of energy-efficient evaporative cooling that only operates at limited times of the day. Hot-water generation is limited to the gymnasium showers and tea kitchens, and is provided by heat pumps and a storage tank, and under-counter mini hot-water cylinders.

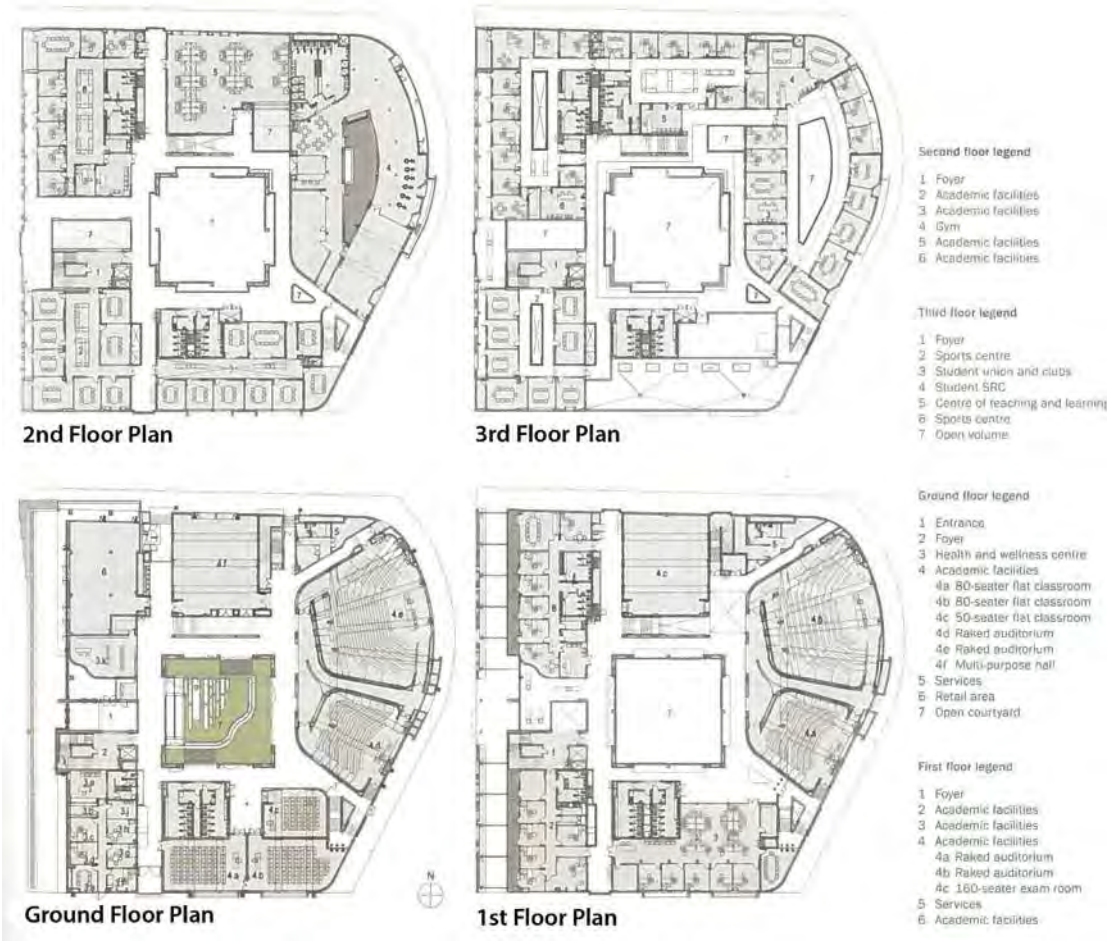


Fig 12.8: SPU Campus Building L003: Multi-purpose Academic Building.

Fig 12.9: Sol Plaatje University Campus Building 03. The first new academic building with multiple seminar and lecture venues, four raked auditoriums, staff offices, student support and campus retail on the ground floor facing the central campus square.

Fig 12.10: Sol Plaatje University Campus Building 03. The north-eastern façade facing Bishops Avenue (T. McLean)

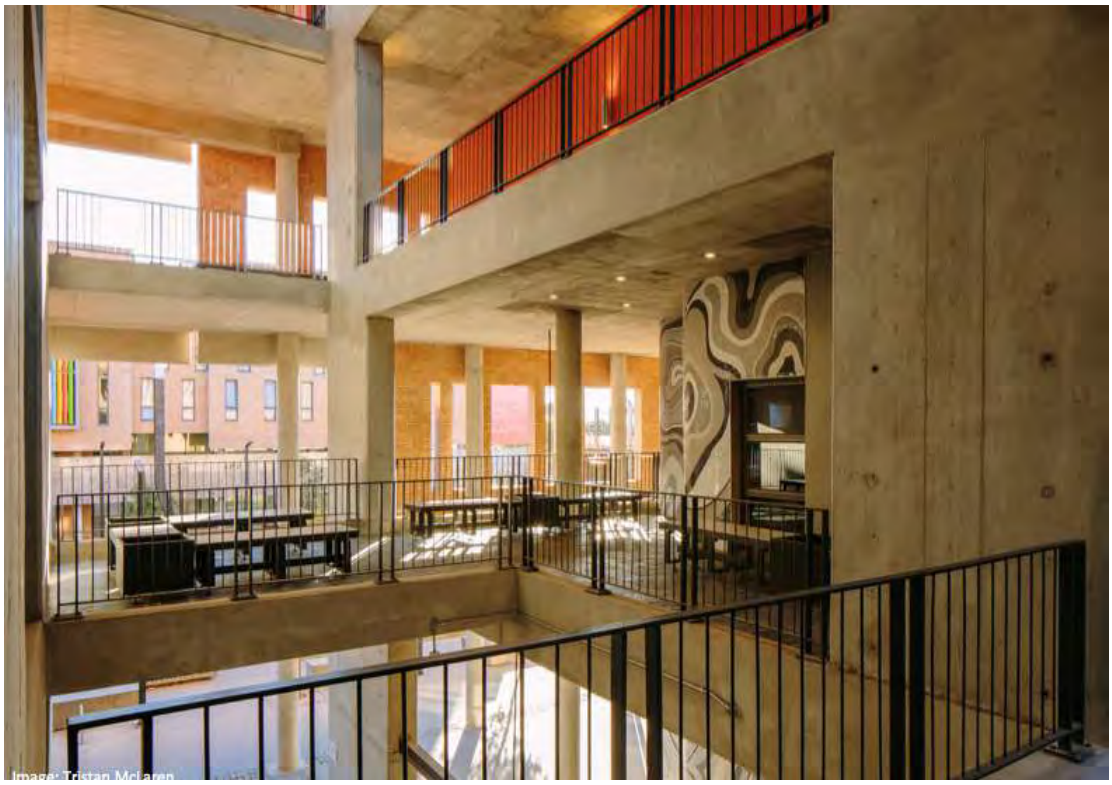


Fig 12.11: Sol Plaatje University Campus Building 03. Academic Building

12.4. CAMPUS BUILDING C004 - LIBRARY

Architects:	Design Workshop SA
Project Team:	Andrew Maiken, Mark Horner, Janine Beaucamp
Structural Engineers:	Aurecon
Mechanical Engineers:	Element Consulting Engineers
Electrical Engineers:	Aurecon
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Koor Dindar Mothei QS
Urban Design:	Ludwig Hansen
Project Managers:	AECOM
Environmental:	PJCarew Consulting
Fire Consultant:	Aurecon
Contractor:	Murray & Dickson
Text:	Mark Homer

Building C004 is the University Library and Resource Centre which has been singled out by the Urban Design Framework as a landmark building at the heart of the Central Campus. The building comprises a total of seven floors. The lower four floors comprise large floor plates, planned and equipped for flexible library and resource use. The three upper and smaller floor plates provide opportunity for uses of a more restricted nature such as archiving.

The library was envisaged as a flagship centre for knowledge generation and human empowerment. Incorporating the traditional functions of a main university library, the building envisages a much wider range of learning opportunities, circumstances and interactions that increasingly define the engagement with knowledge.

The uses of this building are arranged from the most public on the ground floor, with the more private and quiet toward the top levels. The building provides deep, highly serviced flat floors that maximise flexibility and optimise floor plate efficiency. All vertical movement and services are located in a continuous 2.7m wide perimeter void between the external envelope and the floor plates. This results in an integrated 'wall and roof' envelope that is functionally, structurally and technically independent of the ‘building' within it.

Key library features include a ground floor exhibition space with help desk, coffee counter, generous book stack, library loan, reference desks and processing spaces on the ground, first and second floor. On the ground floor a 240-seat, public lecture auditorium was introduced, establishing an ideal forum between the university and the city. The upper three floors form the landmark tower and house post graduate research spaces and archives.

The eastern portion of the building has a triangular courtyard space open to the elements as a quiet gathering and reading space to the internal functions of the library. The courtyard is filled with trees and benches offering a quite contemplative space for students, researchers and visitors alike. A statue of Sol Plaatje is also placed in the courtyard space.

In response to the sometimes severe Northern Cape climate, the Library is viewed as an oasis. In summer it provides a cool respite from the searing heat, and in winter a warm cocoon. This is achieved by limiting the proportion of external glazing, with particular consideration to orientation and shading, and ensuring that the external envelope is well insulated. The mechanical cooling and heating system is planned to include water-based thermal mass strategies augmented by 100% preheated or cooled fresh air.

Materials are limited to concrete as predominant finish. This was consciously done to emphasise the importance of the Library and its landmark status within the overall campus.

Fig 12.12: Sol Plaatje University Campus Building 04. Library and Student Resource Centre. Landmark building facing the Central Campus Square.

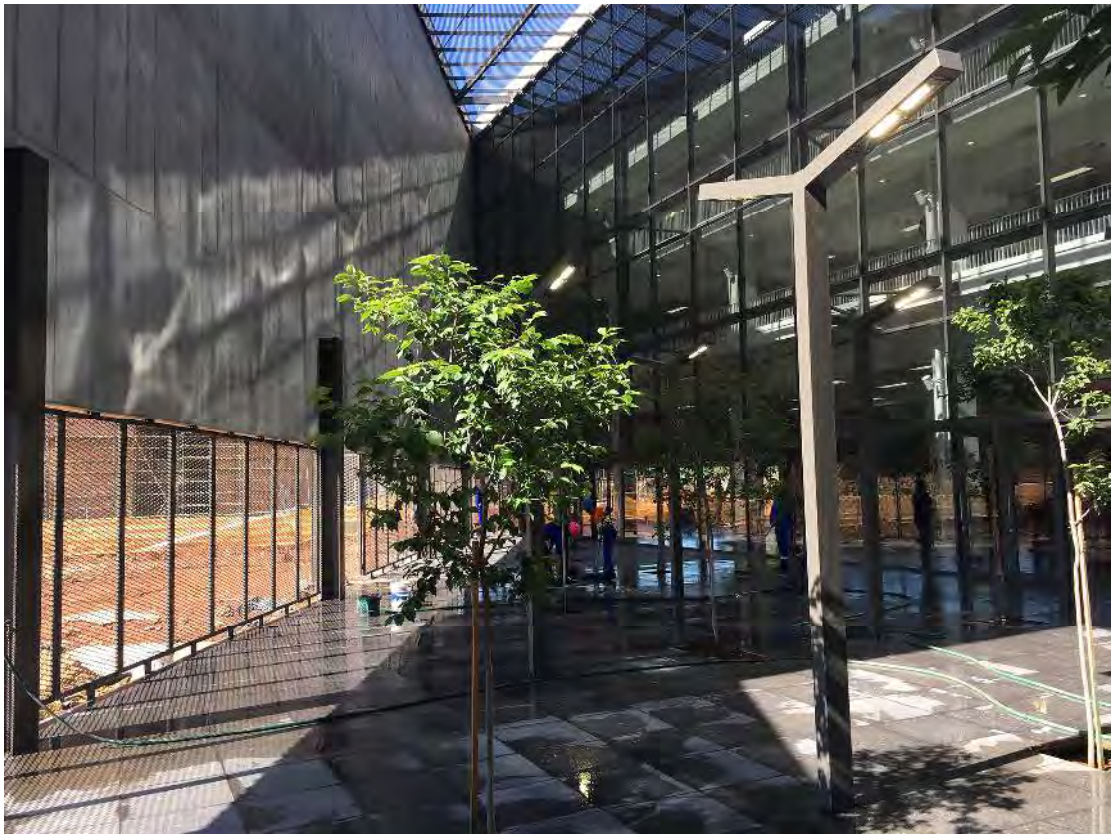


Fig 12.13: Sol Plaatje University Campus Building 04. The Internal Courtyard

Fig 12.14: Sol Plaatje University Campus Central Services Building. Most bulk services, waste management, water supply and electrical back-up for the 1st two phases of construction located in the Central Services Building.

Fig 12.15: Sol Plaatje University Campus Central Square. Official opening of the 1st phase buildings in April 2016.