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Atelier le Corbusier (1974:8) - **“Our eyes are constructed to enable us to see forms in light”**

# ARTWORKSHOP

'Contextual Architecture in light'



by

:

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Submitted as part of the requirements for the degree of Magister in Architecture (Professional) in the Faculty of Engineering, Built Environment and Information Technology

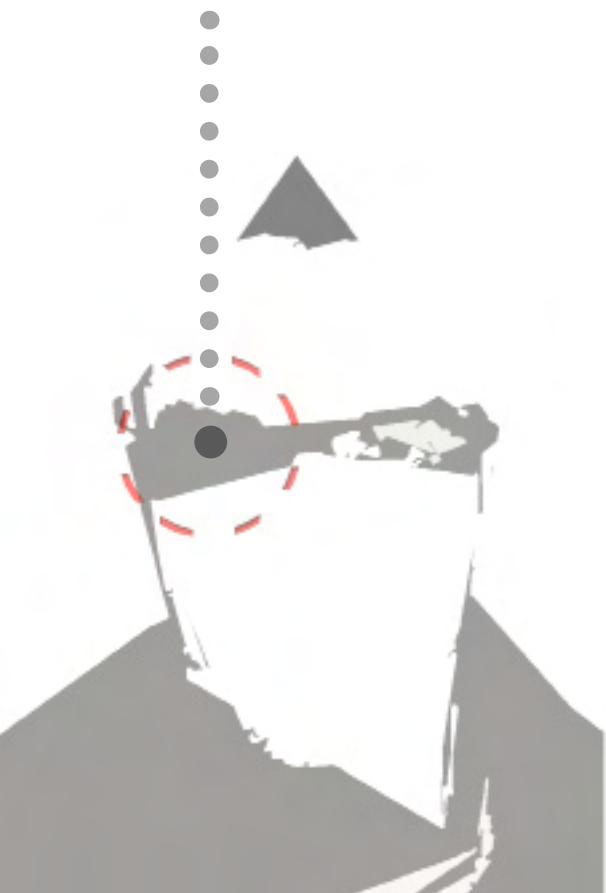
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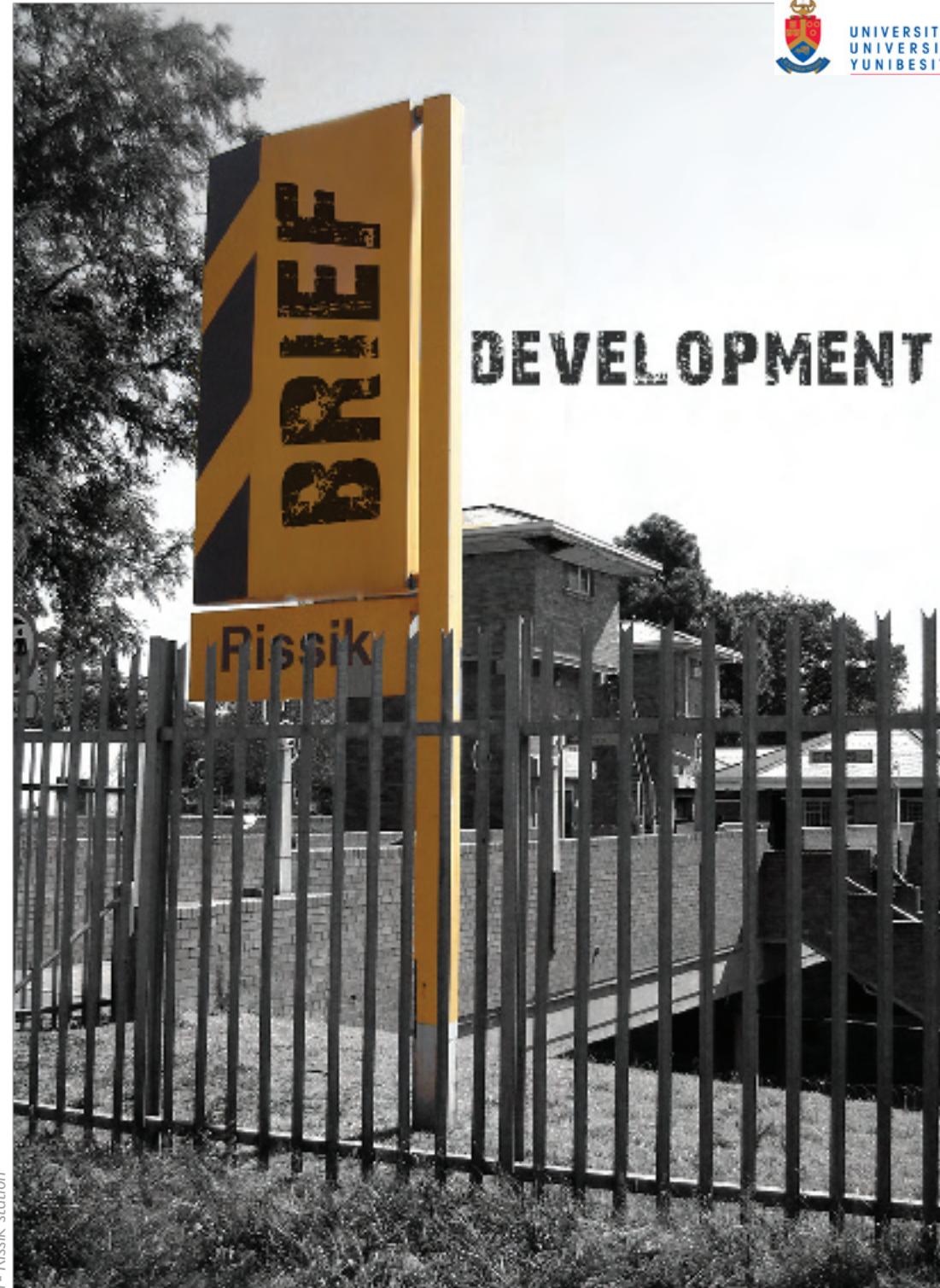
This chapter gives an overview of this dissertations' structure and design intent.

# ONE



# DEVELOPMENT

Rissik



- Background
- Objectives
- Problems
- Opportunities
- Site abstract
- Urban analogy
- Real world problems
- Research goal
- Research questions
- Definition of terms
- Assumptions
- Delimitations
- Theoretical abstract



# Hatfield precinct

- City of Tshwane, 2007

## Background

The Vision for 2010 and beyond, envisages Hatfield as a multi-functional socially responsive urban node of Pretoria. This vision is fueled by current urban injections like the Hatfield Gautrain Station, the upgrade of existing Metrorail stations and the emergence of numerous contemporary up-market residential developments. According to the Hatfield Metropolitan Core Urban Development framework (City of Tshwane, 2007) the Gautrain, Metrorail and supporting BRT (Bus Rapid Transit) interceptor routes will form the backbone to uphold and direct future development.

In the residential sector, investors have seized the opportunity for up-market developments, but the spread and scope of these projects should be managed properly. In Dewer and Uitenbogaards' (Dewer & Uitenbogaardt. 1991) Manifesto for change in South African cities, they affirm the importance of urban spatial structuring and order.

Therefore the necessity to initiate a primary layer of urban order becomes evident, for this generates opportunities and integrates the activities around this system. The concern is to capitalize on urban opportunities by focusing on the development of good urban structure, as opposed to just more infrastructure.

## Key objectives

- Integrate land-use and transportation
- Encourage mixed land-use developments
- Integrate land-use with social needs
- Promote cultural and urban activities
- Create a Foci of civic identity
- Construct quality public urban space
- TOD(Transport orientated development)

## Problems areas

- Lack of quality urban open space
- Lack of defined precinct identity
- Lack of meeting, dwelling, working, visiting, walking and entertainment spaces
- Lack of through routes and destination spaces
- Insufficient public Security strategies

## Opportunities

- Develop Activity spine along track connecting Festival, Hilda and Gautrain station
- Restore Urban fabric : Establish a link across train track
- Enhance urban identity, character and legibility
- Promote informal meeting & recreation spaces for social interaction
- Promote Day/night activities



## Site abstract

The site is located on the city block between Festival, Hilda, Burnett and Arcadia Street where the Metro rail splits the urban fabric into two fragments. The site proposed is situated on the northern segment parallel to the railway opposite Rissik station. The property belongs to SA Railways and is managed by Intersite. Intersite has a vision to develop and densify the urban fabric around these station precincts and is currently engaged in research on an international scale to identify potential programming and intervention strategies. They envisage the area around Rissik station is to be a vibrant urban node with a multi-layered program that promotes public interaction and provide a canvas for social activities.

The design proposal will explore the following:

- Creative resource node – location
- Dynamic interface for social expression
- Establish connectivity to immediate urban context
- Vibrant multi-functional destination space
- Spatial & functional interdependency of cross-pollinating interventions

## Urban Analogy

The spinal system in the body has many functions, but primarily as transportation conduit for information and for giving the body proper structure to perform its daily activities. If the spine cannot perform these essential functions, the whole bodily operation breaks down. The spinal system also sustains secondary activities along the route by ensuring the efficient movement of information, while structuring the rest of the activities feeding into it.

The Gautrain Rapid rail link station functional area guidelines (City of Tshwane: 2003:4-7)

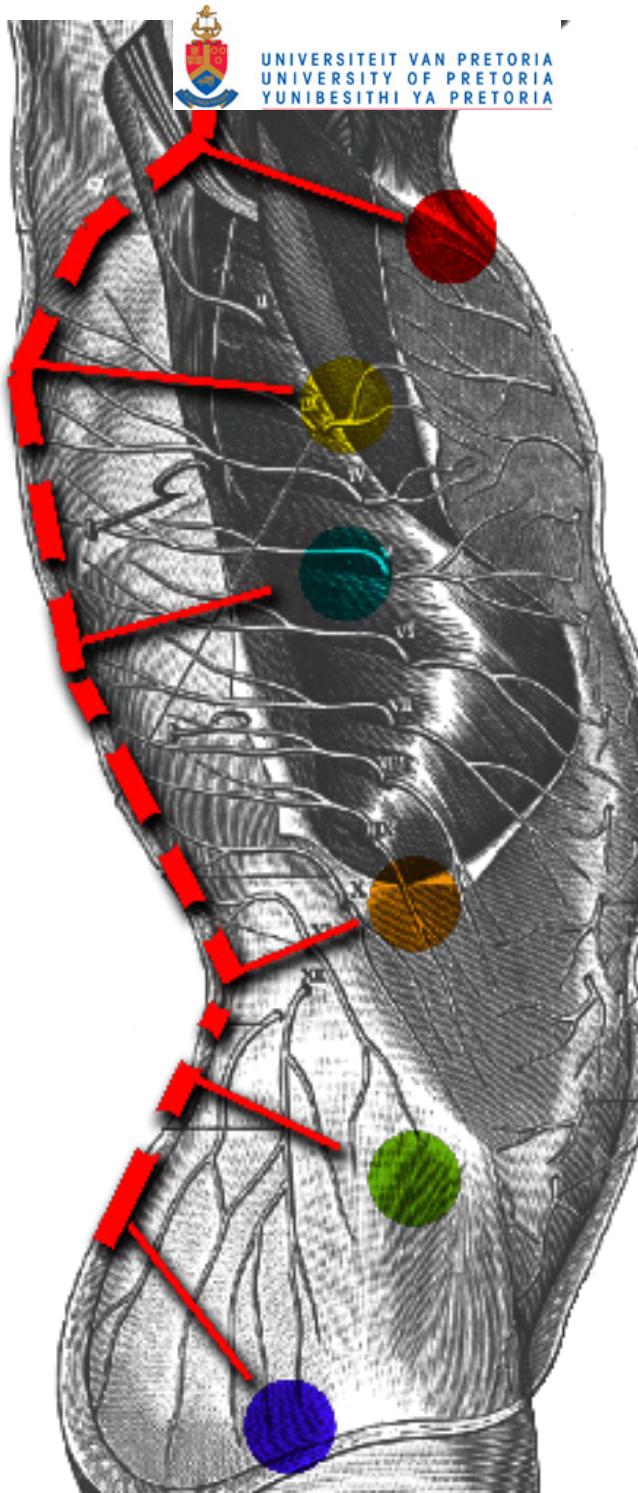


fig3 - Urban spine

identified the area parallel to the track as a potential activity zone. The urban design intervention therefore suggests the development of a pedestrian activity spine between Rissik station and the Hatfield Gautrain station, thus capitalizing on the proximity of these urban-energy generators. This system of social spaces backed by responsive urban interventions will form the central ordering system for social activities and provide an interface for interaction. On an urban level, this movement flow of people, goods and capital acts as the glue which holds the system together, and integrates the Hatfield core as a whole.

## The real world problem

1.) The site is complex. The southern edge is flanked by the Metro-rail railway line. Historically railway lines have been a cause of division within the urban fabric, and here it is no different. Therefore, on a practical and psychological level it is needed to overcome this divide and reconnect the segmented urban fabric.

2.) The era of an independent mono-functional building is drawing to a close. More and more buildings that intend to facilitate communal functions are turning into white elephants used only on occasion by the select few. The emerging urban environment therefore necessitates buildings that respond to the requirements of the urban environment with a flexible, multi-layered program and shared amenities. This dissertation proposes an urban art workshop. A workshop consists of a variety of components that mutually contribute to the success of the whole. Each of the layers help to sustain the building to fulfill a wider purpose.

## Research goal

The objective of this dissertation is to explore 'Contextual' architecture in light. On a theoretical level this dissertation explores the role of light in architecture, and on a functional level, the complexity of an urban building that responds appropriately to context.

## Research questions

**What is an appropriate response to the urban context?**

- What are the essential components of the urban fabric?
- What measure of implementation strategies is needed to facilitate the urban vision?
- How is the program generated by societal needs?

**oWhat is the role of light in architecture?**

- What is our relationship to architecture?
- What is our relationship to light?
- What is light's relationship to architecture?
- How does architecture respond to light?

## Definition of terms

**Context** – Urban fabric, site, program, societal needs, environment, genius loci, vision

## Assumptions

- That the implementation strategies suggested will be implemented
- That the Hatfield Gautrain station will be a bustling transportation node with 46 500 feet moving through it per day.

## Delimitations

- The study will not engage in an investigation regarding an aesthetical and historical exploration of critical regionalism.

## Theoretical Abstract



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Architecture today is misunderstood. This statement does not engage in the tectonic, programmatic, systemic or contextual aspects of the art, but involves the presence of architectural meaning and experience. Therefore this depravity does not apply to the general public alone, but also to us, the architects. If we don't understand architecture, how could we begin to understand our relation to it? I believe that this is because much of today's architecture doesn't have the tools to reveal itself.

In most religions there is a spiritual significance to light. In the Christian faith, scriptures reveals our relationship to light. The Gospel of John 12:35b says: "walk while ye have the light, lest darkness come upon you: for he that walketh in darkness knoweth not whither he goeth". In the context of the scriptures, man orientates himself in this world by way of light/God (I John 1:5 – God is light, and in Him is no darkness). This is where he finds his identity and how he understands his existence. If Light (nature and character of God, whole being) is not present, he cannot understand living, nor find meaningful discourse in it.

In Silence and Light Louis Kahn(2005) says that with Architecture, the religion is light, it is the giver of all presence, it gives room to the day and brings the season into the room. In our existence that we skillfully conduct amid the biosphere and the first heaven, the matter of architecture and light is very significant. Everyone understands light on a subconscious level; it is ingrained in our composition. Light was created as a precondition for life. Louis Kahn (Silence and Light, 2005) states that everything is spent light, even our bodies.





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fig5- Orientation map

A building should be informed by its context. Site construction is the process of identifying the multiple layers of urban information which collectively forms the context.

# two



fig1 - View from City Property apartment



fig2 - view of parking garage



fig3 - green space opposite Rissik station



fig4 -Office building, northern boundary



fig5 -Residential building, eastern boundary



fig6 - City property residential block



fig7 - Metro train track



fig8 - Metro train

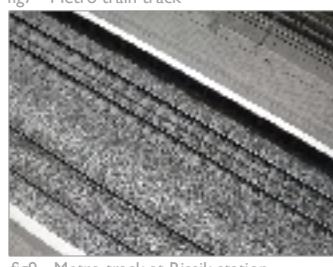


fig9 - Metro track at Rissik station



fig11-

City Property

basement parking

excavation



fig12- City Property :view from Burnett street

## Visual study

Paths

Edges

Nodes

Landmarks

Districts

S.T.A.R.T

Successful places



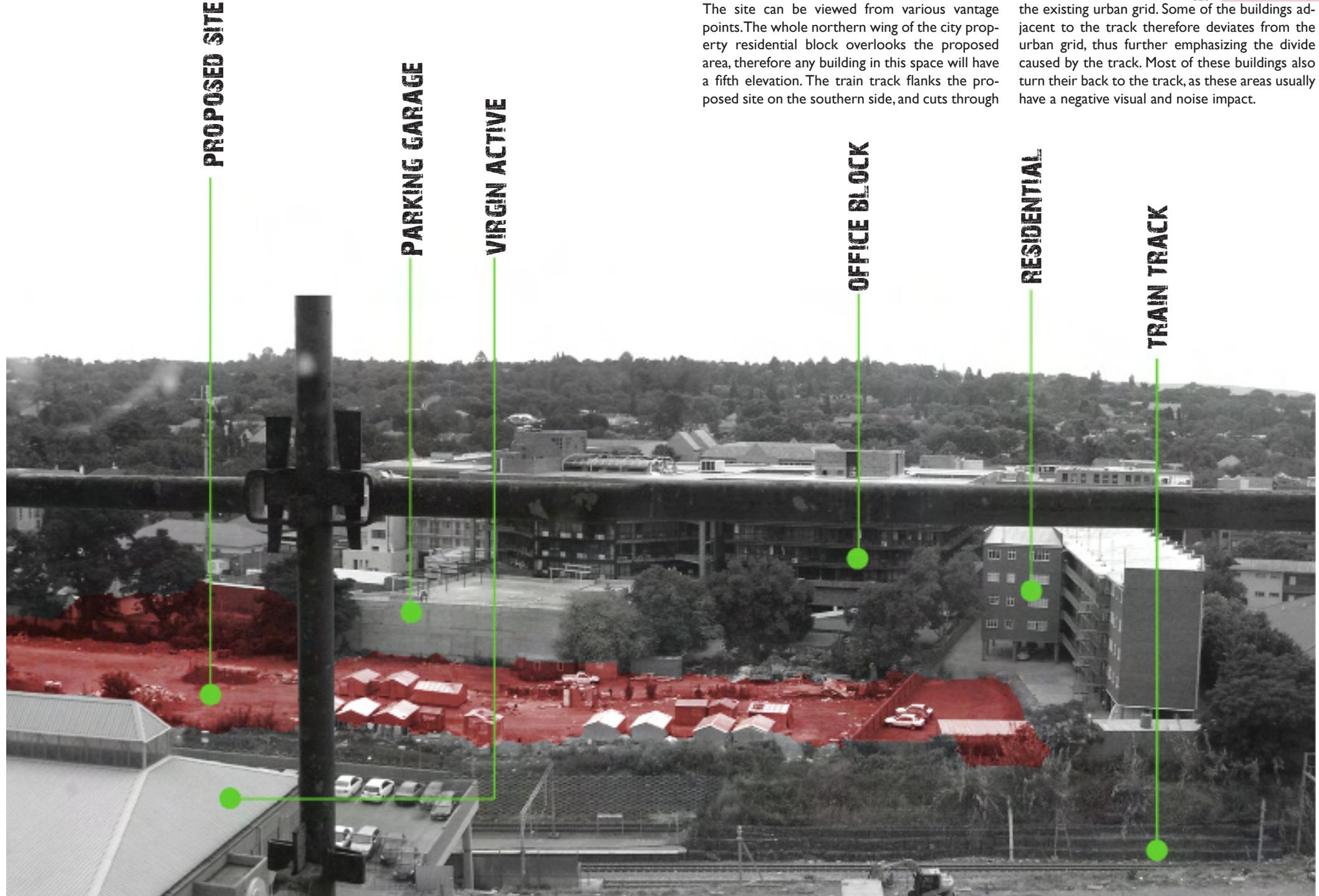
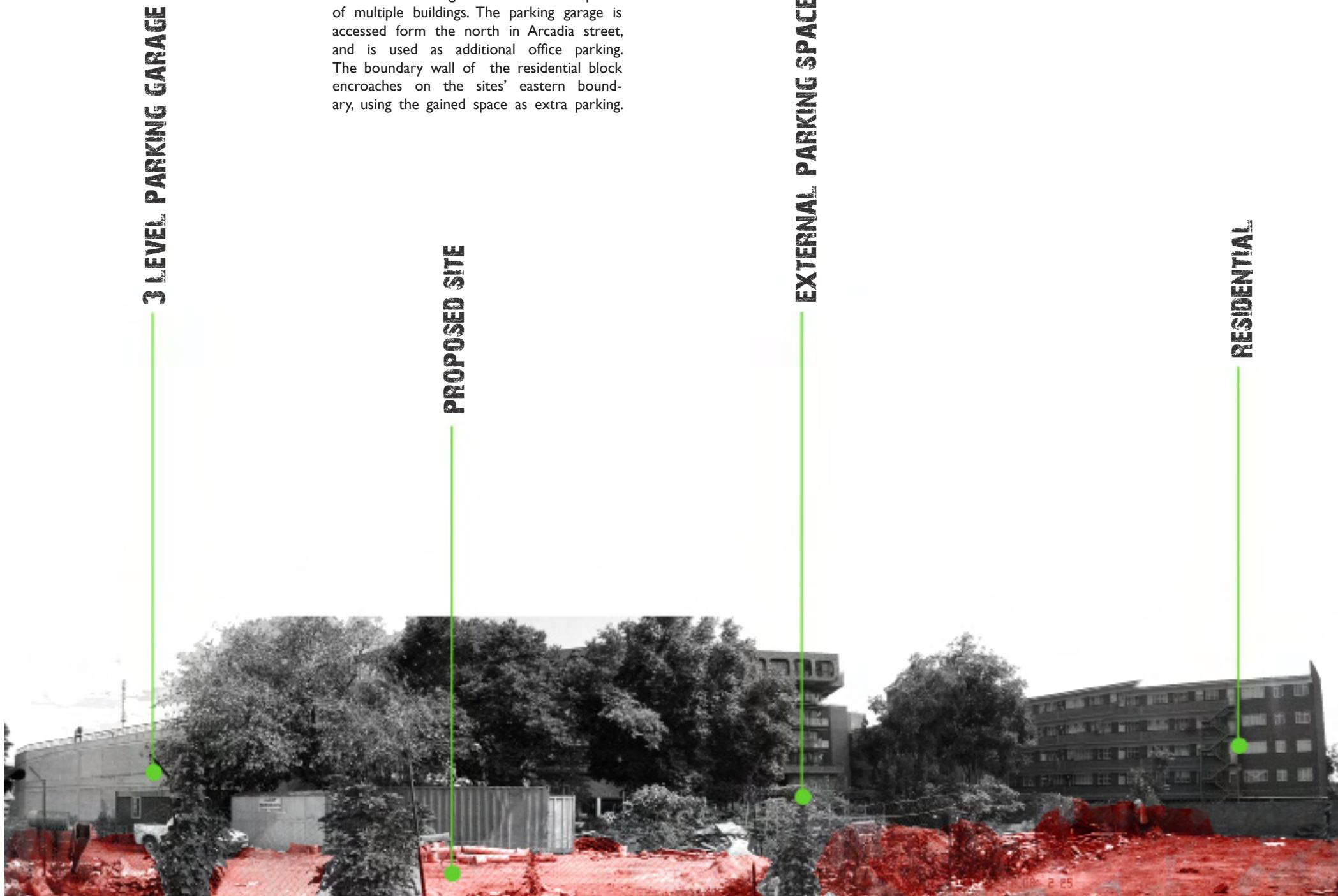


fig 14 - view from city property residential block

The site can be viewed from various vantage points. The whole northern wing of the city property residential block overlooks the proposed area, therefore any building in this space will have a fifth elevation. The train track flanks the proposed site on the southern side, and cuts through

the existing urban grid. Some of the buildings adjacent to the track therefore deviates from the urban grid, thus further emphasizing the divide caused by the track. Most of these buildings also turn their back to the track, as these areas usually have a negative visual and noise impact.





The new City Property residential development fills the southern skyline. Due to relaxation on design coding, buildings are being erected that does not respond appropriately to the scale of Hatfield. Nevertheless, due to this transition in scale which occurs in a northern, southern and western direction, the proposed site sits within a urban amphitheater.

### HATFIELD COMMERCIAL CORE





fig17 - view from Hilda street

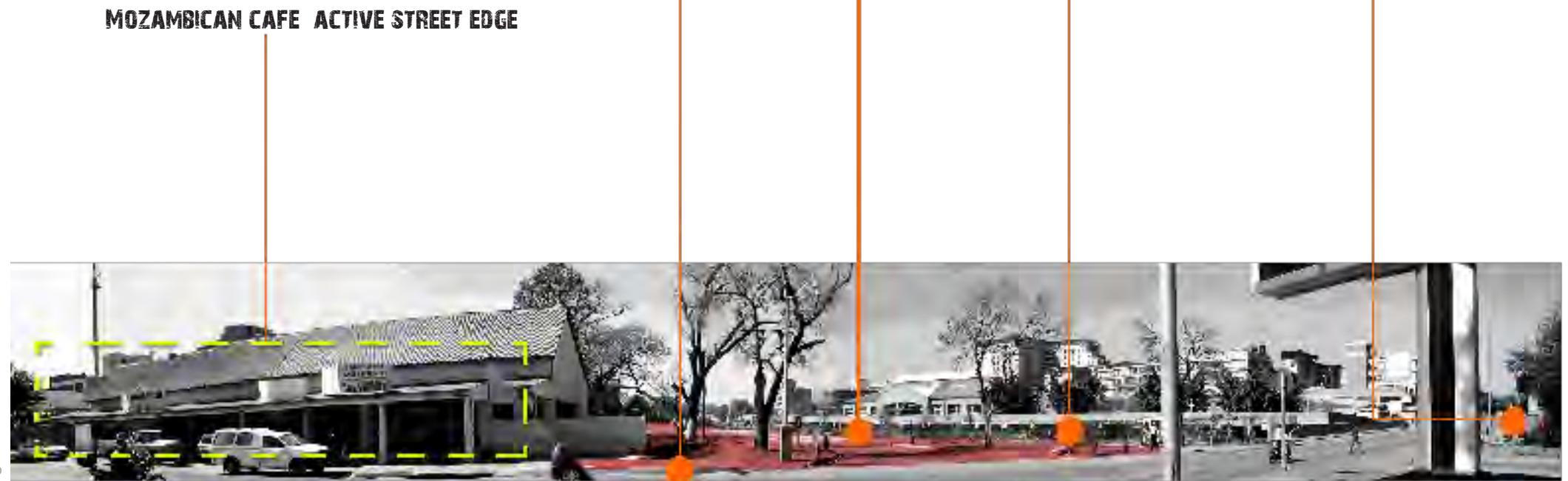
### UNDERDEVELOPED PROPERTY NEXT TO METRO TRACK

The junction at Hilda and Park street is a busy pedestrian zone. This street crosses all the major streets running into the CBD. Park street runs parallel to the Metro train track, and meanders past the construction area of the Gautrain station. The property marked is currently developed by City property. Sources show that the new project under construction will be a 20 floor international hotel, but there is still no information available.



The parking area is currently used by the Virgin Active gym and Damelin College. This structure is built across the space required for the Gautrain, and therefore will be demolished as track construction begins. The space adjacent to the track is clearly underdeveloped and in need of revitalization.

The Mozambican cafe is over sixty years old. Although this building is dilapidated, it has an active street edge. These enterprises are small scale, but provide a lively atmosphere to the street. The building is not a protected heritage building, yet it remains an important remnant of the past history and culture. Together with the adjacent Rissik station, these two buildings could be preserved to bring some character to the new urban fabric.





gautrain station  
and transport  
nodal interchange



proposed site



green open spaces



existing roads



campus perimeter

## Development

The massing study of Hatfield's core area clearly shows the areas of highest density. The average building height ranges between two and four storeys, with the exception of a few. Recent development has exceeded this scale in anticipation of the Gautrain's arrival. Two new residential developments have traversed the contextual scale of the area and towers at nine to eleven meters. The old residential area to the north-east are mostly single level houses, and are used for small businesses and embassies.

The University precinct is inaccessible to the general public, thus forming an urban island. The University cannot extend any further to the north, and therefore most of their development energy is focussed towards the east. There are two major green spaces in the precinct, but are predominantly under-utilised. Springbok park is unsafe, and has little residential backup to activate it, while Belgrave square is private used by the bowling club and soccer club.



fig.20 - Hatfield core massing study

# PATHS

paths are channels along which an observer customarily, occasionally or potentially moves.

(Lynch, 1960:47)



## VEHICULAR

The paths are predominantly governed by the city's grid system. The Metro train system institutes an extra layer of division, thus reducing the block permeability even further. The

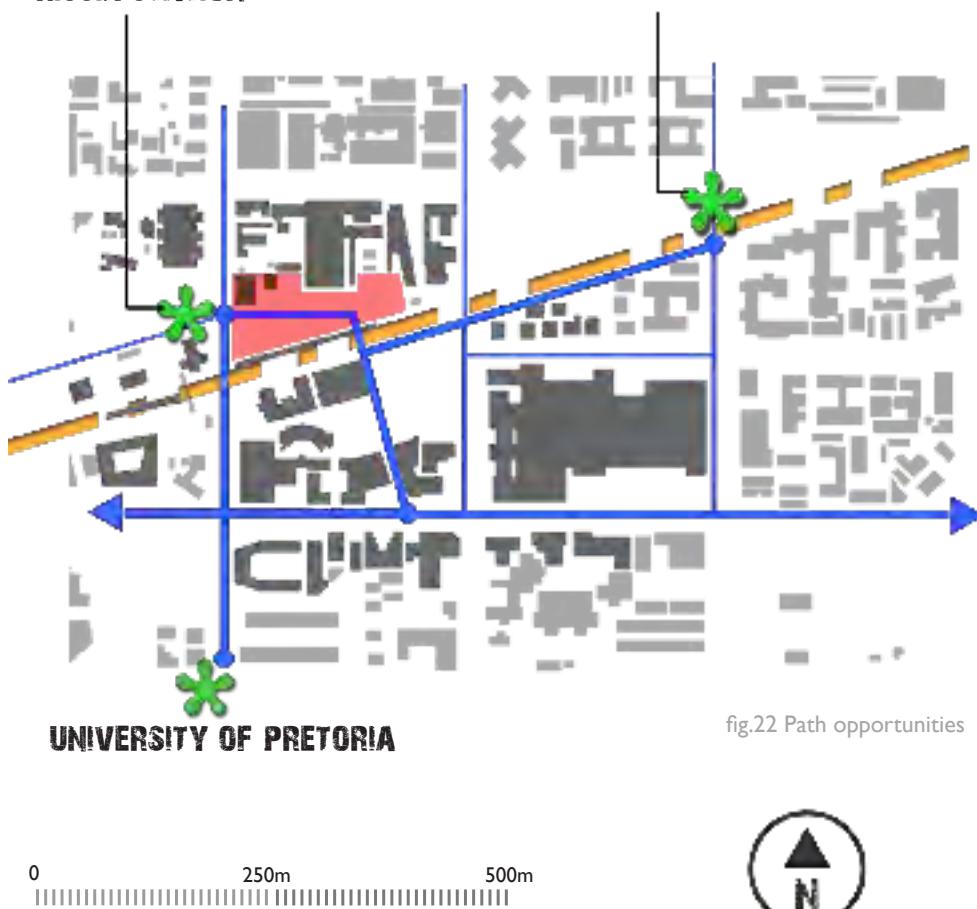
## PEDESTRIAN

grid system and train track increases travelling distances and choice of routes, leaving the pedestrian to navigate the urban environment via inadequate and pedestrian unfriendly routes.

# OPPORTUNITIES

## RISSIK STATION

## GAUTRAIN STATION



## PEDESTRIAN

The Gautrain will bring a large influx of pedestrian traffic to the Hatfield core area. There is an opportunity to connect the 3 major high order facilities. This route will connect the University of Pretoria with the two major

## METRO RAIL

transportation nodes in Hatfield. Pedestrians would be able to filter through the internal spaces that connects the University, Rissik Metro station and the Gautrain Hatfield station.

# EDGES

# OPPORTUNITIES

edges are linear elements not used as paths by the observer, acting as a barrier to the public environment  
(Lynch, 1960:47)



fig.23 Edges

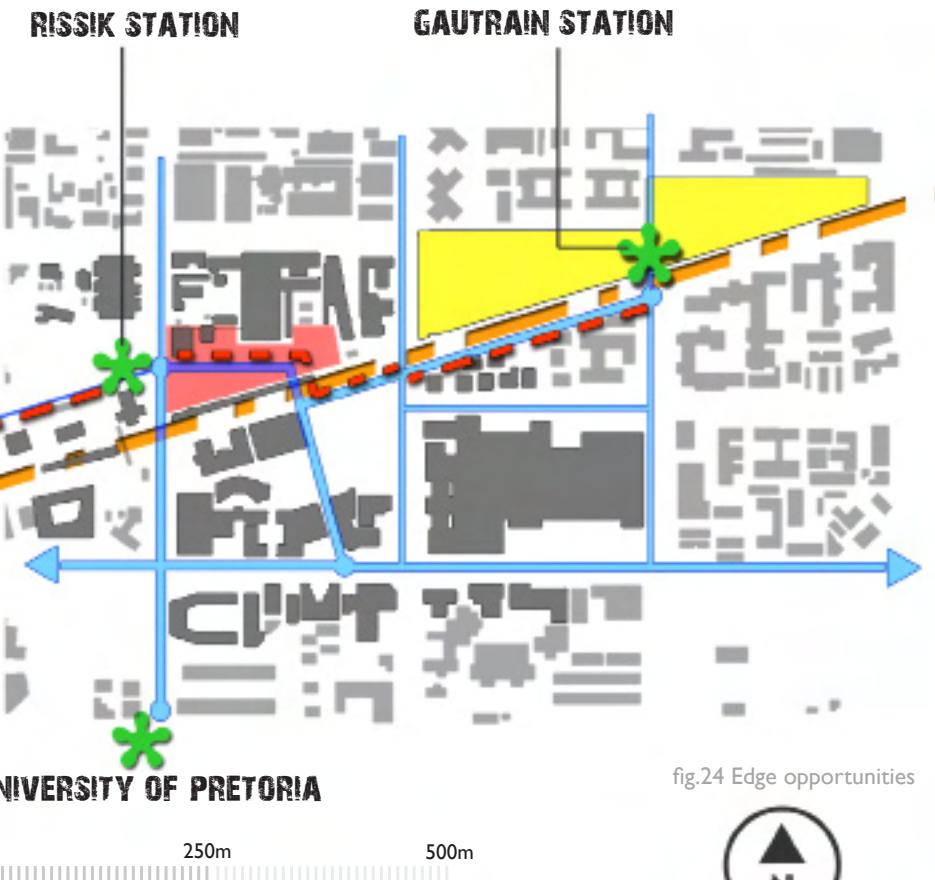


fig.24 Edge opportunities

The junction of Burnett and Hilda street have the most active edges, and forms the core of Hatfield's commercial activity. The other urban blocks have fairly inactive edges due to large

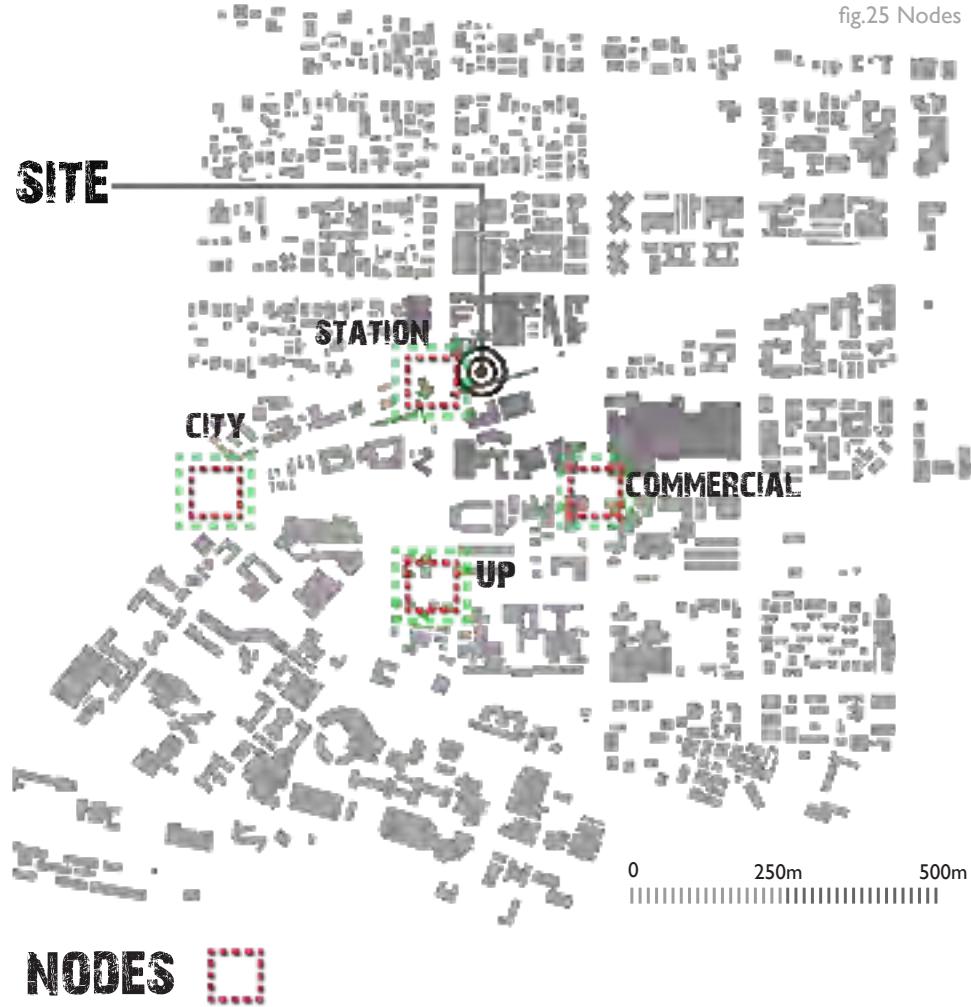
block sizes, underutilised space and fragmented activities. This makes it difficult for a healthy distribution of commercial and other urban activities.

By activating the internal unused spaces adjacent to the track, a variety of activities could occur on route to both stations, therefore capitalizing on the flow of people. By connecting the areas of highest accessibility , namely the

University, Rissik Satation and the Gautrain station, a new layer of urban order can develop. This new layer of urban order will enhance the current system, by strengthening it with a proper backbone of activity.

# NODES

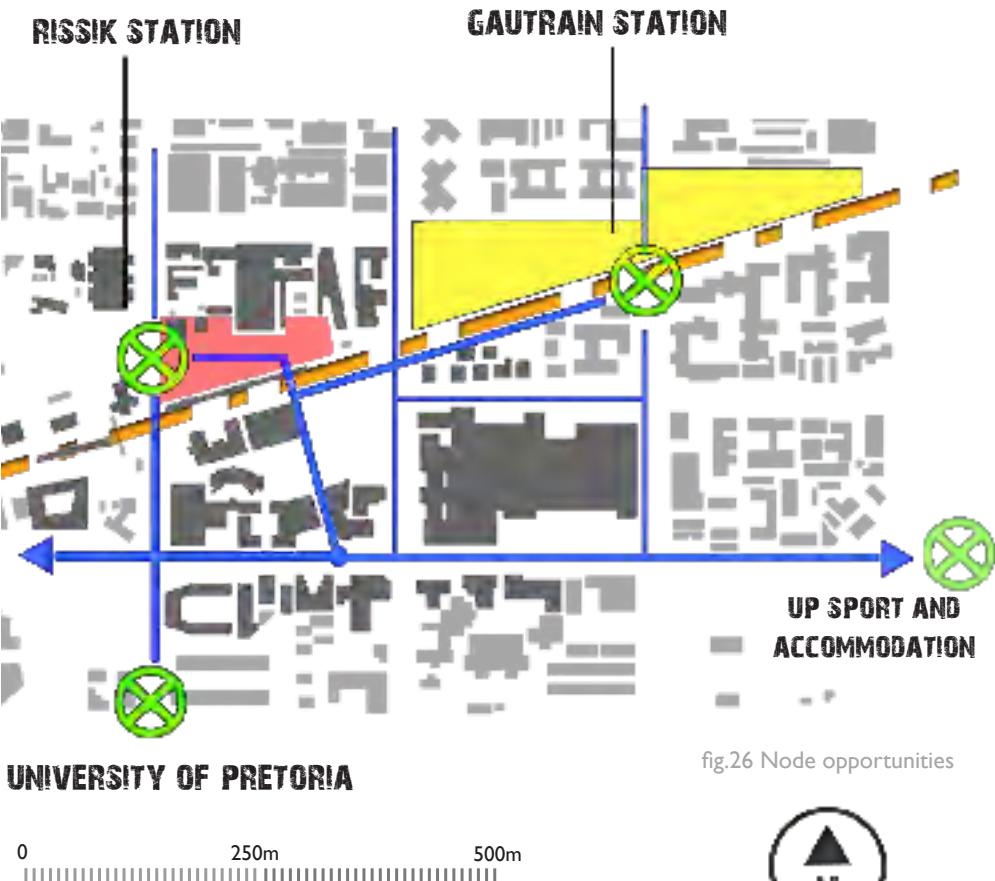
nodes are defined as strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is travelling (Lynch, 1960:47)



The nodes indicate major links to other districts and important junctions. In the central Hatfield area there are four major nodes as indicated. The Station node, connects to the surrounding suburbs and townships. The Commercial node

marks the heart of Hatfield. The University node indicates Hatfield's interface with the University precinct. The western node, connects Hatfield with Sunnyside, Arcadia and the city center.

# OPPORTUNITIES



## NODES



There are two major new interventions occurring within the study area. Firstly, the Gautrain Station will bring a new level of activity and energy flow to the precinct. Secondly, the upgrade of the Metro system will improve usability and

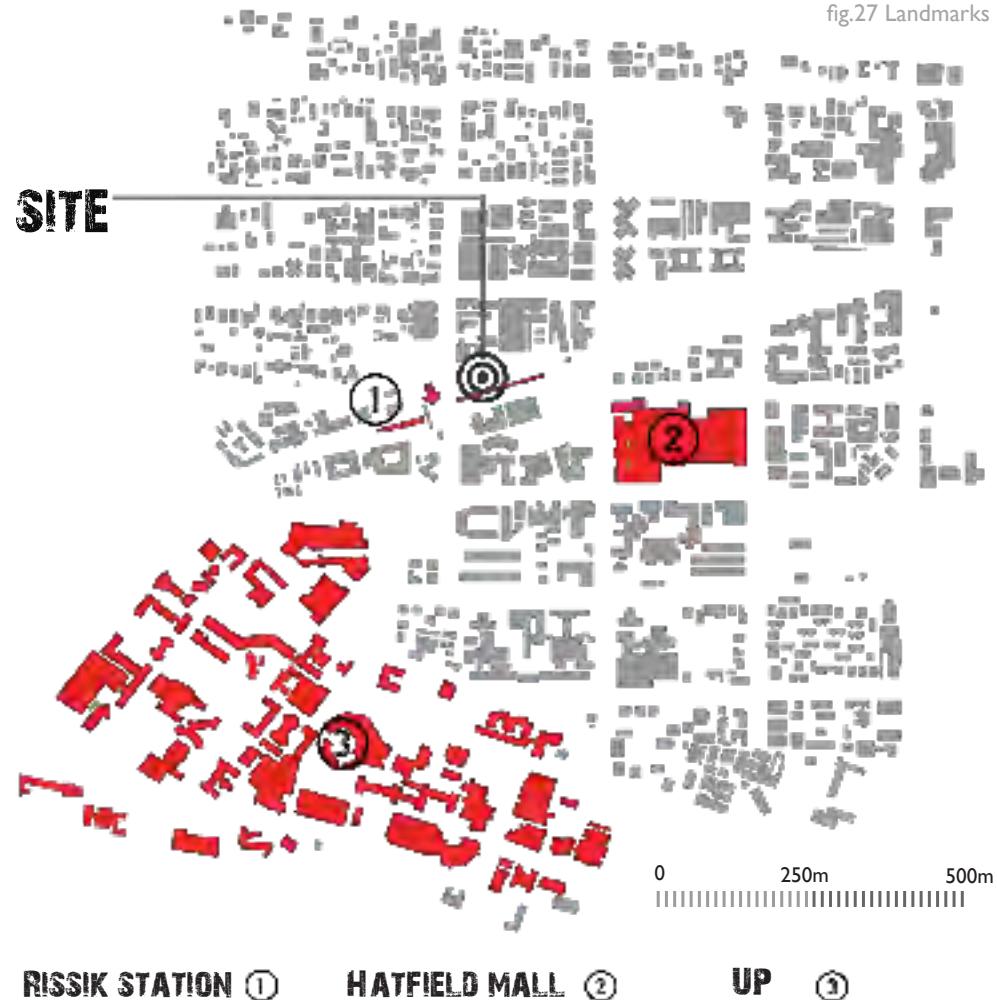
## PATHS



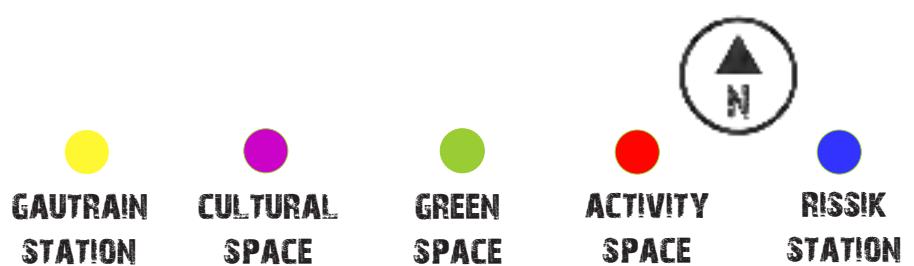
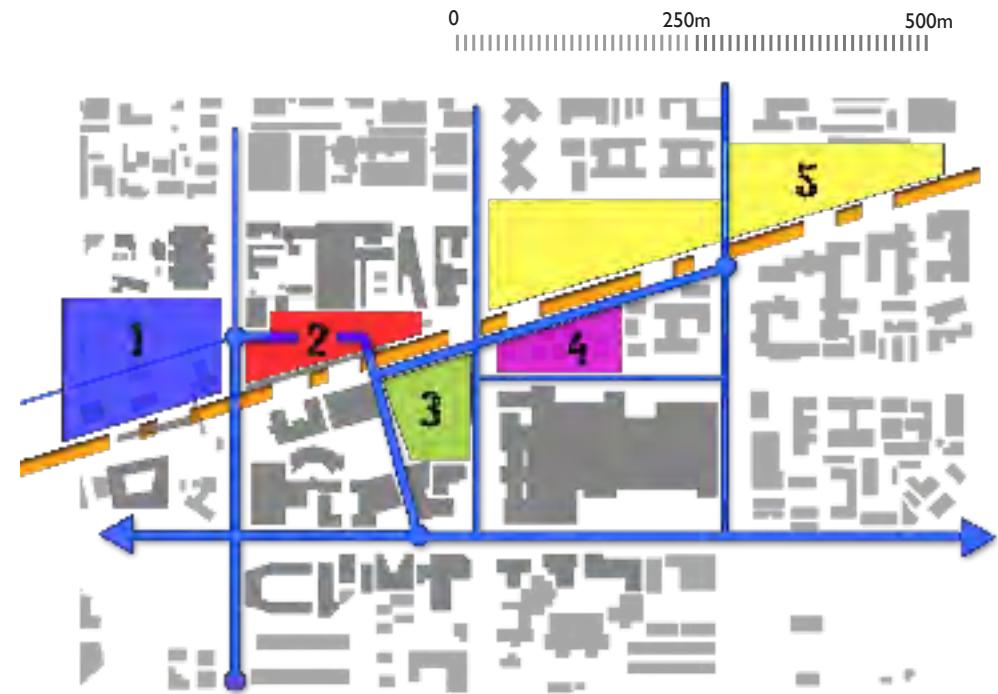
contribute positively to the developing urban fabric. Connecting these major nodes will increase the legibility of the urban fabric. A legible urban system gives a pedestrian preference, and makes it easy to find and access public facilities.

# LANDMARKS

"landmarks are another type of point-reference, but in this case the user does not enter within them, they are external"  
(Lynch, 160:48)



Landmarks might vary from user to user. The landmarks identified are the most prominent within the precinct. They form three very distinct landmarks by which a user can navigate through Hatfield.



Hatfield's spatial structure is fragmented. Green spaces are disconnected from places of pedestrian activity, and spaces of rest are becoming extinct. The space straddling the divide of the train track has an opportunity for an internal network

of spaces, thus connecting all major points of importance, while providing spill-out spaces for the surrounding activities. This system of social space could attain landmark qualities, upgrading Hatfield's navigational system on a pedestrian scale.

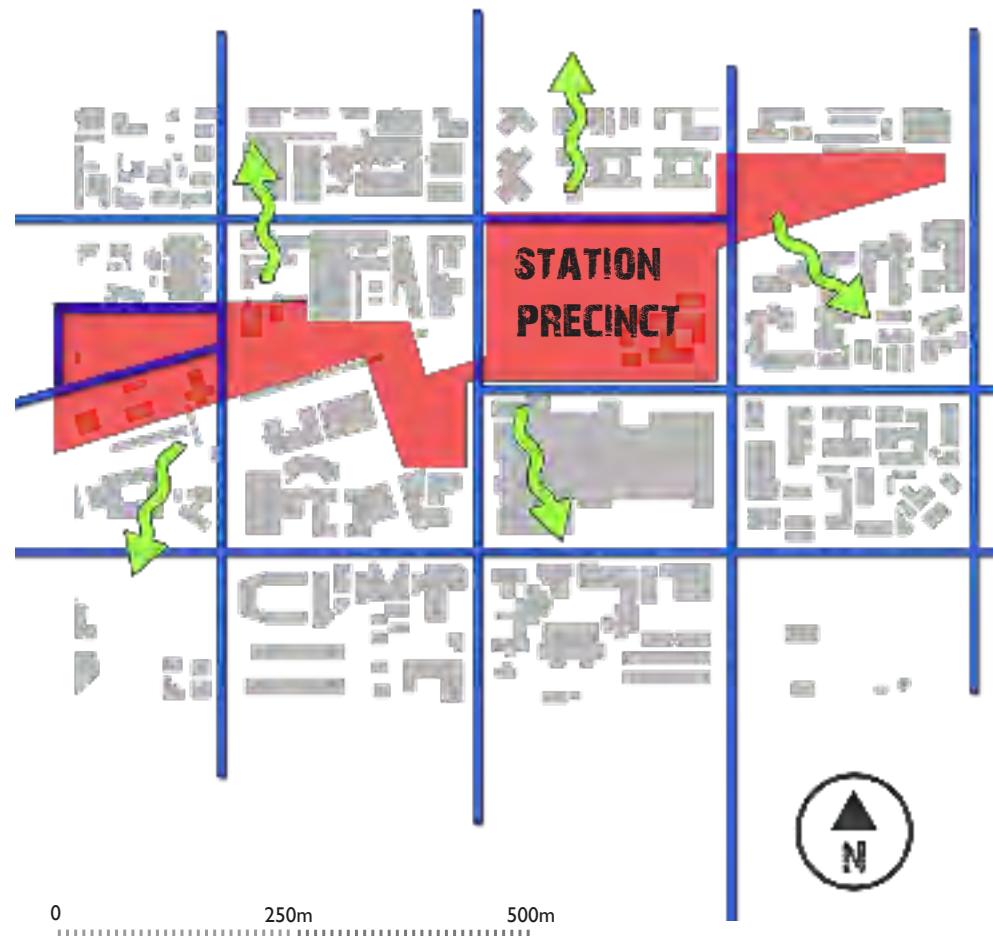
# DISTRICTS . . . . . OPPORTUNITIES



The main business district forms the core of the Hatfield precinct. To the east is the low-intensity mixed-use area which links Hatfield with the Sunnyside and Arcadia residential areas. Within this precinct there are many small

businesses and private enterprizes. The University precinct forms a major part of the urban fabric towards the South and East, but is mostly unaccessible to the non-academic user.

fig.30 District opportunities



Starting at Rissik Station and extending towards the Gautrain station, a station precinct produces a new layer within the heart of Hatfield. This precinct will function on a pedestrian scale, forming a hub of urban activity while providing

an interface for the surrounding precincts. An urban injection from within the core could lay the foundation for future development, revitalizing dead and unused areas surrounding the Metro track.

# S

SOCIAL

# T

TRANSITION

# A

THROUGH ACTIVATION

# R

OF REGENERATIVE

# T

TECHNIQUES

life, welfare, and relations of human

passage, or change from one position, state, stage, subject, concept, to another; modulation beings in a community

to make active; cause to function

to re-create, reconstitute, or make over; to revive or produce anew; bring into existence again, to reform;

method of performance; tecncl kill; ability to apply procedures or methods so as to affect a desired result. beings in a community

**framework**  
On a precinct scale, the proposal takes the form of a developmental framework which is based on the opportunities identified within the Hatfield Metropolitan Core Urban Development framework, the Gautrain Rapid rail link station functional area guidelines, and analytical observations conducted on site.

# TRANSPORTATION GOES RED

## City wide

The proposed transportation system functions on a Metropolitan scale. The major highways feed into the city of Tshwane from all four directions. At these junctions where blue and red lines meet, there will be multi-level parking garages which will accommodate users that want to change their mode of transport in order to get to a destination in a quick, transport efficient way. These routes link all major areas, including the CBD, and the two major Gautrain stations. The main drive behind this initiative is to alleviate congestion and long travelling times. It also reduces the cost of travelling while integrating all modes of public transportation.

## Hatfield precinct

The Vision for Hatfield is to see it grow into a bustling, vibrant, destination node in Tshwane. With the new Gautrain station at the heart, Hatfield becomes an area of high accessibility, making it a favorable place to live. The proposal therefore initiates certain strategies to enhance transportation routes, densify residential backup and commercial activities, and provide high quality public space as the canvas for social interactions and expression.

## B.R.T. (Bus rapid transit)

### RED ROUTE

The RED transportation system comprises of busses that run on dedicated lanes on all major axis of the city, creating a grid of continues, direct transportation channels across the metro area which integrates different modes of transportation (Manifesto for change, 1991:80). In the Hatfield precinct the drop-off points coincide with public open green spaces, thus reinforcing spatial logic of the transportation channels (Manifesto for change, 1991:80). At these stops,

provision should be made for informal traders to facilitate the needs of commuters on the go.

### ACTIVITY ROUTES

#### Grosvenor

This connector route connects the red line axis travelling in a north-south, and east-west direction. Grosvenor intersects with the Hatfield Gautrain station, therefore forming an activity spine that connects the two major modes of transportation (Manifesto for change, 1991:50). The street edge should be activated and wide enough to facilitate this intensive flow of people and activity intensity (Manifesto for change, 1991:49). Greening of this activity route is essential, thus connecting the two major green open spaces and extending the natural habitat via a green corridor. The proximity of these major transportation systems increases accessibility and minimizes the need to travel long distances to find intersecting systems.

#### Burnett

Burnett Street forms the main commercial activity spine in the Hatfield precinct. This spine is the primary flow of goods, people and capital, acting as the glue that integrates the various precincts within Hatfield. The street should give preference to pedestrians, be well defined and increase ease of movement. The street should also be well articulated with urban greenery, lighting and street furniture to define spatial hierarchy and enhance legibility and sense of place. The street texture should be cobbled where cars can travel, to increase the awareness of the streets activity. The development of this area should encourage the natural integration between larger and smaller activities, thus creating opportunities for small enterprises at these areas of highest accessibility (Manifesto for change, 1991:53).

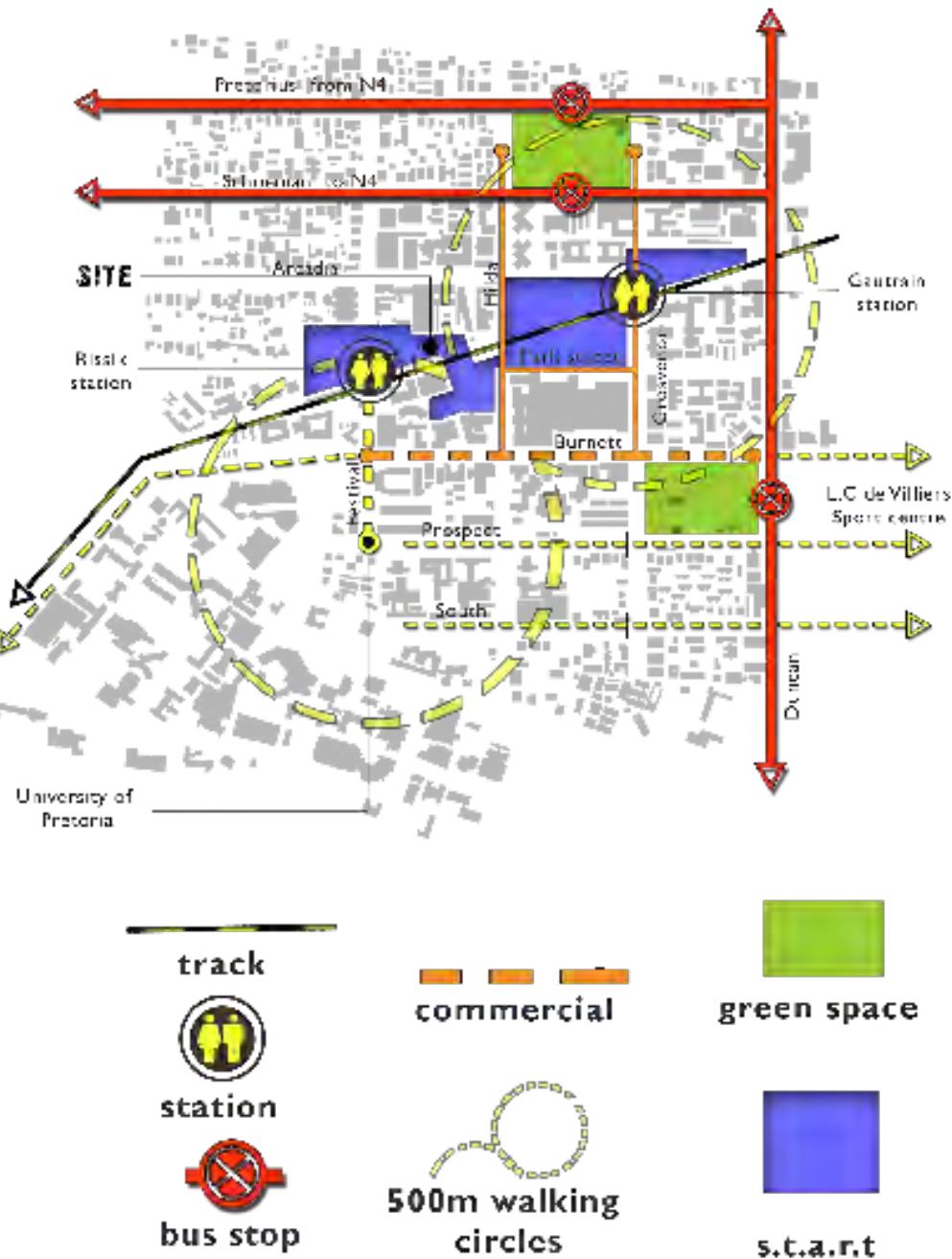
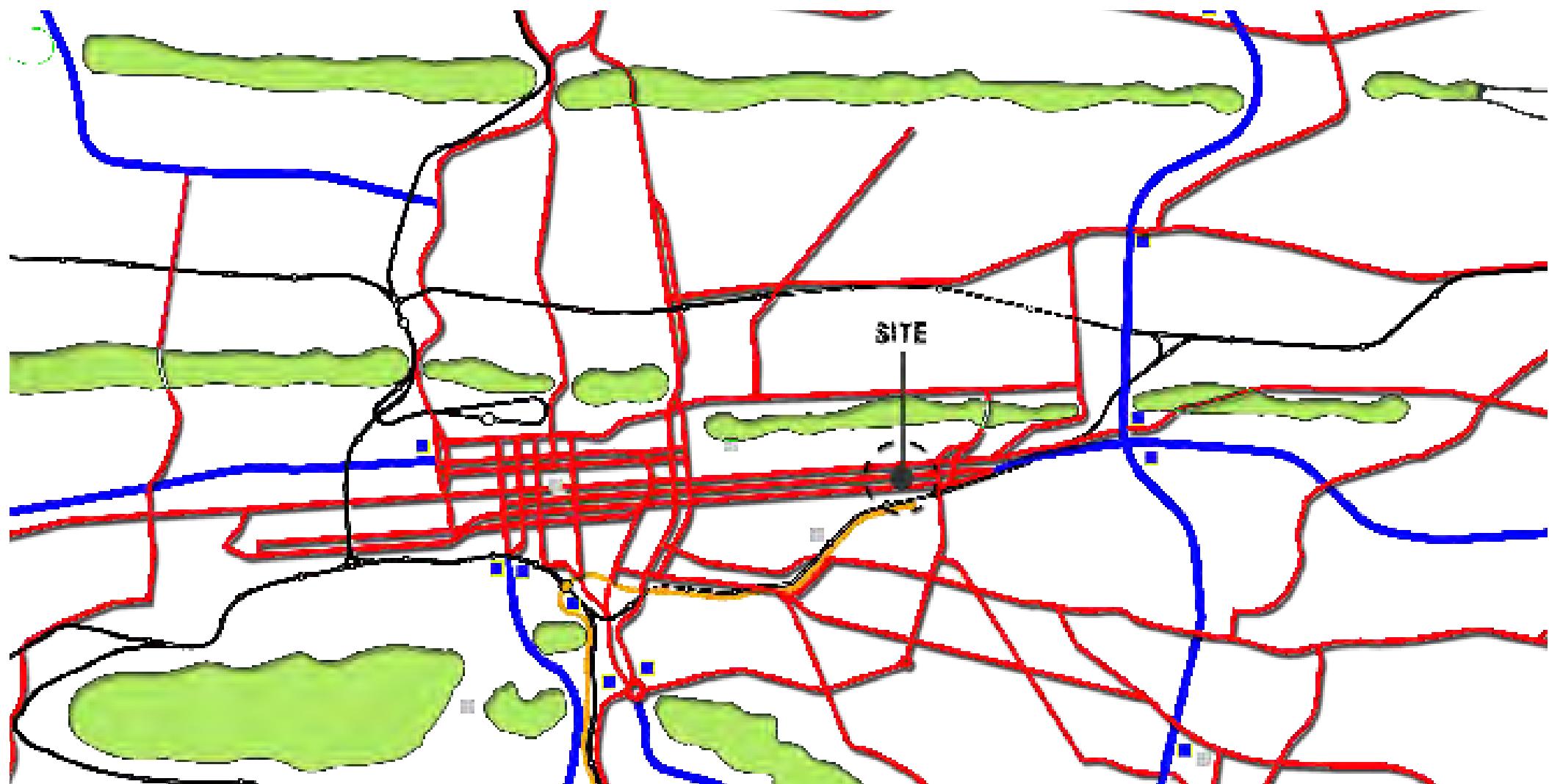


fig.31 START Framework

# METRO SCALE

# TRANSPORT GOES RED

fig.32 Transportation systems



Red bus route  
Existing highways  
Gautrain  
Metro train



The proposed addition to the transportation system aims to find a compromise between private and public systems. The blue route represents existing highways, and the red route the proposed additional red bus system. In principle, wherever a blue and red route meets, you will find a multilevel parking garage.

This enables a user to enter the city grid by means of a public system, thus reducing congestion within the city system. This intervention secondarily aims to decrease traffic congestion around the two Gautrain stations, thus minimizing time spent in traffic and alleviating congestion on transport nodes.

# BRING THE PEOPLE

For any successful urban strategy, energy is needed. This energy comes from people and the variety of activities they perform on a day to day basis. Work, sleep, eat, play, socialize, relax, and engage. The densification of three distinct areas in the Hatfield precinct will provide the energy supply needed to produce a rich, vibrant and multi-functional urban environment.

## RED

The area east of Duncan and North of Church street forms one of the entrance gateways to Pretoria. This sector should be developed into a high density, mix-use sector, consisting of commercial activities and office space.

## ORANGE

Areas of highest accessibility should be backed up with residential fabric. This sector currently consists of single story residential and small businesses. The sector should be densified and restricted to a building height of three to five storeys to retain the low rise character of Hatfield. This sector has easy access to all transport facilities

and public amenities which makes it a sought-after place to stay.

## YELLOW

The sector east of Duncan Street forms a large part of the University of Pretoria's residential backup. This area currently consists of single storey communes, with a few two to three story residential developments emerging in the urban fabric. This area should be developed to respond positively to the existing character, guided by a height restriction of 3 storeys. The edges on Burnett and South street should be activated by some commercial activities, as these form the main connection to L.C de Villiers sports area.

fig.33 Location map

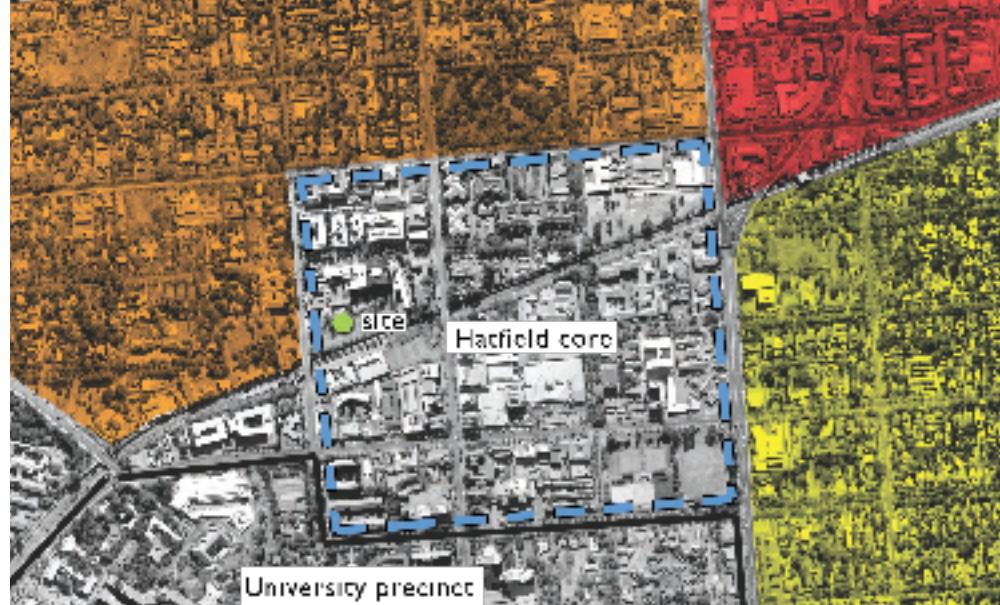


fig.34 Housing sector

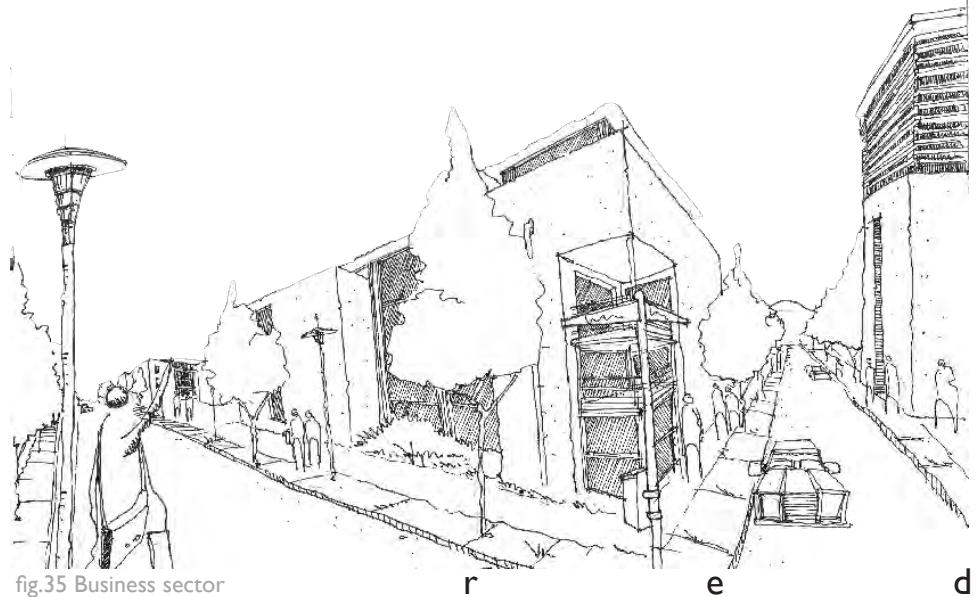
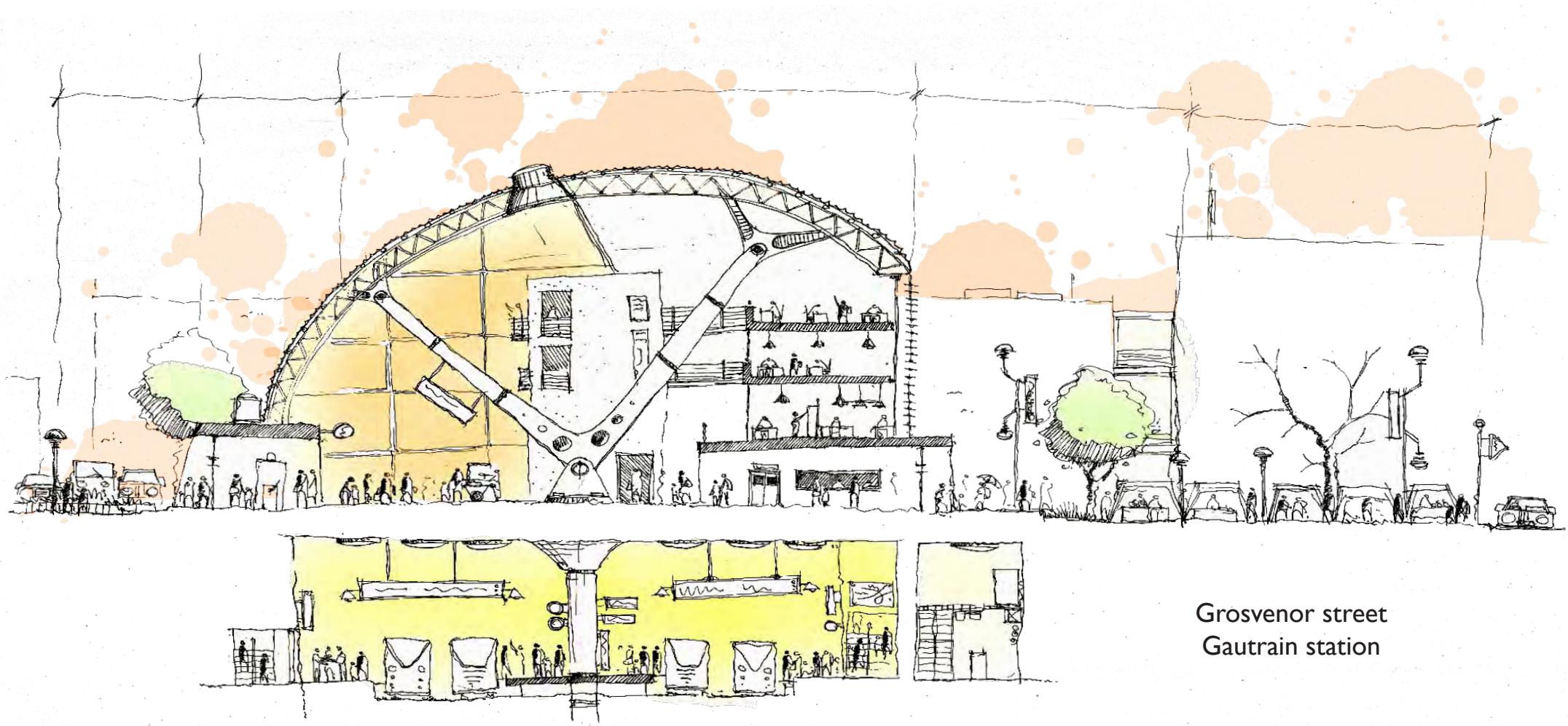


fig.35 Business sector

# STATION

# CONCEPT



Grosvenor street  
Gautrain station

# 7 Guiding principles

# WHAT MAKES SUCCESSFUL URBAN PLACE? •

There are no sure recipes or cookie cutter solutions for making successful urban space. Each scenario must adhere to inherent spatial, contextual and cultural aspects in order to make the response unique and contextually responsive, therefore the right solution for a place; thriving urban space. However, there are characteristic present in every successful place that can be adapted to guide urban development, therefore laying the foundation for the constant process of humanity in transition.



## **character** - a sense of place and history

Character is how we distinguish one place from another. It is about place-making (Dewer & Uitenbogaardt.1991:22) It reflects local culture, tradition and context. It establishes recognizable patterns through use of natural features, distinctive landscapes, diverse spaces, and physical and psychological clues that embeds a spatial identity, the blueprint of that place. It enables environment, encapsulating timeless qualities in space.

## **continuity and enclosure** - clarity of form

What should be open and what should be closed? Who should have access and who should not? Good public space has a clear hierarchy and definition between public and private space. Positive urban environments requires freedom and constraint, setting preconditions for activities and growth to occur (Dewer & Uitenbogaardt.1991:23) Purposed articulation of urban space therefore ensures the development of healthy ownership roles and public care. Definition should occur by means of buildings that define these spaces at a scale that responds to the character of the place and that feels comfortable at a human scale.

## **quality of public realm** - sense of well-being and amenity

The public realm is the zones of greatest interaction, and therefore the areas of greatest opportunity (Dewer & Uitenbogaardt.1991:17) It is the setting for the formation of social networks and public ties (Dewer & Uitenbogaardt.1991:18) . These spaces usually have distinct and clear routes, a good sense of safety and security, provide equal access to public amenities, and are detailed with good lighting, urban greeneries, street furniture and public art. These spaces are structured to respond and adapt to the needs of everyone.

## **ease of movement** - connectivity and permeability

Movement is vital in our daily ritual of life, for it is the method by which we get from one place to the next. Therefore, the urban fabric should be developed to improve ease of movement with a choice of safe high quality connector routes. Roads, footpaths and public spaces should be well connected and provide high accessibility to public transport systems.

## **legibility** - ease of understanding

Places should have focal points, landmarks, distinct views and gateways that act as points of reference, provide visual order and guide passage through space. Good articulation of built form, adequate lighting, signage and creative way-markers provide the basis for a good sense of direction and provide the clues needed to equip the user to navigate public space.

## **adaptability** - ease of change

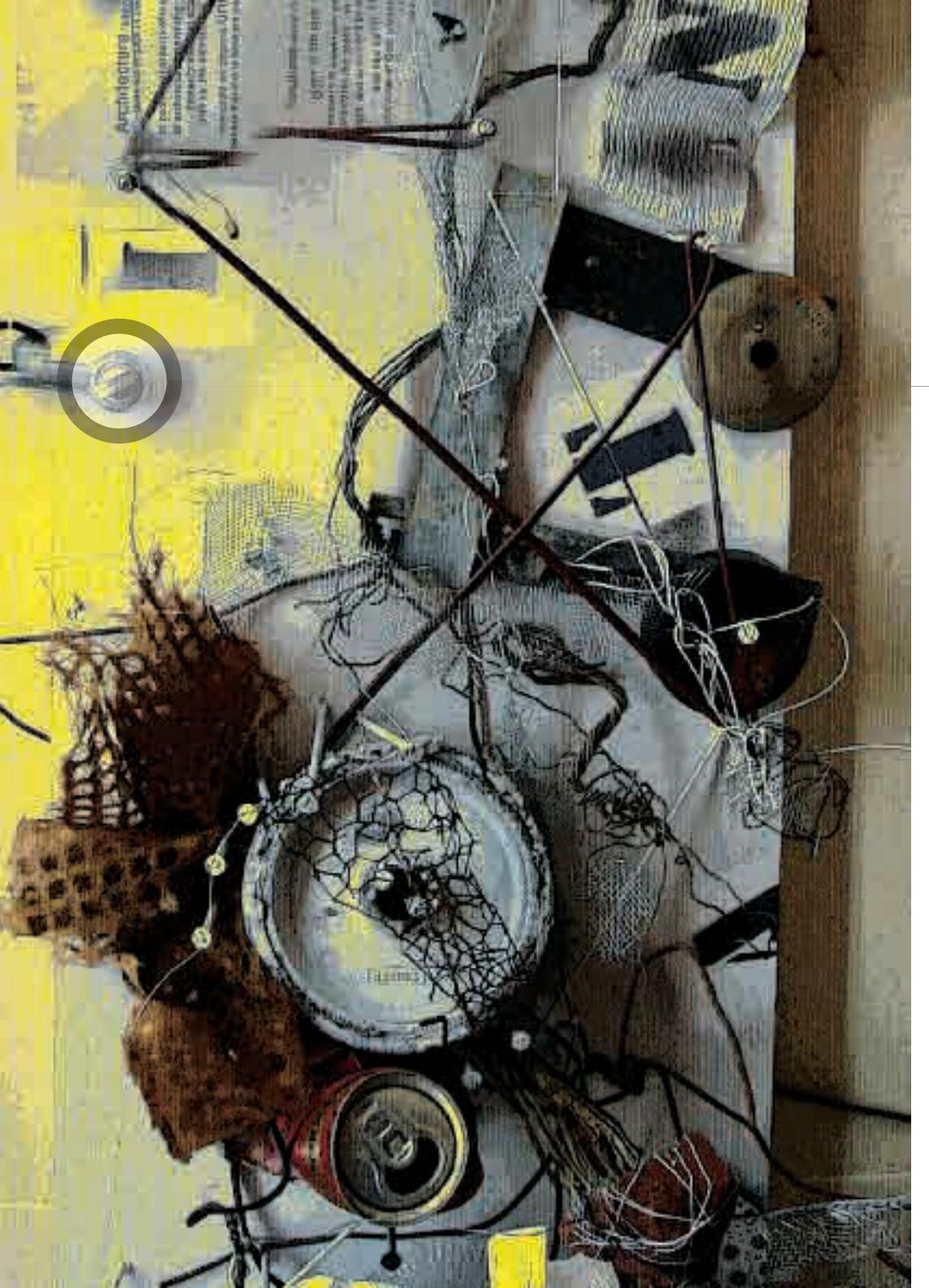
Spaces that can only be used for a singular purpose, remains empty most of the time. Therefore it is essential that spaces have flexible uses, and are adaptable to current and future spatial requirements. Adaptive re-use of buildings with historic value also improves quality of the public realm and enhance the character and legibility of a space.

## **diversity** – ease of choice

Monotony is the enemy. Diversity increases the range of choices that people are exposed to (Dewer & Uitenbogaardt.1991:17) . Places should be multifunctional and provide for a mix of compatible uses and programs. These places should cater for diverse communities and cultures and offer a wide spectrum of activities and communal functions. Spaces that possess healthy diversity of people, culture and architecture are the groundwork for positive social interaction and expression.

A building is part of the site, and the site is part of the building.

three



touchstone  
site development  
connections  
grids  
vision  
concept  
edge condition  
**building development**  
generator  
activity  
concept 1  
mozambican cafe  
interface  
tectonic  
concept 2

fig.1 - touchstone

# TOUCHSTONE

P r o j e c t

"Art inspired by music Music becoming fashion Fashion as adornment of art"



fig.2 - touchstone conceptual exploration

## A b s t r a c t

The touchstone project is a conceptual expression of the foundational design idea. This touchstone, asserting the arts, expresses the collaboration of three disciplines, namely visual art, performance art and fashion. The touchstone depicts a process of cross-pollination , sharing of ideas, inspiring each other and working together towards a creative goal. The goal on an urban scale is to establish an arts precinct within the proposed urban system. This space

becomes an interface for the public to engage, participate and enter into a discourse with the arts. Art, music and fashion has always been the key elements that capture the spirit, norms and values of an era. Art and culture helps to develop social cohesion and establishes a civic identity. Therefore the site itself becomes an incubator of life, showcasing the transition of a society, past, present and future, through art.



fig3 - conceptual site exploration

# CONNECTIONS

# VISUAL

**O n e**  
 Based upon the proposed spatial development framework, there are two important links to consider. The Station link, connects the site with Rissik Station and adjacent urban green space. Festival street runs across this link in a north-south direction. The linkage methods that will be investigated involves visual and spatial connections. The visual connections can be established due to the location of Rissik station,

acting as the focal point as a user moves through the site in an western direction.

The road texture of Festival street will be cobbled from Burnett to Arcadia Street, thus reducing traffic speeds and enhancing pedestrian awareness.



fig4 - linkage diagram

**T w o**  
 Most of the surrounding buildings have turned their backs towards the train track. It therefore becomes pivotal to investigate how to bridge this divide, both physically, spatially and symbolically. The initiative proposes to spatially extend across the track, stitching the urban fabric together. The link across the Metro track will form the main activity space. This link connects the site with the large residential component, proposed urban park, Virgin active gym and the proposed public engagement centre. The activity

space will be the platform for various activities namely, exhibitions, markets, performances, live bands, fashion shows, public discussions and a variety of sport activities. Due to spatial restraints on site, parking will be provided via a double level super basement, accessed from Arcadia street north of the site. This will provide an estimate of 250 additional parking bays, and could therefore be used by residence in surrounding residential blocks, site users and as additional parking for both Stations.



fig5 - Rissik link

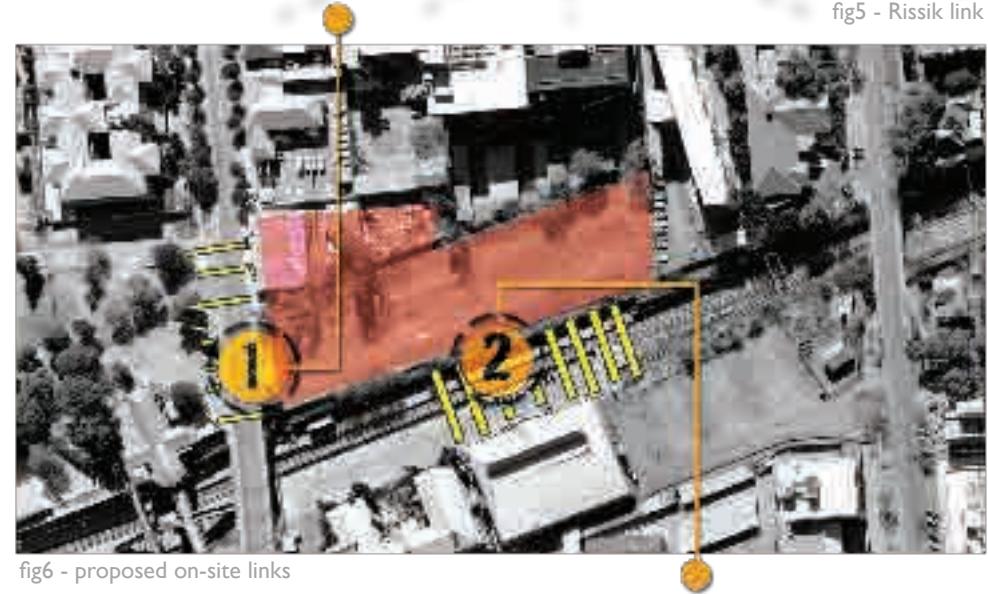


fig6 - proposed on-site links



fig7 - track link

# CONNECTIONS . . . . . EXPLORATION

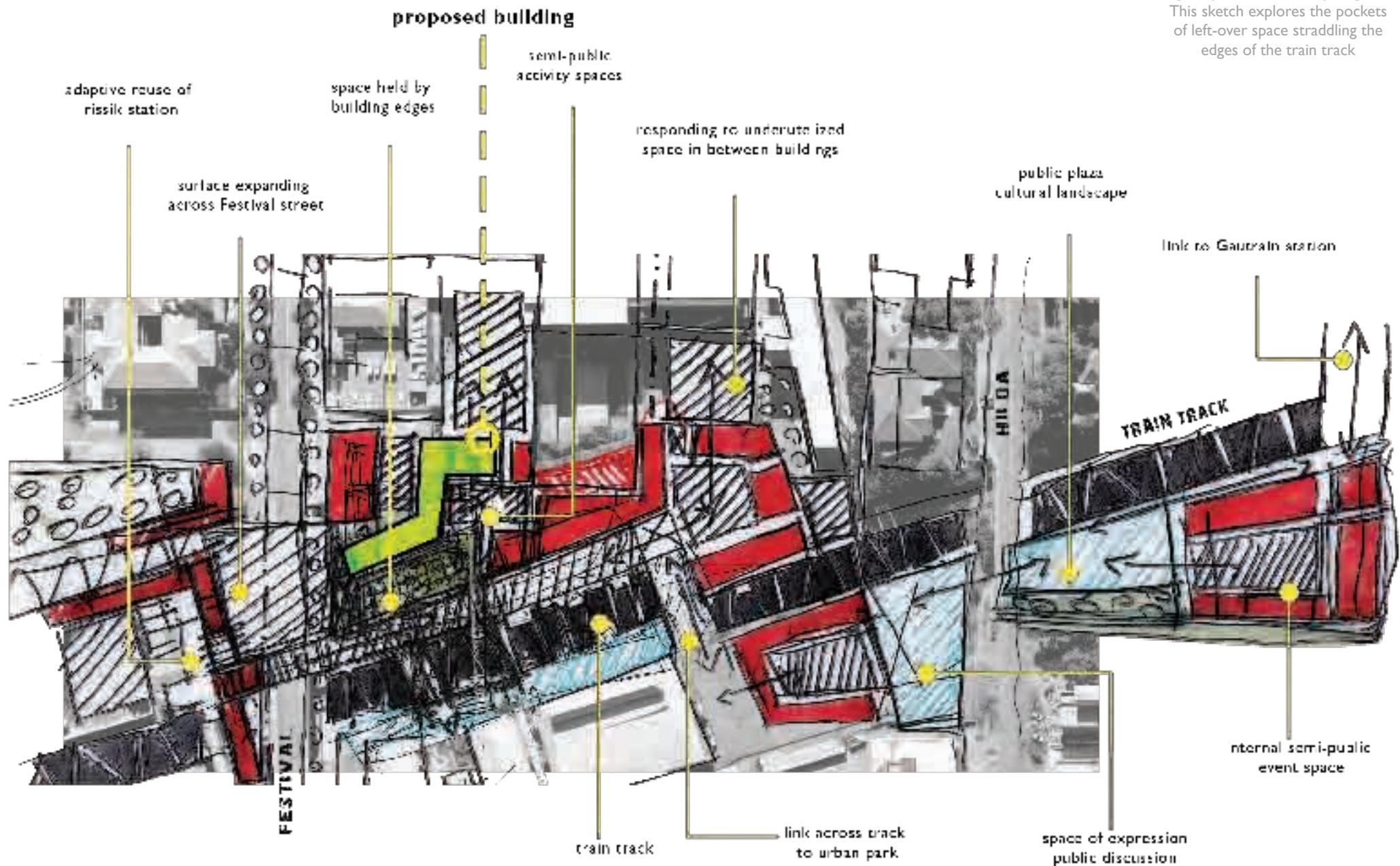


fig8 - spatial connectivity diagram.  
This sketch explores the pockets of left-over space straddling the edges of the train track

# GRIDS

# CONCEPT

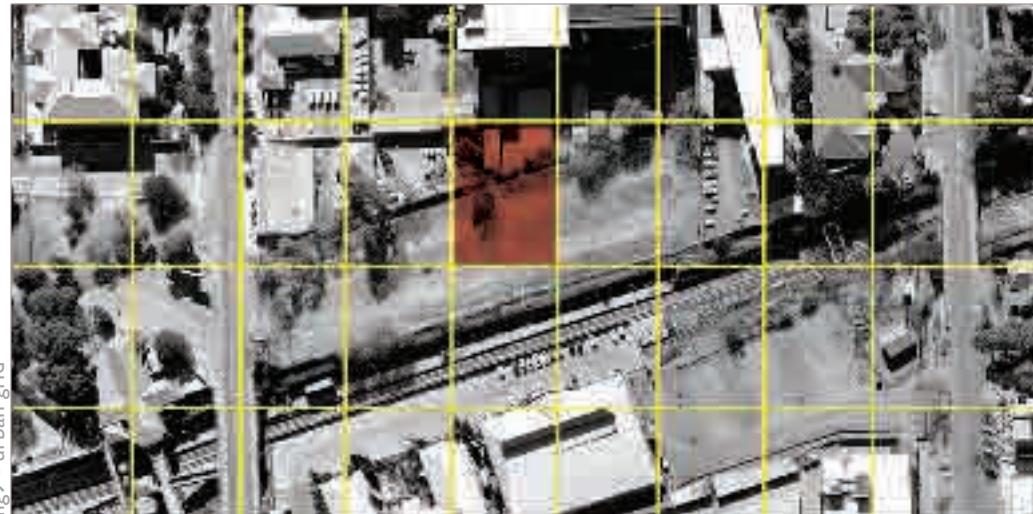


fig9 - urban grid

## R e - s t i t c h

The proposed site has two organizational grid systems. The first is generated by the city's built fabric, and the second by the Metro train track. In this study area, most buildings respond to the urban grid, except Rissik station, Virgin Active and Damelin College. By utilizing both grid systems, it is possible to develop a proper

site organizational system which endeavors to re-stitch this urban divide, physically and symbolically. The built form will respond to the urban grid, while all landscaping and site works respond to the Metro grid. Consequently, there is a harmonious system which can be controlled and implemented to systematically regulate and test design decisions on an urban scale.

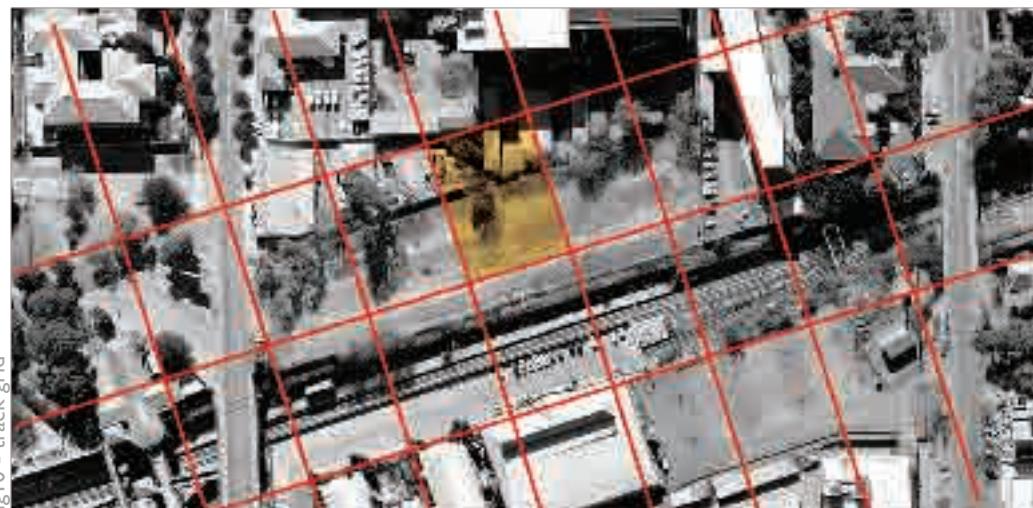


fig10 - track grid

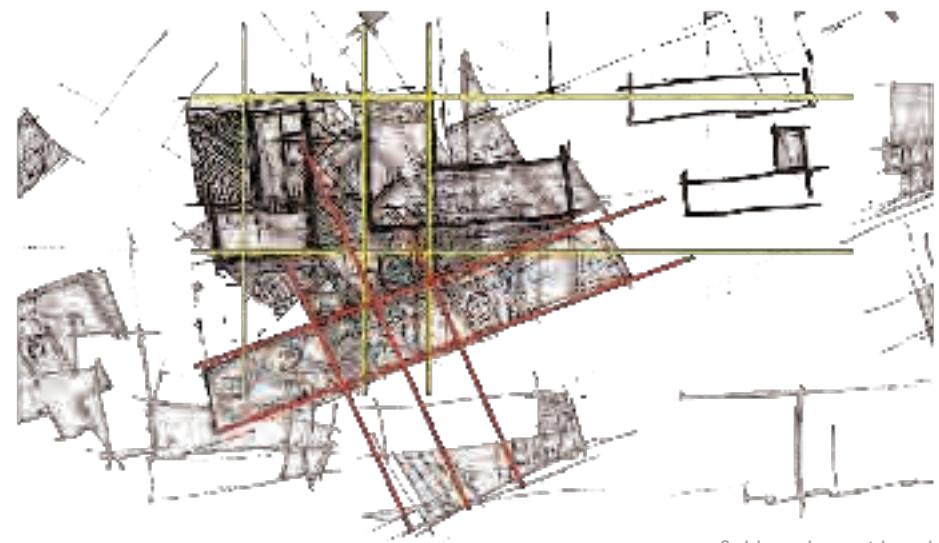


fig11 - urban grid exploration

## FABRIC GRID

## METRO GRID

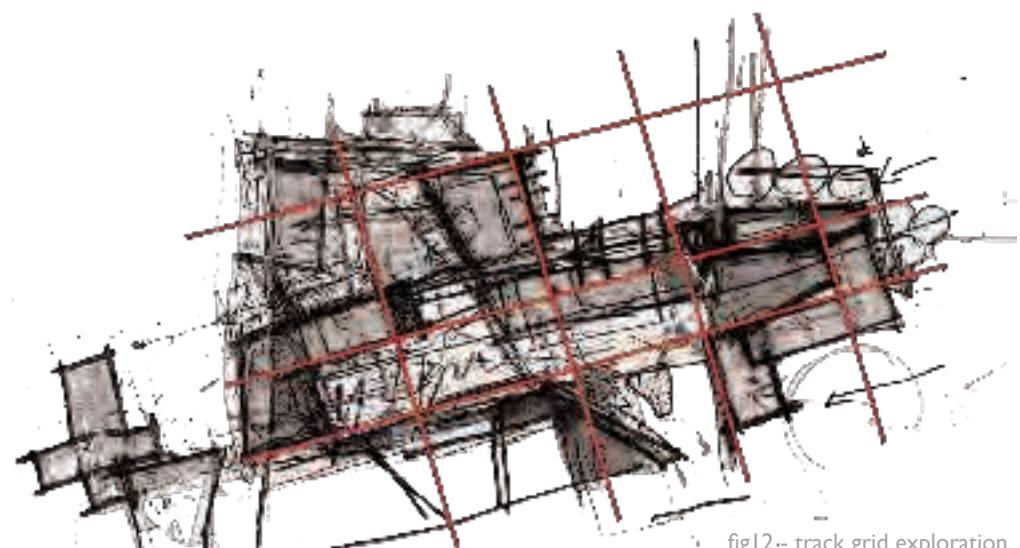


fig12 - track grid exploration

# GRIDS

# EXPLORATION



fig|3 - spatial exploration with track grid as generator

**O p p o r t u n i t i e s**  
Two of the proposed building footprints straddle the Metro track to generate space in between buildings. On the street edge the building steps back to draw a pedestrian onto the public space. At this stage of the development

the space extends across the track onto the adjacent site, acting as a connector. At the northern edge of the site there is an opportunity for a semi-private green space. This area gets ample daylight due to building scale and the favorable shadowlines of neighbouring buildings.

## D i s a d v a n t a g e s

The sketch explores the site organizational system. This give structure and character to the space, defining and conducting experience. By following the metro grid system, the space loses character and spatial diversity, becoming

a singular channel of activity. The orientation of the buildings on this grid also negatively affect proper solar control. Due to limited available space and the strong axes imposed by the track, the arrangement of buildings becomes crucial to generate the desired spatial conditions.

# GRIDS

# EXPLORATION

The urban fabric grid allows the buildings to be orientated true north. This orientation increases the spatial quality by forming various smaller pockets of space in between buildings. These spaces could be appropriated for functions of each building, leaving the main urban space free to be programmed for public use. By implement-

ing the proposed organizational system, there is a symbolic re-stitching of the urban divide caused by the train track. The space therefore includes the presence and character of the Metro rail, utilizing this to create a diverse urban spatial experience.

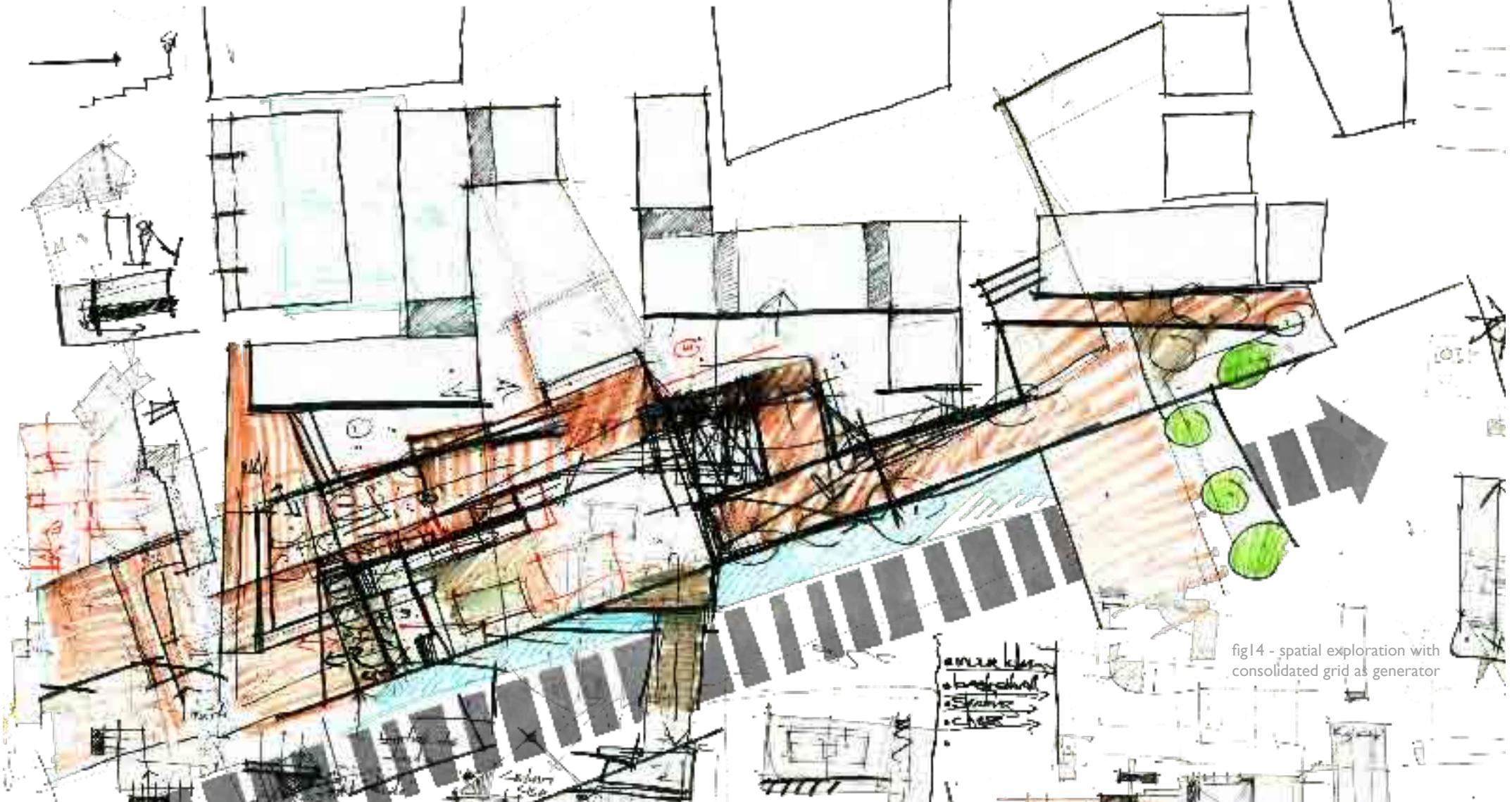


fig14 - spatial exploration with consolidated grid as generator

# URBAN

# VISION



fig15 - Giant Corian pebbles in front of TV Asahi Building, Tokyo, Japan

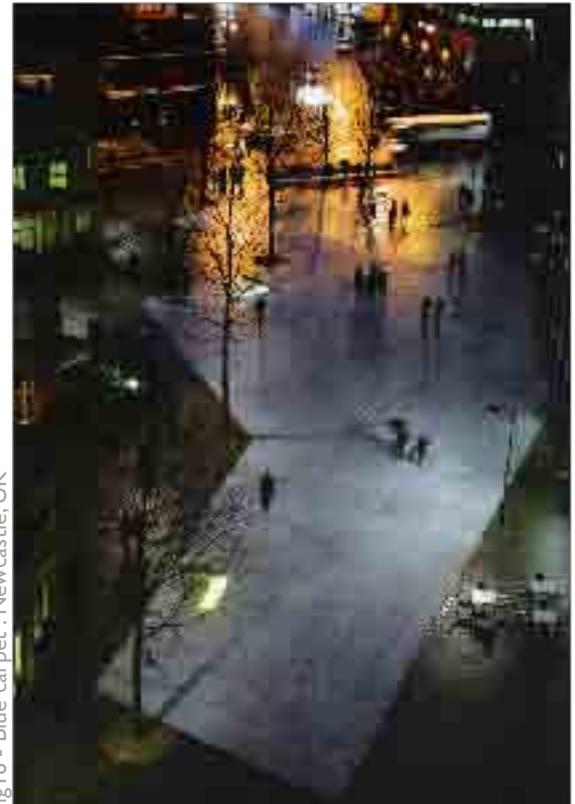


fig16 - Blue carpet : Newcastle, UK



fig17 : Floor lighting - Blue carpet, Newcastle, Uk



fig18 - Water fountain - Fuzi pedestrian zone, Innnichen, Italy

"The city square can provide visual relief and recreational open space within a densely developed area, and can also serve to promote standards in public behavior. If people are to be aware of the complexity and variety of the society they are part of, and if they are to appreciate notions of civic identity and respect for other, there must be a place where they can occasionally see and experience a diverse cross section of that society"

Beazley.2006:19

# URBAN VISION



fig19 - Picadilly Gardens with pavillion designed by Tadao Ando , Manchester

‘By simply standing in a lively public square, where different age groups and different members of society are gathered together, there is a shared experience that evokes a positive sense of participation’

Beazley.2006:19



fig20 - Federation square in Melbourne, Australia

# ACTIVITIES

# **EXPLORATION**

**s p a c e**

This urban space aims to develop a re-programmable social interface. This space should accommodate both the spatial requirements of the proposed buildings and that of the community. By developing a primary layer of urban order,

there is freedom to creatively use the various spaces. Spatial definition is established through a hierarchy of public, semi-public and semi-private spaces, encouraging diversity in use and developing ownership.

p r o c e s s

The investigation of social and spatial requirements on an urban scale implies the position of certain building envelopes required to retain and define the proposed urban spatial system. Three main functions developed: firstly, a build

ing that guides users from street onto the heart space, secondly a building that forms the interface and container of the heart space, and thirdly a building that forms the focal point at the eastern end of the site.

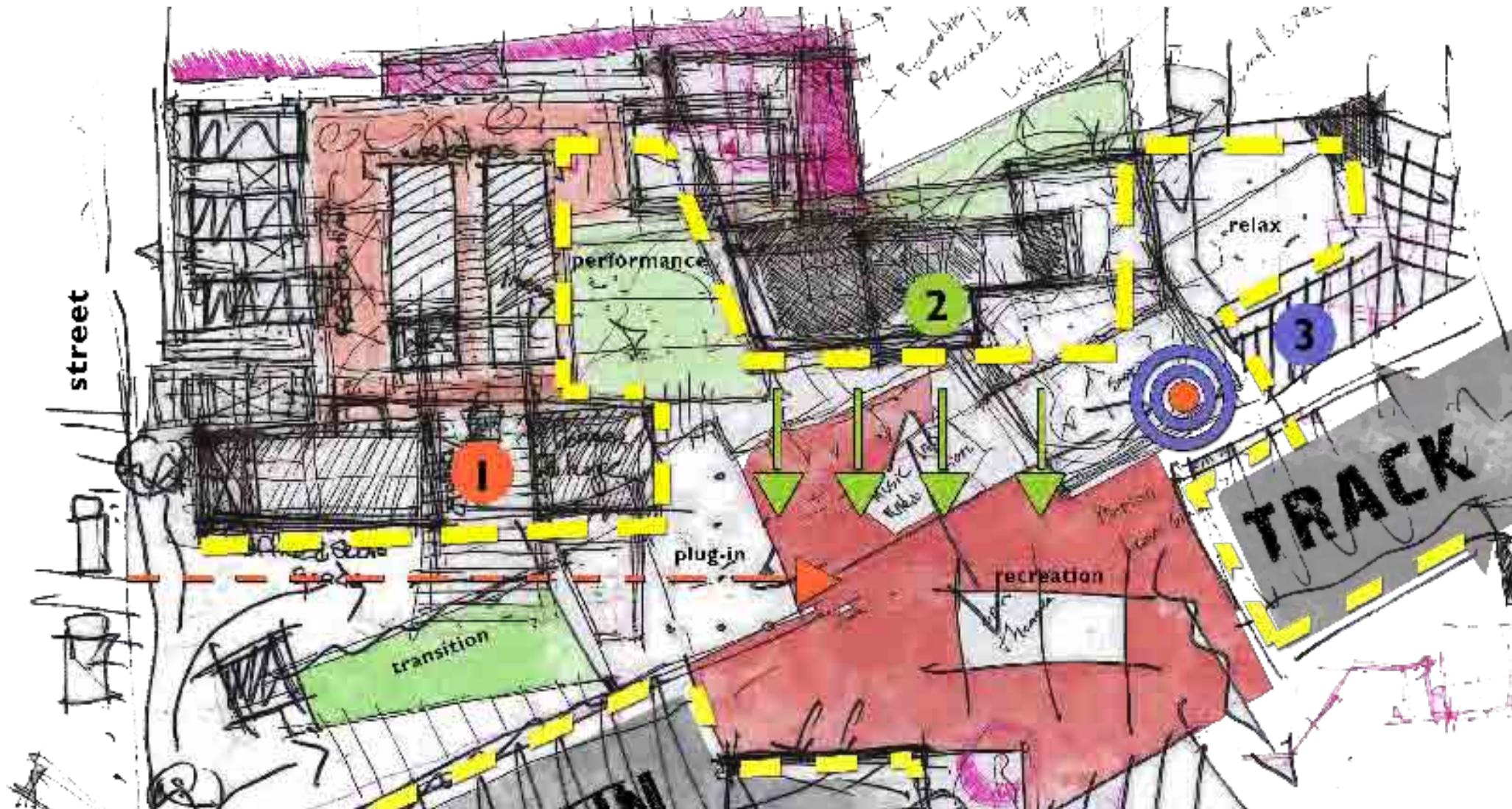


fig2l - site activity and building edge exploration

# URBAN SPACE ..... CONCEPT



fig22 - spatial exploration model

# SITE

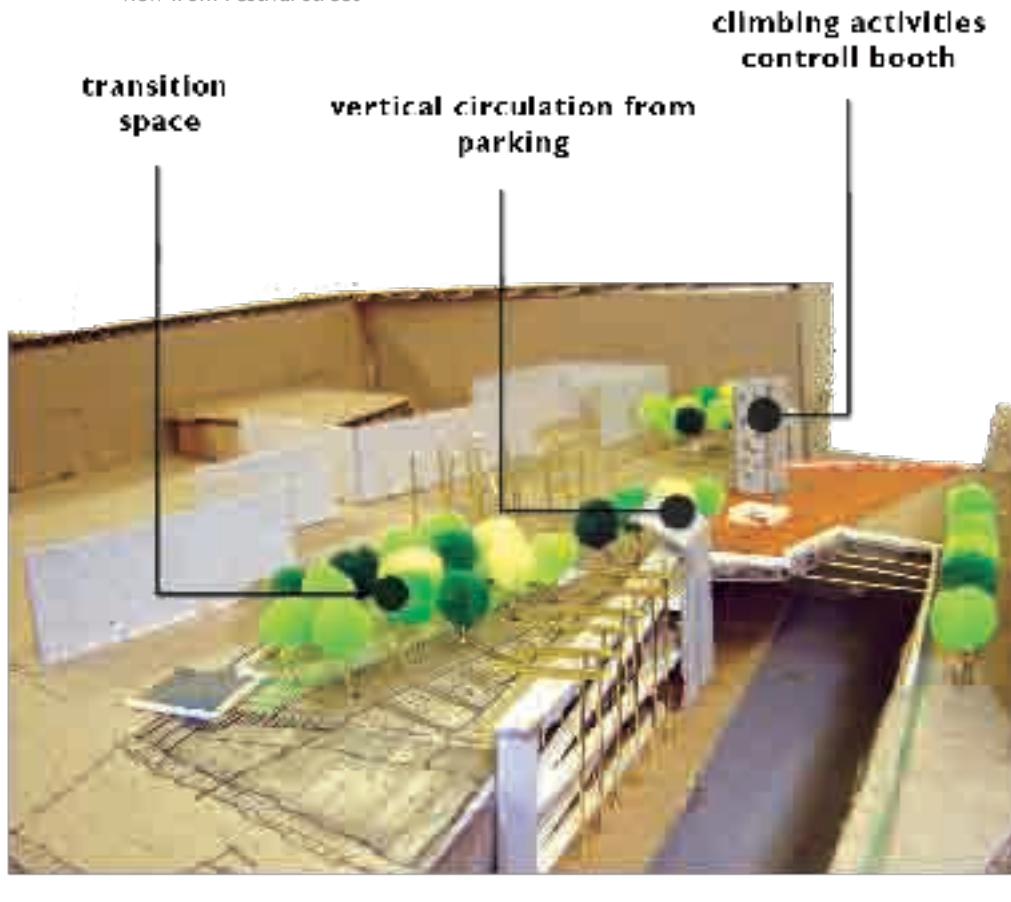
# DEVELOPMENT

## Clarification

At the streets' edge the user is guided into the site and moves through the transition space onto the main activity plaza. This transition area contains trees and water elements on a hard surface, suitable for high traffic. The super-basements' vertical circulation consists of two freestanding stairs and a ramp. The southern

edge opens onto the track and provides light and circulation to the basement parking. The vertical structure in the center is used for all types of climbing activities, but also acts as a control booth in case of outdoor events. It also forms a point of orientation within the main activity space.

fig23 - spatial exploration model:  
view from Festival street



w

e

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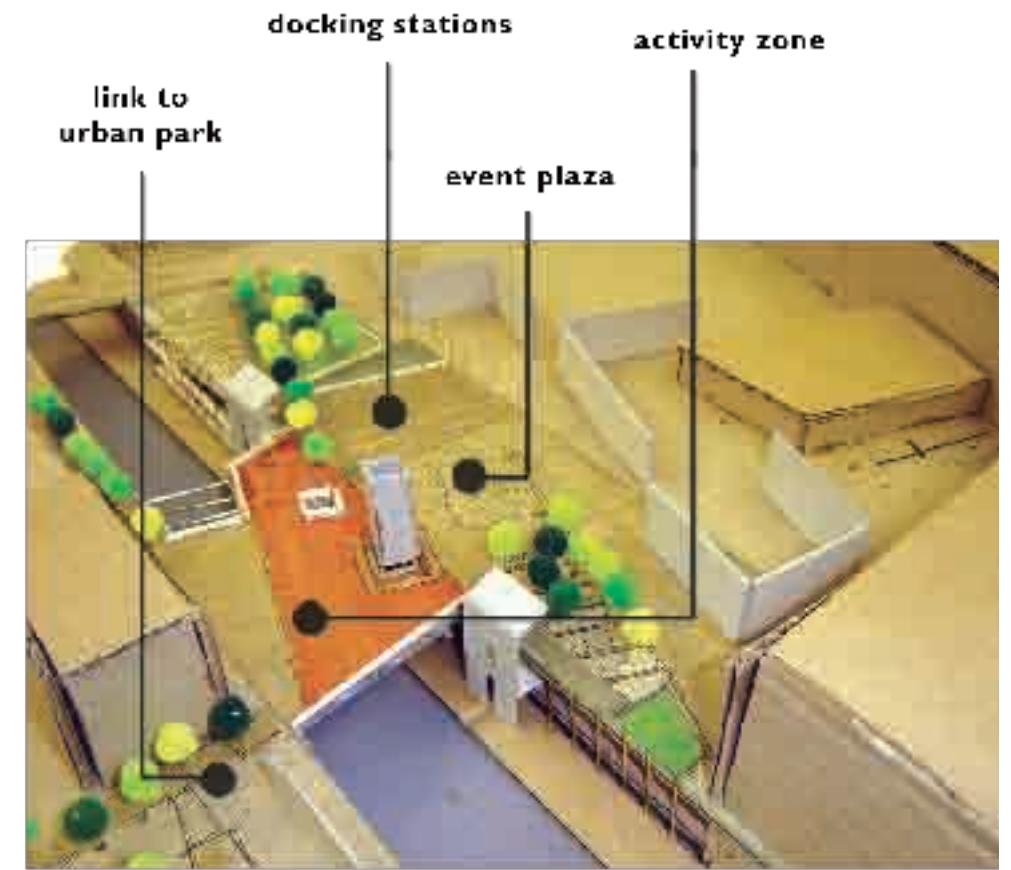
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The docking stations consists of vertical poles that have a dual function. The poles allows exchange of data. Users can plug in their headphones and listen to new music produced in the performance building, download technical information pertaining to art, music and fashion via their ipods, or access the wireless internet. At night these vertical elements illuminate to

form a beacon and point of orientation on site. The events plaza is situated in front of the performance art building. This plaza hosts a range of activities pertaining to music, art and fashion. The activity zone marks the zone of sports activities. This area will be equipped for skateboarders, hand tennis, basketball and various climbing activities.

fig24 - spatial exploration model:  
view from Hilda street



# INTERVENTIONS

## INTERFACE

e d g e

The edge of the super-basement open towards the Metro track. The edge conditions of this interface is important. The proposal is to use this edge for vertical circulation from the basement onto site. This will be housed within a light-weight structure, cladded with a screen which allows air movement and admission of light. This

structure will also provide shaded seating on the platform to accommodate pedestrians in transit. The platform is wide enough to introduce trees and formal landscaping, therefore softening the hard interface of this transitional space.



# INTERVENTIONS

EDGE

shaded seating

vertical circulation

screen

basement parking

fig27 - edge condition - section

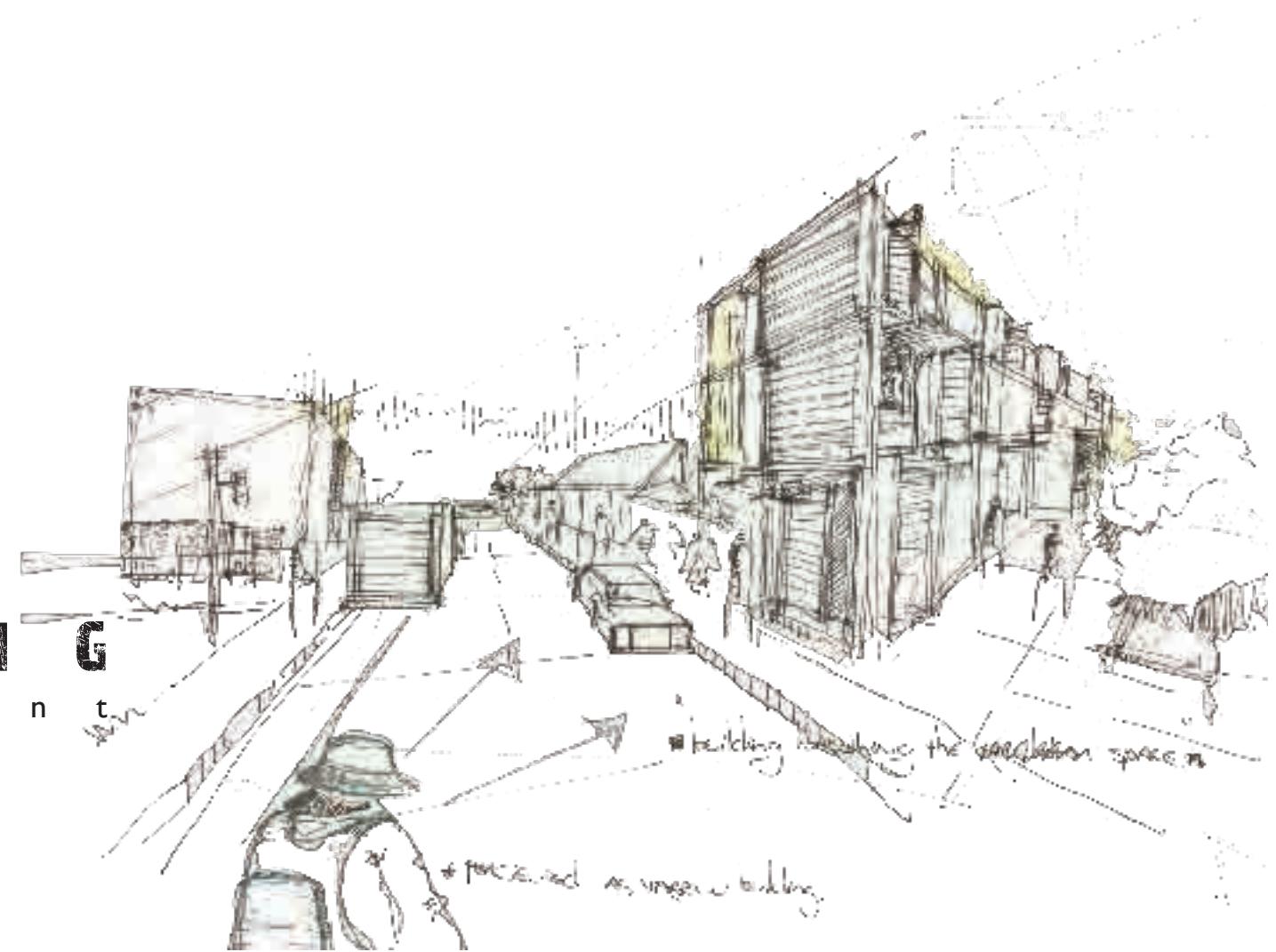
design development

3.32

fig28 - concept sketch - street edge-Festival street

# BUILDING

Development



# DESIGN

# GENERATOR

## O r i e n t a t i o n

The placement of the building on site is guided by both the spatial development framework and the proposed site organizational system. The activities related to an art program requires very specific light qualities. Therefore the most optimal placement is directly on the north-south axis. This allows a building, that is equipped with light control mechanism, to manipulate light to suit internal requirements.

The building orientation also creates the possibility for semi-private spaces at the rear of the building. These are orientated north, thus ideal for a buildings' more private functions to spill out onto a well lit external green space.

## C o n c e p t

An art workshop requires multiple large spaces. Due to site and spatial parameters these can't be vastly distributed, but needs to be in close proximity. Therefore there are two main formal problems that need to be addressed, firstly how will the circulation work, and secondly, how do you permit good light into these large volumes? The concept developed suggest to split the volume, utilizing these as both circulation spines, meeting places, and light shafts.

fig29 - site development sketch

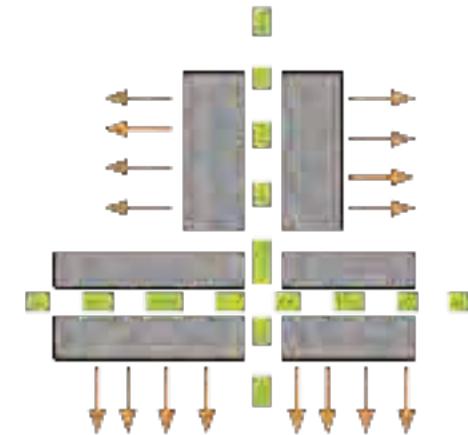
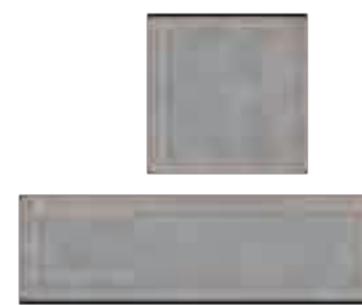
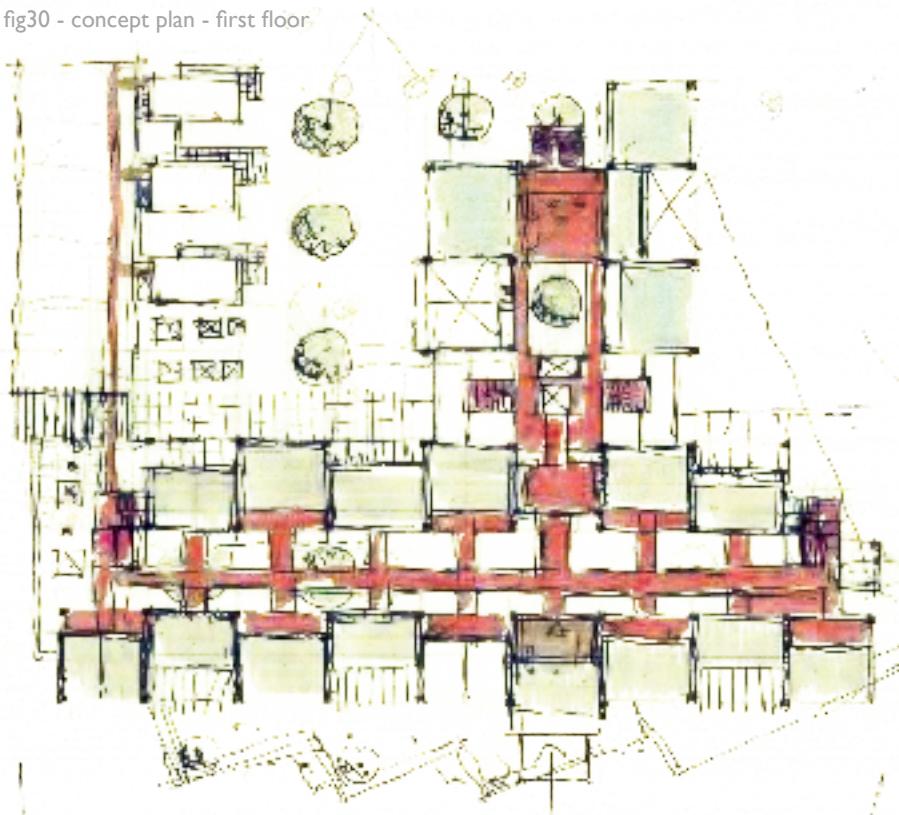


fig31 - spatial concept

fig30 - concept plan - first floor



# ACTIVITY ..... EXPLORATION

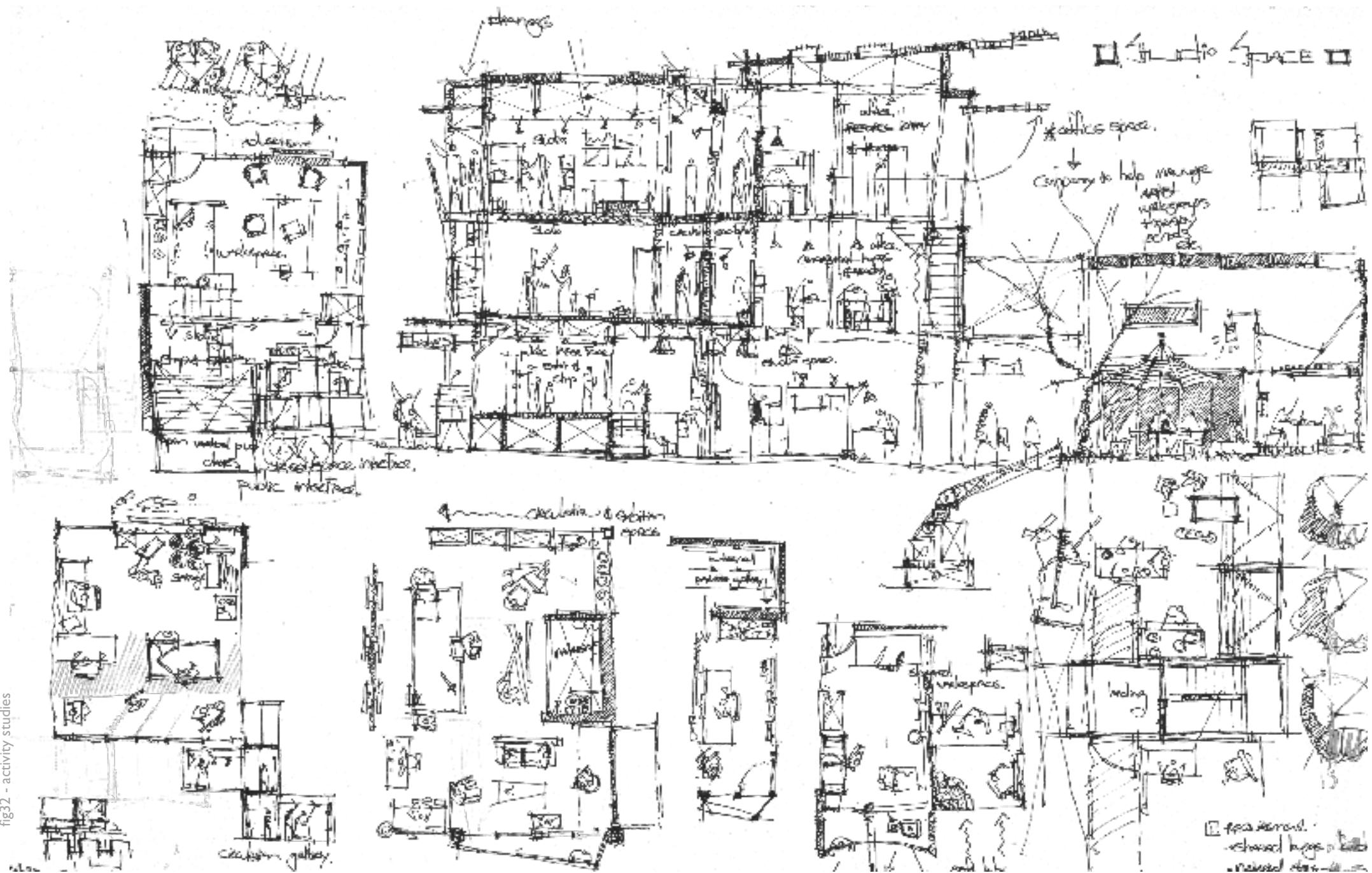


fig32 - activity studies

# DESIGN

# GROUND

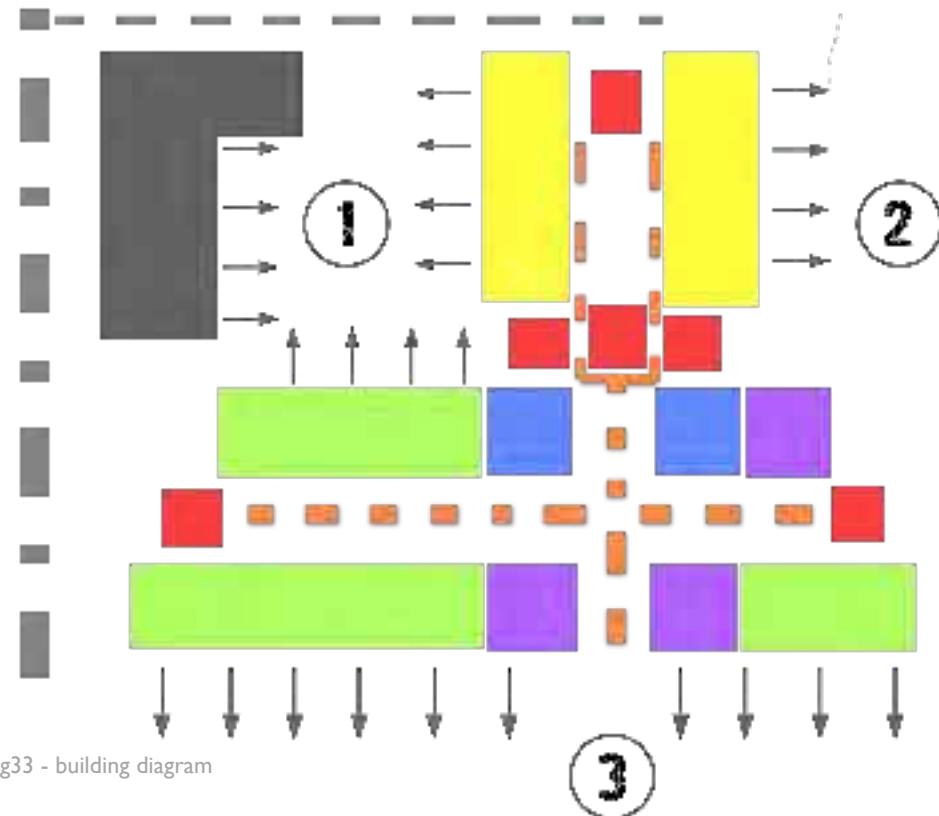


fig33 - building diagram

<b>ADMINISTRATION</b>		<b>CIRCULATION</b>	
<b>ABLUTION</b>		<b>FESTIVAL ROAD</b>	
<b>STUDIOS WITH SHOP</b>		<b>SERVICE ROAD</b>	
<b>RESOURCE LIBRARY AND EXHIBITION SPACE</b>		<b>GREEN SPACE</b>	
<b>VERTICAL CIRCULATION</b>		<b>EVENT SPACE</b>	
<b>EXISTING STRUCTURE</b>		<b>PUBLIC INTERFACE</b>	

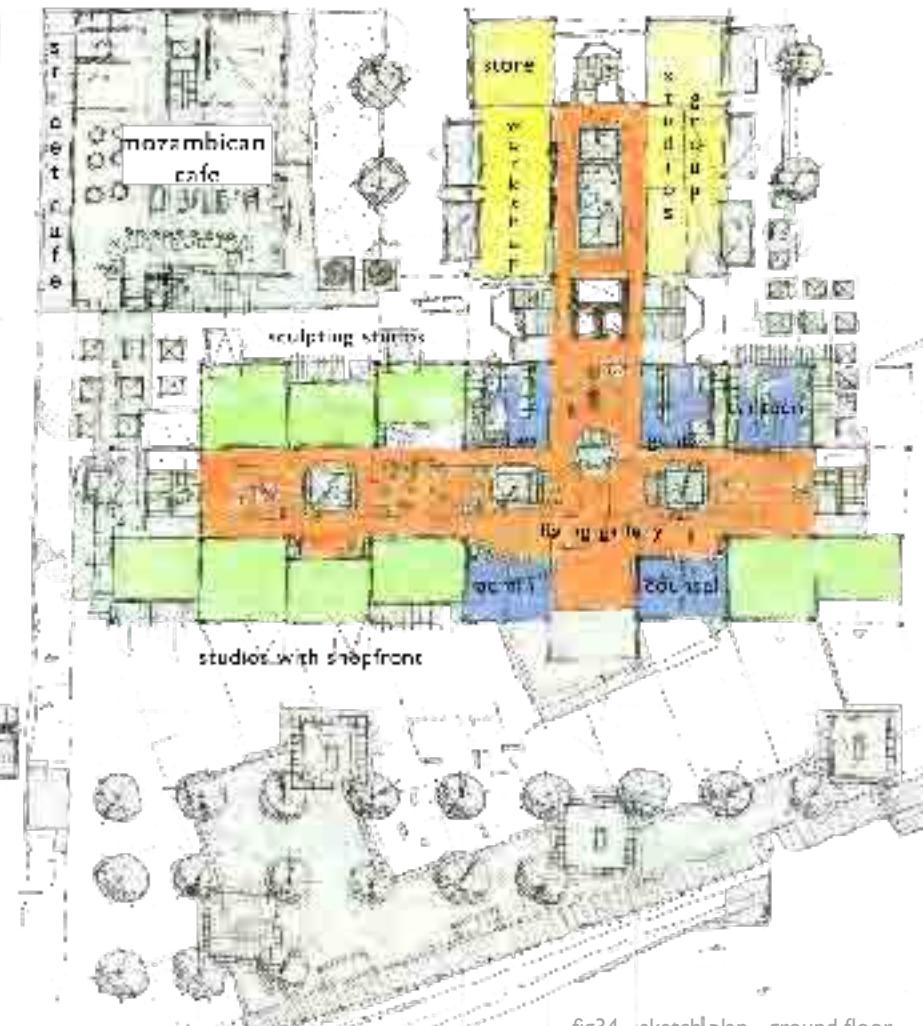


fig34 - sketch plan - ground floor

The circulation of the building should not merely be a conduit for movement, but offer the opportunity for user interaction. The concept for this layout is that the buildings' circulation becomes a living space where art, people opinions and life are continually displayed and discussed. Art can not be art, if there is no discourse between

the artist and the creation , art and the viewer, and finally the artist and the public. The building is a platform for engagement with art. Offering users and artists the opportunity to enter into a discourse about art, expressed within the public realm.

# RE USE

# MOZAMBICAN CAFE

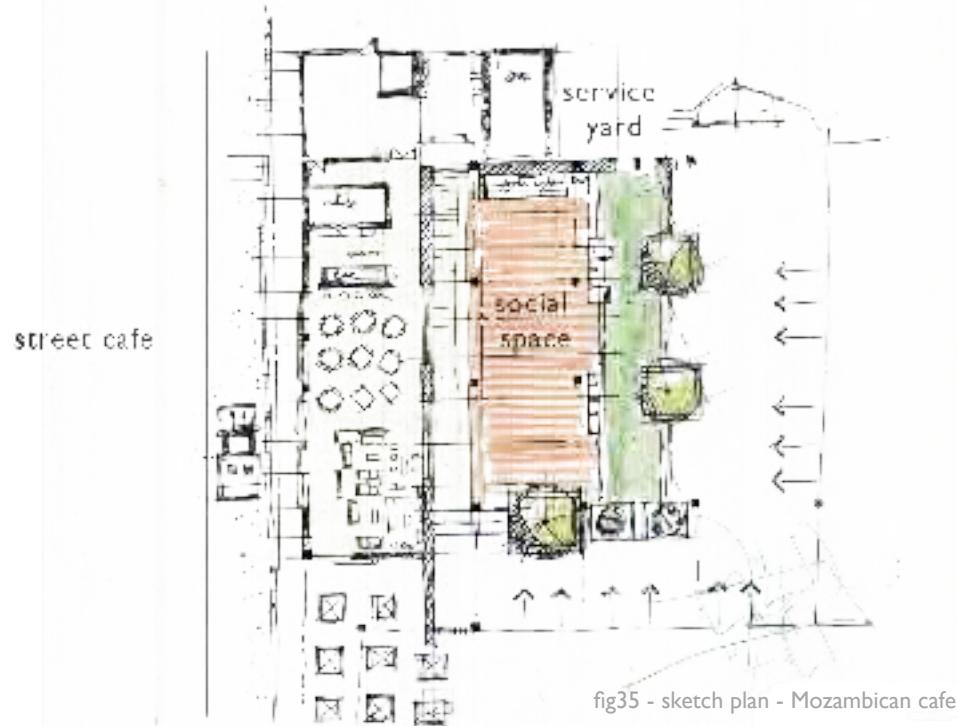
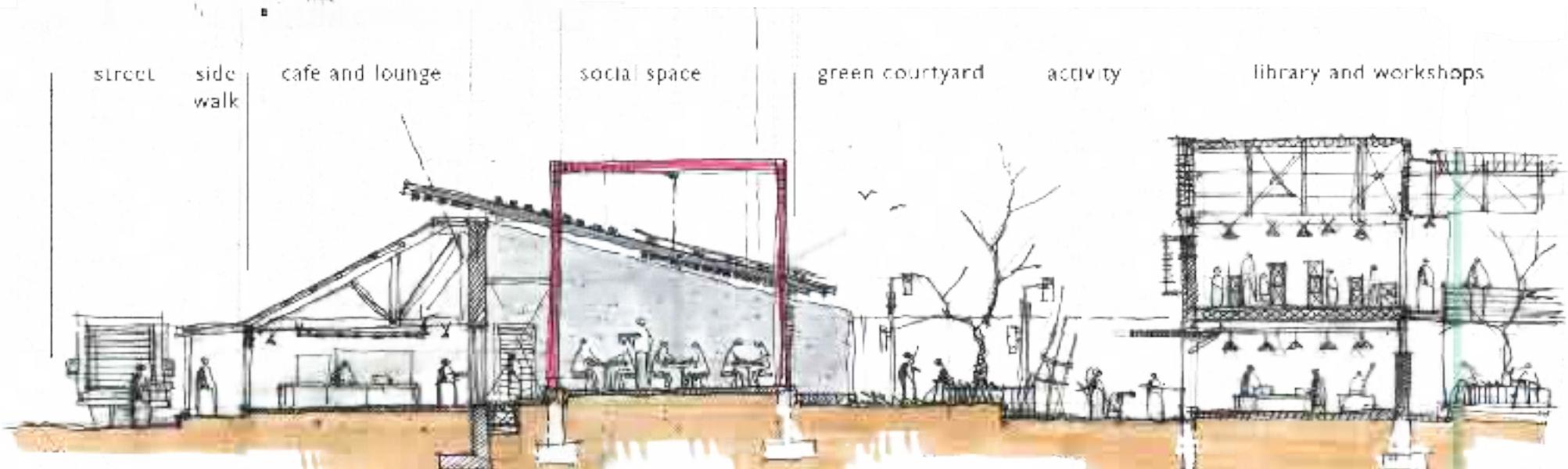


fig36 - exploration of spatial transition



This existing structure currently houses a general store and a small internet cafe. The rest of its shop space is vacant. The decision is to retain this structure, as it has historic significance, and contributes to the street with its active facade. The scenario entails the refurbishment of the building as a street cafe, to capitalize on the increased amount of pedestrian activity.

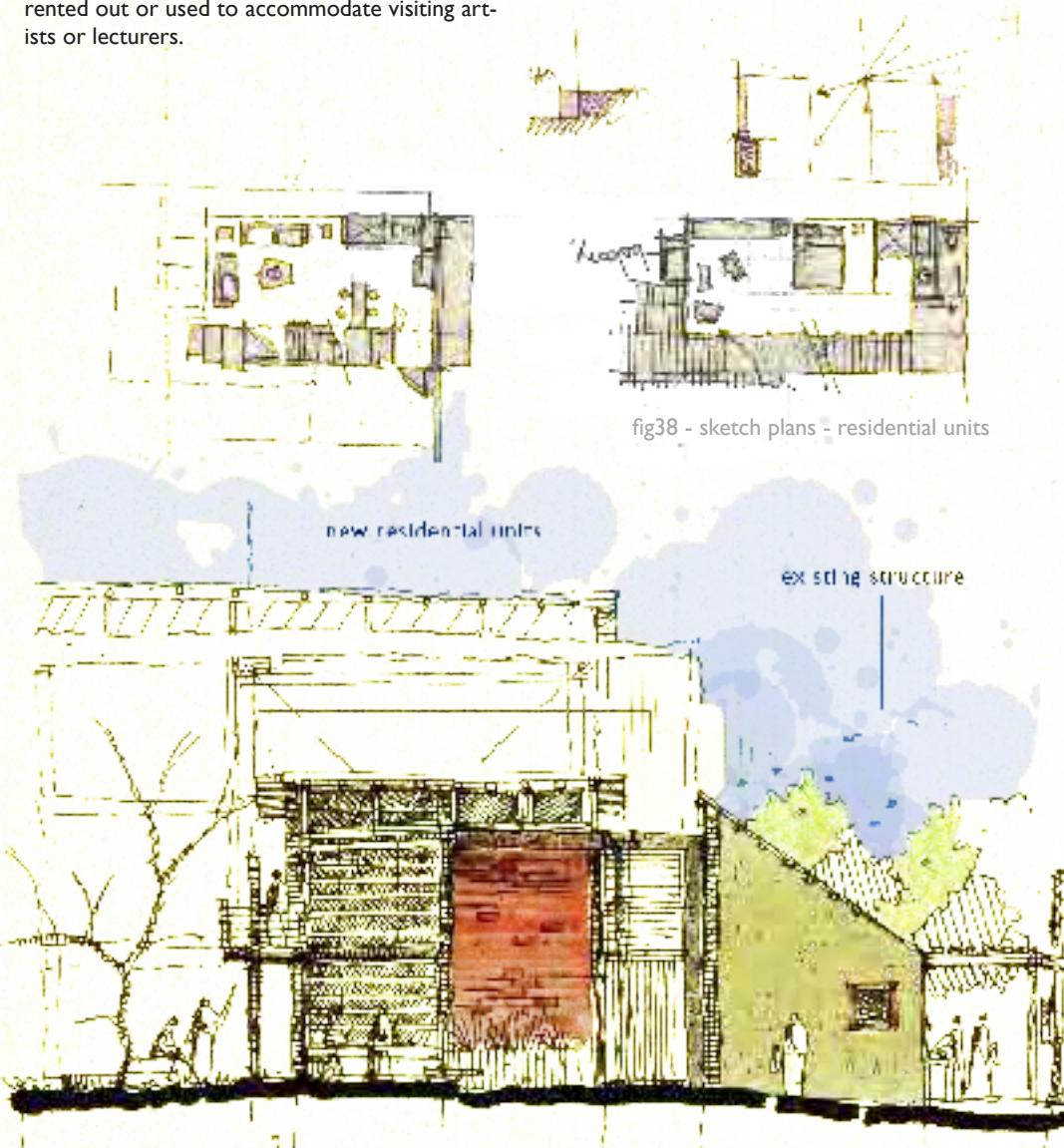
**s t r u c t u r a l**  
The proposal reduces the building depth, getting more exposure to daylight, and opens up onto the internal courtyard. The section removed will be replaced with a lightweight structure to provide shade for external activities. The Mozambican cafe therefore becomes a transition between the street and the proposed courtyard.

# RE USE

FIRST

## R e s i d e n t i a l

The second re-use strategy for the existing building was to introduce a residential component. These four residential units would clip onto the back of the existing structure, retaining the active street facade. These double storey units could be rented out or used to accommodate visiting artists or lecturers.



The units are segmented from each other to allow exposure to natural light. These units would consist of a lounge and kitchenette on ground floor, while first floor would accommodate the washing and sleeping facilities.

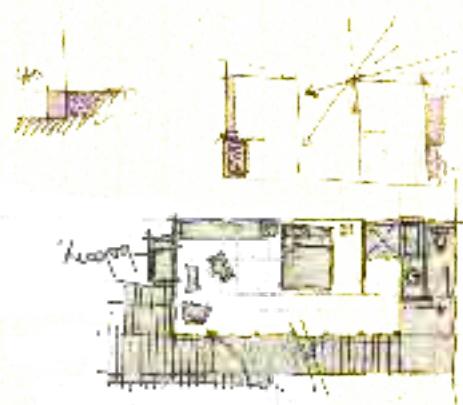
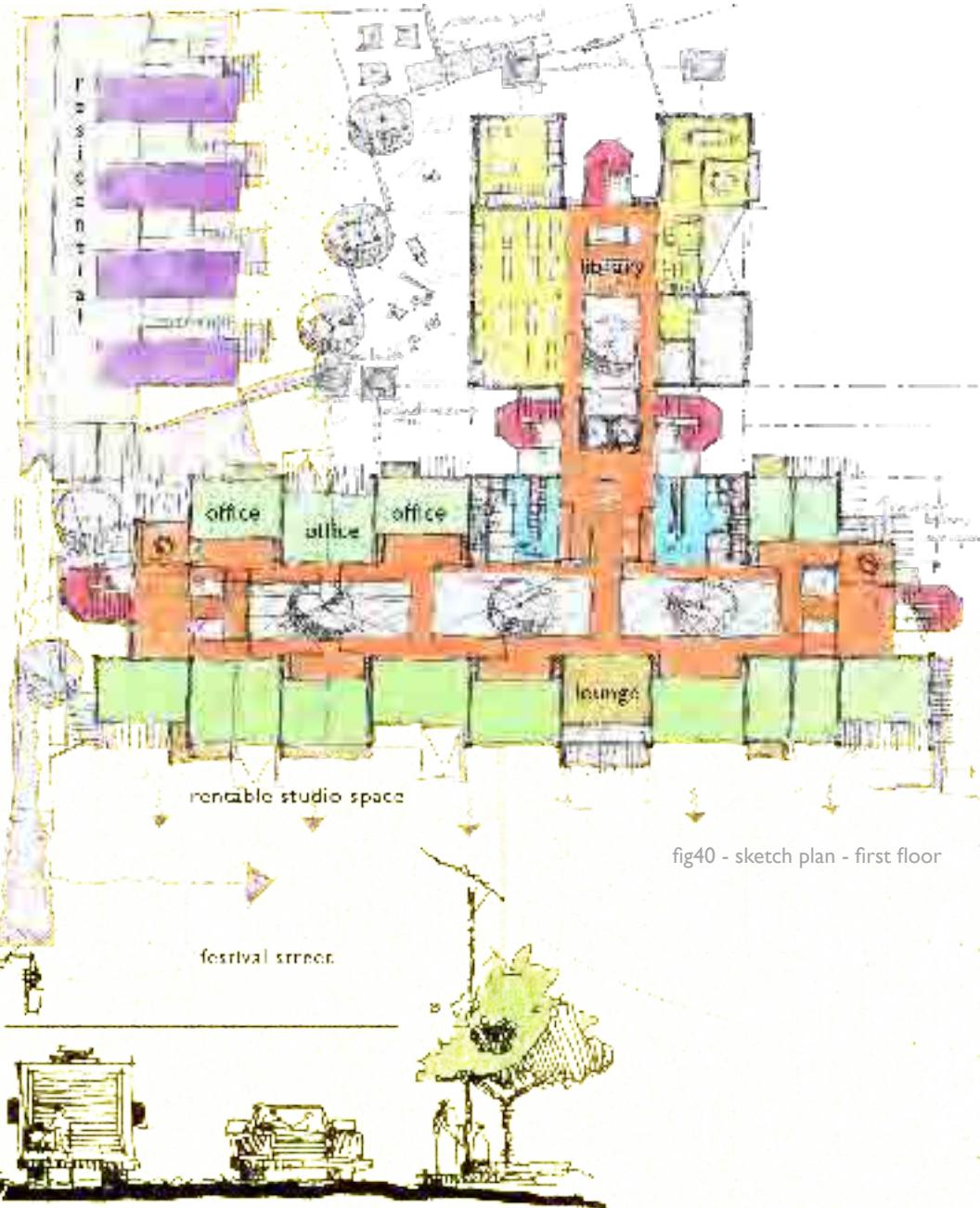


fig38 - sketch plans - residential units

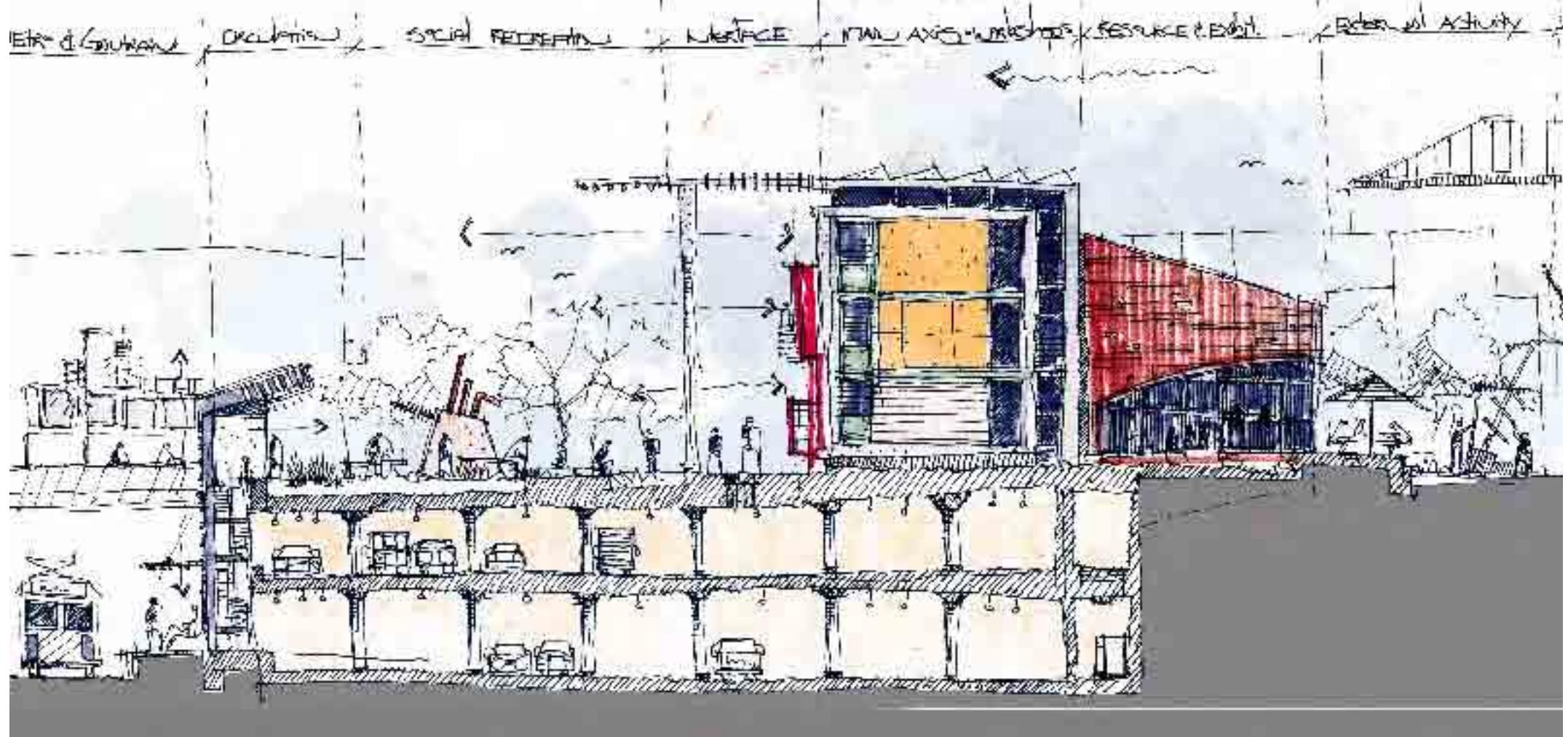


# INTERFACE

# DEVELOPMENT I

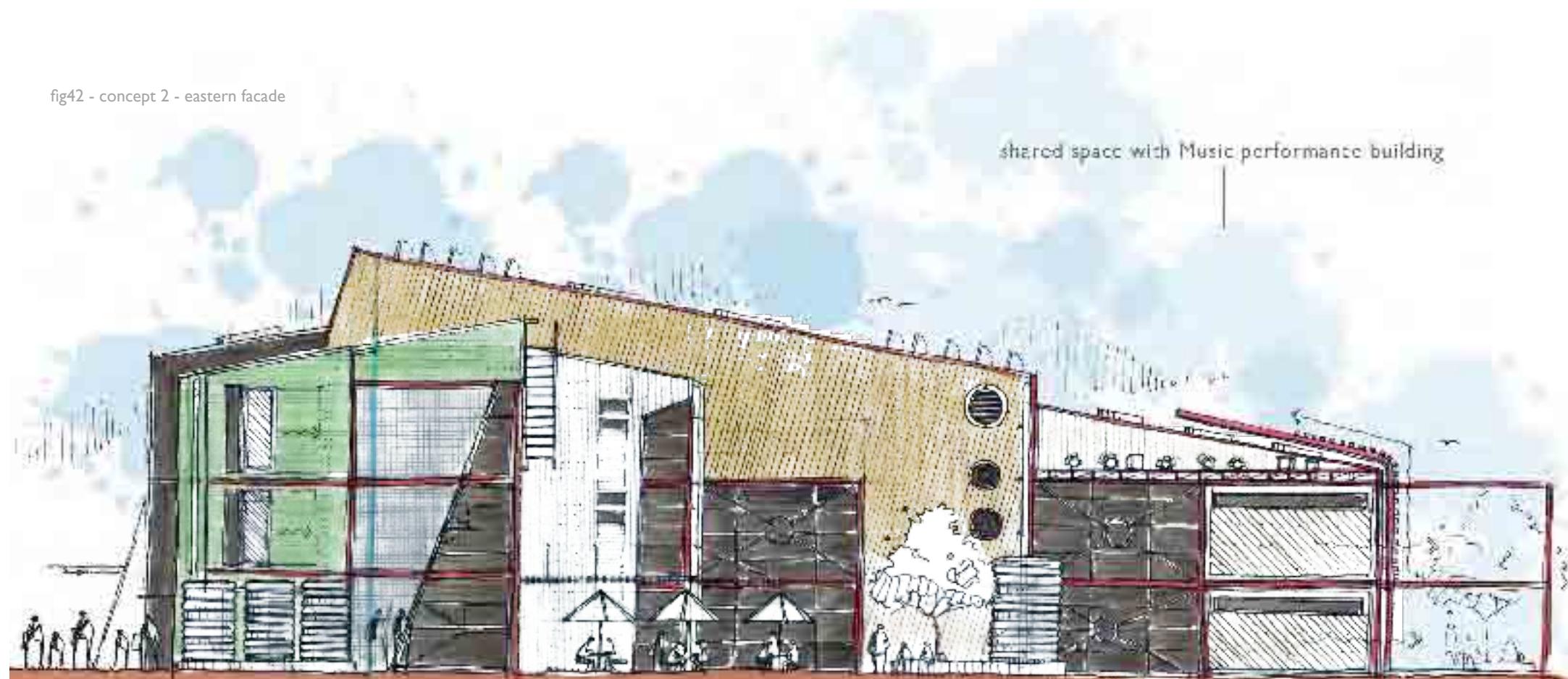
- spatial relationships
- scale
- urban space development
- hierarchy
- edge conditions

fig41 - concept I - eastern facade



- language development
  - scale
  - composition
  - building envelope

fig42 - concept 2 - eastern facade



shared space with Music performance building

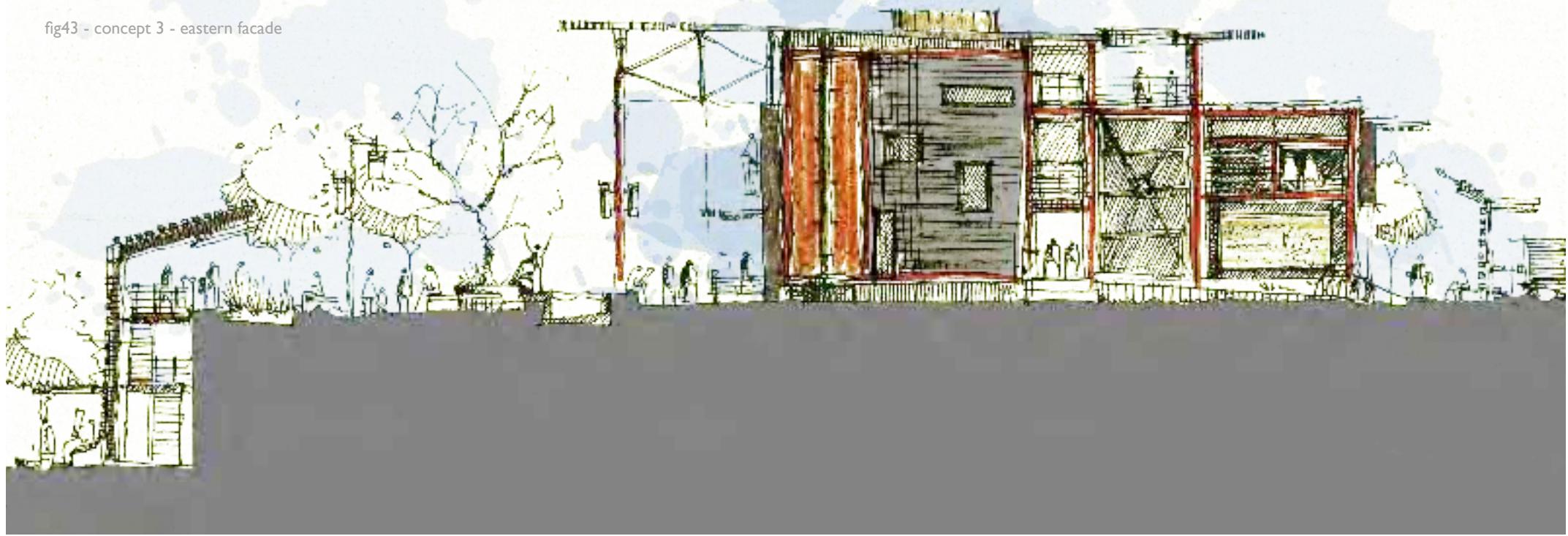
design development

# INTERFACE

# DEVELOPMENT 3

- spatial relationships
- scale
- urban space development
- hierarchy
- edge conditions

fig43 - concept 3 - eastern facade

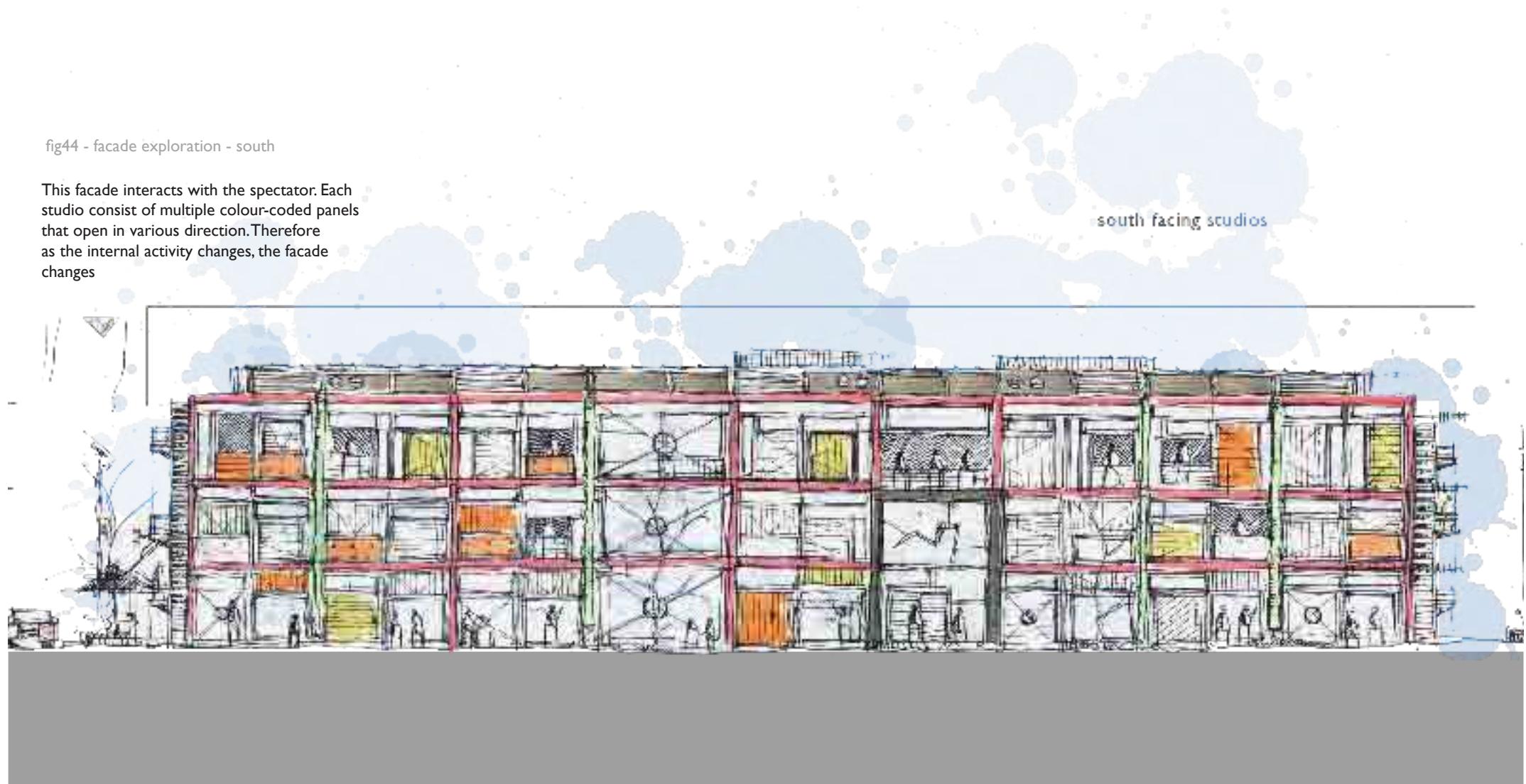


# TECTONIC . . . . . SOUTH

- dynamic facade
- structural composition
- user interaction
- legibility
- language development
- transparency

fig44 - facade exploration - south

This facade interacts with the spectator. Each studio consist of multiple colour-coded panels that open in various direction. Therefore as the internal activity changes, the facade changes



# TECTONIC

WEST

- structural composition
- user interaction
- legibility
- language development
- roof development
- street interaction
- semi-private spatial development

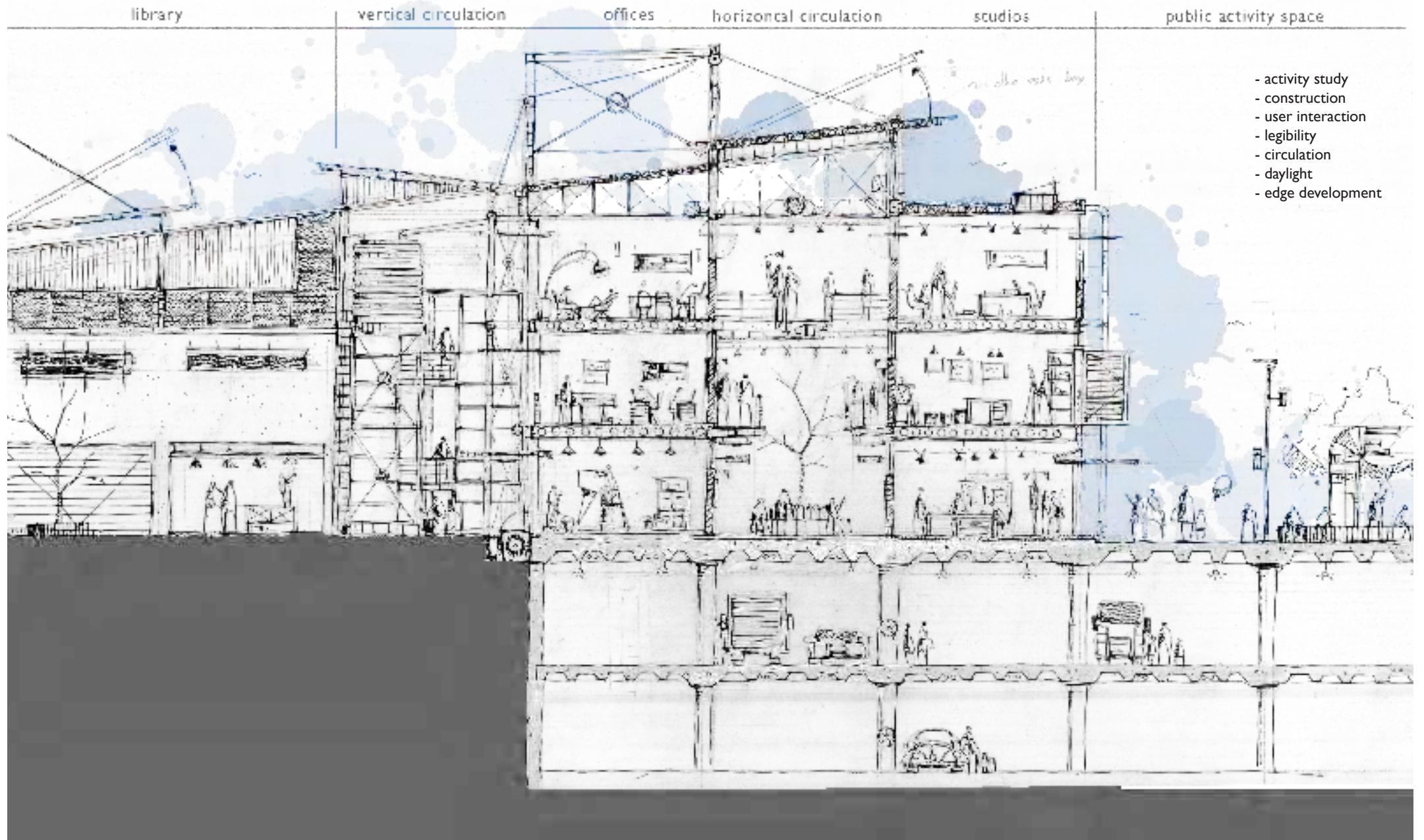
fig45- facade exploration -west

shared courtyard



# STUDY . . . . . CONSTRUCTION

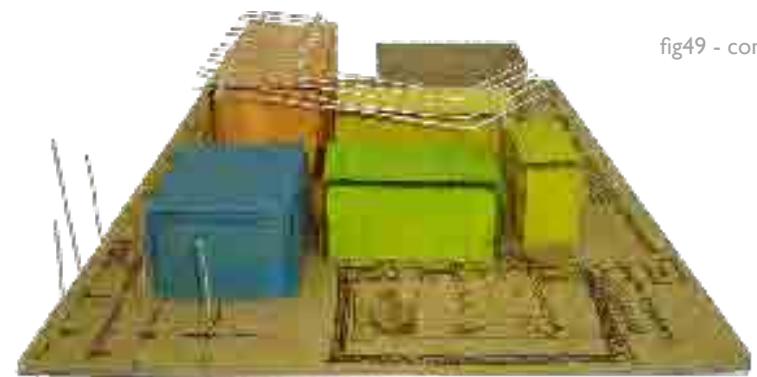
fig46 - techni-spatial exploration



# DESIGN RETHINK

# GENERATOR

fig49 - concept model



## Legibility

One of the guiding design generators is legibility. The building aims to facilitate the user to understand how to use the building. This is possible by designing a building system which is easily understood and clearly defined.

There are three primary organizational parameters : Firstly, the complimentary activities are grouped together. Secondly, the circulation routes are clear and direct. Thirdly, a staircase is situated at the end of each circulation spine to increase mobility horizontally and vertically.

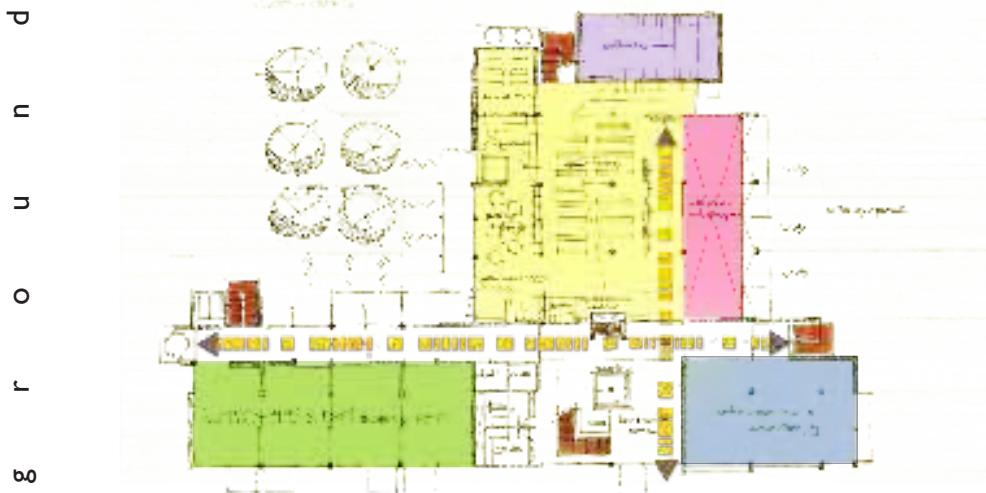


fig47 - sketchplan - ground floor



fig48 - sketchplan - first floor

**STUDIOS**



**EXHIBITION**



**LIBRARY**



**SITE AND ARTIST  
MARKETING AND MANAGEMENT**



fig50 - concept model

**PRACTICAL**



**ADMINISTRATION**



**THEORY**



**EXHIBIT**



# STUDY

# ROOF CONCEPT

model I

e a s t

fig51 - working model 1



model 2

s o u t h e a s t

fig53 - working model 2



n o r t h w e s t

fig52 - working model 1



n o r t h w e s t

s k y o p e n e a r t h b o u n d

# TECTONIC

# SOUTH

- public interface
  - user interaction
  - legibility
  - language development
  - transparency
  - communication

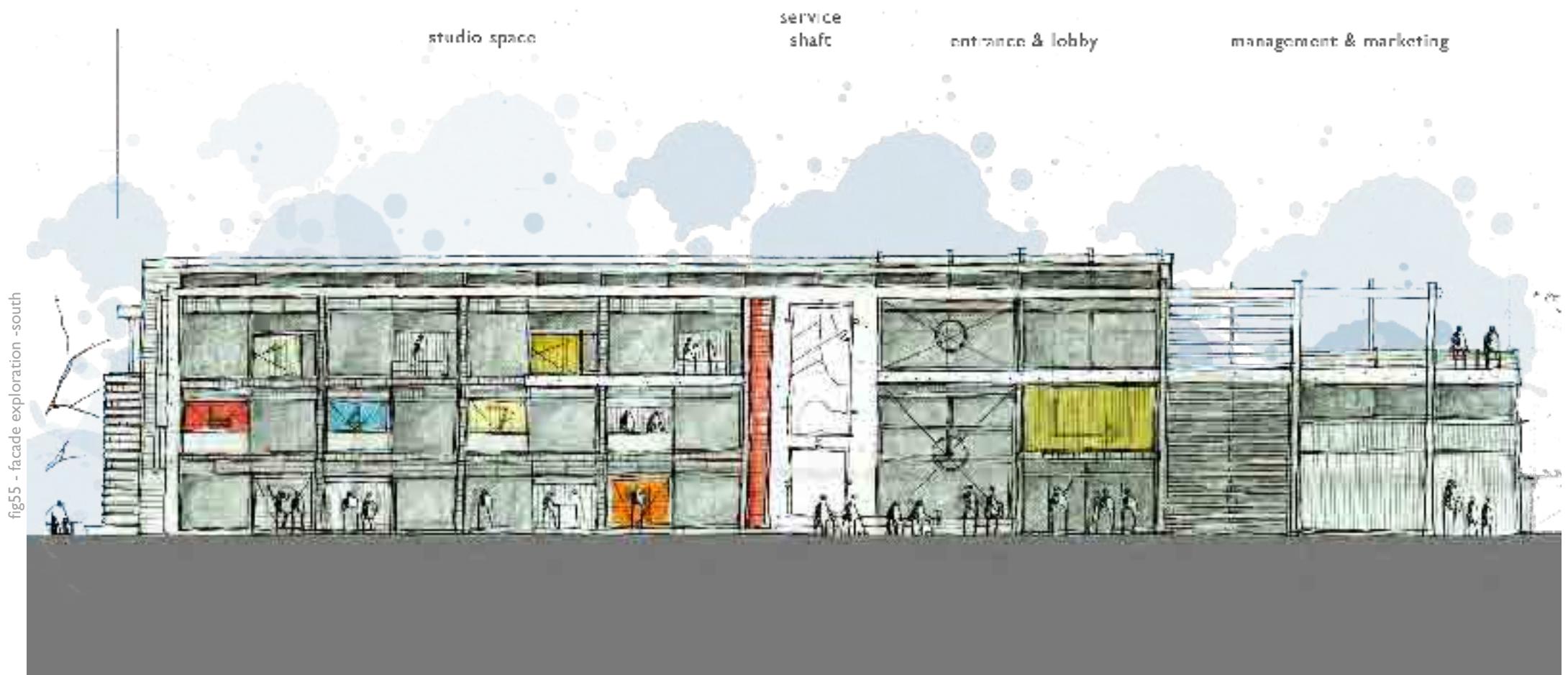
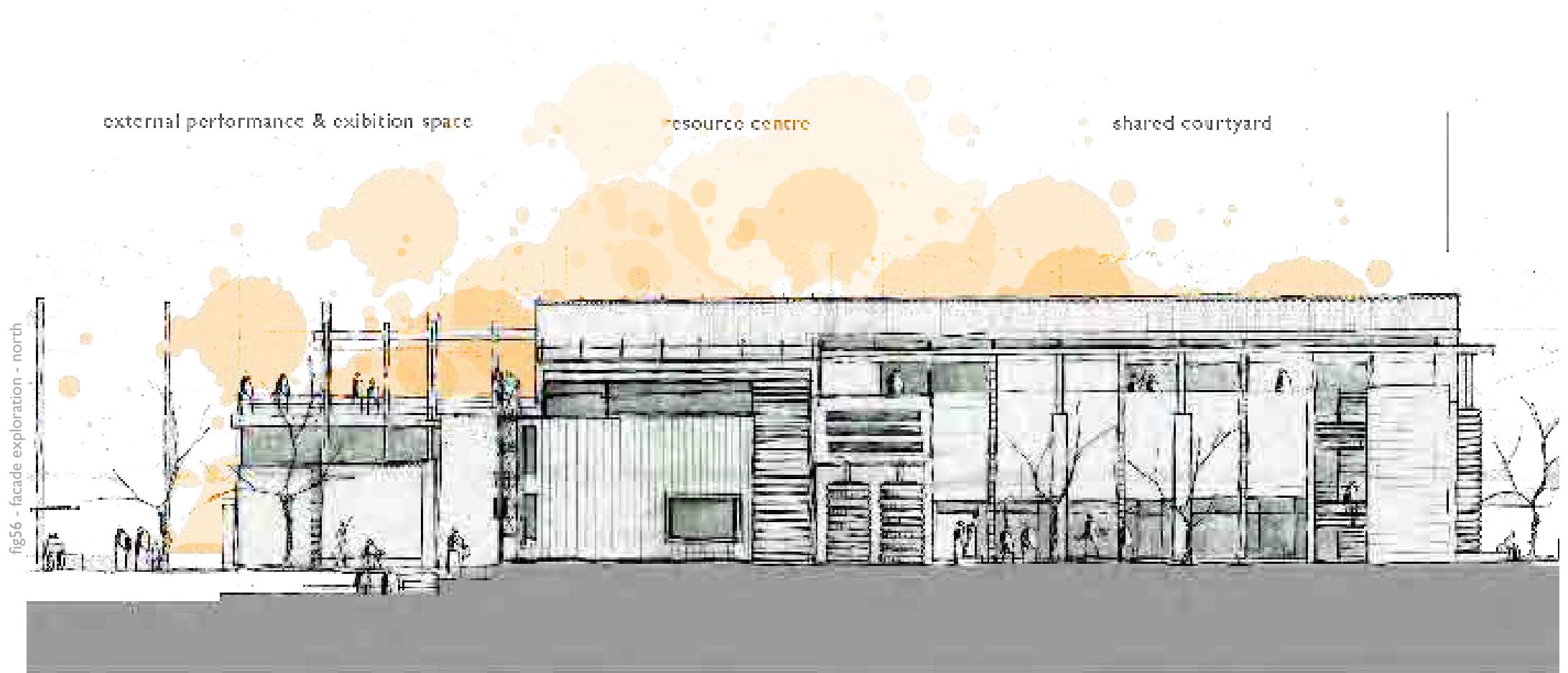


fig55 - facade exploration -south

# TECTONIC

NORTH

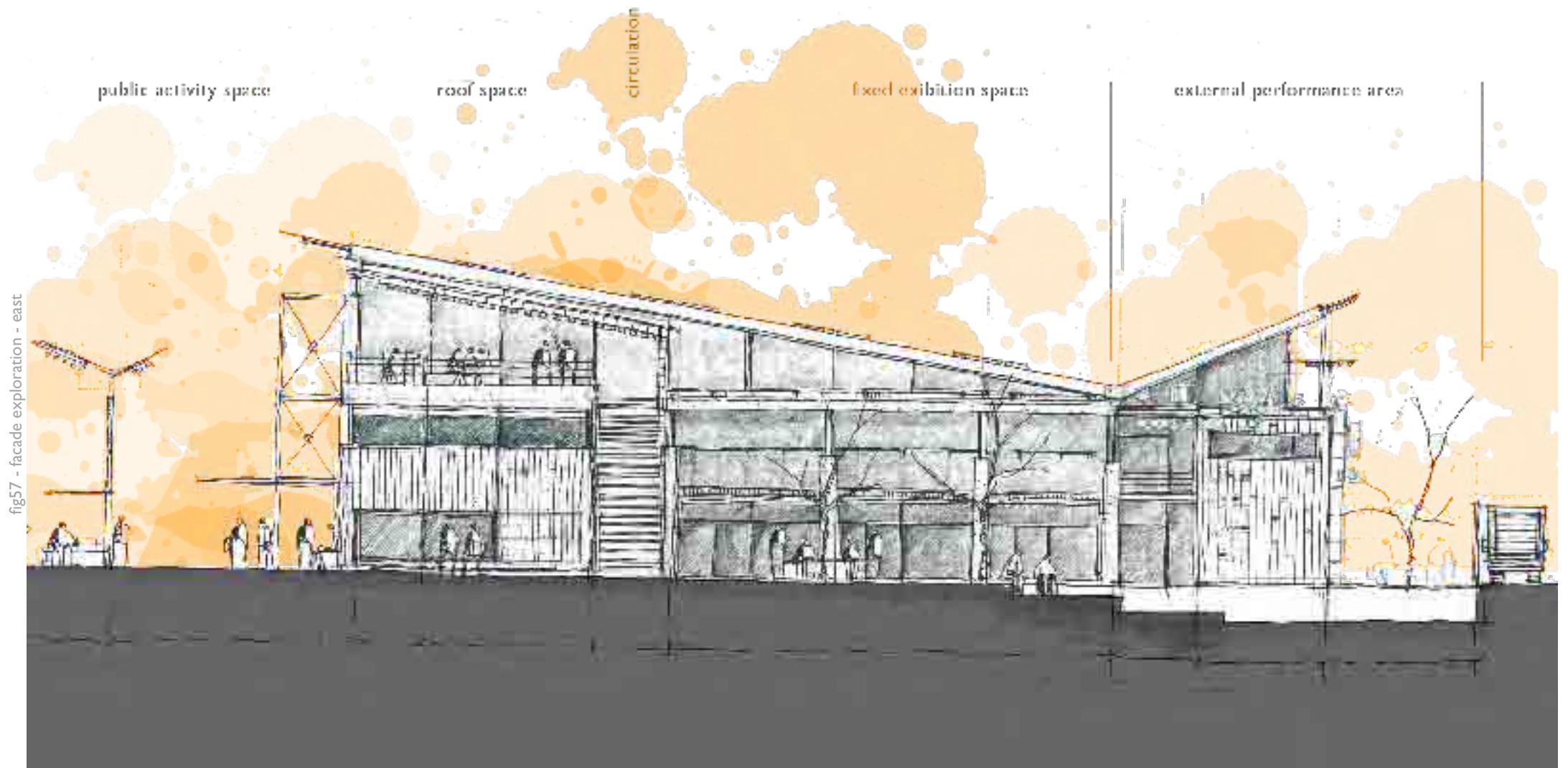
- spatial relationship
- layering
- language development
- scale



# TECTONIC

EAST

- public interface
- user interaction
- legibility
- language development
- transparency



# TECTONIC

WEST

- structural composition
- user interaction
- legibility
- language development
- roof development
- street interaction
- temporal structure
- display

resource centre - exhibit/library/lecture facility

circulation

studio space

public activity space

fig58 - facade exploration - west

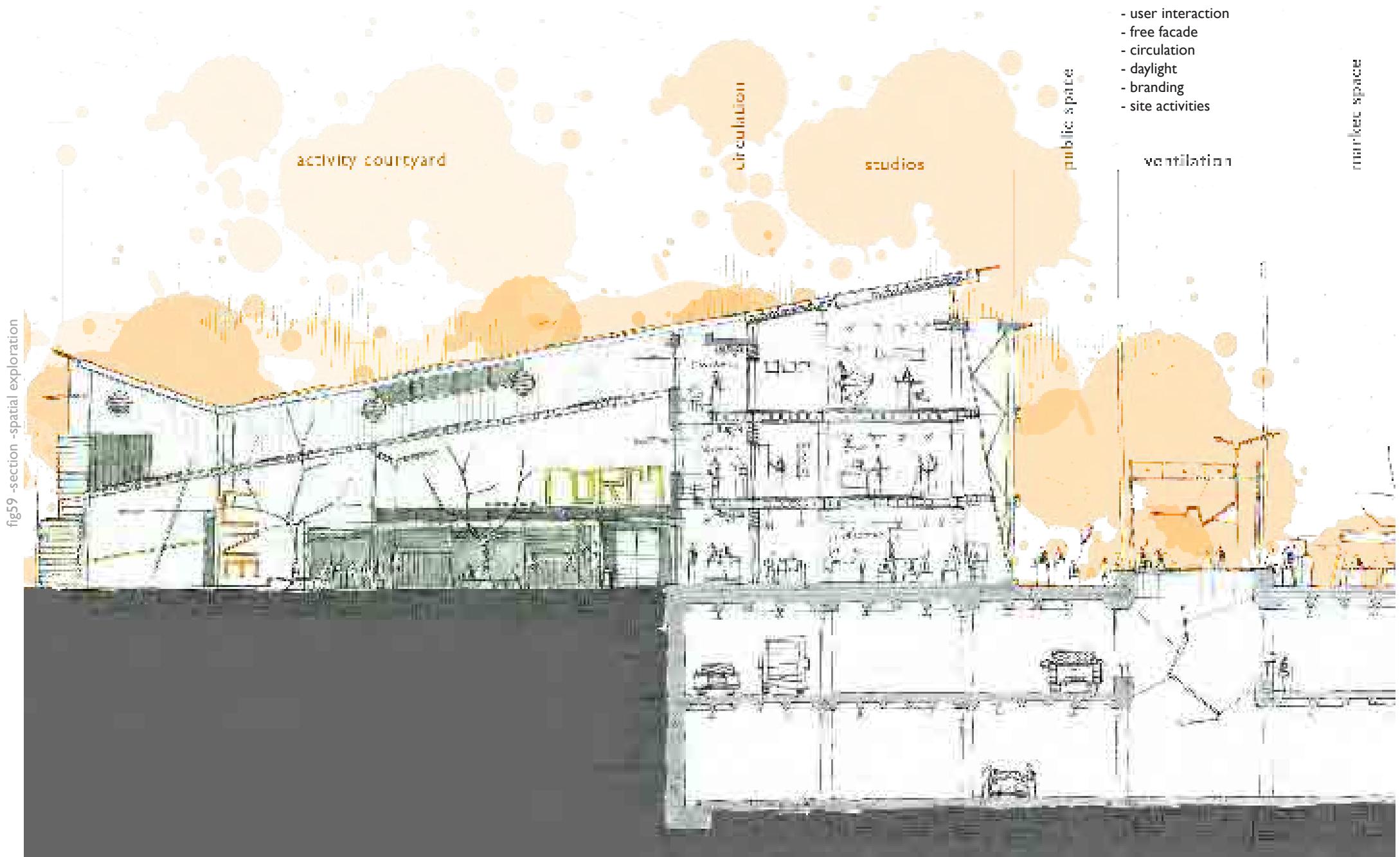


# STUDY

# CONSTRUCTION

- activity study
- construction
- user interaction
- free facade
- circulation
- daylight
- branding
- site activities

marked space



# URBAN . . . . . INTEGRATION



fig60 - photo - site integration working model

# URBAN

# INTEGRATION

fig61 - photo - courtyard

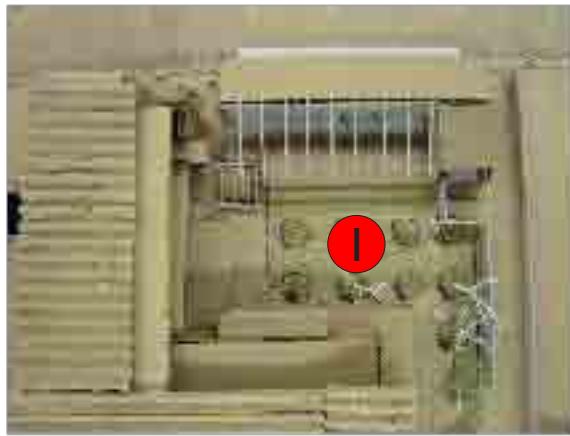


fig62 - photo - performance & exhibition space

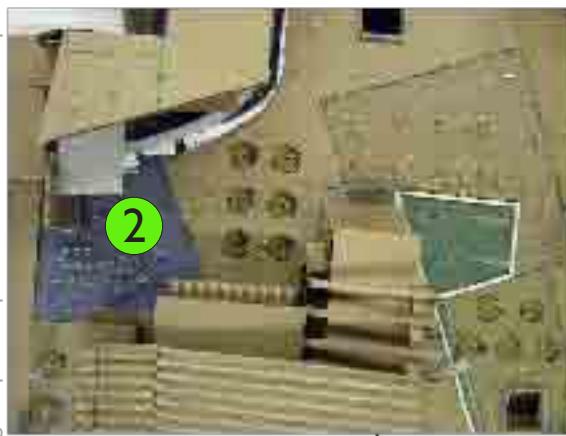


fig63 - photo - view from Festival street



fig64 - photo - fashion & resting space



**S p a c e**  
The series of space forms a route, rather than a destination. These public spaces offer the user various opportunities to engage with each other within the public realm. Therefore the proposed buildings has an obligation to define the route and to contain the space.

The semi-public activities could be hosted in the smaller pockets of space in between buildings. There are three primary pockets that branch off the larger urban space, namely:

1. The semi-private green courtyard space shared with the Mozambican cafe
2. External performance and exhibition space
3. Fashion courtyard with restaurants and resting space

These smaller spaces facilitate events that relate specifically to the building functions, but could alternatively be used for other purposes. The main public space forms the heart, and is a re-programmable space where people are free to participate in games, watch live bands, and CD launches, participate in community art workshops and exhibitions, and sell goods. This route becomes a great place for small traders to capitalize on the flow of pedestrians generated by the University of Pretoria, Rissik Station and the Hatfield Gautrain station.

fig65 - photo - urban working model



Light revealing Architecture

four

introduction

**man and architecture**  
being  
the house

**man and light**

metaphysical  
physical  
bioenergetics

**light and architecture**

genius loci  
architectural form  
space and light

**conclusion**

# THEORETICA

D I S C O U R S E

cal that facilitates the spiritual, and defines our perception of reality. The house nurtures our memories and dreams, and provides a sensation of spatial security and refuge. He explains that the house consists of a series of images that presents verification, or an illusion of stability (Leach, 1997:94). It also makes a petition for our perception of reality, by forming the hub of our spatial understanding in this world. In other words, everything we do, and everywhere we go is done in relation to points of reference. Therefore the concept of the house performs a pivotal role in the individual's organizational modus operandi. This supposition could apply to the built in general. Our whole experience of the everyday is played out continuously in relation to the built. Heidegger claims that the nature of the built is to let dwell (Leach, 1997:109). The person that performs the dwelling consequently needs the manifestation of the built to facilitate dwelling. This illustrates the indispensable symbiotic relationship between the dweller and the built. Architecture directs us back to the world, and own self, and being (Pallasmaa, 2005:11). We build as a result of dwelling, but if we do not build, then how are we to dwell? How will man define, validate and orientate our dwelling?

## MAN AND LIGHT

The concept of light relative to humans can be approached via a physical and a metaphysical perspective. Light in the physical realm relates to man and his activities in light, together with the characteristics of light and biological requirements of existence through light. In the metaphysical realm light has certain spiritual qualities, and has always existed in duality to darkness. In the beginning, God separated the light from darkness, therefore darkness is the absence of light, yet it is part of what defines light. Just as black is necessary to define white, so darkness is necessary to complete the experience of light (Millet, 1996: 136). Therefore in man's relationship to light, there has always been a discourse between light and darkness.

# MAN AND ARCHITECTURE

## “Being”

‘Beings’, as Heidegger (1962) states, are the key ingredient to why the built exist. But what is our relationship to that which is built? His opinion is that as humans, our instinctive purpose on this four-fold middle ground; captured between heaven and earth; is to dwell. Thus today, throughout the world billions of people are unconsciously exercising this action of dwelling and inhabiting. This dwelling is a habitual occurrence; we do it intuitively on an everyday basis. To understand Heidegger's position on our relationship to the built, we must recognize where the word ‘building’, which describes an action, originates from. The word stems from the Old English and High German word, ‘buian’, which means ‘to dwell’. Thus, the relationship between building and dwelling becomes very evident. Heidegger states that to build, is not merely a way and means to dwelling, but dwelling itself (Leach, 1997). Architecture therefore provides a means of understanding and confronting our existential condition (Pallasmaa, 2005:11). Juhani Pallasmaa (2005:40) states that architecture (the built) is encountered, approached, confronted and related to being, moved through and utilized as a condition for other things. Architecture gives conceptual and material structure to the conditions of daily life. Therefore the built has fundamental responsibility in defining and expressing the notion of dwelling.

## The house

In Bachellard's essay on the Poetics of space, he describes space as something active which performs a function. This function is to contain compressed time (Leach, 1997:89). Architecture (the built) enables us to inhabit this continuum of time, and it is the projection of being (the body) as it moves through space (Pallasmaa, 2005:45).

Bachellard draws from the illustration of the house as a spatial enigma. It is something physi-

## introduction

The calamity of Architecture is a continuum. Throughout architectural history man has been grappling with the concept of architecture. Why is it needed, what role does it play, and what is our relationship to it? For us to understand the purpose of architecture, architecture needs to be revealed to us, and I believe that this revelation occurs through light.

This theoretical discourse briefly investigate architecture's relationship to man, man's relationship to light, and ultimately light's relationship to architecture, with the intention to disclose the importance of light, and the pivotal role it plays in revealing architecture.

L i g h t  
 L i g h t  
 L i g h t  
 r e v e a l i n g  
 a r c h i t e c t u r e

## Metaphysical

In Genesis 1:3 God spoke light into existence." Let there be light: and there was light". This light was the precondition for man and all other creation. The Scriptures further reveals man's relationship to light. In the gospel of John 12:35b it is written: "...walk while ye have the light, lest darkness come upon you: for he that walketh in darkness knoweth not whither he goeth" In the spiritual context, man orientates himself in this world by way of light/God (!John 1:5 - God is light, and in him is no darkness). This is where he finds his identity (Ephesians 5:8 – children of light) and how he understands his existence. If light (nature and character of God) is not present, he cannot understand living, nor find meaningful discourse in it.

The concept of light connects us to something higher than ourselves, and this concept of light is directly related to the physical characteristics of light. Therefore throughout history the metaphysical understanding of light, has been intertwined with the manipulation of physical light. The expression of light that we can see, causes us to look inward to our centre, to search once more the connection, a personal connection with light, divine light (Millet, 1996:148)

*"The sky provides the connection to divine light...Even before any religious values have been set upon the sky it reveals transcendence. The sky symbolizes transcendence, power and changelessness simply by being there. It exists because it is high, infinite, immovable, and powerful."* - (Millet, 1996:148)

## Physical

Humans are phototrophic, we respond to light (Millet, 1996:132). Light reveals our passage in time and keeps us connected to our physical environment .All of our daily rituals are lived in accordance with the diurnal and seasonal rhythms of light .As our lives are lived out in light, there is continues collaboration between the eyes, the body and other senses. Pallasmaa

describes this as the polyphony of senses (Pallasmaa, 2005:41). In 'The Hidden Dimension ', professor Edward Hall (1969:66) states:"... as man moves through space, he depends on messages received from the body (polyphony of senses) to stabilize his visual world (man's perception). This visual world is constructed by the visual field (retinal image) which is made up of constantly shifting patterns of light, recorded by the retina. Our perception of our reality is therefore embedded in the body's interpretation of light.

Therefore the physiological effects of light are not only confined to mere radiation on the skin, nor is light entering the eye confined to the stimulation of vision (Mahnke & Mahnke, 1987:45), but it provides the substance for man to understand and interpret his environment. The physical characteristic of light also plays an indispensable role in our biological existence, and is the most important environmental input, after food, in controlling bodily functions (Mahnke & Mahnke, 1987:53).

*"We also know that light received through the eyes stimulates the pineal gland and pituitary glands. These glands control the endocrine system that regulates the production and release of hormones controlling body chemistry. This would then seem to me to be a carry-over of the basic principles of photosynthesis in plants-sometimes referred to as a conversion of light energy into chemical energy- to animal life, a phenomenon not before recognized. Thus the wavelength that are missing in various types of artificial light or that are filtered from the spectrum of natural light by window glass, windshields, eyeglasses, smog and even suntan lotions, are causing a condition of malillumination, similar to the malnutrition that occurs when there is a lack of a proper nutritional diet"* (Ott, 1981:25)

Scientist now believes that light plays an imperative role in sustaining positive human life. Not only are plants depended on exposure to light to sustain them, but all animals and man as

well. Sufficient exposure to these natural wavelength energies are pivotal, because it interacts directly at the molecular level with chemicals and minerals in the blood supply (Mahnke & Mahnke, 1987:45). Studies conducted on rats show serious distortions in behavioural patterns in those specimens that were deprived of daily exposure to natural light. Therefore depravity of balanced light causes ill health, increased stress, physiological problems, and sexual dysfunction (Mahnke & Mahnke, 1987:58) Daily exposure to balanced light revitalizes the body and is the necessary ingredient for health and a balanced human psyche.

## Bioenergetics

As discussed earlier, light was spoken into existence as a precondition for life. Therefore man's relationship to light functions both on a spiritual and biological level. Bioenergetics relates to this supposition, but abbreviates in scientific terms.

All matter in space has an intrinsic energy, which essentially vibrates. Thus Bioenergy refers to all natural electric, magnetic, light, and other energies that together make up the cosmic background and earth radiations that are absorbed by and affect all life (Mahnke & Mahnke, 1987:58). The ancient Chinese belief of positive and negative energy (Ying & Yang) that coexist in harmony with nature, relates to these scientific observations of bioenergetics. As the body functions, there is a constant rhythm to it. The heart, breath and all other functions of life pulsate continually in polarized vibrating rhythms. Proper polarization (vital ability to absorb, assimilate and distribute energy), maintains an organism in health, and in harmony with his/her environment (Mahnke & Mahnke, 1987:58).

Light represent a major part of these vibrations. Illumination has dual properties; it is both in particle form (packets and photons) and wave form (electromagnetic radiation). Therefore, fundamentally, light is a vibration (Millet, 1996:2). Different spectrums of light, vibrates at different frequencies. Studies have shown that these frequencies can be blocked and distorted (Mahnke

& Mahnke, 1987:58), thus it is no small concern that in today's built environment we are substituting the use of natural light in favour of artificial light. As a result, these light-deprived environments wherein we conduct our lives have serious repercussions on our health and physiological well-being.

## LIGHT AND ARCHITECTURE

Light has been an integral part of man since creation. Since light was the precondition for life; I believe that man has the capacity to understand light. Louis Kahn (*Silence and light*, 2005) stated that everything is spent light, even our bodies.

*"In great architecture there is constant deep breathing of shadow and light, shadow inhales and illumination exhales light"* – (Juhani Pallasmaa, 2005:47)

*"Qualities of light have profound responses within us; they are the wellsprings of feeling... With light as the palette, architecture can be supreme in the arts. It is a source of expression that we tend to ignore and the one aspect of architecture that we cannot divorce from meaning in our determined nihilism as night and day and sun and moon work their pattern upon us. It is with light that we can bring a soul and spirit back into architecture, and perhaps find our souls in the process".* - (Arthur Erickson, 1964)

In architectural experience, light is the catalyst, it designates engagement, and meaning, even confrontation. In 'Silence and Light' Louis Kahn proposed that for a building the religion is light, it is the giver of all presence; it gives room to the day and brings seasons into the room (*Silence and Light*, 2005). Architecture depends on light, and is vital in architectural experience (Rasmussen, 1959:187). As light reveals the form of architecture, and places made by it, it



simultaneously reveals architectural meaning and intensions that are released through the process conceiving, designing and building (Millet, 1996:2).

## Genius loci

Genius loci, sense of place, comprises of tangible and intangible characteristics that delegate the spirit of a place. Light is one of these intangible aspects that contribute to the character of a place. Each place has a specific light, which means that in order to capture this spirit of place; architecture ought to respond sensitively to this light. Junichiro Tanizaki (1977:18) explores this link in his book 'In praise of shadow': "And so it is has come to be that the beauty of a Japanese room depends on a variation of shadows, heavy shadows against dark shadows – it is nothing else". The response of traditional Japanese architecture is sensitive to the light of a place, and therefore it also reveals the culture of that place. The function of light is defining when it is revealed in the experience of a building. In order for this place defining light to be revealed, the formal strategy used in designing buildings must be flexible enough to be able to respond to the local light conditions (Millet, 1996:14).

In 'Genius loci: towards a phenomenology in architecture' Christian Norberg-Schultz states that the function of the window is much more than just providing an opening in the wall. The position and articulation, is intrinsically related to the spirit of that place and its light condition. In the window, the genius locus is focussed and explained (Norberg-Schultz, 1980: 179). As the window is related to the light of a place, it also reveals the character of the people, materials and the building methods specific that place (Millet, 1996:12).

The light of a place is also directly related to the climate and time. The interaction between light and climate is multi-dimensional, for it is related to the experience of thermal comfort, therefore the culture, habits and rituals of a place (Heschong, 1979: 55-72). Light and time operates

in coexistence, thus our daily activities occur in tune with the diurnal and seasonal changes of light through time. Louis Kahn (Wurman, 1968:175) said: "I have no colour applied on the walls in my home. I wouldn't want to disturb the wonder of natural light. The light really does make the room. The changing light according to the time of day and the seasons of the year gives colour".

In the residential work of Frank Loyed Wright we see a definite awareness of the need to make connections to the spirit of a place. He utilized light to create an image of nature inside a building, thus evoking associations through the type of light, the patterns of light, the direction of light, the colour of light, and the relationship of light to its environment (Millet, 1996:15). When architecture meaningfully interacts with light, it connects with that place by borrowing its spirit which is embodied in its light.

Arthur Erickson (1975:33) "I have been anxious to find, wherever I build, the right response to light"

## Architectural form

Atelier le Corbusier (1974:8) - "Our eyes are constructed to enable us to see forms in light"

In Genesis 1:2, the earth was void and without form, and darkness was upon the face of the deep. In verse 3, God said: "Let there be light", and light was. This light gave shape onto form. Thus the light revealed form, and in turn the form defined light.

Throughout history light has demanded a response from architectural. Supreme examples of this phenomenon is found in le Corbusier's brise soleil, or the cut-outs in the national assembly building designed by Louis Kahn. As light approaches the edge of a building, a discourse begins between the darkness of space in the interior and the illumination of light. Therefore the forms that we see in buildings, and the way that we see them, is a result of the manner in

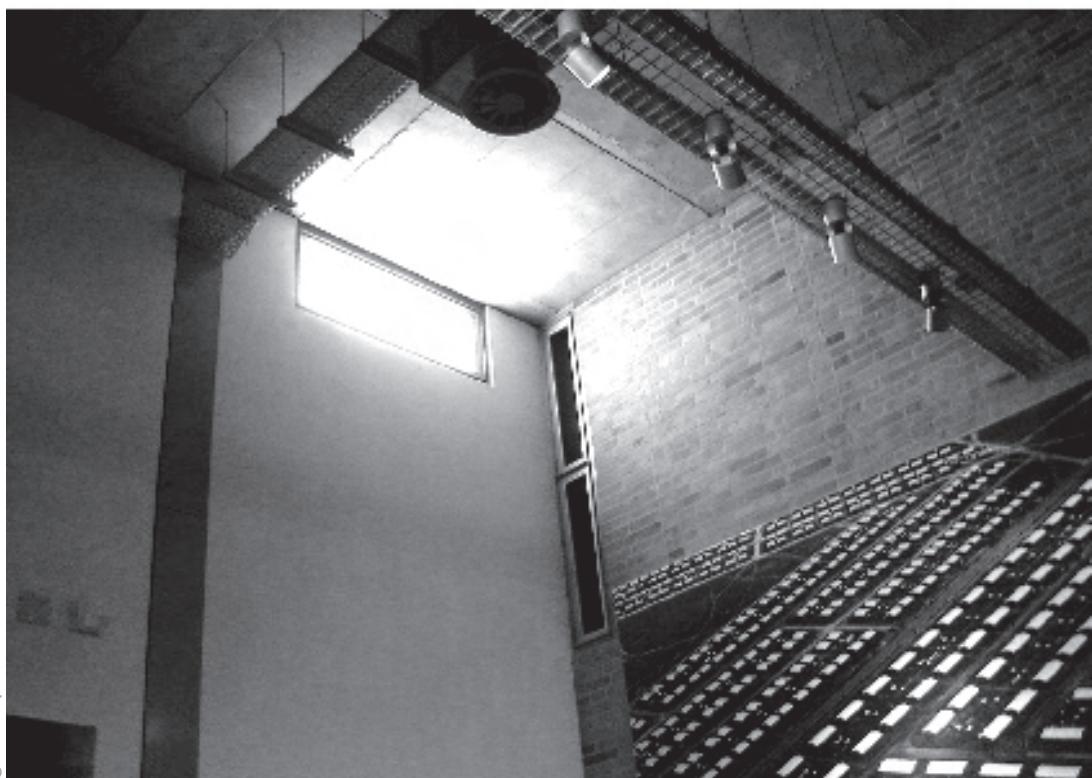
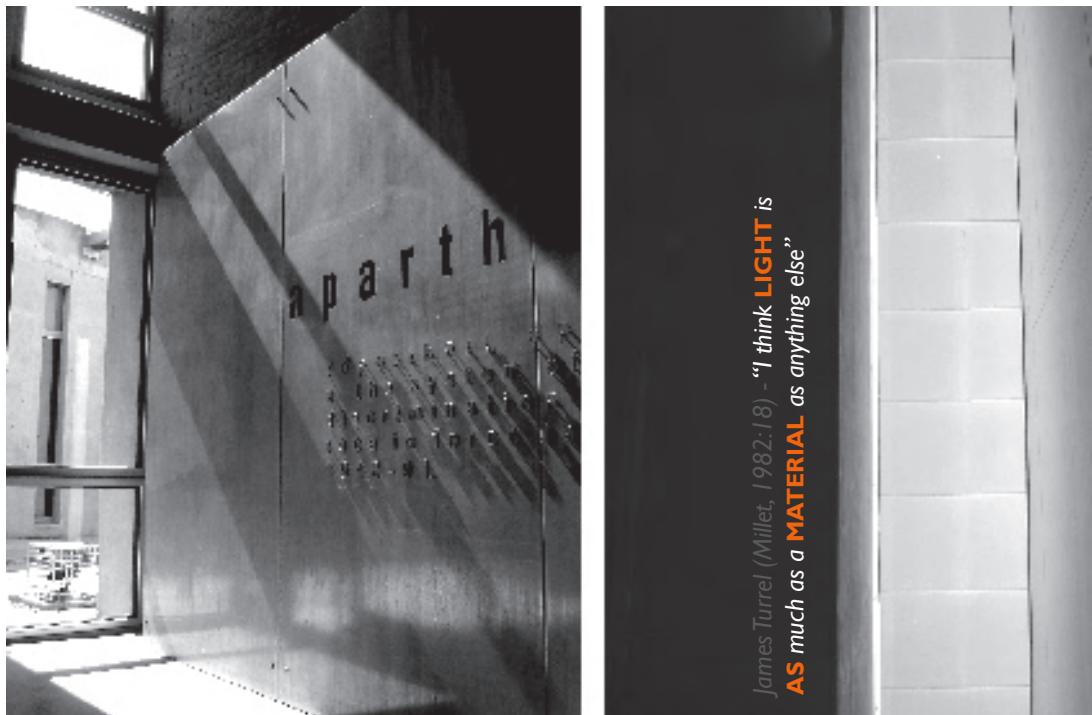


fig 2-4- Apartheid museum

which light is admitted by the form, as well as the way in which the form models the light that have been admitted (Millet, 1996:12). The light that reveals these forms are always changing due to diurnal and seasonal patterns, yet the form remains constant. However, the way in which a surface is rendered by shifting light alters our perception of that form. Light and form has a symbiotic relationship; light defines form, surface and texture, and in return, form gives expression to light.

Light also reveals the function in architectural form. For example, the surface of a staircase responds differently to approaching light. As light falls onto the alternating horizontal and vertical, the treads and the risers are modelled differently in light. These differentiating patterns of light instruct me in the purpose of the stair, thus how I can use it. Light further emphasizes the form of a room, by defining its bounding edges in light. When these surfaces therefore emphasize the shape of a room and organize its features, this light becomes organizing light (Schwartz, 1993:14-25).

*Louis Kahn (Wurman, 1986:6) - "...structure is the maker of light. When you decide on the structure, you are deciding on light. In old buildings, the columns were an expression of light. Light, no light, light, no light, you see. The module is also light, no light."*

Architectural structure, when designed in this way, is revealed by light. Structure in turn defines the entry of light. Where the structure is, there is no light, and where the structure is not, there is light (Millet, 1996:60). Light, by defining structural composition and bounding edges of space, reveals clues about the making of architecture, how it was assembled, and how it functions.

In 'The eyes of the skin' Juani Pallas-maa(2005:11) states that superficial architecture is devoid of any tectonic logic or a sense of materiality. He speaks about a 'seeing-touch', the ability to feel a material through my eyes by means of a stored experience of a previous en-

counter. As the light falls on a surface, it reveals its texture, materiality and light reflecting and absorbing qualities. This arouses the experience stored in my haptic memory, thus enabling me to touch it by seeing. Light not only gives a material the ability to express its surface and texture, but also composition and materiality. The same material can express itself differently depending on the type of light, its intensity, and the direction of light. The experience of materials is therefore grounded in the interaction with light(Millet, 1996:68). Light gives materials the ability to speak.

*James Turrel (Millet, 1982:18) - "I think light is as much as a material as anything else"*

## Space and Light

Space is always present. It is self-existent and continues. Defined space is instituted through the built, and experienced through the being. As mentioned earlier, the action of dwelling is exercised in relation to the built in space. Space could therefore be seen as an extension of the being, space where the dwellers life is lived out. Space operates as a mediator between the action of dwelling and the context (the built, the objects and the people that we dwell amongst) in light. Stephen Holl (1989:11) stated that space remains in oblivion without light. Light's shadow and shade, its different sources, its opacity, transparency, translucency, and conditions of reflection and refraction intertwine to define or redefine space. Defined space was first created by fire, and therefore space is still dependent on the presence and arrangement of light (Millet, 1996:106). This relationship between light and architectural space remains inseparable, for it is rooted in the human experience.

Juhani Pallasmaa (2005:51) wrote that architecture presents the drama of construction silenced into matter, space and light. In architecture, light defines the relationship between inside and outside space. In 'Complexity and contradiction in architecture' Robert Venturi

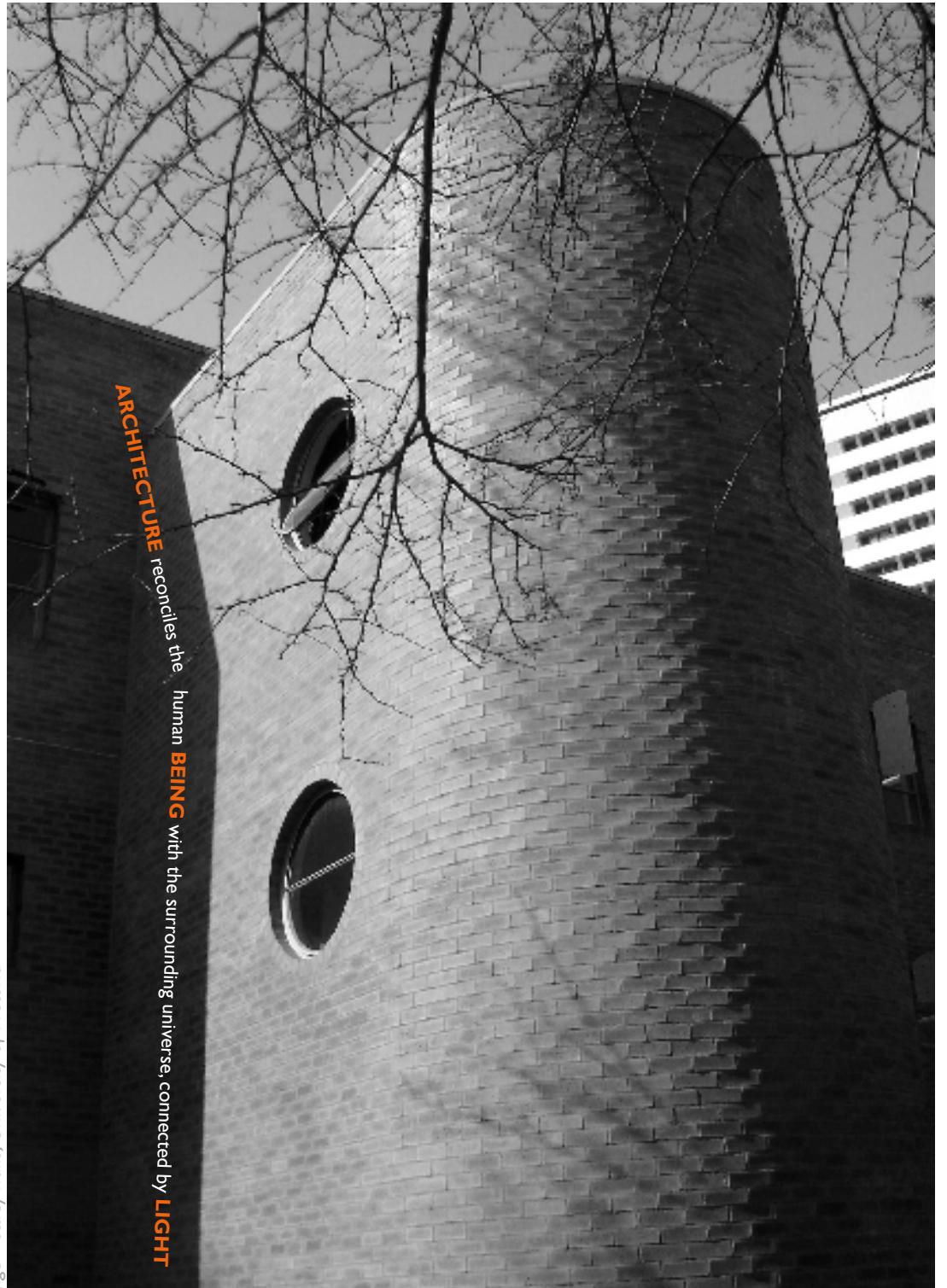
response to climatic factors and their manipulation of the spatial tension at the building's edge .

Light and space is inseparable. The work of architectural masters like Louis Kahn, Alvar Aalto and le Corbusier speak of a consciousness towards the importance of light in defining spatial relationships, hierarchy, focus and movement. Light defines spatial enclosure and establishes connections to place, and advocates the relationship between inside and outside space. Light facilitates movement through space, function in space, and experience of space. Therefore when light is used purposefully to reveal the intentions of architectural space, then form, space and light are joined together to create an architectural experience rich in light ( Millet, 1996:120).

Louis Kahn (Wurman, 1986:257) – “A space can never reach its place in architecture without natural light”

## Conclusion

Light is the precondition for life. Man is dependent on light for very survival and well-being. The daily ritual of life is exercised in tune with the shifting patterns of light; it gives structure to our lives. This ritual is exercised within a context, and the composition of this context contains the built. Therefore man daily enters into a discourse with the built, sustained through light, ordered by light, and submerged in light. As man needs light, architecture needs light. In “Experiencing Architecture” Steen Rasmussen states that architecture needs to be experienced (Rasmussen; 1959:9), however, architectural experience is dependent on light. Form is defined by light, space is articulated in light, and architectural meaning is expressed through light. Illumination gives architecture the ability to live. Arthur Erickson ( 1964) stated that with light, we can bring the spirit and soul back into architecture . Therefore I believe that architecture that is sustained by light can be understood, for it has the same foundation as our existence. Architecture that responds to light, is revealed by light, a light that uncovers and



(1966:88-89) stated that since the inside is different from the outside, the wall – the point of change – becomes an architectural event. Architecture therefore occurs at the meeting of interior and exterior space in light. As light approaches the boundary, architecture dictates why, how and where it should enter, and this directly relates to the occurrence of internal space. The light that enters has function, first to illuminate, then to facilitate, instruct, unify, differentiate, connect and separate space. Thus it is at the boundary where light is modified to suit the internal conditions of light. Therefore today's extensive use of artificial light is negating this intrinsic need for the resolution of natural light at the boundary.

The drama that occurs at the boundary of space not only pertains to light, but also coincides with thermal aspects, air movement and noise propagation. As mentioned these aspects directly relate to the character of a place, therefore to the perception and experience of architectural space. In 'Intensions in architecture' Christian Norberg-Schultz introduced the concept of filter, connector, barrier, and switch to describe the physical controls of energies that determine regional character. The application of this could be seen in le Corbusier's development of architectural forms with the intention to modify the progression of natural light into internal space. This vocabulary comprised of 'pans-de-verre' (panes of glass stretching from floor to ceiling), 'ondulatories' (vertical mullions placed at varying intervals between strips of glass), 'brise-soleil' (large cross-baffles placed in front of fenestration to obstruct direct sun), and 'aerateurs' (solid pivoting doors for ventilation) ( Griffin & Millet, 1984:43-60). The 'pans-de-verre' simultaneously acts as a barrier and connector, connecting the inside and outside space with light, but acting as a barrier to heat, air and sound. The 'ondulatories' and 'brise-soleil' acts as filters for light, thus allowing it into space, modifying it in different ways. Lastly, the 'aerateurs' functions as switches relative to all environmental forces of light, thermal aspects, air movement and sound. Marietta Millet (1996:105) wrote that the dynamism of these forms emerges from their use in

continuously reveals the very function, composition and meaning of its architecture.

This viewpoint on light is nothing new, for architects have been dealing with light since man started to build. What is important is how this mindset informs and influences an architect's design decisions. Usually when we think of architecture that is generated by a sensitivity to light, we conjure up images of le Corbusier's Notre Dame du Haut at Ronchamp, or the Monastery of Sainte Marie de La Tourette with their contrasting shadows and dramatic internal light conditions. But these buildings are mere products of a discourse with light in relation to their context (site, program, culture, genius loci, location, meaning etc), but it is definitely not the norm. Architecture that is revealed by light is purely architecture that desires light. When the architect has a mindset towards light, then there is a right response towards light, structure starts to be revealed by light, architectural form appears in light, and textures are brought alive through light.

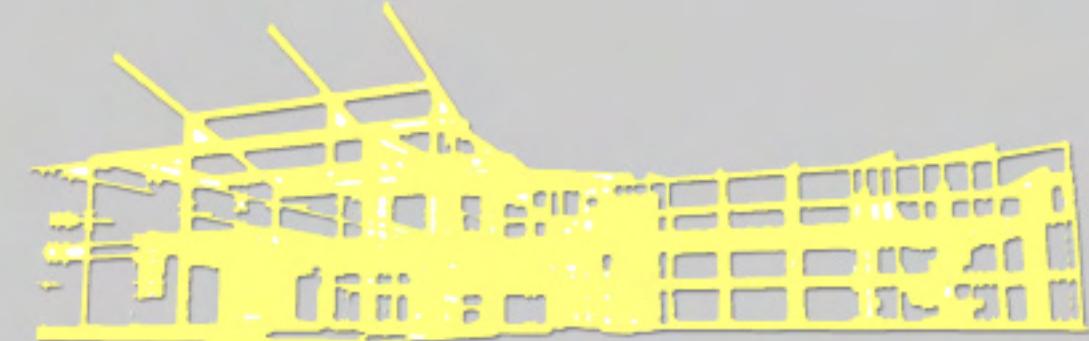
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fig6 - D.K Primary school - Ghana



five



# TECHNICAL

i n v e s t i g a t i o n

Technical Development

s e c t i o n  
t e c h n i - s p a t i a l

Systems

m e c h a n i c a l  
s t r u c t u r a l

Technical documentation

s i t e  
p a r k i n g  
p l a n n i n g  
s e c t i o n  
d e t a i l i n g

# DEVELOPMENT

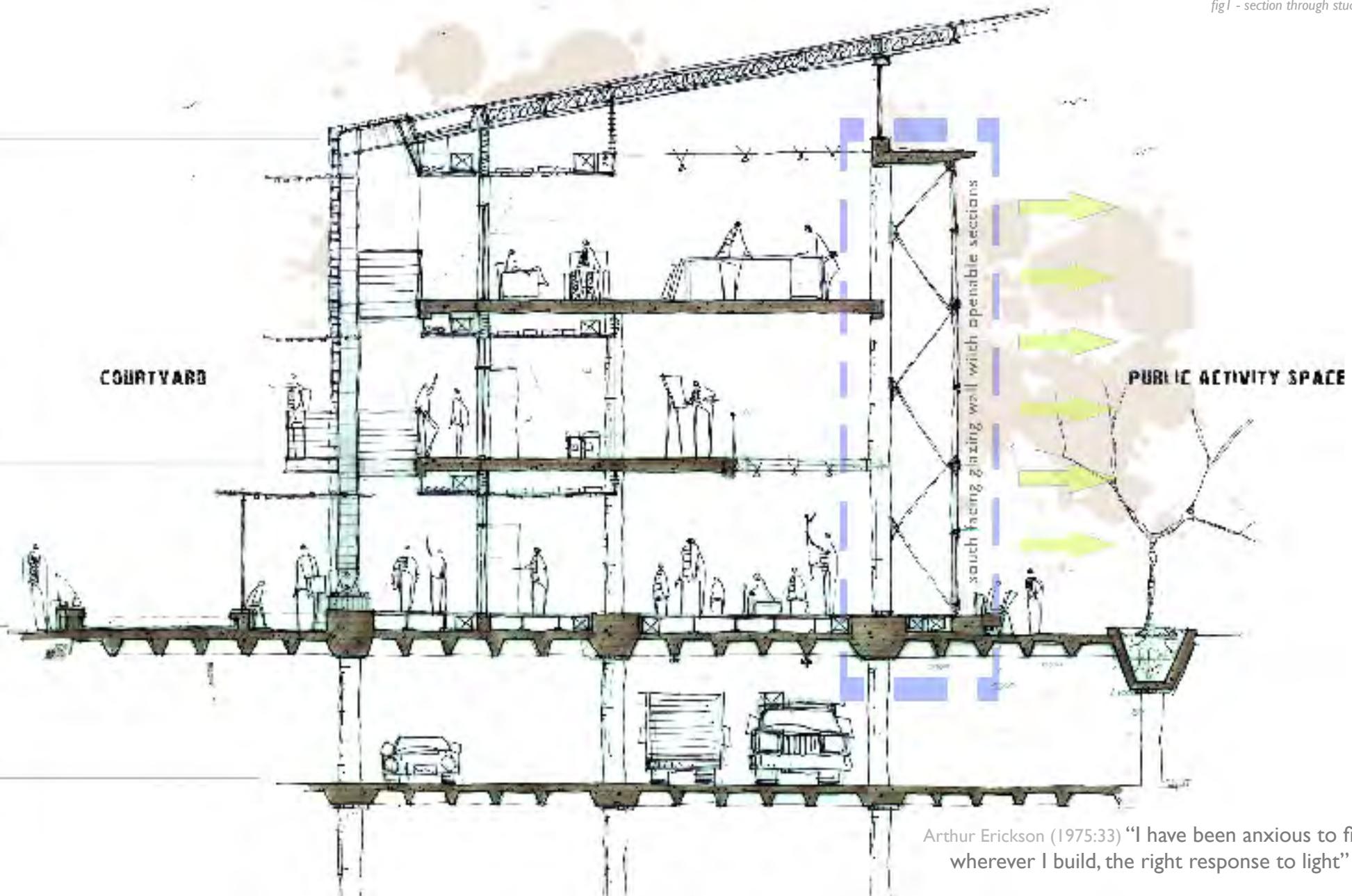
SECTION AA  
studios

circulation

studios

fig1 - section through studios

private studio  
mixed studio  
group studio  
2 level basement parking



Arthur Erickson (1975:33) "I have been anxious to find,  
wherever I build, the right response to light"

# DEVELOPMENT

## SECTION BB

lobby & library

fig2 - section through main library volume



Louis Kahn (Wurman, 1986:257) – “A space can never reach its place in architecture without natural light”

# DEVELOPMENT

fig3 - section through office and exhibition space

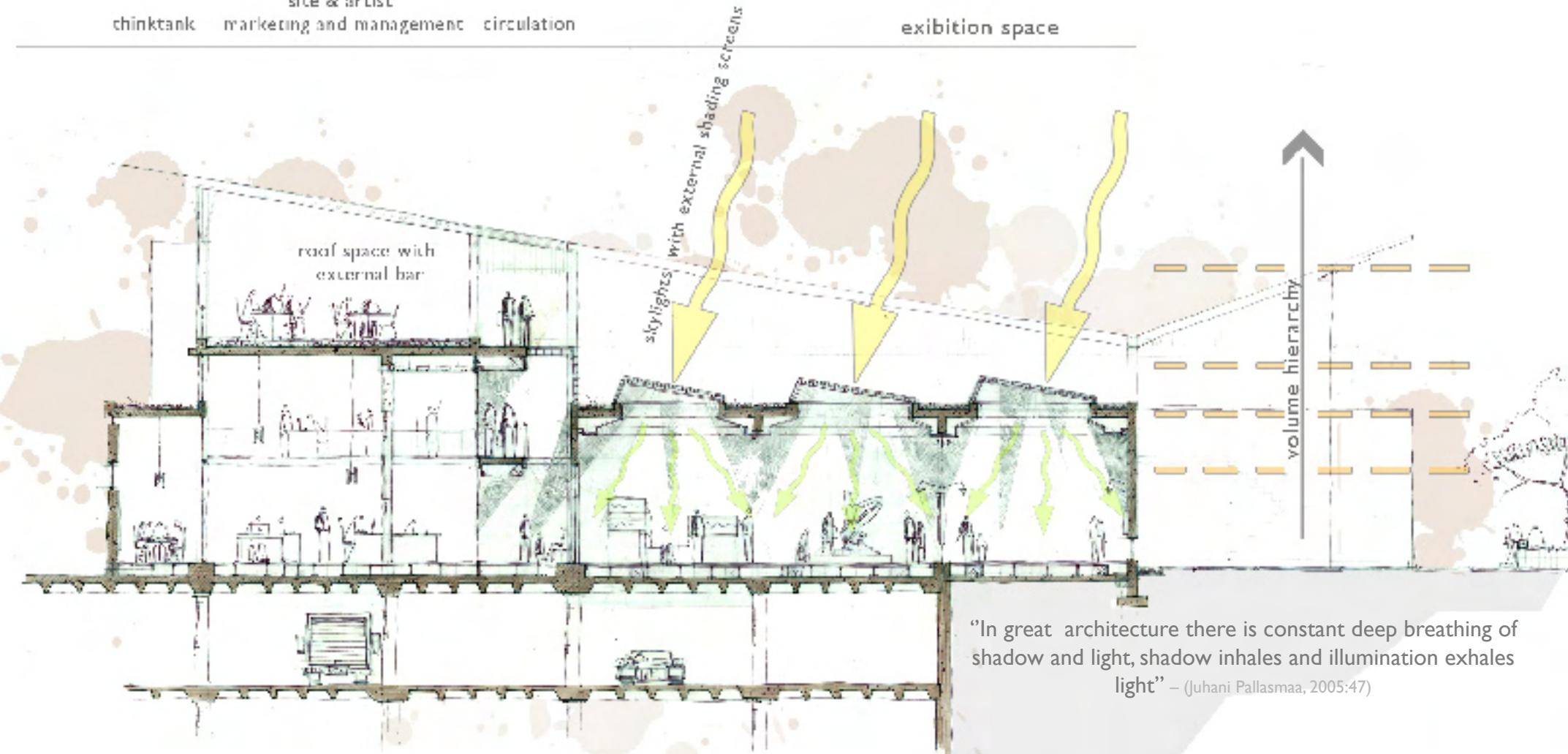
site & artist  
thinktank marketing and management circulation

sky/lights with external shading screens

exhibition space



volume hierarchy



"In great architecture there is constant deep breathing of shadow and light, shadow inhales and illumination exhales light" – (Juhani Pallasmaa, 2005:47)

# DEVELOPMENT

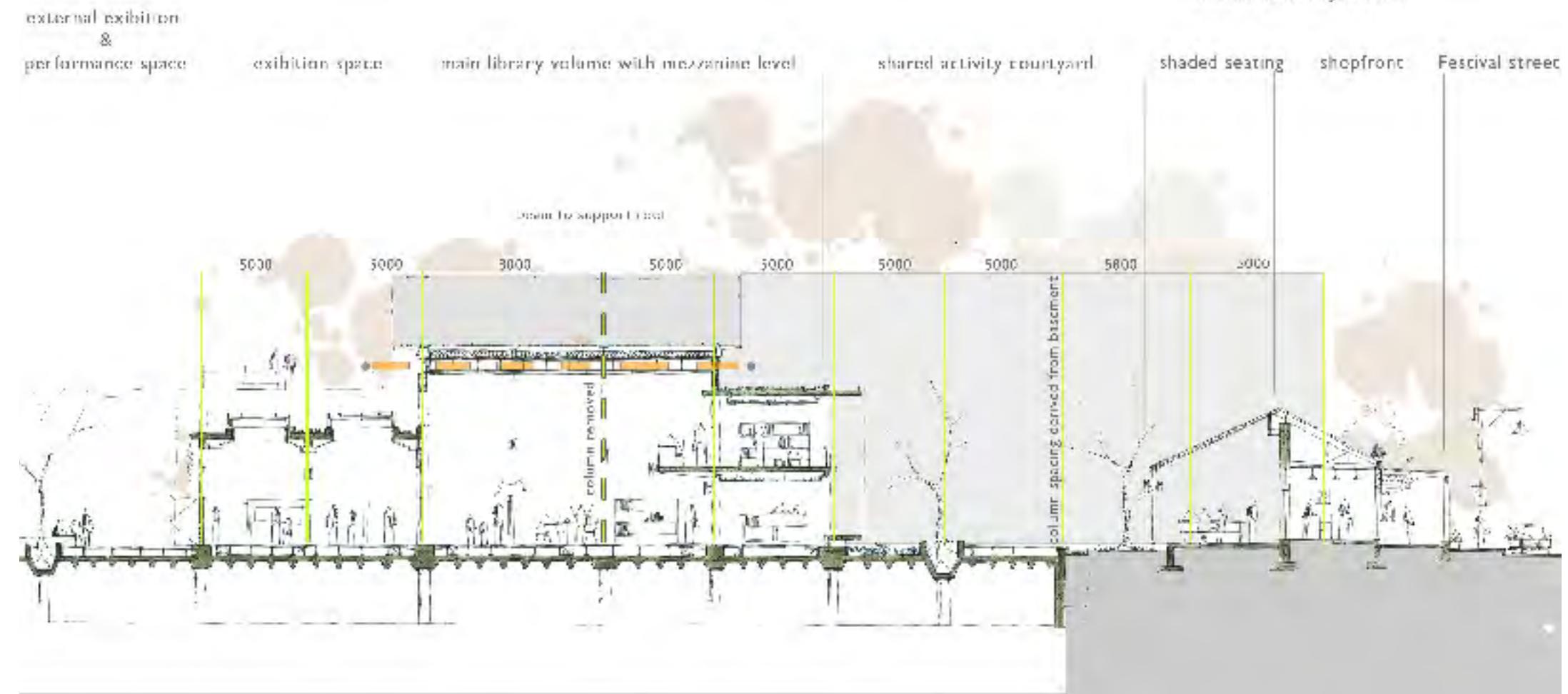


fig4 - section through library

# DEVELOPMENT

techni-spatial

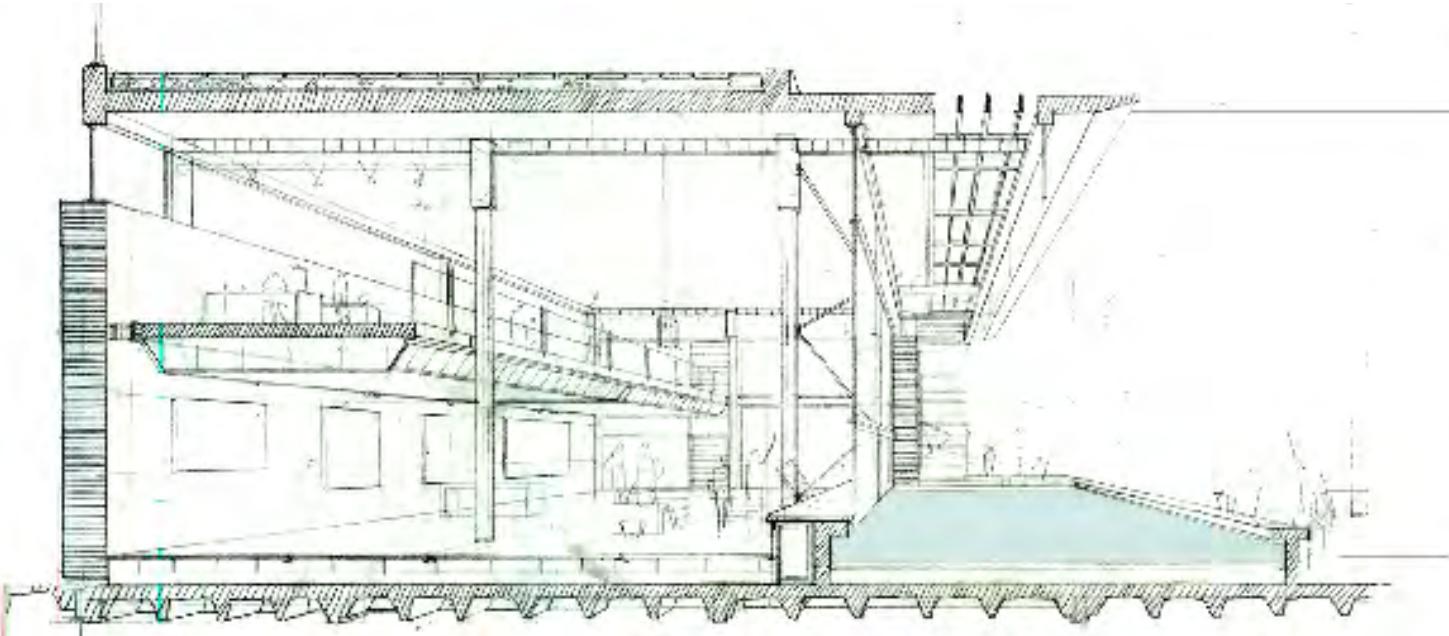


fig5 - Perspective section through office

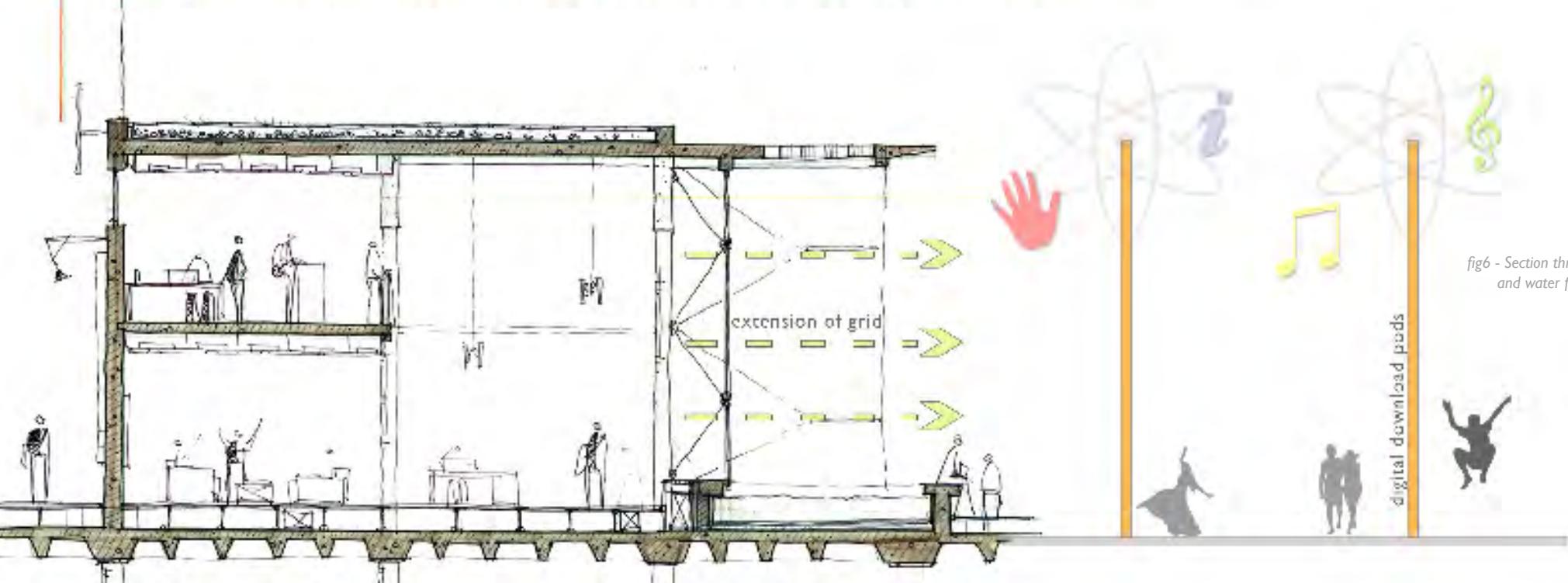
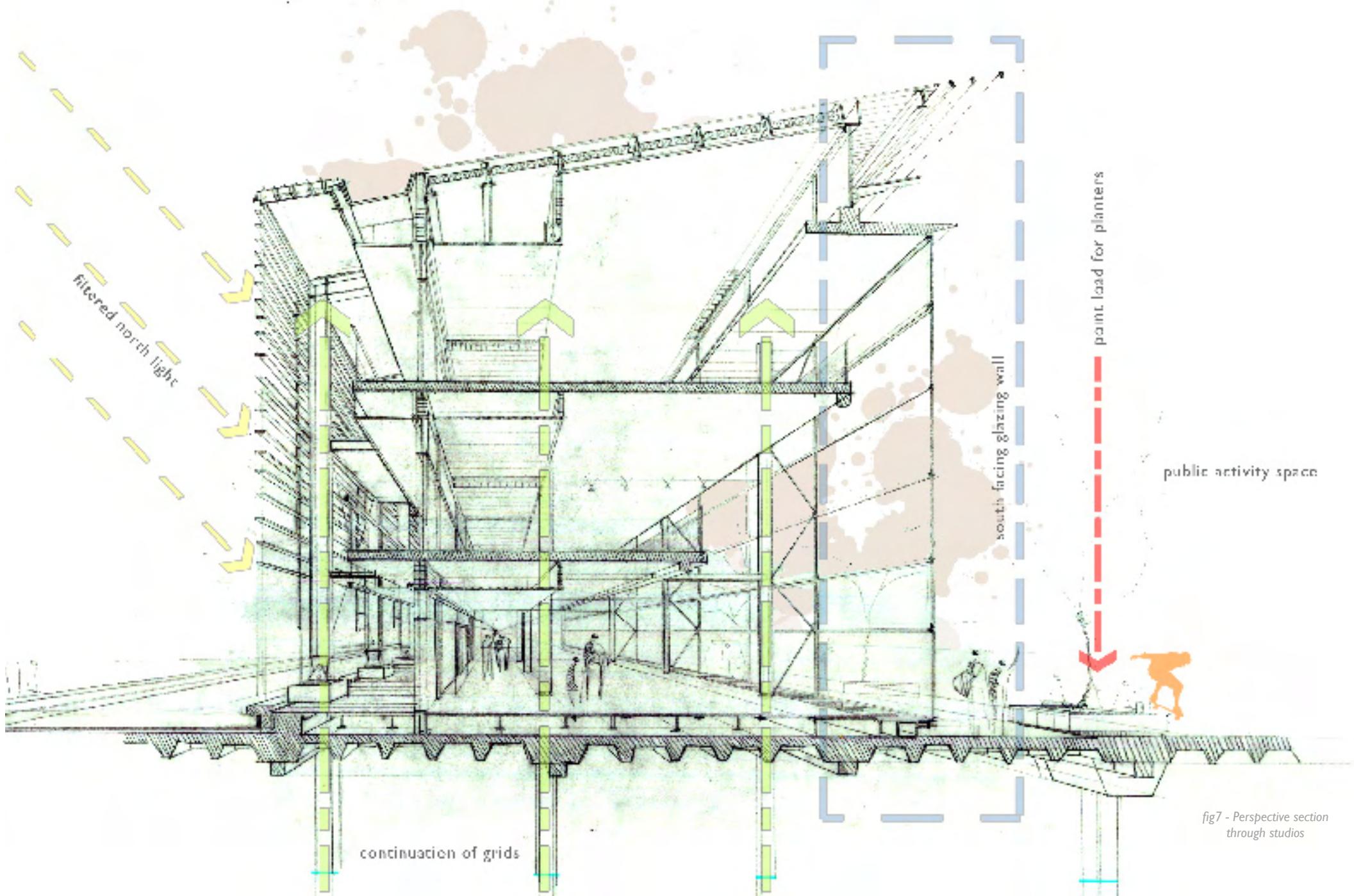


fig6 - Section through office and water feature

fig7 - Perspective section through studios



# DEVELOPMENT

techni-spatial

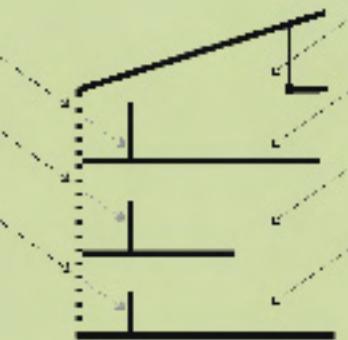
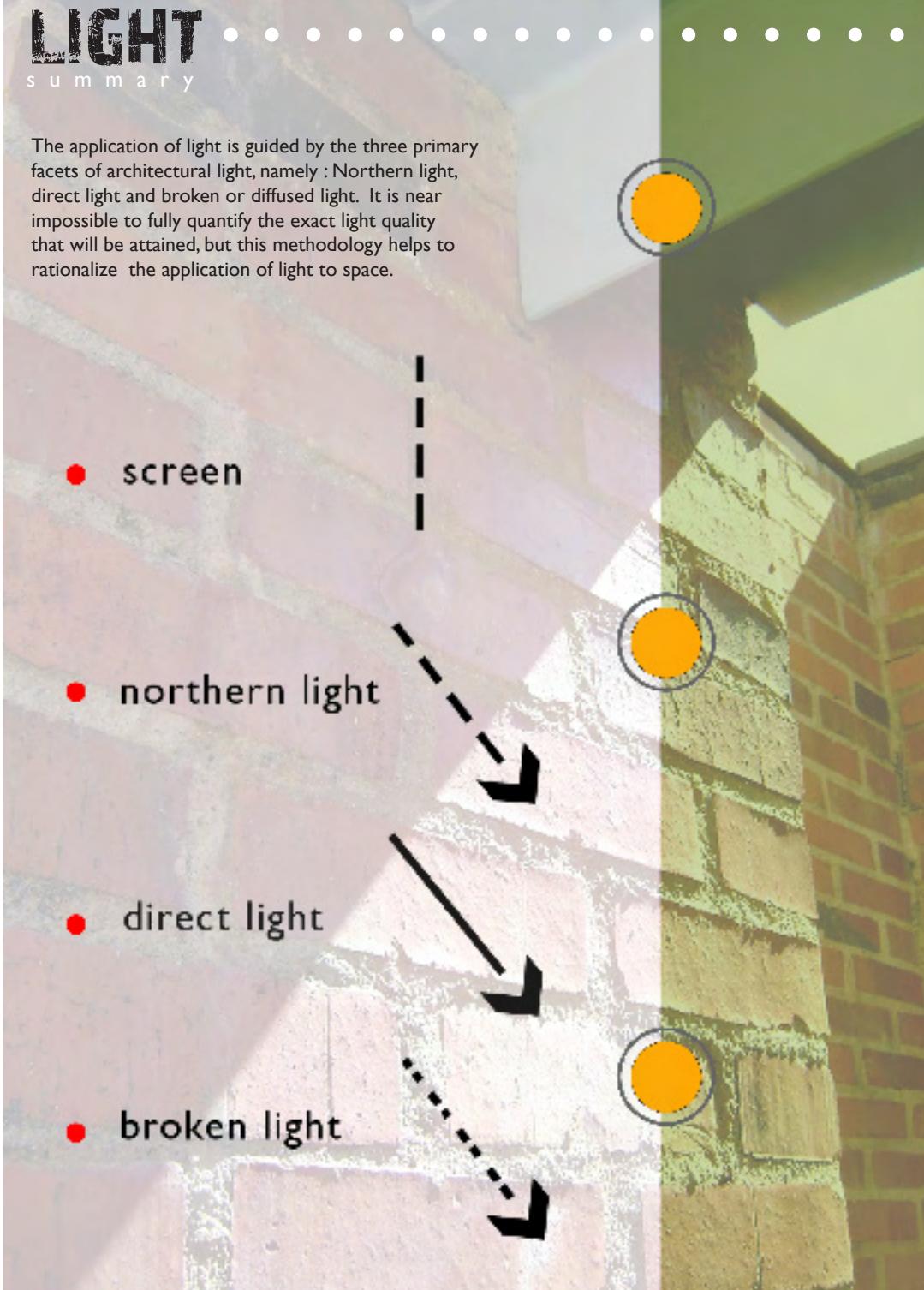


Louis Kahn (Wurman, 1986:6) - "...structure is the maker of light. When you decide on the structure, you are deciding on light. In old buildings, the columns were an expression of light. Light, no light, light, no light, you see. The module is also light, no light."

# LIGHT

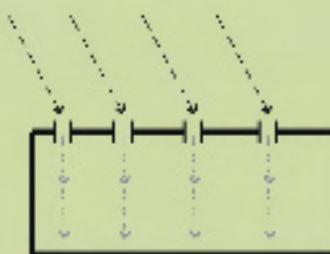
summary

The application of light is guided by the three primary facets of architectural light, namely : Northern light, direct light and broken or diffused light. It is near impossible to fully quantify the exact light quality that will be attained, but this methodology helps to rationalize the application of light to space.



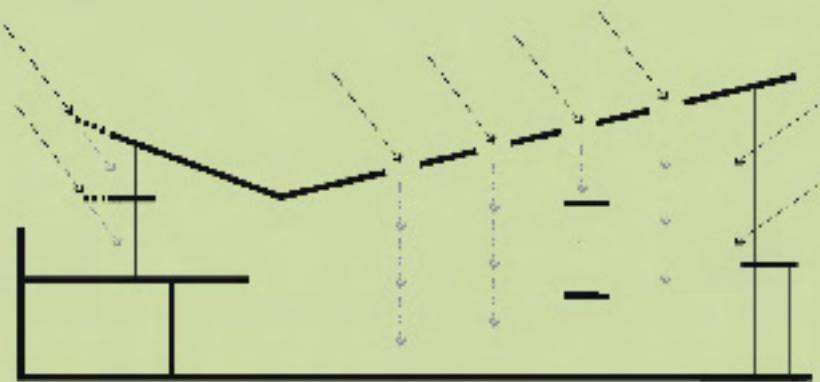
studios

fig9 -Studios\_ light quality diagram



exhibition

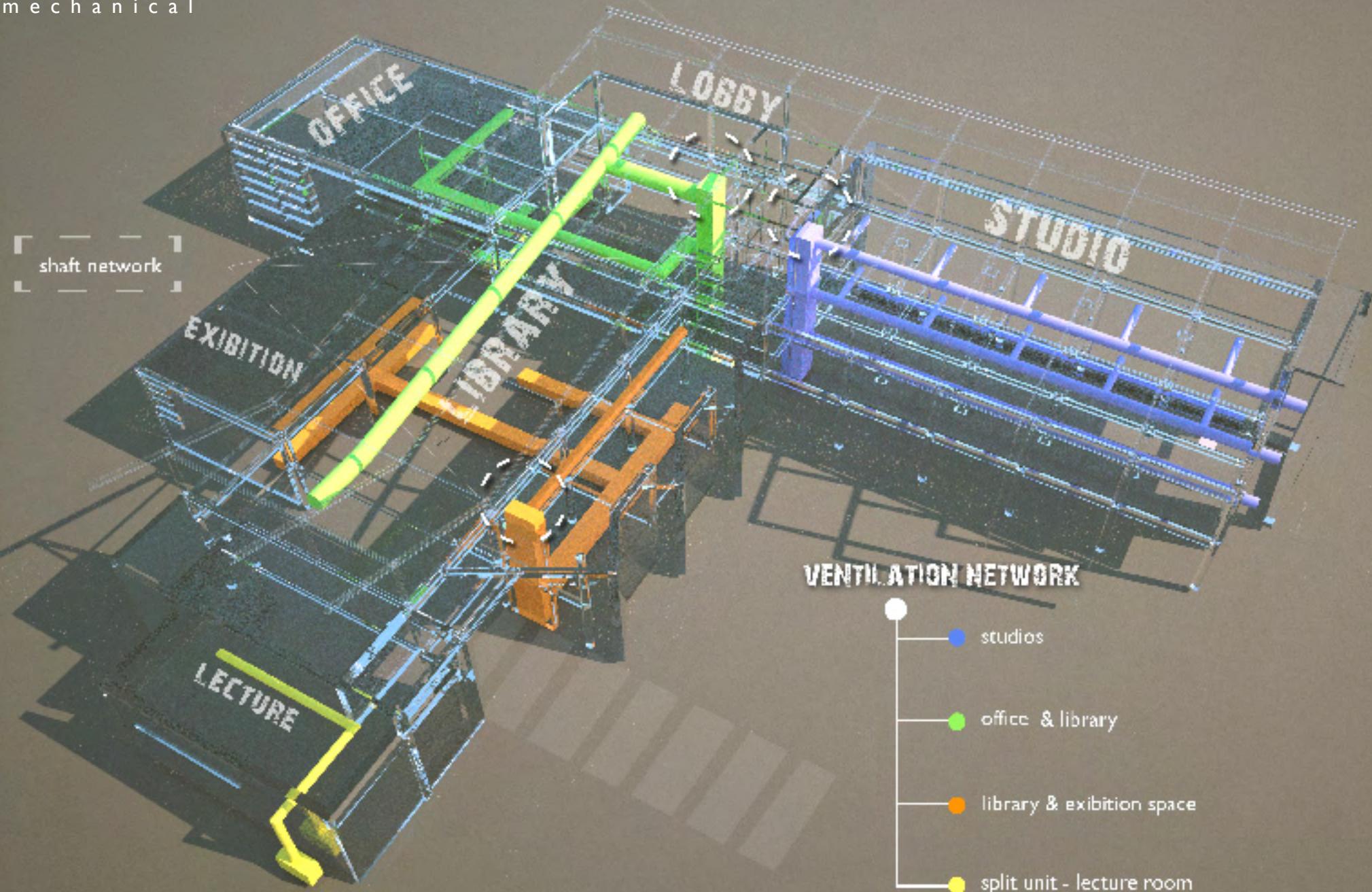
fig10 -Exhibition space\_light quality diagram



library

fig11 -Library\_light quality diagram





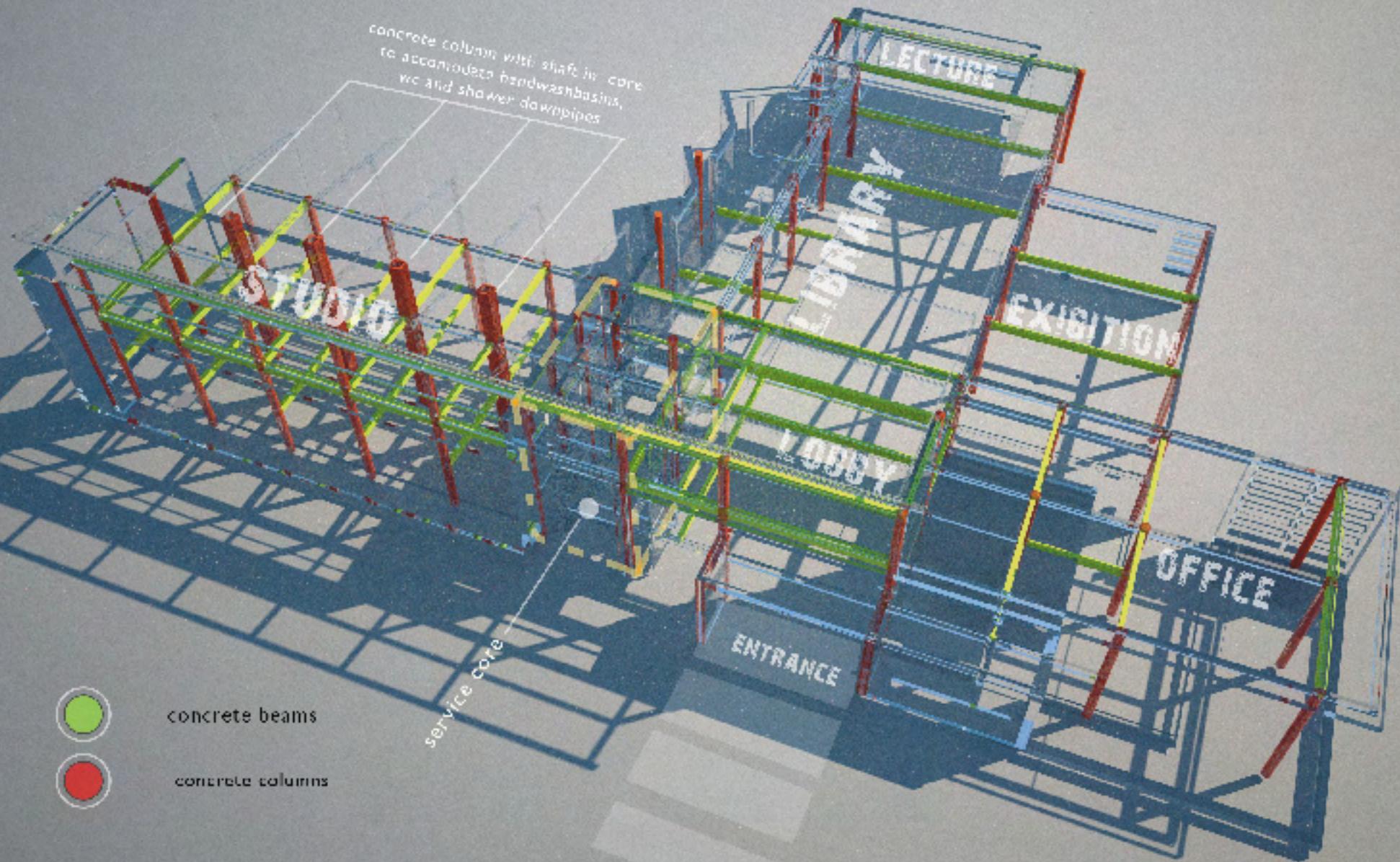


fig 15 - 3D Structural system

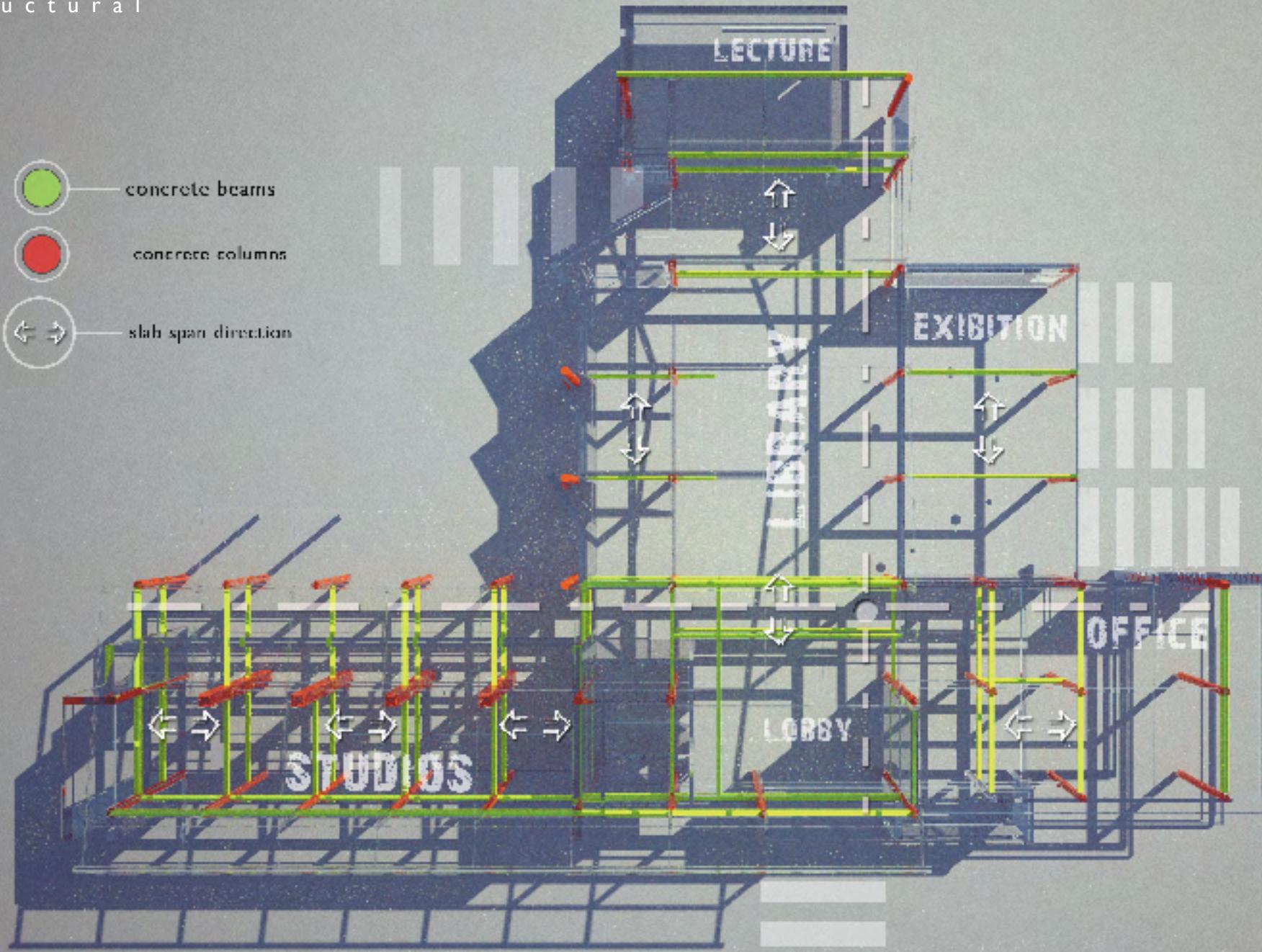


fig 16 - 3D Structural system : plan

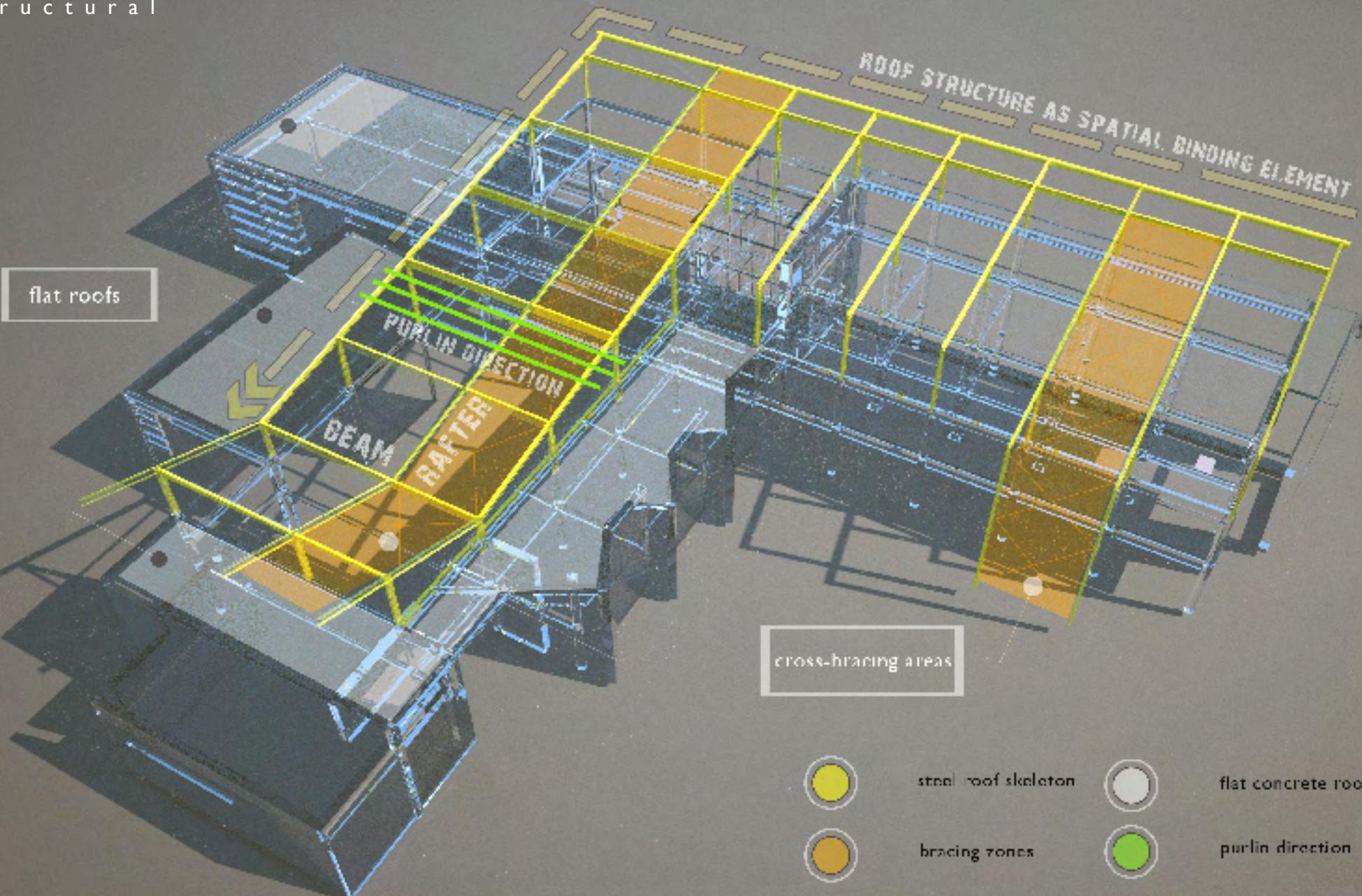
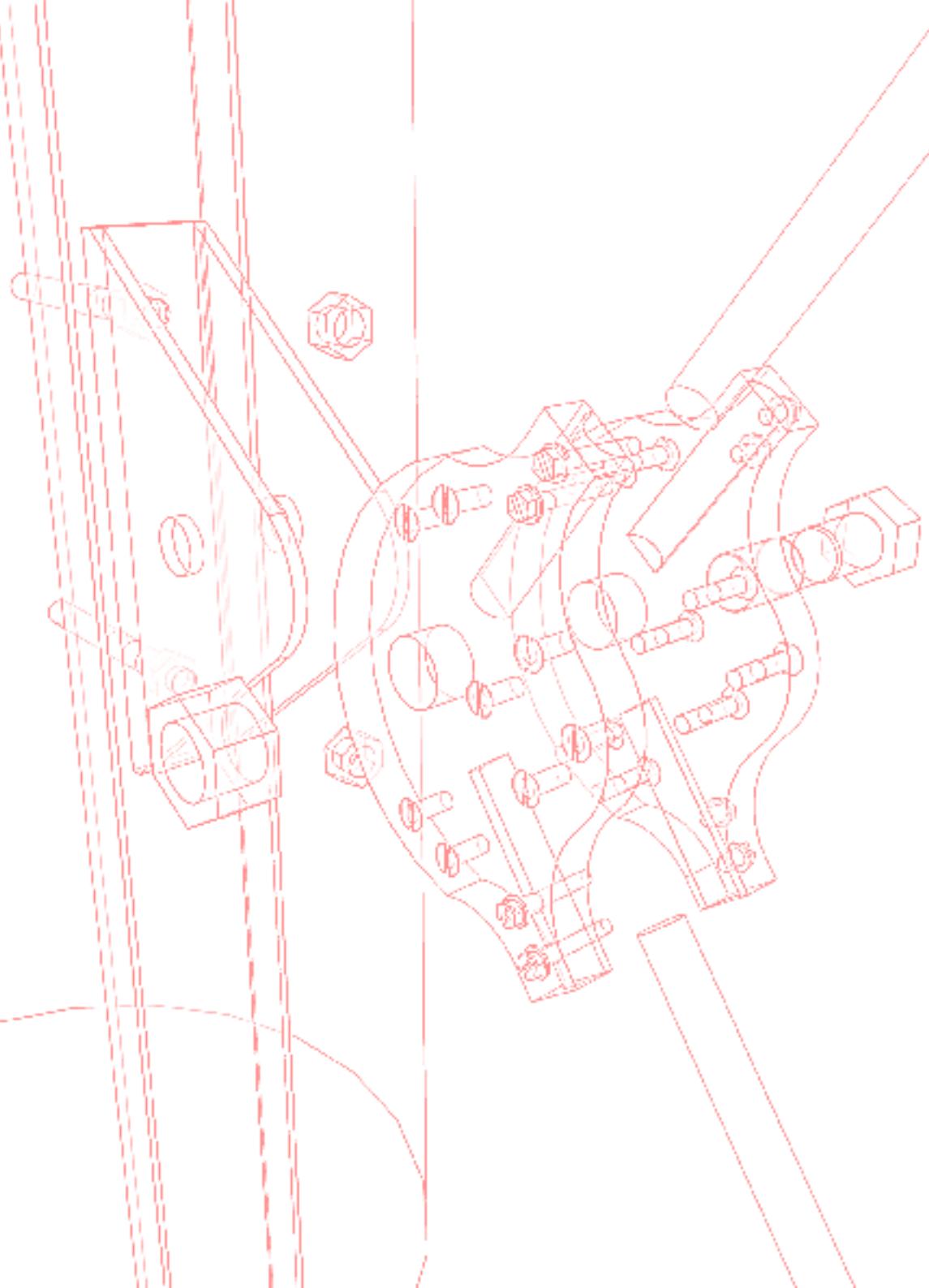
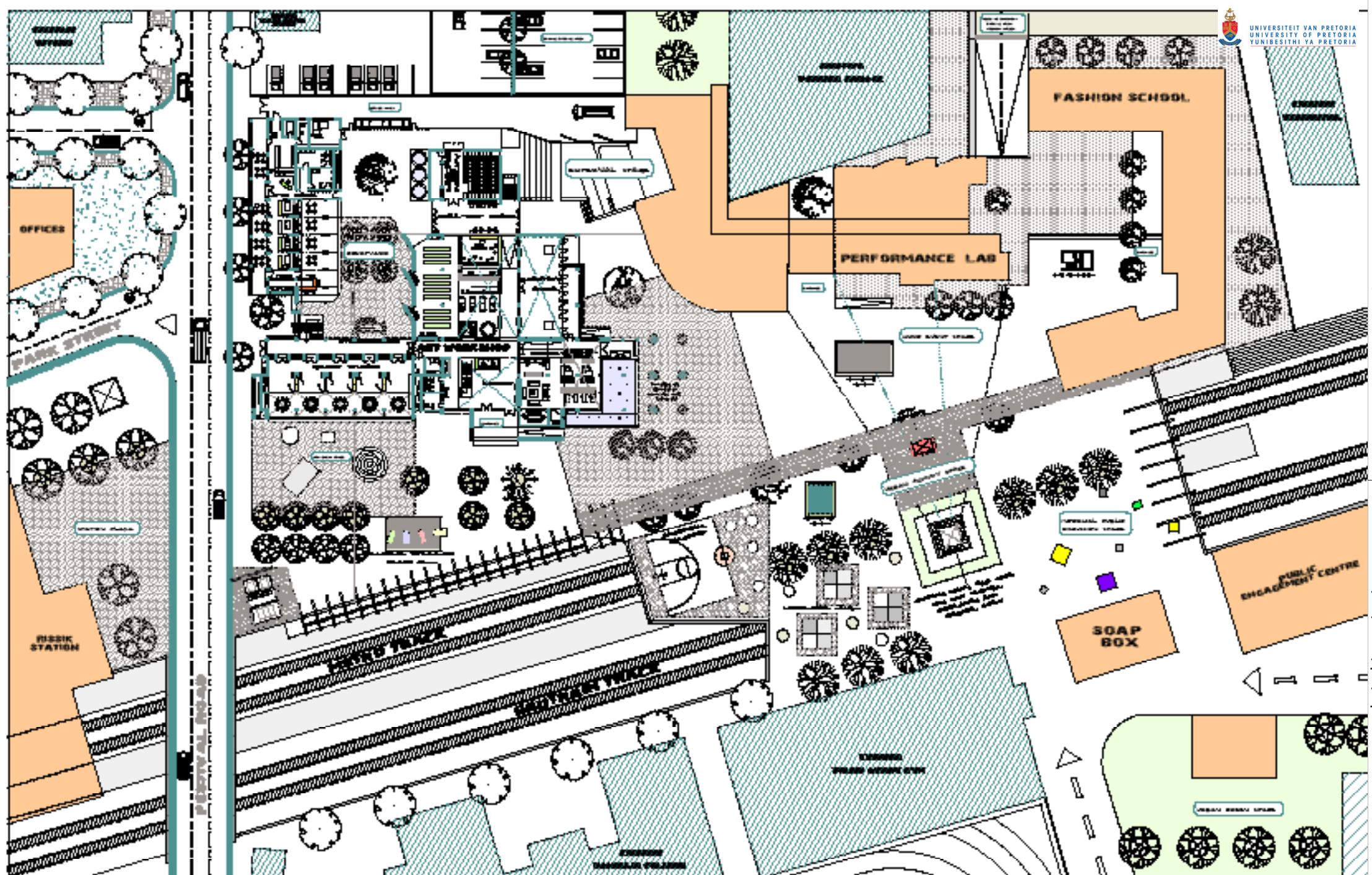


fig 17 - 3D Structural system : Roof

fig 8 - 3D\_Stick glazing rod clamp



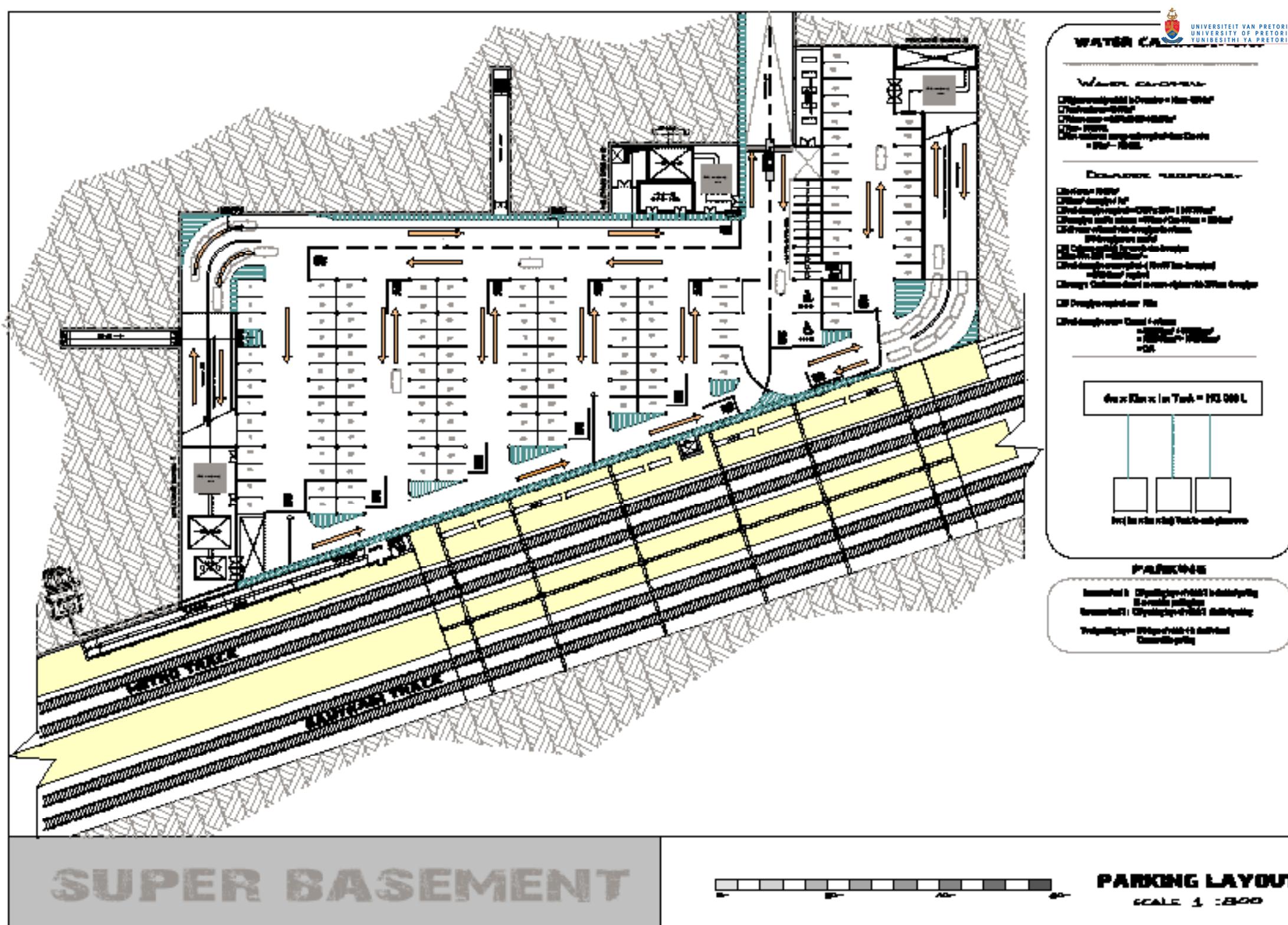
**TECHNICAL**  
d o c u m e n t a t i o n

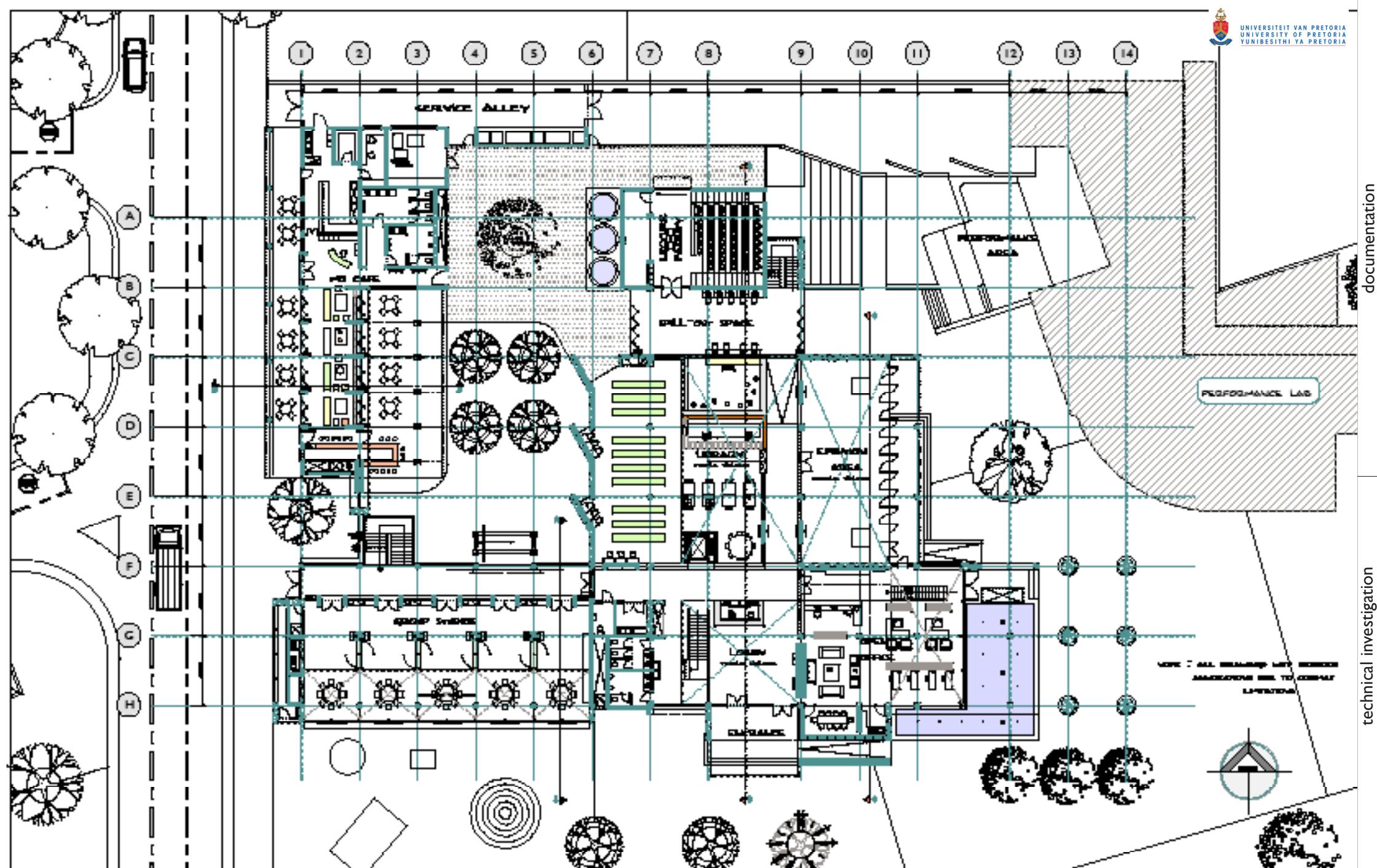


**ART WORKSHOP**

**SITE PLAN**  
SCALE 1 : 800

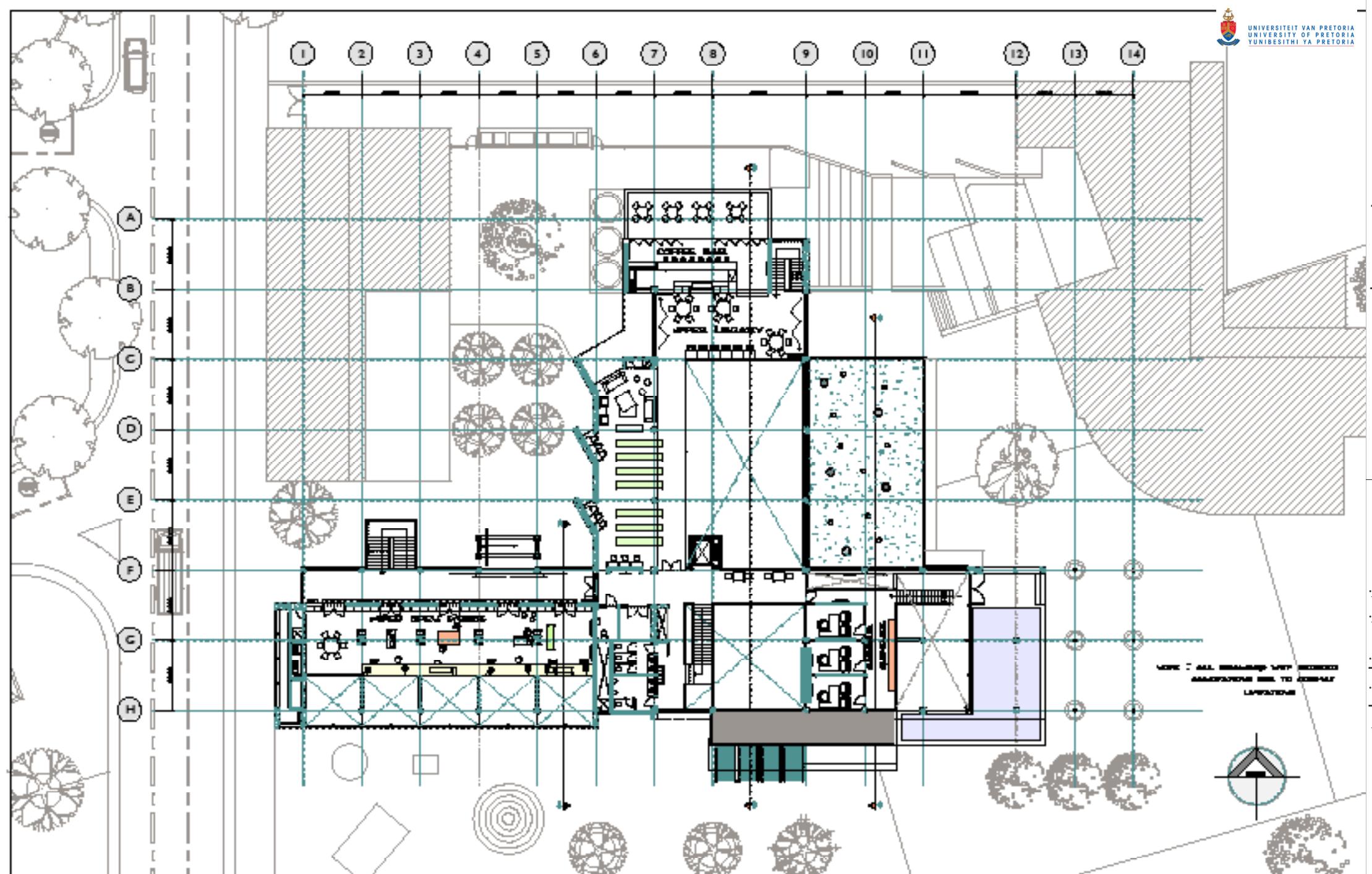
5.34



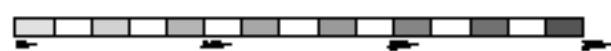


ART WORKSHOP

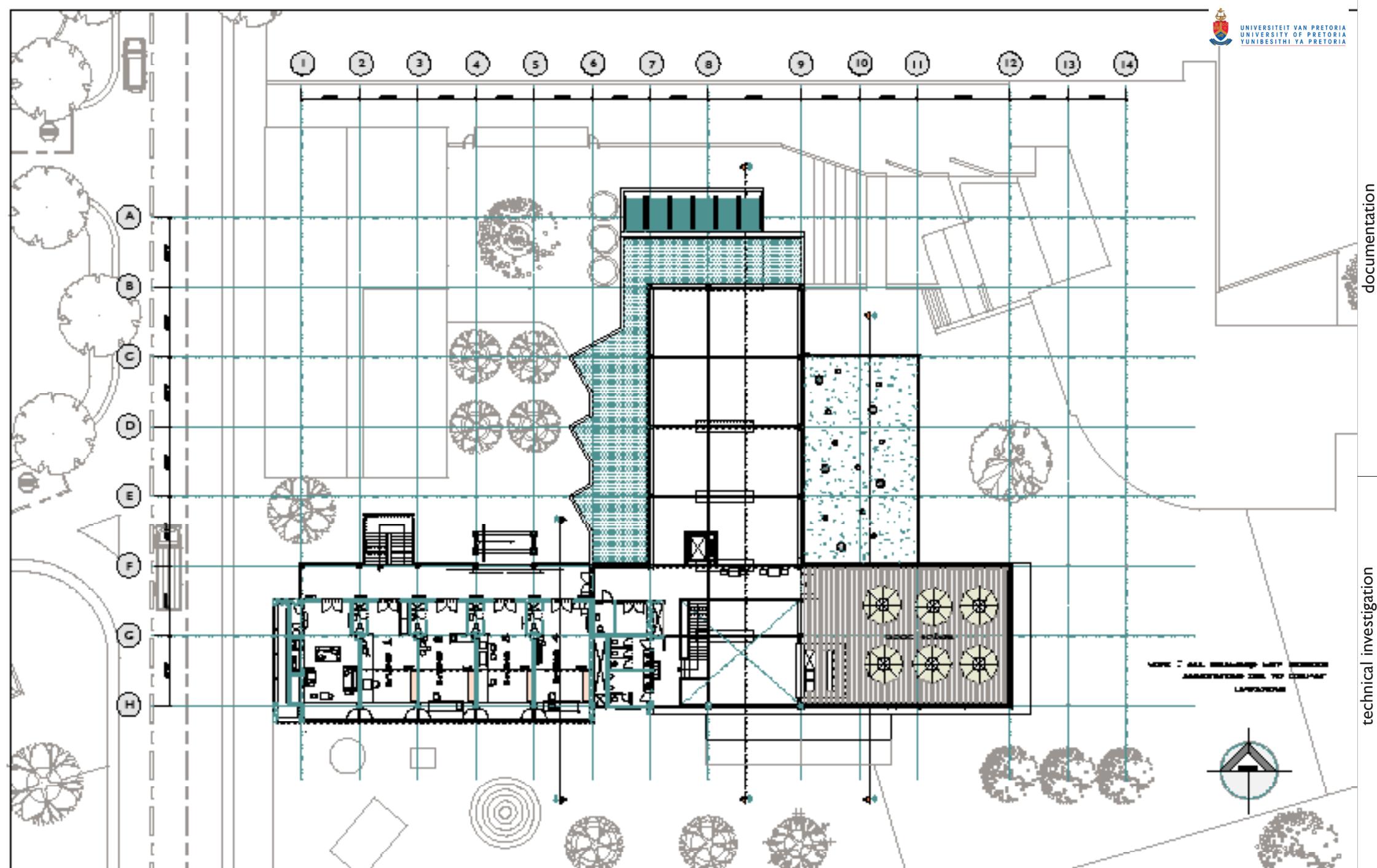
GROUND FLOOR  
SCALE 1:400



ART WORKSHOP

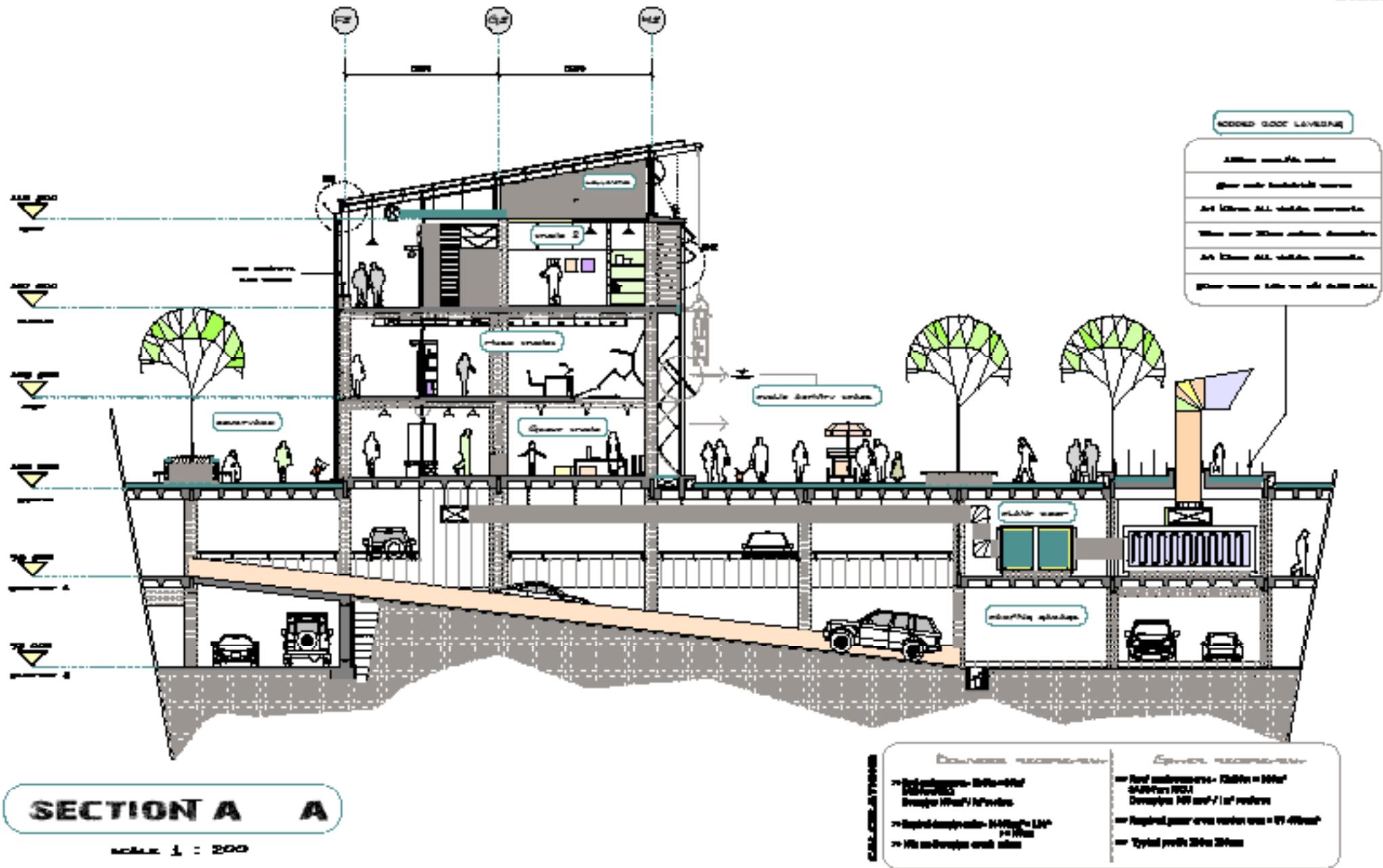


FIRST FLOOR  
SCALE 1:400



**ART WORKSHOP**

SECOND FLOOR  
SCALE 1:400



**ART WORKSHOP**



LINE SCALE 1:200

# ROOF EDGE

Spanskoed wat nie van die muur af val nie. Die skotter  
afvalle en word van CAVC2675, agter muur deur te word, gesien van  
die muur uit. Die muur is volgens hierdie fotoeindigend  
met betrek tot die muur van die muur wat daar voorstaan  
is. Die muur wat daarvoorstaan is volgens hierdie fotoeindigend  
met betrek tot die muur wat daar voorstaan is.

Spanskoed wat nie van die muur af val nie.

Die muur wat daarvoorstaan is volgens hierdie fotoeindigend  
met betrek tot die muur wat daar voorstaan is. Die muur wat daar voorstaan  
is volgens hierdie fotoeindigend met betrek tot die muur wat daar voorstaan is.

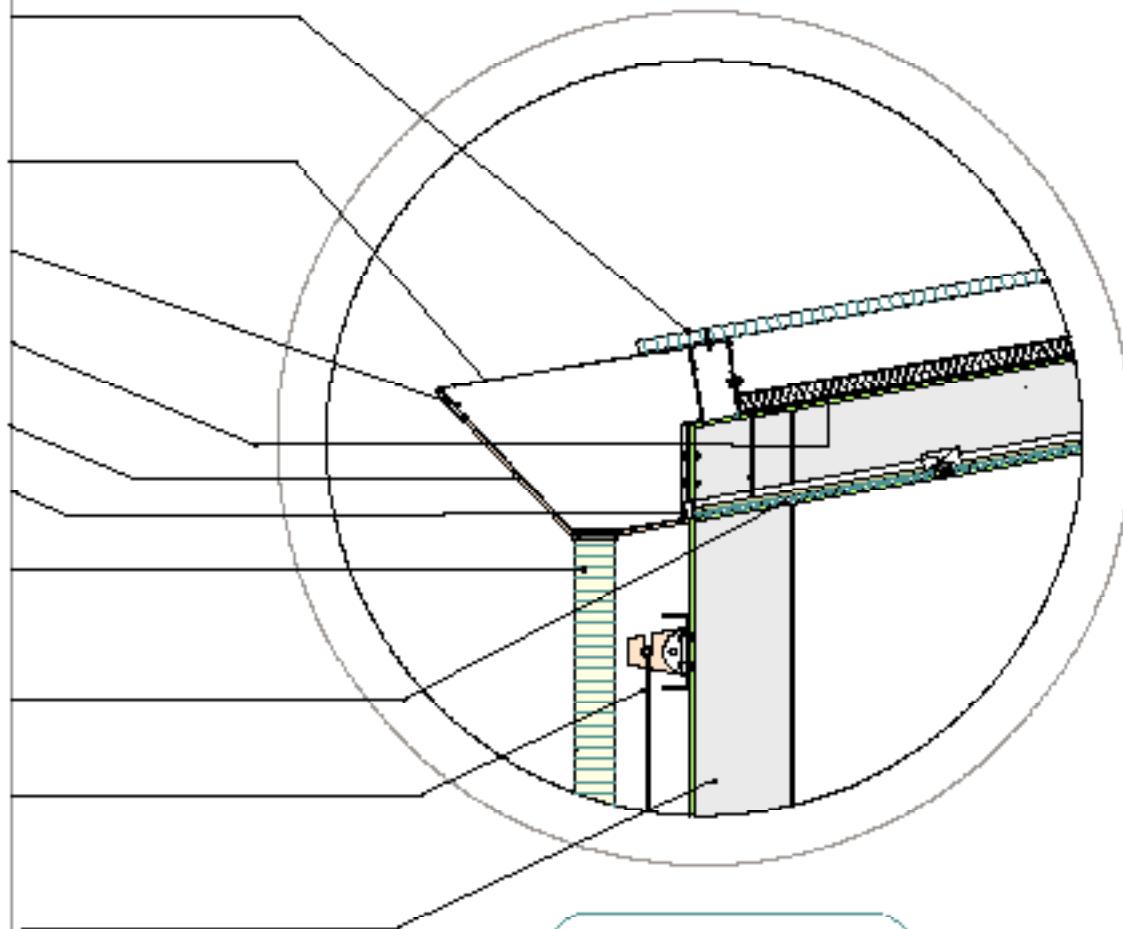
400 x 100mm reeksvoer muur binne die muur.  
Die muur wat daar voorstaan is.

Spanskoed wat nie van die muur af val nie. Die muur wat daar voorstaan  
is volgens hierdie fotoeindigend met betrek tot die muur wat daar voorstaan  
is volgens hierdie fotoeindigend met betrek tot die muur wat daar voorstaan is.

Spanskoed wat nie van die muur af val nie.

Die muur wat daar voorstaan is volgens hierdie fotoeindigend  
met betrek tot die muur wat daar voorstaan is. Die muur wat daar voorstaan  
is volgens hierdie fotoeindigend met betrek tot die muur wat daar voorstaan is.

250 x 100 x 300 mm pvc, muur binne van CAVC2675  
muur wat daar voorstaan is volgens hierdie fotoeindigend  
met betrek tot die muur wat daar voorstaan is volgens hierdie fotoeindigend  
met betrek tot die muur wat daar voorstaan is.



**DETAIL 1**

SCALE 1:20

ART WORKSHOP



DETAILS

# STICK GLAZING

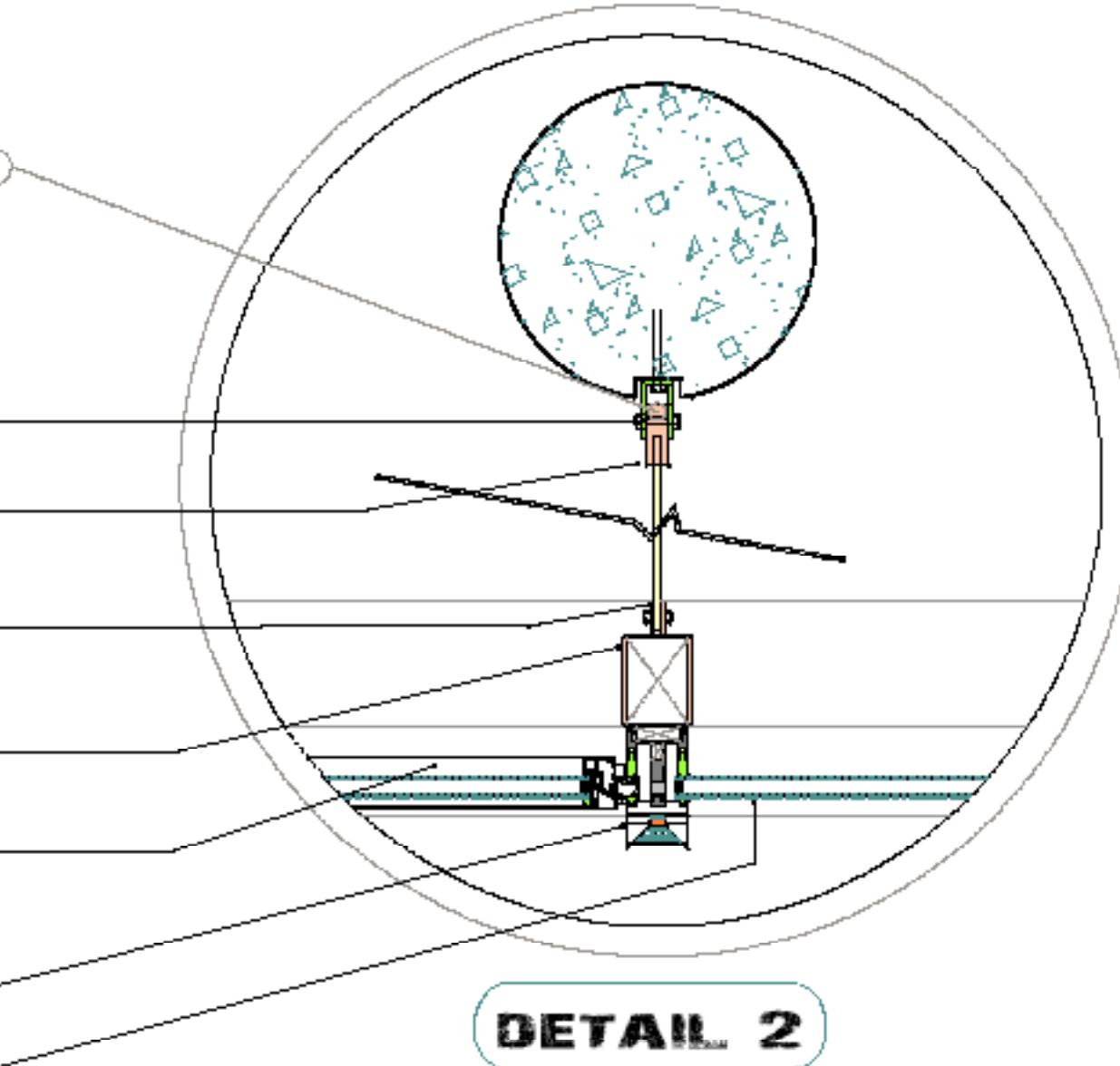
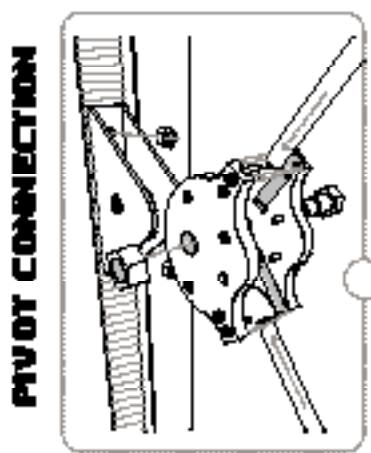
ALUMINIUM WELD FRAME GLAZER ALUMINUM  
WELD FRAME GLAZER ALUMINUM CLASS 4  
WELD FRAME GLAZER ALUMINUM CLASS 4 WELD TO SANI-SAFE

ALUMINIUM WELD FRAME GLAZER ALUMINUM  
WELD TO WELD FRAME GLAZER ALUMINUM CLASS 4.8  
WELD TO WELD FRAME GLAZER ALUMINUM CLASS 4 WELD TO SANI-SAFE

WELD FRAME GLAZER ALUMINUM CLASS 4.8  
WELD TO WELD FRAME GLAZER ALUMINUM CLASS 4.8  
WELD TO WELD FRAME GLAZER ALUMINUM CLASS 4 WELD TO SANI-SAFE

WELD FRAME GLAZER ALUMINUM CLASS 4.8  
WELD TO WELD FRAME GLAZER ALUMINUM CLASS 4.8  
WELD TO WELD FRAME GLAZER ALUMINUM CLASS 4 WELD TO SANI-SAFE

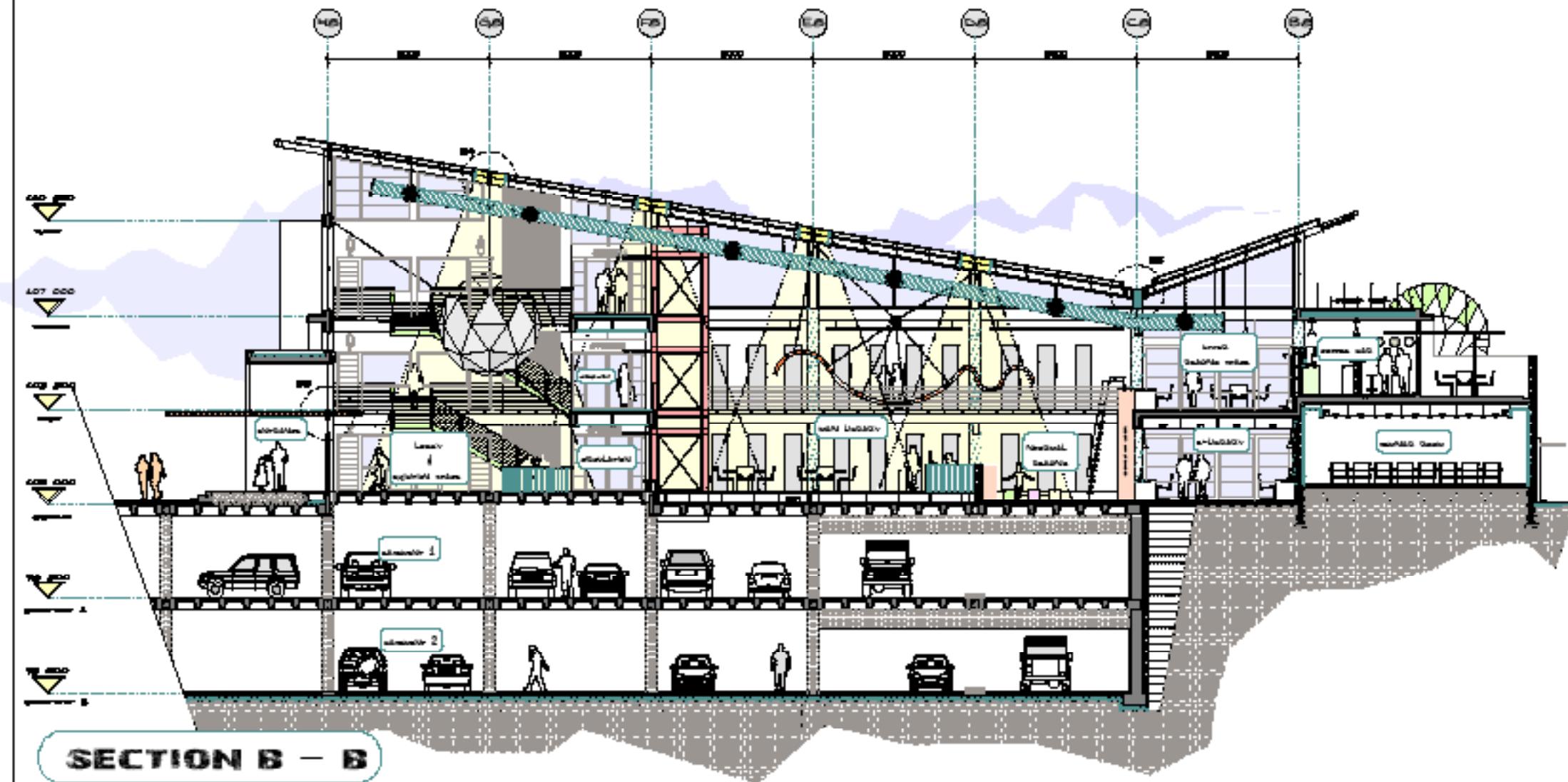
ALUMINIUM GLAZER ALUMINUM LED LIGHT BARS  
ALUMINIUM GLAZER ALUMINUM LED LIGHT BARS



ART WORKSHOP



DETAILS

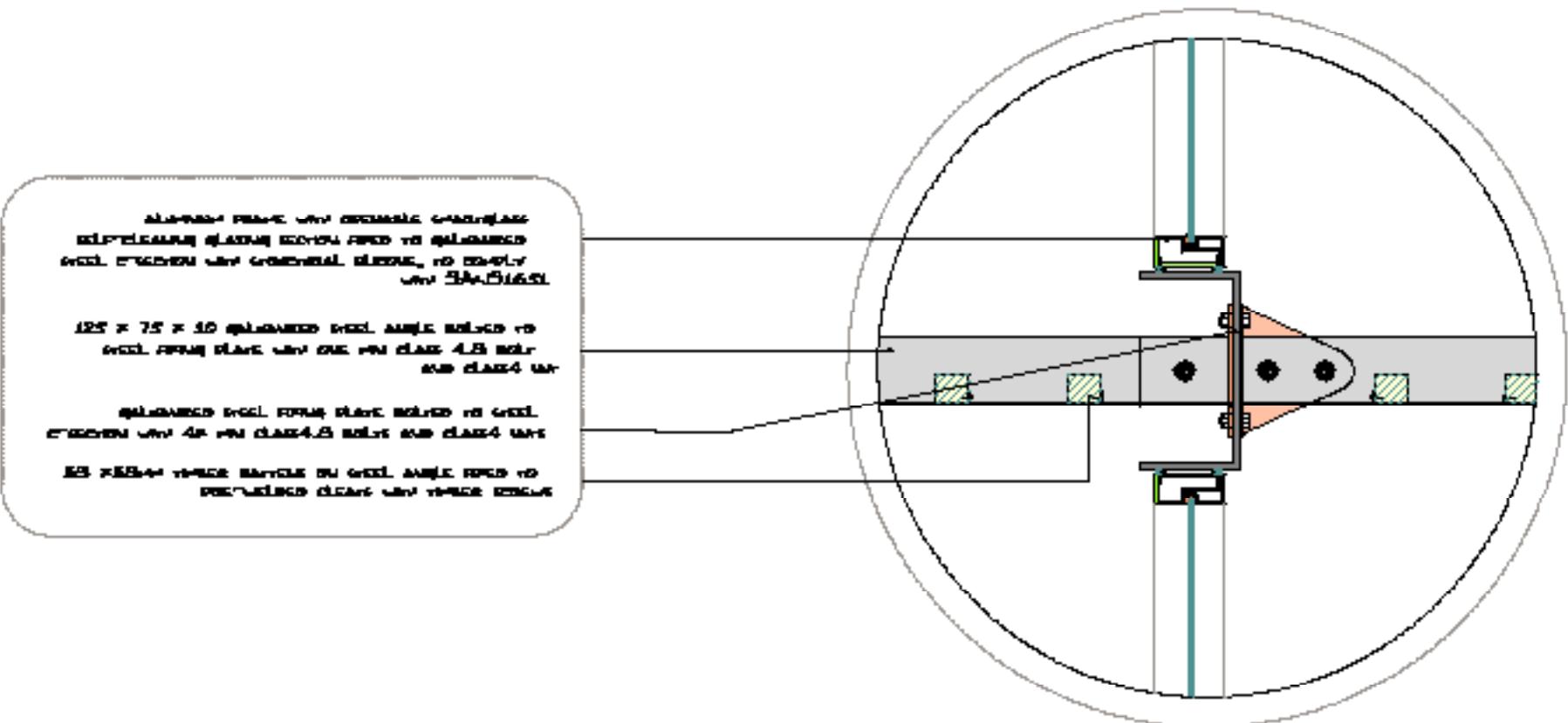


ART WORKSHOP



LINE SCALE 1 : 200

# ENTRANCE CANOPY



**DETAIL 3**

SCALE 1:10

ART WORKSHOP

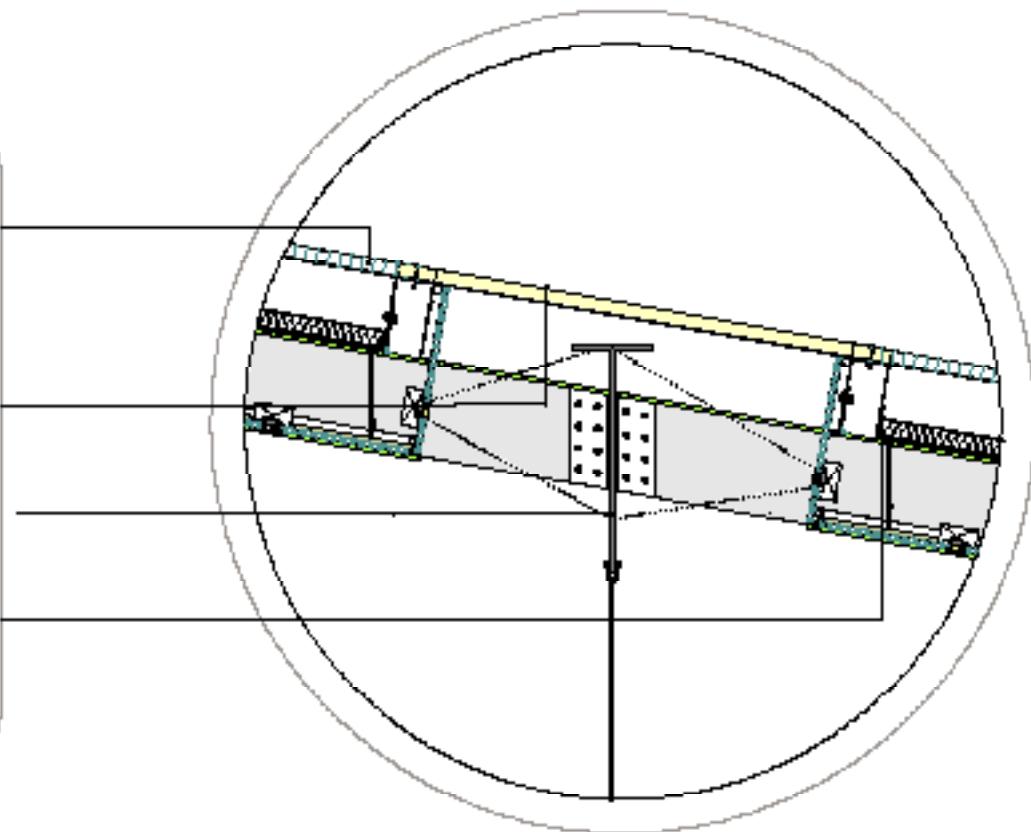


DETAILS

THE ROOF LIGHT

**QALUMED® MILD STEEL** has twice sheet coated on both sides with QALUM® ZE275 galvanizing to comply with SA183C275, which drop allows the steel delivery with fully descaled galvanizing powder, results on the surface of heavy coating and correct size, weight per linear meter of 1000kg/m<sup>2</sup> galvanizing with zinc-coated electrolytic galvanic sheet thickness, minimum zinc thickness of 250 microns.

100 x 200 x 100 mm. T-beam with bottom flange 100 mm. thick, thickness increasing to 200 mm. at midspan, thickness decreasing to 100 mm. at supports. Weight per unit length constant at 2000 kg/m.



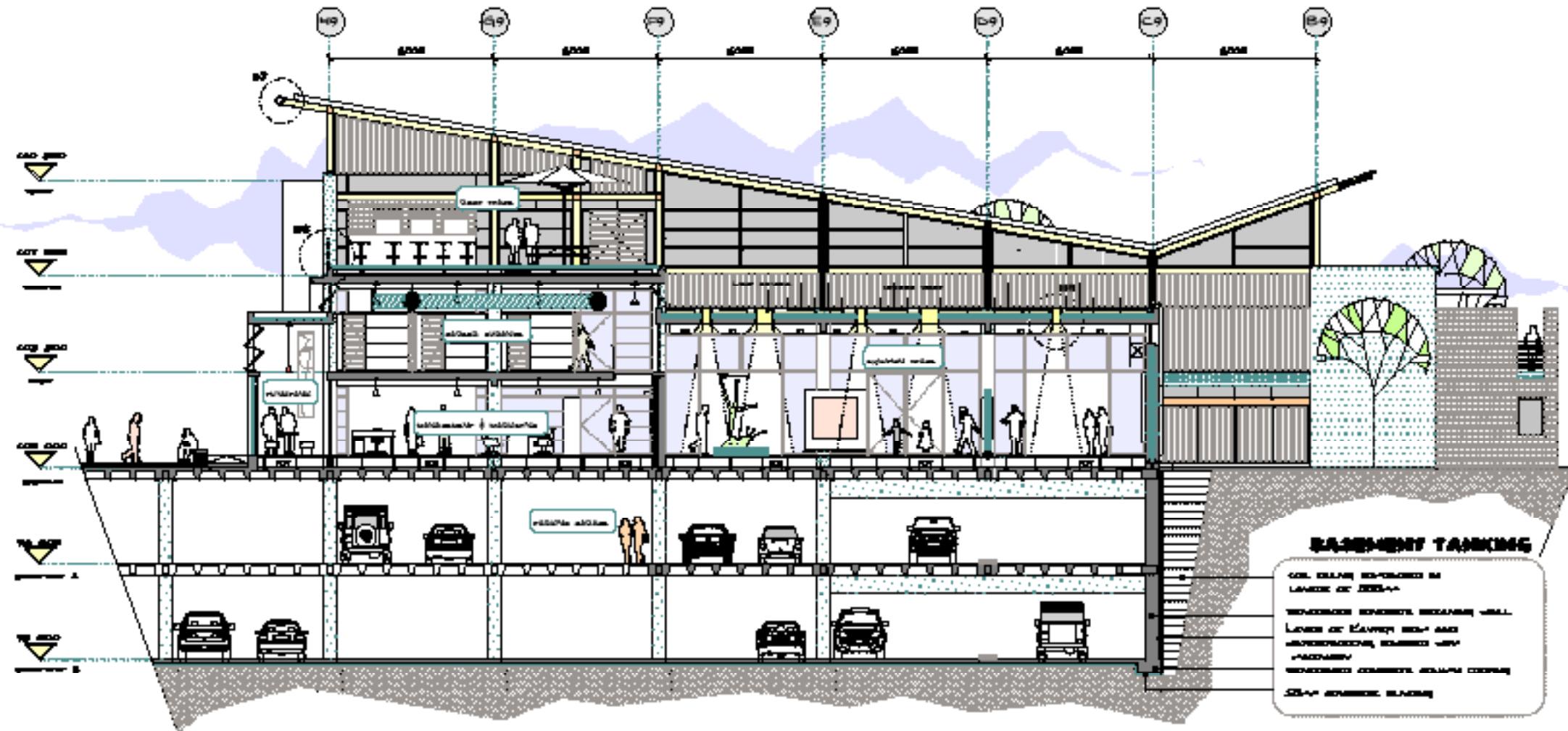
**DETAIL 4**

SCALE 1:20

# ART WORKSHOP



## DETAILS



SECTION C C

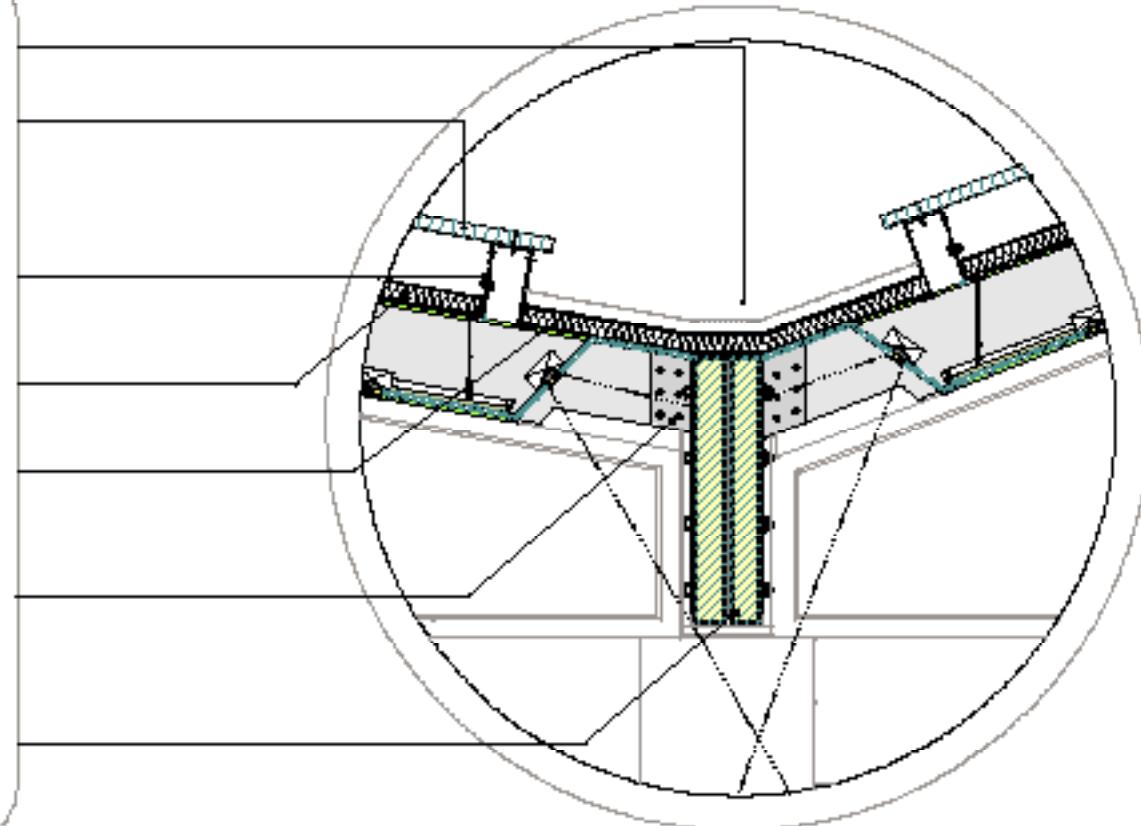
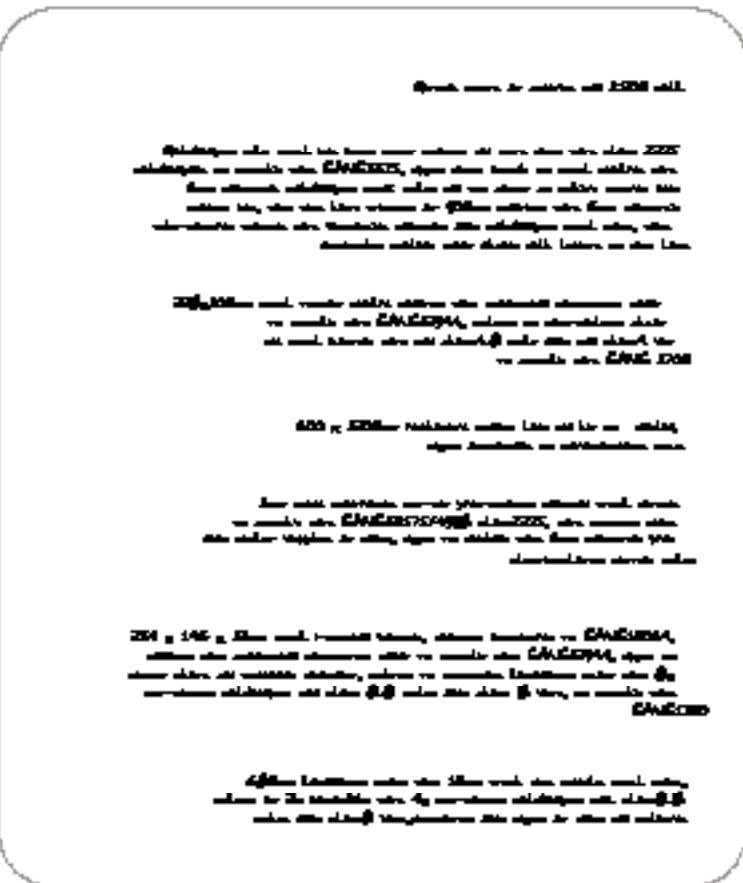
scale 1 : 500

ART WORKSHOP



LINE SCALE 1 : 500

# ROOF JUNCTION



**DETAIL 5**

SCALE 1:20

ART WORKSHOP



DETAILS

# ROOF DECK

70 x 50mm galvanised steel rectangular hollow section material.  
subject to 25mm concrete casting hollow section material.  
All formed galvanised to comply with SANS204, all welding  
to comply with SANS2000-C8.

25mm thick planks with open joints on 50x50x4mm timber floor  
joist, fixed with 2x countersunk wood screws on each joint.

25mm concrete rectangular steel rectangular hollow section  
material subject to 50mm galvanised steel rectangular  
all welding to comply with SANS2000-C8.

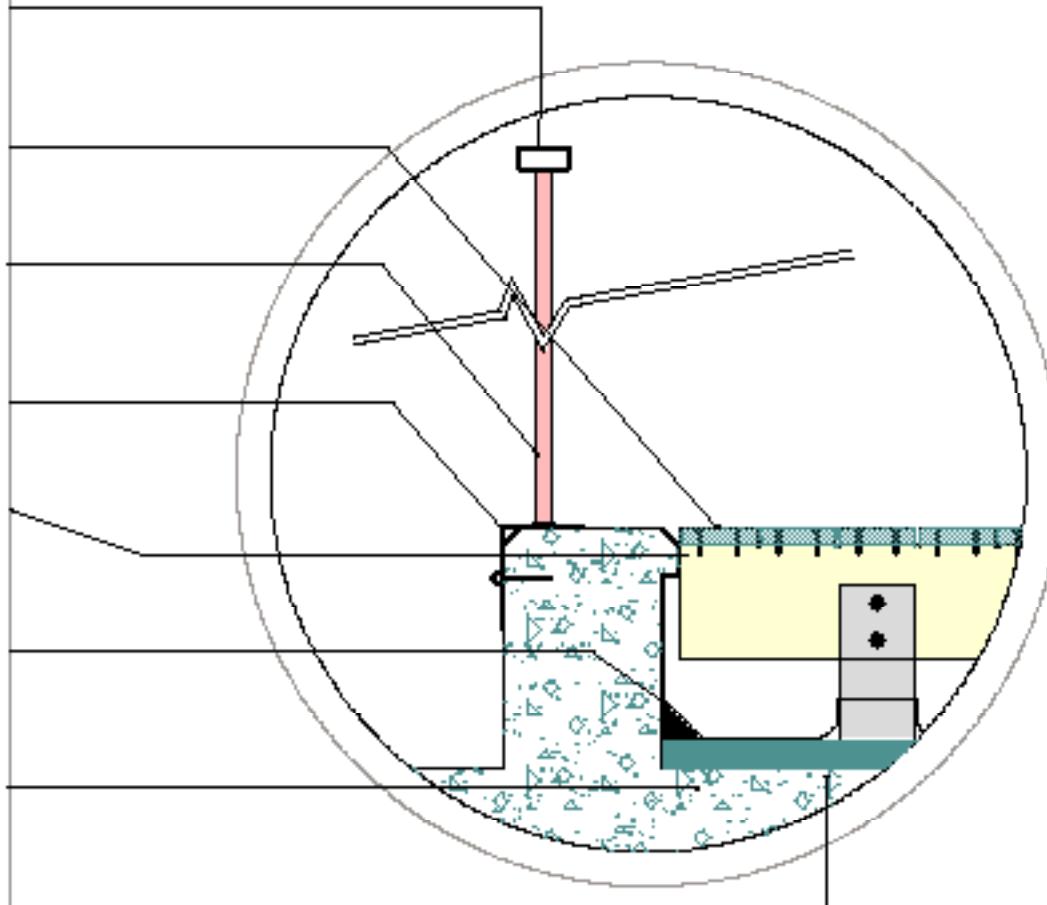
steel rectangular subject to concrete upgrade with diameter  
subject to 14 mm allowable.

concrete joist subject to galvanised steel spacer with  
2x m6 class 4.8 nuts and class 4 washers.

Layer of Knauf board on galvanised metal mesh  
porous material, all surfaces to receive  
macadamia to comply with SANS2000.

concrete concrete slab to comply with SANS2000, min  
40mm thickness, laid to gradient of 1:50 (1.8%) to outlet.

galvanised steel pointing spacer subject to concrete  
concrete slab with diameter subject



**DETAIL 6**

SCALE 1:10

ART WORKSHOP



DETAILS

# LIGHT CANNON

6.4m GROUT SLAB FROM TO 24.5m DEPTH  
PROTECT CONCRETE PEE WITH PROTECTION PLATE,  
TO EASILY REMOVE SANDBAGS/PLATE

100mm GROUT PEE

2.4m DEEP MASONRY INITION LAY TO MASONRY'S EDGE  
70mm DEEP, 20mm WALL-THICKNESS SPACER BLOCKS

ALUMINIUM FOAM CREEP

44 KNUFER ALL CONCRETE SPACERS, TO EASILY  
REMOVE SANDBAGS

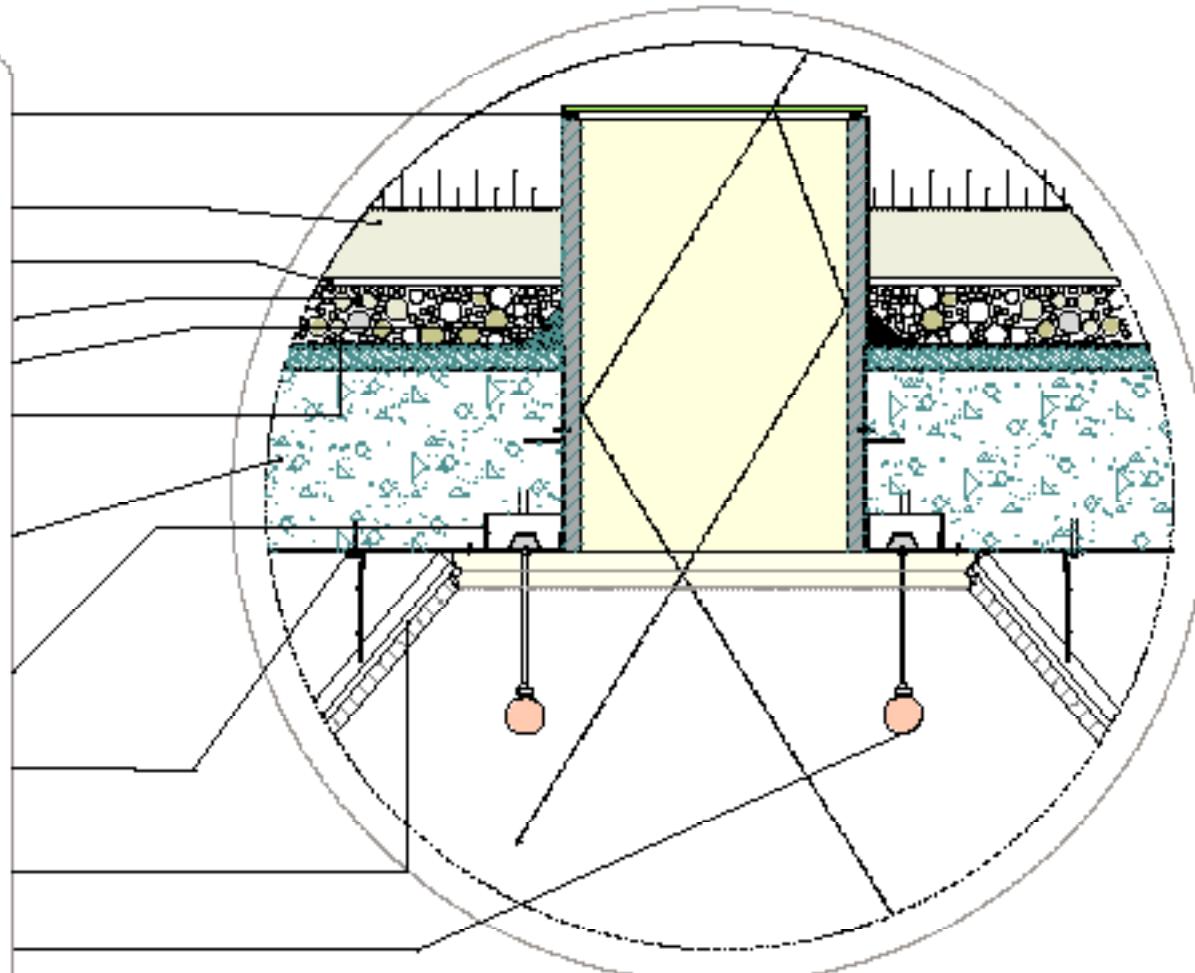
CONFIRMED CONCRETE SLAB TO CONCRETE LAY SANDBAGS,  
IN 45cm SPACES, LAY TO SPACER OF 1.92 (W/OUT LFT)   
TO CONCRETE

SPACER AND REINFORCE CHANNEL CANT AND  
CONFIRMED CONCRETE SLAB

CEILING CONCRETE REINFORCED FROM STEEL ANGLE,  
ADDED TO STRENGTHEN SLAB WITH EXTERIOR TIE

COULD BALANCE BY SPACER

CEILING REINFORCED LIGHT RAILING WITH CLUTCH MECHANISM

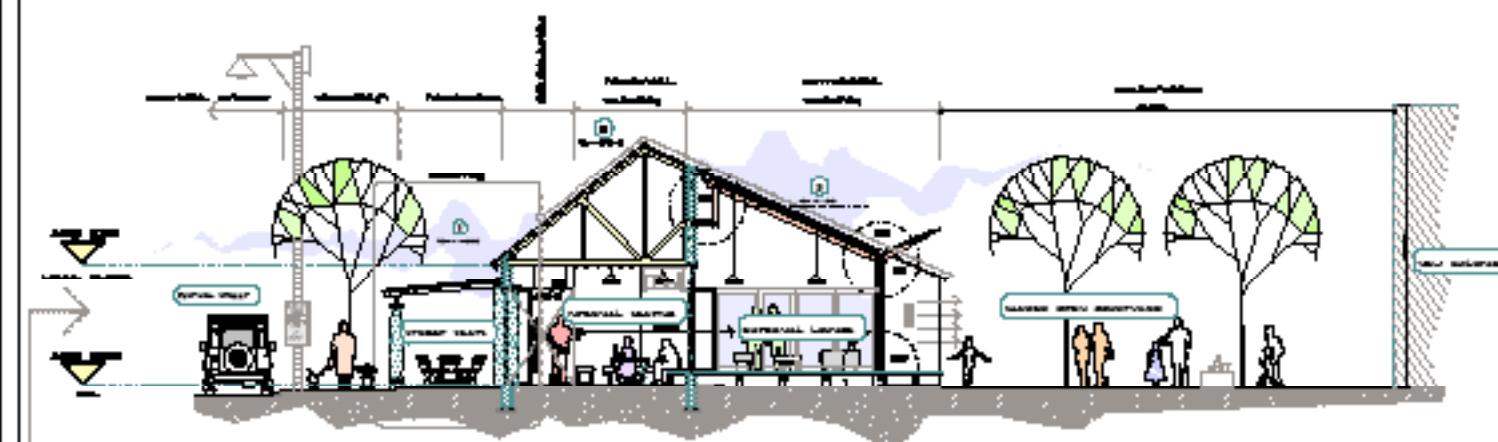


**DETAIL 8**

SCALE 1:10

ART WORKSHOP

DETAILS



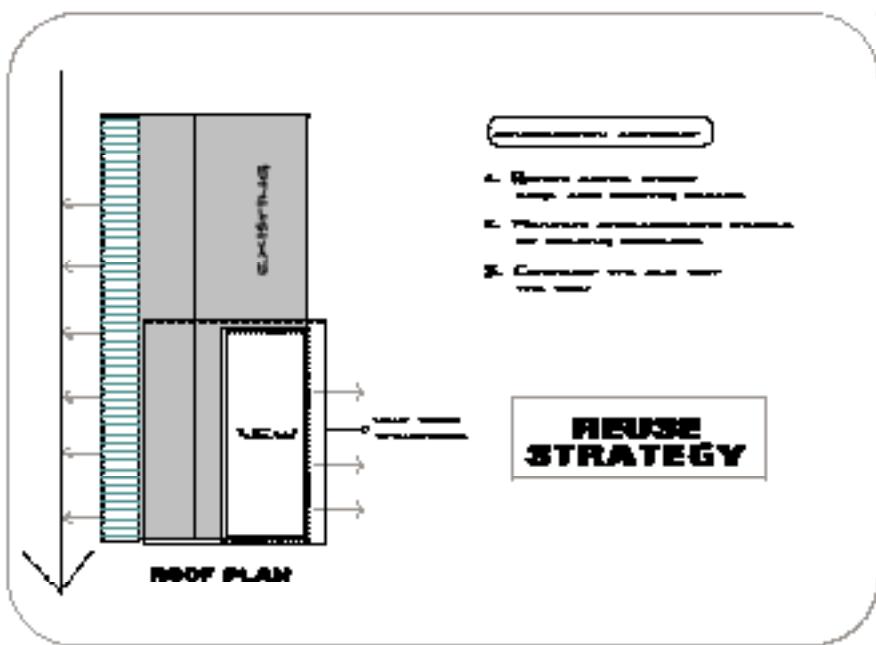
**SECTION D - D**

SCALE 1 : 200



**VIEW FROM FESTIVAL STREET**

## MO CAFE REFURBISHMENT



LINE SCALE 1:200

# CARRY ARM

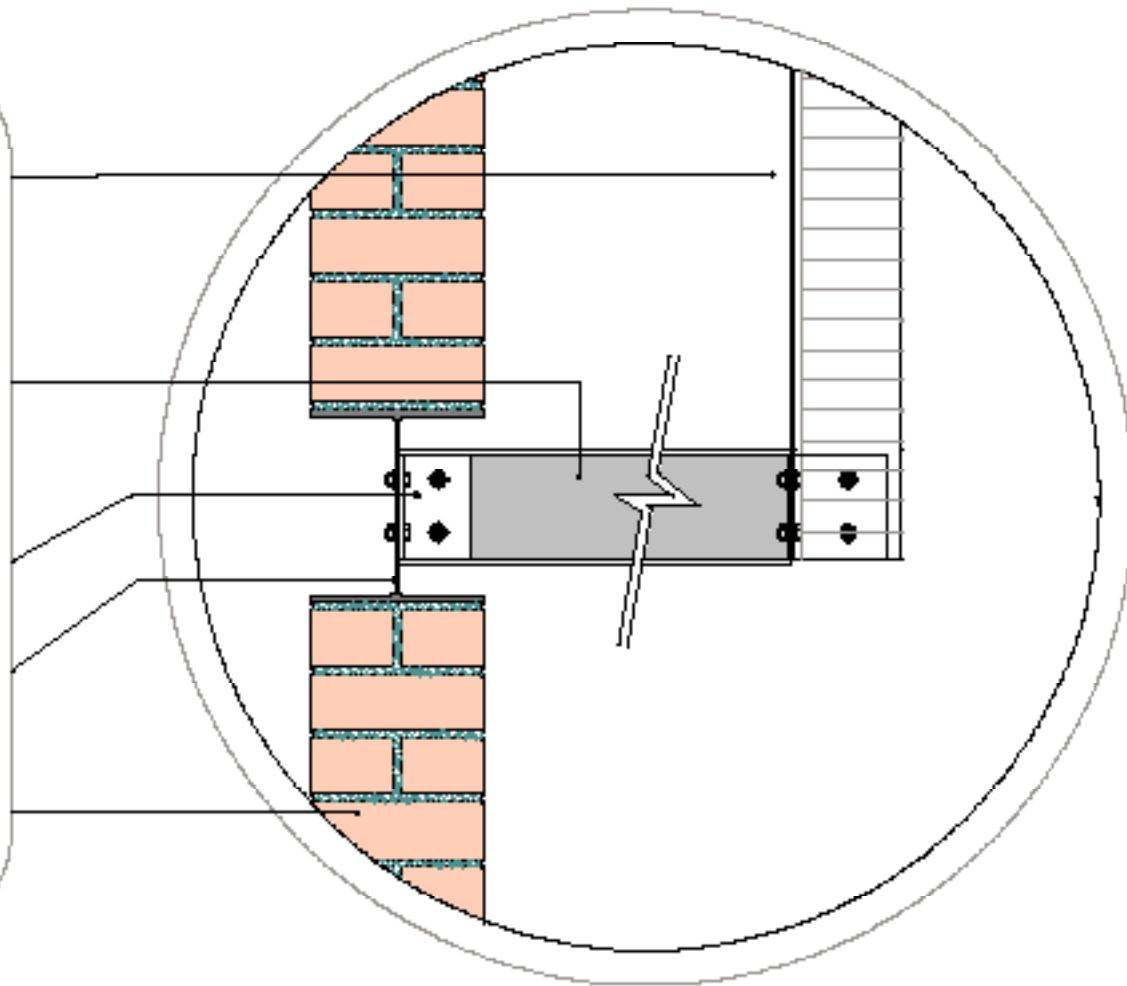
125 x 75 x 8mm steel channel angle, source according to SANS10064, painted with corrosion protection paint to comply with SANS12944, source to weld thickness with 2x mm class4.8 bolts and class4 nuts.

140x100x8mm steel T-beam with welded flange base and covered web, source according to SANS10064, painted with corrosion protection paint to comply with SANS12944, source to T-beam with spot plates with 2x mm class4.8 bolts and class4 nuts. All welding to comply with SANS10004-C34.

Galvanised steel spot plates source to weld thickness with 4x mm class4.8 bolts and class4 nuts.

254 x 250 x25mm steel T-beam, source according to SANS10064, painted with corrosion protection paint to comply with SANS12944, bolt and 250x4mm horizontal wall mounting joint to comply with SANS12944

250x4mm horizontal wall, laid in concrete, total with a height change every four layers, no comply with SANS12944



**DETAIL 9**

SCALE 1:10

ART WORKSHOP



DETAILS

# RAFFTER TO POST

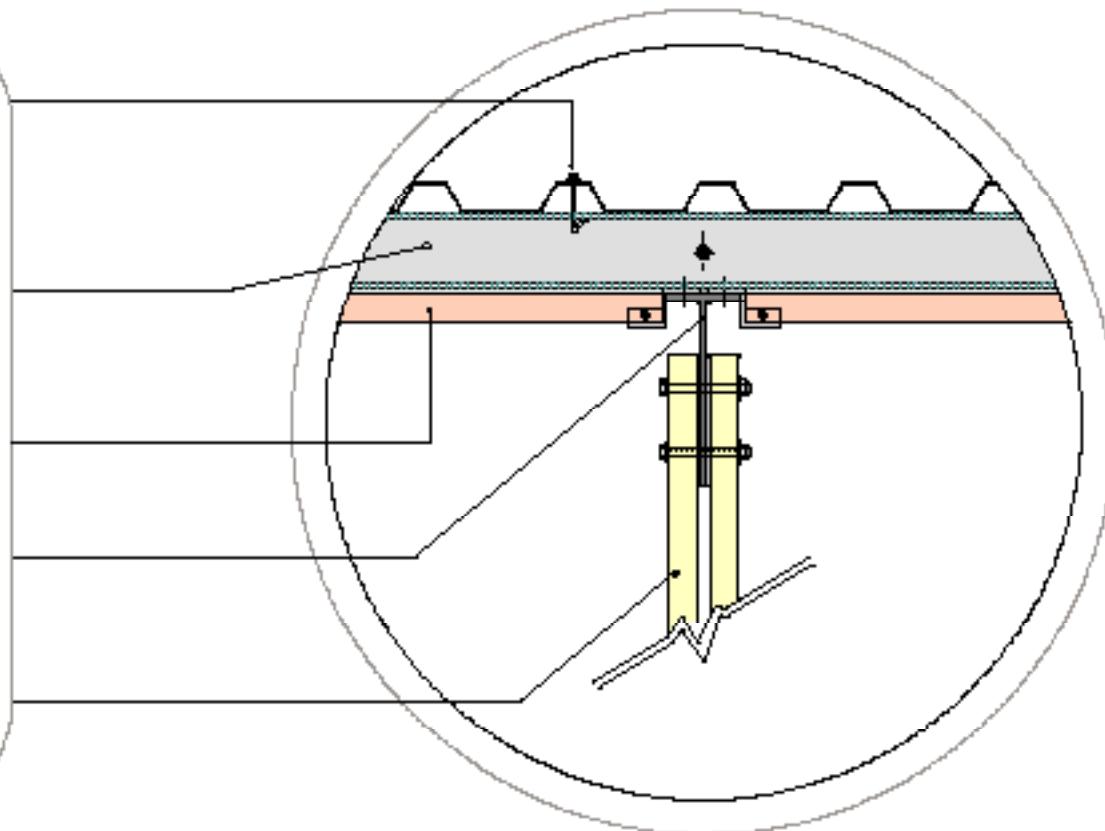
Polyvinylchloride (PVC) sheet with corrugated layers of UV stabilised polypropylene, 10 mm thick total thickness, made from HDPE plastic with 10% chlorine stabilised polypropylene and 10% calcium carbonate and colourant, white. Total thickness of 900 mm consists of 500 mm polypropylene, 200 mm PVC, 100 mm polypropylene and 100 mm HDPE.

1000 x 61 x 12.5 mm thick. Thickness overall, measured with vernier caliper, was 10 mm (SAUS12844). Surface of outermost layer of sheet measured 9120 mm². Density of the class 4.0 side and the class 4 top was 0.960 kg/m³ (SAUS 1700).

100 x 100 x 10 mm surface of the outermost sheet, density measured with outermost sheet 970 kg/m³ measured, overall weight 9.6 kg.

170 x 100 x 10 mm. Thickness measured with vernier caliper, total and surface sample taken at four locations, measured thickness, 10 mm (SAUS12844), density was measured measured 900 kg/m³ (SAUS12844), density of the outermost layer was 0.960 kg/m³ (SAUS1700). All sections, 10 mm, density, 0.960 kg/m³ (SAUS1700).

100 x 100 mm L-shaped profile made, surface was 100 mm, total density was 0.960 kg/m³ (SAUS1700).



**DETAIL 10**

SCALE 1:10

ART WORKSHOP



DETAILS

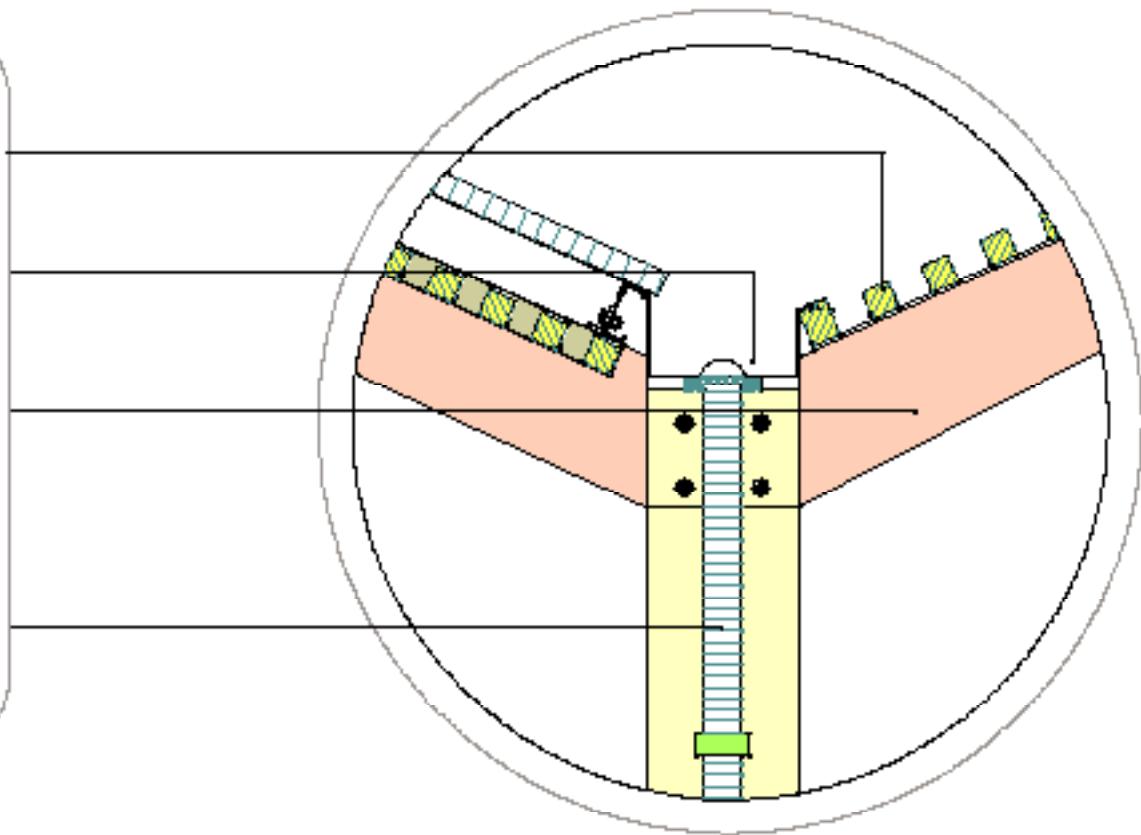
# RAFTER JUNCTION

100 x 100 mm square and 50x50mm steel  
angle members were investigated during 2006  
and 2007.

Two sets of samples were taken from the rafter junction area, one  
sample consisting of S440S200/475/8 class Z275, and  
another sample made from samples of Z40 members.

170 x 100 x 10 mm I-beam section was found  
along the rafter, which was later identified  
and recorded as Z40 grade members and, because according  
to S440S200/4, samples were recorded, members were later  
replaced by S440S200/4, reduced to L-shaped sections made  
from Z40 grade 4.8 angle and sheet type of profile with  
S440S170/8. All sections to control were S440S200/4-Z40.

200 mm diameter circular steel tube columns,  
samples taken from the rafter junction area were  
recorded as S440S200/475/8 class Z275  
samples along the length. Rest of the L-shaped members  
made from galvanized mild steel members of Z40  
grade.



**DETAIL 11**

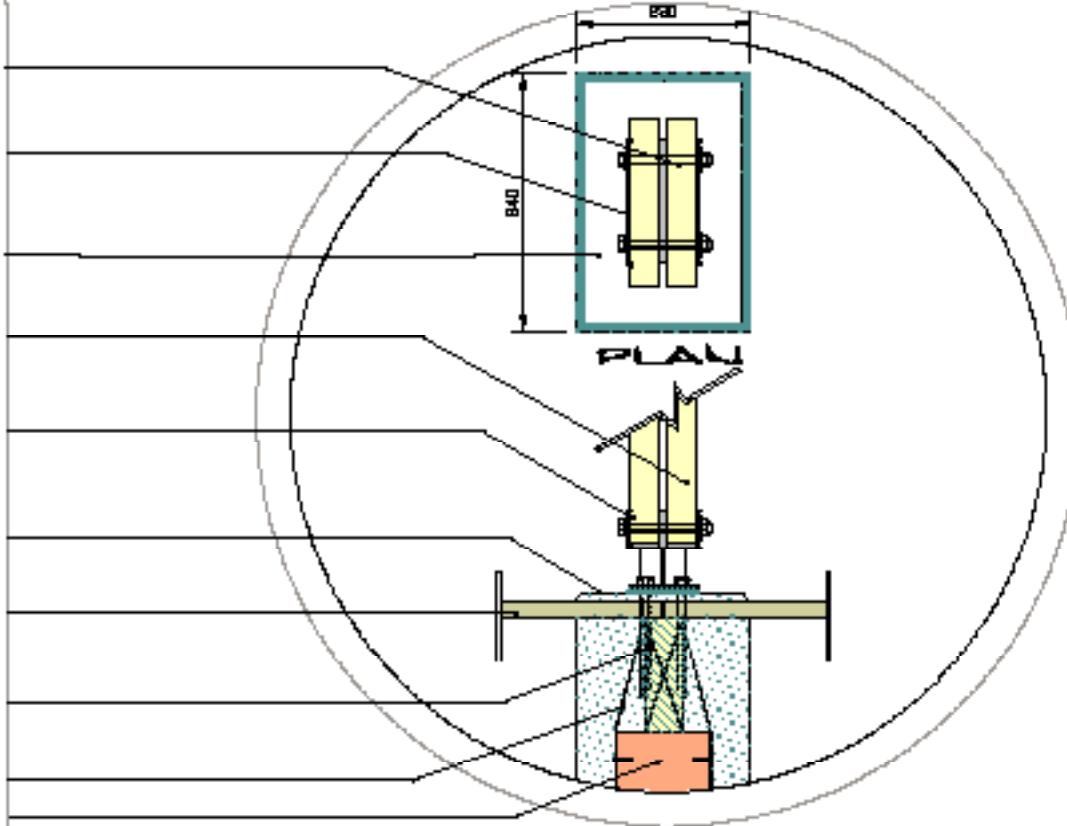
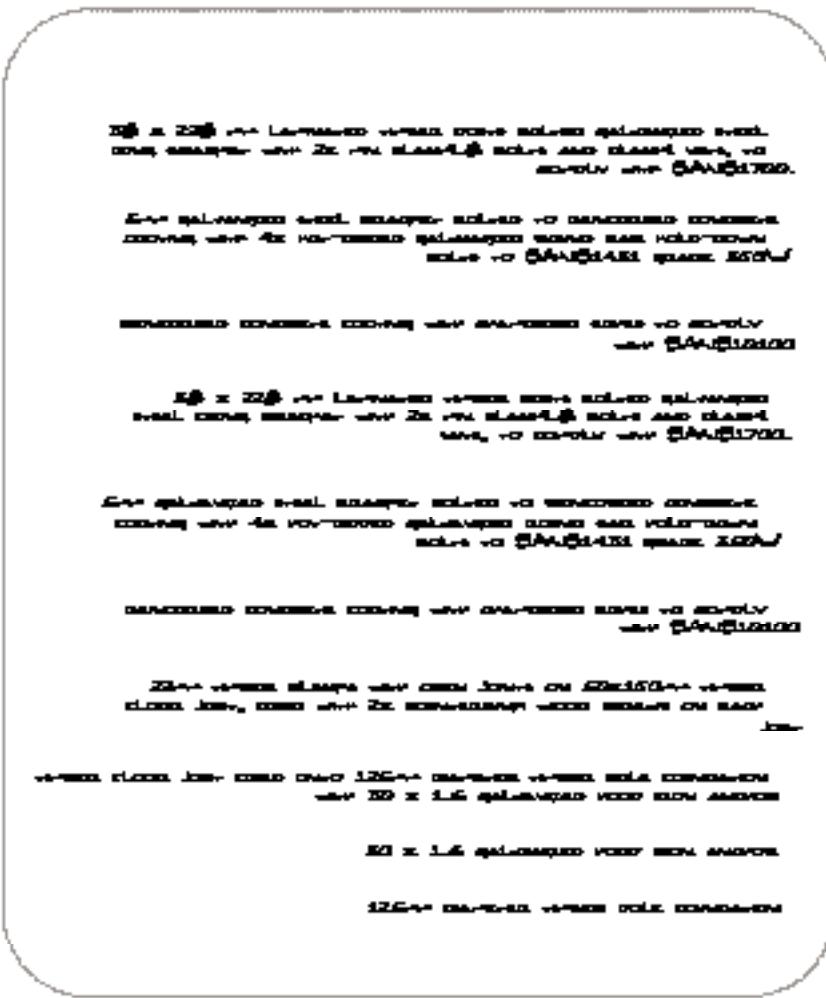
SCALE 1:10

ART WORKSHOP



DETAILS

# POST TO FOOTING



**DETAIL 12**

SCALE 1:10

ART WORKSHOP



DETAILS

“ elevations & perspectives ”

six

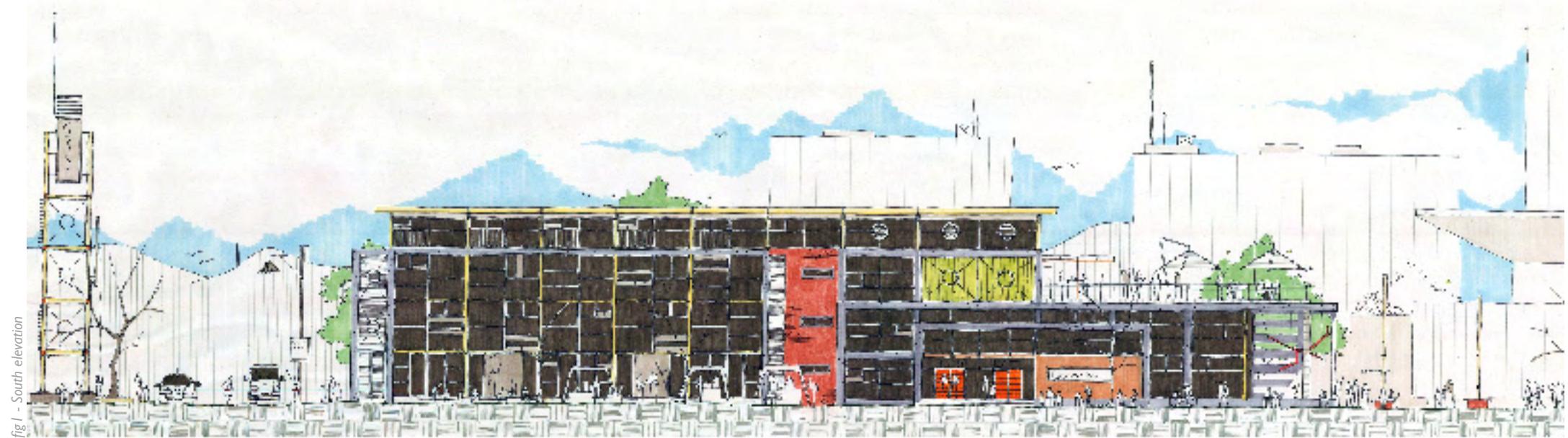


fig 1 - South elevation

**SOUTH**

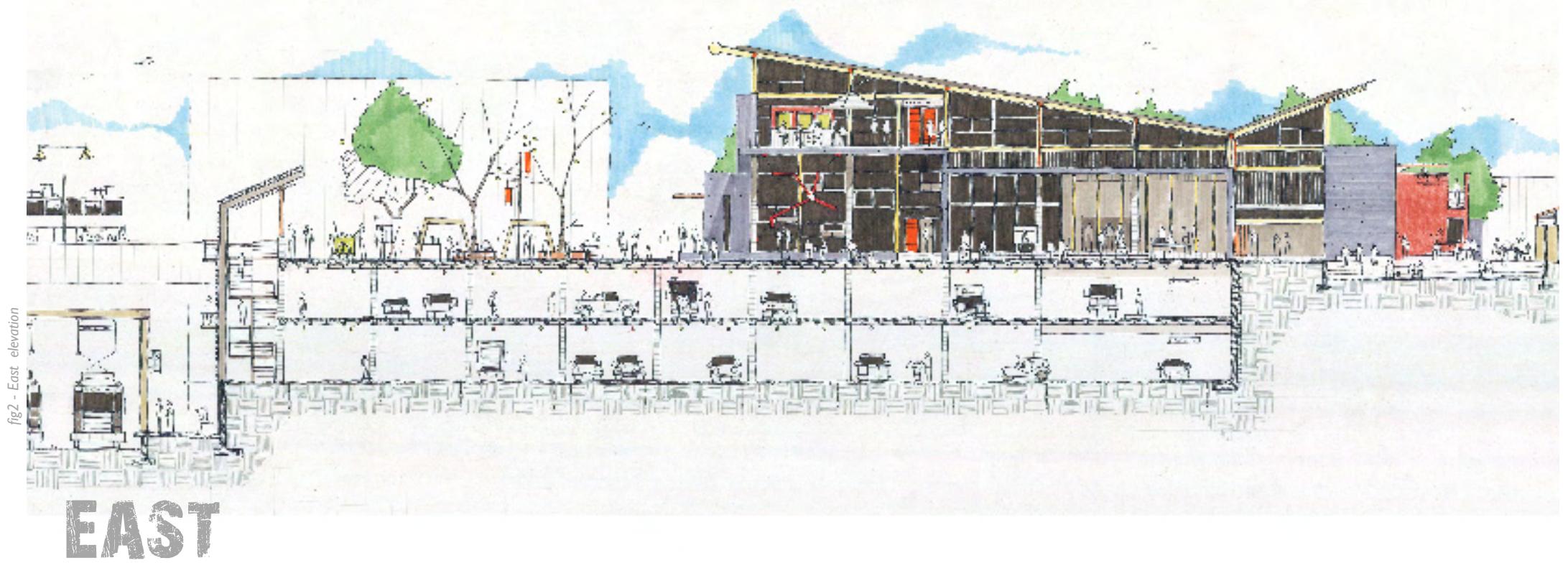




fig 3 -West elevation showing street



fig4 - Shared exhibition and performance space



fig5 - Public activity space



**What does the building want to be ?**

Louis Kahn believed that a building has a inherent identity derived from context, material and program. A right response to the given perimeters of a scheme, ultimately helps interpret what the building wants to be.

This scheme started out as theoretical concept of light, but developed into an investigation of contextual architecture in light. For this building to exist, it had to understand its context. Light became the conscience which was exercised through a practical application to space and structure.

This building became what it wanted to be....

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