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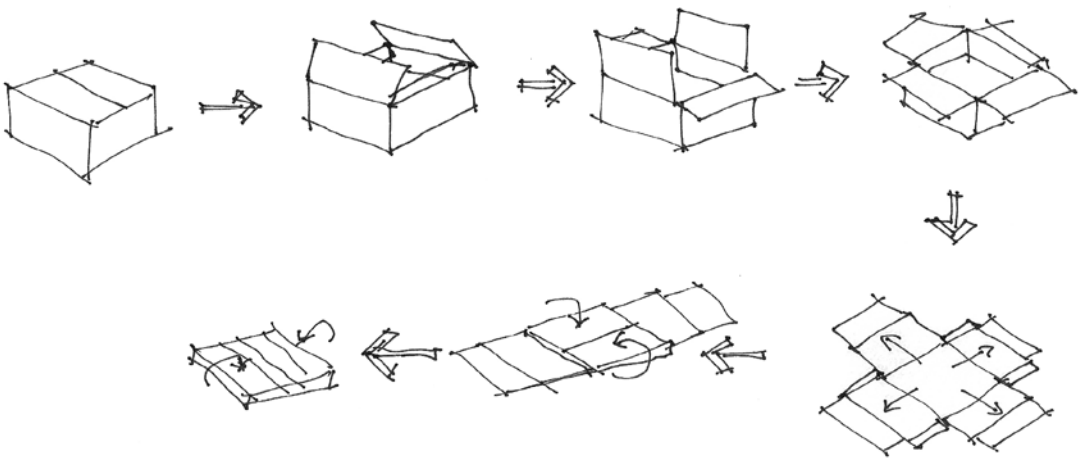
the 4th wall

BREAKING DOWN THE BOUNDARIES OF AN EXISTING PUBLIC SPACE IN PRETORIA



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Submitted as part of the requirements of the degree of Magister in Architecture [Professional] in the Faculty of Engineering, Built Environment and Information Technology, University of Pretoria. 2009.

To those who advised, inspired, supported, consoled, endured, remembered, loved and listened

THANK YOU

the fourth wall. ***phrase*** *(breaking down the fourth wall)* **1.** Theatrical term describing the imaginary line separating the audience from the stage. **2.** The imaginary wall through which the audience views the action of a play. When this boundary is broken (e.g. when the audience is directly addressed), it is called “breaking the fourth wall”.

ABSTRACT

This thesis deals with the regeneration of an existing public square in Pretoria, formerly known as Strijdom Square. The document considers contemporary anthropological and urban design theory of good public spaces and argues that the presence of people is the key determinant in success of public space. The hypothesis argues that public spaces should be designed to draw human activity and accommodate basic human needs and wants including comfort, security and activity.

The thesis proposes breaking the *fourth wall* of the State Theatre through the insertion of a filter building between the theatre and the public square. The proposed design celebrates the performing arts and aims to educate the public about the arts by providing opportunity to experience the magic of the theatre in everyday life. The architecture becomes a filter on every level, allowing visual and physical connections to the theatre and aims to make the theatre more accessible to all.

CONTENTS

01_INTRODUCTION

People are drawn towards cities for the economic, social, cultural and recreational opportunities that they offer. These facilities should be accessible to all users of the city (Dewar & Uitenboogaardt, 1991:16). Lively cities are rich in experiences and have many opportunities and public spaces that allow people to interact with one another (Gehl, 1987:23).

This study will investigate the regeneration of an existing public square in the city of Pretoria, through its connection with the State Theatre, situated next to the square. It will explore the importance of public space in any city and methods design to increase social interaction and experience in public spaces. It further explores the creation of spaces for public performance and events.

PROBLEM STATEMENT

Public spaces are what make cities liveable and memorable. They are an essential part of any community as a place of interaction and exchange. There is international concern about the future of public space in cities. Free access to public space is a democratic right. This right is infringed by privatization of public space that gives private owners the right to deny access and to exclude groups of people. Many existing public spaces have been privatized as a result of being unsafe and underutilized.

Pretoria is a slow, empty city in desperate need of revival. Its public squares lack the qualities of good public spaces that draw people to them, and that allow people to linger and socialize. Public spaces in the city are underutilized and empty, but they hold the potential to function as a system of great public spaces that can offer the city a unique identity, and make it a world class destination.

Lillian Ngoyi Square, situated next to the State Theatre in the Pretoria CBD, has long been a large, harsh, unused space. This site, which once held the Pretoria Market Hall, is now a hard concrete surface that provides little opportunity for seating, social interaction and viewing its surroundings. The square is one of the city of

Pretoria's most important public spaces. Workshops have been held to find design solutions to the problems, but no solutions have been implemented. The city of Pretoria plans to transform the square into a cultural marketplace. However, this plan does not include the redesign of inactive edges of the square or physical barriers around it, and therefore does not offer a realistic solution to the problems of the square.

This study investigates the making of place in a contemporary South African city. It presents an in-depth investigation of the history and context of the site, as well as its current problems, uses and condition. The theoretical component of the study investigates the importance of public spaces and squares in a city and the factors that contribute to the making of good public space. It then attempts to apply these theories to the redesign of Lillian Ngoyi Square.

South Africa exists in a westernized society which abides by western rules of civilization; it finds itself at the Southern tip of Africa, as a country that is neither truly "Western", nor truly "African". Due to oral culture and the adoption of western design principles by "African" architects, very little has been written about "African" concepts of space and culture. While theories discussed are mainly Western theory, it is the belief of this author, that the principles discussed can be applied internationally.

The study considers a number of similar projects that have been successfully implemented. It will compare conventional uses of public space with more contemporary examples, and offer an alternative view of public space as an urban theatre.

Dewar & Uitenboogaardt (1991:21) state that positive urban areas provide easy access to opportunities and public facilities to both the rich and the poor, even though these opportunities are often funded by the resources of the wealthy. The introduction of commercial and cultural activities to the square could provide visitors and regular users of the city with opportunities for employment and recreation.

A desired outcome of this investigation is an architectural solution that could enhance social interaction and encourage public performances, meetings and events. The architecture might provide city users with a safe environment in which to interact and socialize. Such an outcome could contribute to improving the image and identity of the Pretoria CBD as a destination city.

PROJECT AIMS:

- Create a platform for social interaction in the city of Pretoria.
- Increase usage of Lillian Ngoyi Square by providing new attractions that are linked to the State Theatre.
- Extend the theatre experience into the square, thereby giving all city users the opportunity to participate in and enjoy public performance art.
- Improve access to Lillian Ngoyi square and new facilities and improve linkages to surrounding areas.
- Design for the needs of both local users and visitors.
- Improve comfort on the Square.
- Provide a facility that could act as an attraction for International tourists to the city of Pretoria.
- Strengthen the new identity of the city as proposed in the Urban Development Framework (see Appendix A).

LIMITATIONS OF THE STUDY

Lillian Ngoyi Square is a large site with many problems. This study will not presume to solve all problems that the site presents, but provide an alternative view of the problems it holds, and a possible solution to some of these problems.

An urban design proposal will be made for the larger site, but due to time constraints, more focus will be given to smaller urban design elements and the architectural solution (an architectural intervention that could attract more users to the site).

RESEARCH METHODOLOGY

This project evolved from a concern about the number of underutilized spaces in the city of Pretoria. The chosen site presented much opportunity for redevelopment and was selected as the focus of the study because of its location and dire condition. Data about the site was collected through observation during site visits, interviews with people involved with the site and surrounding buildings, historical documentation (maps, newspaper articles, historical photographs and literature about Pretoria), archival research and photographic documentation. The data collected provided a basis for analysis of the site and its current problems.

Architectural and Anthropological theories of use and construction of public space were examined and will be presented in the theoretical argument, which deals with the characteristics and production of successful public space. A study of international public squares and buildings with related functions and contexts was undertaken by studying plans, photographs and descriptions of these buildings/spaces and, in some cases physical observation by the author.

The information collected was used to formulate a design solution that will be presented towards the end of this book.

Fig. 2.1.

LILLIAN NGOYI SQUARE
25°44’48”S
28°11’36”E

Fig. 2.2.

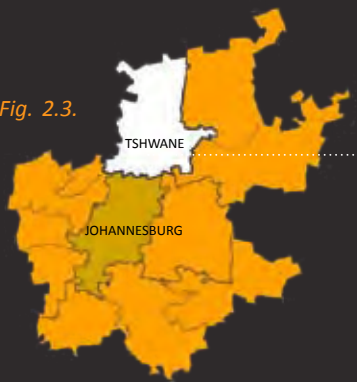


Fig. 2.3.

GAUTENG PROVINCE

GREATER TSHWANE AREA

2.4Fig.

02_CONTEXT

Lillian Ngoyi Square is situated on the city block between Pretorius, Van der Walt, Church and Prinsloo Streets. The site belongs to the State Theatre. The first market place in Pretoria was Church Square, which was then known as Mark Platz (Market Square). Paul Kruger Street was called Market Street when the town was first laid out (STATE THEATRE, 1981).

The first market shared the square with the church. But with the growth of the town, the space in front of the old church became too small for a market to be held here. In 1889 Mr. J.D. Celliers was appointed to erect a market building on a site to the east of Church Square (the site currently known as Lillian Ngoyi Square). Initially, the structure was confined to the north-western corner of the stand.

The Market hall was not only used for market activities, but also for exhibitions, receptions, political gatherings and court hearings. It was the location of Pretoria's first museum, and it hosted many festivals, the opening of the Mozambique railway and the trial of those responsible for the Jameson raid.

In 1963, the National Theatre Organization was replaced by four provincial performing arts councils, whose purpose was to fulfill the cultural needs of the public and to provide drama, ballet, opera and music productions. The Administrator of the Transvaal council, Mr. F. H. Odendaal, was at that time, involved with the planning and erection of a new monument to commemorate the late J.G. Strijdom, prime minister of the Republic of South Africa between 1954 and 1958 (STATE THEATRE: 1981). During the search for a suitable site for the monument, it was decided to buy the stand on which the Old market hall was situated.

Around the same time, thought was given to the erection of an Opera house in Pretoria. It was then decided that a new theatre had to be built, and the site next to the proposed Strijdom Monument would be the ideal site for such a large theatre because of its location in the city.

Demolition of the Market hall began in July 1966 to make way for the construction of the State Theatre and a large public underground parking garage that would accommodate 1500 cars. Around the same time of the commission of the State Theatre, a new head office for the Volkskas bank (now known as the ABSA building) was commissioned on the south-western corner of the same city block.
The Strijdom monument was unveiled on 31 May 1972, Republic Day.

Strijdom/Lillian Ngoyi Square has seen a number of peculiar events and coincidences. The Strijdom dome was never structurally sound: after the removal of the supports, the two front "legs" of the dome moved 80mm, causing cracks on the surface. Engineers deemed the dome completely unstable. "The dome cost R30 000 to build and R90 000 to repair" (Meyer, 1979).

On the 15th of November 1988, a 23 year old right winged extremist, Barend Strydom (also known as "Die Wit Wolf"), an unrelated name-sake of the former prime-minister J. G. Strijdom, entered the square from the eastern corner and started a racially motivated killing spree. Strydom shot every black person in sight, until he was wresled to the ground by a brave black civilian, and was arrested by the police. Hook (2005) argues that these attacks were a direct result of the imposing monumental nature of the square, symbolizing white supremacy, power and wealth.

According to an article in the Beeld (8 October 1995) citizens of Pretoria complained that the square seemed "harsh" and "cold". The article describes intentions of the city council to "liven up" the square by introducing circular paving patterns and new planters. The large concrete dome collapsed on the day of the 29th anniversary of its unveiling (31 May 2001), taking with it, a large part of the slab on which it stood. According to Hook (2005:26), it was the 40th anniversary of "Republic Day", which marked the day that South Africa left the Commonwealth to continue its pursuit of racial segregation. The bronze bust crashed into a 10m deep hole and split in two. A local newspaper heading stated that this would leave "a large hole in the tourism industry".

Excavation of the site north of Church Street began in 1991, to make way for a new multi-purpose centre that included shops, a library, municipal and general offices. This development was part of an attempt to bring more life into the inner city of Pretoria.

On 29 September 1992, the day of Barend Strijdom's release from prison, the water of the Strijdom Square fountain was dyed red. Pretoria based artist, Jacques Coetzer later claimed responsibility for the event as a commemoration of the massacre of November 1988.

Today, the square is a large empty space with a circular pattern painted on the surface of the slab. Only the large cylindrical column and water fountain remain in the center. A large planter that was part of the Strijdom monument, provides the only spots of shade and seating on the square, and is used by people in the surrounding area as a picnic spot during lunch times, and a place to watch life go by in the surrounding area.

GREEN SPACES AND PUBLIC OPEN SPACES

Public Open Spaces

1.Pretoria Station

2.Burgers Park

3. Pretorius Square

4. Church Square

5. Church Street

6. Lillian Ngoyi Square

7. Sammy Marks Square

8. Unused open space

9. State theatre Square

10. Tram Shed

11. DTI Square

Green Spaces

a. Salvokop

b. Apies river bank

c. New Caladonian Sports Grounds

d. Pretoria Zoological Gardents

e. Burgers Park

f. Reserve bank

g. Church Square

h. Lost Space between

Fig. 2.5.

PUBLIC/GREEN SPACES

The city's public spaces occur mainly around the two main axes, namely Paul Kruger Street, in the North to South direction, and Church Street in the East to West direction.

Green spaces mainly occur on the edges of the city centre, although many public spaces can also be classified as green spaces (e.g. Church Square, Burgers Park. Public open spaces and green spaces are important in a city. They offer places to relax, socialize and watch the world go by. Pretoria's public spaces are currently underutilized and uncelebrated.

MAJOR MOVEMENT ROUTES AND NODES

Fig. 2.6.

MOVEMENT

It has been observed that the greatest amount of pedestrian activity occurs between important transport nodes. Commercial activity and informal trading is most successful along these routes. Nodes are points that draw people. They are also places where people gather for meetings and social interaction.

NODES

1. Salvokop
2. Pretoria Station
3. Burgers Park
4. Museum district and City Hall
5. Church Square
6. Sammy Marks Square/Lillian Ngoyi Square
7. Leeu Brug
8. Bloed Street taxi rank
9. Northern Gateway (Possible node)
10. Belle Ombre Station

SURROUNDING CONTEXT

1. Sammy Marks Square
Erf 3357

The Sammy Marks shopping centre takes up most of the city block and consists of clothing and furniture shops, restaurants, general and municipal offices, a conference centre and catering facilities, Nu-Metro cinema, a library and parking for 1500 cars. It is 5 storeys high with ground floor retail facilities. Construction on the new shopping centre commenced in 1990. The aim was to improve the area, and make the CBD "a friendlier and more attractive area".

A hotel, intended to be erected across the street from the Reserve Bank was never constructed. The remains of a structure and reinforcing remain on the square. The site is currently blocked off by fences and is unused. A steel structure with a polycarbonate roof covers the walkway between the shopping centre and the Lewis and Marks building.

Materials: Red face brick, Green corrugated iron roofs, arcade and balconies surrounding Sammy Marks Square.

2. Standard Bank
225 Van der Walt street

An eight storey building with a large internal atrium. On the ground and first floors, and on the basement floors, this building is a shopping centre, which holds a large Standard Bank branch and offices over all the floors.

The lower basement level is connected to the lower basement of the State Theatre basement parking via an underground arcade.

Materials: Shutter Concrete, Polycarbonate skylight roof over atrium slanting towards the street, Flat concrete roof elsewhere.

3. Bazaar Building (Shoprite)
Corner of Church Street and Van der Walt Street.

7 Storey building with ground floor retail

Architectural Influence: Art deco. Rounded street corner

Materials: Plastered and painted white

4. 229 Van der Walt Street

5 Story office block (Was Volkskas Bank before the tower building was built)

Ground floor: Retail

Neo classical influence

Materials: Light grey and red granite, Corrugated iron roof

5. Premium Towers (Strijdom Square Post Office)
Pretorius STREET 296 / 227 Van Der Walt

Eight storey office building with retail on ground floor.

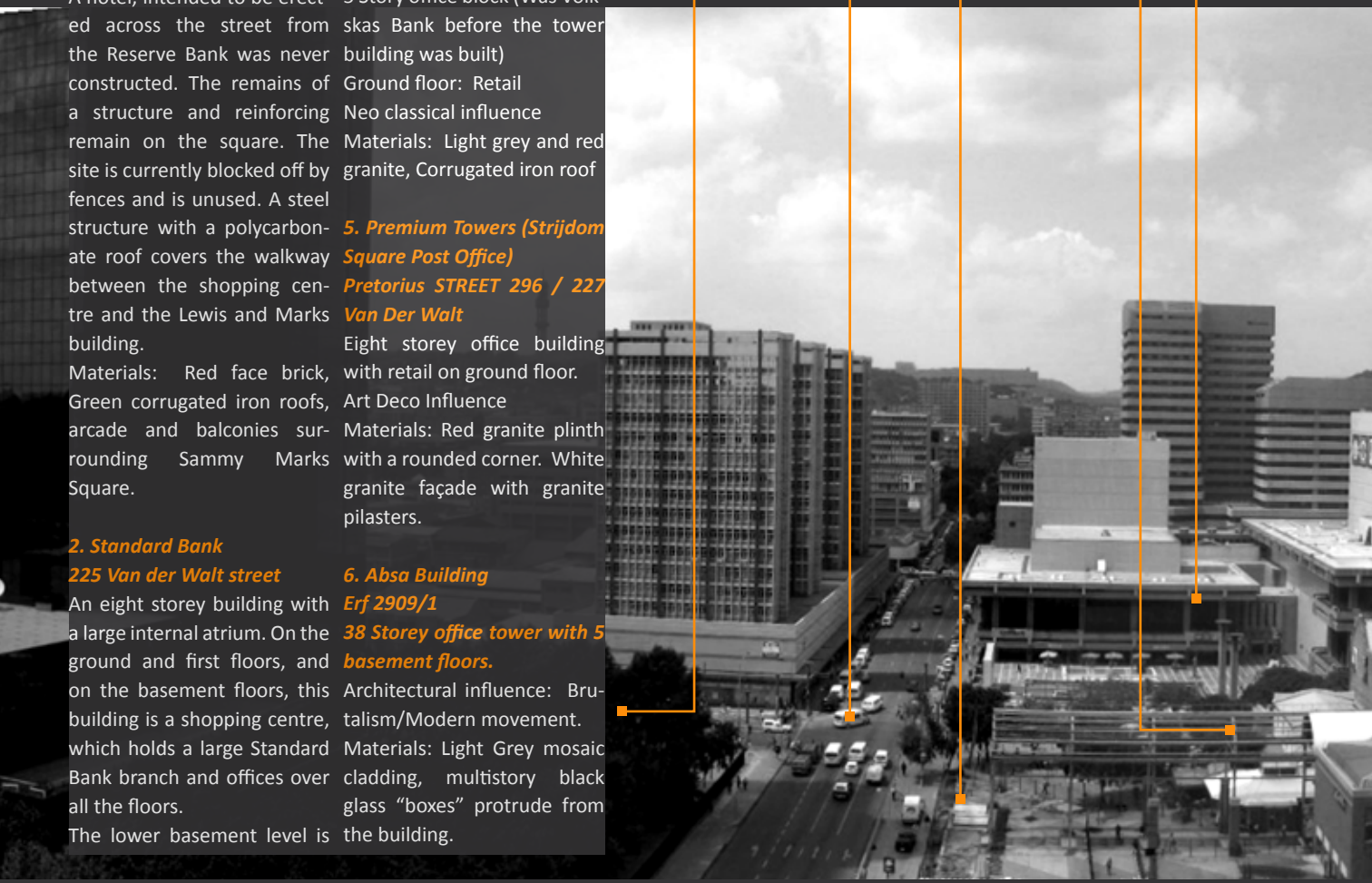
Art Deco Influence

Materials: Red granite plinth with a rounded corner. White granite façade with granite pilasters.

6. Absa Building
Erf 2909/1
38 Storey office tower with 5 basement floors.

Architectural influence: Brutalism/Modern movement.

Materials: Light Grey mosaic cladding, multistory black glass "boxes" protrude from the building.



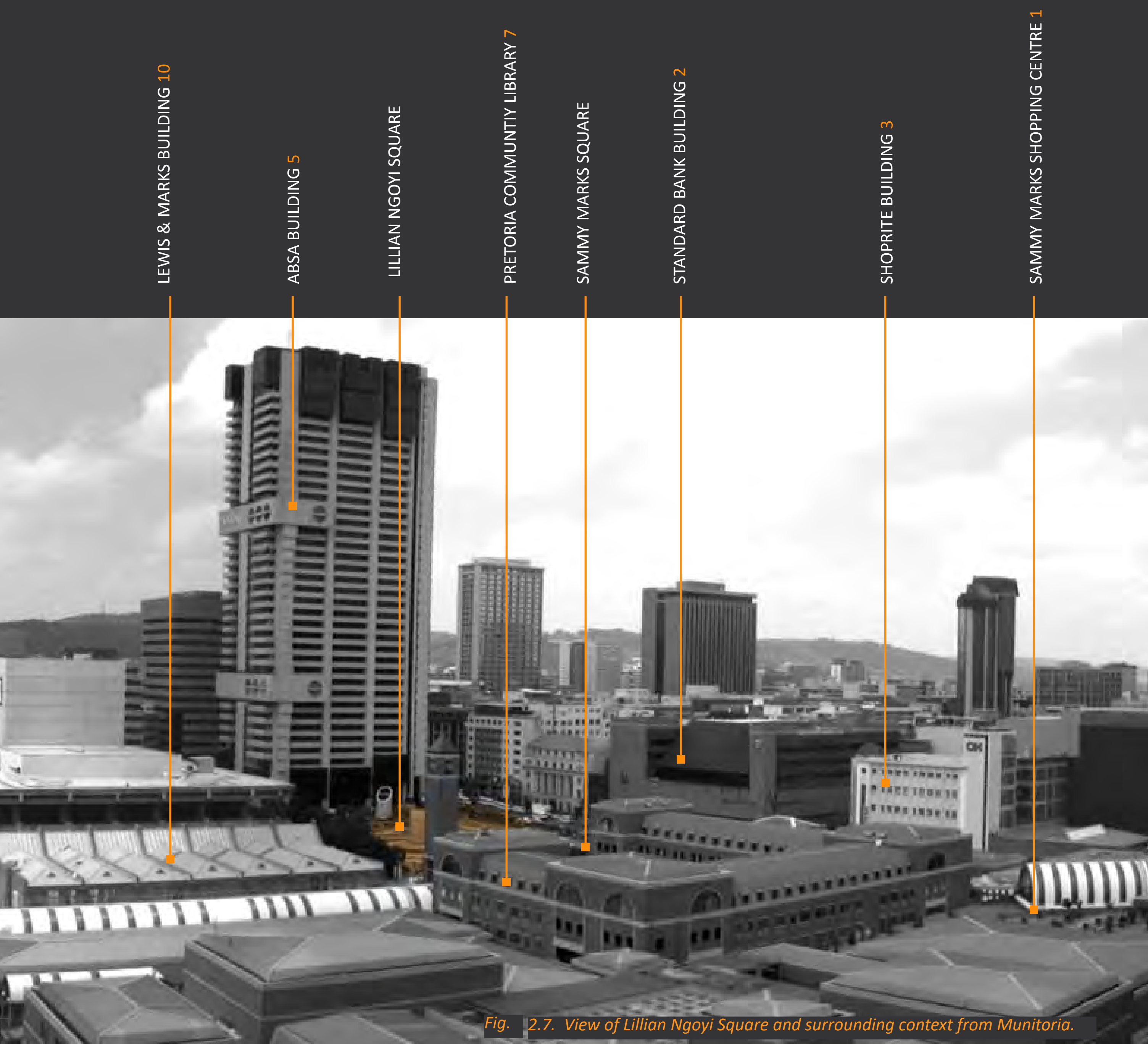


Fig. 2.7. View of Lillian Ngoyi Square and surrounding context from Munitoria.

SAMMY MARKS SQUARE

LILLIAN NGOYI SQUARE

VAN DER WALT STREET

PRINSLOO STREET

0m 50m 100m 200m

8

9

10

11

7. Sammy Marks Library Building
Erf 3357

This building is a part of the Sammy Marks Square Shopping Centre development and includes a library and clinic.

8. Reserve Bank
370 Church Street
Erf 3271

37 Storey office-block on top of a podium and several basement floors. The building has a green space with a large water feature in front of it. This area is surrounded by a palisade fence, restricting access to only those who have business in the building.
Materials: Black granite panels and reflective glass.
A recent addition was added. The building covers most of the city block.

9. Kynoch building
336 Church Street
Erf 3357

Double storey shop building with veranda on cast-iron columns.
Plastered brick walls, corrugated iron roof, timber sash windows and doors.
This building dates back to the 1880's which makes it the oldest existing building in the CBD.

10. Lewis + Marks
322-330 Church Street
Erf 3357

Three Storey office building in 7 sections. Sections are divided with parapet walls. Each section has its own roof of corrugated iron.
Ground floor: Shop front
Upper Floors: Office Space
Designed in 1903 by W.J. de Zwaan in the style of Amsterdam "gragtehuise".
Materials: Red face brick in English bond, corrugated iron roofs

11. State Theatre
301 Church Street/110 Pretorius Street
Erf 2909/R

Large theatre building and Opera house, the State Theatre has 3 theatres.
Architectural Expression/ Influence: Japanese Metabolism influence – flat roofs and balconies with large overhangs on northern façade. The building turns its back to the rest of the city and to Lillian Ngoyi Square. Three towers pierce through the flat roofs, two stage towers, and the "Truk" administrative block. 42m above ground level at its highest point. The building also holds several basement parking floors and a set building workshop.
Materials: Off Shutter concrete, Glass

IMPORTANT BUILDINGS

Fig. 2.8.

ABSA BUILDING

Architects: Pauw & Botha Architects

Quantity Surveyors: Grothaus & Du Plessis

Civil Engineers: Bruinette, Kruger, Stoffberg & Hugo

Mechanical and Electrical Engineers: G.H. Marais & Associates

The building was commissioned as a head office for Volkskas bank in 1969, and was designed by Pauw and Botha Architects. This tower building has 38 floors above ground (aimed to create a landmark for Pretoria), and 5 basement floors of which two were intended for commercial activity, and two for parking. The lowest basement floor is a mechanical floor that houses transformers, and the main air-conditioning system. Ground, first and second floors were intended as banking halls. The basement parking area can hold 150 cars.

The Absa building is situated on the south-western corner of the city block between Van der Walt, Vermeulen, Prinsloo and Pretorius Streets and was intended to act as a backdrop to the Strijdom monument. It is a tall white structure with multi-story black boxes protruding from it. On the northern façade is a glass lift, affording the user views of the square and surrounding area, as well as a bird's eye view of Pretoria. Building finishes: ceramic mosaic work on the ground floor exterior. A shading structure and seating provided on the south/western exterior were a later addition to the building. The seating is used as a taxi stop and

is the only shaded seating area provided along this part of Van der Walt Street.

The northern part of the site is approximately 1500mm higher than Lillian Ngoyi Square. This is part of the basement structure and currently houses an in-house gym and clinic for Absa employees. The building was never designed to interact with the square on ground floor level. Today, this platform to the north of the Absa tower

building is used as an above ground parking space, and is surrounded by a palisade fence. Entrances to basement levels have been blocked off and are currently used as service entrances by cleaners.

The building was designed to accommodate 72% rentable office area, ground and basement floor retail space and a cinema theatre on lower basement level, as well as 10 floors for the bank itself. The 36th floor was intended for a public restaurant and a cafeteria and lounge area for those working in the office tower, while the 37th floor would be an open viewing floor. A glass lift on the north façade of the building affords the users a view of the Strijdom monument and the north of Pretoria.

Today this building is owned by ABSA bank, and is solely used by the bank. The basement floors are no longer used for commercial activity, but have been transformed into conference rooms, parking space, storage space, an in-house clinic and gym. Only the ground floor is accessible to the public, and then only by appointment. The 36th floor is no longer a restaurant and the 37th floor is used by management personnel.

Page 20:

Fig. 2.9. North Facade of Absa building
Fig. 2.10. Service entrance to Absa building on Lillian Ngoyi Square
Fig. 2.11. Level difference on Lillian Ngoyi Square

Page 21:

Fig. 2.12. Level difference on Lillian Ngoyi Square
Fig. 2.13. Seating under Absa building (Southwest corner)
Fig. 2.14. South facade of Absa building

The State Theatre complex is situated between Church and Pretorius Streets directly east of Lillian Ngoyi Square. Construction on the complex started in 1970 with the demolition of the old Market Hall structure. The Theatre complex and its basement parking area spans the entire city block.

The complex consists of six theatres: An Opera theatre (1300 seats); Drama theatre (640 seats); an intimate theatre; the Rendezvous theatre (120 seats) with a bar area and theatre (260 seats); Arena (288 seats) which can also be used as a rehearsal hall and is the complex's third largest theatre; and the Momentum theatre. It also has a number of foyers that can be rented for functions, as well as a number of private function rooms that can accommodate between 12-60 persons. The complex also includes a number of rehearsal studios and a restaurant, Capello's on the Eastern wing. The complex hosts Opera, Ballet, Musical, Drama, Cabaret shows and Children's theatre.

According to Technical Director of the State Theatre, Mr. Gert Viljoen, the Theatre was once a large production house that included timber, steel and fibre-glass workshops on the basement levels. Due to a lack of funding, the production house was downscaled to a theatre in 1996, and the fibre-glass and steel workshops were closed down. The timber workshop is still rentable to production companies for the making of props. The theatre not only rents theatre and recording space to production and advertising companies, but also rents its props and costumes for functions and productions.

STATE THEATRE

Architects: Botha, Lotter & Associates
Daneel, Smit & Associates

Fig. 2.15.

The State Theatre building was designed to reflect the wealth and prosperity of the state at the time of its design and construction (1970's). It was intended as the first part of the development of what was then called "Strijdom Square" which included a monument to the late apartheid prime minister, J.G. Strijdom, and a new head office for Volkskas Bank (today this is the Absa building). The building was the last to be completed.

PARKING

The basement parking garage of the complex can accommodate approximately 1500 cars. According to the head of parking security at the State Theatre, Callie van der Merwe, 77 of the parking spaces are used by State Theatre employees, and another 50 are used by tenants in the State Theatre office complex. A servitude exists in the basement parking area that allows Absa employees to access a specially demarcated area that uses another 104 parking spaces belonging to the State Theatre's basement parking. Other users of this garage include some monthly permit holders working in the Standard Bank building and a number of citizens living in apartments in Central Street. Additional parking space is provided in the basement of the Absa building, that can accommodate a further 100 cars. In total it is estimated that 60%-70% of the available parking is used on a regular working day.

On the second basement level is an entrance to an underground arcade that runs underneath Van der Walt Street from the parking lot to the Standard Bank building on the western side of Van der Walt Street. The arcade is lined with small shops that lead to an atrium at the centre of the Standard Bank building.

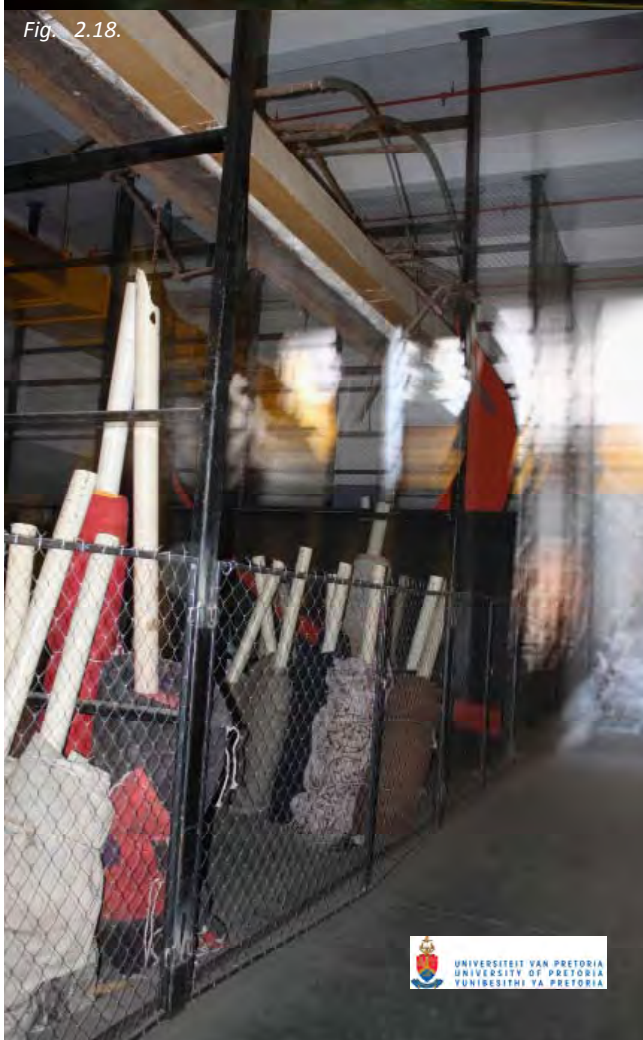
The highest points of the State Theatre complex are the two stage towers and the administrative tower on the south-western point of the complex. The administrative tower is 12 storeys high, accommodating the administrative section of the State Theatre, rentable office space and a penthouse on the top floor. The State Theatre currently employs only 140 people.

According to Stark (1979), the theatre complex uses roughly the same amount of electricity as the town of Potchefstroom. Viljoen, explains that this amounts to an electricity bill of roughly R270000 per month. The building turns its back to the city and the public square to its west with its three impenetrable facades. It contributes to the lack of activity on the square. Patrons of the theatre primarily arrive with their own private vehicles. They park in the basement parking lot and move directly from their cars to the nearest underground entrance where they take a lift or stairs to the ground floor or higher foyers and then into the theatre or function room. These patrons rarely exit the State Theatre on ground floor level and do not come into contact with the outdoor spaces surrounding the square. After their business is completed, they return to their private vehicles and drive away.

Fig. 2.16.

Fig. 2.17.

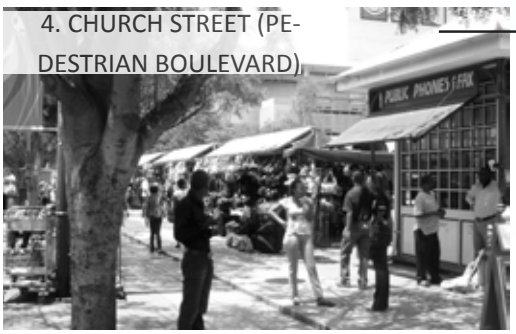
Fig. 2.18.



2.CORNER OF VERMEULEN AND VAN DER WALT

3..SAMMY MARKS SQUARE

4. CHURCH STREET (PEDESTRIAN BOULEVARD)



5.LILLIAN NGOYI SQUARE

6.STAGE DOOR PLATFORM

7 COMMUNITY LIBRARY OPEN SPACE

8.SAMMY MARKS ARCADE

9.RESERVE BANK GARDENS

10.STATE THEATRE SQUARE

Lillian Ngoyi Square is part of a network of important public spaces in the city namely Pretoria Station, Pretorius Square, Burgers park, Church Square, Pretoria Zoo, Sammy Marks Square/ Lillian Ngoyi Square precinct and Lion Bridge. The Square is situated on one of the city's main axes, Church Street, which carries a great deal of the city's pedestrian activity.

Surrounding Lillian Ngoyi Square is a system of 10 important public open spaces, all of which are hard landscapes. These public spaces and buildings surrounding Lillian Ngoyi Square give the area a unique character.

Sammy Marks Square, Sammy Marks Arcade and Church Street are always bustling with pedestrian activity. These spaces between buildings are where social interaction and exchange can take place.

All these spaces are currently uncelebrated and movement between them is hindered by physical barriers and level differences. Through the insertion of new activities, and the removal of fences and boundaries, these spaces can function together as a larger precinct.

IMPORTANT PUBLIC SPACES

Fig. 2.19.

CLIMATIC AND GEOLOGICAL CONDITIONS

Pretoria is situated in the Gauteng province of South Africa. The city lies in a valley between the hills of the Magaliesberg mountain range. It is situated approximately 1,370 metres above sea level.

RAINFALL: Pretoria falls under the summer rainfall region. It receives thunderstorms in summer afternoons, while winters are moderately cold and sunny. The city receives an estimated 700mm rainfall per annum.

TEMPERATURES:
Average summer temperatures 15°C - 28°C.
Average winter temperatures 6°C - 23°C

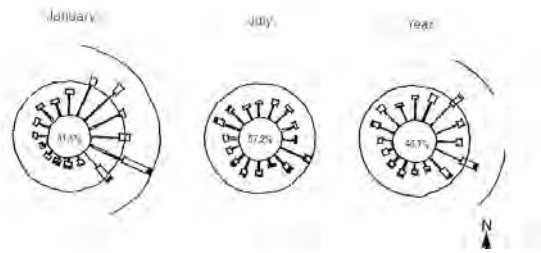


Fig. 2.20.
WIND: Predominant wind directions (see wind rose)
Summer: East-North-Easterly to East-South-Easterly
Winter: South-Westerly

Due to existing structures covering the entire city block, a new structure on Lillian Ngoyi Square would not come into contact with the existing soil on site. It is however, important to understand the nature of the soil conditions and geology in order to determine how to design a new structure and its water disposal system.

According to a report and site analysis done by Pauw and Botha Architects for the construction of the Volkskas building (now the Absa building), the site consists blue shale covered with a diorite sill. A deep course of diorite runs past the east of the site in a North-South direction.

The shale is approximately 7.6m deep on the South-west corner or the site, while at the centre of the site it is approximately 12.8m deep. On the north-west corner it is estimated to be as deep as 21m.

Diorite is grey to dark grey igneous rock that is composed of plagioclase feldspar and horneblende. It is an extremely hard rock which is similar to granite, but contains very little or no quartz. Shale is a fine-grained sedimentary rock that is composed mainly of clay minerals.

A measurement of ground water level done before construction of the Volkskas building estimated it at approximately 3m below natural ground level.

GEOLOGY

MONTH	TEMPERATURES		RAINFALL	
	Average daily maximum	Average daily minimum	Average monthly (mm)	Average number of days >= 1mm
January	29	18	136	14
February	28	17	75	11
March	27	16	82	10
April	24	12	51	7
May	22	8	13	3
June	19	5	7	1
July	20	5	3	1
August	22	8	6	2
September	26	12	22	3
October	27	14	71	9
November	27	16	98	12
December	28	17	110	15
Year	25	12	647	87

Table 2.1. Table indicating monthly temperatures and rainfall as provided by the South African Weather Service.

SHADOW STUDY

Solar Times	6:00	8:00	10:00	12:00	14:00	16:00	18:00
Azimuth 21 Dec.	112 E	101 E	91 E	0	91 W	101 W	112 W
Altitude 21 Dec.	10	35	63	88	63	35	10
Azimuth 21 Mar/Sept.	90 E	76 E	53 E	0	53 W	76 W	90 W
Altitude 21 Mar/Sept.	0	26	51	65	51	26	0
Azimuth 21 June	n/a	55 E	34 E	0	34 W	55 W	n/a
Altitude 21 June	n/a	14	32	40	32	14	n/a

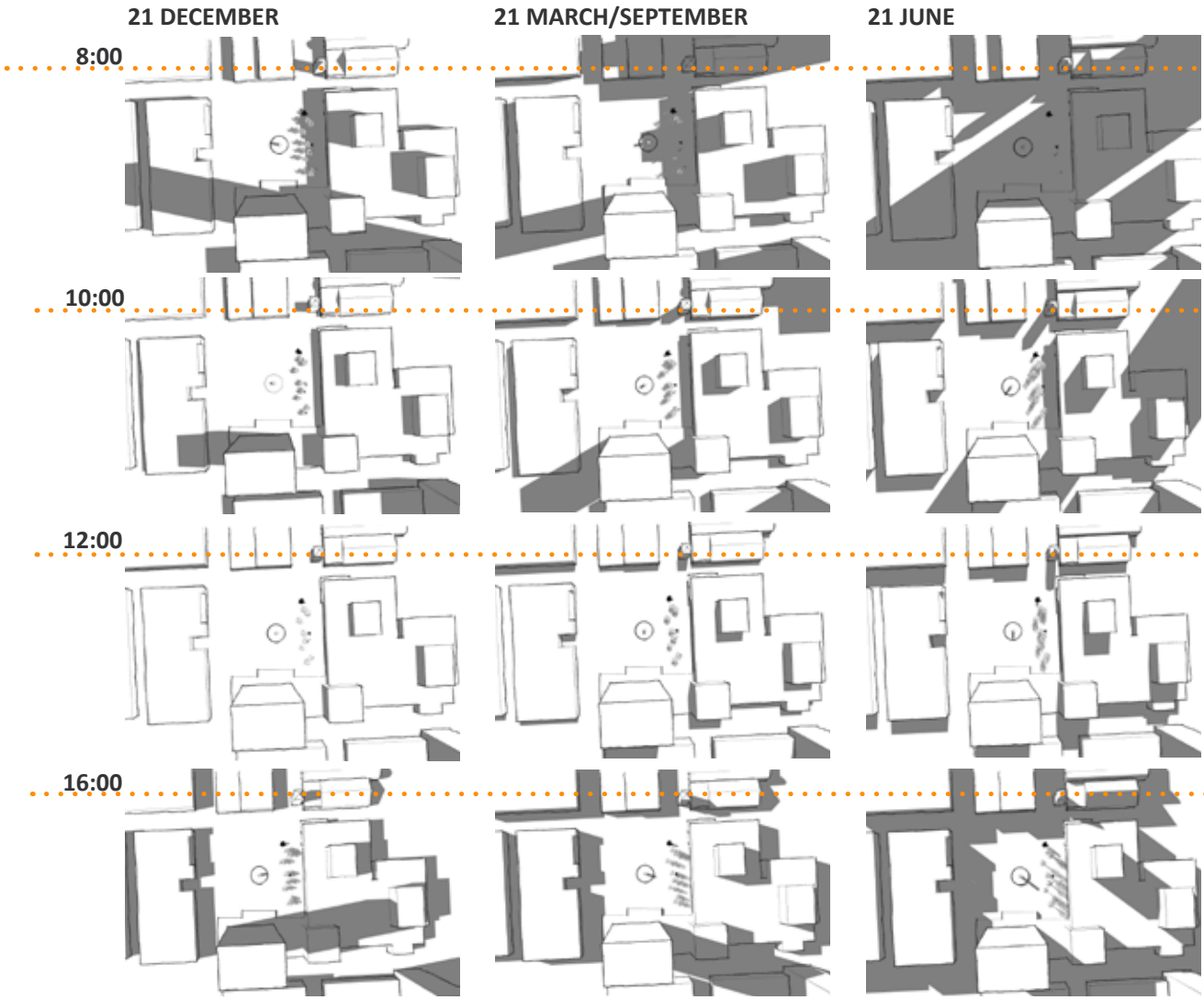


Fig. 2.21.

COMFORT

Lillian Ngoyi Square has a harsh micro climate. The square's surface is a hard paved surface (concrete and paving) in a light grey colour. This causes glare. The square receives almost no shade during the day, except for a planter on the western edge of the State Theatre. The planter contains trees and plants from all over South Africa and is used as a picnic spot and resting area for people working in the area, and those who need to escape the harsh sun.

PHYSICAL + LEGAL CONTEXT

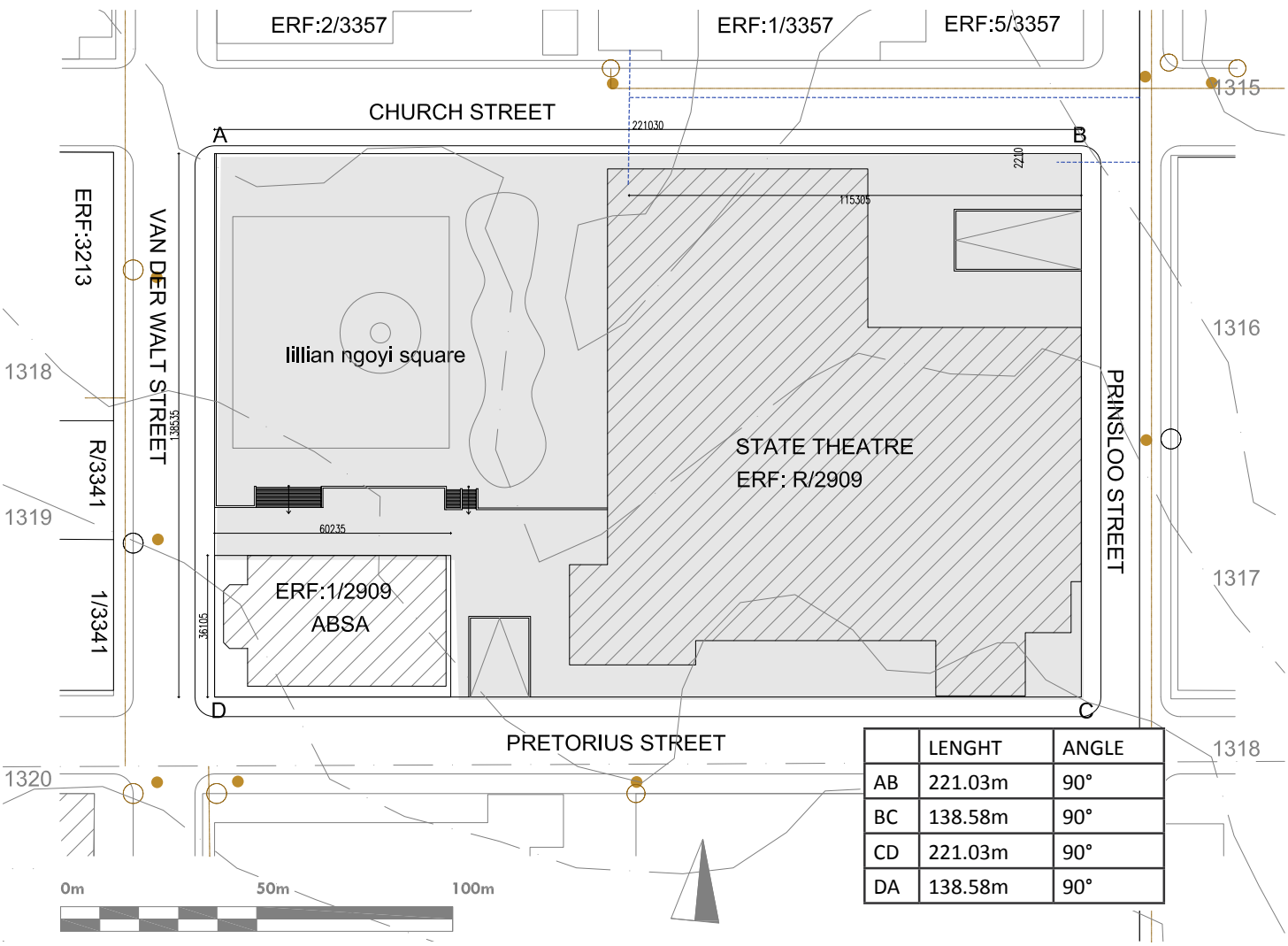
REMAINDER OF ERF 2909
ZONING: SPECIAL
(Shops, offices, residential buildings and places of amusement or for such other purposes as may be decided and subject to such conditions as may be imposed by the Administrator after reference to the Townships board and City Council)

MAXIMUM HEIGHT: 122.0m (including machine rooms)

BUILDING LINES AND SETBACKS:
Ground and mezzanine floors (double storey height):
14.0m from Van der Walt Street.
4.5m from Pretorius Street.
First and second floors:
On the street boundaries of Van der Walt and Pretorius Streets
All further floors: 6.5m from Van der Walt Street
3.0m from Pretorius Street.

PARKING REQUIREMENTS: On-site parking must be provided to the satisfaction of the Administrator

Fig. 2.22.



	LENGHT	ANGLE
AB	221.03m	90°
BC	138.58m	90°
CD	221.03m	90°
DA	138.58m	90°

ACTIVITIES

Church Street is a pedestrian boulevard between Church Square and Prinsloo Street. This section of Church Street has a cobbled surface and is lined with Celtis Africana (White stinkwood trees).

Celtis Africana is a deciduous tree with an expected height of about 12m. It is an indigenous species with smooth, pale grey bark and green leaves in a triangular shape. The leaves have three distinct veins from the base. (Brum 2008). These trees are planted throughout the streets of Pretoria. They are fast growing and provide a great deal of shade.

Church Street is a wide boulevard that is lined with informal trading stalls. There are up to 3 rows of trading stalls in the section of the street in front of Lillian Ngoyi Square.

Sammy Marks Square Shopping centre is the source of most of the pedestrian activity in the area. The centre contains shops, offices, a library and municipal offices. Sammy Marks Square is a courtyard that allows access to the shopping centre and arcades. This space is always bustling with activity and public events are often held here as the square is visible from four sides and many viewing opportunities are available to users.

Activity on Lillian Ngoyi Square is limited to its periphery and movement diagonally across, from Church Street to a gate and stairway on the south-western corner. This lack of activity is caused by physical barriers on the square's edges, and the inactive facades of the buildings surrounding the square. A planted area on the eastern side of the square is used as a picnic area and is home to a number of stray cats and vagrants. Trees and other vegetation in this area were planted as part of the Strijdom Monument. They represent plant life from what were then South Africa's four provinces. These include Aloe Barbarea, Strelitzia Nicolai, Celtis Africana and several Acacia species, to name a few. There are several concrete benches and fibre cement "rocks".

Informal trading occurs on the sidewalk of Van der Walt Street, and in Church Street. The occasional shading structure is erected in the centre of the square, but these stalls never remain in this position for long.

A "Stage door" entrance to the State Theatre on the level of Pretorius Street is the cause of the occasional gathering on the higher platform. However, the level difference hinders connection between the square and this space.

Fig. 2.23. SAMMY MARKS ARCADE

Fig. 2.24. INFROMAL TRADING ON CHURCH STREET

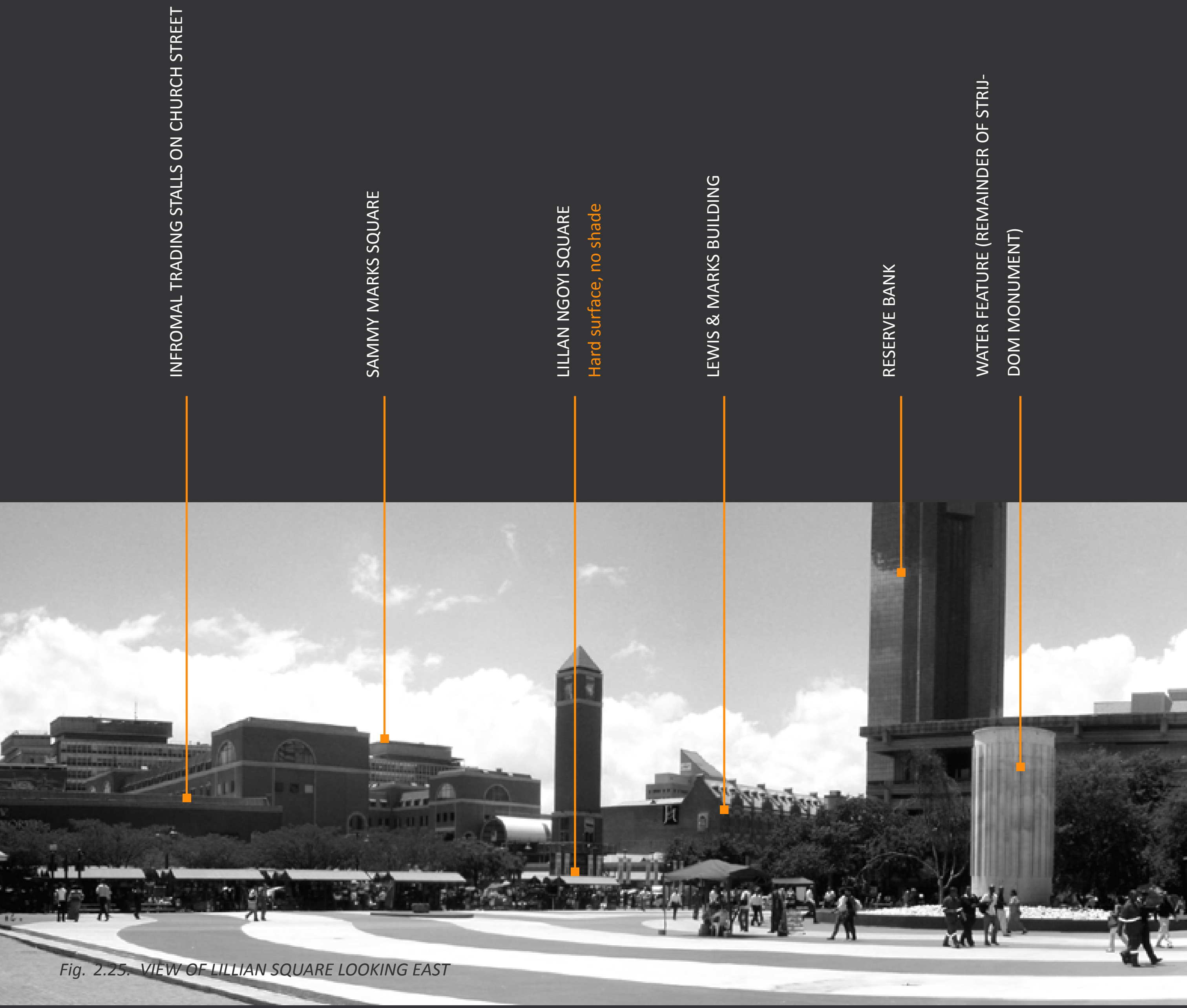


Fig. 2.25. VIEW OF LILLIAN SQUARE LOOKING EAST


PLANTED AREA ON EASTERN EDGE OF LILIAN NGOYI SQUARE
WESTERN FACADE OF STATE THEATRE
No interaction with square
TRUK TOWER (ADMINISTRATIVE SECTION OF STATE THEATRE)
PLATFORM NORTH OF ABSA BUILDING
Hindered access and movement
ABSA BUILDING
No interaction with square

VEHICULAR MOVEMENT

Lillian Ngoyi Square is situated in the city block that is bounded by Van der Walt, Church, Prinsloo and Pretorius Streets. These streets form a one-way system that allows vehicles to move clockwise around the site. Van der Walt, Vermeulen and Prinsloo Streets are all busy taxi routes, Van der Walt currently being the busiest. Here, taxis line the streets on the Eastern edge of the street. The speed of traffic in the area is very fast, making the area unsafe for pedestrians.

Fig. 2.26.

MOVEMENT AND SITE ACCESS

VEHICULAR SITE ACCESS

Vehicular access can be gained through the basement parking area of the State Theatre. Service vehicles can access the site through Church Street from the corner of Church Street and Prinsloo Street. (This section of Church Street is limited to pedestrian access and service access only)
Church Street is a pedestrian boulevard between Church Square and Prinsloo Street. The street edges are lined with shops and informal trading which draw a great deal of pedestrian activity.
Sammy Marks Square Shopping Centre is a multi-use centre that acts as an anchor point for pedestrian activity. The centre is entered from the north through a pedestrian arcade from Vermeulen Street to Sammy Marks Square, and from the east through a pedestrian arcade from Prinsloo Street to Sammy Marks Square.

Pedestrian access to Lillian Ngoyi Square is currently limited because of a physical barrier and height difference between the site and surrounding streets. The southern and western edges of Lillian Ngoyi Square are cut off from the surroundings. Pedestrian activity and informal trading stalls occur mainly on the sidewalk of Van der Walt Street and Church Street. The sidewalk on Van der Walt Street is on a higher level to the square, and a balustrade forms a barrier between the sidewalk activity and the square. Pedestrians walk diagonally across Lillian Ngoyi Square from Church Street to the steps in front of the Absa building. This is the only activity that occurs on the square.

Access can be gained from Church Street, and through a staircase and gate on the south western corner of the site, under the Absa building. This gate is often closed, hindering pedestrian movement across the square. Lillian Ngoyi Square is only used as a short-cut between Church Street and the corner of Pretorius and Van der Walt Streets.
A platform to the north of the Absa building is completely blocked off from pedestrian access. This platform is currently used as additional parking space for Absa employees.

Another point of access is a staircase on the southern boundary of the site connecting the higher level of Pretorius Street to the Square level.

MOVEMENT AND SITE ACCESS

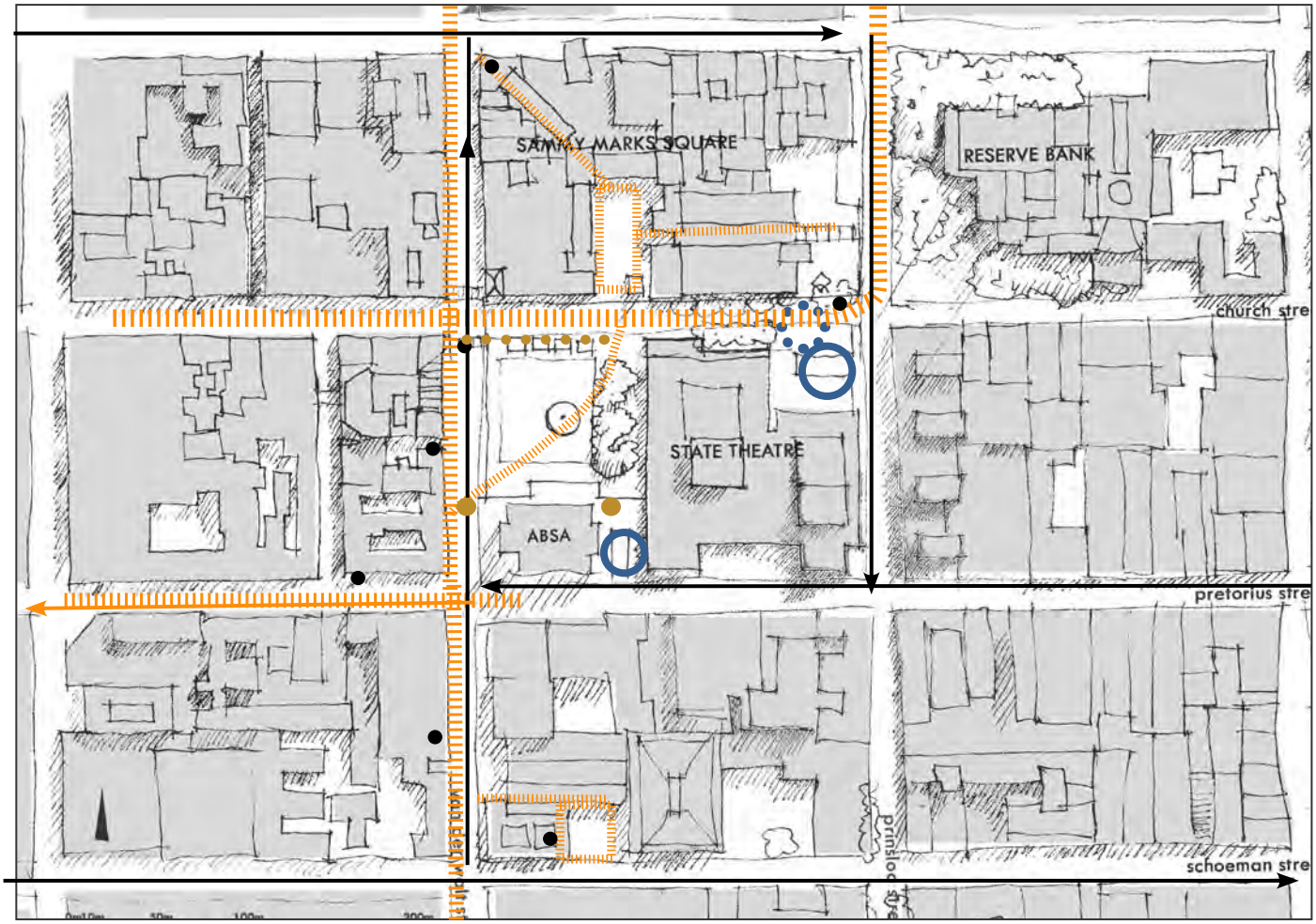


Fig. 2.27. Pedestrian and Vehicular Access and Movement on and around Lillian Ngoyi Square.

- PEDESTRIAN ACCESS POINT
- TAXI STOP
- IMPORTANT VEHICULAR ROUTES
- PEDESTRIAN ROUTES
- VEHICULAR ACCESS POINT
- RESTRICTED VEHICULAR ACCESS POINT

Fig. 2.30.

Fig. 2.31.

Fig. 2.28.

Fig. 2.29.

Fig. 2.33.

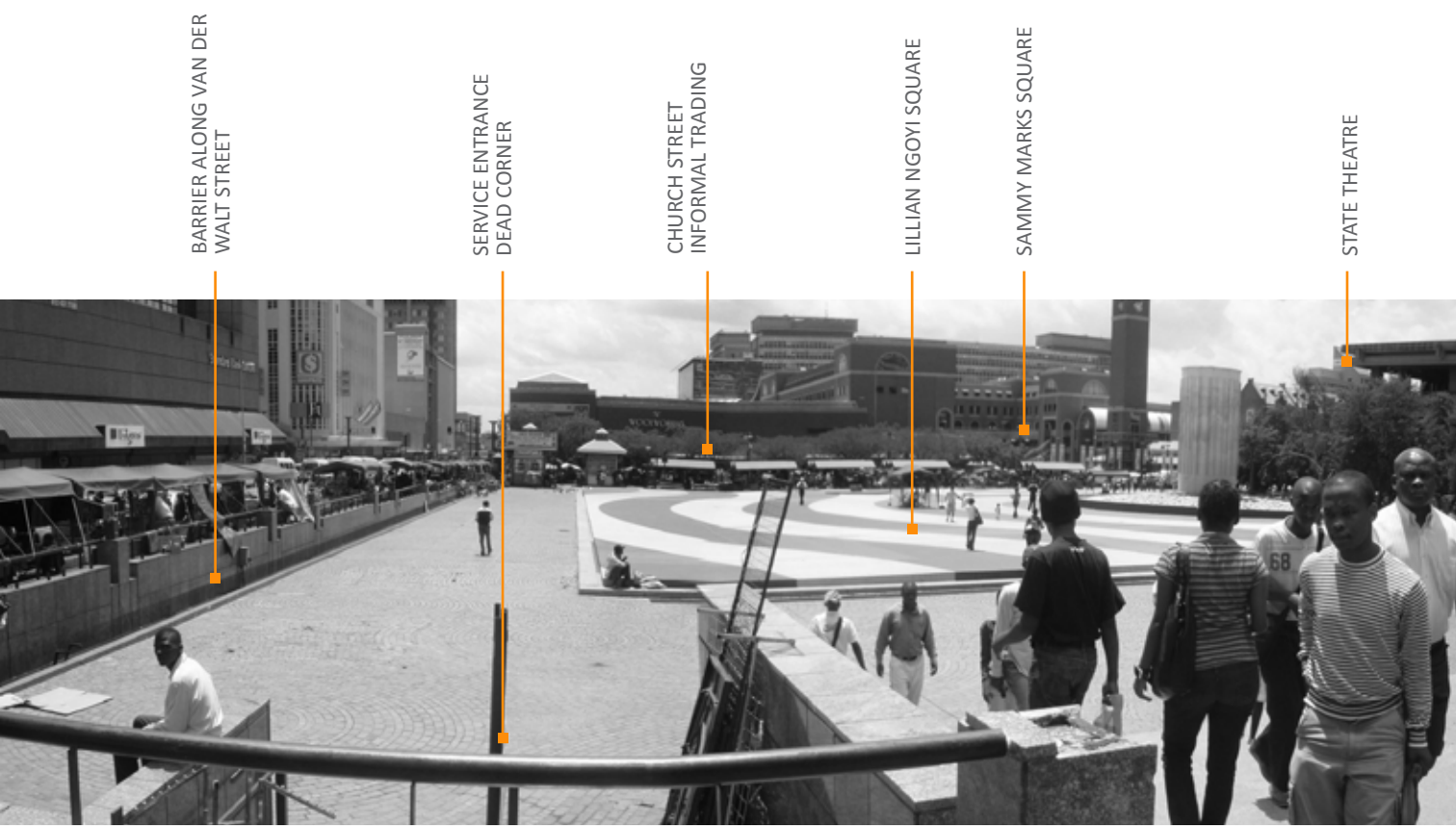
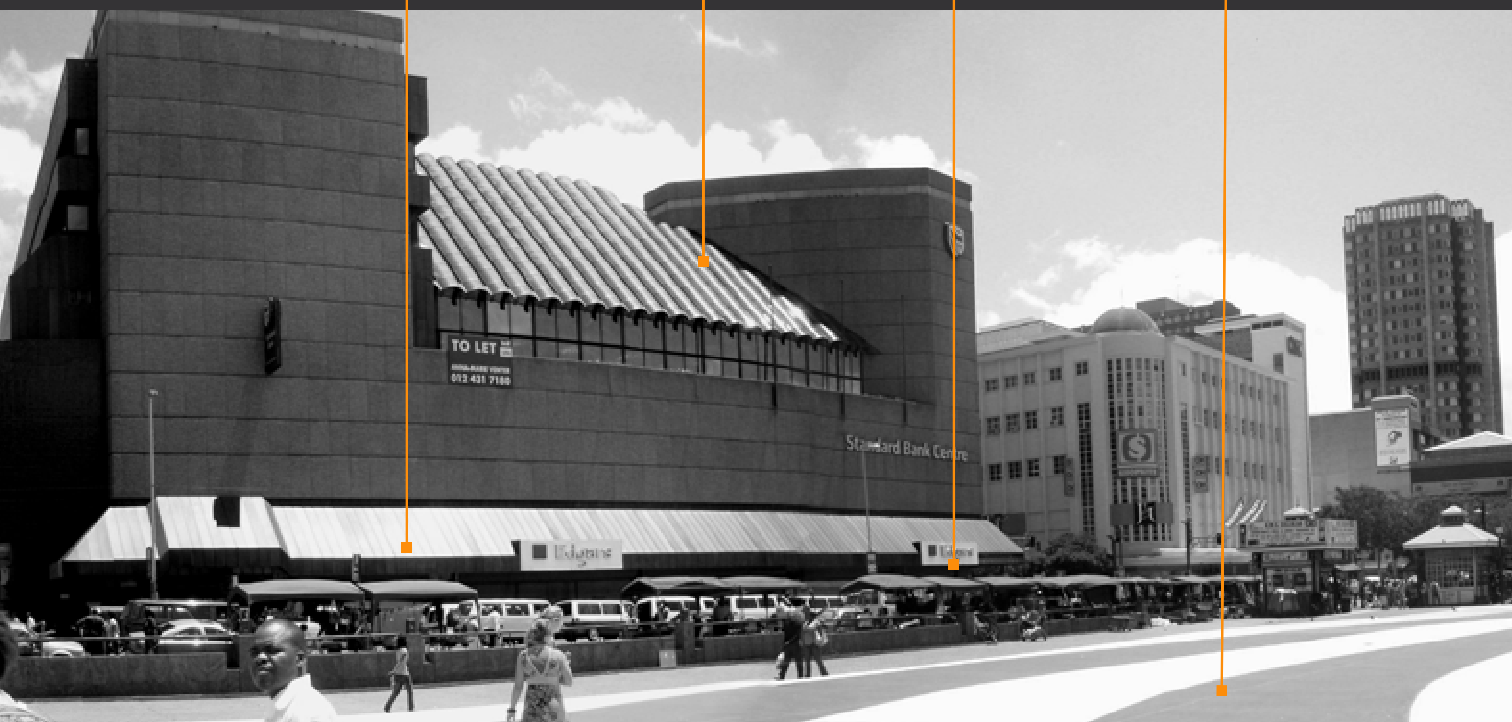


Fig. 2.32.

ABSA BUILDING
This building uses a section of the state theatre's basement parking for its employees

VAN DER WALT STREET SIDEWALK
The sidewalk is separated from the square by a physical barrier: a balustrade. Informal trading and pedestrian movement happens mainly along the sidewalk and rarely moves into the square

Fig. 2.34. VIEW OF WESTERN SITE BOUNDARY AND VAN DER WALT STREET


ENTRANCE TO PEDESTRIAN ARCADE
Linking the standard bank building with the state theatre basement parking
STANDARD BANK BUILDING
Office block and shopping centre
INTERSECTION OF CHURCH AND VAN DER WALT STREET
Church street is pedestrianized from church square in the west to prinsloo street in the east
LILLIAN NGOYI SQUARE
TO LET
Standard Bank Centre

SWOT ANALYSIS

STRENGTHS
Situated along major axis
In pedestrian area - busy commercial area
Along major transport routes
Situated next to the State Theatre (landmark and iconic building)
Existing basement parking for up to 1500 cars

WEAKNESSES
Hindered access and movement.
Lack of activity due to inactive facades.
Level differences.
Traffic volume and speed on Van der Walt Street hinders movement and visual connections.

OPPORTUNITIES
Association with State Theatre
Prime position within the city
Level differences
Existing basement

THREATS
Height of ABSA tower compared to the surrounding area
Harsh micro climate
Traffic volume and speed on Van der Walt Street

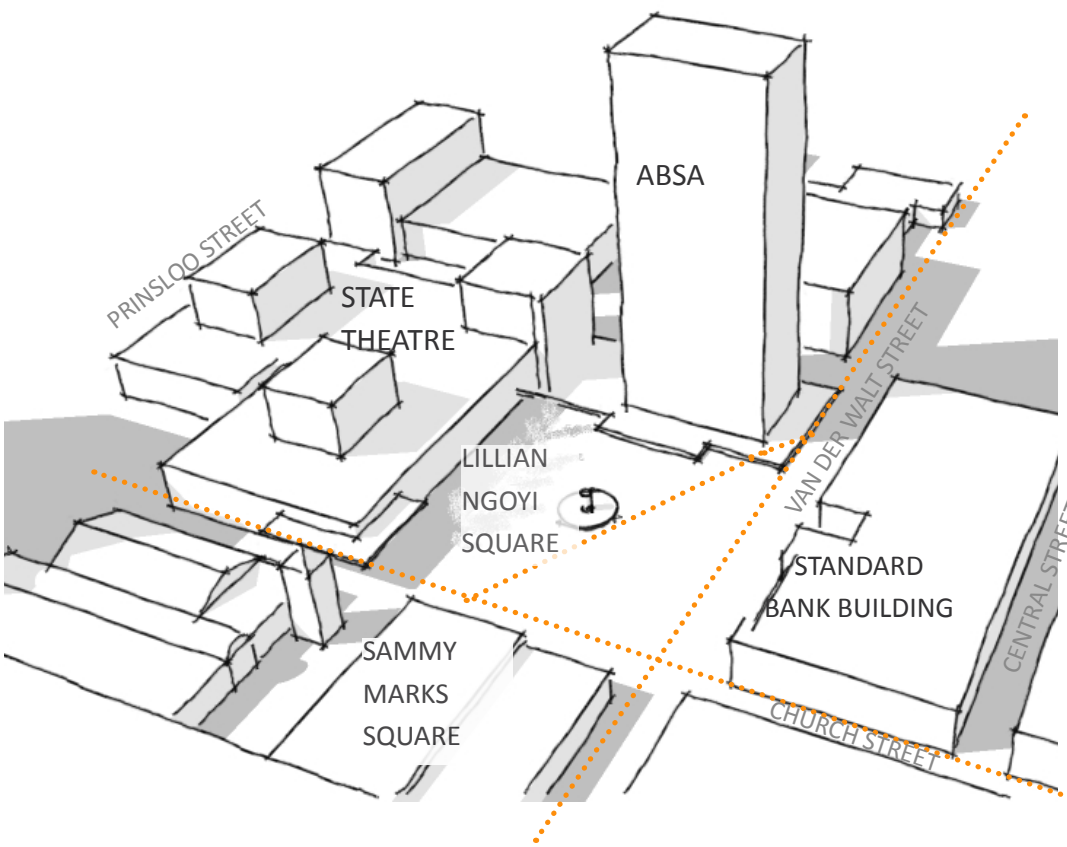


Fig. 2.35.

PROBLEM DEFINITION

Lillian Ngoyi square is currently an empty, unused space situated on a prime piece of land in the Pretoria inner city. It is situated along a major axis, and in the busiest pedestrian area.

Through analysis of the square, three major problems can be identified:

1. Lack of comfort due to little shade, inadequate seating opportunities and glare caused by the light coloured surface of the square.
2. Hindered access due to level differences between the square and surrounding streets. These level differences have been treated with barriers (balustrades and fences) instead of providing easy transition through the use of stairs.
3. Thirdly, the most important problem of Lillian Ngoyi Square is a lack of activity caused by inactive, closed facades of the buildings facing the square. There is no reason to enter the square, except as a shortcut between Church Street and Van der Walt Street.

OBJECTIVE/GOAL

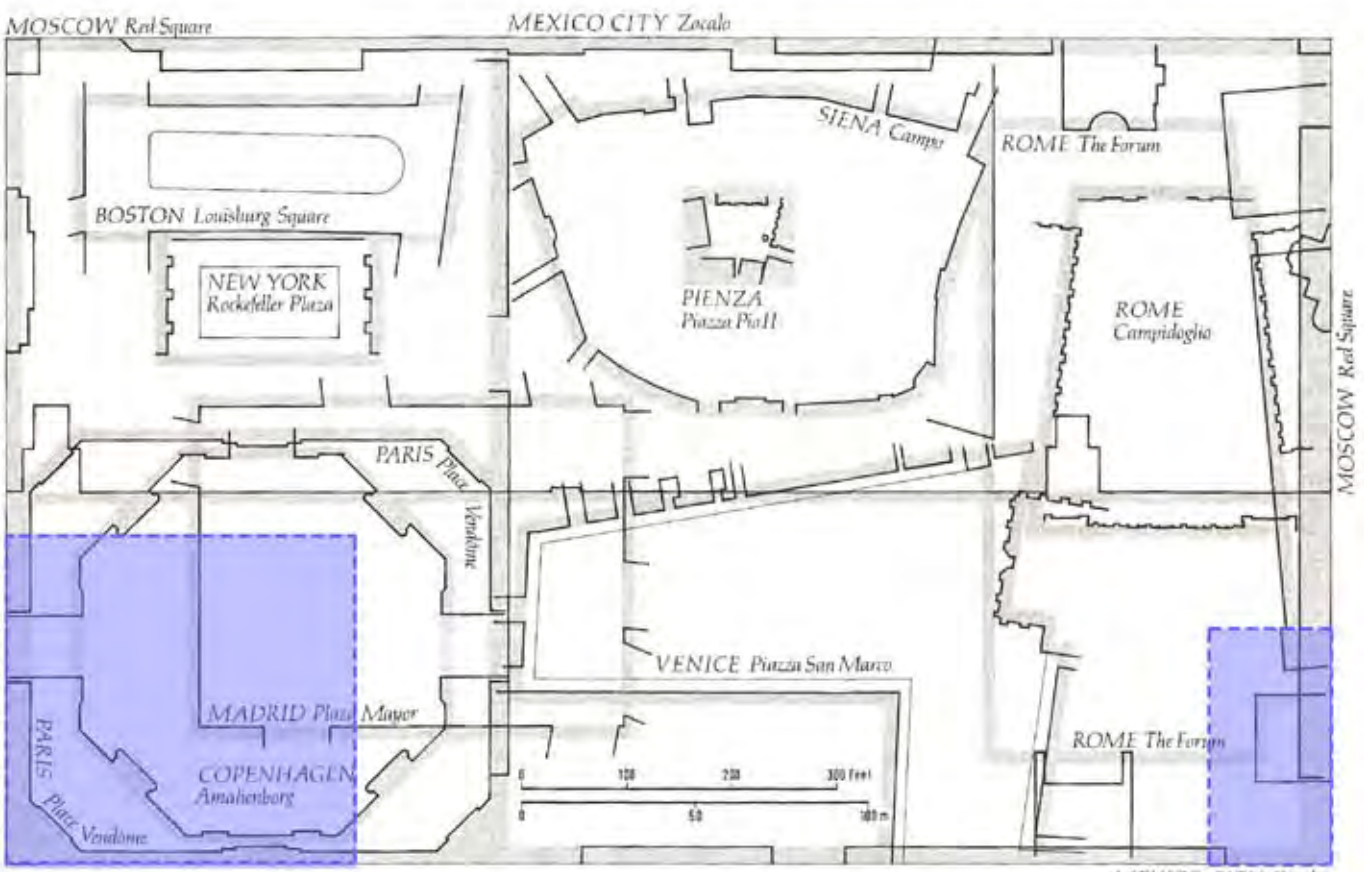
The objective of this project is:

- To convert Lillian Ngoyi Square from an unused dead city space into a vibrant and active public square.
- To open the seemingly closed box that is the Sate Theatre by educating the public about the opportunities and facilities offered by the State Theatre.
- To educate the public about the performing arts.
- Create active edges to the public square.

CONSTRAINTS/POSSIBILITIES

1. The existing basement under Lillian Ngoyi Square has a column grid of 9150m x 8475m. Adding/removing columns to accommodate a new design has implications on the structural integrity of the existing building and may cause a loss of parking space on basement levels.
2. The conclusion of the analysis determined that the ideal position of a new building on the square would be directly to the west of the existing State Theatre. The new building would have a predominantly west facing façade which is undesirable due to the amount of direct afternoon sunlight that the building would be exposed to.
3. Relating to the existing fabric aesthetically. The square is surrounded by buildings with many different architectural styles.

03_CITY SQUARE



PRETORIA
LILLIAN NGOYI SQUARE (CURRENT CONDITION)

PRETORIA
Sammy Marks Square

"Stand in a public space, walk about, sit at its edges. Does the space itself have a presence, a definition, a quality that adds significantly to the architecture and the features that it embraces? And if you decide that yes, it is a square, does it work well? Does it take your breath away as you enter, and lift your spirits as you stroll around? Is it a place in which you want to meet your friends and observe strangers? Is it the first choice for community celebrations? Does it offer a sense of place, a feeling of historical continuity, a vision of what urban life should be? Is it maintained with respect or vandalized; does it serve as an oasis or for parking? Ask another question: "if not, why not?"

Actors and décor have changed over the centuries, but the need for a stage has remained a constant."

(Webb, M. 1990: 11-12)

Fig. 3.1.

"Oh, a day in the city square, there is no such pleasure in life!" (Browning, R. in Webb, M. 1990, p. 12.)

This chapter will discuss the importance and the meaning of public space in different cultures and the influence of culture on the production/construction of public space. It will also look at historical and contemporary theories about public space, and characteristics of successful public spaces. An attempt will be made to apply these theories to Lillian Ngoyi Square, an underutilized public space in the centre of Pretoria, in order to obtain an appropriate design solution. The study reflects a view that public life in public spaces is beneficial to people and societies and; that a good balance between private and public life is necessary for a healthy lifestyle.

PUBLIC SPACE: MEANING AND CULTURE

Public places provide casual meetings and encounters in the course of daily life that can bring people together and give life meaning. Public life offers relief from the stresses of work and provides opportunity for relaxation and social interaction and entertainment (Carr et al. 1992, p. 45; Webb, M. 1990,p. 9; Low, S. 2000, p. 239). Low (2000:35), states that public squares and plazas represent the aesthetics of a city, and are metaphors of urban life.

There is great concern over the disappearance of public space worldwide, as many of these spaces are privatized, restricting free access to them. Low (2000:34) states that in America, civic spaces are no longer democratic spaces where all people are welcome. These spaces have become instead, centers of trade and consumption that are under strict

Fig. 3.2. Rhythms of daily life in Campo San Stefano, Venice.

surveillance by police or private security companies. Low (2000:246) argues that the understanding of the political nature and cultural meaning of public space leaves us with an obligation to preserve and protect them from pressures of privatization.

In South Africa, access to public spaces and facilities were restricted to certain racial groups in recent history. Public life is therefore especially important in South Africa as one of our democratic rights. Free access and use of these facilities by all people, should be celebrated by all South Africans.

Carr et al. (1992:3) state that there is a dynamic balance between public and private activities in all communal life. Within this balance, different cultures place different emphasis on public space. In the Latin cultures of Europe, wealth and civic and religious power is reflected in public space through palaces, churches and town halls that face the main streets and squares. In North African Muslim cultures, public space is limited to markets and shopping streets and rich design expression is given to mosques, homes and schools (Carr et al. 1992, p.3).

An investigation into the notion of space in indigenous South African cultures by Rod Lloyd (2003:105,107) suggests that European and African notions of space differ greatly. Lloyd (2003:107) states that in traditional African settlement, it is understood that all space is public, except when defined by ritual as private space. However, in European culture, all space is private, except for the specifically designated public areas. Although the private-public balance is unique in each culture, the balance will shift under the influence of cultural exchange, technology, changing political and economic systems and the culture of the time (Carr et al. 1992, p.3). In all cultures, public space is seen as a stage where communal life unfolds (Carr et al. 1992, p.3; Webb, M. 1990,p. 9; Low, S. 2000, p. 239). Public spaces such as streets, squares and parks are essential in our everyday lives as spaces for interaction with others, where we can learn and play. They are places of relaxation that offer freedom from the troubles of work. According to Michael Webb (1990:9), they are microcosms of urban life that offer excitement and repose, markets and public ceremonies. They are places to meet friends and watch the world go by.

One of the first forms of a “square” in Western culture was the ancient Greek Agora, described by Lewis Mumford as the “place of speech”. The Agora was seen as the religious, political, judicial, social, and commercial centre of the ancient city, and was usually located in the centre of the city or close to the harbor. The Agora was usually enclosed on two or three sides, surrounded by an arcade containing shops and public buildings, statues, altars and trees. According to Webb (1990:28), the Agora in many Greek cities was replaced by smaller squares scattered around the city around 3BC. In Rome, the forum was established as market, meeting place and a place of public gathering. Here, all the important public buildings, including the court, jail, bathhouse, places of entertainment and the temple were situated around the forum. During medieval times, squares were marketplaces. Carr et al. (1992:54) state that, in addition to market squares, a number of European cities contained squares or piazzas adjacent to their town halls. During the Renaissance, plazas were carefully planned based on a symmetrical design.

Public spaces remained the meeting ground for people until the twentieth century, when people started to move away from the city, to the suburbs where they have their own private outdoor space. The need and use of outdoor public space changed. With the invention of the automobile, street life diminished and shopping centres and commercial strips developed in suburbs, replacing the downtowns as settings for commercial life. This has led to a decline in public life, and a shift of balance in society from towns to the security of public life (Carr et al. 1992, p.4,5,60).




Facing page:

Fig. 3.3. Barcelona's Placa de la Palmera before and
Fig. 3.4. after it was improved (Sculpture: Richard Serra).

Fig. 3.5. Placa de Navas, Barcelona.

Fig. 3.6. Public sculpture in Parc del Clot, Barcelona.

This page:

Fig. 3.7. Race of the Ceri in the Piazza della Signoria, Italy.

Fig. 3.8. Market in Campo del Fiori, Rome, Italy.

Fig. 3.9. Children playin in Campo Santa Maria Formosa, Venice, Italy.

Fig. 3.10. Spanish Steps and the Barcaccia fountain. Image taken from Via Condotti, Rome, Italy.

In 1979, the socialist mayor, Narcis Serra, initiated a project for new public spaces, and the restoration/redesign of old public spaces in Barcelona (See Fig. 3.3-3.6). The project's goal was to restore old- and create new districts, and to create a city of smaller spaces, each with its own identity, rather than a monotonous sprawl of housing and businesses (Webb, M. 1990, p.185). The renewal project did not create new theories of urban design, but rather a new approach. It showed a deep awareness of the reality of what the city has meant to our society, economy and culture, and what it offers as an important part of life (Mackay, D. 1996, p.38).

The project succeeded in significantly improving the quality of public spaces in Barcelona, drawing local people back to the city to use its public space, and improving the tourist value of the city. The projects were all very different, ranging from traditional European squares to contemporary squares filled with contemporary public art. Although many of these public spaces are not considered (by Projects for Public Spaces) to be successful spaces, they should be considered as valuable examples of urban renewal.

William White, mentor for the PPS (2009) argues that the success of public squares is not determined by shape size or design, but by access and choice of where to sit. People are the big attraction and they are drawn to, and try to be as close as possible to where the action is happening (PPS (2009); Gehl, 1987; Carr et al. 1992). Jan Gehl (1987:31) writes that human activity and people's presence are what draw people to public places. "People come where people are" (Gehl, J. 1987, p.25).

"..people and human activity are the greatest object of attention and interest. Even the modest form of contact of merely seeing and hearing or being near to others is apparently more rewarding and more in demand than the majority of other attractions offered in the public spaces of cities and residential areas. Life in buildings and between buildings seems in nearly all situations to rank as more essential and more relevant than the spaces and buildings themselves." Gehl(1987:31)

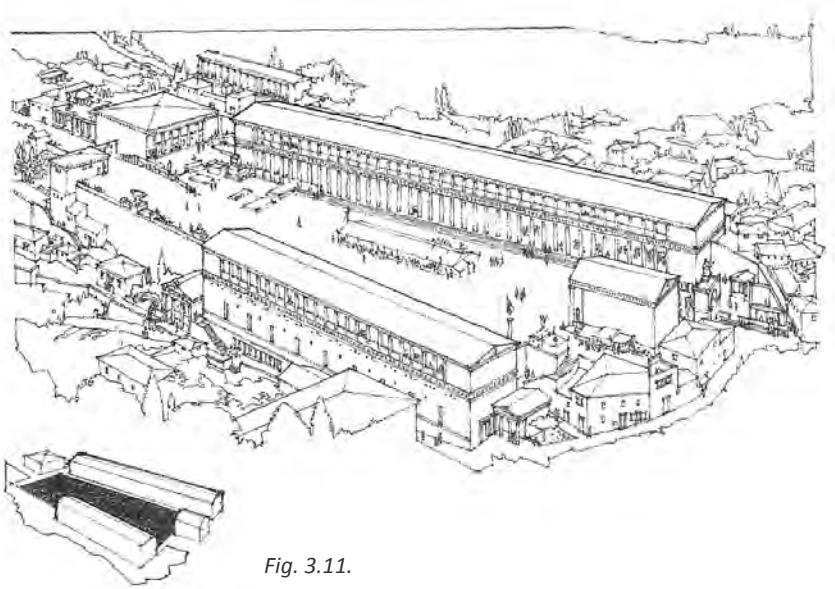


Fig. 3.11.

Gehl (1987:79) states that the measure of success of public spaces is not the number of people or events that can be observed in public spaces, but rather the amount of time (minutes) spent in these spaces, that is important. A high level of activity in a certain area can be stimulated by ensuring that more people use the public spaces and by encouraging longer individual stays (Gehl, J. 1987, p.97). The major issues in designing public spaces, is attracting people to these spaces, and providing a comfortable environment that will keep them there for the maximum period of time. Methods of addressing human needs through the design of public spaces will be discussed below.

NEEDS

Carr et al. (1992:87) state that people use public space deliberately or by accident. People are attracted to spaces that are inviting and friendly. Needs in public spaces include comfort, relaxation and security. This involves providing for basic human needs: food, drink and shelter or a place to rest that provides shelter from the sun, wind and rain, while being visible for the feeling of security. A variety of seating and standing options should be created to give the users of the space a degree of choice and comfort (Gehl, J. 1987, p.156).

People also have a need for passive (Fig.3.12) and active (Fig.3.6-3.10) engagement (Carr et al. 1992, p.105-119). PPS (2009) describe this as the "Inner" Square and "Outer" Square: The edges of successful public spaces are used as viewing points where life on the square and the surrounding streets can be observed. Gehl (1987:32-34) argues that people-watching is one of the most important activities in public spaces. Gehl (1987:157) further states that people are more comfortable and safe when sitting/standing in an area where their backs are protected.

Active engagement involves meeting and socializing with people, walking along a promenade, or playing in the square's water fountain. Carr et al. 1992:118 states that active engagement involves the more direct experience of the public space and the people in it. These are the activities that are watched by those on the edges of the squares. The "Inner Square" is the activity space where public performances are held and events occur. Active engagement can be achieved by providing sculptures/ playgrounds for children to play and engage with each other and the physical surroundings.

RIGHTS

Freedom of access to public spaces, and freedom of use of these spaces is important for all genders, cultures and racial groups. Throughout the world, and especially in recent South African history, use of certain public spaces has been denied to groups of people. This discrimination leads to negative connotation to a place. Such negative connotations are associated with Lillian Ngoyi Square. This study attempts to remove this stigma through a design that would be accessible to all. PPS (2009) state that Bryant Park in New York is heavily used and a very popular location, but has become increasingly privatized. The park is closed to the public for two weeks each year for a private "invitation-only" festival. They explain that although the park is very popular and frequently used, it is not regarded as a successful space because it shuts out the public for long periods of time.

The best public spaces are easily reachable and accessible by foot (PPS (2009); Alexander (2002)). Physical access is one of the most important aspects of public space. It determines the amount of people that use the space and the success of the space. In the case of Lillian Ngoyi Square in Pretoria, access to the site is restricted by a number of physical barriers and level differences. Unless the space is made more accessible to the public, the space will remain unused and empty. Many examples of hindered access to public space can be given in Pretoria.

Fig. 3.12. Old men sunbathing in Plaza de la Borda, Texaco, Mexico.

High volumes and speed of traffic further hinder access to public spaces. If traffic volume and speed around squares are too high, the space becomes unsafe for children. In Røros, Norway, some streets are closed during summer days to create walking streets. These streets are only used by cars and trucks in the evenings and in winter months. According to Carr et al. (1992:143), limiting vehicular access has enabled the street to retain its local character.

Public spaces should be well connected to their surroundings. The connection to surrounding neighborhood is important to draw people and activity to the space. Furthermore, squares should be designed to accommodate change. This change of character at different times of the day, month and year is not a new concept. Most European squares host festivals at certain times of year and use changes throughout the day and month. A flexible design provides opportunity for changes in needs and events. For example, a retractable stage and movable chairs could be provided for music performances. For other occasions, the square could be cleared for a tennis match. Umbrellas could be provided for events and functions (PPS (2009), Car et al. 1992, p.169-180).

MEANING/IDENTITY

The most successful squares have a unique identity. Identity and overloaded meaning in public spaces can lead to negative connotations and alienation of large groups of people. Strijdom Square (now Lillian Ngoyi square) was designed to be a display of Afrikaner Nationalist identity (Hook, D. 2005). Hook (2005) explains that the design of space to be monumental and reflect the identity of a selected group of people, excluding others, may lead to violence and evoke feelings of hatred and unease.

Carr et al. (1992:237) state that attention to the needs and rights of the users of public space are means of making public spaces civil. Furthermore, public spaces develop mean-

ing when people are able to “form roots” in an area. Different meanings may be formed by different cultural groups as their view and use of public spaces may differ. Identity is enhanced through activities that involve entertainment or evoke national pride (e.g. processions). Good squares provide attractions and smaller “places” that attract different people, such as cafés, fountains, sculpture, bandstands and playgrounds that provide entertainment and draw people back to the space time and again.

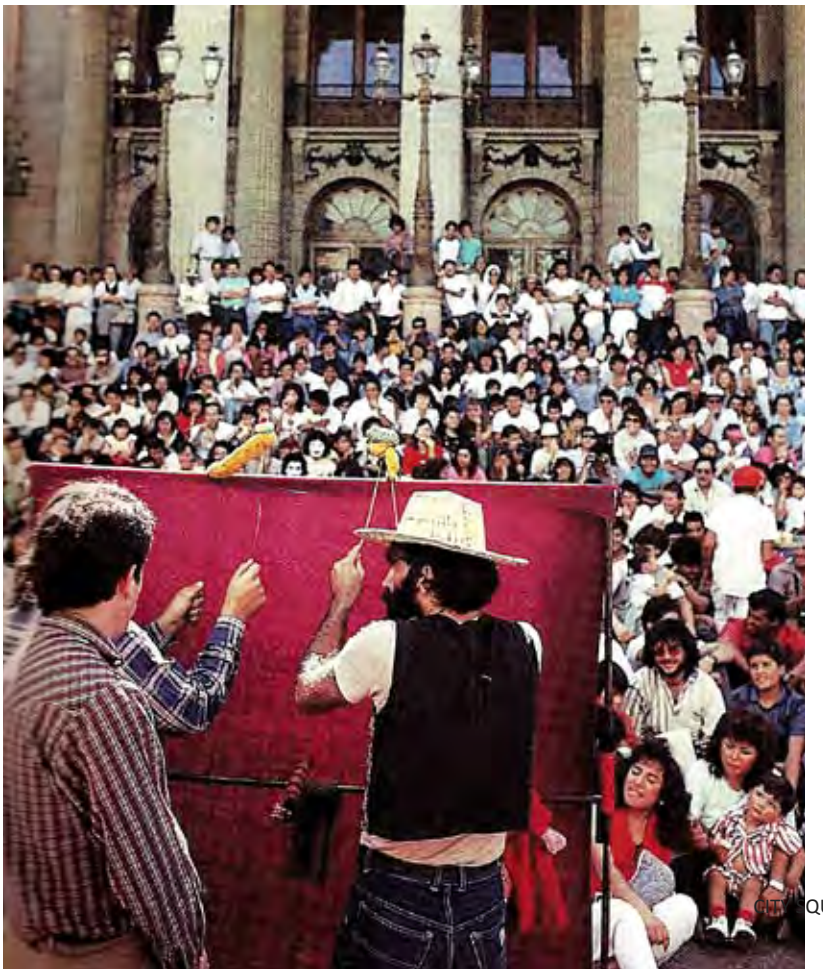
MANAGEMENT AND MAINTENANCE

According to PPS (2009), the best places are ones that people return to time and again. The only way to achieve this is through a management plan that understands and promotes ways of keeping the square safe and lively. Management involves providing attractions, organizing events, regulating vehicular access to the space, catering for the needs of the user, and maintenance of the space itself.

Squares with good management plans typically change with the seasons, hosting events such as seasonal markets and festivals, displays of art and sculpture, etc. Carr et al. (1992:256) state that different activities are preferred by different people. A thoughtfully designed multiuse space allows for more possibilities and can cater for the needs and preferences of different users. This could involve zoning of activities in public spaces.

“The designer must not only think about how to support multiple uses of a space, but also how this time sharing will affect the use of adjacent spaces.”Carr et al. 1992, p.257.

Fig. 3.13. Puppet Theatre in Gunajato’s Jardin de la Union, Mexico.



PPS (2009) state that some of the most successful squares in America, are managed by partnerships that seek to supplement what the city can provide, with funding from diverse sources. Funding can come from the rent of cafes, market space and other small commercial uses on site, as well as fundraisers, film shoots, and hosting festivals and events.

An example of good square management is the Rockefeller Plaza in New York that hosts a range of activities across all four seasons. For Webb (1990:174) the centre is proof that the square is still a valid concept, despite the changes and fragmentation of its traditional functions. He states that the Center is not art, but a living theatre of excellence that has not yet been matched.

Low (2000:35) discusses the differences in meaning and use of public space in Europe, Latin America and North America and finds that European and Latin American cultures view the city square as a symbol of Civic power and the cultural centre of the city. North American plazas, on the other hand, need commercial activity in order to be successful. The activation of public space through commercial activity could make the square less accessible to those who do not have the financial means to enjoy these activities. Financial/ social class exclusion of certain groups is a problem worldwide. An intervention in Lillian Ngoyi Square should therefore provide activities to attract a number of different groups of people.

Fig. 3.14. Opportunity for resting and people watching

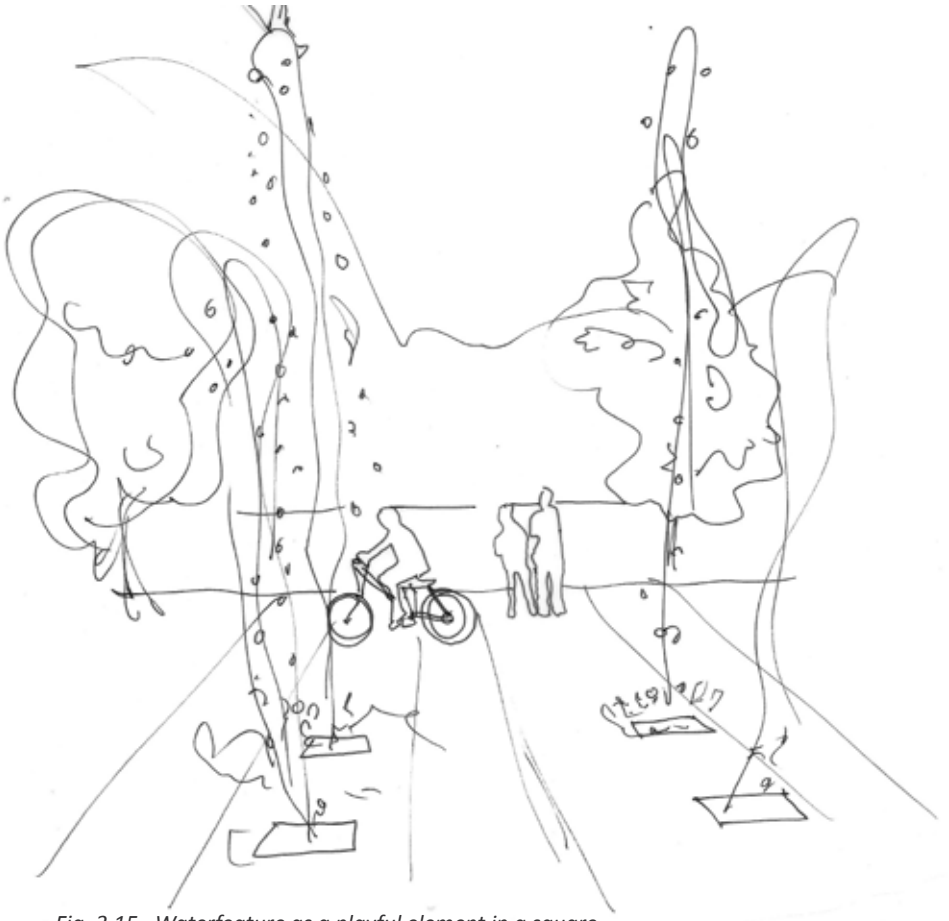


Fig. 3.15. Waterfeature as a playful element in a square

CONCLUSION

The future of public spaces internationally, is uncertain due to increasing privatization that leads to restricted access to public space and leaves many open spaces in the city unused. Free access to public space is a democratic right that must be maintained. Public space is an essential part of every city, where the dramas of everyday life of city users can unfold. Public squares are places of gathering and socializing that should be accessible to all. There is a need for a new approach to the design of public space that is culturally relevant and caters for the needs of the contemporary city dweller. In South Africa, the barriers of race and culture may be overcome through the design of new public spaces, and the regeneration of unused public space, to allow free access to all in a safe environment.

Fig. 3.16.

Fig. 3.17.

Fig. 3.18.

Fig. 3.19.

ROCKEFELLAR PLAZA

Rockefeller Plaza is a sunken plaza in New York City, filled with tables and umbrellas in summer (Fig 3.16), and a popular ice rink in winter (Fig3.17). The plaza is said to be one of the most visited destinations in New York. According to Webb (1990:173), the square was intended to serve the opera house, but became a sunken plaza that focused attention of the RCA tower next to it. Originally, the square was lined with luxury shops on the lower level but few people visited these shops because there was too much to admire on ground level (Webb, M. 1990, p.174).

The shops were soon replaced by restaurants. An ice rink was tried out in the winter of 1936, and was a huge success (Fig3.17). The square has a year round program of events, from Easter fashion parades, concerts, floral displays, boxing matches, civic rallies and music performances.

"The city makes the pent up energy of the Center and the city accessible and exhilarating. The avenues are bruising; here, except during the gridlock of Christmas, there is room to breathe and space to sit." *Webb. 2009, p.147.*

Fig. 3.20.

Fig. 3.21.

Fig. 3.22.

BOSTON CITY PLAZA

City Hall Plaza is a large expanse of paving and steps (Fig.3.20.) that slopes down to the City Hall (Fig. 3.21), a large brutalist building. The plaza is one of Boston's least used public spaces (Carr et al. 1992, p.88; Webb. 1990, p.182). Webb (1990:182) states that the large stepped plaza bares a slight resemblance to the sloping surface of the Campo in Sienna, but the plaza is four times the size of the Campo. Unlike the great European Squares, Boston's City Hall Plaza is not surrounded by restaurants and street cafés bustling with activity, nor is it the location of any festivals, markets or public performances.

The shapeless plaza does not offer any activities such as shops or outdoor cafés that could draw people to the space. Buildings surrounding the plaza offer little protection against harsh cold winds. A fountain in the plaza was intended to draw crowds, but this did not offer enough activity to save the space, and the fountain no longer functions. The square offers no views to the city, or any trees to provide soft edges and shading.

According to PPS (2009), lack of activity in the square and surrounding streets add to the lack of access to the square. Furthermore, the layout of the square hinders movement on natural paths that people would take. The space is uncomfortable, unconnected and uninteresting.

04_URBAN THEATRE

This chapter will discuss the possibilities of reactivating Lillian Ngoyi Square as a place where the identity and rich cultural diversity of Pretoria can be expressed. Low (2000:50) proposes that urban public space reflects a cultural order through a complex culture making process. In this process, cultural images are produced, manipulated and understood by all users and parties involved in public space (designers, politicians, users and commentators) within changing historical, economic and sociopolitical contexts. Low (2000:249) states that public spaces hold cultural and political meanings symbolically encoded in their spatial relations and built environment. The designed landscape acts as an environmental device for communicating past and present meanings to daily users and urban residents.

The reactivation of Lillian Ngoyi square, a site filled with historical and political meaning, could invoke national pride amongst all users.

From the examination of contemporary theory regarding successful public spaces, it can be deduced that buildings and spaces in urban environments should be designed to facilitate human activity in order to be successful spaces. This is especially true around public open spaces such as squares and parks, where a lack of access, activity or comfort could be detrimental to the success of the space. Dewar & Uitenboogaardt (1991:84) state that public spaces rich in social spaces and activity, are regarded to be positive, irrespective of the aesthetic quality of the buildings surrounding the spaces.
Buildings should not only define public spaces, but activate them through appropriate function (Tschumi, B. 2000, p.591). In this document, the term "*event*" refers to any form of interaction that receives an audience, or any communication or exchange between two or more people. This definition includes any form of meeting, performance (music, drama, dance, public speaking, etc.), display of art or media, markets or fairs etc. Public

Fig. 4.1.

squares are historically the venues for such events. According to the Oxford Dictionary, an event is: "*…a thing that happens or takes place, especially one of importance*".

Tschumi (2000:12) states that architecture is both about space and about the events that take place in that space. The provision of functions that appeal to and attract local users, and management of the environment, will lead to spontaneous events occurring in public spaces.

Squares are often referred to as public theatres or theatres of life. They are places where one can watch the world go by, and drama in the community unfold. Theatres have also been used for performances. Anthropologist, Miles Richardson has done studies on different events and differences in social interaction between people in a market and public squares. Richardson (1982:85) writes that, while being engaged in participation and unaware of being in the presence of others in markets, people are conscious of being in the presence of others when they are in public squares. When in a public square, people act as if being "on stage". When a market is held in a public square, the market and the exchange that occurs in it, is the event. On any other ordinary day in a public square, human activity becomes the event in the space. This thesis suggests investigating the possibilities of Lillian Ngoyi Square as an open-air theatre, not only of formal performances, but of the everyday activities and dramas that occur in the city centre.

According to Carlson (1989:14), theatre was an important part of urban life during the late middle ages and early Renaissance period in Europe. With no specific architectural element devoted to theatres, public performances were often held in public squares and market places. Carlson (1989:17, 19), states that the market square was a symbol of the stage where every ordinary citizen played his role. This was often a preferred site for public theatre as it was the source of the most activity in the city. This would also result in the involvement of every citizen in the event. Dramatic performances encouraged active participation by regularly erasing any possible barrier between performance and public space (Carlson. 1989, p.17).

Carlson (1989:129) suggests that the theatrical event that takes place in the community and, where it takes place, contributes, in all cultures to the processing of the event, and argues that it is not the separate spaces of actor and observer that make theatre, but rather, the simultaneous presence of both, and confrontation of actor against audience. This relationship characterizes theatre, even when it is not enclosed in a physical structure. This is also true of public space, which cannot be successful without opportunities for passive and active engagement. He writes: "*without a player's space, however, there would be no theatre*". Similarly, without activity and event, public space cannot be successful.

Contemporary theatre is no longer bound to any specific buildings. Directors have often explored the possibilities of non-traditional spaces, and performances have been held in streets, parks, factories, warehouses, and in public and private buildings and spaces. Often non-conventional spaces are preferred because they are less expensive to rent than traditional theatres, and allow more opportunity for stage design. Mackintosh (1993:86,121) advocates performance space that can be observed from all sides. He describes a "*courtyard theatre*" where galleries are introduced and performances can be viewed from many angles. Mackintosh (1993:121) argues that theatre space should be flexible, allowing for different configurations of layout for different types of performances.

Fig. 4.2. Children playing on the Zocalo in front of the City Hall in Veracruz, Mexico.

APPLICATION

The Urban design framework (see Appendix C), suggests the regeneration of the city of Pretoria through the strengthening of its identity as a South African city with historical value. Pretoria lacks a strong cultural centre that draws people to the CBD. There is an opportunity to develop the area around the State Theatre as a cultural district, giving all people access to the arts. Culture is a system of values and attitudes and institutions that influence individual and social behavior in all types of human experience. Arzeni (1996:66) claims that culture moulds the territory in which people live, and that urban culture differs greatly from rural culture in all countries. Culture, not politics, determines the success of society (Arzeni, S. 1996, p. 67).

Arzeni (1996:68) states that urban authorities can use culture as an innovative force in regeneration of cities, and in creating jobs for the future. However, this poses the challenge to balance different interests represented in the urban environment in order to benefit and involve inhabitants. This requires management and preservation of the local heritage.

Currently, the State Theatre does not draw enough daily users to regenerate life on the square. A relationship between actor and observer, or attraction and human activity, as well as access to the attraction must be established in order for the space to be successful. New functions that cater for the daily needs of the public using the space should be provided in order for Lillian Ngoyi Square to become a successful space.

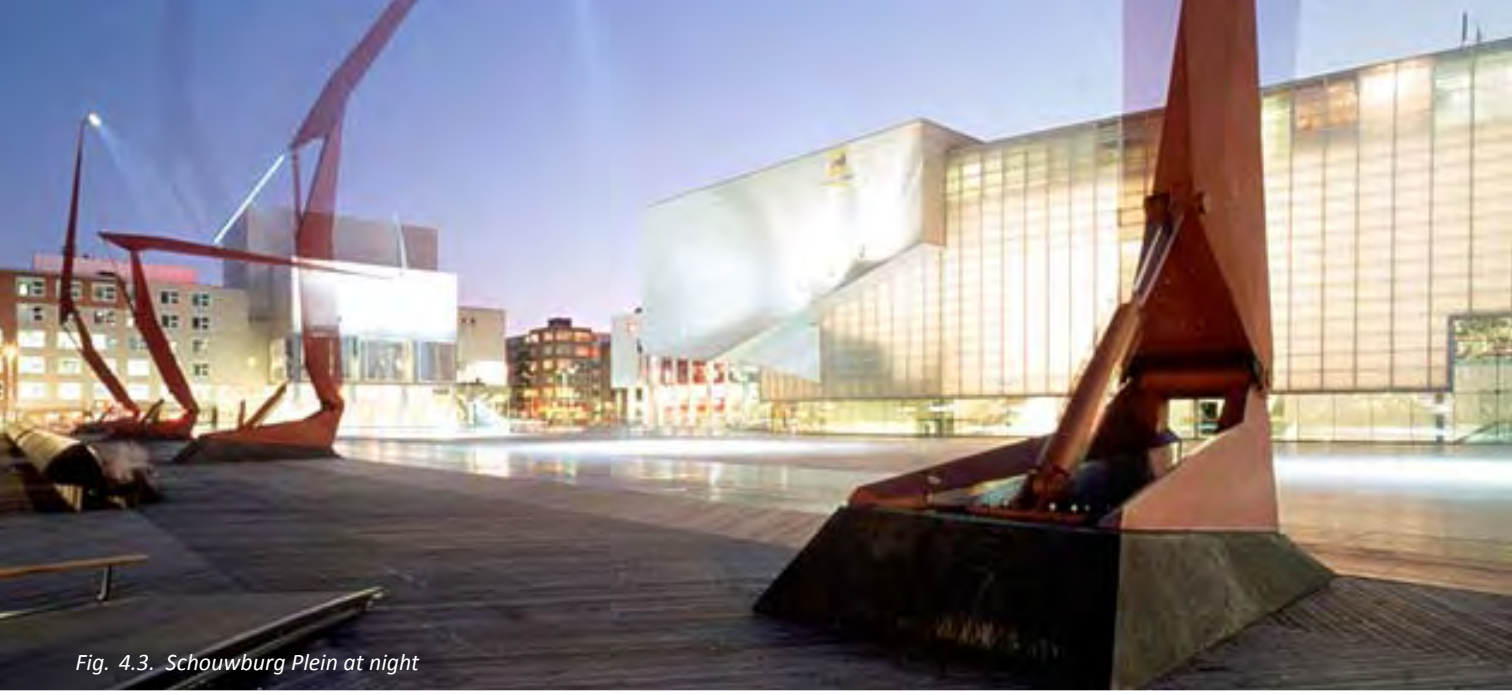


Fig. 4.3. Schouwburg Plein at night

SCHOUWBURG PLEIN

WEST8 LANDSCAPE ARCHITECTS l Rotterdam, NL

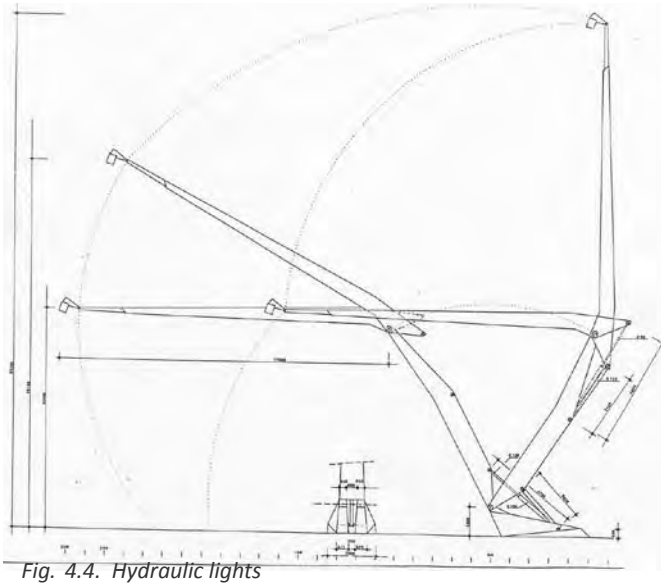


Fig. 4.4. Hydraulic lights

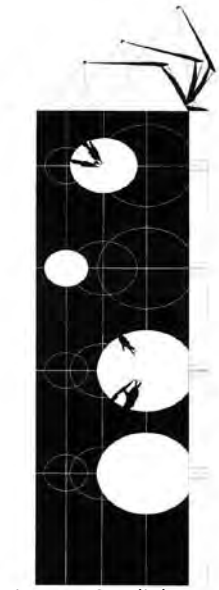


Fig. 4.5. Spotlight

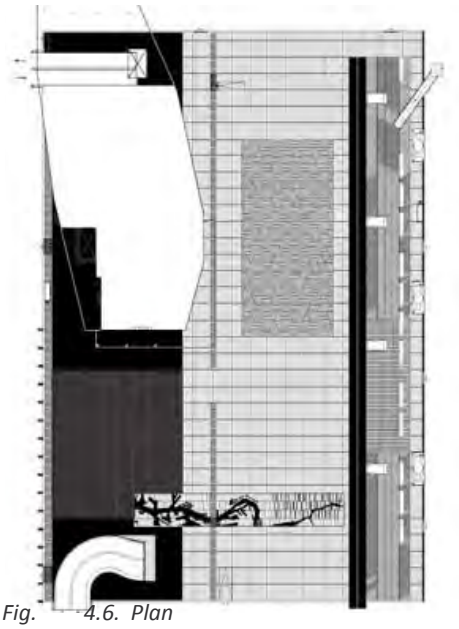


Fig. 4.6. Plan

Fig.4.7. Waterfeatrue

Fig. 4.8. Event on the square

Schouwburg Plein is a public space in a prominent area in the centre of Rotterdam. It is surrounded by a municipal theatre, concert hall and station. The square was a dilapidated unused space in a prominent part of the city. The goal of the design project was to make the square more attractive. The brief required an attractive space that could host events.

The concept was to create a stage for the city that could be creatively filled by its users (Schneider, 2007). The square was to change its appearance and function depending on the time of day and season. The design of the square is based on expected use during the day, and the relationship with the sun. A timber bench that stretches over the entire length of the square is placed on the east side, which receives more sunlight. Ventilation towers from the parking basement below the square are clad with lightweight metal gauze, and act as armatures for advertisements and information displays. At night, these towers are lit from below.

Four red hydraulic lights define the eastern boundary of the square. These lights are crane like and can adjust their spotlight at random. Connection points for water, electricity and tent-tie downs are built into the square's floor surface. A water feature built into the square's surface can be activated when needed, and turned off when not. This cools the square and its users during summer, and is a great attraction for children.

Schouwburg Plein holds many similarities to Lillian Ngoyi Square, and offers an example of the successful redesign of an unused existing public space. Both squares are situated on top of pre-existing parking basements, in the case of Schouwburg Plein, this basement is used as a light source for the square at night. Schouwburg Plein offers an example of the uses that an open space next to cultural facilities could offer, by using the square for cultural events. Both squares are situated in pedestrian areas, with a much used vehicular route on one side. Strong vertical elements and a line of trees on the road side of Shouwburg Plein create a defined edge to the square from where activities and events can be viewed. The surface of the square is raised a few centimeters above the surface of the road, to enforce the concept of the square as a stage.

Project for Public Spaces (PPS) argues that the square only attracts users when activities are explicitly organized, and that it does not provoke uses that are unprogrammed. Schneider (2007) argues that the square should be seen in its current and historical context and states that the space provides a vibrant, playful, and flexible outdoor venue for the city. He praises the designers for challenging the idea of what an urban park/square should look like, and their innovative use of materials and technologies.

Fig. 4.9. Skateboarding events

Fig. 4.10. Birds eyeview of square from Pompidou Roof

Fig. 4.11. Place Beaubourg sloping towards entrance of Pompidou

PLACE BEAUBOURG

RICHARD ROGERS + RENZO PIANO | Paris, France

The Pompidou Centre in Paris was a collaborative design project between Richard Rogers and Renzo Piano which was completed in 1977. The project is an example of how a building can bring life to a rundown area of a city.

The plaza was designed to be a grand entrance to the Centre, and an arena for public events (Carr et al. 1992, p.111; Webb, M. 1990, p.201). The Centre is situated in a pedestrian area, surrounded by a network of small shops catering for the local people. The building houses a collection of multi-media contemporary art, and is the site for conferences and performances, a library, a current affairs room, two restaurants and a terrace overlooking Paris and the plaza below. According to Carr et al. (1992:111) and Webb (1990:201), the plaza attracts an extraordinary amount of street performers, and is used as an amphitheatre where people can watch both the activities on the plaza and the activities of the streets surrounding the plaza.

PPS (2009) state that the Centre's (and plaza's) success can be attributed to its array of activities- attracting not only tourists, but Parisians and locals to its complex. The plaza itself is a large paved surface that offers no seating, yet crowds gather to watch performers and to meet friends. According to PPS (2009), the lack of seating is made up by a number of street cafés surrounding the Centre, where visitors can relax and view the action in the plaza and the surrounding square. "To its credit, the plaza succeeds where other such open expanses in dense urban settings have failed." (PPS 2009).

The Pompidou Centre and its plaza were designed to accommodate public viewing of films, providing a gentle slope for viewers to sit and watch. For most of the day, there is a choice of shaded and sunny spots to gather on the plaza, and areas that are more protected from the wind, adding to the comfort level on the plaza. The project is a celebration of arts and culture. According to Rogers, Stirk Harbour and Partners (2007), the public domain is extended from the square up to the façade with a great diagonal escalator that crosses the façade, and allows visitors to view the events on the public space from within the building.

Fig. 4.12.

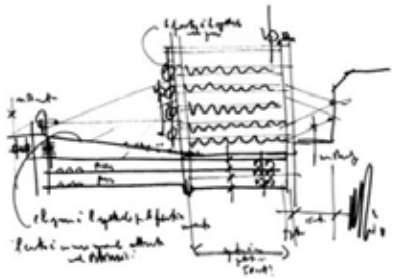


Fig. 4.15. Concept sketch of building and square

Fig. 4.13. Airconditioning vent

3 Location plan: **a** Atelier Brancusi
b Pompidou Centre **c** Place Beaubourg
d Place Stravinsky **e** rue Rerard
f rue Rambuteau

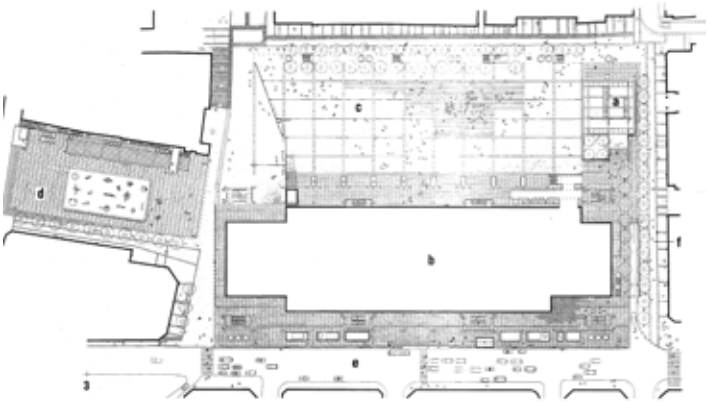


Fig. 4.14. Site plan

Fig. 4.16. Screen on outer window of Photography gallery is used as a screen

Fig. 4.17. Screen in rolled up position

TEMPLE BAR REDEVELOPMENT

GROUP 91 + VARIOUS ARCHITECTS l Dublin, Ireland

The Temple Bar district is rich in historical, architectural and archeological heritage and is considered the natural Cultural Quarter in Dublin. The project involves the regeneration of an entire historical district in Dublin, which includes additions to existing fabric, renovation of existing fabric, as well as the total demolition and redesign of certain areas. Temple Bar is a new arts and culture district in Dublin.

Although this large and ambitious project has received much criticism, it is considered to be very successful as it has succeeded in raising local interest and international tourist interest in the city of Dublin. The project, although not the first or the biggest culture-led urban renewal project in the Euro-American environment, is the first model in Ireland which has contributed to city living and its values (McGonagle, D. 1996, p. 51.).

Phase 1 of the scheme was implemented between 1991 and 1996 and includes new cultural buildings (a film centre, a photographic archive, a multimedia centre, a music centre, an applied arts centre and a children's centre), commercial activities and small street-front shops, apartments and a number of public squares. The Temple Bar development proudly hosts a year round programme of public events such as food markets, book markets and public screenings of films, performances and children's theatre, an annual five day Irish music, a culture festival called the "Temple Bar TradFest", and another called "Dublin City Soul Festival". It also hosts a chocolate festival, a circus festival and culture nights.

The regeneration of Temple Bar is funded and driven by the state, rather than the private sector, and encourages giving ordinary working class people access to the arts. O Brian (1996:58), states that many people involved in the arts are skeptical and nervous about the role of the State in the arts. But from studies into cultural infrastructure in Europe, North and South America, it is clear that the arts can only function in a market context if the state does not take an initiating role.

"Temple Bar is not just innovative urbanism or property development, economic regeneration or

Fig. 4.18. Openable Theatre

Fig. 4.19. Movable seating

Fig. 4.20. Outdoor movie theatre

a series of cultural initiatives. It is both a reflection of and a contribution to contemporary Irish society, and ultimately has to be tested as such." McGonagle, D. 1996, p.51.
A part of the project that has particular value to this thesis is Meeting House Square and the buildings surrounding it. The square is bounded by a Film centre, The Ark (a children's centre), a photographic archive and a gallery of photography. In essence, the square is an outdoor room which is used as an open-air performance space, celebrating all forms of contemporary culture, including music and theatre performances, performed in the Ark that opens its stage to the square, and film screenings, projected from the Photographic Archive building onto the Gallery of Photography (Quinn, P. 1996. P.103).

Lighting on the square has been designed to complement the brief: stage lighting is mounted at a high level on the perimeter and a circle of up-lighters is set in the centre of the square. Trees and specially designed furniture have also been installed as part of the development (Quinn, P. 1996. P.103). All buildings in the project allows for easy adjustment of spaces to accommodate different uses. This is done by providing stage lighting on facades and roofs and providing adjustable doors and screens that allow manipulation of space.

This project has shown the importance of creating compact cities and neighborhoods to ensure usage of facilities and functions provided. Furthermore, the project is an example of the successful execution of an urban renewal project with a focus on cultural functions and shows positive reciprocity between urban buildings.

05_ CONCEPT + BRIEF

CLIENT PROFILE:

According to Technical Director of the State Theatre, Mr. Gert Viljoen, the theatre receives little funding from the Government. The theatre no longer produces its own performances, but rents out its wood workshop and theatres to production and advertisement companies. Additional income is gathered from the renting of props and wardrobes. Props and venues are available for rent for private functions and events to productions. Additional office space in the administration tower is rented to private companies.

The theatre is seen by the general public as a closed building which is inaccessible to the man on the street.

There is a need to educate the public about the State Theatre and performing arts in order to ensure the future of the Theatre. This project is an investment by the State Theatre into its future. The project will be funded by independent patrons of the arts, as well as government funding

Client: South African State Theatre
Sponsor: Department of Arts and Culture and private sponsors.

USER PROFILE:
Three types of users can be identified in the city:

1. Regular users

These are people that use the city on a daily basis. They come to the city to work in offices, shops or other facilities in the city, or come to school/college in the city centre. The project aims to provide activities primarily for these users.

The regular user will need places to socialize and relax during their lunch break and after work, including shops, restaurants/ street cafés, fast-food stalls, shaded seating and viewing spots should be provided for relaxation and casual socializing during lunch hour.

2. Unfamiliar users

These are people that live in the larger Tshwane area, that do not use the city for reasons of security and comfort (or the lack thereof), as well as the distance they have to travel to use the city. The project aims to provide facilities that draw these users to the city such as restaurants and entertainment facilities. Carr et al. (1992:111) ascribes the success of the Pompidou centre in Paris and its plaza, to small shops and boutiques in the streets surrounding the centre. These cater to the people in the vicinity who spill out onto the public space. The plaza provides further opportunity to eat, talk, sleep, read and rest, and view public performance on the plaza. The plaza becomes a spill-out space which provides a memorable experience to new users, and attracts people from all over the city.

Patrons of the State Theatre might enjoy coming to the city to enjoy dinner before or after visiting the theatre. They may need to be informed about the production which they are coming to see, as well as other events, concerts and productions that are and will be running in the State Theatre.

An entrance should be provided from the basement parking to the public square, from where these users might enter the theatre, or enjoy strolling along a promenade while enjoying a snack before entering the theatre. Alexander et al. (1977:180-182) states that shops, amusement and other services should be provided in order for users to have a choice of where to go, and how long to linger in a public place. This is especially applicable for night-life in a city. Alexander et al. (1977:182) states that the arrangement of shops, entertainment and other services together forms centers of night life. Safe, well lit and lively places draw night time activity. These activities grouped together could form small squares, with good lighting, and places for people to gather and socialize.
A new intervention should improve comfort and the sense of security in the city, in order for unfamiliar users to return to the city more regularly.

3. Periodic users:

These are temporary users such as tourists or patrons of the State Theatre that come to the city for a specific reason, and stay for a minimum period of time. Their perception of the city is formulated through their visual experience. The identity of the city and a display of urban culture are important to ensure a return of these users. They may need places that provide information about the city, curio/souvenirs shops and places to gather and eat or be entertained. A new facility should provide a unique experience that provides a positive memory of the city.

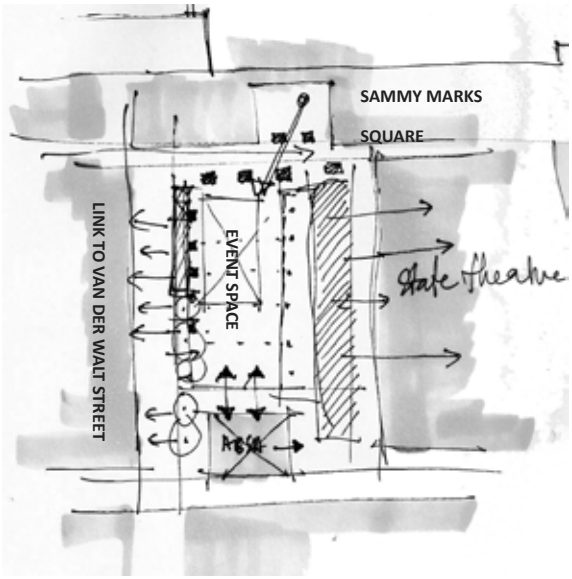


Fig.5.1.

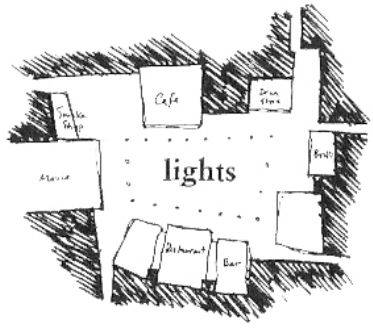


Fig.5.2. Alexader et al. (1977)'s proposal for the organisation of night activities around public space.

BRIEF

The intervention should act as a filter building between the State Theatre and the surrounding space, and provide functions that could serve the State Theatre patrons, as well as regular users of the city. These functions should serve to liven both during the day and at night. The redesign of the square should accommodate viewing and performance space. The square becomes a performance space/outdoor theatre, and is renamed Performance square.

The Absa building is reorganized to re-open the original shopping centre on ground and basement floors. The ground floor is opened toward the square with restaurants and street cafés that spill out onto the square.

The extension to the State Theatre will house a permanent exhibition of the wardrobe and stage decorations including props and back cloths of productions of the theatre, as well as a temporary exhibition space for current and upcoming attractions.

The extention will accommodate an educational wing on the theatre that serves to educate the public about the performing arts and services offered by the State Theatre. This will include exhibition spaces, dance/drama studios, and social spaces such as restaurants, cafes and rentable function rooms that could draw the public to have a closer look at the Theatre and what it has to offer.

BUILDING ACCOMMODATION

- Restaurants
- Information point
- Permanent Gallery for the State Theatre
- Temporary exhibition space
- Indoor Performance areas
- Gift shop
- New entrance to Rendezvous theatre
- Link to Absa basement
- Stage/performance space for pop concerts
- Rentable shops
- Cinema Nouveau theatres
- Street café's

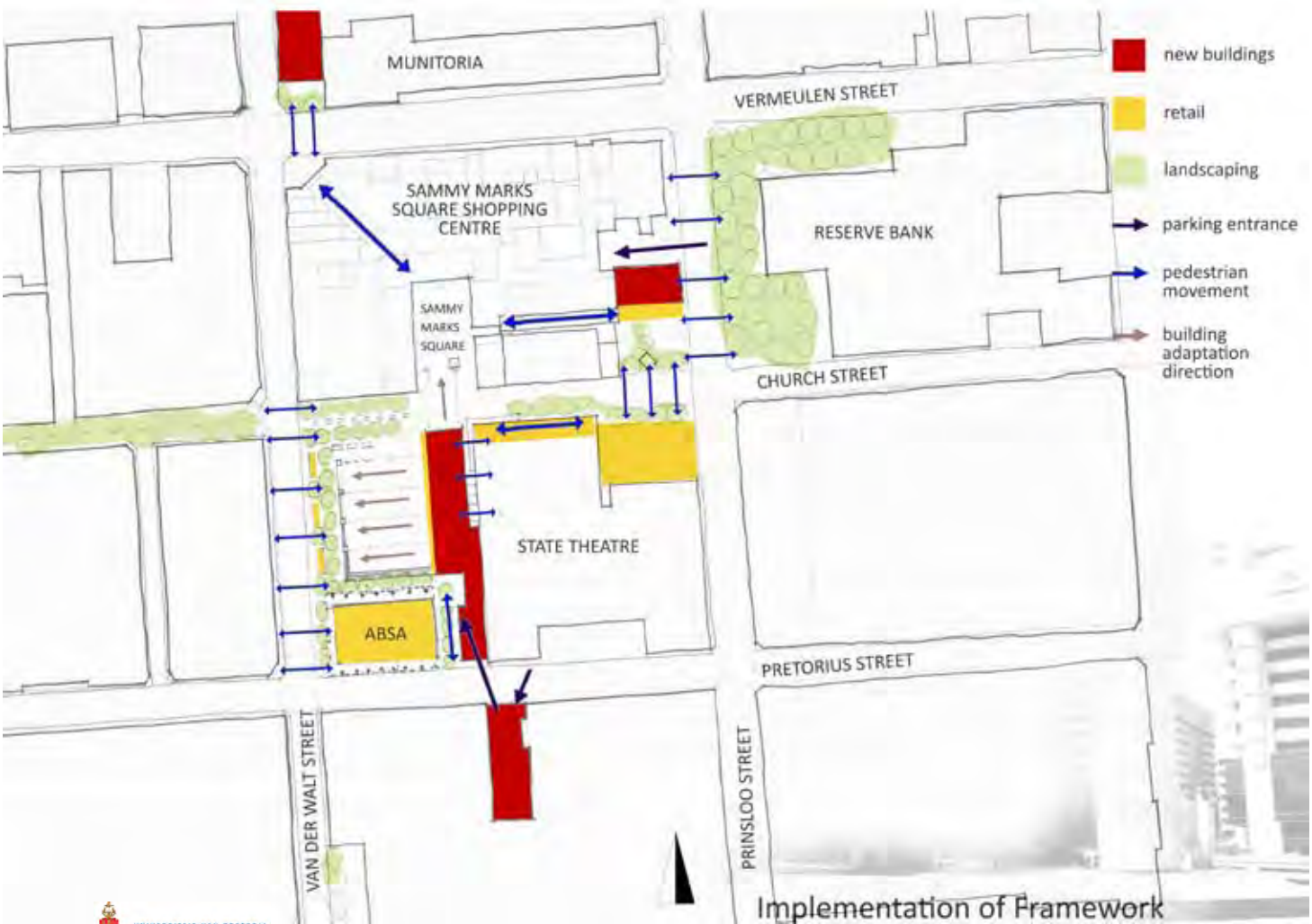
Other:
Seating opportunities and Green space
Exhibition/installation space
Space for viewing public performance
Public square must be able to transform into a public outdoor theatre of film, art and performances (music, drama and dance)

Fig.5.3. Giant Puppets exhibited in Church Street during August 2009 as part of an advertizing campaign for the 2010 Soccer World Cup. The propsed gallery and exhibition space is intended to house such exhibitions. The contents of the gallery would be displayed in full view of the public square, in order to draw curious visitors to the gallery, restaurant and thereby educating them about the State Theatre.

URBAN DEVELOPMENT FRAMEWORK

Performance Square

Fig.5.4.



An Urban Development Framework was established for the larger area around the public square previously known as Lillian Ngoyi Square. Henceforth the square will be referred to as Perfromance Square.

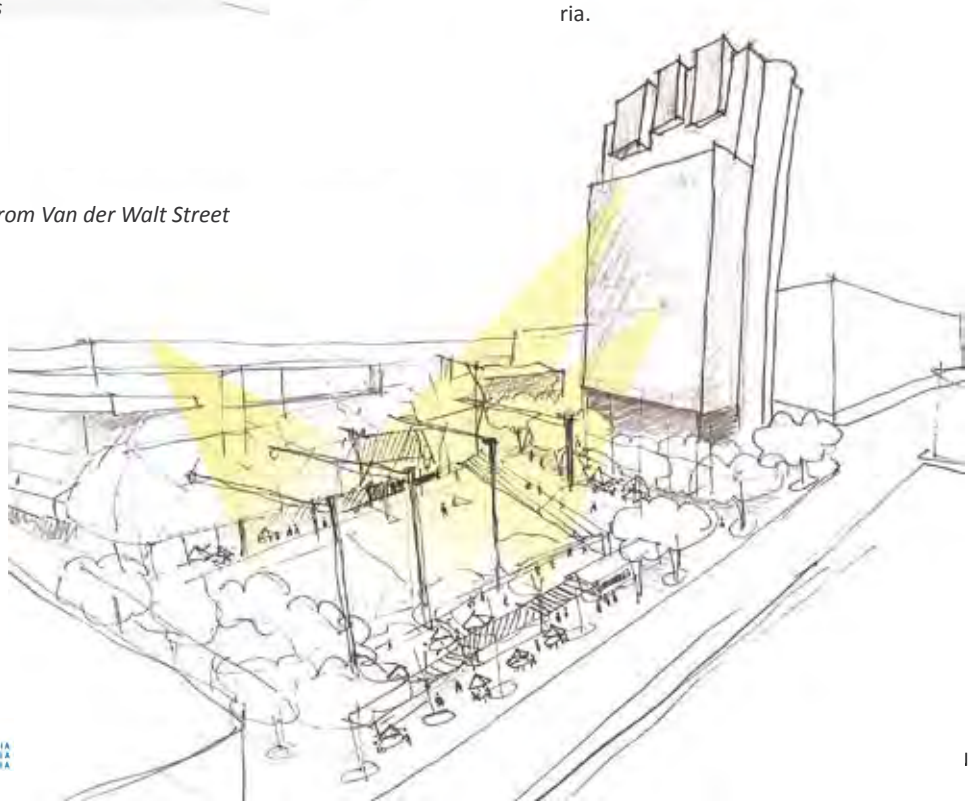
The vision for the square is an outdoor theatre or event space. The Square is activated by the insertion of a new "filter" building between the State Theatre and the Square. This building will incorporate commercial and entertainment functions and will have a symbiotic relationship with the State Theatre and the Absa office tower.

The framework intends to create a new cultural identity for the city of Pretoria. The project aims to significantly improve the image of the inner city, by creating an attraction and facilities that could draw more users to the city, and by improving the quality of outdoor spaces in the Theatre district. This thesis will focus on the design of the "filter" building between the square and the State Theatre, as well as the urban design of Performance Square.

Fig.5.6. View from c/o Church and Prinsloo streets

1. South entrance to parking basement moved to a new entrance on Pretorius Street.
2. Basement parking linked to Sammy Marks Square parking.
3. East entrance to parking basement moved to Sammy Marks Square entrance.
4. Activity created through a "filter" building linking the square to the State Theatre (building offers commercial activity and restaurants as well as other cultural activities)
5. Ground and basement floors of Absa building opened to public (shops, cinema, banking mall, etc.) Ground floor opened toward the street to increase activity.
6. Absa tower becomes a viewing tower open to public use.
7. New roof gardens on the State Theatre used as terrace and viewing space open to public.
8. Square becomes a performance space with seating and viewing opportunity on edges. (Square will be used for public performances, film shoots and night time/seasonal open-air movie theatre)
9. Sidewalk broadened and lined with trees, shaded seating and street cafes
10. Van der Walt street becomes more pedestrian friendly
11. Buildings and building elements are adaptable to use
12. Linkage between square 1 and 2 through the insertion of new buildings that offer commercial activity, and the relocation of basement parking entrance to Sammy Marks Square basement entrance.
13. Linkage between square 3, 4 and 5 through restaurant and adjustable structure.
14. Linkage between square 6 and open space through the formalising of public space and new building next to Munitoria.

Fig.5.5. View from Van der Walt Street



06_PRECEDENT STUDIES

Fig.6.1. Temporary Exhibition of Renzo Piano Building Workshop portfolio

Fig.6.2.

Fig.6.3.

Fig.6.4.

SACKLER GALLERIES

NORMAN FOSTER & PARTNERS l London, UK

The Sackler Gallery at the Royal Academy of Arts is an extension to the existing historical buildings - the original Palladian house, and the Victorian gallery. The project demonstrates the improvement of an existing building through the sensitive combination of a contemporary intervention.

The project is a connection between the two buildings in an existing light well between them, into which a new lift lobby was inserted. The design exposes the exterior facade of the Burlington House, while using contemporary materials such as glass and steel to reveal more of the existing structures. According to Foster (2009), the project was the first of a number of their projects that demonstrate a clear philosophy about contemporary intervention in existing historical structures.

INFLUENCE ON DESIGN APPROACH

_Use of glass and steel as a contrasting material to the existing (concrete).

_Use of a break/light well to connect two buildings

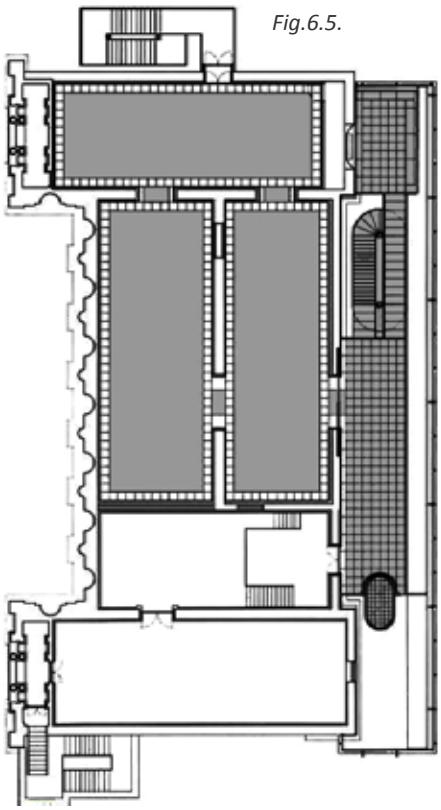


Fig.6.5.

Fig.6.6.

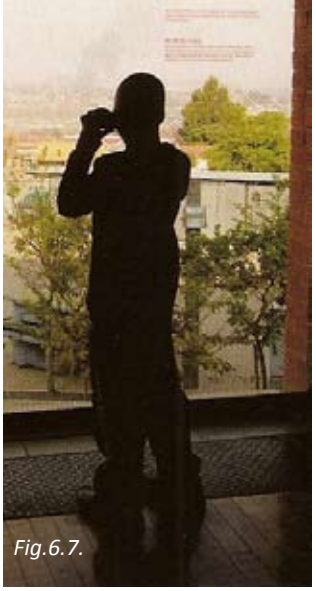


Fig.6.7.

Fig.6.8.

HECTOR PIETERSON MUSEUM

MASHABANDE ROSE ASSOCIATES architects + urban designers l Johannesburg, South Africa

This project was chosen as an example of a contemporary museum/exhibition space in South Africa and influenced the design in the approach to circulation and exhibition. The museum space is in essence a large ramp, leading from the higher level of the square, through exhibition rooms to a courtyard.

The exhibition includes printed material, photographs and audio-visual displays that are displayed on small televisions suspended midway between the floor and soffit. Large images are displayed on poster boards that are hung on the large blank brick walls of the museum. Glass doors and windows act both as story boards and as valves controlling flow through the building. Stories and quotes are printed onto glass surfaces, thereby allowing the onlooker to read the story and imagine it in the landscape beyond.

Finishes are raw: brick, steel and timber, and air conditioning and lighting are exposed, detracting as little as possible from the exhibit. (Joubert, O. 2008, p.130).

Fig.6.9.

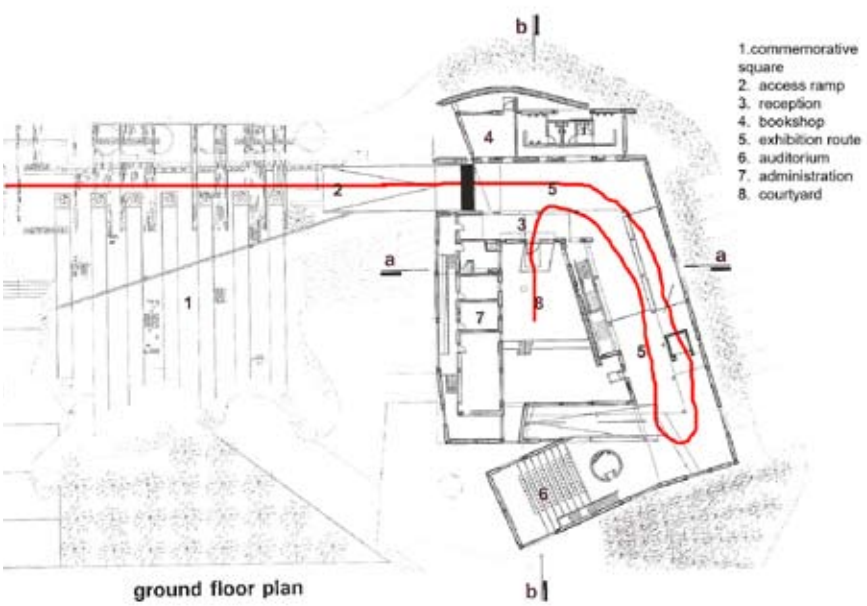


Fig.6.12.

SABADELL CULTURAL CONGRESS CENTRE

ROGERS, STIRK HARBOUR & PARTNERS l Sabadell, Spain

This project was chosen as an example of a cultural building with commercial functions. The project was a competition entry for an arts and congress complex in Sabadell in Spain.

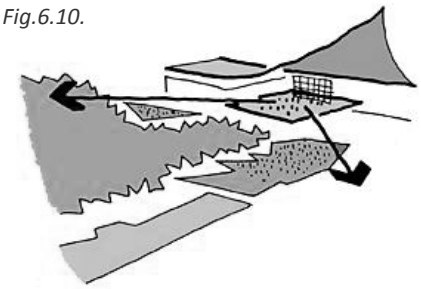
The centre is situated on the edge of a large park. It is a large open complex that consists of number of individual pavilions on a platform which is set back from the open space in front of the building. The functions are connected under a system of large roofs, giving the centre a feeling of being an open-air stage protected from the sun and rain by high light-weight roofs.

The centre is intended to act as a stage to the open space in front of it, incorporating a number of digital screens facing the park. At the same time, the building consists of a number of platforms that provide a view from the building onto the park.

INFLUENCE ON DESIGN APPROACH

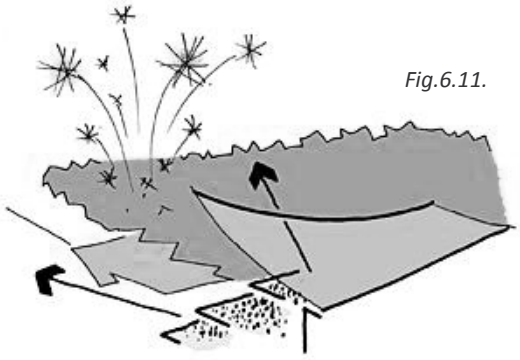
_Concept of a building being both a viewing point and a stage.

Fig.6.10.



The cultural centre forms a great stage to the park

Fig.6.11.



The park forms a great stage to the cultural centre

Fig.6.13.


Fig.6.14.


Fig.6.15.


Fig.6.16.

TATE MODERN

HERZOG & DE MEURON l London, UK

The influence of this chosen precedent is the spatial organisation of the first three levels. The project serves as an example of reutilization of existing architecture, as well as an example of a temporary exhibition space with industrial elements. The main entrance to the Tate Modern Gallery leads from ground level directly onto a ramp in the multi-storey exhibition space known as the Turbine Hall. This space acts as a blank canvas for large exhibitions and installations. Industrial elements of the Turbine Hall such as a moveable platform, and structural elements to which posters and displays can be mounted, are still in use.

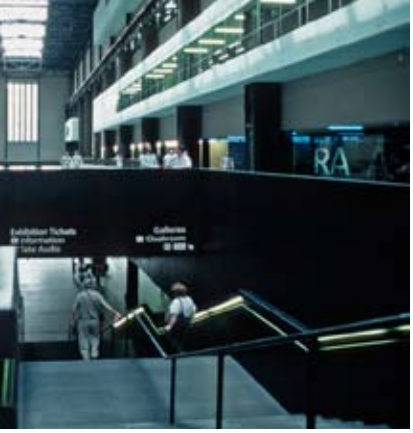
From this space, one enters the formal gallery spaces through a staircase and walkway from the centre of the Turbine Hall, or a large escalator next to the museum shop. The walkway above the Turbine Hall serves as a lookout space, additional viewing space of temporary exhibitions.

INFLUENCE ON DESIGN APPROACH

_Concept of temporary exhibition space that would be visible from the rest of the building.
_Combining new elements with an existing building.

TRANSLATION

_An exo-skeleton was envisioned to further open this temporary exhibition space to the public square.
_The second floor is stepped back from this exhibition space to allow viewing from the upper floor of the restaurant.



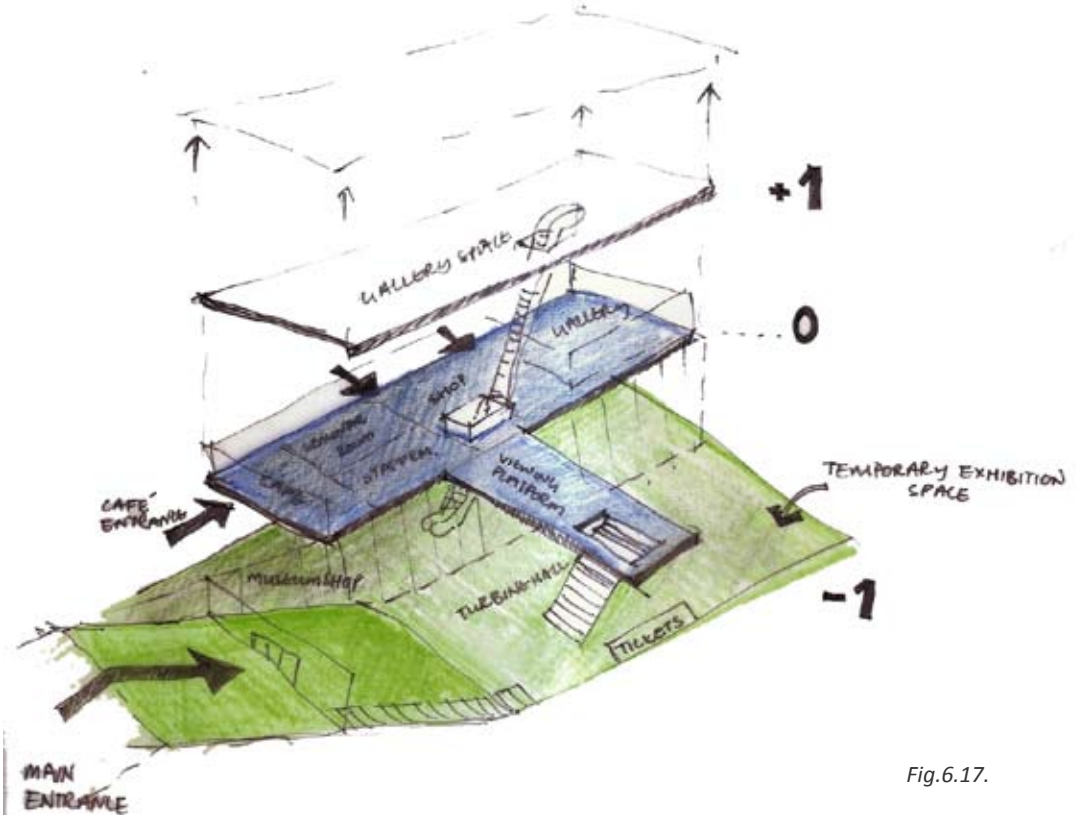


Fig.6.17.

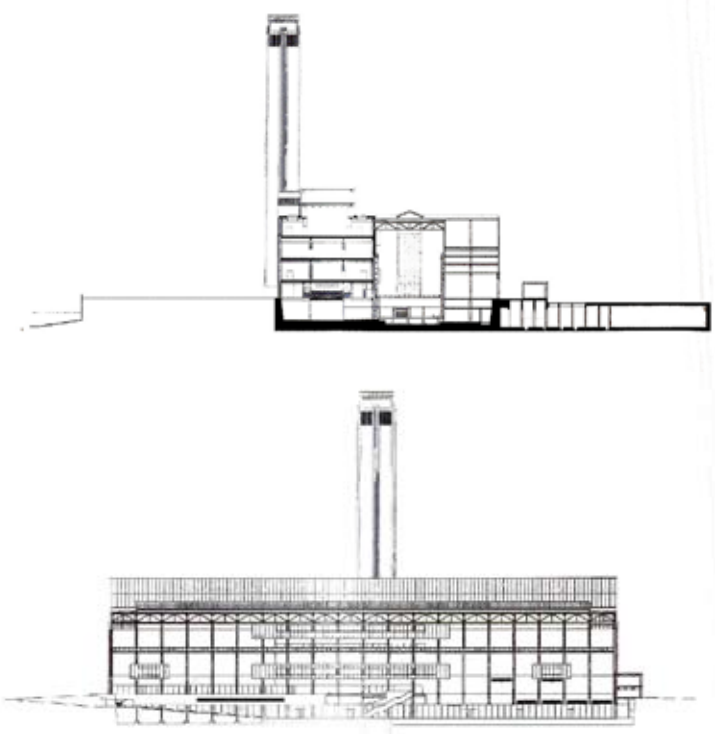


Fig.6.18.

Fig.6.19.

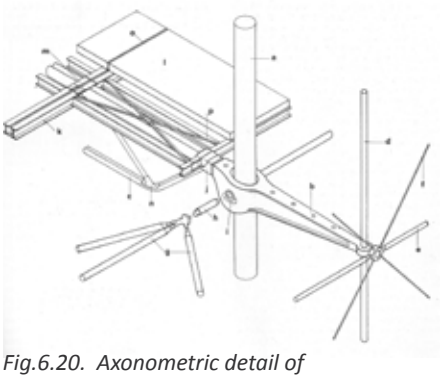


Fig.6.20. Axonometric detail of structural elements

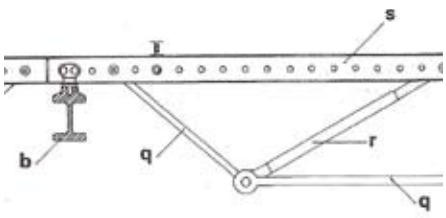


Fig.6.21. Detail section of floor composition

POMPIDOU CENTRE

RICHARD ROGERS + RENZO PIANO | Paris, France

FUNCTION AND ORGANIZATION

This project was chosen as an example of a multi-functional city building with its main function as an art museum. The centre also offers restaurants, shops, galleries, cinemas, classrooms and a library. The Pompidou Centre remains open and active from early morning to the late hours of the evening, ensuring a feeling of security in the square in front of it.

The building can be entered from the level of the public square (Fig.6.19). From here one enters into a central atrium space with a museum shop, cafe, ticket booth and entrance to classrooms. Cinemas and temporary exhibition spaces are situated on basement levels, while bookshops, permanent galleries and library rooms are situated on the upper floors. The roof level is reserved for special installations, experimental theatre and a restaurant (Fig 6.23 & 6.24)

FLEXIBILITY

The Pompidou Centre functions as a flexible shed. An external structural frame allows the building to be altered in plan, section and elevation to suit changing needs over the building's lifetime. The building consists of two sets of elements: The permanent structural system which forms a steel grid onto which building elements are attached (Fig. 6.20), and moveable building elements (including walls and floors) that can be added, repositioned or removed as necessary (Fig. 6.24).

This concept of flexibility is extended to every component of the building, from interior partitioning and services to large clip-on elements (escalators) that are attached to the main facade.

"All interior spaces could be rearranged at will and exterior elements could be clipped on and off over the life span of the building." (Rogers, Stirk Harbour and Partners, 2009.)

CONNECTION TO PUBLIC SPACE

As discussed in chapter 4, Place Beaubourg is a very successful public space in Paris. Human movement in the Pompidou Centre can be watched from the square while the centre allows viewing opportunities from the west facade through horizontal and vertical movement. Circulation devices – elevators, lifts and escape stairs are clipped onto the western facade of the centre, taking full advantage of views over the city.

The building was envisioned as a "communication machine" with a skin of ever-changing information which would be visible from the public square. In the final design of the building, it was decided to implement a more traditional glass-curtain wall façade.

INFLUENCES ON DESIGN APPROACH

Organisational influence on this design project – Although the centre itself and the square is very successful, the building does

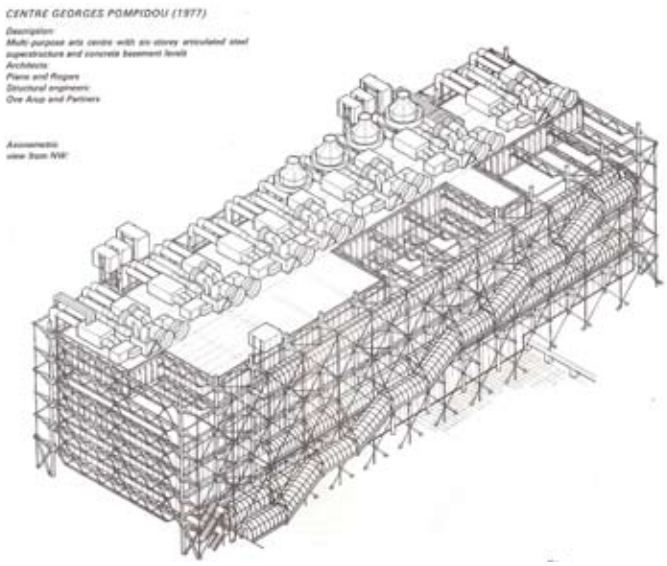


Fig.6.23.

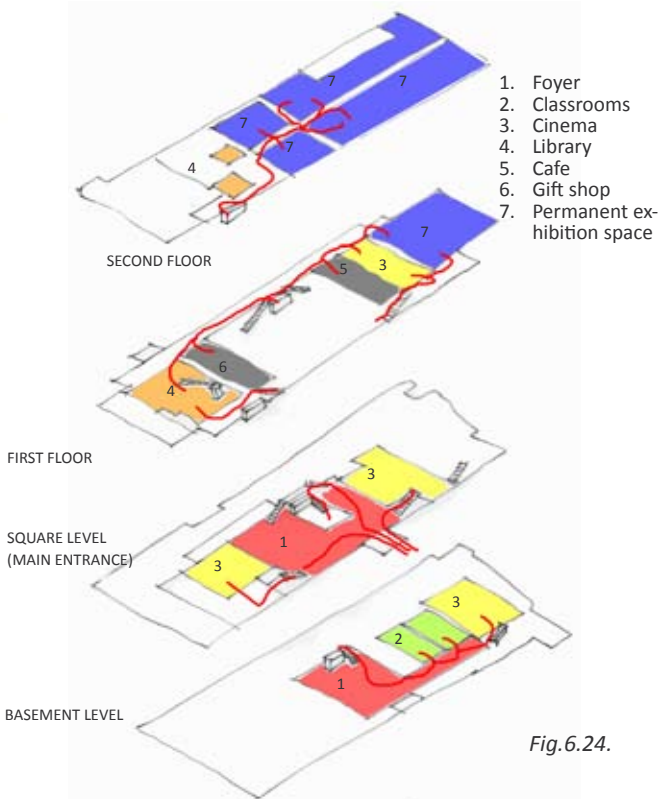


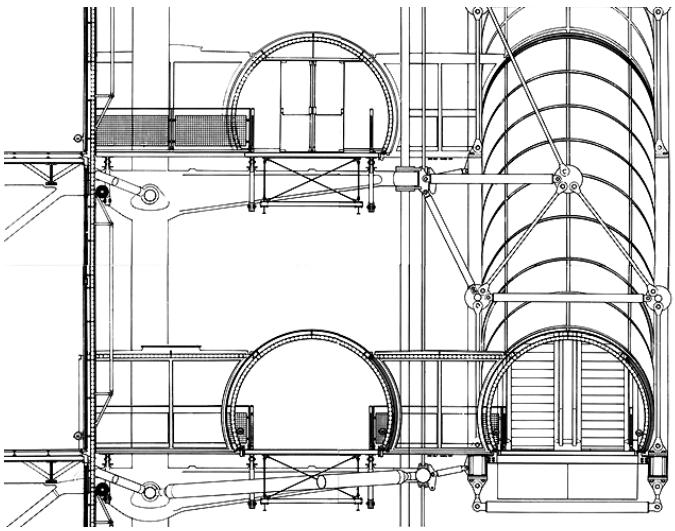
Fig.6.24.

not offer any activities on the square itself. In the design of an intervention on Lillian Ngoyi Square it would however be essential to provide an active edge of shops and street cafes along the square to bring activity to the square. The edges of the square are made more accessible through the provision of stairs and an integrated ramp along the square's edges.

_Similar to the Pompidou centre, the building's main entrance is situated roughly in the centre of the facade. The idea of utilizing a basement level for cinemas is ideal in the case of Lillian Nogyi Square because of an existing theatre entrance in the basement, as well as a possible link to the re-opened shopping centre in on ground and basement levels of the ABSA building.

_Following from the example of the Pompidou, the exo-skeleton of the design proposal allows a similar freedom of extension where structures can be clipped-on to the exterior of the building. This structure allows for LED mesh screens as well as posters to be suspended from it, allowing the building to become a centre of information and image.

Fig.6.22. Section through facade and clip-on elements



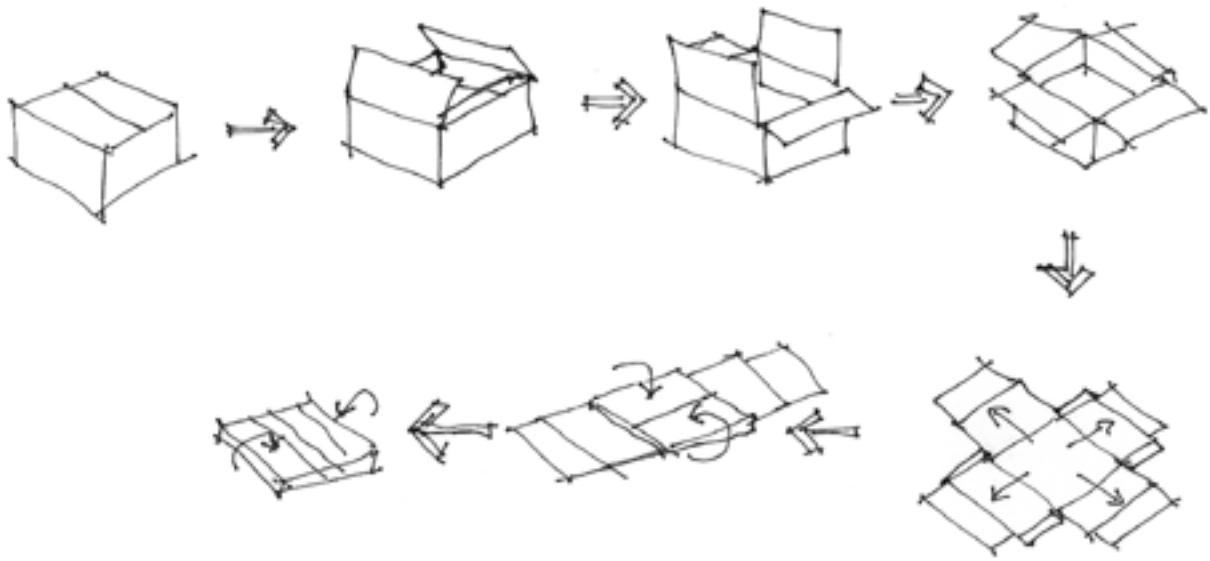


Fig. 7.1.

07_

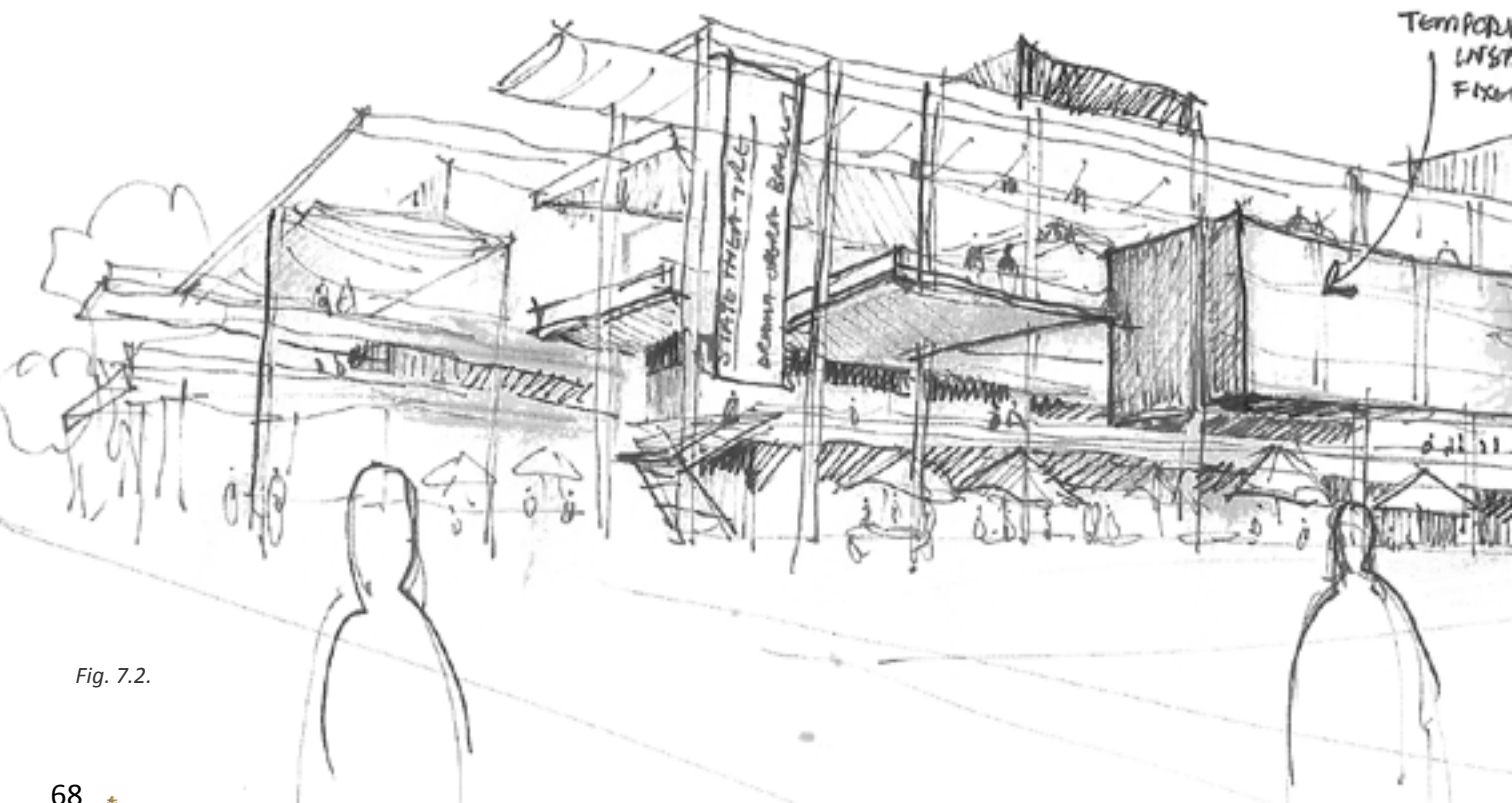


Fig. 7.2.

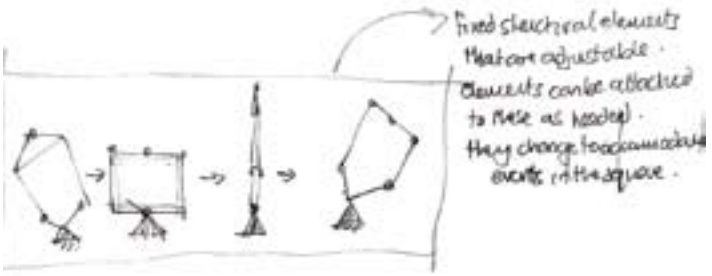


Fig. 7.3.

This project challenges the traditional concept of the theatre by breaking through the box, and extending the state theatre into the public square, thereby allowing the public to experience and learn about the performing and visual arts.

The success of the space will be tested on the following:

- Accessibility to all users both physically and visually.
- Comfort: Spaces to rest, sit in the shade, eat/drink
- Activity in the space and management of activities
- Opportunities for active/passive engagement - opportunities for watching as well as for spontaneous events
- Identity

DESIGN DEVELOPMENT

FORM DEVELOPMENT

The form and placement of the design proposal was derived from a number of factors. Primarily, decisions were based on conclusions derived in the site analysis and influenced by theoretical research. The primary focus of the project was to extend the State Theatre into the public square, thereby creating a space for outdoor theatre and concerts. The design attempts to join it to the existing urban fabric and give new life to the public square by improving access and comfort. Movement on and around the site was important to connect the site to the city. Development of the larger "cultural precinct" in later years was also a consideration.

Materials and architectural language were partly based on the existing context, with specific reference to the existing steel frame structures that form part of the Sammy Marks Square complex.

PROPOSAL 1_ march 2009

The project developed through the physical investigation of the site, the opportunities presented by the existing basement parking garage and the discovery of an original basement shopping centre underneath the Absa building. The initial concept was to 'open the box' (the box referring to the theatre and the parking garage below the square, as well as the ABSA building). These boxes were to be opened to the square.

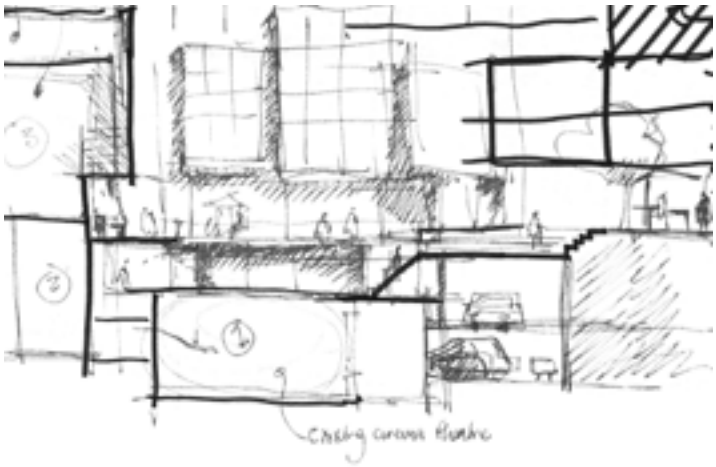


Fig. 7.4. Exploration of levels

This concept involved utilizing the underground parking space and the existing structure as the new building, creating only an entrance on the public square. Several options were investigated, including working mostly underground as well as different positions on the site. Another possibility was explored of creating a temporary intervention that could be installed in many different configurations and locations on the square.

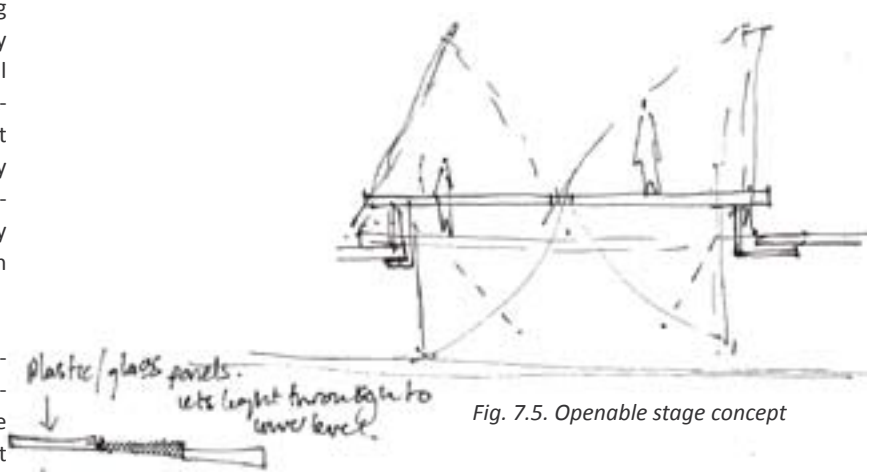


Fig. 7.5. Openable stage concept

After careful consideration of the implications of each of these options, it was decided that the most important threat on the square – the lack of activity – could most effectively be addressed through the addition of a new "filter" building to the West of the State Theatre.

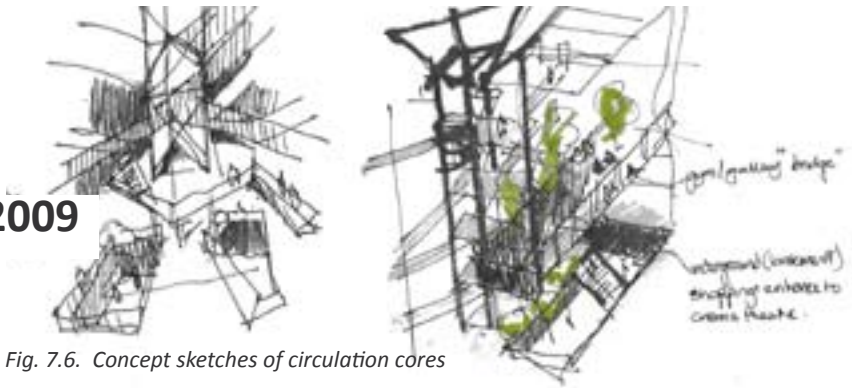


Fig. 7.6. Concept sketches of circulation cores

PROPOSAL 2_ april/ may 2009

The second proposal was to respond to the Sammy Marks Square Shopping Centre through the introduction of an arcade space between the State Theatre and the new intervention. This would allow the preservation of the Theatre building and create a new, friendlier entrance to the Theatre, whilst activating the public square. The new intervention would consist of a lightweight structure, contrasting with the existing building and symbolizing openness and transparency. It was decided to make

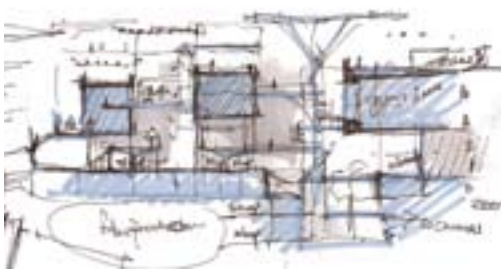


Fig. 7.7. Concept section through central circularion core and office boxes

use of steel as the primary structural material.

The concept involved a number of "pavilions" on a plinth (created by the ground floor shops facing the square). The "pavilions" were to be lifted from the plinth. The space between the square surface and each box/pavilion was dedicated to an open shopping centre with a number of screens facing the square. The concept involved the building becoming a large screen to the square, but did not satisfy the intention of a "filter".

Movement patterns and usage of the square was explored. A large central circulation space was envisioned, linking the Absa building, State theatre and new structure together through a system of walkways and a scenic lift.

The proposal was too large and bulky and did not satisfy the intention of the project, which was to create an open-air theatre on the square. Furthermore, the architecture did not relate to any of the existing architecture surrounding the site.

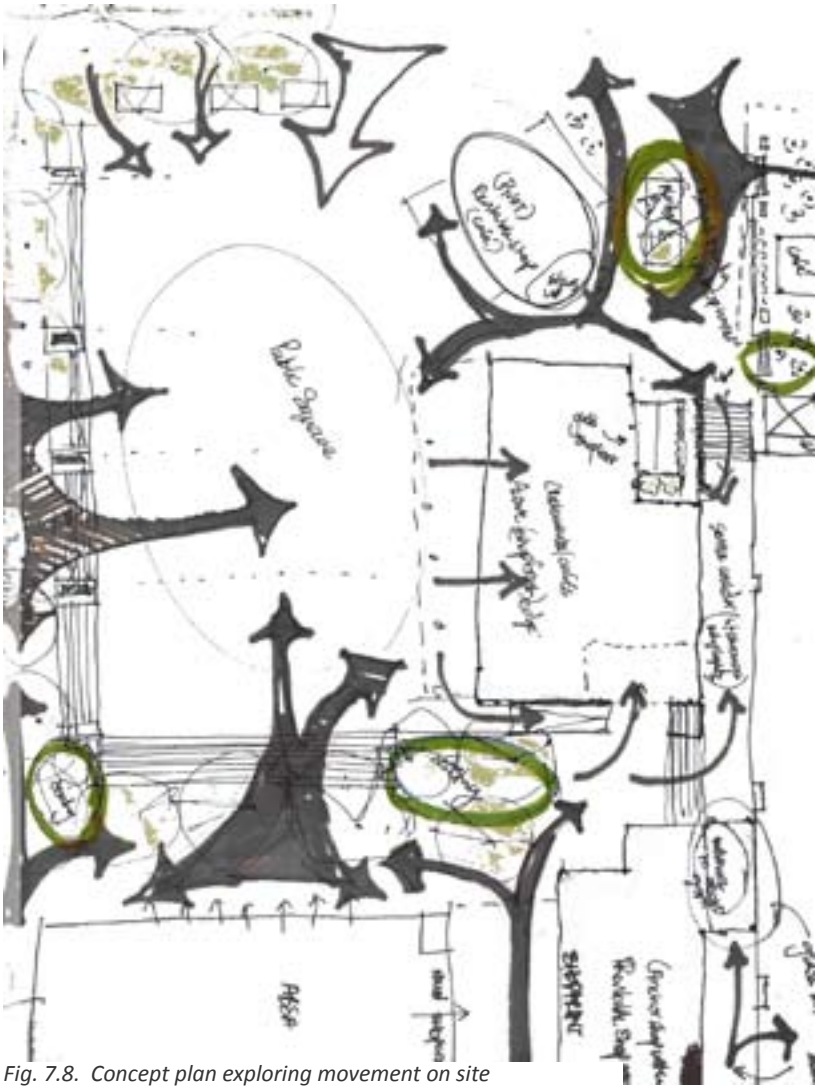


Fig. 7.8. Concept plan exploring movement on site

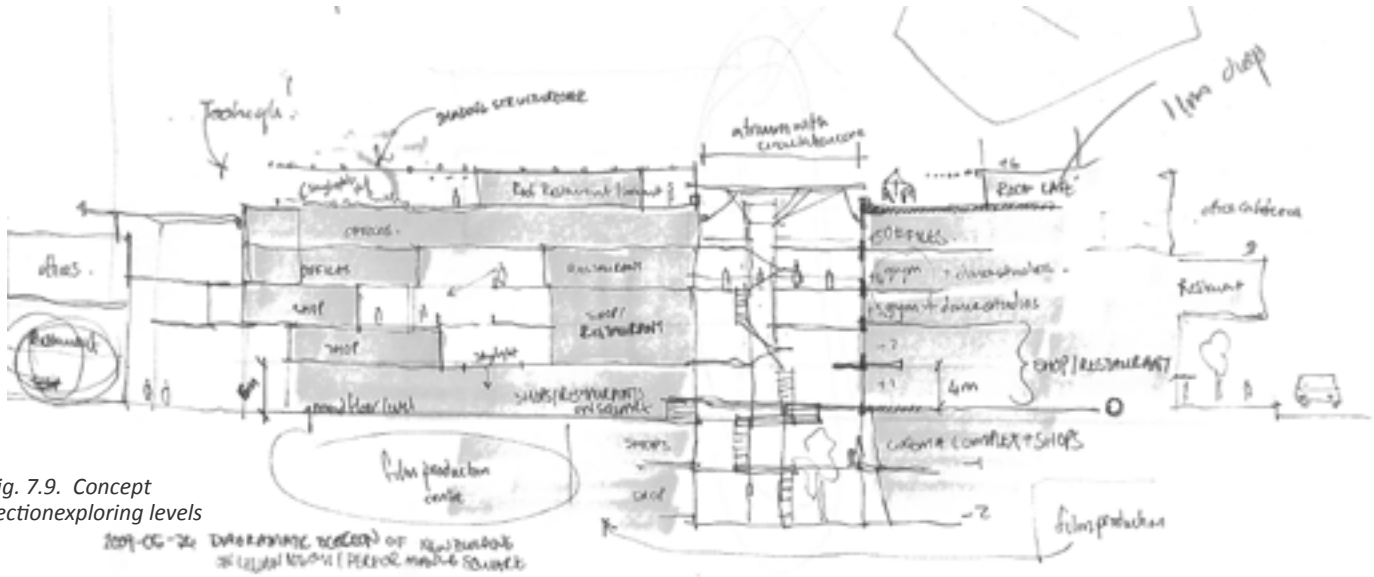
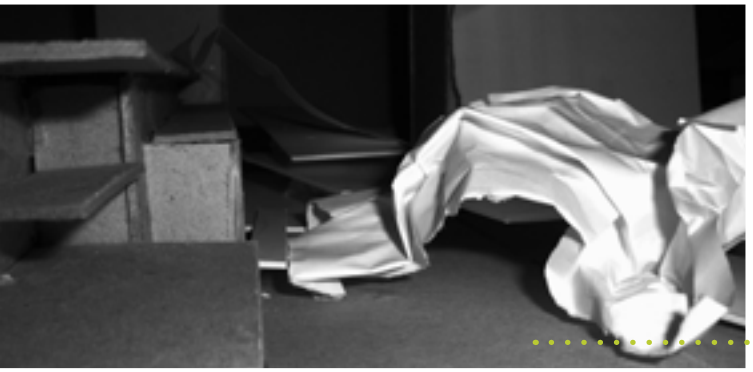
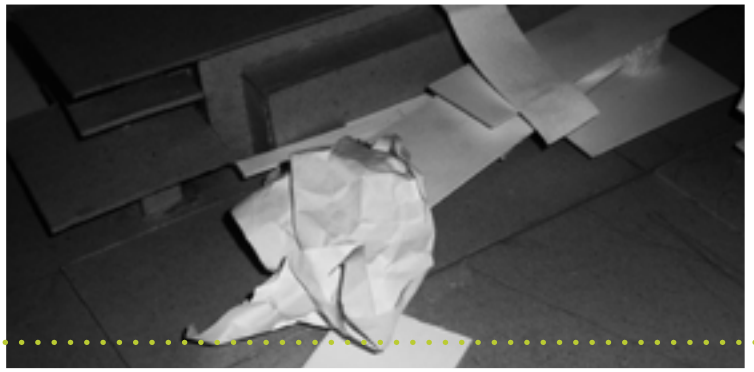
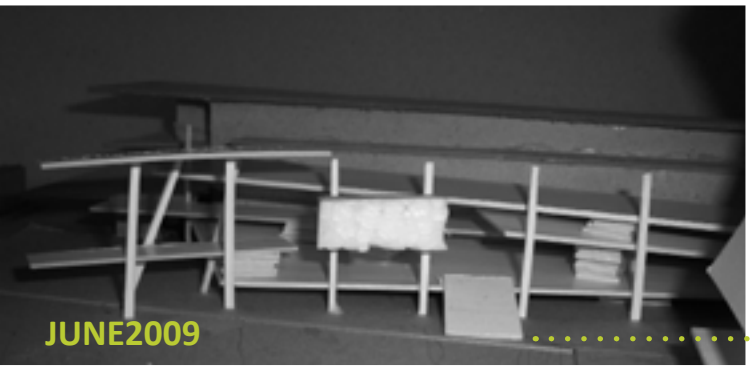


Fig. 7.9. Concept sectionexploring levels

PROPOSAL 2 MAY 2009







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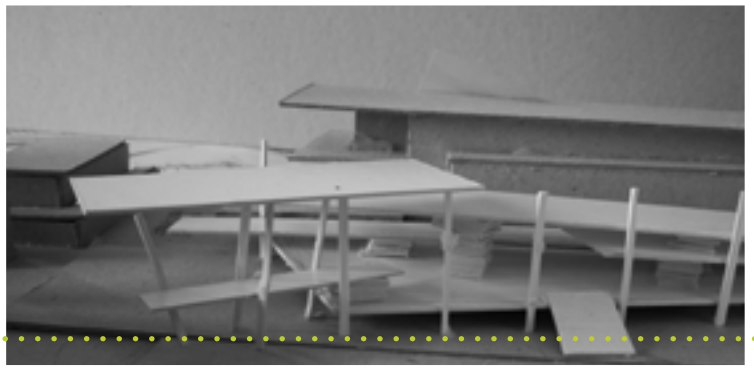

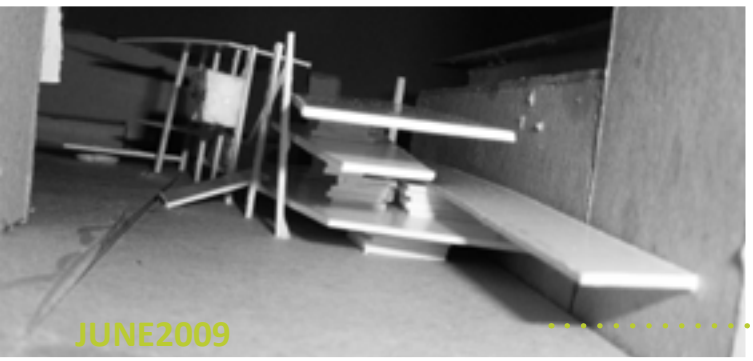

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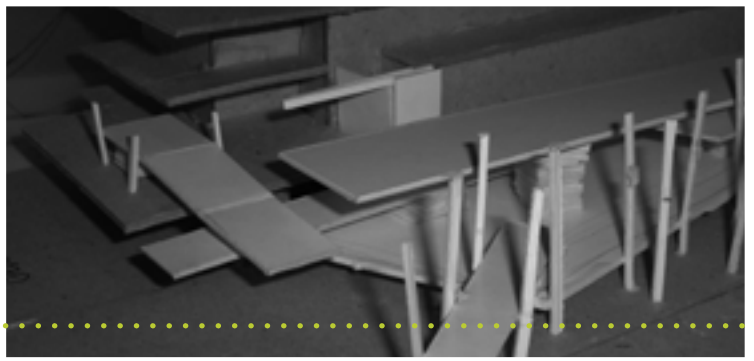

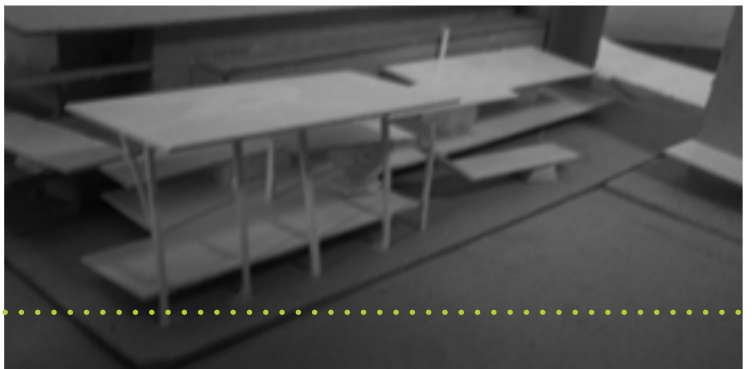

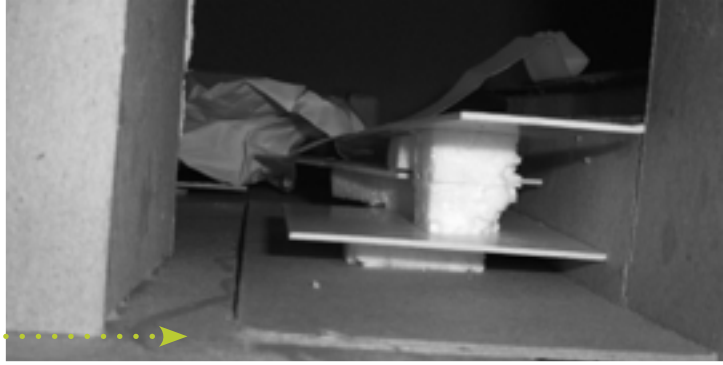

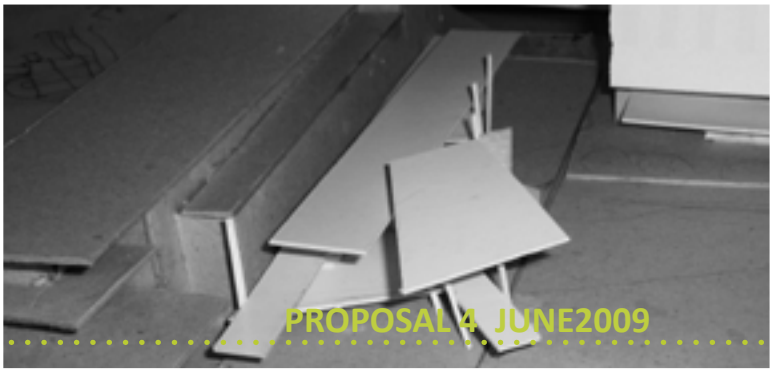

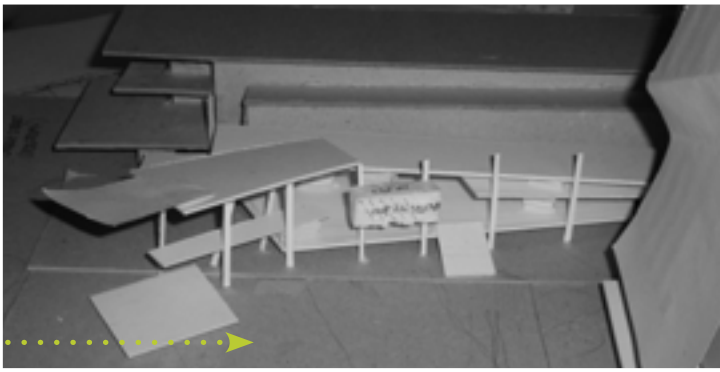

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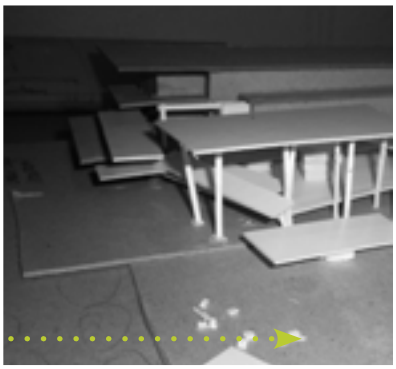
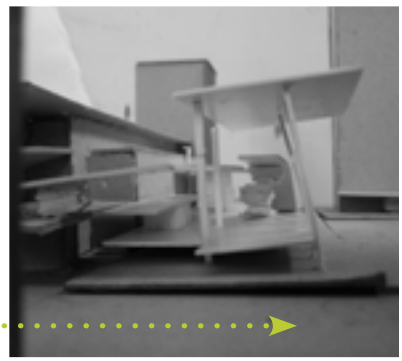


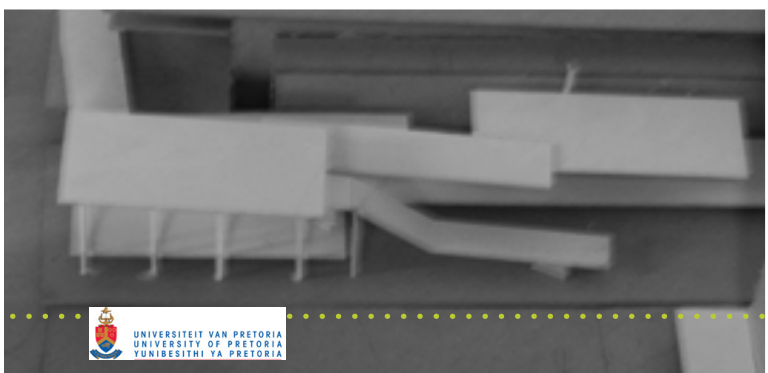


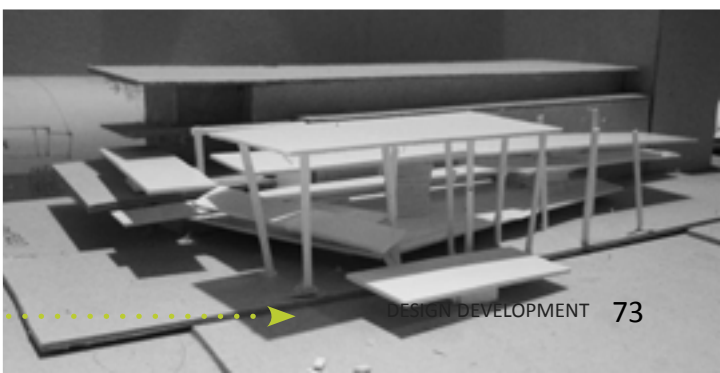
3D EXPLORATION

The use of physical models aided in the exploration of form and placement of structure. Physical models were used in the design exploration during May and June. After a basic layout and shape were determined, exploration continued

The stage concept was derived from proposal 2 and now taken further. A definite formal outdoor stage/balcony area overlooking the public square was envisioned on first floor level. Elevating the stage to first floor level allows it to become both a stage and a look-out point. One could view the public square without feeling like the centre of attention, but formal performances could be experienced as a formal event. This also allows the square to become a space for informal performances. From the stage/balcony area one would be able to move to the restaurants and a gallery on first floor.

The ground floor is used for small shops and cafes spilling out onto the public square.





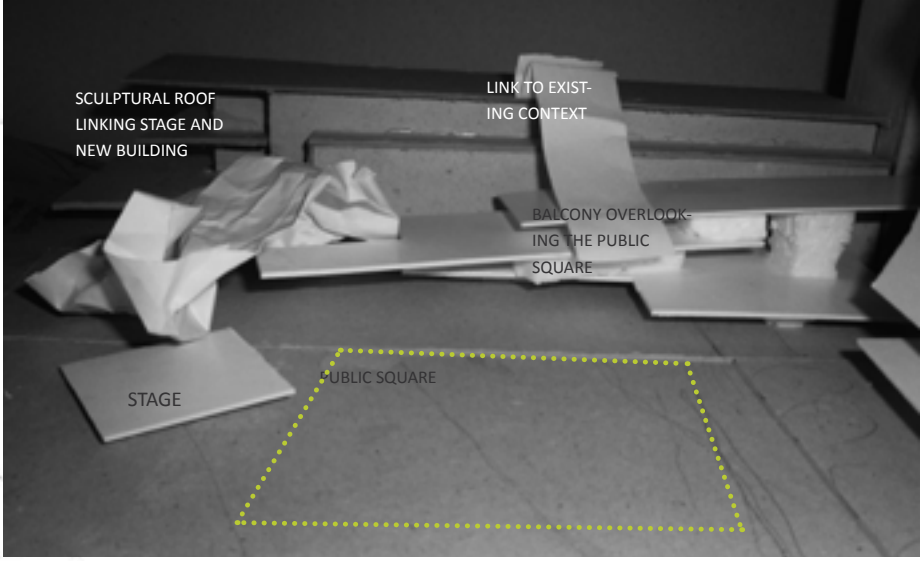


Fig. 7.11. 3D Exploration Proposal 3

DESIGN DEVELOPMENT MAY-JUNE 2009

The third proposal involved a more sculptural and lighter approach to the site. The proposed building would act as a pavilion and stage with entry points to the State Theatre on upper levels. A sculptural canopy connected the stage and the rest of the structure but allowed no interaction with Sammy Marks Square and the State Theatre on the Northern edge. The two structures would be viewed as two separate entities with no relationship between one-another. A better connection between the old and the new needed to be developed.

Fig. 7.12. Circulation and functional arrangement diagram for proposal 3

PROPOSAL 4_ june 2009

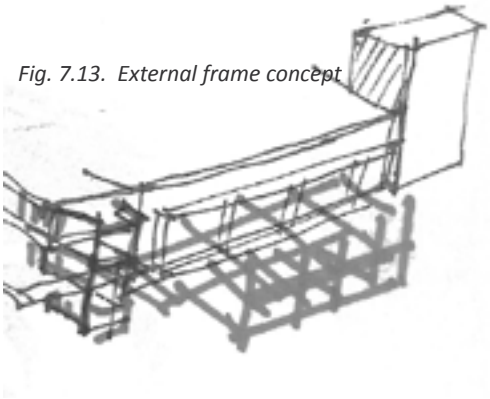
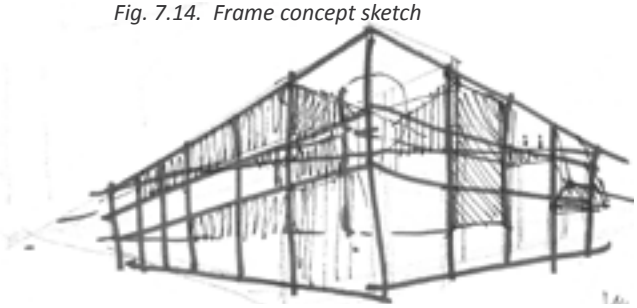


Fig. 7.13. External frame concept

Here, the focus was to create a better transition and link between the existing and the new. A "floating" bridge structure, linking the existing building and new building, was created. This element would form the roof of a new cafe on the balcony of the State Theatre, as well as the floor of an open-air exhibition platform that links to the second floor of the new extension.

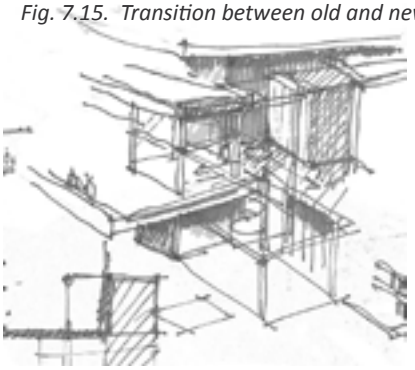
This proposal revisited the stage area on first floor level which allowed users of the new museum/restaurant space to view performances on stage. These users were still visible from the public square, thereby exposing the performing arts to the maximum amount of people. The building would host a restaurant on first floor, as well as a shop and performance space, whilst the second and third floors would be reserved for dance studios and an educational programme, involving a gallery/ museum component and a library.

Fig. 7.14. Frame concept sketch



Placing a stage of first floor level created the opportunity to utilize the existing theatre's equipment, props and stage decorations. The first floor level would be placed at the same height as the existing theatre's height. This would enable the museum and exhibition space to utilize the existing stage wagons for performances and allow for easier transport of equipment and decorations to exhibition and performance spaces.

Fig. 7.15. Transition between old and new



Breaking through the facade of the existing building allowed opportunities for opening up the theatre and created a visual filter from the museum spaces into the back-of-house areas of the existing theatre.

This change gave the public a glimpse into the inner workings of the theatre.
The new building would be a filter in structure:

- physically connecting the theatre to the public square, material
- allowing views through to the original building and functions
- educating the general public about the theatre, and
- acting as an extension of the building's many large balconies.

A large structural frame is placed on the western façade, forming a balcony on first floor level. This frame acts as a temporary exhibition space for the gallery/special functions, for rock/pop music concert decorations and for a media screen/shading structure, thereby protecting the internal spaces from the harsh western sun.

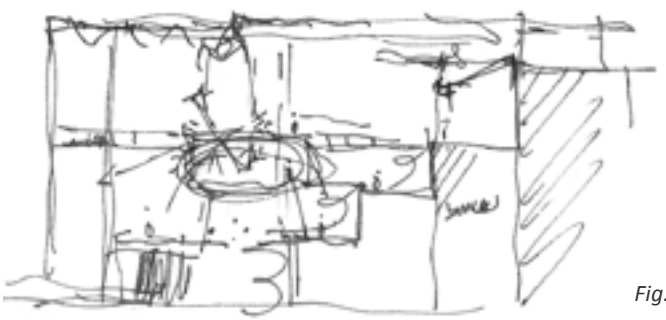


Fig. 7.16. Concept section exploring levels

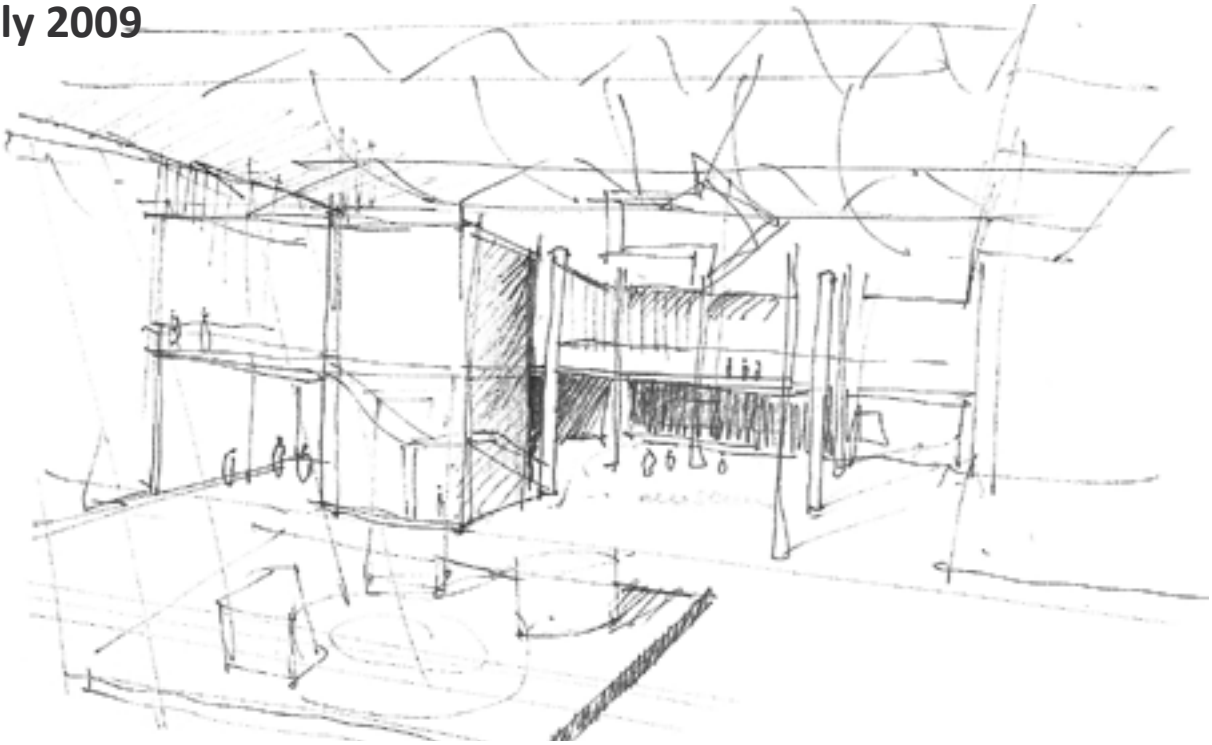


Fig. 7.17. VIEW FROM CAFE ONTO CENTRAL EXHIBITION SPACE

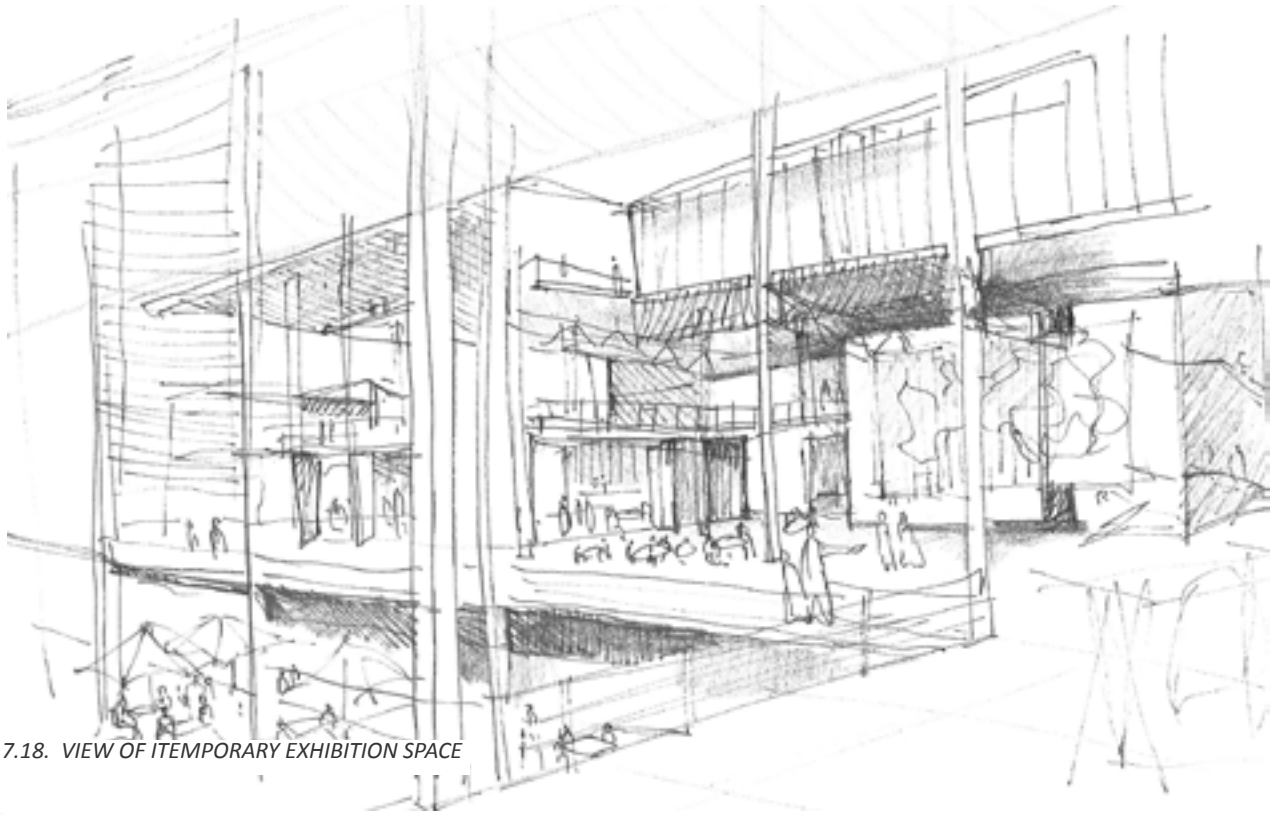


Fig. 7.18. VIEW OF ITEMPORARY EXHIBITION SPACE

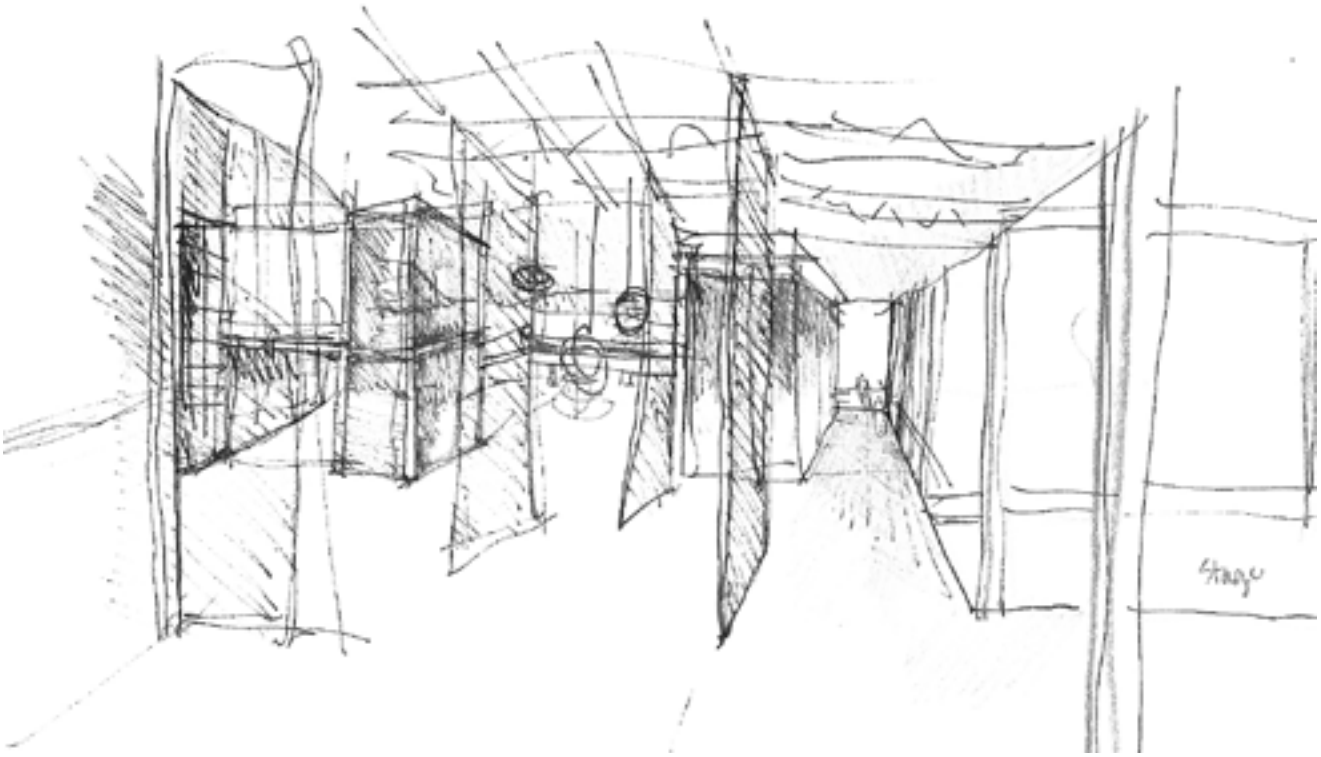


Fig. 7.19. VIEW OF TEMPORARY EXHIBITION SPACE DURING EXHIBITION

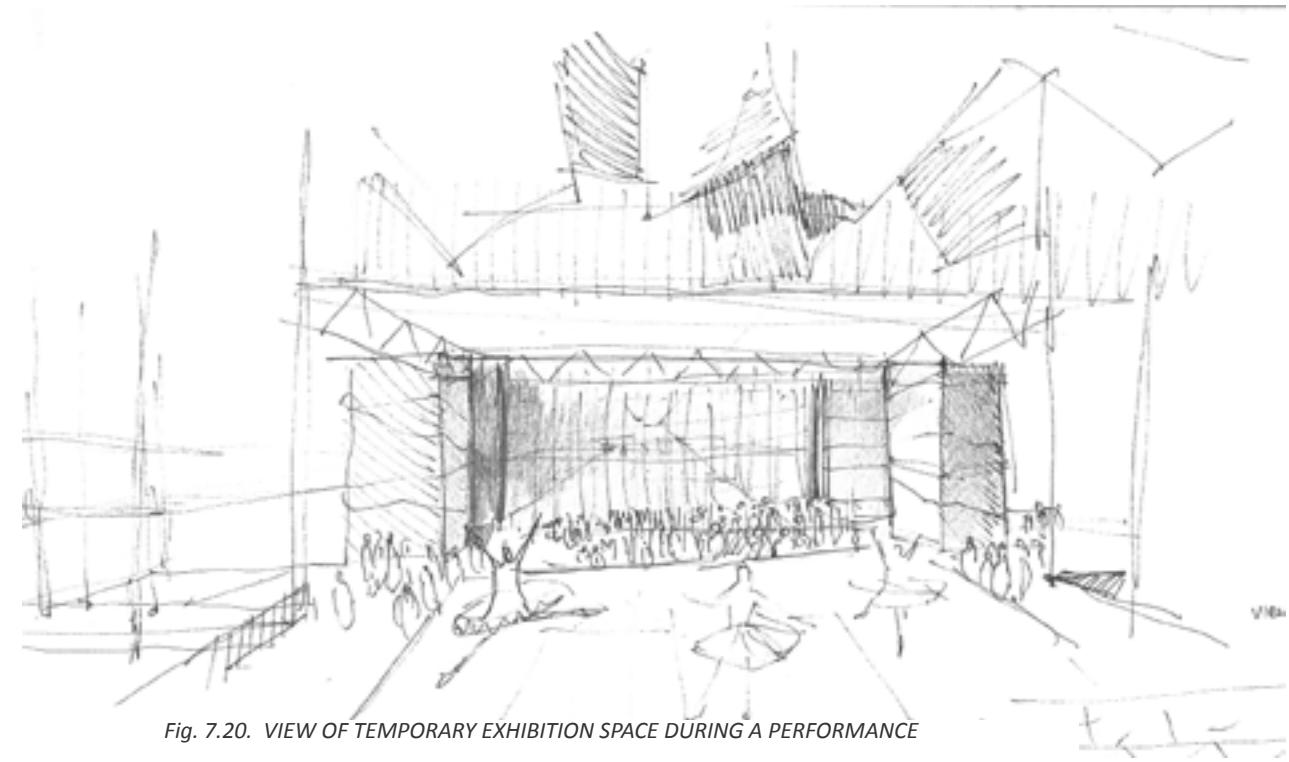


Fig. 7.20. VIEW OF TEMPORARY EXHIBITION SPACE DURING A PERFORMANCE

Fig. 7.21. Proposal 4: View of new extention from the corner of Church and Van der Walt Street

THE SQUARE

The development of the square was the starting point for the thesis. Although the focus of the design is on the architectural intervention, the site development is a major part of the design proposal. As mentioned in Chapter 3, Squares must be designed to accommodate basic human needs, and rights and should be designed to draw people and keep them in the space for the maximum period of time. These points have been applied to the proposed design as follows:

NEEDS - comfort, security, activity and basic needs

- The new extension to the State Theatre provides rentable shop space and restaurants on ground and first floor levels, where the user can buy food and beverages
- Opportunities for passive and active engagement were created by providing shaded steps on the edges of the square where visitors can sit in the shade created by Celtis Africana trees planted along the edges of the square, while watching the activities on and around the square.
- The stage and media screens of the proposed extension to the State Theatre are best visible from the steps at the edges of the square
- A water feature in the centre of the square provides a space where children can play during warm summer afternoons. The fountain jets are installed flush with the square surface. This optimizes the amount of the square's surface that can be used as standing area during a summer concert.
- Street lighting and additional strip lighting in the pavement are provided to enhance the security on the square at night.

RIGHTS - freedom of access/use

Disabled visitors can easily access the square via a ramp on the Southern edge of the square, or on street level via Church Street.

Informal traders are encouraged to set up trading stalls along Van der Walt and Church Streets where the majority of fast moving pedestrian traffic is expected to occur. Together with the new rentable shops and restaurants on the square, informal trading activity could draw more users to the square and create more activity.

MEANING & IDENTITY

The design proposal suggests that the square becomes a place of activity, relaxation and public performance. The intention of the design is to provide the square and the State Theatre an image of accessibility. The surrounding area could become a new cultural precinct that encourages public performances and exhibitions of art/performance.

MANAGEMENT AND MAINTENANCE

The square could be maintained by the Government and the State Theatre. By allowing the public square to become an extension to the State Theatre as an outdoor theatre, maintenance of the square becomes the responsibility of the State Theatre and of the tenants who rent shop and restaurant space overlooking the square.

Income could be generated through the renting of shops and advertizing space, as well as renting out the square as a flea-market on weekends and hosting outdoor concerts. The project could be an investment of the State Theatre into its own future, promoting the arts to the man on the street.

INNER SQUARE

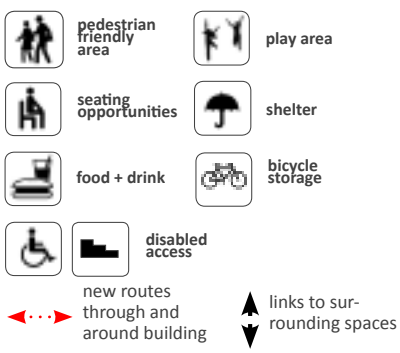
Fountain jets and drains are installed flush with the pavement surface in the centre of the square. The water feature may be activated on hot summer afternoons where children can play and the water will cool down the square's surface. Excess water will drain away immediately to reduce unwanted quantities of water on the square surface.

OUTER SQUARE

The Van der Walt Street sidewalk is altered to provide steps and seating for pedestrians to sit in shaded areas while viewing the activity on the square. Informal traders are encouraged to set up their stalls in this area as most pedestrian movement is expected on the edges of the square. Steps and a ramp on the southern edge of the square provide easy access to all visitors.

The Van der Walt Street surface is paved and raised to slow the vehicular traffic and to extend the pedestrian "square" to the western edge of Van der Walt Street.

The ABSA office tower is altered: the banking mall (currently on the ground and first floor levels) is moved to the basement level. Shops are reinstated on the basement levels and the ground and first floor levels refurbished with restaurants and shops opening onto the square.



1. NEW WATER FEATURE AND PAVEMENT LIGHTS
2. NEW STAIRS/SEATING
3. WIDENED SHADED SIDEWALK AND TRADING SPACE
4. NEW CAFE
5. EXISTING INFORMAL TRADING STALLS
6. NEW SHOPS AND CAFES
7. SHADED WAITING AREA
8. RAMP AND STAIRS
9. ROAD SURFACE RAISED AND PAVED WITH COLOURED BRICK PAVING

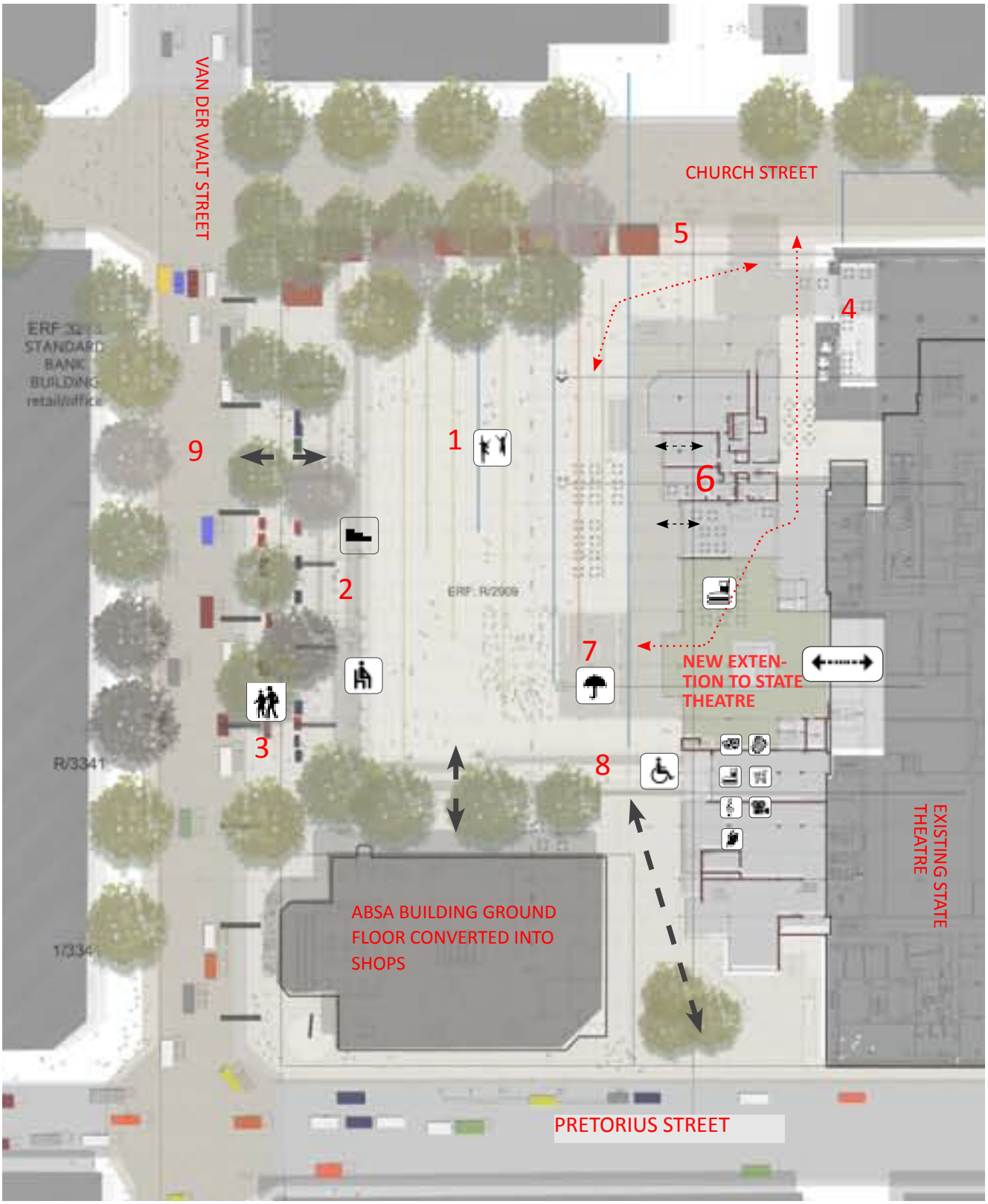


Fig. 7.22. Final proposal: Site Plan

OUTER SQUARE

The Van der Walt Street sidewalk is altered to provide steps and seating for pedestrians to sit in shaded areas while viewing the activity on the square. Informal traders are encouraged to set up their stalls in this area as the most pedestrian movement is expected on the edges of the square. Steps and a ramp on the southern edge of the square provides easy access to all visitors.

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INNER SQUARE

Fountain jets and drains are installed flush with the pavement surface in the center of the square. The water feature can be activated on hot summer afternoons where children can play and the water will cool down the square's surface. Water drains away immediately to reduce unwanted load of water on the square surface.

Fig. 7.23. Inner and Outer square

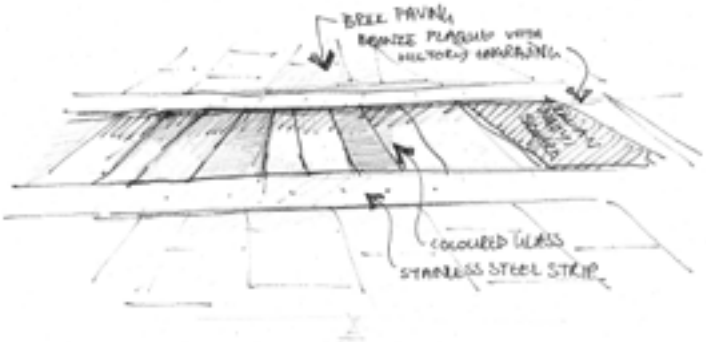


Fig. 7.25. Strip of coloured lighting on square surface

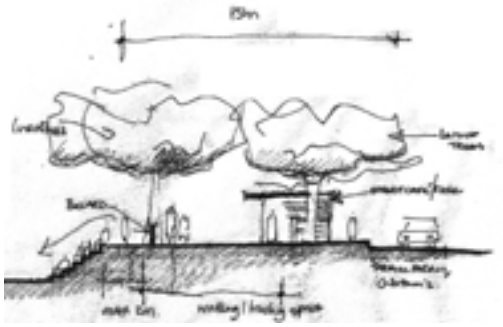


Fig. 7.24. Concept section of sidewalk

Fig. 7.26. Water feature in Geneva

Fig. 7.27. Grid detail, water feature in Geneva

Fig. 7.28. Girl playing in water

ORGANIZATION

Functions are arranged around the central stage and the temporary exhibition space. Restaurants situated to the north, open onto Sammy Marks Square and the State Theatre balcony. Two bridges on the first and second floor levels link the State Theatre to the new extension through an outdoor exhibition space. Originally, a service core was placed on the western edge of the State Theatre. This would compromise the existing façade and views to the existing building. The service core was moved to the centre of the restaurant, allowing free views to the surrounding context and existing building.

A sky-lit atrium space was introduced between the existing and new buildings. Stage decorations and props may be suspended from the steel building frame and will be visible from both the central exhibition space and the restaurant space.

THE GALLERY

LOCATION_ The gallery is located to the south of the central exhibition space. The gallery does not require as much interaction with the public square as would be required by the restaurant spaces, and may therefore ideally be located in a less prominent position. The gallery is a part of the new suggested educational programme of the State Theatre and it is positioned near the administration tower of the theatre, which is the back-of-house entrance.

FORM_ because the gallery will not display paintings or wall-mounted elements, it is unnecessary to provide walls. It is suggested that the gallery/museum could house a permanent collection of stage decorations and wardrobe items used in previous shows, as well as images and descriptions. Content of the gallery/museum could be displayed by suspending the objects from the building structure. Digital television screens could also be suspended between floor and ceiling. Descriptions of objects and other text may be printed on film on glass.

As previously mentioned, the old and new do not completely touch. A glass floor extends from the gallery to the edge of the exterior of the original façade of the theatre. The row of glass tiles closest to the existing façade is a clear glass, while others are frosted. This row of clear glass and a triple volume space to a skylight above, allow visitors to experience the entire existing façade. It is suggested that large pieces in the wardrobe collection and suspended stage decorations are suspended from the steel structure in this area. The gallery may be decorated as a stage, allowing visitors to learn and experience more of the stage construction and decoration process.

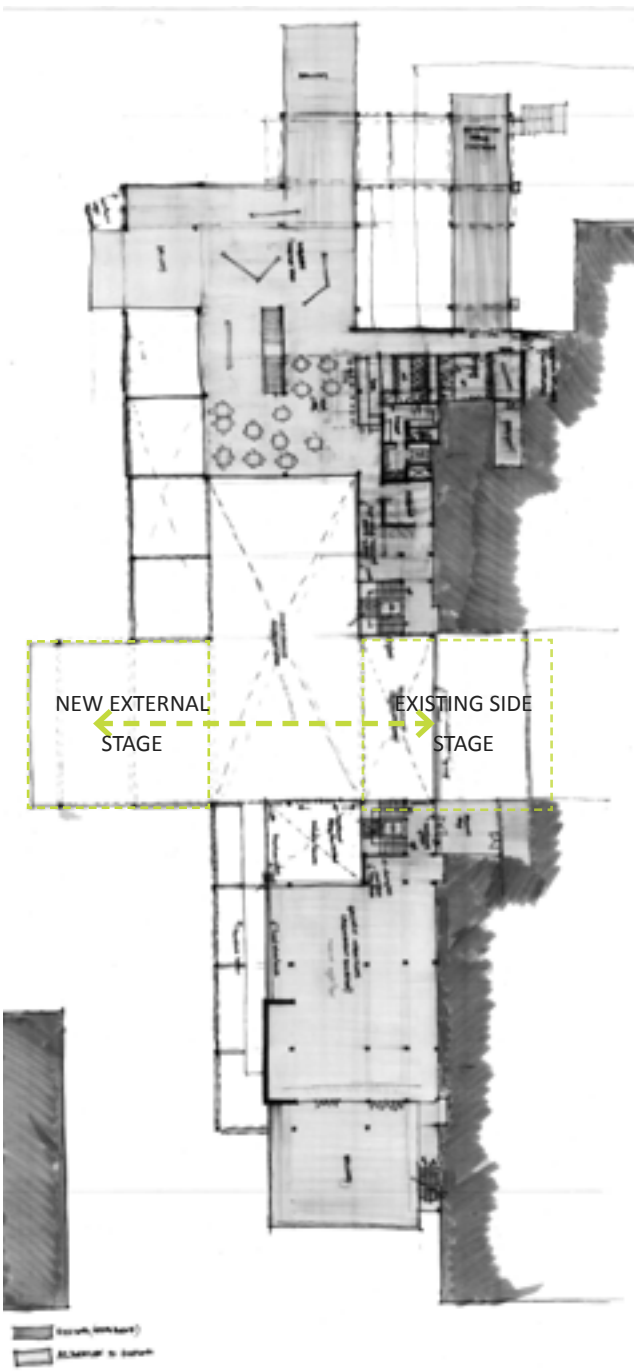


Fig. 7.29. Concept plan First Floor

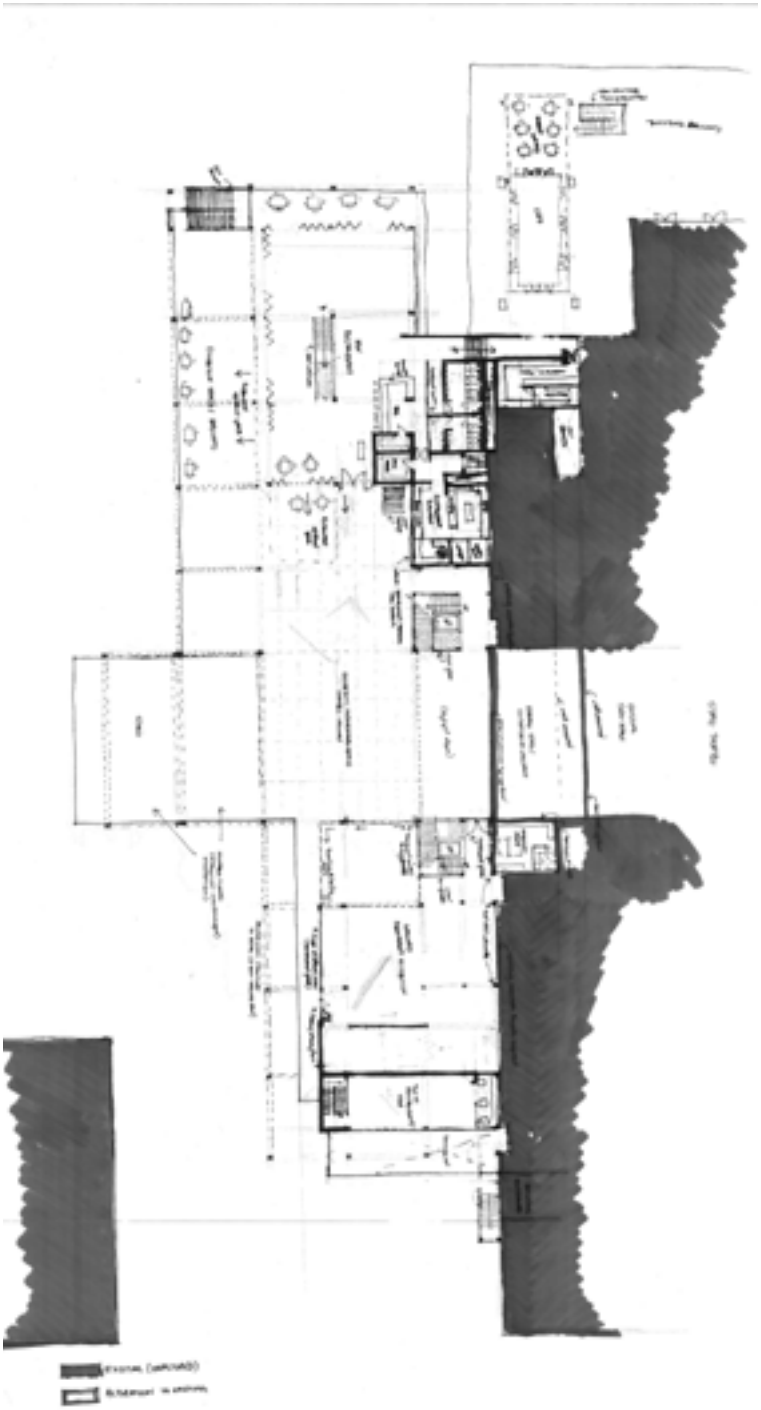


Fig. 7.30. Concept plan Second Floor

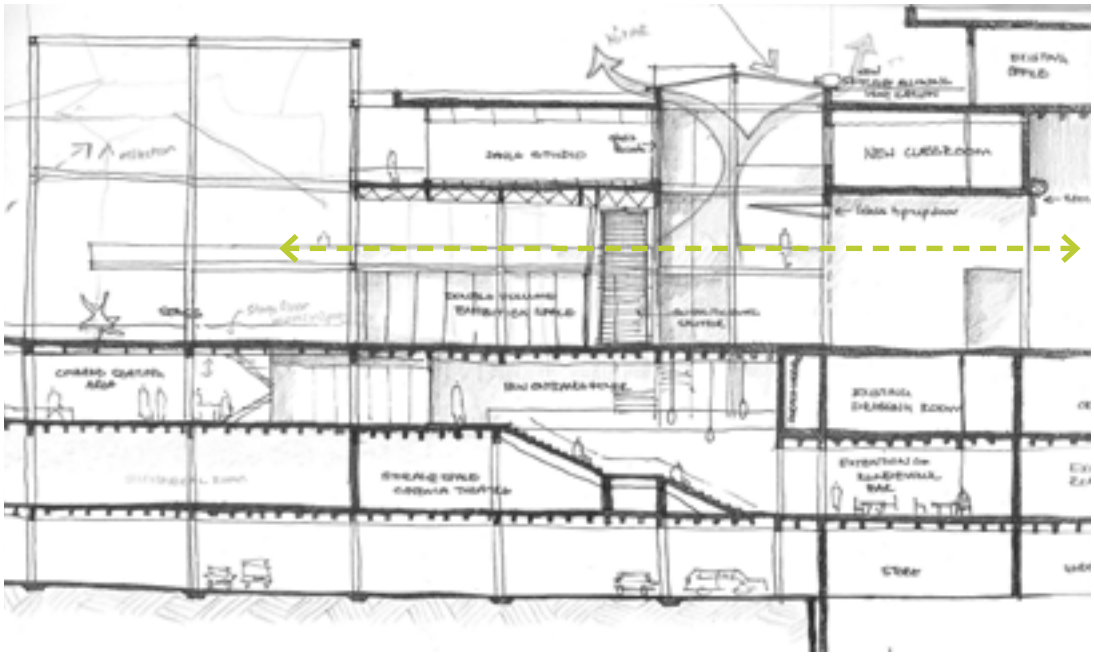


Fig. 7.31. Concept Section through stage area indicating movement to existing side stage

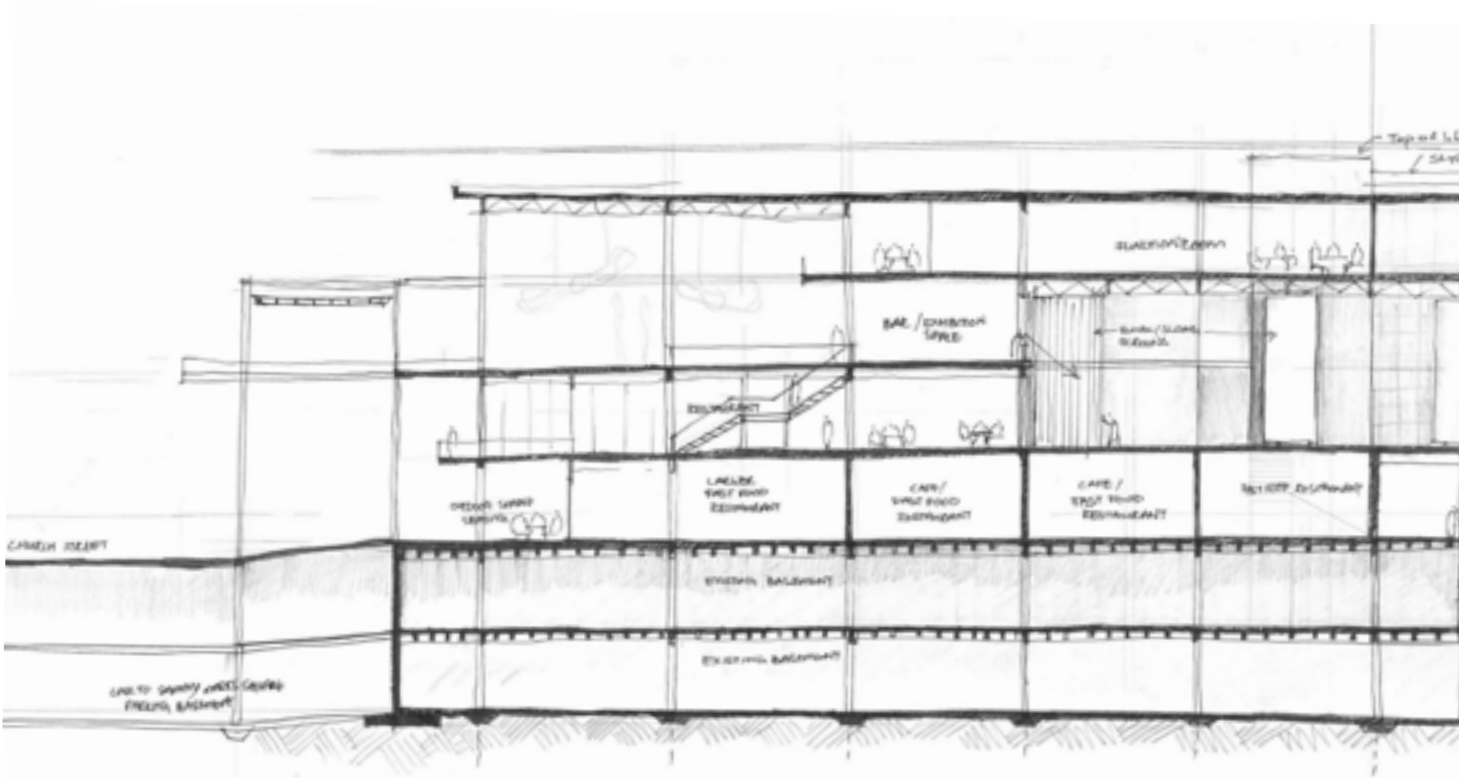


Fig. 7.32. Concept Section

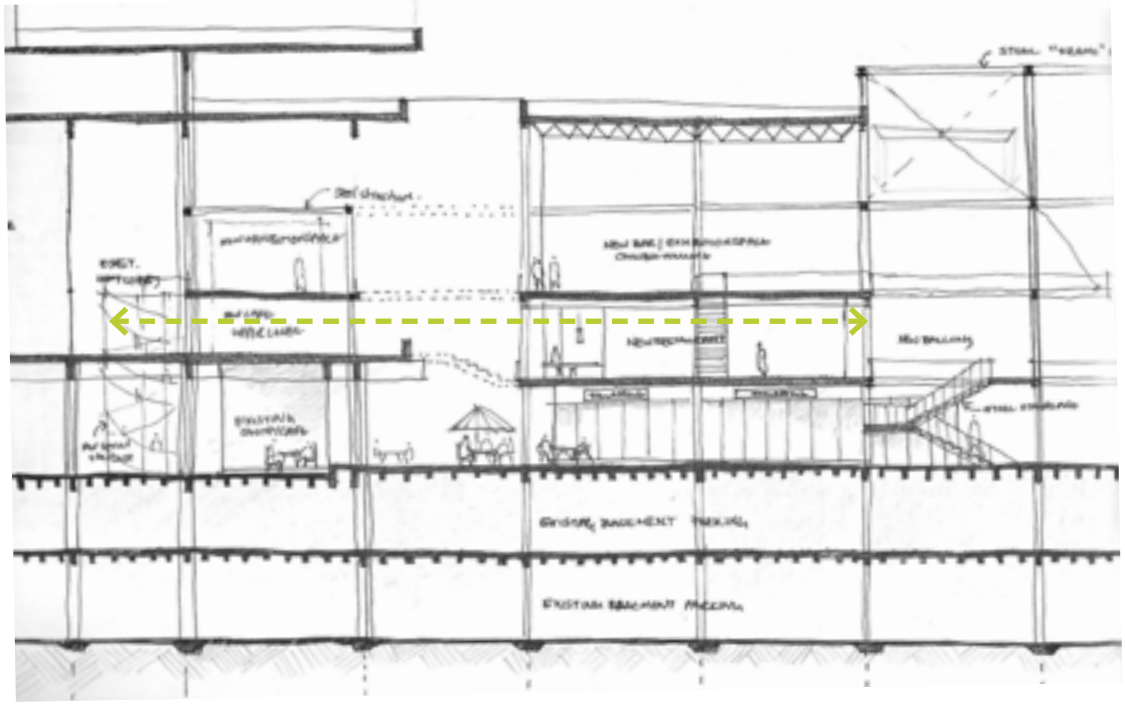
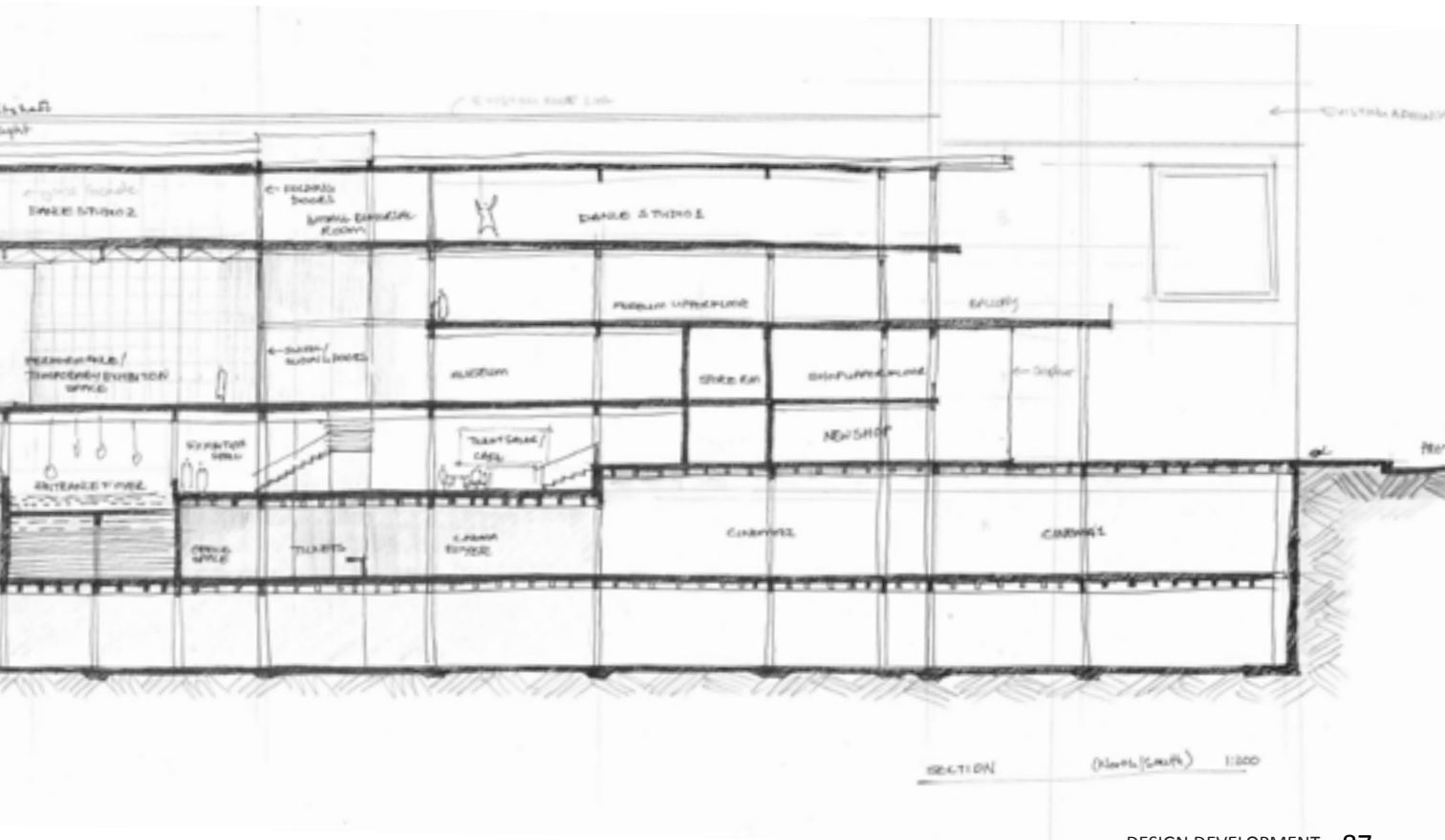


Fig. 7.33. Concept Section through State Theatre Balcony and new restaurant



THE STAGE

Fig. 7.34. NIGHT TIME POP CONCERT ON THE SQUARE


STAGE AND FLY TOWER

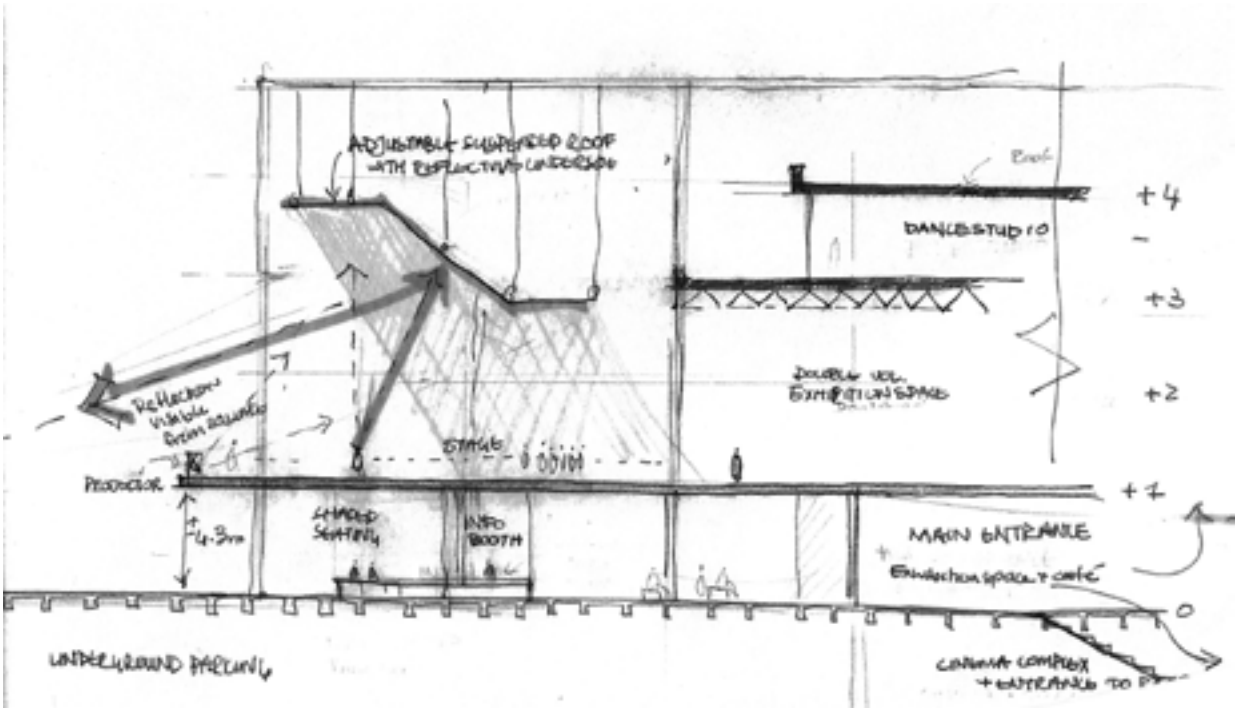


Fig. 7.35. Stage concept with reflective roof surfact to increase visibility on the square

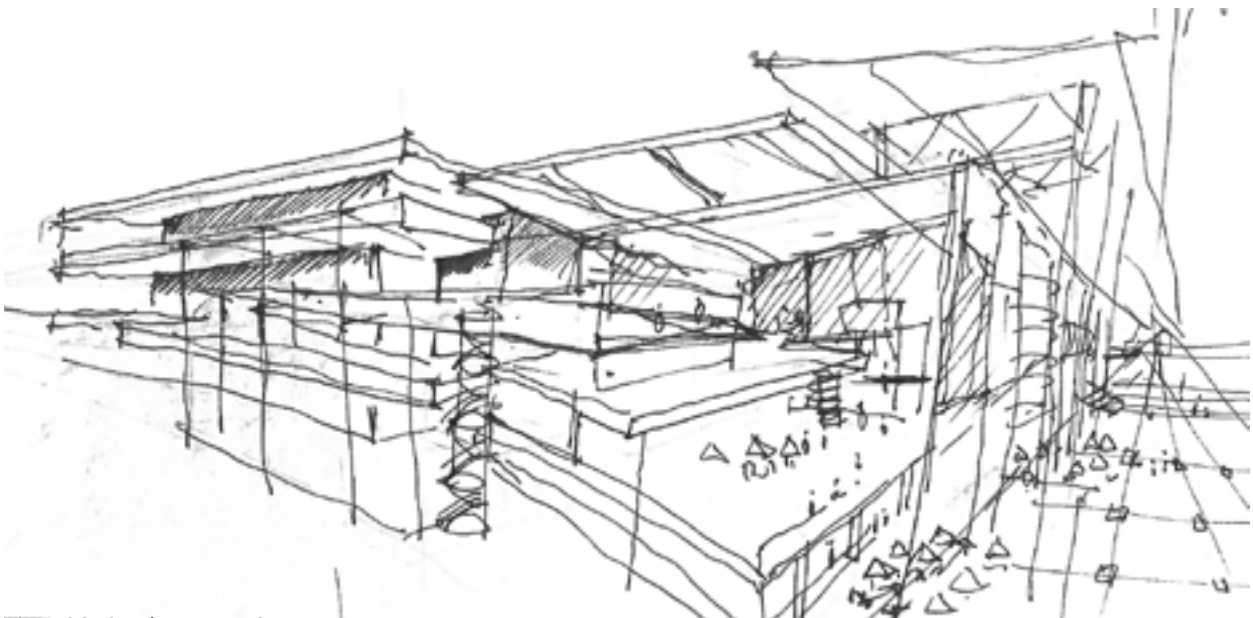


Fig. 7.36. South Western Corner

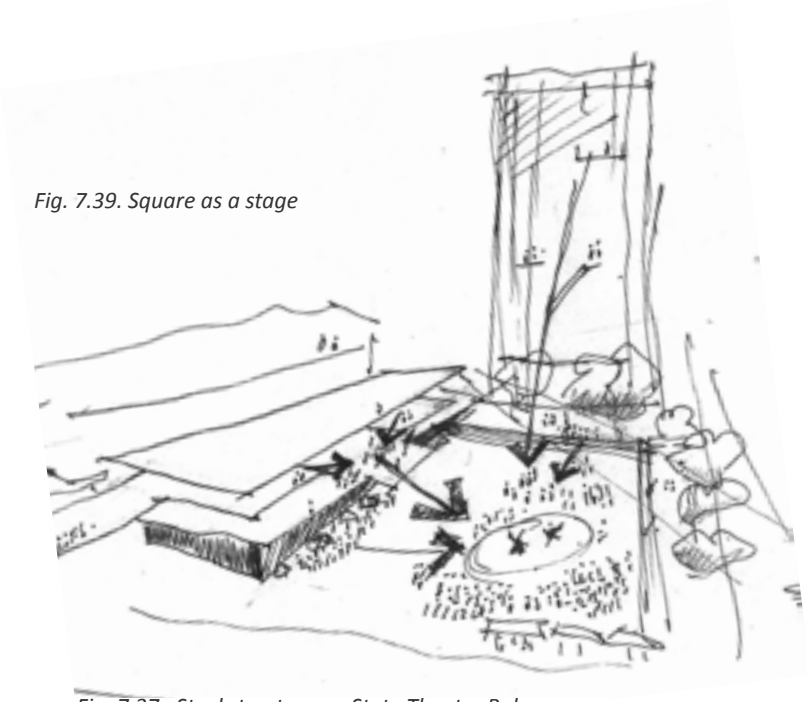


Fig. 7.39. Square as a stage

Fig. 7.37. Steel structure on State Theatre Balcony

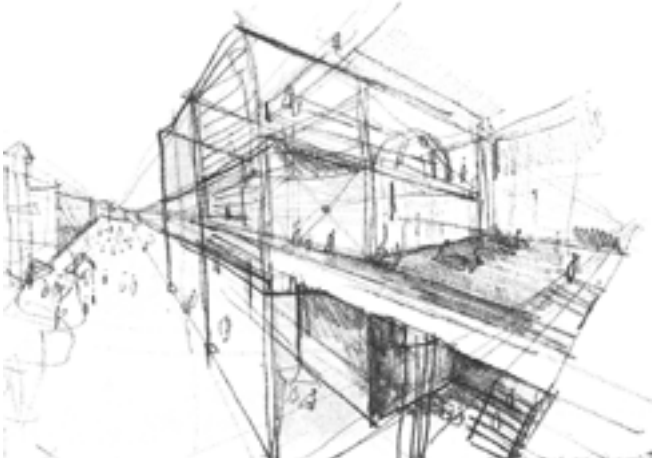


Fig. 7.38. Interior exhibitioin space

THE STAGE

A steel frame protrudes into the square. This acts as a fly tower onto which lights and stage decorations maybe attached during pop concerts. The stage leads onto a temporary exhibition space in the centre of the new extension, which is defined by movable sliding door panels. These panels may be arranged in any configuration and act as exhibition panels, stage curtains or blank back "cloths" onto which images may be projected.

Another set of sliding doors define the division between the existing and the new buildings. These doors are constructed of fire-proof glass in custom made steel frames, allowing a view into the main stage area of the State Theatre. The glass doors blur the distinction between the old and the new and act as a filter that allows a visual link into the back-of-house activity of the theatre. A second door on the interior acts as a light and sound barrier that may be closed when performances are held on the main stage.

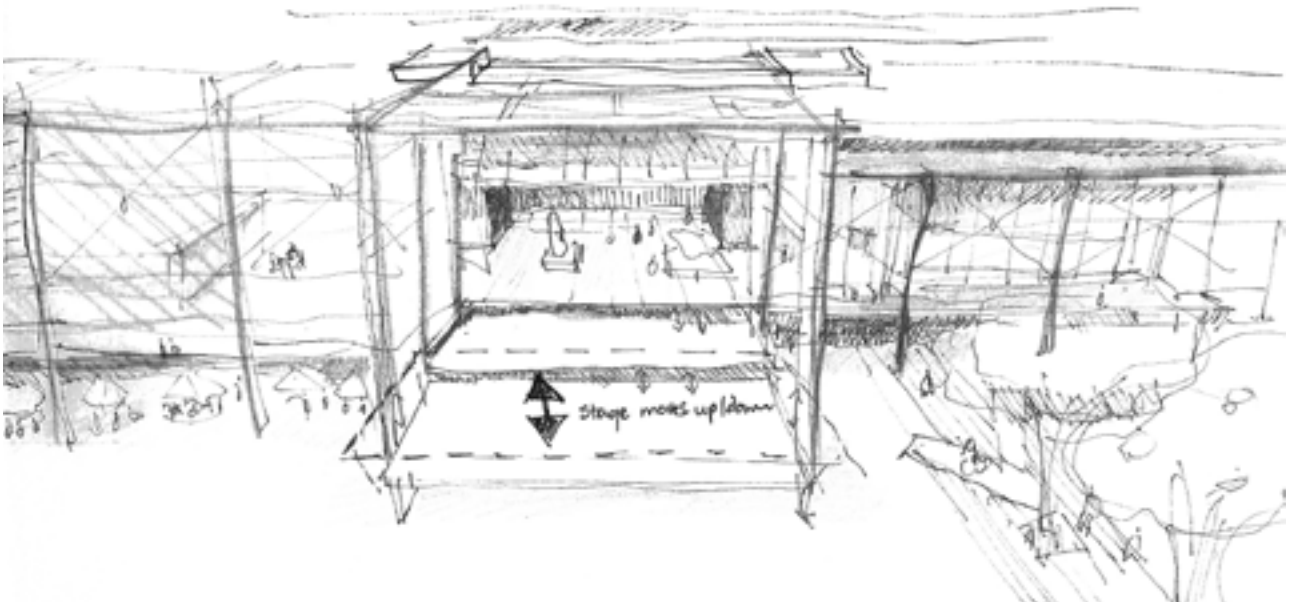


Fig. 7.40. EXTERIOR VIEW OF STAGE

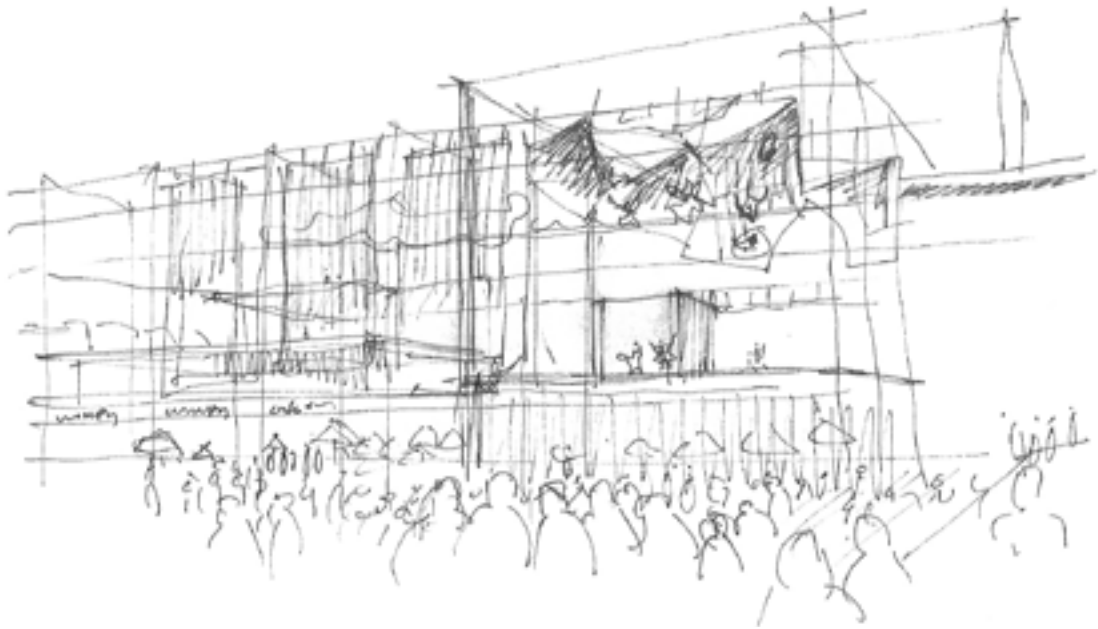


Fig. 7.41. EXTERIOR VIEW OF PERFORMANCE ON MAIN STAGE

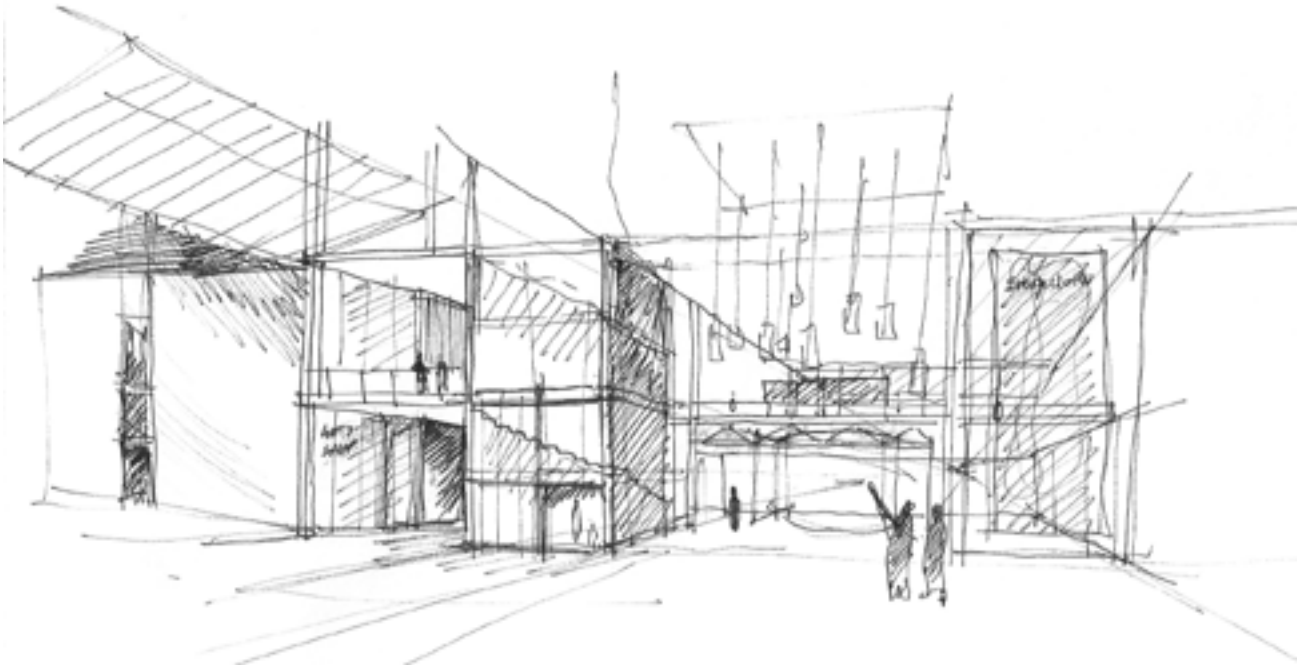


Fig. 7.42. INTERNAL VIEW OF GALLERY

Fig. 7.43. EXTERIOR VIEW FROM SAMMY MARKS SQUARE

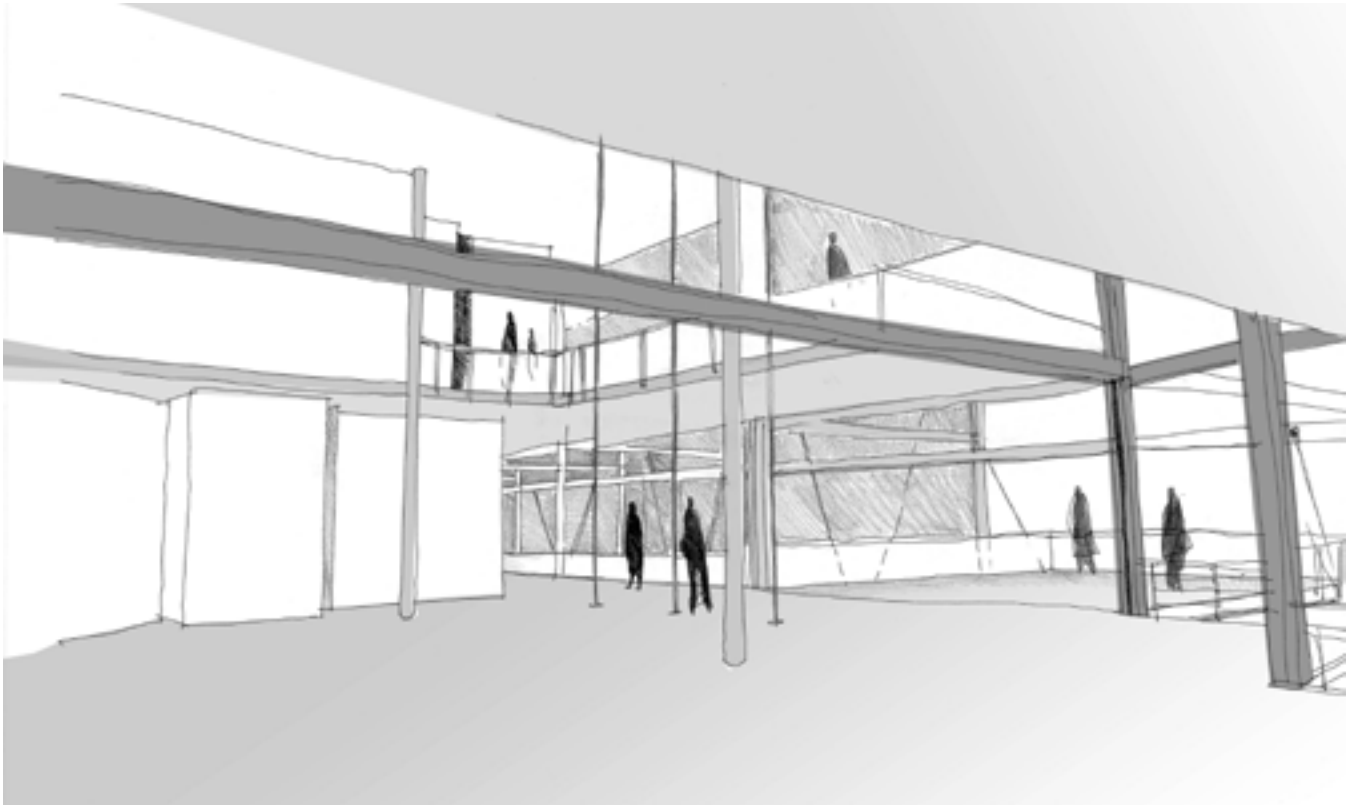


Fig. 7.44. VIEW FROM SECOND FLOOR EXHIBITION SPACE LOOKING TOWARDS VIEWING PLATFORM

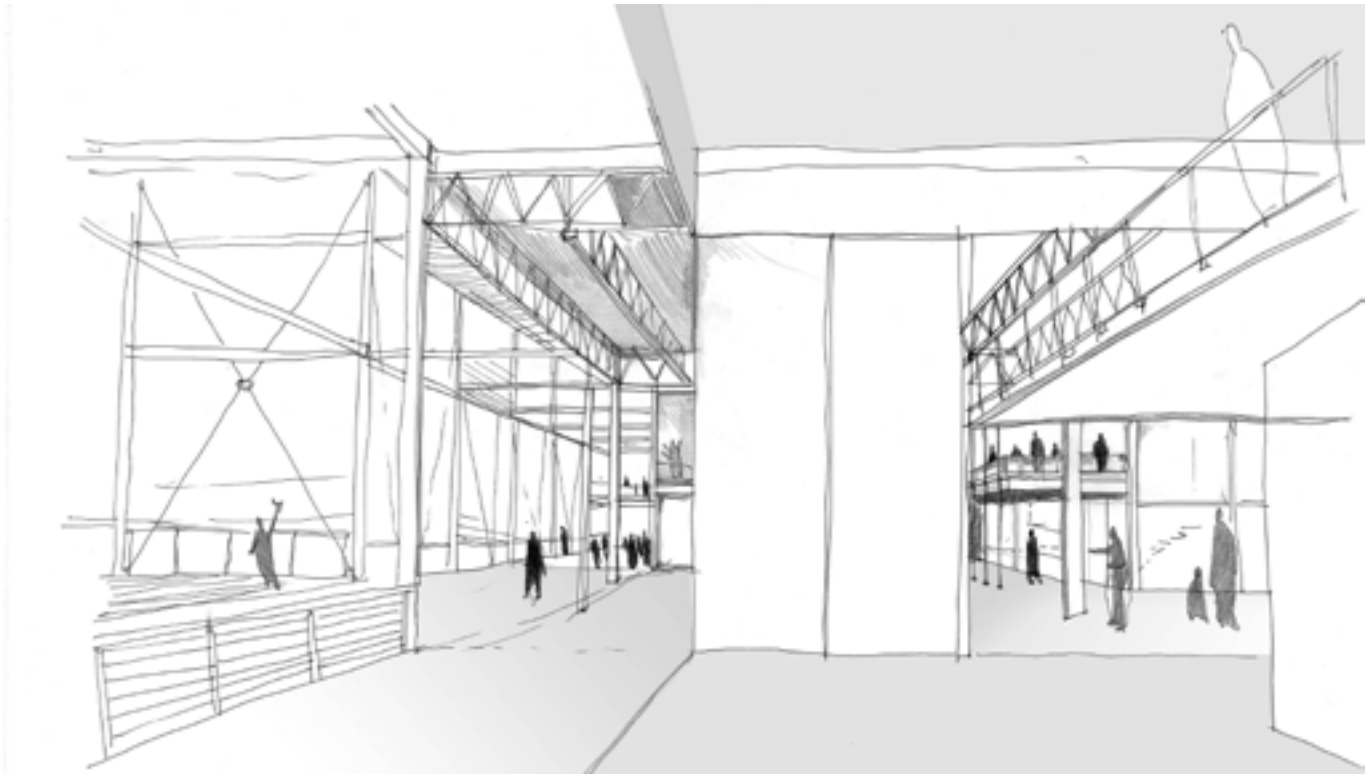


Fig. 7.45. VIEW FROM GALLERY TOWARDS CENTRAL EXHIBITION SPACE

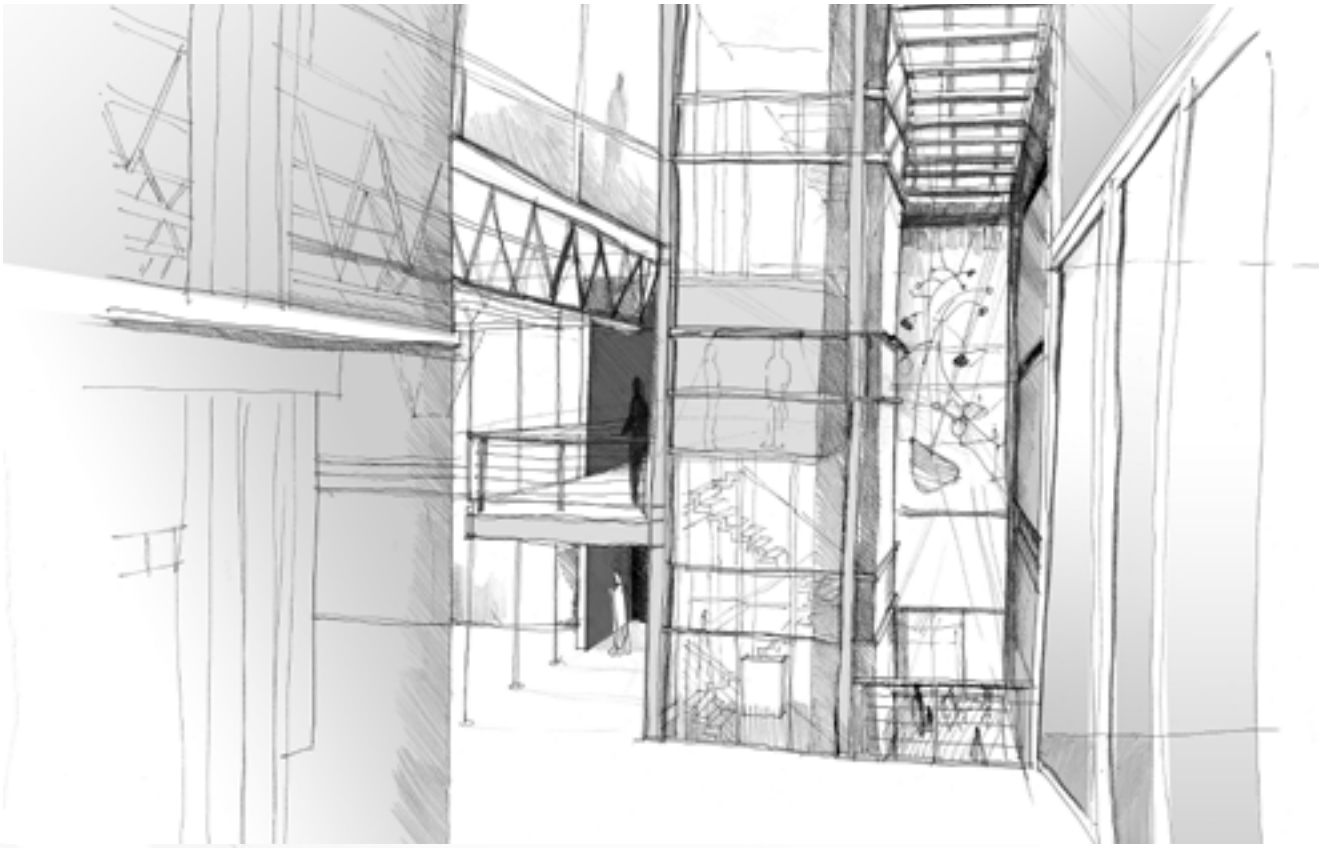


Fig. 7.46. INTERIOR VIEW OF CENTRAL EXHIBITION SPACE

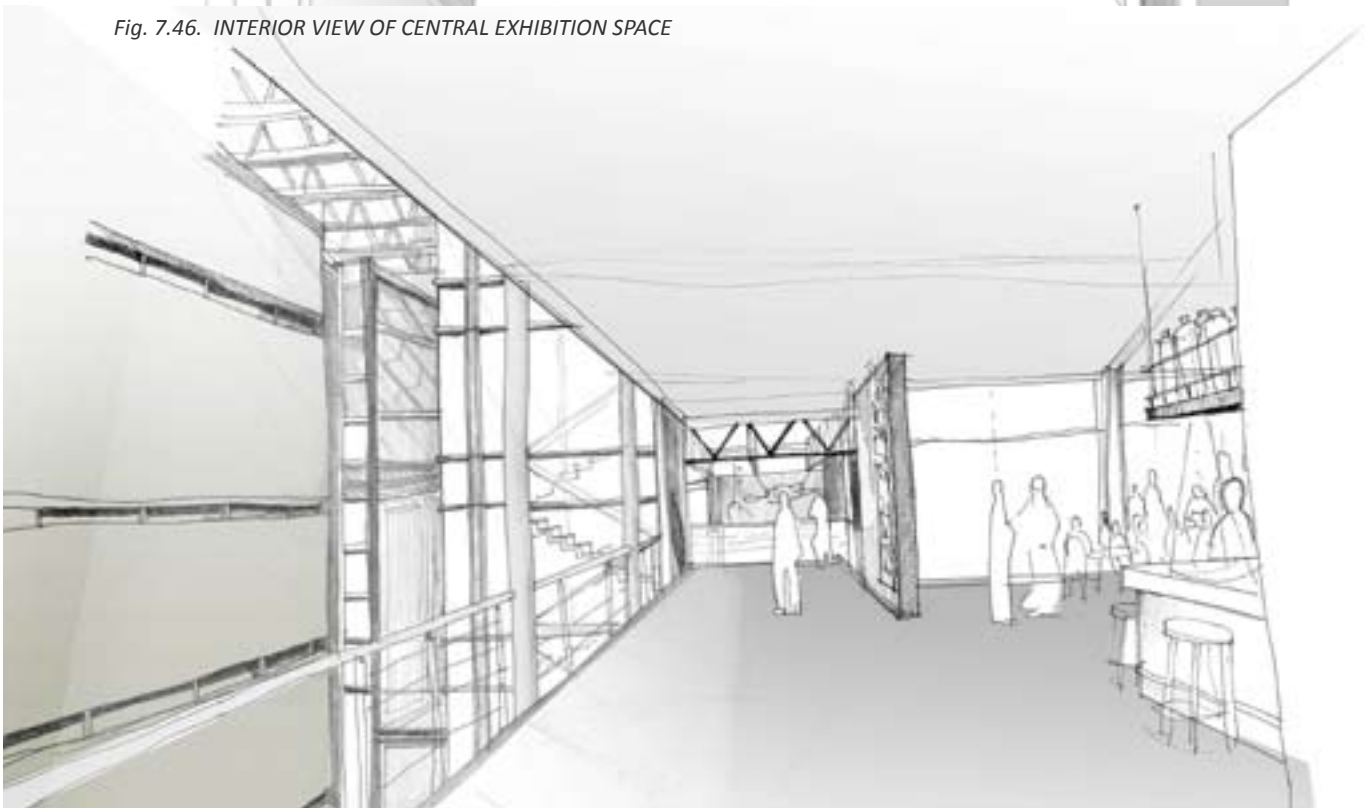


Fig. 7.47. INTERIOR VIEW OF RESTAURANT

3D SECTION C-C

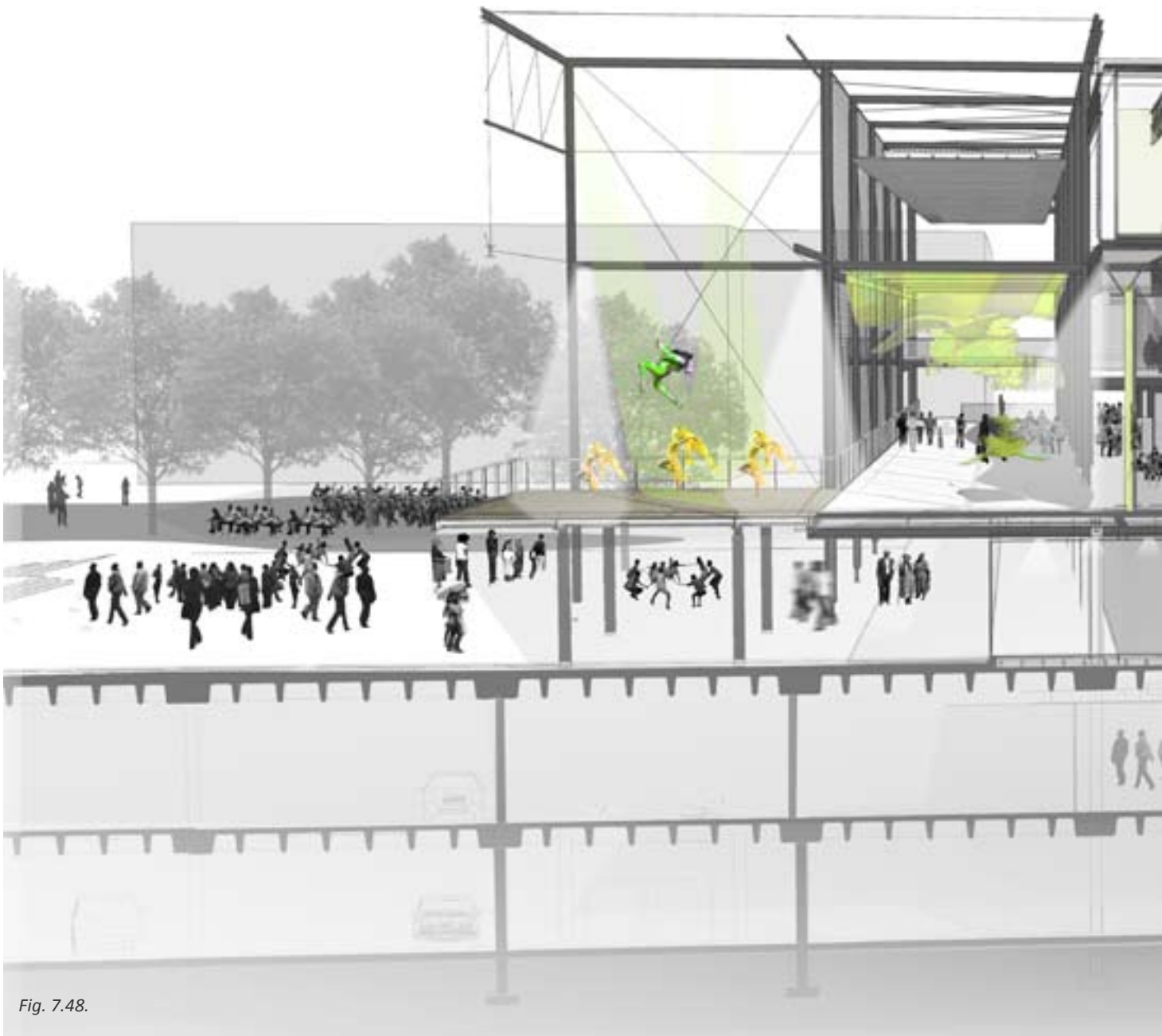
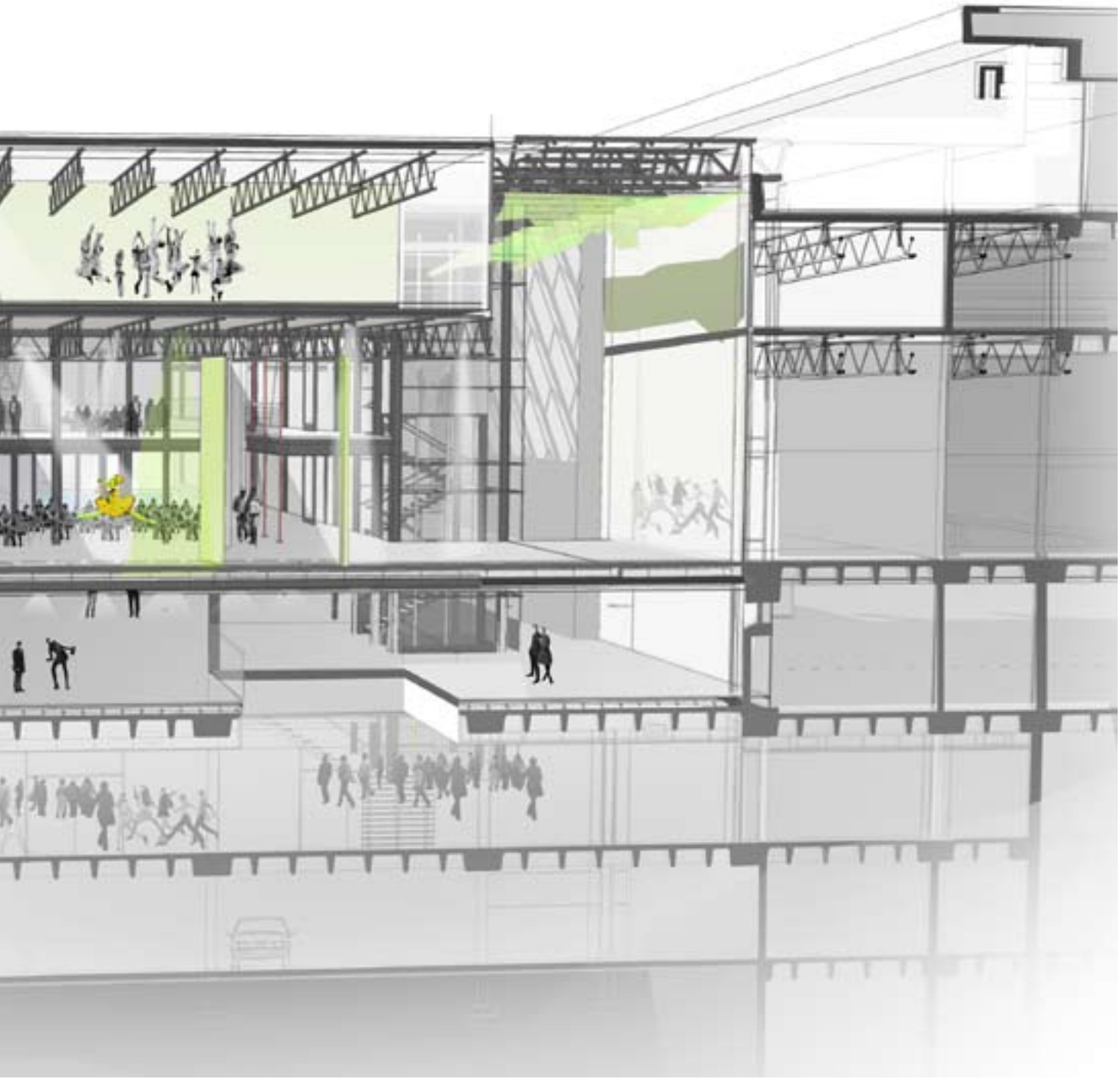


Fig. 7.48.



1. Steel column structure and bracing
2. GKD Media Mesh screens
3. Suspended translucent roof
4. Skylight
5. Central exhibiiton space
6. Video rooms
7. Hydraulic stage
8. Timber deck viewing platforms
9. Public Square

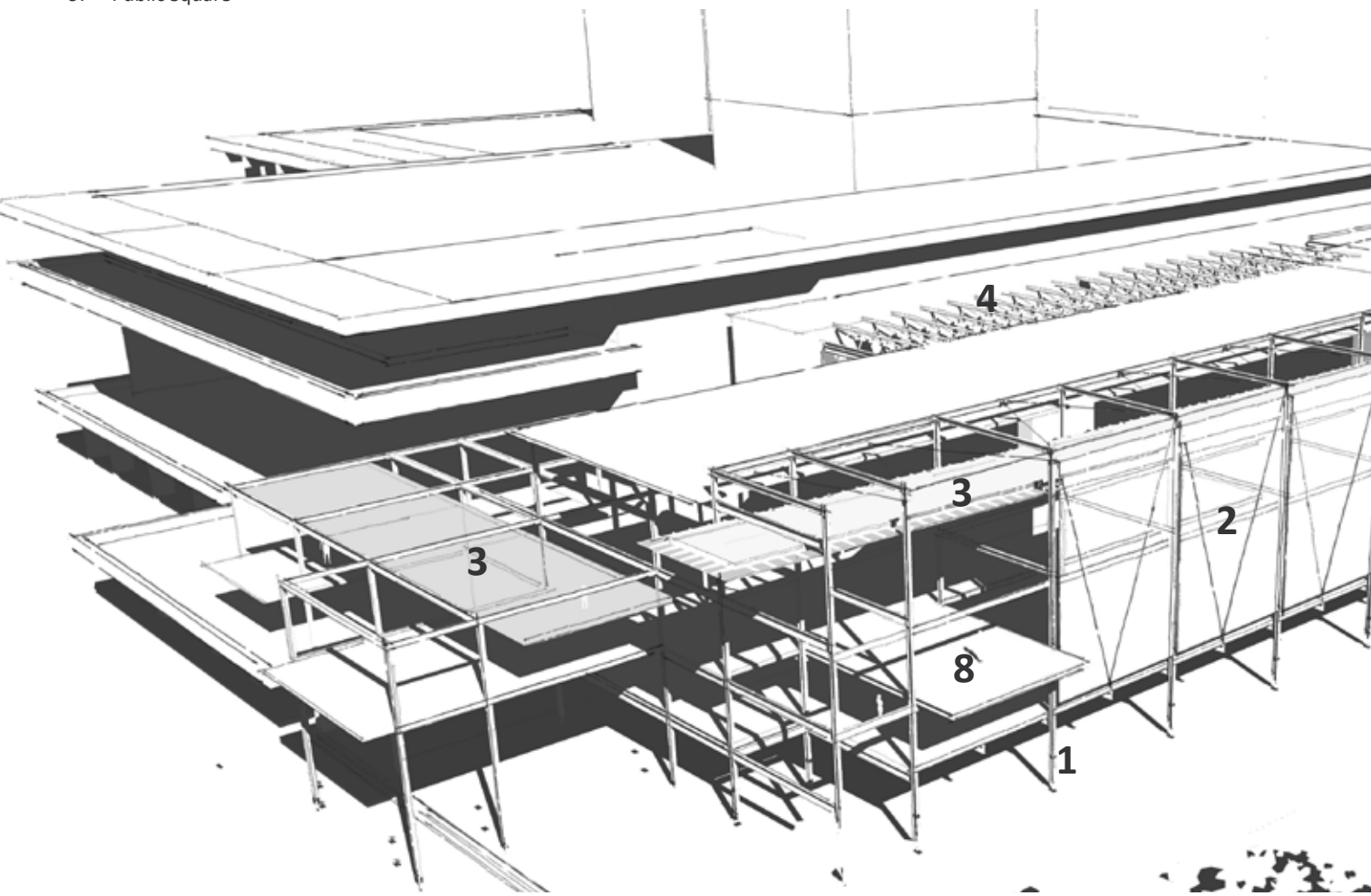
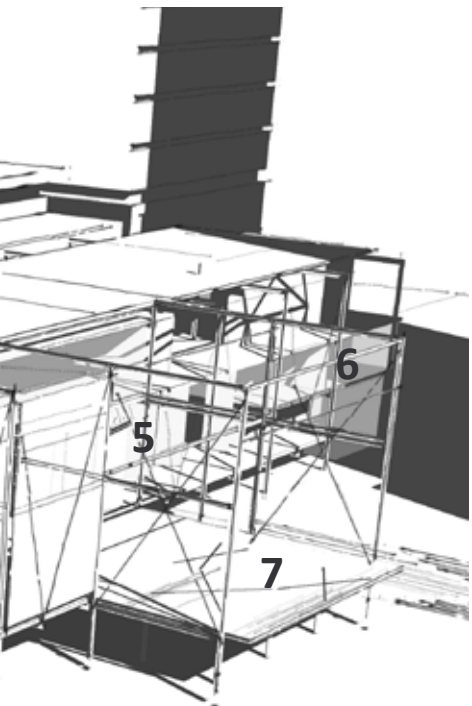


Fig. 8.1. 3D View of Building Elements



9

STRUCTURE

The structure comprises mostly of a primary steel structure of columns and beams with composite concrete floors. The steel structure on the exterior of the building acts as a temporary exhibition space and has the capacity to carry the load of temporary floors (constructed from light-weight materials). Steel members will be braced according to engineer's specifications in all directions.

A central stage/exhibition area protrudes from the main steel structure. This "stage" consists of a light-weight floor structure on six hydraulic lifting columns. They allow the stage to move up or down to allow better visibility of performances from different areas in and around the new building.

TEMPORARY EXHIBITION SPACE

The building is orientated towards the public square to the west. This creates problems of unwanted heat gain on summer afternoons. A series of stainless steel mesh curtains with interwoven LED lamps are suspended from the external steel framework. These curtains act as shading devices to the restaurant and exhibition spaces, and act as large media screens to the public square. The patented mesh system will be discussed at length later in this chapter.

A light-weight translucent roof with a 1° pitch and with its highest point towards Sammy Marks Square, is suspended from the steel structure. This roof structure will cause large wind loads on the steel structure and will be securely tied back from both above and below through the use of steel cables.

GALLERY

The southern half of the building is a gallery. Natural ventilation is allowed through a system of folding/stackable doors that can be individually rotated. These doors consist of low UV-absorbent polycarbonate cellular panels in an aluminium frame. Each panel can be individually rotated to prevent direct sunlight from entering the building. Doors can be moved away to open the interior space completely.

The upper floor of the gallery contains two video rooms that consist of coloured PANELITE glass panels in fixed aluminium frames around the entire façade.

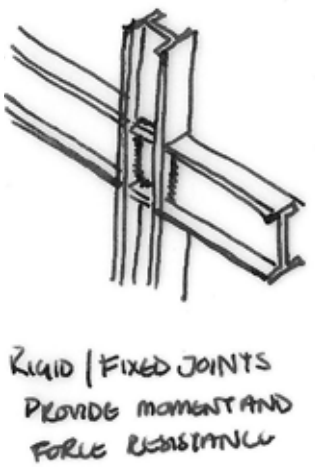
Cool air is allowed to move through louvered windows on the western façade of the dance studios on the third floor. Warm air is allowed to exit through a louvered skylight that forms a light well between the existing and new buildings.

08_ TECHNICAL INVESTIGATION

STEEL STRUCTURE AND BRACING

The extension to the State Theatre consists of a steel structure placed directly on the existing column grid of the basement below Lillian Ngoyi Square. The steel structure contrasts with the heavy and solid appearance of the existing State Theatre building. Steel has been widely used throughout the city of Pretoria as a material for extension e.g. the new State Library and Sammy Marks Square shopping centre.

Steel columns are constructed with two steel channels welded to either side of a rectangular hollow profile (see image). The hollow profile acts as a rainwater downpipe.



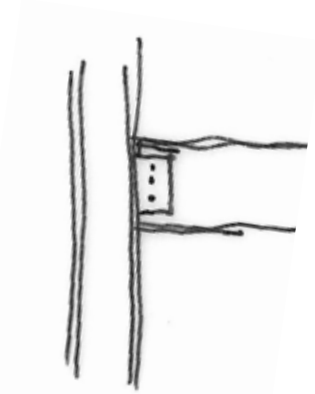


Fig. 8.2. Steel connections

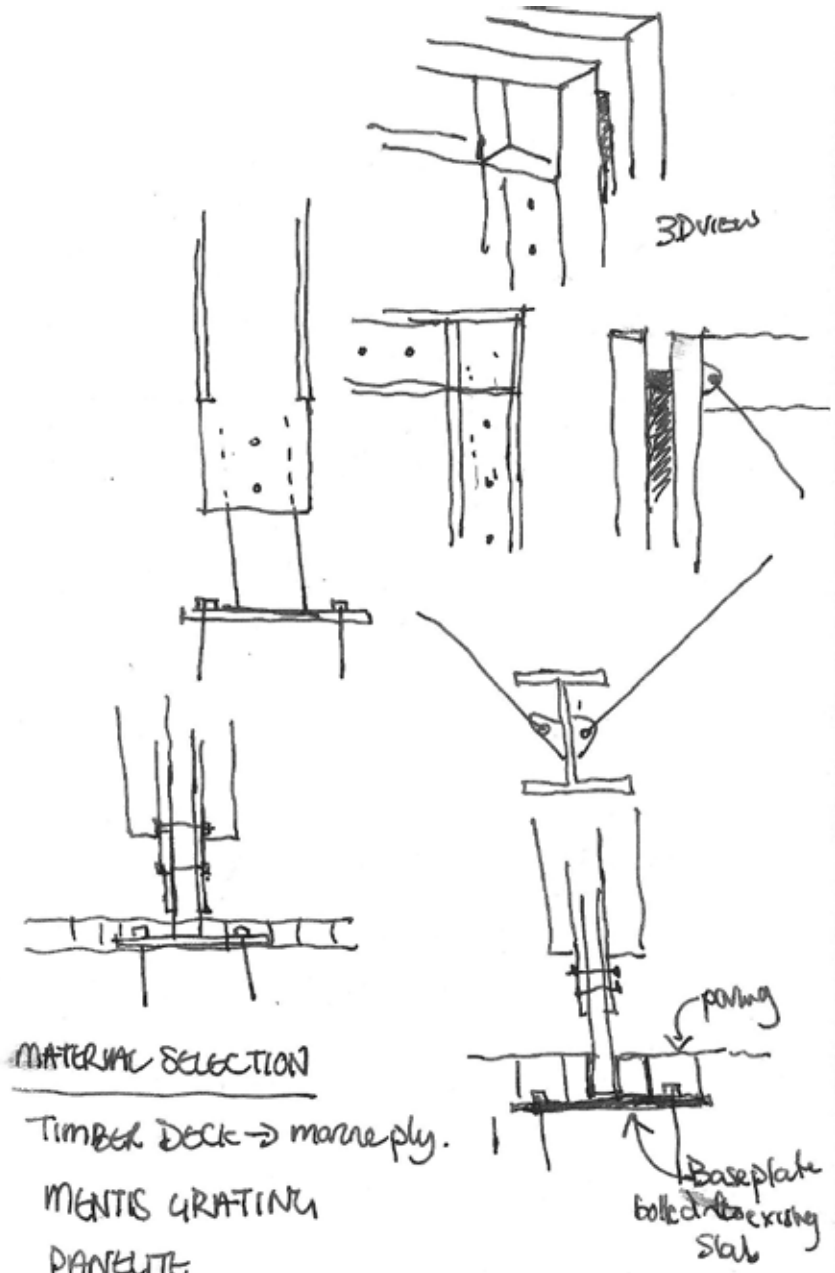


Fig. 8.3. Column and bracing details

Columns are placed on top of existing column grid. In instances where new columns are added, new columns are continued from lower basement level where new column footings are constructed.

Existing columns may need to be strenghtened. This can be done by casting an additinal outer layer of concrete around the column, or strengthening through the insertion of new steel columns next to existing columns.

Bracing insures lateral stability of the steel structure and should be applied at a minimum of 20m intervals. Bracing must be aplied in all directions. Figure 8.7 indicates placement of bracing in the steel structure.

The steel structure consists of a system of primary and secondary steel beams. The primary structure as indicated in Fig. 8.8. consists of deeper beams that span between columns. The primary structure carries the load to the beams, while the secondary or intermediate beams provide shorter spans and carry the floor structure.

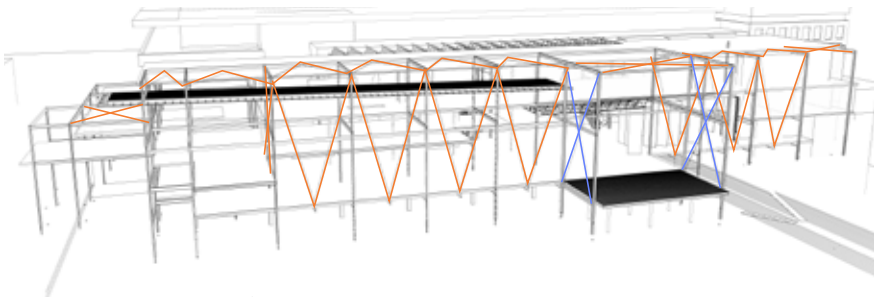


Fig. 8.4. Bracing diagram

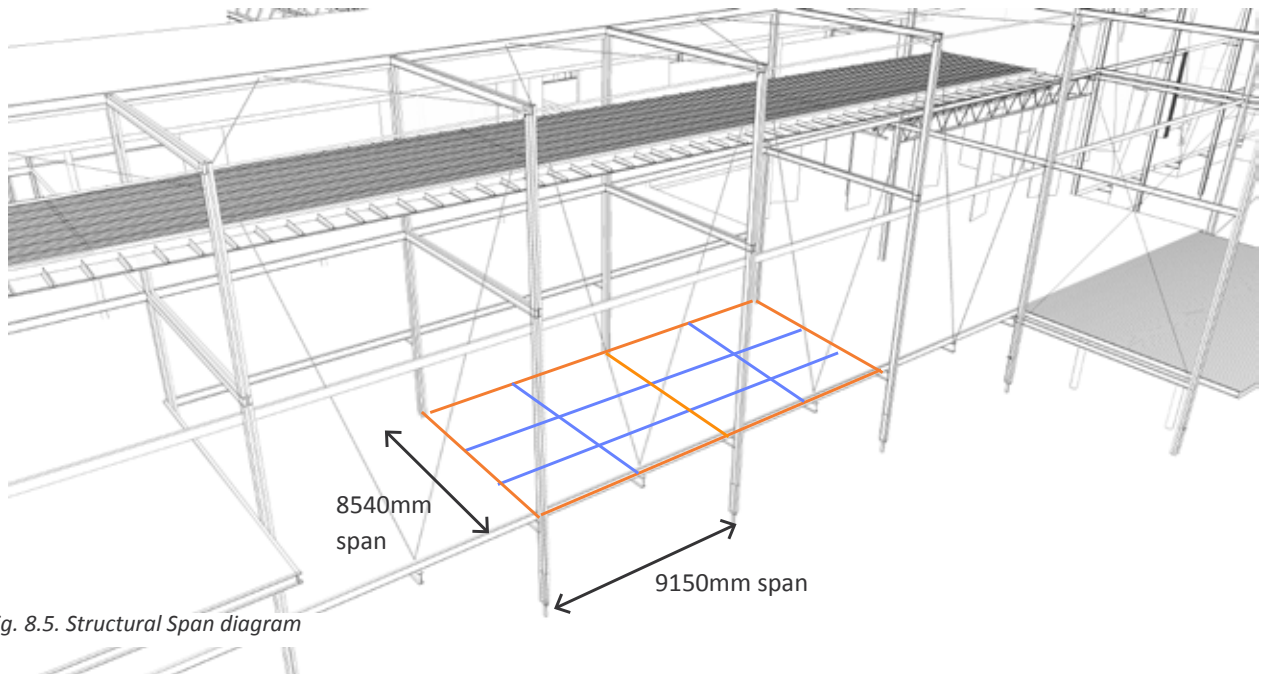


Fig. 8.5. Structural Span diagram

FLOOR SYSTEMS

Two floor systems are commonly used in the construction of steel structures, namely: 1. Precast concrete planks and 2. Corrugated metal decking with a concrete slab cast on top. (See Fig. 8.6).Metal decking serves as permanent shuttering to a cast-in-situ concrete slab. The decking is placed on steel beams and steel mesh or reinforcing bars may be cast into slab to give it additional stability. Composite action between the concrete slab and steel beams can be achieved by welding shear studs through the decking to the steel I-beam below. Although precast steel planks can span further, cables can be carried in the cavities of the corrugated decking. Decking can also serve as an acoustic ceiling.

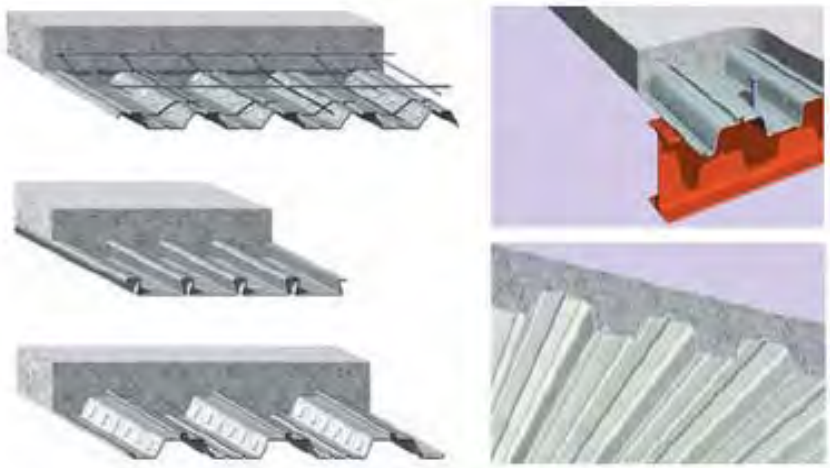


Fig. 8.6. Composite floor construction

The square's surface currently consists of concrete and brick paving on top of a layer of screed on a reinforced coffered slab. The existing slab has been designed to carry normal live loads and not the constant dead load of a new slab. For this reason it was decided to construct the new shop floors with a lightweight system. Access floors have the advantage of serving as additional storage and service space. Panels can easily be removed individually to access services under the floor surface.

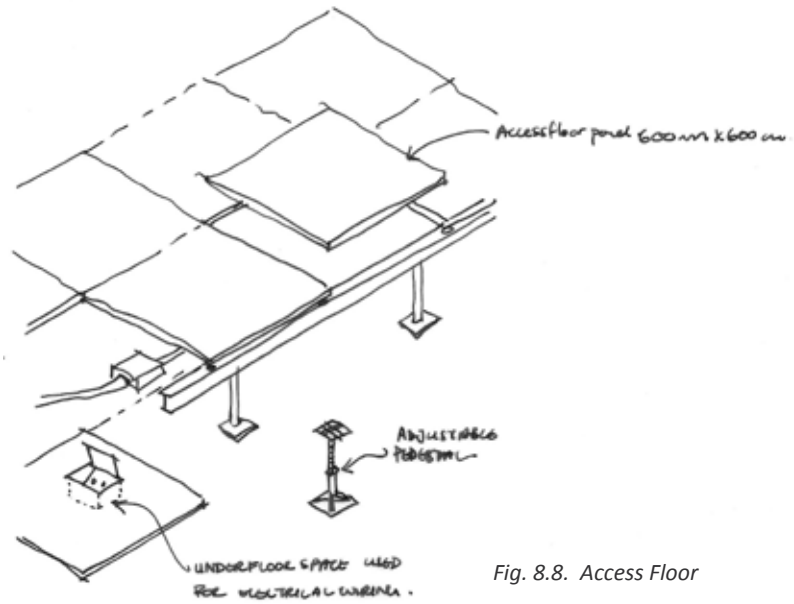


Fig. 8.8. Access Floor

All existing screed and paving is to be removed and slab is to be cleared. The access floor is to be raised 255mm above the slab's surface and stopped against a low threshold wall. New screed and paving must slope away from the shop entrances

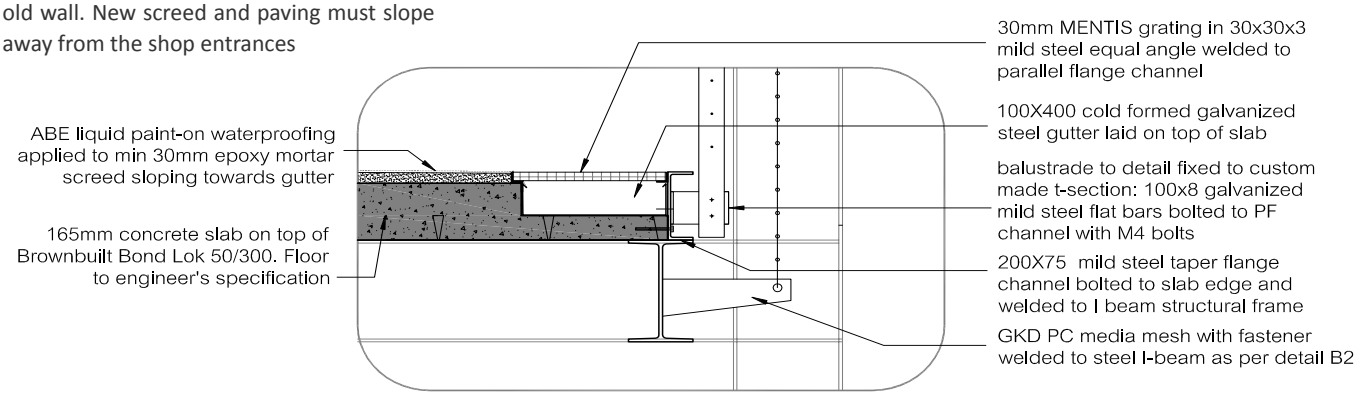


Fig. 8.7. Slab edge detail (not to scale)

HYDRAULIC STAGE SYSTEM

An hydraulic lift system was selected for the movable stage (see appedix B for considerations). Six hydraulic piston cylinders are placed in a mechanical room in the basement level directly beneath the stage. The system consists of cilindrical telescopic pistons that can be lowered to a height of 700mm above ground level, and raised to well above the first floor level.

The stage consists of a steel frame structure with a plywood finish. A collabsible balustrade

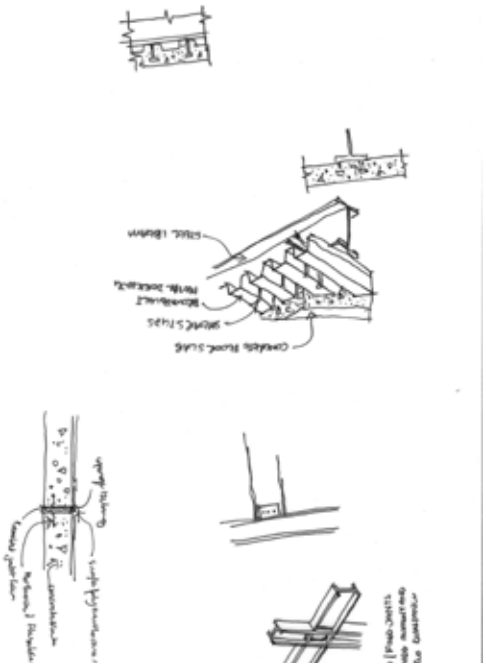


Fig. 8.12. Hydraulic stage with collapsible balustrade

SQUARE ELEMENTS

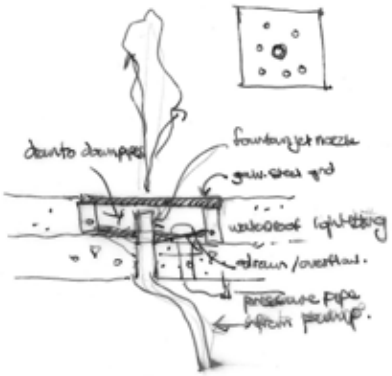


Fig. 8.9. Water feature detail

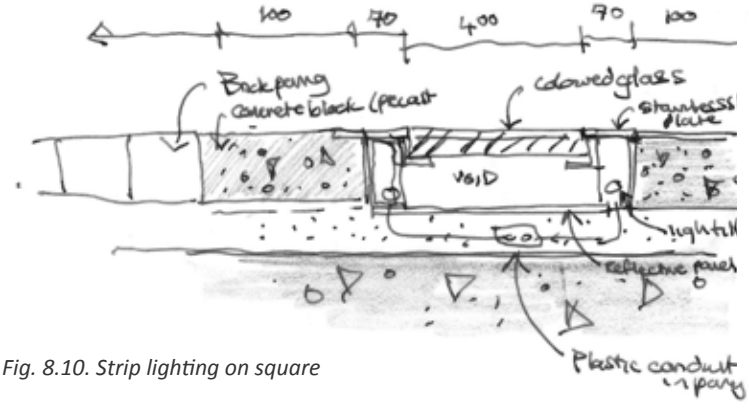


Fig. 8.10. Strip lighting on square

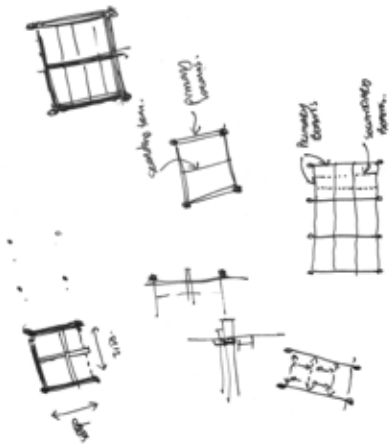


Fig. 8.11. Plan view of strip lighting

MATERIAL STRATEGY

Glass | Wood | Stone | Plastic | Metal

Fig. 8.13. Laminated Clear Glass

Fig. 8.14. Laminated frosted glass

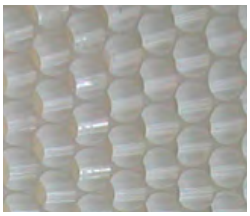


Fig. 8.15. PANELITE glass

Fig. 8.16. Printed glass

Fig. 8.17. Timber decking

Fig. 8.18. Marine Grade Plywood

Fig. 8.19. Concrete

Fig. 8.20. Ceasarstone

Fig. 8.21. Existing sanblasted concrete

Fig. 8.22. Translucent polycarbonate

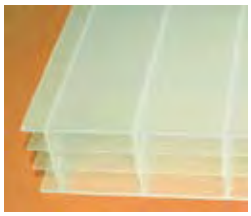


Fig. 8.23. Plexiglass Heatstop

Fig. 8.24. GKD Media Mesh

Fig. 8.25. MENTIS steel grating

Fig. 8.26. Painted Steel

Fig. 8.27. Perforated Steel

Material palettes of public buildings are generally required to be durable and easy to clean. The materials selected for the extension of the State Theatre are displayed on the facing page arranged according to type. These materials were selected to create an effect of transparency.

The palette was selected to complement the existing theatre and surrounding buildings and give the building a high-tech appearance and contrast the old and new. Material consideration further included solar heat gain, durability, U value, and sustainability. Wood, Plastic and metals are recyclable. Glass products are strong and durable but will not be recyclable, however, they may be reusable.

GLASS

The brief requires a building that acts as a filter between the old and the new. Glass is used extensively throughout the project including staircase walls, lift shaft, partitioning panels, stairs and sliding walls.

The material acts as a filter material which allows the user a visual connection to the existing context without necessarily allowing a direct physical connection. Glass comes in a variety of finishes and options that will be discussed in this chapter.

Panelite (Fig.8.16) is an insulating glass unit that has been developed for exterior glazing applications. Panels consist of a UV-stabilized honey come core of polycarbonate which allows the glass to act as a shading device. Panelite is available in a range of colours.

WOOD

Timber is a visually pleasing material which is warm to the touch. Timber slats is used throughout the building as sunscreens and sliding screens.

Timber decking is used on upper floor exhibition areas. Floor boards can be spaced up to 10mm apart allowing water runoff though the boards and eliminating the need for drains and storm water channels. Plywood is used as a floor material on the movable stage. The material was selected for its durability and ability to last when exposed to sun and rain. Plywood is available in large panels and can be used to create a large even surface which is ideal for dance floors.

STONE

Stone materials are hard and cold. Concrete and stone was chosen for its durability and visual effect. The existing textured concrete facade of the Theatre is exposed celebrated.

Floors are constructed of concrete with a polished screen finish. This finish was chosen because of its durability as heavy sculptures and stage equipment may be moved around on the floor surface.

Ceasarstone is used for bar counters. The product is strong and easy to clean. It comes in a variety of colours and edge finishes and is ideal for use as counter tops in kitchens and bars.

PLASTIC

Backlit polycarbonate sheeting can disperse light over a great distance, acting as a large light source while hiding unattractive light fittings. This material is hard wearing and can be recycled at the end of its usable life. Polycarbonate is used in restaurant areas as ceiling panels (see Fig.8.22).

Cellular polycarbonate sheeting (Fig.8.23) is used as material for the floor and door surfaces in the Gallery (Plexiglass HEATSTOP), as well as a translucent screen in the restaurant and cafe spaces (plexiglass RESIST). Plexiglass HEATSTOP is a UV-absorbing multi-skin cellular panel with a U-value of 4.4 and less for 12mm panels. This is an excellent rating which is comparable to UV resistant glass.

METAL

GKD media mesh is used on the western facade as both a media screen to the public square, and a shading device to the restaurant/temporary exhibition space. These screens can act as an additional source of income as they could display advertisements.

Steel grating is used as floor and wall surfaces throughout the project. The material acts as a filter, a visual connection and free movement of air.

Steel columns are painted a dark grey colour and perforated steel is used for the underside of the translucent suspended roof in the gallery space. Perforated steel panels are used as a shading device as the underside of the suspended roof in the temporary exhibition space facing the public square.

GKD MEDIA MESH

Advantages of media mesh

- Maximum transparency is possible
- Functions as both a media screen and a shading device to a western façade
- Long life and low energy consumption of LED lights
- Pixel pitch can be chosen
- Low maintenance
- Can be used for the screening of media events
- Can be used as a source of income as media screens can be used for advertising

Fig. 8.28.

Fig. 8.29.

Fig. 8.30.

Fig. 8.31.

Fig. 8.32. Proposed design with media screens

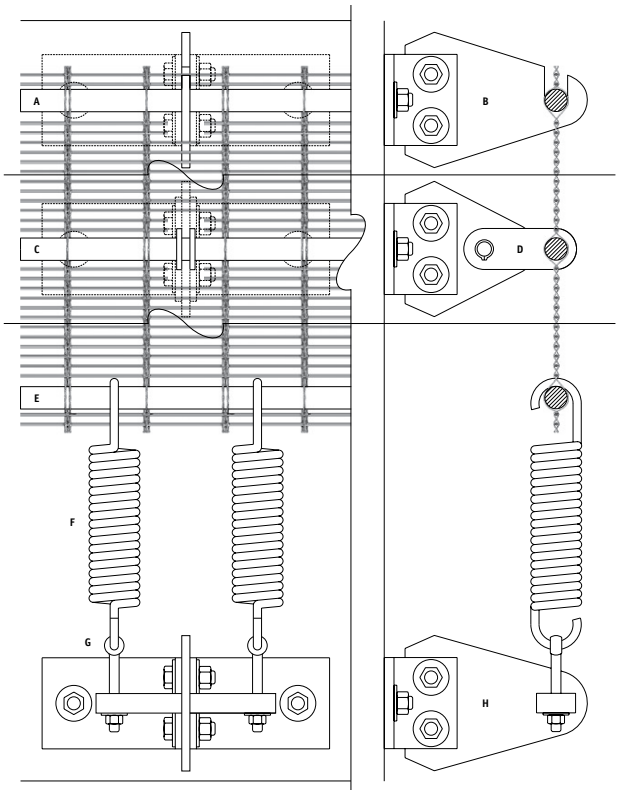


Fig. 8.33. Connection detail

LED Media mesh curtains on the western façade serve as information screens to passers-by. They could serve as large screens on which live video feeds of the performances held on the stage may be displayed. On occasion, the square could act as a large outdoor cinema on hot summer nights. The Media mesh system is a transparent media screen system consisting of GKD stainless steel wire mesh with interwoven LED lights. LEDs are only visible from one side (the public square), while the mesh acts as a shading device that protects the restaurant/café spaces from the harsh western sun. With up to 90% transparency, the mesh maintains a visual link between the square and the restaurant and balcony spaces.

GKD Media Mesh is available in three different options; namely Media Mesh (with the Tigris type mesh), PC media mesh (a modified rod mesh) and Illumesh, which is merely a coloured and illuminated façade that cannot display a clear image.

Greater distance from the media mesh curtains allows a better resolution of the image displayed; therefore, the mesh is best viewed from the seating/steps provided on the edges of the square. Pixel pitch is adjustable and resolution of the image displayed depends on the spacing of LEDs. A higher resolution is equal to greater cost.

GLASS

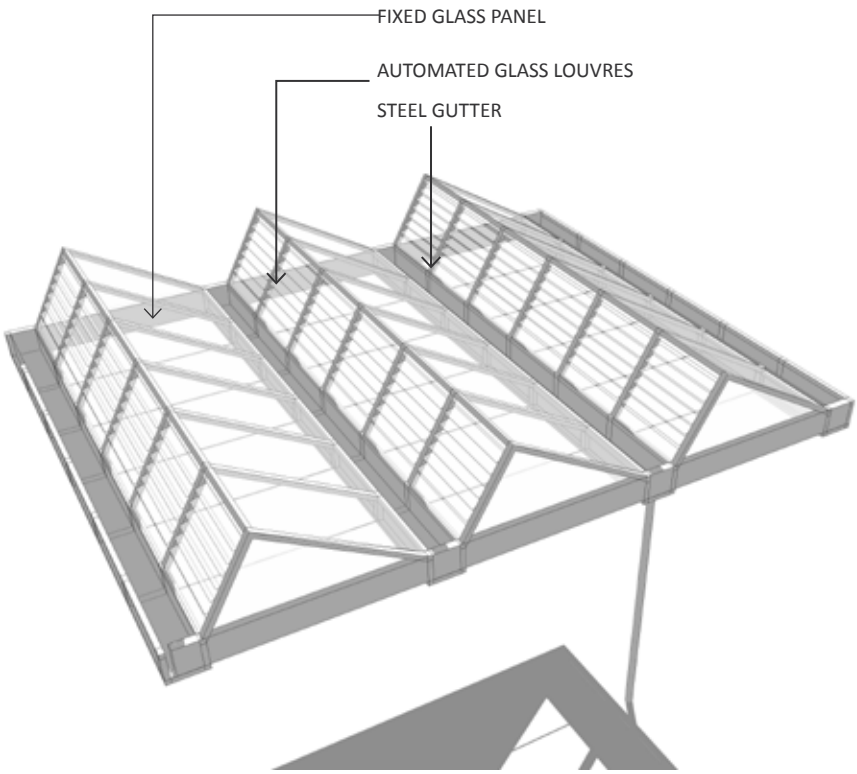


Fig. 8.34. 3D View of skylight from above

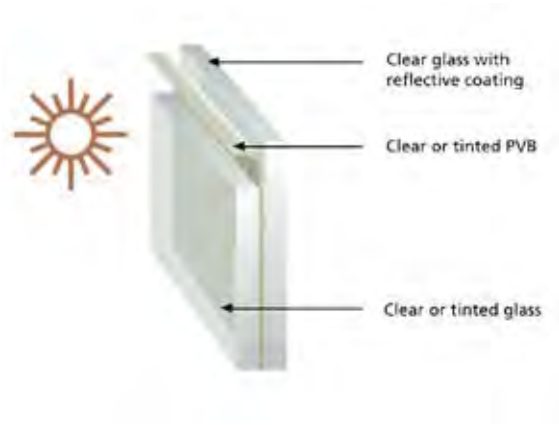


Fig. 8.35. Smartgralls Solar Shield

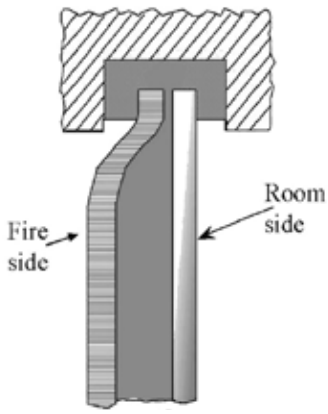


Fig. 8.36. Fire Resistant Glass behaviour

UV RESISTANT GLASS

Smartglass Solarshield® is a glass with a metallic coating and a clear or tinted PVB (polyvinyl butyral) interlayer that is designed to reduce solar heat gain. This glass type also prevents up to 99% of harmful UV radiation from entering the building. Solarshield is a laminated safety glass that is widely used in sky/roof-light applications. Its U-value is 5.8 in all available colours.
Heat gain can be further prevented by applying a white perforated film layer to the glass, which allows light to permeate through the penetrations while reflecting the rest of the light.

Section TT of SABS 0400 requires an atrium space of more than two storeys in height to have an automatically operable opening for smoke extraction in case of a fire. The skylight between the existing building and new extension will be equipped with an automatically operable louvre system that acts as a ventilator and a smoke extraction window. Ventilation louvres are orientated towards north, while larger fixed glass panels are orientated towards the south.

FIRE RESISTANT GLASS

Although glass is not a combustible material, ordinary laminated glass is not an effective barrier to prevent fire, as it can crack or melt at high temperatures. Pilkington and Schott of the United Kingdom are manufacturers of fire resistant glass that can last as long as 120 minutes in a fire, and therefore complies with section TT of the SABS 0400 as an effective fire barrier. Fire resistant glass consists of two layers of glass with a transparent insulating layer between them. Fire-proof glass must be installed in steel window frames with a special beading and tape (Aluminium only lasts approx. 30minutes in a fire). When the glass and steel expand, the glass is held firmer in the frame, making it safer.

Due to the organization on the building around a central double volume exhibition space, an exit on either side of each sec-

FIRE STRATEGY

tion was provided. In the gallery/dance studio section, an emergency exit was provided on the southern edge, exiting onto Pretorius Street. Central staircases may be used as alternative exit points, as well as an emergency escape route on the North West corner.

Exhibition spaces and atriums are to be equipped with sprinkler systems and an automatically operated louver skylight to prevent smoke spreading through the building during a fire.

Fire hydrants and portable fire extinguishers are provided in restaurants and shops.

STABILITY OF STRUCTURAL ELEMENTS	
TABLE TT7 SABS 0400	
A1	120 min. stability
A2	120 min. stability
C2	90 min. stability
F2	90 min. stability
BASEMENT	120 min. stability

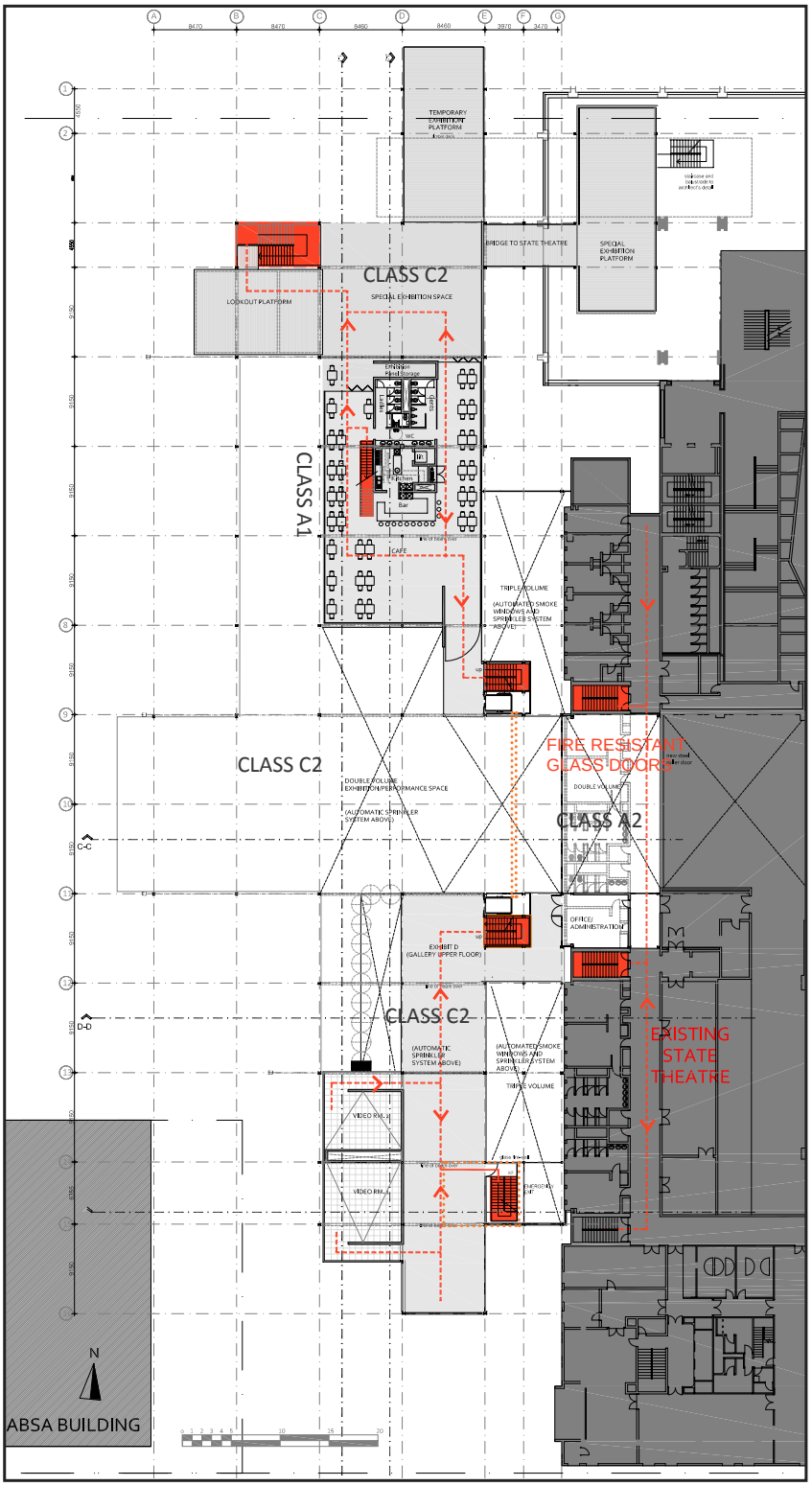


Fig. 8.37. Second Floor Fire Plan

PANELITE CLEARSHADE CELLULAR INSULATED GLASS

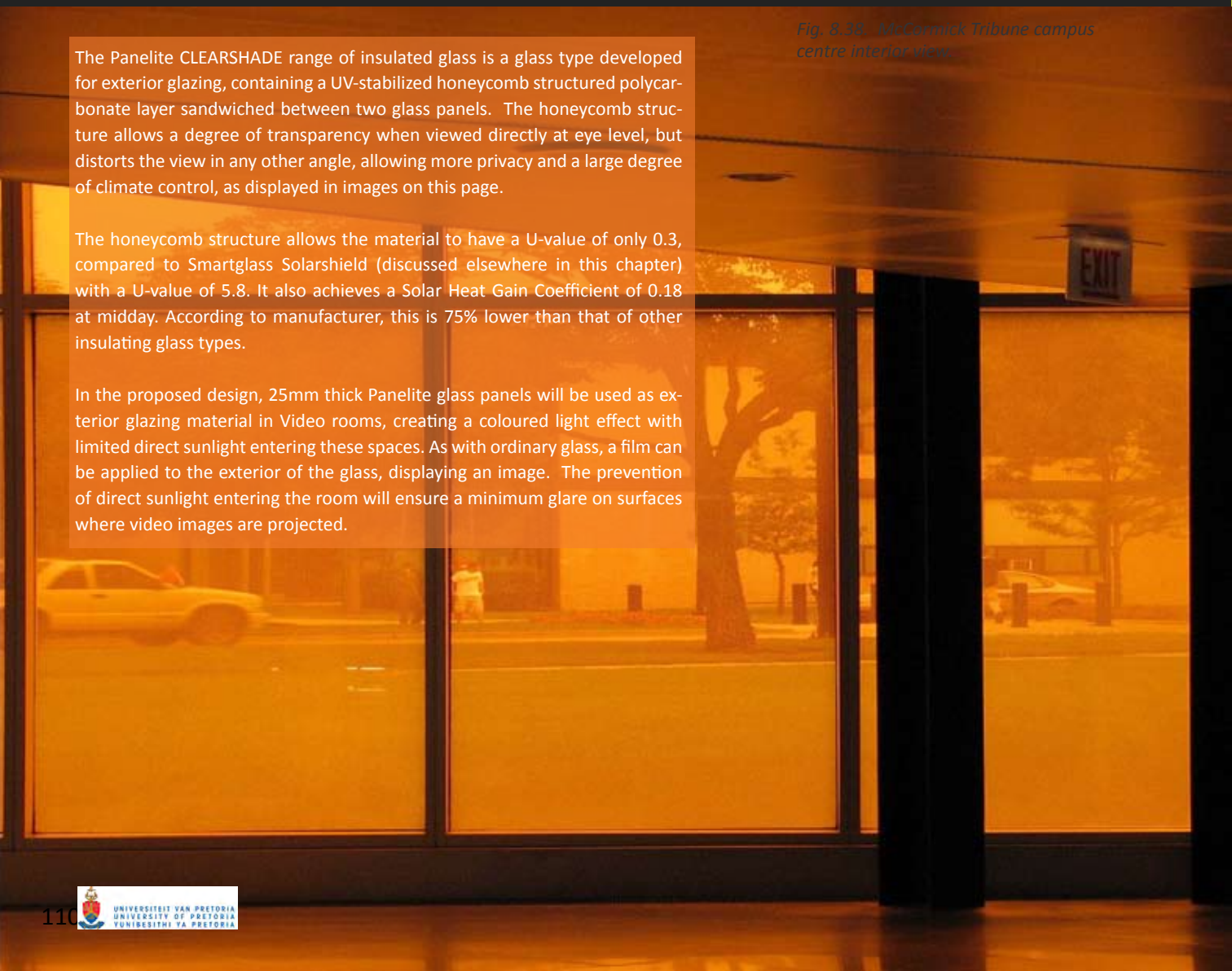


Fig. 8.38 McCormick Tribune campus centre interior view

The Panelite CLEARSHADE range of insulated glass is a glass type developed for exterior glazing, containing a UV-stabilized honeycomb structured polycarbonate layer sandwiched between two glass panels. The honeycomb structure allows a degree of transparency when viewed directly at eye level, but distorts the view in any other angle, allowing more privacy and a large degree of climate control, as displayed in images on this page.

The honeycomb structure allows the material to have a U-value of only 0.3, compared to Smartglass Solarshield (discussed elsewhere in this chapter) with a U-value of 5.8. It also achieves a Solar Heat Gain Coefficient of 0.18 at midday. According to manufacturer, this is 75% lower than that of other insulating glass types.

In the proposed design, 25mm thick Panelite glass panels will be used as exterior glazing material in Video rooms, creating a coloured light effect with limited direct sunlight entering these spaces. As with ordinary glass, a film can be applied to the exterior of the glass, displaying an image. The prevention of direct sunlight entering the room will ensure a minimum glare on surfaces where video images are projected.

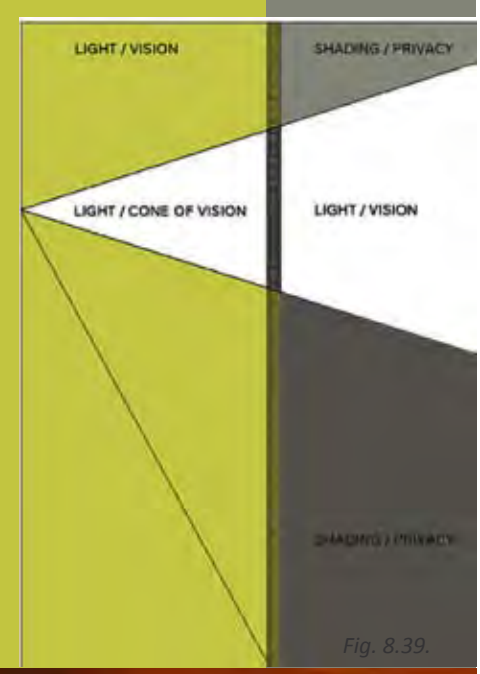


Fig. 8.39.

Panelite glass was used as exterior glazing material at the Mc Cormick Tribune Campus Center, Chicago, USA by OMA. This case study illustrates the use of coloured Panelite and printed glass panels to create an aesthetically pleasing façade and an interesting colour effect on the interior.

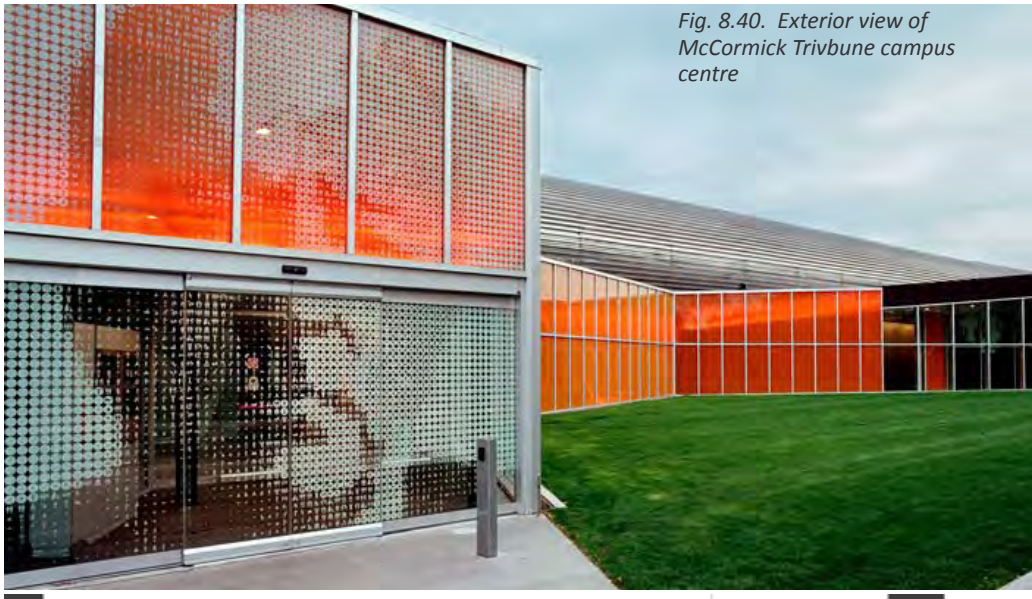


Fig. 8.40. Exterior view of McCormick Trivbune campus centre

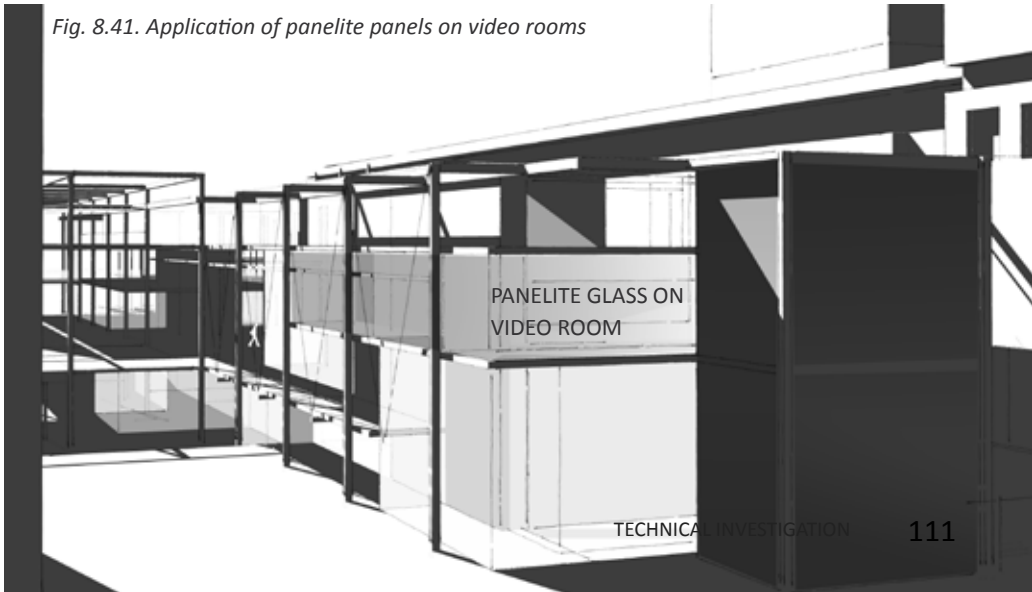


Fig. 8.41. Application of panelite panels on video rooms

GLASS ELEMENTS

LAMINATED GLASS: GLASS STAIRCASE AND LIFT SHAFT

GLASS ELEMENTS

A glass staircase and lift shaft is placed on either side of the central exhibition area serve as the main structural features. Glass walls around the circulation cores allow views to the existing building and exhibition space. Laminated glass is used as cladding as it can withstand impacts. Stair floors are also constructed of frosted laminated glass in custom made steel frames that are welded to the staircase structure.

LIGHTWEIGHT ROOF

A lightweight translucent roof is suspended from the steel structure with a 1° pitch. The roof structure will cause large wind loads on the steel structure, and will be securely tied back from both above and below through the use of steel cables.

The roof is constructed as follows;
A steel structure supports a policarbonate upper layer, protecting from rain, and a perforated steel panel underside

Fig. 8.42.

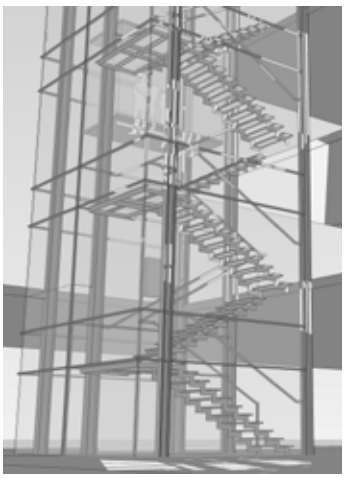


Fig. 8.43. 3D View of Staircase and liftshaft

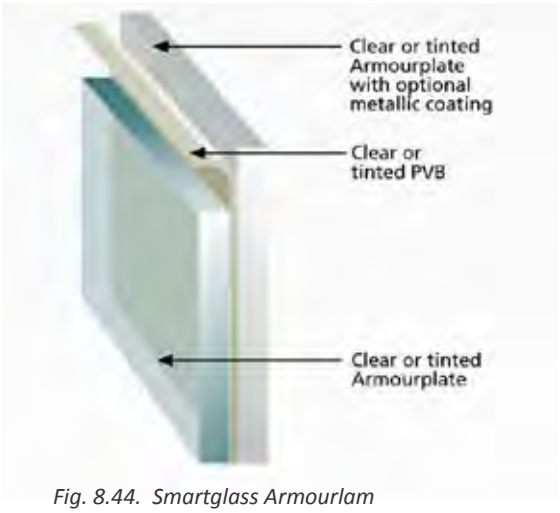


Fig. 8.44. Smartglass Armourlam

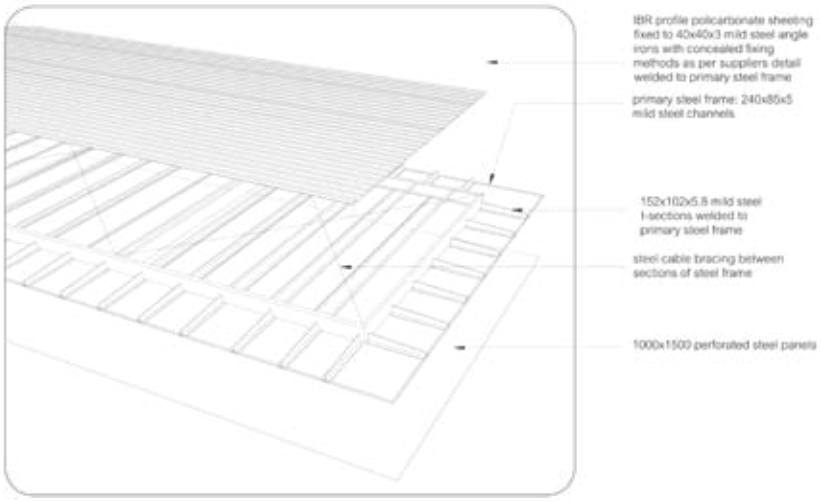


Fig. 8.45. 3D detail: Suspended Roof

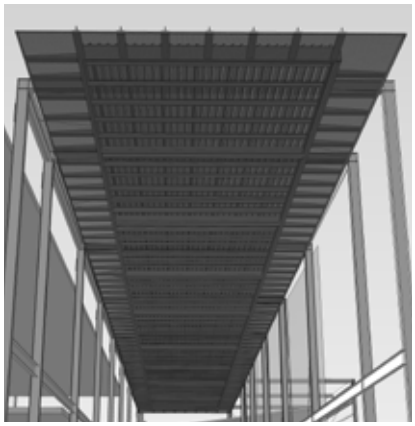
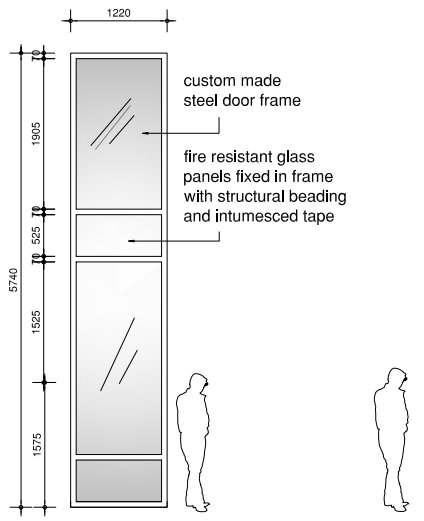


Fig. 8.46. 3D View: Suspended Roof

Fig. 8.47. Door sliding track integrated with webbed truss system at the Linda Goodman Gallery



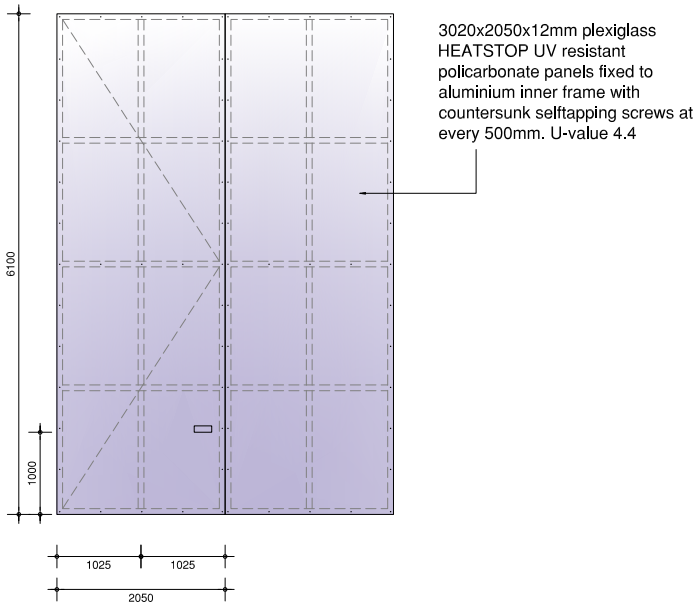


Fig. 8.48. Glass Fire doors

Fig. 8.49. Translucent Plexiglass doors around gallery

GREEN STRATEGIES

SBAT RATING

The SBAT rating tool was used to evaluate the design. The Sustainable Building Assessment Tool provides an indication of the performance of a building or the design of a building in terms of sustainability. Although the tool is ideally used on a building that has recently been completed, it can be used on other stages as well, but may not be relevant.

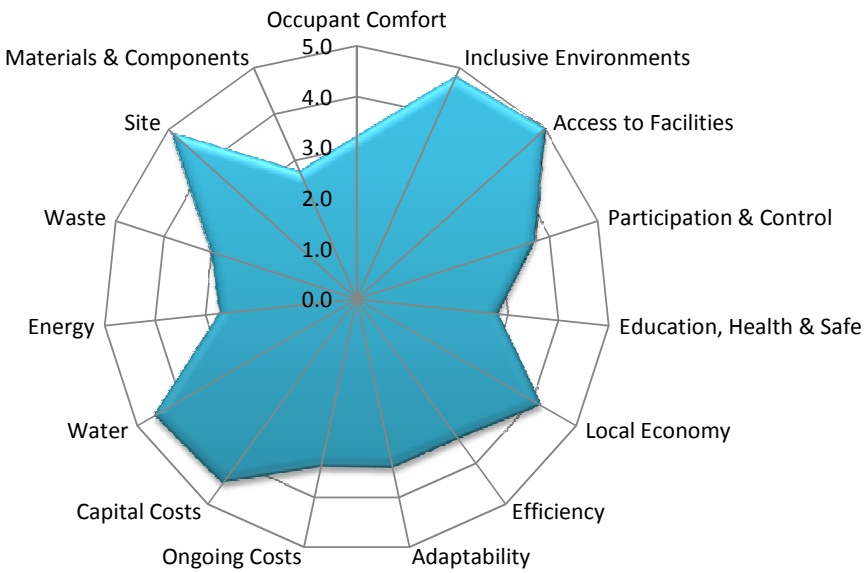
The tool was used with the assumption that all the requirements would be met once the building is completed, even though many factors such as local workmanship cannot be determined at this point. The rating tool is divided into three components namely social, economic, environmental components.

The social component deals with the social performance of the building in terms of sustainability, including aspects such as access to natural light, proximity and access to public transport, disabled access to functions, noise and air pollution. The economic component provides an indication of the economical performance including cost of construction and material, locally sourced materials and the use of local labor instead of specialized labor. The environmental component deals with recycling of waste, water consumption and reuse, greening of the site and the percentage of users who make use of public transport systems, etc. Water and energy systems will be discussed in this chapter.

RESULTS

SOCIAL: 3.9
ECONOMIC 3.8
ENVIRONMENTAL: 3.6
OVERALL: 3.8

CLASSIFICATION: GOOD



Overall value	0-1	1-2	2-3	3-4	4-5
Classification	Very Poor	Poor	Average	Good	Excellent

Fig. 8.50. SBAT rating results

1. SUSTAINABLE DANCE FLOOR

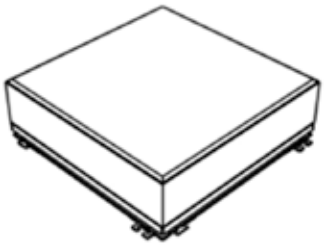


Fig. 8.52. Axonometric of SDF tile

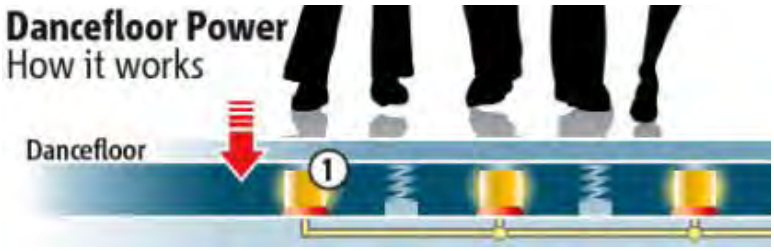


Fig. 8.51. SDF diagram

Fig. 8.53. View of current design SDF

An energy generating dance floor system is suggested for the dance studios on third floor level. No such system is currently available in South Africa, however, an energy generating dance floor has recently been developed by students of the University of Rotterdam.

Dance studios are fitted with specially designed dance floor made of springs and a series of power generating blocks. The upwards/downwards movement of the blocks when danced on produces an electrical current. The current is fed into nearby batteries that are constantly recharged by the movement of the floor and are used to power lights in the studios/the rest of the building

CURRENT TECHNICAL DATA:
size: 650x650x195mm
Maximum deflection: 10mm
Materials: Reused PVC, hardened glass
Weight 45kg
Energy Generated: 10W continuous output at 18VDC for adults dancing on the module.
20W continious output at 18VDV for adults jumpin on the module

A hardwood finish is suggested for the application in the dance studios. The dance studios are designed to accommodate the structure as it is available now, however a standard sprung dance floor system can be inserted into the dance studios immediately and can later be replaced by energy generating floors when the technology becomes available in the desired finish or is locally available.

A sprung dance floor is a hardwood floor that is layed on top of a foam layer that absorbs the shock when jumped on. The floor feels softer and prevents injury to legs due to continious jumping.

Fig. 8.54. Sprung dance floor

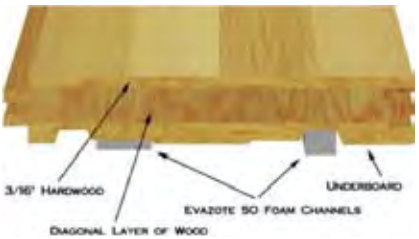


Fig. 8.55. Detail section of Sprung floor

2. VENTILATION STRATEGY

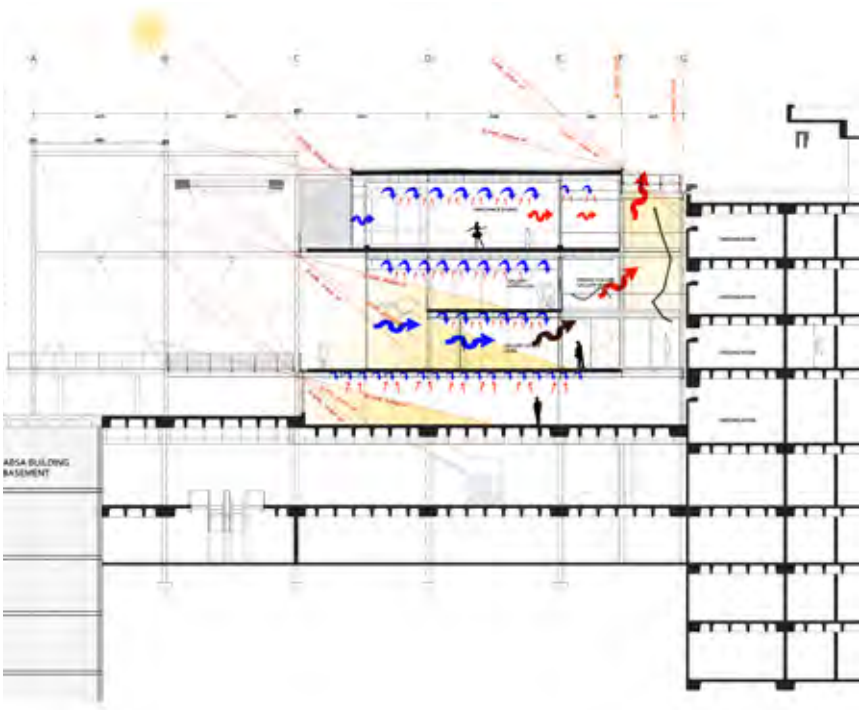


Fig. 8.56. Ventilation diagram: Gallery

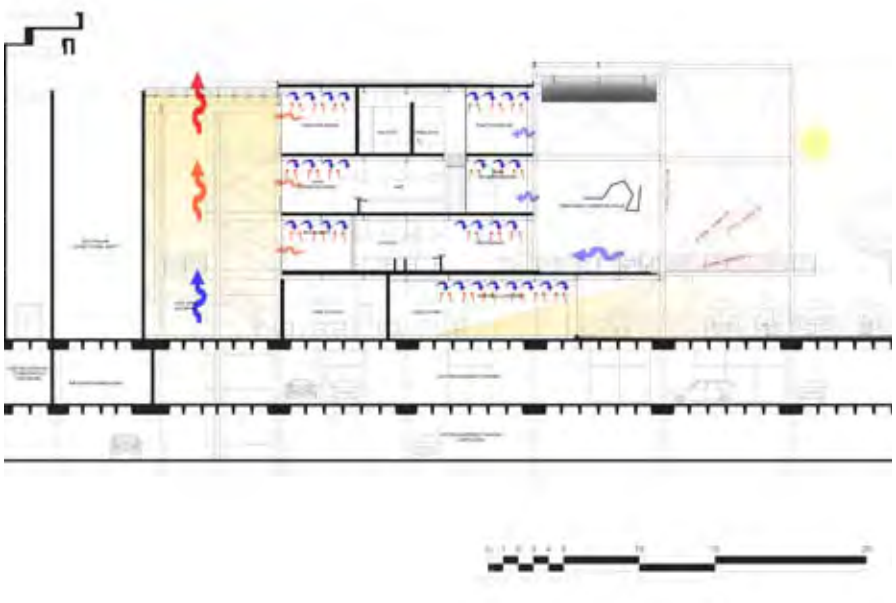


Fig. 8.57. Ventilation diagram: Restaurant

NATURAL VENTILATION:
Spaces are allowed to ventilate naturally through the use of fully operable stacking doors. Each door panel can be opened individually and rotated in any direction. This allows the user full control of his/her environment. An automatically operated skylight in the connection between the old and new building allows warm air to escape as it rises.

The building's western facade is designed in layers to maximize control of the environment while minimizing heat gain. Facade elements in restaurant and gallery spaces are fully operable and door panels can be rotated to minimize solar heat gain, while allowing maximum natural ventilation and lighting.

MECHANICAL VENTILATION:
Mechanical ventilation systems will be required in museum spaces, dance studios, foyers and parts of restaurant spaces. Such a system is required in museum spaces due to heat generation form lighting and electronic equipment, and western orientation. The system is used in addition to natural ventilation in dance studios to increase comfort levels.

A radiant cooling system was selected to be used in theses spaces. The system requires a chiller room where water in a closed system is cooled to the desired temperature. Water is distributed through ducts to the areas needed. Basement levels will be mechanically ventilated. An extension of the existing theatre air-conditioning situated on basement levels will be continued. Additional space currently used as storage is available for the extension of the existing air conditioning system.

RADAINT COOLING/HEATING CEILING SYSTEM

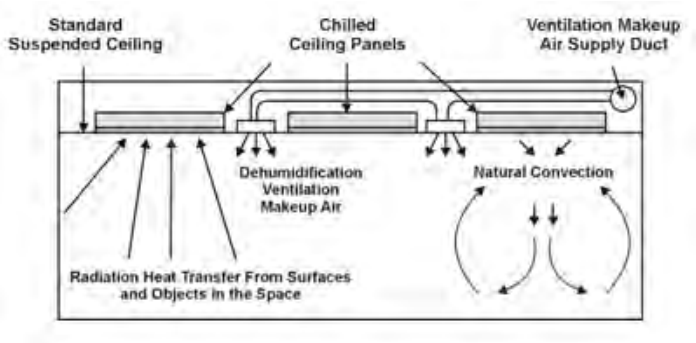


Fig. 8.58. Radiant cooling ceiling system

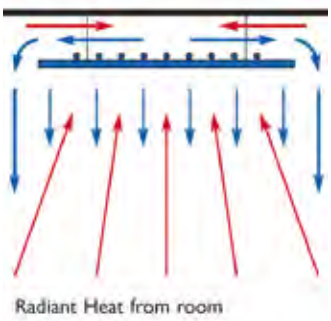


Fig. 8.59. Thermasail cooling

COOLING

Cold water is passed through coils on top of the ceiling panel. The underside of the ceiling panel is cooled and it in turn cools the air against it. The panel also absorbs radiant heat gains from the room. The air above the panel is cooled and cool air moves around the edges.

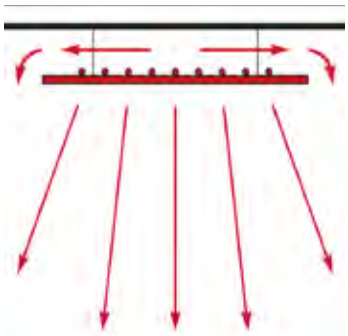


Fig. 8.60. Thermasail heating

HEATING

Warm water is passed through copper coils on top of the ceiling panel, whereby the lower surface of the sail acts as a radiant heater.

Air above the panel is warmed and moves into the room. The ceiling system is effective for large areas. According to SPC ceiling systems, this ceiling system reacts rapidly to heating and cooling demands and ensures low energy consumption

Fig. 8.61. Daytime

Fig. 8.62. light fittings hidden above panel

3. RAINWATER RECYCLING

Rainwater on the roof is collected through rainwater down pipes in underground storage tanks situated in the lower basement level. From here, water is filtered and pumped back to be reused in toilets.

RAINWATER HARVESTING:
According to Weather SA, the average annual rain fall in Pretoria is 647mm.
Total roof area: 2593m^2

2593m^2 x 0.647
= 1677.7 Kl water is available for harvesting. Only 73 % of this water will be harvested due to evaporation. This result may not be accurate as numbers used in calculations are estimates.

See Appendix A for calculations of rainwater down pipes.

Collected water will be stored in tanks on lower basement level. Water storage happens on the lowest basement level due to the structural stability of existing floor slabs that have not been designed to carry such extreme loads.

Size of rainwater tank size is based on the amount of water consumed per day.
Average hot water consumption:
Hand basin 5 liters
Kitchen sink (per wash-up) 6 liters
Dishwasher 14 liters
1 person + household 120l

Washing of floors/sores: 50l
Toilet: 8L per flush.
Showers: 36l per person.

Total estimated daily use: 4300l per day.
Approximately 3000l is consumed by the flushing of toilets and urinals. One 9000l tank will be sufficient to store the necessary daily amount of water to be reused in toilets and urinals.

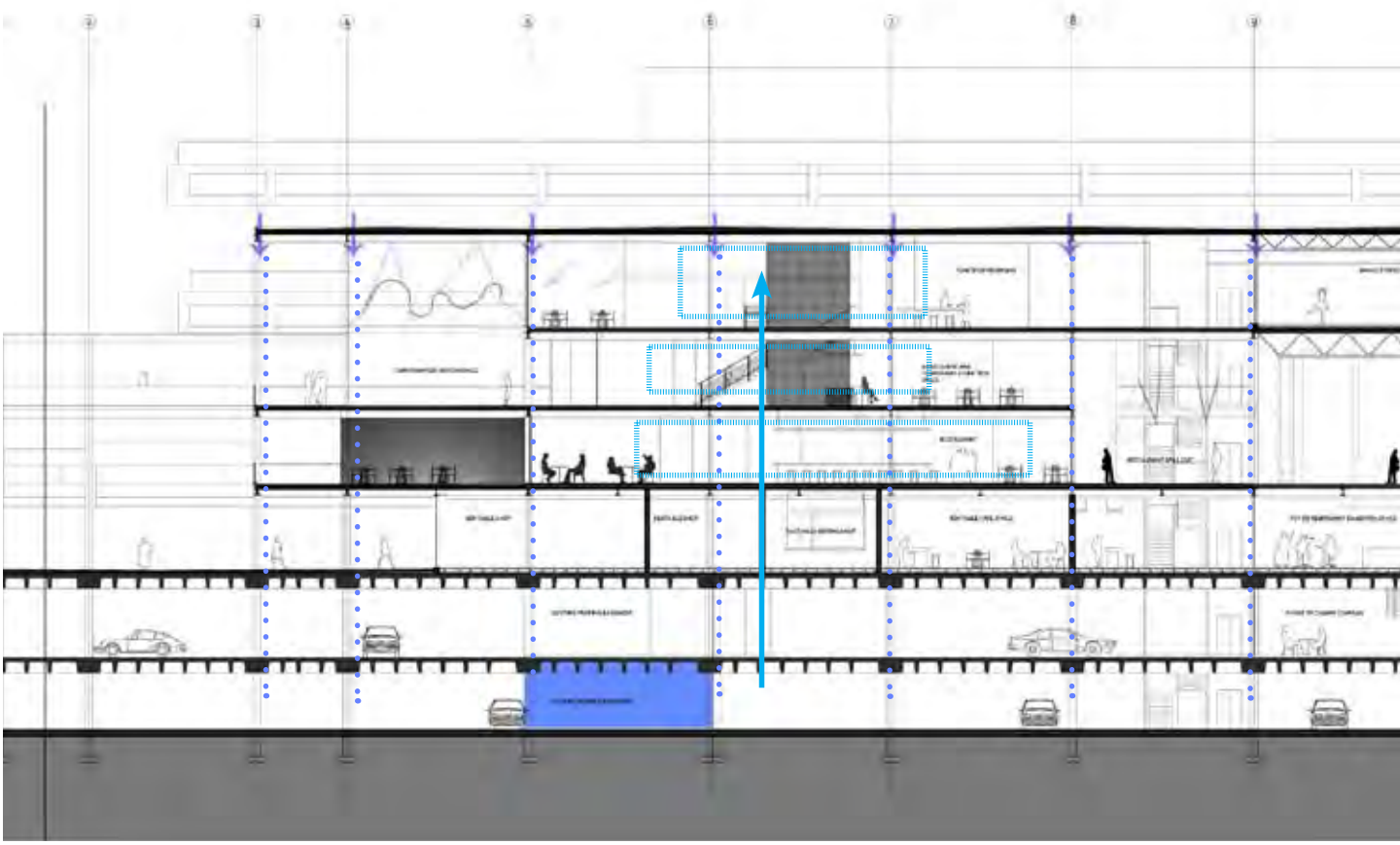
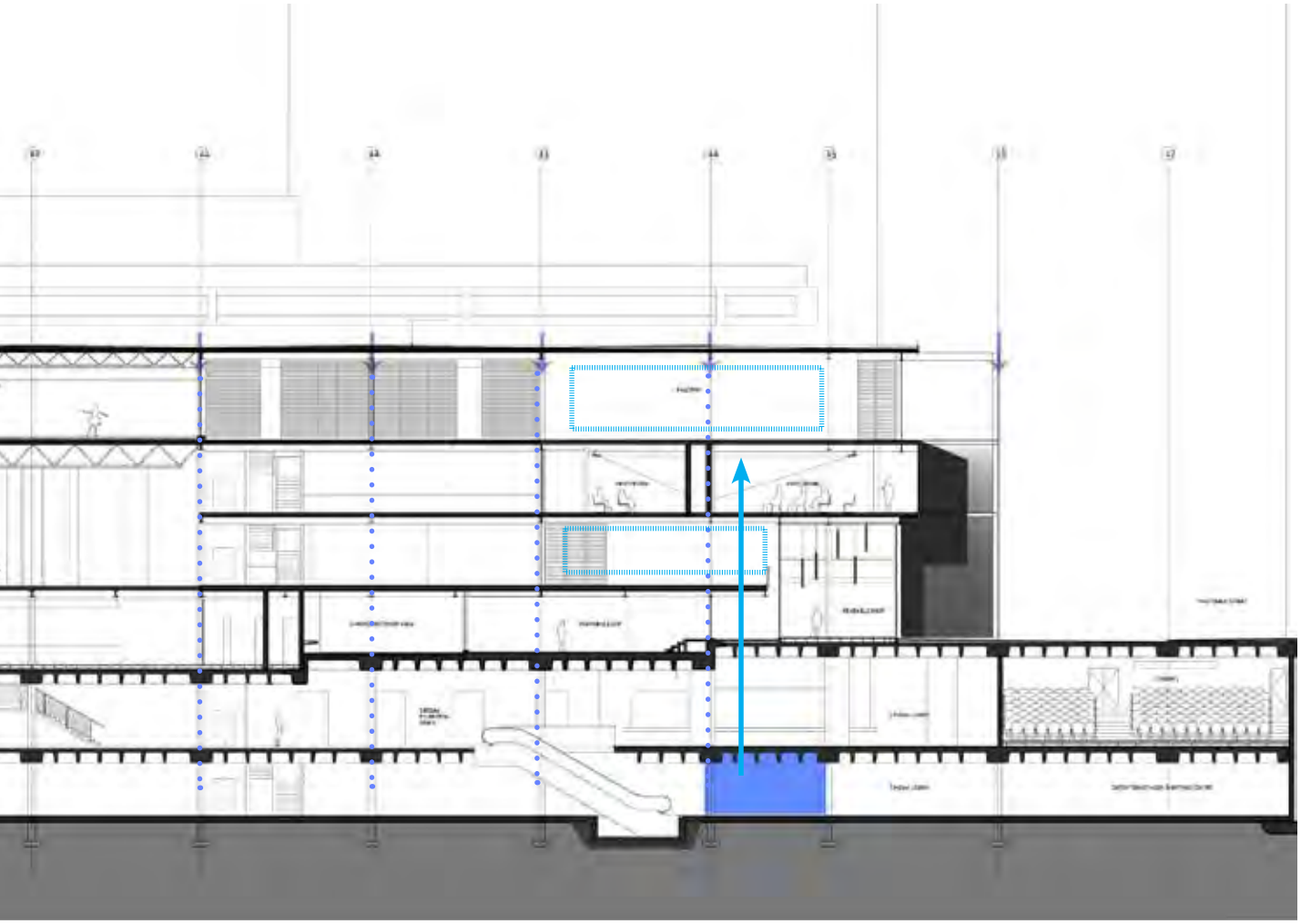


Fig. 8.63.



09_ CONCLUSION

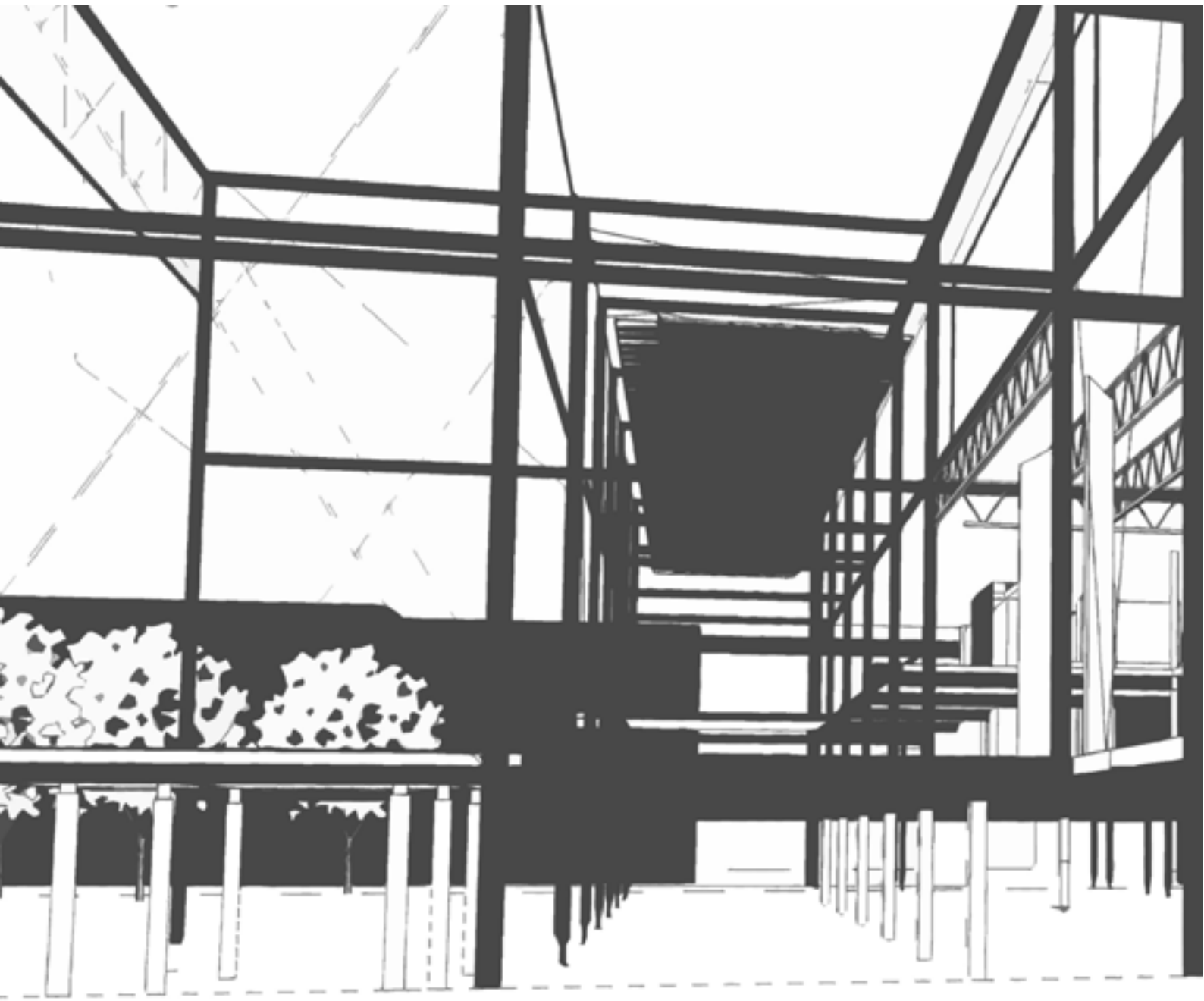
This thesis has investigated principles in the design of successful public spaces in order to find a solution to the possible improvement of an existing public square in Pretoria, namely Lillian Ngoyi Square. Despite the square's prime location within the city, the lack of interaction between the square and its surroundings had caused a lack of activity on the square.

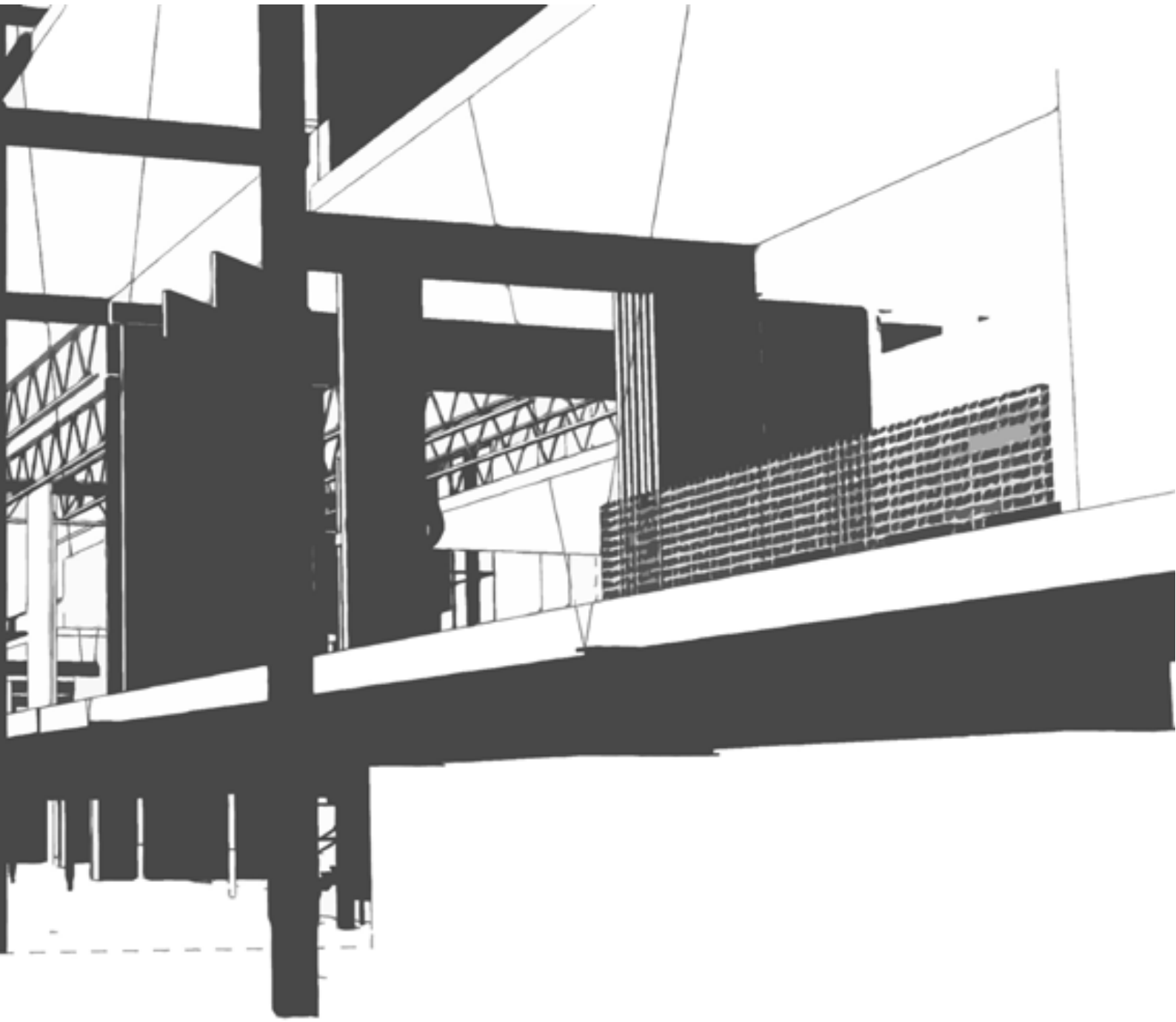
The design has provided a possible solution to the improvement of the quality of the square by breaking down physical and imaginary boundaries between the theatre and the public. This has been achieved by providing a western "balcony" and a new entrance to the theatre, that opens onto the public square. The design has attempted to create a more inclusive public space that would invite visitors to enjoy and experience life in the city. It has also attempted to provide a comfortable and safe public space for visitors to rest and enjoy people-watching.

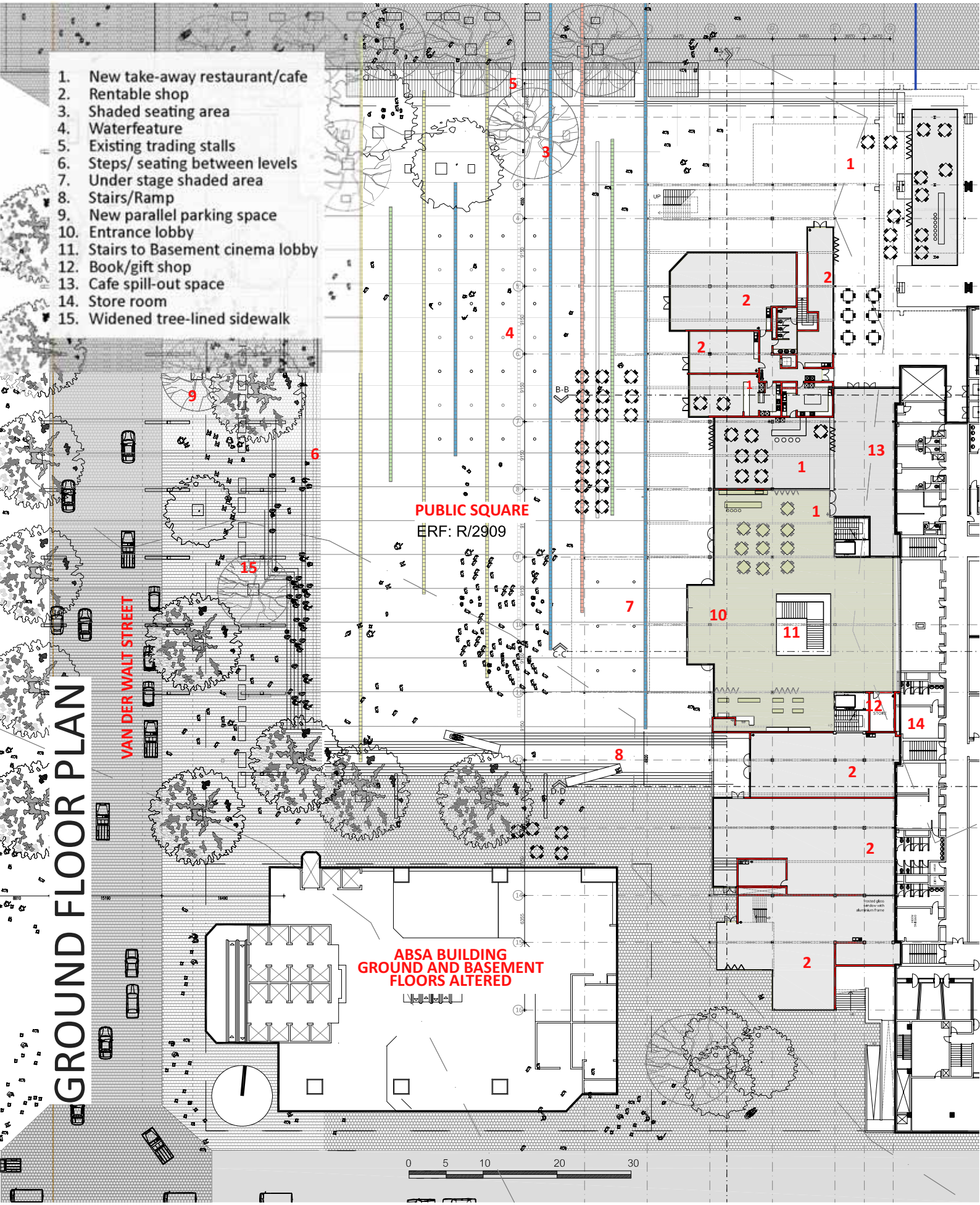
The design has proposed an outdoor theatre and a number of street cafes opening onto the square that would enhance the image and tourist value of the public space. Further, the design has suggested the improvement of pedestrian access and an easier transition between the square and the surrounding streets.

The building was intended to be a filter that would create a transition between the formal theatre and the informal public square. The purpose has been for the building to draw new visitors to the site and to educate the man on the street about the arts and the opportunities provided by the State Theatre. The concept of a filter has been drawn through the urban design to the detail level of design and all building elements. Materials were specifically chosen to give the "filter" effect that would allow visual access, or a physical connection. The transparency of the structural frame was intended to be a skeleton from which the stage and decoration could be constructed during concerts and for temporary exhibitions. The scheme has provided the opportunity for investment into the future of the theatre as a factory of the performing arts.

10 DOCUMENTATION



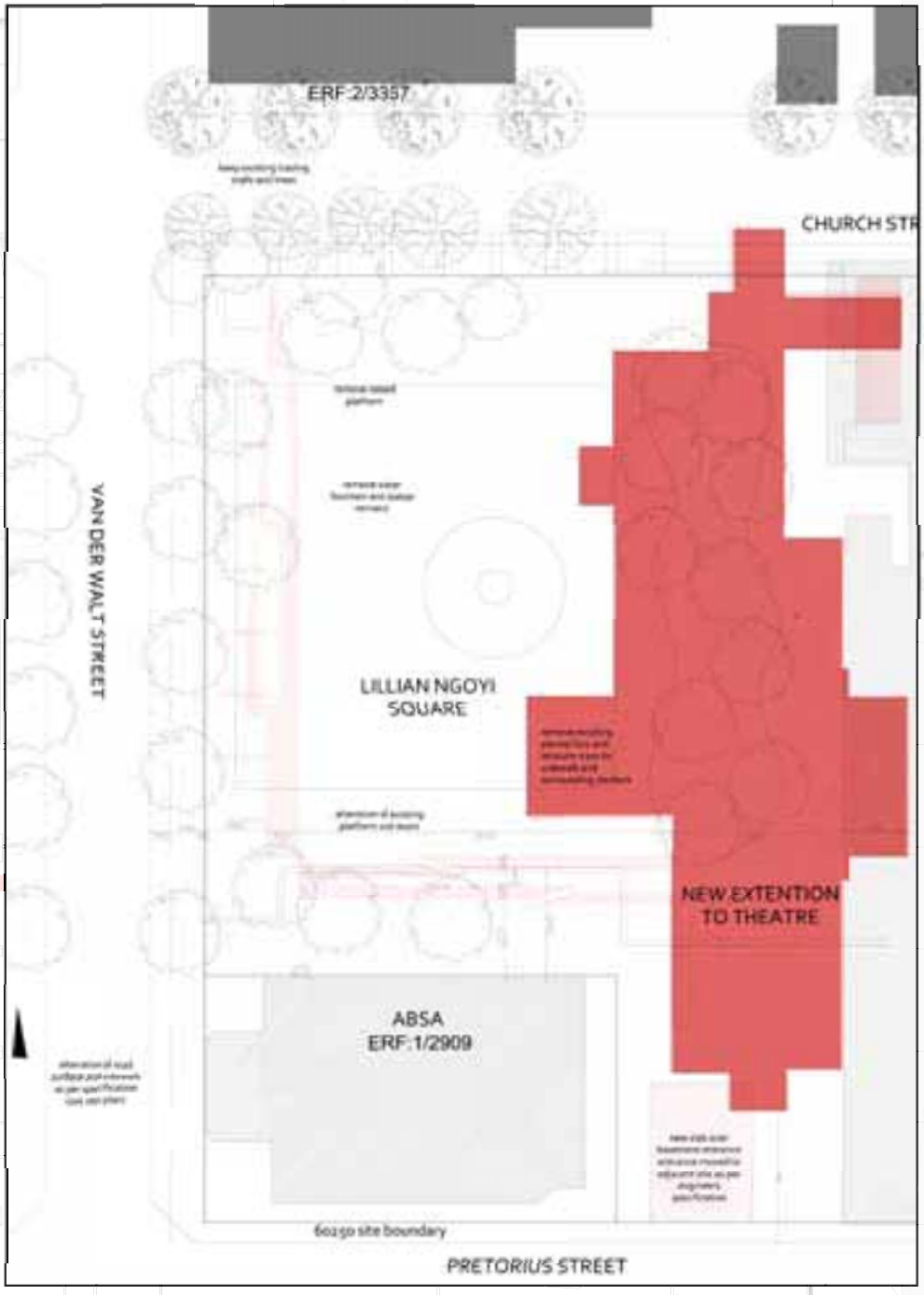




GROUND FLOOR PLAN

CHURCH STREET

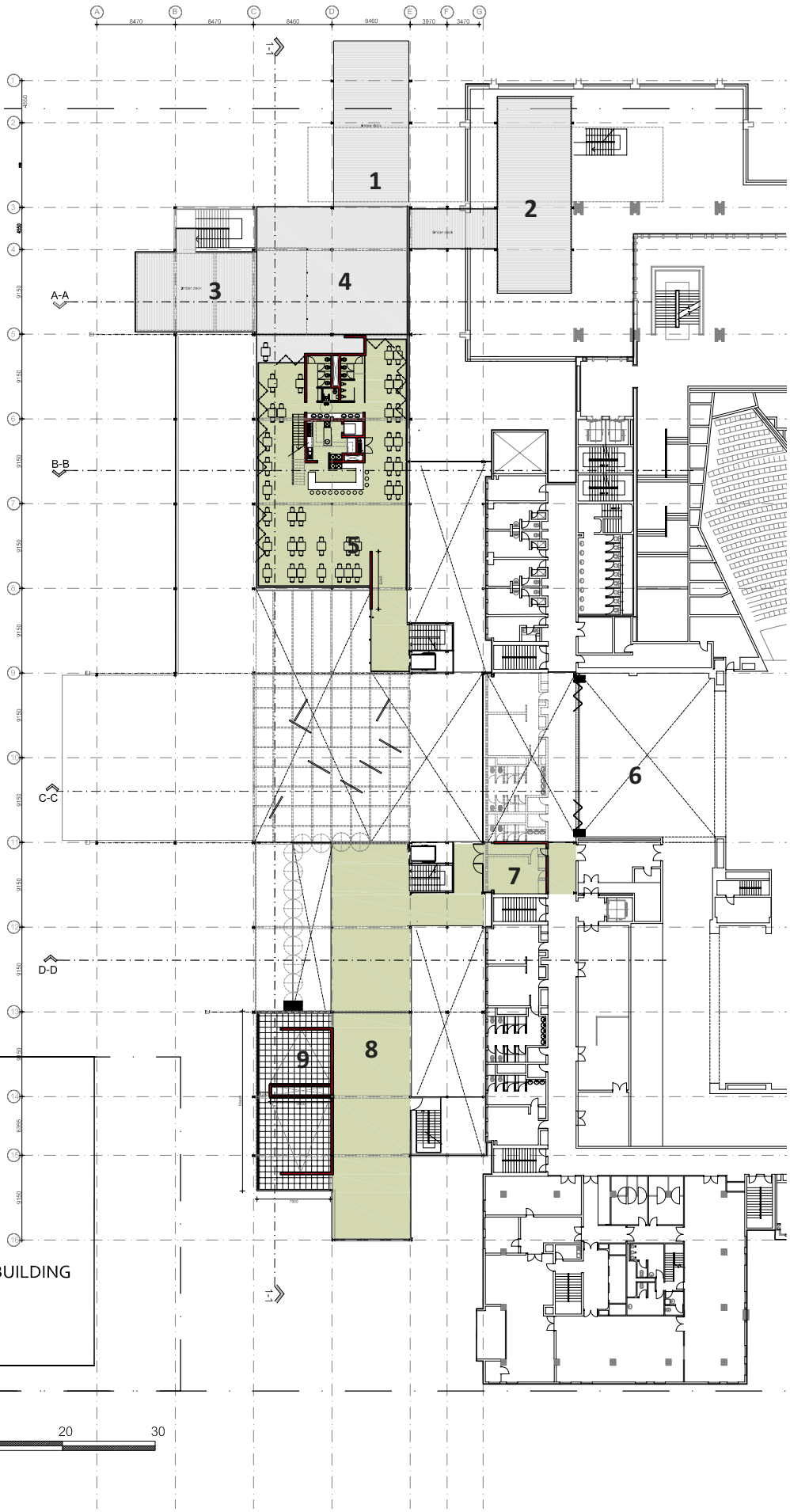
DEMOLITION PLAN



1. Covered exhibition area
2. Private function room
3. Restaurant
4. Balcony/temprorary exhibition space
5. Hydraulic stage
6. Temporary exhibition space
7. New temporary exhibition space
8. Existing State Theatre side stage
9. Museum shop
10. Museum/Gallery
11. Rentable shop upper floor
12. Emergency exit
13. Entrance to State Theatre Administration
14. Existing Absa office tower

FIRST FLOOR PLAN

1. Temporary exhibition/ viewing platform
2. Exhibition space on State Theatre balcony
3. Viewing platform
4. Temproary exhibition space/restaurant spillout space
5. Restaurant
6. Existing State Theatre
7. Entrance to existing building
8. Gallery upper floor
9. Video rooms

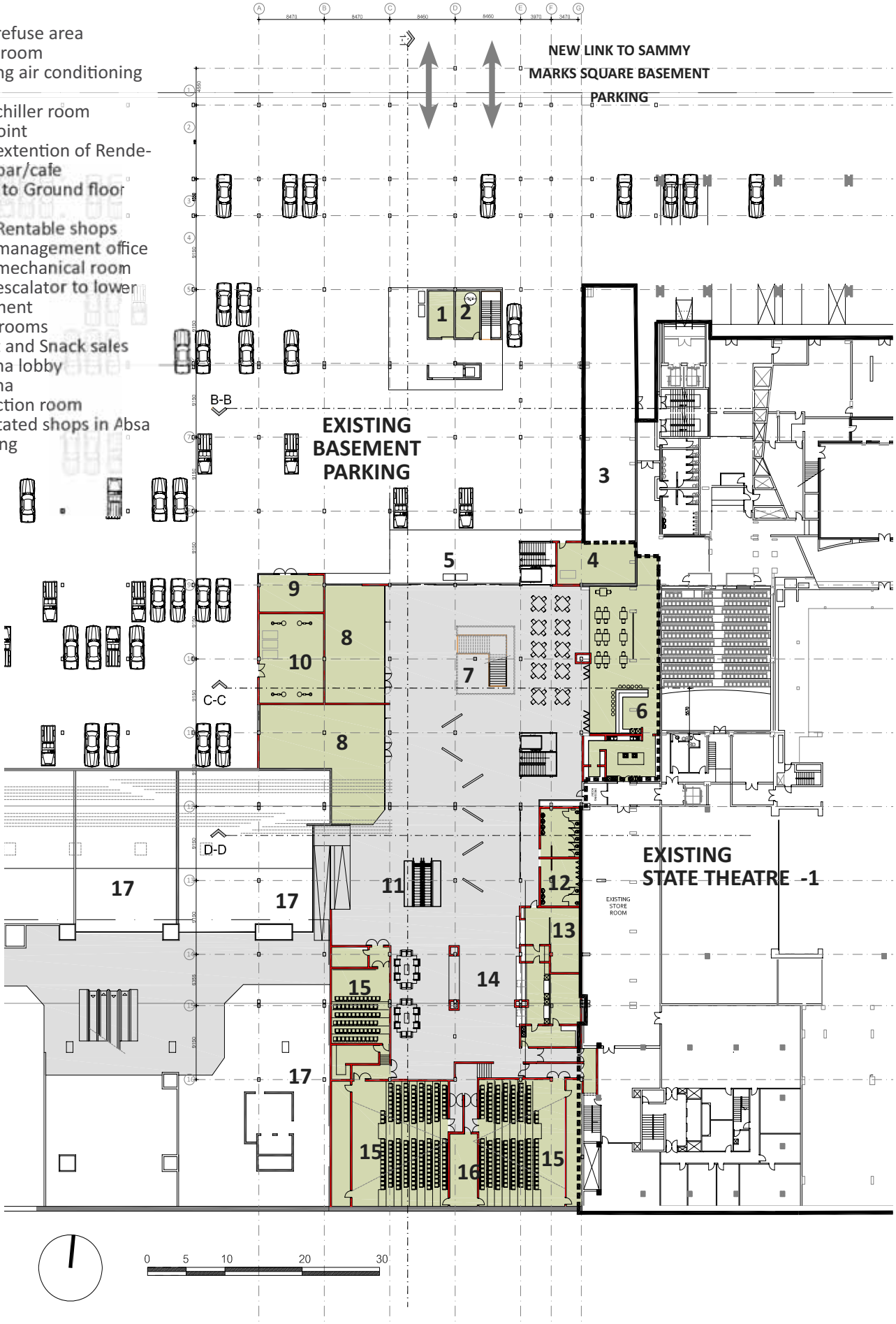


SECOND FLOOR PLAN

1. Rentable function room/cafe
2. Dance studio
3. Waiting room/rehearsal room
4. Balcony
5. Dressing room
6. Lounge/Resting room
7. New Reception area
8. Classrooms/small studio
9. Existing State Theatre
10. Existing Absa building

THIRD FLOOR PLAN

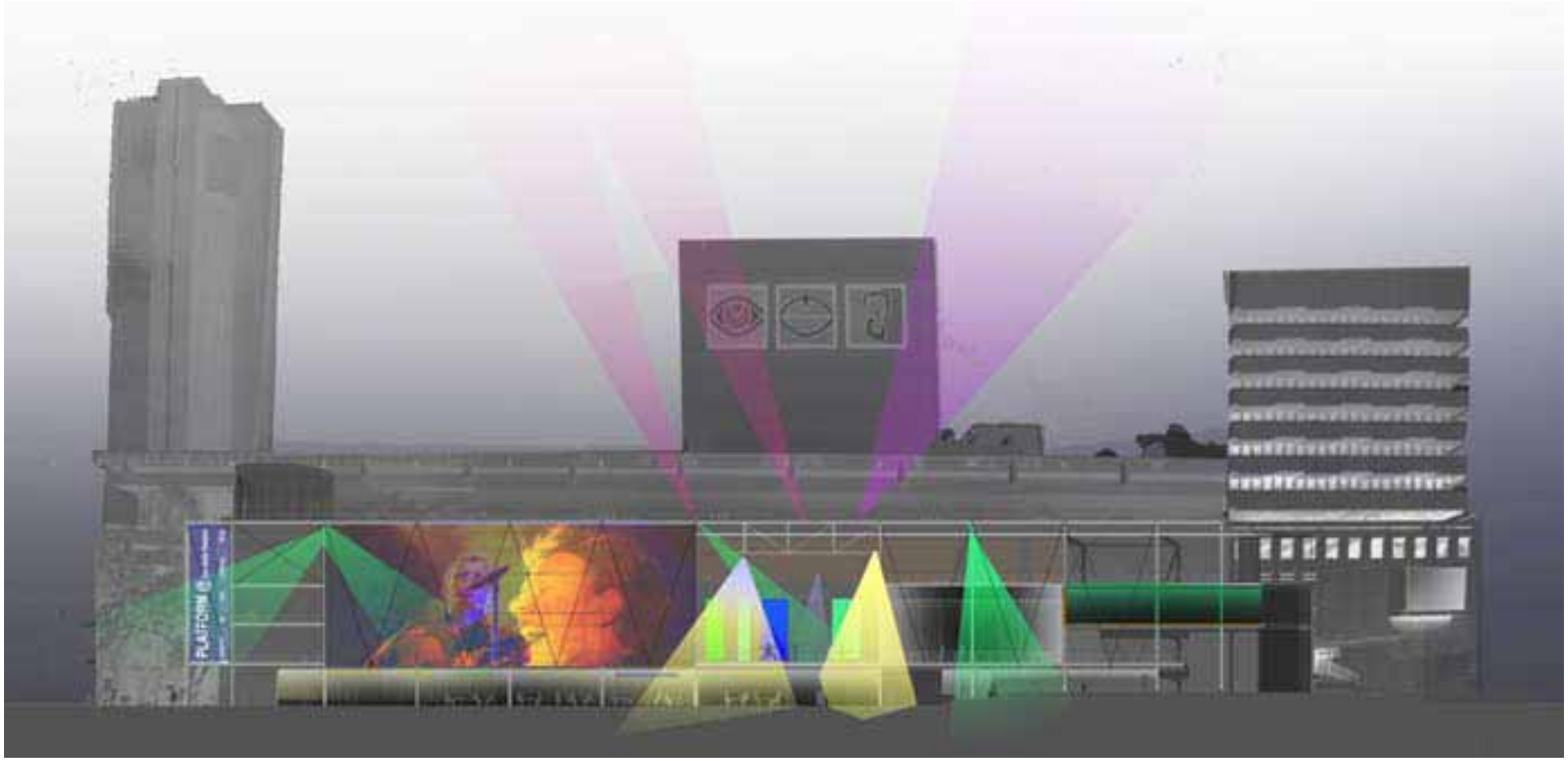
1. New refuse area
2. Store room
3. Existing air conditioning plant
4. New chiller room
5. Pay point
6. New extention of Rende-vouz bar/cafe
7. Stairs to Ground floor level
8. New Rentable shops
9. New management office
10. New mechanical room
11. New escalator to lower basement
12. Washrooms
13. Ticket and Snack sales
14. Cinema lobby
15. Cinema
16. Projection room
17. Reinstated shops in Absa building



BASEMENT UPPER LEVEL

WEST ELEVATION (DAY VIEW)

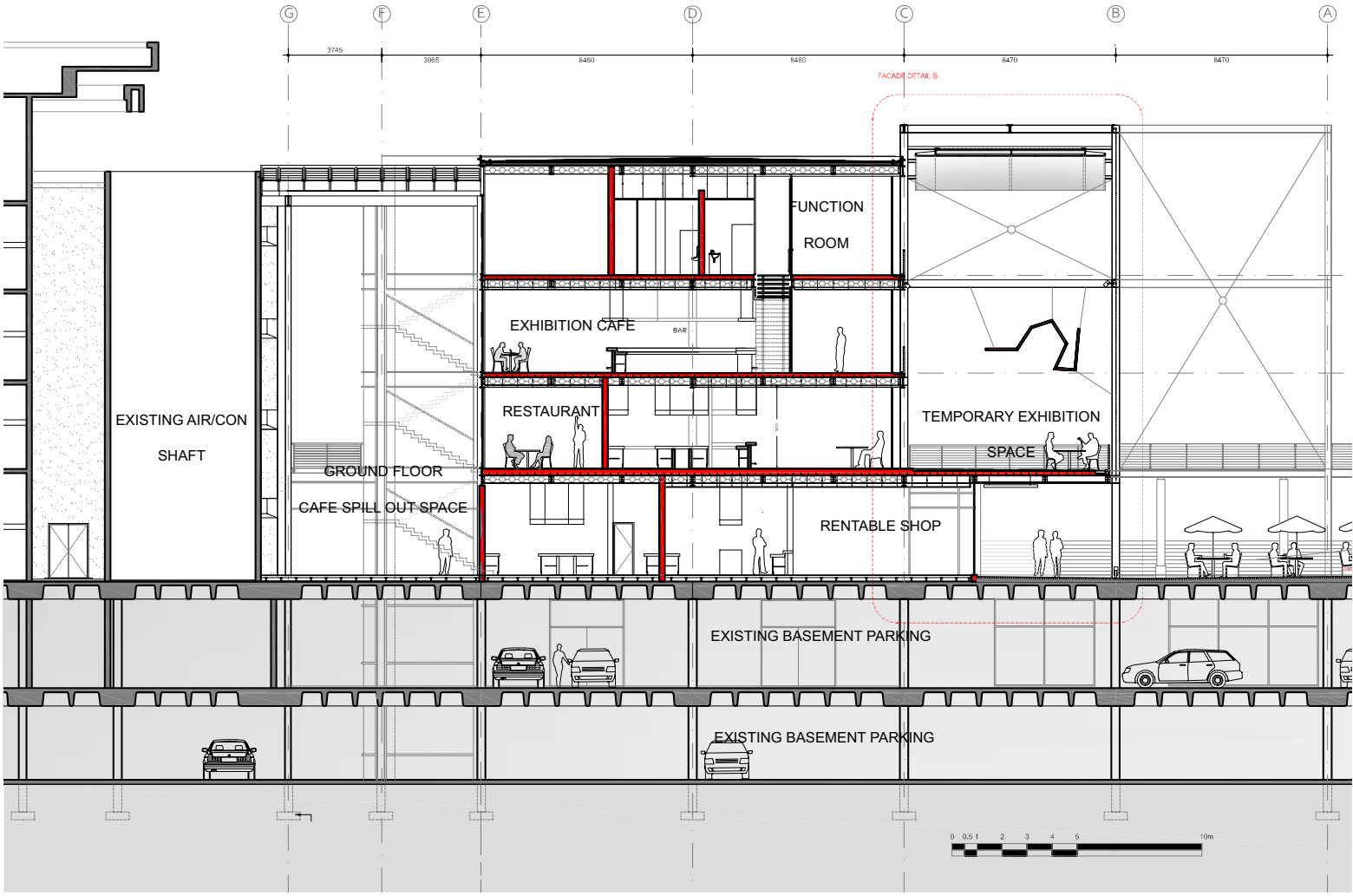
WEST ELEVATION (NIGHT VIEW)

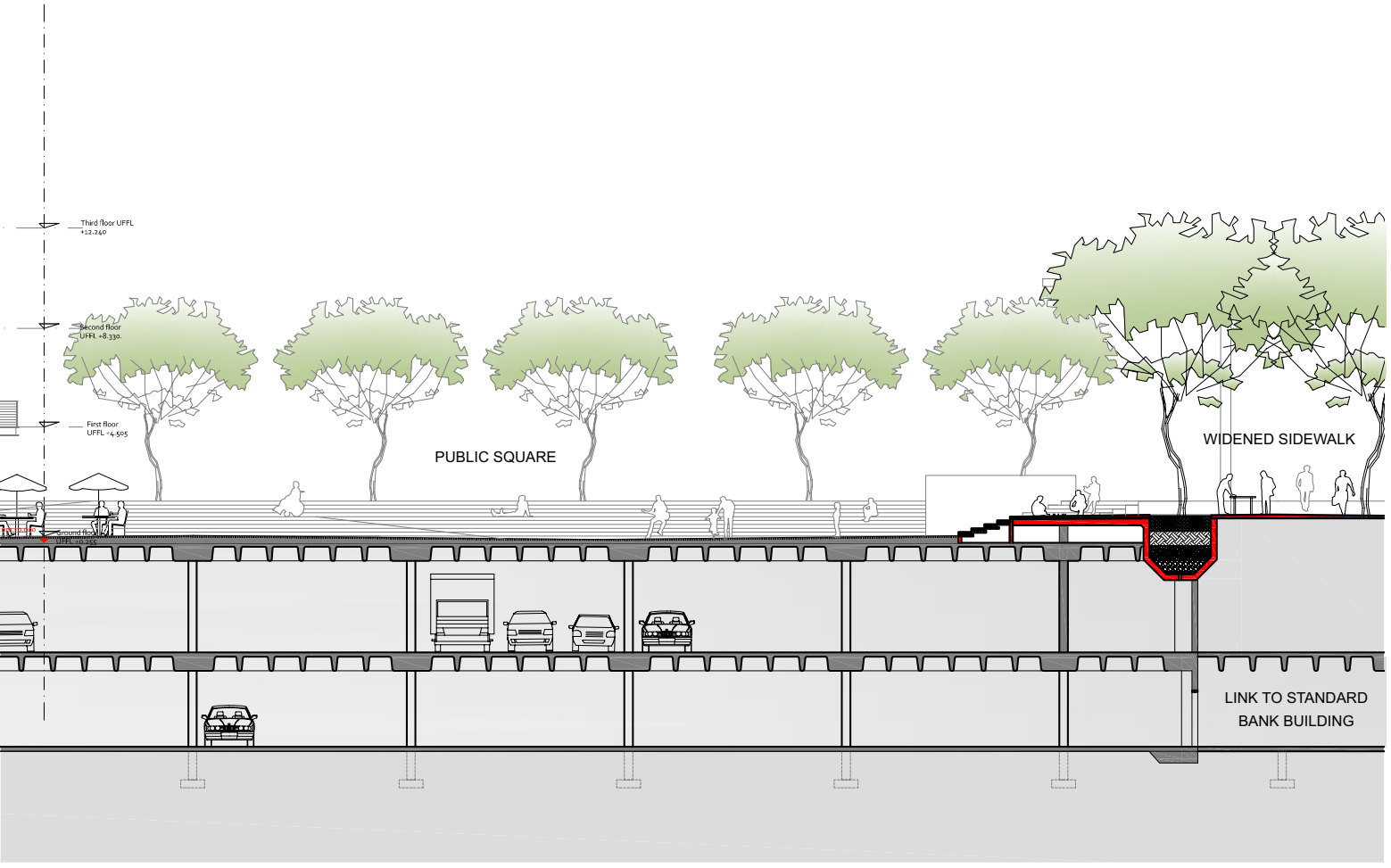


NORTH ELEVATION

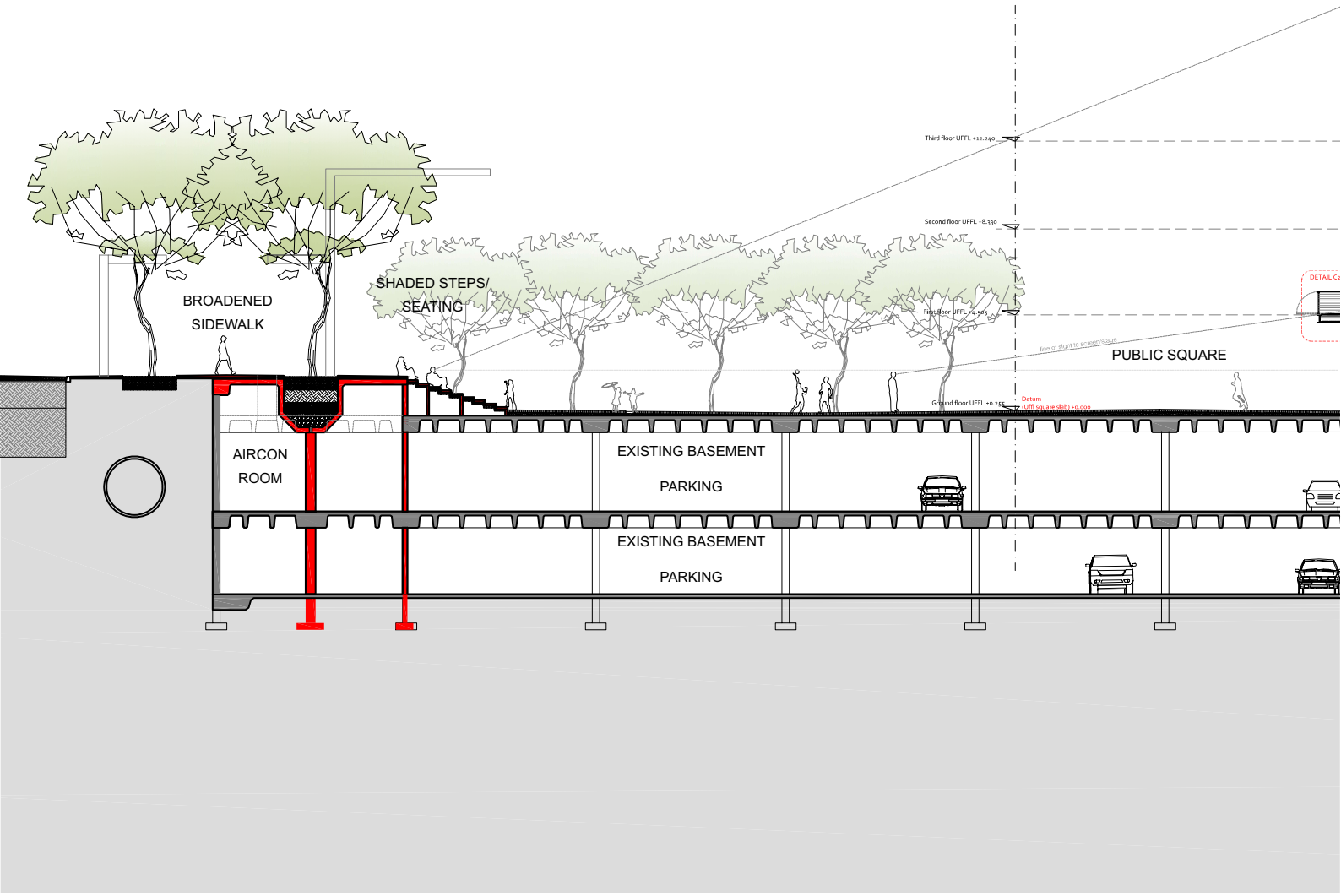
SECTION A-A

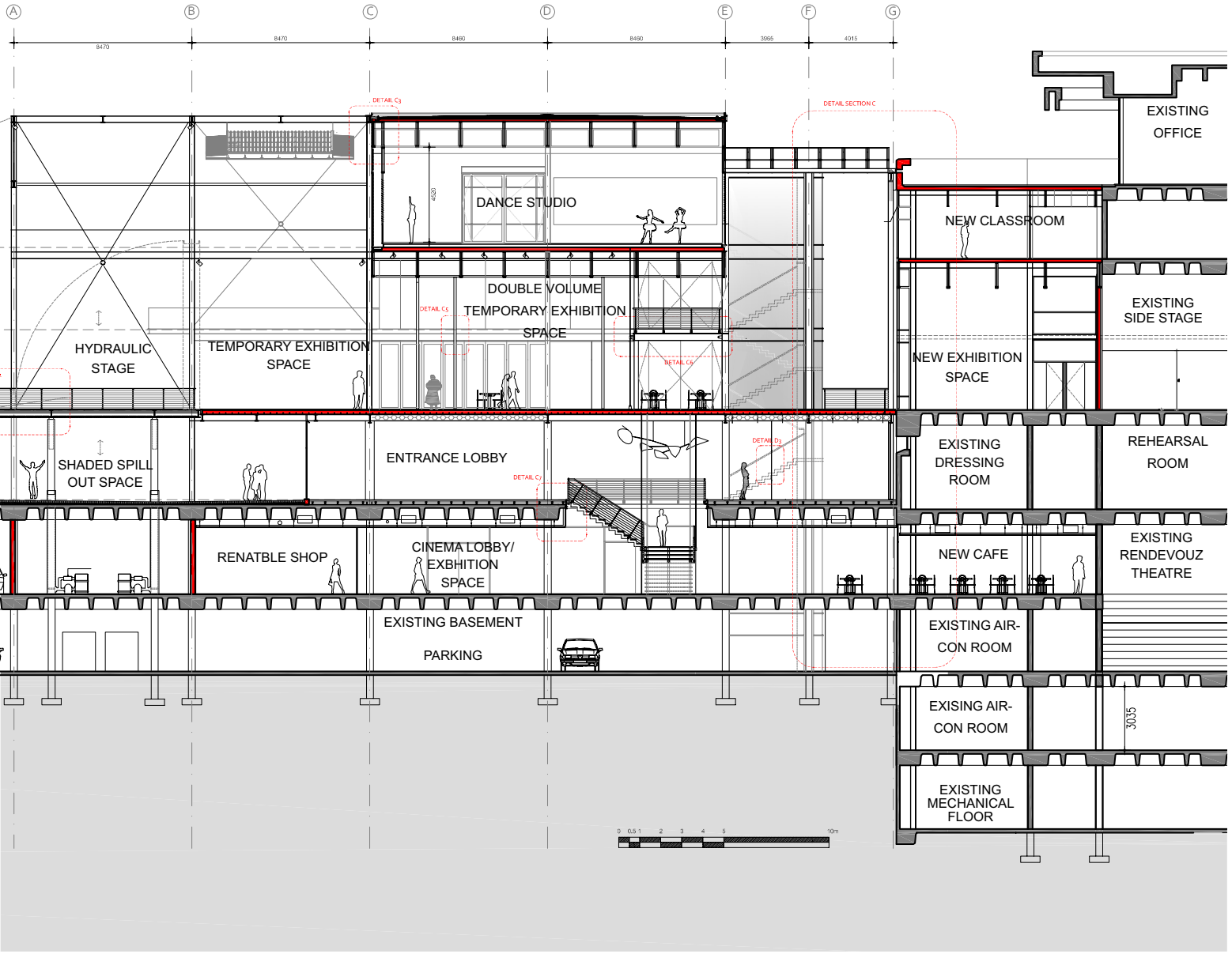
SECTION B-B


G
F
E
D
C
B
A
3745
3985
8460
8480
8470
8470
FACADE DETAIL B
FUNCTION
ROOM
EXHIBITION CAFE
BAR
RESTAURANT
TEMPORARY EXHIBITION
SPACE
EXISTING AIR/CON
SHAFT
GROUND FLOOR
CAFE SPILL OUT SPACE
RENTABLE SHOP
EXISTING BASEMENT PARKING
EXISTING BASEMENT PARKING
0 0.5 1 2 3 4 5 10m

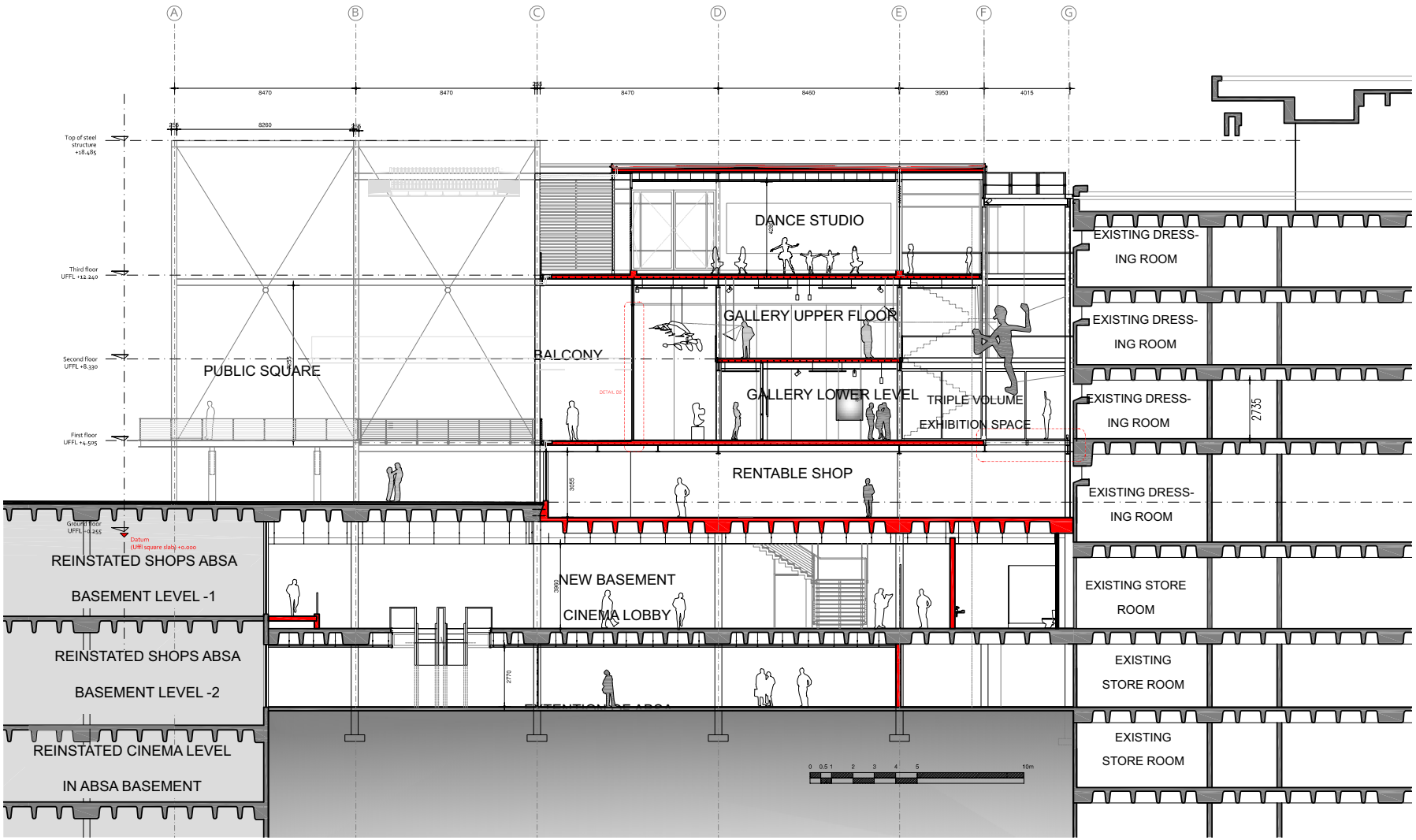

Third floor UFFL
+12.240
Second floor
UFFL +8.330
First floor
UFFL +4.505
Ground floor
UFFL +0.155
PUBLIC SQUARE
WIDENED SIDEWALK
LINK TO STANDARD
BANK BUILDING

SECTION C-C

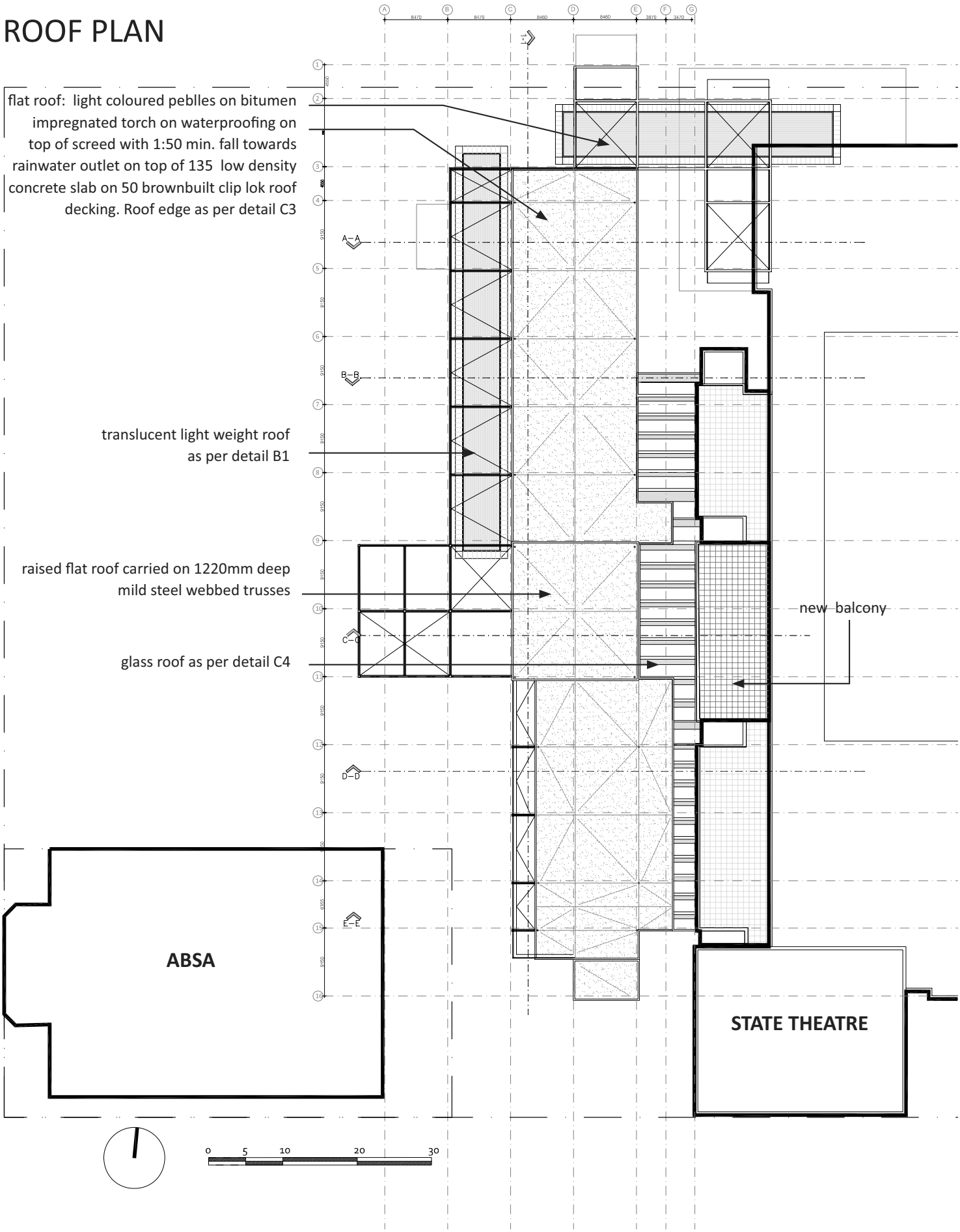

BROADENED
SIDEWALK
SHADED STEPS/
SEATING
PUBLIC SQUARE
AIRCON
ROOM
EXISTING BASEMENT
PARKING
EXISTING BASEMENT
PARKING


A
B
C
D
E
F
G
8470
8470
8460
8460
3955
4015
DETAIL C3
DETAIL SECTION C
DANCE STUDIO
4520
DOUBLE VOLUME
TEMPORARY EXHIBITION
SPACE
DETAIL C5
DETAIL C6
HYDRAULIC
STAGE
TEMPORARY EXHIBITION
SPACE
SHADED SPILL
OUT SPACE
ENTRANCE LOBBY
DETAIL D3
DETAIL C7
RENATBLE SHOP
CINEMA LOBBY/
EXBHITION
SPACE
EXISTING BASEMENT
PARKING
EXISTING
OFFICE
NEW CLASSROOM
EXISTING
SIDE STAGE
NEW EXHIBITION
SPACE
EXISTING
DRESSING
ROOM
REHEARSAL
ROOM
NEW CAFE
EXISTING
RENDEVOUZ
THEATRE
EXISTING AIR-
CON ROOM
EXISING AIR-
CON ROOM
3035
EXISTING
MECHANICAL
FLOOR
0 0.5 1 2 3 4 5 10m

SECTION D-D


A
B
C
D
E
F
G
8470
8470
8470
8460
3950
4015
8260
Top of steel structure +18.485
Third floor UFFL +12.240
Second floor UFFL +8.330
First floor UFFL +4.505
Ground floor UFFL +0.255
Datum (UFFl square slab) +0.000
DANCE STUDIO
GALLERY UPPER FLOOR
BALCONY
PUBLIC SQUARE
GALLERY LOWER LEVEL
TRIPLE VOLUME EXHIBITION SPACE
RENTABLE SHOP
NEW BASEMENT CINEMA LOBBY
REINSTATED SHOPS ABSA
BASEMENT LEVEL -1
REINSTATED SHOPS ABSA
BASEMENT LEVEL -2
REINSTATED CINEMA LEVEL
IN ABSA BASEMENT
EXISTING DRESS-ING ROOM
EXISTING DRESS-ING ROOM
EXISTING DRESS-ING ROOM
EXISTING DRESS-ING ROOM
EXISTING STORE ROOM
EXISTING STORE ROOM
EXISTING STORE ROOM
2735
3955
3960
2770
0 0.5 1 2 3 4 5 10m

ROOF PLAN

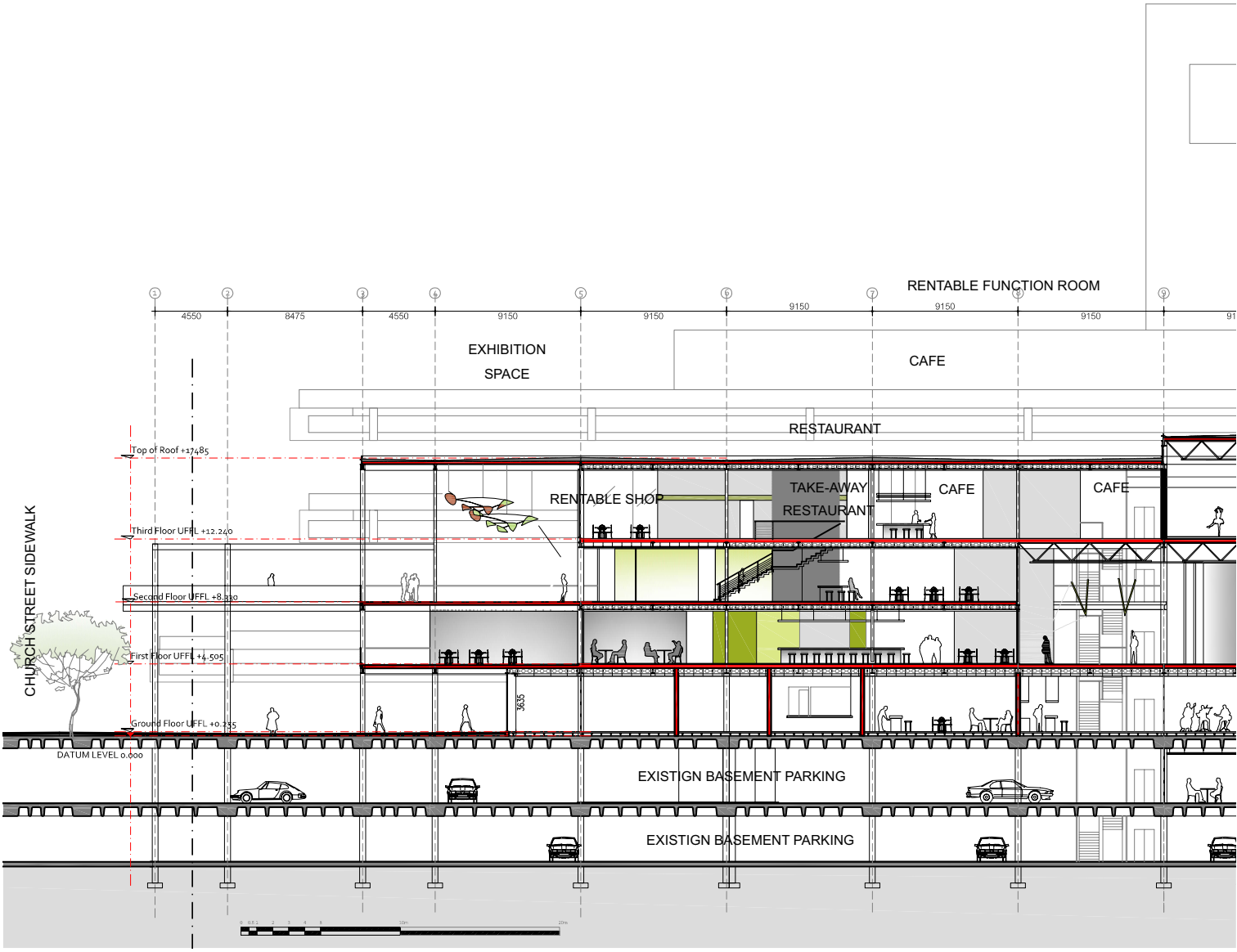

flat roof: light coloured peblles on bitumen impregnated torch on waterproofing on top of screed with 1:50 min. fall towards rainwater outlet on top of 135 low density concrete slab on 50 brownbuilt clip lok roof decking. Roof edge as per detail C3
translucent light weight roof as per detail B1
raised flat roof carried on 1220mm deep mild steel webbed trusses
glass roof as per detail C4
new balcony
A–A
B–B
C–C
D–D
E–E
ABSA
STATE THEATRE
0 5 10 20 30

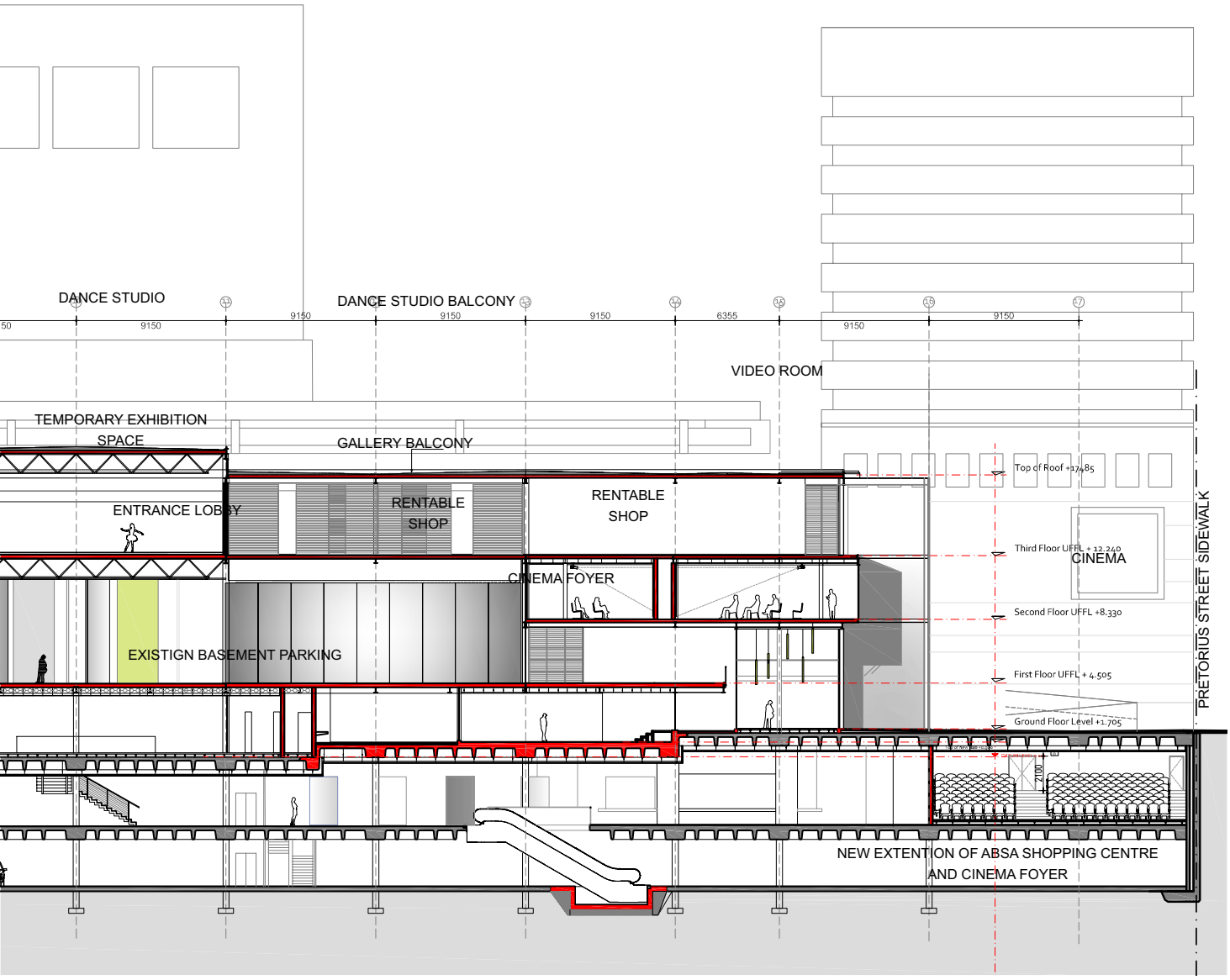
SECTION 1-1

General notes:
All structural elements: structural steel, floors, stage floor and roofs to be designed by a qualified structural engineer.

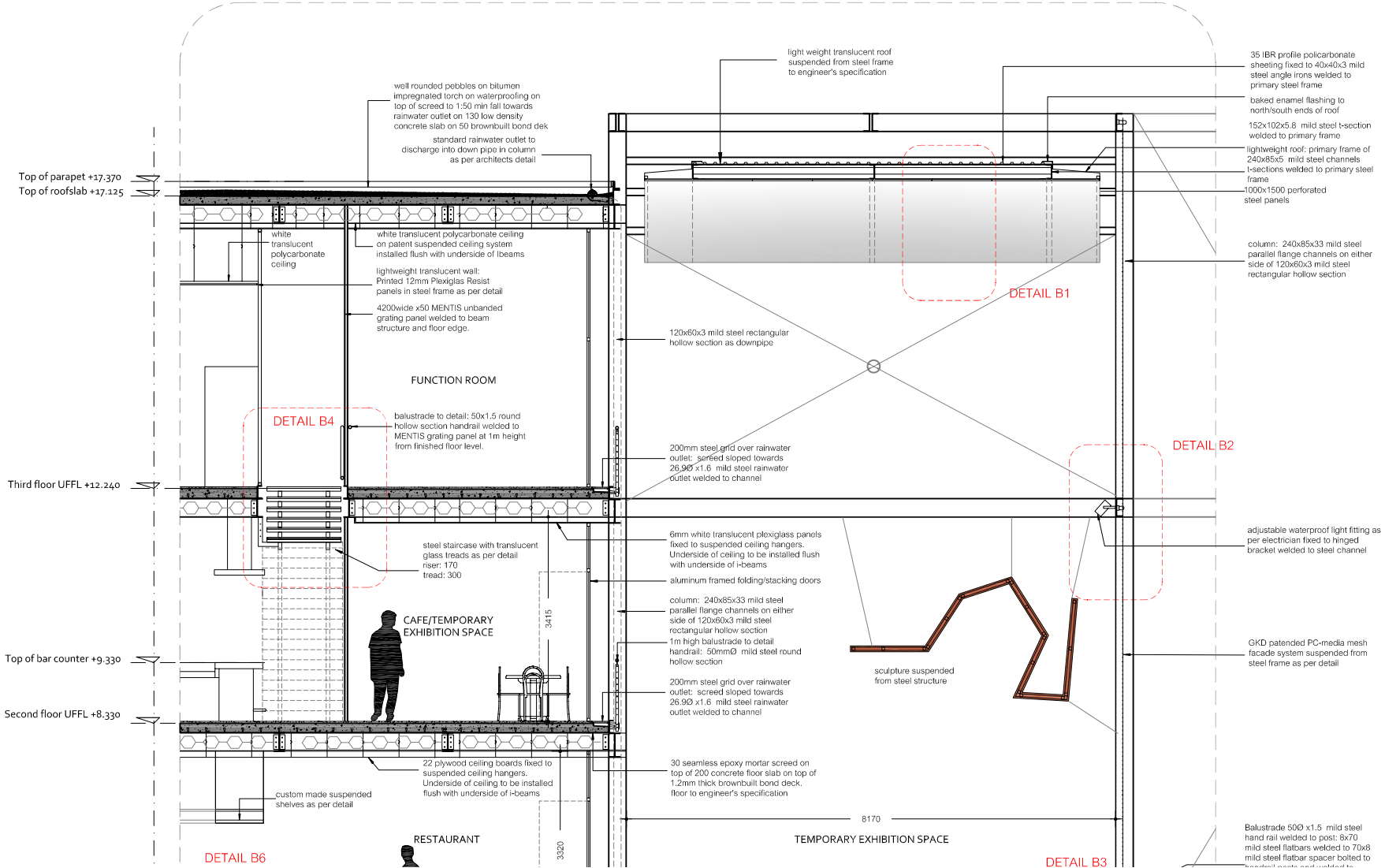
Steel note:
All exposed structural steel members both inside and outside the building are to be approved by engineer. All members are to be painted with a coat of Sapphire (or similar approved) fire retardant intumescent paint as approved by SABS and NBR. A top coat of non combustible matt acrylic paint in a dark grey colour must be applied once the undercoat has dried.

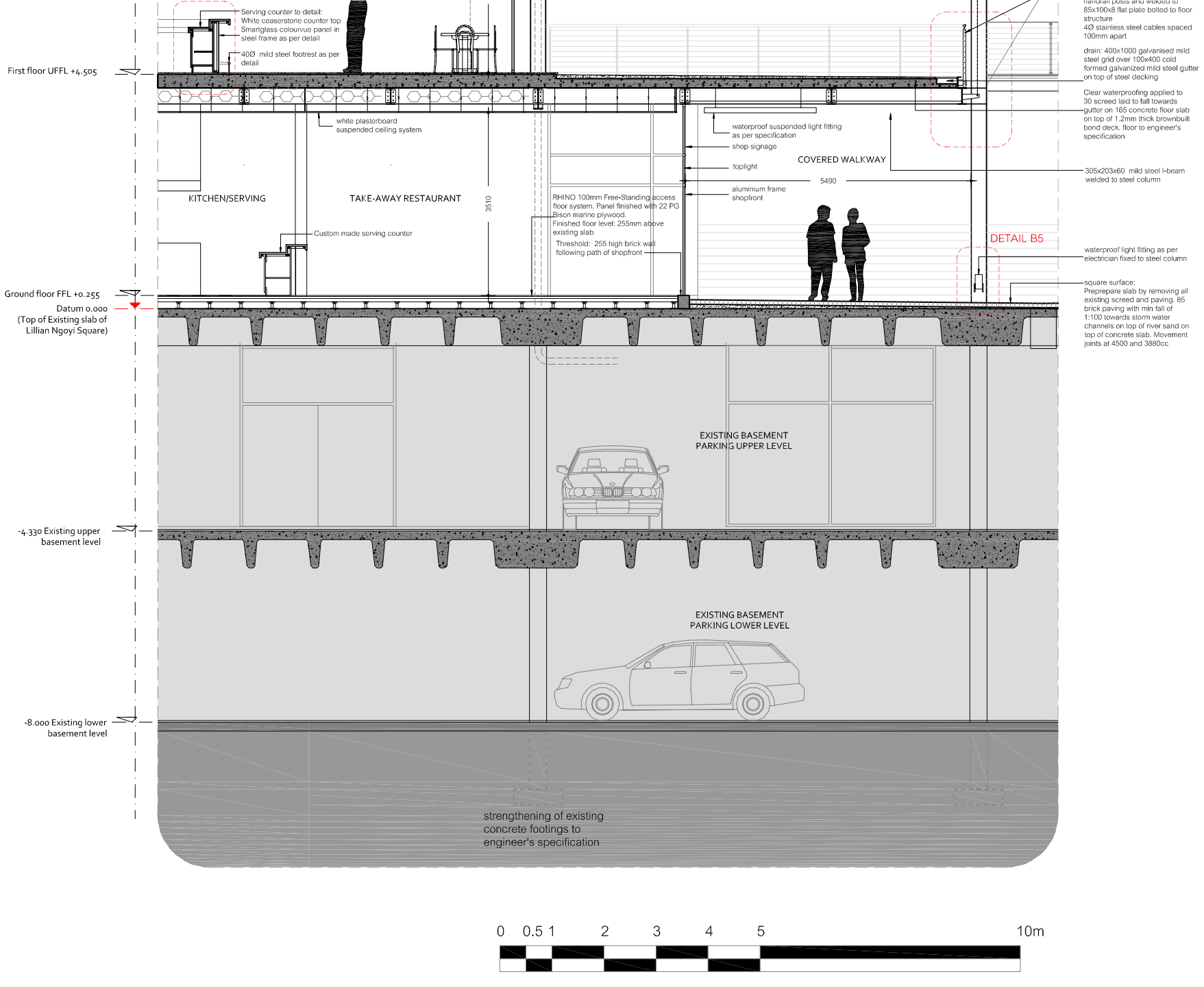
Steel frame to braced with steel tension cables in all directions as indicated on plans/ sections at minimum 20m intervals or as per engineer's specification.



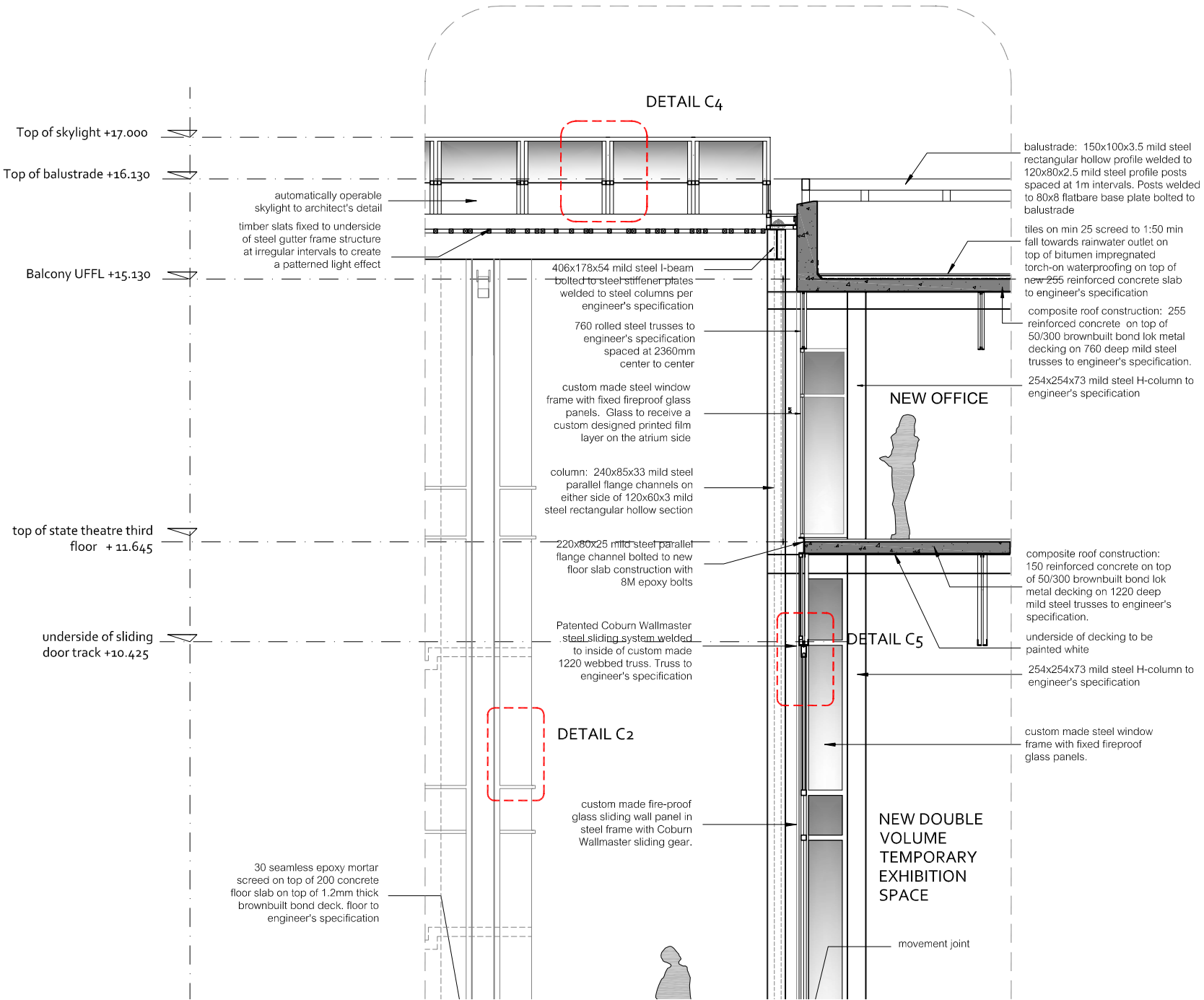

DANCE STUDIO
DANCE STUDIO BALCONY
9150
9150
9150
9150
6355
9150
9150
VIDEO ROOM
TEMPORARY EXHIBITION SPACE
GALLERY BALCONY
ENTRANCE LOBBY
RENTABLE SHOP
RENTABLE SHOP
CINEMA FOYER
EXISTIGN BASEMENT PARKING
Top of Roof +17.485
Third Floor UFFL + 12.240
CINEMA
Second Floor UFFL +8.330
First Floor UFFL + 4.505
Ground Floor Level +1.705
PRETORIUS STREET SIDEWALK
NEW EXTENTION OF ABSA SHOPPING CENTRE AND CINEMA FOYER

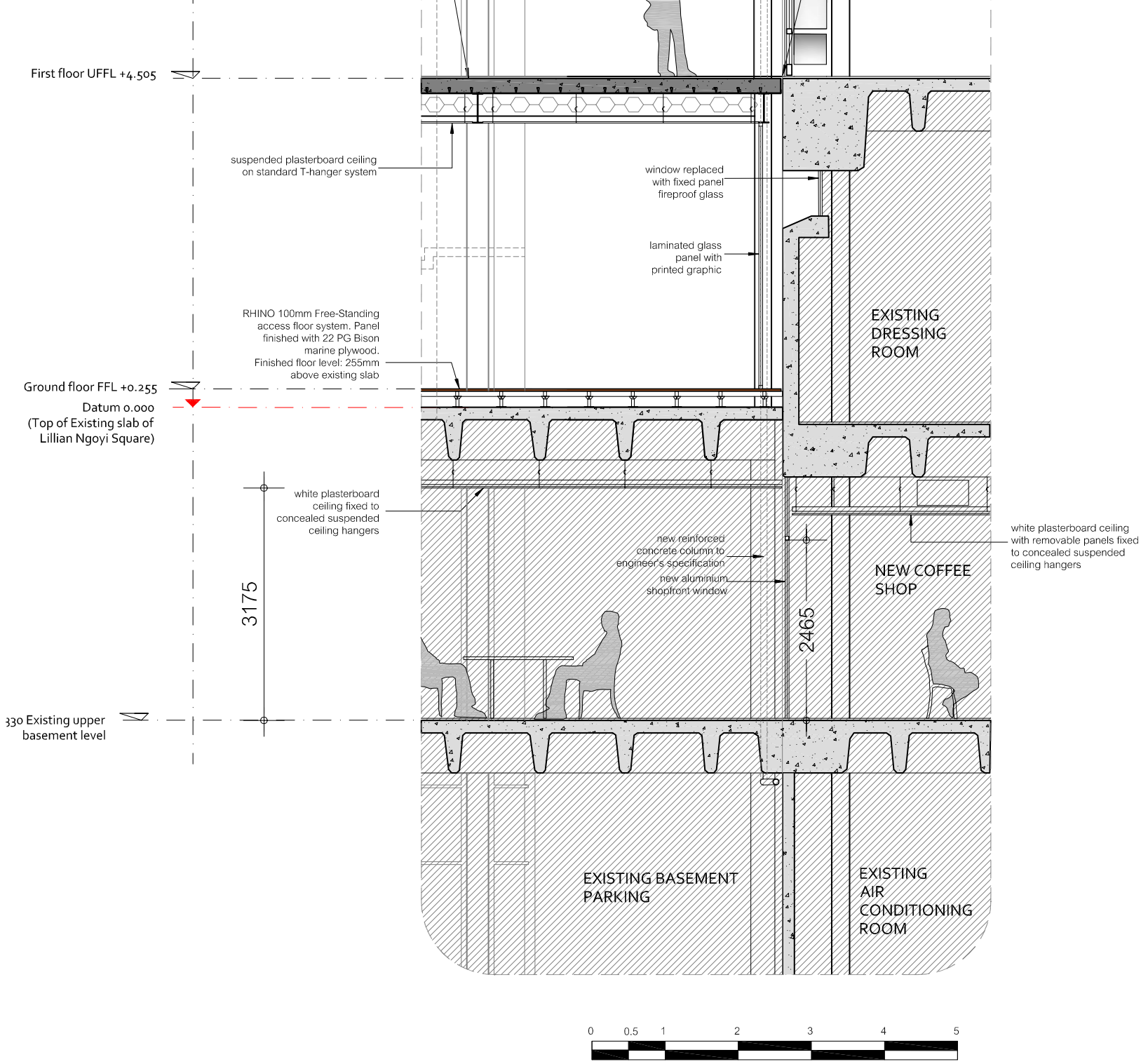
FACADE SECTION B





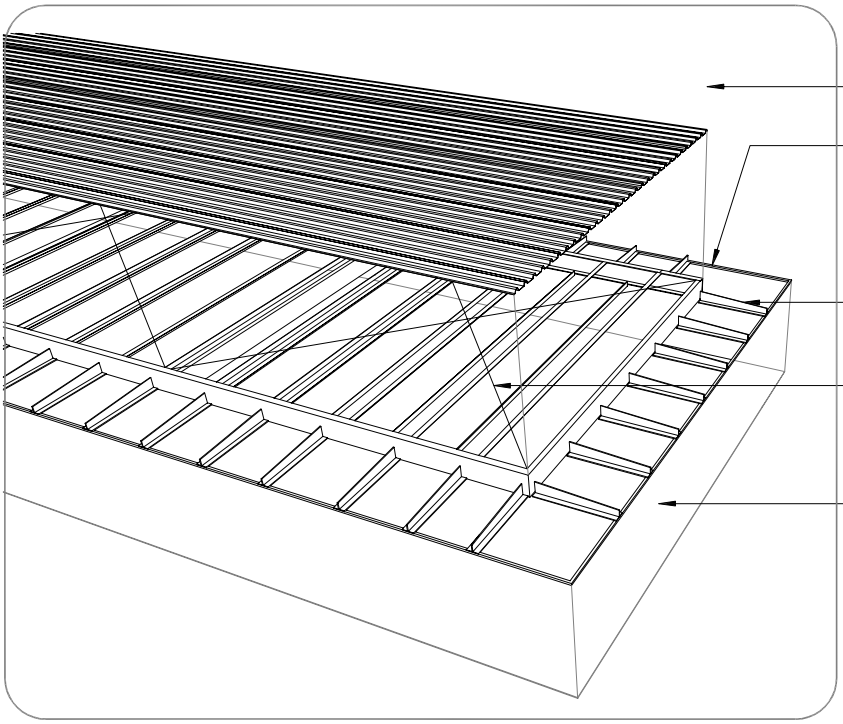
DETAIL SECTION C




First floor UFFL +4.505
suspended plasterboard ceiling on standard T-hanger system
window replaced with fixed panel fireproof glass
laminated glass panel with printed graphic
RHINO 100mm Free-Standing access floor system. Panel finished with 22 PG Bison marine plywood. Finished floor level: 255mm above existing slab
Ground floor FFL +0.255
Datum 0.000 (Top of Existing slab of Lillian Ngoyi Square)
EXISTING DRESSING ROOM
white plasterboard ceiling fixed to concealed suspended ceiling hangers
3175
new reinforced concrete column to engineer's specification
new aluminium shopfront window
2465
white plasterboard ceiling with removable panels fixed to concealed suspended ceiling hangers
NEW COFFEE SHOP
330 Existing upper basement level
EXISTING BASEMENT PARKING
EXISTING AIR CONDITIONING ROOM
0
0.5
1
2
3
4
5

DETAIL ELEMENTS

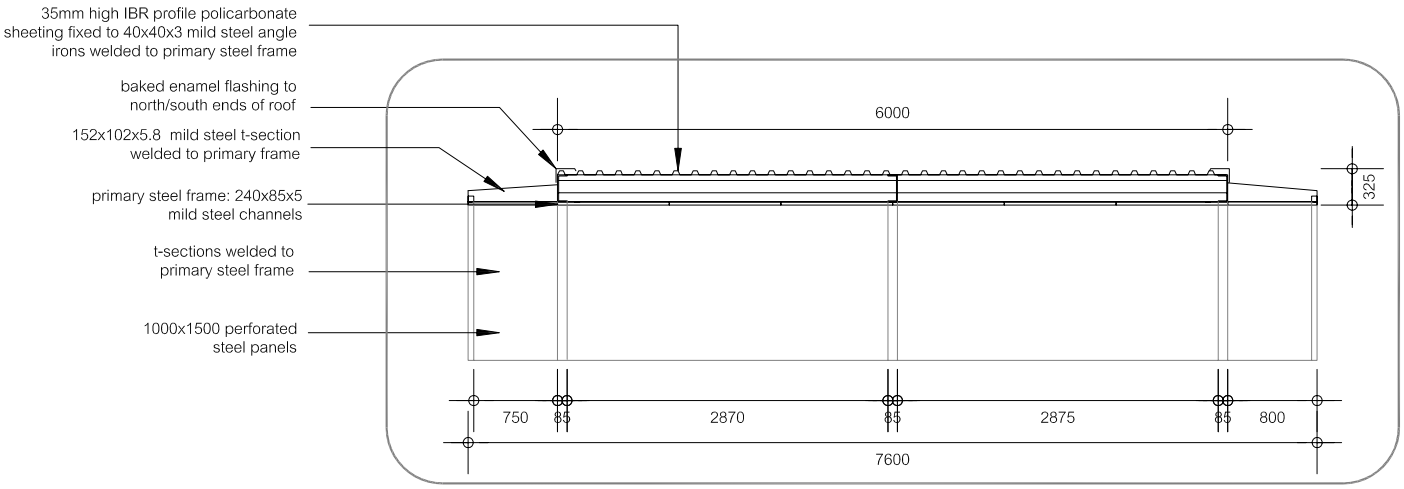
DETAIL B1.a: Exploded perspective view of suspended roof



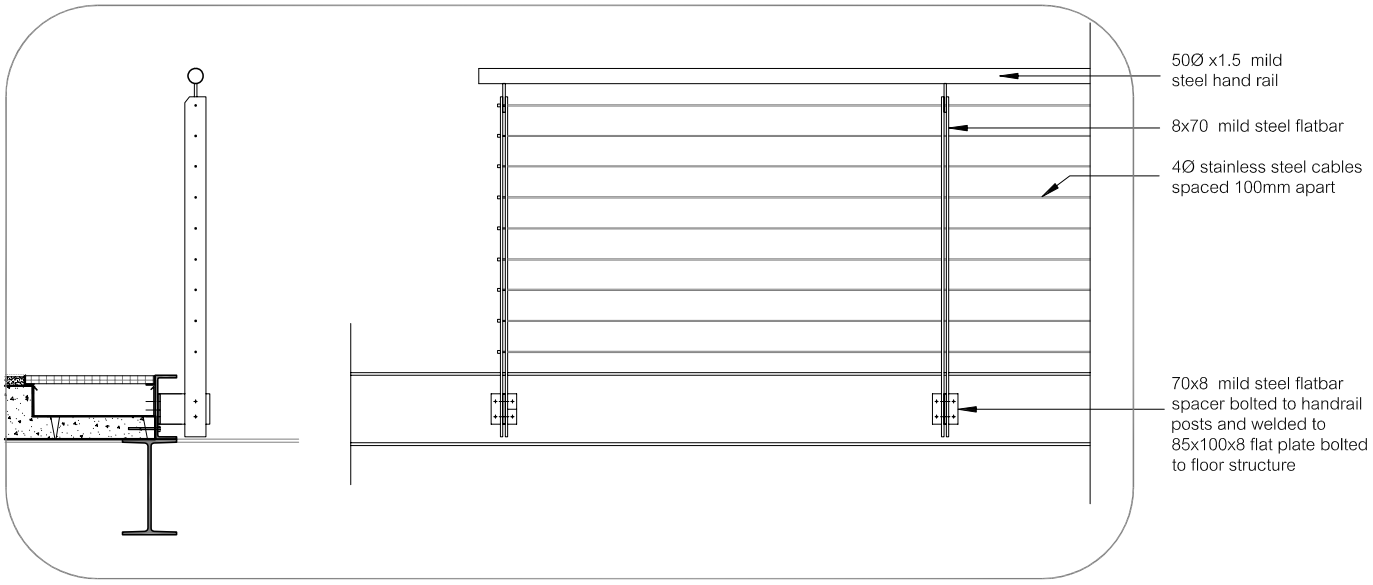
NOTE

Roof frame to be welded to beams at 9150m intervals and tied back to steel frame on underside with steel cables as per engineer's specification

DETAIL B1.b: Section suspended roof



DETAIL B3.a: Balustrade detail



DETAIL B3.b: Typical slab edge detail

PC Media mesh fixed to steel structure with patent 'woven in bar with spring attachment' welded to 76x153 mild steel T-section welded to steel frame.

50,8 x 1.6 mild steel hollow round section handrail welded to 50x8 mild steel flat plate bolted to 70x8 mild steel balustrade posts.

ABE liquid paint-on waterproofing applied to min 30mm epoxy mortar screed sloping towards gutter. Screed stopped against 30x30x3 mild steel angle iron bolted to concrete floor slab

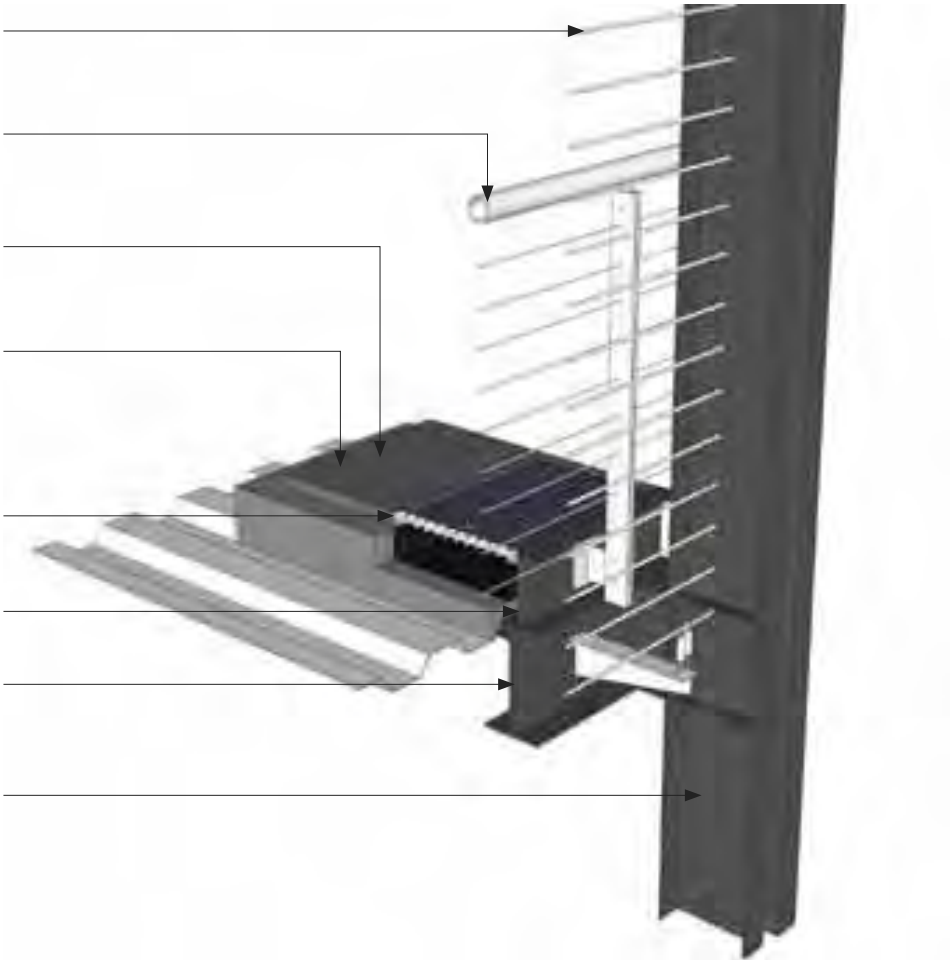
165 concrete lab on top of Brownbuilt Bond Lok 50/300 composite deck. Floor to engineer's specification

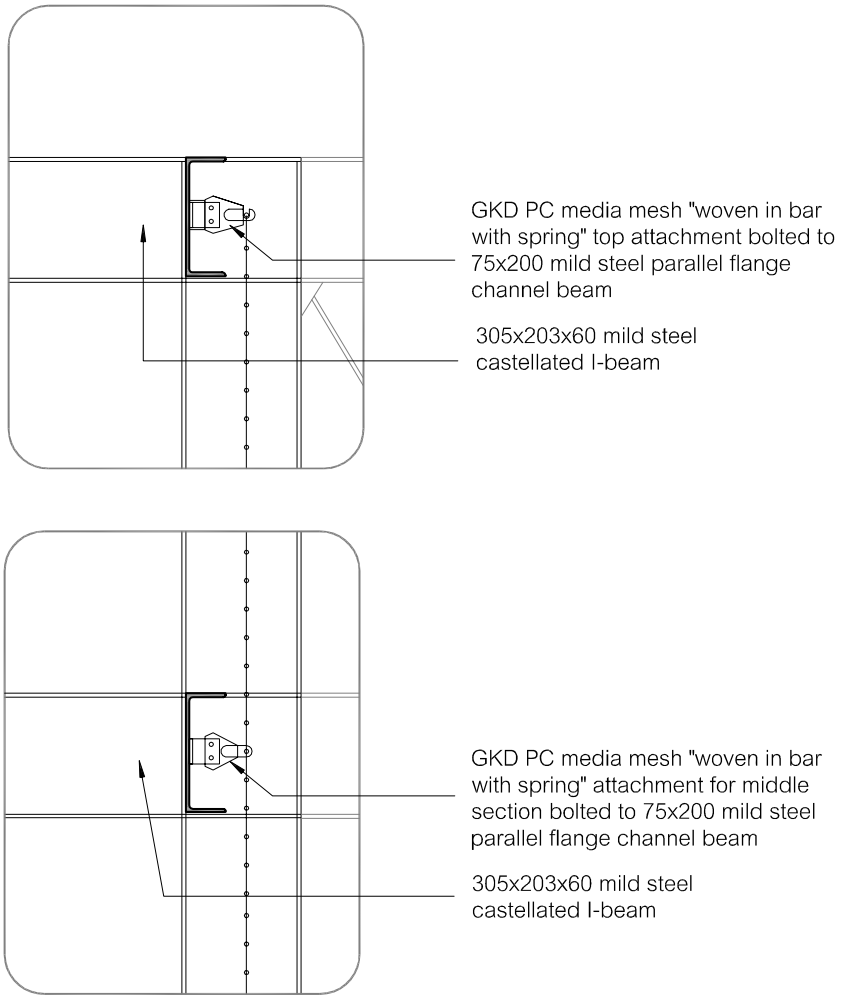
30 MENTIS grating in 30x30x3 mild steel equal angle welded to parallel flange channel

200x75x25 mild steel taper flange channel as floor edging welded to steel Ibeam

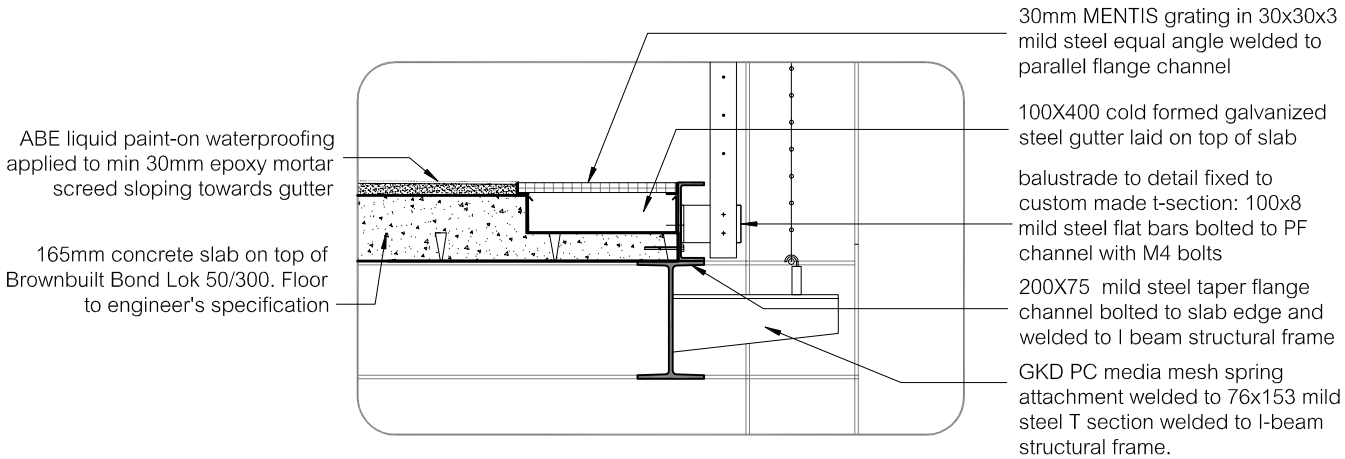
305x203x60 mild steel I-beam welded to structural frame

column: 240x85x33 mild steel parallel flange channel welded to either side of 120x60x3 mild steel rectangular hollow section. Rectangular section to be used as rainwater downpipe. Stiffener plates to be welded to all steel members at connections.

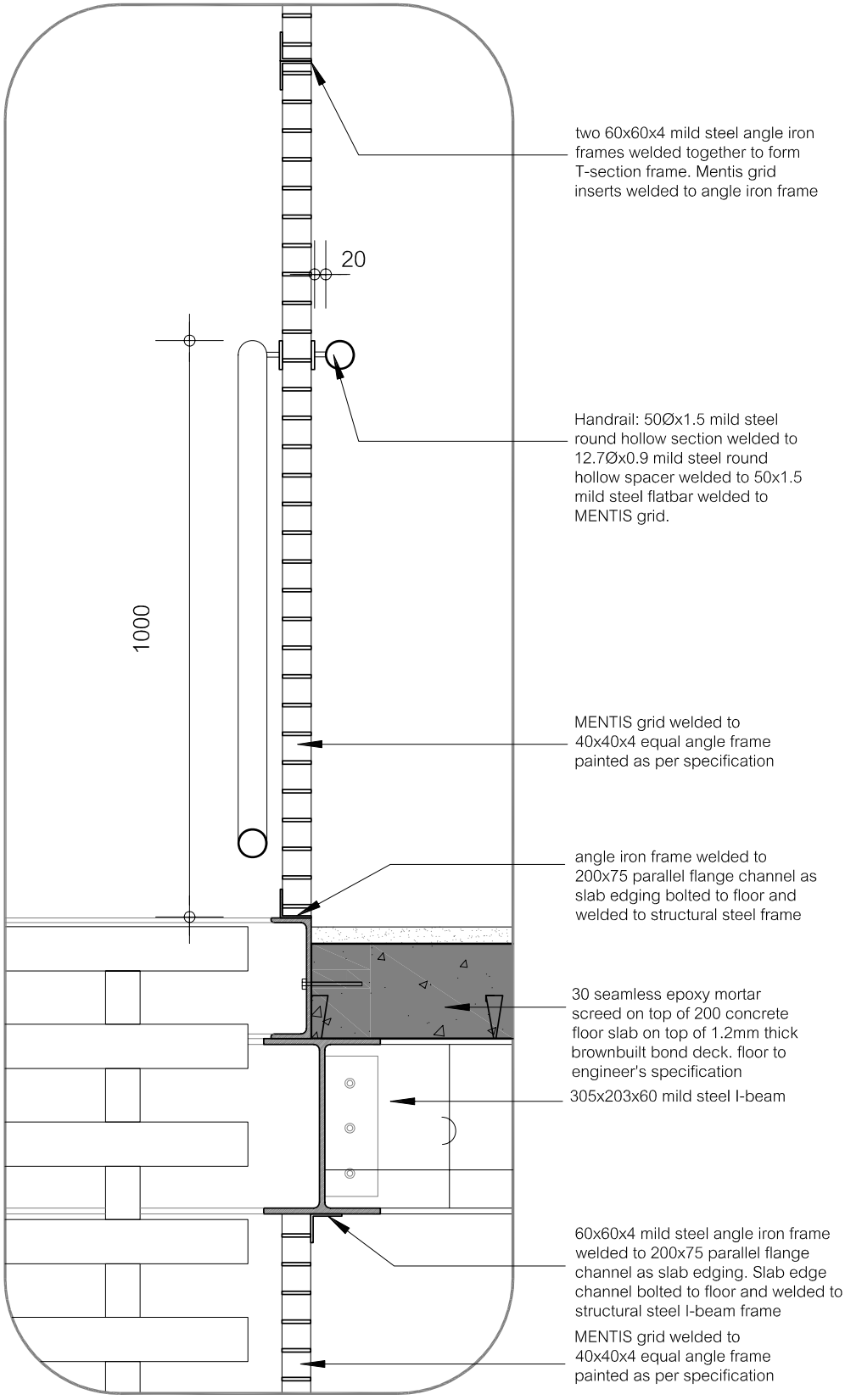




DETAIL B2. GKD mesh fixing detail

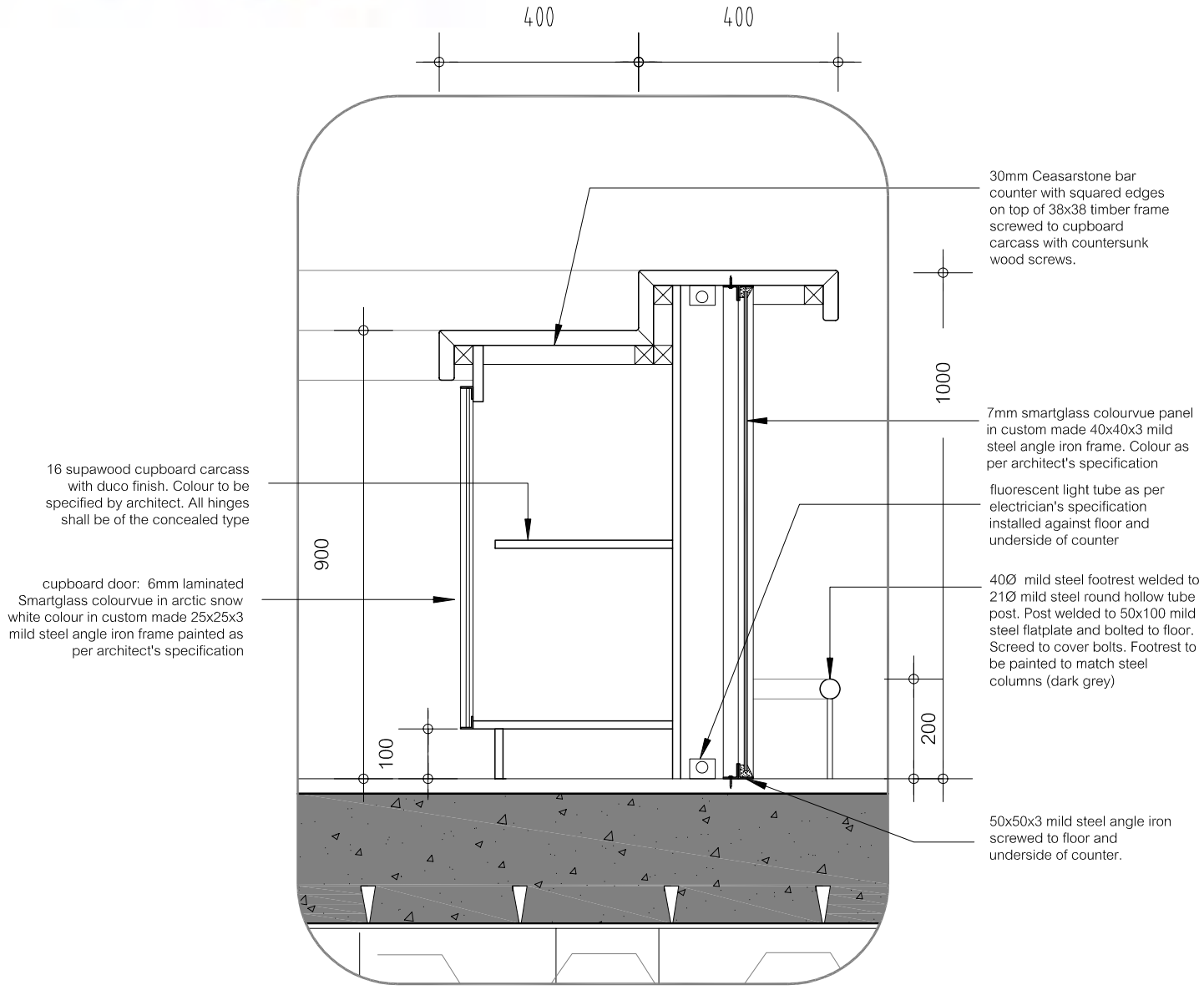


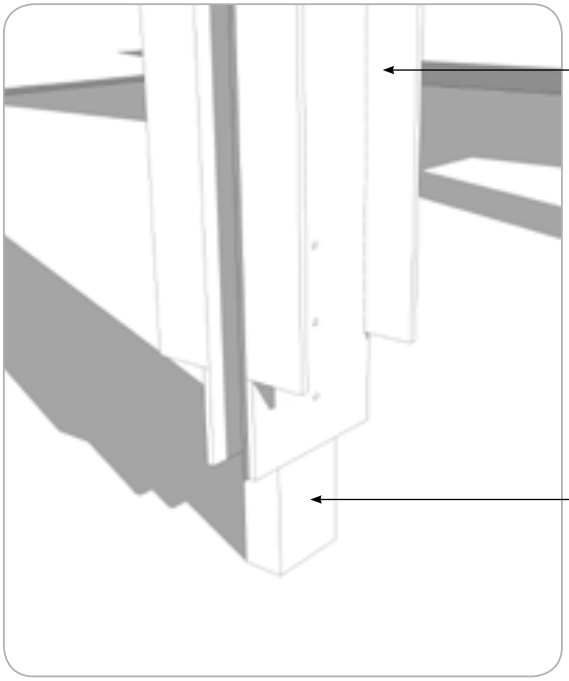
DETAIL B3.b: Typical slab edge detail



DETAIL B4. MENTIS grid balustrade/screen detail

DETAIL B5. Bar detail

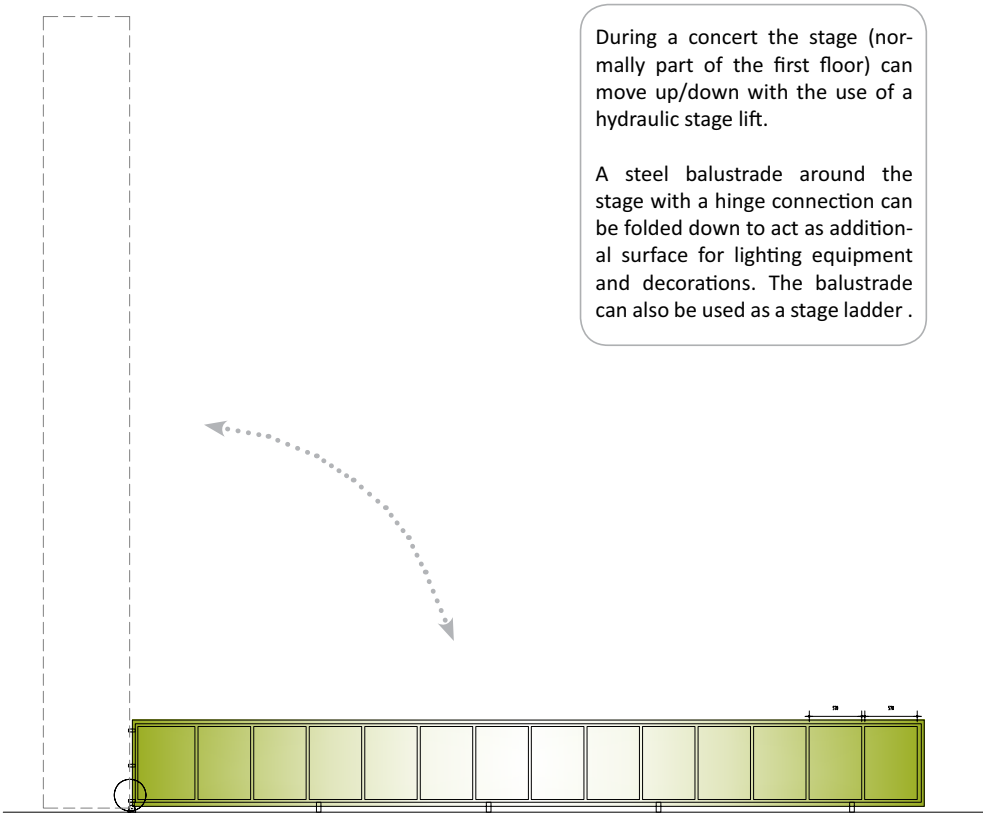




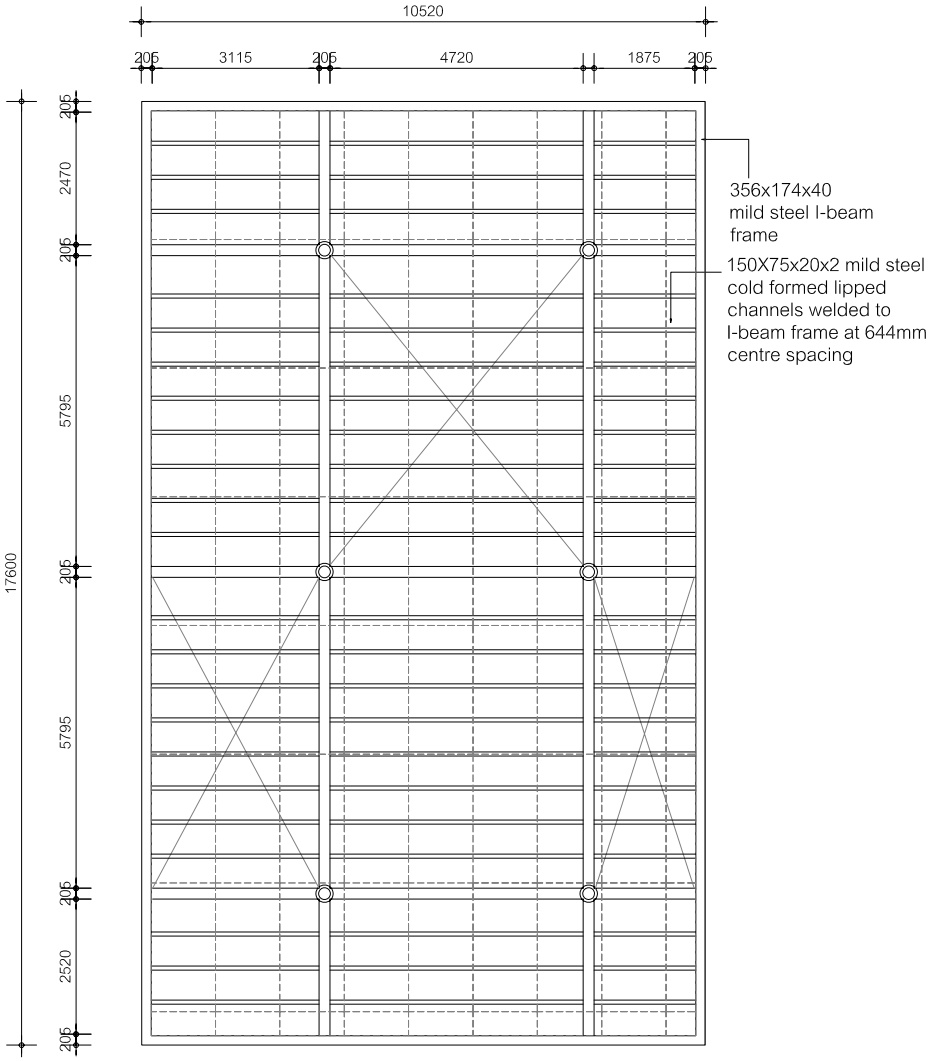
DETAIL C1: Hydraulic stage

During a concert the stage (normally part of the first floor) can move up/down with the use of a hydraulic stage lift.

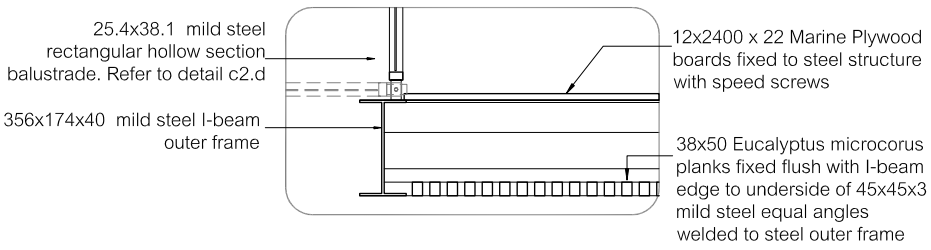
A steel balustrade around the stage with a hinge connection can be folded down to act as additional surface for lighting equipment and decorations. The balustrade can also be used as a stage ladder .



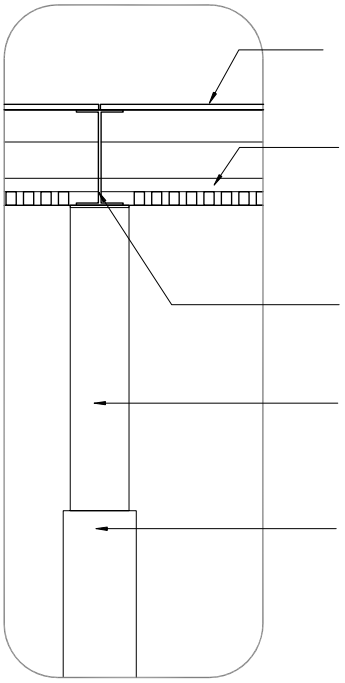
DETAIL C1.a.



DETAIL C1.b.

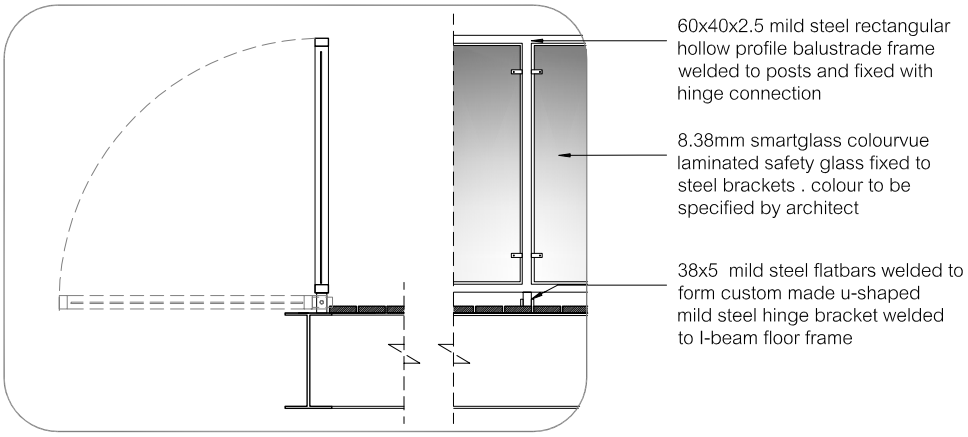


DETAIL C1.c.



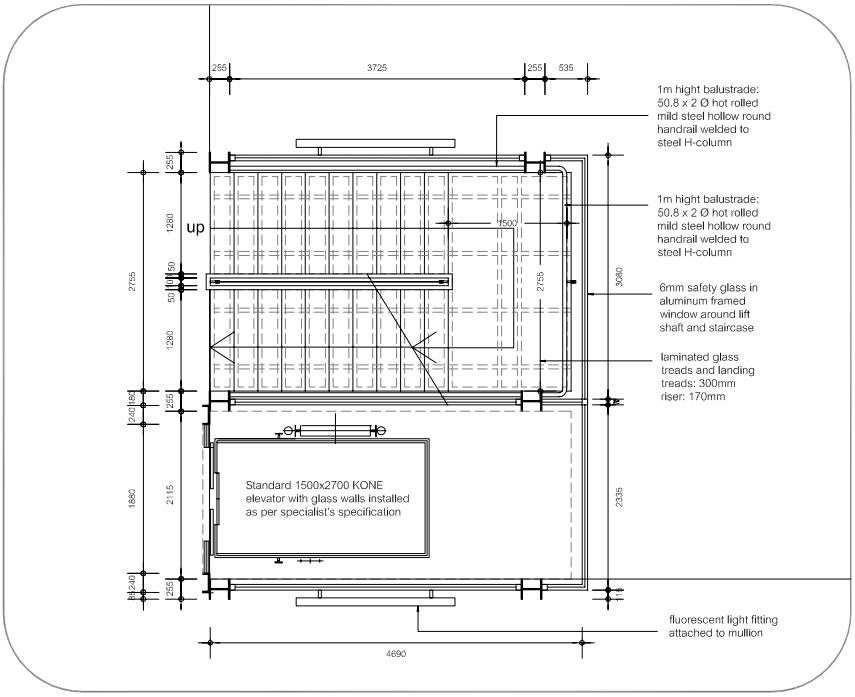
NOTE:
All structural elements and steel to be approved by a qualified structural engineer.
Details shown here merely indicate the concept and desired outcome.

DETAIL C1.d.

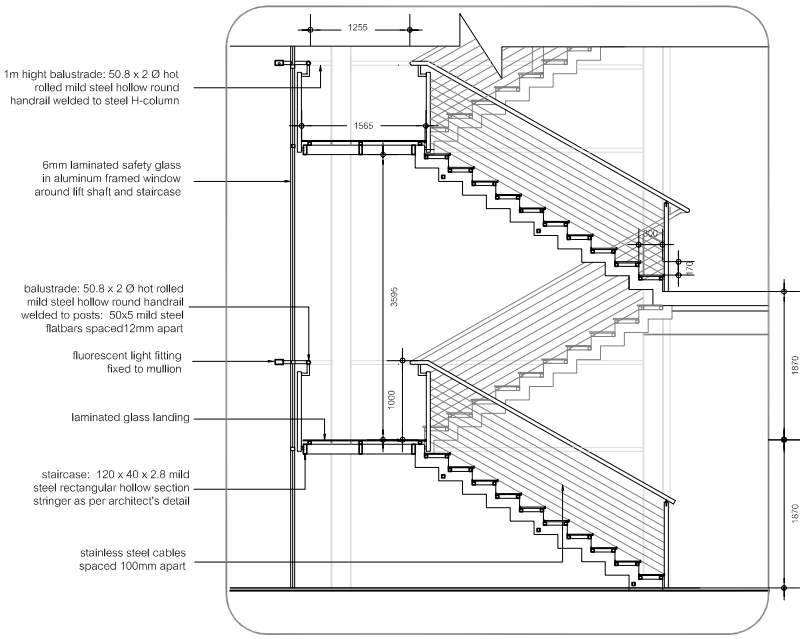


DETAIL C2: Staircase detail

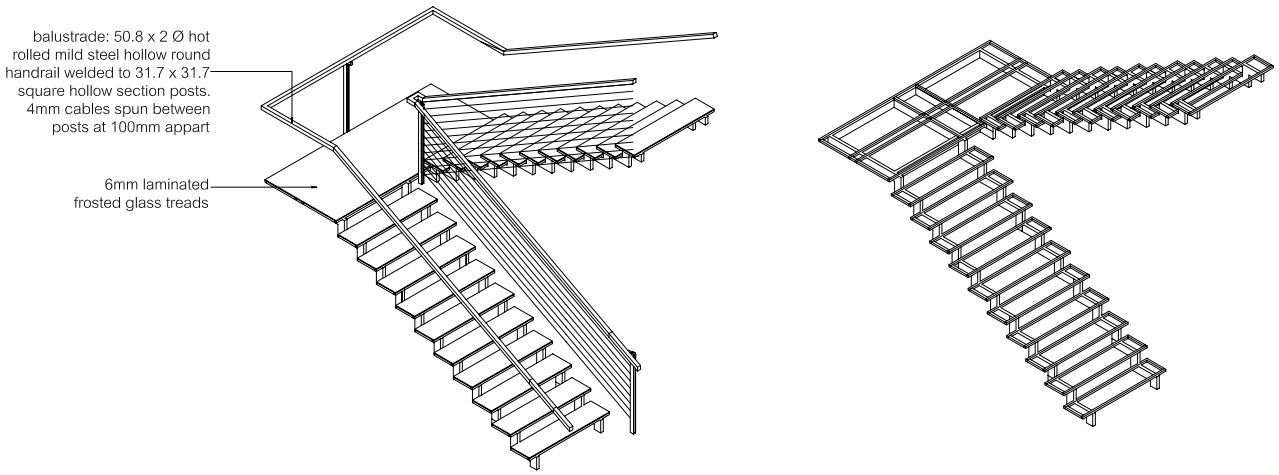
DETAIL C2.a. Plan



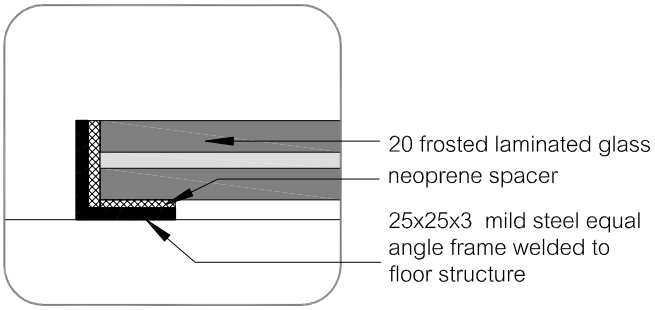
DETAIL C2.b. Section



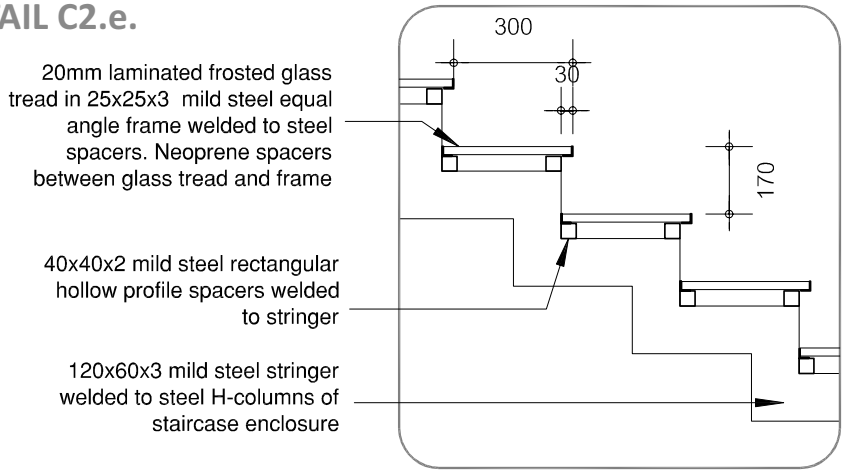
DETAIL C2.c. 3D views



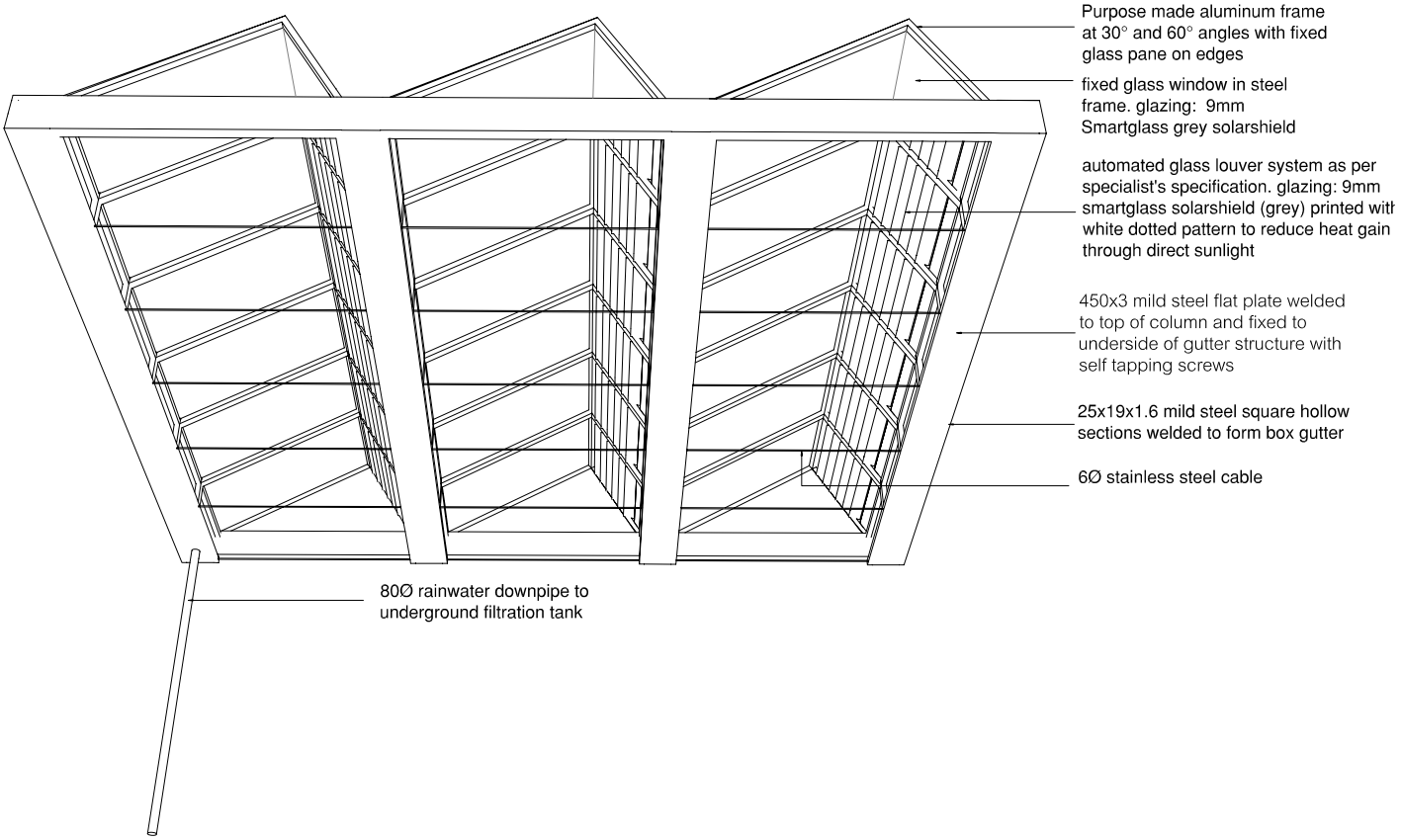
DETAIL C2.d.



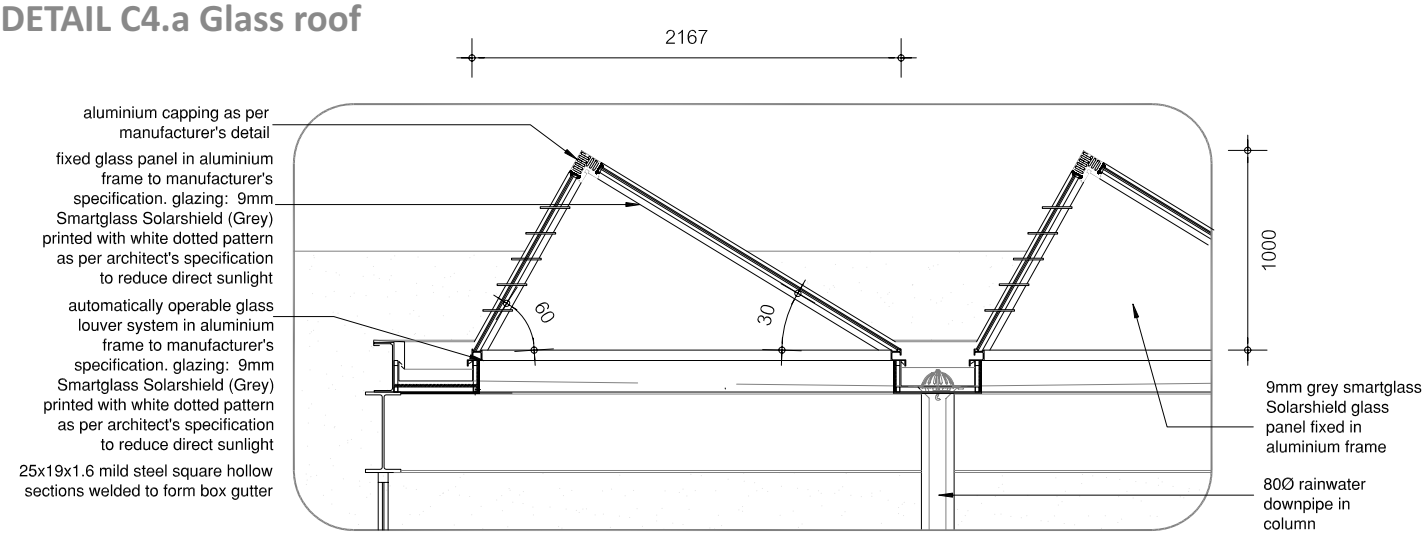
DETAIL C2.e.



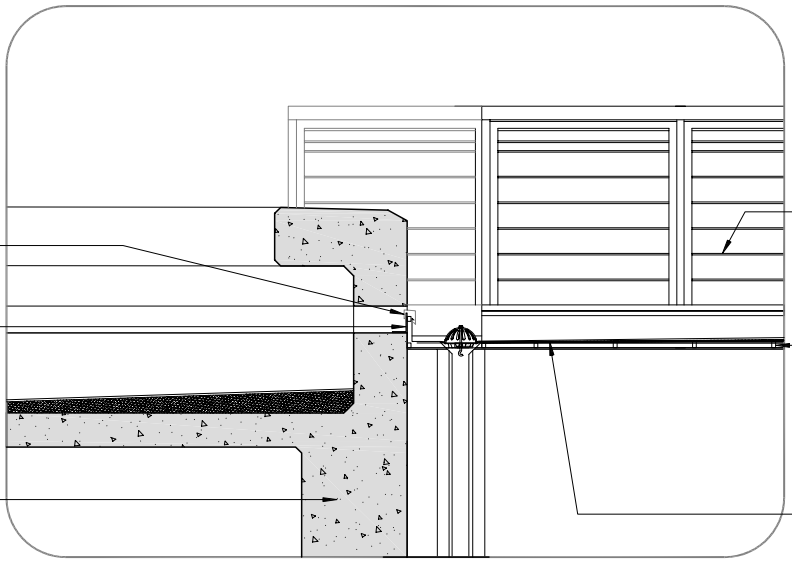
DETAIL C4: Glass roof



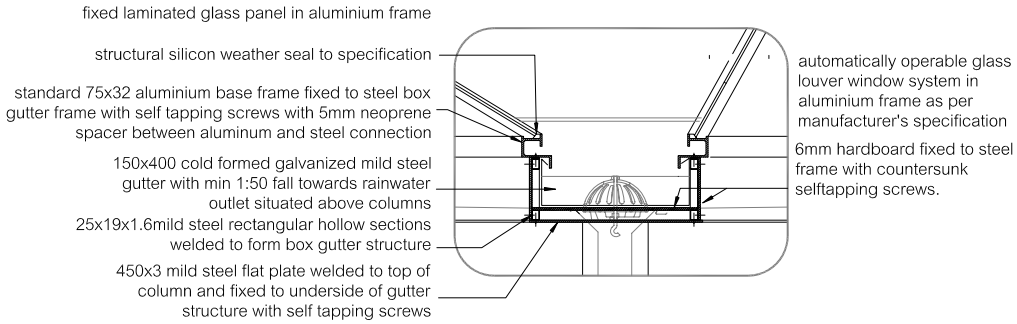
DETAIL C4.a Glass roof



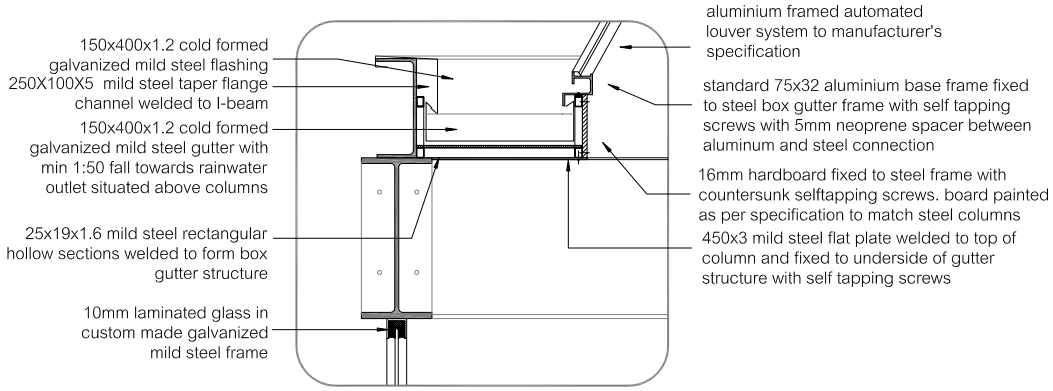
DETAIL C4.b Glass Roof Connection to existing buildling



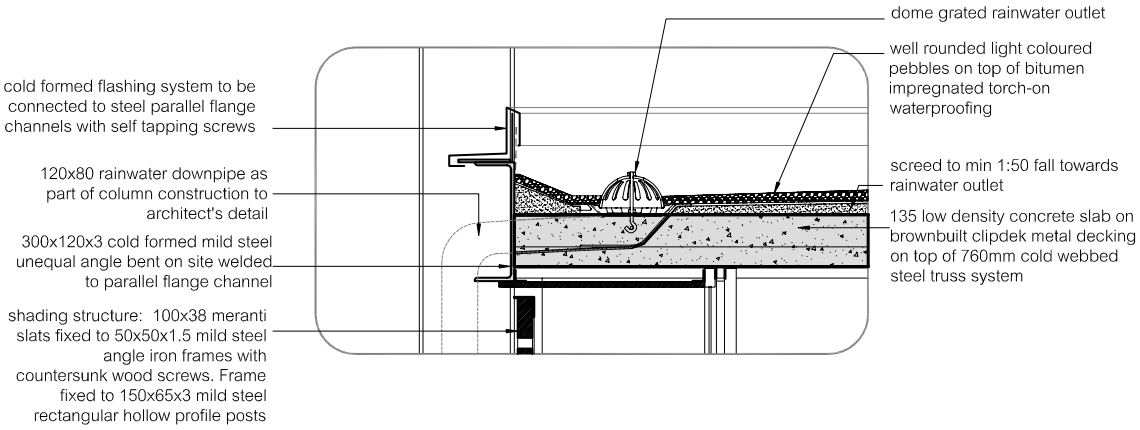
DETAIL C4.c Glass roof rainwater outlet

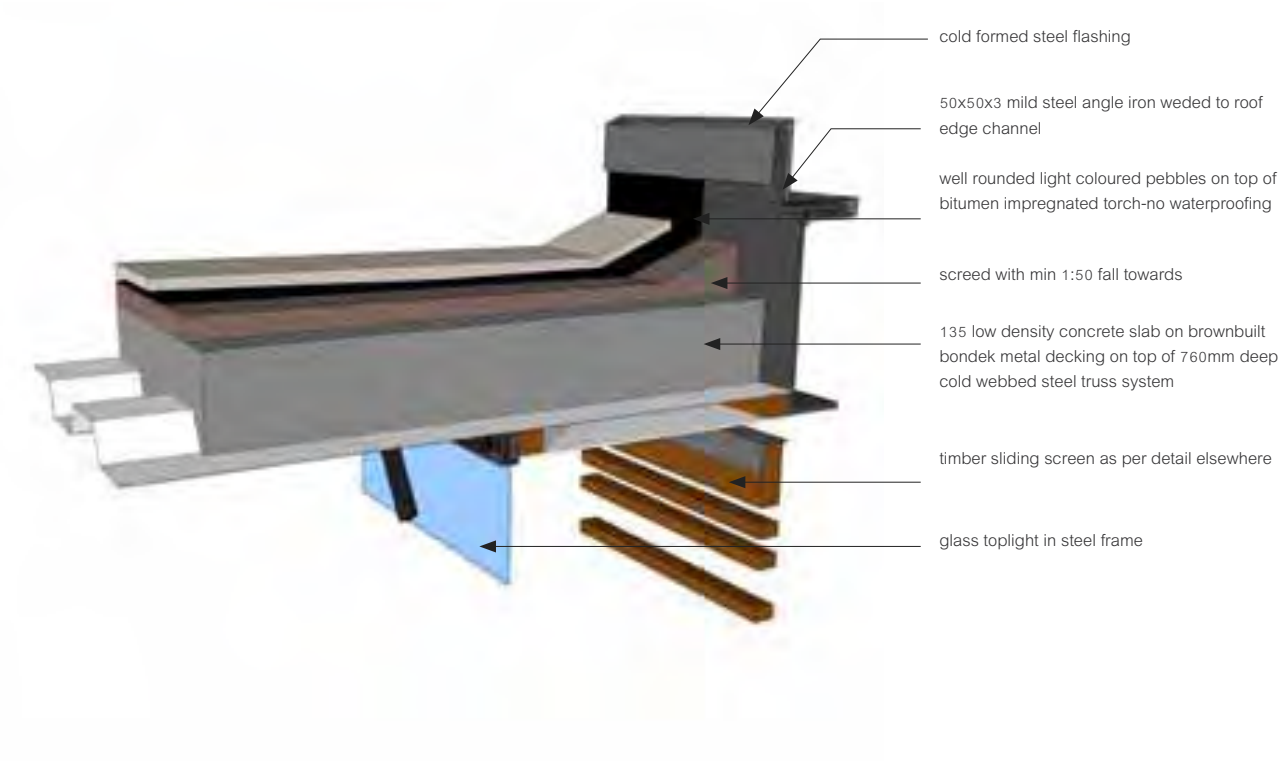


DETAIL C4.d Glass roof facade connection

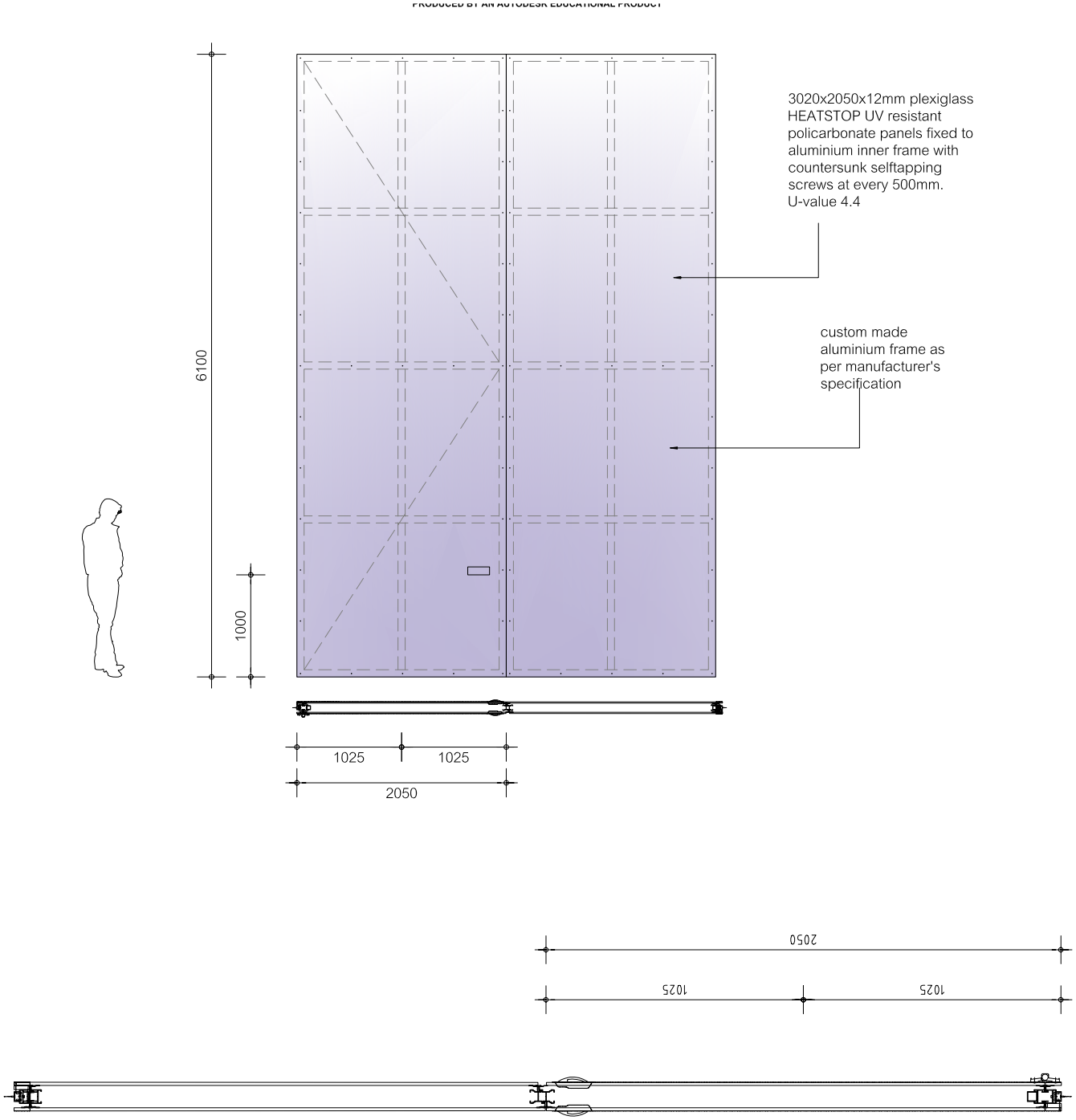


DETAIL C3: Roof edge detail



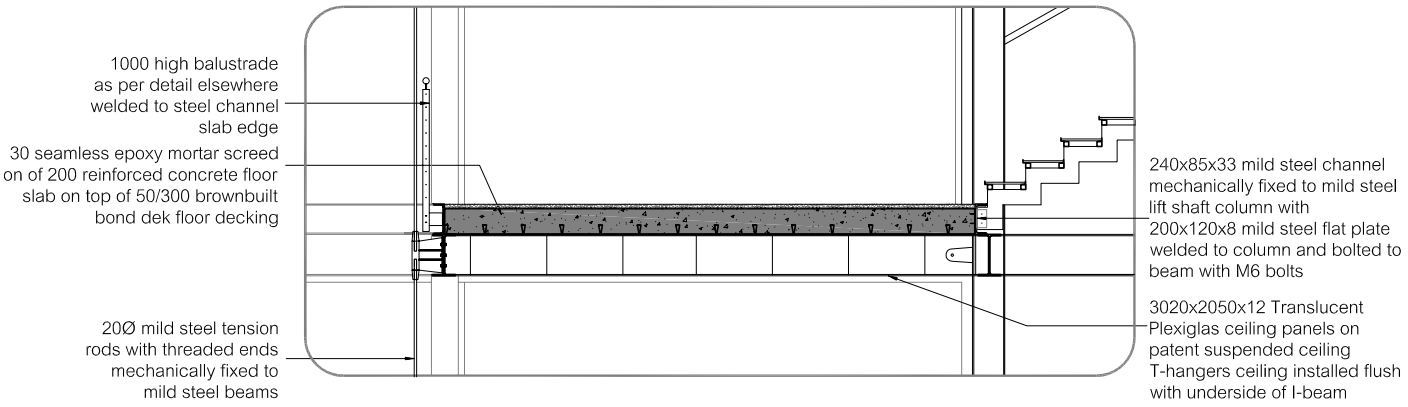


DETAIL C5: Sliding door details

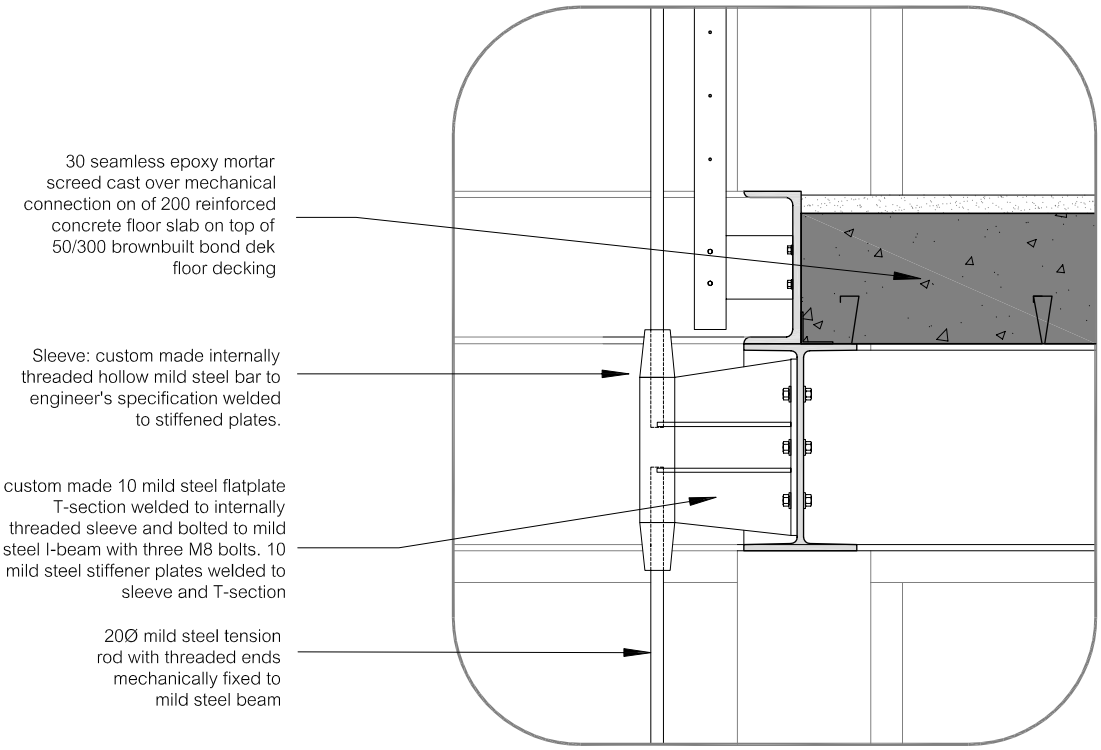


DETAIL C6: Suspended walkway

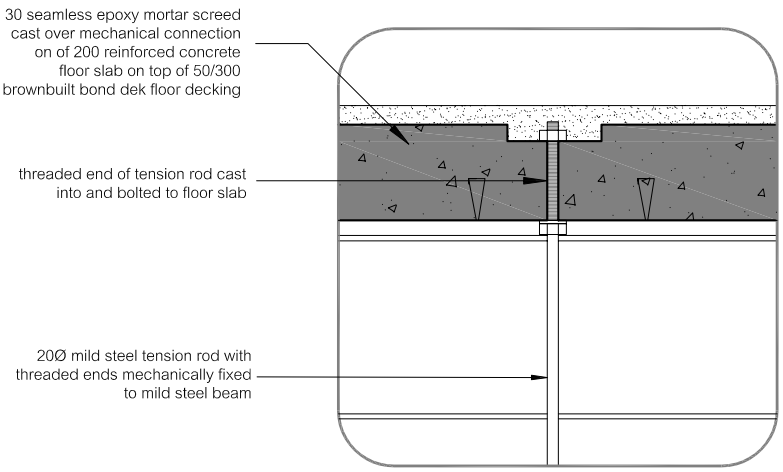
DETAIL C6a: Section



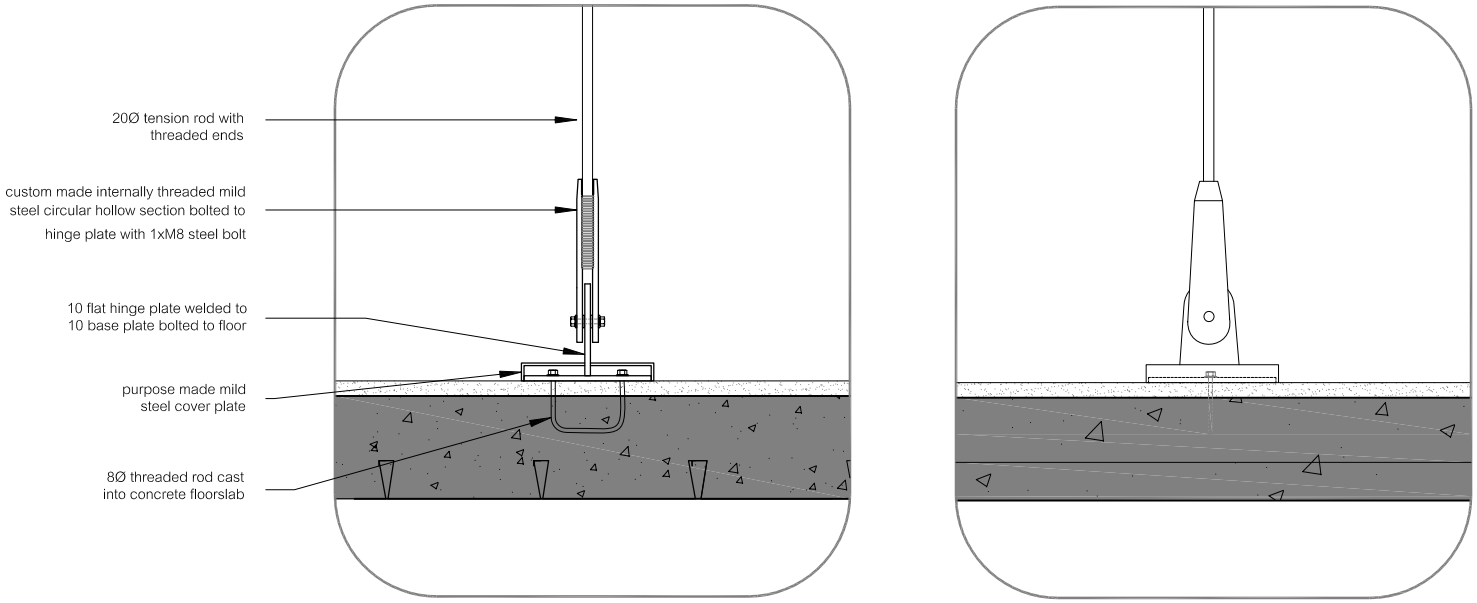
DETAIL C6b: Floor edge detail



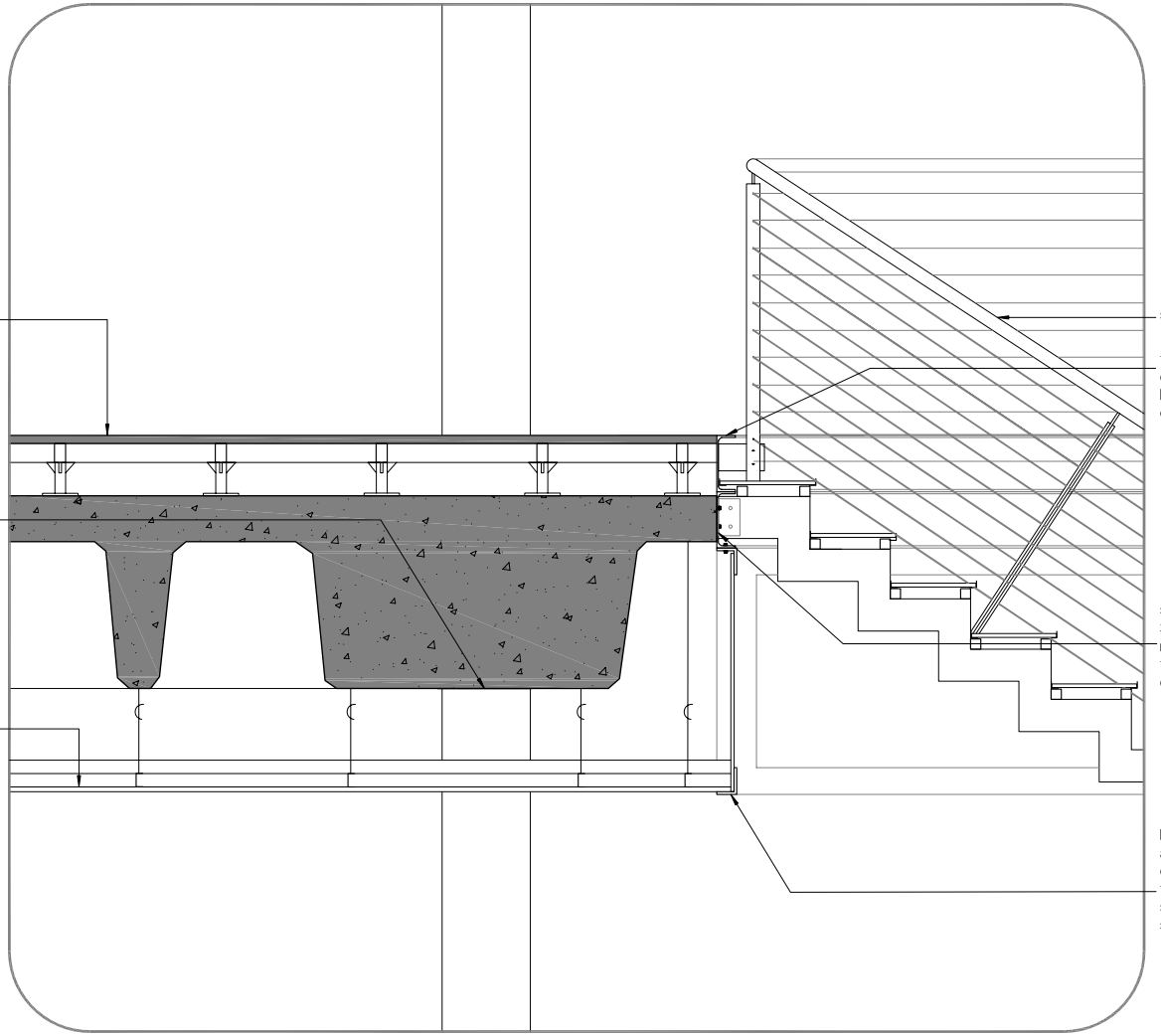
DETAIL C6c: Connection to soffit



DETAIL C6d: Connection to floor

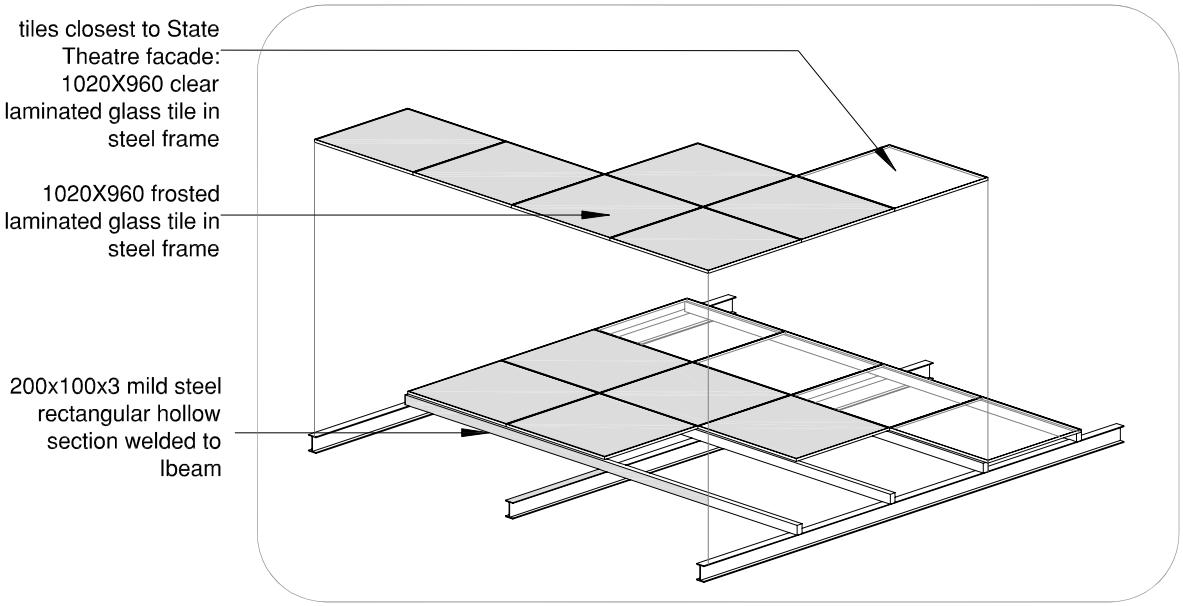


DETAIL C7: Connection to basement

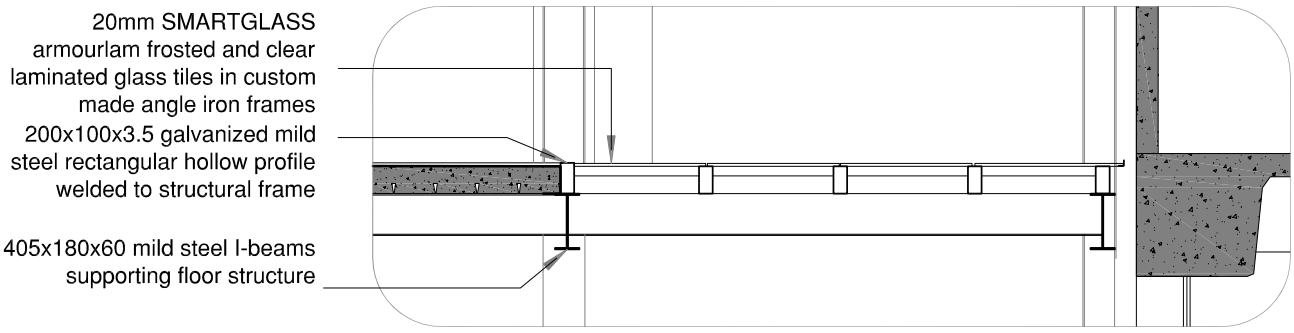


DETAIL D1: Glass Floor

DETAIL D1.a: Axonometric view



DETAIL D1.b: Section

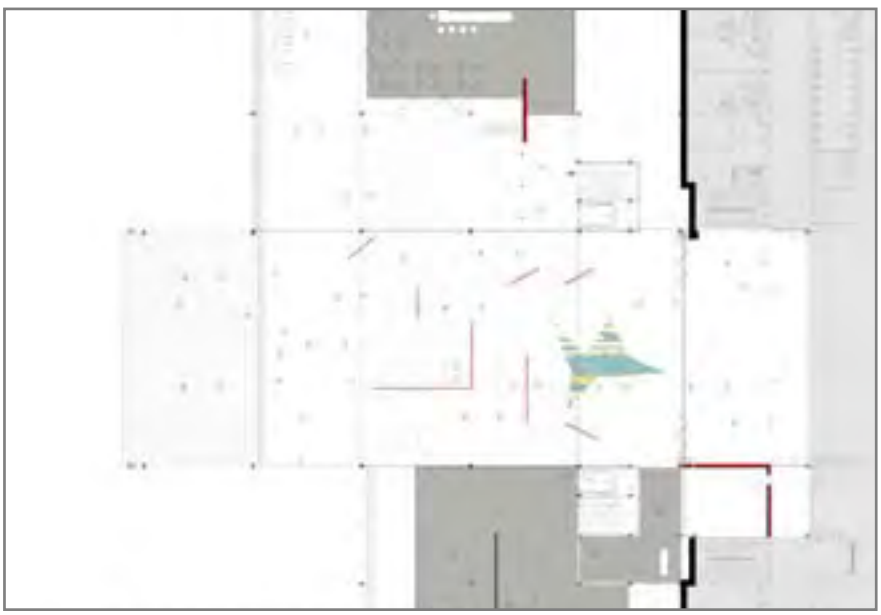


APPENDIX A: EXHIBITION/DISPLAY SYSTEMS

TEMPORARY EXHIBITION SPACE

Panels used as stage curtains during performance

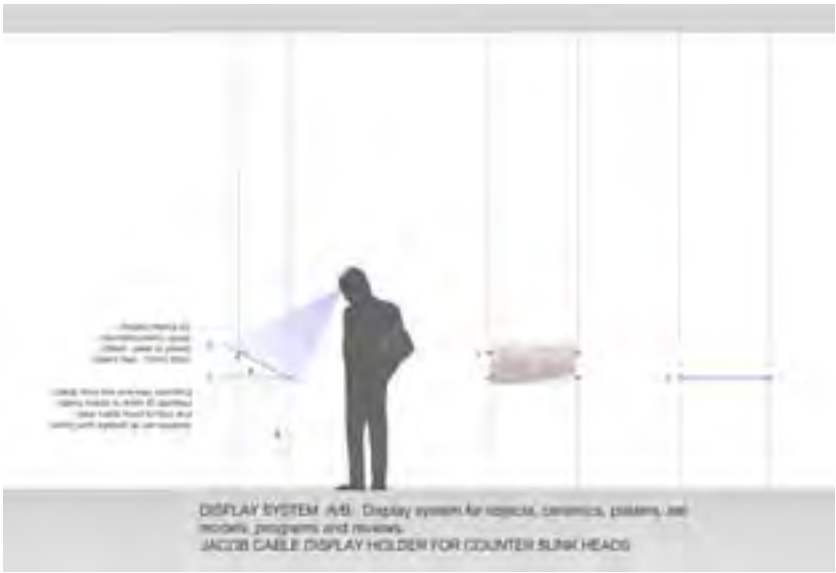
Panel arrangement during exhibition



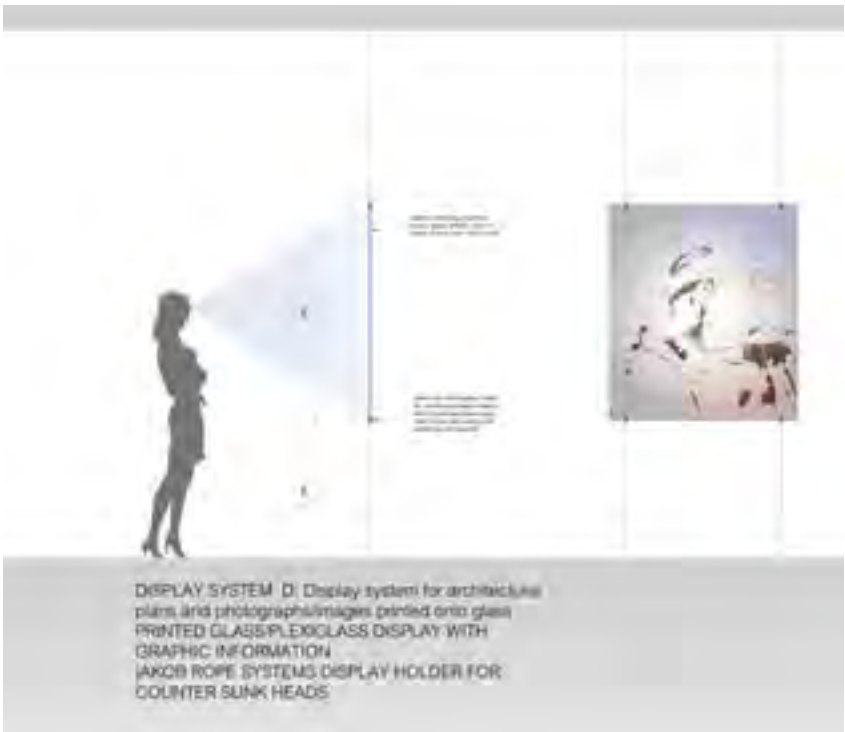
Panels in screen arrangement for movie screening

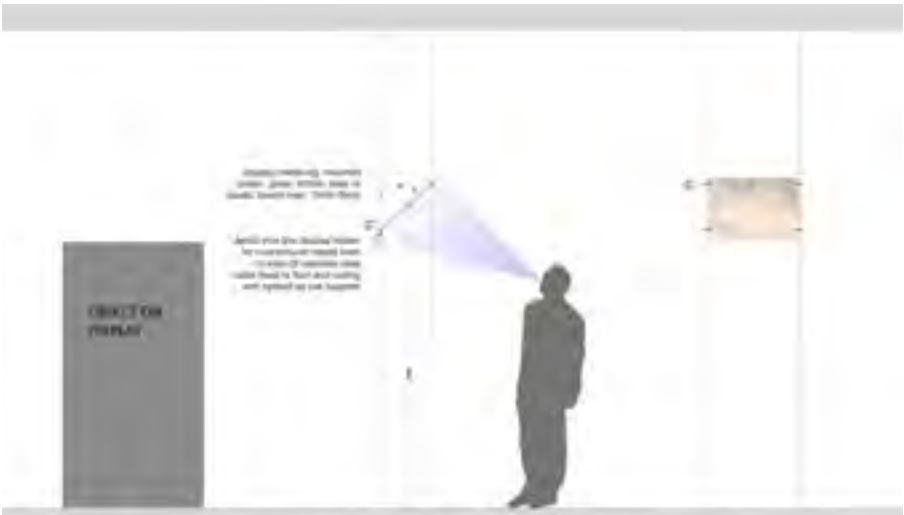
Panels in lockable position (night time)

GALLERY



DETAIL C1.b.





Interior view of gallery

APPENDIX B

OCCUPANCY

Museum – 1 person per m²
Place of Entertainment – 1 person per m² or number of fixed seats.
Place of instruction – 1 person per 5m²
Parking garage – 1 person per 50m²
Small shops - 1 person per 10m²

CALCULATIONS OF ELEMENT SIZES

Note: Calculations were done using values given in Orton(1988:41-43) table 1.10 and a Structural engineer's suggestions.
Standard steel sizes as per South African Steel construction handbook

COLUMNS:

Structural frame for temporary exhibition:
Description: the frame will consists of steel columns and beams arranged according to the existing column grid of the basement under Lillian Ngoyi/Performance square. The structure must permanently carry a light weight roof that produces wind load, and the first floor balcony, producing live loads. Columns must be of sufficient size to carry temporary floors for exhibitions and must therefore be able to carry a bigger live load.

d = H/30 for load bearing elements
d = H/50 for non-load bearing elements

d=H/30
d= 7185/30
d=239.5mm

Engineer suggests that a 152x152x40mm mild steel I-beam would be sufficient size
Closest available H-column:
203x203x46mm (Can have up to 8m unsupported height)
254x254x107mm

Solution:
240x85x33mm galvanized steel parallel flange channels on either side of 60x120x3mm galvanized mild steel rectangular hollow profile as per detail
d = 85 + 85 + 60 = 230mm

INTERIOR COLUMNS:
LARGEST UNSUPPORTED HEIGHT: 4500mm
d=H/30
d= 4300/30
d= 144mm

Average height:
d=H/30
d= 3200/30
d= 106mm

BEAM SIZES:
L/d = 20
d = 8475/20
d= 423.75mm

L/d = 20
D = 9150/20
d = 457.5mm

Size can be reduced by creating stud beams with composite floor system: decking is fixed to beams with steel studs before concrete is poured. The floor and beam now work together as a larger beam thereby reducing the size of the beam.

Further reduction of beam size: more smaller beams to be used in the same direction.

L/d = 30
d = 8475/30
d=282.5mm

L/d = 30
d = 9150/30
d= 305mm

305x165x41mm
305x203x60mm mild steel I-beam up to 9m span (according to South African Steel Construction Handbook)

LONG SPAN BEAMS OVER EXHIBITION AREA/DANCE STUDIO
Mild steel I-beam:
18300/d = 28
d= 653mm

No available size. Uneconomical and heavy
Rolled steel trusses:
18300mm span
L/d = 15
18300/d = 15
d = 1220mm

Roof above dance studio:
L/d = 25
d = 18300/25
d = 732mm

DOWNPIPES
Total roof area: 2592.8 m^2
100mm^2 downpipe per 1m^2 roof area
Total nr of downpipes required =x
x= 2592.8x100
Total area of downpipes = 259280mm^2

Suggested size 120x60mm = 7200m^2
Total nr. Of downpipes needed:
259280/7200=36 downpipes
Total nr of columns available for downpipes: 34 + two additional downpipes

GUTTER SIZE (WALKWAY)
Total size of walkway = lxb
= 63.618x 8.355
=531.5m^2

140mm^2 gutter per m^2
cross sectional area of gutter = 140xsize of area sloping to gutter
531.5 x 0.140= 74410mm^2
Suggested gutter size = 400x100

Selection of Stage lifting mechanism
Lifting height: 7.6m
Size of stage:

Lifting system	Description	Maximum Lifting height	Speed	Acoustic qualities	Positive considerations	Negative considerations
Gala Spiralift system	Stainless steel spiral coil system that forms a stable column	3-12m	Approx. 6m/min-9.1m/min.	quiet	Commercially available and used in theatres	Unattractive appearance
Link-lift system	Chain of steel links that can be assembled to form a stable column	Up to 20m	200mm/s	quiet	Commercially available and used in theatres	Unattractive appearance
Mechanical Scissor lift/Parallelogram lift	Hydraulic lifting mechanism with large steel components	1m for parralellogram, up to 20m for scissor lift	Slow (up to 5mins per 700mm)	Unknown	No commercially available sizes of elements	Possible unattractive appearance + large structural elements. Regular maintenance.
Cable lifting system	Cable lifting system based on counter weight system	Unlimited (Height of lifting = movement of cable + weights	Fast	Quiet	Fast and effective. Requires least amount of energy	Needs large structure. Unattractive appearance in public space.
Hydraulic lift (custom designed)	Column system as per detail		Fast	Quiet	Attractive appearance can be designed by architect	Not commercially available. Requires energy. Requires pump room and pit.

APPENDIX C: ABSA BUILDING SKETCHPLANS

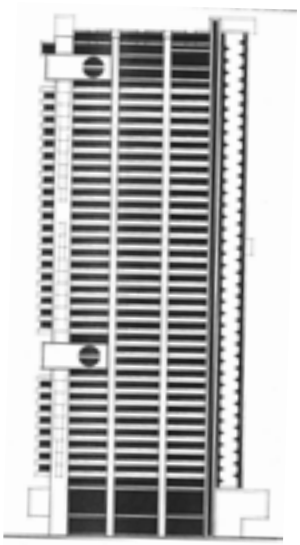


Fig.1.NORTH ELEVATION

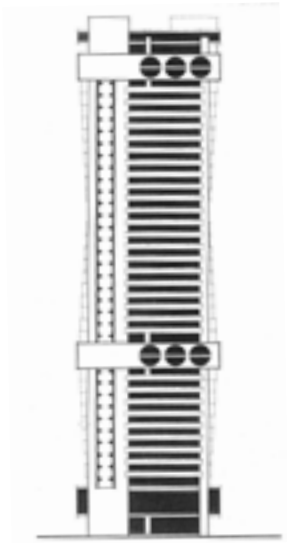


Fig.2.EAST ELEVATION

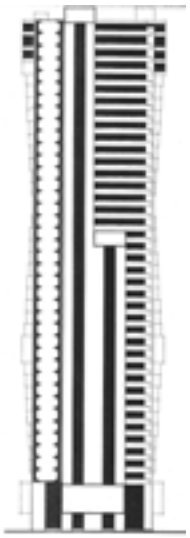


Fig.3.WEST ELEVATION

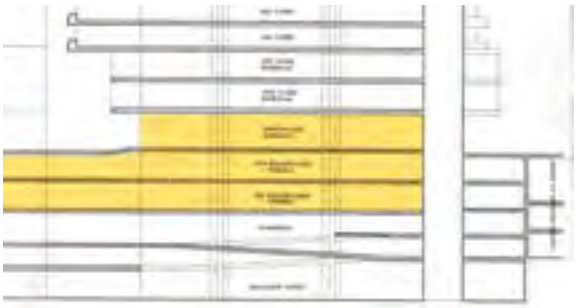


Fig.4.SECTION N/S LOOKING EAST

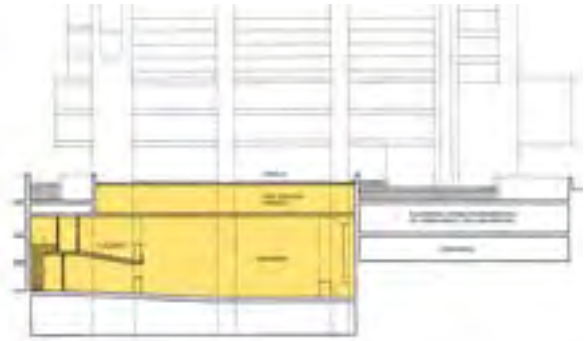


Fig.5.SECTION THROUGH CINEMA

Fig.6.N/S SECTION LOOKING WEST

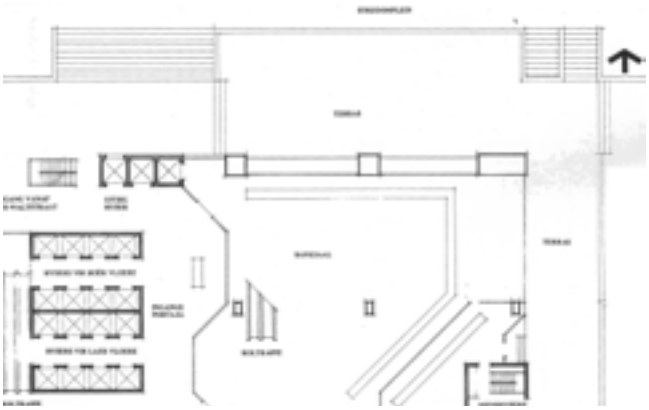


Fig.9.PLAN GROUND FLOOR

Fig.8.PLAN UPPER BASEMENT LEVEL

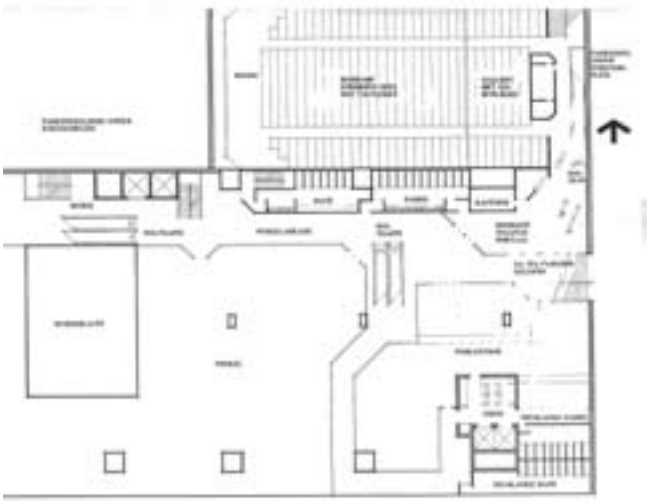


Fig.7.PLAN LOWER BASEMENT LEVEL

APPENDIX D

Fig.10. SECTION THROUGH VAN DER WALT STREET

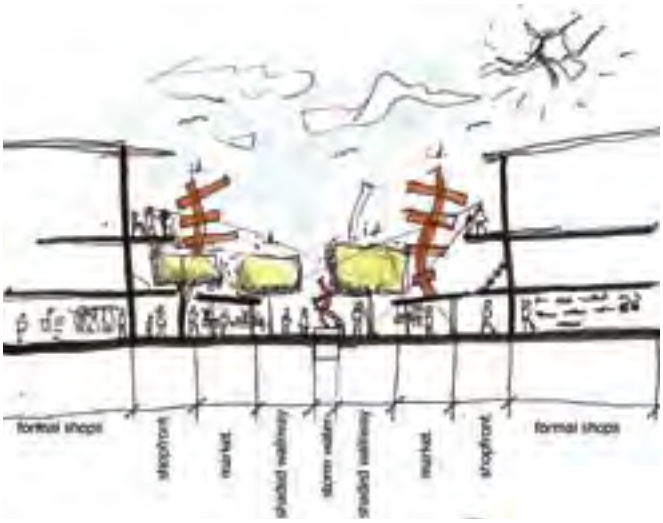


Fig.11. SECTION THROUGH CHURCH STREET

GROUP URBAN DEVELOPMENT FRAMEWORK

"On the one hand, people look for order, security and a sense of completeness in their immediate spatial experiences; on the other hand, they look for mystery, challenge, and stimulation." Goldsteen, J.B. & Ellliott, C.D. 2004: 136.

Pretoria, despite being one of the capital cities of South Africa, is not an internationally known destination city. It lacks the facilities and attractions of Johannesburg and Cape Town, and therefore does not enjoy the international attention received by these two cities. This framework aims to celebrate Pretoria's unique identity and to strengthen this identity, thereby creating a world-class city. It specifically focuses on issues of orientation within the city, and creating a unique character by highlighting certain important paths and precincts.

Aims of the framework

1. To make Pretoria a destination:
2. To enhance its unique identity
3. To orientate the user
4. To enhance movement on a pedestrian scale
5. To define CBD precinct & unique character
6. To define main routes and create new pause spaces
7. To enhance visual clarity

The framework proposes the celebration of the two major axes in the city: Church Street, and Paul Kruger Street by giving each a specific identity. A series of public spaces exists along these streets, and a number of new nodes and "pause areas" are proposed. These nodes and "pause spaces" allow visitors and city users to orientate themselves when moving through the city, and to pause to notice their surroundings.

Paul Kruger Street is defined as the "historical" spine. This street contains a number of buildings of historical importance. Intersections along this street are to be raised and paved with brightly coloured mosaic representing images of the city's unique character. Sculptures and public art works are to be placed on the corners of these intersections. Buildings along this street are to have screens/panels/shading devices in an orange colour to give the street a unique identity. A new Northern gateway is proposed in the area of the Pretoria Zoo.

Church Street is defined as the cultural market spine. A large section of this street is already a pedestrian boulevard. Spaces and buildings along this street should reflect this identity. Public functions, restaurants, pubs and evening entertainment are to be placed and extended in this street. The street character must be extended to a new eastern and western gateway node.

Fig.12.FIGURE GROUND OF PRETORIA CBD

Van der Walt Street is defined as the market street stretching from the Bloed Street Mall to Burgers Park in the south. More commercial activities are to be introduced in this street and pedestrian access is to be optimized.

Vermeulen, Pretorius and Schoeman Streets are identified as important movement streets in the inner city. These streets are to be paved and planted with indigenous trees.

New buildings along these streets should:

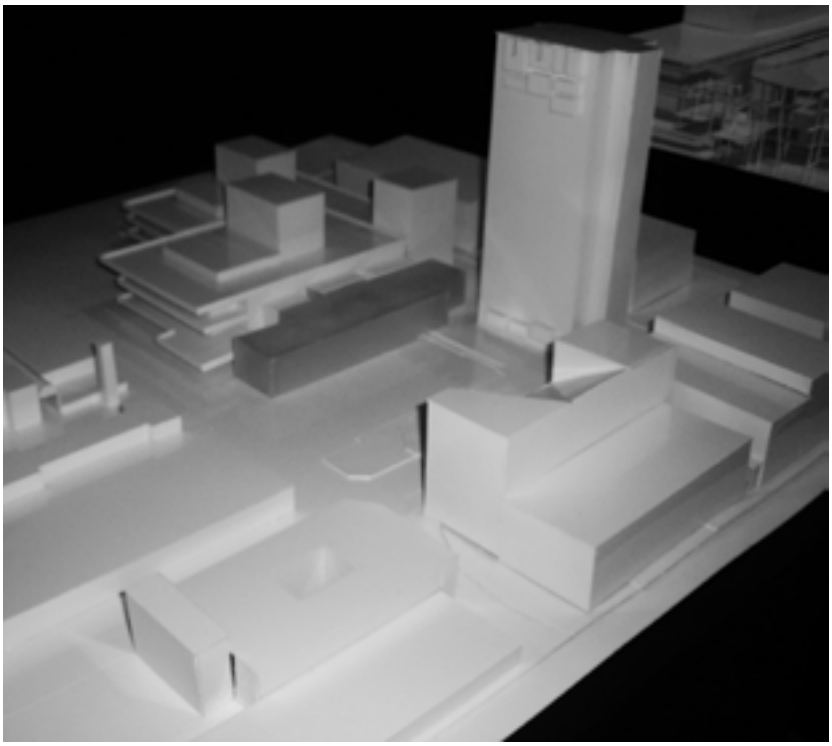
- React to existing arcades
- Relate to the specific character of the street
- Have interactive facades at street level.

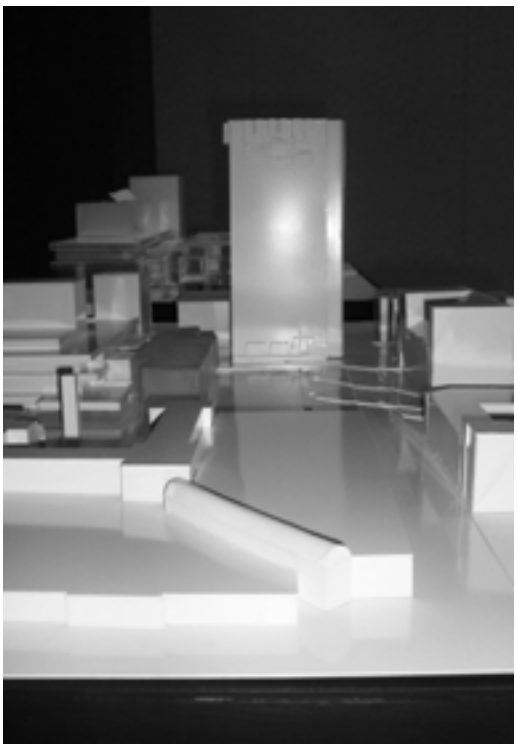
Furthermore, movement spines must be intersected with pause areas, main orientation must be towards the street, thereby unveiling elements of surprise (arcades and smaller squares placed outside main movement spines. High activity is encouraged around open spaces.

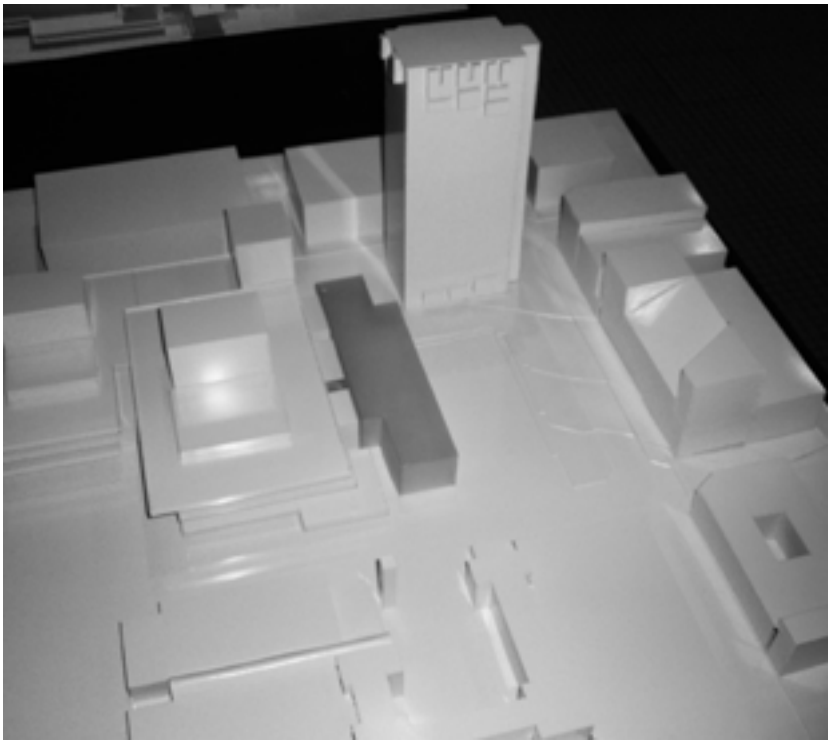
Framework: 2009

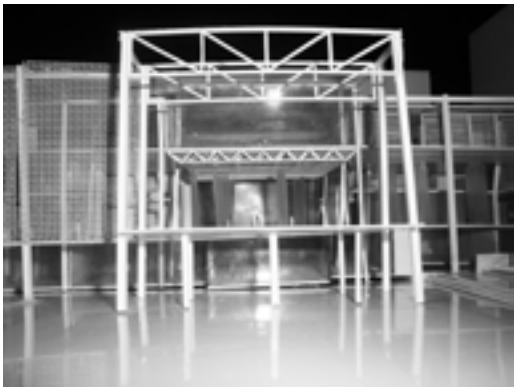
Group: A. Seabrook, C.Theart, L.Cloete, A. Verster. R. van der Walt, P. du Toit, A. Allers.

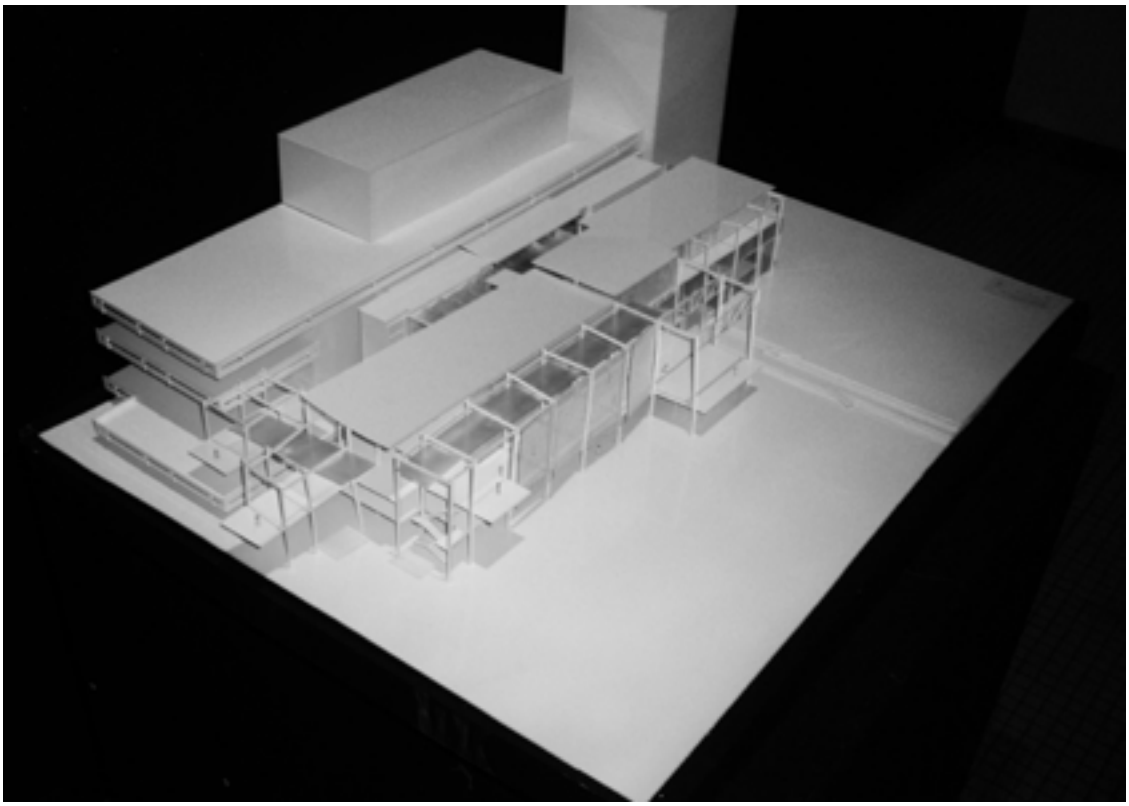
APPENDIX E: PHYSICAL MODELS

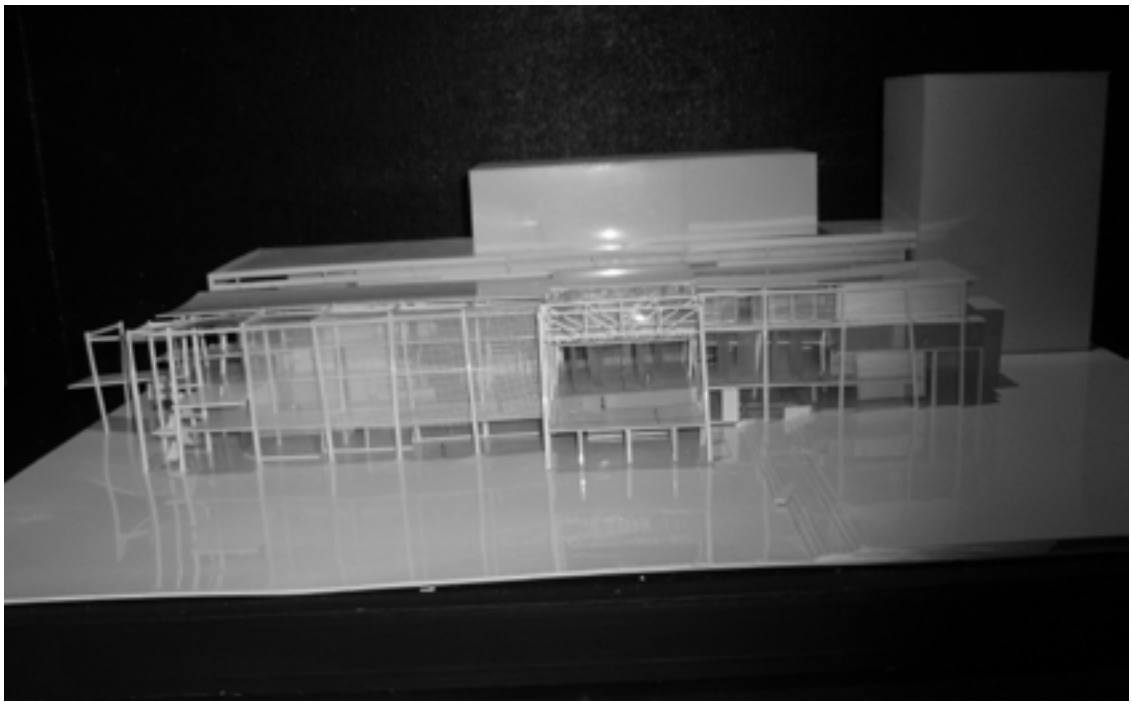












LIST OF FIGURES

[CHAPTER 2: CONTEXT]

[CHAPTER 3: A CITY SQUARE]

[CHAPTER 4: URBAN THEATRE]

Fig.4.1. Photograph: Music Concert in Temple Bar, Dublin. Quinn, P (ed). 1996. *Temple Bar, The power of an idea.* Dublin: Temple Bar Properties Ltd.
Fig.4.2. Photograph: Children playing in Zocalo in Veracruz, Mexico. Webb, M. 1990. *The City Square*. London: Thames and Hudson. P.103.
Fig.4.3. Photograph. Schouwburg plein, Rotterdam, Netherlands. [Accessed online] at http://www.west8.nl/ on 2009-05-27.
Fig.4.4. Drawings of hydraulic lights in Schouwburg plein. [Accessed online] at http://netzspannung.org/c on 2009-03-20.
Fig.4.5. Drawings of hydraulic lights in Schouwburg plein. [Accessed online] at http://netzspannung.org on 2009-03-20.
Fig.4.6. Plan of Schouwburg plein. [Accessed online] at http://netzspannung.org on 2009-03-20.
Fig.4.7. Photograph of waterfeature in Schouwburgplein. [Accessed online] at http://www.west8.nl/on 2009-05-27.
Fig.4.8. Photograph: Flower show in Schouwburgplein. [Accessed online] at http://www.west8.nl/on 2009-05-27.
Fig.4.9. Photograph: Event in Schouwburgplein. [Accessed online] at http://www.west8.nl/on 2009-05-27.
Fig.4.10. Concept Sketch. Pompidou Centre, Paris, France. Richard Rogers. Date unknown. [Accessed online] at http://www.richardrogers.co.uk/on 2009-05-27.
Fig.4.11. Photograph: Air conditioning vent. Image by Alet Verster 2007.
Fig.4.12. Coloured Section of Pompidou centre. [Accessed online] at http://www.worldarchitecturenews.com/
Fig.4.13. Pompidou centre western facade. Author. 2009.
Fig.4.14. Birds eye view of plaza.[Accessed online] at http://picasaweb.google.com/on 2009-04-20.
Fig.4.15. Aerial Photograph of Pompidou centre [Accessed online] at http://www.richardrogers.co.uk/
Fig.4.16. Photograph of the Pompidou centre. Author. 2007.
Fig.4.17. Siteplan of Pompidou centre. Buchanan, P. 2000.
Fig.4.18. Photograph of Pompidou plaza from inside the centre. [Accessed online] at http://www.pps.org/
Fig.4.19. Photograph of movie screening in Meeting House Square, Temple Bar, Dublin, Ireland. Temple Bar, Dublin. Quinn, P (ed). 1996. *Temple Bar, The power of an idea.* Dublin: Temple Bar Properties Ltd.
Fig.4.20. Axonometric diagram of projection between buildings in Meeting House Square, Temple Bar, Dublin. Temple Bar, Dublin. Quinn, P (ed). 1996. *Temple Bar, The power of an idea.* Dublin: Temple Bar Properties Ltd.
Fig.4.21. Plan on Meeting House Square, Temple Bar, Dublin. Temple Bar, Dublin. Quinn, P (ed). 1996. *Temple Bar, The power of an idea.* Dublin: Temple Bar Properties Ltd.
Fig.4.22. Photograph: Closed pull-down screen of Gallery of Photography, Temple Bar, Dublin. Temple Bar, Dublin. Quinn, P (ed). 1996. *Temple Bar, The power of an idea.* Dublin: Temple Bar Properties Ltd.
Fig.4.23. Photograph: Open windown of Gallery of Photography, Temple Bar. Temple Bar, Dublin. Quinn, P (ed). 1996. *Temple Bar, The power of an idea.* Dublin: Temple Bar Properties Ltd.
Fig.4.24. Photograph of Ark stage door toward the square. Temple Bar, Dublin. Quinn, P (ed). 1996. *Temple Bar, The power of an idea.* Dublin: Temple Bar Properties Ltd.
Fig.4.25. Photograph of Ark stage door closed. Temple Bar, Dublin. Quinn, P (ed). 1996. Temple Bar, The power of an idea. Dublin: Temple Bar Properties Ltd.
Fig.4.26. Painting of Temple Bar project showing intention. Temple Bar, Dublin. Quinn, P (ed). 1996. *Temple Bar, The power of an idea.* Dublin: Temple Bar Properties Ltd.

[CHAPTER 5: PROGRAM, ACCOMMODATION, CONCEPT]

Fig.5.1. Sketch. Arrangement of night-time activities around public space. Alexander et al. 1977. A Pattern Language.
Fig.5.2. Concept plan: Arrangement of activities. Author. 2009.
Fig.5.3. The GIANTS puppets. [Accessed online] http://www.sandtoncentral.co.za/images/cst/image/Giants(1).jpg viewed on 11-09-2009.
Fig.5.4. Plan of urban development framework indicating changes and additions to Lillian Ngoyi Square. Author with Lize Gerneke. 2009.
Fig.5.5. Sketch indicating viewing opportunities around the square. Author. 2009.
Fig.5.6. Sketch of Theatre Precinct as seen from Prinsloo street looking west. Author. 2009.

[CHAPTER 6: PRECEDENT STUDY]

Fig.6.1. Exhibition of all RPBW work, Berlin. Denance, M. Image source: JODIDIO, P. 2008. PIANO: Renzo Piano Building Workshop 1966 to today. Koln: Taschen.
Fig.6.2. Interior view of Sackler galleries. [Accessed online] at http://homepage2.nifty.com/tskigawa/english/photobook13-en.htm on 14-05-2009.
Fig.6.3. Interior view of Lift shaft, Sackler Galleries. [Accessed online] at http://homepage2.nifty.com/tskigawa/english/photobook13-en.htm on 14-05-2009.
Fig.6.4. Interior view of Lift shaft, Sackler Galleries. [Accessed online] at http://homepage2.nifty.com/tskigawa/english/photobook13-en.htm on 14-05-2009.
Fig.6.5. Plan and circulation diagram.Original image accessed online at http://img.blog.yahoo.co.kr/ybi/1/d3/e3/ejwwje/folder/212/img_212_1451_6?1204276543.jpg viewed on 14-05-2009. Edited by Author.
Fig.6.6. Hector Pieterson memorial. Krige, L. & Suzman, C. From: JOUBERT, O. 2009. 10+ years, 100+ architects. Cape Town: Bell-Roberts. p. 131-132.
Fig.6.7. Hector Pieterson memorial. Krige, L. & Suzman, C. From: JOUBERT, O. 2009. 10+ years, 100+ architects. Cape Town: Bell-Roberts. p. 131-132.
Fig.6.8. Hector Pieterson memorial. Krige, L. & Suzman, C. From: JOUBERT, O. 2009. 10+ years, 100+ architects. Cape Town: Bell-Roberts. p. 131-132.
Fig.6.9. Circulation diagram. Hector Pieterson memorial. Krige, L. & Suzman, C. From: JOUBERT, O. 2009. 10+ years, 100+ architects. Cape Town: Bell-Roberts. p. 131-132. Edited by Author.
Fig.6.10. Concept Sketch. Sabadell Cultural congress centre.[Accessed online[www.richardrogers.co.uk on 28-05-2009.
Fig.6.11. Concept Sketch. Sabadell Cultural congress centre. [Accessed online[www.richardrogers.co.uk on 28-05-2009.
Fig.6.12. 3D view of Sabadell cultural centre. [Accessed online[www.richardrogers.co.uk on 28-05-2009.
Fig.6.13. Exterior view. Tate Modern Gallery. Source: DRAGONE, A. 2006. Industrial Chic - Reconverting Spaces. italy: Arti Grafice DIAL. p.33.
Fig.6.14. Interior view of Tate Modern Gallery . Dominquez, C. Source: DRAGONE, A. 2006. Industrial Chic - Reconverting Spaces. italy: Arti Grafice DIAL. p.34
Fig.6.15. Interior view of turbine hall staircase. Verster. A. 2007.
Fig.6.16. Interior view of turbine hall. Verster. A. 2007.
Fig.6.17. Circulation diagram of Tate Modern Gallery. Author. 2009.
Fig.6.18. Sections of the Tate Modern Gallery. Source: DRAGONE, A. 2006. Industrial Chic - Reconverting Spaces. italy: Arti Grafice DIAL. p.36.

Fig.6.19. Pompidou centre. Exterior photo. Author. 2009.
Fig.6.20. Detail axonometric view of structural elements. Pompidou centreORTON, A. DATE. The way we build now.
Fig.6.21. Detail section of floor construction. Pompidou centre. Anonymous. BLAKE, McEVOY & PLANK, R.1993.
Fig.6.22. Axonometric drawing of Pompidou Centre. [Accessed online] at http://www.centrepompidou.fr/Pompidou/Communication.nsf/0/5A9B674F4E58BDCAC1256D970053FA56?OpenDocument&sessionM=3.1.11&L=2 on 2009-04-20.
Fig.6.23. Crculation diagrams, Pompidou centre. Author. 2009
Fig.6.24. Detail section of clip-on escalator. ORTON, A. DATE. The way we build now. ORTON, A. 1988.

[CHAPTER 7: DESIGN DEVELOPMENT]

Fig.7.1. Concept sketch: Opening the box. Proposal1. Author. 2009.
Fig.7.2. Sketch of Square. proposal4. Author. 2009.
Fig.7.3. Permanent adjustable elements. proposal 1. Author. 2009.
Fig.7.4. Concept section. Proposal 1. Author. 2009.
Fig.7.5. Concept sketch of operable stage. Author. 2009.
Fig.7.6. Circulation diagram. Author. 2009.
Fig.7.7. Concept Section Proposal 2. Author.2009.
Fig.7.8. Concept Plan. proposal2 Author. 2009.
Fig.7.9. Concept Sketch Proposal2. Author. 2009.
Fig.7.10. Concept Section Proposal 2. Author. 2009.
Fig.7.11. Photograph of concept models. Proposal 3. Author. 2009.
Fig.7.12. 3D Exploration proposal 3
Fig.7.13. Concept Plan. Proposal 3. Author. 2009.
Fig.7.14. External frame concept. Author. 2009.
Fig.7.15. Frame Concept sketch. Author. 2009.
Fig.7.16. Transition Concept sketch. Author. 2009.
Fig.7.17. Concept sketch. Author. 2009.
Fig.7.18. Concept Drawing. View from cafe onto central exhibition space. Author. 2009.
Fig.7.19. View of temporary exhibition space .Author. 2009.
Fig.7.20. Concept sketch of performance. Author. 2009.
Fig.7.21. 3D view from church street. Collage of photos and 3d model. Author. 2009.
Fig.7.22. Site plan. Author. 2009.
Fig.7.23. Image of Inner/outer square. Collage of photos and 3d model. Author. 2009.
Fig.7.24. Section through sidewalk. Author. 2009.
Fig.7.25. Sketch strip light on square. Author. 2009.
Fig.7.26. Photograph of waterfeature, Geneva. Gys le Roux. 2007.
Fig.7.27. Detail photograph of waterfeature, Geneva. Gys le Roux. 2007.
Fig.7.28. Photograph of child playing in waterfeature, Geneva. Gys le Roux. 2007.
Fig.7.29. 3D of Steel structure. Author. 2009.
Fig.7.30. Sketch of South Western corner. Author. 2009.
Fig.7.31. Conceptual Plan. June. Author. 2009.
Fig.7.32. Conceptiual section. Author. 2009.
Fig.7.33. Conceptual section. Author. 2009.
Fig.7.34. Sketch of stage concept. Author. 2009.
Fig.7.35. Interior of Exhibition space. Author. 2009.
Fig.7.36. Stage sketch. Author. 2009.
Fig.7.37. Conceptual plan first floor. Author. 2009.
Fig.7.38. Conceptual plan second floor. Author. 2009.
Fig.7.39. View from cafe into central exhibition space. Author. 2009.
Fig.7.40. Sketch of temporary exhibition space. Author. 2009.
Fig.7.41. Sketch of temporary exhibition space. Author. 2009.
Fig.7.42. Concept sketch: Exterior view of concert area. Author. 2009.
Fig.7.43. Exterior view of Stage. Author. 2009.
Fig.7.44. View from second floor exhibition area. Sketch. Author. 2009.
Fig.7.45. View from gallery towards exhibition space. Sketch. Author. 2009.
Fig.7.46. Interior view: central exhibition space. Sketch. Author. 2009.
Fig.7.47. Interior view restaurant. Sketch. Author. 2009.
Fig.7.48. 3D section CC. Collage of 3D model and photographs. Author. 2009.

[CHAPTER 8: TECHNICAL INVESTIGATION]

Fig.8.1. 3D View of Building Elements. Author. 2009.
Fig.8.2. Steel connections, Author. 2009.
Fig.8.3. Column and bracing details. Author. 2009.
Fig.8.4. Structural Span diagram. Author. 2009.
Fig.8.5. Bracing diagram Author. 2009.
Fig.8.6. Slab edge detail (not to scale). Author. 2009.
Fig.8.7. Composite floor construction. [Accessed online] http://www.bricks-n-mortar.com/2008/06/techtalk-understanding-concept-of.html viewed on 29-09-2009.
Fig.8.8. Access Floor. Author. 2009.
Fig.8.9. Hydraulic stage. Author. 2009.
Fig.8.10. Water feature detail. Author. 2009.
Fig.8.11. Strip lighting on square. Author. 2009.
Fig.8.12. Collapsible stage balustrade. Author. 2009.
Fig.8.13. Plan view of strip lighting. Author. 2009.
Fig.8.14. Laminated Clear Glass. 88 Wood Street interior. [Accessed online] http://www.richardrogers.com on 10-07-2009.
Fig.8.15. Laminated frosted glass. HURSLEY, T. 2003. Source: JODIDIO, P. (ed.) 2003. Architecture Now Vol.2. Koln: Tachen.
Fig.8.16. PANELITE glass. Brochure [Accessed online] http://www.panelite.us on 09-08-2009.
Fig.8.17. Printed glass at McCormick Tribune Campus. [Accessed online] http://www.arcspace.com/architects/koolhaas/McCormick-Tribune/ viewed on 09-08-2009.
Fig.8.18. Timber decking. FRENCH, J. 2006.
Fig.8.19. Marine Grade Plywood. [Accessed online] http://www.aeonic.com.sg/Marine%20plywood.htm viewed on 09-10-2009.
Fig.8.20. Concrete finish at McCormick Tribune Campus. [Accessed online] http://www.arcspace.com/architects/koolhaas/McCormick-Tribune/ viewed on 09-08-2009.
Fig.8.21. Ceasarstone [Accessed online] http://www.ceasarstone.co.za/product.aspx?productId=1590
Fig.8.22. Existing sanblasted concrete. Author. 2009.
Fig.8.23. Translucent polycarbonate ceiling, Prada New York boutique. MORDAS, M. 2003. Source: JODIDIO, P. (ed.) 2003. Architecture Now Vol.2. Koln: Tachen.
Fig.8.24. Plexiglass Heatstop. [Accessed online] http://www.steg-platten.de/plexiglas-resist%C3%82%C2%AE-stegvierfachplatten-32mm-pi-281.html on 10-10-2009.
Fig.8.25. GKD Media Mesh. Brochure [Accessed online] www.gkd-ag4-mediamesh.de viewed on 2009-09-01.
Fig.8.26. Steel Grating at Kunsthal, Rotterdam. [Accessed online] http:www.wirednewyork.com/forum/showthread.php?=238623
Fig.8.27. Painted Steel. RGB colour R=87 G=87 B=87. Author. 2009.
Fig.8.28. Perforated Metail sheets. [accessed online] http://www.perforated-metal.org/perforated_m.html viewed on 10-10-2009.
Fig.8.29. Detail view of transparent media facade. GKD Media Mesh. Brochure [Accessed online] http://www.mediafacade.com/index.php?id=4&L=1 on 10 July 2009.
Fig.8.30. T-mobile headquarters. GKD Media Mesh. Brochure [Accessed online] http://www.mediafacade.com/index.php?id=4&L=1 on 10 July 2009.
Fig.8.31. T-mobile headquarters. GKD Media Mesh. Brochure [Accessed online] http://www.mediafacade.com/index.php?id=4&L=1 on 10 July 2009.
Fig.8.32. Detail view of GKD PC Media mesh.Brochure [Accessed online] http://www.mediafacade.com/index.php?id=4&L=1 on 10 July 2009.
Fig.8.33. Proposed design with media screens. Author. 2009.

Fig.8.34. Connection detail. GKD information disc. 2008.
Fig.8.35. 3D View of skylight from above. Author. 2009.
Fig.8.36. Smartgralls Solar Shield. Brochure [Accessed online] www.smartglass.co.za. viewed on 21-09-2009.
Fig.8.37. Fire Resistant Glass behaviour. PILKINGTON TECHNOLOGY DATA SHEET. 2009. [Accessed online] www.pilkington.com viewed on 22-09-2009.
Fig.8.38. Second Floor Fire Plan. Author. 2009.
Fig.8.39. McCormick Tribune campus centre interior view. [Accessed online] http://www.arcspace.com/architects/koolhaas/McCormick-Tribune/ viewed on 09-08-2009.
Fig.8.40. Panelite visual and shading performance.Brochure [Accessed online] http://www.panelite.us on 09-08-2009. Image edited by Author.2009.
Fig.8.41. Application of panelite panels on video rooms. Author.209.
Fig.8.42. Exterior view of McCormick Trivbune campus centre. [Accessed online] http://www.arcspace.com/architects/koolhaas/McCormick-Tribune/ viewed on 09-08-2009.
Fig.8.43. Plan of liftshaft and staircase. Author.2009.
Fig.8.44. 3D View of Staircase and liftshaft.Author.2009.
Fig.8.45. 3D View of Staircase and liftshaft.Author.2009.
Fig.8.46. Smartglass Armourlam. Brochure [Accessed online] www.smartglass.co.za. viewed on 21-09-2009.
Fig.8.47. 3D detail: Suspended Roof. Author. 2009.
Fig.8.48. Door sliding track integrated with webbed truss system at the Linda Goodman Gallery . THEART, C. 2009.
Fig.8.49. Glass Fire doors. Author.. 2009.
Fig.8.50. Translucent Plexiglass doors around gallery. Author. 2009.
Fig.8.51. 3D View: Suspended Roof. Author. 2009.
Fig.8.52. SBAT rating results. Author. 2009.
Fig.8.53. SDF diagram.VAN DUIN, E. 2008. [Accessed online] http://www.sustainabledanceclub.com on 23-07-2009.
Fig.8.54. Axonometric of SDF tile. VAN DUIN, E. 2008. [Accessed online] http://www.sustainabledanceclub.com on 23-07-2009.
Fig.8.55. View of current design SDF. 2008. [Accessed online] http://www.interactivearchitecture.org/eco-dance-floor.html
Fig.8.56. Sprung dance floor. BANH. 2005. Entertainment Flooring System. [Accessed online] http//www.flooradvice.com/danceflooring.htm
Fig.8.57. Detail section of Sprung floor. BANH. 2005. Entertainment Flooring System. [Accessed online] http//www.flooradvice.com/danceflooring.htm
Fig.8.58. Ventilation diagram: Gallery. Author. 2009.
Fig.8.59. Ventilation diagram: Restaurant. Author. 2009.
Fig.8.60. Thermasail cooling. Brochure. [Accessed online] http://www.spcoils.co.uk.
Fig.8.61. Radiant cooling ceiling system. Brochure. [Accessed online] http://www.spcoils.co.uk.
Fig.8.62. Thermasail heating. Brochure. [Accessed online] http://www.spcoils.co.uk.
Fig.8.63. Daytime. Brochure. [Accessed online] http://www.spcoils.co.uk.
Fig.8.64. Light fittings hidden above panel. Brochure. [Accessed online] http://www.spcoils.co.uk.

Fig.8.65. Rainwater collection. Author. 2009.

[APPENDIX A]:
All images by Author. 2009.

[APPENDIX B]: ABSA BUILDING SKETCHPLANS]

Fig.1. North Elevation.PAUW & BOTHA, et al. 1969.
Fig.2. East Elevation.PAUW & BOTHA, et al. 1969.
Fig.3. West Elevation.PAUW & BOTHA, et al. 1969.
Fig.4. Section N/S looking East.PAUW & BOTHA, et al. 1969.
Fig.5. Section through cinema.PAUW & BOTHA, et al. 1969.
Fig.6. Section N/S looking west.PAUW & BOTHA, et al. 1969.
Fig.7. Ground floor Plan.PAUW & BOTHA, et al. 1969.
Fig.8. Upper Basement level plan.PAUW & BOTHA, et al. 1969.
Fig.9. Lower Basement level plan.PAUW & BOTHA, et al. 1969.

[APPENDIX C]: URBAN DESIGN FRAMEWORK 2009.

Fig.10. Section van der walt street. R.van der Walt. 2009.
Fig.11. Section Church street. R. van der Walt. 2009.
Fig.12. Figure ground CBD. Urban design group. 2009.

[APPENDIX E]: PHYSICAL MODEL

All photographs by Author. 2009.

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Many thanks to Gary, Hanneri, Undine, Marietjie, James, Carien and Alet for help with the model. Thank you Brian for your help with the language.