

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

University of Pretoria

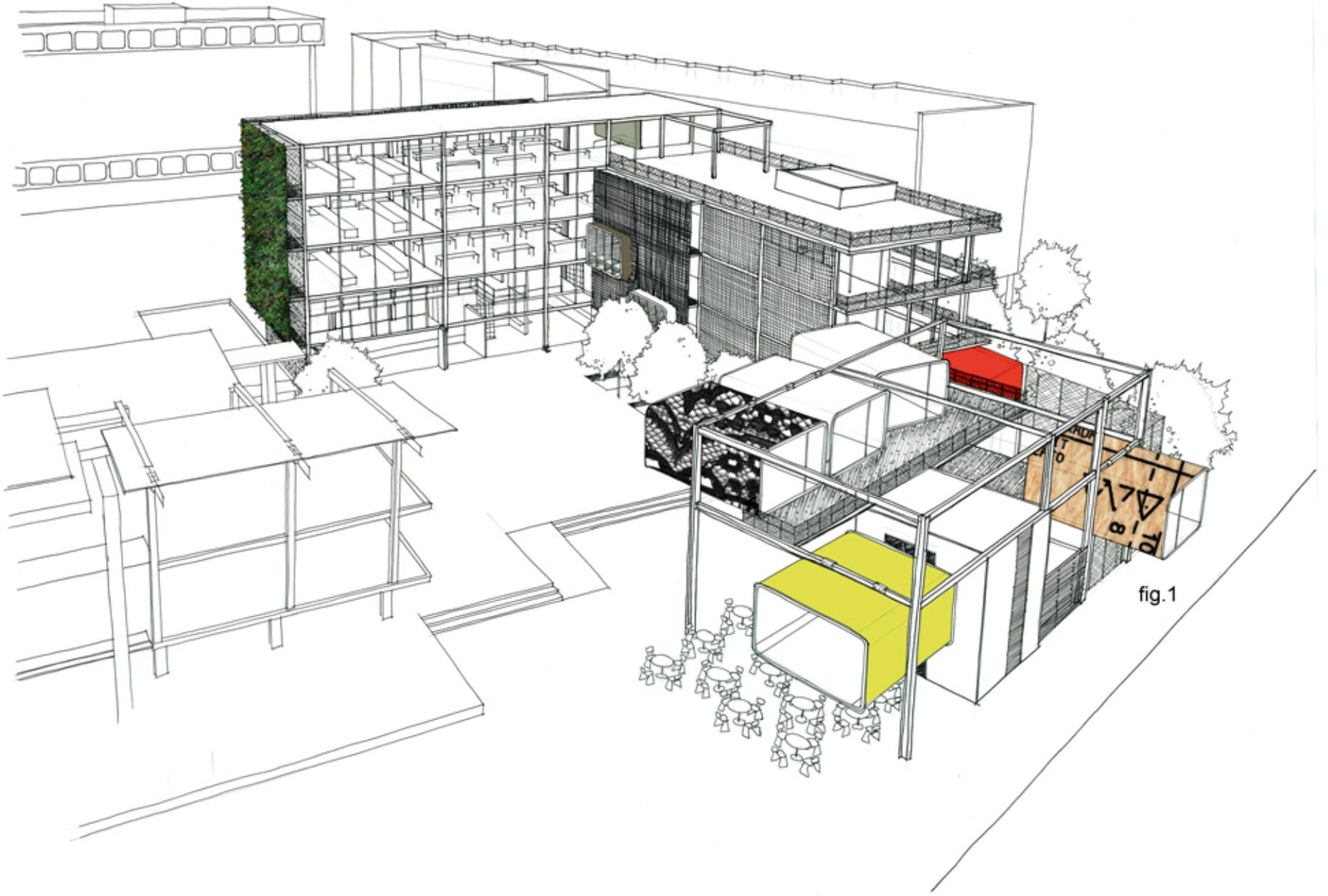
Department of Architecture

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KNOOP

PROJECT



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

KNOOP

UP Fashion and Craft School Design Initiative
UP Performing Arts
UP Visual Arts Departments.

THESIS/CAUSE

To initiate an interdisciplinary cross-pollination to assert the University of Pretoria's creative arts.

CLIENT

UP in collaboration with TEKO – a Scandinavian Fashion and Textile School of Design that is co-operating with South African tertiary institutions through the Department of Trade and Industries.

USERS

UP students and young designers from the retail design industries.

MODUS

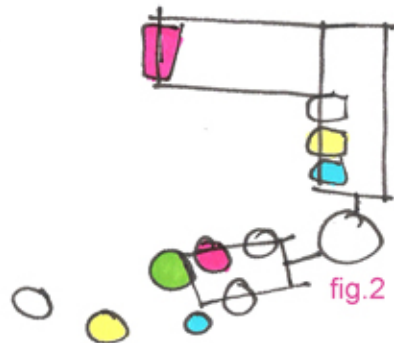
By creating a resource rich South African environment where design consultants will aid artisans to achieve viable careers in design.

LOCATION

Hatfield, Pretoria

MAIN INVESTOR

Property Investor: Intersite





“Everything around us either relates to the body or the environment. I think of modular systems where clothes are like small parts of the interior, the interiors are part of architecture, which is then part of the urban environment. I think of fluid space where they are all a part of each other, just in different scales and proportions.” (Hussein Chalayan, British fashion designer)



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The essence of this dissertation is to explore the synergies between fashion and architecture as visual communicators with the aim to create a place of “orientation” and “identification” for the urban nomad.

In his book *Genius Loci – Towards a Phenomenology in Architecture*, Norberg-Schulz identifies these two functions as the means by which man gives meaning to his environment in order to be at home in this world. Where “orientation” and “identification” are not present in an environment, man feels alienated. (1980:19)

In the first chapter of this document we will assess the real world problem of urban fabric decay in the Hatfield area, where the emptiness of the chosen site has left a void in the landscape. We will explore how this void was not seen as a limitation by the designers, but rather as an opportunity to enhance its possibilities, as it often takes an artist’s eye to find beauty in that what seems damaged. The second chapter urges that the arts should be elevated in a developing country such as South Africa in order to assert people with a sense of self worth and belonging.

In chapter three we evaluate the existing urban context in regards to three major influences on site choice: the Gautrain station adjacent to the site, the UP Vision for a Future Urban Campus, and S.T.A.R.T. – the Urban Framework for the Hatfield area that aims at Social Transition through the Activation of Regenerative Techniques.

Chapter four involves a site analysis where care was taken to include the existing natural aspects along with the relevant cultural and historical layers of the site to expose a wardrobe of opportunities in the design for the three schools. To unbutton the potential of a fashion school, an in depth study into the psychology of fashion added further richness to the design. This is discussed in chapter five and leads up to chapter six where parallels are drawn between fashion and architecture.

To draw value from such a discussion, one has to apply the theory to a relevant design challenge. The project envisages a fresh approach to cross-pollination between the arts. In chapter seven and eight the relevance of this approach in South Africa becomes apparent when it is illustrated how a theme such as ‘reconstruction’ can add value to the urban landscape and in chapter nine the longevity of such a project is questioned and defended with a business and management strategy plan.

Finally CMT (Cut, Make, Trim) is a humoristic play on the fashion industry’s process of manufacturing. Chapter ten (Cut) involves the design development, chapter eleven (Make) the functional and spatial design execution and chapter twelve (Trim) the technical investigation.

Throughout the project, KNOOP was not seen in isolation, but as part of a larger design reality with a common thread - that of designing a place for the people.

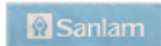
introduction



education
design
management



University of Pretoria



SUPPORTING
S.A.
FASHION'S
FUTURE



our future through science



fig.3



project partners



case studies





UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA



fig.5



Tshwane University
of Technology
We empower people



fig.6



UNIVERSITY
OF
JOHANNESBURG

PTA
JHB



fig.8



fig.7

case studies

The provision of a fashion school for the University of Pretoria answers to the functional need of a more conducive working environment for the Clothing Department of the Faculty of Consumer Sciences. The department is currently situated in the Old Agriculture Building on Main Campus. Because the lecture halls and laboratories are shared amongst the three departments of Clothing, Food Sciences and Interior Design, the faculty is in dire need of more space. All three courses involve four years full time study and there are a maximum of 40 students per year group. Because the existing fashion labs can only accommodate 20 students at a time, some design classes must be duplicated.

Subjects in the first year of study involve topics such as Sewing Techniques, Principles of Design and Clothing Production Processes with subjects becoming more specialised in senior years to include issues relating to Consumer Behaviour & Service Marketing, Fashion Forecasting, Social & Cultural Aspects of Clothing and Clothing Merchandising.



Each student uses a needlework machine, and because there is not enough space for it to be stored in the intended cupboards in the Old Agriculture building, students are using the fitting rooms to store their machines. Complaints have been voiced by students that ironing boards in the fashion labs are poorly positioned and that they obstruct movement. Lecturers of the Clothing department have been forced to share old storage rooms as offices, as their offices are currently being utilised by lecturers from the other two departments.

By moving the Clothing Department to the new site in Hatfield, four fashion laboratories and two lecture halls in the Old Agriculture Building will become vacant for use by the Food Sciences and Interior Design students.

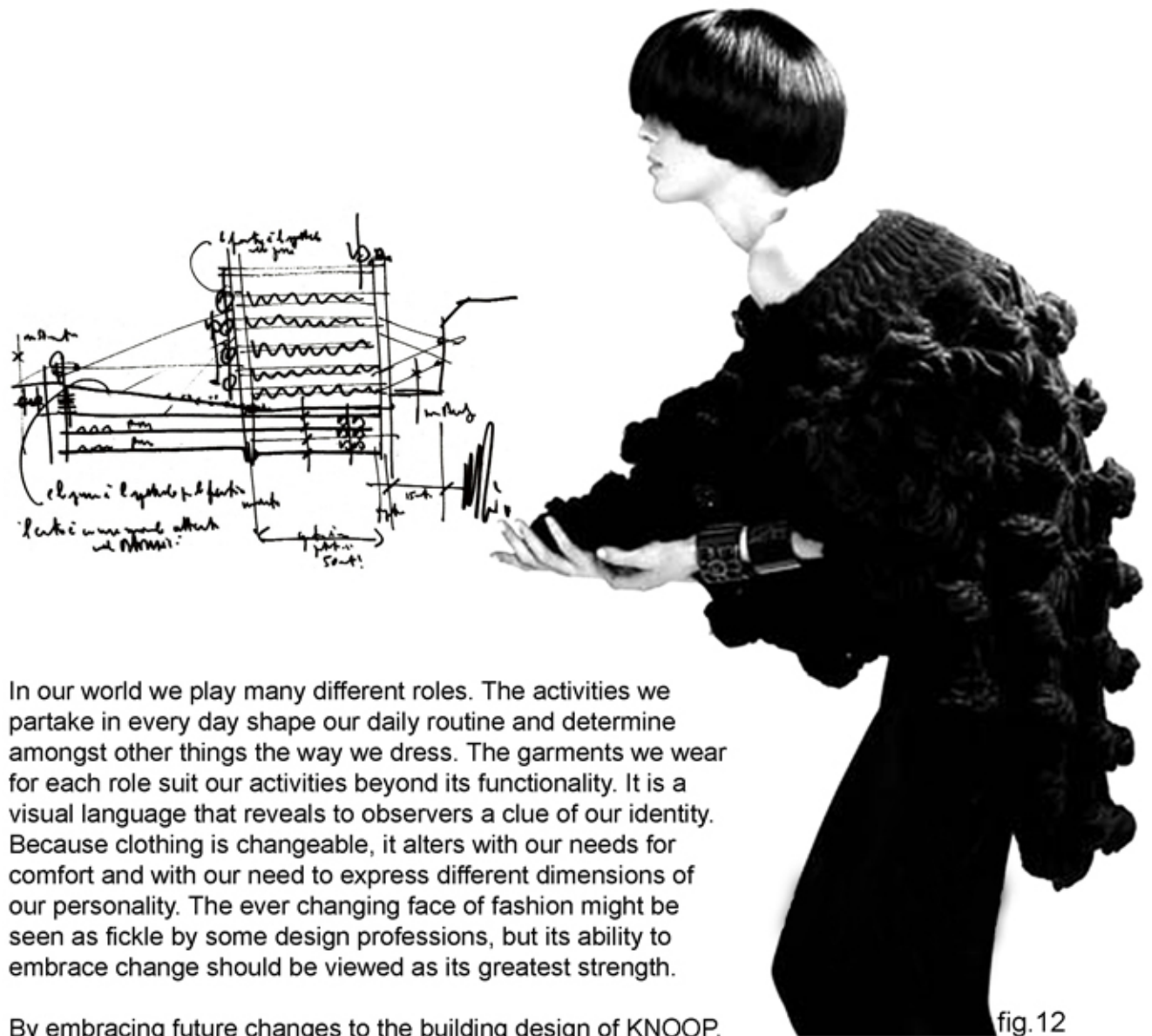
1 out of fit real world problem



1.1 context fig. 10



1.2 study area



In our world we play many different roles. The activities we partake in every day shape our daily routine and determine amongst other things the way we dress. The garments we wear for each role suit our activities beyond its functionality. It is a visual language that reveals to observers a clue of our identity. Because clothing is changeable, it alters with our needs for comfort and with our need to express different dimensions of our personality. The ever changing face of fashion might be seen as fickle by some design professions, but its ability to embrace change should be viewed as its greatest strength.

By embracing future changes to the building design of KNOOP, its architecture adds to the longevity of the built environment.

fig.12



fig.13



fig.14

2.1 history UP fashion



fig. 15

At present the Fashion Labs of the University do not provide students with an ideal working environment.

There is not enough space.

Classes are lectured twice.

Cutting tables need to be shared.

Fitting rooms are used for storage.

There is glare in the lecture labs.

Computer labs are elementary and

spaces are poorly ventilated



fig. 16



fig. 17



fig. 18



fig. 19

2.2 existing fashion labs

The proposed site for the fashion school is not situated on Main Campus, because it would be too secluded from the public eye. Rather, it is situated next to Festival Street in Hatfield, north of the railway line and next to the proposed Gautrain station. The site falls within the student accommodation area of the University and because of its close proximity to the Main Campus, it functionally links the business area of Burnett Street to the University. If in future the University would remove its fences, the site could form part of a new urban campus.

At present the site is undeveloped and neglect of the public environment has led to general grime issues accompanied by a perception that the area is unsafe. This is having an alienating effect on passersby and at the moment people are only using this area of Hatfield to get to and from their destinations as quickly as possible. The area is experienced as a monotony of cars and face brick buildings and any opportunity to create a sense of place has been diluted by the scattering of buildings that have no correlation towards each other.

In general the symptoms indicate a loss of place. Lost is the settlement as a place in nature, lost are the urban foci as laces for common living, lost is the building as a meaningful sub-place where man may simultaneously experience individuality and belonging. Lost is also the relationship to earth and sky.

Most modern buildings exist in a nowhere. (Norberg-Schulz, 1980:190)

However the emptiness that exists on site has not been viewed as a limitation, but rather, with reference to Rem Koolhaas, the 'void' is seen as the very source of inspiration to create something new in the urban fabric that is focused, but not fixed. (1996:90)

According to Norberg-Schulz there is a single primary human need and that is meaning. Only when a man identifies with his natural and man-made environment can he start to look for meaning and when he finds it he feels at home. (1980:23,50,166)

We then can agree with Judith Blau in her Framework of Meaning in Architecture, that it is essential to realize that the built environment has a meaning, and that this meaning has certain social consequences for the user. (1976:333)

Even when the meaning in an environment is unintentional, for instance in an urban context where different layers of time add new meanings to old buildings, it has an effect on the social identity of the place. The shift then in the social identity has become an important international measure for understanding emerging economies especially in transitional countries such as South Africa. (Burgess, 2002:12)

Norberg-Schulz talks of "a new right to choose and participate" (Ibid:192) and Le Corbusier aims to help modern man regain his alienated self by giving him 'freedom' as well as 'identity'. Both would be satisfied with the unlimited opportunities that are present in South Africa today. The challenge however is to create a real world place where all of this becomes visible.



3.1 precedents

There is a vision among the class of 2008 for a Future Urban Campus. We agree that the ideal scenario for the University of Pretoria would involve integration between the Main Campus and the Hatfield precinct. This became apparent after research on a metro scale made it obvious that the Main Campus fence is segregating people on an urban scale. The campus is situated on an important portal when one enters the Hatfield area from the Pretoria CBD and from University Road coming from Fountain's Circle. Many people use the old Administration Building as a point of orientation.

In the past vehicles and pedestrians could access the campus from underneath the Human Resource building, but since public access was denied on campus due to safety reasons, pedestrians have been forced to walk all the way around campus. The new boundaries are not only physical ones but also psychological barriers that lead to the everyday man on street feeling unwelcome.

Integration into the urban landscape will not subtract from the University's status, but has the potential to attract more learners to the institution, as it will be marketing itself as a place for the people.

The only factor preventing such an integrated campus at present is the crime problem of the area that enforces the need for control. The class is of opinion that with ingenious implementation of control, safety can be ensured in Hatfield without the need for fences.

Key Indicators for high quality design interventions in the area were listed:

Vitality
Accessibility
Diversity
Equity
Control

By addressing these five issues in all the surrounding design projects, good quality environments will be designed and even if projects come about in different phases of the Future Urban Campus model, integration of the projects will be possible.

3.2 UP vision

“In our mobile society, we relate to interchanges, departures and arrivals more than we do to the traditional idea of ‘home’.” (Qiunn.2003:106)

The Gautrain is a cardinal factor of influence on the choice of site, as it is anticipated by the 2017 demand modeling study (Tshwane SFAG 1_March'2003:Part2, 4-1), that 46,140 people will use the station daily. This will lead to a strong pedestrian demand on site with a proposed pedestrian route linking the Hartbeespoort station east of the Gautrain station to the Rissik station further west of the chosen site.

According to the Gautrain Rapid Rail Link Composite Station Functional Area Guidelines document the Hatfield station "...falls within the Hatfield business area uniquely located in an area of prime development." (Tshwane SFAG 1_March'2003:Part2, 4-1) Because the site is next to the Gautrain station bus terminus, it introduces an exciting opportunity for intervention in an area that is envisaged to become a highly pedestrianised mixed use node. Development in the area is further based on the idea that the area will become a future destination for local and international tourists, with educational, sport and entertainment facilities creating the main attractions.

The development framework for the area proposes that "...more permanent residents are introduced to the node to combat the seasonal nature of student accommodation"(Tshwane SFAG 1_March'2003:Part2,4-7) and it can already be noted that large scale developers such as City Properties are developing high density residential living units targeting the future expected economic profile of mid income families and young and upcoming professionals.

These high level living units do not have private gardens, and inhabitants need a spill out area for recreational purposes. It often occurs that developers do not see the economic potential of designed open public spaces, because there are not many urban public squares in South Africa that function as effectively as European squares or public spaces in informal settlements do. With the introduction of high density living in Hatfield and an alternative pedestrian lifestyle aided by the Gautrain, the success of an urban open space becomes a real possibility.

The Gautrain development document concludes that the "Existing urban structures around the stations do not have sufficient densities to ensure the necessary patronage, and intervention will be required by government to encourage the private sector to make use of the development opportunities presented by the guidelines in this document." (Tshwane SFAG 1_March'2003:Part3, 5-1)

3.3 Gautrain

Johannesburg Park Station

The journey begins at Park Station, Johannesburg and travels underground to Rosebank.



Rosebank

Still underground, it surges forward to one of the country's busiest economic precincts, Sandton.



Sandton

It then goes off to Marlboro, passing under the M1 motorway and surfacing at its tunnel portal just before Marlboro Station.



Marlboro

From Marlboro, Gautrain continues north above ground to one of the country's fastest growing areas - Midrand.



Midrand

On the outskirts of Centurion, the train takes to the sky and on a viaduct, crosses over the N1 highway, across the Jahn Vorster interchange and onto the Centurion station.



Centurion

It continues on a viaduct until after the Jean interchange on the Ben Schoeman highway.



Pretoria Station

Next on the itinerary is the Pretoria Station in Tshwane.



Hatfield

A mere 42 minutes after leaving Johannesburg Park Station, Gautrain reaches its final destination, the vibrant suburb of Hatfield with its café society, students and embassy staff.



fig.21

From Sandton, Gautrain also links with the Ekurhuleni municipality in the East, via Marlboro to Rhodesfield station and from there to the OR Tambo International Airport. It is this link between Sandton and OR Tambo International Airport that truly benchmarks Gautrain with the best rail systems in the world.



Rhodesfield



OR Tambo International Station

The Hatfield Precinct component of the Future Urban Campus is called S.T.A.R.T.

S.T.A.R.T. involves a framework with guidelines that aim at Social Transition – through the Activation of Regenerative Techniques. There are six projects involved with this framework and all project guidelines are in accordance with the March 2003 Final Draft, Composite Station Functional Area Guidelines for the Gautrain Rapid Rail Link, Tshwane.

Norberg-Schulz listed 'the path', 'the core' and 'the domain' as three complex totalities that an individual needs in order for him to orientate himself in a man-made environment.(1980:59) By ensuring that all three issues are addressed on an urban scale, a unique character is created in the S.T.A.R.T. precinct, where people can orientate themselves in their environment and identify with the human scale of the design interventions.

People also need to identify with other people in their environment and according to sociologist Steven Burgess, different groups of people should be exposed to other social identities in order to form a cohesive South Africa. To achieve this goal knowledge of one another is needed. Government departments that address the softer issues such as art and culture need to stimulate programs where businesses and communities provide a platform for shared knowledge-building (Burgess, 2002:119).

The value added to the urban context of Hatfield in this regard will rely on the opportunities that S.T.A.R.T. creates for knowledge sharing.



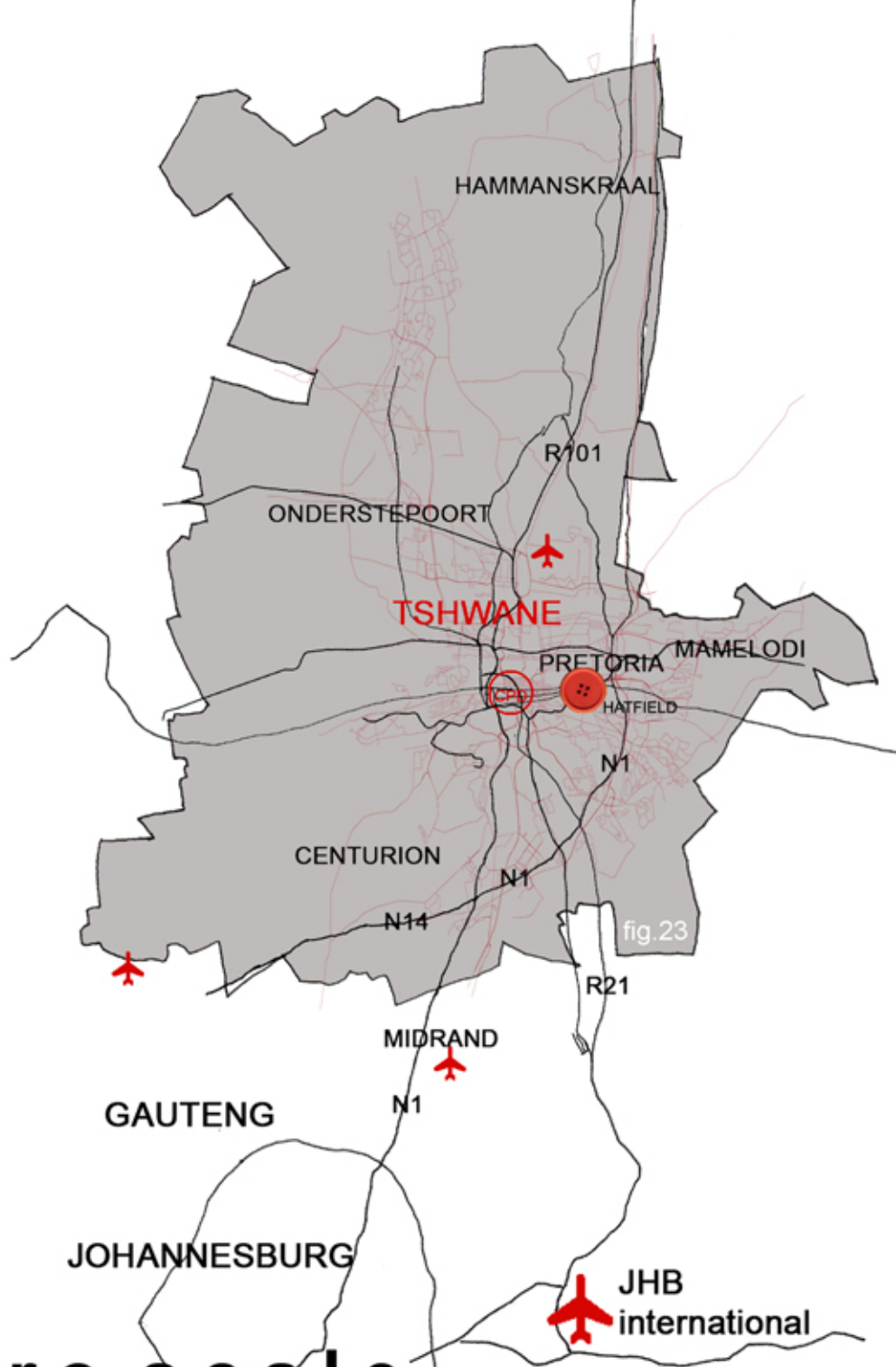
The success of the S.T.A.R.T. precinct will depend on the quality of the public space that binds the six projects together in an aim to create a foci of civic identity that will become a destination for local and international visitors to the area. The place will become known as a vibrant area that is permeable to the public, because there is opportunity for self expression and group interaction in the form of creative activities, recreational pass times, educational facilities and urban sports.

The area will pride itself in its South African richness and will not be satisfied with another international example.

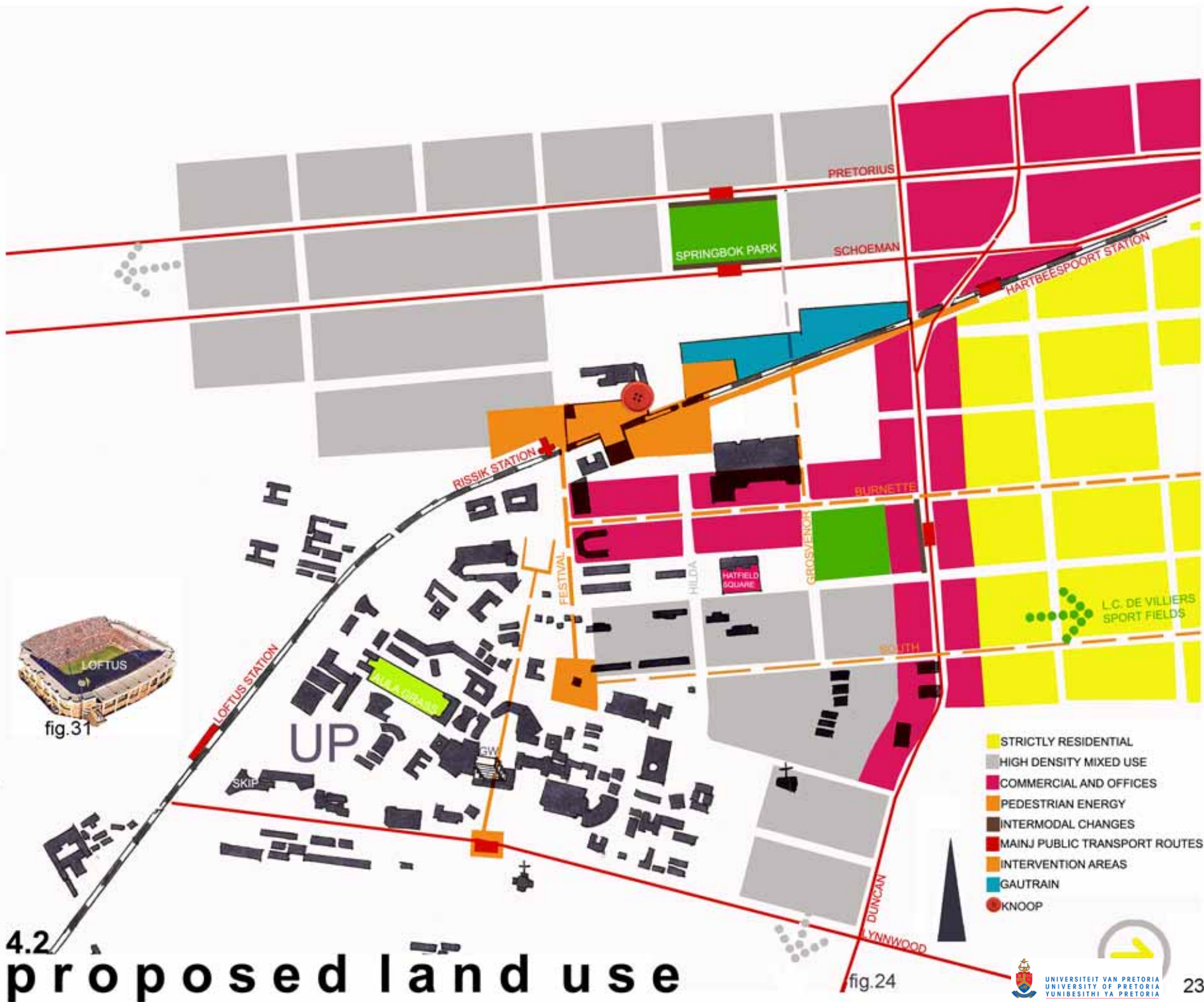
3.4



④ layering site analysis



4.1
metro scale

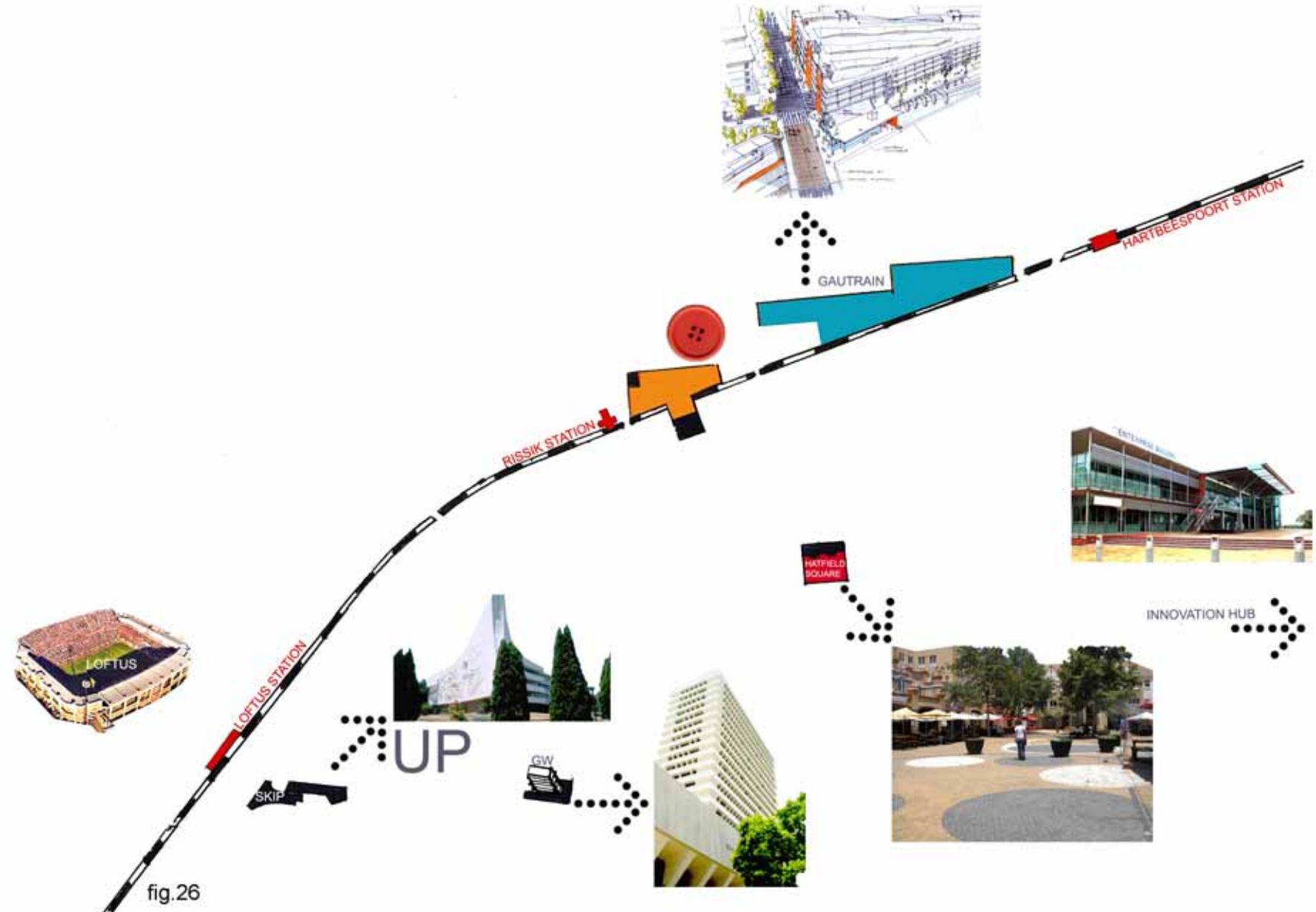


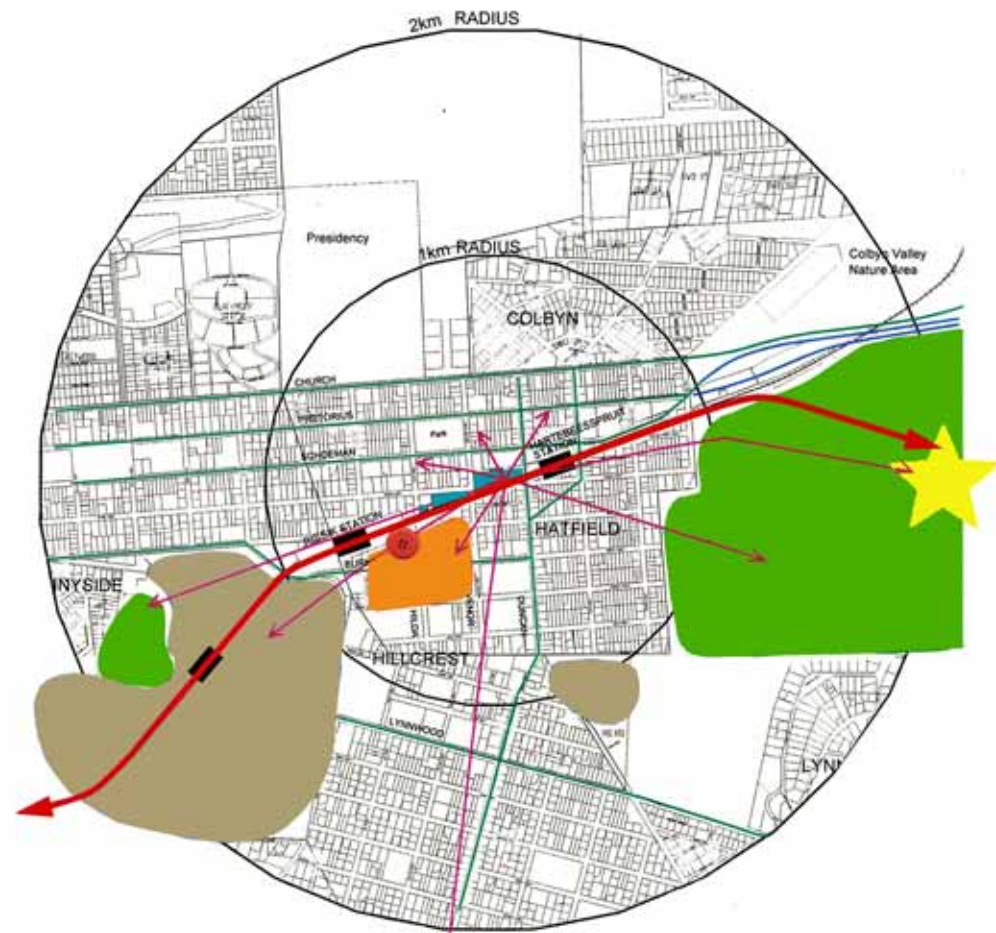


4.3

precinct identification

4.4 Landmarks





★ Station functional Area Guidelines

- | | | |
|--------------------------------|----------------|---------------------------|
| RETAIL NODE | SPORTS FIELDS | PROPOSED GAUTRAIN STATION |
| BROOKLYN MALL | INNOVATION HUB | PROPOSED RAIL LINE |
| INSTITUTIONAL (SCHOOLS AND UP) | LINKAGES | EXISTING STATION |

4.5 Hatfield linkages fig.27

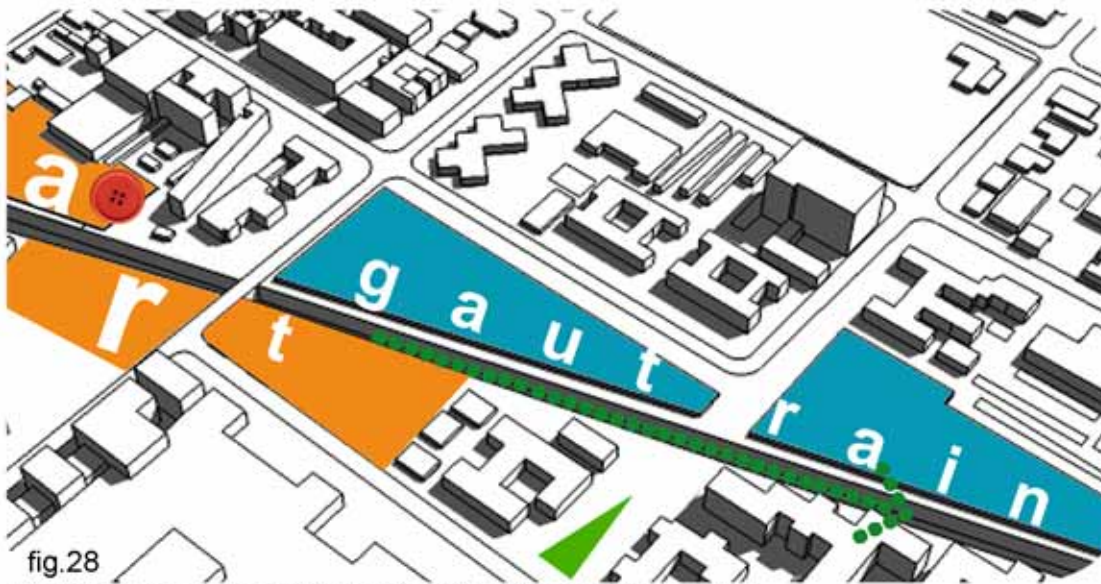


fig.28
The Gautrain is one of the main driving forces of the area



colby n fig.29

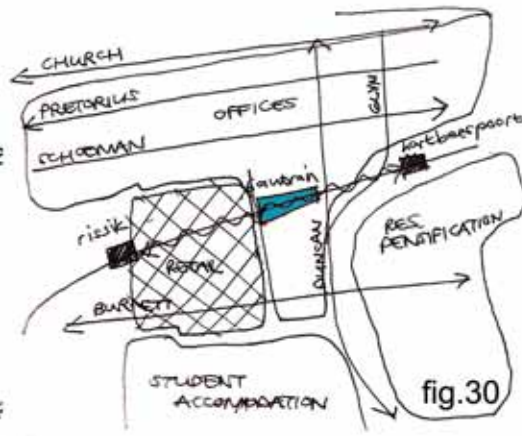


fig.30

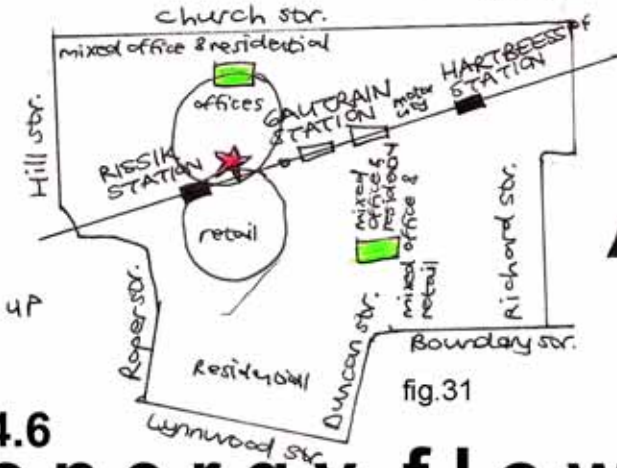


fig.31

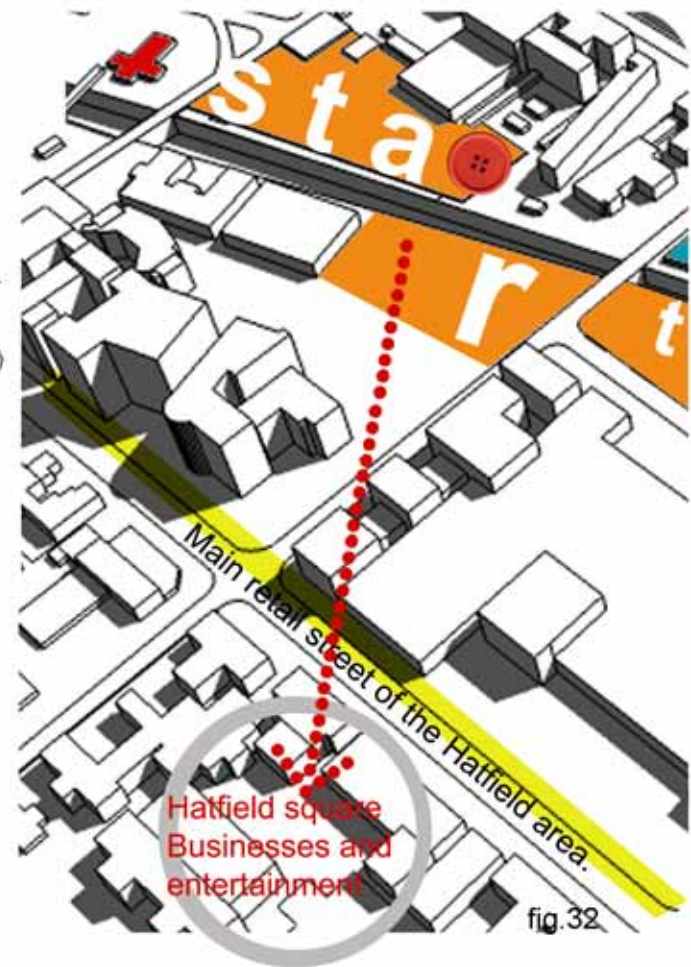


fig.32

4.6 energy flow



City Property Flat Units

fig.34



fig.35



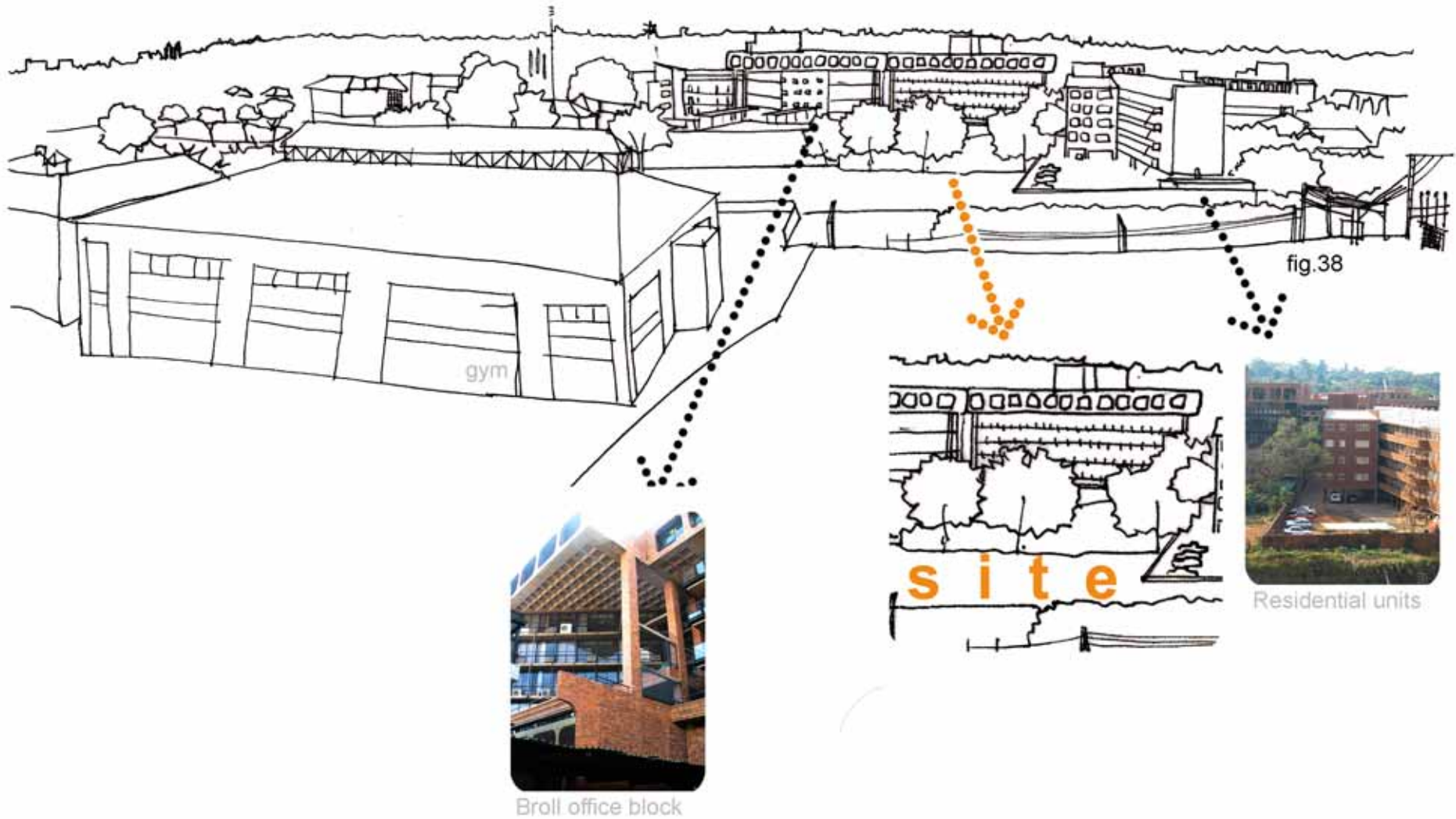
fig.36



fig.33



energy flow



KNOOP neighbours

“Fashion space is a palimpsest of projects sedimented in time; constantly rewritten, but never erased... fashion space unfolds in virtually every culture. It travels.” (Quinn.2003:33)

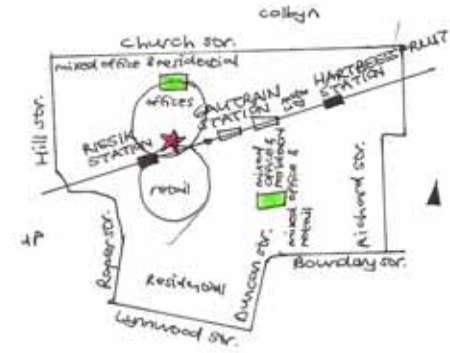


fig.40

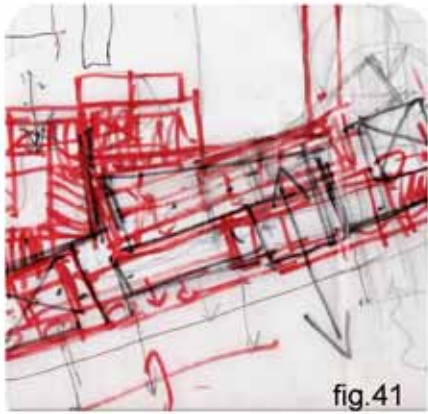


fig.41



fig.42

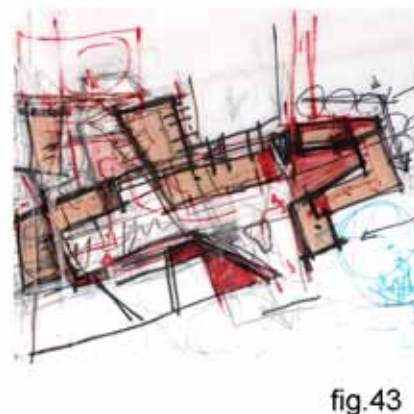


fig.43

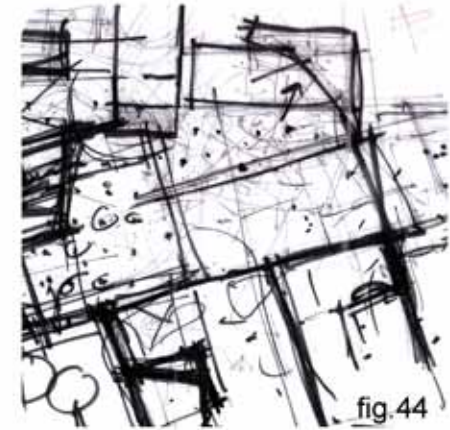


fig.44



fig.45

4.7 urban development



fig.46



fig.47



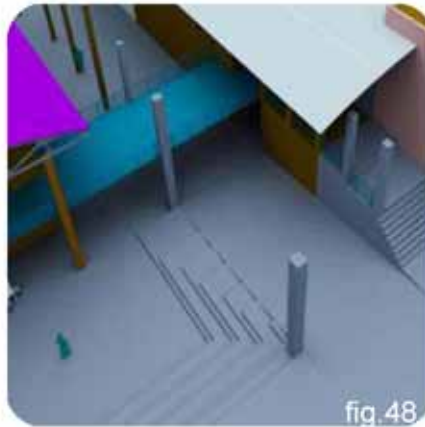


fig.48



fig.49

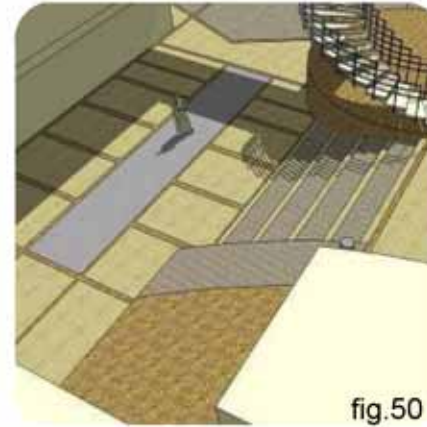


fig.50

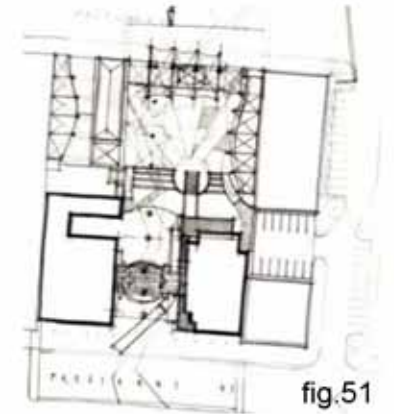


fig.51



fig.52

UNIT	SIZE	USE
G1	51	RETAIL
G2	75	RETAIL
G3	47	RETAIL
G4	32	RETAIL
G5	33	RETAIL
G6	44	RETAIL
G7	45	RETAIL
G8	22	RETAIL
G9	14	UTILITY
G10	28	RETAIL
G11	117	RESTAURANT
G12	62	CID
G13	68	RESTAURANT
G14	25	RETAIL
G15	19	RETAIL
G16	18	RETAIL
G17	18	RETAIL
G18	13	RETAIL
G19	24	RETAIL
G20	24	RETAIL
G21	22	RETAIL
G22	23	RETAIL

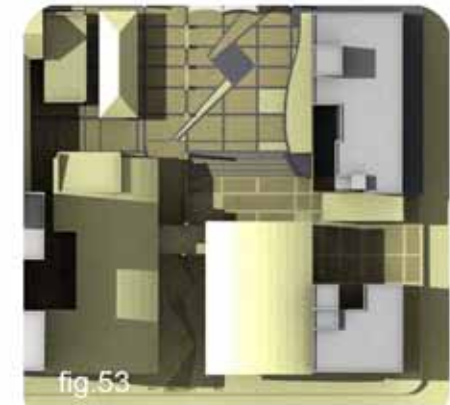
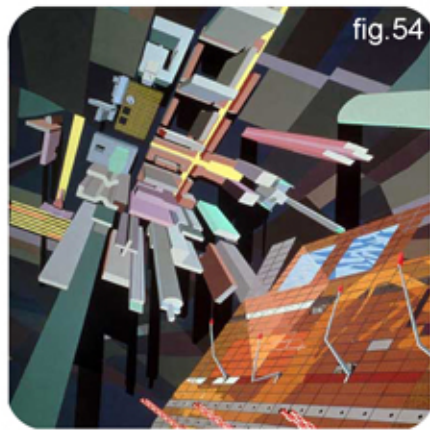


fig.53

FASHION DISTRICT

Newtown, Johannesburg

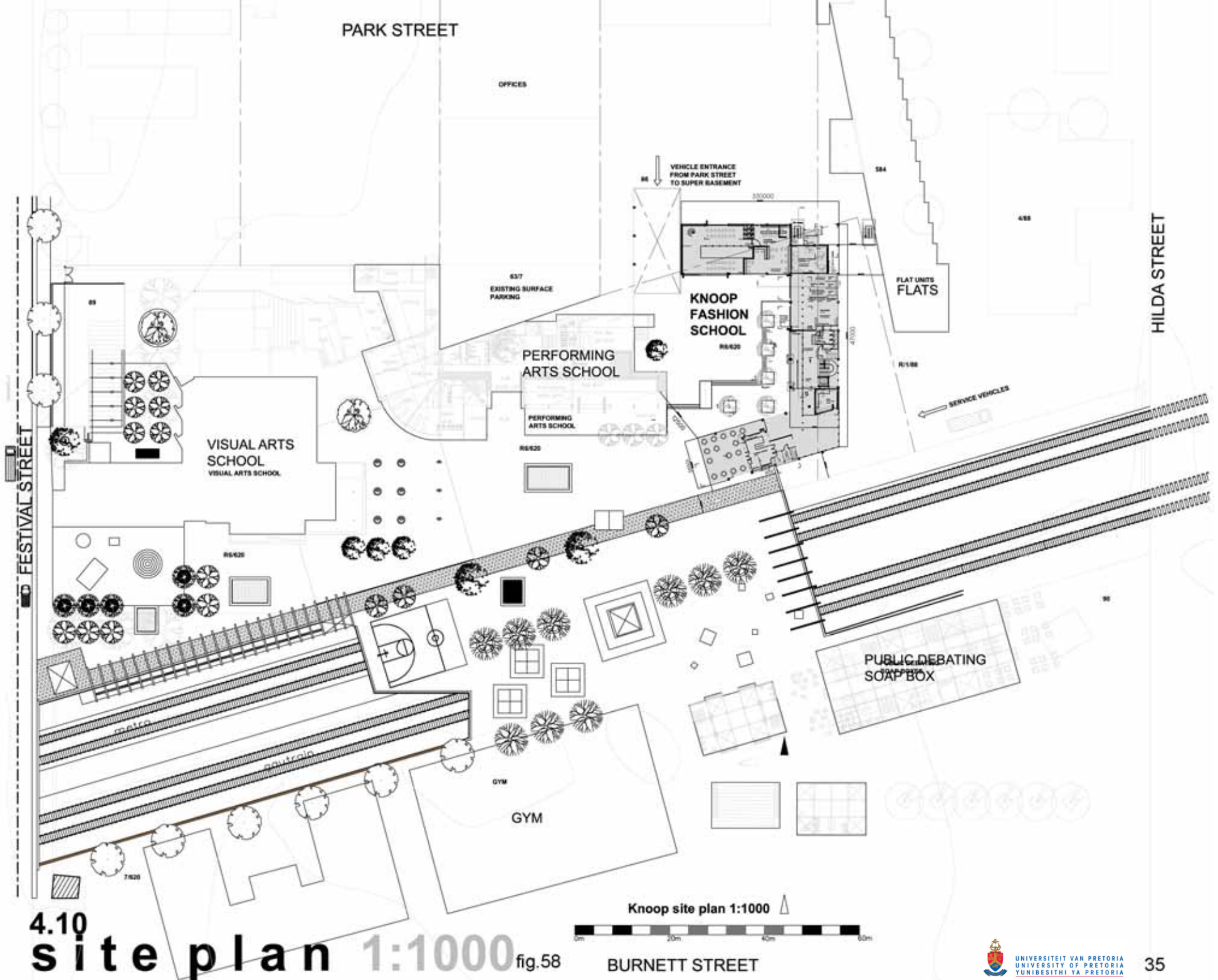
4.8 precinct precedent



SCHOUWBURGPLEIN
Rotterdam / 6a architects



Squares: “They form the outdoor rooms in the city and, like streets; they form a stage for human contact and events.” (Righini.2000:279)



PARK STREET

OFFICES

VEHICLE ENTRANCE FROM PARK STREET TO SUPER BASEMENT

EXISTING SURFACE PARKING

KNOOP FASHION SCHOOL

FLAT UNITS

HILDA STREET

PERFORMING ARTS SCHOOL

SERVICE VEHICLES

FESTIVAL STREET

VISUAL ARTS SCHOOL

PUBLIC DEBATING SOAP BOX

GYM

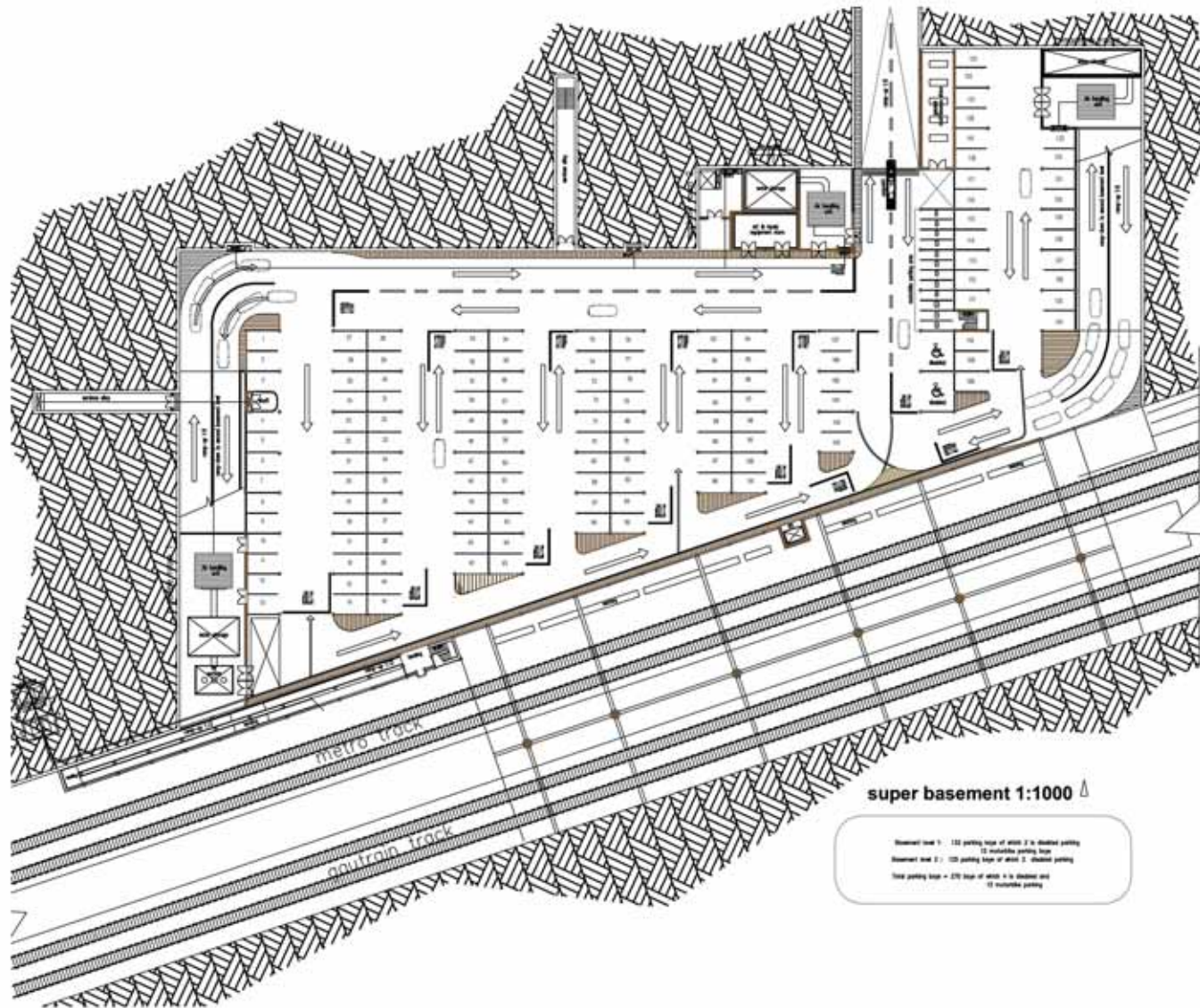
GYM

Knoop site plan 1:1000



BURNETT STREET

4.10 site plan 1:1000 fig.58



super basement 1:1000

Basement level 1 : 122 parking bays of which 2 in sheltered parking
 12 wheelchair parking bays
 Basement level 2 : 122 parking bays of which 2 disabled parking
 Total parking bays = 244 bays of which 4 in sheltered and
 12 wheelchair parking

water calculations

Water catchment

Roof runoff capacity to basement = 100m² x 20mm
 Total roof area = 1000m²
 Volume water = 20m³ (20000L)
 Max = 10000L
 Max additional storage tank requirement = 20m³ x 100m² = 100 000L

Downpipe requirement

Roof area = 1000m²
 Rainfall average / m
 Total downpipe required = 1000m² x 100 = 1 000 000mm
 Downpipe used in volume = 80mm / 20m 200mm = 200mm
 If all water collected into downpipe to volume,
 80 Downpipe suitable for roof-to-400 downpipe
 Total 80 x 200 = 40000mm
 Total downpipe with capacity = 1 000 000 mm required
 Shortfall : (1000000 - 40000) = 960000mm required
 80 Downpipe required over 100m
 Total downpipe size = 80mm x 10000mm
 = 100000mm x 10000mm
 = 100

6m x 32m x 1m Tank = 192 000 L

3 x (6m x 6m x 2m) Tank in each platform

4.11
super basement 1:1000 fig.59

To be able to draw parallels between fashion and architecture one must at the onset ask why fashion exists. Especially since fashion is often seen as a frivolous industry.

The word 'fashion' comes from the Latin word 'facio' meaning 'to make' or 'a particular make or shape.' (Benninkmeyer, 1963:2).

For centuries people have suited their wardrobes to indicate their occupation, class, gender, locality and group affiliation. These differentiated social groups on their part influence fashion and that is why fashion is often called a "mirror of society" (Evans, 1939:55).

Lanver (1958:44) states that "when we look at the past, clothes are in tune with the spirit of the age. Loose and provocative under Charles II, stiff and formal in the later years of Louis XIV. Frivolous in the middle of the Eighteenth Century, simple and emancipated after the French Revolution. Demure and voluminous in the early Victorian period, elaborate and mature under Edward VI, skimpy and boyish after the First World War".

Fashion is important to us because it is a means of self-expression and according to Sproles and Burns, culture is the primary influence on the type of clothing people wear. (Sproles & Burns 1994).

An article on sociology and semiotics on the fashion-era website speaks of an innate characteristic desire that human beings have to strive for differentiation.

This is true for groups, but also for individuals and in her book "Fashion Forecasting", Evelyn Brannon captures the essence of why fashion keeps existing when she says that since the desire to fit in and stand out at the same time can never be fulfilled, people are in constant pursuit of this goal.

Most theorists agree that there are three theories that could be distinguished on why fashion exists. They are decoration, protection and modesty.

In the first instance we will discuss the decoration theory in terms of identity, because identity is the ultimate core of architecture and fashion.



Psychologists such as Bruner, Goodnow and Austen believe that we survive as humans by placing things into categories based on experience. If we did not do that, we would be confronted with new situations at every corner and we would not know how to react. By categorizing things we know how to address a certain person based on the attire he is wearing, we know that we must sit down in a chair, even if it looks a bit different from the chairs we have seen before and we know that we need to enter a building at an opening.
(Broadbent, 1980:210)

SA sociologist Burgess believes that “identity” does not only serve an ontological function, but also a utilitarian function, because it forces an individual to ask himself the personal question of what he values and believes in ever changing circumstances and situations. Depending on the situations, people have different identities and by dressing accordingly we give observers a clue as to who we are and what we want from life. (Burgess, 2002:1,10,14)

The clothes we wear are in essence not a mere decoration, but a visual language of our personalities. A visual language that is not arbitrary but helpful when it comes to research in human behaviour, since architecture is ultimately created for people.

Looking at architecture and identity we refer to Jenks, who describes architecture primarily as a language and not only an instrument. (Jencks, 1980:80)

Norberg-Schulz writes that, although the importance of orientation in an environment cannot be misjudged, identification with the environment is cardinal for a person to dwell in the place. He explains further that this ties in with Heidegger who believed that identity is to a large degree dependent on places and things.
(Norberg-Schulz, 1980:20-21)

Contemporary architects cannot ignore the fact that they work within an architectural language that has been established over all the years that building has existed. Umberto Eco speaks of the existing processes of codification and argues that all the ingenuity in the world cannot make a new form functional if it is not supported by the existing codes. (Eco, 1980:22)

Although effort is made by innovative designers to free their profession from pre-existing views from the public, people want to identify new shapes with ones that they have already seen.

According to Bonta the features of a form that refer to identity could be listed as its shape, its colour, its material and the specific detail of its finish (Bonta, J.1973:286)

We conclude that in order for us to feel at home in an environment, we have to understand it. And in order for us to understand our environment, we must identify with it. We do this through our senses and through our individual and collective memory that is part of our own identity.

5.1 identity

The theory of protection is relevant to both fashion and architecture. We do not only need protection from the elements on a daily basis, but also protection from social ridicule.

In order for us to feel at home in an environment, we certainly want to be comfortable in the physical context, but we also want to experience a sense of belonging in the social context.

Bonta raises the point that people often use indicators of a specific identity as a mask to fit into a certain context. "For instance, there are certain ways of talking, dressing, or behaving that are associated with certain social classes, professional groups, ages or ideologies. Essentially, they are indicators that naturally reflect the individual's belonging to the group concerned." (Bonta, 1973:279)

In a country where emphasis is placed on equality, people feel protected in areas that are not biased, but inviting.

A building has the main function of providing enclosure in order that human activities can take place in a well tempered environment.

As with clothing, there are certain elements in the built environment that signify protection. The identity of these elements will change from one culture to the next, and that is the reason why it is important to include the local tradition in the built environment.

It might be difficult to convince everyone that fashion is indeed modest, especially since the industry is largely characterised by prima donnas who pride themselves on their exclusivity, but if one can look past this stereotypical view of fashion, it is clear that fashion is something that anyone can participate in.

Evans advocates fashion when she writes that "Fashion is democratic; she desires appropriate interpretation regardless of rank, birth or heredity." (Evans, 1939:61)

König is able to focus our attention on the human side of fashion when she writes eloquently that "Fashion today has become one of the most essential media for the self-assertion of the large masses. Therein lies its greatest achievement." (König, 1958:13)

Since we live in a democratic country, self expression should be one of these basic meanings of existence. Clothing plays an important role in how people view themselves and how they value themselves and in a modern world. We should be able to elevate our quality of life by valuing the way in which we present ourselves to the world.

Because the S.T.A.R.T. precinct was designed with the aim of creating a dynamic interface for social expression, through the projects involved, the result is a democratic space, earnest in its intentions of involving all.



6 tailormade

fig.61

When an architect opens a fashion design textbook and reads the index, many words will look familiar.

Phrases such as 'construction techniques', 'stylistic tendencies', 'structural skin', 'pattern drafting' and words such as 'geometry', 'utility', 'movement' and 'egress' give us a clue that there are more than one similarity to the two design professions.

Both disciplines involve the tactile expression of a visual language where a designer either uses a pattern or a blue print to realize his design dream. The success of the product is not dependent on the concept, but on the technical skill of the person executing the design and very often this is not the designer himself, but someone with the necessary skills and ingenuity, such as a sewer or a builder.

The one constant in both disciplines is the human body. Everything that we do refer back to our bodies and in fashion and architecture the success of a product usually depends on the usefulness of it by a human audience, because "both disciplines remain rooted to the basic task of enclosing space around the human form" (Quinn, 2003:2,162)

Even in fashion, where 'beauty knows no pain', a garment ultimately has to be worn. If someone does not fit into a dress, it will merely be a piece of art. The same is true for a building, because if the design is not functional and ergonomic, the building will not be used effectively. It can then be said that utility adds longevity to both practices and according to Evans "...utility has played a great part in influencing fashion." (Evans, 1939:25)



Designers use the same shapes as a starting point, yet they end up with unique design solutions and these solutions are often created with a certain client in mind. In the case of fashion we would speak of a 'tailor-made' garment and where architecture is involved with a specific brief we might speak of a vernacular design. In contrast to this is the one-size-fits-all scenario in fashion design, where a wardrobe is mass produced with no specific individual in mind. This could be paralleled to a prefabricated architecture, where climate and context does not play a particular role in the building typology.

The design for KNOOP is very specific and thus 'tailor-made' for the specific clients.

Recent fashion innovations have shown that fashion has never had more to offer the built environment than present and designers from both professions are blurring the boundaries between them.

When discussing fashion and architecture as an inspiration for KNOOP, we look specifically at four things: reconstruction, the design process, the concept of 'skin and bones', and 'revealing and concealing'.

A further parallel between fashion and architecture is the use of simple geometrical forms to inspire a design. Architects such as Le Corbusier, Louis Kahn and Aldo Rossi are renowned for their skill in successfully combining simple geometrical forms into complex building sections and if we look at fashion, Evans highlights how "the rectangle and the circle appear to be the foundation of all shaped garments." (Evans, 1939:27)

URBAN RENEWAL!

by Mari Santos



"Zoey"
one large tshirt + one small yellow tshirt + buttons



"Ally"
one large tshirt + lace

From the onset KNOOP has aimed at reconstructing the urban fabric.

Koolhaas states that "... architectural speculation must pragmatically refocus on 'discovering [new] potential in existing conditions,' on 'aligning, and finding articulation for, the inevitable transformations and forces of modernization.'" (1996:68)

By using the existing context in terms of reacting to the climatic conditions, an unused site is reconstructed into an exciting and well managed environment.

Margiela draws parallels between second-hand or abandoned clothing and the derelict urban areas described as 'war zones' or 'wastelands'(Qiunn, 2003:28).If the existing urban site is however reshaped to fit a contemporary user it can be given a fresh lease on life.

By creating a new face for the site, KNOOP is creating a new link between memory and space. (Qiunn, 2003:70)

6.1 reconstruction



fig.64

KNOOP exposes how it was constructed, almost like a jacket that got turned inside out to show all its stitching and trimmings.

One of the main inspirations for the design of KNOOP was the “The Museum of Contemporary Art’s major winter show from November 19, 2006 to March 5, 2007 called, Skin + Bones: Parallel Practices in Fashion and Architecture.”

The curator Brooke Hodge had the inspiring idea of showing how fashion and architecture essentially comes down to a frame of ‘bones’ that is clad with a ‘skin’ of some sort.

KNOOP consists of a framework of ‘bones’ that is hidden and exposed by a ‘skin’ of solar screens. The building thus has a double system and fits Morton and Gandelsonas’ description of an inside/outside system where the skin is interpreted as form and where the entrance connects internal and external spaces.

(Morton & Gandelsonas, 1972:251)

Jenks highlights the fact that it is not only the last layer of a building, being the skin, that is a plane of meaning, but that the internal elements such as the furniture and books are also essential for constructing meaning in the human environment.

(Jencks, 1980:107-109)

By keeping to a simple frame, exploration could be done in the rest of the building by cutting away from and adding to the bones of the building. It is in this threshold that there lies potential and the edge that an architect uses creates a boundary that is either experienced as solid, or as very permeable.

Because the whole intervention on site aims at enhancing permeability, the building edge is also obscured to invite passersby to view interior action and conduct.

6.2 skin and bones

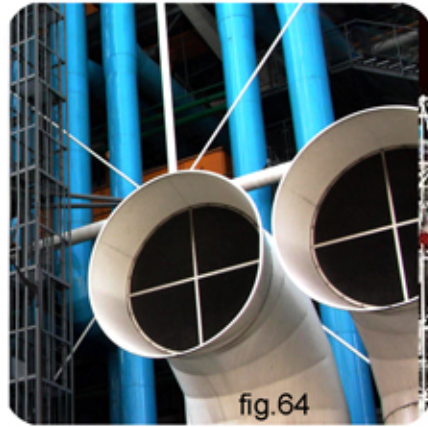


fig.64

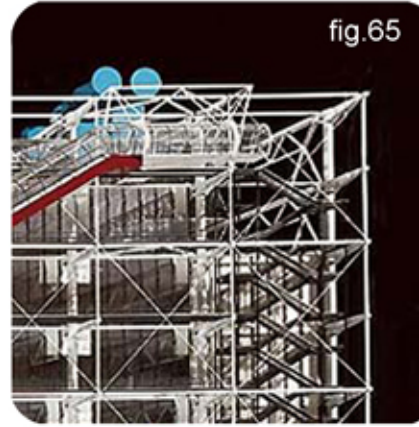


fig.65

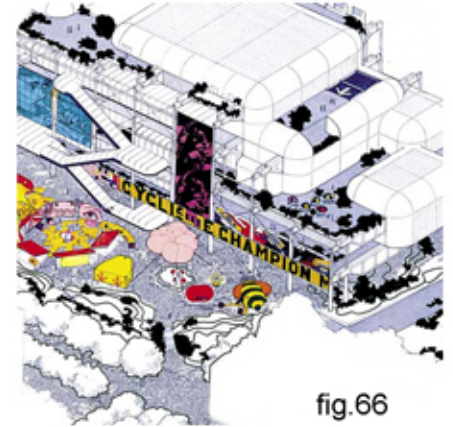


fig.66

“Exposing the structure’s framework imbues the garment with a new sense of integrity based on the transparency it projects.” (Quinn, 2003:64)

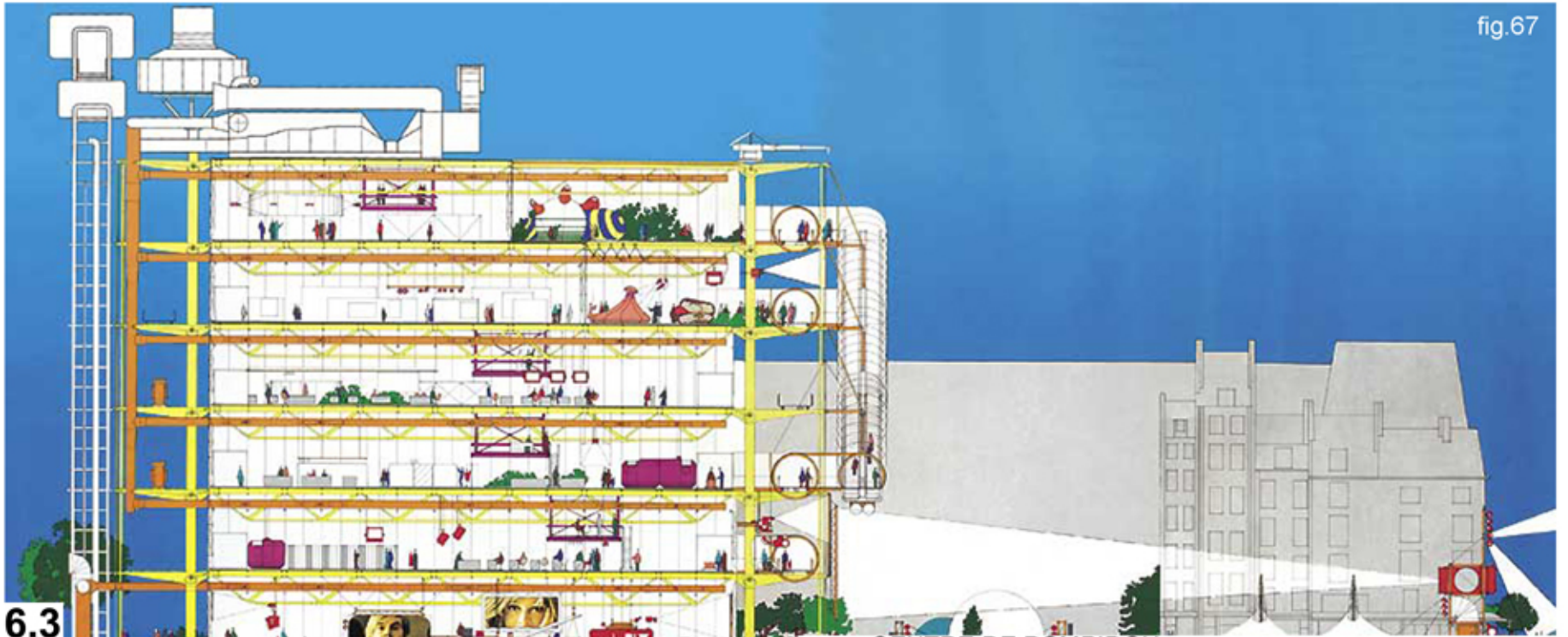


fig.67

6.3

design precedent

CENTRE DE POMPIDOU

Paris, France / Richard Rogers & Renzo Piano



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA



fig.69

TATTOO HOUSE
Australia
Andrew Maynard Architects



fig.70

AI CAFE
Okinawa Japan
Klein Dytham Architecture



fig.71



HAIRYWOOD TOWER
London / 6a architects

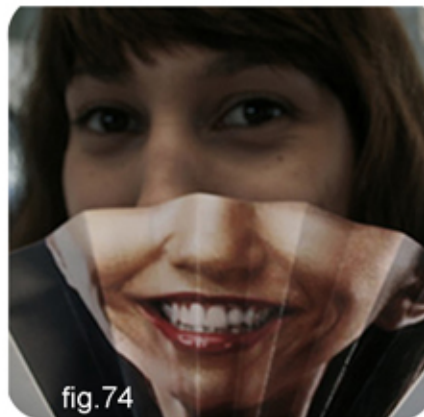


6.4
design precedent skin



By allowing the public to view inside KNOOP through permeable skins, designers from other professions can be inspired by what they see and users of the building can be introduced to alternative methods of production.

By revealing that there are parallels between the design professions, competitiveness between designers are strengthened and experiences elevated to add more value to the urban context.



Quinn believes that architecture should “adopt the codes of revealing and concealing more common to the conventions of fashion” in order for the built environment to “camouflage the shortcomings of the infrastructure it conceals.” (2003:235)

He focusses our attention on this continual viewing of others when he remarks that “both fashion and architecture presumes the presence of a public that watches and must be watched.” (2003:233) By using glass and screens in KNOOP, people and actions on the inside are “exposed, but protected.” (2003:233)

It consequently becomes transparent that the success of how the building reveals certain things and conceals other aspects, happens through its envelope. It’s envelope that is open, and to quote Norberg-Schulz (1980:63) make the space appear as “part of a more comprehensive totality.”

The totality in this case being the S.T.A.R.T. precinct, that include the civic functions of an urban park in which it is situated as well as the educational functions of the art precinct of which it is a collaborator.

6.5

reveal and conceal



**The creative process:
“The unspoken assumption of
all design is that it results in a
‘finished’ product. Yet fashion
designers and architects
continually question this
principle, asking if an object
can ever be considered wholly
complete?”**

Peter Eisenman in conversation with
Charles Jencks in ‘The New Paradigm and
September 11th’ *Architectural Design*, 72(4)

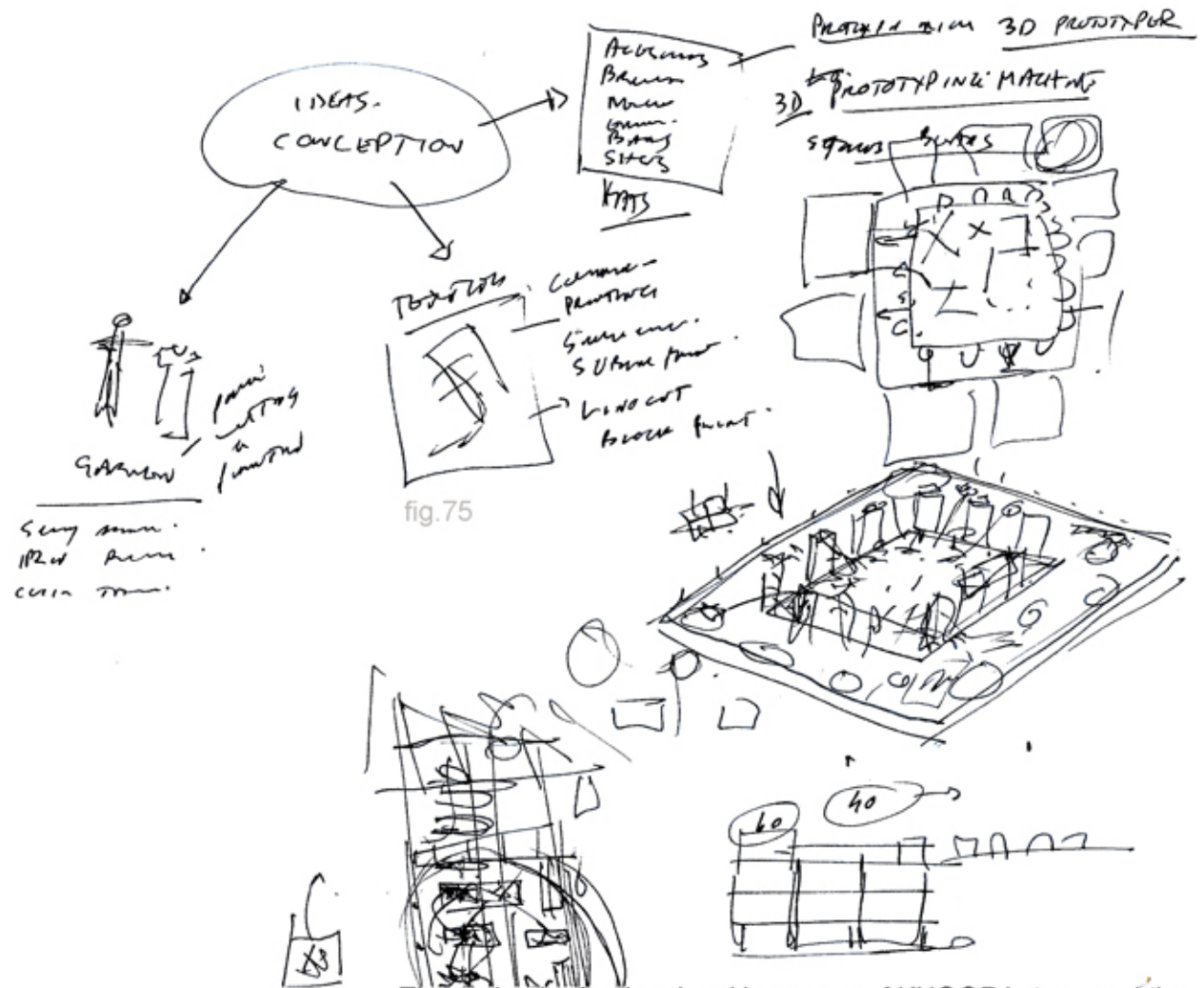


fig.75

The main aim for the visual language of KNOOP is to reveal the creative process of the fashion design industry.

Just as a designer has a creative process that starts off loose and creative and becomes more structured as the product is designed, KNOOP also starts off as a punctured structure that becomes more rigid towards the end.

By revealing certain aspects that are normally concealed, the boundaries of the building are blurred and the user is enticed to take a look closer.

“It is a bit like being an architect. I look at the minimum requirements. In the case of an architect it is to construct a building. With a garment, it has to go over the head; the arms have to come through and be able to move, same with the legs. In a way those are my only constraints. There’s going to be other limitations later on, so I try to get rid of them in the beginning. Like a house needs a door, you need to get in and out, and after that it is how it’s achieved that is open to interpretation.” Shelley Fox (Quinn, 2003:223)

TRANSMATERIALS

Getting involved in a discussion on fashion and architecture is an educational experience in itself. KNOOP opened the opportunity for new technologies regarding both professions to be used to create a resource rich environment.

Technologies that are accommodated in the building include:

Sublimation printing, that involves large format printing on canvas and fabric;**3d Prototyping** of mainly fashion accessories that are then used as templates by craft workers at KNOOP and **Draping Software** that allows students to laser cut patterns from computer designed garments.

A sample library on site introduces students to the latest materials form all industries.



Redesigning design education in SA:

All designers are aware of the fact that a creative space enhances creativity. Some environments are more conducive to the process of creation and often these environments include nature and human interaction.

KNOOP intends to create an inspiring environment where there is ample opportunity for students to express their individuality.

There are many opinions on design education. In this project an attempt was made to create an 'African Bauhaus' where students learn from one another. This approach relates back to the theme of revealing the process of making.

Deleuze (as cited by Semetsky, 2003:17) suggests that "lines of connections" should be drawn within the "act of making."

KNOOP's building layout allows creative interaction among students by allowing them to view each other's actions throughout the working day. By doing this, they learn from each other in an environment that reciprocates skills development.

According to Myerson & Ross in their book *Space to Work* "academies are places where knowledge is shared more easily, where chance meetings, training and mentoring are built into the physical tapestry of the working day. There are venues where work is contained on a single site, with a high corporate presence, offering the benefits of an integrated and energized community that enables colleagues within the organization to move effectively across discipline divides" (Myerson & Ross, 2006:14)

KNOOP fits this description perfectly with its aim of cross-pollination between different creative disciplines.

According to Evans (1939:62) "both elements of artistry and business are necessary to the successful fashion leader."

KNOOP attempts a fresh approach towards design education in SA by aiding designers in their ventures.

In a discussion with Carla Wasserthal (personal communication, April 23, 2008) lecturer in textiles at the Pretoria Technikon, attention was drawn to the need for design consultants in South Africa. A design consultant takes responsibility for a young artist and aids him/her in regards to topics such as copyright and patenting. The concept is not foreign in countries such as Canada and great success has been achieved by young designers getting some guidance in the business side of an art profession.

Bongani Ntombela (SABS design manager) (personal communication, April 23, 2008) agrees with the concept of having a function, such as a client or sponsor, mediate between artists and the industry to take the strain off of the artists.

KNOOP will be a place where multiple information can be attained by artists attempting new endeavors in unconventional material use. This information will be resourced by the design consultants and collaborators.

Collaboration with SEDA and Tshumisano (Technology Station in Clothing & Textiles) ensures that although KNOOP only encapsulates prototypical designs, product development and textile testing services are available to all users.

To share native intelligence gathered at the school there will further be an Information Network and a System of Referrals among all collaborators to allow the sharing of best practices. KNOOP is part of NAD (Network of Africa Designers) that was established in 1999 and includes designers from South Africa, Kenya, Botswana and Zimbabwe. All stakeholders share a vision that all designers involved should aim to benefit the continent with their designs.

In September 2006 NAD held 'The Design for Development Lekgotla' at the Innovation Hub in Pretoria. All attendees agreed that young South Africans need to be informed that they can pursue a viable career in design.

With the innovations made at the S.T.A.R.T. precinct, the University of Pretoria will be a visual communicator for the design education in the Gauteng region

DEFSA (Design Education in South Africa) has recently started to challenge the boundaries of education methods in our design professions.

In 2007 they held a congress called FLUX: Design Education in a Changing World.

The aim of the congress was to “promote excellence in design education at all levels, both in the formal and informal educational environments;
Keep abreast of new information, research and development relating to design education and design practice, both locally and internationally;
Encourage the development and use of local design skills to enable the southern African region to develop its manufacturing industry at all levels and
Maintain the fundamental and reciprocal links between design education, the visual arts and art education in order to enhance the creative essence of the designer’s formative training.”

Many design educators contributed to the congress and all are in agreement that an integrated cross-campus model is the way forward for South Africa.

Daniels (Associate Dean - Faculty of ICT & Design, Cape Peninsula University of Technology) believes that a serious attempt should be made to establish common practices on different sites. He stated that “the creation of technology incubators for small business enterprises is an area that I believe needs to be thoroughly examined and assessed.”
(Daniels,2006)

8.1 DEFSA

assert
a.r.t.

“The arts, whether painting, architecture or even cooking, are involved with ‘raising’ material matter. In this sense, art has to do with imbuing matter with spirit, and it is this spirit that the user unconsciously experience. It is this experience that reminds us that all activities can achieve a sense of art.”
(Righini.2000:301)

Socio analyst Burgess agrees when he says that “shared schools and other institutions will be most effective in bringing people together as South Africans.” (Burgess, 2002:119)

Through its collaborations with other tertiary institutions such as TUT and TEKO and business partners such as Tshumisano and the SABS Design Institute, KNOOP is attempting such an ‘integrated cross-campus model.”

Berger from Vega (the Brand Communication School) believes that the curriculum at tertiary level inform the choices that designers make in their working capacity and these choices then inform their designs that get mainstreamed.

The idea of an integrated educational system can be drawn back to ideas formed at the Bauhaus; where Gropius reminds us that “the Bauhaus felt it had a double moral responsibility: to make its pupils fully conscious of the age they were living in; and to train them to turn their native intelligence, and the knowledge they received, to practical account in the design of type-forms which would be the direct expression of that consciousness.” (Gropius,.1935:59)

It is important to keep in mind that KNOOP is situated in South Africa. In this small realization lies the potential of creating an African richness instead of yet another European example.

The concept of ‘native intelligence’ should be accentuated as it is this element that distinguishes a Fashion and Design School in Tshwane from one anywhere else in the world.KNOOP attempts to embrace its context, without compromising the quality of design in a non European country.

Berger from Vega (the Brand Communication School) raised a valid point at the Flux congress in regards to the fact that care should be taken not to dilute South African cultures too much when she said that “much energy has been expended in recent years on preoccupations with what links us as opposed to what separates us, an understandable position to take due to our history. Undeniably we are all driven by very similar needs and desires, the need for love, security, and community, to belong, to be happy. Culturally however, in terms of our everyday habits and practices, how these desires can be fulfilled or even manifested can be radically different.”

By creating an environment where adverse ideas can be supported and evolved, KNOOP is bringing together creative people from different backgrounds and adding to the richness of the urban identity of the Hatfield area.

All discussions thus far regarding the project has been of academic value, but the real test for the success of such a project lies in the implementation of a long term funding and management strategy plan.

KNOOP is in line with the Johannesburg Fashion District's realistic strategy that focuses on small businesses that produce smaller quality runs for niche markets.

According to socio analyst Livingston, "an investment in higher education and further education is now seen as an investment in the future potential of the nation." (Livingston, 1998: 2)

Based on the University of Pretoria's vision for 2007-2011 (<http://www.up.ac.za/vision> and mission) where they address the 'Innovation Generation', the assumption was made that the University shares Livingston's opinion.

In the vision mention is made of support for endeavors to establish the campus as a centre for the Arts and to stimulate creativity. The vision also refers to scenarios where partnerships and collaborations should be made if academically appropriate.

The willingness of UP and TEKO to fund KNOOP on the Intersite owned site has allowed the project to become a reality.



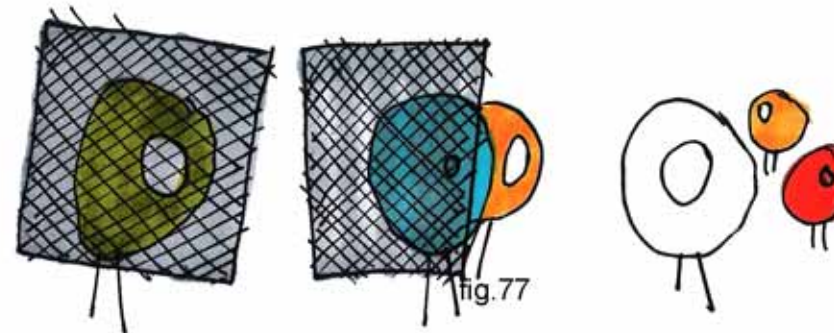
A similar business approach to the Johannesburg InnerCity Business Coalition Initiative will be implemented in the S.T.A.R.T.. precinct.

As with City Improvement Districts in Johannesburg, an additional levy will be charged to all tenants by the property owner Intersite. The income gained will be used for supplementary services such as safety and security patrol officers, pavement cleaning, litter collection and maintenance of public space.

Businesses in the S.T.A.R.T. precinct that fall within the creative industries can be marketed by Intersite and by all tenants to their own advantage.

KNOOP will offer students training at institutions linked with the Department of Labour and KNOOP will collaborate with the Fashion District in Newtown, Johannesburg to achieve their vision for Gauteng to become the 'Urban Edge of African Fashion'. In this context fashion is understood as a broad concept that includes accessories, product design, food and entertainment.

Organisation	Role	Activity
Intersite	Main Investors	Property investment
UP	Main client	Membership role in S.T.A.R.T.
TEKO	Project Partner	Design, production and business training
Sanlam SA Fashion Week	Project Partner	Funding
dti	Project Partner	Funding
Tshumisano	Project Partner	Advisory services
SEDA	Project Partner	Advisory services
DEFSA	Project Partner	Design education advise
CSIR	Project Partner	Product development
SABS Design Institute	Project Partner	Product development
Fablab	Project Partner	Surface design
SAPS	Project Partner	Sectoral policing
MAC make-up	Investor & Beneficiary	Business investment
Headboys hairdressers	Investor & Beneficiary	Business investment
Tribeca	Investor & Beneficiary	Business investment
Design Box	Investor & Beneficiary	Business investment
Sappi	Sponsors	Funding
Woolworths	Sponsors	Funding
Design Indaba	Sponsors	Funding



10 cut design development

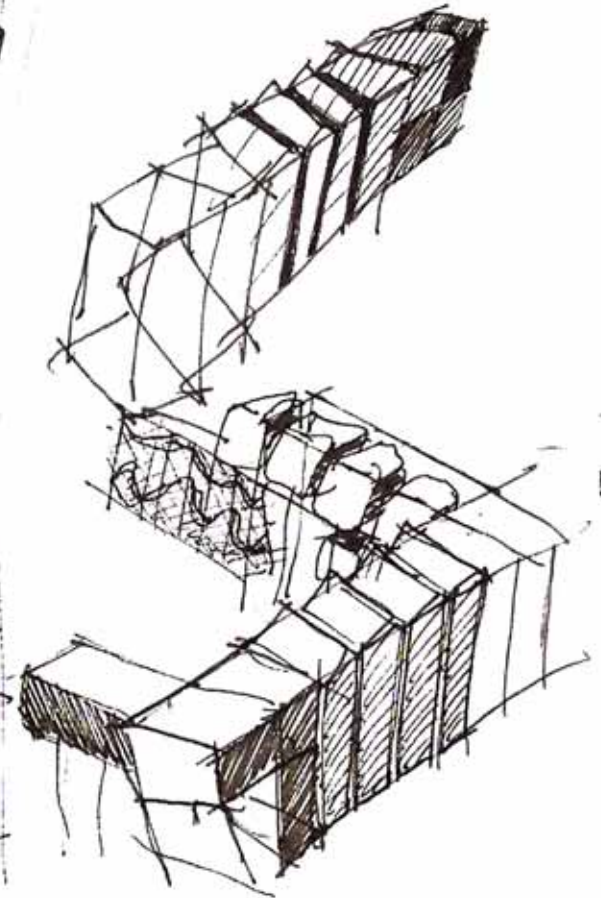
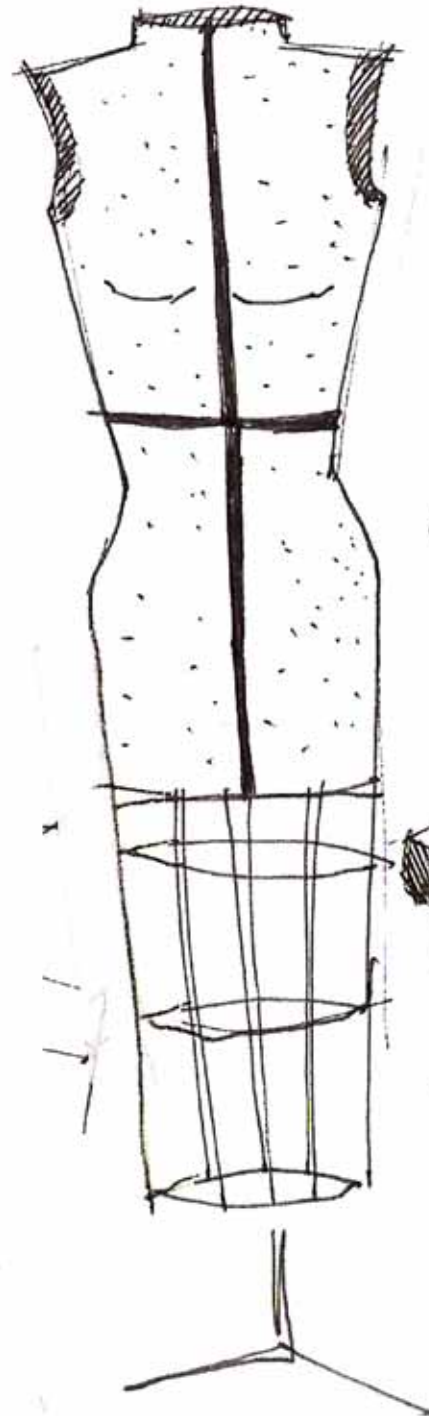
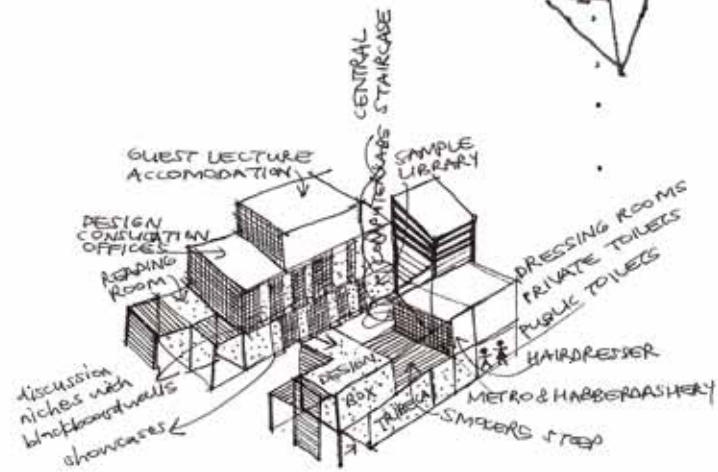
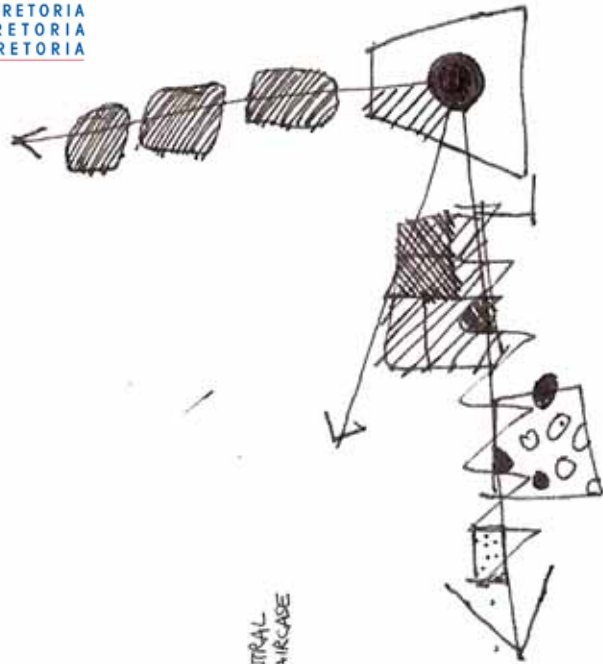
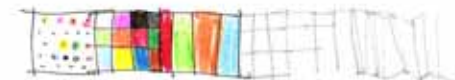
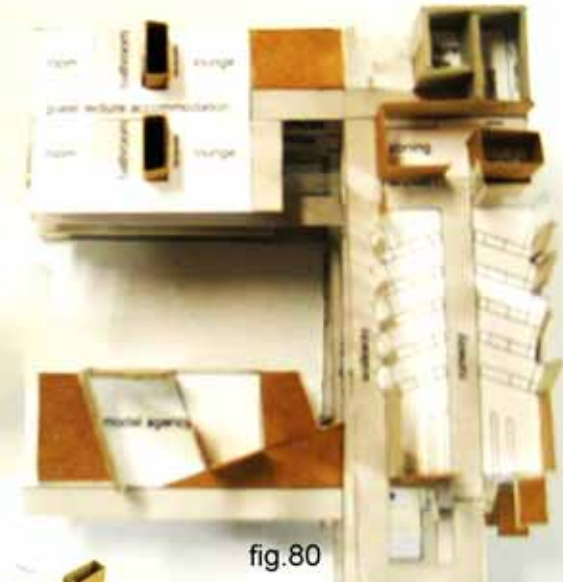
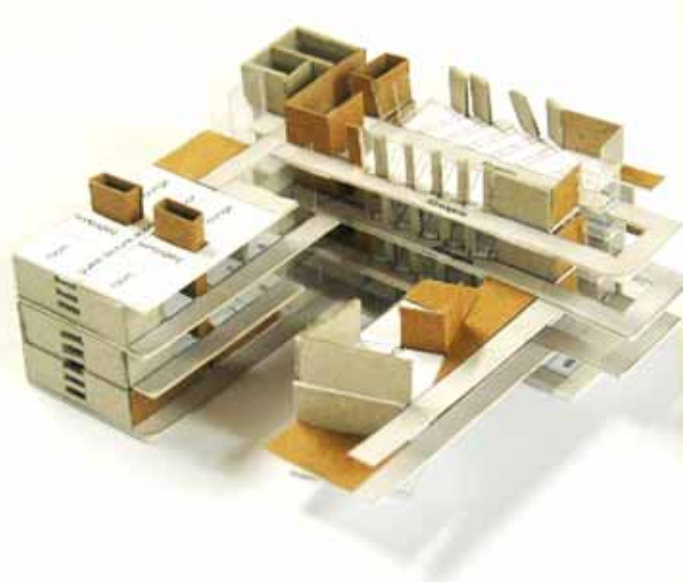
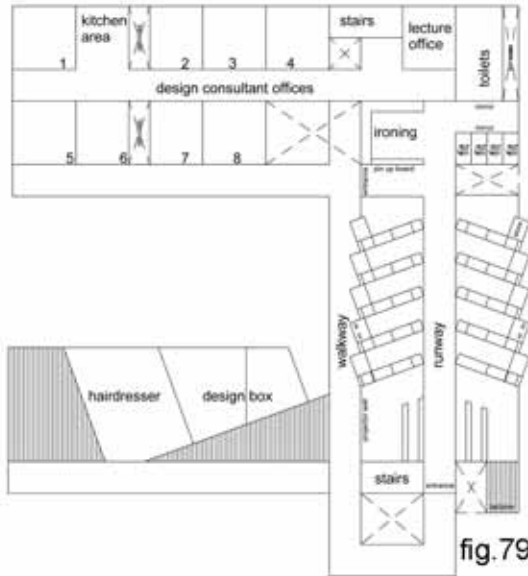


fig.78



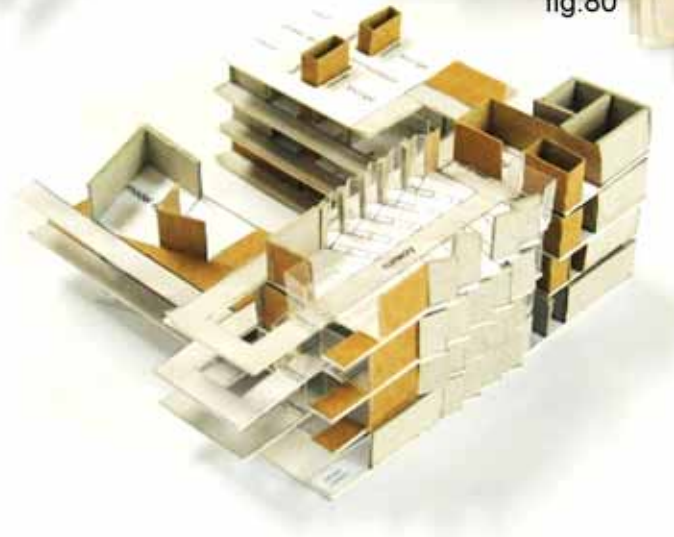


In the first concept for KNOOP the focus was on circulation. An attempt was made at using the walkways as runways and vice versa to make the users of the building feel like a model for the while that they walk in the building.

By making the walkways visual, people watch and be watched.

The u-shape of the building was greatly influenced by the urban footprint on site.

Focus was placed on the southern edge as it was intended to be the more public edge.





The second concept for KNOOP introduced the notion of a 'bust point.' In fashion the most basic pattern for any garment is called a 'basic block'.

The only constant point on this pattern is the bust point. From there all measurements are adapted and all darts constructed.

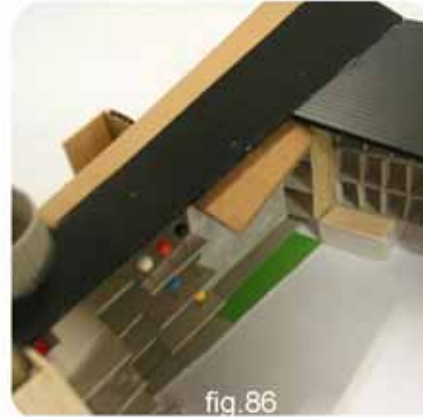
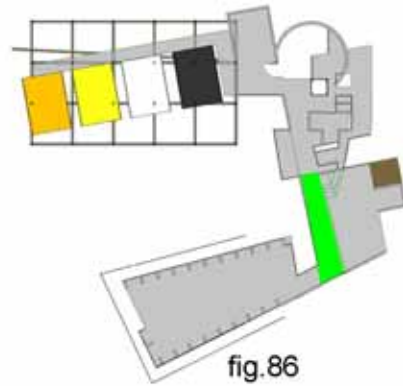
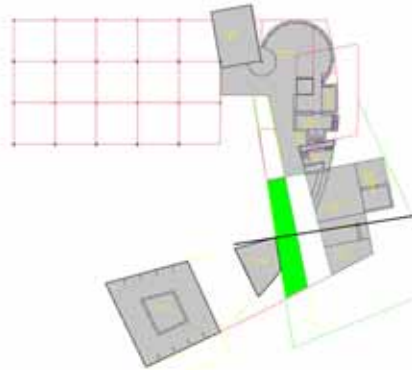
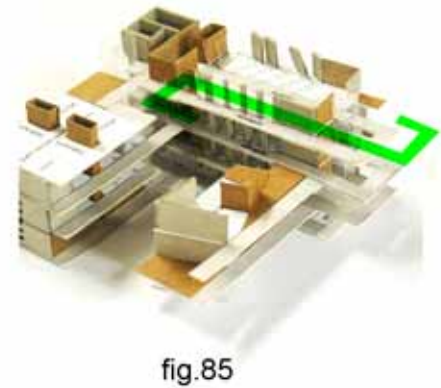
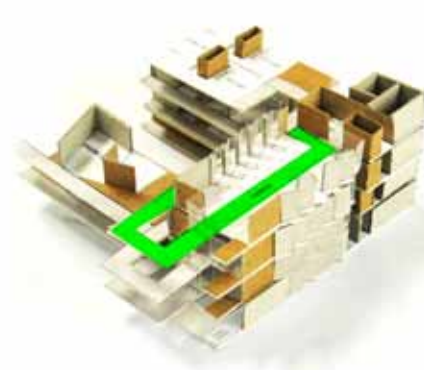
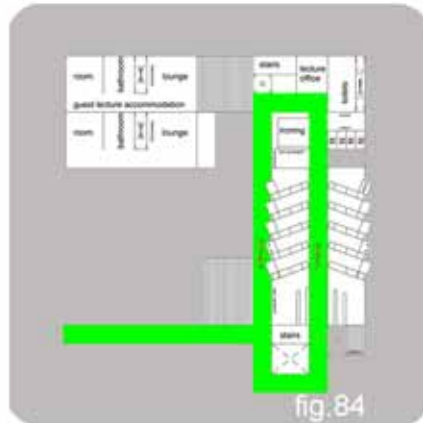
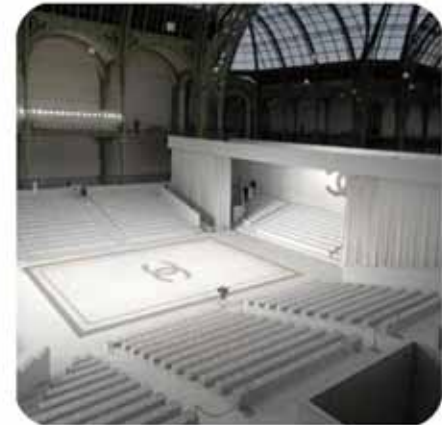
To relate this to architecture, it was decided that KNOOP would have its main circulation as its 'bust point.'

This would be the most important junction in the building.



The curved shape for the eastern edge was influenced by the shape of a sleeve pattern.

10.2 cut concept 2



Catwalk exploration





fig.88



fig.89



office pods on northern side

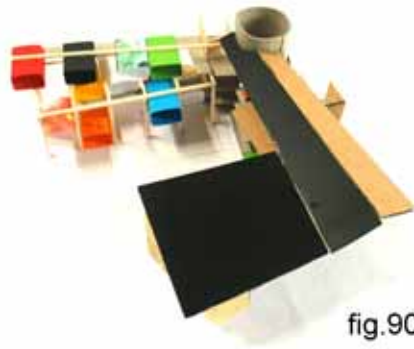
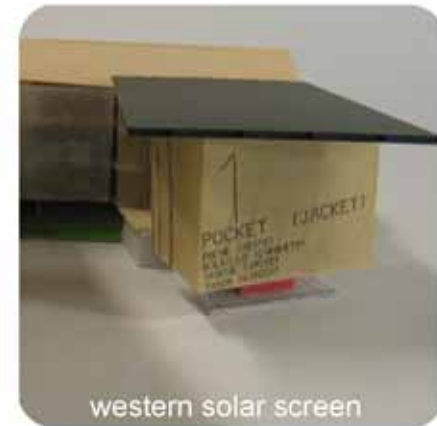


fig.90



southern facade towards railway track



western solar screen



fig.91

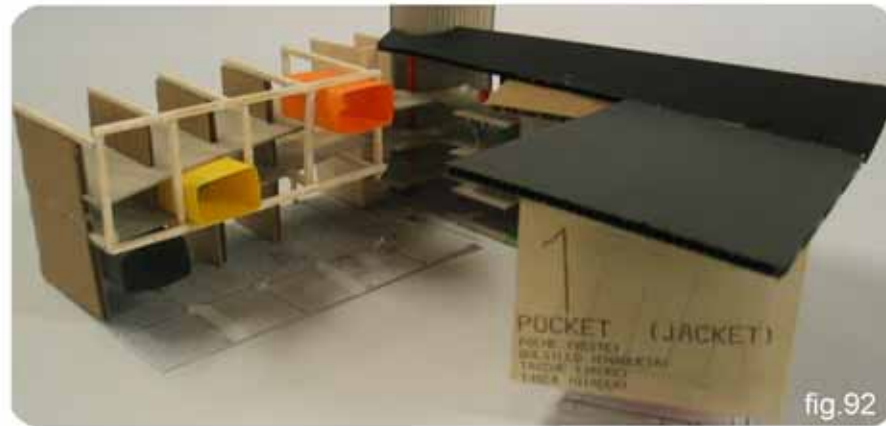


fig.92

10.3

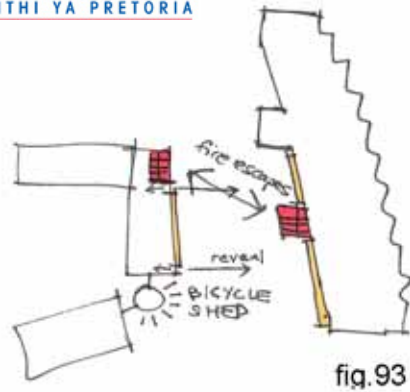


fig.93

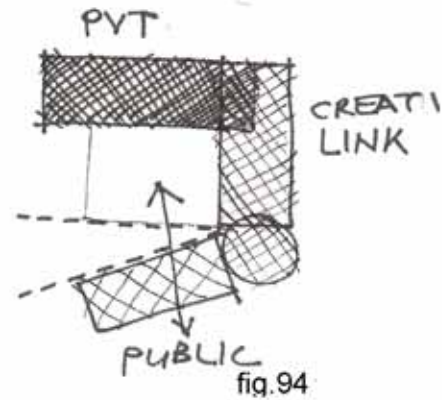


fig.94

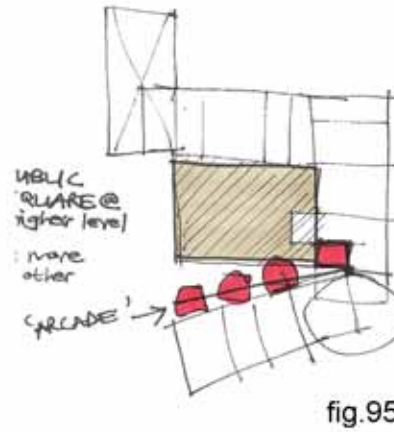


fig.95

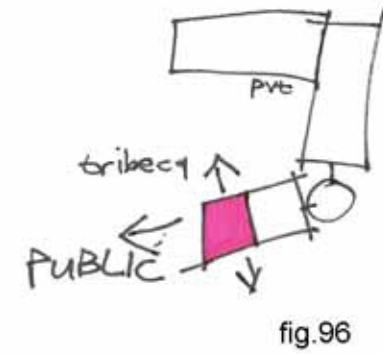


fig.96

KNOOP relates to its neighbouring buildings by stitching certain daily routines between the buildings. The buildings do not share functions, but they are visually linked and allow users to observe one another.

By doing this, KNOOP does not only link students with each other in the building, but also with the world outside.



fig.97

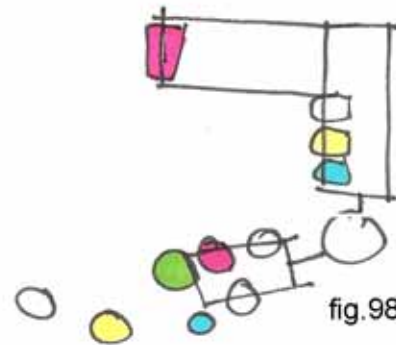


fig.98



fig.99

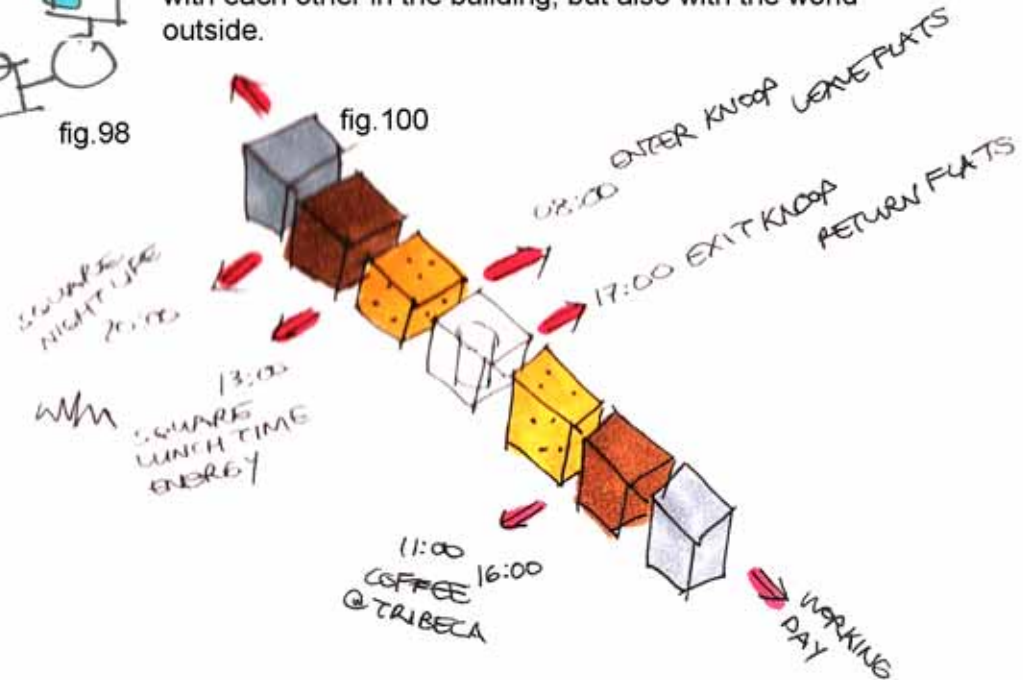
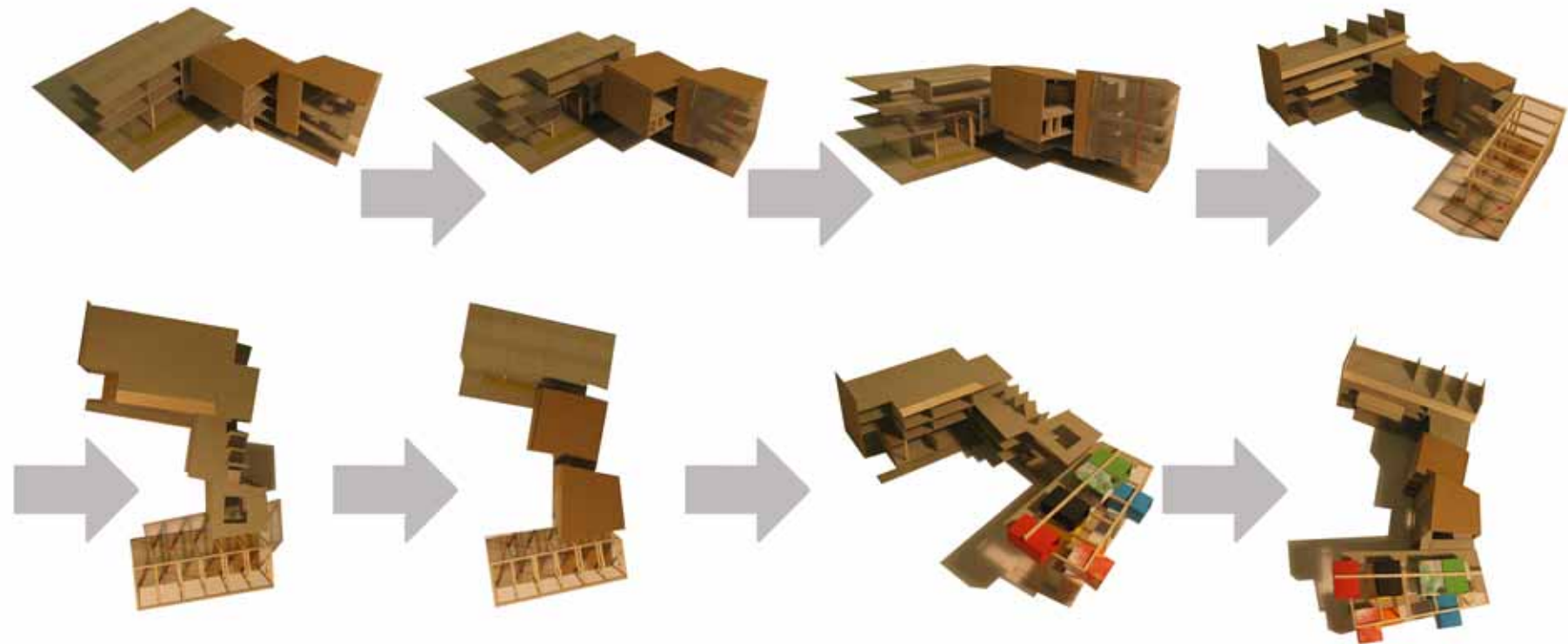


fig.100



In the final concept development of KNOOP it was decided to move the more permeable building edge consisting of the pods to the southern side. By doing this the more intricate building edge is visible from the public square.

By allowing people to view the northern wing of the building through the pod structures, the building draws people into the more private square that is shared by KNOOP and the music school adjacent to it.

The Tribeca coffee shop is situated on the corner to take advantage of both the public and the more private square.

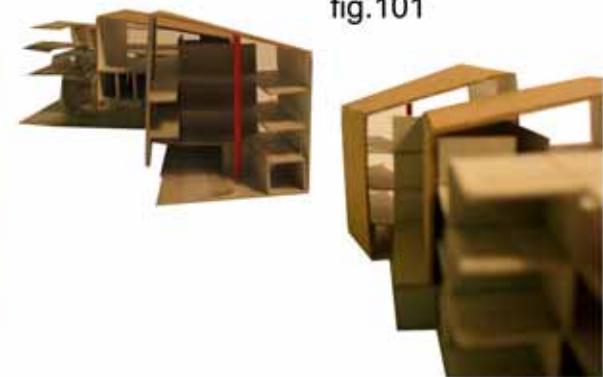


fig.101

10.4



“By making the public look forward to something new in the art world, you are in a sense pulling them into the future.”

Carla Wasserthal

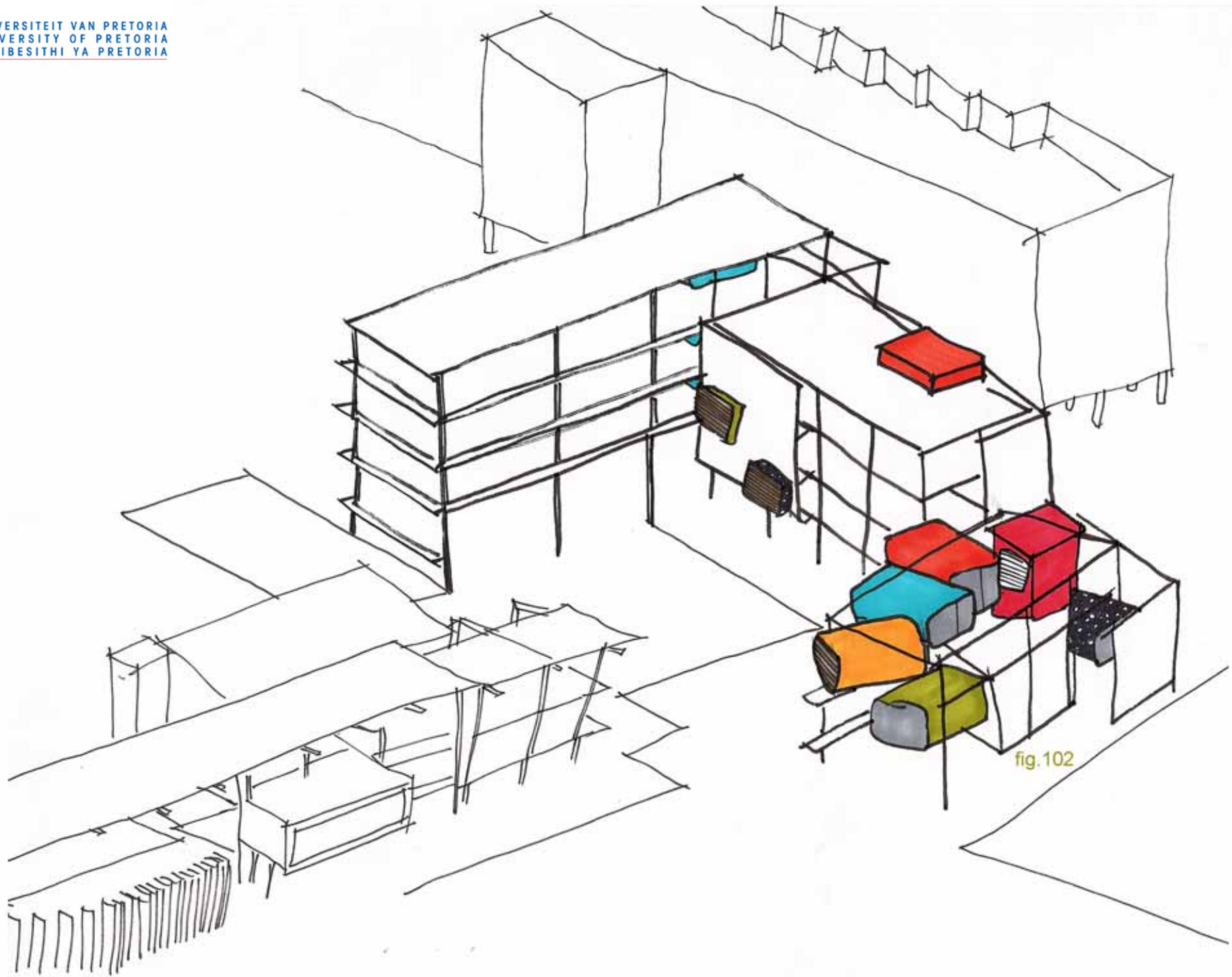


fig.102

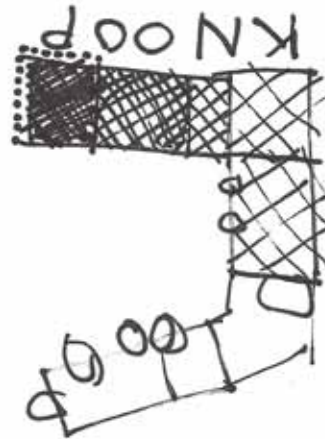
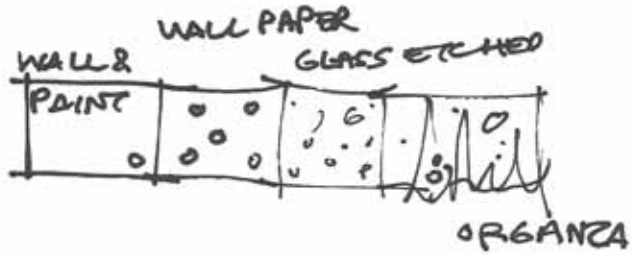
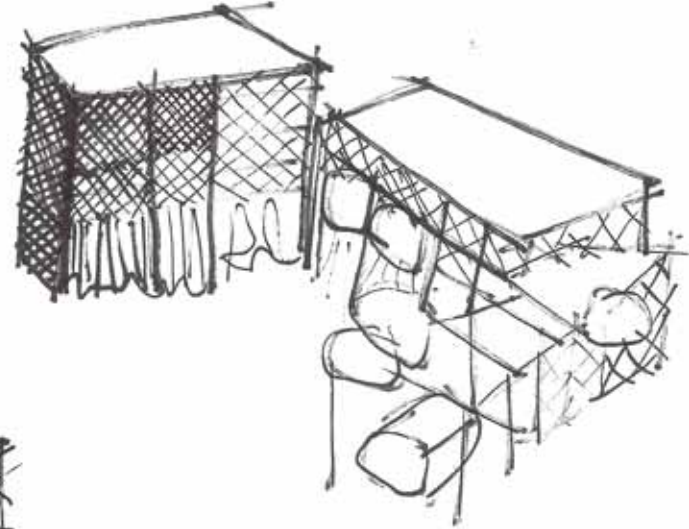
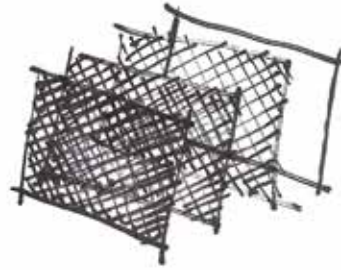
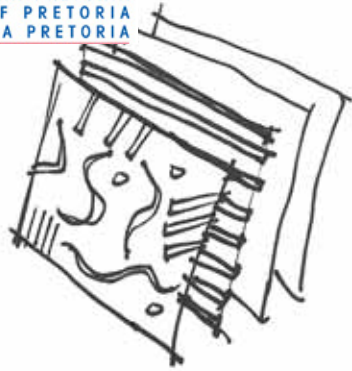
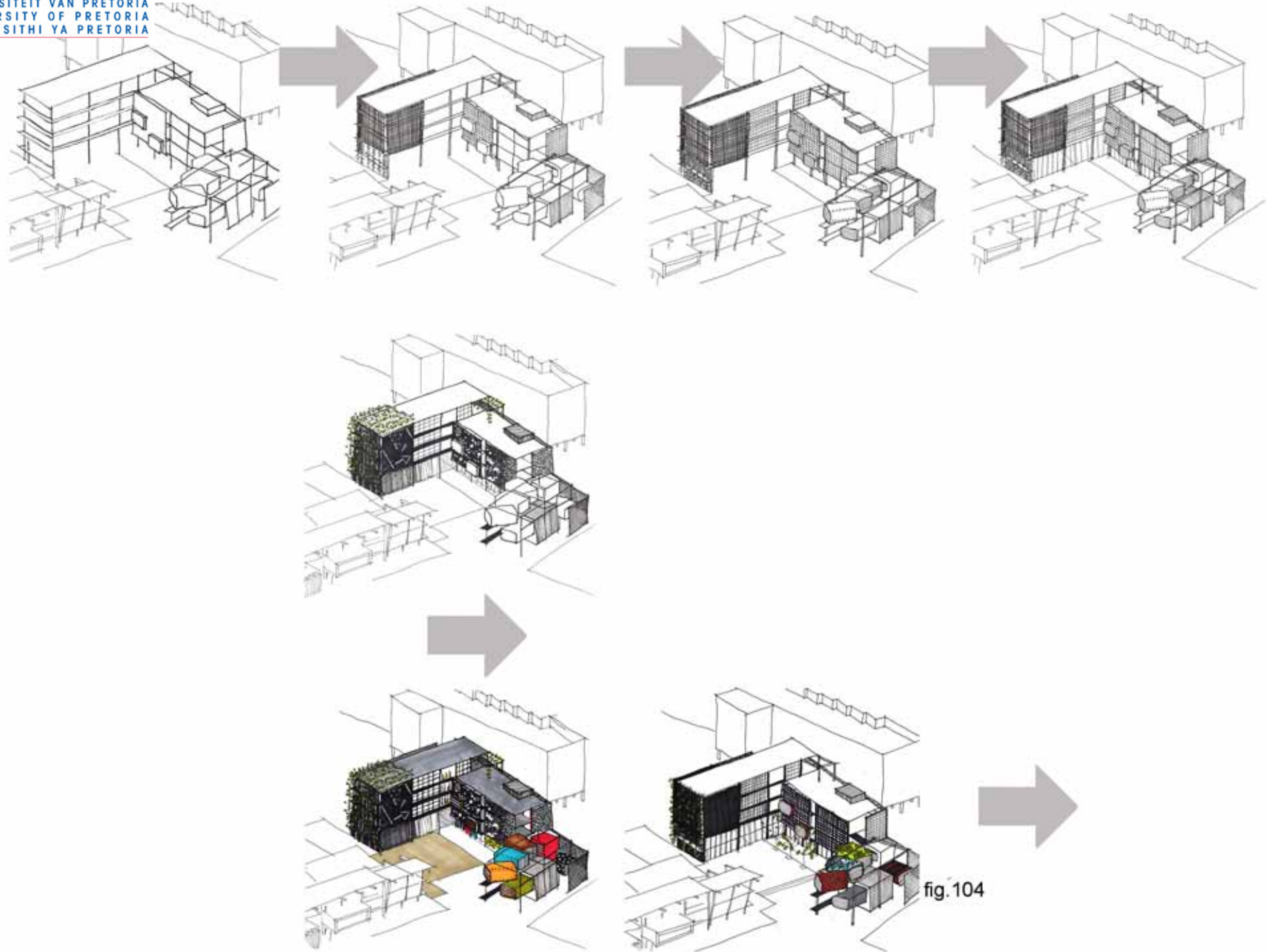


fig.103





10.5



“The Bauhaus workshops were really laboratories for working out practical new designs for present-day articles and improving models for mass-production.” (Gropius, W.1935:37)



fig.108



fig.107



fig.109

“Dré Wapenaar designs mobile pavilions that function as a travelling platform where artists and the public can develop and exchange ideas.”(Quinn. 2003:151)



fig. 112
fitting rooms
modelling school



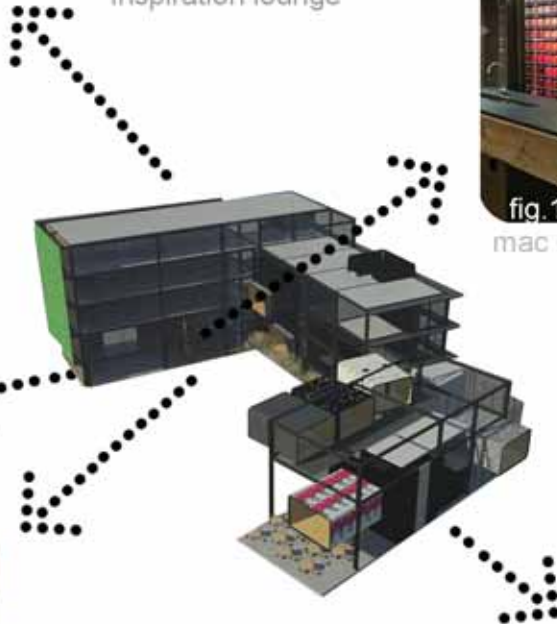
fig. 113
inspiration lounge



fig. 114
mac make up studio



fig. 111



Tribeca interior



fig. 110



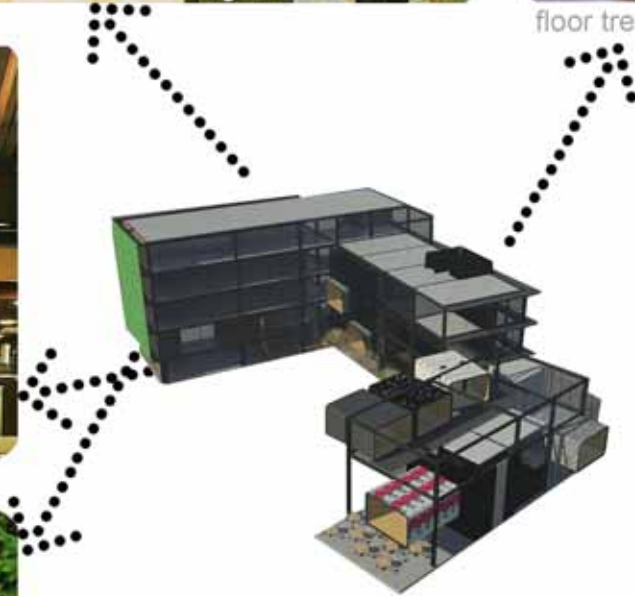
fig. 115

10.8 headboys hairdressers

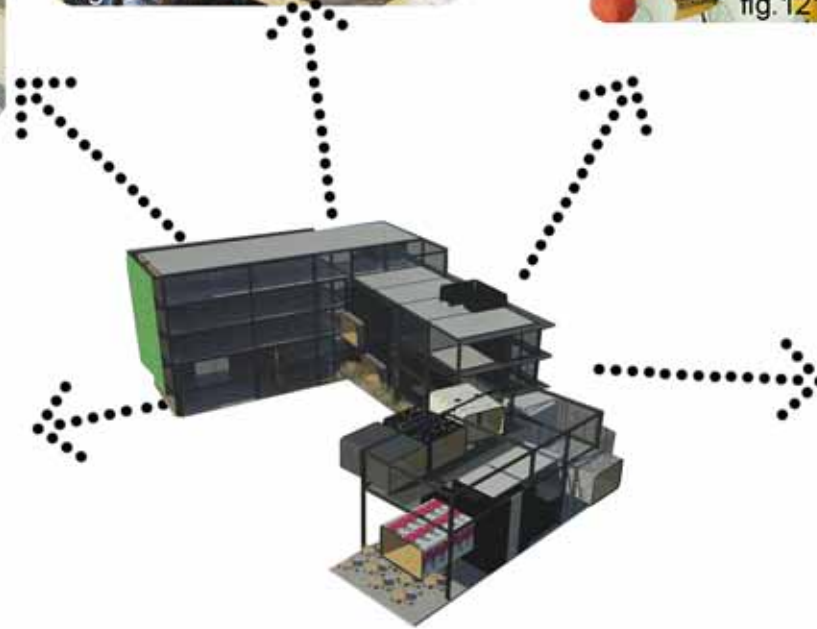
KNOPP visual language



Ban Suan Saghob, Bangkok, Thailand
Architects 49 Ltd



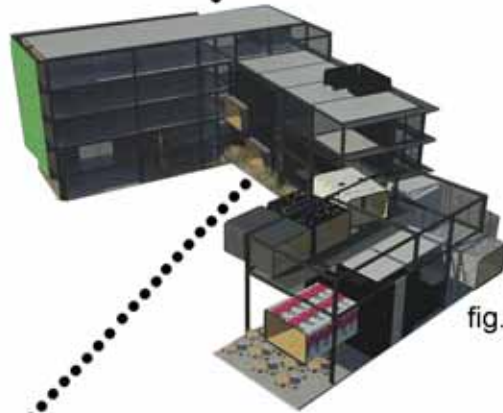
KNOOP visual language



10.9 KNOOP functions



draping software



The user of KNOOP will not only include students from the University of Pretoria, but any creative person wanting to realise a design concept that he/she has.

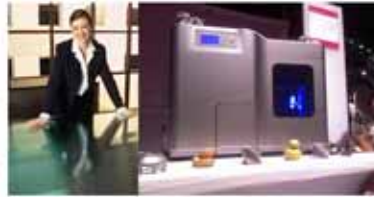
fig.124

sublimation printing



3d prototyping

10.10





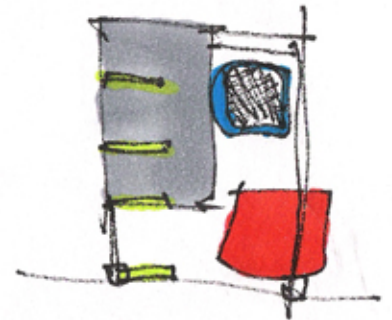
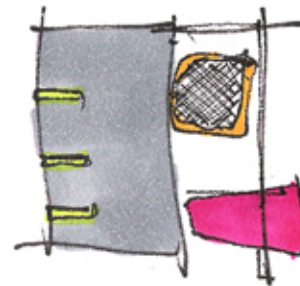
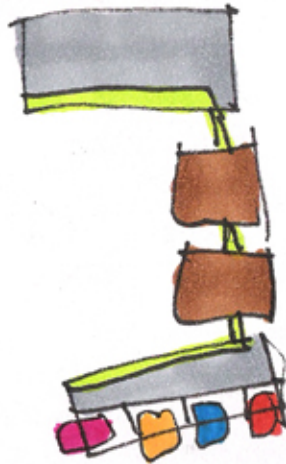
“One collects day after day all the artistic and fanciful impressions thrust upon us by the world about is... Truly fashion is the child of thought and thoughtlessness.”
(Rouff, M.1965:155)





“If a pleasure-giving function predominates, the artifact is called art; if a practical function predominates, it is called craft. Craft is something useful made with artfulness, with close attention to detail. So should buildings be.”

(Stewart.1994:54)



11 spatial exploration

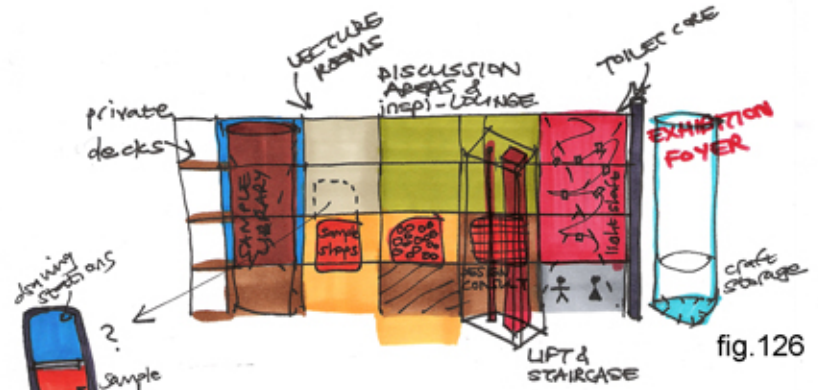


fig. 126

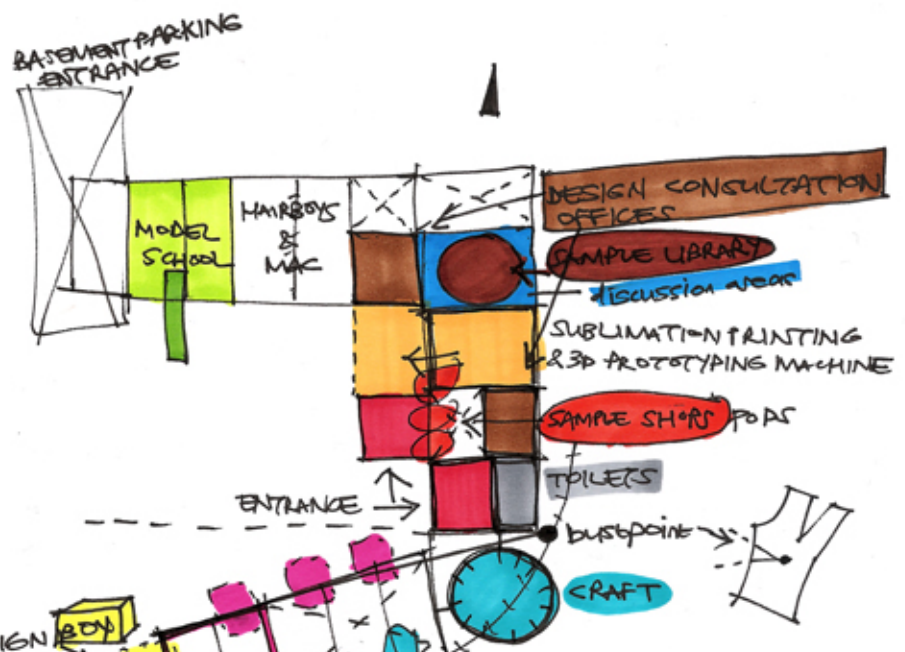
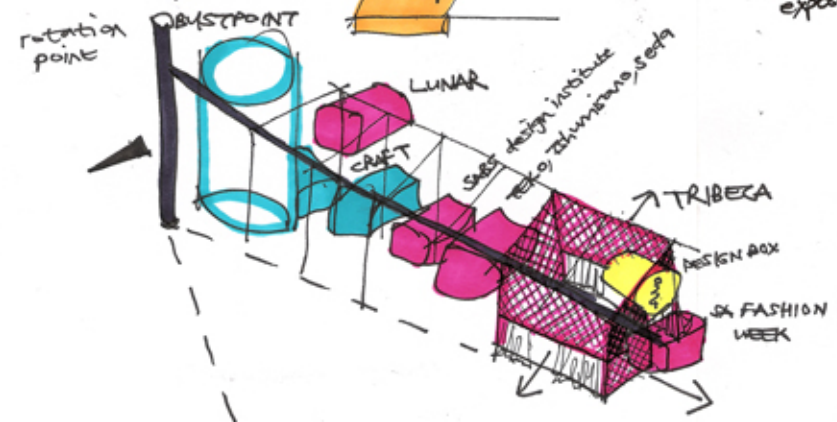
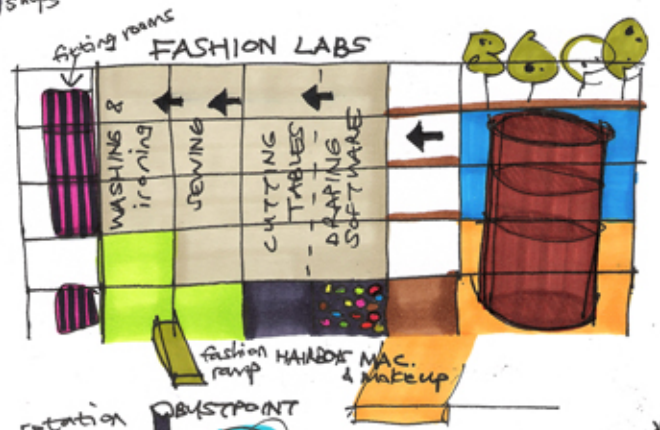


fig. 127



11.1 cross-pollination diagrams

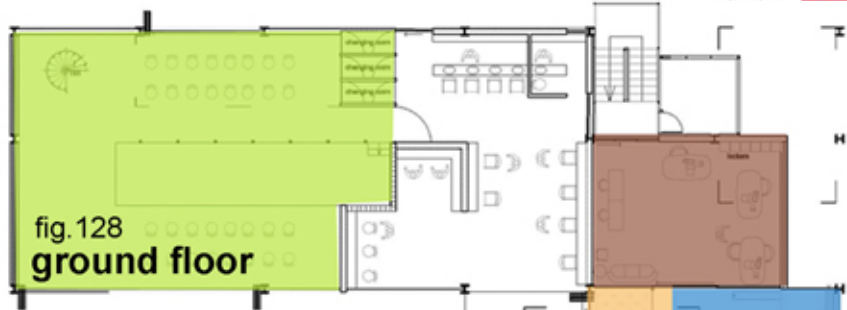


fig. 128
ground floor

- tribeca
- workshop
- public area
- sample library
- sample library
- server room
- modelling school
- inspiration lounge
- toilets
- craft area

- fashion offices
- discussion areas
- public area
- sample library
- fashion labs
- server room
- photography studio
- inspiration lounge
- toilets

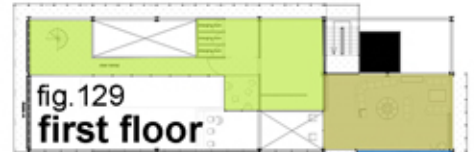
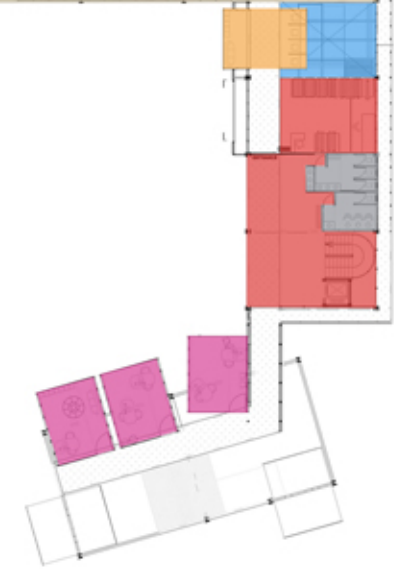


fig. 129
first floor



fig. 130
second floor



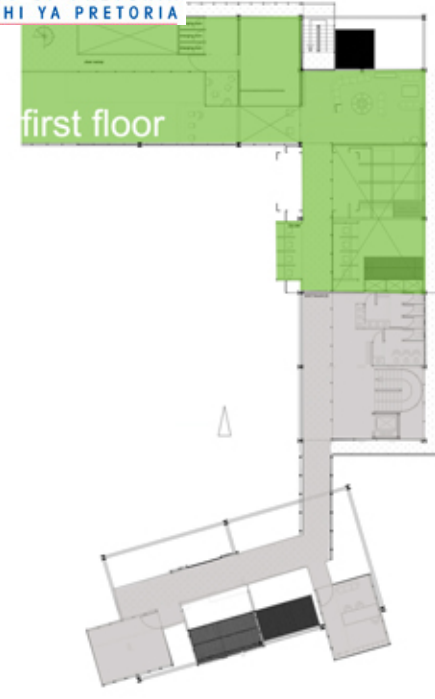
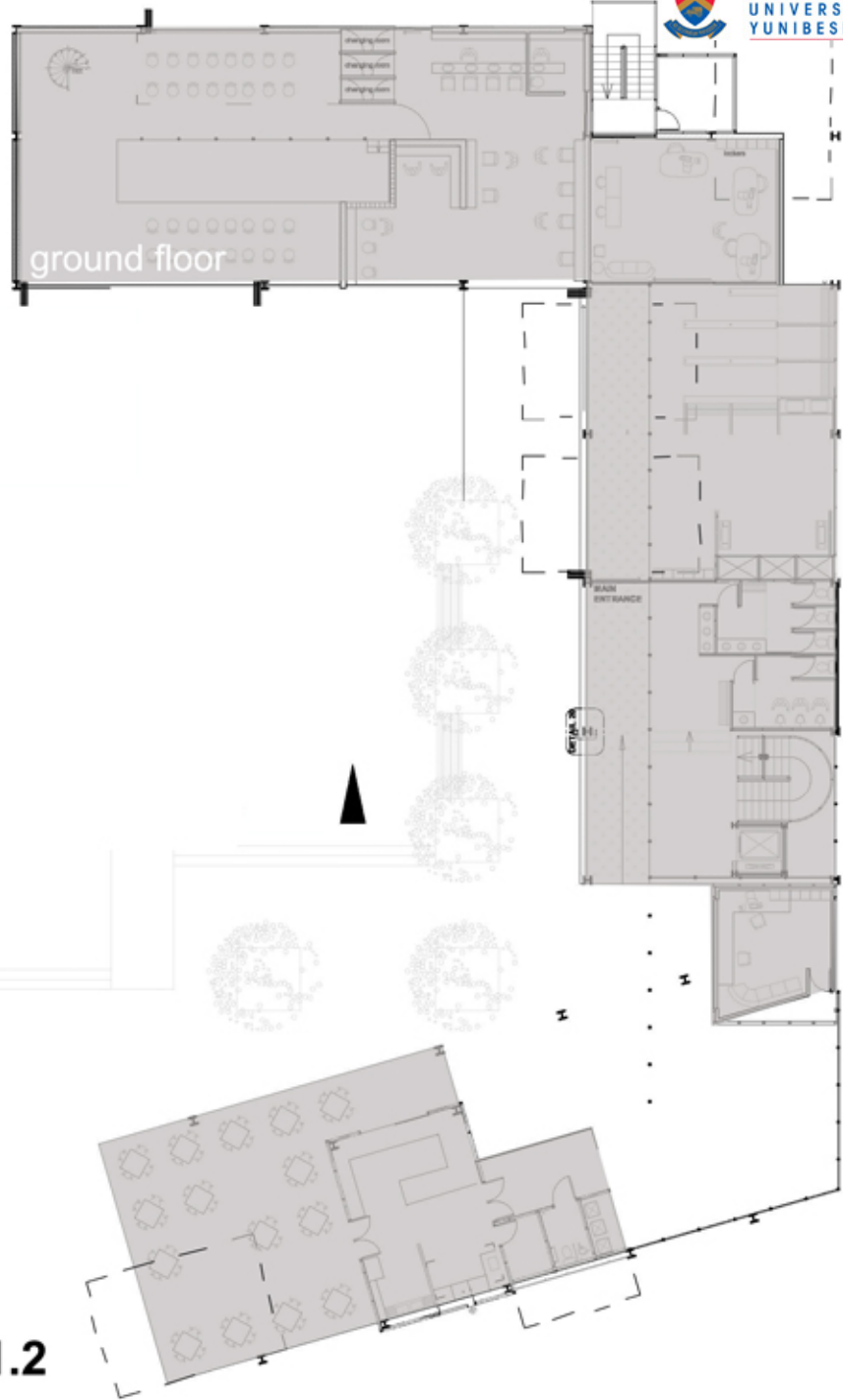
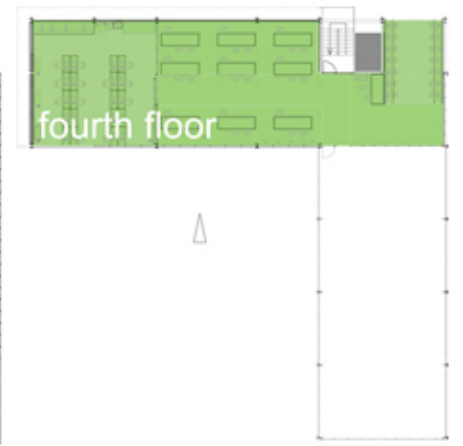


fig.131



public
private

11.2

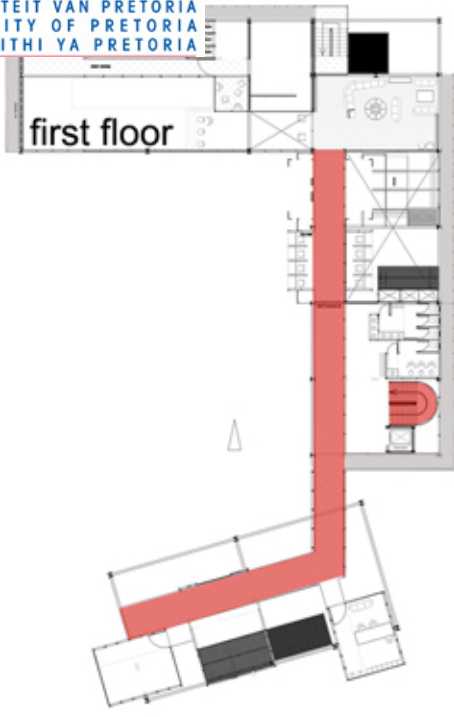
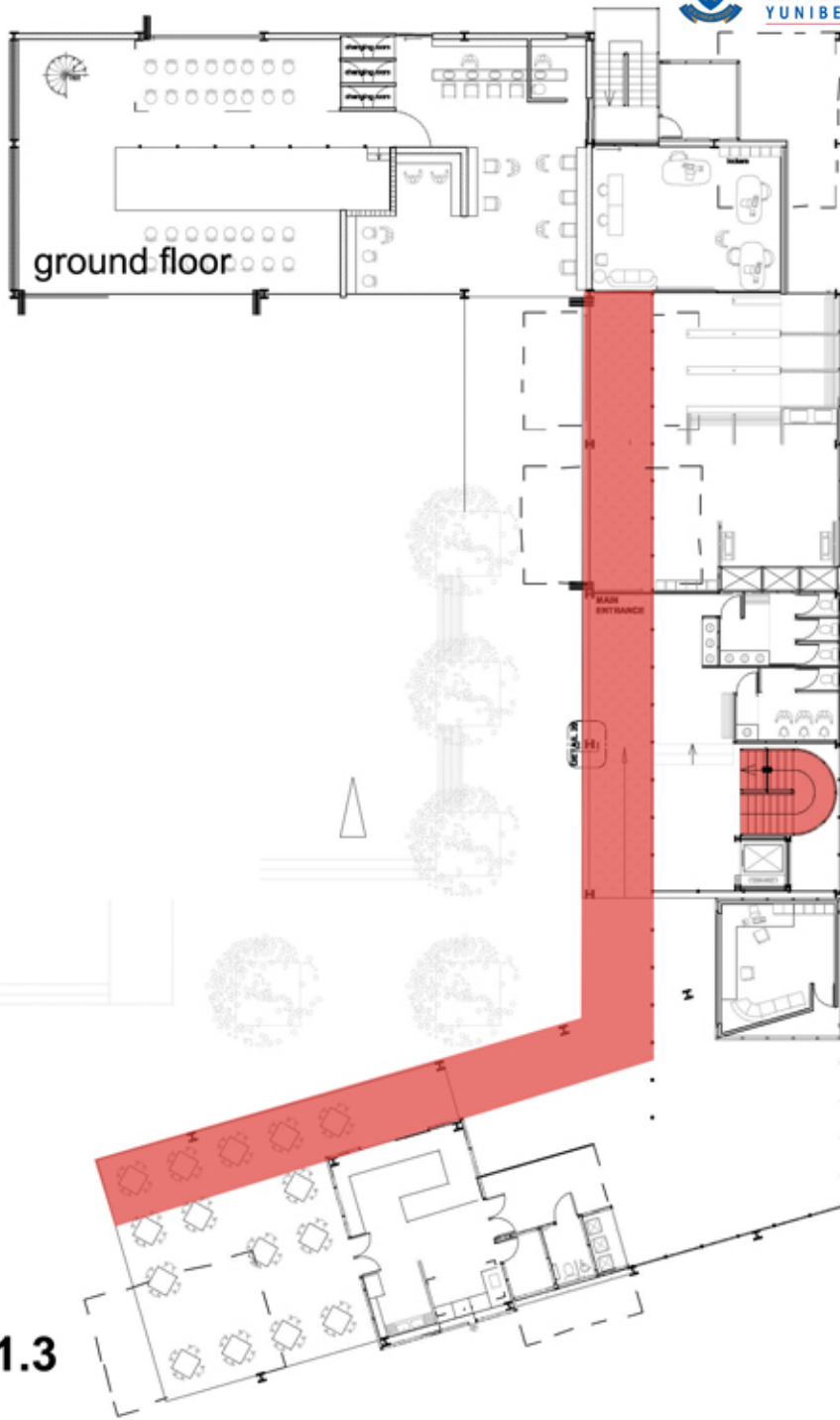
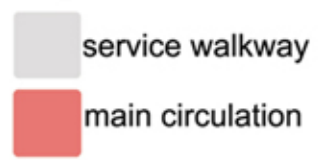
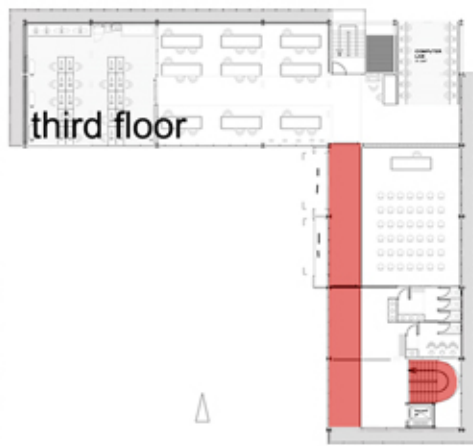
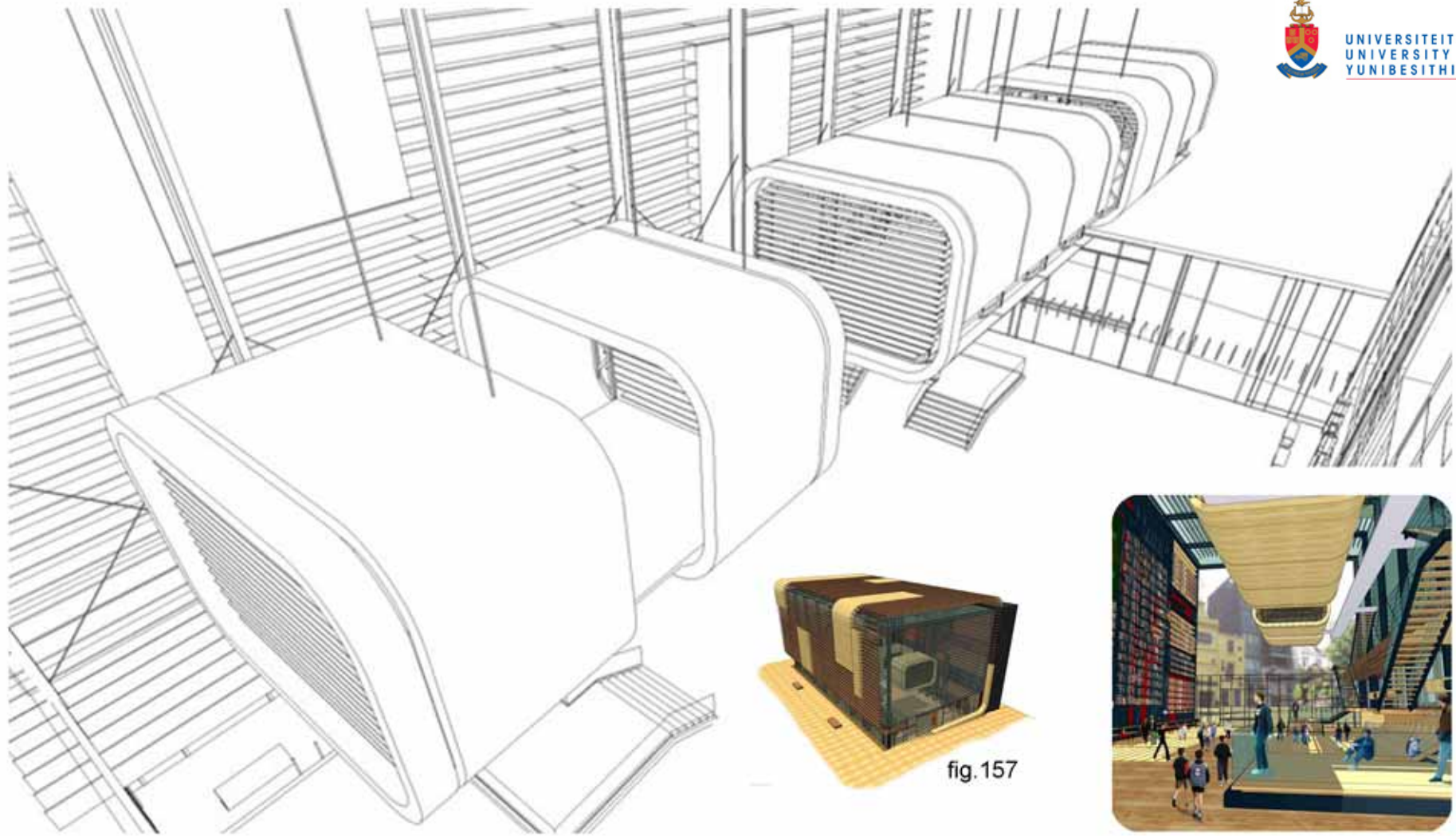


fig.132



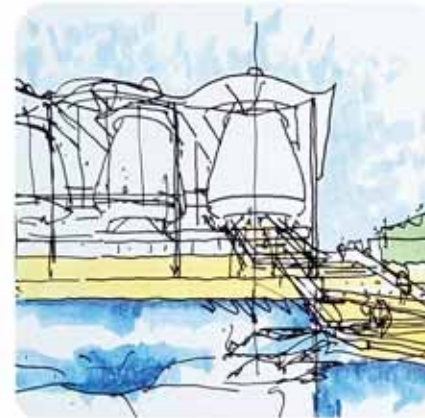
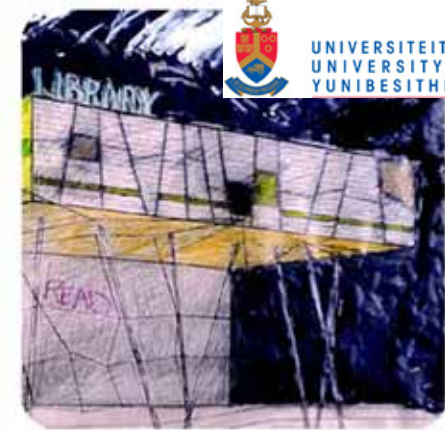
11.3



JAPAN LIBRARY
Andrew Maynard Architects



12.11
design precedent pods



PECKHAM LIBRARY
Will Alsop 2000

BORDEAUX LAW COURTS
1992-1998
Richard Rogers



design precedent pods

12.12

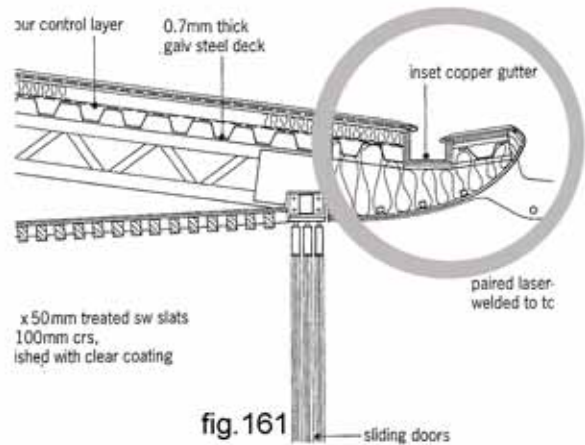


fig.161

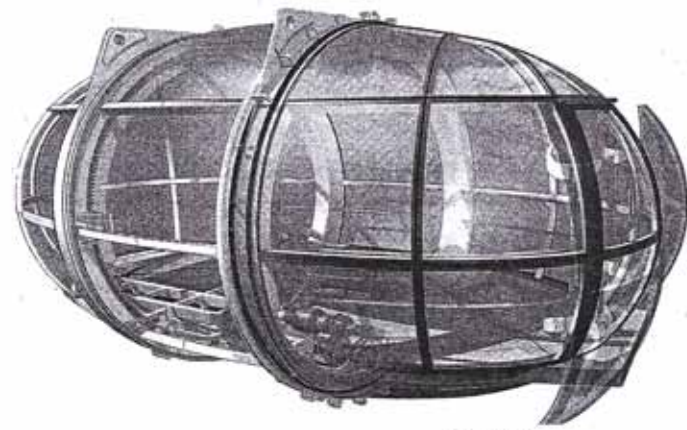


fig.162

Note: glass fixed to frame with black 2-part structural silicone. ss patch fittings are used at corners of glass for safety and to secure the panels while the silicone is drying

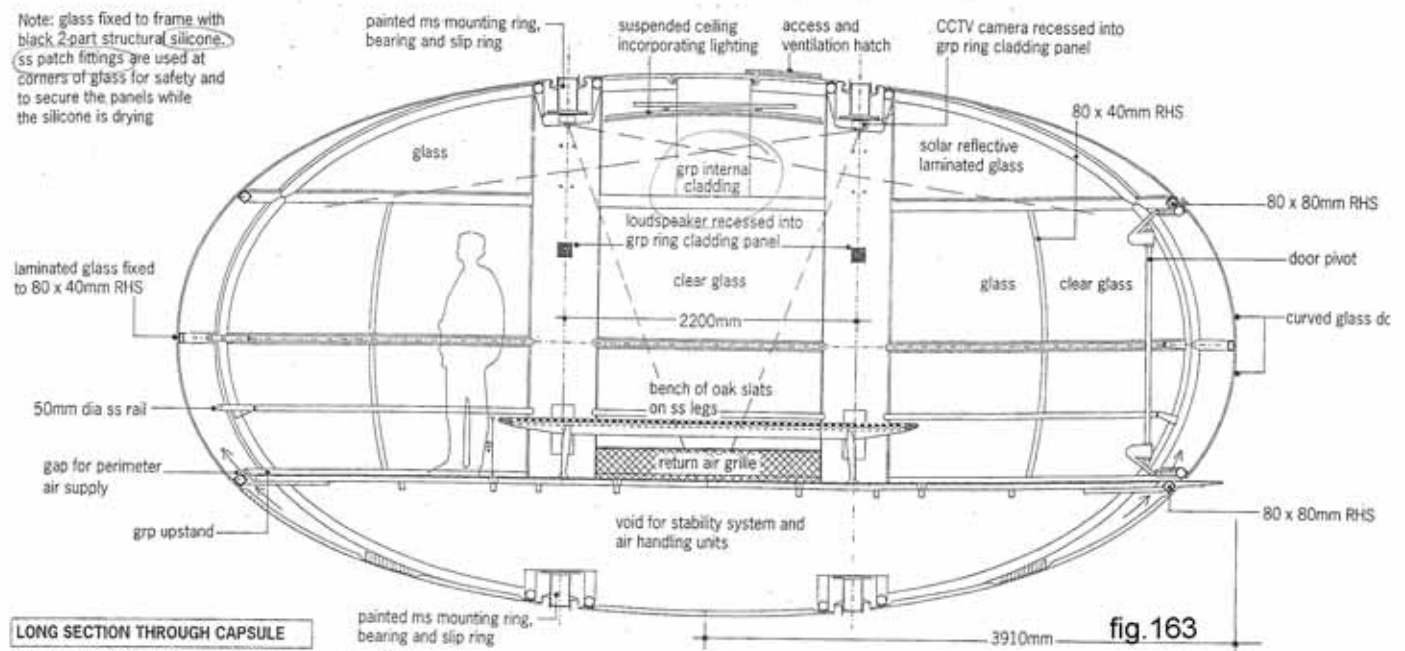
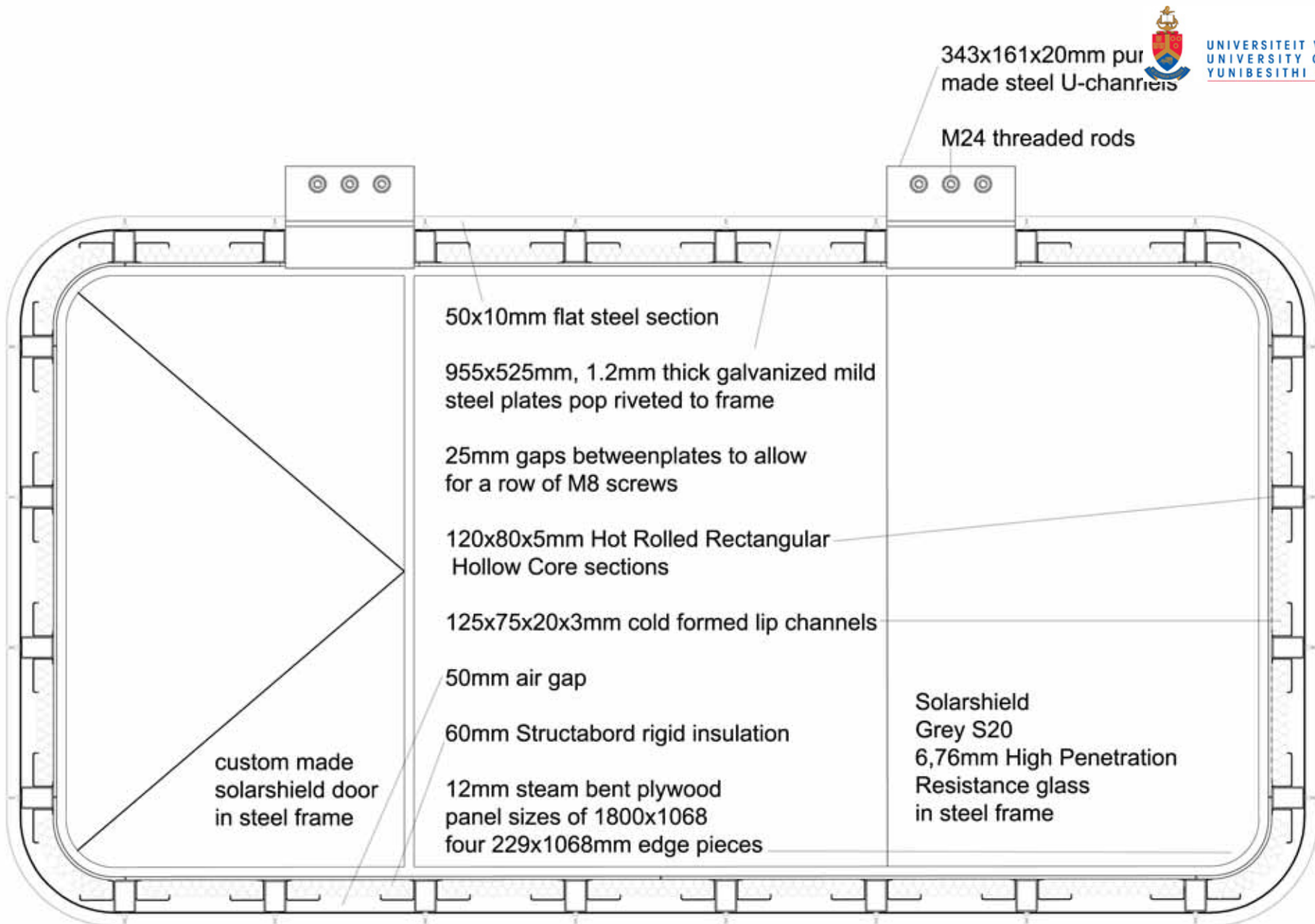


fig.163

12.13

technical precedent pods



12.14
pod detail section 1:20 fig.164



Hannibal roof tent 100%
waterproof polyamide 380g
cotton ripstop canvas.fig.165

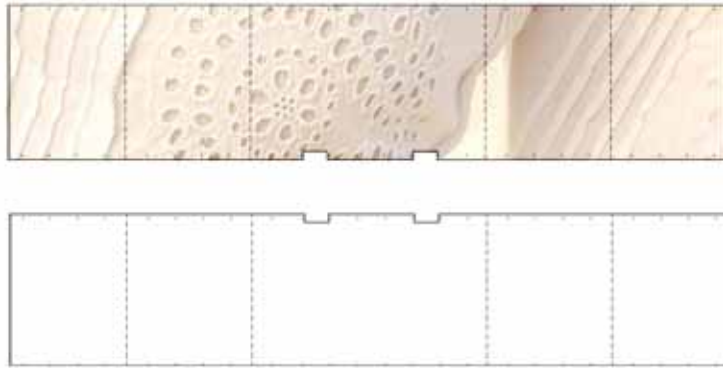


fig.166



25,4mm thick Dual Lock
Reclosable Fastene
Tape 250S Heavy
Duty Velcro. fig.167

12.15 p o d s s k i n s

KNOOP consists of three floor constructions and two floor finishes depending on the traffic demand of the area.

The first floor is a two way spanning waffle slab of 510mm. The floor was designed to achieve the ground floor height of 595mm above NGL as set out in the design guidelines for projects on site. Because ground is very heavy ($2t/m^3$) it was decided to rather step the waffle slab at the corners of the building to allow the level difference, than to use ground fill.

All the floors from first floor level to the fourth floor level are constructed from pre-tensioned 200mm concrete cast into permanent brownbuilt shuttering. All edges are cast flush with the steel beams with shutter plates that are removed after the concrete has been cured. All joints between the floor and the steel frame are filled with a polystyrene strip of which the top is burnt away with petrol, to allow a 10mm Sondorband to be placed in the joint. According to calculations ($\Delta L = \Delta T L \approx 25(6000)12 \times 10^{-6}$, the joint only has to be 1,8mm, but to allow for a neat joint, 10mm Sondorband is used.

The floors are steel power floated and left unfinished in most areas, to allow the floor level to remain constant.

All high traffic walkways are constructed from metal 'vastrap' that are supported by 100x50x5mm Hot Rolled Rectangular Hollow sections @ 1500mm spacing. The rectangular sections are supported by an edge frame of 203x102 Universal Beams that rests on 75mm diameter hollow core tubular columns @ 1500mm spacing.

MATERIAL CHOICE

- LIGHT WEIGHT
- 'non-permanent'
- DISASSEMBLY POSSIBLE → RECONSTRUCTION.
- 'backdrop' FOR CREATION STATIONS
- PASSIVE DESIGN → allow cooling
- SPACE COLOURS, TEXTURES, CONTRAST

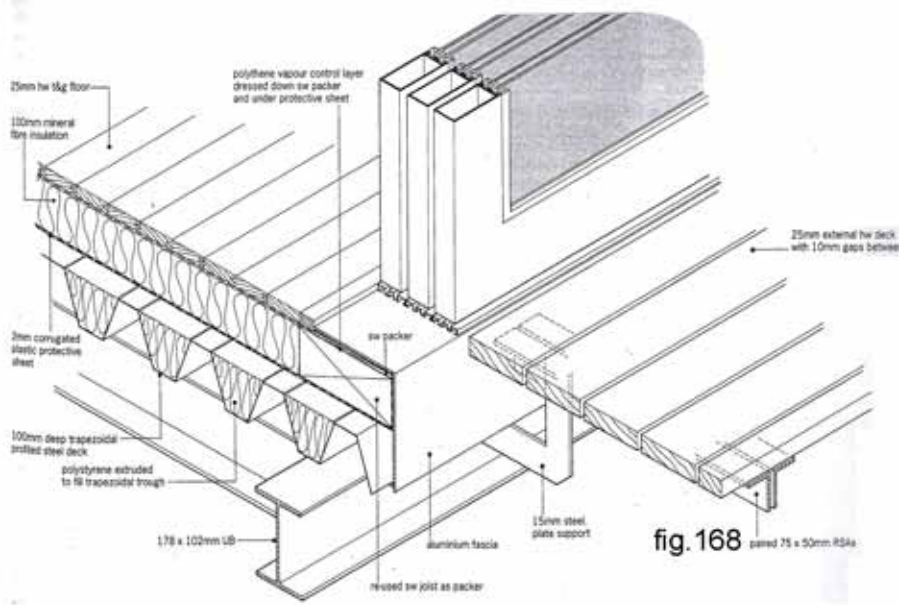
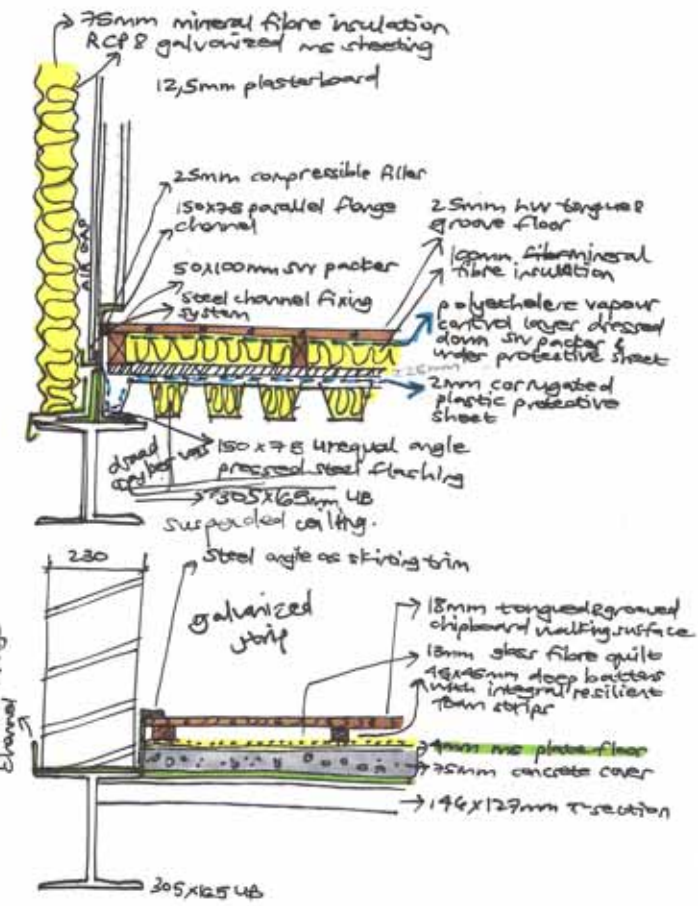


fig. 168



Floor construction development fig. 170

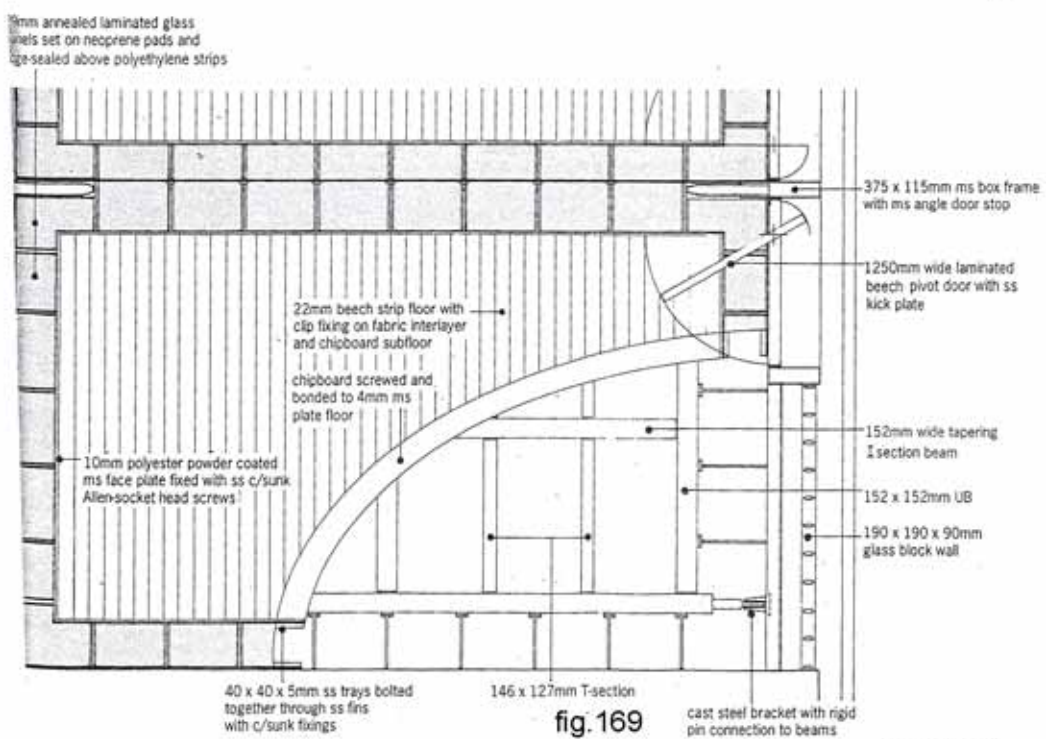
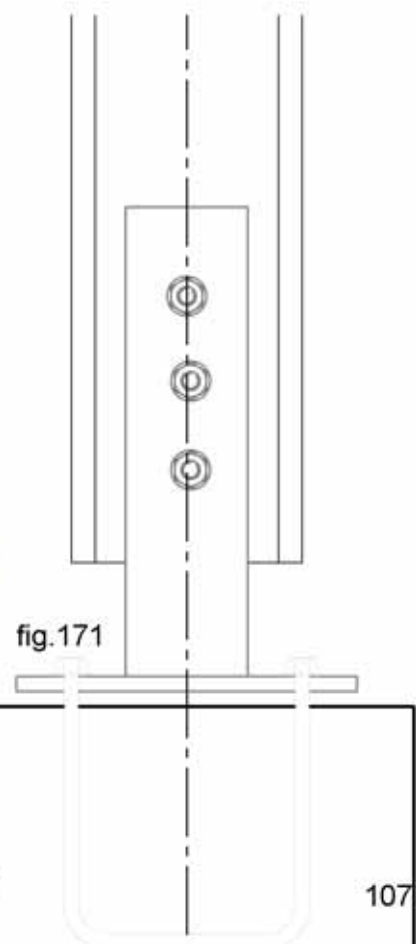
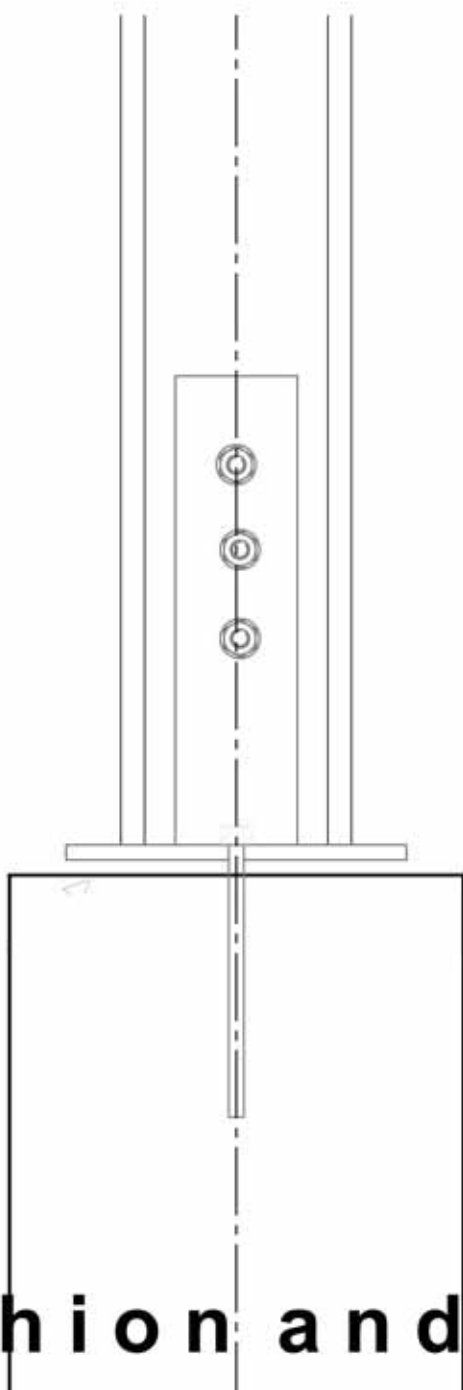


fig. 169

12.17

technical precedent floors



fashion and architecture

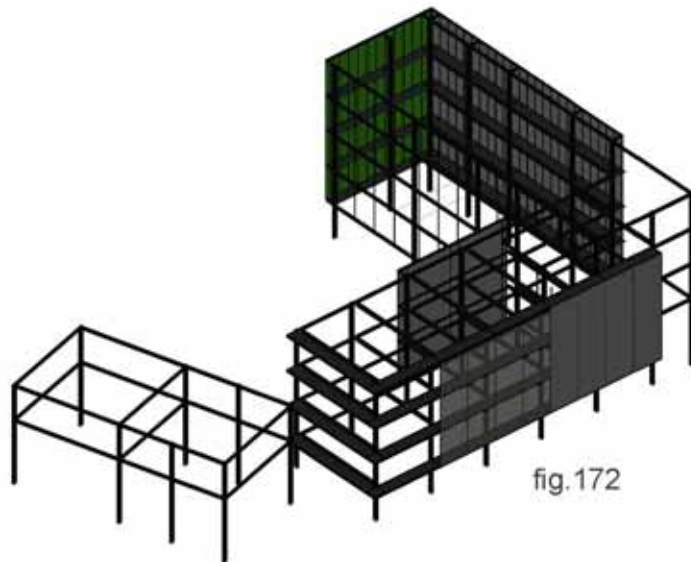


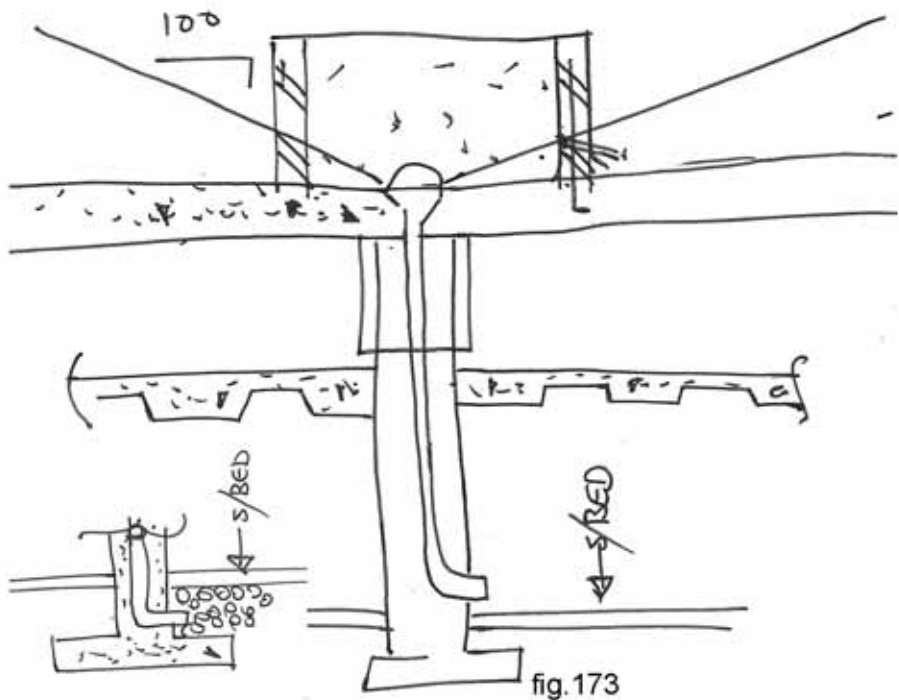
fig.172

In keeping with the theory of creating a visual language that reveals the inner functioning of KNOOP, it follows naturally that all services of the building should be exposed. This is done by allowing all ducts and pipes to run on the outside of the building in a 900mm gap between the building and its secondary skin.

There is a service corridor along the gap allowing easy access for service maintenance and window cleaning. The corridor walkway frame is constructed from 203x102 Universal Beams bolted to the main frame columns and supported by 46 x 75mm purpose made unequal leg channels. The material on the walkway is metal 'vastrap' supported by 100x50x5mm rectangular hollow core steel sections at 1500mm spacing. These rectangular sections are bolted to the walkway frame.

Because the building has a narrow width, moving all ducting to the exterior façade saves a lot of functional space

12.18 services



The courtyard slabs are cast in sizes of 5000x600mm according to the basement column grid. Each slab has a screed that falls towards drains that allows water to enter gutters that terminate in gravel beds in the basement parking. All outlets in the basement parking is then hidden in the gravel bed and water is allowed to trickle towards the railway reserve, because the slabs are cast at a slope of 1:60.

All trees on site are planted in planters that are placed on the column grid, to allow the basement columns to carry the load of the trees.

stormwater



The toilet facilities are situated in the eastern side of KNOOP. They are right next to the main staircase and lift and are used by all the users of the building's different functions. The disabled toilet is situated next to the Tribeca and is easily accessible, because it is on the public square level, negating the need for a ramp. There are three toilets per female abluion (total 9), one toilet per male abluion and three urinals. (Total 3, 9)

There are three hand wash basins per female abluion and one per male. There are also three basins in the corridor area outside of the toilets, for the use of students using the prototyping lab who want to wash their hands, or for students who want to drink some water on their way to class.

The amount of sanitary fittings are compliant with the SANS requirements for the building occupation type A3 Educational.

sewerage



fig.175



second floor



fig.176

There are three areas that need to be served with water in KNOOP. The **toilets** on the eastern side, the **Tribeca** Coffee shop to the south and the **ironing and washing rooms** of the fashion labs to the north.

Water for the fire extinguishers will be discussed later.

The same principal applies for the water pipes as for the sewerage pipes and all other service ducting, as it is exposed on the building façade.

According to NBR TT 16.2 a building with more than three floors needs two unobstructed escape routes.

The first escape route in KNOOP is the well demarcated 'vastrap' walkway that connects the main staircase and the fire escape. The second escape route is the external 900mm walkway that is usually only used for maintenance. The travel distance from any point in the building to the nearest escape door is less than 45m.

An automatic fire sprinkler system is installed in KNOOP according to the requirements by the ASIB Automatic Sprinkler Inspection Bureau (Pty) Ltd. and receives its water from the wet core on the eastern building edge.

All steel members are painted with a thin-film mastic coating and all internal walls are fire proofed with a coat of B-Seal.



Because of its footprint on site KNOOP has large western and eastern frontages. The northern side of the building also houses the student working areas and care had to be taken to allow sufficient solar control in these areas.

The greatest design challenge was to provide sufficient solar shading on the western façade that houses the 'creative link' between the craft area and the fashion labs and should ideally be exposed entirely.

This was done by adding the external building skin to shield the interior from the harsh summer sun. Because the screens are woven and will cast shadow patterns on working surfaces all walkways was located on the western edge of the 'creative link' to catch shadow patterns leaving working surfaces at lower levels with quality lighting.

Screens on the northern façade work on the same principal, except that internal screens are moved in front of the windows when the shadow patterns become hazardous.

Screens were omitted on the southern side of the building to allow good quality light to enter the fashion labs where the cutting tables are situated. A screen was however introduced on the south western corner, to communicate the visual language of the building becoming less permeable towards the pods. Comfort was enhanced by the screen, because it covers the sewing rooms that will need all the shading possible to keep cool.

12.19

solar control

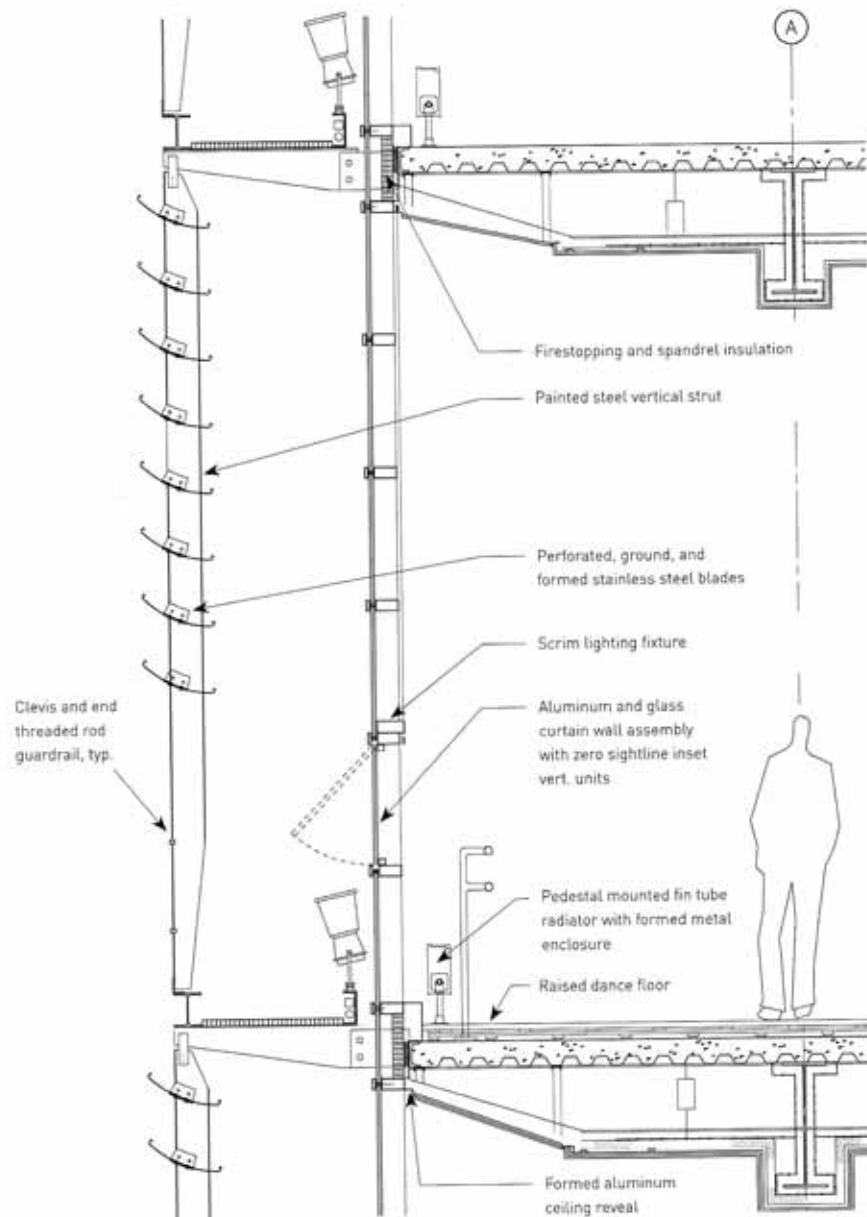


fig.178

NEW 42 STUDIOS

New York/ Platt Byard Dovell White Architects

12.20
technical precedent

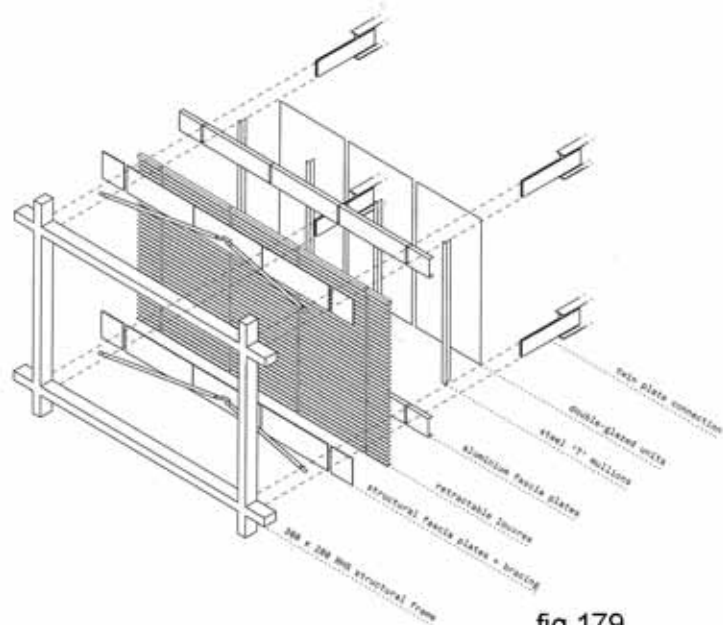
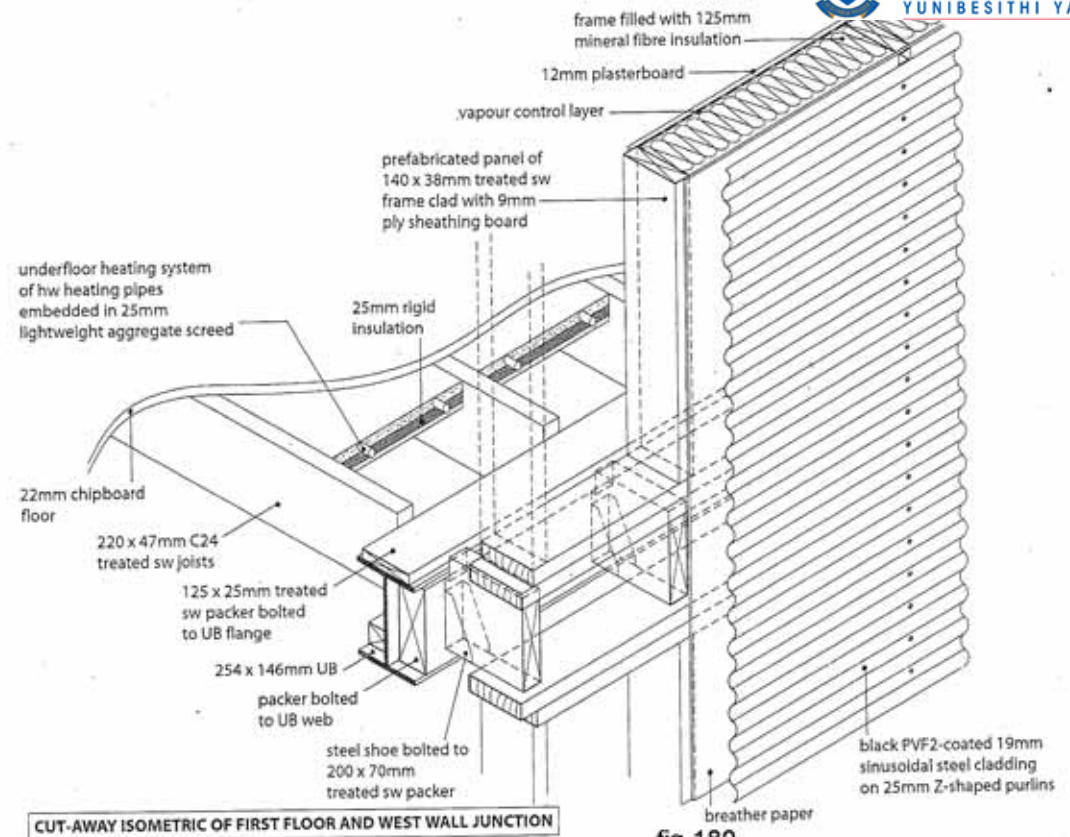
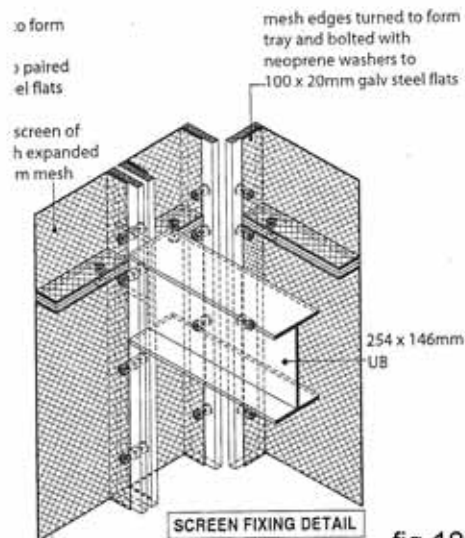


fig.179



CUT-AWAY ISOMETRIC OF FIRST FLOOR AND WEST WALL JUNCTION

fig.180



SCREEN FIXING DETAIL

fig.181

12.21

technical precedent skin

The following specialized Smartglass glazing was used in KNOOP:

In the pods	Solarshield Grey S20 6,76mm High Penetration Resistance glass 2440x2000 max pane size 5,8 (W/m ²).k U-value 33 ISO rating noise control
In the creative link	Coolvue Clear 3000x1000 max pane size In purpose made black powder coated aluminium frames according to manufacturer's specifications 5,8 (W/m ²).k U-value 35 ISO
In the sewing rooms	Soundprufe Clear 8,76mm High Penetration Resistance glass 3210x2500 max pane size 38dB
In the fashion labs and modeling school	Mirrors Copper free 5mm thick 3210x2250 max. size Edges beveled and polished



SABISA
South African Building System
Association
General Specification for
drywall partitions &
lightweight internal walls
Annexure 3

	illuminance & Glare Index Productivity Value (min.av) lux
Restaurants	500
Lounges	150
Kitchens	500 ³⁾³⁾
Cold stores	150 ³⁾
Self-service counters	300
Shops	300 ¹⁾²⁾
Passages & Lobbies	150
Stairs & Ramps	150
Lifts (interior)	100
Reading room	500
Machine & fitting	400 ³⁾
Printing	1000 ¹⁾
Reception	200
Computer lab	500
Reading tables	400 ²⁾
Lecture rooms	500
Chalkboards	500 ¹⁾²⁾
Hand tailoring	1000 ¹⁾
Embroidery / sewing rooms	500 ¹⁾²⁾
Boot & shoe making	1000 ²⁾
Hat making	400

12.22 light quality

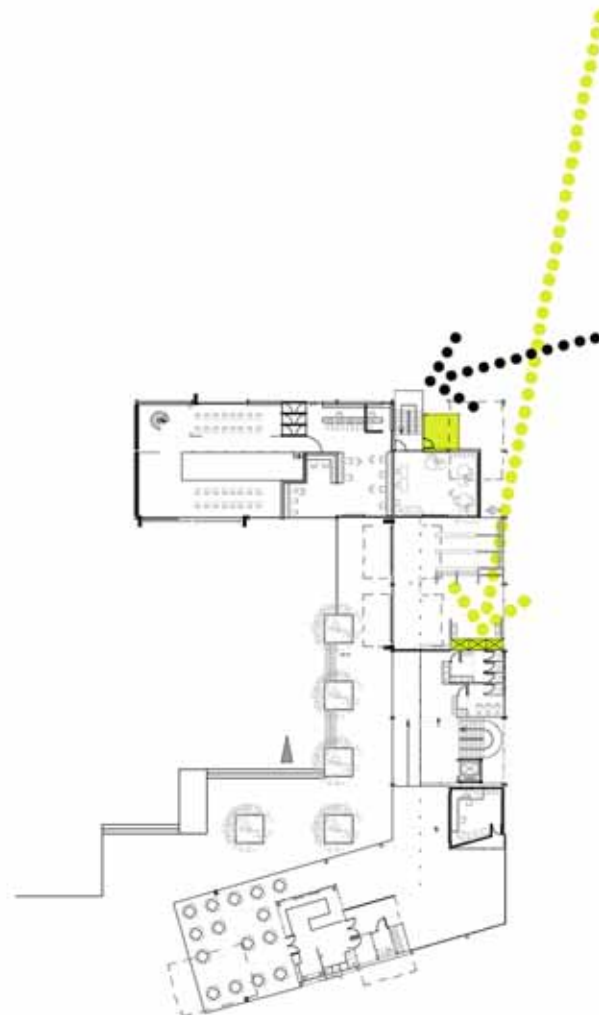


fig.182

The **internal sub-station** with transformer room, generator room and telecommunication cables are situated as centrally as possible on the ground floor. It is situated in the prototype lab where it is very visible and easily accessible. From here extruded metal conduits are run overhead to the specific points and power poles serve working tables from above, allowing for unobstructed working areas in the labs.

The **server room** is situated to the north of the building, close to the computer labs on the north eastern corner to minimize cabling distances. The room is 9m² in total.

The server room is constructed from a 230mm brick wall with battens on the outside, bolted to the wall @ 2000mm heights. Corrugated stainless steel sheets are then screwed to the battens to form the outer skin and insulation is placed between the wall and the corrugated plate on top of the battens. This creates a well insulated wall. Because the room heats up immensely due to the machinery inside, a split unit creates positive air pressure inside the room and a louvered air vent allows excess heat to escape.

All computer cabling are then run overhead in 38mm stainless steel tubular sections to the computer pods above and inside cabling is kept tidy in galvanized cable trays that are fixed to the pod frame.

12.23 electricity

The building width was kept to a minimum to enhance natural ventilation of all areas, except in the computer labs and sewing rooms where mechanical cooling was required due to heat buildup caused by machinery. In the warm summer months axial wind fans on the southern and eastern facades aid ventilation and prevents heat gain, especially at the roof spaces of the top floors.

The computer labs and sewing rooms are cooled by LG Art Cool split unit air conditioners with all mechanical units exposed on the building façade, but hidden by the building skin.

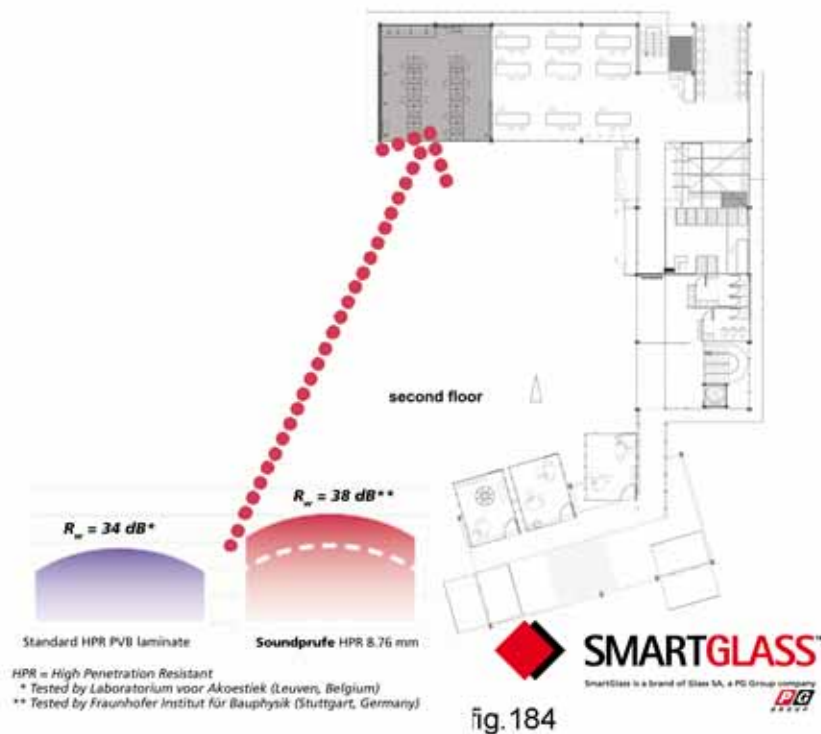
School type windows in the fashion labs allow users to open and close windows as their comfort requirements change. The windows are situated on the northern and southern façades and if windows are opened at a lower level on the northern side and at a higher level on the southern side in summer, the predominant north western wind in Pretoria will be able to enter the lab. The axial wind fans will also enhance the air movement through the room.

The 'creative link' of KNOOP has high volume spaces and hot air will rise naturally, leaving working areas on the ground level comfortable. Bottom hung pivot windows and axial fans on the eastern edge will omit heat from higher level areas.

A living wall was designed for the north western corner of KNOOP to cool the environment in the extreme summer months. The wall consists of PVC coated copper wires that are woven between the screen support frames @ 900mm away from the building facade. A deciduous creeper that grows from soil beds at the bottom and top of the frame is then allowed to grow on the wires. A sprinkler system that receives water from the same pipes as the washing machines in the sewing rooms will irrigate the plants early in the mornings and late in the afternoons.



12.24 ventilation

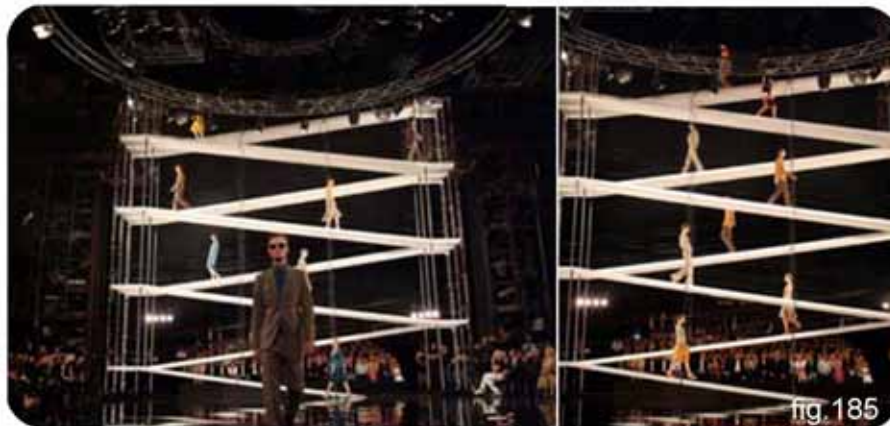


Because it is in the interest of the users of the building to be inspired by one another and exposed to as many as possible creative energy, KNOOP needs to be an vibrant place where many sounds can add to the tapestry of experiences.

Still, care was taken to ensure that no mechanical noises would interfere with conversations and that is the reason the sewing rooms are separated from all other functions. Onlookers can still see students using the machines, but they will hear nothing because double glazed Soundprufe walls will prevent noise entering the rest of the building. An airtight mechanical sliding door at the entrance of each sewing room will be specified by an acoustical engineer and will work similar to gates at airport terminals.

Care was taken to ensure an environment that is conducive to creativity. Resources are readily available in an inspirational environment where comfort was not limited for space.

The correct ergonomic size for a fashion cutting table is 1764x864mm @ 864mm high according to the Vogue sewing book. The cutting tables in Knoop are 3000x1000mm and allow three students to work comfortably next to each other.



Because KNOOP was set out in a logical way that takes the daily activities of the user into account, the circulation of the building is extremely important. This is because the walkways have to ease the flow of movement from one task to the next. It is also the one place where onlookers can see how the daily routine of a designer works and where many ideas are discussed and concepts enriched by conversations with fellow students in the pass by.

The main circulation areas are clearly demarcated by the different floor material of metal 'vastrap' on the walkways and ease of movement is ensured by the ample width of 2500mm. This is the same width as a standard fashion runway and was used throughout the building as a guideline, relating back to the fashion theme and implying that a person crossing the walkway can feel like a model on a runway for an illusionary moment.

All balustrades are standard stanchions with tennis wire between members to prevent people falling through the openings. The wire and stanchions are all painted black.

12.26 circulation

“Fashion is architecture: it is a matter of proportions,”
Coco Chanel



The technical resolution of KNOOP involves drawing inspiration from the fashion industry and applying it in an architectural manner.

The building has a tactile quality and the structure exposes all construction joints as if it is a jacket that was turned inside out to unveil all the seams and stitches of the tailor. Through exposing the elements that create the building, the design process is revealed to the users.

Because fashion is not heavy and robust but kinetic, the main aim of the building is to be lightweight and to allow change without too many implications. To achieve this, a lightweight steel frame forms the basis of the design with lightweight floors and wall systems shaping the building boundaries. A secondary skin dresses the building externally in the form of permeable screens. These screens elevate comfort inside KNOOP, by providing solar control and conceal all service ducting that are exposed between the building and its skin.

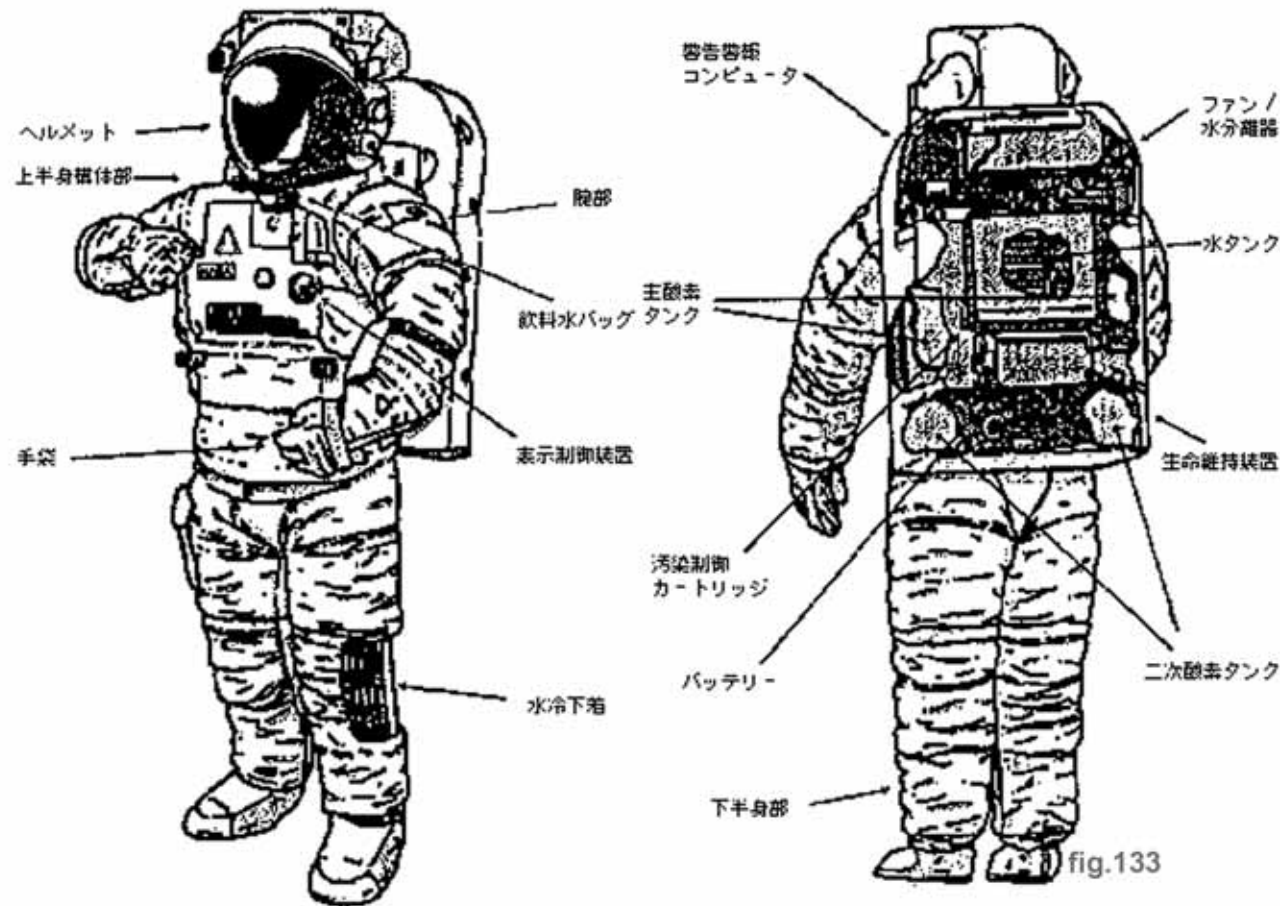


fig.133

“The mechanisms of space exploration made it necessary for the functions of dwelling and clothing to be unified in a single object, bringing fashion and architecture closer together.”

(Quinn, B.2003:206)

EXTERIOR

Foundation	Concrete
Frame	Steel
Walls	Corrugated metal and plasterboard system
Roof	Cast in situ concrete
Insulation - Walls - Roof	Structabord rigid insulation Elastomeric modified membrane
Windows	Glazed school type window in metal frame Dorma FSW-G folding sliding walls
Doors	Smartglass soundprufe In metal frame
Fire Escape	Steel stairs
Downspouts & Guttering	Metal
Porches and steps	Concrete steps to main entrance

INTERIOR

Floors	Poured concrete on
Ceilings	Permanent shuttering Exposed brownbuilt
Doors & Trim	Custom made Smartglass Soundprufe door in aluminium frame
Clear Height	GF: 2890mm Other: 3500mm
Plumbing	All ducting exposed
Air-Conditioning	Split unit in computer & sewing labs
Electrical	Service entrance 400V Exposed hot galvanized cable conduits
Fire Protection	Smoke sensors throughout Pull stations located at main exits Fire alarm panel located in prototype lab (central)
Sprinkler System	The Globe Quick Response GL Series Sprinklers

12.1

brief specifications



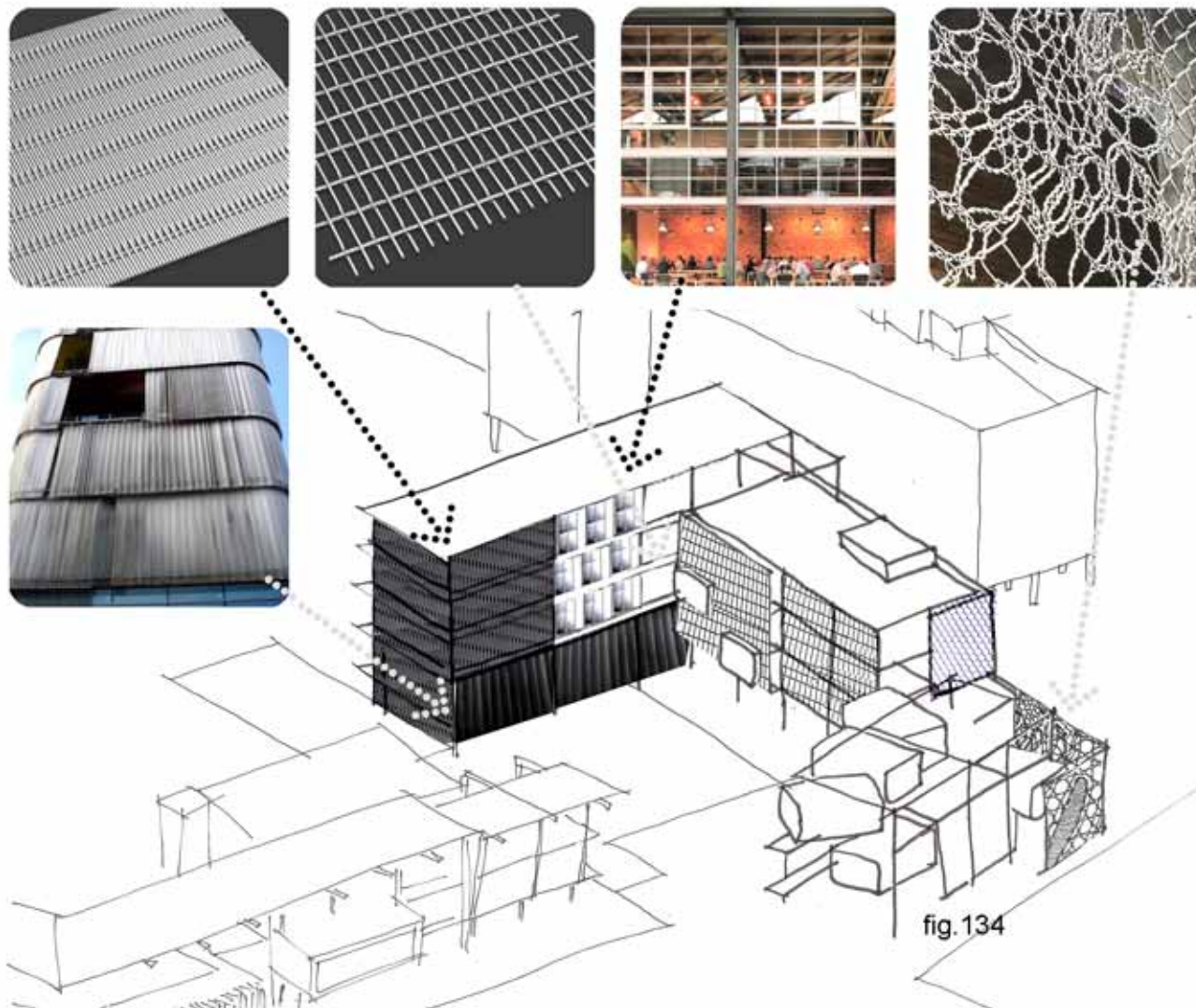


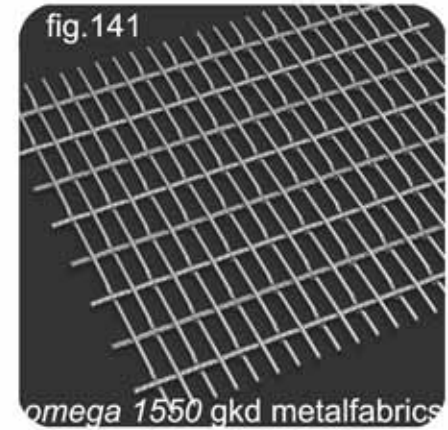
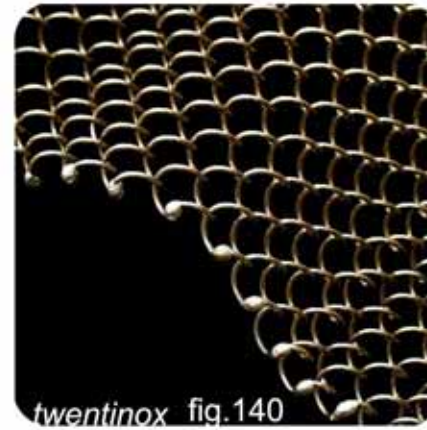
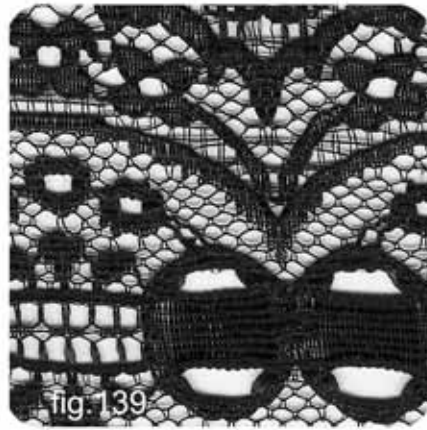
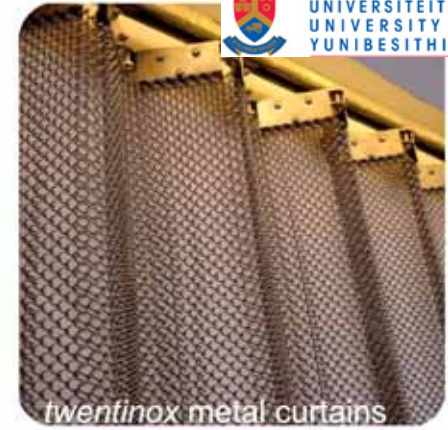
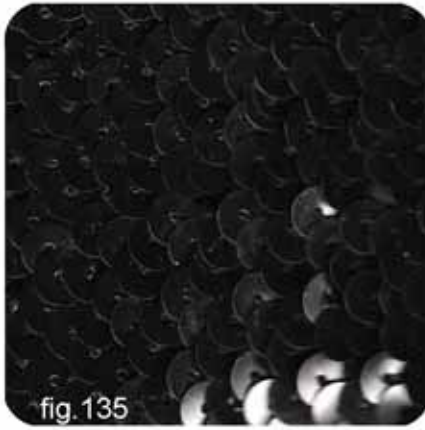
fig.134

There are two main driving factors in the material choices for KNOOP. The first concern is that the building had to be lightweight and the second concern, in keeping with the theory of reconstruction, is that all building materials should have a high recyclable quality.

All school type windows and stanchion balustrades were reclaimed from old buildings.

12.2

material choice



Articulate fashion materials into architectural materials to dress the building frame as a fashion designer would dress a mannequin.



materials

KNOOP is constructed from 305x305 H columns and 305x165 Universal Beams according to engineer's specifications.
(NOTE: All steel details are according to engineer's specifications)

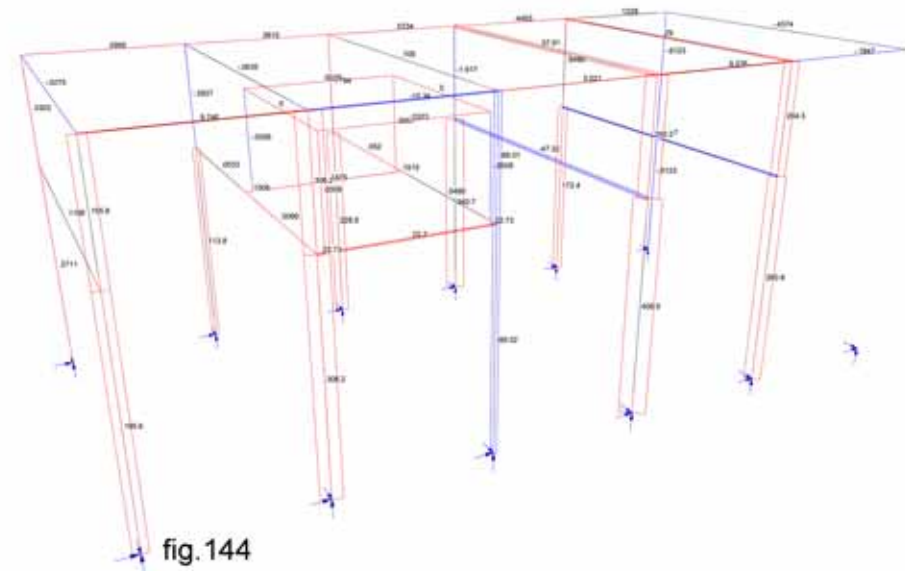
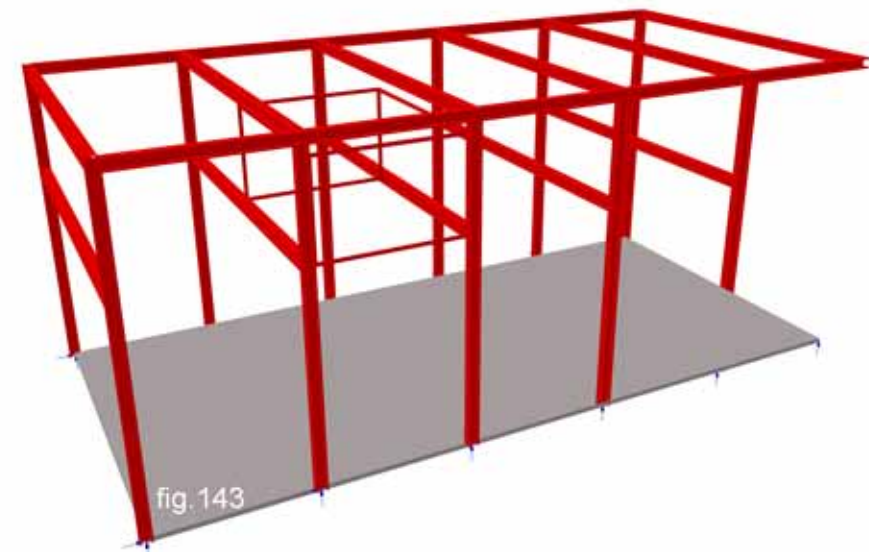
A basic frame was calculated to determine the minimum number of structural members. It is taken into account that the frame must be strong enough to carry the bending moments caused by suspended pods from the beams.

The total weight of the steel frame supporting the pods is 60 tons. Each pod will weigh 45 tons according to calculations that uses a live load factor of five to include the weight of computers.

All beam and column connections are pinned to allow future disassembly of the structure and re-use of the steel. Pinned connections are formed by bolting all members with M24 high tension bolts to standard steel angle cleats welded onto the structural frame.

KNOOP is situated on top of a basement parking with a layout for 300 parking bays. This had a big influence on the building design, as all structural columns had to line up with basement columns. The basement columns are cast in situ concrete, and all steel frame footings had to be hinged connections, to allow for deflection.

This was achieved by having a two bolt connection to a 450x450x20 steel base plate.



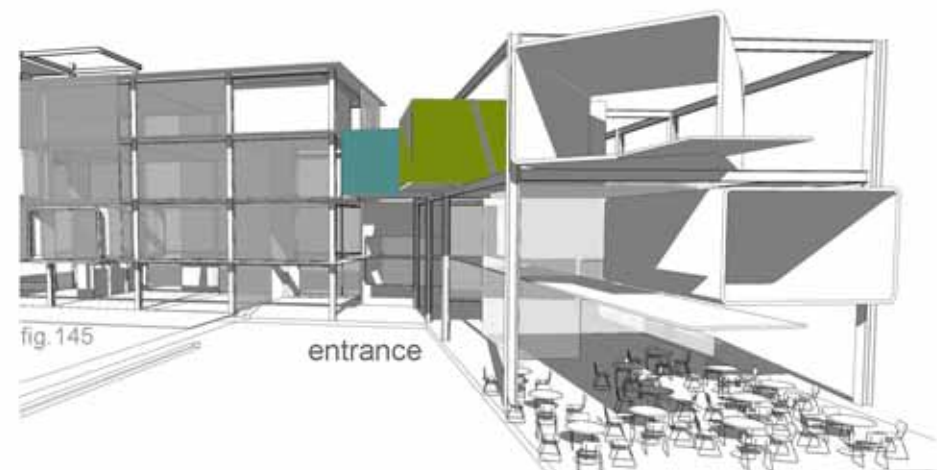
12.3 frame

KNOOP is situated right next to the train reserve, and it was of concern to regard the influence of vibrations on the structural integrity of the frame. The train track will be designed to include Trackelast pads under all sleepers to absorb most of the train vibrations. Care was however still taken in the building detail design to allow for movement at all connections to minimize the impact of any possible vibrations that could still have an influence on the materials.

The manner in which the building touches the ground relates to the fashion theme, in that the structure 'lifts its hemline' towards the courtyard. All columns that edge the courtyard are raised 150mm from the base plate, whilst all columns on the outer edge of the building meet the base plates on the ground.

There is a secondary row of 76,2mm diameter hollow core steel tubular columns that support the internal walkways and are situated 2500mm inside of the building @ 1500mm spacing. They soften the building boundary and create an edge that is symbolic of the cut lines on a pattern that go from solid lines to dashed lines.

"A fabric surface constructs a second elastic skin to human scale that masks and conceals the body's frame. Body-conscious dress is the equivalent of architecture intended to blur the boundaries between structure and landscape." (Quinn, 2003:234)



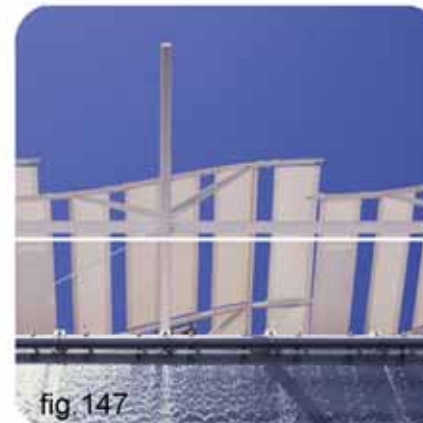


"The structure encloses a large, single volume and supports different types of external skin that respond to conditions of climate."

The roof construction consists of a flat lightweight deck which is well insulated and covered by a single skin polyester membrane.

People enter from an average external temperature of 38 c (which can go up to 45 c), into the large volume of the Pavilion which has a temperature of 30 c and the temperature drops gradually as they move through to the fully air conditioned internal pods, conditioned to 23 c."

(<http://www.grimshaw-architects.com>)



BRITISH PAVILLION FOR EXPO 92

Seville, Spain / Grimshaw Architects

12.4 technical precedent

The fashion term “Ombre” describes fabric that has a gradient from very dark to very light, revealing more where the fabric fades and concealing more where the colour intensifies. The inspiration for the design of a secondary building skin was the reference to ‘revealing and concealing’ by Bradley Quinn in his book ‘The Fashion of Architecture’.

By using screens that differ in density and by overlapping screens at certain points, areas of KNOOP are hidden from the public eyes, whilst other areas are exposed.

Because the screens are not intended to compete with the colourful and textured pods, they are kept simple and painted a uniform colour, black.

The screens are made from AISI Type 316 stainless steel GKD metal fabric in the Omega range. The edges of the fabric is bent and fixed between a flat bar and an angle bar that is then fixed to a support frame 900mm from the façade boundary.

The support frames are 2835x100x10mm steel flat bars that are supported by 50x50x5mm equal leg steel angles that are bolted to the 203x102 walkway beams.

The “Omega” range is available with different percentage open areas and a gradient was achieved in the building façade by using more dense screens on the western façade and less dense screens towards the southern wing of the building.



12.5 skin

The internal skins of the building are constructed from well insulated light weight walls. The wall system comprises 15mm “Nutec” flat sheet on one side and 17,5mm corrugated steel wall cladding on the other, with 125x75x20x3mm cold formed lip channels as an internal frame of struts and girths. The struts are spaced @ 1200mm centres and keep the mineral insulation (80kg/m³) in position. Girths support the wall cladding every 2000mm. All wall edges are finished with purpose made flashings and all corners terminate in 50x50x2mm purpose made flashings of the same material was the walls.

All walls were treated with the Eco paint product B-Seal from B-Earth.

“B-Seal is a water bond, ready to apply elastic waterproofing sealant for filling and sealing cracks and joints in metal, concrete and wood surfaces, which prevents water penetration. When cured, it forms a tough, highly durable, flexible seal that has ultimate protection properties and can tolerate thermal shrinkage movements of the substrates. It is ideal for application to metal roofs, parapets, dams, gutters, down pipes, concrete roofs, pre-cast panel walls, glazing, etc”

The product forms an elastic seal that has a high fire resistance.



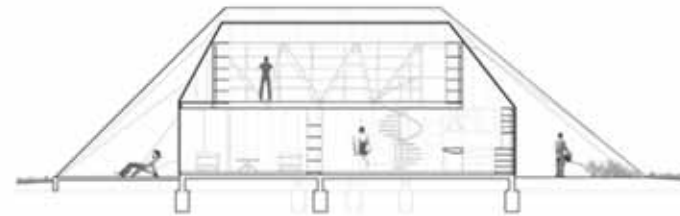
BIOVAC INSTITUTE
Pinelands, Cape Town



"The sun control skin is separated from the fenestration skin by a walkway allowing users to have coffee brakes etc. between the skins and also to service/clean windows."
(Architect and Builder June-July 2007:65)



WALL HOUSE
by FAR frohn&rojas architects
Santiago de Chile



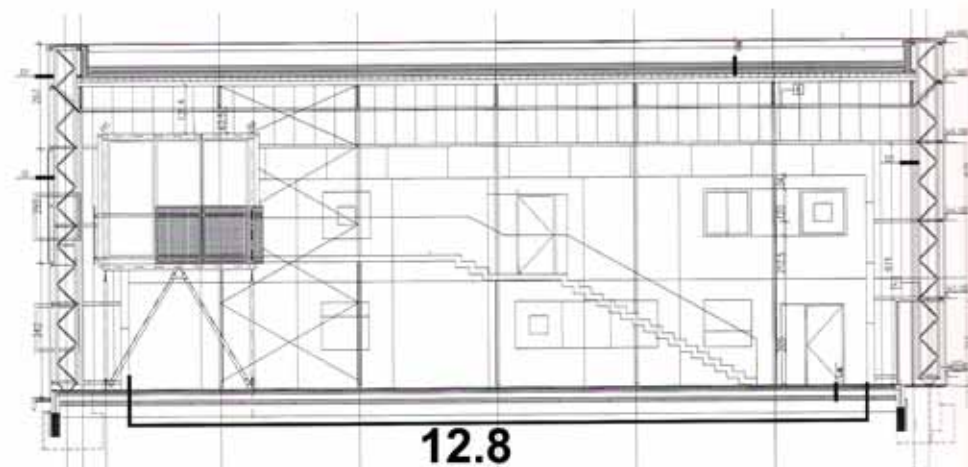
© FAR frohn&rojas

12.7
technical precedent skin fig.150



EKO PARK EXPO PAVILION

Warsaw, Poland / Apa Kurylowicz & Associates



technical precedent fig.151

To respect the simplicity of the building frame and create a simple back drop for the dynamic and intricate pod structures, it was decided to keep the roof flat.

The roof is constructed in exactly the same manner as the floors of the building, with the addition of an elastomeric modified membrane for waterproofing and a screed falling towards the eastern columns, where full bores drain the roof of the building. The screed is cast at an angle of 1:50, with its highest point being 194mm above the 200mm post-tensioned concrete roof slab.

Because the roof is accessible, tiles form a layer on top of the membrane to allow people to walk on the roof. The tiles will also protect the membrane from solar damage. Stainless steel stanchions with chain link infill prevents people falling from the roof.

Because of its construction it would be possible for the two roofs to be utilized as floors in future applications. The building thus allows for future reconstruction.

The pod structures form the main feature of KNOOP. They were designed as framed offices suspended from the main frame. The pods will not be moved or changed, but the skins of the structures can easily be removed and changed to show the new fashion trends of each new season.

Caravan construction was investigated to inform the design of the pods.

The frames are constructed of 120x80x5mm Hot Rolled Rectangular Hollow sections. The edges have a radius of 350mm. On the exterior, the pods are clad with 955x525mm, 1.2mm thick galvanized mild steel plates that are pop riveted to the structural frame with blind rivets traditionally used on aircraft leading edges. There are 25mm gaps between the plates to allow for a row of M8 screws to be welded to the frame to form the fixing mechanisms for the pod skins. There are three rows of screws per pod that are situated on the two edges of the pod and on the centerline. The exterior edges of the pods have 50x10mm flat steel section edges for a tidy finish against which the fabric skin terminates.

On the interior, the pods are clad with 12mm steam bent plywood in panel sizes of 1800x1068 and four 229x1068mm edge pieces. The ceiling panels are cut away where the pod suspension mechanisms enter the pod and edged with hardwood strips to protect the plywood.

The internal layer of each pod consists of a 50mm air gap and 60mm Structabord rigid insulation held in place by 125x75x20x3mm cold formed lip channels that are welded to the frame members.

Each pod has two 343x161x20mm purpose made steel U-channels that are welded onto the pod frame. Each U-channel has three holes to allow M24 threaded rods to fix the U-channel to two 200x100x20mm purpose made unequal leg channels welded to the main structural frame of the building. The rods are fixed with nuts and washers.

Typical roof tent construction was investigated to inform the design of the pod skins.

The skins are made of 100% waterproof polyamide 380g cotton ripstop canvas. All seams are double stitched, edged with binding and waterproofed by welding all UV stabilized PVC seams. Stitching is of superior strength UV stable quality S25 thread.

Each pod has two skins that overlap on the pod centerline. The skins have ringed holes on their outer edges that fit over the M8 screws that are welded to the pod frame. The skins are then fixed to the screws with nuts and washers. The outer edges of the two skins that meet at the bottom of each pod fix together with 25,4mm thick Dual Lock Reclosable Fastener Tape 250S Heavy Duty Velcro.

The skins were designed to ensure that they would also fit the two pods that puncture the western wing of KNOOP.

Because sublimation printing is available on site, there are no limitations to the patterns of the skins and the fashion school can change the skins of the pods with each season without much more effort than removing a few nuts.

The safety of persons responsible for changing the skins are ensured by safety eye bolts welded to the main structural frame allowing the use of a safety cable system similar to the protection method used by window washers of large buildings.

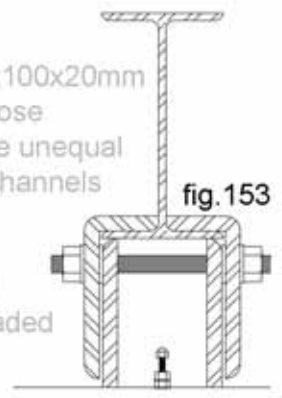
fig.152



andrew maynard japan library



200x100x20mm
purpose
made unequal
leg channels



M24
threaded
rod

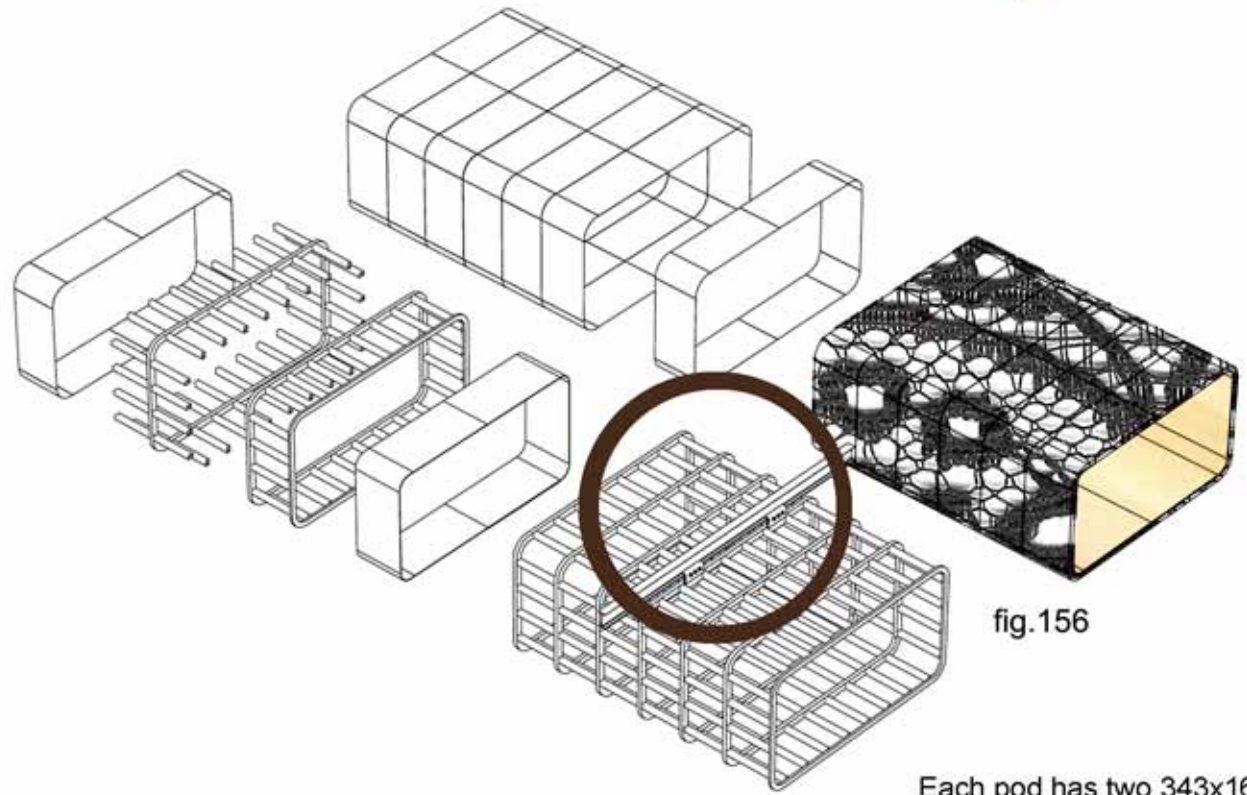
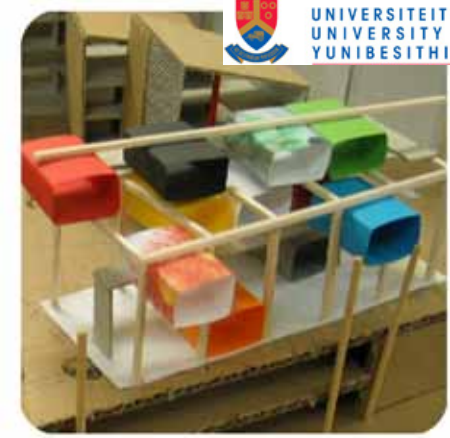


fig.156

Each pod has two 343x161x20mm
purpose made steel U-channels
that are welded onto the pod frame.



fig.155
claireandsean.com flatpack



pod s



northern elevation



southern elevation

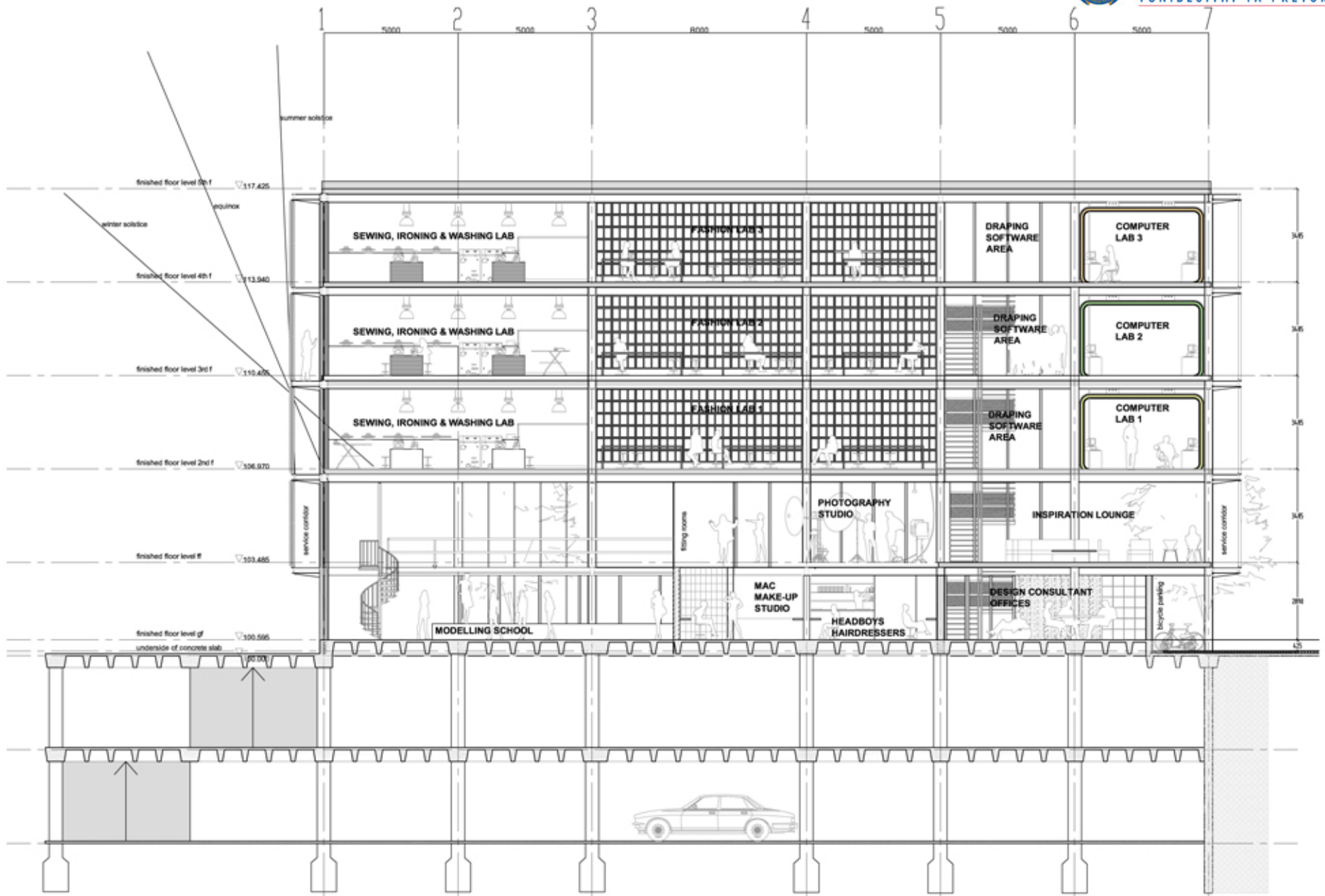
13.1



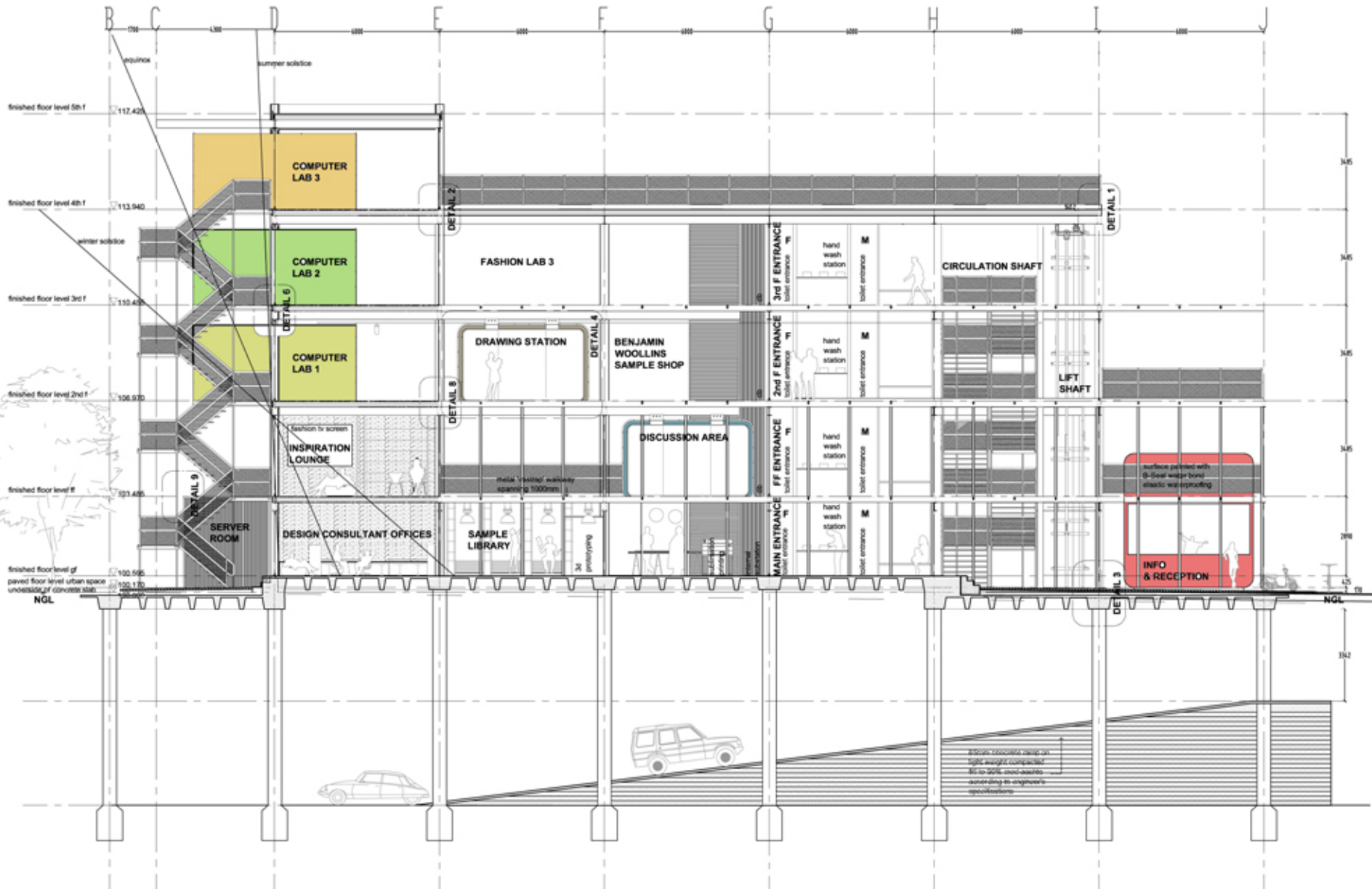
western elevation



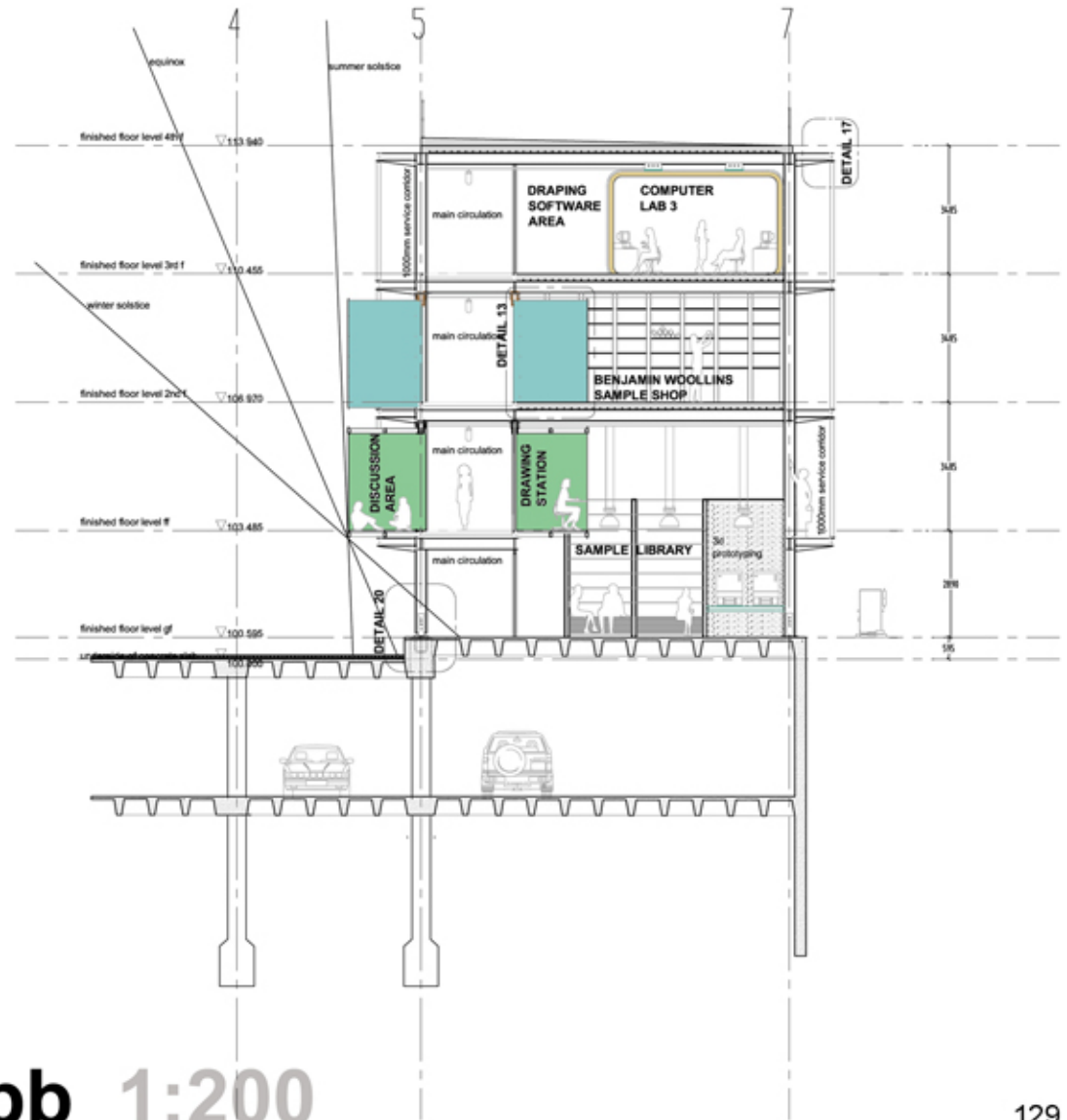
eastern elevation



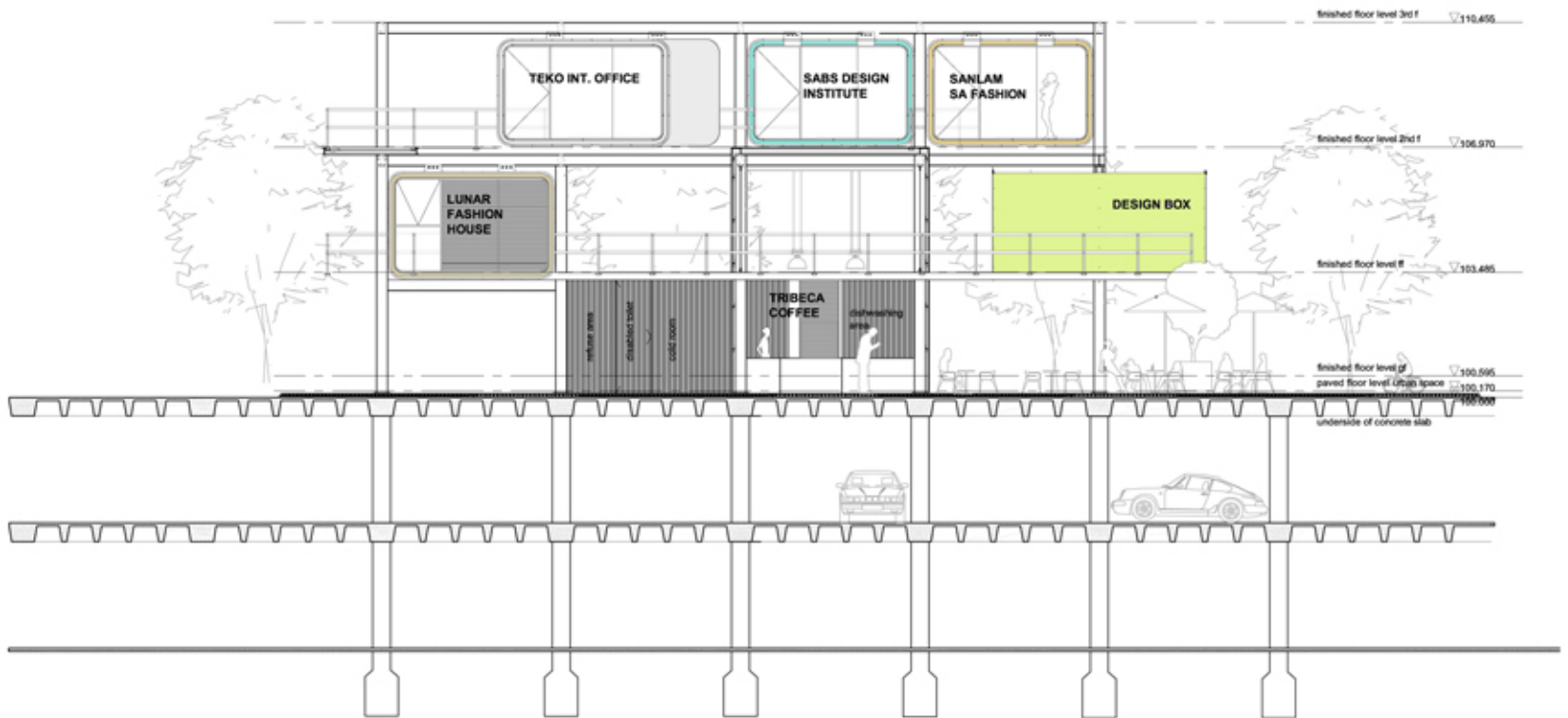
13.3
knoop section 1:200



link section aa 1:200



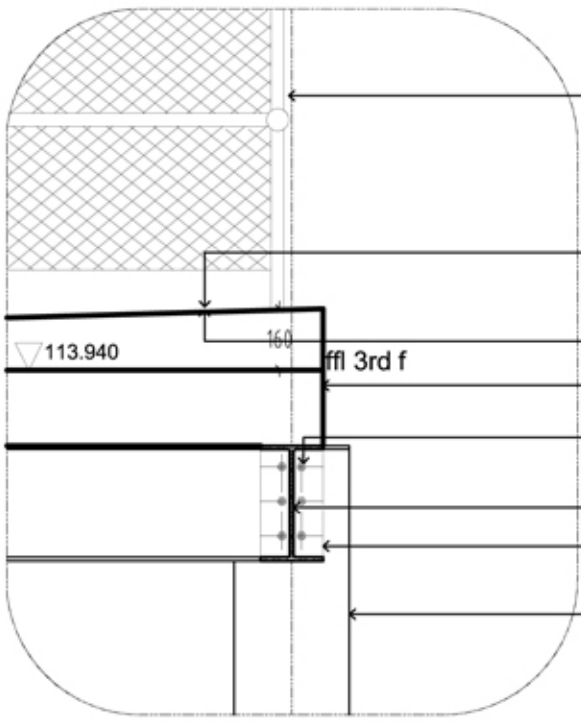
link section bb 1:200



kraal section 1:200

DETAIL 1

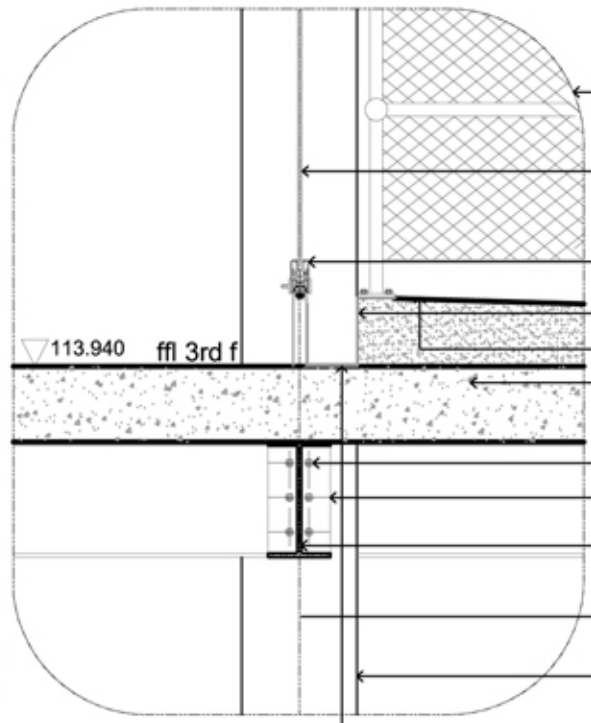
1:20



- standard mild steel stanchion balustrade with link chain fencing to comply with safety requirements fixed to slab
- screed 194mm @ highest point to allow min fall 1:50 towards fullbore on eastern edge
- elastomeric modified membrane waterproofing
- 200mm post tensioning slab per engineer's description
- high tension bolts with hexagonal ss nut cap according to engineer's specifications
- 165x305mm Universal Beam according to engineer
- mild steel base plate according to engineer's specifications
- 305x305 H columns according to engineer's specifications

DETAIL 2

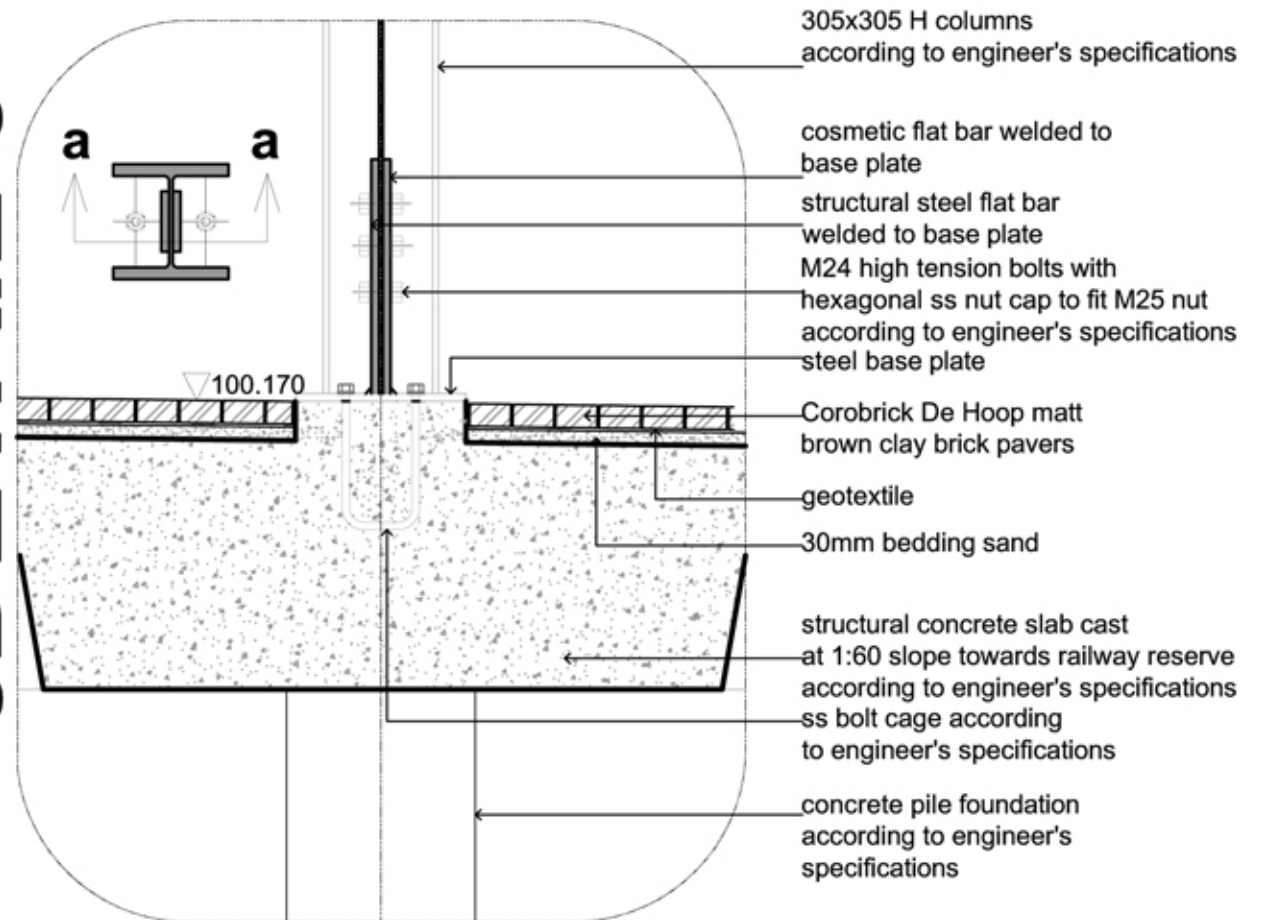
1:20



- standard mild steel stanchion balustrade with link chain fencing to comply with safety requirements
- Smartglass Coolvue Clear glass In Dorma 120-1DL sliding door system 5,8 (W/m2).k U-value 35 ISO
- purpose made black powder coated aluminium frame
- stainless steel 'vastrap' cold bent stair
- elastomeric modified membrane waterproofing
- 200mm post tensioning slab per engineer's description
- high tension bolts with hexagonal ss nut cap according to engineer's specifications
- mild steel base plate according to engineer's specifications
- 165x305mm Universal Beam according to engineer
- screed cast @ 1:50 towards full bores on eastern edge of roof
- 305x305 H columns according to engineer's specifications
- gutter

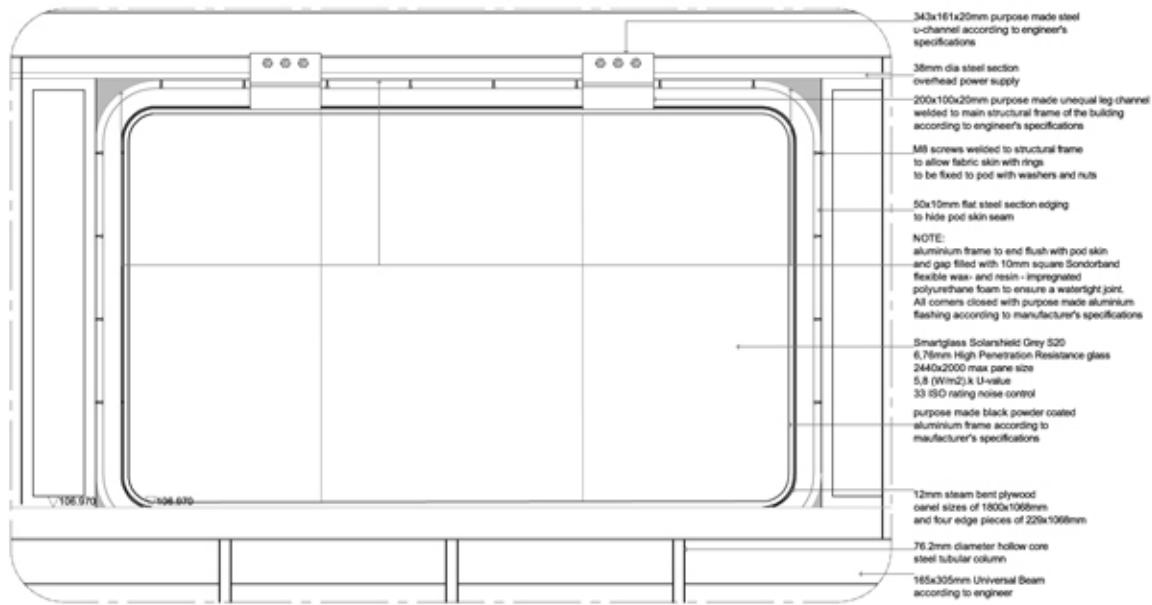
DETAIL 3

1:20



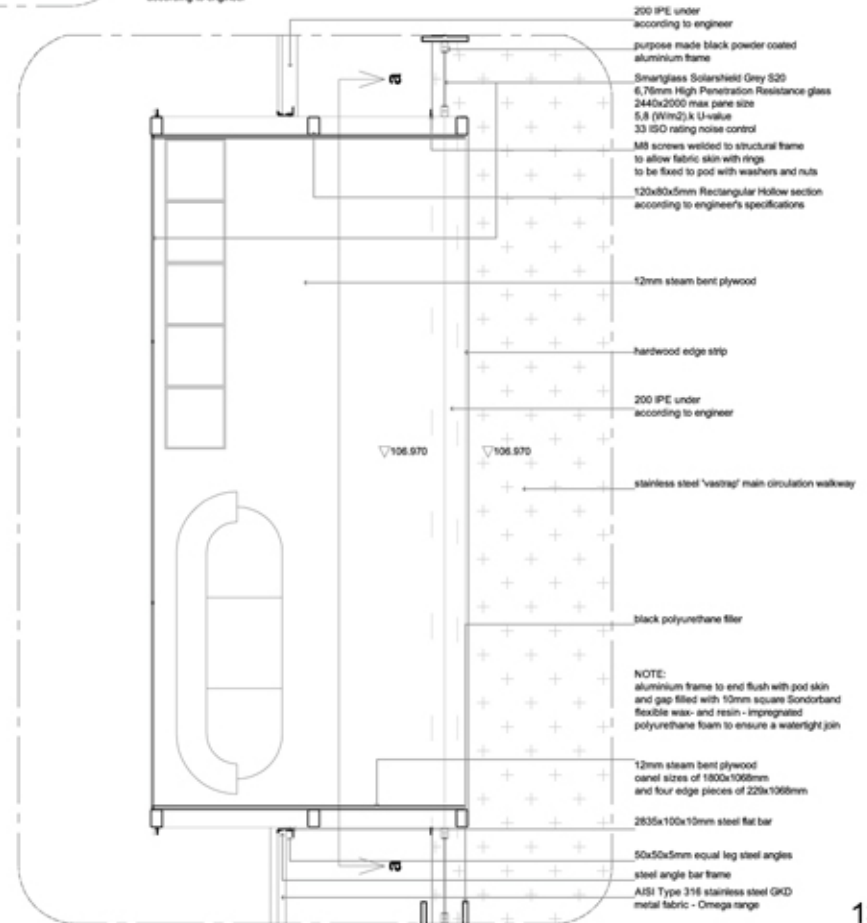
DETAIL 4

1:50
a a



DETAIL 5

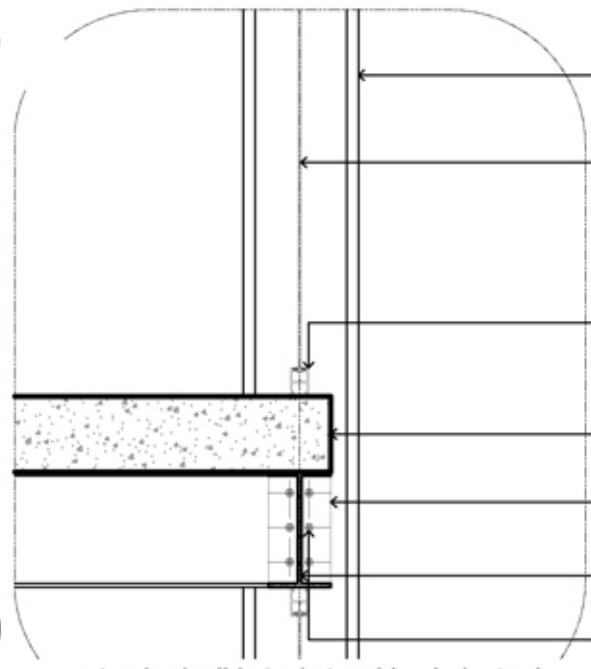
1:50
a a





DETAIL 6

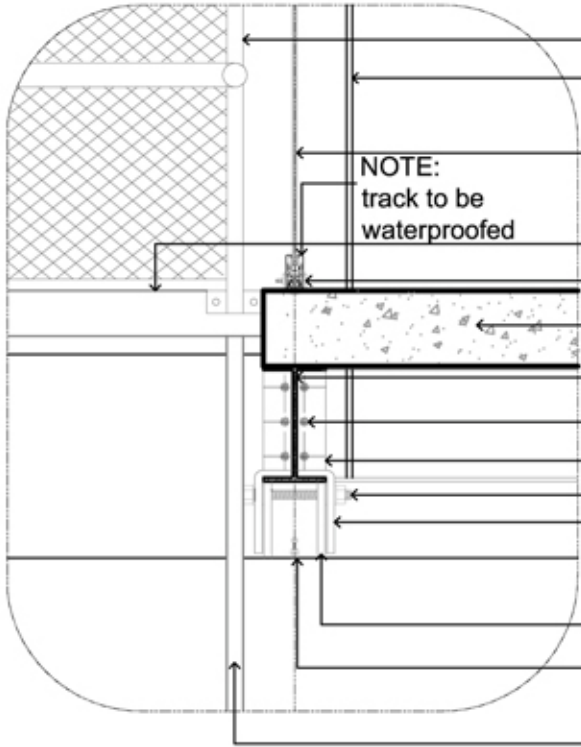
1:20
a a



- 305x305 H col according to engineer's specifications
- Smartglass Coolvue Clear glass 5,8 (W/m²).k U-value 35 ISO
- purpose made black powder coated aluminium frame according to manufacturer's specifications
- 200mm post tensioning slab per engineer's description
- mild steel base plate according to engineer's specifications
- 165x305mm Universal Beam according to engineer
- high tension bolts with hexagonal ss nut cap according to engineer's specifications

DETAIL 7

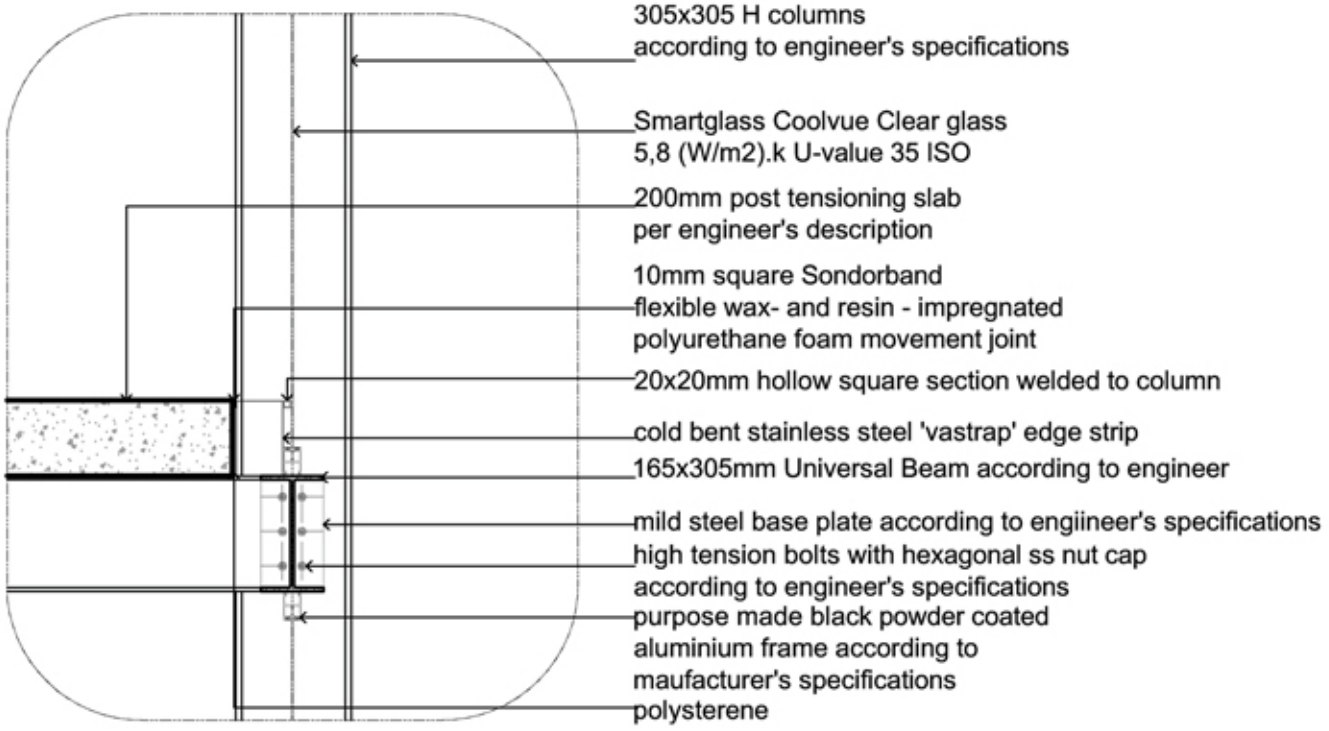
1:20



- standard mild steel stanchion balustrade with link chain fencing to comply with safety requirements
- 305x305 H columns according to engineer's specifications
- Smartglass Coolvue Clear glass In Dorma 120-1DL sliding door system 5,8 (W/m²).k U-value 35 ISO
- NOTE: track to be waterproofed
- vastrap landing supported by 75mm equal leg angle cleats
- purpose made black powder coated aluminium frame
- 200mm post tensioning slab per engineer's description
- 165x305mm Universal Beam according to engineer
- high tension bolts with hexagonal ss nut cap according to engineer's specifications
- mild steel base plate according to engineer's specifications
- M24 threaded rod according to engineer's specifications
- 200x100x20mm purpose made unequal leg channel welded to main structural frame of the building according to engineer's specifications
- 343x161x20mm purpose made steel u-channel according to engineer's specifications
- 38,10 hot rolled hollow tubular section staircase column frame

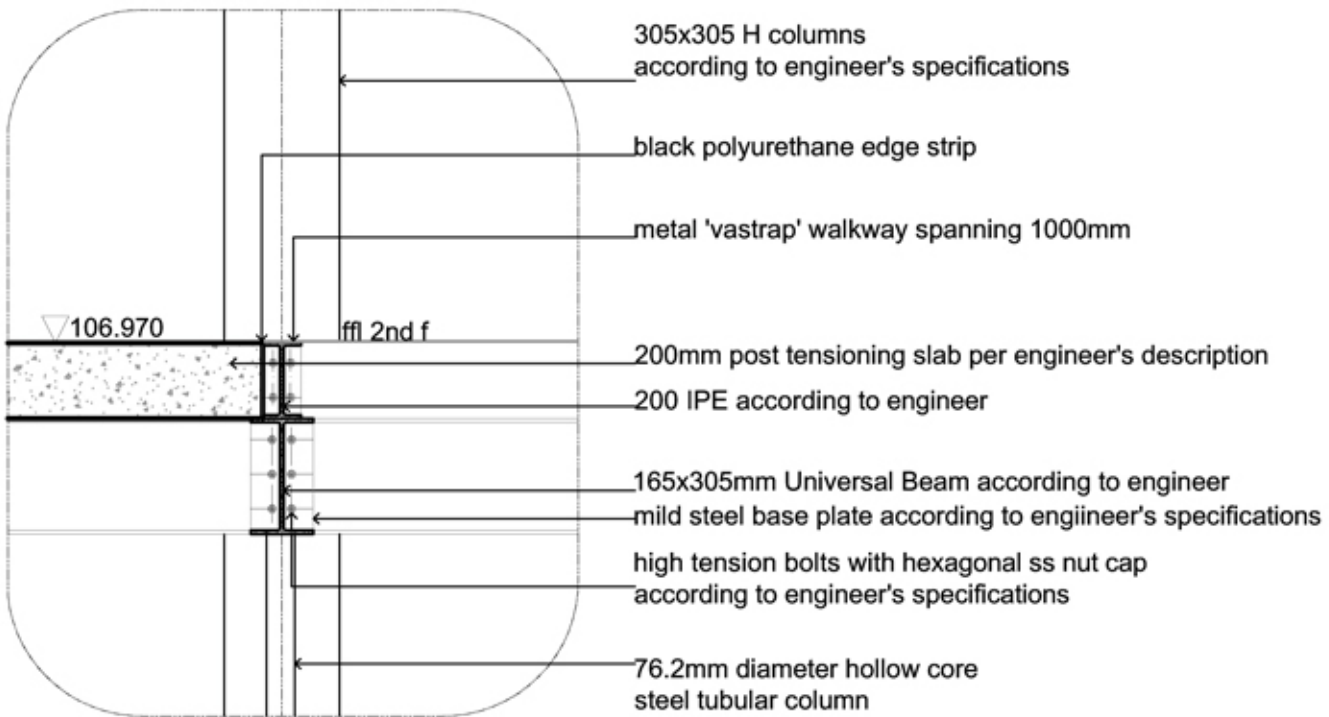
DETAIL 8

1:20
a a



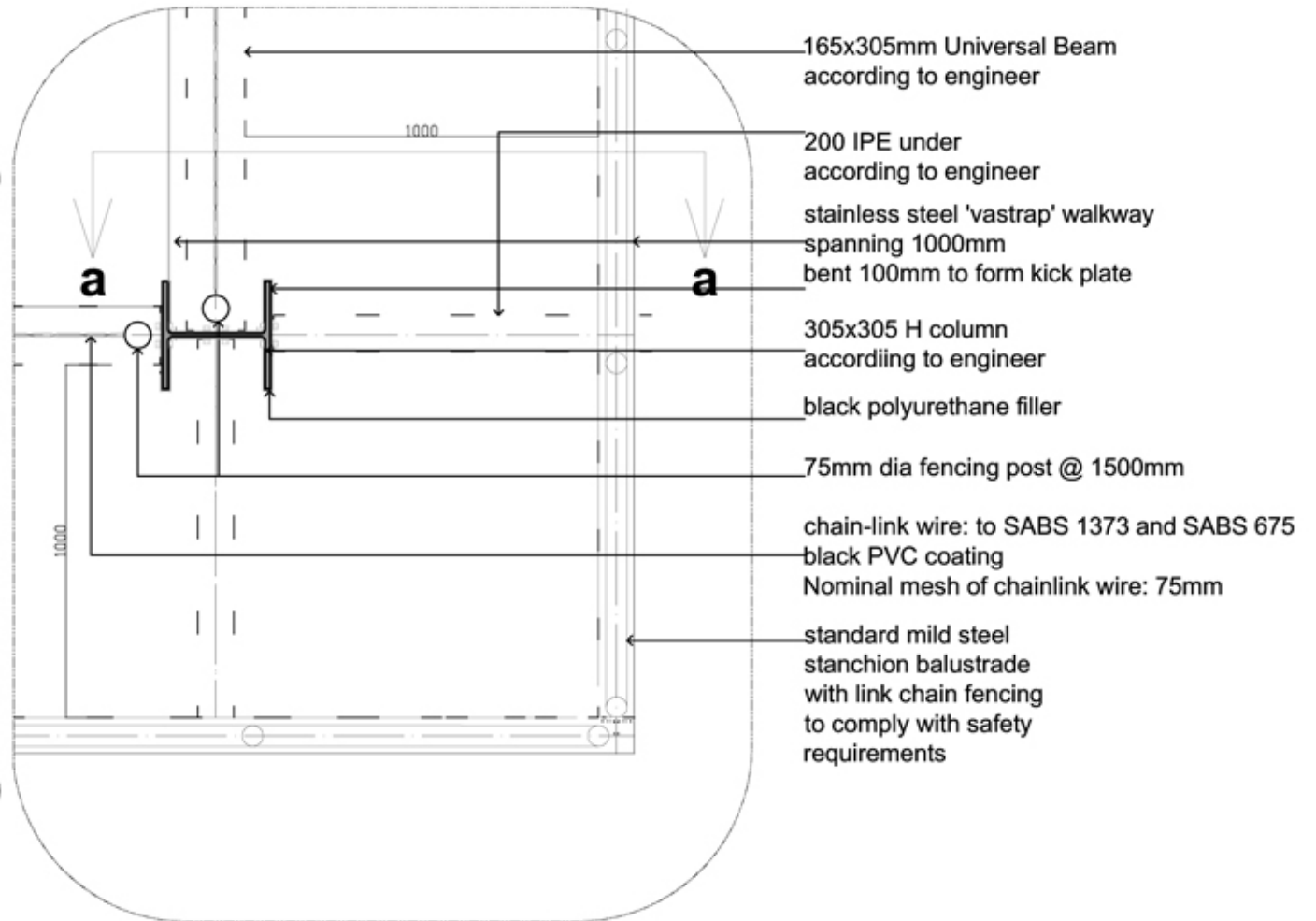
DETAIL 9

1:20

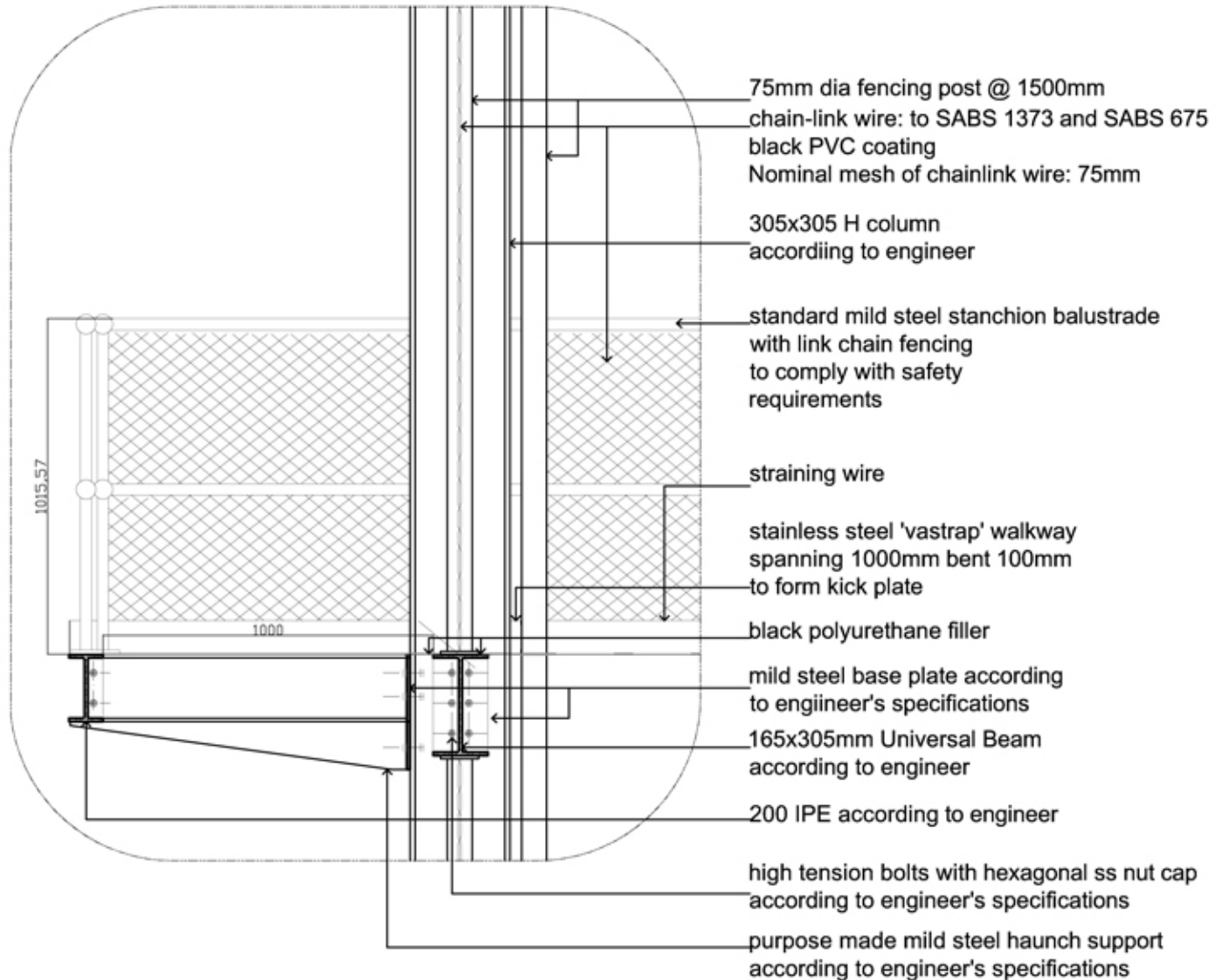


DETAIL 10

1:20

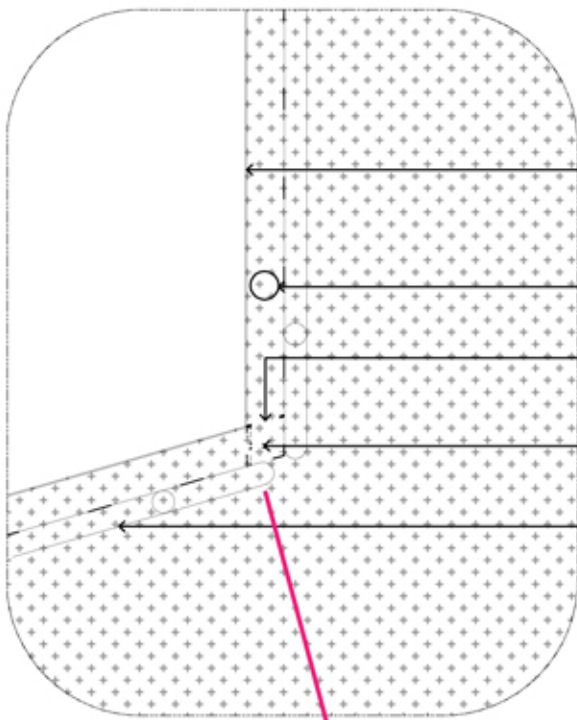


DETAIL 11
 1:20
 a a



DETAIL 12

1:20



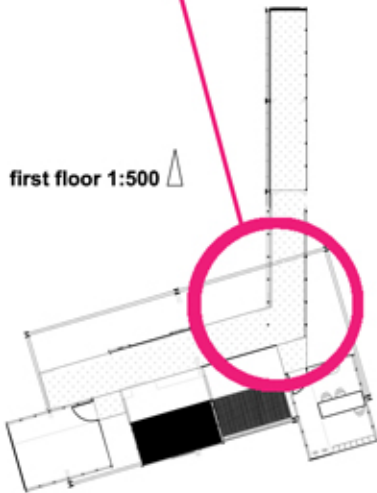
stainless steel 'vastrap' walkway spanning 1000mm bent 100mm to form kick plate

76.2mm diameter hollow core steel tubular columns base plates welded to walkways @ 1500mm spacing

4mm mild steel cosmetic plate

purpose made mild steel detail connector according to engineer's specifications

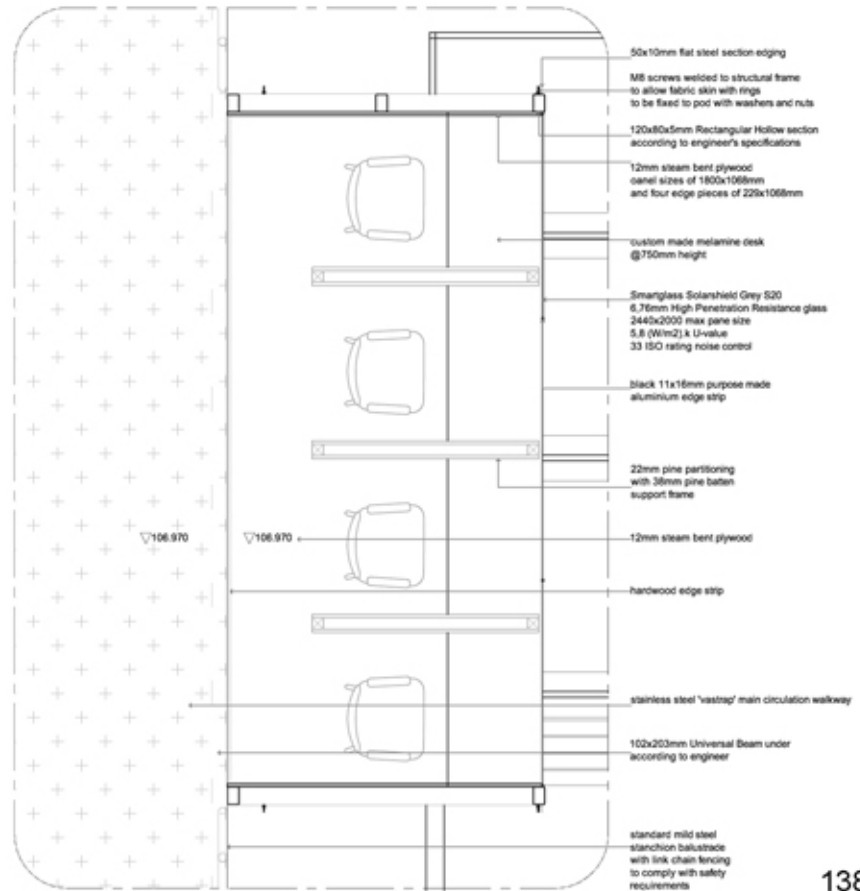
standard mild steel stanchion balustrade with link chain fencing to comply with safety requirements



first floor 1:500

DETAIL 13

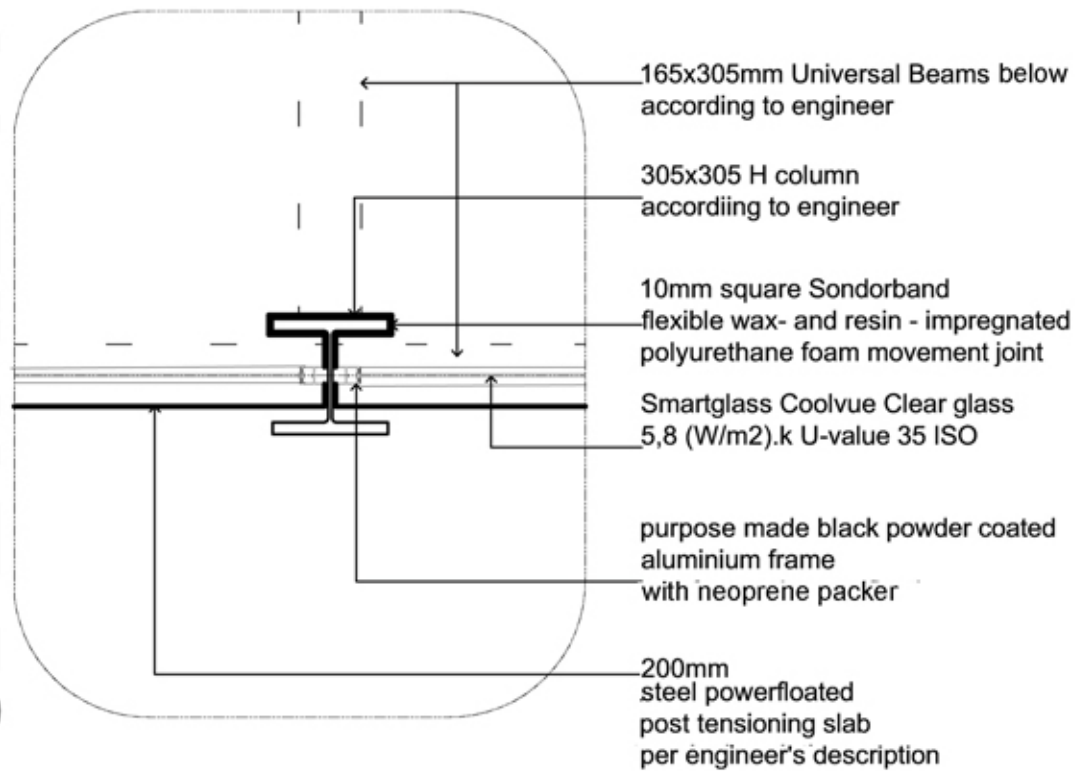
1:50



- 50x10mm flat steel section edging
- M6 screws welded to structural frame to allow fabric skin with rings to be fixed to post with washers and nuts
- 120x80x5mm Rectangular Hollow section according to engineer's specifications
- 12mm steam bent plywood panel sizes of 1800x1068mm and four edge pieces of 229x1068mm
- custom made melamine desk @750mm height
- Smartglass Solarshield Grey 520 6.76mm High Penetration Resistance glass 2440x2000 max pane size 5.8 (W/m2) & U-value 33 ISO rating noise control
- black 11x16mm purpose made aluminium edge strip
- 22mm pine partitioning with 38mm pine batten support frame
- 12mm steam bent plywood
- hardwood edge strip
- stainless steel 'vastrap' main circulation walkway
- 102x203mm Universal Beam under according to engineer
- standard mild steel stanchion balustrade with link chain fencing to comply with safety requirements

DETAIL 14

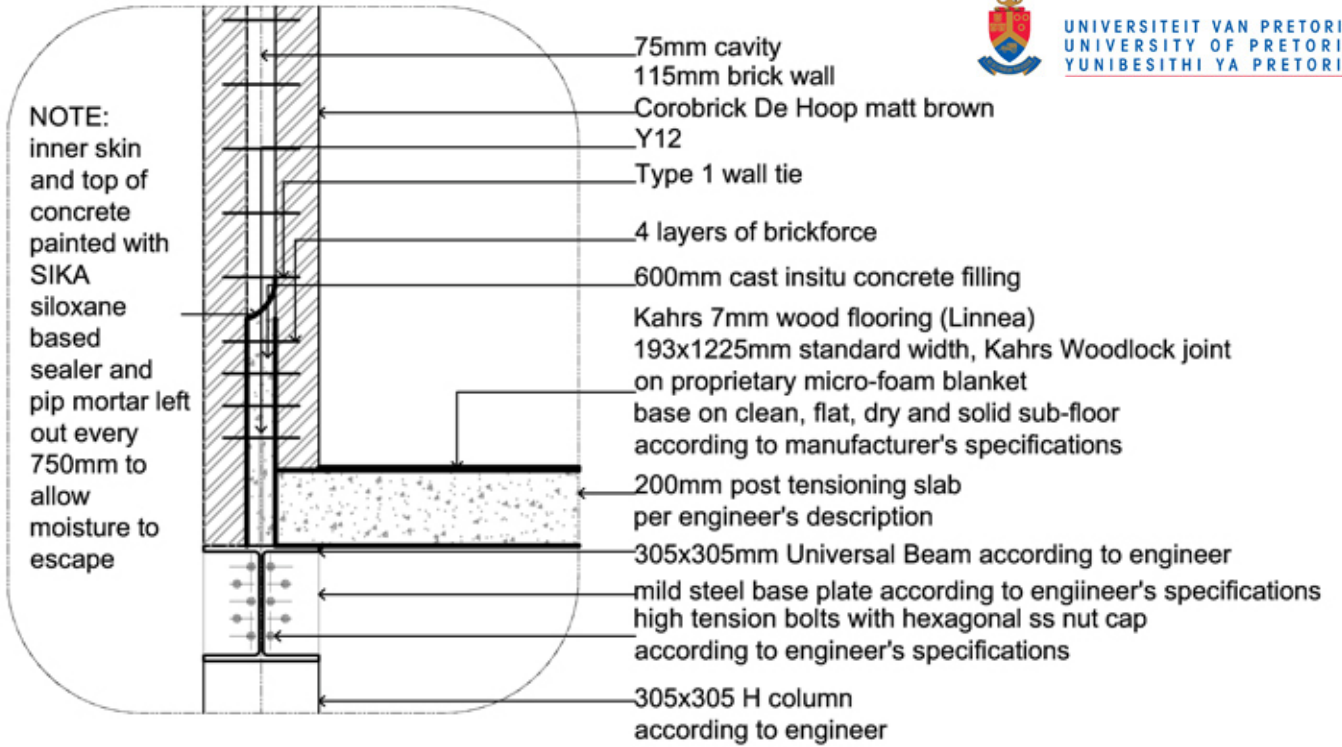
1:20



DETAIL 15

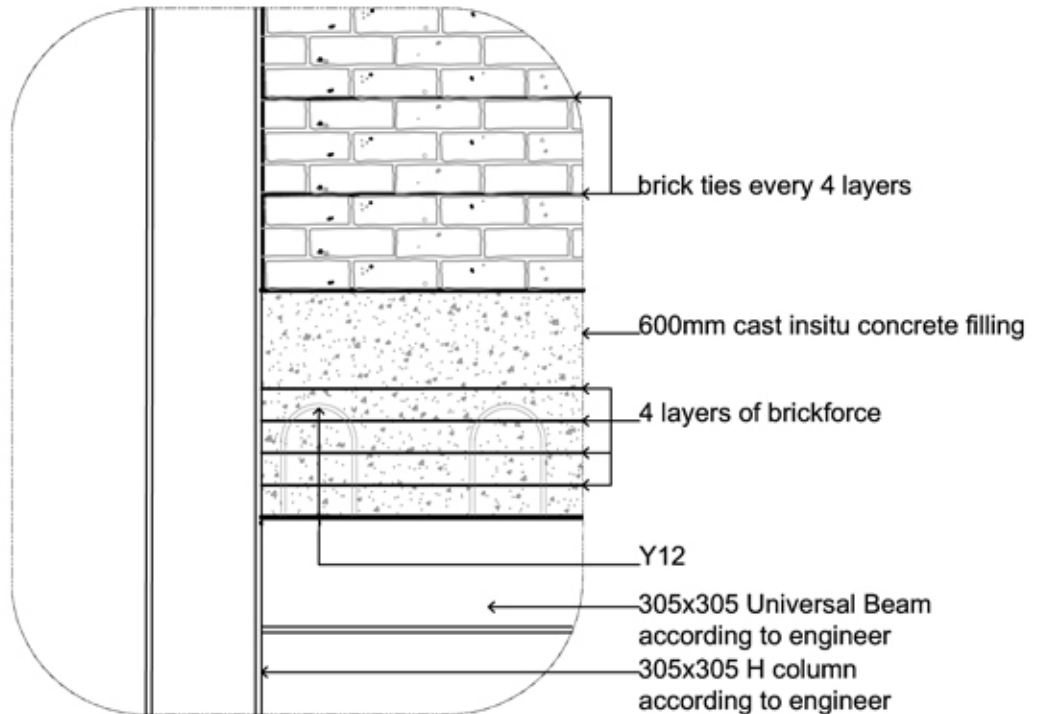
1:20
a a

NOTE:
inner skin
and top of
concrete
painted with
SIKA
siloxane
based
sealer and
pip mortar
left
out every
750mm to
allow
moisture
to
escape



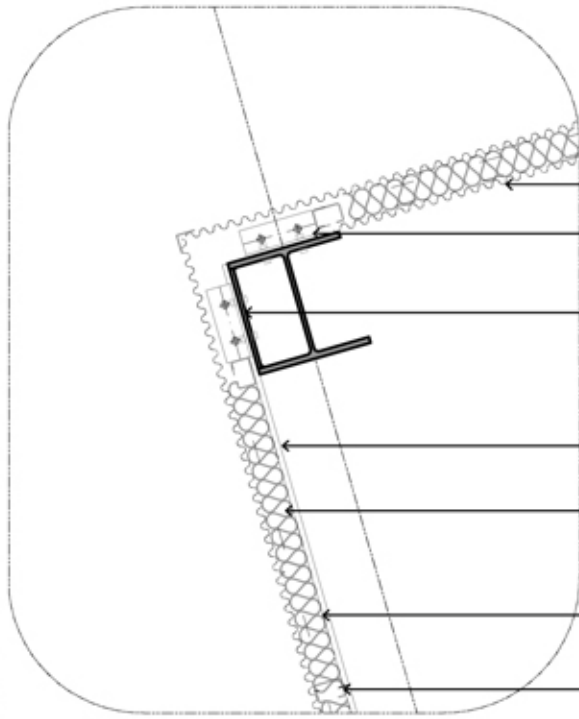
DETAIL 16

1:20
b b



DETAIL 17

1:20

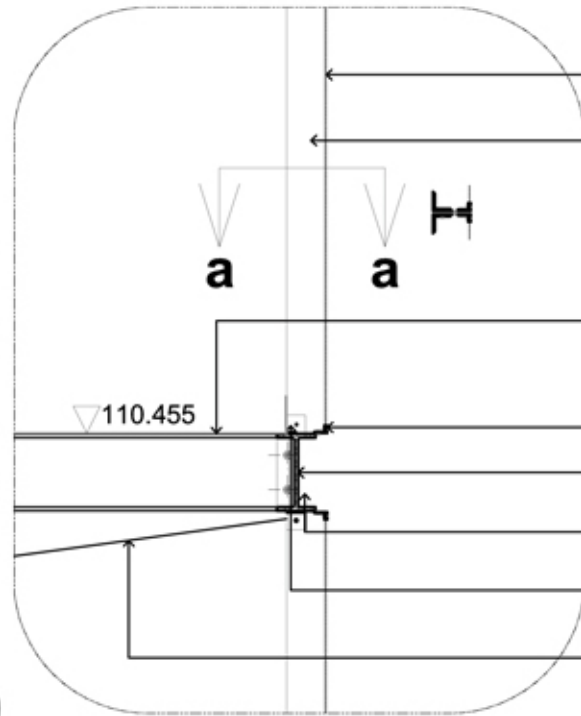


- 17,5mm corrugated steel
- purpose made 200x100x6mm angle cleat bolted to frame
- steel base plate welded to 305x305mm H column
- 15mm "Nutec" flat sheet treated with "B-Seal Eco paint"
- mineral insulation (80kg/m3)
- 125x75x20x3mm cold formed lip channel girth
- 125x75x20x3mm cold formed lip channel strut



DETAIL 18

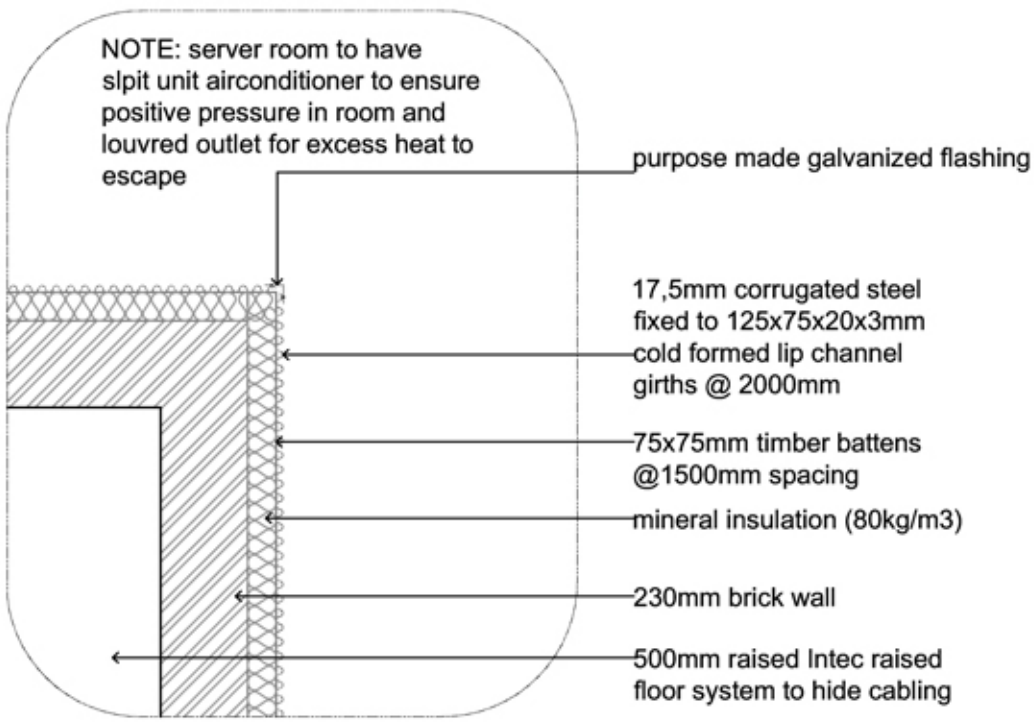
1:20



- AISI Type 316 stainless steel GKD metal fabric - Omega range
- 2835x100x10mm steel flat bar
- stainless steel 'vastrap' service walkway spanning 1000mm
- edge bent 100mm to form kick plate
- steel angle bar frame
- 200 IPE according to engineer
- high tension bolts with hexagonal ss nut cap according to engineer's specifications
- 50x50x5mm equal leg steel angles
- purpose made mild steel haunch support according to engineer's specifications

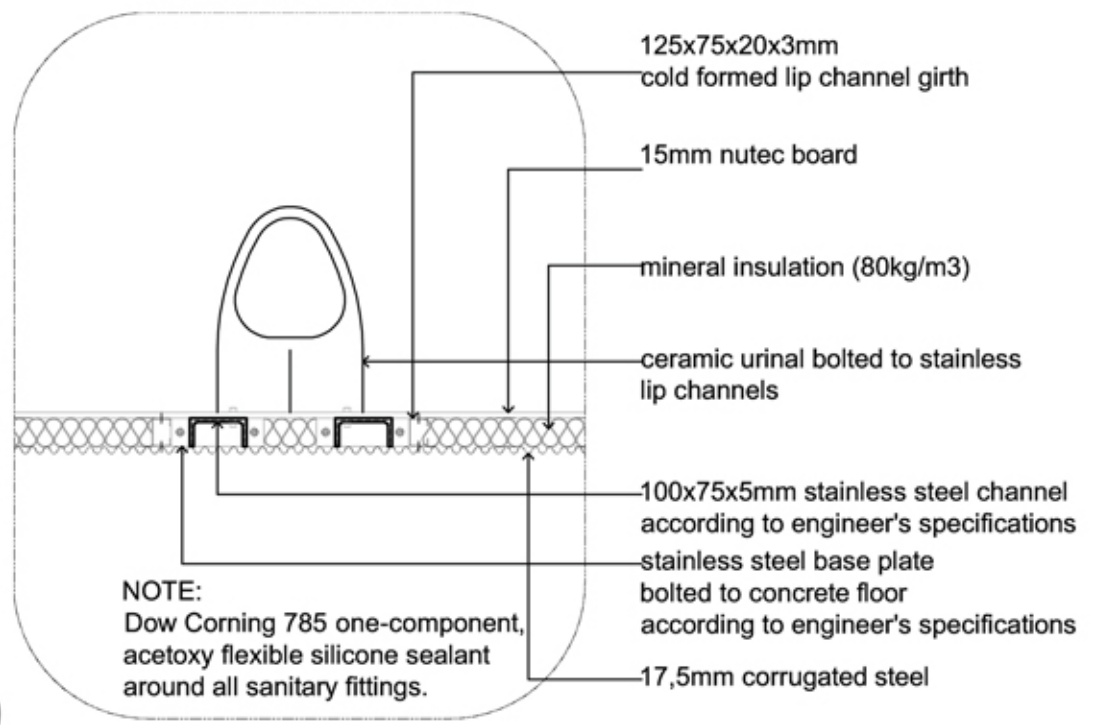
DETAIL 19

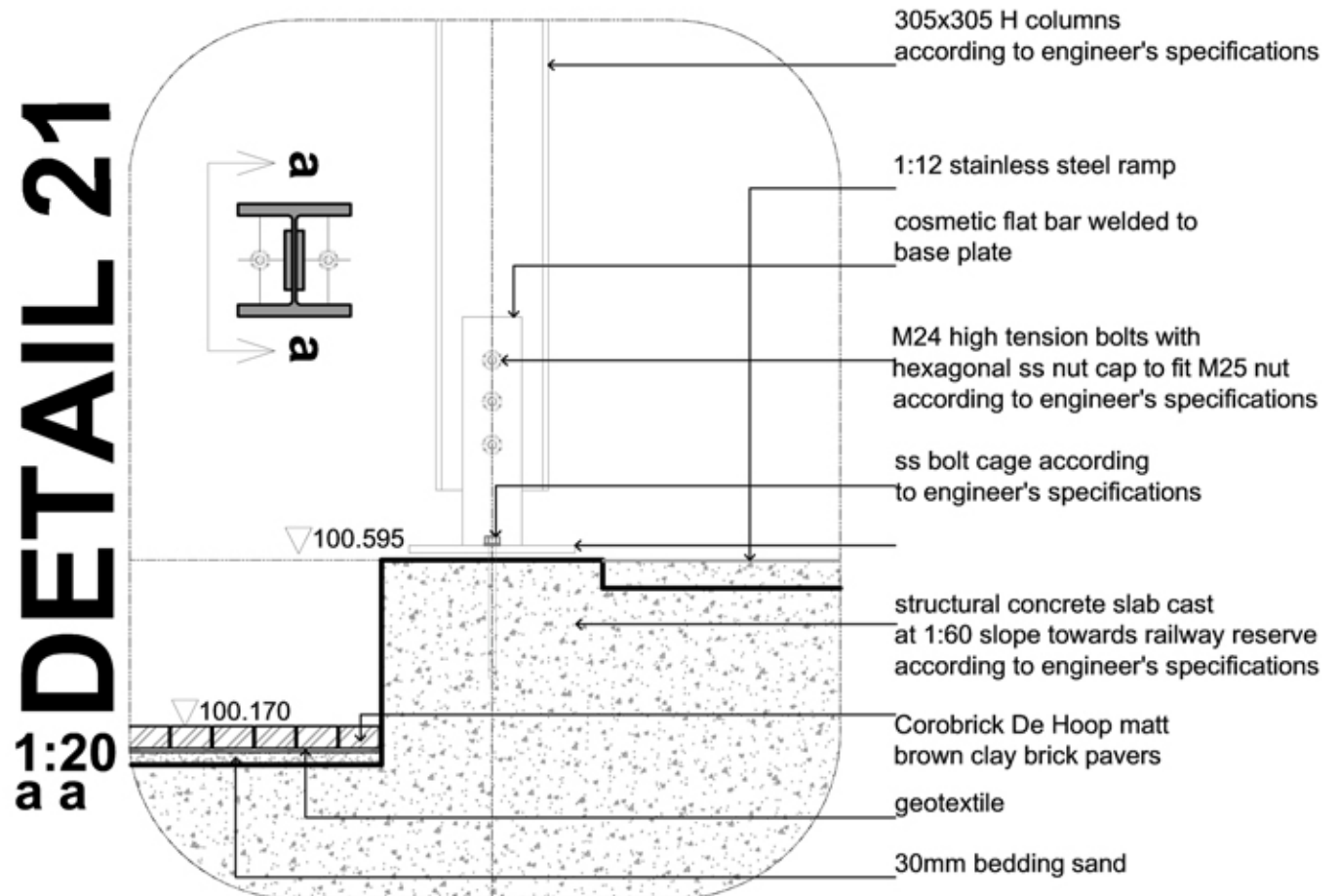
1:20



DETAIL 20

1:20







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designers

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