

REJUVENATION OF THE CAMPUS CORE

CORE
STUDENT CENTRE

Rejuvenation of the Campus Core

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Abstract

The University of Pretoria is an international institution that has seen many of its alumni carry its good reputation and high standards into the global community. A well rounded student is one who has not only achieved academically, but also has learnt life skills through exposure to different people from all walks of life. The Core Student Centre is the heart of the University's campus that belongs to the students. It is a place where students will feel like they belong, and be unconsciously encouraged to interact with fellow students. Branding in architecture is the vehicle through which centralised management, student ownership and consistency in high standards of service will keep the Core Student Centre as the hub of student activity on the University's campuses. The main campus in Hatfield is the pilot project, then the rest of the University's campuses will have their student centres adapted to have the Core brand be a campus-wide initiative. The students will then know to expect nothing but high quality standards associated with the brand.

1.1 The real world problem



Figure 1.1

UP students

The University of Pretoria (UP) considers itself a world class tertiary institution that has much to offer students not only academically, but provides life skills to survive in the global community on different levels of interaction with society. The University has an effective academic structure, as well as extra-curricular activities which are quite active given the number of clubs and societies available on the campus. In light of this, I found that the facilities put in place by the University for use by the students are not structured in a way that allows them to be used to their full potential.

The development structure, having a branding strategy as a foundation, is well suited to this stage of the University's life as it has recently celebrated its centenary and it would be most appropriate to allow for a revamp of the University's image by way of a "cosmetic and reconstructive surgery" on the hub of student activity to be the first echo of the development structure at hand

1.2 Project Brief

The University of Pretoria has reached its centenary year (2008). In the university's development framework the existing student centre has been earmarked for redevelopment.

The proposed new student centre should be an icon for the evolved image of the University of Pretoria. Moreover, it should be a place that students from all UP campuses can identify as their own. In the proposed solution existing tenants and services will be kept and integrated into the project, but most importantly, there is a need for innovative ideas that cause students to interact more with campus after lectures and after the business day is over.

1.3 Client Brief

The design intervention needs to provide a centrally managed 'student lifestyle brand' that houses all facilities and activities occurring in the proposed student centre, so as to allow it to be applied to the satellite campuses of the University of Pretoria. The result will be a brand exposure to students and potential stakeholders, which aligns itself with the existing University of Pretoria brand.

Existing tenants and facilities will be considered and allocated the necessary space in the proposed solution. The following components need to be addressed in the accommodation schedule:

- existing commercial contractors
- stationary shop
- ATM court



- vending court
- entrepreneurial student
- retail
- Wi-Fi centre
- 24hr internet facility
- 24hr study conference area
- fast food outlets
- multi-purpose entertainment centre

Innovative and creative solutions are to be designed bearing in mind the theoretical framework of urban planning principles, the brand and the ownership of place by its user groups.

1.4 Research goal or objective

The goal of this project is to reach a solution that incorporates the renovation of the student centre into the pilot project of a student orientated brand. The student centre will be a physical realisation of this brand that will appeal to the student as a place that gives the student a sense of ownership and identity with their University. It will also encourage a deeper interaction between the students and their campus. The brand will be a structure applicable to all UP campuses and will also be aligned with the University's marketing and branding strategy to encourage existing students, prospective students and any other interested parties to interact with UP student life.

1.5 Definition of Terms

Site - the existing student centre building, as well as the immediate surrounds such as the piazza and the rear delivery yard, bin yard and parking lot at the University of Pretoria, Hatfield campus.

Brand strategy - refers to the intangible proposals and ideas to be implemented into the site.

Stakeholders- any parties that stand to benefit from the development of the site.

Development framework- projects that have been identified and sites earmarked for development by the University of Pretoria. All necessary feasibility studies having been done and funding allocated.



Lynch (1981:118-19) has identified 5 major criteria for the 'making places' tradition. These criteria are a set of performance dimensions of successful urban design:

1. Vitality- the degree to which the form of places supports the functions, biological requirements and capabilities of humans.
2. Sense- the degree to which places can be clearly perceived and structured in time and space by users.
3. Fit- the degree to which the form and capacity of spaces matches the pattern of behaviours that people engage in or want to engage in.
4. Access- the ability to reach other persons, activities, resources, services, information, or places, including the quantity and diversity of elements that can be reached.
5. Control- the degree to which those who work or reside in places can create and manage access to spaces and activities.

These criteria will inform the design response that allows for the redesigning and restructuring of the site, so as to have successful interdependencies between the building of the open spaces and the transition spaces.

1.6.2 Design Philosophy for Metaphysical Intervention



Figure 1.2

Who am I

Identity *noun*: 1. The fact of being whom or what a person or thing is.
2. A close similarity or feeling of understanding.

Identify *verb*: 1. Prove or recognize that someone or something is specified person or thing.



2. Recognize as being worthy of attention,
3. (Identify with) feel or understand that you share the feelings of.
- 4: (Identify someone /thing with) associate someone or something closely with.

(Oxford Dictionary, 2007: pg 452)



Figure 1.3

UP Hatfield Campus

The student centre is meant to be the hub of student activity on campus outside of the lecture halls. However, there is currently nothing about its design that gives the impression that it is designed for students as the primary user group. A space designed for students should allow the students to identify the space as their own, as well as identify with the space, giving a sense of ownership. Moreover, students should feel like they are a part of the greater campus community, resulting in the notion of the space being owned by different people at different times. The re-designed student centre will become the medium to allow students to be expressive in an environment designed for the fusion of subcultures that are present in each individual's identity.

As shown by the third definition of the verb "identify," the student centre should allow for a sharing of space and experience. The environment should break

away stigmas of homophily which is a prevalent occurrence in practically every educational institution. Homophily is a widespread human trait that has been well-documented for race, religion and ethnic identification, as well as in other characteristics (Tajfel, Billig, Bundy & Flament, 1971:pg:149-77.). An empirical survey of work in this area reported:

We find strong homophily on race and ethnicity in a wide range of relationships, ranging from the most intimate bonds of marriage and confiding, to the more limited ties of schoolmate friendship and work relations, to the limited networks of discussion about a particular topic, to the mere fact of appearing in public or 'knowing about' someone else... Homophily limits peoples' social worlds in a way that has powerful implications for the information they receive, the attitudes they form, and the interactions they experience. (McPherson, Smith-Lovin & Cook, 2001 in Loury 2007:pg: 415,420)

The new student centre should be an intervention that is designed to merge spaces in which people would have normally congregated in their homophilic groups. The interaction would be a subtle encouragement to the building users to cross social barriers they normally would not have crossed; the result would be simply their feeling of belonging. The consequence is a large group of students being able to identify with a location, a time and events in their student life and, more importantly, other people with whom the experiences are shared.



1.7.1 Design Framework

An interior architect looks to solve problems within the interior environment, as well as the intimate environment of the user (IFI General Assembly, 1983). Solving such problems cannot occur independently of the exterior environment, which also has to be designed to be in context with its surrounding.

By bearing in mind the design philosophies for a physical and meta-physical intervention, a vehicle suited to amalgamate the theory with architecture would be a student lifestyle brand that not only addresses student lifestyle holistically on campus, but more importantly manifests itself physically through architecture.

This type of architectural solution would be one that addresses the metaphysical context and thus answers user questions such as:

What does it mean to me to be a student at the University of Pretoria?

What else is there to do besides go to lectures if I am on campus?

Are my non-academic needs being met?

Who can I go if I have a good idea I would like to share with my fellow students?

Is there a place I can be myself and still feel part of the student community?

In addressing the physical context, the architecture must impact the campus in a manner that defines the building as being designed for students. The brand

orientated exterior and interior must be designed in such a way that it is both an extension of student life, as well as communicates the vibrancy of being a student. The environments in the building need to be dynamic.

1.7.1.1 Trends



Figure 1.5

Trends in architecture

Materials to be used must be able to be manipulated to suit present day trends. Present day trends in design express diversity in the use of palettes of material. There is creative blending of styles in architecture with technology. The lines that define archetypal design are blurred yet architectural solutions are clear. In interior architecture, the architect is no longer restricted to laws that govern any given style. Design has become a lot more about pushing boundaries and designers strive to be trendsetters.

The materials used in a student centre must be able to withstand the heavy traffic, be abrasion resistant and easy to clean. The design of elements such as structure, as well as finishes and accessories must be solved with green design considerations yet be aesthetically pleasing.



1.7.1.3 Colour Psychology



Serious consideration has to be made as to what colours are to be used in which spaces. Without applying this knowledge, the student community can be affected in numerous negative ways such as mood, concentration and anxiety but to mention a few.

When colour is used in a space its purpose must be to enhance the function of the space through its effect on the users. In this design appropriate colours are described as follows:

Red



Red is associated with danger, passion, energy, strength, power, determination and, more popularly, love. It stimulates metabolism, increases respiration rate, perspiration, appetite and raises blood pressure.

The visual effect of red is that it can make objects appear closer and larger. Dark shades of red tend to represent power, rage, anger and courage. Lighter shades of red represent joy, sexuality, passion and sensitivity.

Red is appropriate for this design as it stands out from the monotone building colours in its immediate context and would give the new student centre an energetic atmosphere.

Orange



Orange is believed to increase oxygen supply to the brain, encourages appetite and stimulates mental activity. Among other things, orange represents creativity, happiness, encouragement, joy, enthusiasm and success.

Orange is a colour that encourages factors that contribute to social interaction, thus would be vital to the new student centre.

Brown



Brown is usually associated with nature and earth colours. Brown suggests friendship, outdoors, tranquillity, comfort, masculinity, nurturing, sensuality and generosity.

Beiges and tans imply sophistication and neatness, while coffee browns also imply sophistication, but more so richness, robustness and flamboyance.



The use of brown would have to be accompanied by other colours so as not to make the space seem overly formal and designed for exclusivity. Brown would be ideal for use in a student lounge to create a mood that hints at a slowing down of the buzz of the student centre.

Yellow

Yellow is a colour that is most visible to the human eye. It attracts attention, also stimulates mental activity, such as orange, and builds muscle activity.

It has been proven in numerous studies that students with yellow as a wall colour have studied and performed better at their academics.

Yellow would be an ideal colour to use sparingly in a study centre, or any environment that requires mental stimulation. It has to be used sparingly because while it is the most visible it is also the most fatiguing to the eye.

Silver

Silver is a reflecting colour that is often associated with high-tech finishes. It is representative of modernity, technology, glamour and sophisticated sleek detail. It catches the eye very easily and should thus be used sparingly.

Silver would be ideal for small, but well thought out detailing of fixtures or fittings to amplify attention to detail.

1.7.1.3 Sustainability

Considerations concerning the use of ecologically friendly design decisions need to be made regarding:

- lighting quality
- ventilation
- types of artificial lighting sources
- materials to use in and custom designed movable furniture, fixed and none fixed elements
- environments that encourage users to be sustainability conscious

Finally, the design approach must be conscious of the existing building and note its positive and negative characteristics. The conclusions deduced from analysing the existing building should begin to plot the course for an interior architectural intervention that will incorporate the interior, as well as the exterior of the student centre into the physical and meta-physical contexts of the university.





Chapter 2

Context Study

2.1 Introduction



Figure 2.1

University of Pretoria, Hatfield campus
Student Centre piazza

The University of Pretoria (UP) instituted and completed the design and construction of a students' centre and piazza on the University Main Campus in Hatfield, Pretoria. Construction of the centre was completed in 1995. The student centre's purpose was to provide a central location for services to the students of the campus. It was also to function as a place where students can interact and relax, as well as stage events in the piazza.

2.2 University of Pretoria Brand

2.2.1 Brand History

Since the opening of the university as the Pretoria branch of the Transvaal University College in 1908, there has never been a brand that has been specifically designed with the student campus lifestyle in mind. The university has its corporate brand portfolio which is a combination of strategies associated with the university's corporate image on all campuses, in comparison to and in competition with the other universities locally and internationally.

The university's brand has sub-brand portfolios for each faculty in the university (Figure 2.3), such as TuksRes which is the university residences brand identity, as well as TuksSport which is the university's main sport brand identity. There are associated brands that exist, such as the High Performance Centre (HPC), a brand identity that is associated with TuksSport. Smaller brand identities also exist on campus and are active from time to time, for example, Junior Tukkies, TuksRag and UP Boek Jol (Figure 2.2). Most of the smaller brand identities on campus touch on student campus lifestyle, but almost seem to be independent of the university's main brand identity. There are some brand identities that are borne due to events that may be organised by the University Alumni, for example, film festivals and concerts.



The corporate brand identity has changed with the university's coat of arms over the years (Figure 2.4, 2.5, & 2.6) At milestone years there is an associated logo that gets introduced to commemorate the year. The use of the university coat of arms and the colours (blue, gold and red) is consistent. A variation of this approach is when an official university event occurs and the ceremonial coat of arms is used. The strategy is effective in blanketing many facets of the university in a main identity. It is not so effective though in representing the stakeholders that make the university an educational institution that not only teaches academia, but also life skills formally and informally.

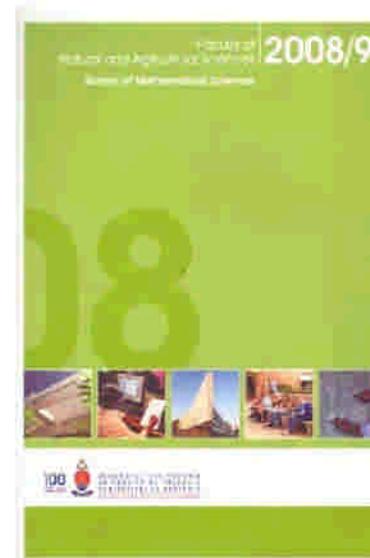
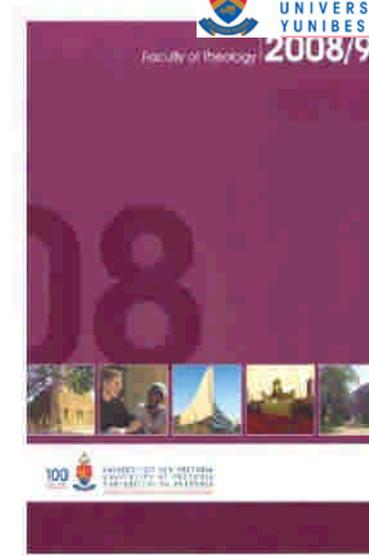
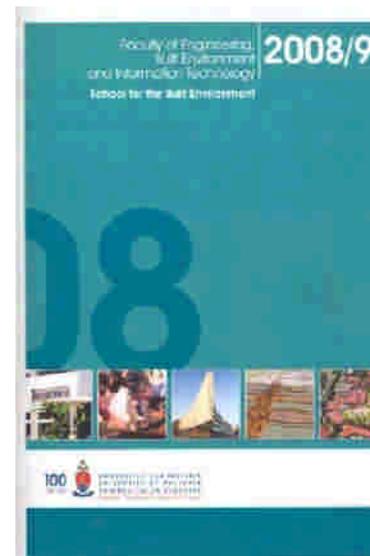


Figure 2.2

University of Pretoria Associated brand – UP BOeK JOL

University of Pretoria Associated brand – Faculties and Centenary

Figure 2.3



1910



1930



1978-PRESENT



**CEREMONIAL
COAT OF ARMS**

University of Pretoria Coat of Arms Development from 1910 to present and Ceremonial Coat of Arms

Figure 2.4



Figure 2.5

University of Pretoria Associated corporate identity 1978-2007



**UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA**

Figure 2.6

University of Pretoria Associated corporate identity 1978-2007



2.3 Site: University of Pretoria Student Centre



Figure 2.7

University of Pretoria Student Centre context aerial view

2.3.1 History

The site to be developed is the student centre which was designed by Steyn and Viljoen Architects. It was completed and officially opened on 17th August 1995. It cost R13,2 million to complete the building with all finishes included, as well as the piazza.

Facilities housed in the building at the time included a coffee bar, book and stationery shop, newspaper room, Tuks Fm, automated teller machines (ATMs), the SRC offices and the cafeteria, which was redesigned in 2000 to allow for individual contractors to operate in their own spaces.

2.3.2 User groups



Figure 2.8

User groups

Students

Most students on the Hatfield campus use the student centre, whether it is for the cafeteria or the travel agency or even just passing through, there is daily interaction with the student centre.

University staff

University staff also use the facilities provided at the existing student centre. This allows for interaction between all members of the university community

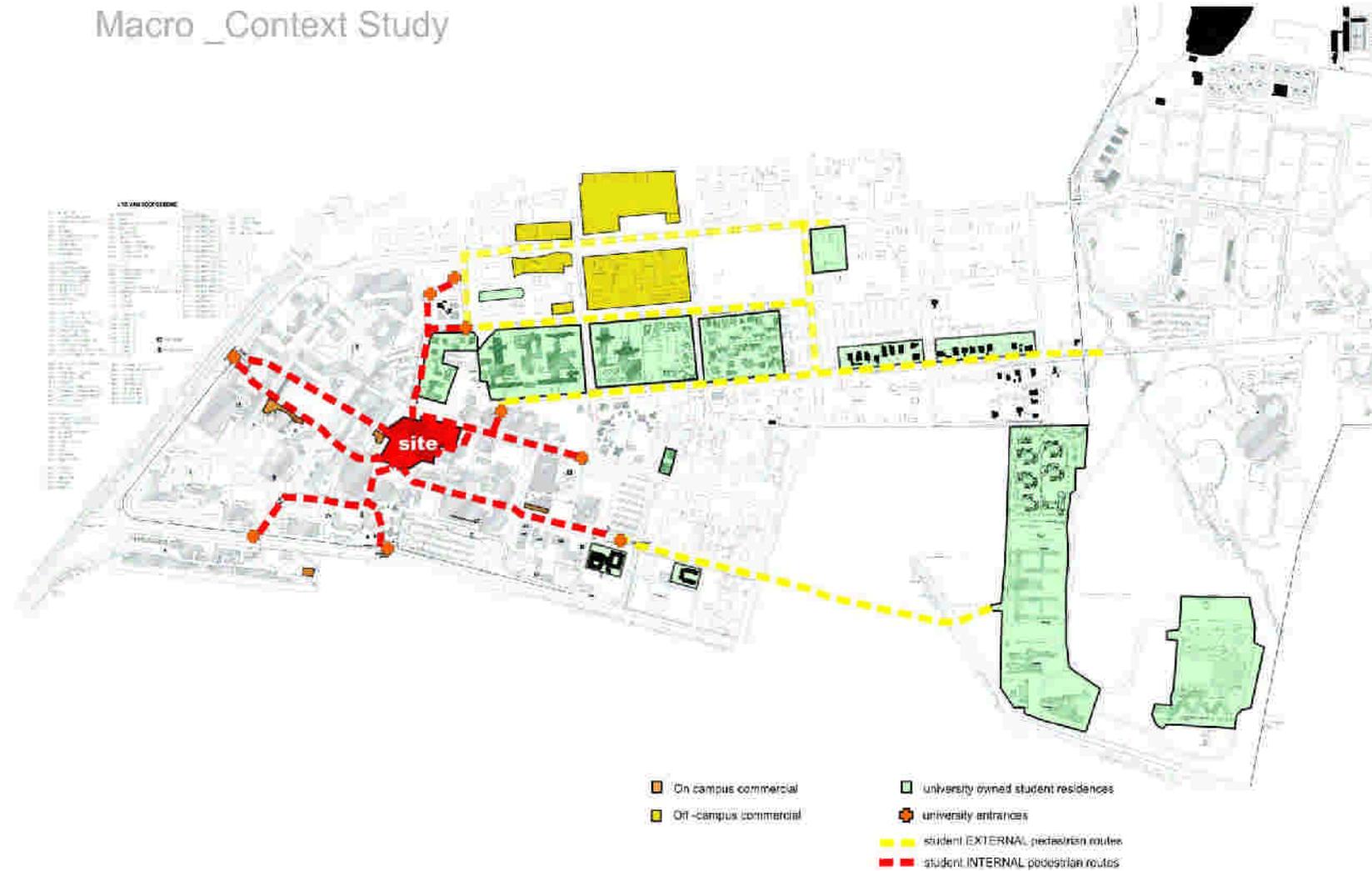
Visitors

Visitors to the university visit the student centre because of facilities provided, such as the ATMs and the eating places. Just being at the student centre allows for the visitor to experience a major part of student social life.



2.4 Context Study

Macro_Context Study



Map showing site in Hatfield, Pretoria context

Figure 2.8.1.

2.4 Macro Context Study

The macro context study map (Figure 2.8) shows elements that influence the level of interaction between users and the student centre. Firstly, identifying the proximity and density of where students live relative to the centre gives an idea of the number of users most likely to use the centre frequently enough to make a redevelopment feasible. Transition routes show current movements of the users of the student centre and how they move in and around campus. Many of the routes terminate or emanate from the student centre yet there is no way of immediately knowing the possible functions of the student centre until one is inside. There is a need for a defining element to mark the location of the student centre. Commercial activity on the campus is sparse along the major routes that lead to the student centre.

Commercial activity off campus is highly concentrated on Burnett Street between the Festival Road intersection and the Grosvenor Road intersection. Services provided on this commercial corridor serve the students and the rest of the community.

Figure.4 shows the public transport routes in the Pretoria context and Figure.5 shows the residential densities in which the University is well located.



Figure 2.9

Hatfield and surrounding areas transport routes



Figure 2.10

Hatfield and surrounding areas transport routes



2.5 Micro Context Study

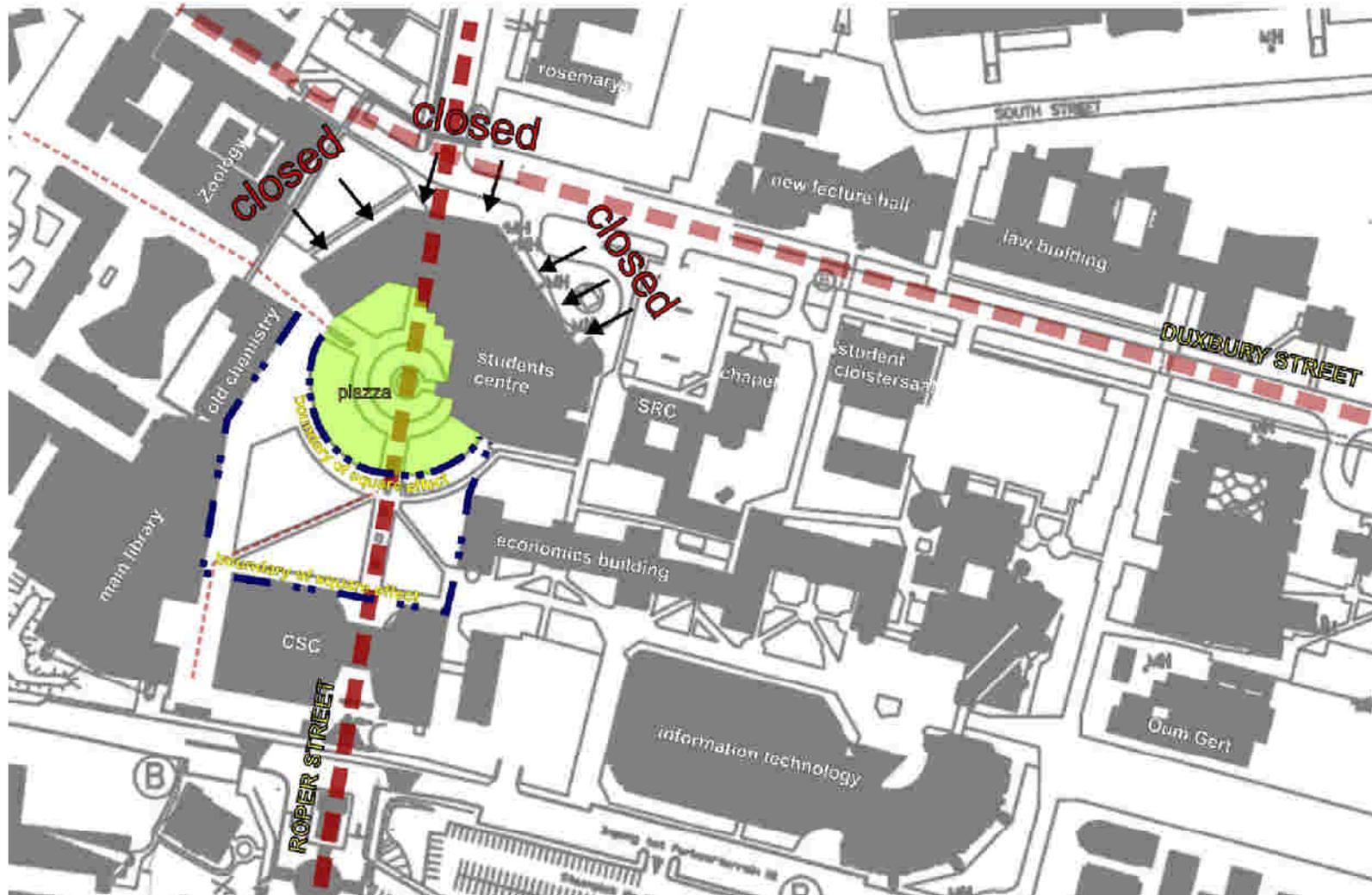


Figure 2.11

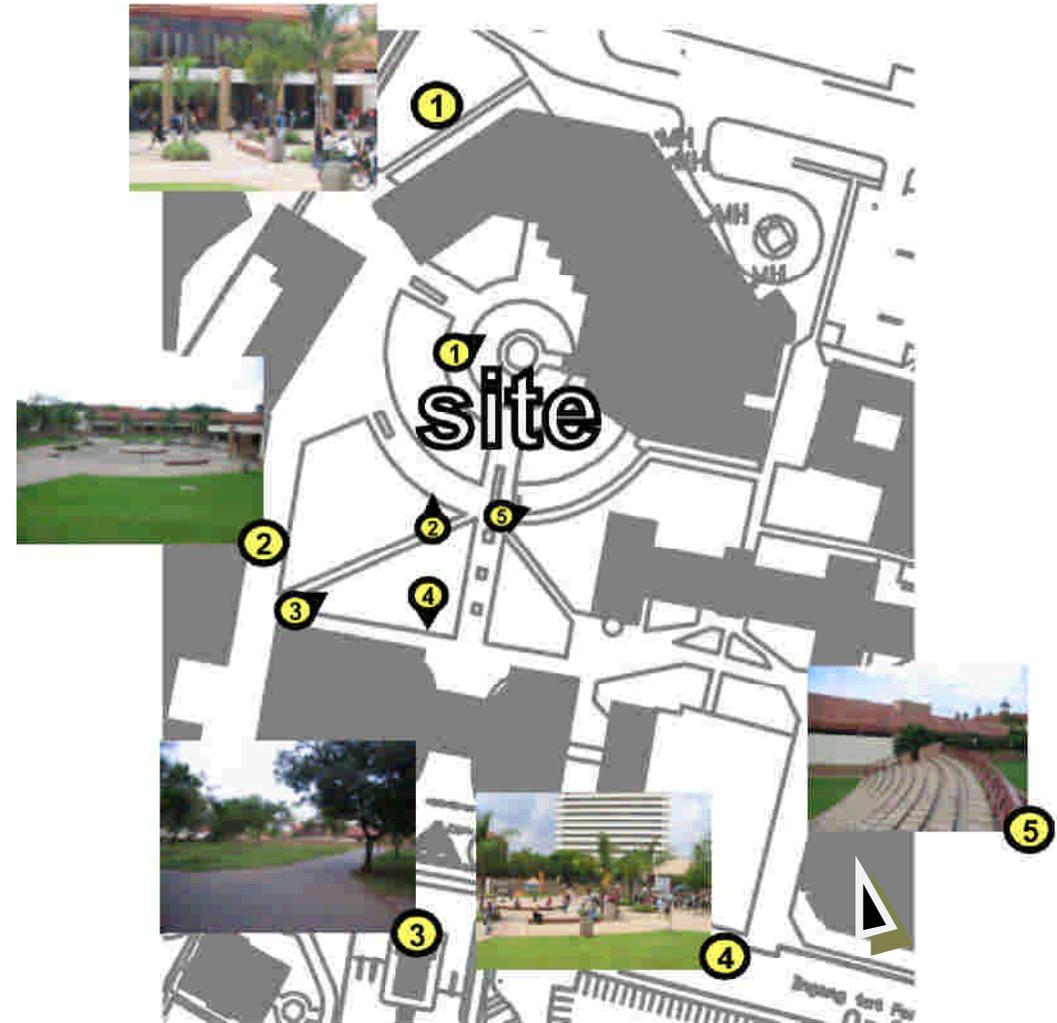
University of Pretoria campus map- Micro Context Study



2.5.1 Response to surrounds

The major transition routes that cross, as well as border the site are Roper Street and Duxbury Road. Internal major transition routes are indicated in the (Figure 2.11) as the routes between the Client Services Centre (CSC), and the route between the Academic Information Centre (AIC) and the Zoology building. The existing student centre's positioning, in the context of the buildings surrounding, shows that there was an intention to design a type of large square between the buildings, then a smaller square/courtyard by bordering the piazza with a wall and raked seating. The boundaries of these squares are shown in Figure. 2.11 and in camera angle 5 (Figure 2.12) and camera angle 8 (Figure 2.13).

The student centre is designed mostly to respond to activity in the piazza, the centre stage of the piazza being the focal point. The main entrance into the site is along the Roper Street axis into the piazza. The building is closed off on the northern facade, only having an opening onto Roper Street to connect to the northern area of the site. The eastern facade is also closed off to the new Law Building and new lecture halls where much of student traffic has since resulted well after completion of the existing student centre. With a proposal of a new student centre, an opportunity arises to address new movement routes that students need to access the east side of campus. The closest entrance on the east facade has a dark tunnel-like walkway, as shown by camera angle 7 (Figure 2.13). The south-east and the north-west facades face the piazza. All entrances to the shops' services and cafeteria are on this face, almost as if to address the main entrance, CSC and AIC to make the piazza become an enclosure.



Site camera angles

Figure 2.12

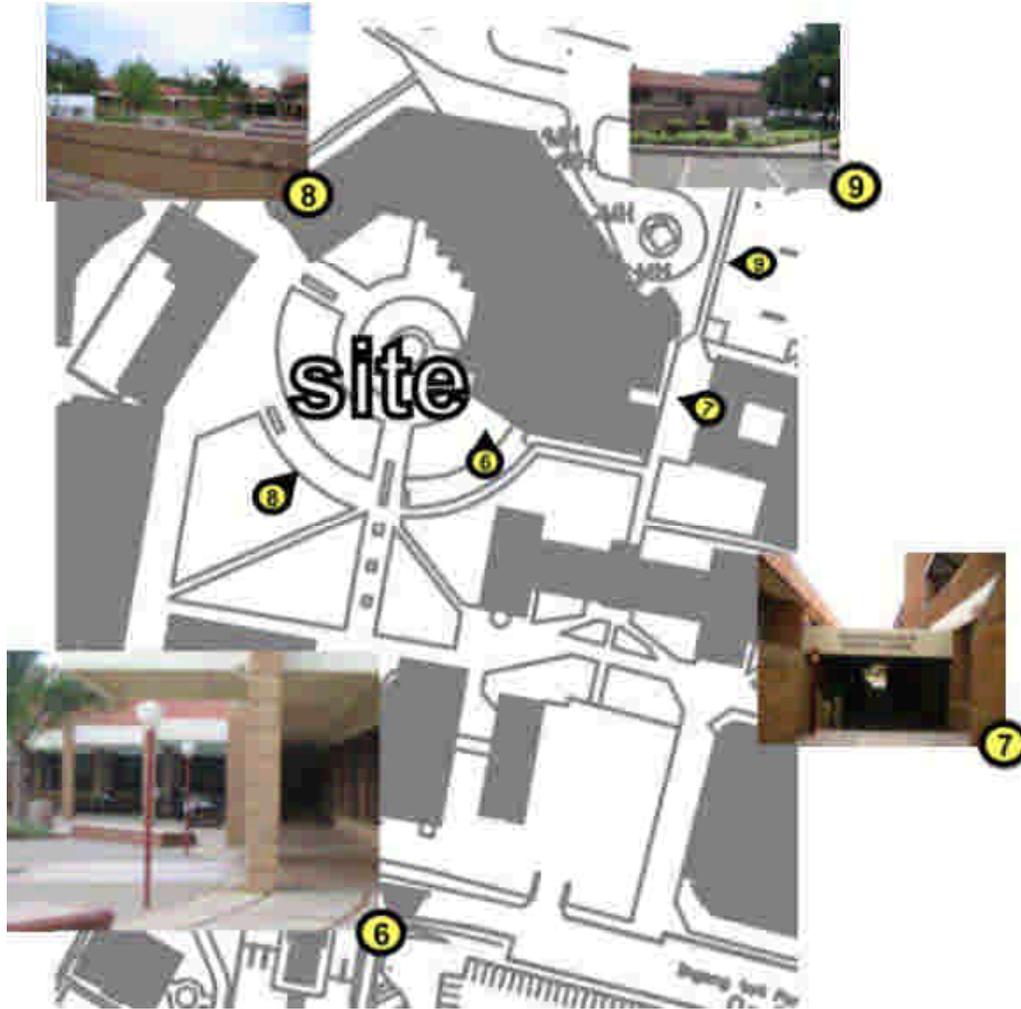


Figure 2.13

Site camera angles



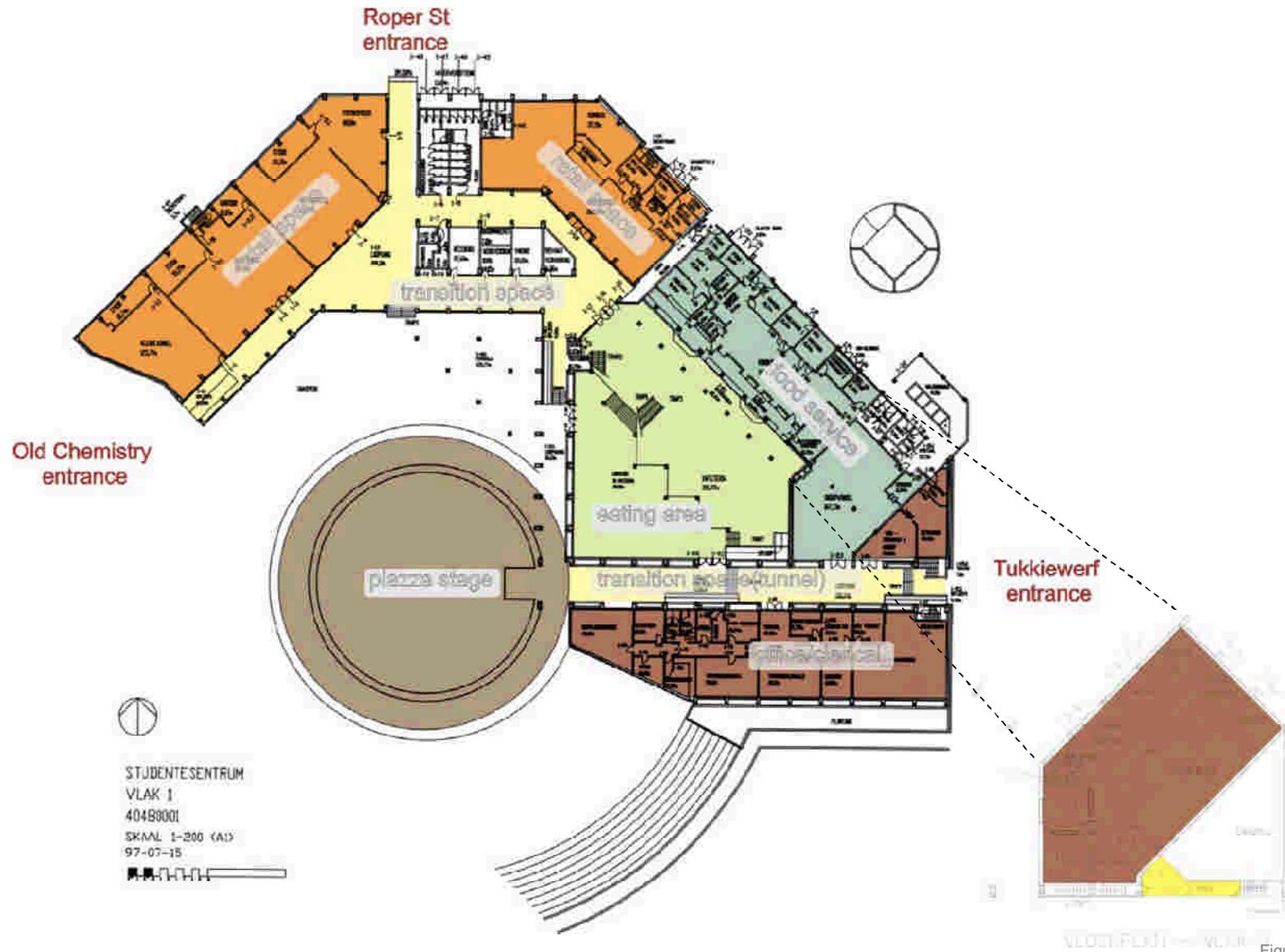
Figure 2.13A



Figure 2.13B



Figure 2.13C



University of Pretoria Student Centre Existing Floor Plans

Figure 2.14

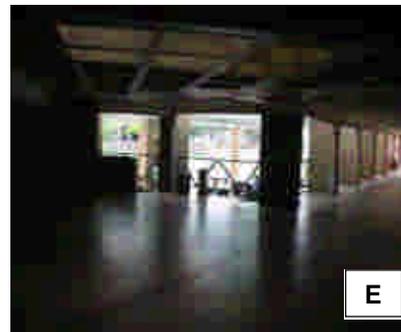
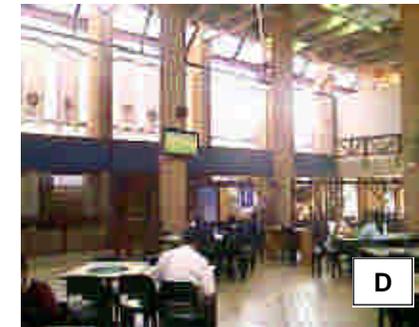
The green spaces in the greater square created become interludes along the transition routes to the student centre. They are effective, informal meeting spaces yet they do not provide visual continuity as spaces that are supposed to be related to movement. One can see where one came from, but not necessarily where one will end up, even though the route that the green space one is on would be one that ends or starts at the centre of the piazza, camera angle 3 (Figure 2.12)

Structure

The existing structure is primarily concrete block columns and reinforced coffer slabs. The structure is rigid and does not accommodate flexibility of use. The roof is made of pigmented concrete profiled roof panels. The internal structure is comprised of 110mm dry-wall, as well as non-load bearing walls and glass, depending on the space being defined. Galvanised steel grilles are fixed between the roof panels and coffer slabs for air circulation and evaporation of moisture between the insulated glass panel shop-fronts.

The walkway outside of the retail shops has a low ceiling height. It seems to have been designed to allow natural light into the adjacent spaces from fanlights on the wall at a height above the slab.

The high volumes of space present an opportunity for further development. The existing column grid allows for vertical and lateral development with opportunity for flexible design.



Analysis views

Figure 2.15



Services

Services, such as the ablution block, electrical circuit boards and gas tank storage, are located on the north-eastern perimeter of the building. Storage and service rooms are also on the same facade. The services are designed to be accessed from the service yard in order to access the main facilities to the north-east of the building. The facilities in the central part of the building, as well as in the rest of the building are serviced through ducts along the pedestrian walkways.



Figure 2.16

ATM queue congestion

Lighting

The lighting in the student centre is predominantly artificial lighting. Natural lighting is observable mostly in the large, double volume cafeteria/eating area (Figure 2.15 C and D) where there are large windows facing the piazza, thus letting in south-western light. There are skylights in the coffers of the slab of the lighting well along the transition areas. The deep passages on the north-east transition route result in a dark tunnel from entrance. The large glazing for the eating area facing this tunnel is ineffective because the natural light it would have let in is blocked by the solid walls of the clerical area shown on the Figure 2.14 which houses RAG and The Perdeby offices.



Figure 2.17

Low ceiling and artificial lighting

Circulation

There is congestion at the ATMs because of the queues for the machines. There are also, at certain times of the year, students seeking accommodation at the service providers adjacent to the ATMs.

The point of convergence of the passage from the Roper Street entrance, Old Chemistry entrance and the cafeteria entrance is a deep space that, on observance, is a dead space. Students generally walk around it yet it is an empty space. It is mostly crossed by students coming from the piazza going into the Minolta.

In the passage that leads from the Roper Street entrance to Coffee Buzz, congestion is caused by the seating area. This seating area seems to be a last minute addition to the narrow passage. The congestion occurs because it is a transition zone, as well as a route to the toilets for students.

Inside the cafeteria there is a disruption of the traffic from the serveries to the seating areas. Routes to the staircase need to be defined. Freestanding furniture allows for constant redesigning of floor layouts. However, the freestanding furniture is too easily moveable; students move it to their convenience though it may become disruptive to the designated circulation routes, for example, by blocking the staircases as shown in Figure 2.18.



Figure 2.18

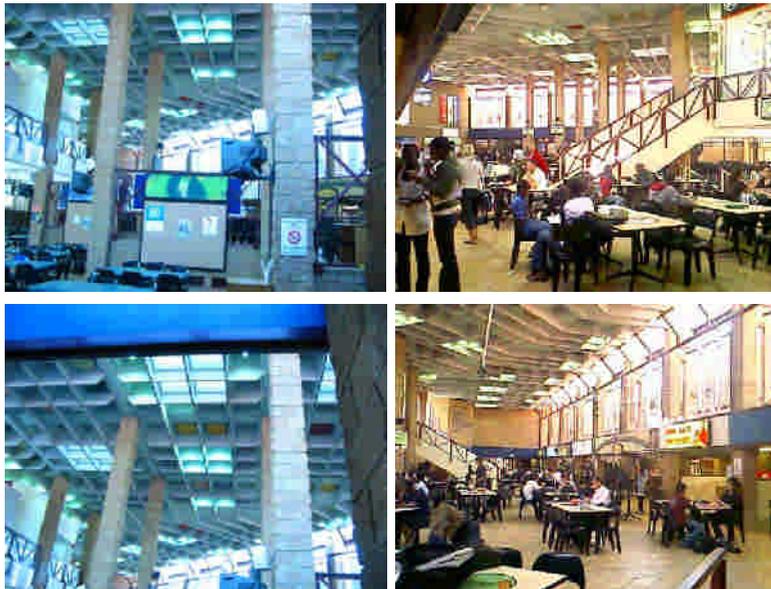
Interior of cafeteria eating area in Student Centre



Fixtures

There are few fixtures that have been installed to serve a specific function or to enhance the aesthetic of the building. Notably, an effort to enhance the aesthetic is presented by the ceiling grid shown in the main eating hall of the student centre.

This fixture allows for lighting to be fitted within the cells created by the grid. Light-boxes for the signage of the different fast food outlets renting the spaces are present, but not as effective as it could be.



Interior Fixture

Figure 2.19

Exterior Finishes

The dominant exterior finishes are the coarse pigmented concrete blocks, glass facades and rust brown coloured, powder coated, aluminium shopfronts. The concrete blocks frame smooth finished and painted 15mm plaster with a raked joint painted. This is seen on the southern and western facades where there is a masonry meeting structure. An off-white acrylic PVA paint is used to paint the plaster. The north-western facade is predominantly aluminium shopfront with tinted glass for solar control. The northern facade has no glazing.



Exterior Finishes

Figure 2.20



Chapter 3

Precedent Study



3.1 : Local design precedent

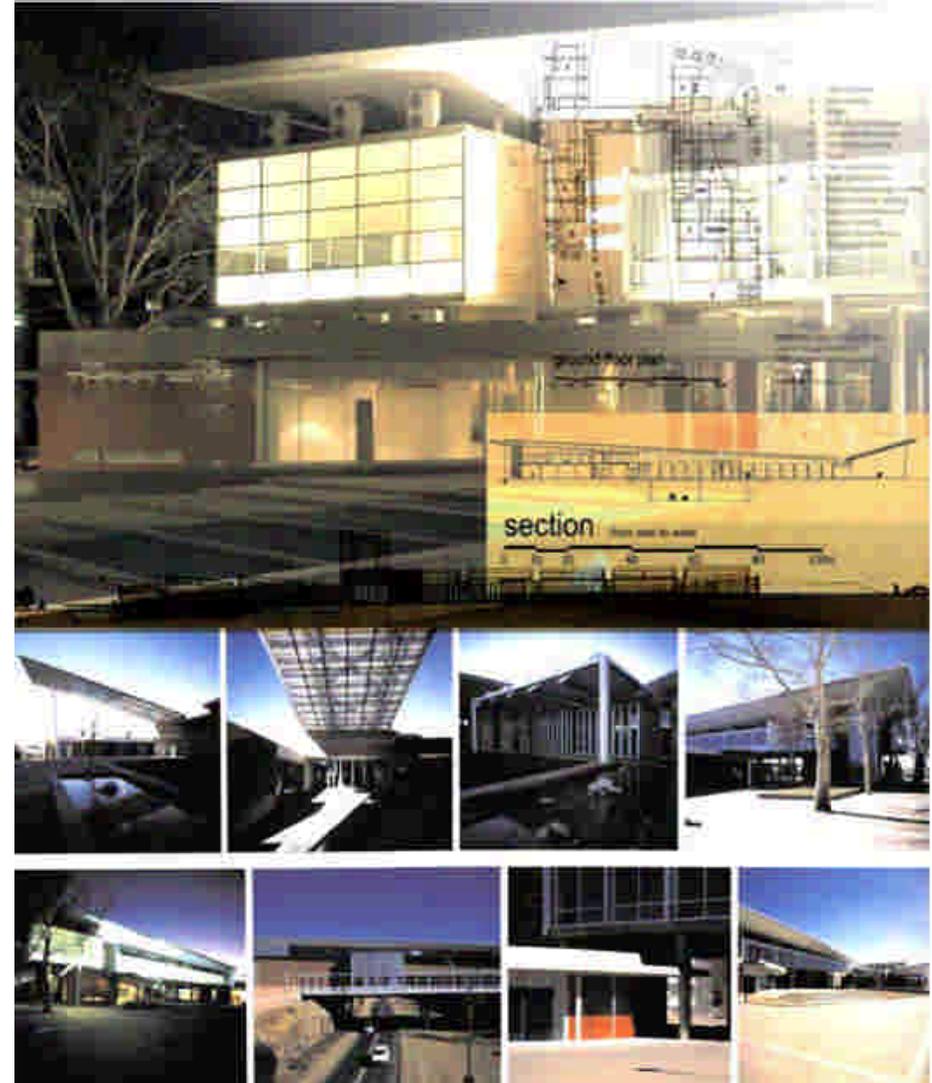
Thakaneng Bridge Student Centre

Location : University of The Free State
Bloemfontein
South Africa

Architects: Bannie Britz & The Roodt Partnership

Thakaneng Bridge student centre is a suitable precedent for this project because it addresses numerous similar issues that allow any designer to pose relevant questions to the UP Main Campus student centre. In *Contemporary South African Architecture in a Landscape of Transition* (Decker, Graupner, Rasmus ,2006) Thakaneng Bridge student centre was designed to respond to transition routes as a primary factor. Bannie Britz's initial design unintentionally, but effectively addressed the main north/south and east/west axes. There was clear intention of the use of urban design principles to create the numerous public realms of a macro metropolis, such as public squares, streets, forecourts and so on.

Britz paid attention to pedestrianisation of the routes, landscaping, as well as the marking of gateways through the structure that may seem to hinder transition. He acknowledged the need for creating pleasant outdoor places for all users of this space by use of street furniture such as seating, bollards, information stands and so on, but it was executed in a subtle manner such that the result was not municipal and visually intrusive.



Thakaneng Bridge Student Centre

Figure 3.1



PG Raman (Raman, 2002) notes, Anton Roodt of the Roodt Partnership had a worthy contribution to the Thakaneng Bridge student centre by introducing the concept of an inhabited bridge. While there is no application of the bridge as specific precedent to this project, the facilities in a building designed to address transition routes from and to public spaces aids in the design approach.

Roodt's concept was to extend the east/west axis to link the east and west sides of the campus by an inhabited bridge. The bridge includes fast food outlets on the ground floor and offices for student services on the first floor. The flanks of the bridge house a media centre and cafeteria on the east and a host of commercial facilities on the west.

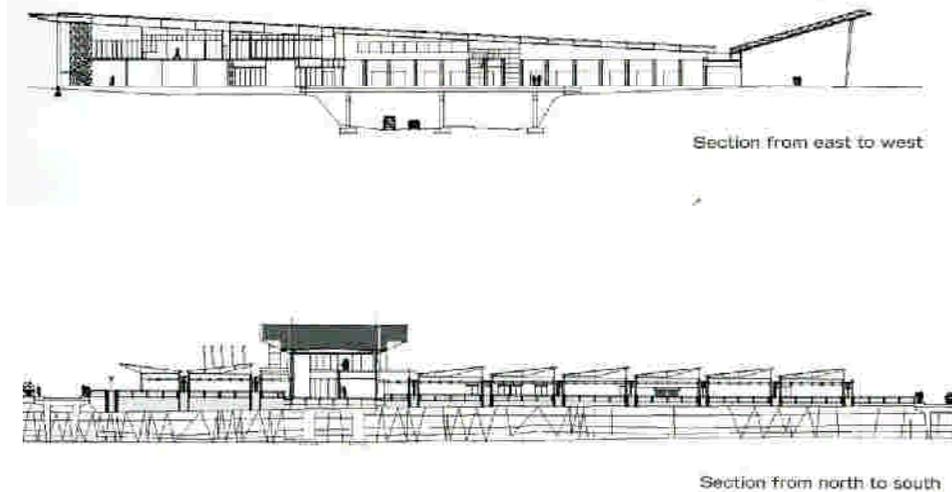


Figure 3.2

Sections through Thakaneng Student Centre

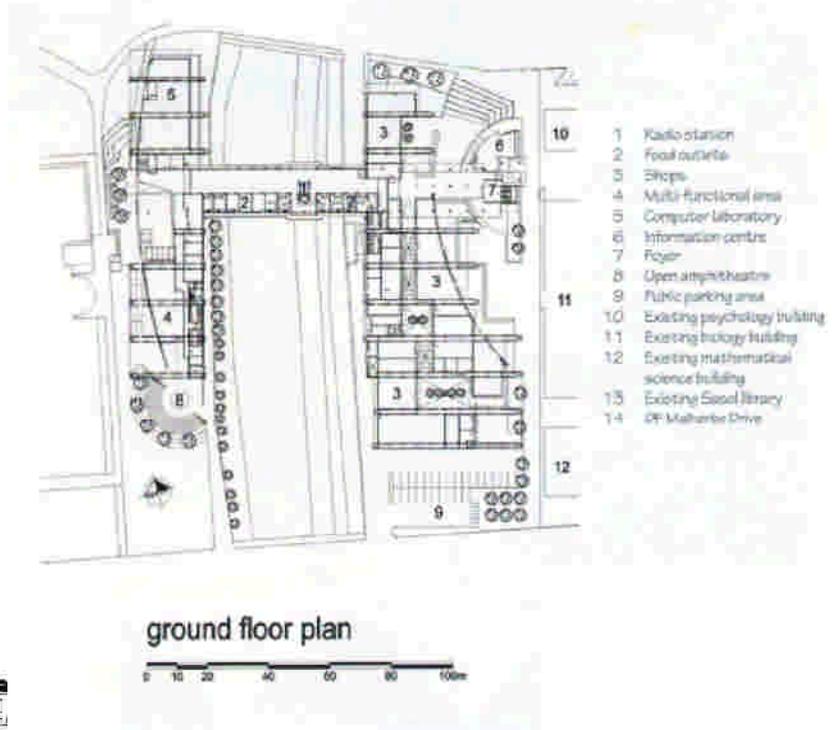


Figure 3.3

Plan and model through Thakaneng Student Centre

3.2: Branding in architecture precedent

High Performance Centre - HPC

Location: University of Pretoria
Hatfield Campus, Pretoria
South Africa

Architects: Don Albert and Partners

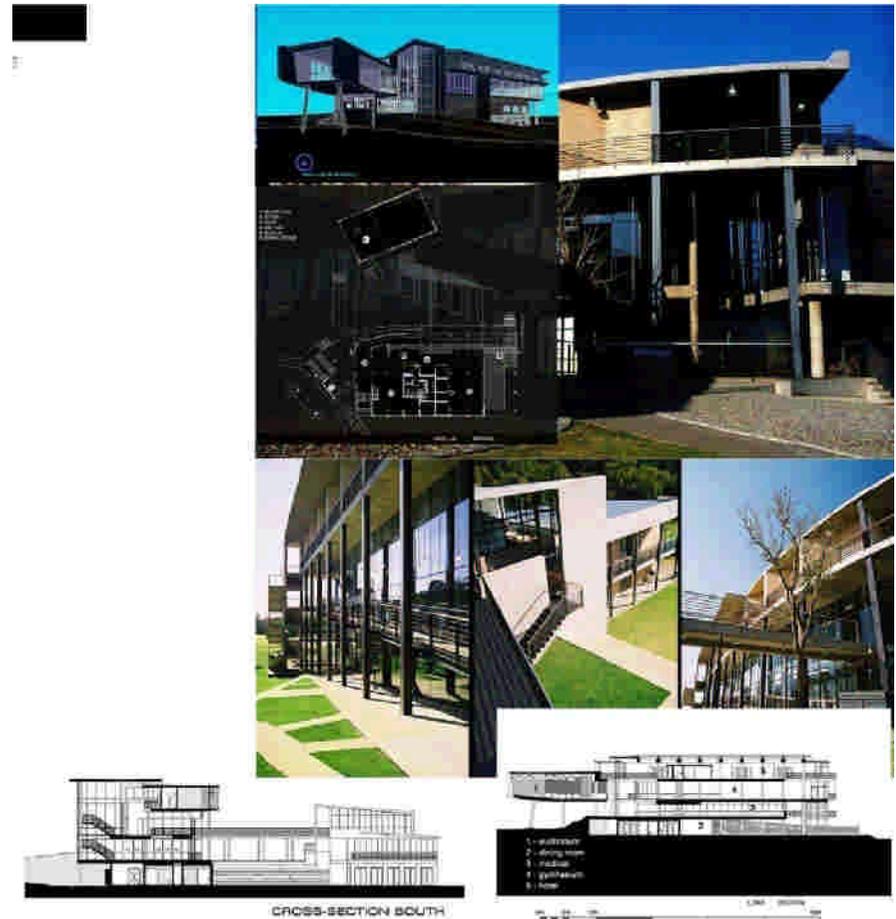
As a public-private partnership between the University of Pretoria, Benstra and the ICON Institute of Professional Rugby (PTY) LTD, the 5000m² phased project called for an innovative planning approach to the many ICON branded functions and special business entities that were to occur on the university's sports campus, while infusing an institutional character through the use of an appropriate architectural language. (Decker, Graupner, Rasmus ,2006)

Indeed the conceptual design found commonality between the following abstract notions:

SPORT INSTITUTION MEDIA CAMPUS

The design called for the building to complement the purpose of the HPC, as well as the functions and events that would be associated with the HPC brand identity. The notions of sport, institution, media and campus were the drive behind the concept for the design of the building.

Cutting edge design that echoes the developments and innovations that are born at the HPC was the order of the day.



High Performance Centre – University of Pretoria

Figure 3.4



3. International interior design precedent

The McCormick Tribune
Campus Center

Location: Illinois Institute of Technology
Illinois
United States of America

Architects: Rem Koolhaas

McCormick Tribune Campus Centre provides good precedent for planning and interior solution to this project. The environment is dynamic, in that it has the ability to change with time by way of the frame building system that has been applied.

The finishes are modern and the facilities have a synergy with the spaces around them. The layout of the interior was inspired by existing pathways that were used by students as they walked under the railway track that has now been integrated into the roof of the building. The paths used from the design concept allowed the architect to design plazas, 'streets' and urban islands to assist in articulating the location of services to essentially group them into neighbourhoods.

The interior spaces (Figure 3.6) show the use of modern but practical materials. Glass and steel are used in simple and functional applications. Warm colour tones are used in to mitigate the potential hardness of steel glass and screed. Notably, the warm tones of red and orange are well suited for educational institutions as they stimulate focus as well as energy based positive emotions such as passion in users of the spaces.

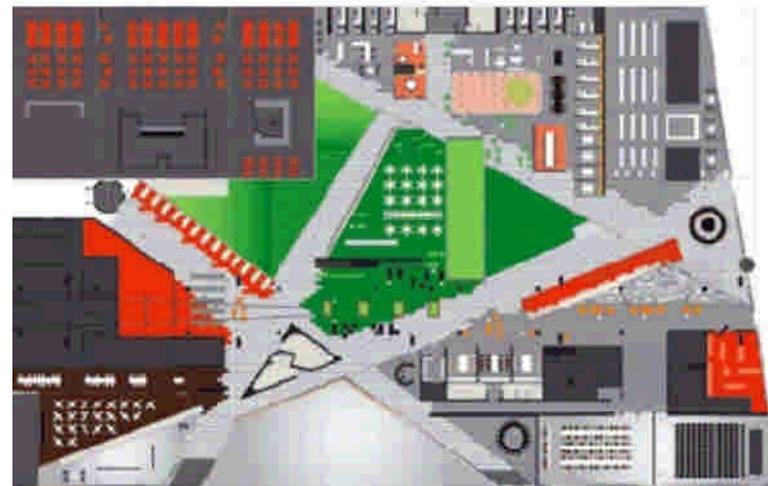
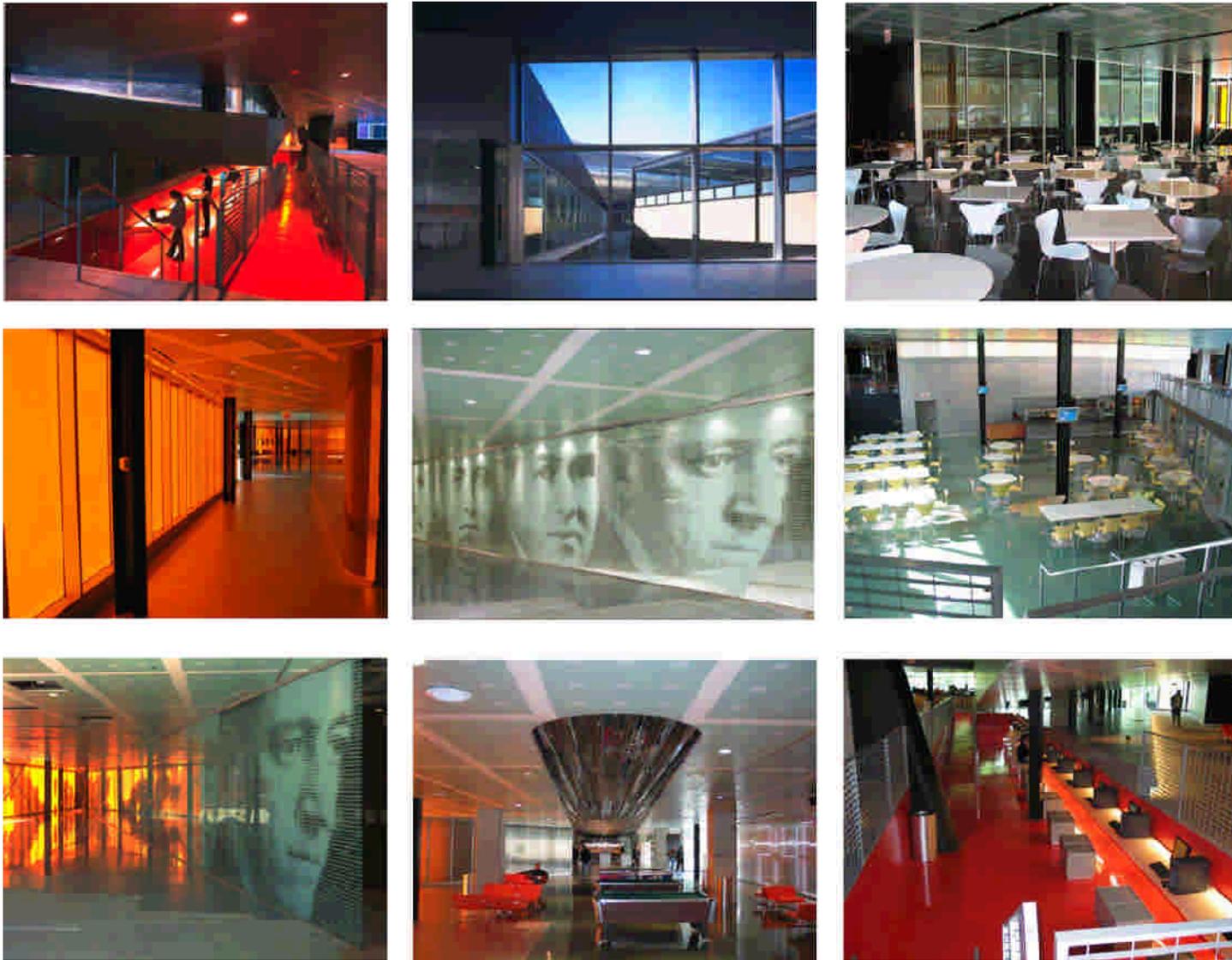


Figure 3.5
The McCormick Tribune Campus Centre – Illinois Institute of Technology



The McCormick Tribune Campus Centre Interior- Illinois Institute of Technology

Figure 3.6



Chapter 4

Design Discourse



4.2 Brand Ethos and Logo

I am who I am and this is my core....



Figure 4.1

Core Student Centre Logo

The logo is a basic text font that mimics the canvas on which each student becomes as they pass through the centre, having their own unique way of interacting with regards to the different facilities and environments they will encounter. The different rings of the “O,” which is the chosen centre of the text, represent each student’s different personality and character which will serve as metaphoric paint on their canvas of the centre. Each time they engage with the centre a splash of their identity will be on their canvas of the centre yet everyone will be part of one daily exhibition of student life, showing different unique pieces in the gallery that is The Core Student Centre.

4.2.1 Strategy

Core brand aligns itself with the University of Pretoria branding and marketing strategy and identifies itself as a student campus lifestyle brand. The focus of the brand is to enhance student life by addressing their needs outside of the lecture room, as well as introducing innovations that allow them to explore their potential as successful members of a larger out-of-campus population. The new student centre will be the hub of the activities and facilities of the Core brand. Indirectly, The Core Student Centre will become the starting point for interaction and informal life skills lessons for all students on the campus.

4.2.2 How it works

In the new student centre there will be a central office for brand administration. The office will house the facilities management, branding and marketing, events co-ordination, recruitment agents and retail space co-ordination. Each of these offices will have student assistants working alongside qualified professionals in the different departments.

The Core brand governs the activities and facilities of the new student centre in conjunction with the existing university regulations, for example, leasing of rental spaces to contracted retailers, the municipal regulations on fast food and food service facilities, commission payments on monthly profits included in the retail rental agreement and any other applicable national or municipal regulations.



4.2.3 Student Recruitment

The recruitment agents will be responsible for student recruitment at the new student centre, as well as seeking vacancies for students on main campus, or on the other campuses of the University of Pretoria. All subcontractors will have a clause in their lease/contract that requires them to hire students as casual labour if they are to rent retail space or food service outlets in the new student centre.

4.2.4 Events management

This department will be responsible for the co-ordination of events which will happen in The Core Student Centre. There will be a central events stage on the student centre site which will serve as the most prominent location for events, performances, promotions, public talks and so forth. For structured events from off-campus clients the events manager in the administration office would have to be contacted. This department will also be responsible for organising events and promotions around the centre, working very closely with the branding and marketing department.

4.2.5 Retail space co-ordination

There will be spaces to let in The Core Student Centre provided for student entrepreneurs, as well as professional retailers and food service companies. These spaces will be co-ordinated by the retail space co-ordination department in the administration office.

All information pertaining to lease agreements, spaces available and regulations to be adhered to, will be available from this office. This department will be working closely with The Core's facilities management and the university's existing facilities managers.

4.2.6 Facilities management

The facilities management will be responsible for maintenance of The Core Student Centre. They will work in conjunction with the university's existing facilities management contractor, as well as security services.



4.3. Design Concept



Figure 4.2

Concept key phrases

4.3.1 Transition

The existing student centre is located on the intersection of major transition routes. The university community inevitably encounters the student centre as they move along transition routes because the building is located directly on the routes.

Movement through the building allows for maximum exposure to the facilities and features within. It also keeps the distance between the departure and arrival points on the opposite side of the building as short as possible.

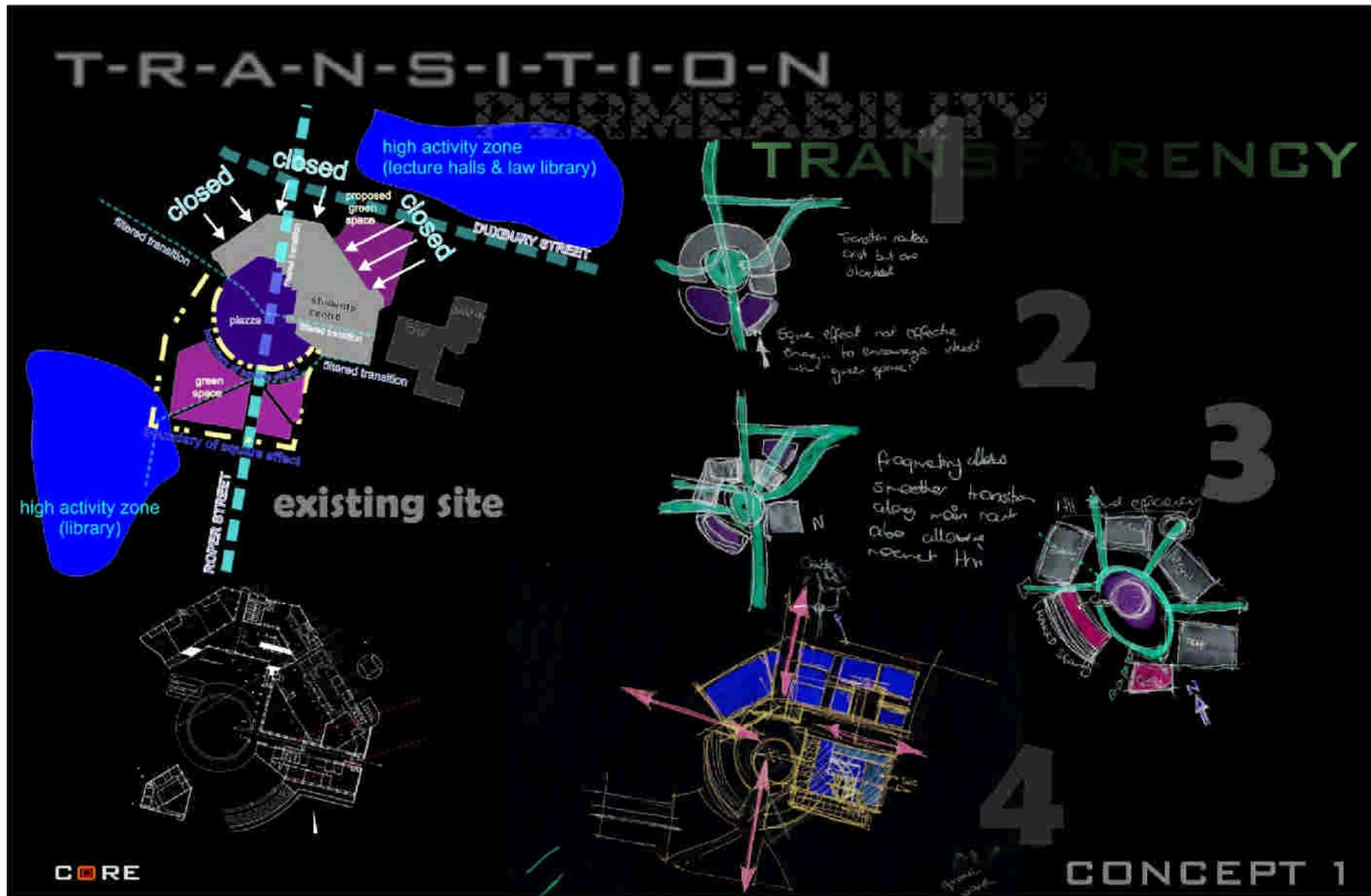
4.3.2 Transparency

The Core Student Centre interior should be visually linked to its site and its users. Visual activity draws attention, enlivening both the location and providing security through passive surveillance. Transparency of the building will, therefore, enhance design factors such as light and orientation.

4.3.3 Permeability

Users of the building should not only be able to move easily through the building, but also in and around it. A user should also be able to sense activity within the building. This concept leads to the consideration of internal transition routes, ventilation and light.





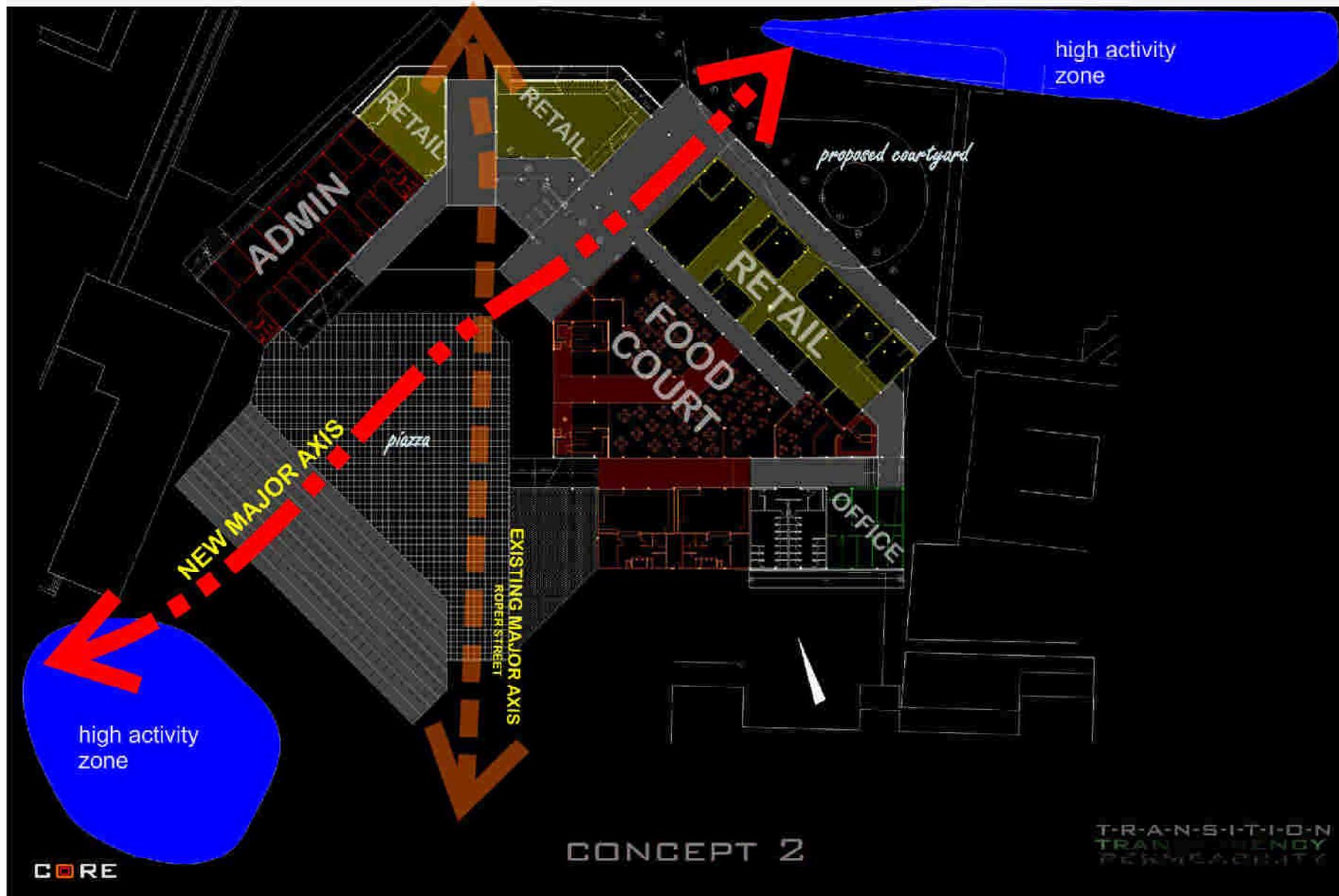
Concept 1

Figure 4.3



Concept 1 development

Figure 4.4



Concept 2 development

Figure 4.5





Figure 4.5a

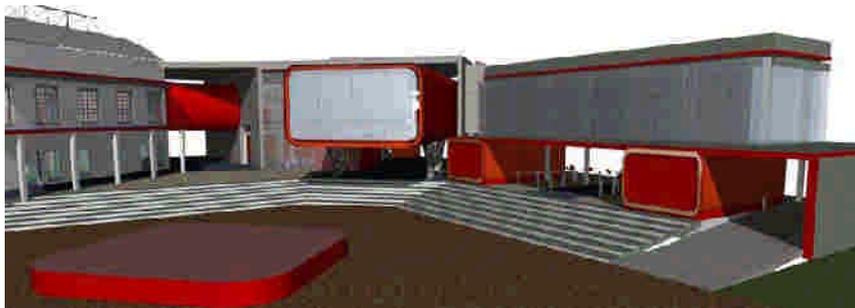
Concept 2 development (2)



4.4 Design discussion

The atmosphere of the new student centre is established through a combination of raw finishes, such as off-shutter textured concrete juxtaposed with industrial technology, steel, aluminium and glass, coupled with oversized fixings to exaggerate detail. It is designed for easy transition through the space, maximum exposure to facilities and an appreciation for design detail that will cause people to engage with the space, whether they are just moving through it or are there for a purpose.

The building has large concrete block gateways to define major entrances. Within each block gateway is a red aluminium tube designed in the profile of the 'O' of the word CORE in the logo. This form informs a lot of design detail throughout the space. Red aluminium, concrete with a red line through it for horizontal continuity, expanded steel mesh and steel are used as parts of the design language articulating the spaces of the core. (Figure 4.7)



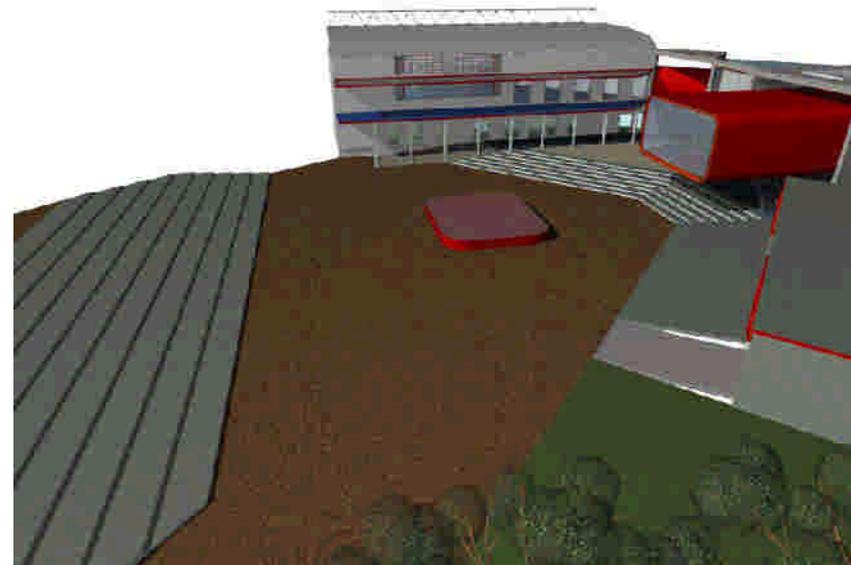
Concrete gateways viewed from piazza

Figure 4.6

4.4.1 Piazza

To enter the piazza one walks down a flight of terraced steps. The steps are designed not only to usher large volumes of people into the piazza, but can also be used as informal seating.

This allows students to sit in the piazza area to rest or to watch a performance that may take place on the stage. The stage in the piazza is operated by a hydraulic system that allows it to rise up from the ground whenever it is needed (Figure 4.7).

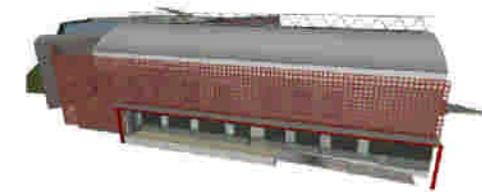
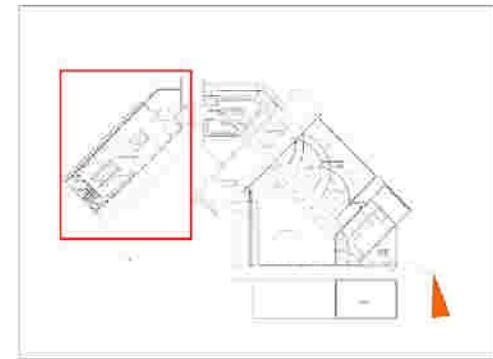
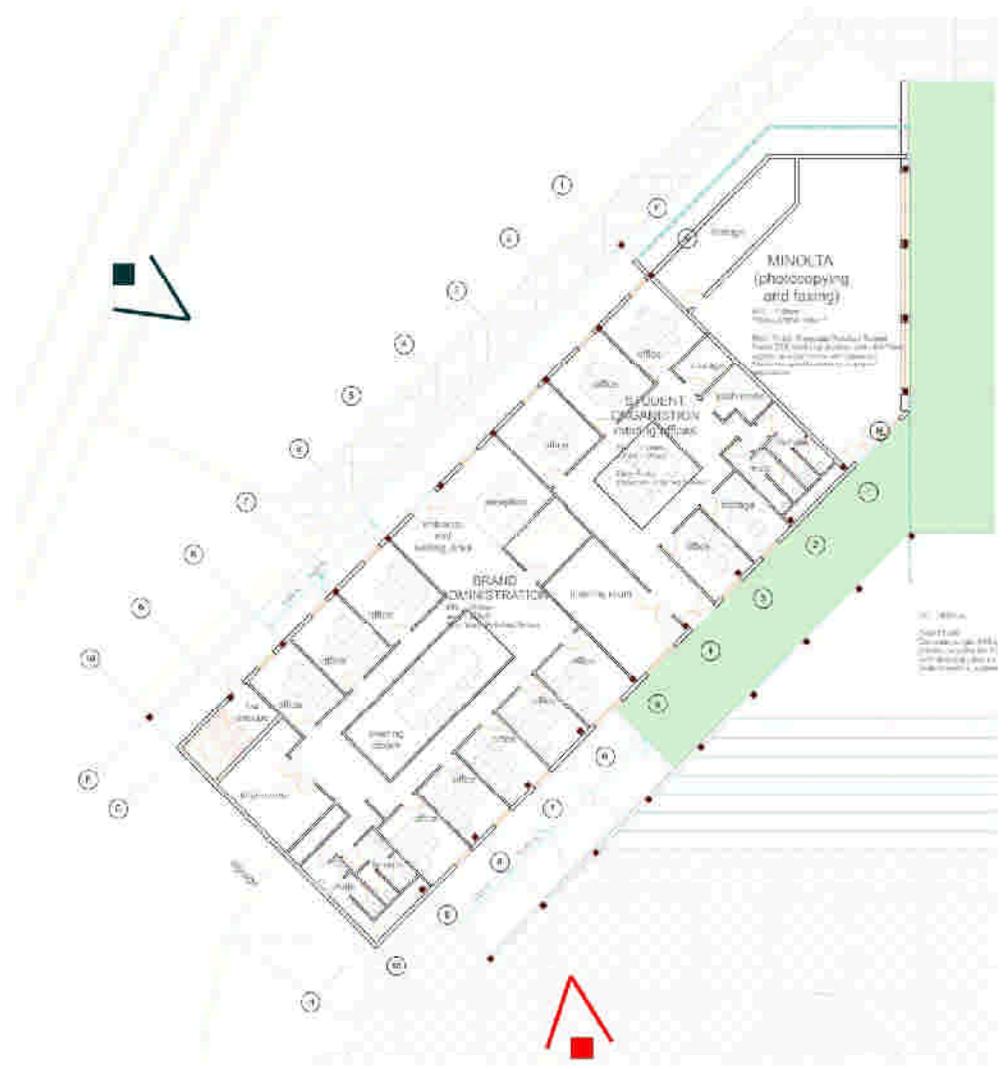


Piazza

Figure 4.7

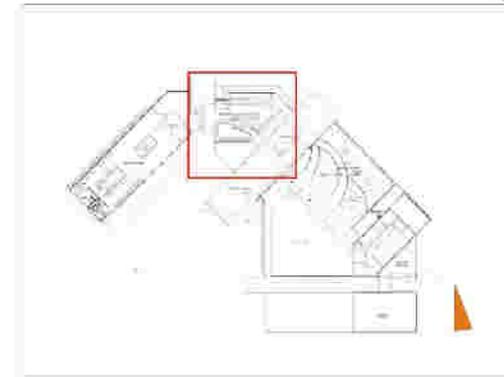
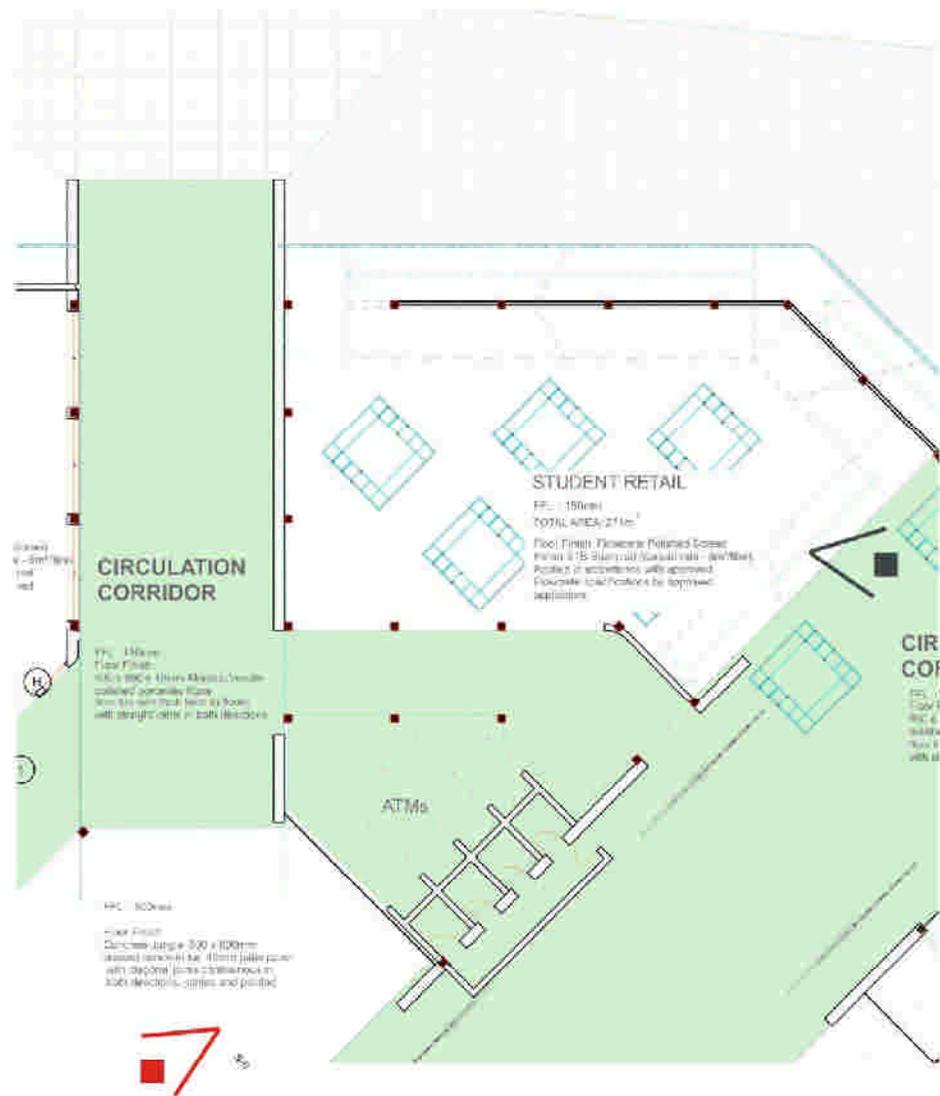


4.5 Ground floor



Administration Block

Figure 4.8



Student Retail and ATM court

Figure 4.9



Food and retail

Figure 4.10

4.5.1 Administration

On the north-western side of the building is the administration block. In this section of the building, there are a number of administrative departments housed in offices. Firstly, the brand administration office is open to the northern façade of the building to allow for privacy and define itself as the more formal side of the core student.

In the brand administration office there is an information desk and offices for building facilities management, student recruitment, brand marketing, event management and retail space co-ordination.

4.5.2 Student Organisations

Next to the brand administration office is the student organisation rotating offices. Student organisations and societies on campus do not have a central location that is easily accessed by students. The new student centre is the ideal location to accommodate them. The offices are leased to each organisation at no charge for a short period of time to allow them to do their administration. Criteria as to which organisations or societies use the offices are determined by brand administration.

The student organisation rotation offices are open to the south, which is the high traffic side of this part of the building.

Design language elements are seen here in the large concrete overhang for solar control, detailed by the horizontal red line. This section of the building has walkways on both sides. On the piazza side, a ramp leads up to the main circulation walkways which are all on the same floor level (Figure 4.8)



4.5.3 Minolta

Next to the student organisation rotation offices is the Minolta photocopying and faxing centre. Minolta is located in the same part of the building as it is in the existing building. The entrance is on the south, facing the piazza. Large glazing allows for natural light to flood the space. It complements the feel of activity when one arrives at the junction of the two walkways which are visually exposed to people inside the copy centre.

Moving eastward from the Minolta centre is the Roper Street axis gateway, which is on an existing transition route that allows students to exit the building and get to Roper Street on the north side of campus. The walkway has been enlarged as it is congested in the existing building. Within the gateway is a bridge that links the wi-fi centre to the study centre, both on the first floor. The bridge is clad completely in the fiery red aluminium. (Figure 4.9)

4.5.4 ATMs and Retail Space

When continuing eastwards along the walkway that links the Roper Street gateway to the new major axis gateway, there is the ATM court on the right and the student retail area on the left. The ATM court is covered and the prominent wall that separates it from the busy piazza is a long two and a half storey high expanded metal mesh. This allows for light and air circulation, as well as a better sense of security because the space is not entirely enclosed. (Figure 4.9)

On the left of the walkway is the student retail area. This is a space for the mobile retail units where students who want to explore entrepreneurial ventures can hire a unit.

The student retail area is an open plan area that allows the retail units to be arranged in different configurations. The units are arranged in the space to allow for easy movement between them and they also spill out onto the main circulation space under the Core Tube. While in the student retail area, one can see people ascending the ramp to go to the first floor because it is enclosed in a glass enclosure, allowing people to see each other. The graffiti graphics wall adds to the ambience of the space being designed for students (Figure 4.9).

4.5.6 Courtyard and Piazza

On exiting the connecting walkway, one enters the new major axis gateway. This is the most prominent entrance of the building. It is the largest gateway and tube. This gateway is accessed from all sides, but the main entrances run along the west-east axis. When one moves west to east, in other words from the piazza to the quieter, smaller courtyard, you have to move under the Core Tube. On this axis, the entrances on the left will lead you to the ATM court, the student retail area and the ramp respectively. On the right, the entrances will lead you into the food court and the retail area.

At the eastern exit point of the gateway, one terminates ones transition through the building by arriving at a quiet courtyard. The courtyard is set to balance green space and public square design on the eastern side of the building as does the piazza on the western side of the building (Figure 4.10)

The courtyard connects the functions of the building to the outdoors so that barriers between the outdoors and indoors are eliminated.

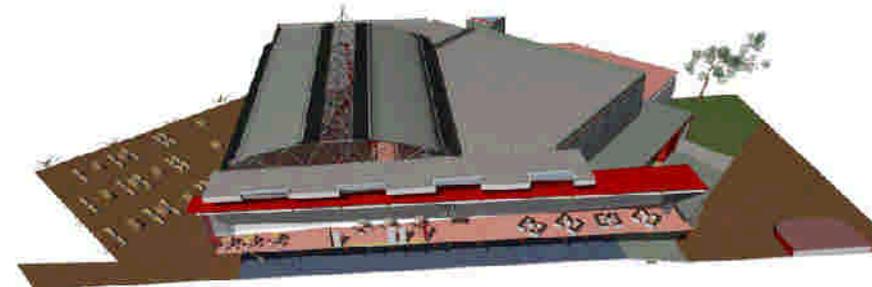


Figure 4.11

Section from courtyard through to piazza

4.5.7 Fast Food Outlets

Food services for the Core Student Centre are zoned to the eastern section of the building where the entrance from the piazza shares a gateway with the north-west to south-east axis walkway (Figure 4.10). When entering the food court from the main axis walkway, the staircase is to the left and the retail area and the fast food kiosks are to the right. The staircase is designed to have design features and elements of the design language of the building.

The food court is a double volume space. The food court has communal seating that is serviced by the fast food kiosks and fast food outlets. It has a specific Flowcrete floor finish to define it as a single space. The furniture is also generic and is in Core brand colours.



On the southern side of the food court is a private café space that is let to sub-contractor café owners. The café is not restricted to furniture and styling of Core brand, but should compliment it.



Figure 4.12

Fast food kiosks



Figure 4.13

Food court

The café's seating area within the food court is on a raised platform to differentiate it from the communal seating of the food court. The interior space of the café is also at the same floor level and opens out into the food court seating.

The university managed fast food kiosks are located in miniature versions of the Core Tube. They flank the entrance into the food court from the piazza. Each fast food kiosk has a queuing area in front of it. People entering the food court can divert into the queues and still exit onto the food court.

4.5.8 Retail Space

The retail area of the Core Student Centre is an important design factor that ties the conceptual approach of the design to reality. When one enters the food court from the piazza and is walking along the defined walkway to exit at the courtyard, the retail section allows for visual realisation of transparency and permeability. This is achieved, firstly, by the walkways.

These transition routes are designed to draw people into the retail area even if they have no intention of buying anything because they can see the courtyard from within the building. Secondly, the walls of the retail spaces are made of safety glass, embodying the notion of transparency.



Interior retail space

Figure 4.14

4.6 First Floor

To access the first floor one may either use the ramp that starts in the new major axis walkway under the Core Tube, or use the staircase located in the food court. In discussing the first floor, it will be suitable to use the staircase as the chosen vertical circulation starting point.

4.6.1 Staircase

Users of the staircase are exposed to elements of the building on a miniature scale and with familiarity they will pick up on the same features of the same design elements on a larger scale around the building.



Staircase design

Figure 4.15

The staircase stringer is made of reinforced concrete which has a raw unpainted finish. The nosing of the treads are a fiery red 20mm x 20mm aluminium angle channel to mimic the red paint line on the building overhang and minor gateway to the food court. The use of the aluminium angle is a statement touching on the fiery red aluminium cladding of the Core Tube which is a major design element in the Core Student Centre.

The stair posts of the staircase are custom bent 'l' sections taking the form of the framework of all the tubes in the gateways. They almost form a tube framework that has been cut to place a staircase inside it. A reflective stainless steel fixing plate attaches the handrail to the framework.

The use of oversized bolts and nuts to fix the fixing plate to the stair posts is deliberate so as to celebrate boldly the detail. The handrail of the staircase is a dark polished African Blackwood timber handrail, the form is an extrusion of the 'O' in the logo. The logo is at the end face of the handrail to add colour to the staircase and, more importantly, as a subtle branding stamp (Figure 5.18). Finally, the balustrade is the same expanded metal mesh used as a screen for the ATM court, solar screening for the food court and study centre. This balustrade detail is continued throughout the Core.

On reaching the top of the staircase, one arrives at a seating platform that is a prelude to the student recreation hall. This seating area overlooks the food court and is designed as an intimate seating area with seating cubicles as the furniture for this space. While the furniture in the building may vary in form, the brand is maintained through the use of colour.

4.6.2 Recreation Hall

The recreation hall is a large 1½ volume high open space. It is a Recreation Hall that can be used for a variety of functions (once the freestanding furniture is moved to the storage at the back of the hall).

Students come to the hall to play and relax. There are coin operated pool tables, foosball tables and two sections for electronic gaming. As this space will be a high congestion area, movement pathways are defined by their floor finish.

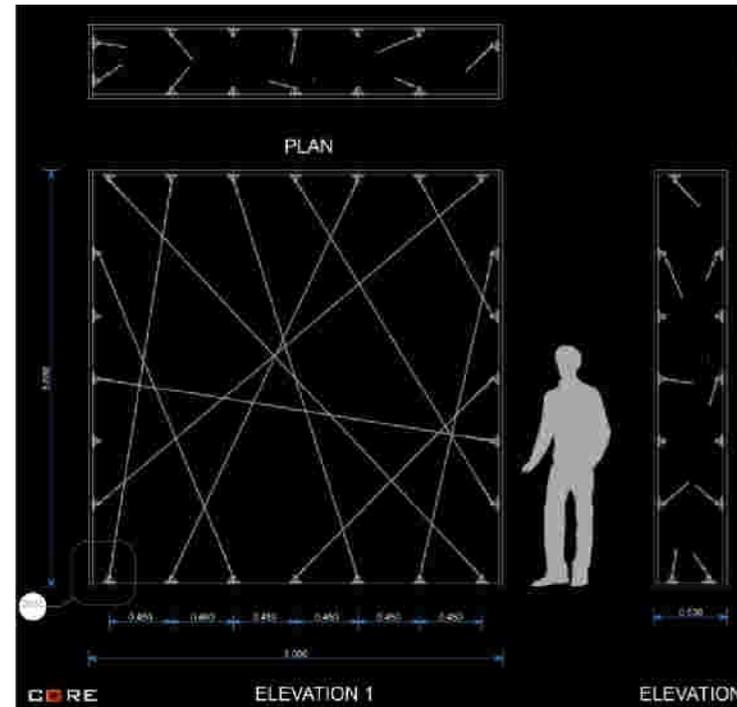


Figure 4.16

Free standing screen

Free-standing woven steel cable screens separate the electronic gaming and non-electronic gaming into two different zones so as to restrict the number of entry points (Figure 4.11). Large windows that are in the form of the logo allow light into the recreation hall and are detailed with African Blackwood benches between each window. The distant southern wall in the recreation hall is a graphics wall such as the one in the student retail area.



4.6.3 Core Tube



Figure 4.16a

Perspective section of focus area

The Core Tube includes the student lounge, vending court and a coffee spot. Walkways are continued through the tube and have the same finish as they have in the recreation hall so as to maintain consistency for users of the building.

The student lounge provides a subdued environment that is designed for relaxation and conversation. Acoustic panels are designed into the space so that conversation noise is isolated to the seating space from which it emanates. The floor finish for the space is a blend of industrial carpet and vinyl, which becomes the wall finish.

Variations of reds and oranges are the colours used in moderation throughout the tube. Reds tend to stimulate metabolism, joy and passion, while oranges encourage appetite, happiness, stimulate mental activity and can even

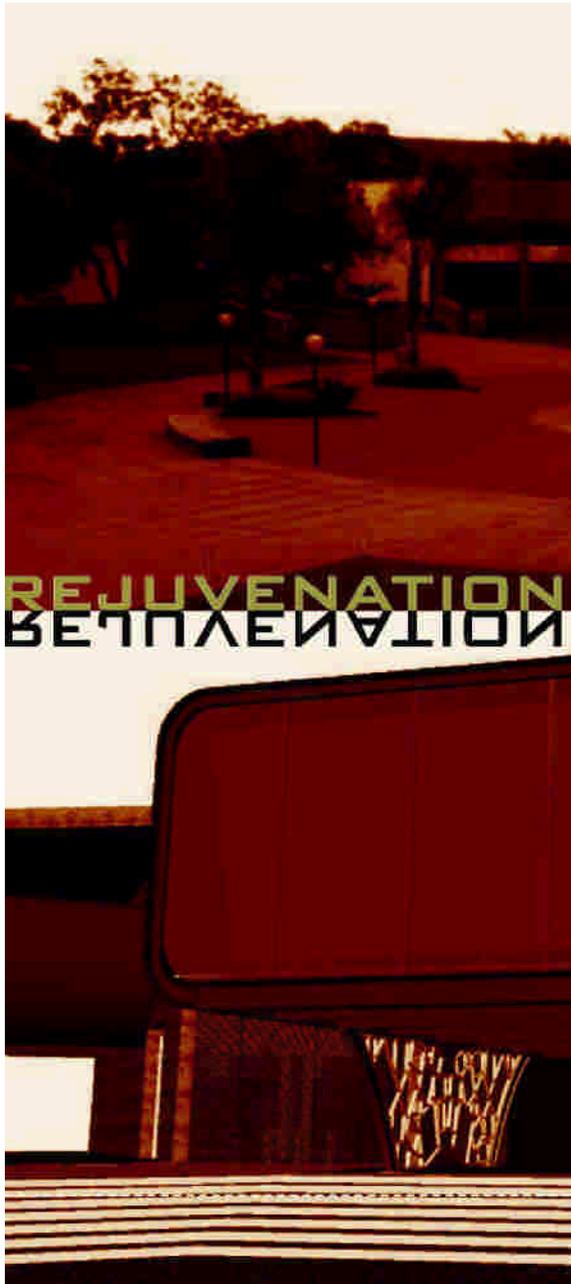
increase oxygen supply to the brain. (www.colour-wheel-pro.com/colour-meaning.html). The student lounge has two digital screens at each end. The larger screen faces the piazza so that people walking outside can view it. If there is an event in the piazza it is screened on this big screen. The screen closest to the entrance is integrated into the stained glass screen that separates the student lounge with the vending court.

4.7 Conclusion

The proposed design endeavours to create a place that students can feel is designed for them. The existing building was stripped of all its layers except the skeleton and essentially had a new breathe of life blown into it. It is also considered that students who would experience the old student centre as well as the new Core Student Centre have layers of memories to preserve as part of what gave them an identity as a student at UP.

Therefore while taking away their familiarity with the student centre in its previous state; the Core Student Centre is a place that will be the beginning of new and fulfilling experiences. Keeping the double volume as an eating area a way of keeping a familiar place where social interaction thrives as well as a physical statement of ushering in a new student centre yet keeping a memory of the previous building.

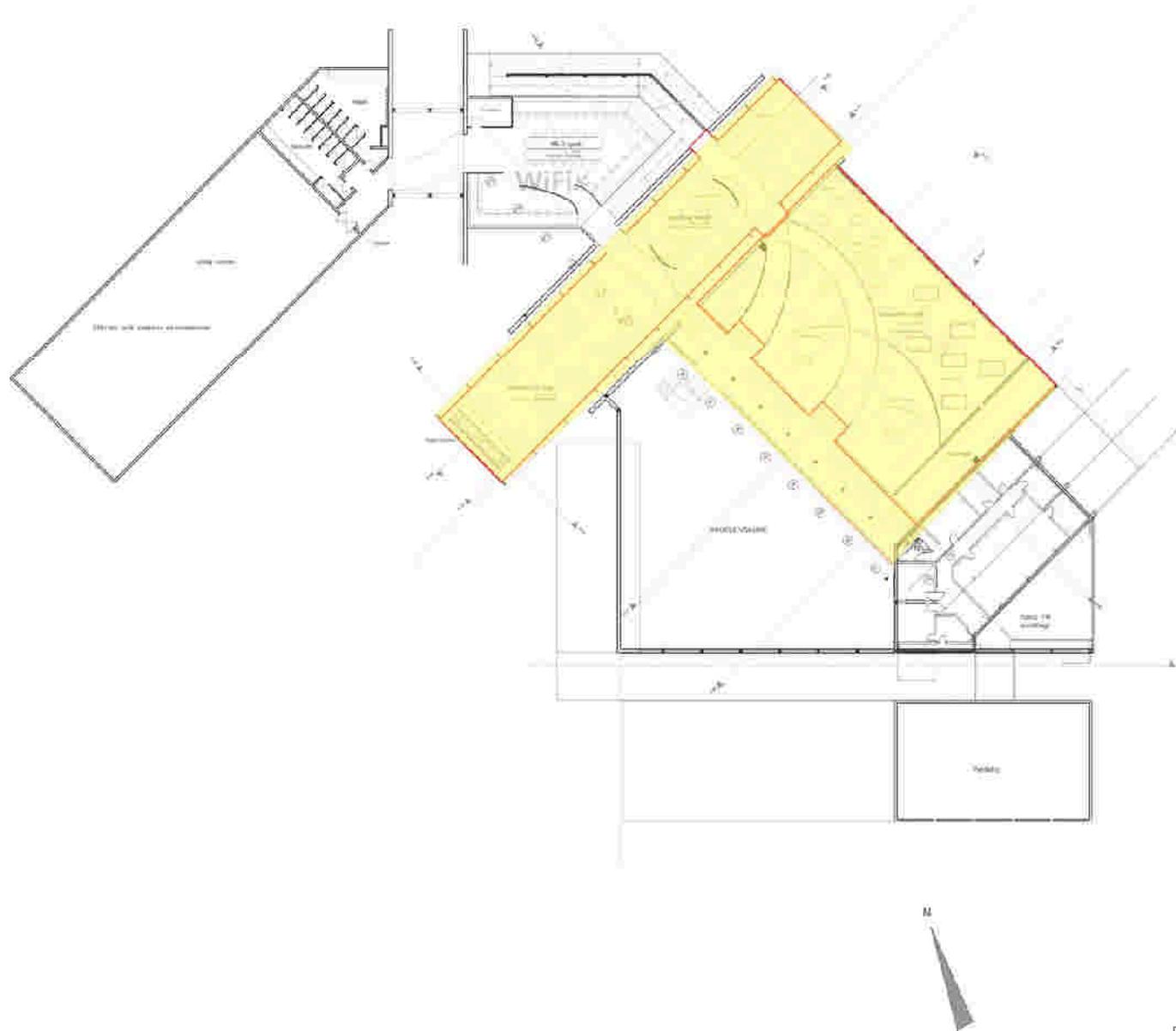




Chapter 5

Technical Report





First floor plan – focus area

Figure 5.1



5.1 Introduction

The focus areas for technical resolution are the student recreation hall and the main Core Tube, both located on the first floor plan (Figure 5.1). The two locations are high traffic zones inside the student centre. The student recreation hall is an area designated for recreational activities such as pool, foosball, as well as electronic gaming. The main Core Tube provides a relaxed atmosphere for students to enjoy during breaks, as well as other facilities for students to utilise, such as the vending court.

5.2 Demolition

The existing building's primary structure is shown in Figure 5.2. It is made up of 240mm x 240mm reinforced concrete columns, which are clad by 203mm x 203mm coarse pigmented concrete blocks to create rough textured block pillars.

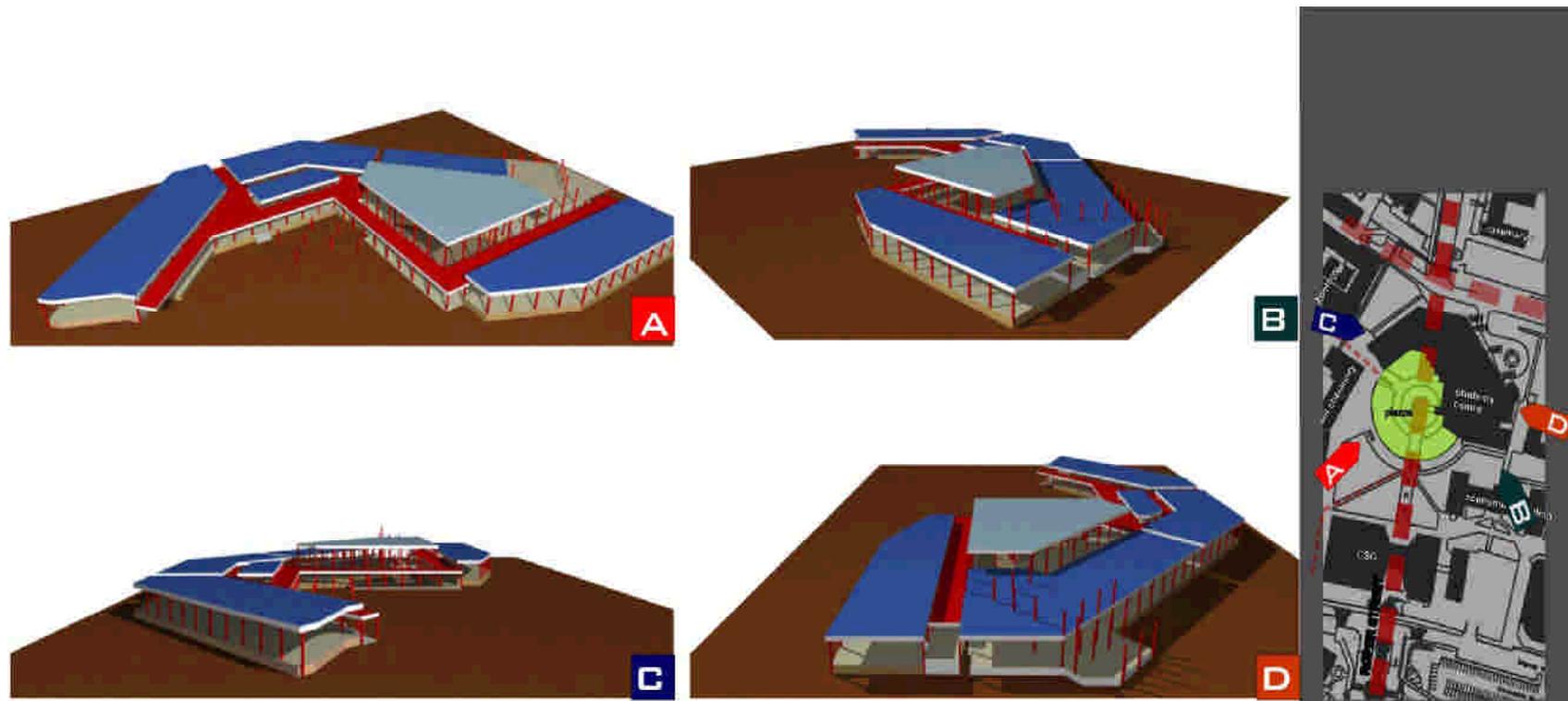


Figure 5.2

Existing structure



The floor slabs are all at 1050mm above the piazza floor, which is the datum point, except at the entrance of the eating area where it is level with the piazza floor.

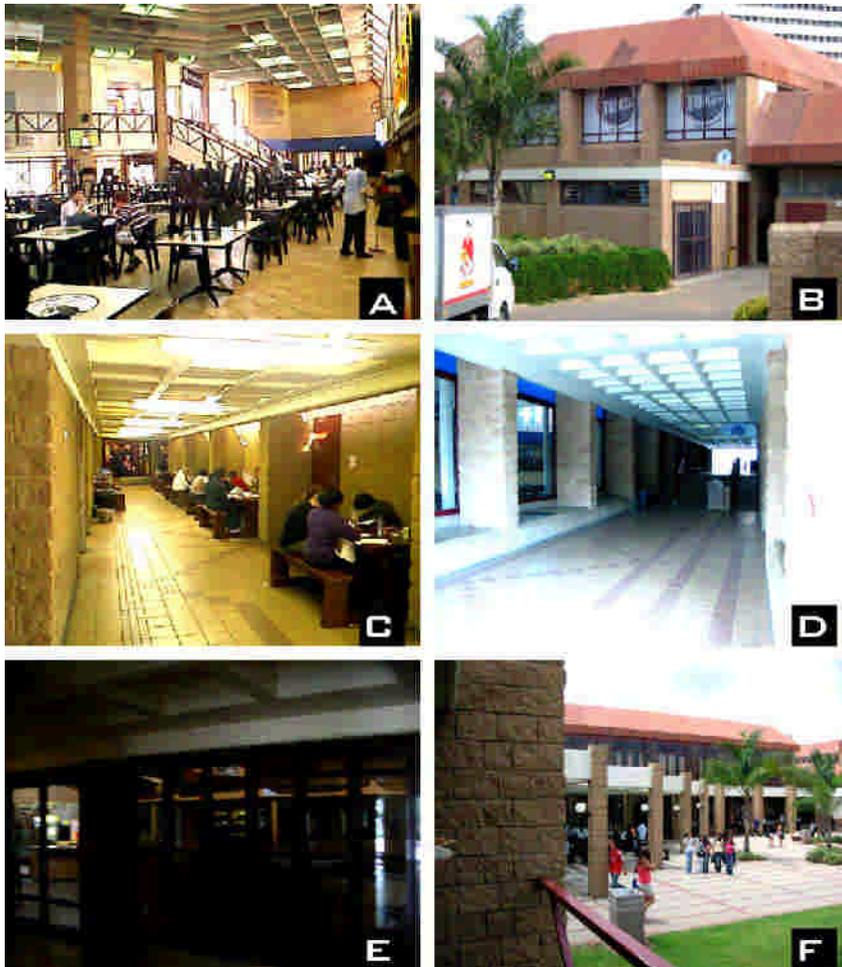


Figure 5.3

First floor plan – focus area

The existing building has 203mm x 102mm x 406mm non-bearing pigmented partition block walls for the secondary structure. Roof slabs are either 3600mm above datum or 4200mm above the datum point, except the roof slab of the double volume which is 9600mm above datum point. All the roof slabs are 600mm deep coffer slabs with 500mm x 500mm x 450mm deep coffers.

The secondary roof structure is 3600mm x 2500mm x 100mm red pigmented profiled precast concrete panels. The tertiary structure is 110mm dry walls, as well as glass facades, all in varying locations throughout the building.

All concrete, blocks, tiles and roof panels from the secondary structure are to be demolished and used as rubble for raising the floor level in the main eating area to 1050mm above datum level. The aluminium shopfront is to be retained on the south eastern facade (image F, Figure 5.3)

5.3 Circulation

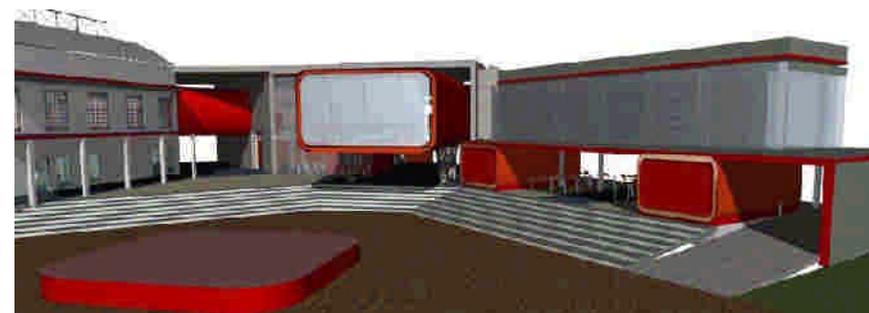


Figure 5.4

Concrete gateways with varying tubes



Main entrances to the building are identifiable by off-shutter concrete gateways with varying red tubes (Figure 5.4) . Movement through the building is articulated for users by the different finishes on the floors of the main circulation zones. Ramps are aligned to walkways where there are level changes.

Each main circulation route enters one side of the building and spills out onto the other side of the building. The building is designed to filter the capacity of people in transit between the west and east side of the Core Student Centre.

The first filter on each side of the new main transition route is an outdoor seating square, in other words, the piazza and the courtyard on the east. The second filter is the building then, depending on which side one is exiting the building, the outdoor seating areas become the third filter through which the capacity of people in transit begins to increase as they leave the building.

Access to upper levels is via a staircase in the food court. It is adjacent to the main entrance gateway. The staircase leads to a seating area overlooking the food court. A shorter flight of stairs leads to the recreation area. For mobility impaired people, the vertical circulation ramp leads up from under the Core Tube where its starts next to the student retail area.

The ramp is at a 1:15 gradient and has landings according to SABS400 regulations. The ramp's first floor landing is at the floor level of the Core Tube to allow people to enter the Core Tube. The next landing is at the floor level of the Wi-Fi centre and study centre, where the floor level is consistent to allow for comfortable movement.

5.4 Lighting

5.4.1 Recreation hall

The roof for the new recreation hall has a wide span of 20.3m and starts at 4200mm above the finished floor level. In the middle of the roof is a long clerestory window which allows natural light into the space, as it is a deep space. The space is designed to allow as much natural light as possible from above and around it. There is a row of mechanically operable windows below the fixing points of the roof sheeting on the south-western and north-eastern sides of the building. The windows allow for light and ventilation. On the north-eastern side, the windows are screened by the *bris soleil* wall so that not too much direct light enters the space.



Figure 5.5

Wide span roof and clerestory for lighting



All furniture and fittings are below 1800mm high and there are no solid partitions to separate the different zones. The partitions are well spaced steel cables that direct, or restrict movement without jeopardising the light quality or air movement. The north-facing facade has large windows that allow natural light to flood the space. A brick screen filters the light and also results in aesthetically pleasing shadow patterns on the floors inside.



Figure 5.6

Large windows and bris soleil

Artificial lighting in the space is provided by the large industrial light fittings specified in the materials 5.9 section. The use of CFL light bulbs in conjunction with the amount of natural light already flooding the space, aids in decreasing energy costs of the building. Artificial lighting is also used to enhance the atmosphere.

5.4.2 Main Tube

Natural light enters the tube from the north and south, as well as from above. The two ends of the tube are double glazed to prevent excessive heat gain and heat loss, and there is a large over-hang on the north face. In the roof of the tube are four large skylights in the concrete gateway in which the tube lies.

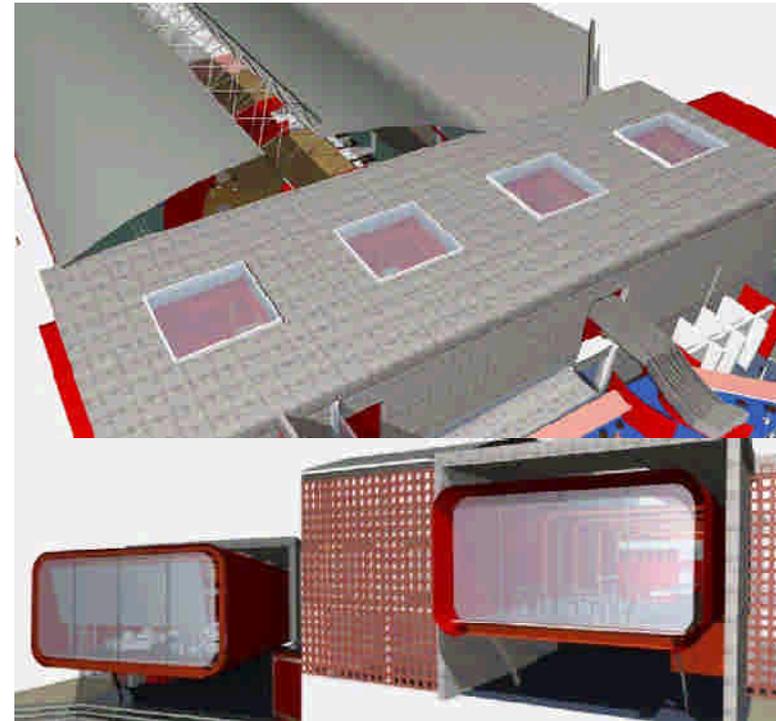


Figure 5.7

Core tube natural lighting

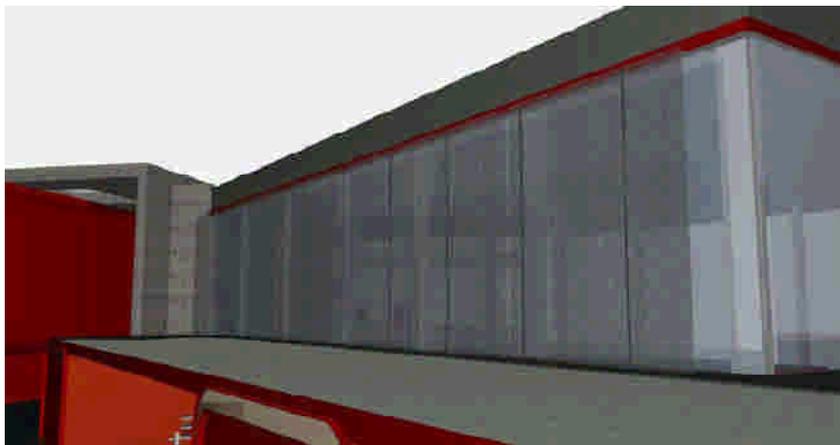


5.5 Ventilation and Thermal Comfort

The tube then has its own skylights directly below to allow light to fall into the space. Ambient light from the piazza and reflected light off the student centre adds to the natural light that falls into the tube on the south facade. The same large industrial artificial lighting fittings are used in the tube, but are also supplemented with down-lighters at relevant points. This is because as the sun sets the shadow cast by the concrete gateway will make the space inside the tube relatively dark.

5.4.3 Solar control

The west and north-western facades of the building have large overhangs and the western facades have vertical expanded metal screens to prevent the sun from entering directly into the food court (Figure 5.8). The north facing facade has the bris soleil screen not only for aesthetic appeal, but especially for filtering direct light into the north facing facade.



Core tube natural lighting

Figure 5.7a

5.5.1 Recreation hall

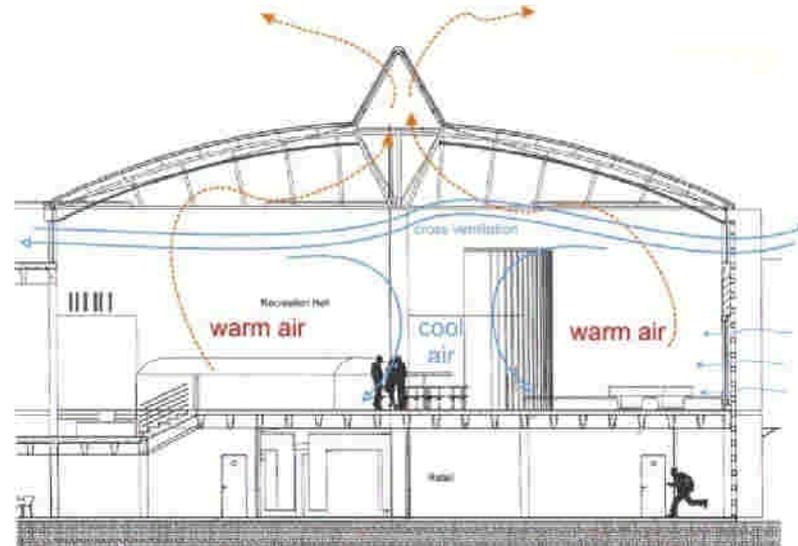


Figure 5.8

Recreation hall ventilation

The recreation hall has operable windows on both sides of the length of the space to allow for cross ventilation closer to the roof when warm air rises. The concave form of the roof allows for all the air that rises to be channelled towards the louvers. Due to the layout of the space being open plan, there is continuous movement of air because there are numerous openings in the building for the transition routes that allows air to move through the building as freely as the people do. There is no need for artificial ventilation in this space.



The walls on the northern facade of the building are about 270mm thick and there is a cavity between the wall and the *bris soleil*, so heat transfer from the outside to the inside will occur at a rate that will keep the space cool during the day and warmer at night.

5.5.2 Main Tube

Provision for natural ventilation has been made in the tube by way of using expanded metal as part of the external cladding at points such as the entrance, where the interior is protected from the weather and the finishes and furniture are not exposed to elements that will cause fabrics to fade and finishes to age faster.

Due to the long tubular nature of this space, if mechanical ventilation is not present, there would be areas where pockets of air would become stagnant. Ventilation ducts come from the roof slab of the canopy, through it, then into the tube. At the top of the ducts are Whirlybird extractors. In the event that there is not enough air movement outside for the Whirlybirds to function at their optimum performance, electrically powered fans will assist the extractors by drawing air into the ducts.

Not having too many openings where the expanded metal is used as external cladding is ideal so that the temperature variations within the tube are not as erratic as the temperatures outdoors. The walls of the tube are well insulated. The cavity between the cladding and the insulation also aids in the insulation of the tube against erratic temperature variations. Another result of the design is sound insulation. (See Figure 5.25 , Figure 5.26)

5.6 Services

5.6.1 Drainage

There are existing storm water sewer drainage systems along the Roper Street axis. These serve the existing building sufficiently. The ablutions in the student centre will drain to the existing sewer system that runs parallel to the storm water drain on the Roper Street axis as shown in Figure 5.9. The only significant change that would have an effect on the focus area is storm water drainage. Storm water will be directed to the drain on the Roper Street axis. All toilets will drain to the existing sewerage system, with the necessary SABS 0400 regulations adhered to.

5.6.2 Waste Management

Similar facilities in the building are grouped into locations that allow similar waste management methods to be administered to them locally. The food service areas are all on the southern side of the building. The large bin yard on the south side of the building is behind a screen wall and is accessed by a long ramp which emanates from close to the car park, where the loading bay is located for the refuse removal service. Retail has a lot more dry waste, which can be taken along the minor west to east transition spine and exits at the parking area on the east where a bin yard is present.





Services plan – ground floor

Figure 5.9

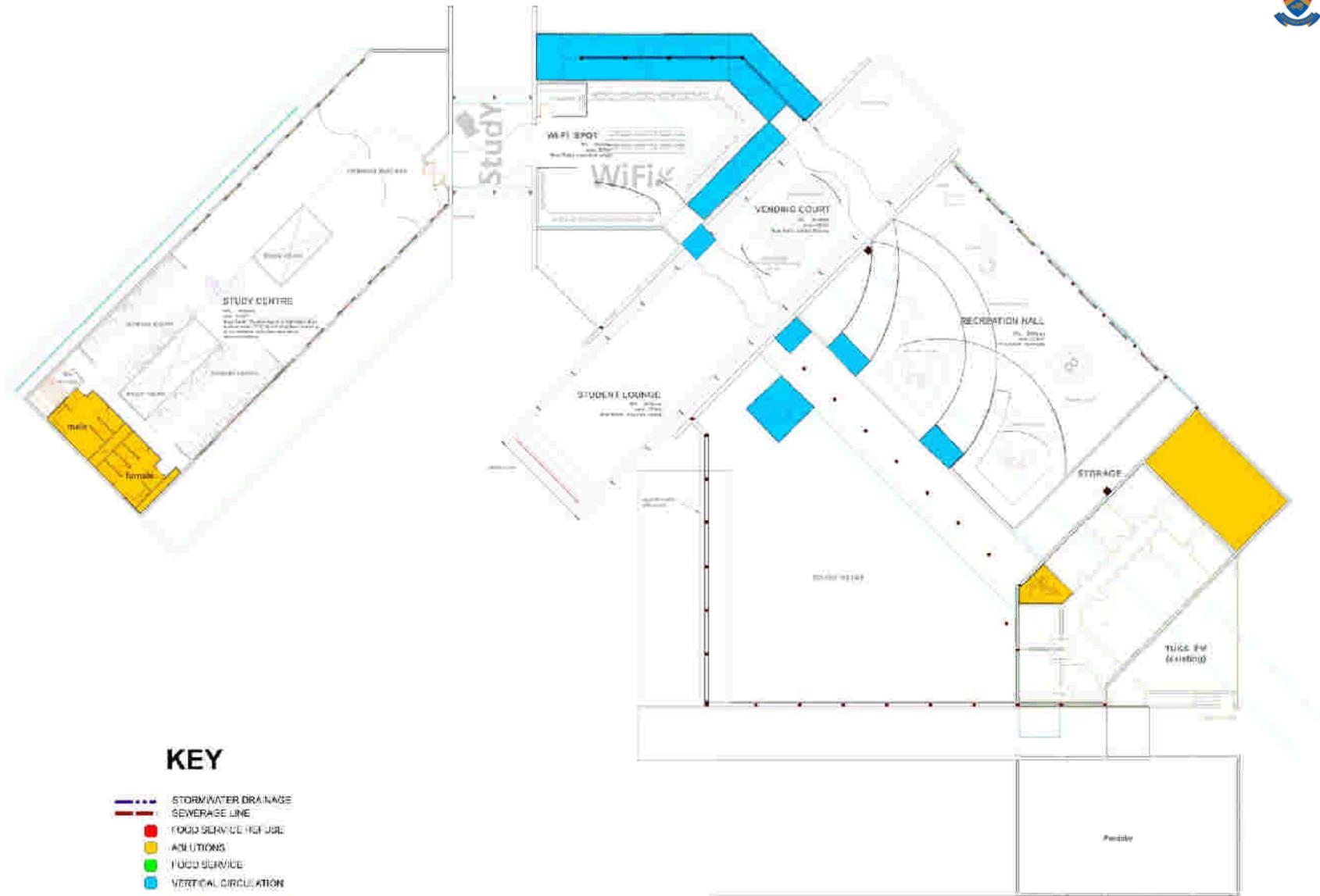


Figure 5.10

Services plan – first floor

5.6.3 Delivery

Food delivery is done from the loading bay on the eastern parking area. The convenience of all the major food service outlets being grouped to one side of the building allows for all food deliveries to happen from one parking bay. Delivery to retail shops and Minolta is from the loading bay on the north facade of the building. A bin yard has not been designed into this loading zone as it detracts from the northern facade.

5.7 Ergonomics and Inclusive Environments

Accessibility for those who are physically challenged has been considered in accordance with the SABS 0400. There is a 1:15 gradient ramp access to the floor height that is level throughout the ground floor. There is ramp access to the first floor, allowing those who are unable to use the staircase the ability to access and use the facilities that are available on that floor. The Flowcrete floor finish provides good traction for wheelchairs. The Flowcrete walkways have been designed to have different colours, but the same textures so that the visually impaired may be able to feel a change in texture in the event of them unknowingly walking onto a different zone.

The timber handrail that is used throughout the building has been designed with a 55mm diameter to allow for comfortable grip when ascending or descending the stairs or the ramps.

Transition routes and zones are defined primarily by their floor finish without the use of solid partitioning elements. The open plan nature of the spaces in the building allows the users to have good surveillance around themselves thus orientation is not a problem.

All the public spaces, as well as private zones, have WCs that accommodate the mobility impaired and are designed in accordance to SABS 0246 regulations.

5.8 Fire protection

SABS 0400 standards have been followed in relation to exit routes in the event of fire. Distances between fire escapes, as well as vertical circulation have been addressed. An automatic fire extinguishing system will be necessary due to the size of the building. It will be connected to the main water supply to the building.

Materials and finishes in the recreation hall have been consciously selected bearing in mind that it is a high traffic space used by students. Fire retardant insulation and fire treated floor finishes and cladding are used in the main tube as specified in the section 5.9 *Materials*.



5.9 Materials

The materials discussed in this section were chosen specifically to communicate the brand. The intent is for the building to have an informal atmosphere with an industrial edge. These materials are prominent in the building and are repeated in various ways carrying the brand throughout the building.

5.9.1 Flowcrete Peran STB

Supplier: Flowcrete SA (Pty) Ltd

Flowcrete Peran STB is a resin based decorative floor finish applied to a power-floated screed, which has either a polished, textured or matte finish. In this design the floor has a textured finish where it is applied to the major transition routes. Colour differs relative to the space in which it is applied. Flowcrete Peran STB is ideal as it is hardwearing, decorative, high abrasion resistant, easy to clean and maintain, has remarkable wear and impact resistance, and installation is fast. The areas in which it is applied (Figure 5.22) is designed to have a textured finish in order to have clear definition as to where the main walkways are, as well as to assist visually impaired people to realise a change in zone due to the change in floor texture.

5.9.2 Polyflor Sports Vinyl

Supplier: Polyflor South Africa

Polyflor Sports Vinyl is a high performance vinyl sheeting usually used for flooring, but in this instance a 6,7mm sheeting is used and it is mainly used as a wall finish and only partially for flooring.

It is hardwearing, easy to clean, durable, non abrasive and high impact resistant. It is suitable for an area with possibilities of spillages, such as the Core Tube. This type of vinyl is chosen here mainly for aesthetic purposes. As a sports material it gives the space an impression of being informal.

Patterns can be printed onto the vinyl, thus the opportunity for a variety of prints on it which would work well with brand based architecture. The texture and the low reflectance of the material allow for light to be subdued and thus a play with lighting can add to the ambience of the student lounge and vending court. Different cuts of the material can create a pattern on the walls leading to the floor. Wherever the different cuts join, the joint is edged with a 65mm Polyflor Polyspan EJC65 expansion joint cover strip. Installation is strictly to manufacturer's specifications.

5.9.3 Expanded Metal -Vitex electroplated mild steel Flatex general mesh

Supplier: Vital Engineering and Angus McLeod (South Africa)

Vitex 11-3F M EP electro-plated mild steel Flatex general mesh comes in panels of 2400 x 1200mm as a standard, but it can be cut to a required size. The mesh is a 50 x 80mm mesh made up of 4,5 x 2,5mm strands with a mass of 2,77kg/m², and is spot welded to angle profiles.

The mesh is part of the language of the building. It is used for solar screening, balustrades and as wall screens to allow for ventilation.



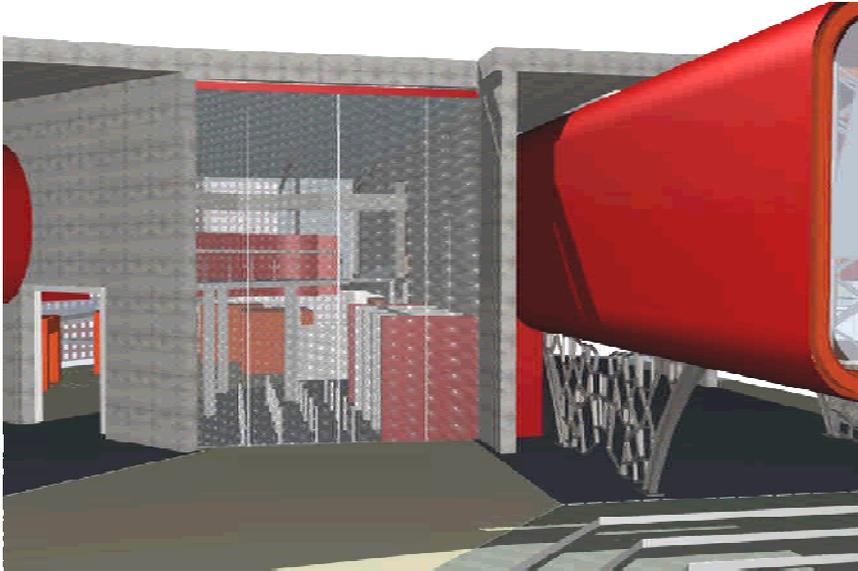


Figure 5.11

Expanded metal application

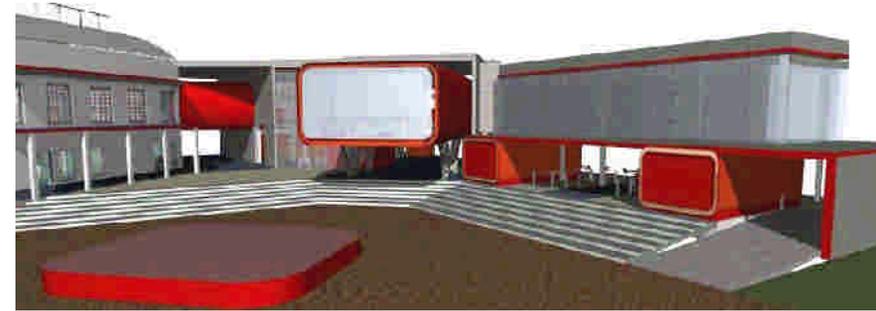


Figure 5.12

Aluminium sheet application

Fixing of the aluminium to steel requires consideration of galvanic corrosion, as well as expansion and contraction of aluminium. Nylon fixing sets are used to prevent the corrosion between the stainless steel bolt and the g.m.s framework with the aluminium. Expansion slits are designed into the detail of the fixing not only to add to the aesthetic of the use of aluminium, but also for the practical reason of allowing the aluminium sheet to “move” when expanding or contracting.

5.9.4 Aluminium flat sheet

Supplier: EuroSteel (South Africa)

Finish: fiery red colour anodising by Cuspal (South Africa)

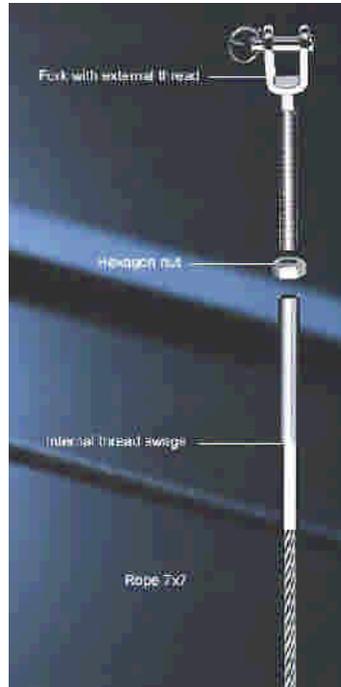
The aluminium flat sheet is used as the tertiary structure, in other words, the skin of the Core Tube, the bridge linking the wi-fi centre and the study centre, as well as the food kiosks.

Aluminium is the chosen material because of its aesthetic qualities. Its lustre and malleability gives it a lightweight appearance



5.9.5 Nautical steel cables

I-SYS Rope 7 x 7 metallic rope with a diameter of 8mm, attached using eye internal thread in IK340 cable assembly to inside of screen frame.



Supplier: GKD – Buismet (South Africa)

The nautical steel cables are used as the infill in the frame of the partitioning system in the student recreation hall, as well as the seating partitions in the student lounge (Figure 5.20). The cables are arranged as a woven infill so as to allow for visual permeability, but prevent physical transition between the partitioned spaces.

Figure 5.13

Nautical cable

5.9.6 Projector Screen

10mm LUMIN transScreen - optical matrix polymer foil applied to safety glass substrate for transparency.

Supplier: Lumin Technologies (Germany)

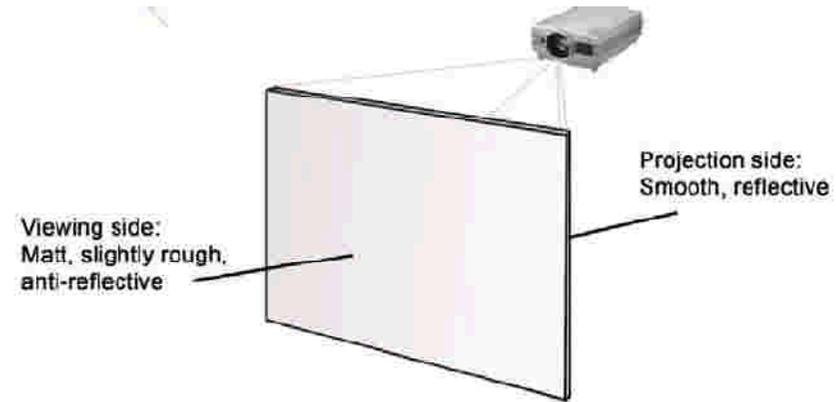


Figure 5.14

Lumin TranScreen

The projector screens are designed to maximum sizes of 1200mm x 3000mm, but pieces can be positioned next to each other on a frame to get a larger screen area. Figure 5.14 illustrates how the projection of images onto the screen surface works. A rear projection screen is a suitable option because the location of the projector allows for people to walk past the screen without obstructing everyone watching it. The LUMIN transScreen also becomes transparent when there is no image being projected onto it. The transparency of the screen, as well as the ease of shaping the substrate, allows the screen to be part of a partition as designed for the student lounge.

5.9.7 Roofing

CM2005 roof sheeting

Supplier: World Roofing Technologies (South Africa)

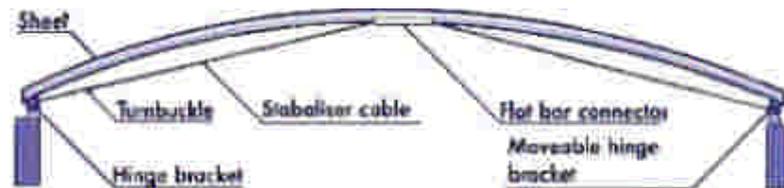


Figure 5.15

Bolt detail and bracing

The roofing system for the student recreation hall, as well as the study centre, consists of sheeting which is self-supporting over wide spans. It allows for large spaces to have covering without roof support systems that become obstructions or obstacles in the covered space. The roofing system allows for application of insulation and ceiling panels.

Lighting is suspended from the roof sheeting on lugs which are also used for false ceiling or insulation(Figure 5.16). The supporting strength of the sheeting lies in the profile of the sheeting, as well as its size as shown in Figure 5.17. Figure 5.16 shows the fixing of the sheeting to walls as would be in the student recreation hall, as well as the study centre.

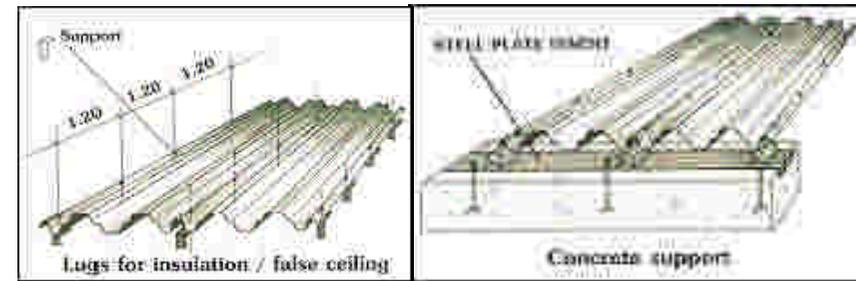


Figure 5.16

Sheet spacing and support fixing

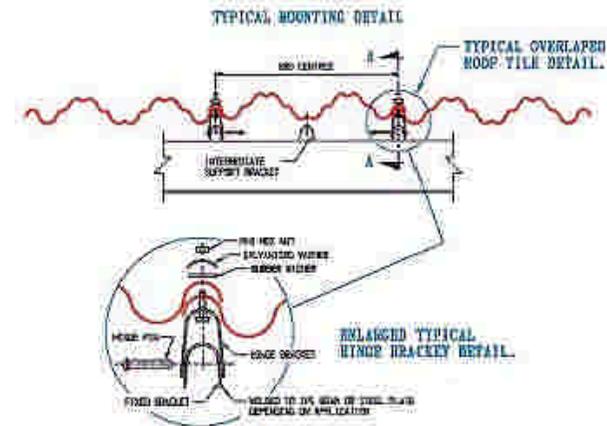


Figure 5.17

Mounting detail

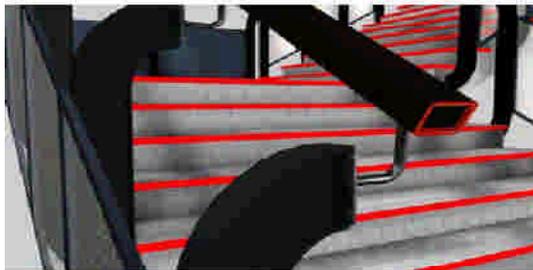
5.10 Finishes and Fixtures

5.10.1 Balustrade and Handrail

HANDRAIL AND BALUSTRADE



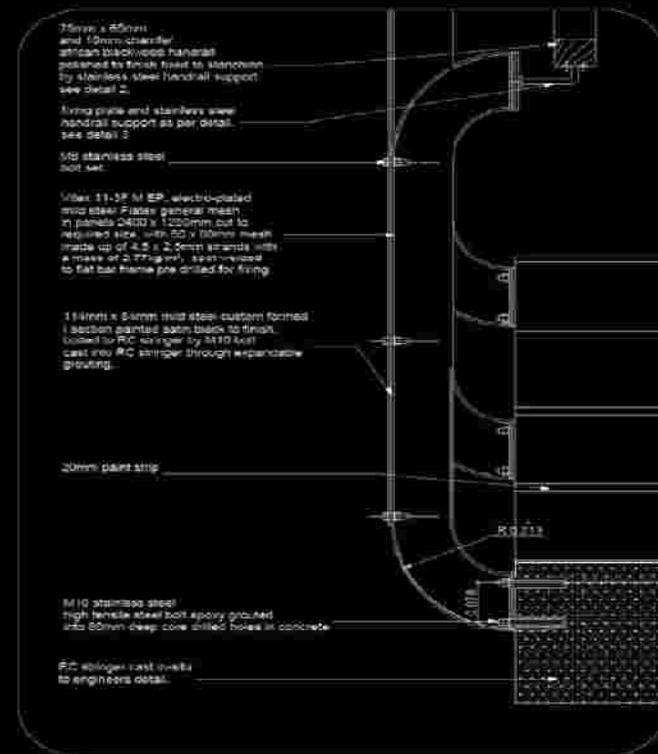
The balustrade is galvanised steel frames with the Vitex electroplated mild steel Flatex general mesh used as solar screening and as screen wall.



The handrail designed for the staircase is a generic handrail for use throughout the building. The handrail is made from polished African Blackwood.



Wood is used in this instance because the handrail is definitely going to be touched by users of the building thus a touch-friendly material such as wood would be a pleasant surprise as one might be expecting a technology/industrial inspired handrail to match the detailing of the balustrade.



CORE

Handrail and Balustrade

Figure 5.18



5.10.2 Mobile Retail Unit

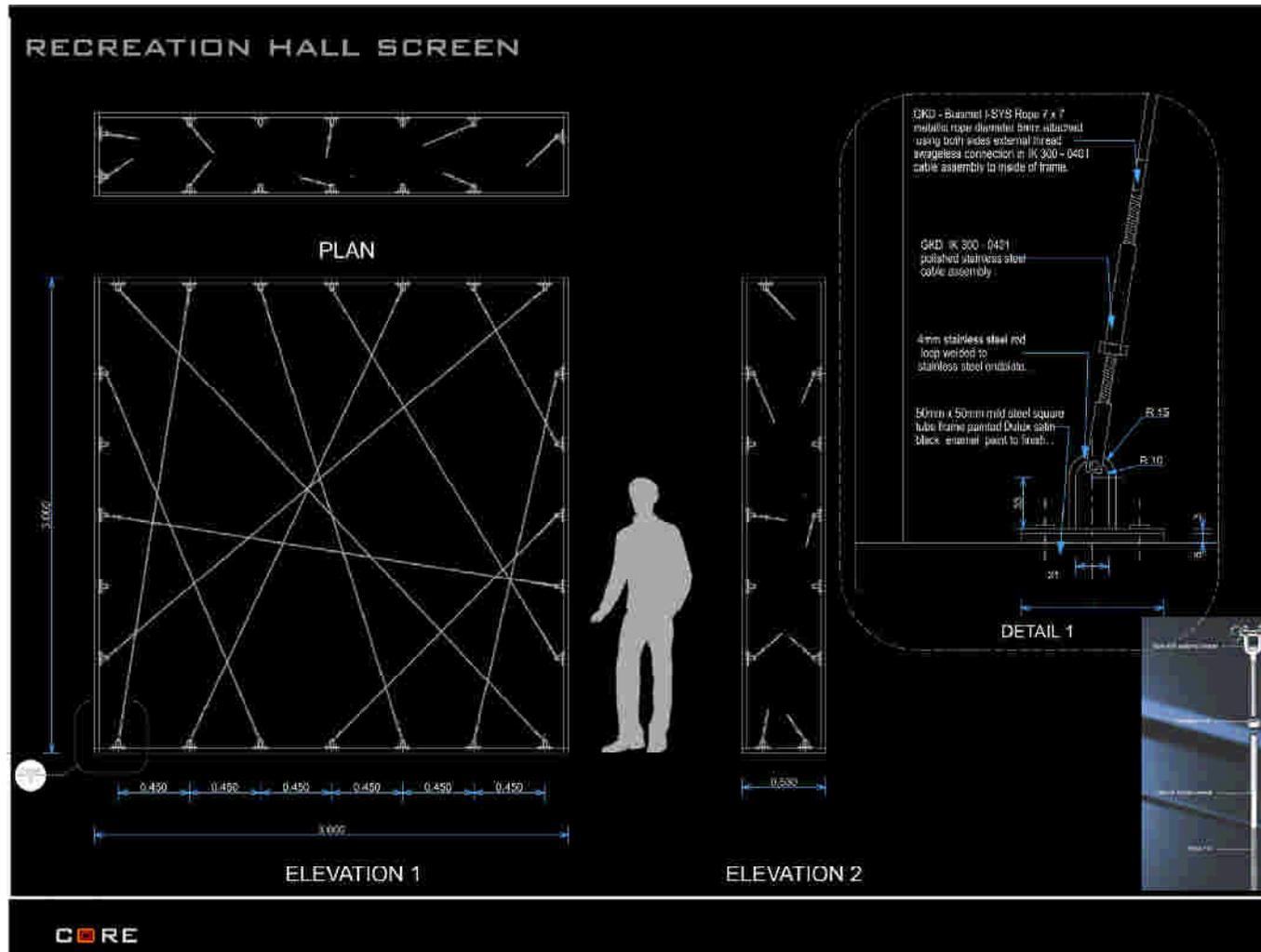


Mobile Retail unit



Figure 5.19

5.10.3 Recreation Hall Screen

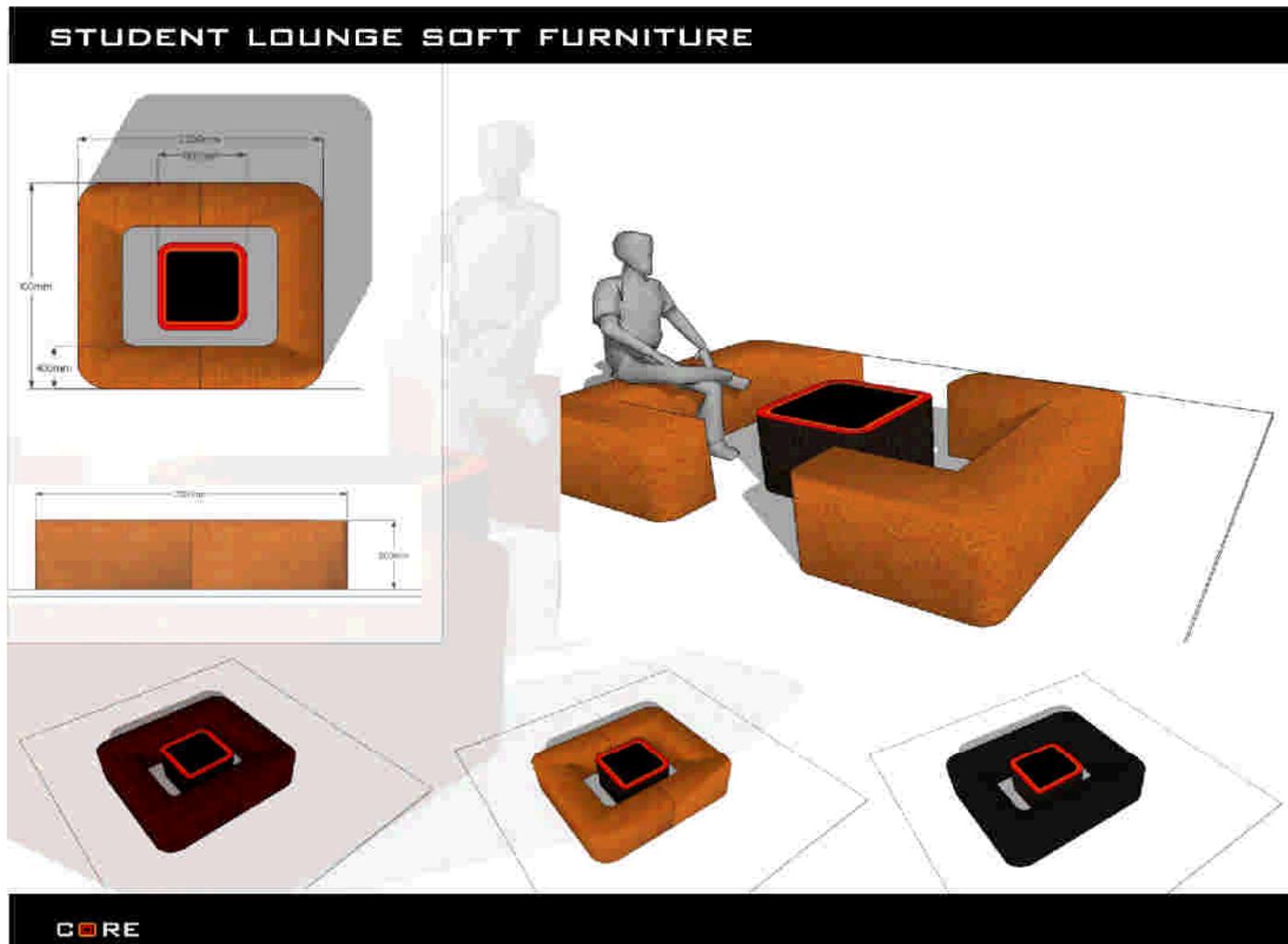


Recreation Hall Screen



Figure 5.20

5.10.4 Student Lounge Soft Furniture



Student Lounge Soft Furniture

Figure 5.21





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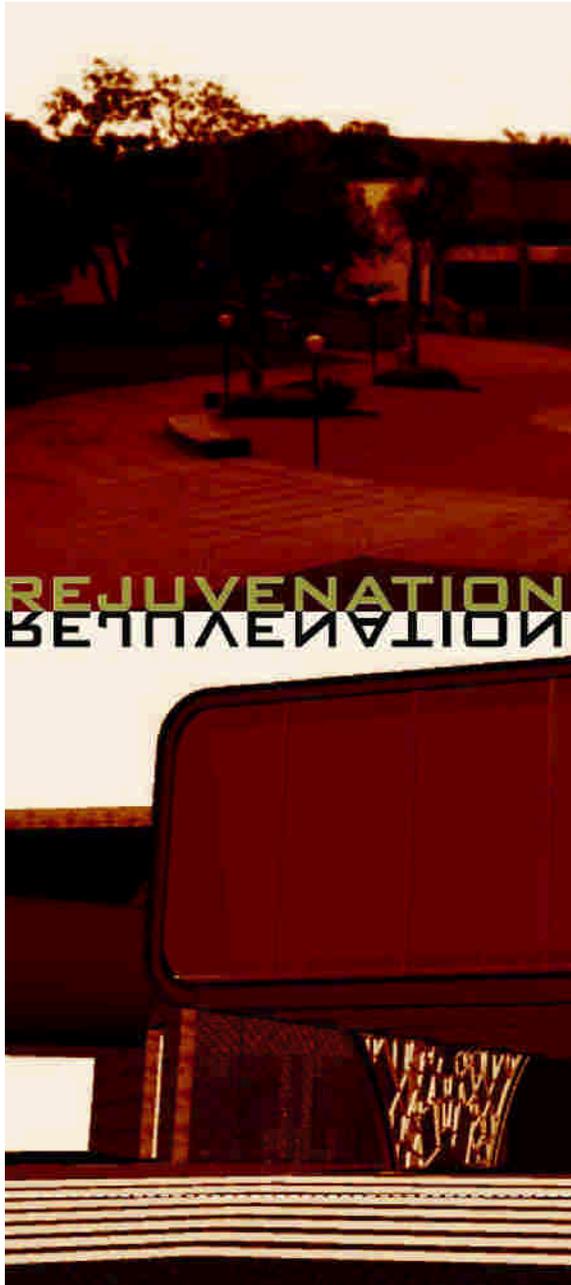
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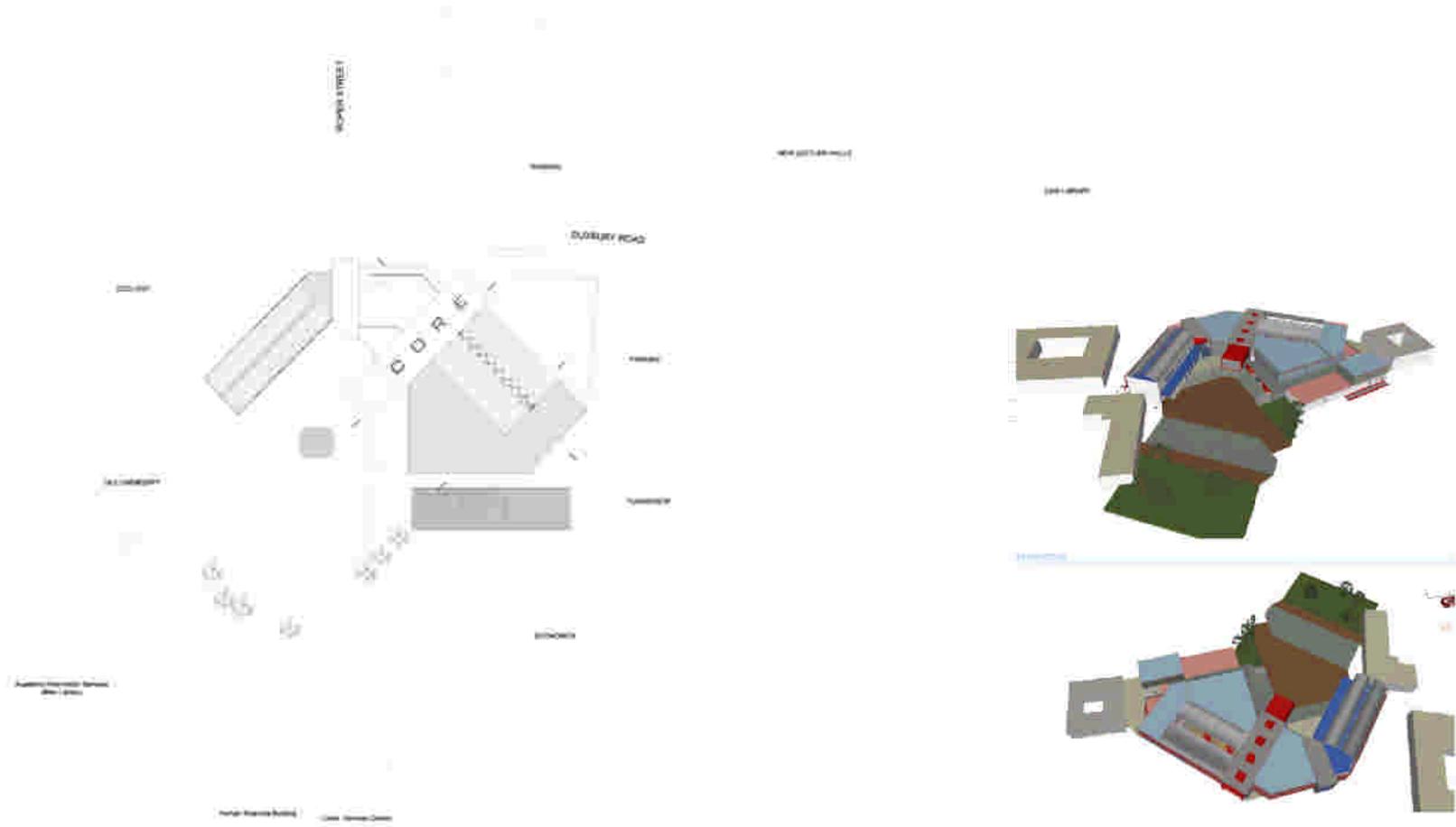
Appendix 1

Technical Drawings



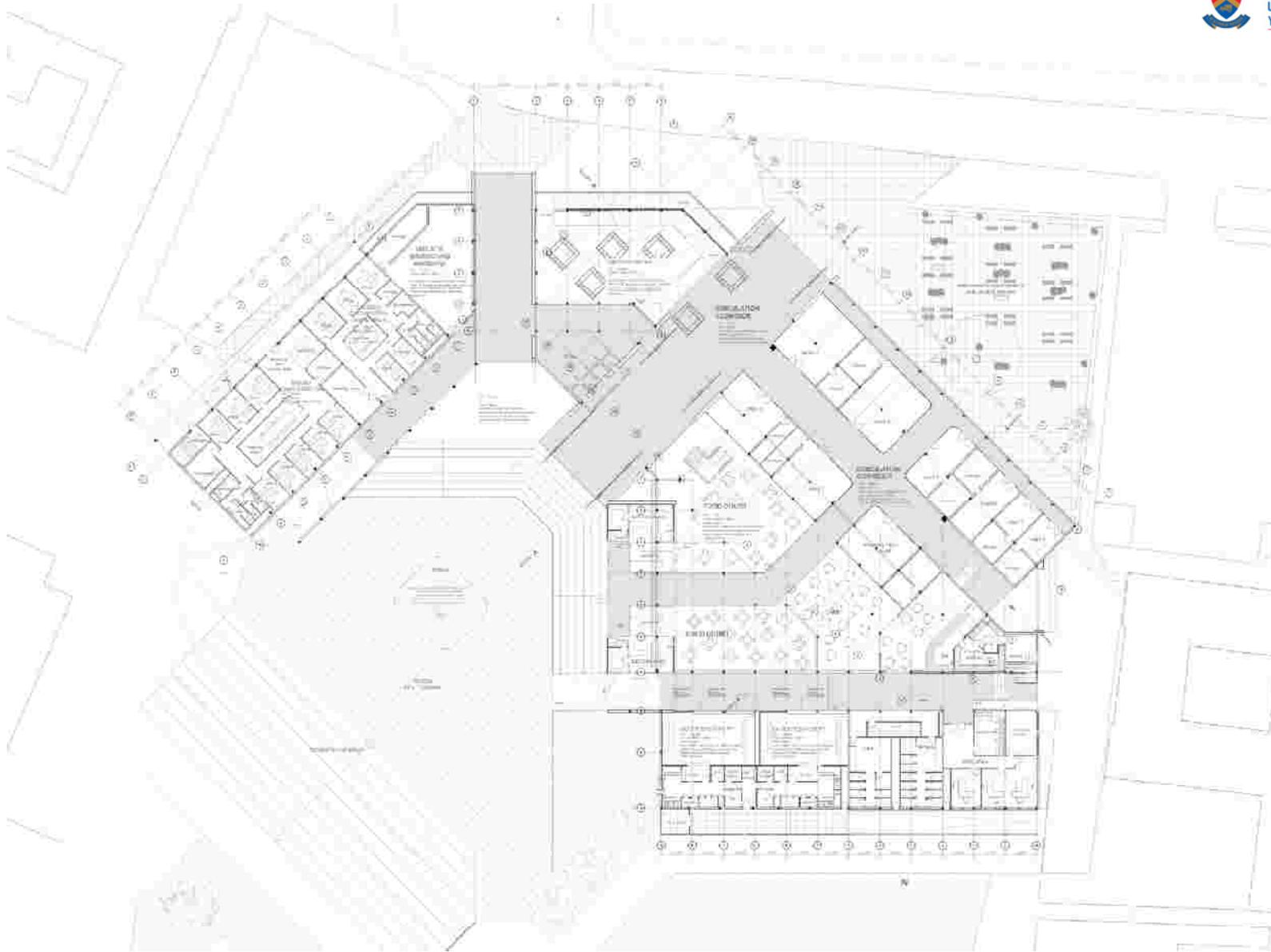


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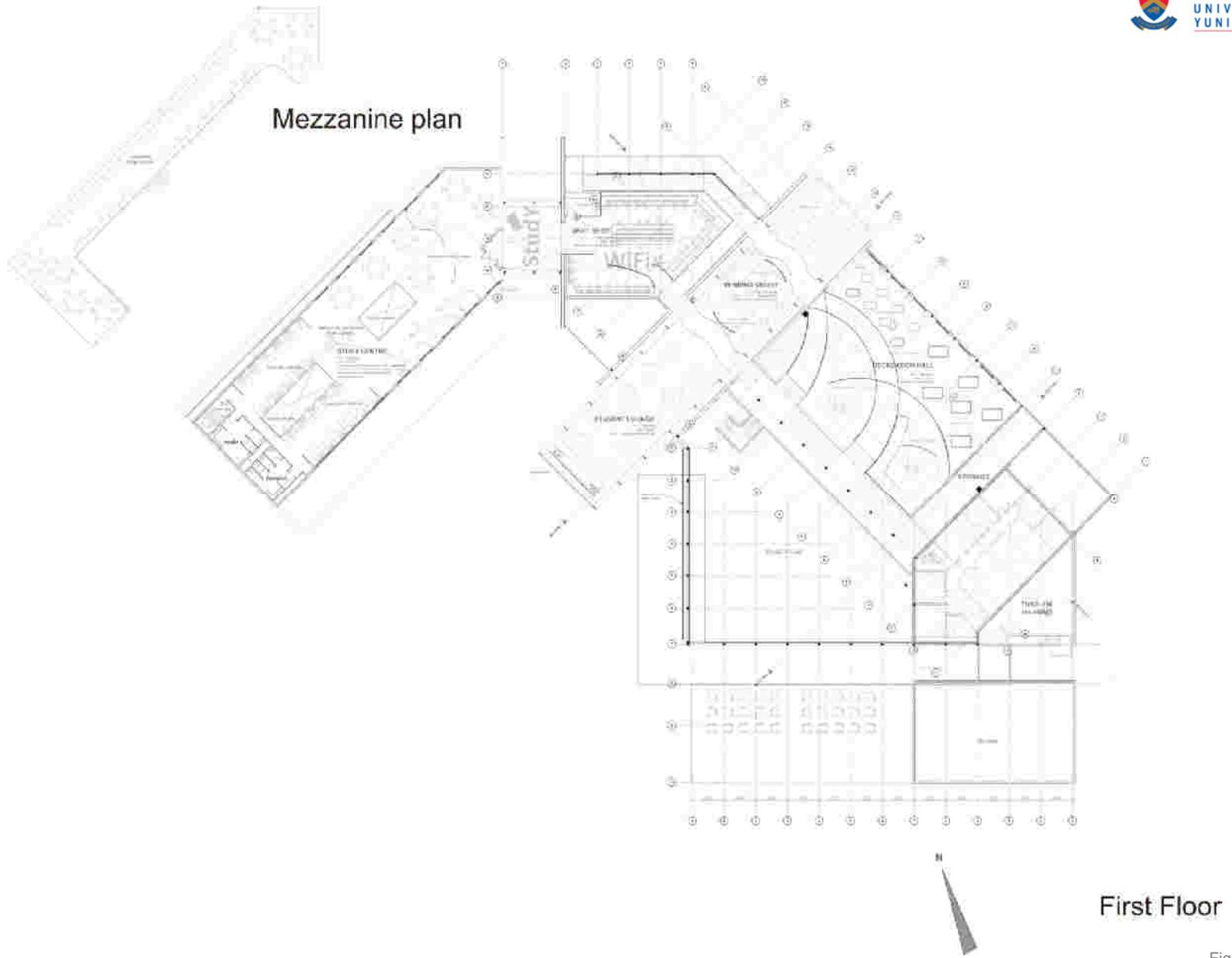
Site Plan (d.n.s.)

Figure 5.22



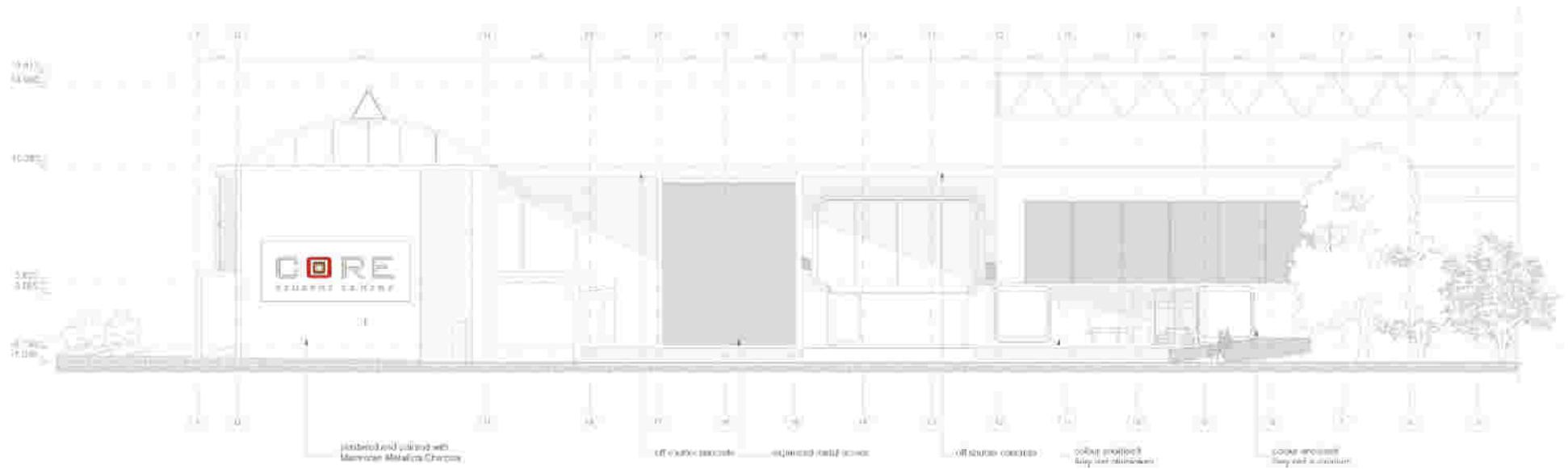
Ground Floor Plan (d.n.s.)

Figure 5.23



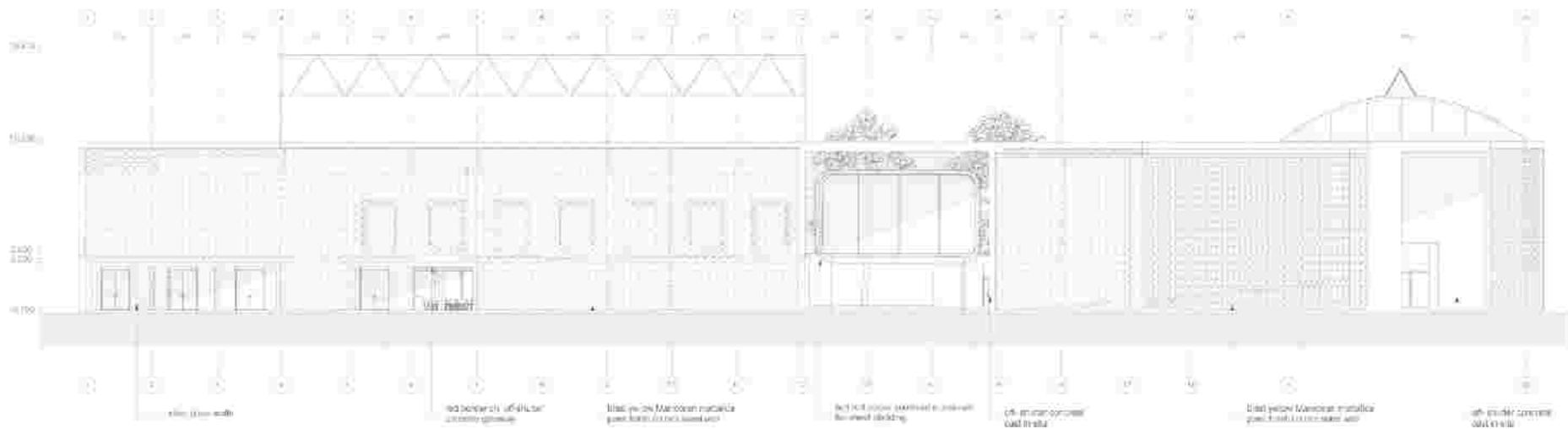
Ground Floor Plan (d.n.s.)

Figure 5.23



South Elevation (d.n.s.)

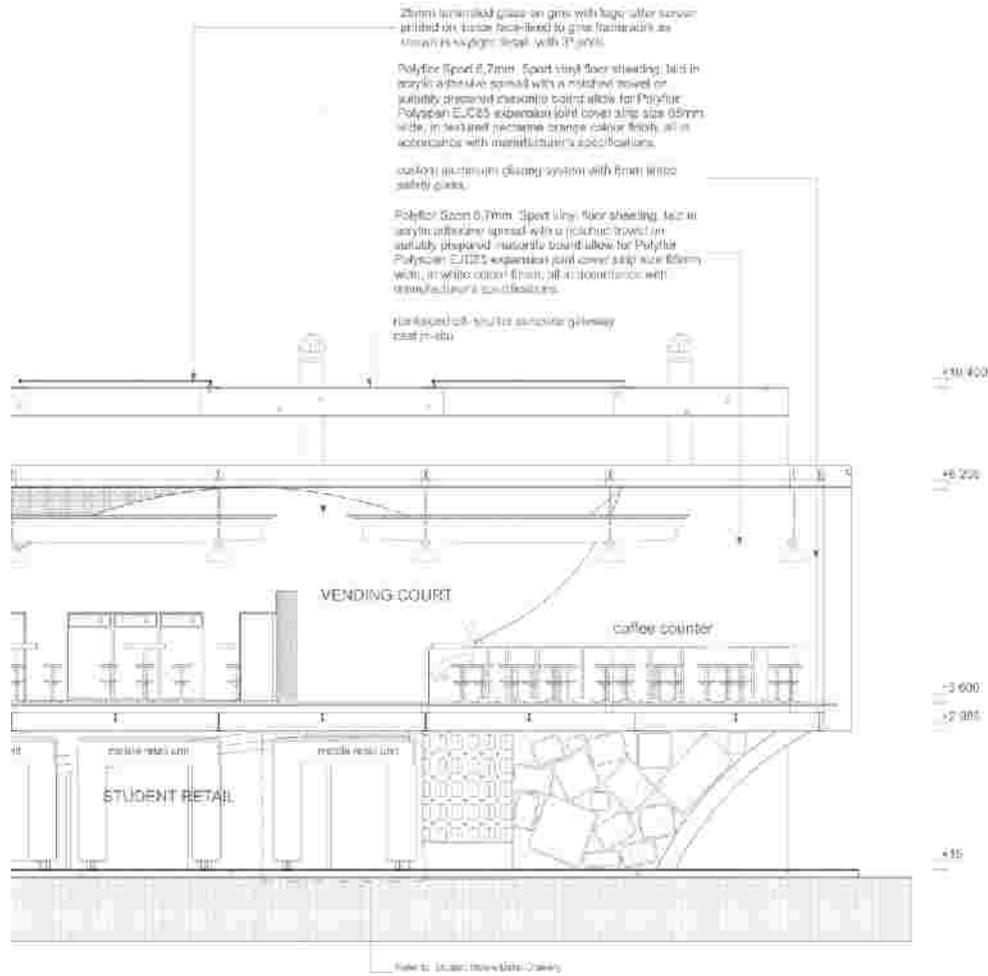
Figure 5.24

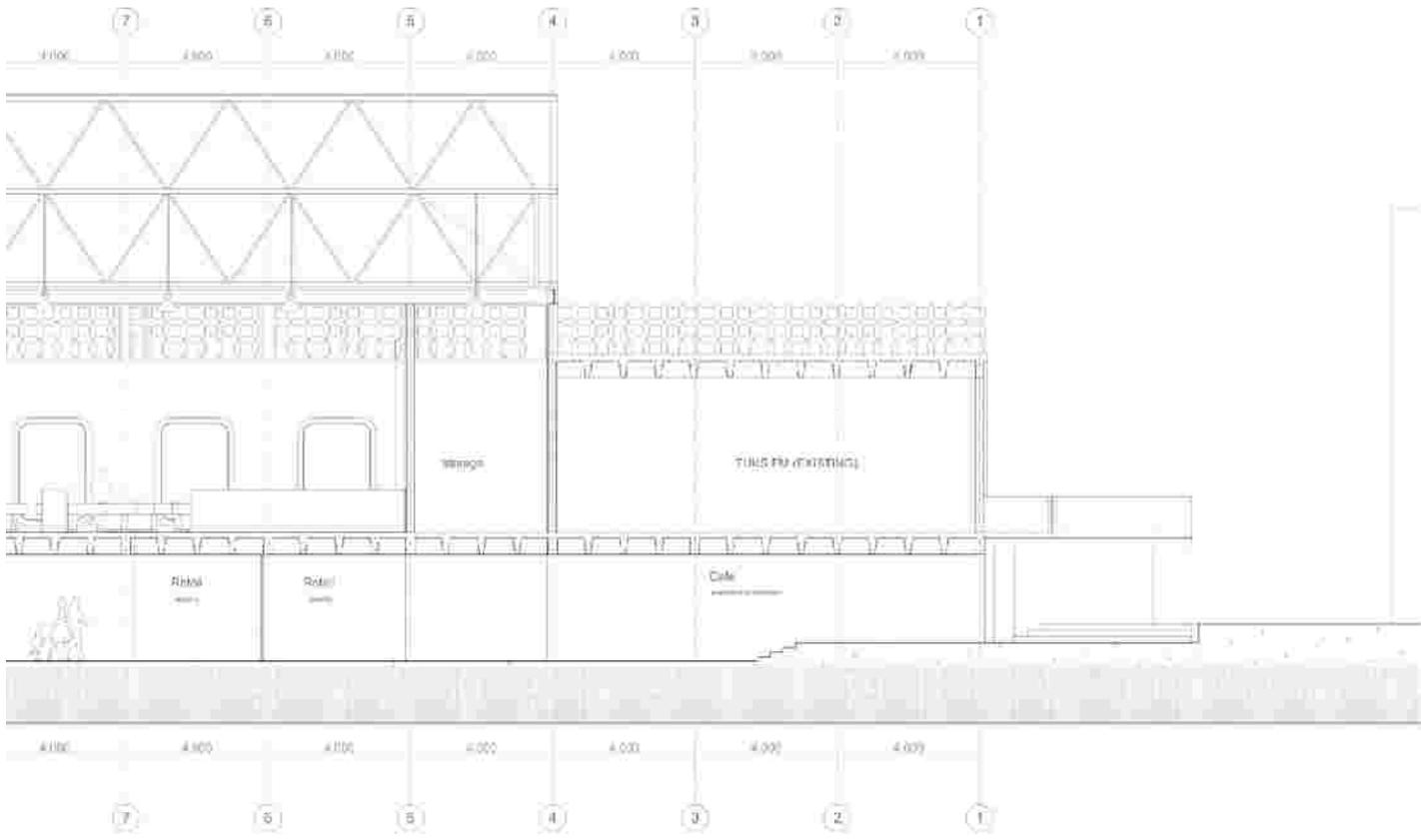


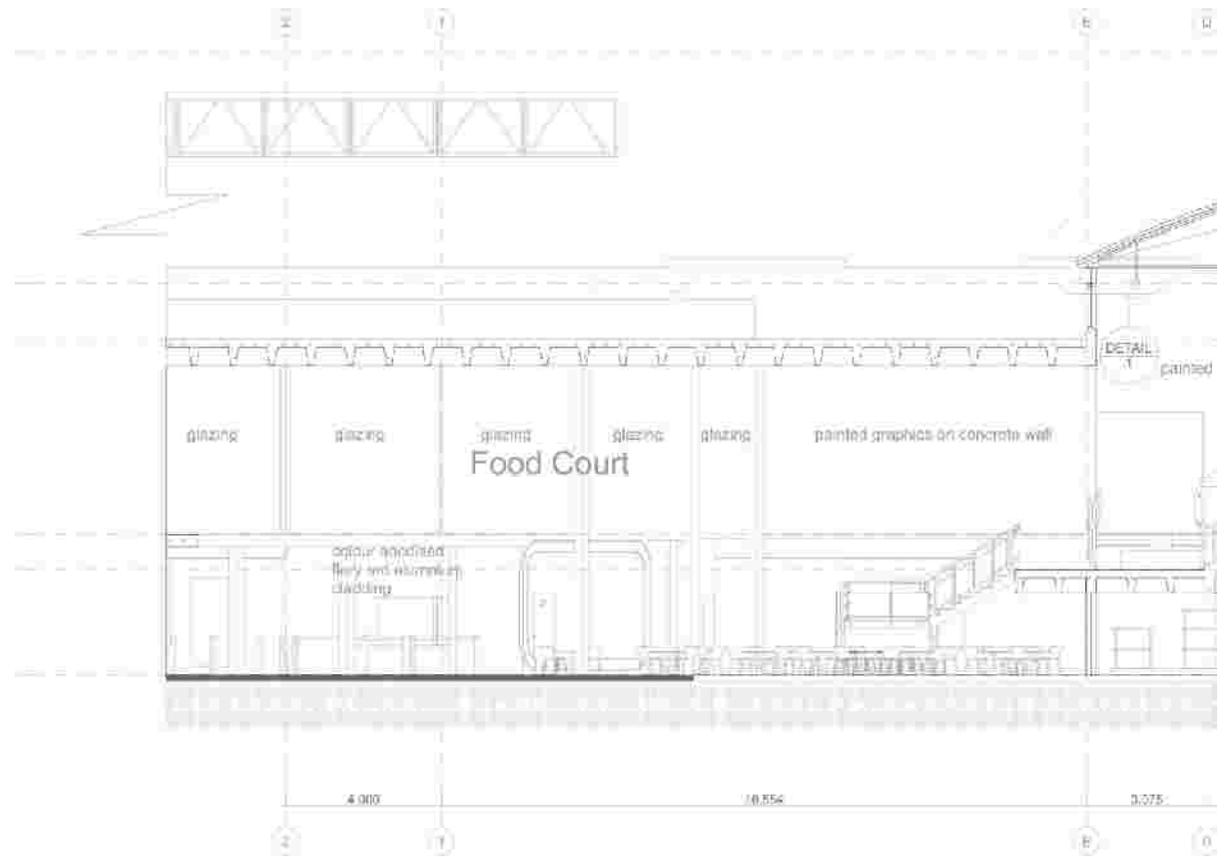
North Elevation (d.n.s.)

Figure 5.25





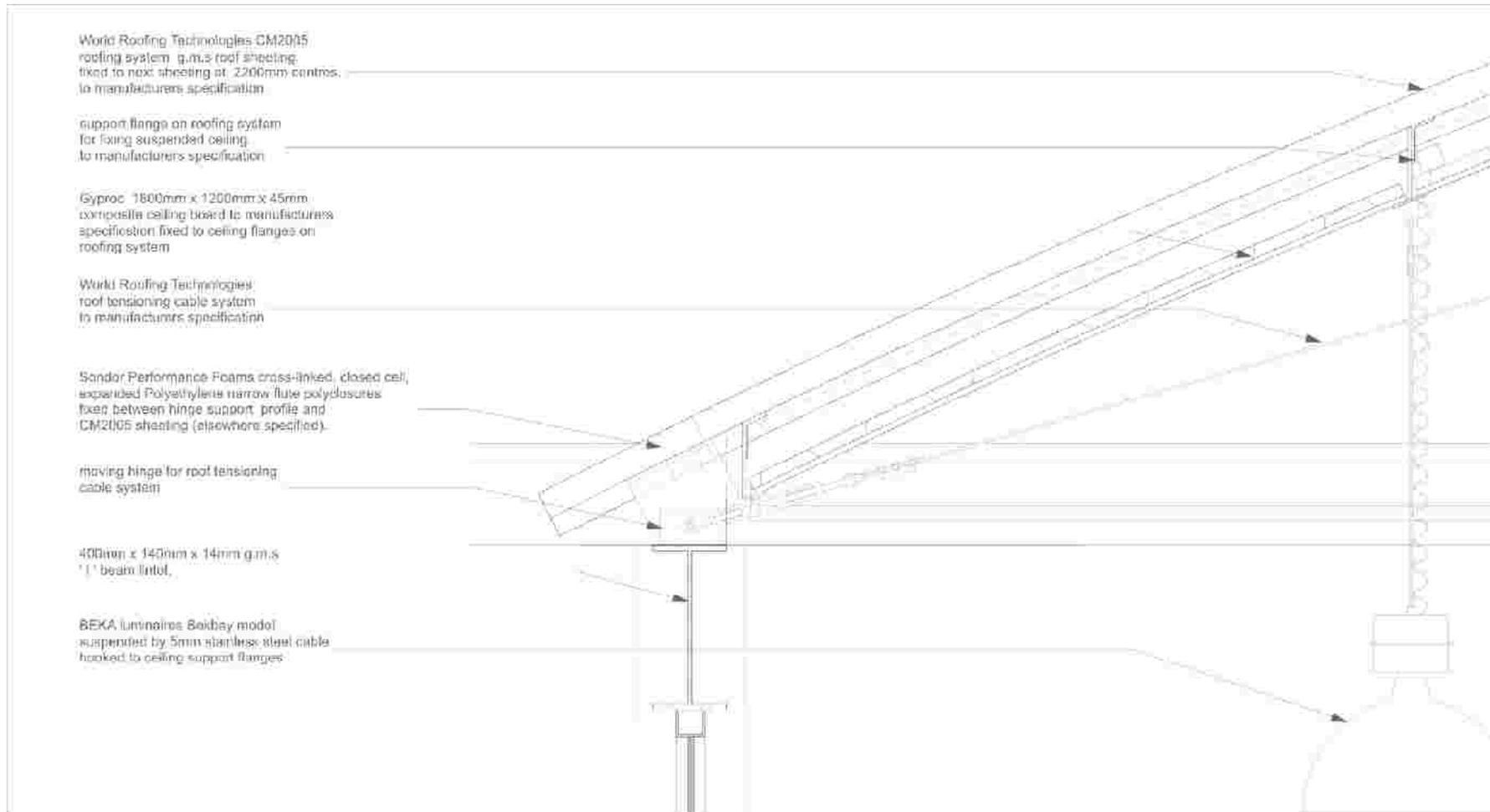




Section 3: Section through food court, recreation hall and retail (d.n.s.)

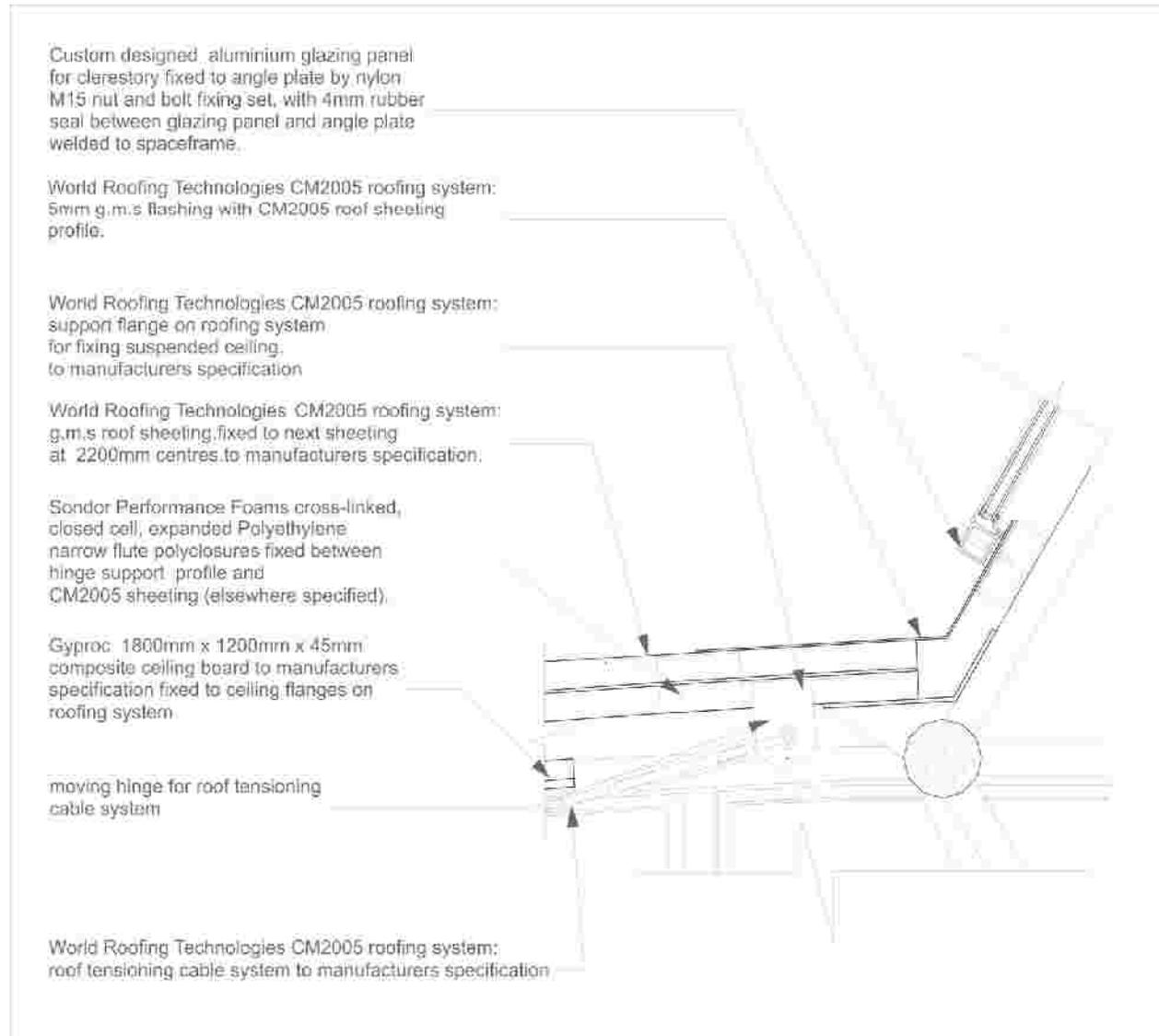
Figure 5.28





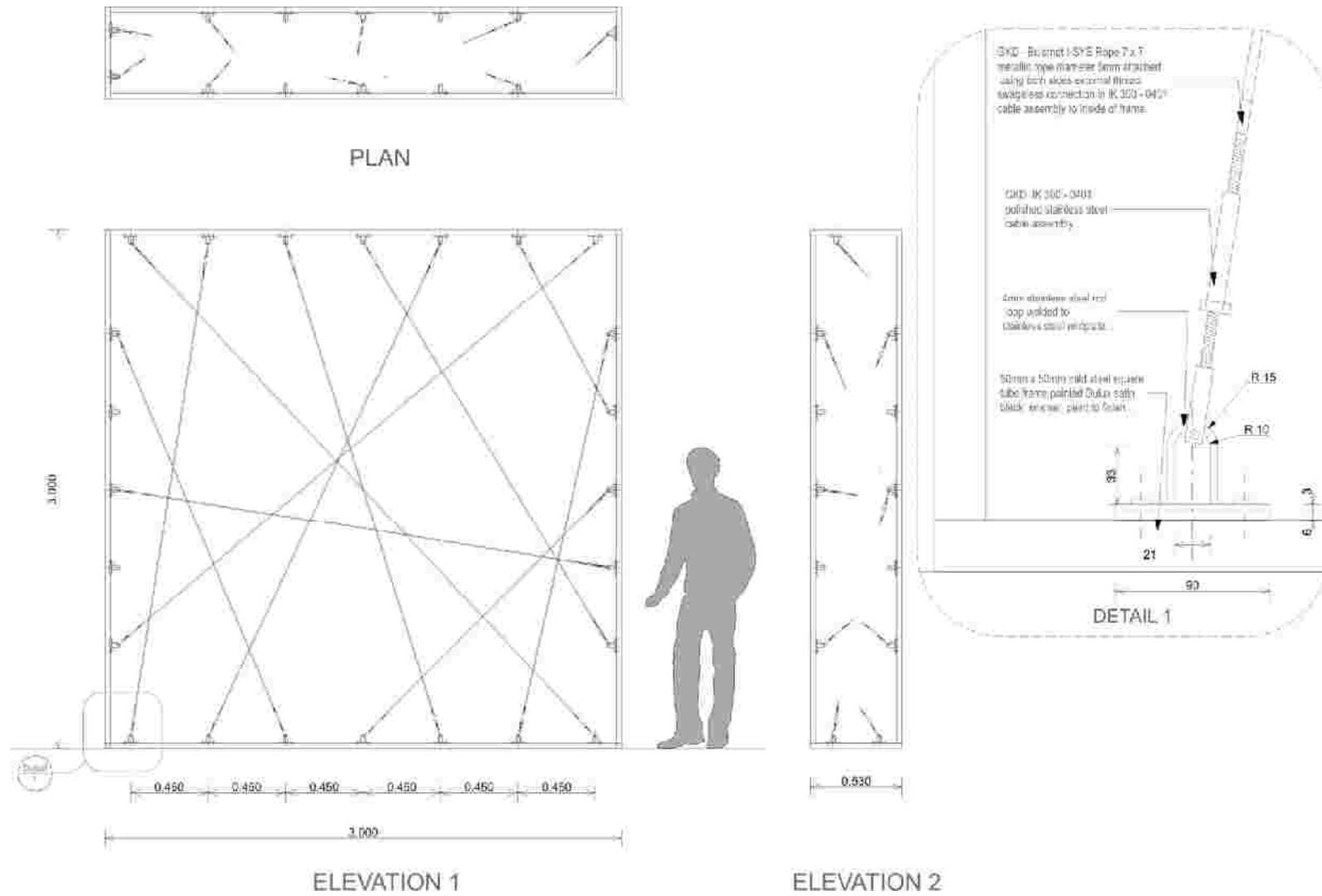
Detail: Detail 1- Roof detail, refer to Section 3 Figure 29 (d.n.s.)

Figure 5.30



Detail: Detail 2- Roof detail, refer to Section 3 Figure 29 (d.n.s.)

Figure 5.31



Recreation Hall Partition Screen (d.n.s.)

Figure 5.32

