



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
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# COGNITION

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*composing a south african identity*

B. A. do Vale 21118851

University of Pretoria  
Department of Architecture  
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Mentor: R. C. Fisher

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E n g i n e e r i n g ,   B u i l t   E n v i r o n m e n t   a n d   I n f o r m a t i o n   T e c h n o l o g y .



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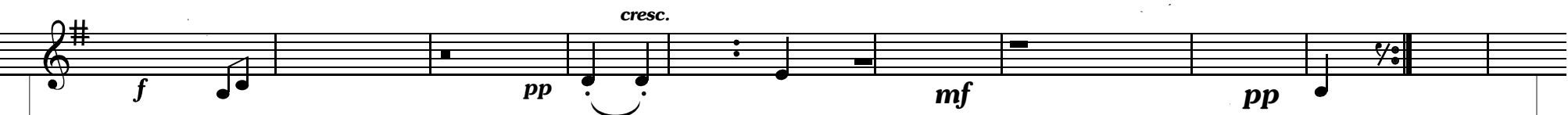
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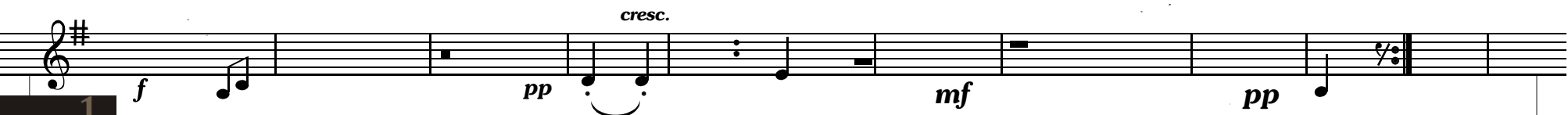


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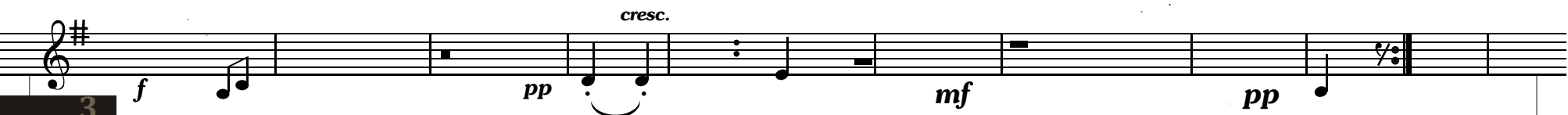


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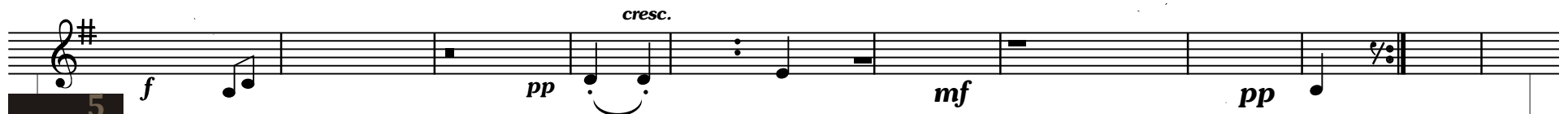
### LIST OF ABBREVIATIONS

- CBD** Central Business District
- LRT** Light Rail Transit
- SABS** South African Bureau of Standards
- SAHRA** South African Heritage Resources Act
- NBR** National Building Regulations



“The artist draws the people.  
The whole idea is for people to  
dig themselves, just mingle  
around meeting different  
other people. That's cool”.

## Jimi Hendrix





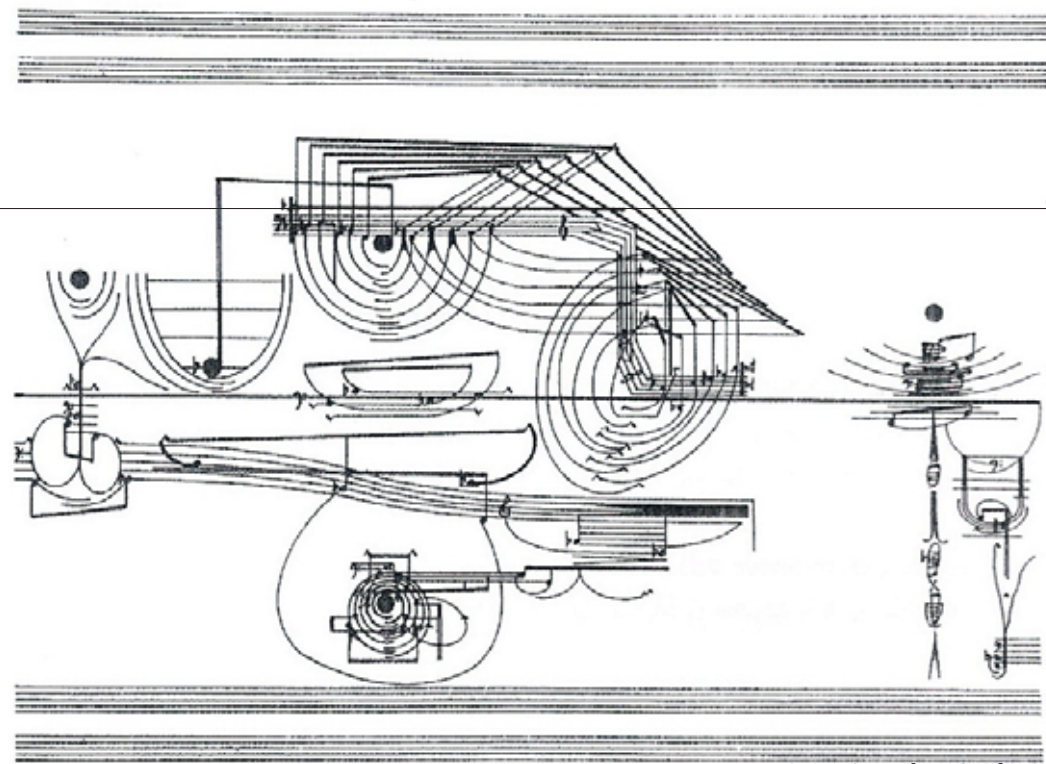
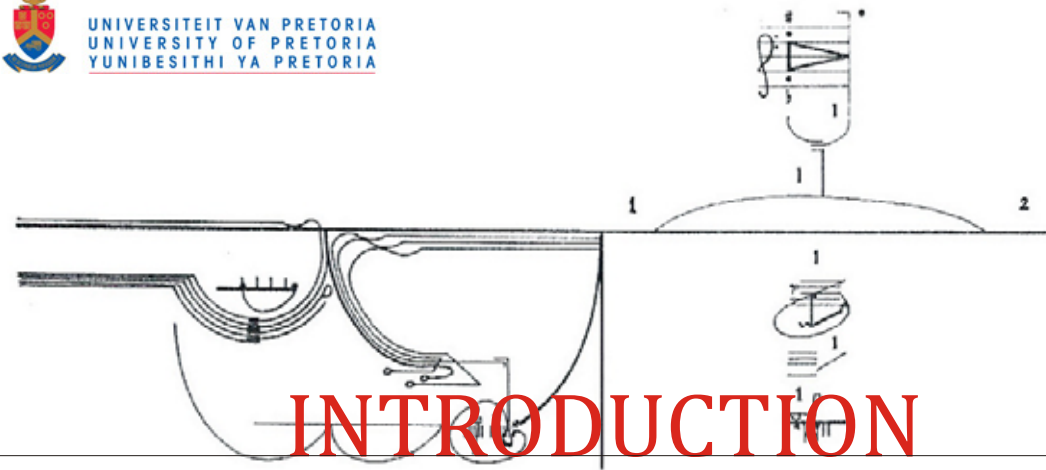
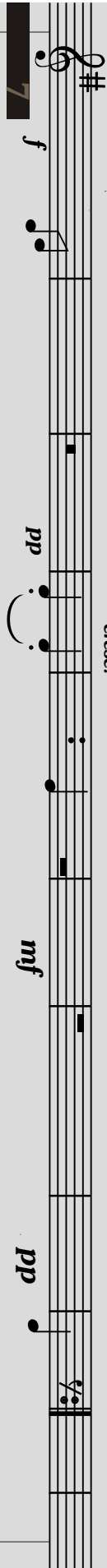


FIG. 1.1 Cornelius Cardew





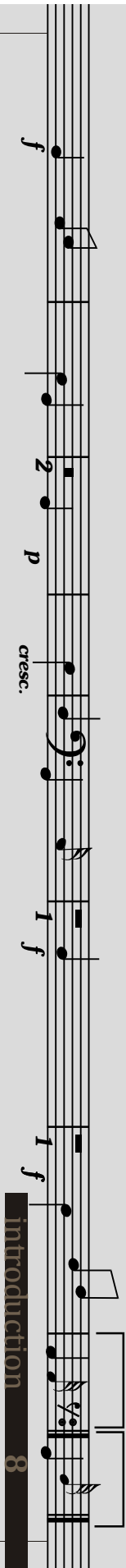
Cognition,  
the  
topic  
of this dissertation,  
is  
a music market  
arcade  
for Gallo Records  
that will act as a platform for aspiring South African musicians.  
The concept  
of the  
musician  
and the status of the musician  
in society varies from culture to culture.  
Thus the  
topic will explore  
the social implications music  
has on different cultures by addressing  
diversion in a social context.  
Music  
will  
therefore act  
as generator by merging culture  
and creating an awareness  
And common ground by acting as  
the universal medium.  
In doing so,  
The  
musician will indirectly  
compose a South African identity by  
means  
of public performance.





The  
topic covers  
cognition as an  
interdisciplinary approach  
to understanding  
the  
mental processes that support musical behaviors,  
including perception,  
comprehension,  
memory, attention, and  
performance.  
Architectural  
theory  
will then be investigated.  
The  
study  
will  
conclude with  
the interpretation  
of these findings into  
a new  
architectural form,  
supported by design principles  
and  
analytical  
tools.

ABSTRACT



South Africa is a nation comprising of 11 official languages. After 13 years of democracy the “Rainbow Nation” is arguably not truly united as one (Author’s opinion). Although this may be considered an individualistic opinion, what is truly definite is that morals, ethics and religious beliefs mean different things to different people on different levels. This is no exception to the Pretoria/Tshwane inner city as it is fragmented by the absence of social cohesion between various cultures that make up its urban population. Thus producing a single piece of architecture that addresses various beliefs and aims to unite people from different cultures and backgrounds could be perceived as rather ambitious and somewhat naive. However, by introducing a common “element” that is universal, that single piece of architecture may become a reality.

Friedrich Wilhelm Nietzsche, a suggestive and poetic thinker, remarked that “without music life would be a mistake” and that “in music the passions enjoy themselves”. (It may seem that music has become an integral part of everyday life. The latest cell phones and MP3 players use music as a marketing tool to boost sales by providing the user with music on the go. Ease of use determines the success of such a product as a simple touch of a button allows the user to access the desired track appropriate for that particular moment in his or her daily soundtrack. A recent global survey revealed that computer manufacturers Apple’s annual income of it’s “iPod” brand surpasses it’s income of what the company actually specialises in; computers. This not only shows that music is universal, but that it is in demand.

If a city is compared to an electrical circuit board, specifically that of a music device such as the Apple iPod, the cultural factions that make up the city’s urban fabric is its electronics. For the iPod to function properly, if at all, it requires all of its electrical components to work in harmony. Each one of the electrical component perform a specific function and can be seen as a single element but is ultimately connected via the circuit to other components and is therefore dependant on other components to function to its fullest potential. If one of the circuit board’s electronics malfunctions, a short circuit occurs bringing the device to a complete halt. For a city to function it requires all its electronics to be connected in circuit. The city grid represents the circuit board and the city blocks and buildings make up the components. Thus each part of the city can be viewed as a single component that is connected and dependant on other elements to perform to its fullest capabilities to avoid a short circuit.

The proposed project is a music market arcade in the Pretoria/Tswane inner city for Gallo Music Group. A facility dedicated to the social implications music has on different cultures by addressing diversion in a social context. Music will therefore act as generator by merging culture and creating an awareness and common ground by acting as the universal medium.

# PROBLEM STATEMENT

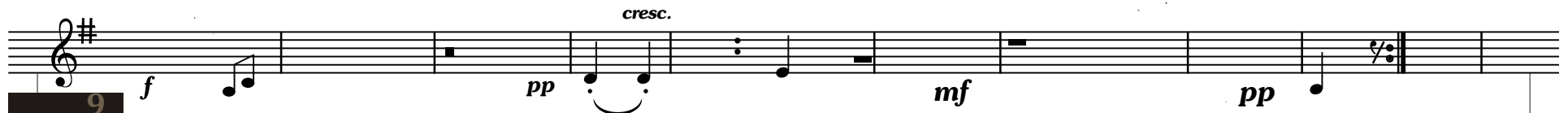




FIG. 1.2





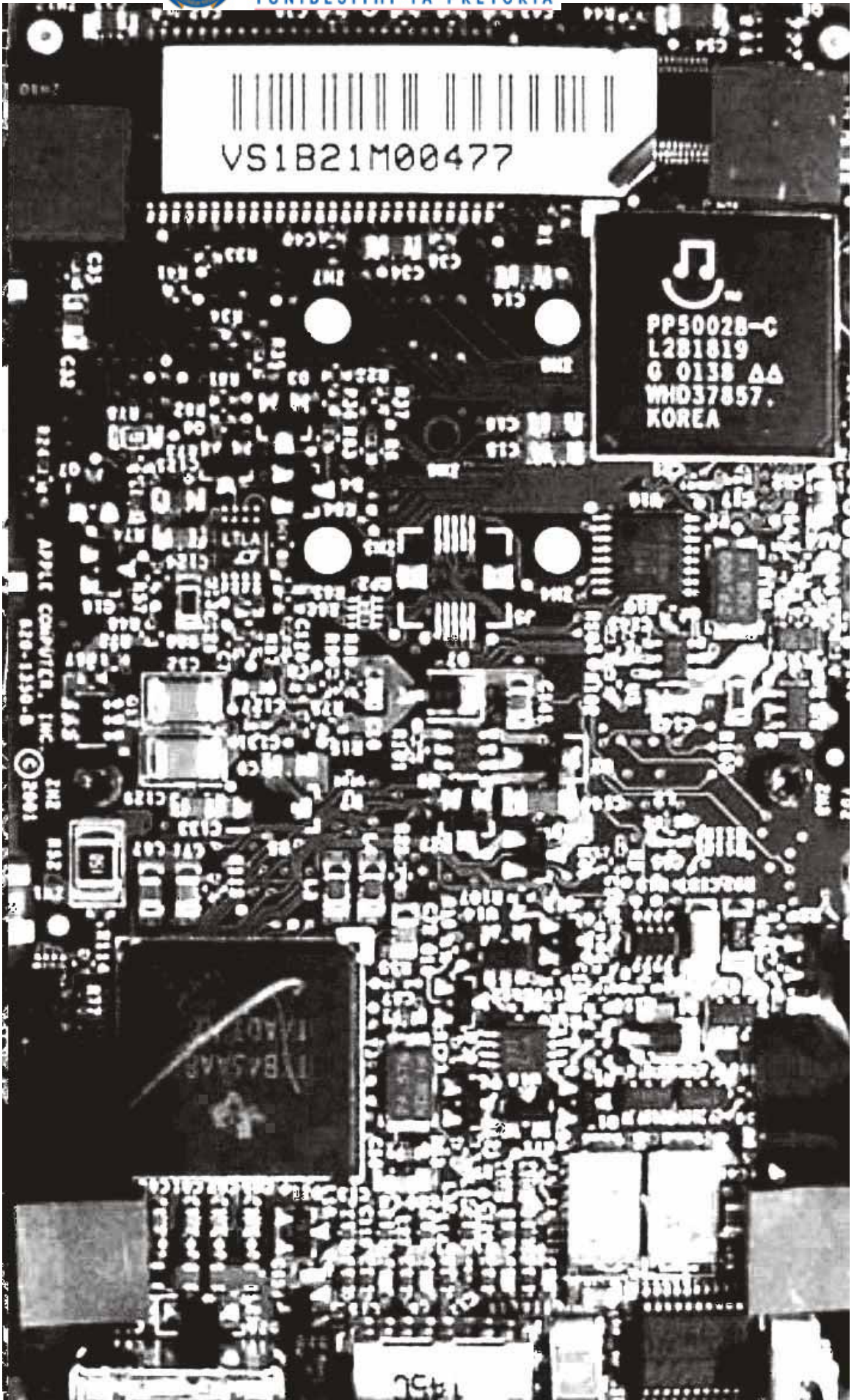


FIG. 1.3 Circuit board

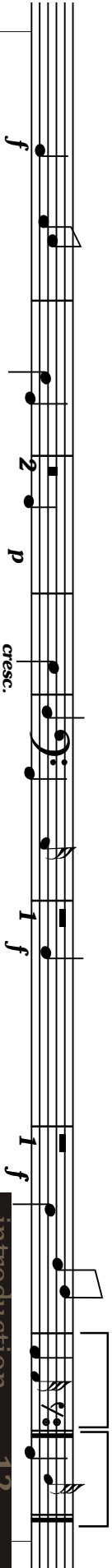




FIG. 1.4

## THE STREET MUSICIAN

Musicians can be categorized as either amateur or professional. An amateur musician is someone for whom music is a pastime and not their main occupation.

Professional musicians are paid musicians who use performing as their main source of income. They may work freelance, enter into a contract with a studio or record label, be employed by a professional ensemble such as a symphony orchestra, or be employed by an institution such as a church or business (such as a bar).

The street musician can be compared to an amateur musician as neither rely solely on music as their main source of income. The difference however is that the street musician aims to become a professional musician but is generally forced to seek financial income elsewhere whereas the amateur musician generally already has a solid source of income but sees music as a passion and any income made from performances is seen as a bonus.



FIG. 1.5



FIG. 1.6





Although amateur musicians differ from professional musicians in that amateur musicians have a non-musical source of income, there are often many links between amateur and professional musicians. Beginning amateur musicians take lessons with professional musicians. In community settings, advanced amateur musicians perform with professional musicians in a variety of ensembles and orchestras. In some rare cases, amateur musicians attain a professional level of competence, and they are able to perform in professional performance settings.

Street musicians, however, are not common in the Pretoria CBD as in the case of the London underground subways. This is mainly due to the lack of opportunity in the Pretoria CBD. The proposed project therefore aims to provide a platform for musicians of all kinds; whether it be amateur or professional. Musicians performing at the proposed project will be monitored by talent scouts and therefore the possibilities for the artist is endless.

#### GALLO MUSIC GROUP

Gallo Record Company is the largest record label in Africa. It is based in Johannesburg, South Africa and is jointly owned by Johnnic Communications and Warner Music Group. Gallo owns 75% of recordings in South Africa and aims to protect South African artists from exploitation due to the growing international interest in South African music. ([www.wikipedia.com](http://www.wikipedia.com))



FIG. 1.7

#### FUNDING AGENCY

#### JOHNNIC COMMUNICATIONS

Johnnic Communications is South Africa's leading media and entertainment agency, which reflects and celebrates the diversity of South African culture.

Johnnic Communications publishes newspapers (including: The Sunday Times, Sowetan, Sunday World, Daily Dispatch, The Herald and Weekend Post), magazines (including: Elle, Longevity and SA Homeowner), shareholder of music label Gallo Music and distributes movies and exhibits through Nu Metro.

#### VISION

To be an integrated entertainment and media group that is globally competitive and dominant in the African continent. ([www.johncom.co.za](http://www.johncom.co.za))

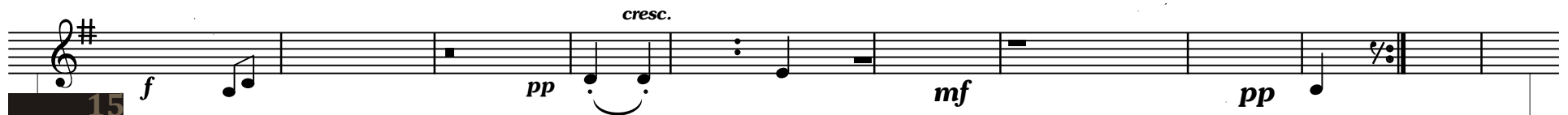


FIG. 1.8



“Music is the wine which  
inspires one to new  
generative processes, and I  
am Bacchus who presses  
out this glorious wine for  
mankind and makes them  
spiritually drunken”.

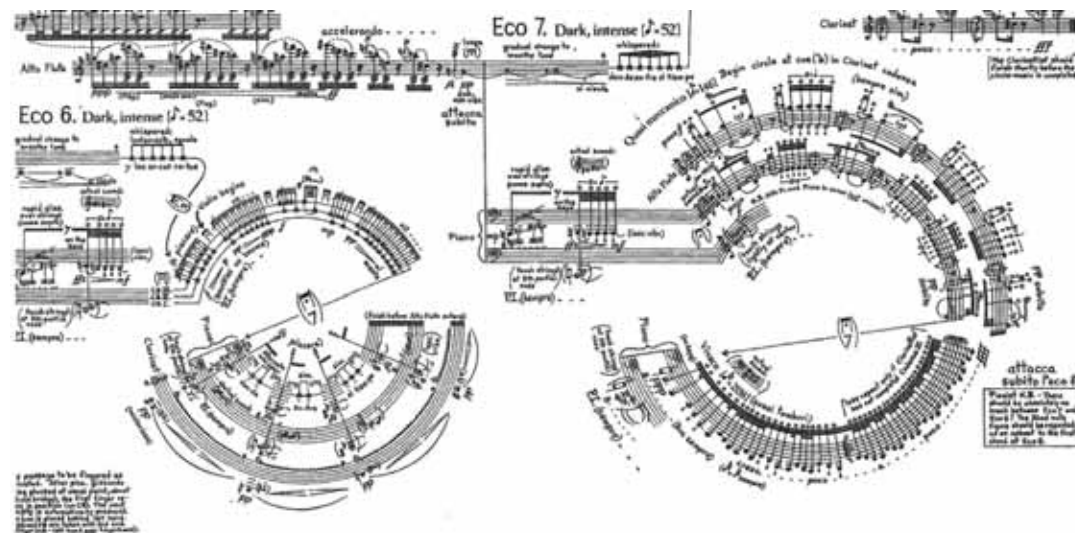
## Ludwig van Beethoven



# THEORETICAL INVESTIGATION

A musical score on a single staff, likely bass clef, showing a sequence of notes and rests. The score includes dynamic markings: *f*, *p*, *cresc.*, and *f*. There are also numerical markings: *2* and *1*. The score concludes with a double bar line and repeat signs. The text "theoretical investigation" and the number "16" are overlaid on the bottom right of the staff.



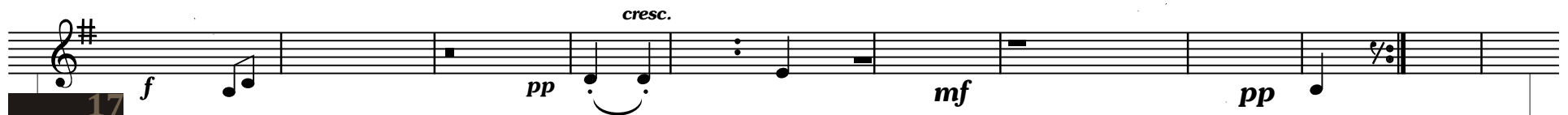


**Eco 6. Dark, intense (♩=52)**  
accelerando

**Eco 7. Dark, intense (♩=52)**  
ritardando

Alto Flute  
Clarinet  
attacca subito  
attacca subito Facce B

FIG. 2.1 Eleven Echoes of autumn



*f* *pp* *mf* *pp*

*cresc.*

17

# INTRODUCTION

“The power of music to influence mood and create scenes, routines and occasions is widely recognized and this is reflected in a strand of social theory from Plato to Adorno that portrays music as an influence on character, social structure and action”. (De Nora: 2000)

Many languages in southern Africa incorporate music, dance and other arts in one word. This indicates that the nature of these actions is something common in many African countries. Music is a powerful medium. In a country of diverse cultural heritage, music also serves as a primary means of expressing individuality and communicating personal views on almost any subject as human activity permeated by music. Music gives the sense of belonging and the sense of self. It is important for the sustained growth of South African music that different cultures interact, or are at least made aware of the existence of each other as contemporary South African music reflects both the power struggle and the diversity in society, not to mention all the layers of time and cultural change.

Knowledge about music (and dancing and lyrics) was an instrument of power both for individuals and society.

The purpose of this investigation is to explore concepts from psychology, sociology and social-linguistics that determine and develops a theory of music's constructive role in the construction of personal and social life and highlights the aesthetic dimension of social order and organizations in late modern societies. (De Nora: 2000)

The South African society is steeped in hierarchy and stereotypes. People create hierarchies be it men versus women, black versus white, gay versus straight or driver versus pedestrian. It is easy to fall into the pitfall of stereotyping a person whose first language and culture differs from yours. Ultimately violence is a result of not seeing others as equal and embracing individuality. Dr Richard Griggs, who has been studying violence and crime in South Africa for almost a decade says that violence in South Africa will not be eradicated until South Africans stop stereotyping each other. “The belief in hierarchy is the golden thread in violence in South Africa” says Griggs. (Business Day 2007) The purpose of this dissertation is to investigate and ultimately suggest that architecture and music share a common thread to act as a building material of conscience and social structure by acting as a cultural vehicle and instrument for social change, which would ultimately result in the birth of a South African identity. Music and architecture therefore acts as a device for social ordering. Simon Frith once said, “the question we should be asking is not what does popular music reveal about the people but how it constructs them”. (1987:137)



# COMPOSING ARCHITECTURE

A musical idea is embodied within the score but the performers and audience is essential to give the musical idea existence. Architecture on the other hand is three dimensional forms embodied in space but the occupants ultimately give definition to how spaces are defined and used. Without the audience or occupant, music is simply an art of sound in time the same way architecture is simply an art of space. (Miller: AA Files 53: 2006)

The theoretical connection between architecture and music is not a new concept as the idea of structure in architecture has been coupled with the idea of structure in music. Both architecture and music share a similar bond of structure and function being well connected. This “coupling” of architecture and music comes up in schools often. Composer Phillip Glass has in the past giving talks to music and architectural students regarding the connection between architecture and music. Glass has also been commissioned to compose original scores for buildings such as the opening of the Milwaukee Art Museum and Peter Eisenman's Wexner Centre.

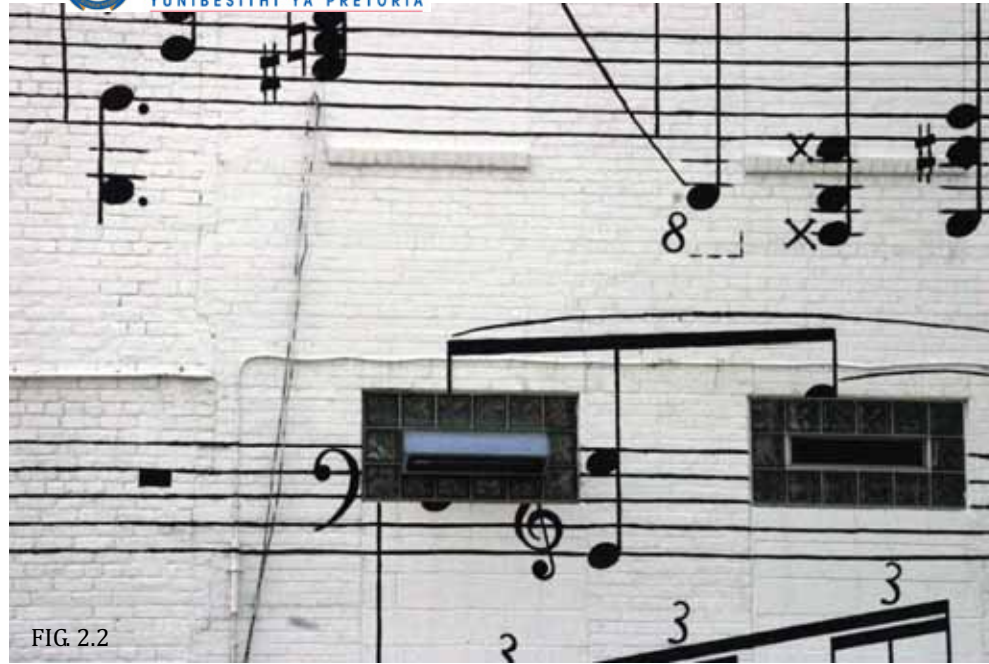


FIG. 2.2



FIG. 2.3

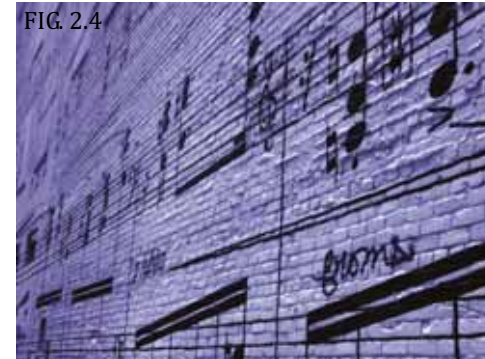
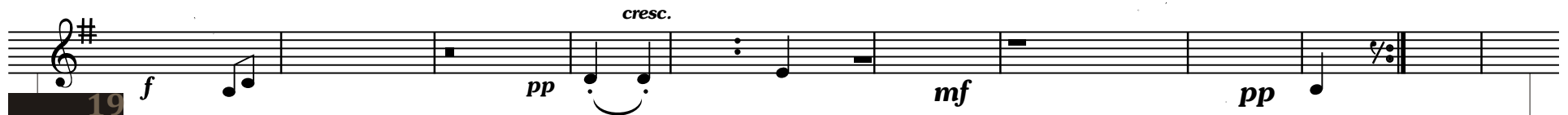


FIG. 2.4



Glass draws inspiration from rhythm having within it the idea of articulated structure. Rhythm is an articulated music movement that is often a repeated movement which of course corresponds with contemporary architecture in terms of the idea of rhythm of structure.

Simon Shaw Miller, a writer for the *Journal of the Architectural Association School of Architecture* suggests that parallels can be drawn between the narrative writing of architecture and a musical score by “exploring the identities and versatilities between the concepts of notion, composition and event”. (Miller: AA Files 53: 2006)

In music, composition refers to sounds embodied in written form and in this way the music is communicated to the performer. In architecture the composition refers to plans or the “blueprints” of the building. The score is an object that embodies the work, but does not encompass the fullness of its identity. Sound becomes fixed to space, existing only in architectural spaces and results in music and architectural space complementing each and further enriching the experience of both. Scores, notation, instruments and spaces all play a part in music's fabric, important and necessary to its identity but individually insufficient for its existence.

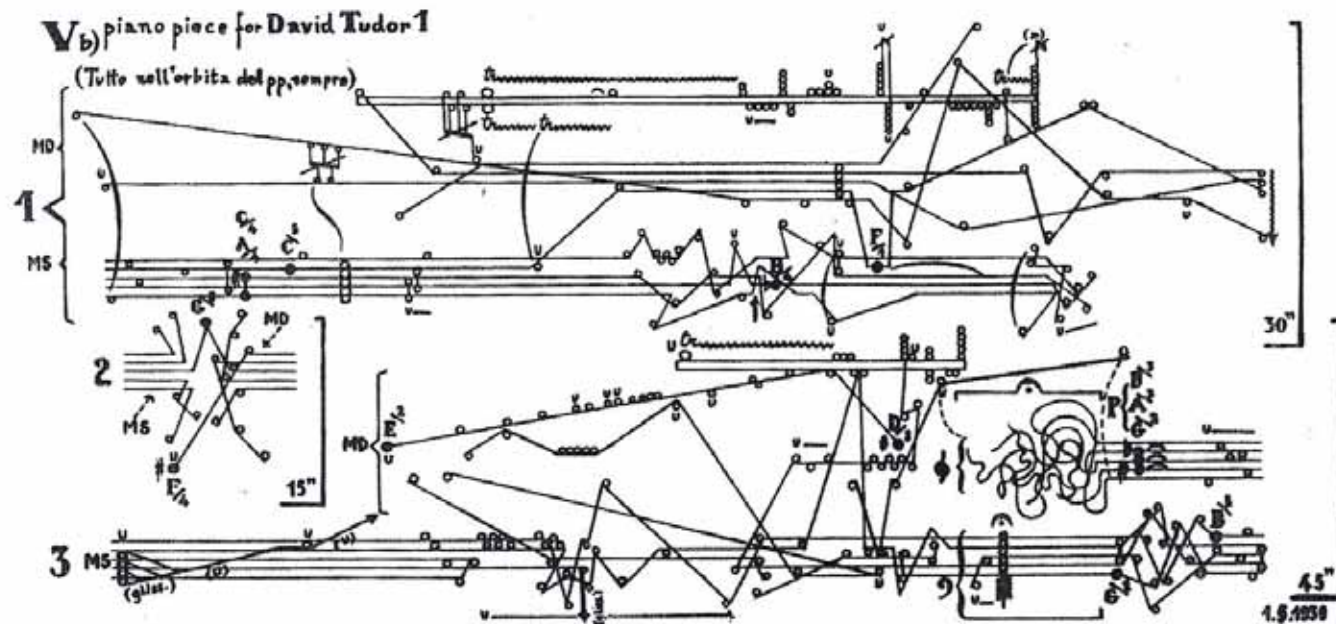


FIG. 2.5 Piano piece for David Tudor





FIG. 2.6 Equalizer board

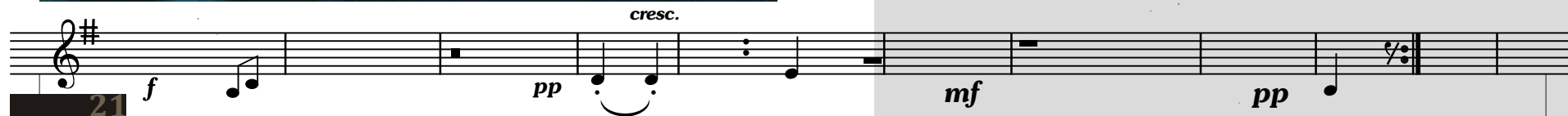
MUSIC AS DEVICE OF SOCIAL ORDERING

SOCIAL ORDERING



Music's link to self regulation and the configuration of subjectivity and agency is of concern to a range of economically and politically interested actors. Manufacturers concerned with worker satisfaction, motivation and fatigue, marketers interested in purchase behaviour, political parties and their desire to win over voters, churches and cults seeking to inspire and reinforce devotion and municipalities who wish to suppress hooligans' forms of behaviour and crime. (De Nora: 2000). Background music can even influence the time it takes to eat a meal (Milliman 1986; Roballey et al. 1985), drink a soft drink (McElrea and Standing 1992), the average length of stay in a shop (Milliman 1982; Smith and Curnow 1966), the choice of one brand or style over another (North and Hargreaves 1997b) and the amount of money spent (Areni and Kim 1993).

One of the most appropriate settings for investigating music's power is the retail sector. Music in the retail sector aims to heighten "impulse" sales and "point-of-purchase" by playing on the consumer's emotions. Music may be particularly effective under conditions of uncertainty when consumers have less knowledge about a product (Areni and Kim 1993). This is perhaps because the ear is passive. The eye, by contrast attends selectively and therefore is linked more closely to consciousness. The commercial sector has therefore invested quite a bit in what exactly music can make people do. Marketing professionals have for a long time relied on using music as a building material for the production of consumption by using music to structure conduct in public and commercial settings such as terminals, restaurants and shops.



## MUSIC AS A UNIVERSAL LANGUAGE

Today, the role of music in a global context is no longer something that signifies something outside of itself, a reality or the truth. Instead music has become a medium that meditates. In other words music in global culture functions as an interactive social context, a conduit for other forms of interaction. (Erlmann: 1999)

Veit Erlmann remarks in his book; *Music, Modernity, and the Global Imagination* that a global culture is in constant movement and displacement and that culture derive their multiple and fluctuating identities from those of other cultures. Erlmann further suggests that no musical society has roots that stem from “timeless tradition” but instead simply cross-index each other as a result of a “series of concrete geographical and historical conjunctions”.

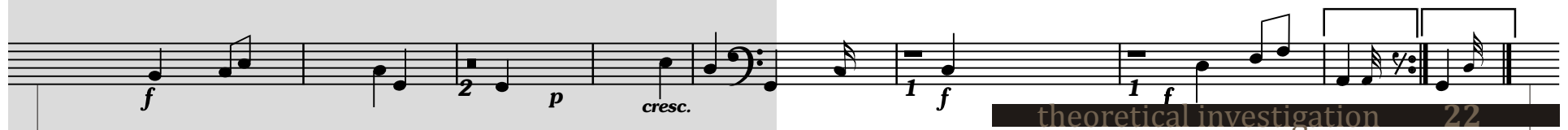
In contrast to Erlmann, J. H. Kwabena Nketia, a ethnomusicologist remarks in his book; *Ethnomusicology and African Music* that music performed outside it's social setting is deemed to be “meaningless” and of great concern to ethnomusicologists. Nketia acknowledges that music can however be understood and influenced by aural perception, imagination and background experience deeming it possible for the same piece of music to be played at various social settings. An example of such would be religious associations being able to perform open public performances outside the regular place of worship. Nketia further remarks that today's world the sharing of music of different cultures is “instructive”.



# UNIVERSAL

FIG. 2.7 Singing and dancing.

FIG. 2.8 Music workshop.



# CONCLUSION

The variety of silhouettes used for the iPod advertisement campaign suggests that any type or genre of music is not exclusive to any specific race or culture. The use of pink, red, yellow, blue and other bright colours form the background to a variety of silhouettes and removes any connotations made to the colour of skin. Music therefore belongs to everyone.

The ice cream truck, on the other hand, is probably the best example of how music is used to attract people as well as bring back childhood memories. A simple melody is able to trigger an influx of emotion. Music is therefore a tool for generation of memory just as architecture creates a sense of place.

Music is an extremely powerful medium that has the ability to bring together a diverse South African community. Music is a way to express individuality as well as represent a community. By providing better opportunities for local artists and musicians, the existing music culture of South Africa will be further enriched, and in doing so will play its part in composing a South African identity.



FIG. 2.9



FIG. 2.10



FIG. 2.11



FIG. 2.12



FIG. 2.13







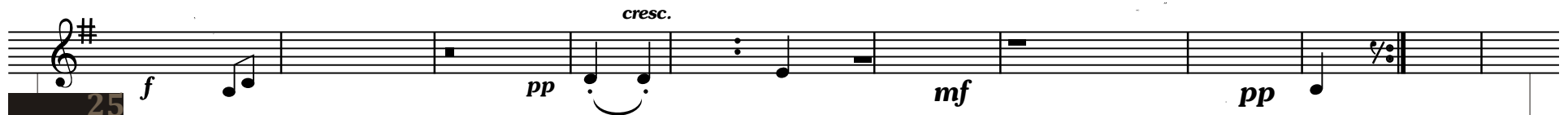
FIG. 2.14





“Music is always a  
commentary on society”

Frank Zappa



# CONTEXT STUDY MACRO

FIG. 3.1



*f* *p* *cresc.* *f* context study 26

## MACRO CONTEXT

Pretoria is contained in the City of Tshwane Metropolitan Municipality in the northern part of the Gauteng Province and is physically situated in the transitional area between the Highveld and the Bushveld in the north-east of South Africa. The city of Pretoria lies between two green belts namely Witwatersberg and Meintjieskop to the north and Salvokop and Muckleneuk to the south. These greenbelts are linked by a series of parallel green belts by means of the Apies River which begins at Fountains Valley south of the city. (Butcher: 2003)

Pretoria is one of South Africa's three capital cities. The city of Pretoria serves as the administrative capital; whilst the other two capital cities, namely Cape Town and Bloemfontein serve as legislative and judicial capitals respectively.

Pretoria is easily accessible owing to the N1 and N4 highways, as well as the close proximity of the OR Tambo International Airport.



FIG. 3.2 South Africa in a global context

FIG. 3.3 Satellite photograph of South Africa

FIG. 3.4 Satellite photograph of Pretoria

FIG. 3.5 Satellite photograph of site





FIG. 3.3

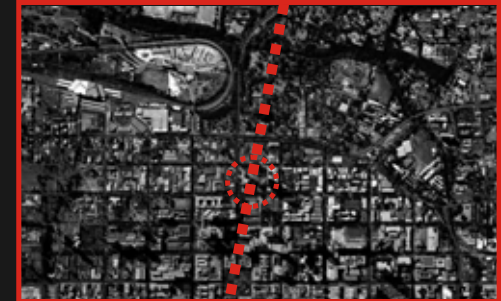


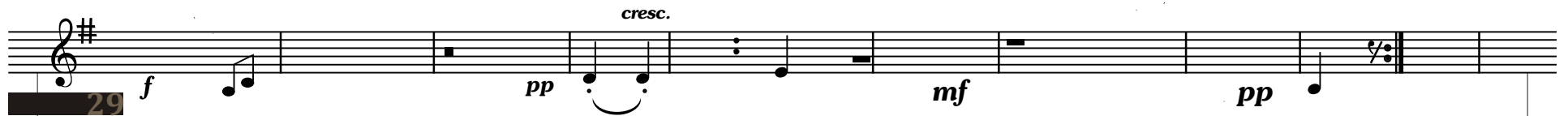
FIG. 3.4



FIG. 3.5



FIG. 3.6 City blocks





*f* *2* *p* *cresc.* *1 f* *1 f*

context study 30

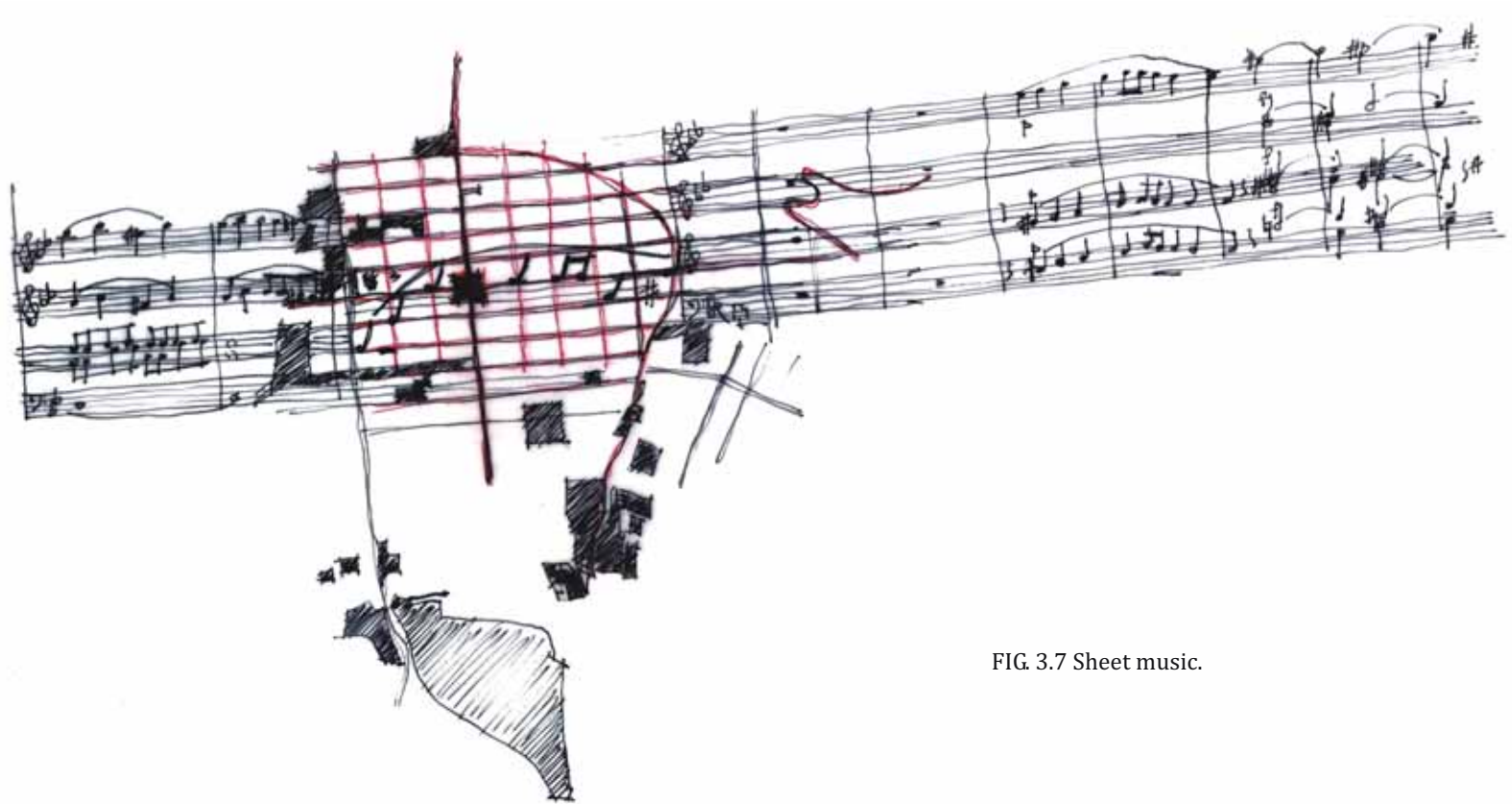


FIG. 3.7 Sheet music.



## MACRO CONTEXT

Pretoria is a postmodern city still in the process of rebuilding itself after post-colonialism and to a certain extent, post-apartheid. Many of the inequalities created and maintained by apartheid still remain in South Africa which is evident in Pretoria. As a result, the social fabric of the inner city is fragmented as there is an influx of previously disadvantaged people from the neighboring townships into the inner city and a retreat of previously advantaged people to suburbia areas bordering the city. Inhabitants of these suburbia areas have adopted a sort of “fort knox” strategy through isolated low-density developments occurring on the outskirts of the city further damaging the social fabric of Pretoria and ultimately leading to social decay. Meeting points where interactions between human beings take place has taken the back seat to an urban society based around the car, which forms an integral part of an extremely fast paced lifestyle that almost completely cuts out and isolates people from people. Thus the definition of an activity node has, as a result, become somewhat blurred. People have retreated into their own “bubble world” by adopting an “each for his/her own” attitude instead of engaging in and participating in the community.

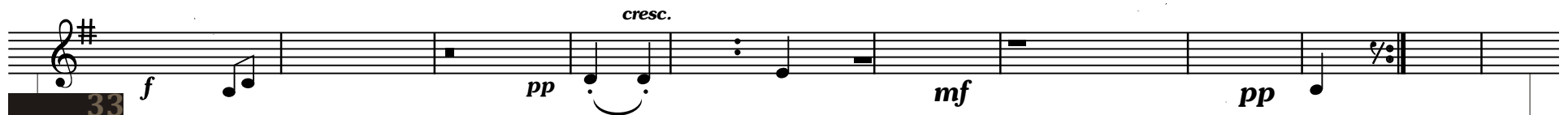






FIG. 3.8 (opposite) Major vehicle routes and township nodes

FIG. 3.9 Green spaces.



When considering the philosophy of social ecology, generally based on human domination over all, it is clear how the scattering of community facilities throughout the city do nothing for the life of the city (Alexander: 1977). As a result we find one of the biggest problems in communities today (if not the greatest) being the fact that the available public life in any community is spread so thin, it has hardly any impact on the community.

People seek out concentrations of other people. But to create such concentrations of people, facilities need to be grouped densely around small public squares which in turn can function as nodes. But such nodes would require pedestrian traffic to pass through it to truly make it function because as mentioned before; people seek out concentrations of other people.

Instead what we find happening in South Africa (e.g. Pretoria) is a more large scale concentration of “nodes” (cities, townships) interlinked by “pedestrian paths” (roads, highways). This large scale version of the activity node pattern of course does not function at all as community facilities are scattered throughout the city and as a result do nothing for the life of the city. Golfing estates would be the perfect example of just this, as golfing estates are literally splitting suburbs by being literally cut off from society, and as a result, breaking the network of “paths” between the different nodes.

Neighbourhoods are physically separated from each other, contributing to patterns of special fragmentation and social exclusion. There is a lack of opportunities for social contact and interaction on a broad city scale, due to different groups operating in separate enclaves and leading separate lives.

Tibbals points out that the public realm is “the most important part of our towns and cities. It is where the greatest amount of human contact and interaction takes place”. It is therefore important that the development of urban public space, as part of a larger public sphere, addresses the tensions inherent in the contemporary transformation of the urban public realm and contributes to the emergence of an urbanism which promotes social interaction and tolerance. (Tibbals: 1996)





FIG. 3.10 Pedestrian and vehicle traffic



FIG. 3.11 Movement corridors

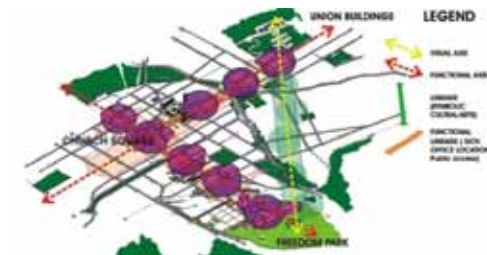


FIG. 3.12 Government boulevard

The TICP SDF by GAPP (2004) is a macro scale urban development framework that aims to achieve sustainable urban renewal. It will aid and reinforce proposals made for improving Pretoria city's inner urban environment. Aspects such as urban security, public spaces, and accessibility will form the back bone of all proposals and will contribute to inner city renewal and rejuvenation.

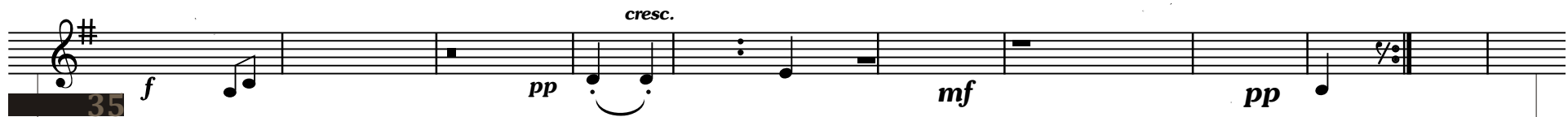
Paul Kruger and Church Street as key movement corridors are further strengthened by the Union buildings - Freedom Park visual axis as well as the concentration of investment, development and urban management via a series of squares, parks and pedestrian routes.

#### Public space

The clustering of government offices along the two corridors in a series of nodes combined with key public spaces creates a "Capital Web" of public investment that stimulates private investment and creates a new capital city image.

#### Pedestrian core

Creating a pedestrianised infrastructure spine along Paul Kruger Street consisting of tram routes, services, public space networks and government offices will not only increase commercial opportunities, but will also directly link symbolic sites. Movement routes crossing the Paul Kruger spine will form important nodes and will be accentuated by a combination of hard and soft public spaces. For the purpose of the proposal, Boom, Bloed and Struben Street crossings will be of utmost importance.





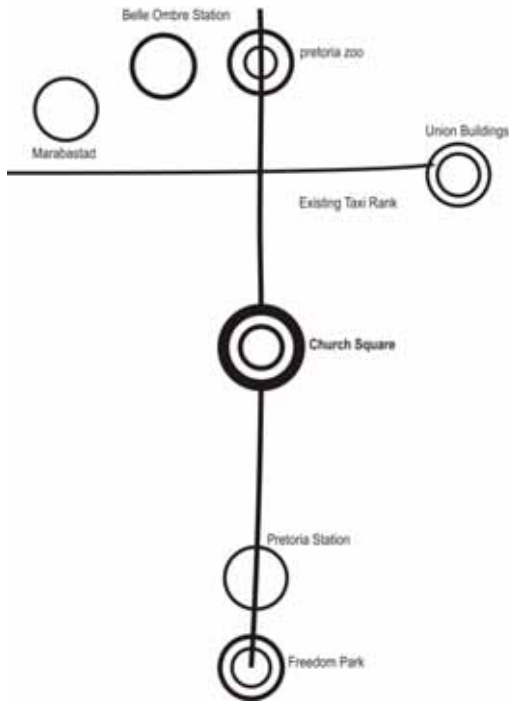


FIG. 3.14

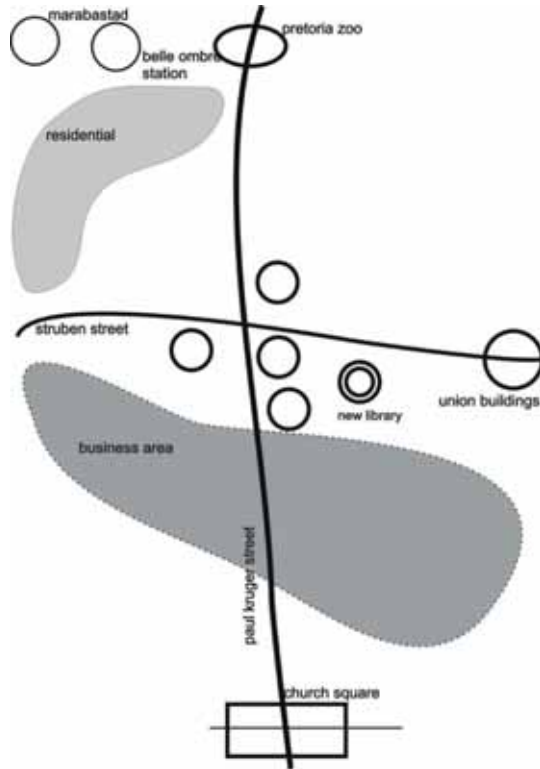


FIG. 3.15

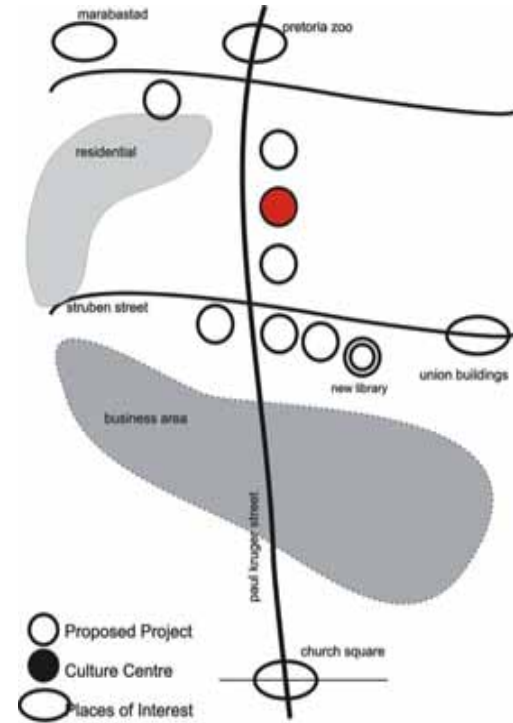
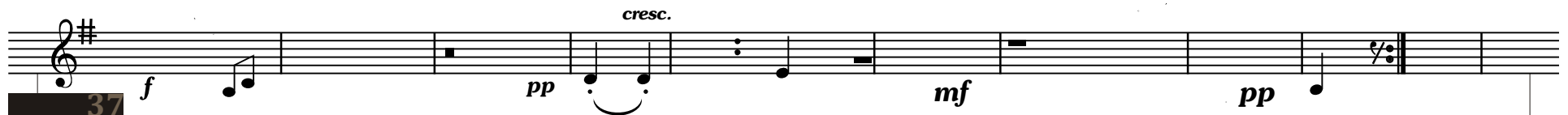


FIG. 3.16

FIG. 3.14 Diagrammatic map of nodes around Church Square.

FIG. 3.15 Diagrammatic map of public spaces.

FIG. 3.16 Site in relation to other proposed projects





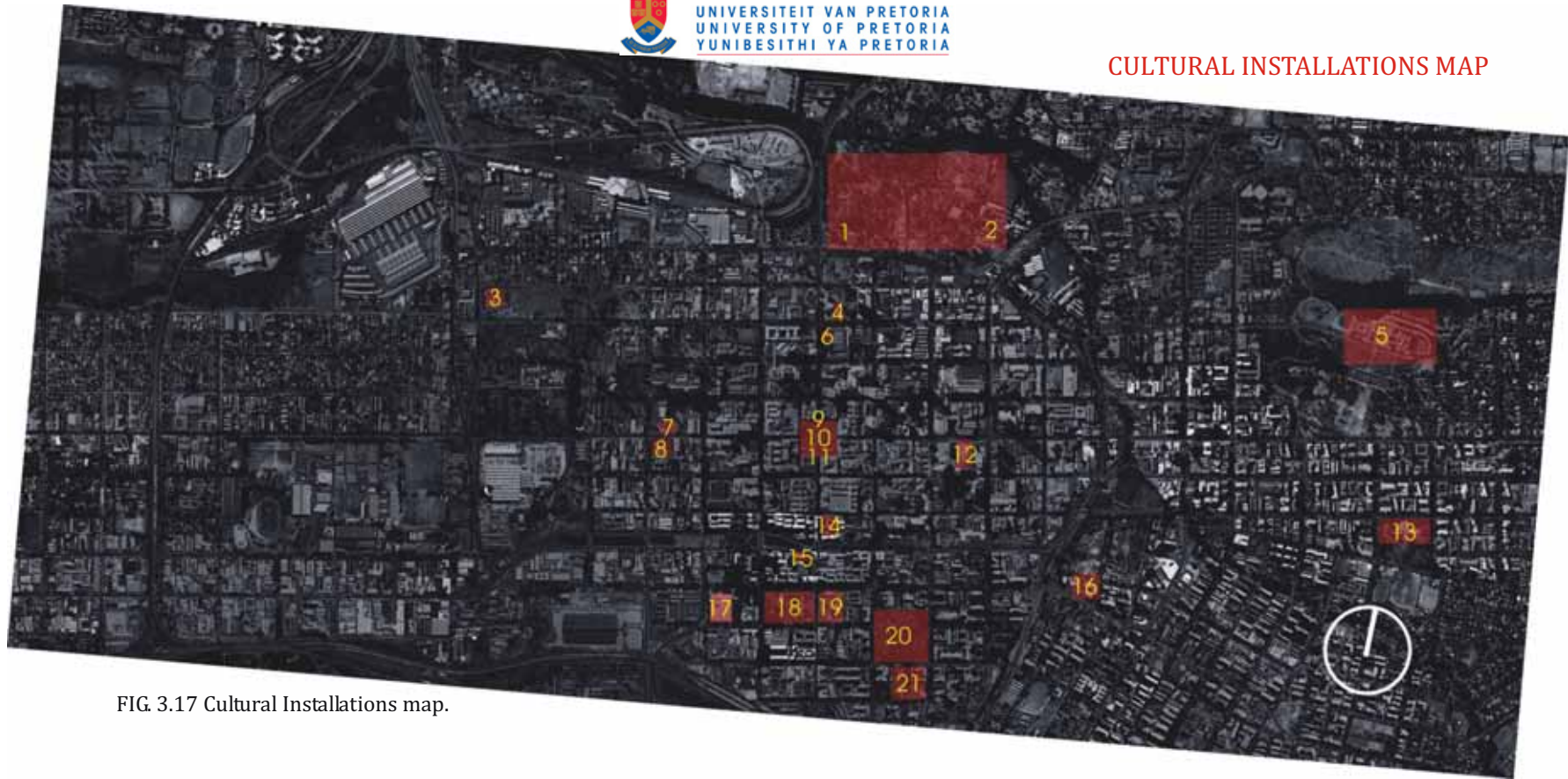


FIG. 3.17 Cultural Installations map.

- |                                |                                      |
|--------------------------------|--------------------------------------|
| 1. Aquarium and Snake Park     | 12. State Theatre                    |
| 2. Pretoria Zoological Gardens | 13. Pretoria Art Museum              |
| 3. State Model School Museum   | 14. State Model School Museum        |
| 4. House Jansen                | 15. Museum of Science and Technology |
| 5. Union Buildings             | 16. Oeverzicht Art Village           |
| 6. Jewish Synagogue            | 17. African Window                   |
| 7. Kruger House                | 18. City Hall and Pretorius Square   |
| 8. Paul Kruger's Church        | 19. Transvaal Museum                 |
| 9. Palace of Justice           | 20. Burgers Park                     |
| 10. Church Square              | 21. Melrose House                    |
| 11. Old Raadsaal               |                                      |







FIG. 3.18 Site locality map.

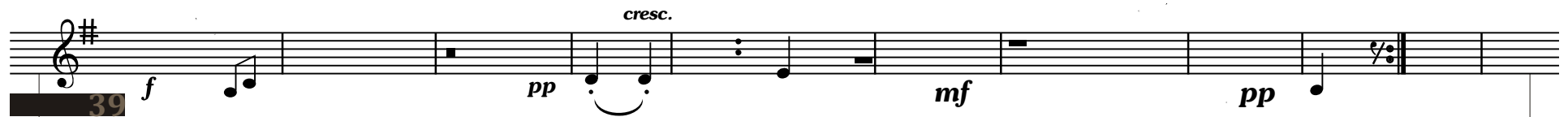




FIG. 3.19 Aerial view of site and surrounding buildings.







# INNER CITY SKYLINE



41 *f* *pp* *cresc.* *mf* *pp*

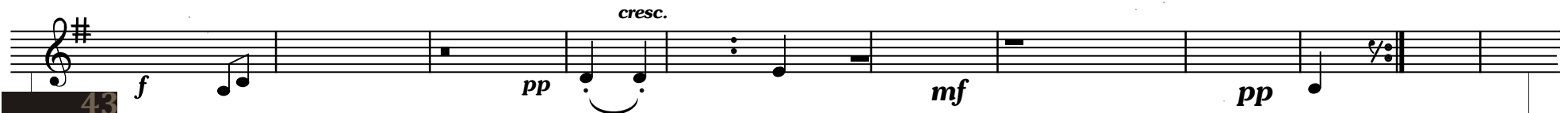


FIG. 3.20 Inner city skyline.



“Music is everybody's  
possession. It's only  
publishers who think that  
people own it.”

**John Lennon**





# CONTEXT STUDY MICRO

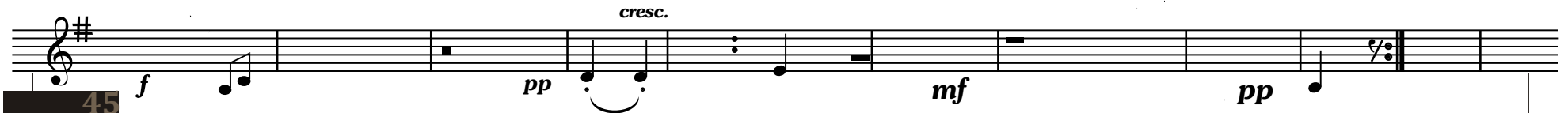


FIG. 4.1 Circuit board





FIG. 4.2 View of tram line along Paul Kruger Street



### HISTORY OF PRETORIA

Before Pretoria even was proclaimed a town, the construction of the central church on Church Square (then Market Square) began. Construction began in 1854 by William Skinner and Louis and Lionel Devereux while the town of Pretoria was proclaimed on 16 November 1855, a day after Commandant General Marthinus Wessels Pretorius was elected as state president. On this day the Elandspoor and Daspoort farms were declared the town of Pretoria. Skinner, the Devereux brothers and Jan Visagie laid out the original central town square (Markt Square), several surrounding stands and the roads leading into it. The two main roads structuring the city were Church Street and Markt Street (today Paul Kruger Street) which still today structure the city of Pretoria. Together they form the east-west and north-south axes of the city. (ANDREWS & PLOEGER 1989:5)

Markt Street (Market Street) was renamed during the Voortrekker celebrations in 1938 to commemorate Stephanus Johannes Paulus Kruger. Previously the street had derived its name from the fact that it lead directly into the centre of Church Square (then Market Street).

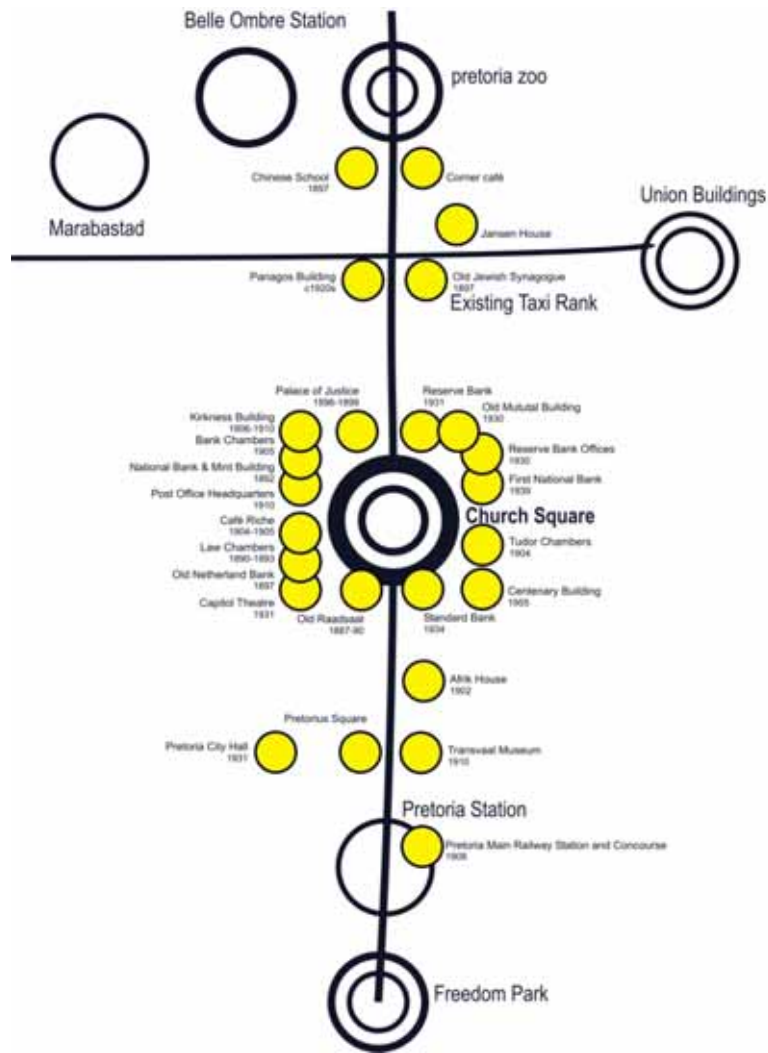
The church located on Church Square was built of mud walls, a thatched roof with 'crow stepped gables and seated up to 700 people. The materials used were commonly used for other buildings surrounding Church Square at the time. In 1882 the church burnt down and was replaced with a Victorian gothic Structure of which the tower became unstable and was removed approximately 20 years later. It was decided to clear the entire building as it impeded traffic flow at the intersection of two major roads. (ALLEN 1971:34)

In the 1930s, the town planner Sir William Holford was employed to structure and plan the growing capital city. He produced several proposals over an extended period of time for the intersection of Struben and Paul Kruger Street. It is from this intersection that one has the impressive view towards Church Square as well as towards the Union Buildings, built in 1909 by Sir Herbert Baker. The intention of his proposal was for government departments to be located along this east-west axis, physically emphasising the existing visual link. The north-south axis focused on the original church built on Church Square. The intersection was intended as a large public space or park. (BARBIR 2007)



FIG. 4.3 Statue of Paul Kruger at Church Square



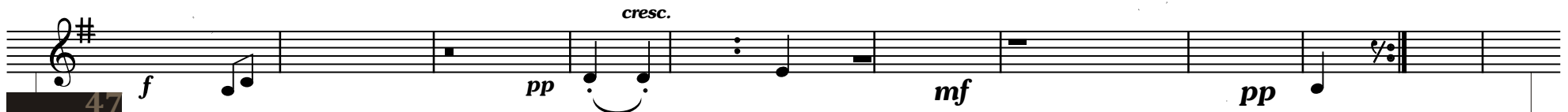


Several buildings of significant heritage are located along these axes. At the most southern point of Paul Kruger Street lies the Pretoria Main Railway Station and Concourse (Sir Herbert Baker; 1908). Moving north is the Transvaal Museum (Celand for the Public Works Department in 1910) which is linked to the Pretoria City Hall (Lockwood Hall; 1931) by Pretorius Square (Coert Steynberg; date unknown) where today statues of Andries Pretorius, ... Pretorius and the Chief Tshwane are located on the square. Between Schoeman and Pretorius Streets lies the Afrik House (1902). From here one enters Church Square. The buildings located on Church Square date from the late 1800s to 1962, the oldest being the Old Raadsaal (Wierda for the Department of Public Works; 1887-1890).

Several buildings of significant architectural heritage are located on the northern section of Paul Kruger Street. These include the Old Jewish Synagogue (Ibler and Bearwood, 1897) which was the first synagogue to be built in Pretoria and the Pretoria Chinese School (1897). Directly opposite the Synagogue lies the Panagos Building (architect, 1897) which is the oldest remaining commercial building in Pretoria. More recent buildings include the mixed residential Woltemadegebou (WG Mussman 1961- extensions by Colyn & Meiring Architects, 1969), which is an example of the Pretorian adaptation of the International Style.

Just north on the corner of Proes and Paul Kruger Street lies the Deutscher Verein (Kallenbach, Kennedy & Furner, 1933) which is an example of Art Deco and the International Style. The club which has existed since 1888 indicates the significant German presence in Pretoria from the late 1800s onwards. The most northern tip of the Paul Kruger street disappears over the Witwatersrand towards Capital Park with only a small corner cafe building with an art-deco influence on the corner of Paul Kruger and Boom Street. It dates back to the Bazaar era and is typical of its time. (Le Roux: 1991)

FIG. 4.4 Clustering of Heritage buildings along Paul Kruger Street and Church Square



According to David Panagos, who grew up living in one of the apartments on the second floor of the Panagos Building, the area used to be a vibrant one with a fine urban grain. Several boarding houses and hotels existed in the area where temporary workers from the outlying area lived for the duration of employment in the city. These included the Rusoord Hotel on Struben Street and the Castle Carey Clinic on the corner of Proes and Struben Streets. The area had a high residential percentage. Struben Street was lined with small residential houses. Today only the Jansen House remains. It is not surprising that Mr Panagos met his wife Anne here, who herself lived in the Jansen House. Mr Panagos remembers the bakery diagonally across the street from his home as well as spending most of his afternoons playing in the Zoo with his younger brother. (Panagos 2007)

A tram system used to operate in Pretoria, south of Church Square. On the northern section of Paul Kruger streets only buses operated. During World War II the zoning of this residential area was changed to accommodate light industrial activities. Several cottages north of the Panagos Building were converted to manufacture helmets. Mr Panagos identified this change to be the start of the degeneration of the area. (Panagos 2007)

#### IMPORTANT EVENTS

It is important to note that in 1952 the property of the Jewish community including their Synagogue was expropriated by the national government and the Synagogue was converted into a special supreme court. This court was to deal with the rising 'black opposition movements'. The building was painted white and all stain-glass windows were removed. On 3 August 1959 the Treason Trials, of which the preparatory examination had begun in 1956 at the Drill Hall in Johannesburg commenced at the converted Synagogue in Pretoria. This strategic move on the government's part was to deter supporters of the accused. It was here that on 12 June 1964 Nelson Mandela and his seven co-accused were sentenced to life imprisonment. (Mandela 1994:231-446)

In 1977 the inquest into Steve Biko's death, the leader of the Black Consciousness Movement began at the Old Synagogue. (Remmers & Schütte 2005)





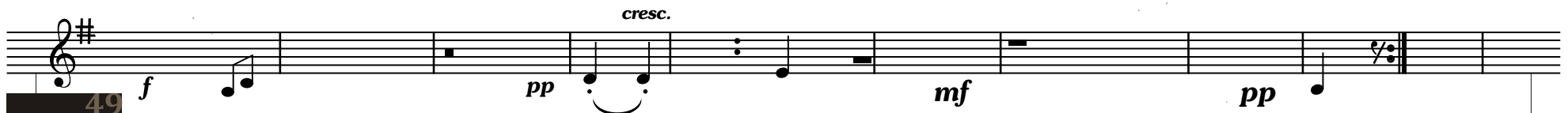
## TRAFFIC & TRANSPORT

A large majority of commuters do not live in the inner city itself but instead travel each day via different modes of transport from different townships on the outskirts of the inner city. Modes of transport consist of taxis, buses, train and private vehicles. The inner city is fed through major township nodes consisting of Shoshanguve, Mamelodi, Centurion and Atteridgeville. Other townships such as Hammanskraal, Eersterus, Ladium, Ga-Ramkwa and Rosslyn also feed the inner city.

Once in the inner city, commuters will be encouraged to travel by foot as accordance to the Paul Kruger spine proposal. The proposed tram route will link sites that fall outside a 10 minute walking distance and thus further encourage pedestrian movement.



FIG. 4.5





The economy of the Paul Kruger Street precinct will be stimulated and sustained by the inclusion of the final design as well as the inclusion and interaction with other proposed projects. The final design will make use of local skills and resources as construction and management of buildings will have a major impact on the economy of an area.

Local contractors, local building materials and local component manufacturers will be employed during the construction phase. After the completion of the final design, repairs and maintenance will be carried out by local contractors. Due to the nature of the music market arcade, outsourced opportunities will empower small emerging businesses.

The selected site for the final design is currently zoned as government leased land. Due to the location and nature of the final design, the zoning of the site will remain as government leased land since the department of arts and culture falls within the government portfolio. Instead it is proposed that the department of education be located along the Church street corridor and not the current selected site. The issue of scale and public accessibility of the department of education deems it inappropriate to be located along the Paul Kruger spine as it does not coincide with the urban design context for the Paul Kruger spine.





FIG. 4.6

Of all the small residential houses along Struben Street, today only the Jansen House remains on the chosen site. Currently the chosen site has been allocated for the construction of the department of education. This will however be apposed and will be discussed later.

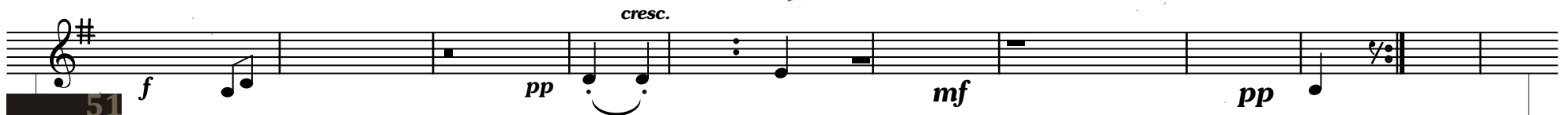
The chosen site is enclosed by the Civitas building from the east. The city block to the north of the chosen site will consist of proposed projects working closely with the Pretoria zoo precinct. The city block to the south of the site will consist of proposed projects all focused around the Jewish synagogue and the new national library that is currently under construction. The city block to the west of the site consists of retail components through which a pedestrian arcade containing musical interventions will be proposed.

CIVITAS



FIG. 4.7

PAUL KRUGER STREET



*“People cannot maintain their spiritual roots and their connections to the past if the physical world they live in does not also sustain these roots”*

Every country, city, town or neighbourhood has its own “special places”. These places may be historic landmarks or natural beauties that have great meaning to the local community as these sacred sites represent or symbolize the local people’s believes and roots and embody peoples relation to the land and to the past.

There is no longer any clear distinction between land and the local community as all land is seen as financial opportunities instead of a place that represents peoples' believes. The land is therefore bought and owned, and as a result, access to such sites becomes limited, (if not restricted). This is to a large extent the case in the Pretoria CBD. Most buildings in the CBD are government owned and access to these sites is limited. (In some cases photographing the facades or surrounding locations is prohibited). To add insult to injury green spaces and public squares also seem “limited” due to the lack of such locations as well as the fear of crime. This is further weakened by the fact that these few public spaces exist as single entities rather than a network or “electronic board” of public spaces. Public transport also largely contributes to the problem at hand as the primary mode of transport is the private car (and to a certain extent the taxi). The pedestrian thus becomes an afterthought and therefore provisions made for the pedestrian in the urban context are extremely limited.

The best way to intensify a site would be through a progression of areas which people pass through as they approach the site. We must therefore build around a sacred site a series of spaces which gradually intensify and converge on the site. The site itself therefore becomes a kind of inner sanctum, at the core. The proposed project thus aims to provide a “site” that represents people's beliefs by uniting people across the race, age and gender spectrum. The project will, along with other proposed projects within the vicinity, aim to encourage pedestrian movement by adding to and strengthening the existing network of public and green spaces. Pedestrian orientated routes will link these public spaces as well as link symbolic sites that are “scattered” throughout the inner city. The private car will be minimized in the urban fabric by the proposed Light Rail Transit line that runs throughout the inner city as well as the proposed Paul Kruger Spine. The proposed LRT station will be situated along Paul Kruger Street with smaller “satellite” stations along the LRT routes throughout the inner city. The proposed project as discussed in this dissertation will create a symbiotic synergy with these satellite LRT stations and thus musical interventions will be proposed in addition to these routes resulting in a complimentary partnership between transport and social interaction. It is important to note that the proposed project will also be situated along Paul Kruger Street.

Government buildings, i.e. buildings with “limited” access to the general public is better suited along the government boulevard which will be along Struben Street. (GAPP: 2004) Therefore the department of education, currently being constructed on the chosen site, is better suited along the government boulevard.







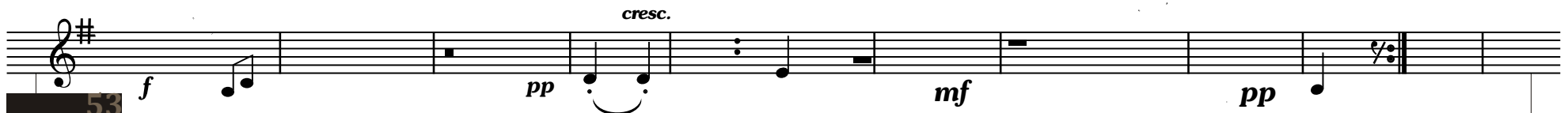
The R11 billion “Re Kgabisa Tshwane” project aims to rid Pretoria’s inner city of crime and grime as well as improve the working conditions of public servants at 40 national departments in the inner city. Facilities will also be provided for 1200 departmental staff members. And the building will house conference and printing facilities as well as a staff restaurant. (Pretoria News: 2007)

The Department of Education, which is set to be constructed on the chosen site, is due for completion by 2014, four years after South Africa host the FIFA World Cup. As discussed previously in this document, the current site is deemed inappropriate for any government type building as Paul Kruger Street has been identified as an activity spine within a proposed urban framework. Thus the Department of Education, which falls under the category of government building, will be relocated to a site on the “Government Boulevard” along Struben Street. This will not undermine the “Re Kgabisa Tshwane” project as the project’s planned provision of two corridors concentrating on improving the city’s infrastructure and municipality’s inner city development strategy will not be affected by the Paul Kruger urban framework.



□ An artist's impression of the new development.

FIG. 4.8





THE PAPER FOR THE PEOPLE OF TSHWANE

**PRETORIA NEWS**

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TUESDAY AUGUST 7 2007

PRETORIUS BACK FOR BOKS - PAGE 14

PREMIER LEAGUE FIXTURES **football**

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# Inner city to be transformed

R11 billion project set to combat crime and create new job opportunities

PATRICK HLAHLA

The Tshwane Metro Council and the Department of Public Works are forging ahead with a multimillion-rand project aimed at ridding Pretoria's inner city of crime and grime.

The R11 billion "Re Kgabisa Tshwane" (bringing beauty to Tshwane) project is also aimed at improving the working conditions of public servants at 40 national departments or agencies in the inner city.

The buildings are expected to be brought to "an acceptable norm, attracting private sector investment and ensuring the urban environment is improved" in terms of urban security, public space and accessibility.

The project was launched two years ago by former executive mayor Father Smangaliso Mkhathshwa and Deputy Minister of Public Works Ntsohle Kganyago.

The bulk of the work is expected to take place between 2008 and 2010, and is due to be completed by 2014.

The initiative includes the provision of two corridors concentrating on government accommodation and improvements to the city's infrastructure.



An artist's impression of the new development.

the State Library.

Chiapasco said: "We are currently busy with feasibility studies for the next 13 head office complexes, of which five are complete and funds are currently being secured to enable development."

He said the programme was intended to maximise state-owned properties (land and buildings) as based on an African aesthetic and will provide modern facilities and services for 1 200 departmental staff.

The building will house conference and printing facilities, and will have a staff restaurant.

Meanwhile, construction work has also started on the Blood Street Retail Park.



FIG. 4.9 Front page of the Pretoria News

*f* *p* *cresc.* *f*

context study 54



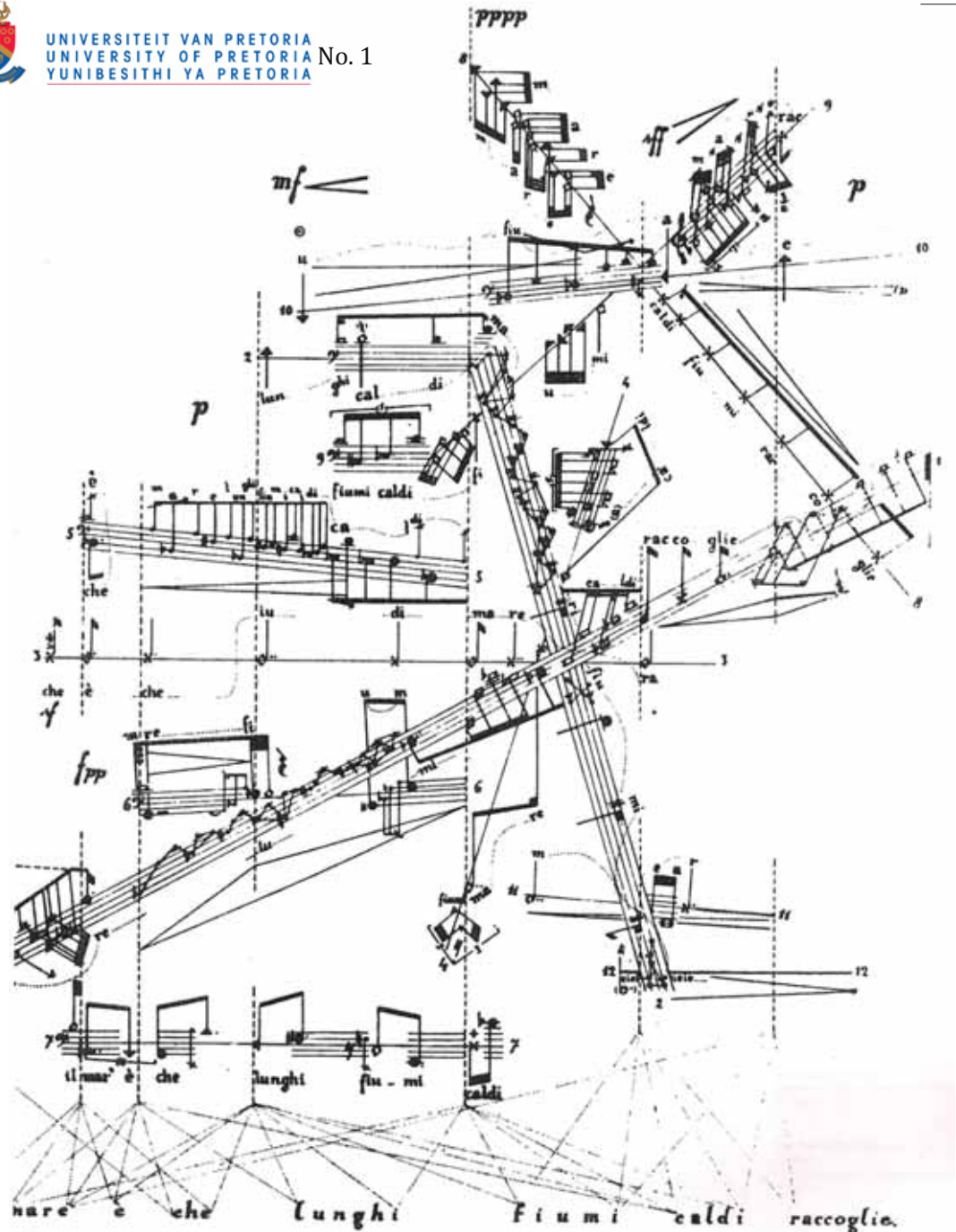
## PUBLIC SQUARE

“In modern architecture, where the rationality of the structural frame and the building masses threaten to dominate, there is often an architectural vacuum in the left-over portions of the site. It would be good if instead of filling this vacuum with decorative gardens the organic movement of people could be incorporated in the shaping of the site in order to create an intimate relationship between Man and Architecture”.

*Alvar Aalto*

Finnish architect Alvar Aalto's principles and understanding of site is largely considered for the design and layout of the proposed public square as this could be perceived as being the “left-over” portions of the site. Aalto's aspects of morphology, dimension, orientation and relationship to the surrounding area and infra-structure thus become the departure point of the design.

Aalto's considerations of route; more specifically, the path of the sun, the route of the human observer around the building and the functional route of a person through the building. Aalto is preoccupied with the flow of nature and its relationship to the flow of space in and around buildings. The site is best understood by the experience of humans moving across and around it.





Department of Internal Affairs, National Health,  
 Development of Population, Civitas Building  
 242 Struben Street  
 c/o Andries  
 ERF Number 2976/Block 202976 Block 20

This office block consists of 32 floors (including basements) and takes on a square shape, erected on a podium with three of its sides dominating the three adjacent streets. Stainless steel columns on each side create a vertical exterior and pronounced presence of the building, with dark horizontal double-glass panels set in aluminium and steel frames. This building is articulated with projected glass panels which act as both sun insulation as well as the division of the facades. The finishing effects consists of granite, with arbeton panel work and slate paving.

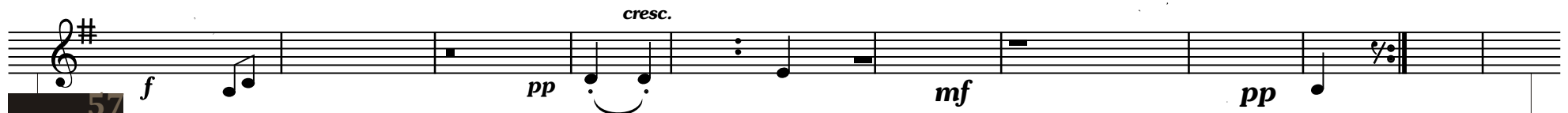
This design is the creation of Daan Kesting and Partners, and built and completed in 1972; known to us today as the Civitas Building. The late modernism period is reflected in this design in the usage of horizontal and timeless abstract elements which create a vision of extrusive presence. Abstract-denoted forms of art are prominent on the outside of the building as well as the inside.

Surrounding streets are negatively affected by the grey superior magnificence of the podium which creates a 'grey and dead' area turning to the streets. This in itself is an acceptable reason for calling this building a 'typical' Pretorian skyscraper.

(Le Roux, 1991, pg 23)



FIG. 4.11 View of the Civitas building from house Jansen



HOUSE JANSEN  
Struben Street 214  
ERF Number 62/R Block 20

House Jansen, formally known as Palmside, dates from 1883 and is a single storey Victorian style abandoned residence located along Struben Street. House Jansen has a high heritage value although it is in a relatively poor condition. It has a tower and detailed gable wall and bay window. The roofing material of the house, tower and veranda consists of painted sheet metal. A covered veranda wraps around the southern and western elevations of the building. The veranda's roof is supported with detailed timber columns. The entrance is pronounced via a wooden pediment located between the gable wall and veranda. Brickwork consists of red face brick and painted plaster. The interior of house Jansen consists of pressed steel ceilings, cast-iron fire places and timber floors (covered with veneer in parts of the interior). Horse stables and an out building is located to the north of house Jansen. These buildings also consist of face brick and painted plaster as well as painted sheet metal.

It is proposed that house Jansen functions as a restaurant and the stables and out building function as a bookshop. These proposed activities for house Jansen will not only be true to its original purpose, but will also benefit the collective proposed projects of the proposed public square. (Le Roux, 1991, pg 22)



FIG. 4.12 House Jansen



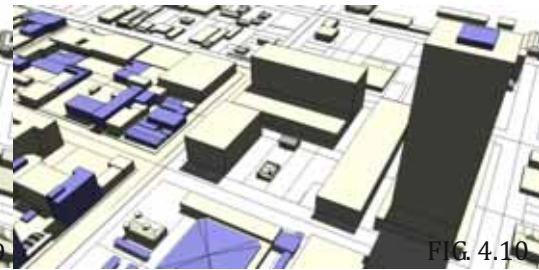
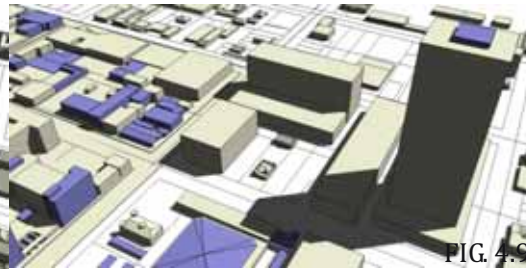
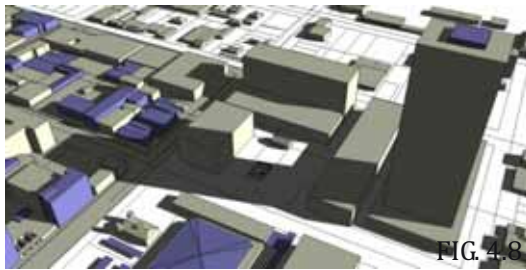
FIG. 4.13 House Jansen tower



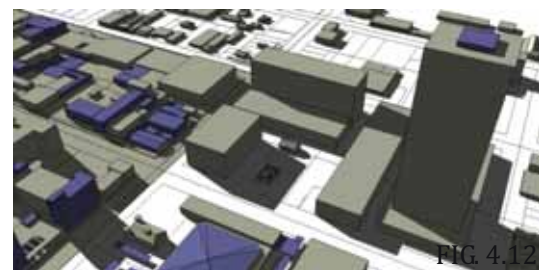
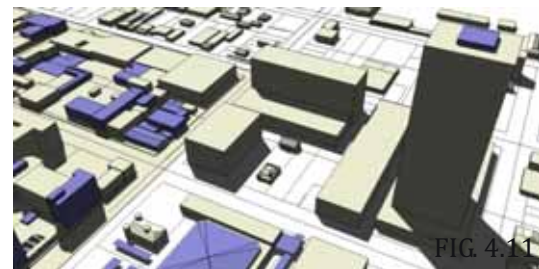


# SUN STUDY

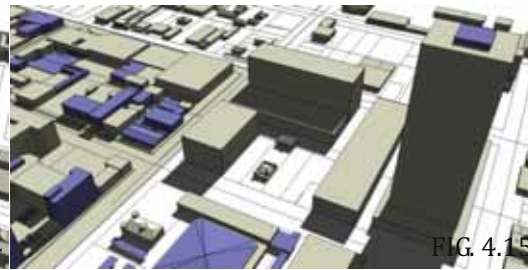
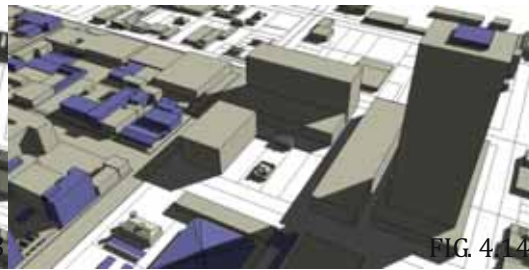
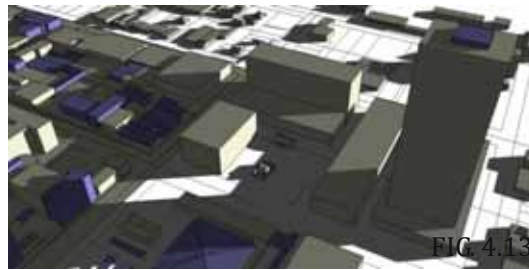
## 21 MARCH/SEPTEMBER



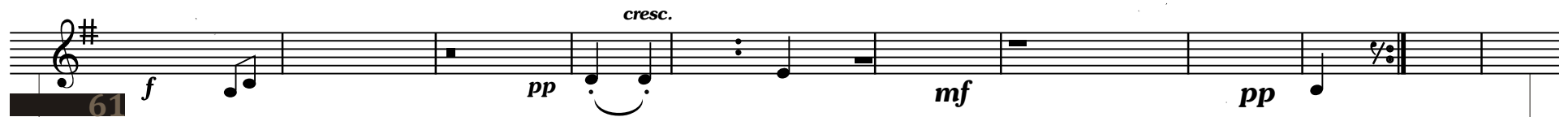
- FIG. 4.14 21 March/September - 08h00
- FIG. 4.15 21 March/September - 10h00
- FIG. 4.16 21 March/September - 12h00
- FIG. 4.17 21 March/September - 14h00
- FIG. 4.18 21 March/September - 16h00



# 21 JUNE



- FIG. 4.19 21 June - 08h00
- FIG. 4.20 21 June - 10h00
- FIG. 4.21 21 June - 12h00
- FIG. 4.22 21 June - 14h00
- FIG. 4.23 21 June - 16h00



# 21 DECEMBER

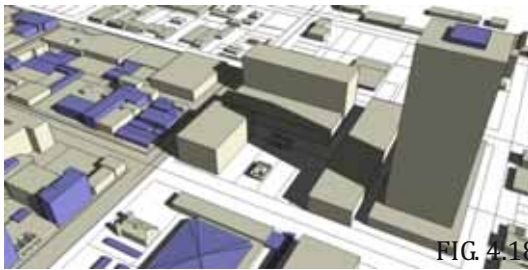


FIG. 4.18

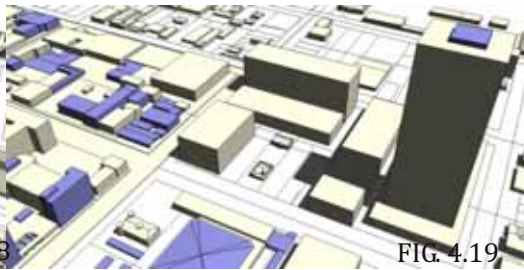


FIG. 4.19

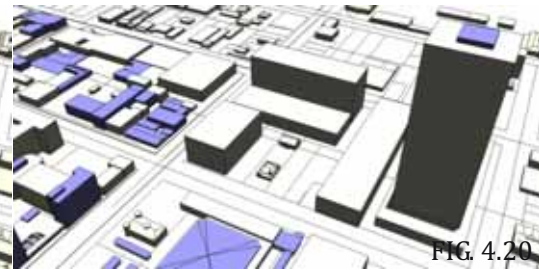


FIG. 4.20



FIG. 4.21



FIG. 4.22

- FIG. 4.24 21 December - 08h00
- FIG. 4.25 21 December - 10h00
- FIG. 4.26 21 December - 12h00
- FIG. 4.27 21 December - 14h00
- FIG. 4.28 21 December - 16h00



*f* 2 *p* *cresc.* 1 *f* 1 *f*

context study 62





# SITE ANALYSIS



FIG 4.29 Site Analysis map 1

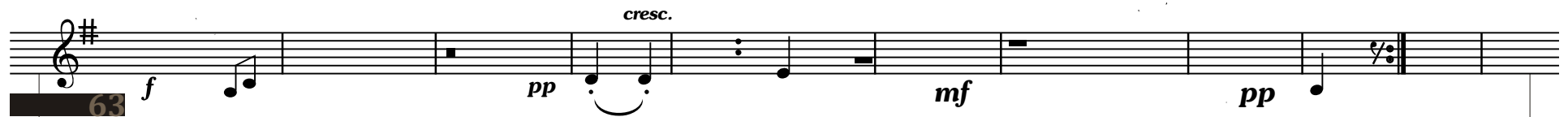






FIG. 4.30 Corner Cafe

# ANALYSIS 01



FIG. 4.31 Snake Park & Aquarium



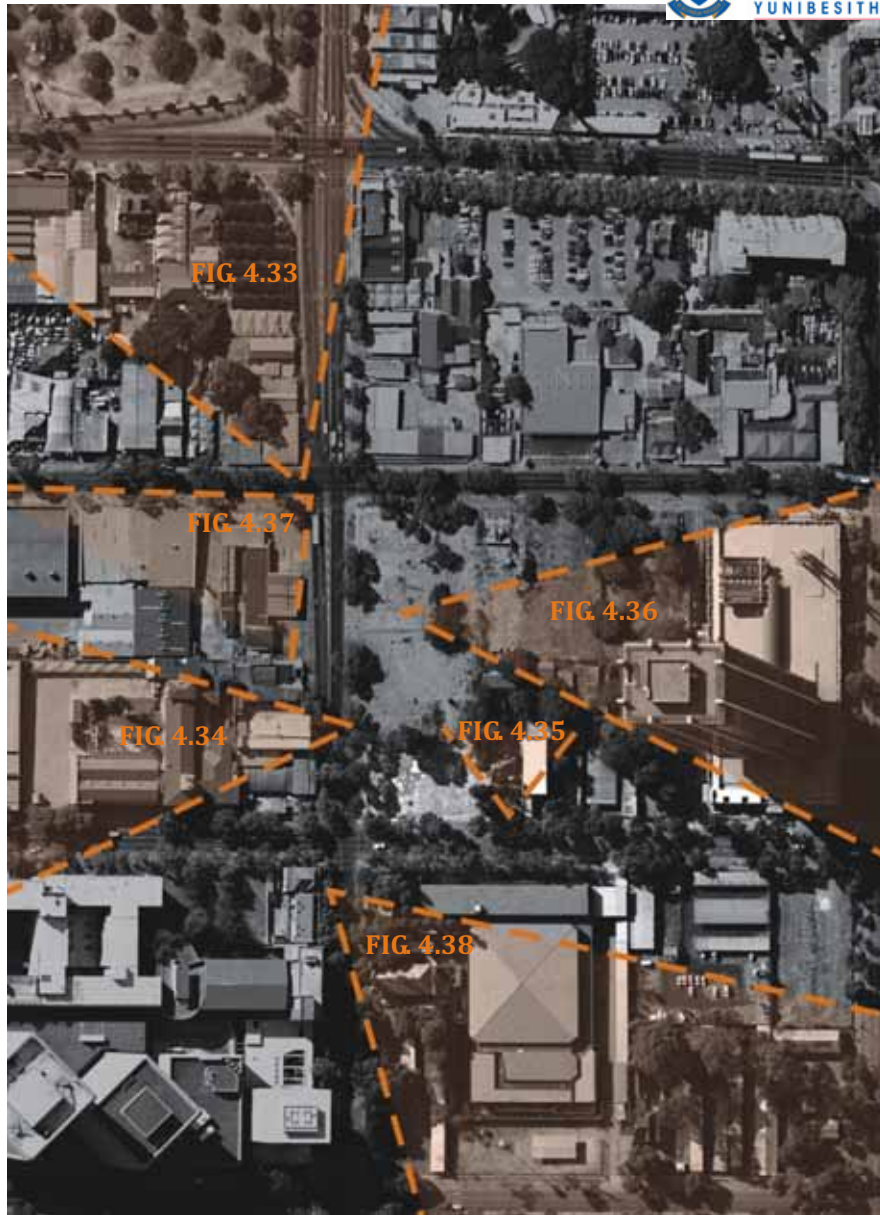


FIG. 4.32 Site analysis map 2



FIG. 4.33 Second Hand Cars dealership



FIG. 4.34 VR Printers



FIG. 4.35 House Jansen

ANALYSIS 02

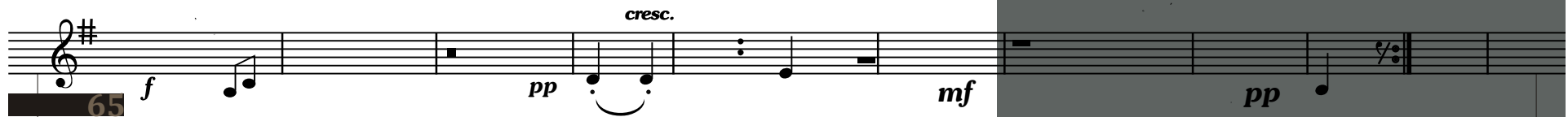




FIG. 4.36 Civitas building



FIG. 4.38 Old Jewish synagogue



FIG. 4.37 Wholesalers

Musical notation on a staff with dynamics (f, p, cresc.) and a 'context study 66' label.



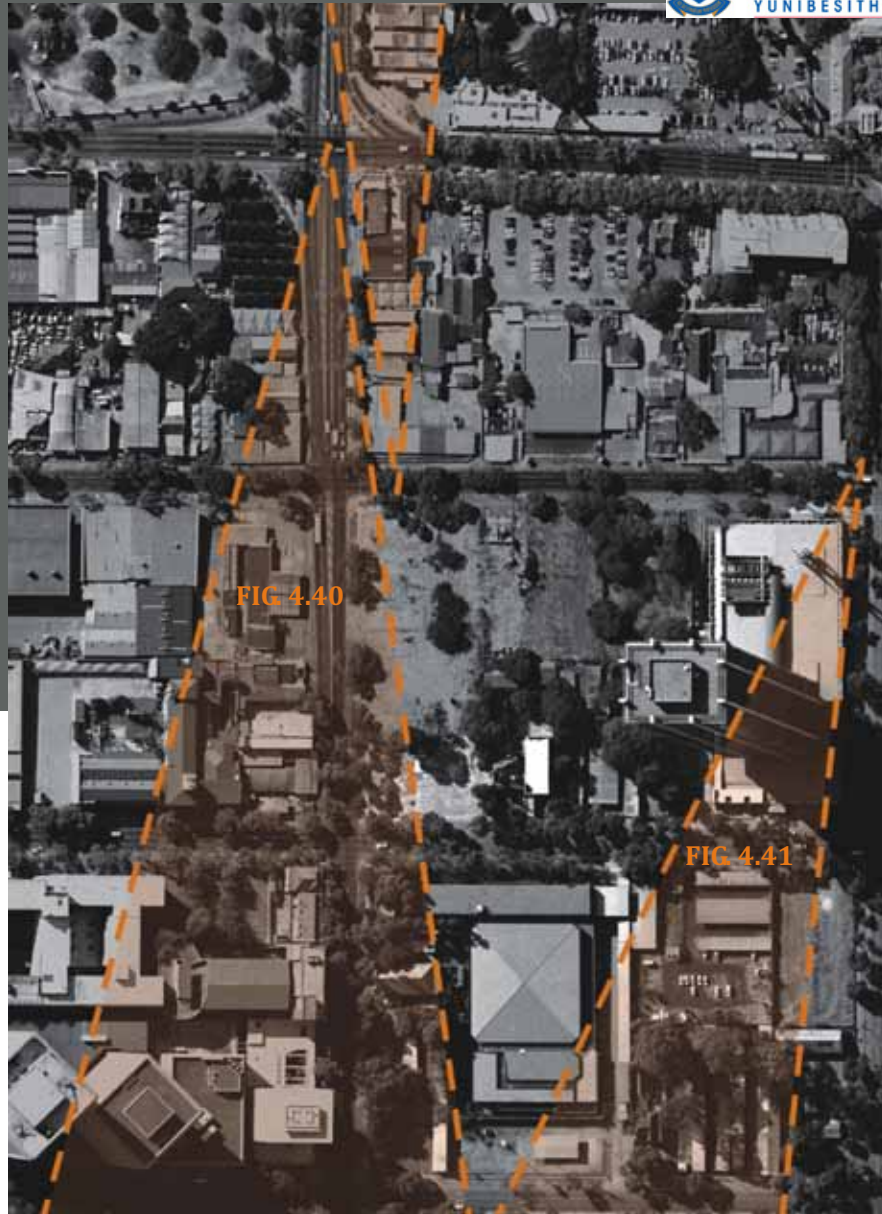
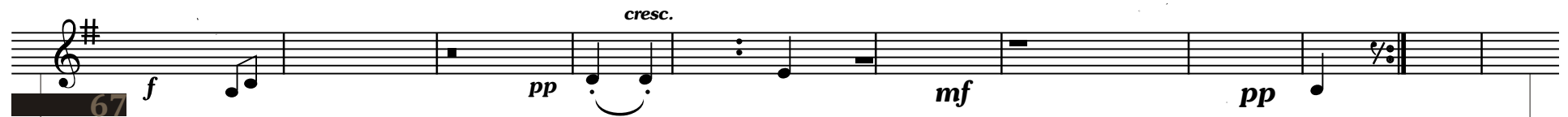


FIG. 4.40 Paul Kruger Street

FIG. 4.39 Site analysis map 3







# ANALYSIS 03

FIG. 4.41 Civitas building north-eastern elevation

A musical score on a single staff. The notation includes a series of notes and rests. Dynamics markings include *f*, *p*, *cresc.*, and *f*. There are also numerical markings '2' and '1' below the staff. The score ends with a double bar line. The text 'context study 68' is written in a black box at the bottom right of the staff.



FIG. 4.42 Site analysis map 4

# ANALYSIS 03

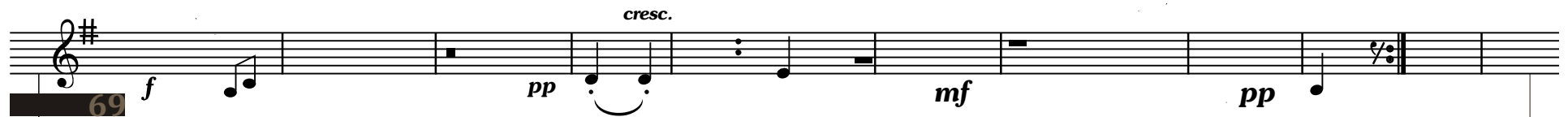




FIG. 4.43 Wholesalers Paul Kruger Street Elevation



FIG. 4.44 Struben Street



FIG. 4.45 Panagos building







71 *f* *pp* *cresc.* *mf* *pp*





FIG. 4.46 Bloed Street - Southern



FIG. 4.47 Paul Kruger Street - Western





73

*f* *pp* *cresc.* *mf* *pp*



FIG. 4.48 Bloom Street - Northern

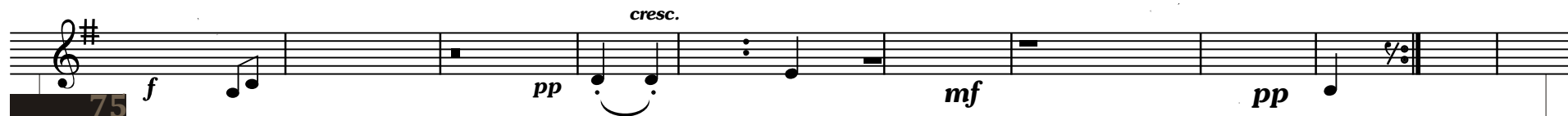


FIG. 4.49 Bloed Street - Northern



“It's easy to play any musical instrument: all you have to do is touch the right key at the right time and the instrument will play itself”.

**J.S. Bach**





# PRECEDENT STUDIES

A musical score for a piano exercise on a single staff. The piece begins with a forte (*f*) dynamic, followed by a piano (*p*) section marked with a '2' above the staff. A crescendo (*cresc.*) leads to a forte (*f*) section. The notation includes various note values, rests, and articulation marks. The piece concludes with a repeat sign and a final forte (*f*) dynamic.

## BASELINE, NEWTOWN, JOHANNESBURG

Located south of the Newtown public square, this humble and intimate live performance area is dedicated to the late Brenda Fassie; a top selling South African artist. This precedent was chosen to determine the requirements for a live performance venue as well as the requirements for both user and performer and the interaction between the two.

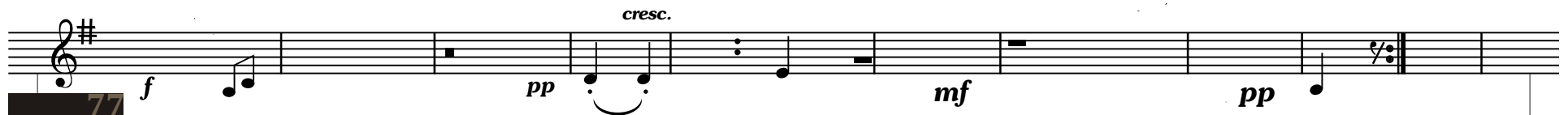
The building comprises of a bar and two stages. The first stage is simply a raised platform and acts as a stage for upcoming artists. The performance area is intimate and is preferred by most performing artists. The second stage is both visually and physically separated from the first stage and is **far** more formal and accommodates more accomplished artists and a larger audience.



FIG. 5.1 Main stage



FIG. 5.2 Statue of Brenda Fassie at entrance of Baseline





## BARACITY MARKET AND TAXI RANK, SOWETO

Although the primary function of Baracity does not directly correlate with building typology of the final design, other factors contributed greatly to the understanding and needs of people that make up the potential client base similar to that of the Paul Kruger precinct.

A main undercover axis route links different buildings and functions as a typical arcade found in the Pretoria inner city. Permanent stalls allocated for the use of market areas are scattered along the undercover axis. Locals however are not favourable of the permanent nature of these stalls as they do not allow for the changing needs of the user. Areas for taxis and buses are separated. Only bus areas are undercover much to the dissatisfaction of taxi drivers as they prefer to have protection against the elements.



FIG. 5.3 Baracity taxi rank



FIG. 5.4 Baracity market area

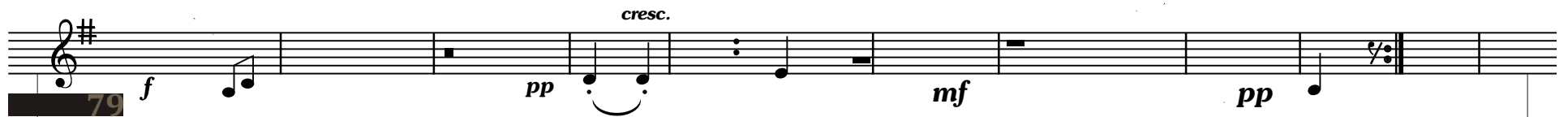




FIG. 5.5 Street facade of library



FIG. 5.6 Paving detail





UNIVERSITY OF PRETORIA LAW FACULTY, PRETORIA  
KRUGERROOS ARCHITECTS AND URBAN DESIGNERS

The University of Pretoria Law Faculty is a building that forms part of the environment yet at the same time stands out as a three dimensional form in the landscape. The concept of merging exterior with interior is achieved by taking the exterior paving into the buildings interior courtyards. Conceptually the building becomes a mini campus in its own right as the building always remains “open” although interior buildings can be locked when needed.

The massing of the building is such that forms are arranged in such a way that different activities spill out into the same courtyards thus enabling the building’s function to become extremely flexible.

There is a great emphasis on pedestrian movement throughout the building as expected from a building on a university campus. This is achieved through “open-air” pedestrian bridges and vertical circulation nodes throughout the building linking the different massing of the building further enriching the idea of activities of different spaces overlapping and interacting.



FIG. 5.7 Library lift



FIG. 5.8 Pedestrian walkways



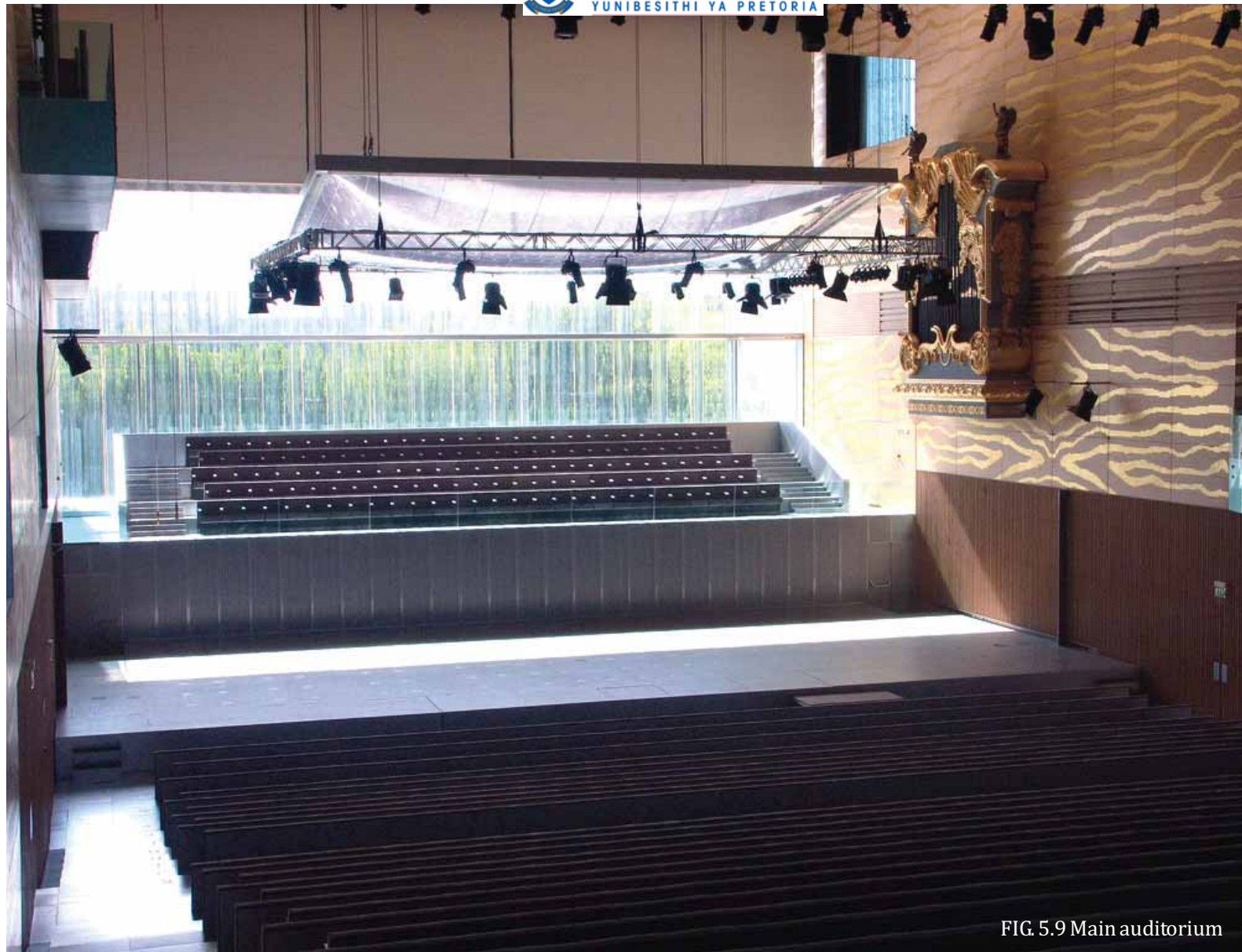
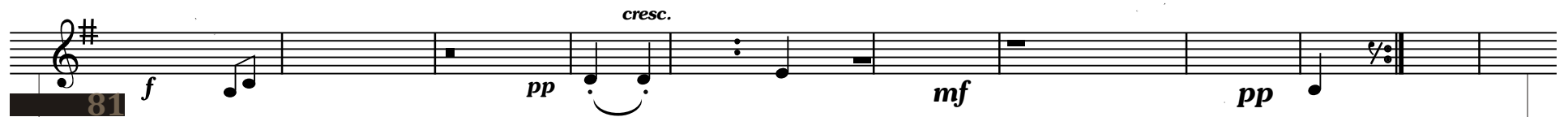


FIG. 5.9 Main auditorium







CASA DA MUSICA, OPORTO, PORTUGAL  
OMA

The main auditorium of Casa da Musica forms the core of the building with all other spaces wrapping around it. The main auditorium however is quite unique in the sense that the facade behind the stage is glass creating a sense of transparency within the building as a whole. This adds to the human senses as users are now able to “listen” with their eyes. The concept of transparency is taken further by spaces around the main auditorium being able to open to the exterior allowing passers-by to view activities within the building.

This precedent study thus informed the proposed project with the concept of merging spaces both indoors and outdoors thus ensuring that the interaction between user and performer is never interrupted.



FIG. 5.10 Overflow area

FIG. 5.11 Visual axis with park

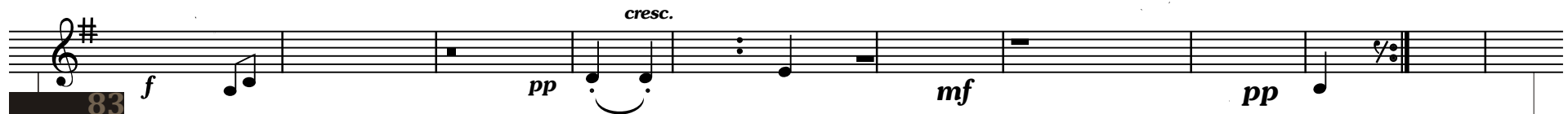
precedent studies 82

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“The joy of music should never be interrupted by a commercial”.

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## Leonard Bernstein





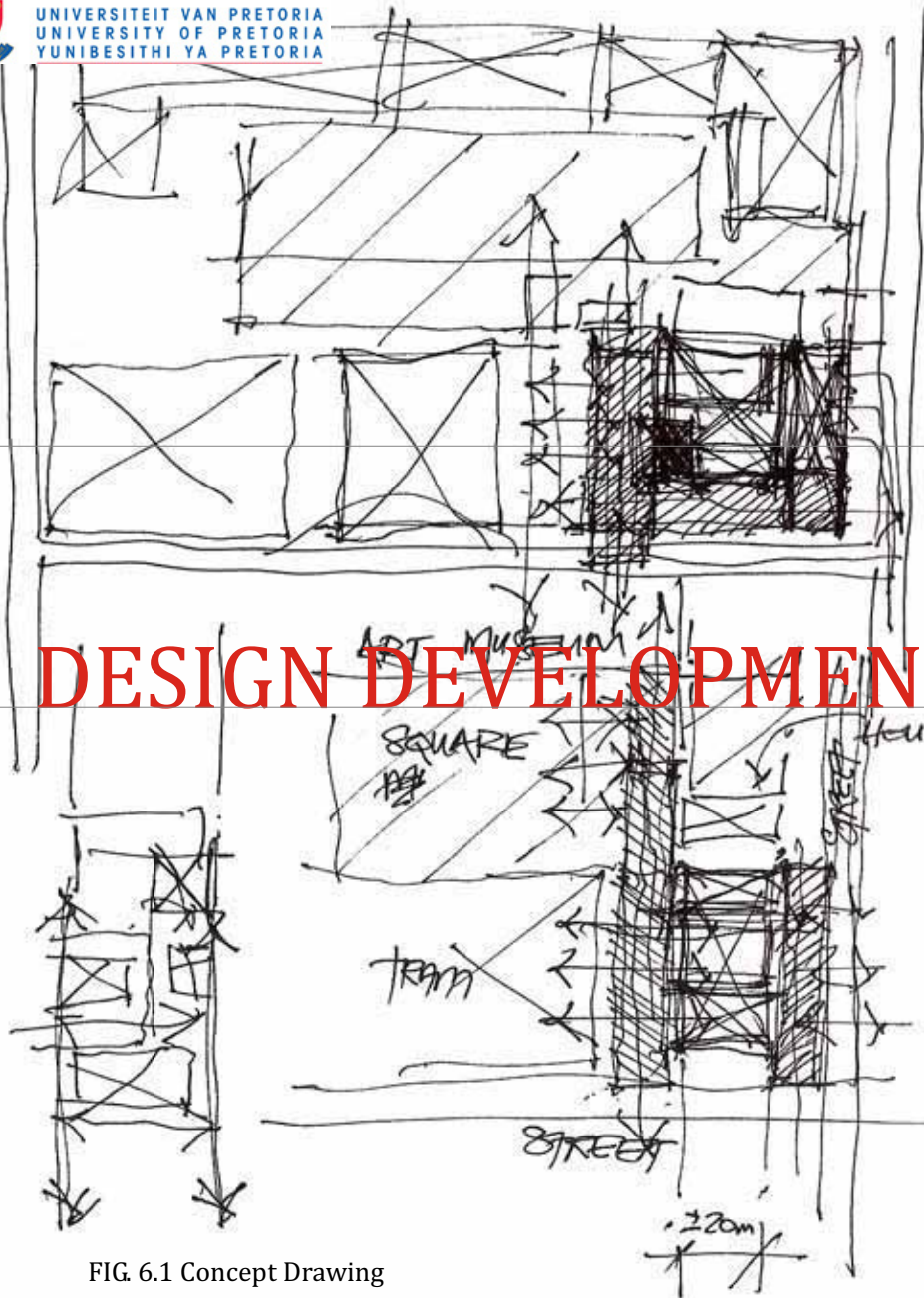
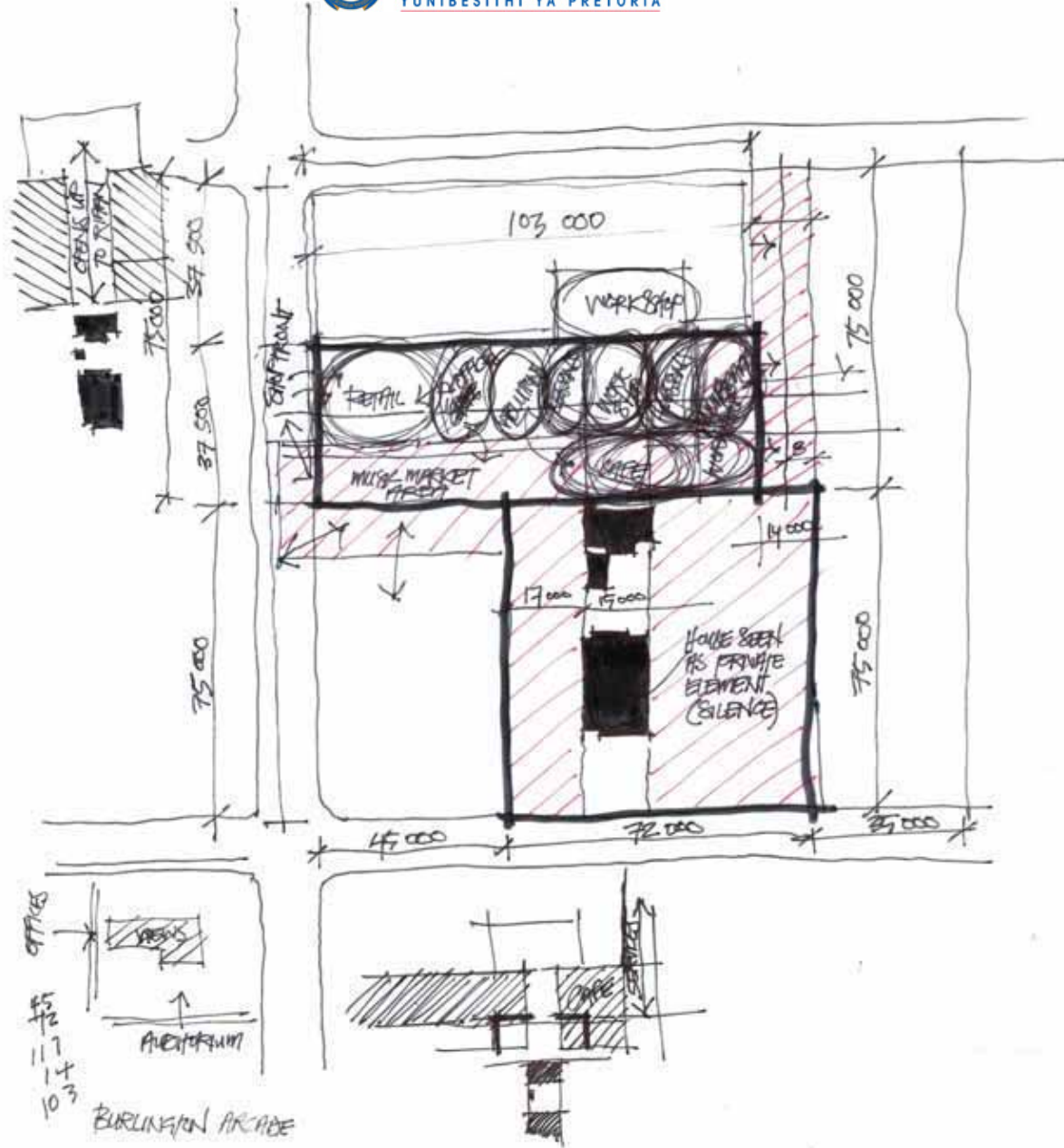


FIG. 6.1 Concept Drawing





*cresc.*

A musical staff with a treble clef and a key signature of one sharp (F#). The notation includes a quarter note, a half note, a quarter rest, a quarter note, a quarter note, a quarter rest, a quarter note, a quarter note, a quarter rest, a quarter note, and a quarter note. Dynamics markings are placed below the staff: *f* under the first note, *pp* under the first quarter rest, *mf* under the eighth note, and *pp* under the final note. The staff ends with a double bar line and a 9/8 time signature.

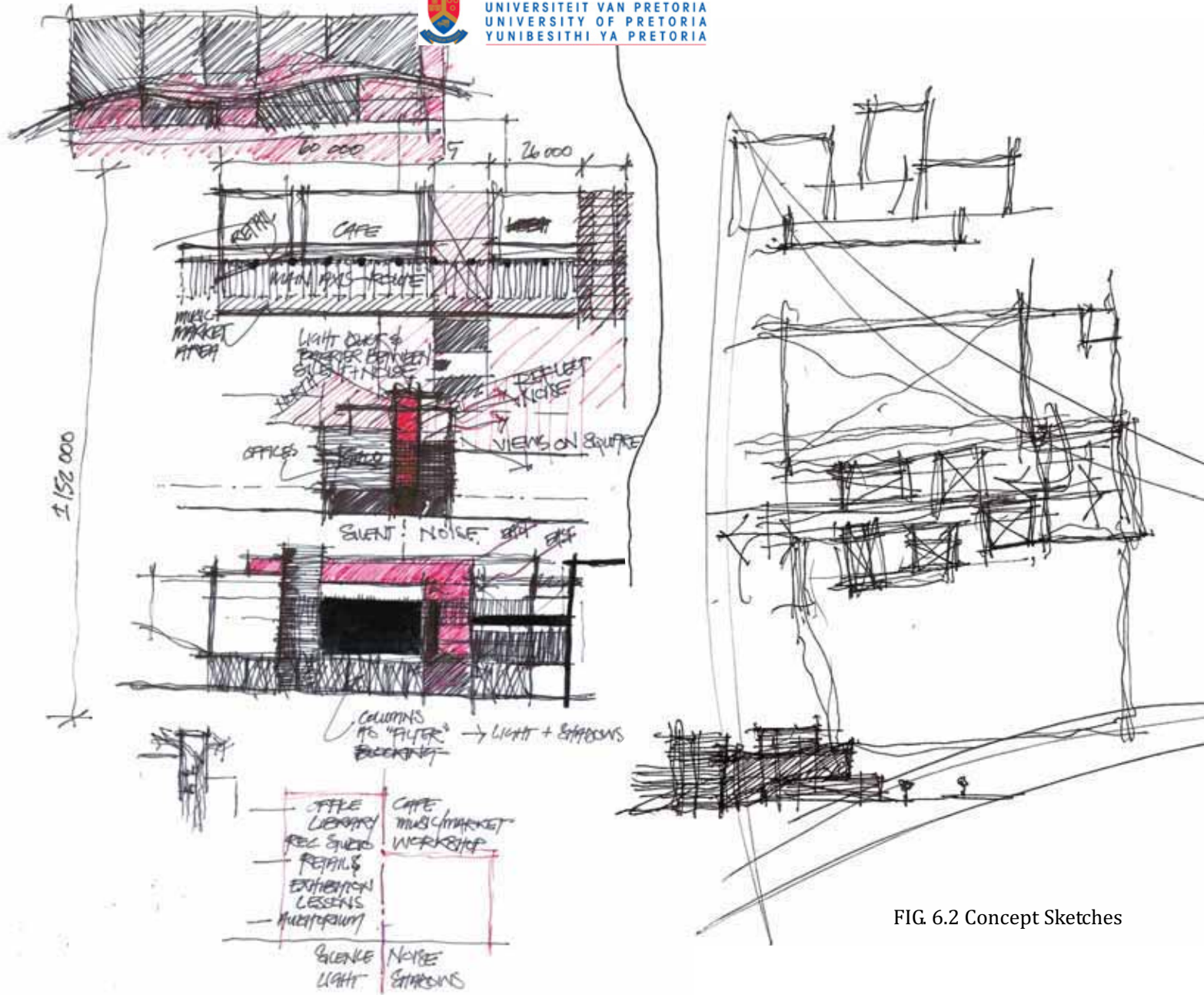
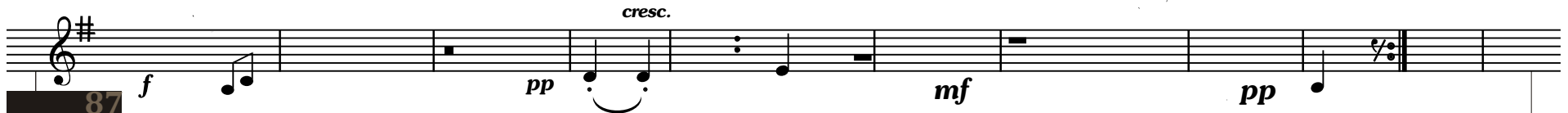
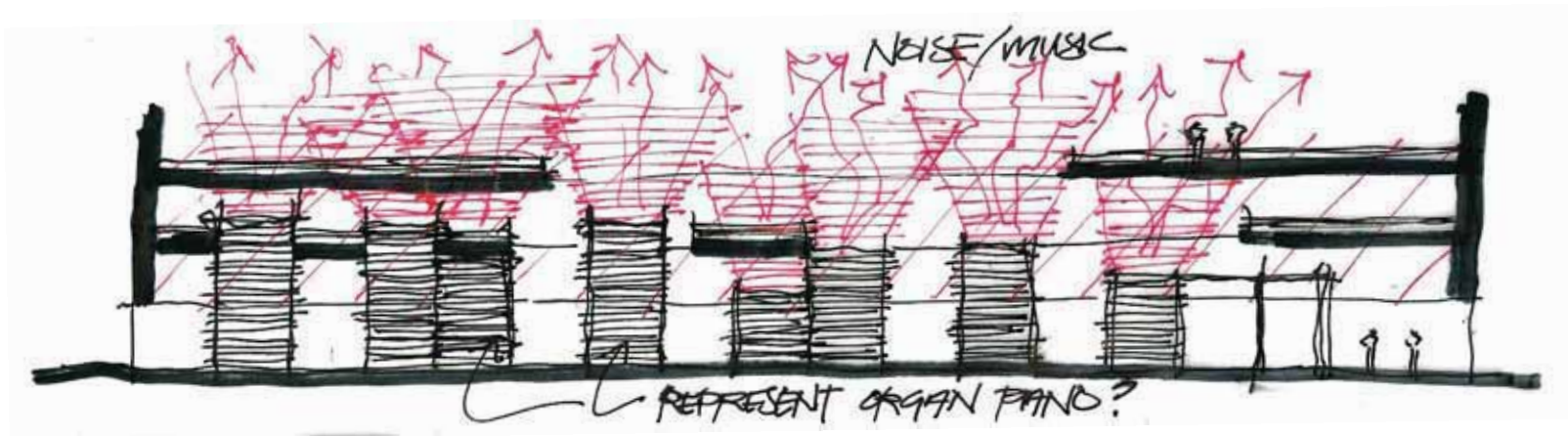
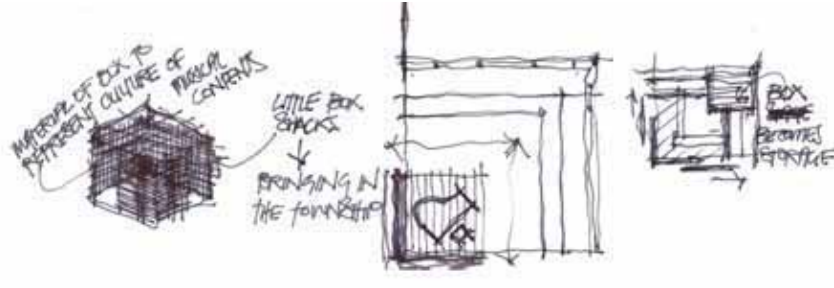
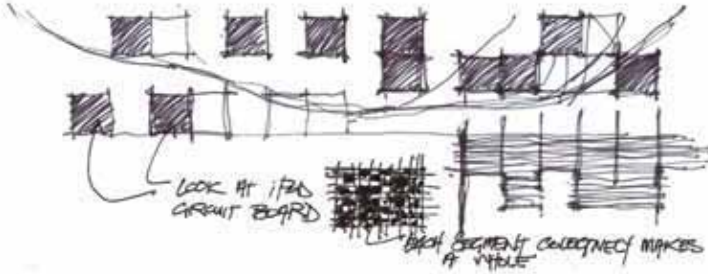
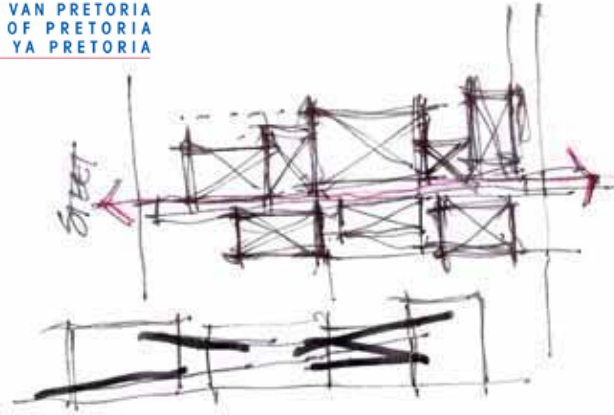
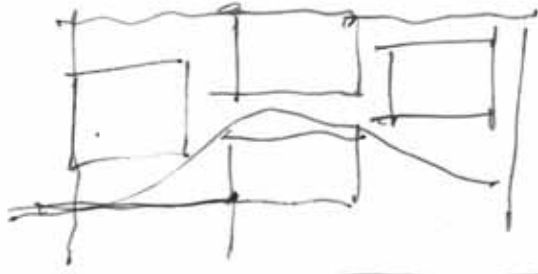


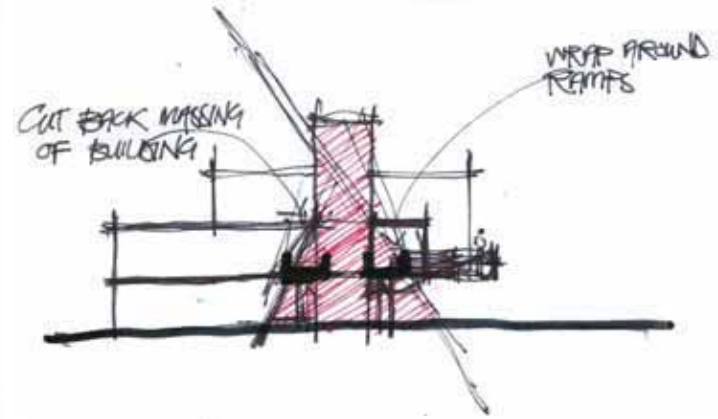
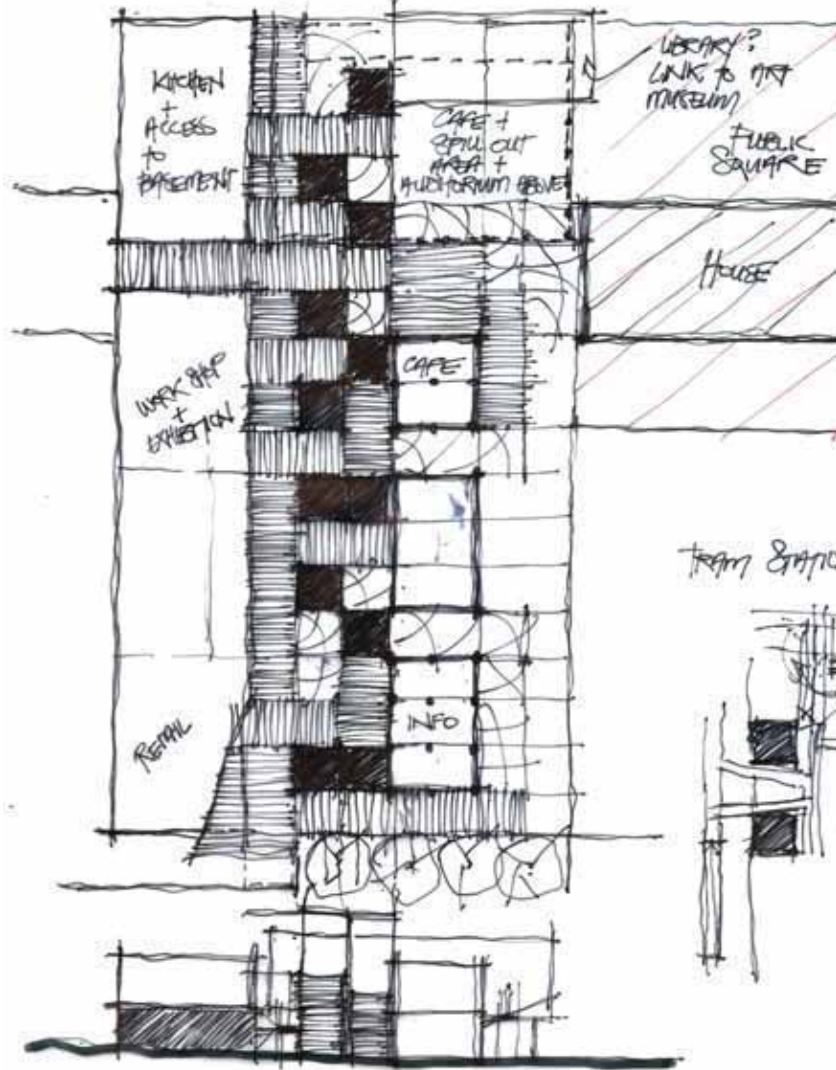
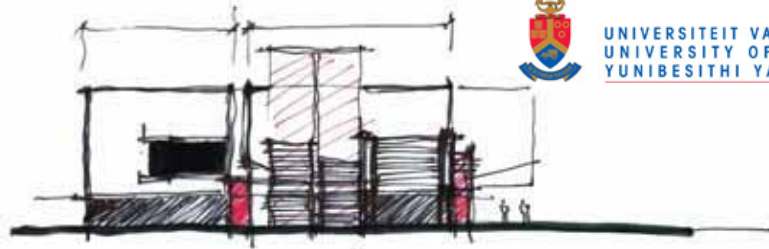
FIG. 6.2 Concept Sketches









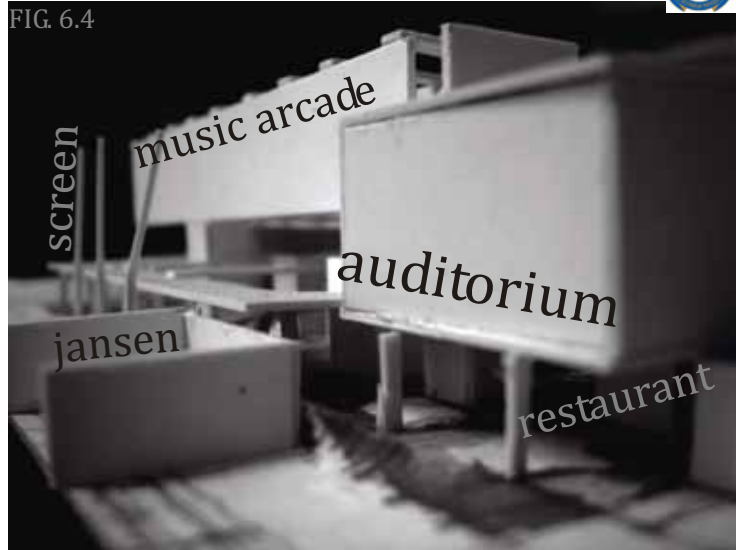


GROUP COMPONENT





FIG. 6.4



auditorium

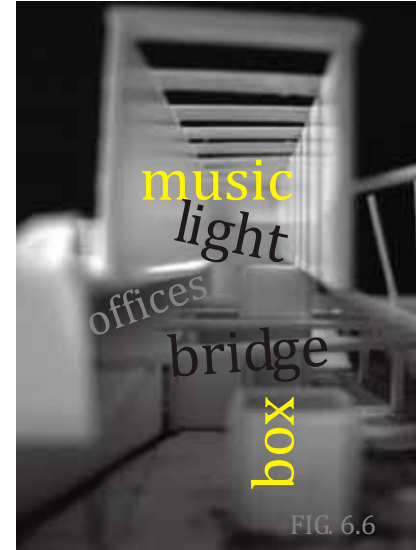
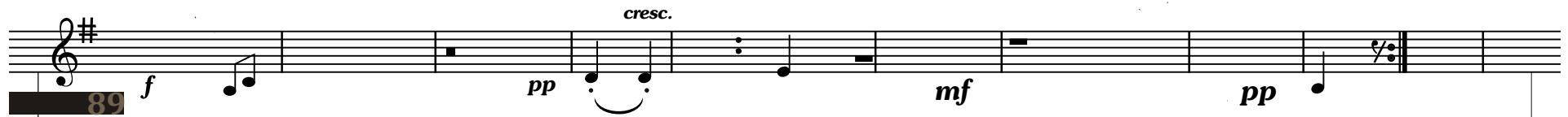
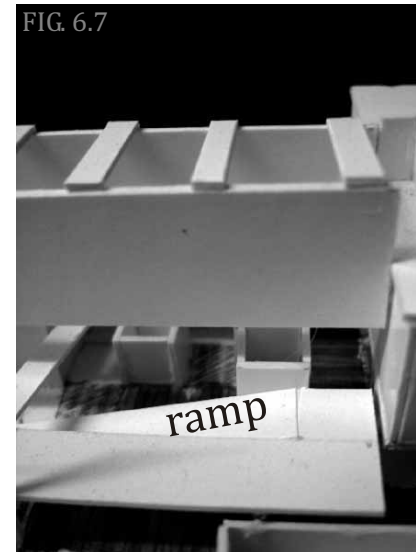


FIG. 6.6

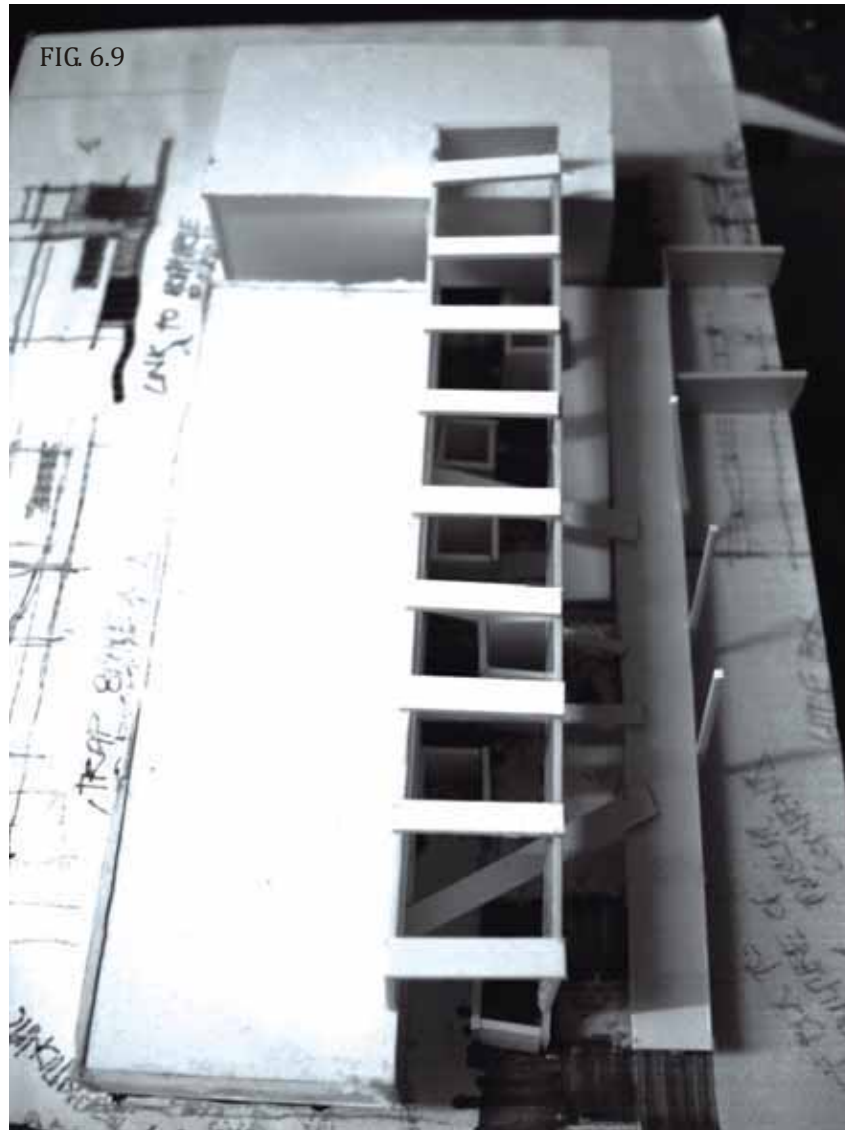
FIG. 6.5



FIG. 6.7



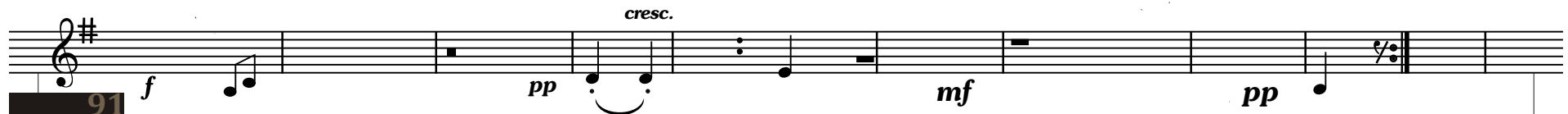




The site analysis established that positioning on the site would be a rectangular shape just north of the house Jansen stables. This rectangular shape would be perpendicular to the west of Paul Kruger Street to minimize western facades and to link and encourage pedestrian movement from street to the proposed public square. This became the departure point as the design grew systematically from there.

The sense of scale on street level is further emphasized by the positioning of the other projects on site adopting a similar northern orientated layout approach. The proposed project is thus located in the “centre” of the other three projects which favors the design philosophy to a great extent. The proposed adaptable building is positioned to the north, the proposed tram station to the south and the proposed art museum to the east. The public square is south-east of the proposed project and the proposed art museum, proposed tram station and Struben Street is located along its perimeters. The result is that the proposed project becomes an “arcade building” with the main emphasis being on the flow and movement of pedestrian traffic between the street and public square.

The concept of the structure of music, more specifically, the concept of noise and silence informed the layout of the architecture. This is visually portrayed as a play between light and shadows as well as a play between solid and transparent forms resulting in a “fusion” of an architectural language. Spaces requiring controlled and confined acoustics would comprise of solid massing where as spaces with acoustic requirements of a flexible nature, would take on a “transparent” form filtering sound where required and acting as the buffer zone.





A triple volume steel structure would act as this buffer zone. Within the structure would be “music boxes” or enclosed performance areas on a random grid. These boxes, 5x5m in dimension, would form part of a determined route between Paul Kruger Street and the public square. The boxes would be for hire and act as performance areas, and ultimately, storage vessels where the performing artist could lock his valuables if required. The music boxes would collectively form a music/market area through which visitors to the building could pass through in their own time constantly being lured by one music box to the other on an audio sensory. The concept of route would be further emphasized with pedestrian bridges connecting solid massing on either side of the steel structure.

The proposed adaptable building's life cycle starts with a residential component and therefore elements of massing are located along the southern façade of the adaptable building emphasizing the concept of silence. House Jansen is also seen as a concept of silence and thus informing the positioning of massing along the southern elevation of the triple volume steel structure. The proposed tram station to the south represents the concept of noise and movement and circulation routes in the form of ramps are therefore located within close proximity. The link with the proposed art museum is of a visual nature given the close cultural relationship between music and art.

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The auditorium design component incorporated a glazed opening on the southern façade which overlooks the public square and is visible to motorists driving along Struben Street.

Critique on the first concept shed light on the technical aspect of acoustics and the resulting implications it has on the cognitive experience of the “music boxes”. Another critique was the concept of route between Paul Kruger Street and the public square.

It was decided that the music boxes should no longer exist as a mere concept of the performing artist erecting them from the materials of his or her choice, but rather become a more integral part of the buildings structure. It was also decided that the concept of route rather not be forced, and that the building rather adopt the notion of acting as a filter which would as a result be able to better respond to pedestrian movement.



FIG. 6.10 Concept drawing

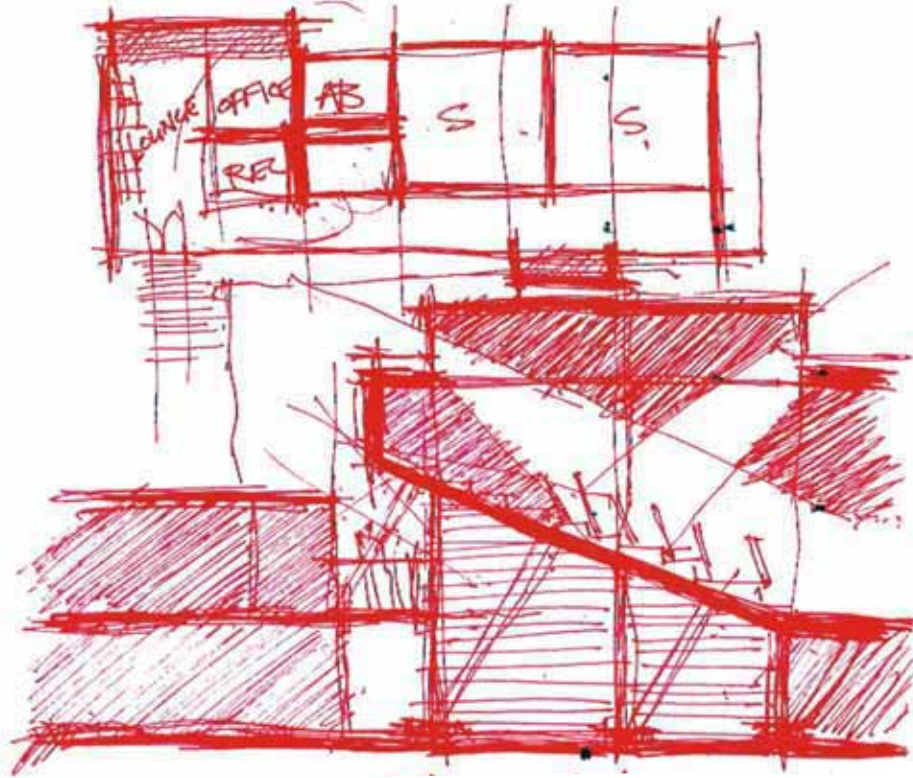


FIG. 6.11

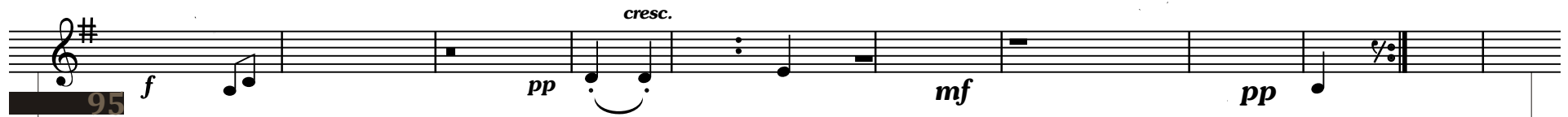
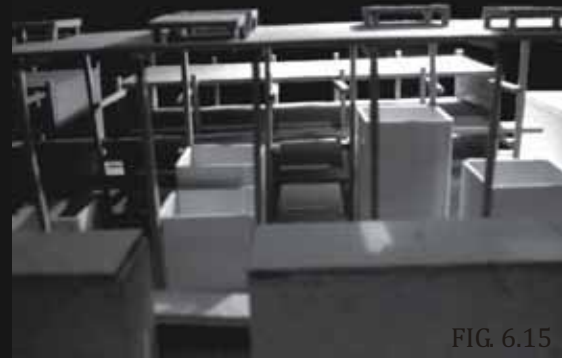
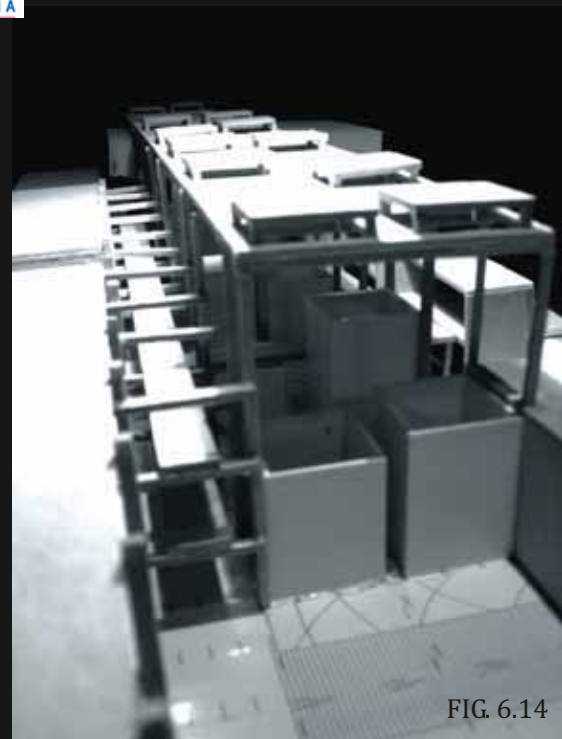
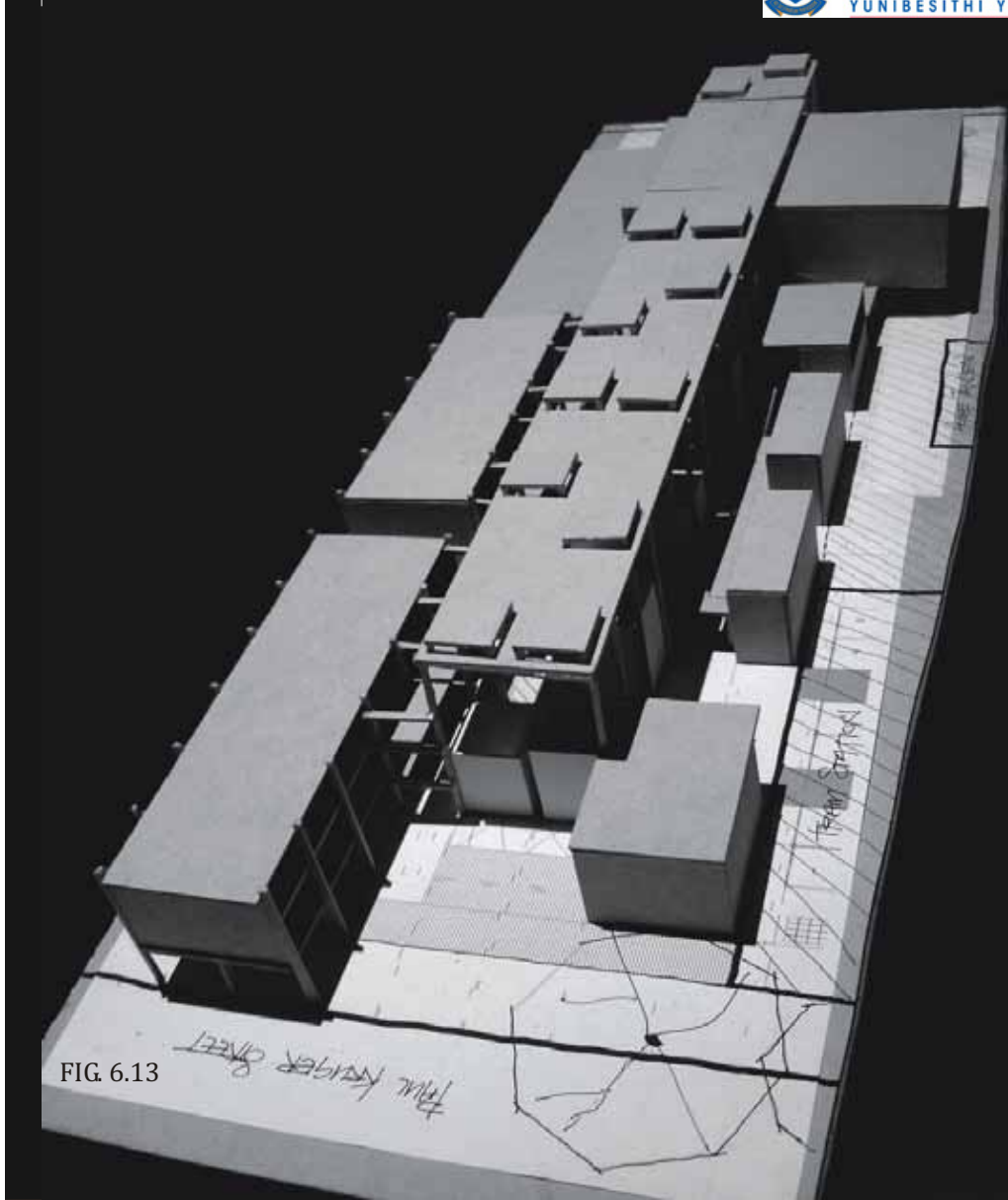


FIG. 6.12 (Opposite) Auditorium











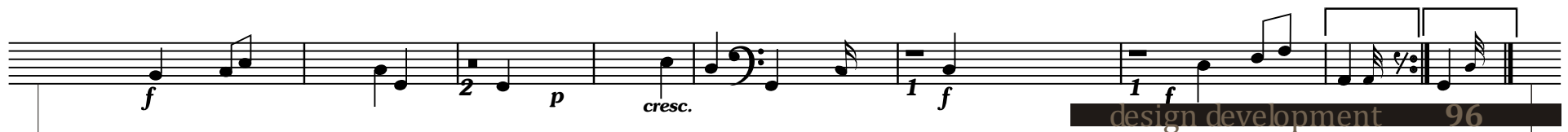
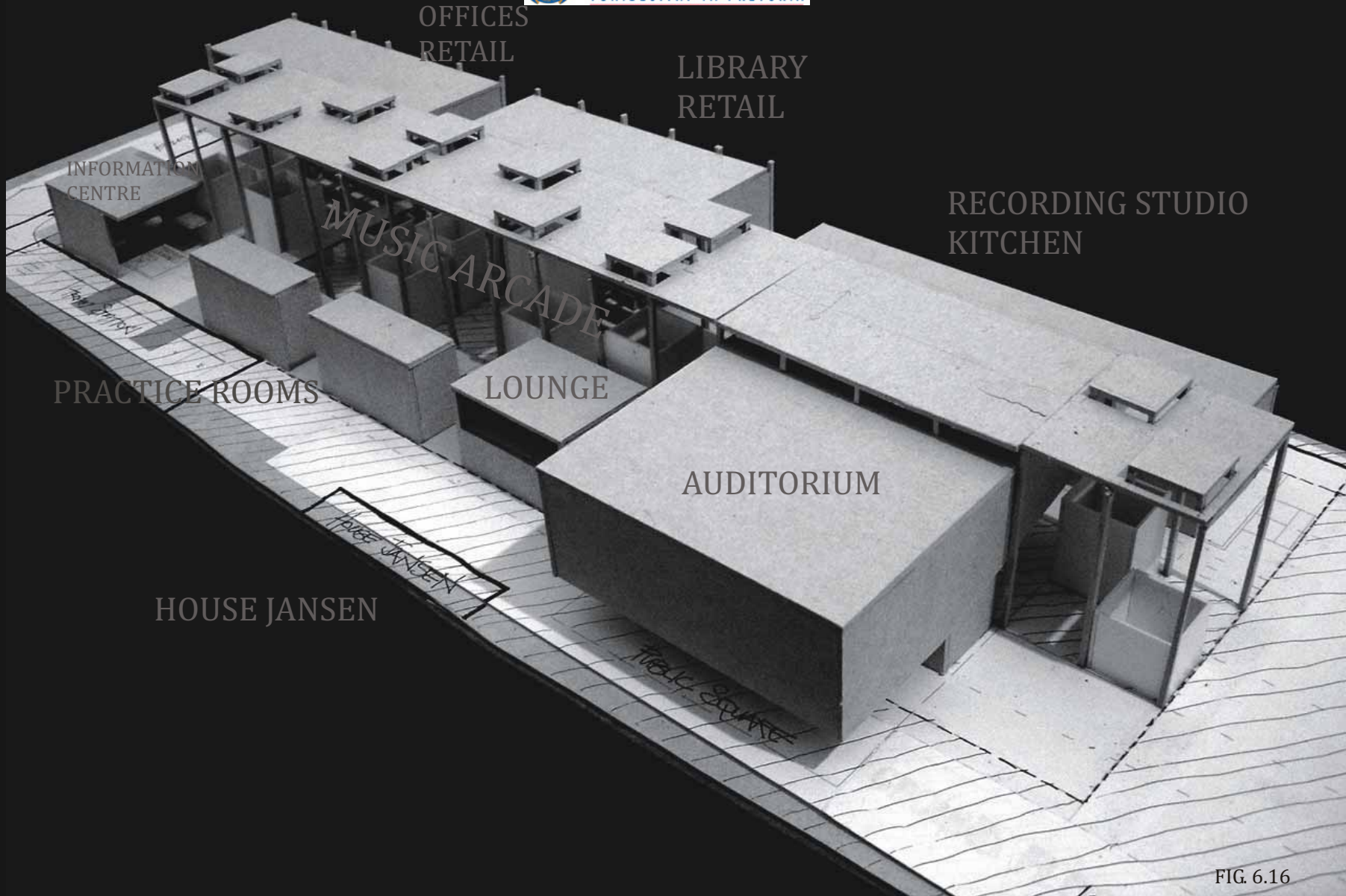
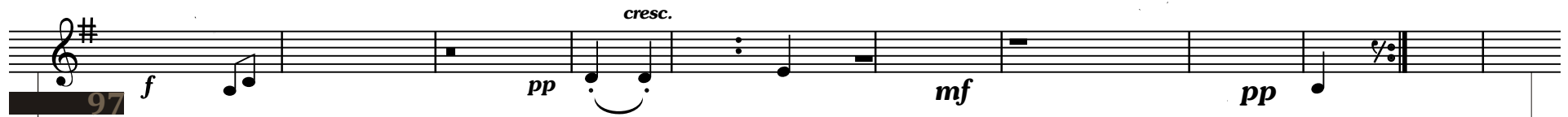
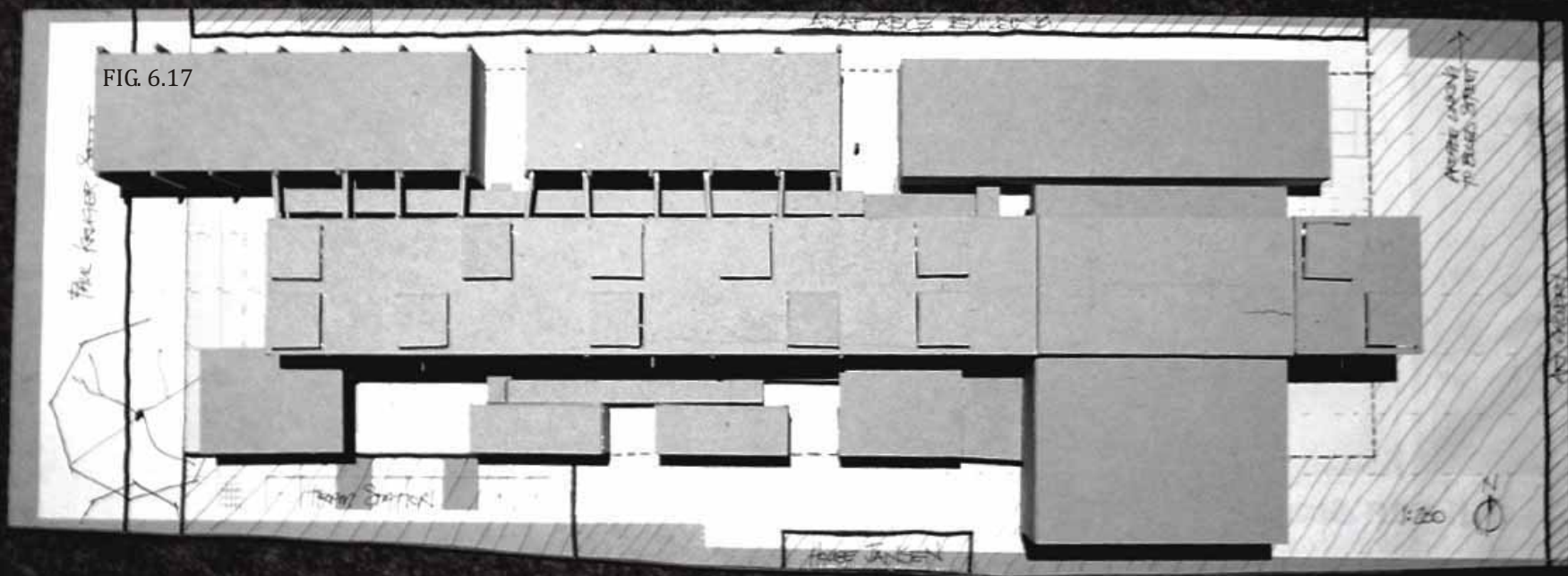


FIG. 6.17



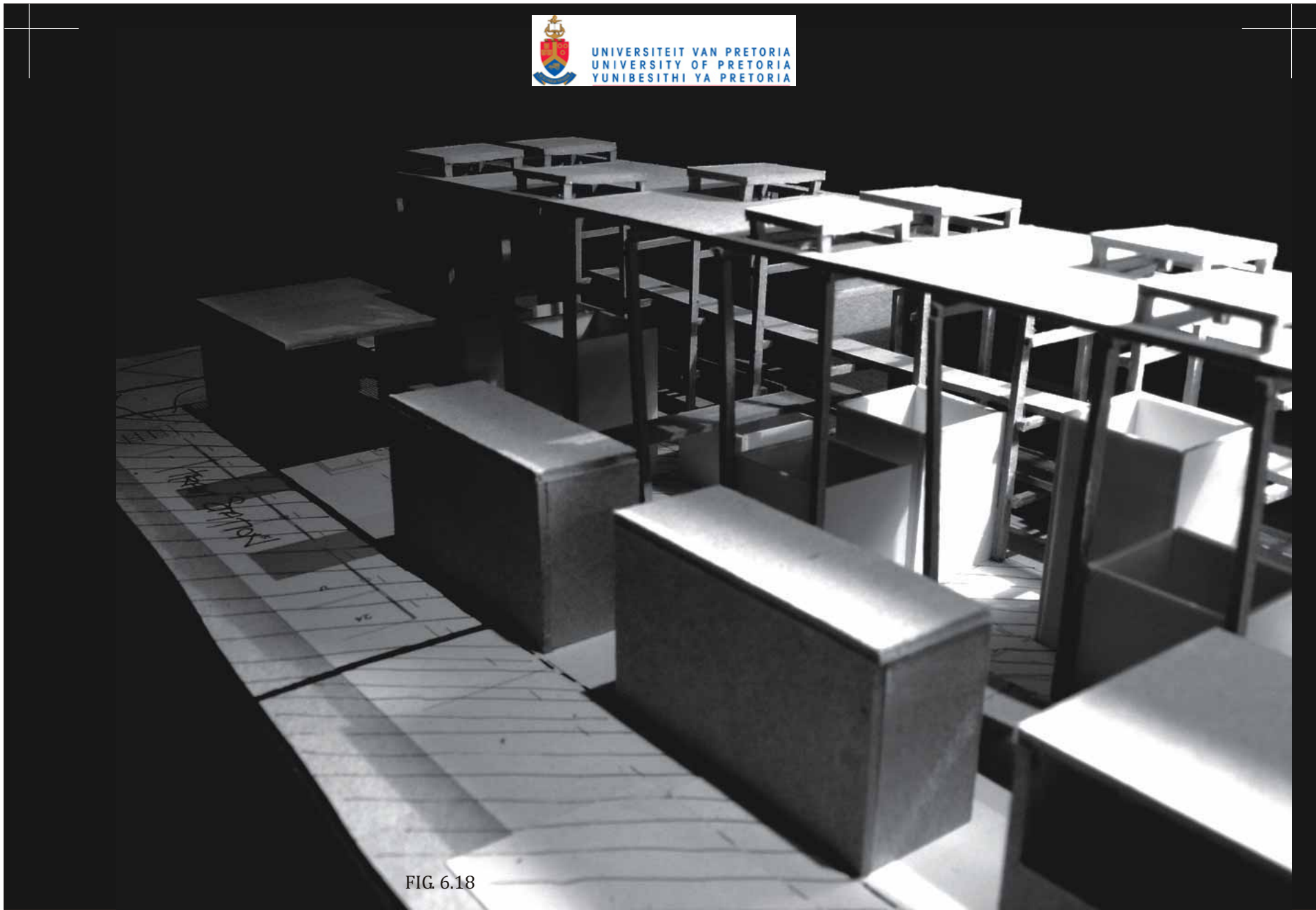
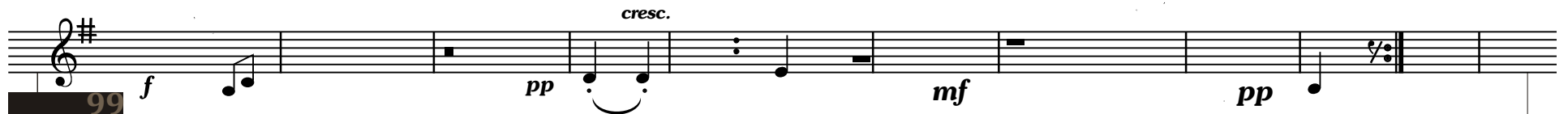


FIG. 6.18



“Which is more musical, a truck passing by a factory or a truck passing by a music school?”.

**John Cage**





# TECHNICAL INVESTIGATION

A musical score on a single staff, likely for a piano. The score consists of several measures. The first measure starts with a forte (*f*) dynamic. The second measure has a piano (*p*) dynamic. The third measure is marked with a crescendo (*cresc.*). The fourth measure is marked with a forte (*f*) dynamic. The fifth measure is marked with a piano (*p*) dynamic. The sixth measure is marked with a forte (*f*) dynamic. The seventh measure is marked with a piano (*p*) dynamic. The eighth measure is marked with a forte (*f*) dynamic. The score ends with a double bar line. The text "technical investigation" and the number "100" are printed in a black box at the bottom right of the page.

## STRUCTURAL COMPOSITION

The off-shutter reinforced concrete columns are 350 x 550mm at 5350mm centres with 20mm chamfered edges and are to be cast in storey heights. Reinforced concrete roof slabs are 340mm thick and can span a maximum of 8,6m. The thicknesses of these slabs have been determined due to the dead load requirements of the roof garden above the offices and recording studio as well as the live and dead loads requirements of the practice rooms. The reinforced concrete roof slab of the auditorium is 170mm thick and is supported by 330 x 1340mm primary and 220 x 255mm secondary reinforced concrete beams. All reinforced concrete shear walls are 230mm thick.

The structural steel columns have H-profile sections of 230 x 230 x 46. Lateral movement will be eliminated via cross-bracing and 203 x 133 x 25 I-beams as well as the massing of the buildings supporting the triple-volume steel structure in some sections.

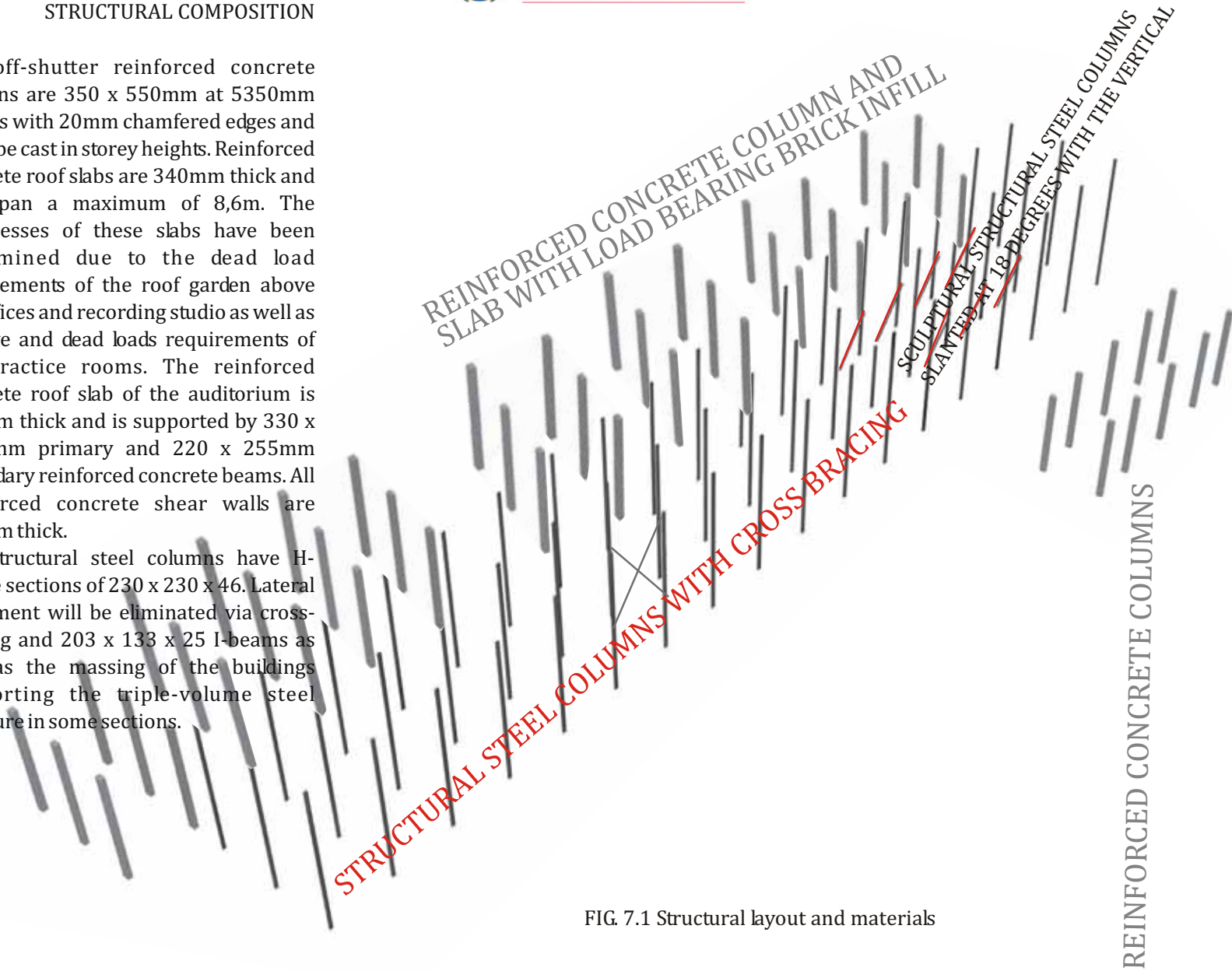
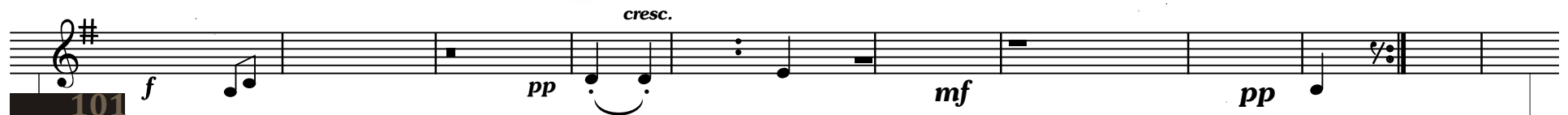


FIG. 7.1 Structural layout and materials







## ROOF SYSTEMS

The roofing systems of the proposed projects consists of cast-in-situ reinforced concrete roofs as well as lightweight roof sheeting.

The coverage of the reinforced concrete roofs will either consist of simple concrete construction, a planted concrete roof or loose gravel. Waterproofing will be placed directly over the slabs on a screed of 1:70 gradient. 100 diameter PVC rain water pipes is cast into the reinforced concrete columns at 10,7m intervals

The coverage of the triple volume steel structure will consist of 0,6mm S-Profile mild steel sheets at 1 degree slope with patent Chromadek finish on roof purlins. 100 diameter PVC rain water down pipes is concealed withing the 203 x 203 x 46 mild steel H-section column by means of panels.

The planted concrete roof consists of cement screed with a minimum thickness of 25mm and a maximum of 250mm. The water proofing is covered with a 50mm, galvanised steel mesh reinforced cement screed; a 50mm layer of stone wrapped in a geotextile and 250mm topsoil.



FIG. 7.9 Roof systems

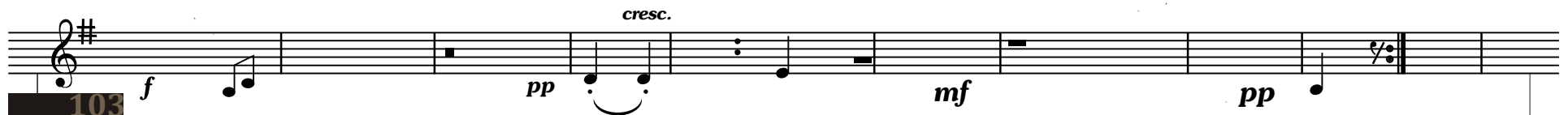






FIG. 7.10 Planted roof

*f* *p* *cresc.* *f* *f*

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## Massing

Thermal mass is achieved via concrete work that absorbs direct solar radiation during the day and radiates it into the interior during the night. This will be beneficial to spaces that are used at night such the auditorium, offices, practice rooms, kitchen and recording studio. Wall and slab thicknesses ranging between 230 to 500mm usually result in sufficient time delays and thus walls and roof slab thicknesses fall in this category.

## Orientation

The site is of a rectangular shape that runs along an east-west axis perpendicular to Paul Kruger Street minimizing western facades and maximizing northern facades. The east-west axis is of utmost importance as it forms part of a proposed activity spine starting in the city block west of the site and ending at the main entrance of the proposed art museum to the east of the site.

The massing of the proposed project is broken up along the east-west axis making the use of passive systems more achievable. Public and private spaces are arranged in such a way that all the public activities are able to spill out onto the public square and public areas of the proposed tram station and along the south facades of the proposed project.

## Ventilation

All windows are able to be manually opened and closed to control the comfort of interior spaces as required by the occupant. Openings along the triple-volume steel structure make provisions for the prevailing winds blowing from a north-east direction during the morning and a north-west direction in the afternoon as well as the venting of rising hot air.



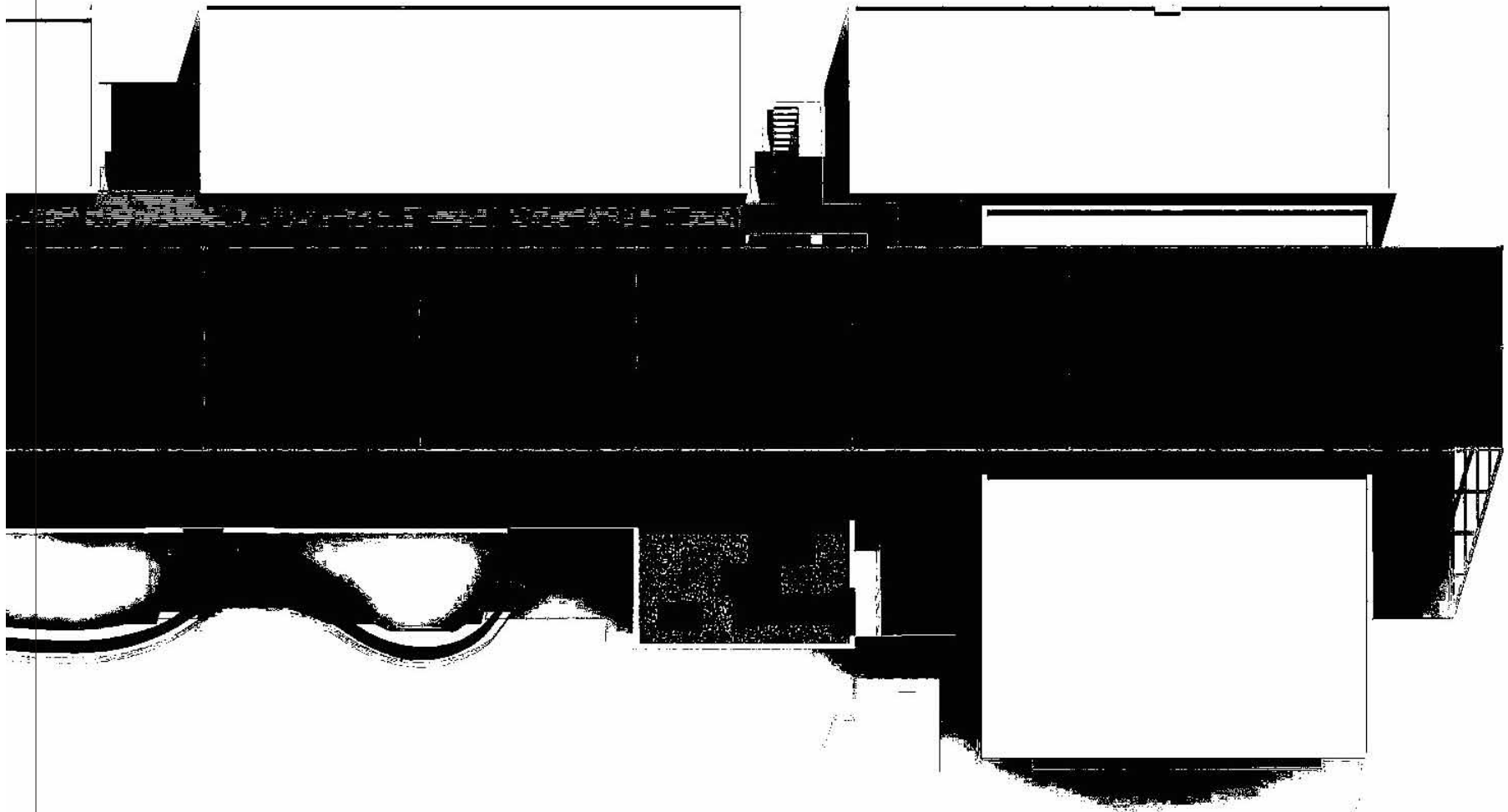


FIG. 7.11 Massing

*f* *p* *cresc.* *f* *f*

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### BRICK

Many of the buildings in the CBD are concrete frame structures with brick infill. Brick is a recyclable and reusable material which is locally manufactured. Brick has a low embodied energy and relatively good thermal mass with good load-bearing and structural properties.

The level of skilled labour required for bricklaying is such that local non specialized labour will be made use of which would as a result empower the local community. The proposed project will make use of bricks as infill in the concrete frame structures. Brick will also be used aesthetically to respond to the CBD brick context and to add to the colour and texture palette of the proposed design.

FIG. 7.12



### CONCRETE

Concrete is a robust material that has many different finishes and textures depending on the way it is cast and formed. The quality of the concrete mix could prolong the life expectancy and it is therefore imperative that proper supervision on site is carried out when concrete is poured in-situ. Due to the high density of concrete it has a good thermal mass. Structurally speaking, concrete is able to achieve long spans.

The proposed project will make use of a reinforced concrete column and slab structure. All concrete work will be cast with rough-sawn timber framework shuttering on the exterior and plywood form shuttering on the interior. Colour pigments will be added to the concrete mix to ensure a consistent finish.

FIG. 7.13



### STEEL

Steel is used as a lightweight material in contrast to the robust and permanent nature of concrete. The finish of steelwork is important to further emphasis it's character as a lightweight material.

The proposed project will make use of standard steel profiles which will be assembled on site to avoid any discrepancies between the design proposal and construction team. The use of steel in the proposed project is justified by the fact that steel is recyclable and reusable. Also due to the fact that steel has good structural properties and requires very little maintenance. Therefore if the lifetime of the building expires in the future, the steel members can be removed and reused elsewhere.

FIG. 7.14

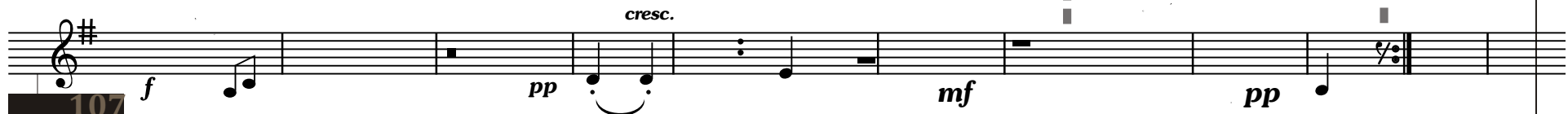






FIG. 7.15

### TIMBER

Of the materials considered, timber requires the most maintenance and will be kept to a minimum considering the climatic properties of the Pretoria/Tshwane area. The proposed project will make use of timber indoors thus limiting exposure to the elements. Timber will be used as a flooring material for the pedestrian bridges located within the main steel arcade area providing a contrast to the steel structure and contributing a “warm”, lightweight appearance to the particular space. Timber will also be used as a cladding material to improve the acoustic quality of certain spaces.



FIG. 7.16

### PERFORATED PLYWOOD

Perforated plywood ceiling and wall panels are employed within spaces that require acoustic control such as the auditorium and recording studio. Perforated plywood is also employed within the steel arcade structure providing a contrast to the polished finish of the steelwork.



FIG. 7.17

### GLASS

Considering the acoustic properties of glass, it will be used sparingly throughout the proposed project. Glass will be used to create visual links as well as to allow natural light into spaces. Currently the northern facades of the building is well shaded due to neighbouring buildings and so shading devices is not required to eliminate the buildup of heat gain.



Screens used in the proposed project consists of perforated copper, stainless steel mesh and woven steel screens.

Perforated copper screens is used as shading devices in eastern and western facades. The perforations of the copper screens will be weld-cut on site and will allow for variations in the predetermined design of the screens. Copper can be joined by welding, brazing or soldering. Copper is also recycled relatively easily and 40% of all production is from recycled materials. (Lotz; 2006)

Stainless steel mesh is used to clad the music market arcade along the northern and southern facades. This allows for visual access both in and out of the space but with enough opacity to define inside and outside as well as reveal the silhouettes of the building's inhabitants. The reverberation time of stainless steel mesh also best represents the environment that a street musician is accustomed to.

Woven steel screens is used as means of concealing service doors and ducts. Due to the transparent nature of woven steel, service ducts and all plumbing pipes will be painted black to avoid unwanted visual

## PERFORATED COPPER



## WOVEN STEEL





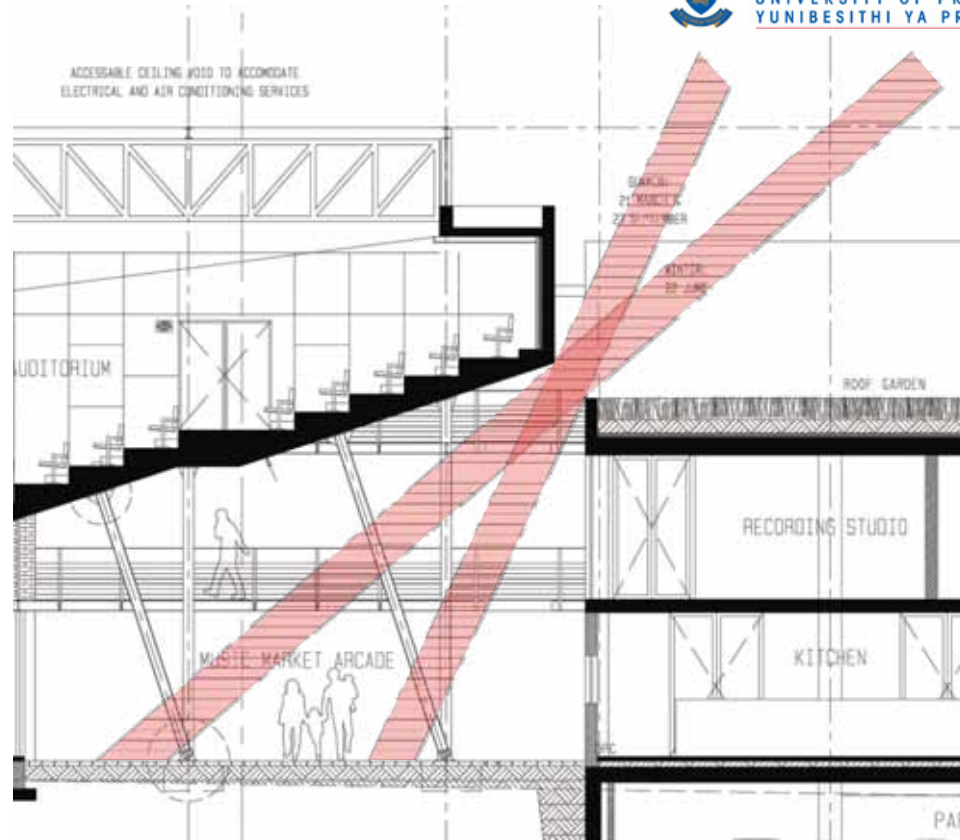
# LESS STEEL MESH



FIG. 7.20

*f* *p* *cresc.* *f* *f*

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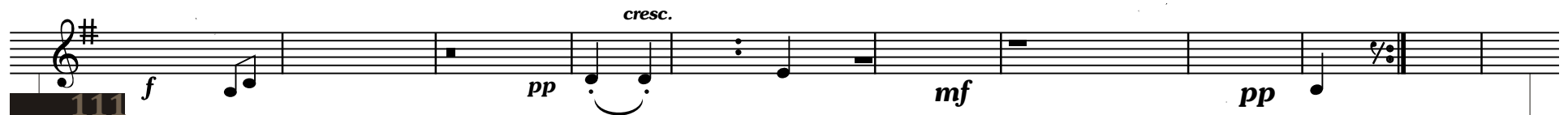
## SOLAR CONTROL AND LIGHTING REQUIREMENTS

The northern orientation of the building allows for maximum day-lighting potential. The offices, library and retail stores are located along the northern façade to ensure sufficient day-lighting. Skylights are also utilized in the offices to further enhance day-lighting.

There are no glazed openings along the western and eastern elevations eliminating a build-up of unwanted solar radiation into the building. The southern façade opened up towards the public square and makes full use of southern light.

Expanded metal screens along the triple-volume steel structure prevent direct solar radiation into the music/market area, particularly on the western façade.

FIG. 7.21 Sun angles





Due to the semi-pedestrianisation of Paul Kruger Street, vehicle traffic will be greatly reduced resulting in the lowering of noise pollution. Overall sound insulation is improved as the massing of proposed project is broken up, eliminating the possibility of overlapping noise pollution between spaces.

Although the acoustic environment of the music/market area is fairly open such as the environment typically encountered by a street musician, provisions have been made through wooden panels, wooden pedestrian bridges and hanging ceilings forming part of the triple-volume steel structure.

The auditorium is a reinforced concrete box consisting of 230mm thick walls, 170mm roof slab and a 340mm racked seat floor slab. There are no parallel walls within the auditorium to eliminate standing waves. Perforated plywood panels are fixed to a mild steel frame leaving a 130mm cavity between concrete wall and panel for rockwool insulation material. The main access point to the auditorium consists of two double wooden doors with a cavity between them.

The recording studio is situated north of the auditorium. It consists of three spaces namely the live room, control room and vocals booth. None of the walls within the recording studio is parallel to one another to eliminate standing waves. The construction of the walls consists of 510mm brickwork with a 50mm cavity filled with insulating material. A raised 32mm tongue in groove timber floor is supported on 94 x 44mm timber battens to eliminate structural noise. All glazed opening are double glazed not parallel to one another. Access to the recording studio is via hollow core timber double doors.

The practice rooms are located along the southern elevation of the proposed project. The massing of the practice rooms consists of 230mm reinforced concrete walls and 340mm roof slabs. There are no parallel walls in the practice rooms to eliminate standing waves. Perforated plywood panels are fixed to a mild steel frame leaving a 130mm cavity between concrete wall and panel for rockwool insulation material. Acoustic glass (45dB sound proof) is employed to the northern facades of practice rooms to ensure a visual link between general public and musician.

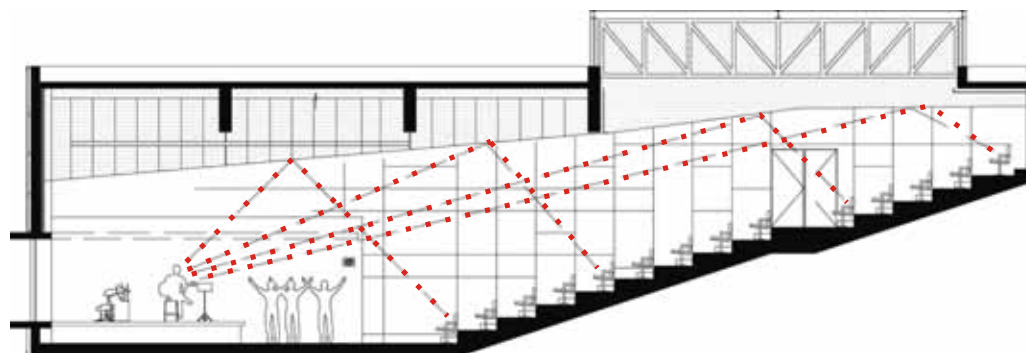


FIG. 7.22 Auditorium



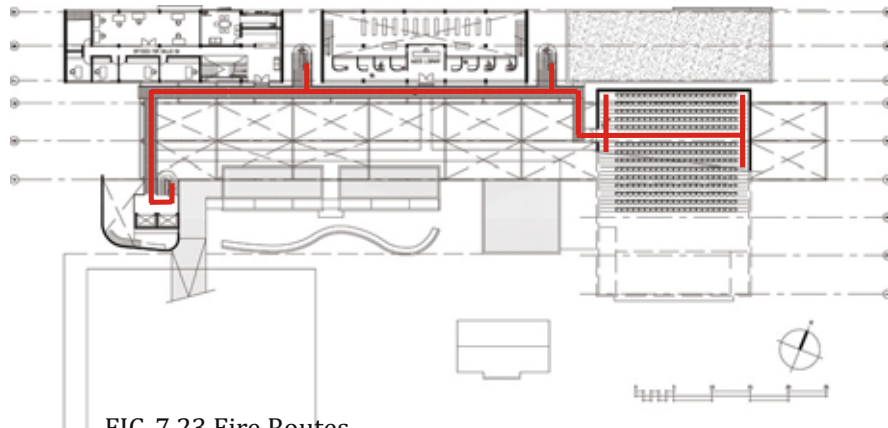
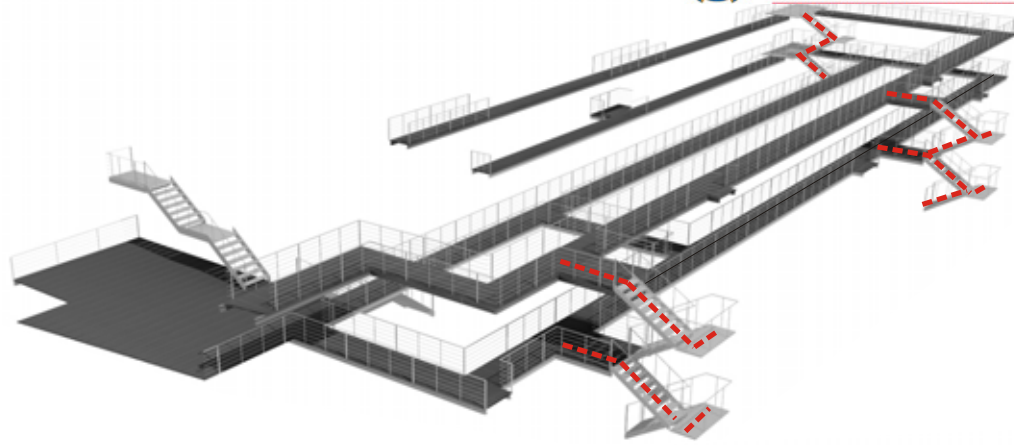


FIG. 7.23 Fire Routes

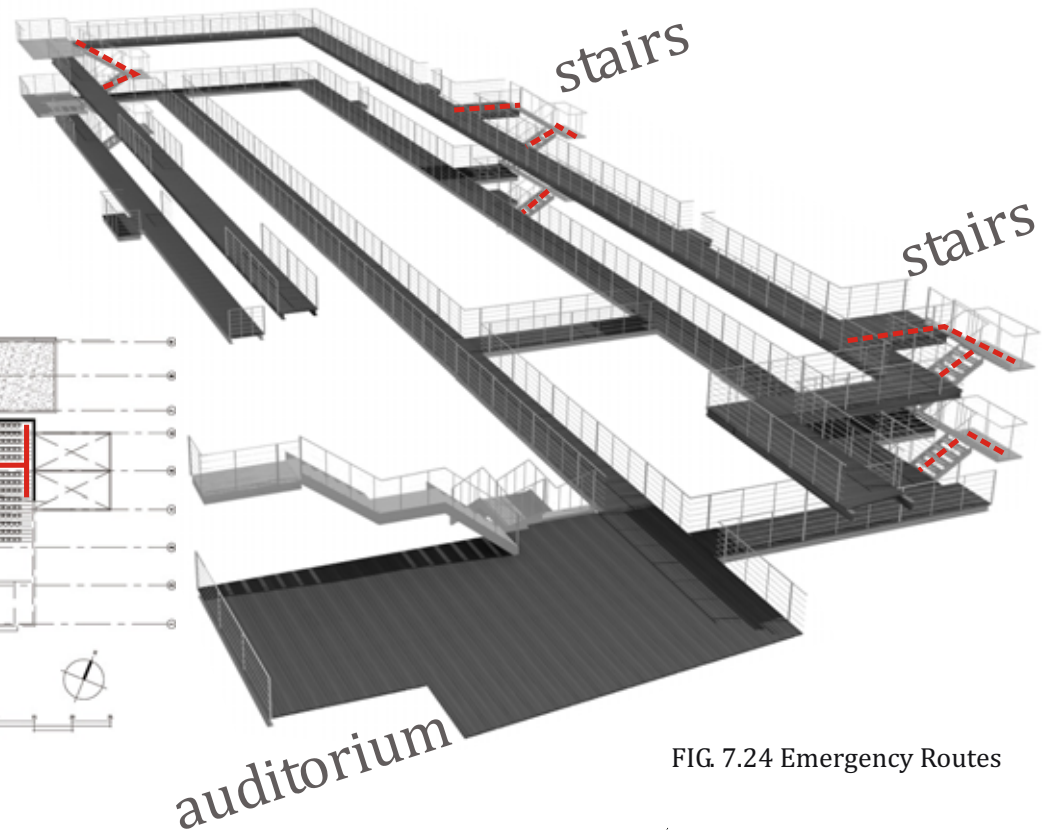


FIG. 7.24 Emergency Routes



## FIRE CONTROL

The National Building Regulations stipulates that escape routes should not be further than 45m (SABS 0400 TT 16.2). This is however only applicable to buildings that exceed three storeys. The proposed project is three storeys high and is therefore not required to provide emergency escape routes. However, a conservative approach was taken by locating three vertical circulation areas that can each function as emergency escape routes if need be.

Lifts: TT 54.1 Stipulates that no platform be made of flammable materials such as timber. Also, a fire lobby should be provided.

All the structural steel components of the triple-volume music/market arcade area will be coated with a thin layer of mastic intumescent for fire protection. Concrete has a high fire resistance and requires no treatment. Fire hose reels should be provided for every 500m<sup>2</sup> (SABS 0400 TT 34.1) bringing the total to seven hose reels. The NBR further requires that the amount of fire extinguishers be located within the following spaces according to classification: (Table 10 TT 37.4).

- Auditorium - A2 - 1 per 200m<sup>2</sup>.
- Offices - G1 - 1 per 200m<sup>2</sup>.
- Library - A3 - 1 per 200m<sup>2</sup>.
- Practice rooms - A3 - 1 per 200m<sup>2</sup>.
- Recording studio - B3 - 1 per 400m<sup>2</sup>.
- Restaurant - A1 - 1 per 200m<sup>2</sup>.

## INCLUSIVE DESIGN

The design philosophy and public nature of the proposed project embraces people of all backgrounds and people with disabilities of any sort are no exception. Therefore people in wheelchairs will have access to any part of the building via two lifts located in the main vertical circulation area and parking basement. Pedestrian bridges are wide enough to accommodate both wheelchair and pedestrian with ample passing distance. The pedestrian bridges floor finish is timber floor boards making it possible for it to be flush with the finished floor levels of the buildings making access to buildings effortless.

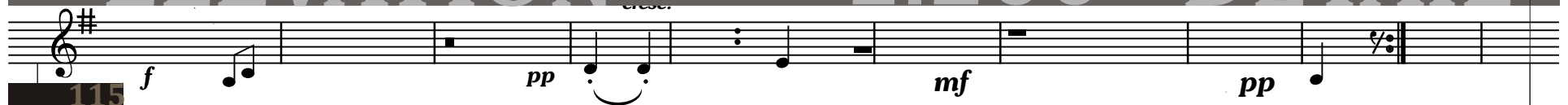
The auditorium has a designated area for wheelchair users with no obstructions in view. Ablution facilities are provided on ground floor level as well as first floor level for disabled people and fall well within Section S as stipulated by the National Building Regulations regarding travelling distances. The pedestrian ramp link on third floor level has a maximum gradient of 1:12 with resting platforms every two meters rise.



“Music, in performance, is a type of sculpture. The air in the performance is sculpted into something”.

## Frank Zappa

ELEVATION 1:200 DETAIL

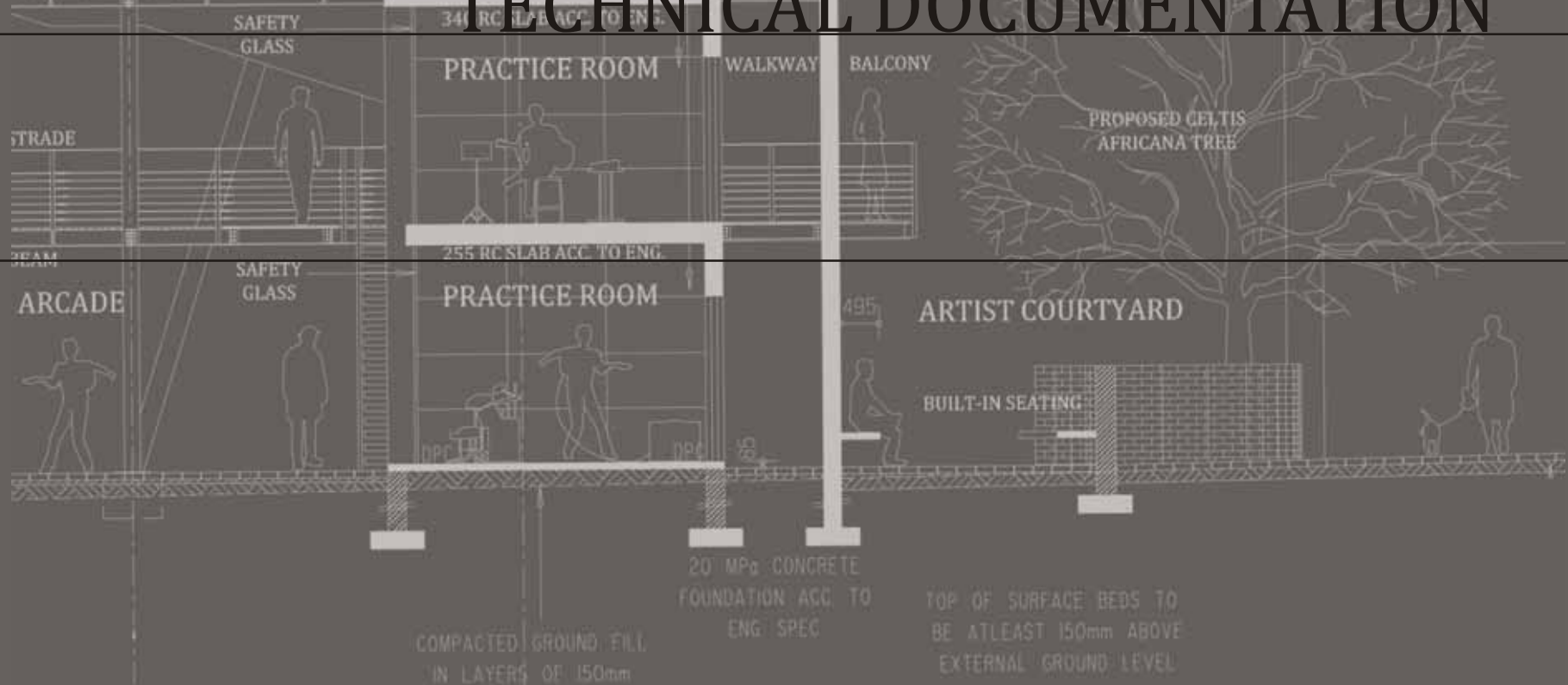




ALL PANELS GLAD IN  
 PERFORATED PLYWOOD & ROCKWOOL  
 WITHIN THE CAVITY  
 OFF-SHUTTER CONCRETE WALL  
 WITH HORIZONTAL CASTING PATTERNS

PLANTED CONCRETE ROOF

# TECHNICAL DOCUMENTATION



# SECTION



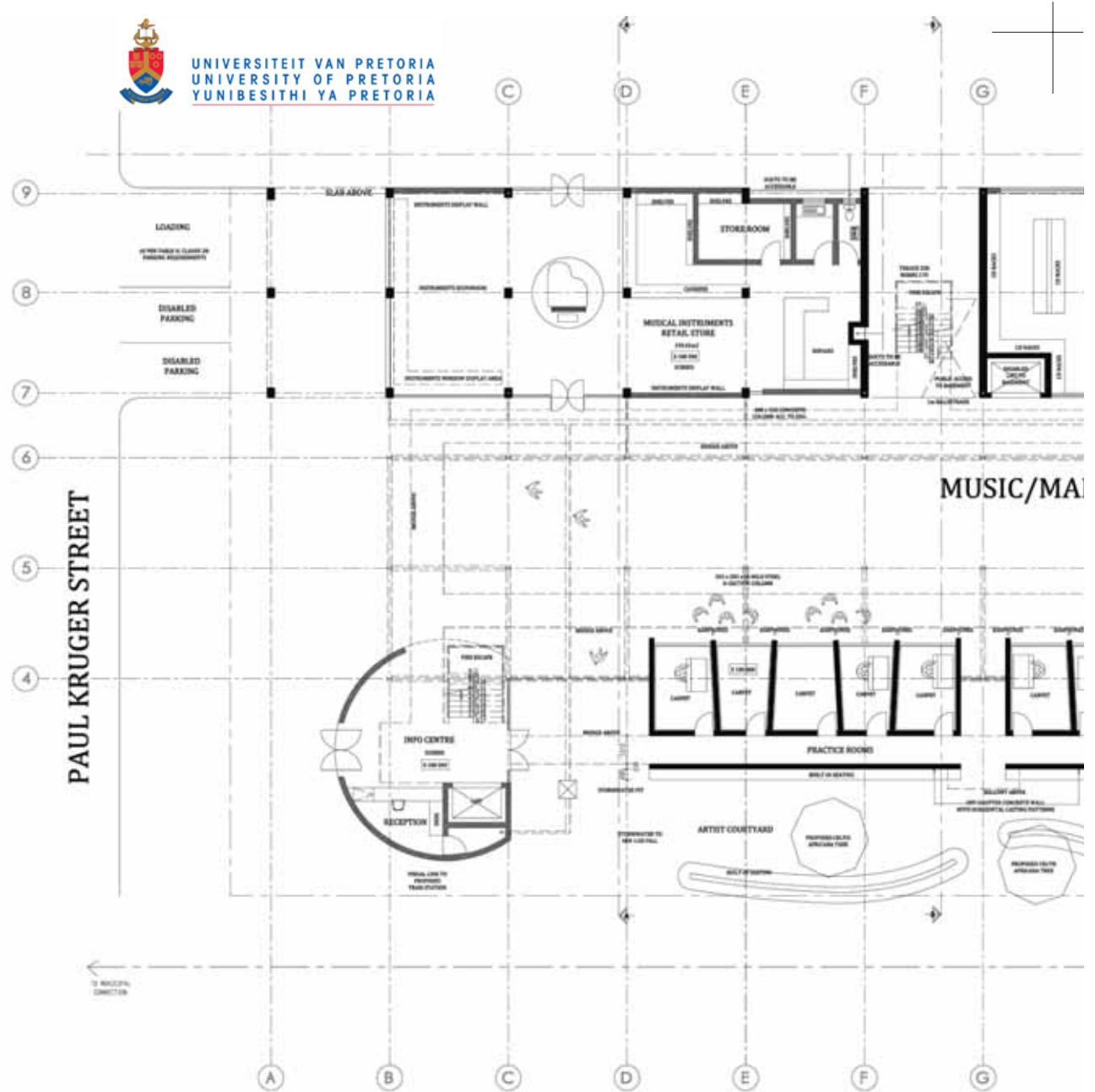
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scale 1:500



basement plan  
scale 1:200

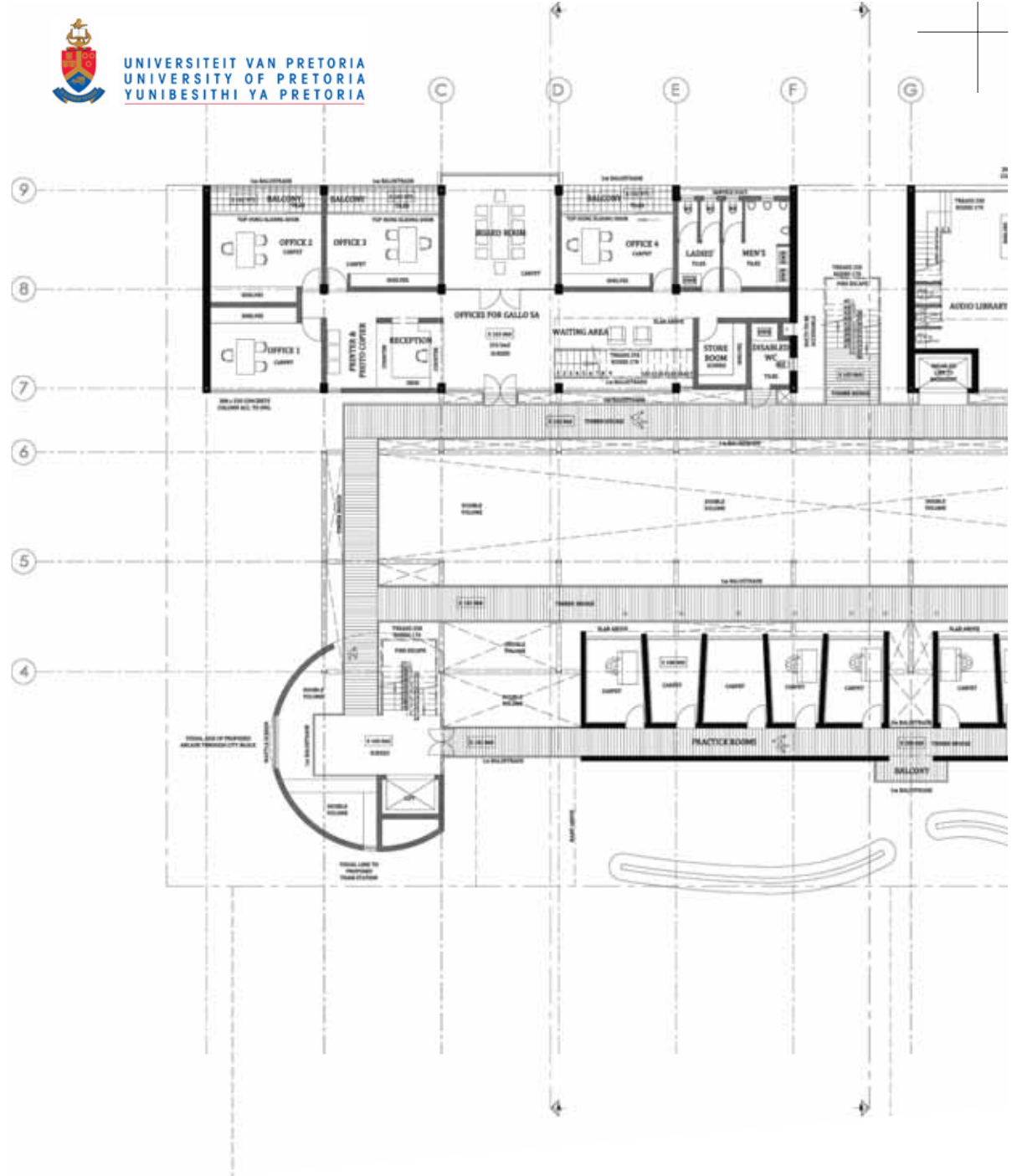






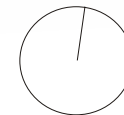
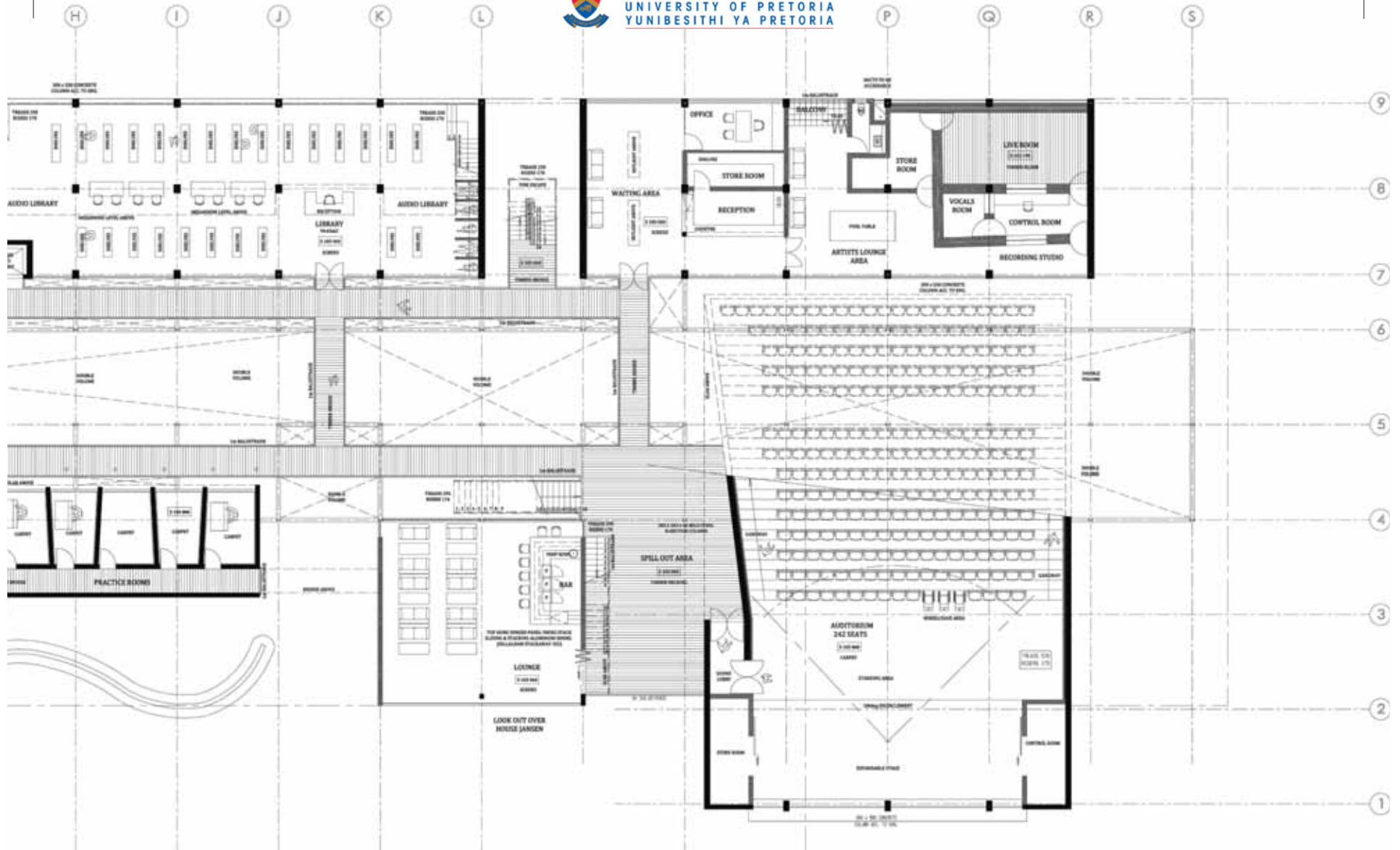
ground floor plan  
scale 1:250

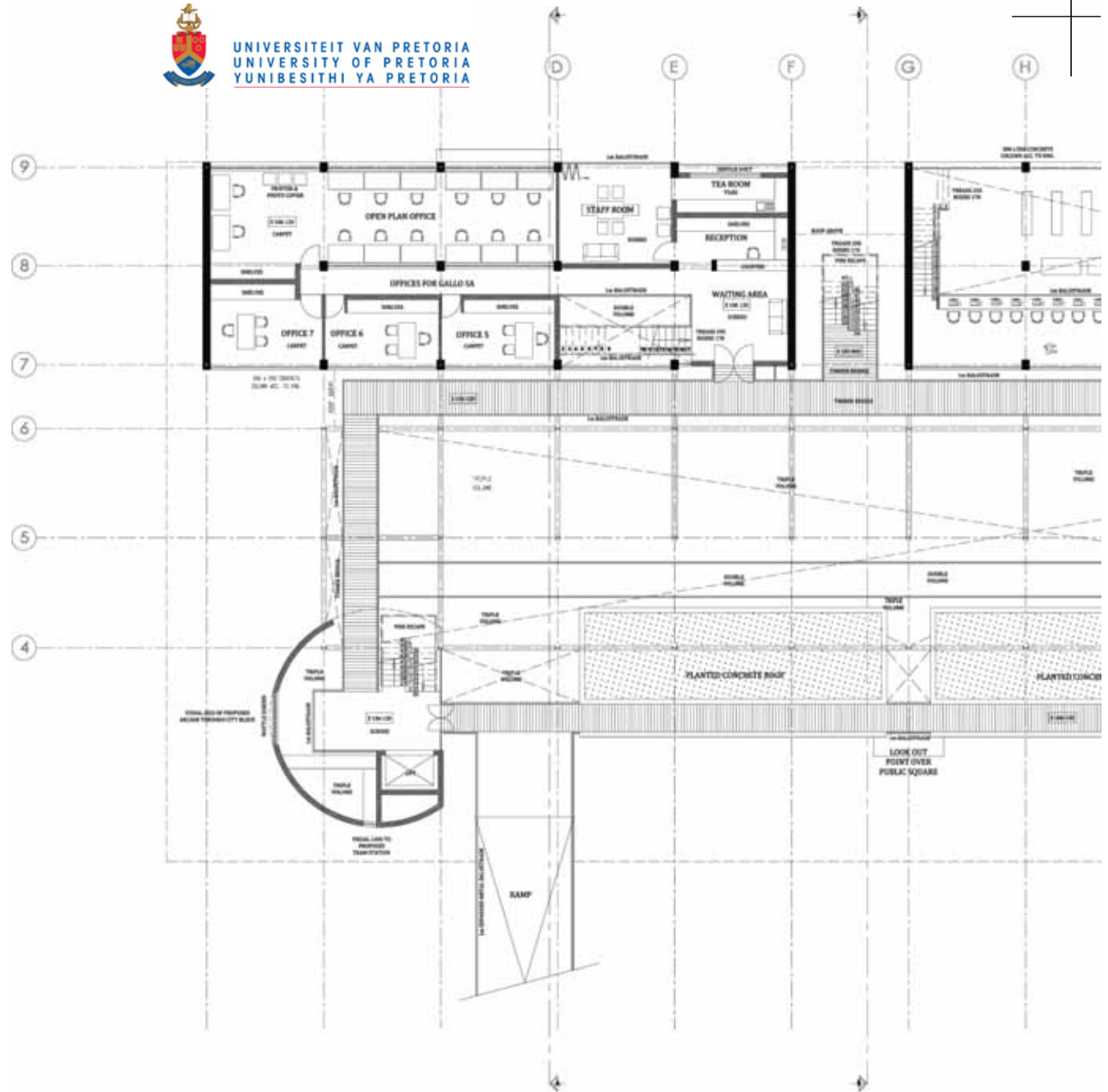




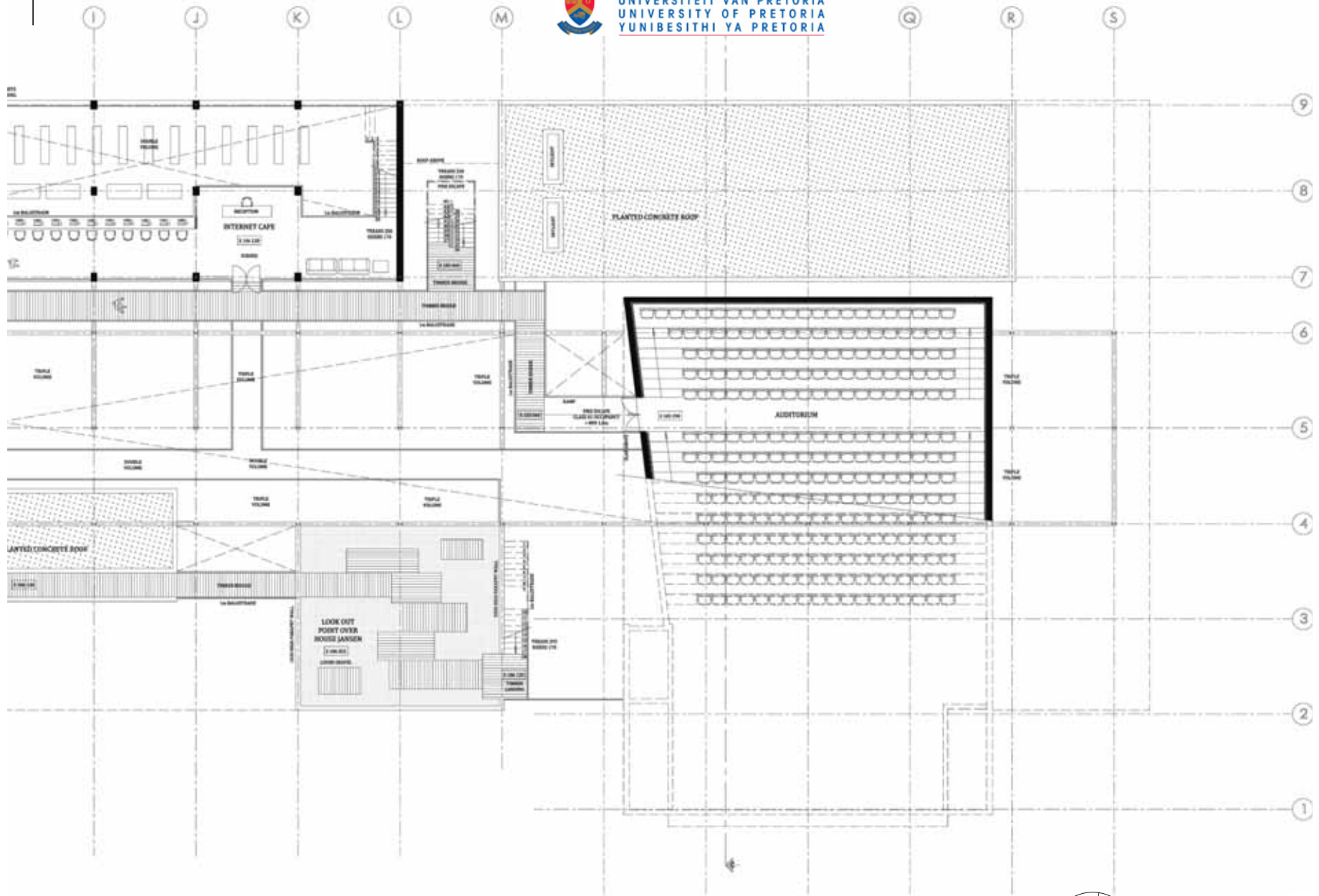
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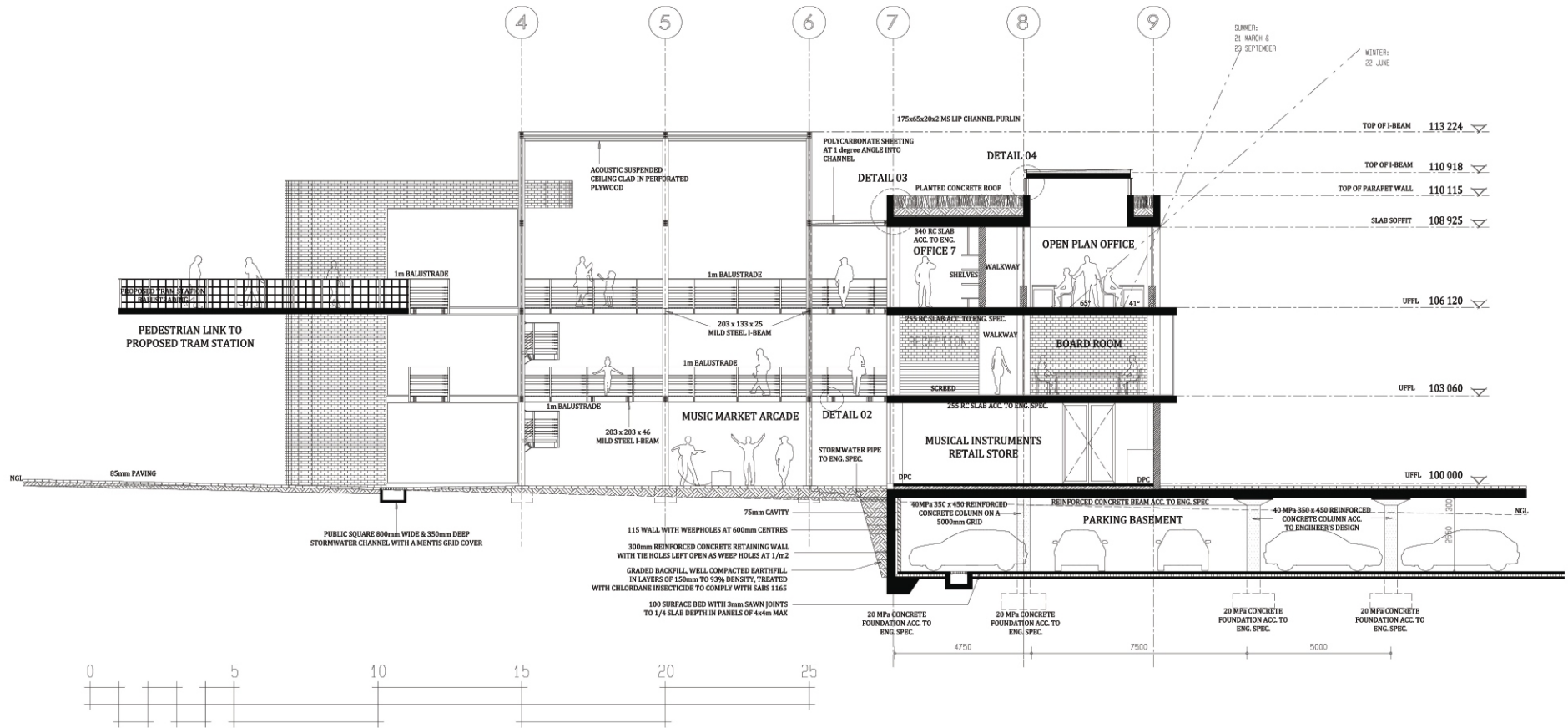






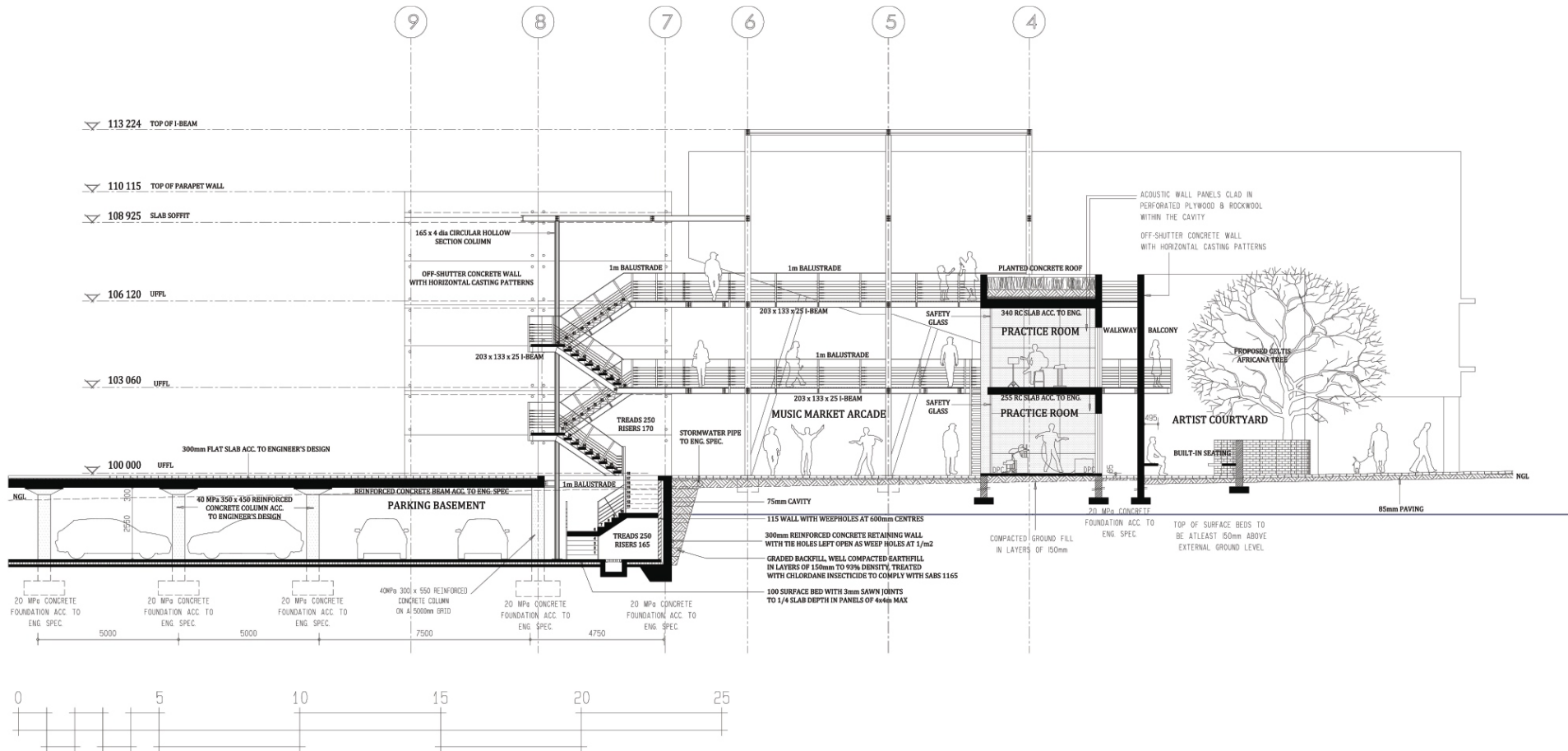
second floor plan  
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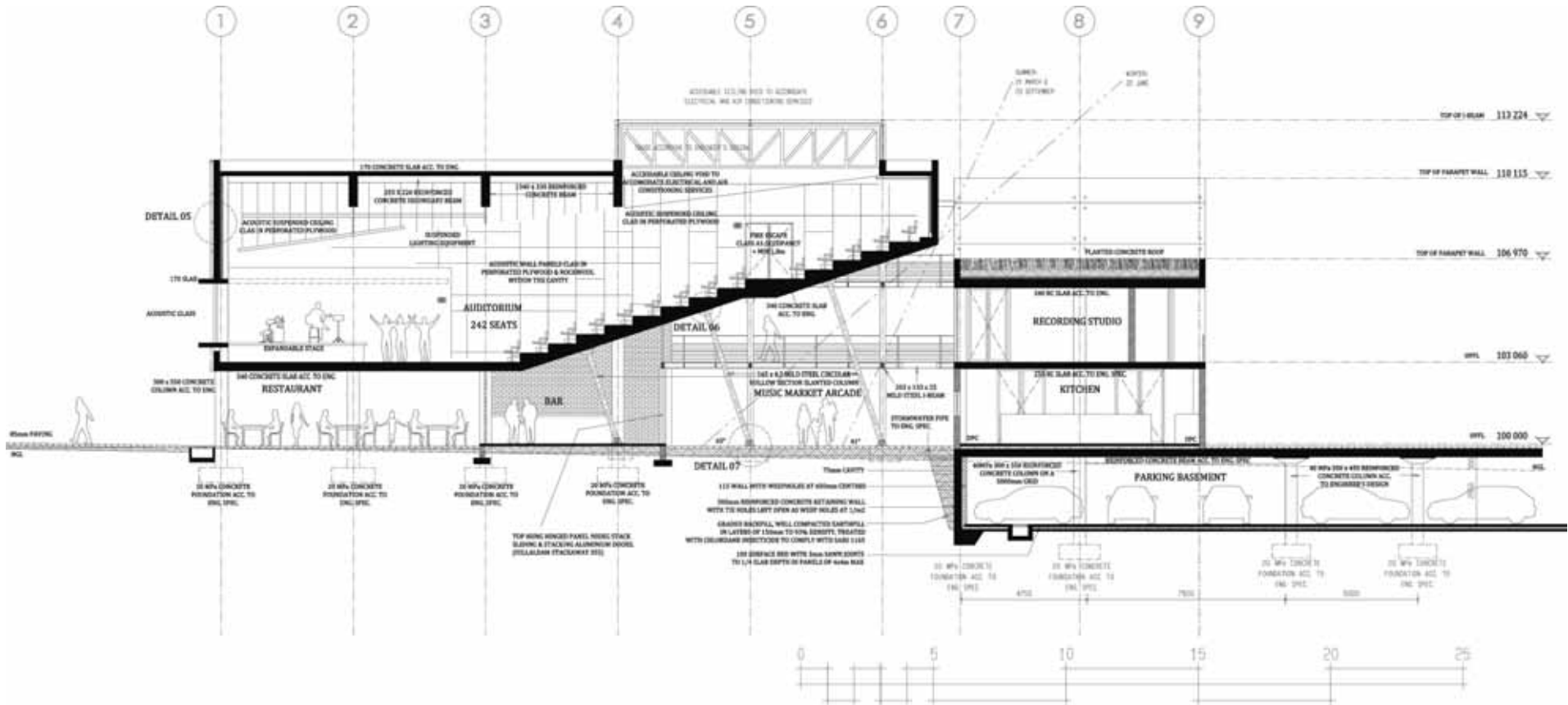


section aa  
scale 1:200





section bb  
scale 1:200



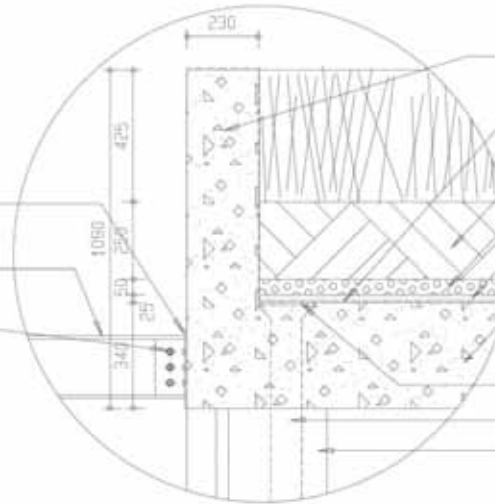
section cc  
scale 1:200



6mm MS CONNECTION PLATE  
WELDED TO H-BEAM

203 x 133 x 25 I-BEAM

BOLTS ACC.  
TO ENG. SPEC.



230 PARAPET WALL

ABE INDEX FIDIA MULTI LAYER BITUMINIOUS  
TORCH-ON WATERPROOFING AS PER MAN SPEC.

250mm TOPSOIL

50mm LAYER

25mm CEMENT SCREED

340 REINFORCED CONCRETE SLAB  
ACC. TO ENGINEER'S DETAIL

100 dia RAIN WATER PIPE

100 dia RAIN WATER PIPE

40 MPa 350 x 450 CONCRETE  
COLUMN ACC. TO ENGINEER'S DETAIL

## DETAIL 3

scale 1:50

50 X 10mm MS FLATBAR HORIZONTAL  
WELDED TO 48 x 2mm CIRCULAR HOLLOW SECTION

48 x 2mm UPRIGHT CIRCULAR HOLLOW  
SECTION AT 900mm SPACINGS WELDED  
TO 6mm MS CONNECTION PLATE

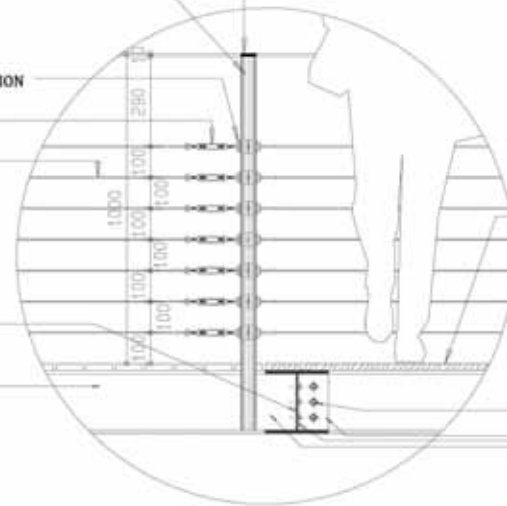
MILD STEEL EYE PLATE TO MANUFACTURERS SPEC.  
WELDED TO 48 dia UPRIGHT CIRCULAR HOLLOW SECTION

TURNBUCKLE TO MANUFACTURERS SPEC.

4mm dia GALVANISED MILD STEEL SPIRAL STRAND  
TENSION CABLE AT 100mm HORIZONTAL SPACINGS

203 x 203 x 46 STEEL H-SECTION  
BOLTED ON BOTH SIDES OF  
6mm MS CONNECTION PLATE

203 x 133 x 25 MILD STEEL I-BEAM



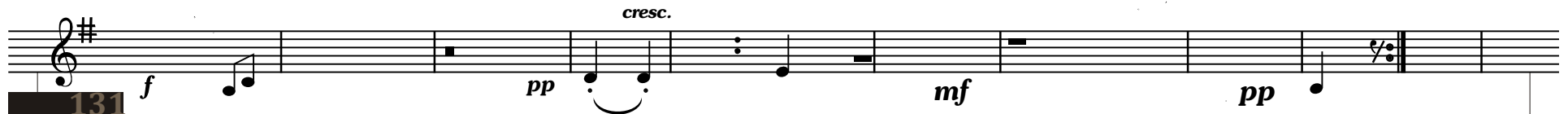
86 x 22mm SQUARE EDGE MERANTI  
TIMBER HARDWOOD FLOOR BOARDS  
WITH 9mm SPACINGS TREATED WITH CCA  
& FIXED TO 203 x 133 x 25 I-BEAM WITH  
HOT-DIPPED GALVANISED FASTENERS  
KX16: FIRE PERFORMANCE:  
TT7 WOOD CONSTRUCTION ACC. TO SABS 082  
HAZARD CLASS 3

BOLTS ACC. TO ENG. SPEC.

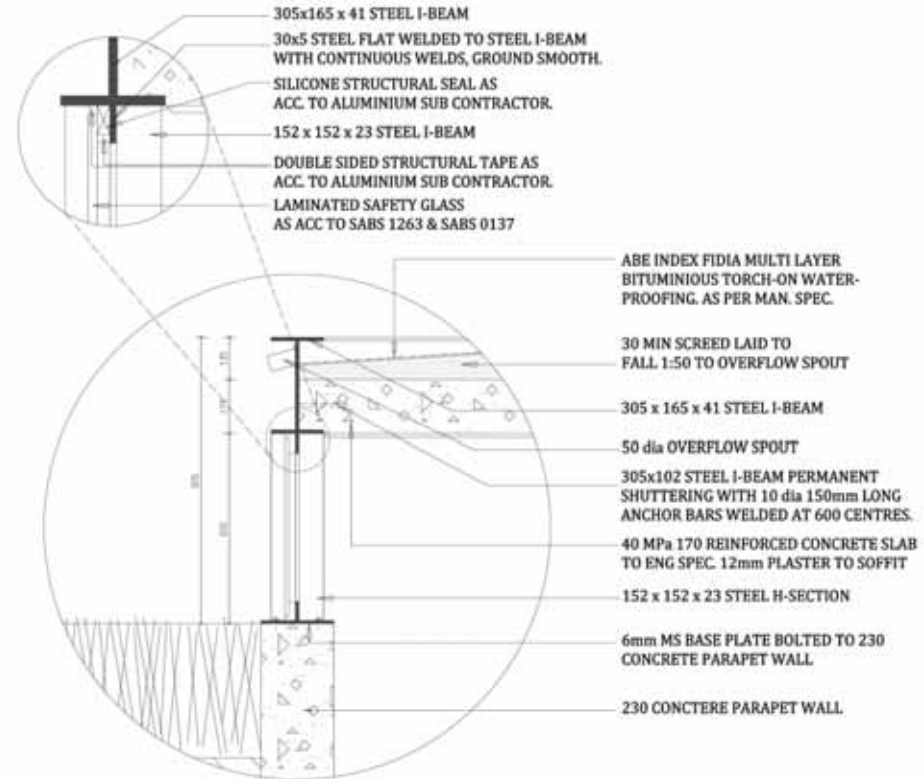
6mm MS CONNECTION PLATE  
WELDED TO H-BEAM

## DETAIL 2

scale 1:50



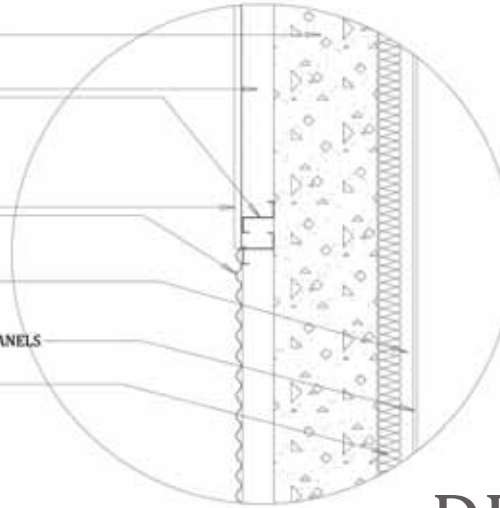
scale 1:50  
DETAIL 4



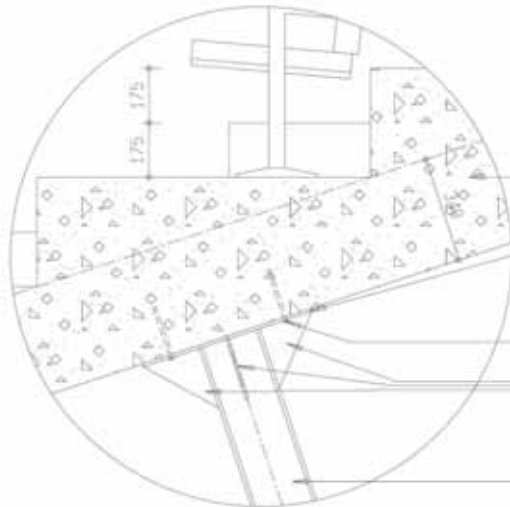




- 330mm REINFORCED CONCRETE WALL
- 100 x 50 x 20 x 2,0 COLD-FORMED LIPPED ZED BOLTED TO 330mm REINFORCED CONCRETE WALL
- 0,6mm 5-PROFILE MILD STEEL SHEETS OVERLAPPING CLADDING FIXED TO 100 x 50 x 20 x 2,0 COLD-FORMED LIPPED LED WITH HOT-DIPPED GALVANISED FASTENERS
- 76 x 114 SA PINE GRADE 5 TIMBER STUDS AT 600mm CENTRES
- 13mm PERFORATED PLYWOOD ACOUSTIC WALL PANELS
- 75mm ISOLATION BLANKET

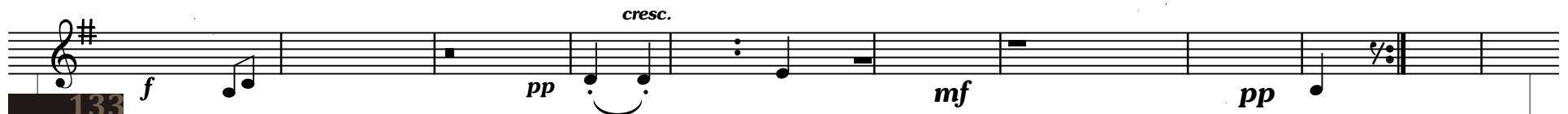


DETAIL 5  
scale 1:50



- 340 REINFORCED CONCRETE SLAB ACC. TO ENGINEER'S DETAIL
- 10mm MILD STEEL BASE PLATE WITH FOUR 10mm SUPPORTING FLANGES BOLTED TO 340 REINFORCED CONCRETE SLAB
- BOLTS ACC. TO ENG. SPEC.
- 10mm SUPPORTING FLANGE WELDED TO 10mm MILD STEEL BASE PLATE & 203 x 203 x 46 MILD STEEL H-SECTION SLANTING COLUMN
- 203 x 203 x 46 MILD STEEL H-SECTION SLANTED COLUMN

DETAIL 6  
scale 1:50



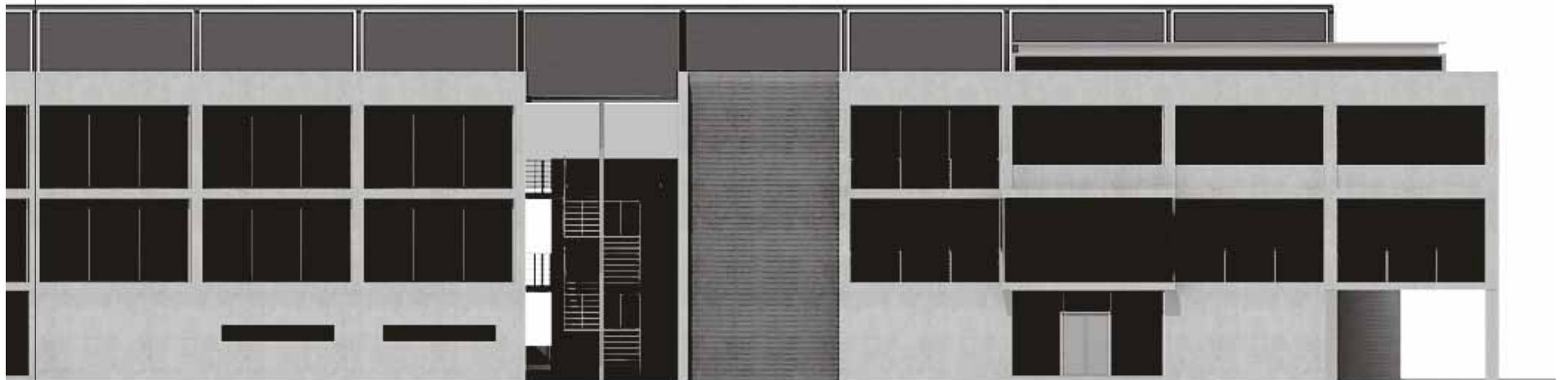
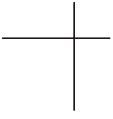




# northern



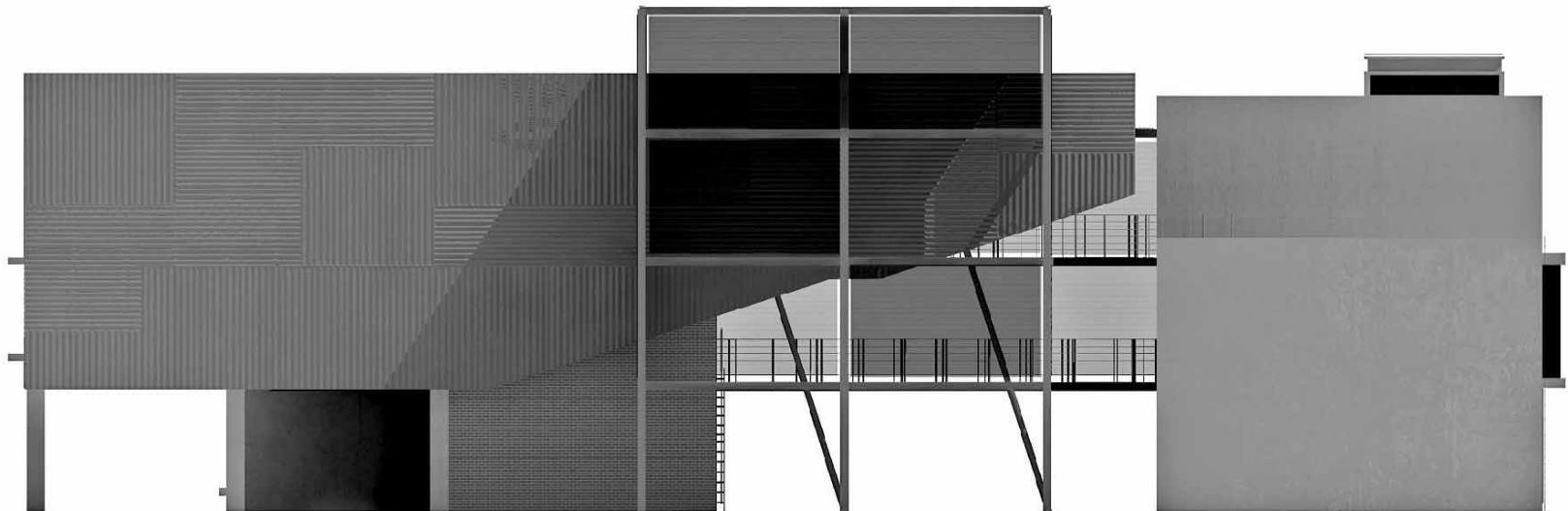
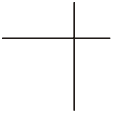
135 *f* *pp* *cresc.* *mf* *pp*

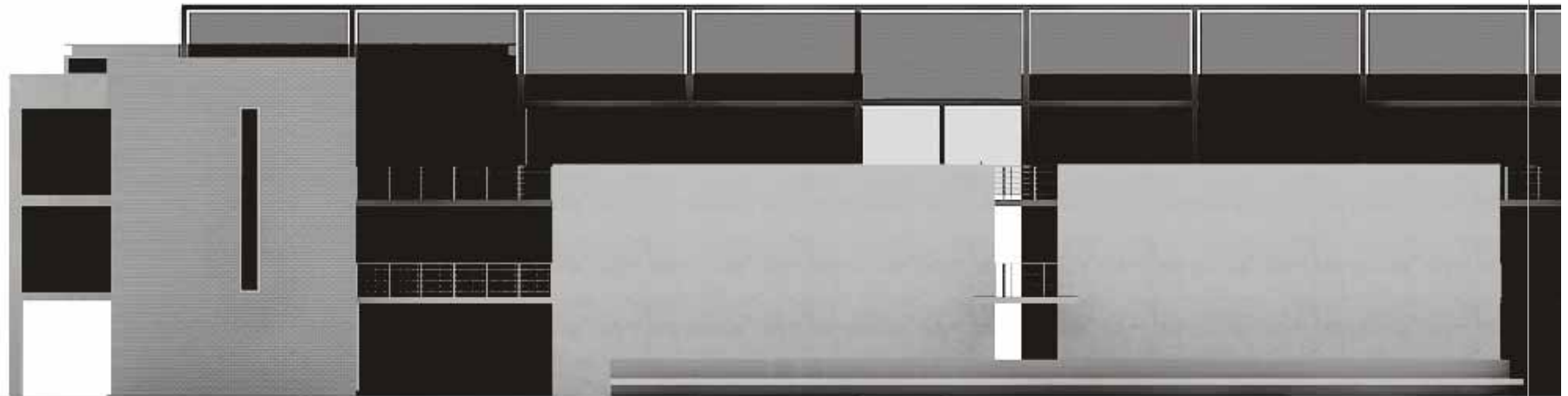






# eastern

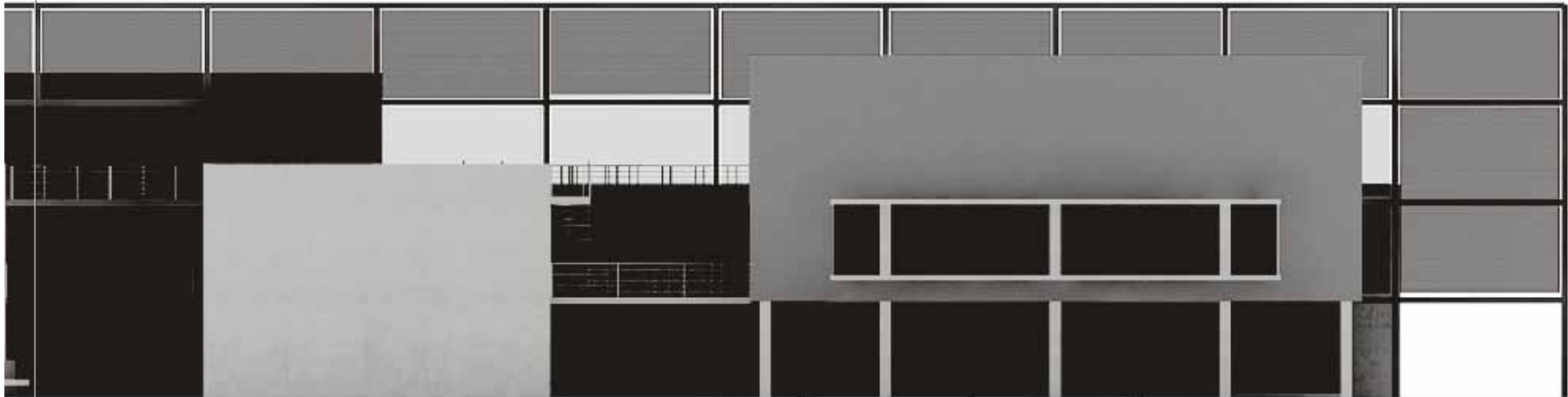




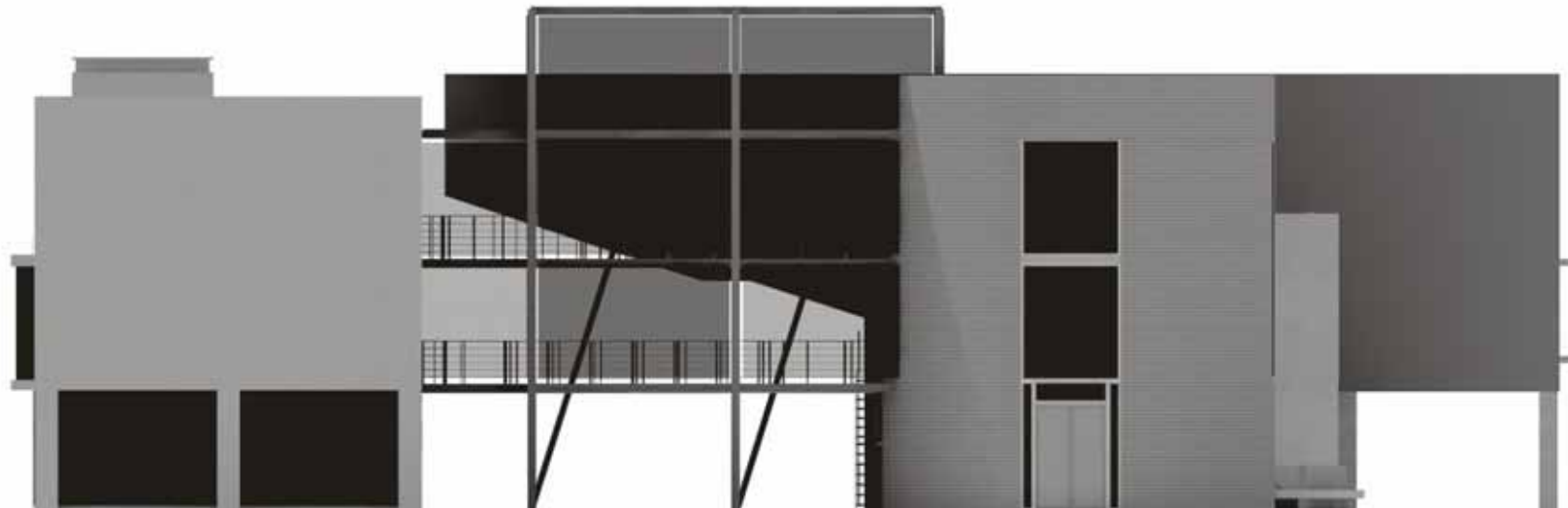
139 *f* *pp* *cresc.* *mf* *pp*



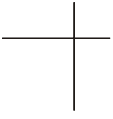
# southern







141 *f* *pp* *cresc.* *mf* *pp*



# western





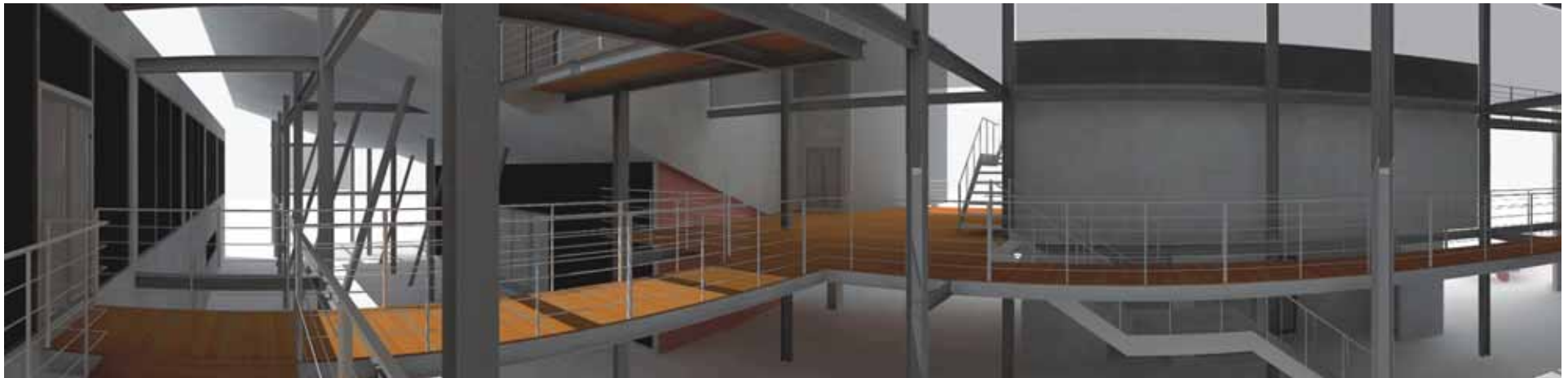


FIG. 8.2 South Eastern view of auditorium

# 3D COMPUTER MODEL







145 *f* *pp* *cresc.* *mf* *pp*



FIG. 8.3 Panoramic view of interior



FIG. 8.4 Internal walkways

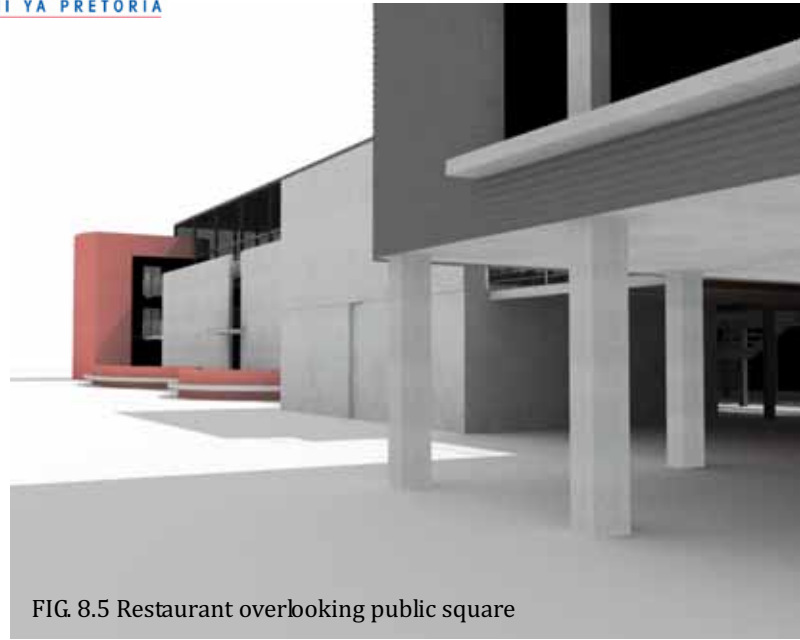


FIG. 8.5 Restaurant overlooking public square



FIG. 8.6 Artists courtyard



FIG. 8.7 Framed view of House Jansen

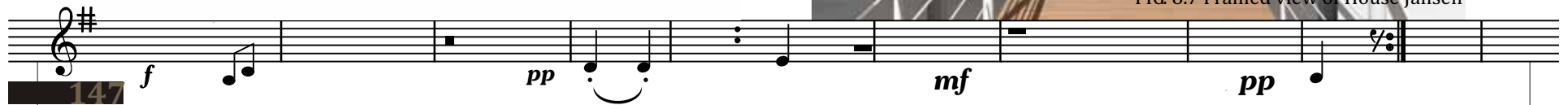




FIG. 8.8

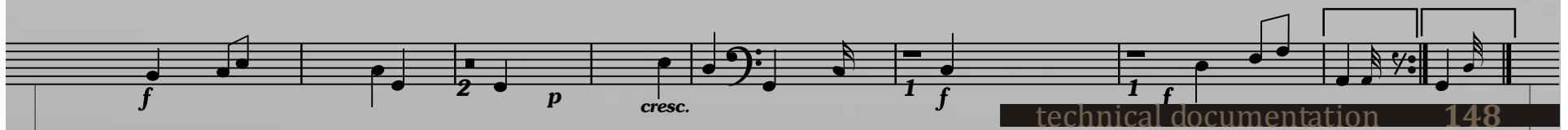
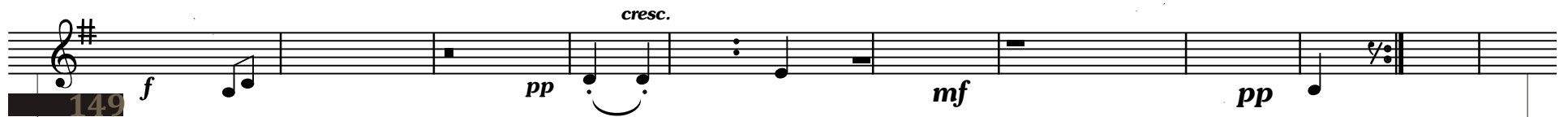




FIG. 8.9



northern





northern





151 *f* *pp* *cresc.* *mf* *pp*



FIG. 8.11 Panoramic view of city from proposed project





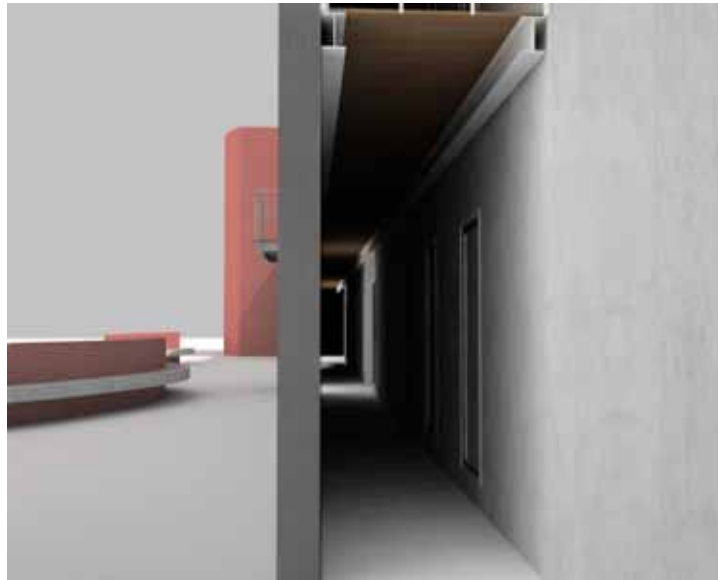
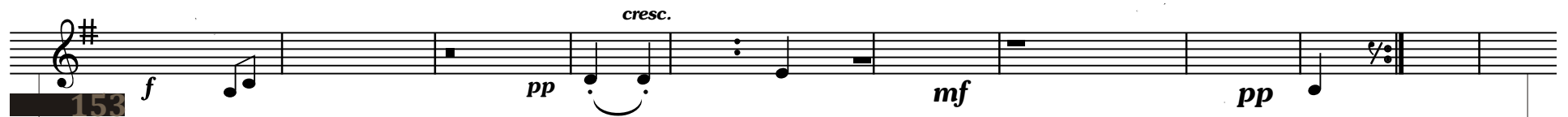


FIG. 8.12 Practice rooms



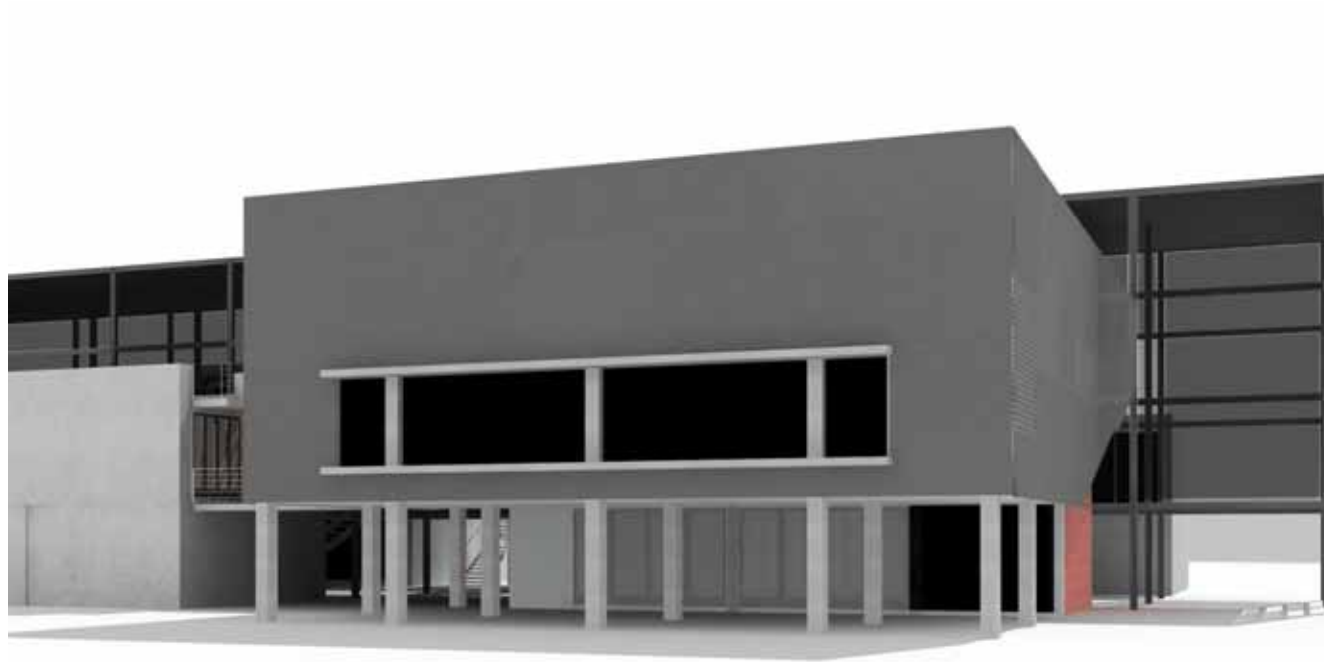


FIG. 8.13 Public square





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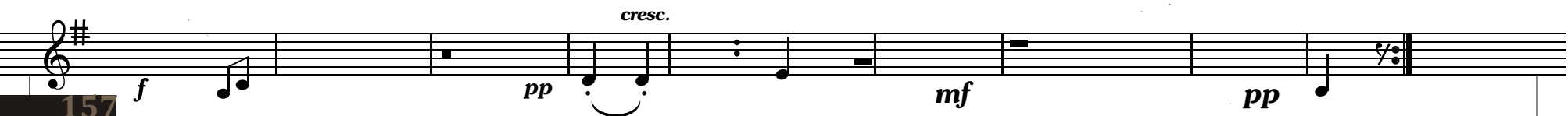
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#### INTERVIEWS

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*cresc.*