

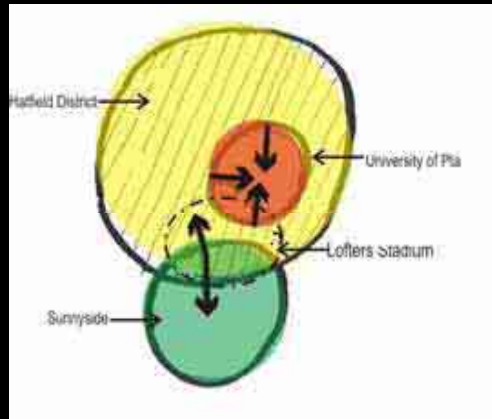
CHAPTER 3

DESIGN REPORT

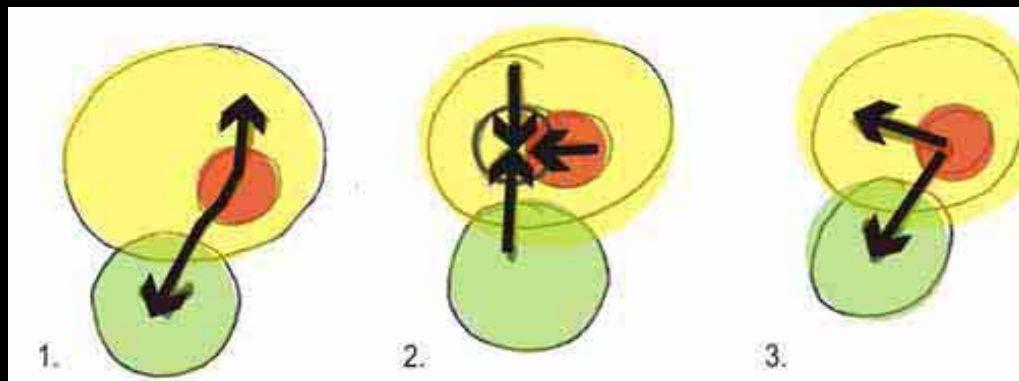


4.01

THE PROBLEM



POSSIBILITIES



1. Connect

2. common centre

3. Relating to urban context

1. INITIAL DESIGN APPROACH

a) Urban relationships- Redefining the barriers

Problem - Most important, are the psychological barriers created by the sudden change in activity - the lack of any type of activity along the street edge.

The physical barricade – the fence places a greater emphasis on the lack of relationship between the university and the existing Burnett Street activity spine, as well as along University Road.

Opportunity -To create a framework that encompasses activities that would encourage the co-habitation of passerby's, employees and residents of the area, as well as current users of the train adjacent to the university, and most importantly students, who make up the majority of the economic and social environment contributors to the district.

It is the university that does not allow permeability and rather rejects its surroundings. The urban context of the Hatfield district allows for the university's incorporation; in fact it needs the institution to open up for the Burnett Street activity spine to continue its expansion. The University of Pretoria main campus is one of the distinct barriers prohibiting the district from further development.

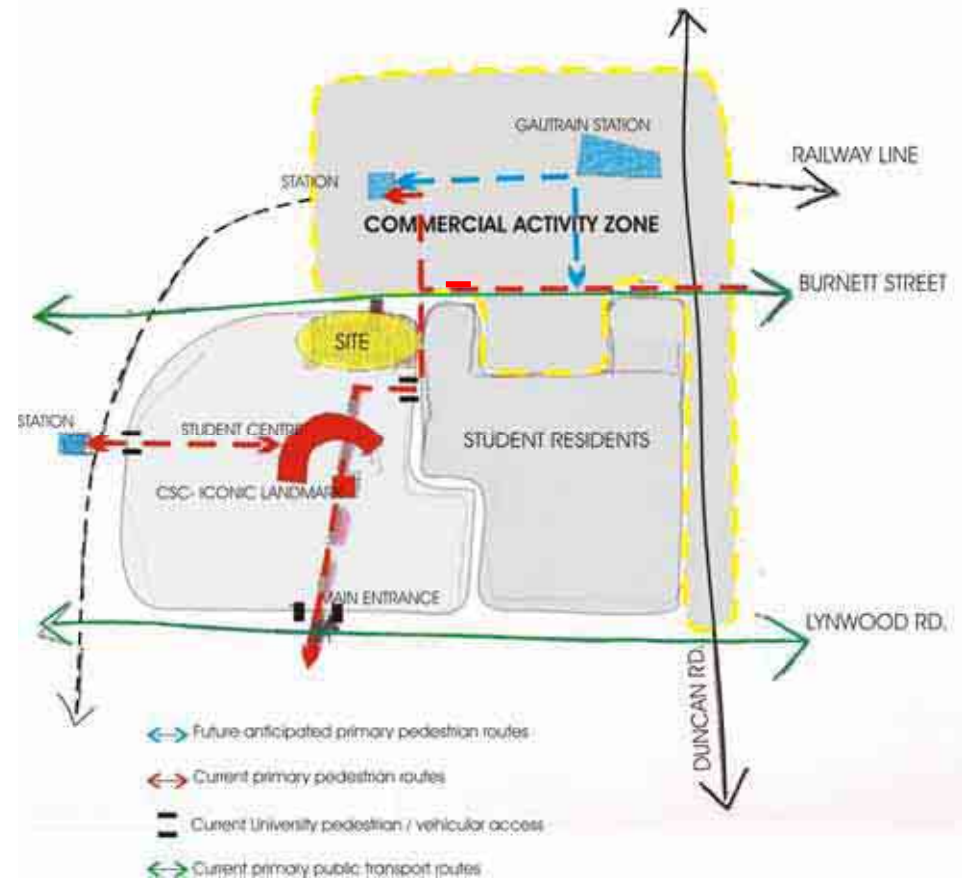
This site has to be re-programmed to identify with its surroundings, not only to urbanise the university, but most importantly to create solutions to the larger inner-city problem.

Multi-layered meanings were necessary to emphasise the experience objectified when walking past, entering and/or residing within the site.

Existing conditions need to be incorporated in order to enhance the development's interaction with the existing environment. Existing bus/taxi stops, pedestrian routes and university pedestrian and vehicular entrances have been identified, as they fulfill the following requirements:

- Created by users for their own convenience.
- Fulfill future anticipated developments or trends.
- Connect to existing and future public transport routes

4.02 Existing primary connections

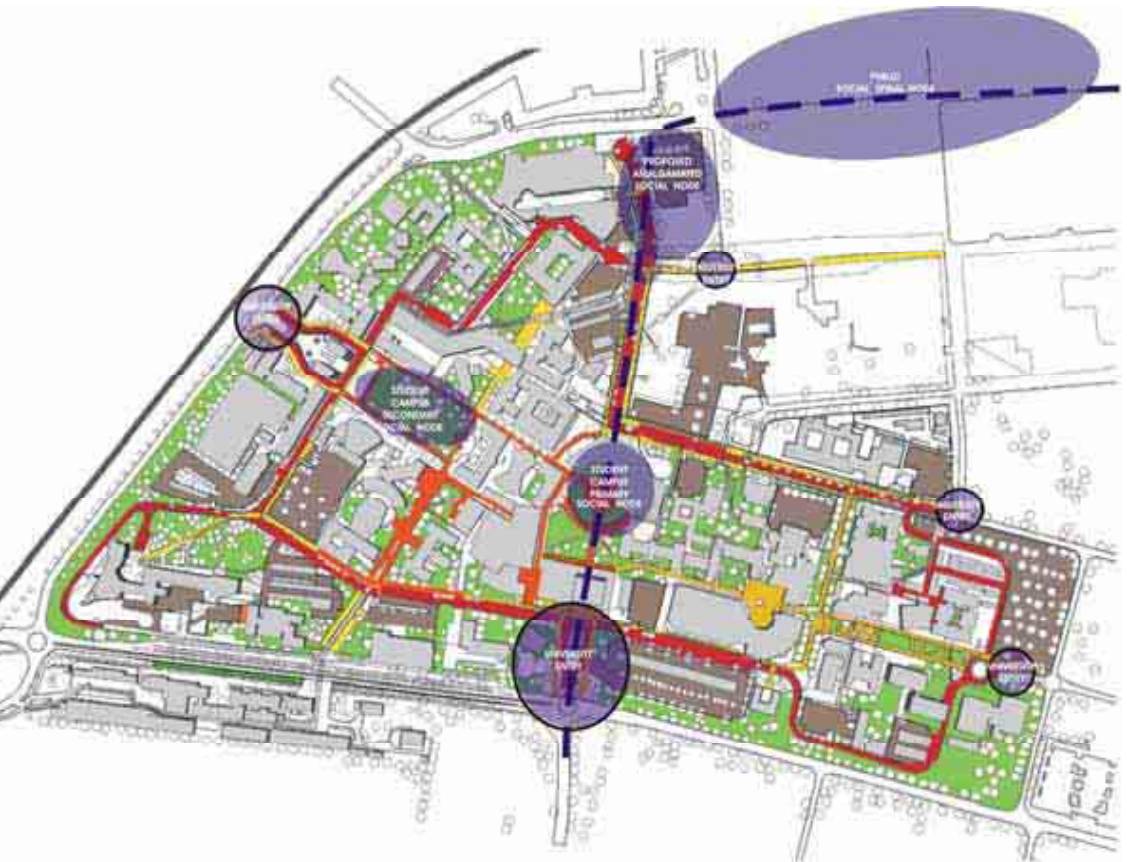


In the case of the north/south primary pedestrian route, a direct link through the proposed development to the activity spine would improve connectivity between the university and its pedestrians. This is especially necessary, since the most frequently used bus/taxi stop is situated along the Burnett Street edge of the site. This would also strengthen the currently weak relation between the social node on campus and the district node, and establish a hierarchy of nodes, with the collaborative research facility becoming the link between them.

The building's form is to respond to the linear paths of pedestrians moving north/south and west/ east, and to existing skyline and building setbacks along Burnett Street. This is especially the case with the new City Development building, which has created quiet an impact to the atmosphere along the activity spine.

Students (a majority being pedestrian, rather than those using the parking facility) and some staff currently access the site as a thorough fare from the vehicular guarded gates off Festival Street, to the pedestrian security gate onto the campus. Most of these pedestrians are either going to, coming from or will be passing through Burnett Street. The rest live across the road in the student accommodation, or are picking up their vehicles. All move right through without pause. The function of the site has a lot to do with these findings- the site has no human relation to the current "users". These movement patterns illustrate that the lack of an interactive interface "affects" spatial perceptions, human senses, or ultimately behavioural patterns.

4.03 ▶ Linear interpretation of hierarchal nodes



b) Principle urban issues in the planning process

The first approach to the resolution of Space in terms of site, took into consideration four primary concerns.

Spatial Organization

The relation between public and private is a pertinent issue, as the University's and the facilities security must not be compromised. How different functions relate to the public realm (external spaces) and vice versa.

Interface

The question of how the University is to be perceived along Burnett Street lies mainly with its interface with the street, as this is the first opportunity that all users especially passerby's have to make an impression.

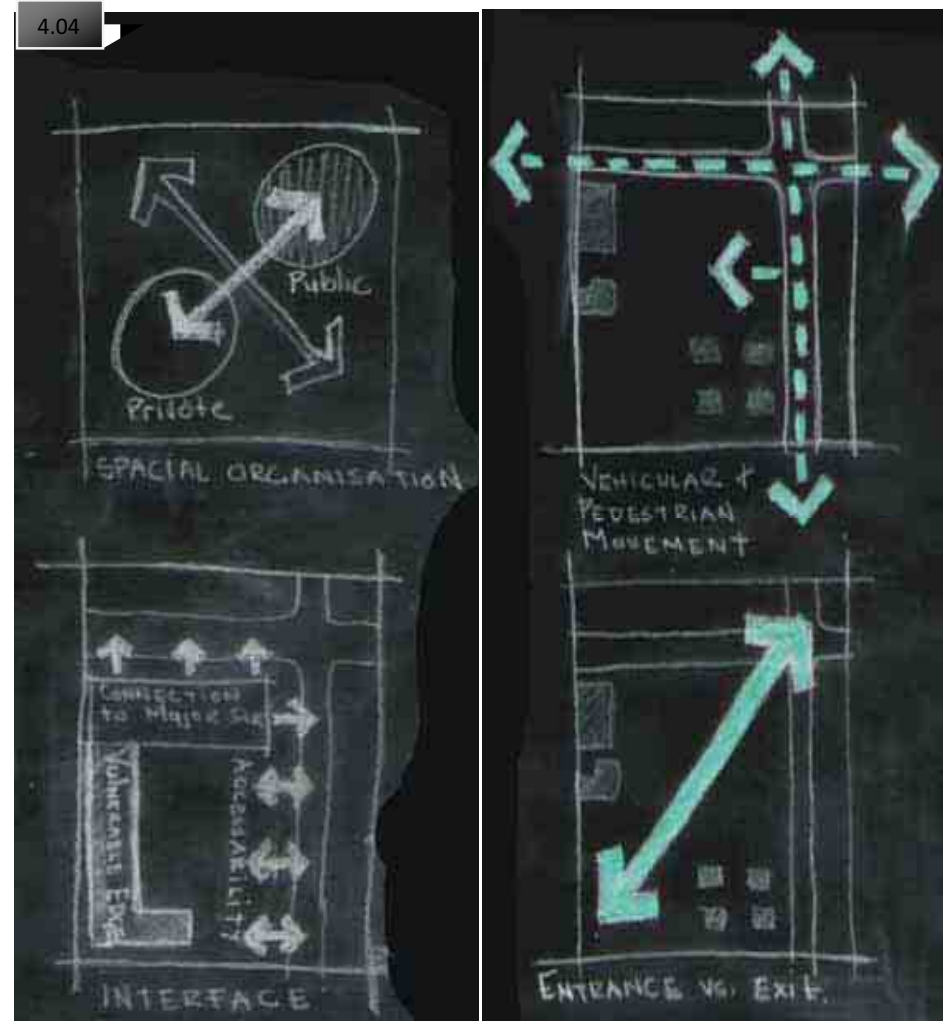
Entrance versus exit

The requirements of orientation within the environment, way finding, place differentiation, recognition, and accessibility must be addresses to create a coherent part of the urban web.

Vehicular versus pedestrian movement

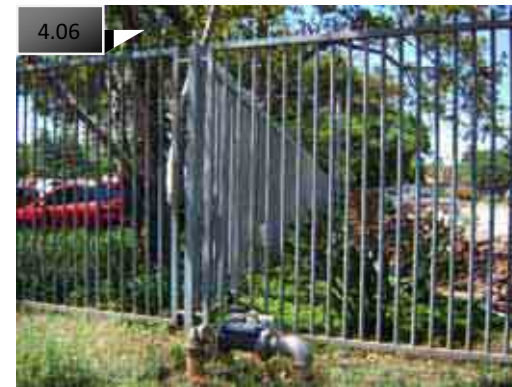
Most of our urban experience is during locomotion. A product that developed from the objective of the project to increase/ create connectivity, was creating a maximized affordances i.e. opportunity for action. This can be stimulated by maximizing routes through and past the site. Currently the site affords the greater district with no alternatives. Current pedestrian movement

is isolated to the pavement along the barriers, with no activities of interest or inclusion to the general public.



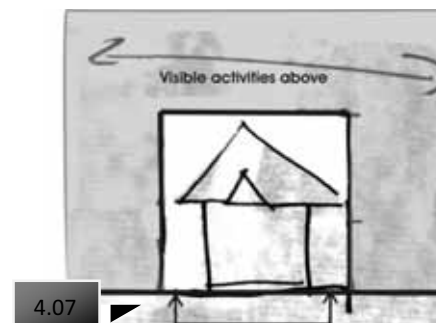
The parking lot reinforces the separation and restricted interaction of the pedestrian of the university from that of Burnett Street. It introduces a lack of continuity in the existing activity spine pattern language. This is evident in the movement patterns through the site and onto the activity spine. The university turns its back on the district and focuses inward.

The current quality of the disconnected selected campus space (parking), is near invisible in its existing condition because of the space's expansive size and functional-programme, unrelated scale to the streetscape, the displacement of the user and passerby perceptions, and a spatial detachment resulting from the users behavioural patterns.

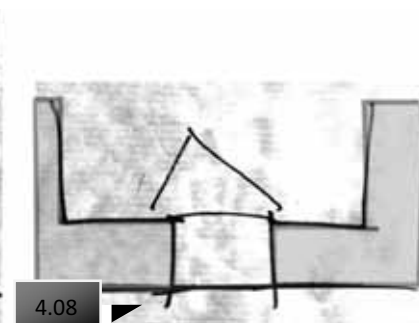


An unnecessary secondary boundary, trees within the boundary and no visible activities or people, as the first learning facility Scienza is 60m away, except for students walking through the two gates, accommodating the least number of students on campus.

The Festival houses were earmarked, by the university, for demolition when a collective blocked this process, marking them as having historical relevance. Below (fig. 4.07, 4.08) are illustrations of possible ways of interacting and incorporating the historic houses, to be renovated to house the Tourism Department which is currently located in a similar, singular structure on the campus, into the development. Alternatively, the houses could be protected as individual buildings. This allows all intrusive barriers to fall away, giving the department much needed accommodation and exposure to the general public.



4.07 Open entry points= framing the existing buildings with new structure, emphasizing their importance



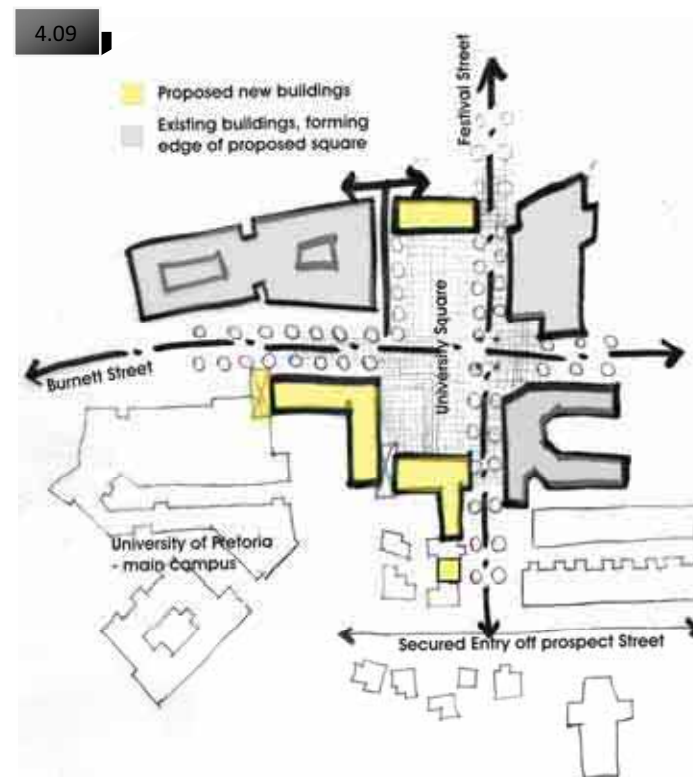
4.08 Transparent barriers= touching historic building lightly

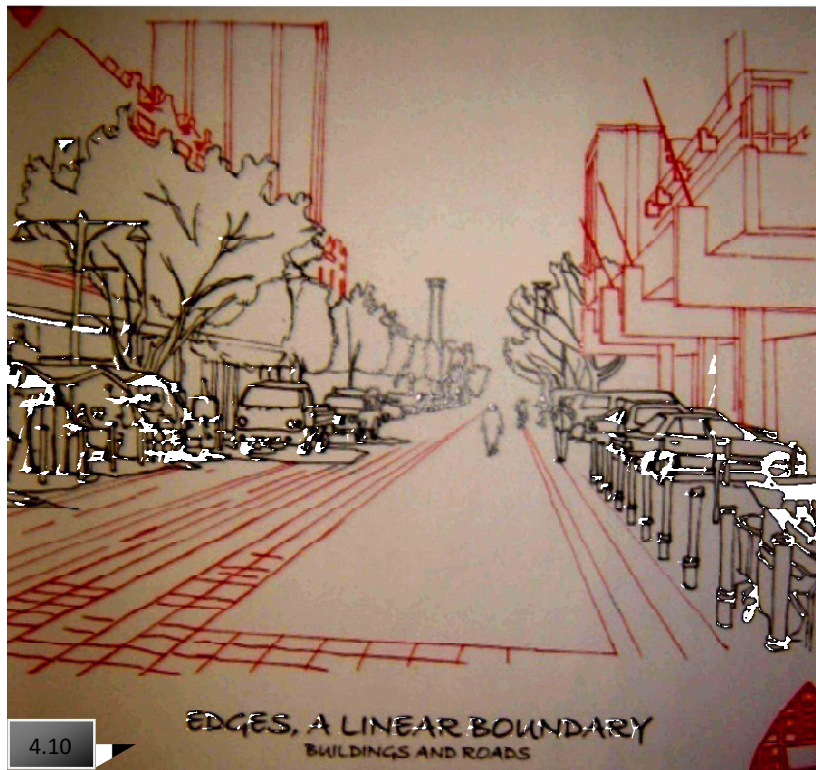
c) Concept 1- Connect

From the onset of the investigation of solution two (fig.4.01), the decision was made to replace fences with “invisible barriers,” namely buildings housing consumer friendly functions (at least on the ground floor), expanding on the existing energy along Burnett Street. These “invisible barriers” would improve conditions in perceptual awareness of spatial thresholds. The positioning of the buildings came about in order to ensure that, although the university would overlook the shared space, it would thus be part of it.

(Fig. 4.09) By using the buildings to form the barrier looking onto this shared space which forms part of the university grounds, it would perhaps improve the perception of integration to the “outsider”.

This option allows for passive surveillance from the student accommodation, but requires that the petrol station adjacent on Burnett Street be removed- a costly and environmentally hazardous exercise. The street edge would lose its current linear boundary created by building fronts, an undesirable effect in the quest to continue a similar language to the existing activity spine (see below). Another unconvincing element to this solution is the possibility of feeling exposed when moving down Burnett Street into the large open square. The sequence may seem too abrupt, thus making one experience even more alienation from the university.





Group 4- 4th year Hatfield campus analysis

Finding a way for the university to relate to the urban context

(Fig. 4.10) A perspective of envisioned view, along Burnett street, indicating the continuation of the spine through the development. This would encourage the pedestrianisation of the activity hub, thereby protecting pedestrians from the current competitive nature along the road. However it would cause grave vehicular congestion at the intersection, around the turning circle. The circle itself would severely disrupt the pedestrian path, affording the public less freedom to choose preferred routes. This would intensify the sterile environment and isolation of the

university from the general district. The intention is to create the perception that the university is the gateway into Burnett Street, and thus the Hatfield district.

4.11



The intervention would increase visibility, but is far too monumental a response, disrupting the flow of activity abruptly and possibly causing a more severe alienation of the business hub from the rest of the west Hatfield district.

The adjustments to the development's position within the area of the urban context expose possible manipulations of spatial awareness and behavioral activities. In solutions two and three, the vehicular movement patterns may cause an increased congestion of the neighboring roads when competing with pedestrians, especially with the future Gautrain Hatfield development.

d) Concept 2- Common Centre

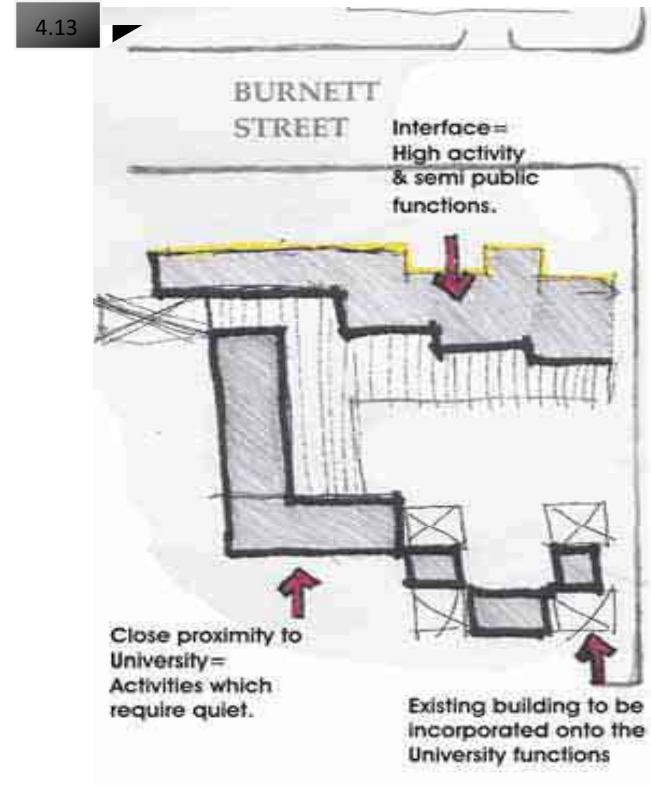


(Fig. 4.12) Activity spine: Sudden death in activity at the intersection of Burnett and Festival Street. The only attraction to this area of the spine to the public is the bus/ taxi stop.

It became clear that the development would have a greater impact if situated within its confines. This would serve to emphasise the existing linear path, forming urban continuity.

The development concerns itself with influencing, relating to and becoming activated within its urban atmosphere. Through the literal abolishment of barricading fences on the site and the introduction of common gathering spaces, that create deliberate perceptions of cohabitation in the various users' minds, improved conditions in perceptual awareness of spatial thresholds and sensitivity to relational nodes can be achieved. In this case, the university and Burnett Street are the concentrated

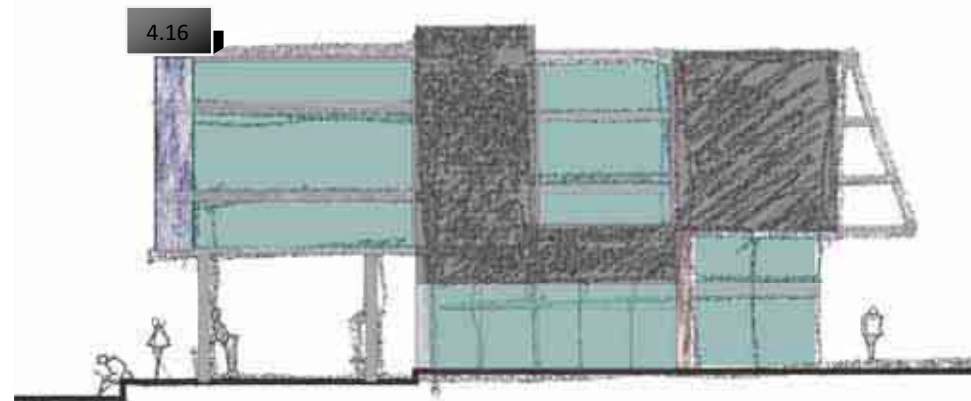
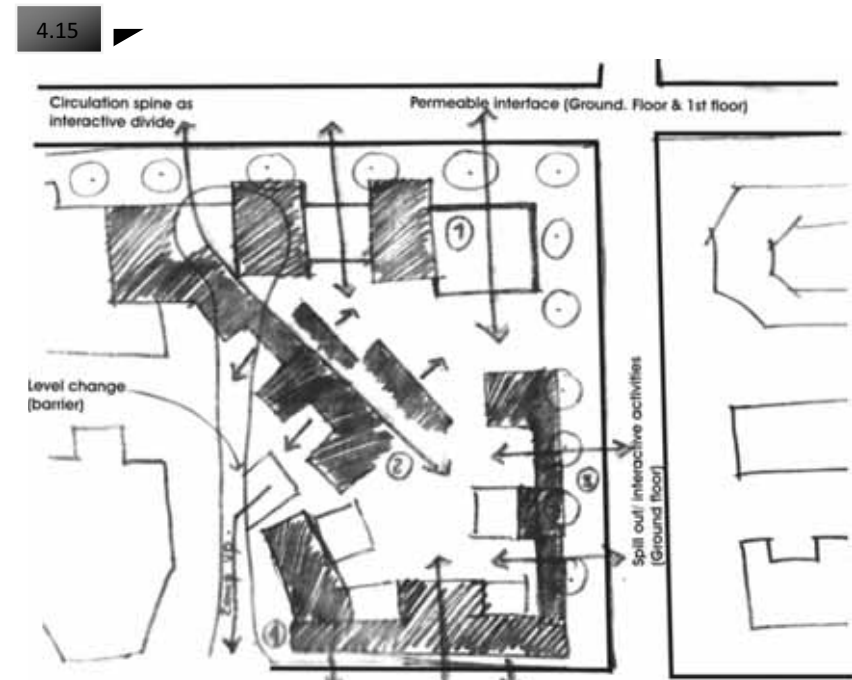
nodes in question. This should, however, be done without compromising the university's security. Knowing the boundaries and restrictions of the site is imperative, as this informs the design process in order to manipulate these restrictions to achieve a more dynamic solution and find the in-between.



e) Concept 3- Penetrating the edge/ Interface

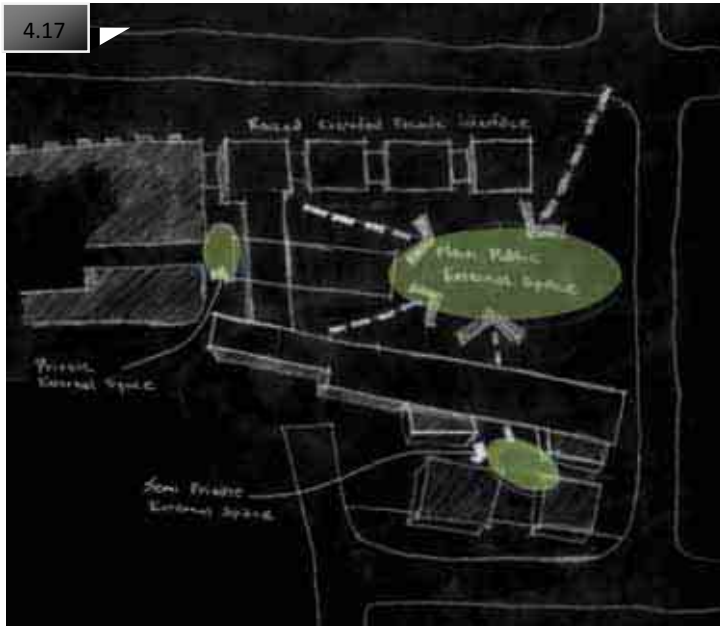
The edge from which the Institute contributes to the Street edge must enhance the existing flexibility afforded pedestrians, allowing them to move between buildings to get to their destination. This application will ensure urban continuity and the presence of a large number of students frequenting Burnett Street activities.

(Fig. 4.14; 4.15; 4.16) These illustrate possible arrangements of space, structure, and planes -their possible linkages or division in order to create relationships between public and private spaces and the activity spine.



2. Design development

Return to concept 2, now integrated with concept 3, results as it seemed to create more opportunity to the concept, with the possibility of developing a sequence layout responding to the various occupants. This proposal also has the opportunity to accommodate vehicles on the site (primary external space), making up for the lost parking lot facility.



The objective is to utilize external spaces as common ground, with the buildings forming subtly orchestrated divisions. The building forms a western boundary to the University. The Festival houses add historical value the development, they are thus to be renovated to form part of the Universities tourism department.

A sequence for the functional layout begins to unfold with the simplistic idea of forming a structure that relates to the concept of the between. Interactive functions are positioned at the thresholds between the larger gathering nodes.

The building is raised above the festival houses to the north, It is proposed that the space between will form a gateway from the primary into the secondary external space.

An attempt was made to alter the passing occupants' spatial assessment of detached and activated envelopes, as they walk by and through the chosen site in a sequence from the exterior (road edges), liminal (open gathering spaces), and interior to the university. This was achieved by introducing interstices designed to be the thresholds. By so doing, the users receive an indirect awareness of the "affective" quality of this site, in addition to the more direct awareness perceived of a now unhidden gateway entry.

Therefore, by enhancing the interstitial thresholds and residual nature of this site, the university's barriers will be endowed with transparency, while adding to the sequential relationship of the more primary spaces on the exterior and interior of the main campus.

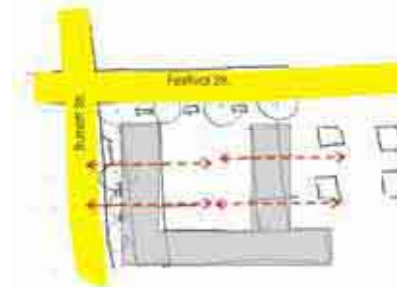
The large paved public square (public realm) in-between the threshold buildings, with views of the historic buildings, includes an avenue of trees and benches. It is designed to be accessible to all and yet ensures that the building maintains the required level of security at all times with the lifted buildings forming open and inviting spaces, ensuring clear navigation.

Perception influencing activities



4.18

The 'public' activities happen within buildings. The pavement is only utilised for walking. Pedestrians cross the busy road repeatedly in order to transfer from one building activity to the next.



4.19

Activities occur along the pavement- street furniture such as benches, vendor stations and dust bins encourage pedestrians to pause and not rush past. Sitting gathering spaces (under pass) situated at the ground floor, encourage pedestrian occupation. Only commercial activities face the square on the ground floor, spilling out and around the buildings, within a pedestrian only zone.

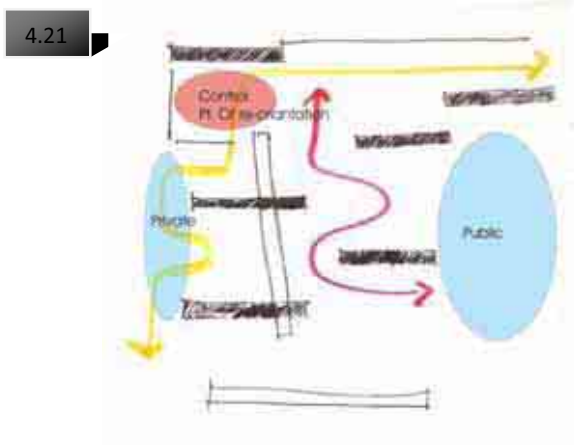
4.20

STREET EDGE - URBAN CONTINUITY

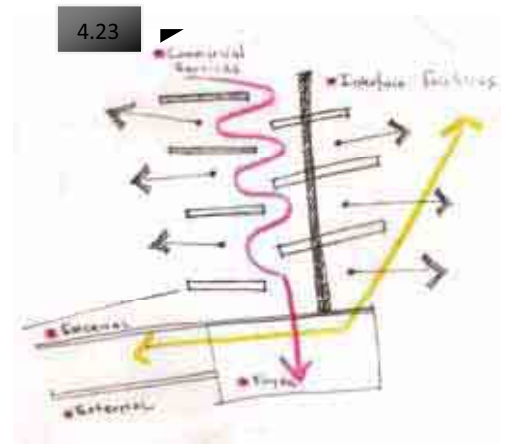
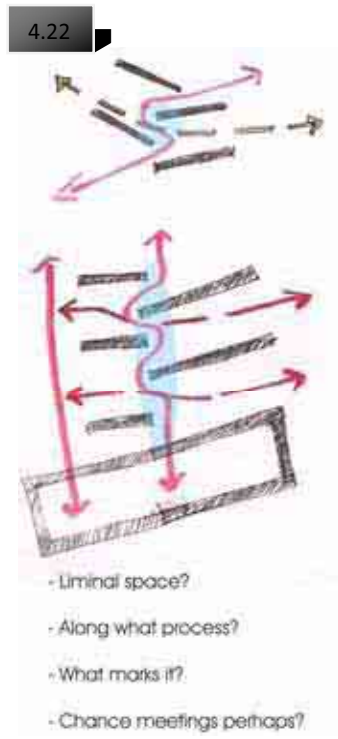


a) Spatial Organisation

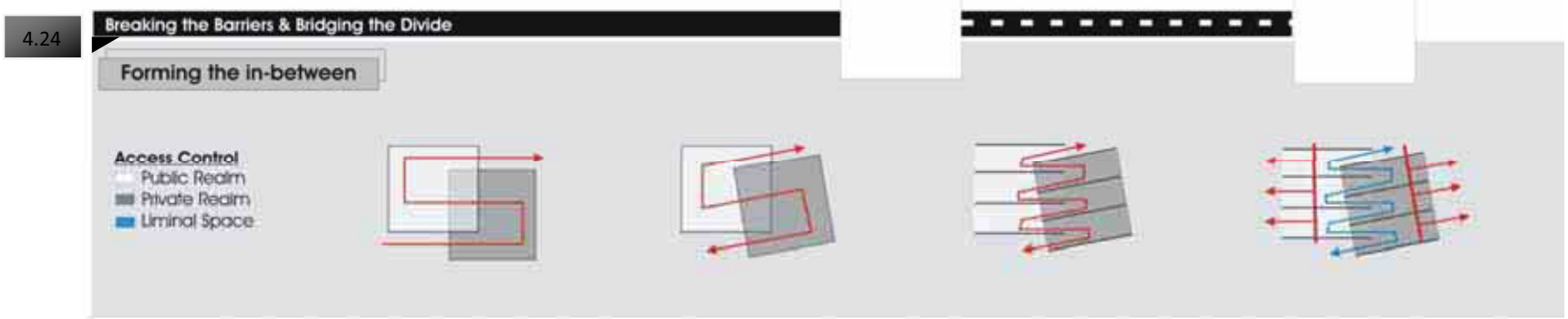
In order to define an envelope of activated space, the study is narrowed to a single, particular pattern of movement behavior: the sedimentation of potential users occupying or passing through the site. Divisions are defined between public realm and private realm (university) to ascertain how the two may cohabitate, without breaking the security breach.



(Fig. 4.24) Each group of users has dedicated circulation routes to maintain the required level of separation and security.



Initial sketches in response to possible new movement patterns: analysing methods of responding to a penetrable interface, while ensuring refuge from public interferences to functions, such as lecture theatres requiring privacy and quiet.



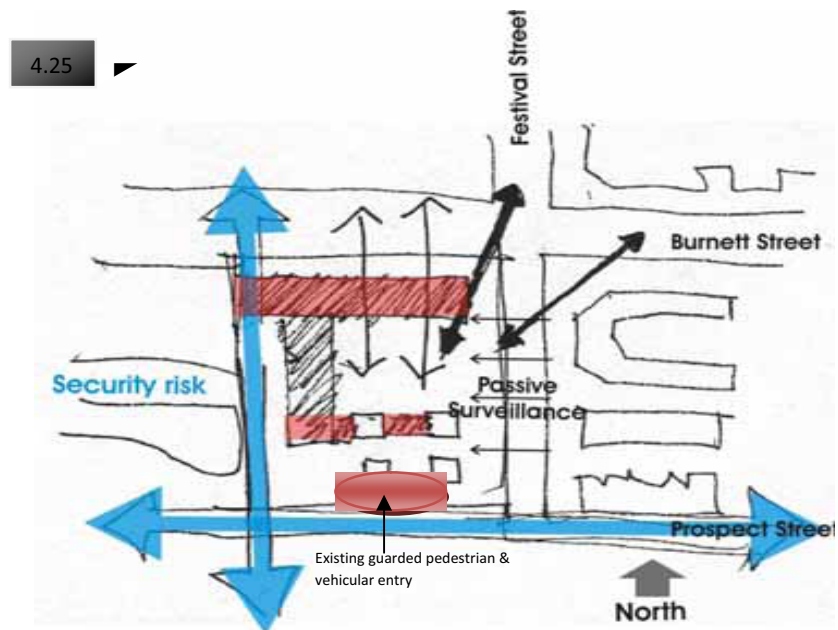
Three thresholds have been identified;

- Main: Burnett street edge
- Secondary: Tourism school threshold
- Tertiary: the boundary necessary to the university entrance

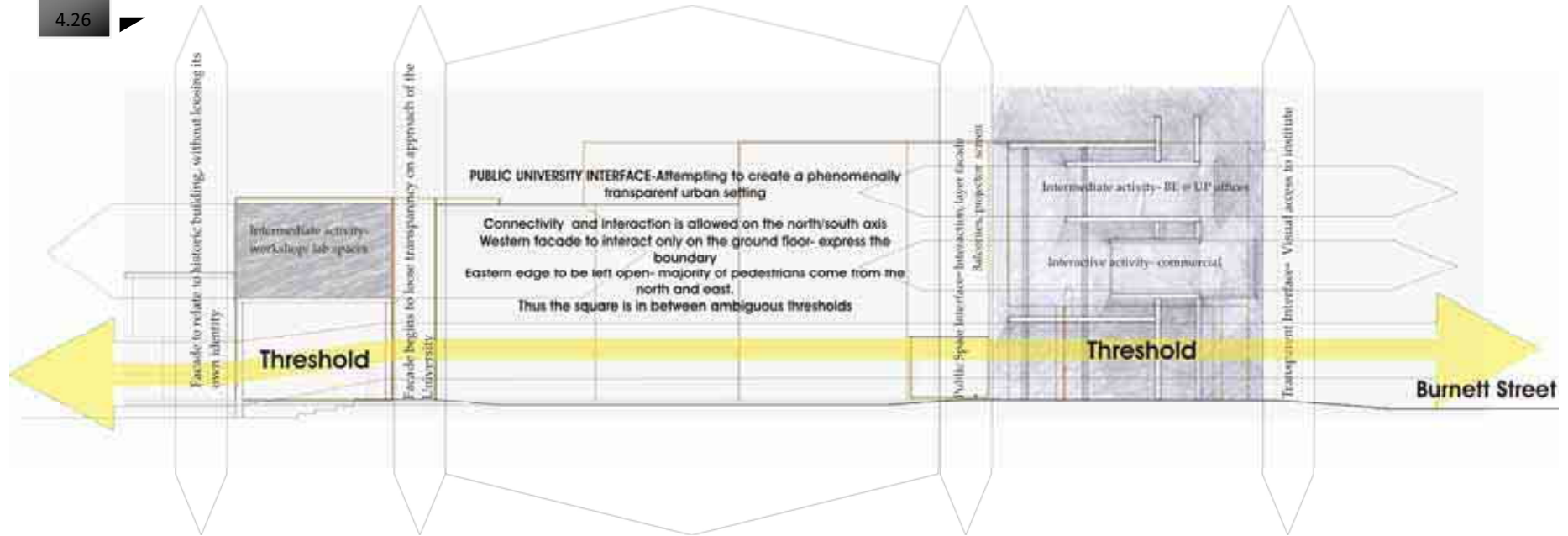
When locating the thresholds on the site in order to influence the spatial conditions that exist, there is an issue of physicality that needs to be addressed. The built form could be installed at the ground floor level, thereby physically obstructing the movement potential of the public.

As a result the structure of the primary threshold is lifted off the ground, above eye level, thereby removing physical obstruction to chosen movement patterns. This results in a study that could measure the degree to which subconscious perceptions influence movement behaviors within defined spatial envelopes.

In order to convey the marked entry into the development's interstitial (threshold) and residual (square and food court), quality control of the various spaces through an emphasis in sequential thresholds at critical points, and attention to the vocabulary of the enveloping forms of the interstices/thresholds is necessary. The perceptual awareness of these forms is paramount to the "effectiveness" of the project's intervals; since too harsh an awareness in perceiving the space's threshold would heighten any existing feeling of moving into a prohibited space.

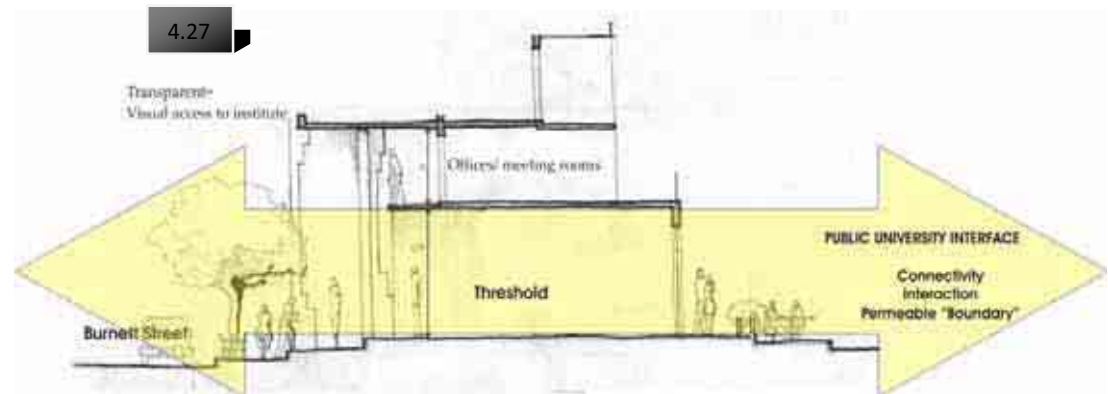


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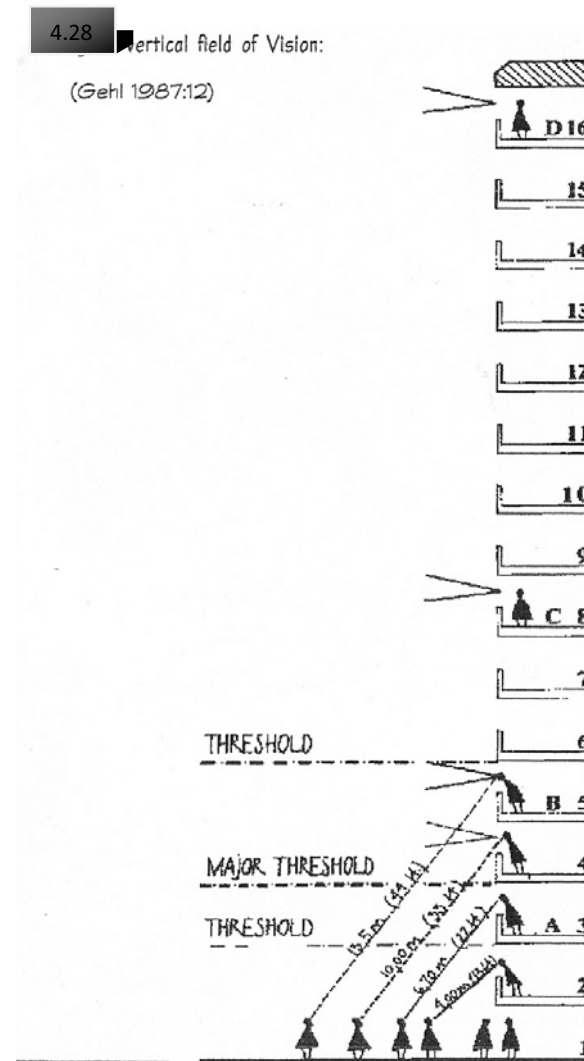


Vertical and horizontal relationships on site-between the parts of the building and also their surrounding environment must be designed so as to reinforce permeability. (Fig. 5.09 and 5.10) The section is used to investigate spatial and functional interaction between the primary and secondary threshold and the activity spine. Their inter-relation to one another on the horizontal and vertical planes is a translation of the concepts discussed, in the development of transparency in relation to the development (seen as the university street edge). Composing depths of volumes ensure the efficient operation of natural lighting and cross-ventilation.

4.27



In order to ensure the relation between the occupants of the building and the general public, it is important that the public be able to visibly access the building spaces and vice versa. Once the building becomes higher than five storey's, the internal activities above that level become divorced from their surroundings, as it becomes difficult to visually assess objects at these distances (Gehl, 1987:12).



b) Manipulating Perception

Surfaces and their layout need not be rigid and persistent, and should allow for elasticity and change. Gibson (1979: ch.6) provides classification of terrestrial events at three levels:

1. Change in layout.
2. Change of colour and texture.
3. Changes of surface existence.

These intermediate cases help to specify spatial relations, and most notably observe (a special case of relative motion) and approach or recession of objects, which are optically defined by texture magnification/minification relative to their background.

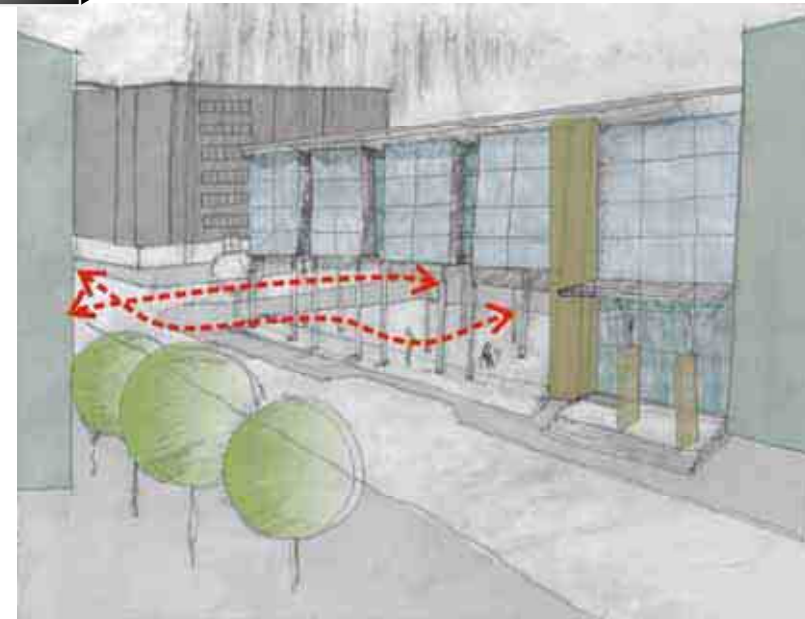
“We have to attend to available stimulus information not the least important of which is optical-visual” (Landwehr, 1988:35)

Envelope material selection

A transparent form was a requirement for the threshold surfaces. The higher the transparency, the less intrusive the forms would become, and the more interactive and expansive the various defined spaces would be. However, the forms need to be detected to some degree, or they would be of no use in redefining the existing spatial thresholds and relationships. In order to find a middle ground between transparent and perceivable, the threshold envelopes are to be made up of dual skins:

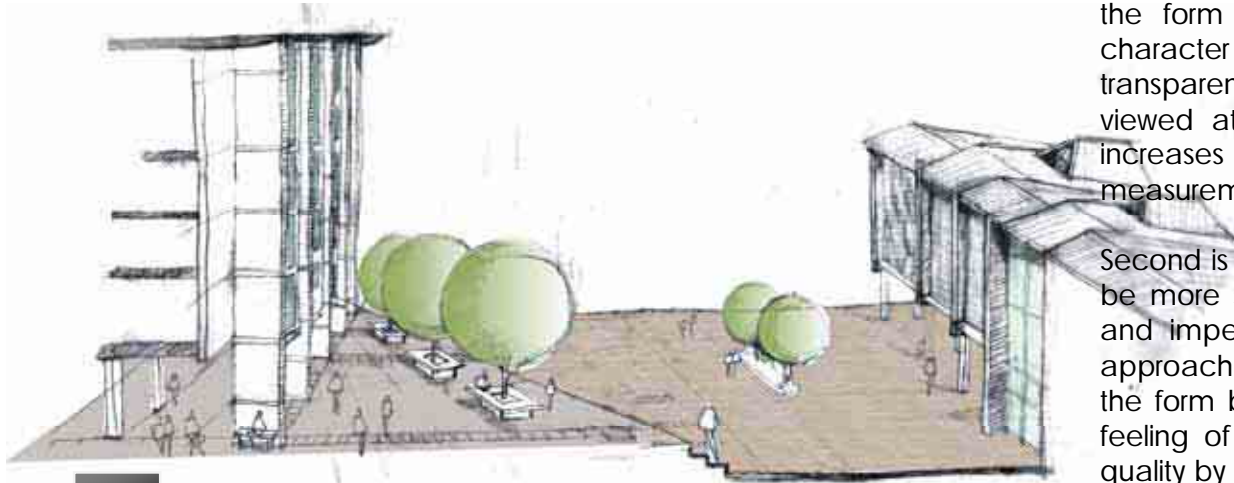
Threshold1- grey super-tinted glazing wall, and transparent secondary skin. The double walled skins in this case are for ventilation purposes, later discussed in the technical report.

4.29



(Fig. 4.39) While the “barrier” buildings should communicate their solidity, the punctured spaces that jut out of the building should ease feelings of being over alienated from the activities that occur within. The meeting points of these two structures are important junctions to detail.





4.31

Threshold2 - a mesh skin and transparent glass. This would allow the form to appear opaque at a distance, taking on the character of a solid surface and defining a spatial threshold, then transparent with a reduced perceived threshold of space when viewed at a closer proximity. This alteration through distance increases the perception of the spatial thresholds, enabling the measurement of transparency and opacity influences.

Second is the articulation of the above mass envelope, made to be more sculptural in that the material (mesh), seemingly solid and impenetrable from a distance, begins to disintegrate on approach, allowing the fabrication, activity and architecture of the form beneath to be enunciated. This once again instills the feeling of confidence. This mesh screen takes on a sculptural quality by expressing its ability to manipulate spatial perception of form as light and position of the viewer adjust. This effect would be most dramatised in the night time, when the form is lit from within and its detailing of connections, spaces and activities are most exposed. This is a reaction to the existing site's lack of use, especially in the evening; this architectural treatment of the site increases the opportunity to utilise the residual spaces (square) in the evenings for numerous activities.

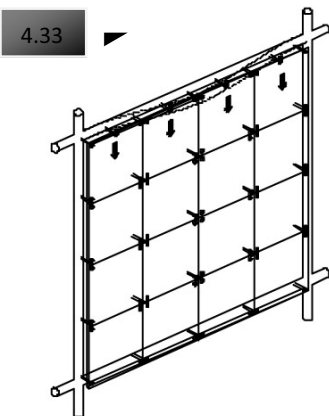
Although the ground floor is completely permeable, allowing the public free mobility, as pedestrians move under the interstitial threshold – they are directed between the monolithic walls into the open square. This is defined as the liminal space, as it is the intermediary, defined by its surroundings. This mediating space affords the opportunity, to the existing residential flats looking over the square, to participate in the environment of the development.



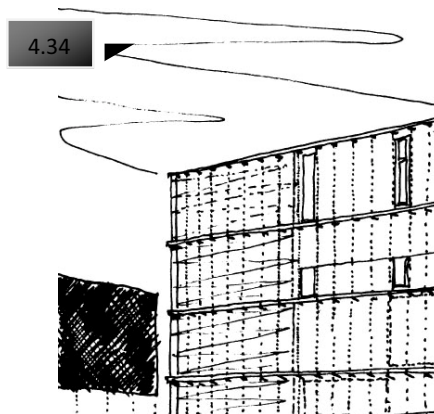
4.32

The structures of the buildings are to communicate the concept and theory attached to them. In the instance of the threshold buildings, which are to be visually penetrable, the structure needs to seem as unimposing as possible. This calls for the use of a light frame structure.

Glazed Façade



Mesh screen



This displaces enhancement from the architectural intervention onto the perceptual awareness of the interstitial and residual spaces, while still enhancing the behavioural activities indirectly. The method of emphasising the framing of the functioning activity, rather than the space, enhances the intelligibility of the design process related to structuring events and usage reasoning, at close proximity. Transparency of the defined thresholds in the spatial envelopes brings a new awareness to the building's usage patterns, ultimately encouraging a sense of accessibility.

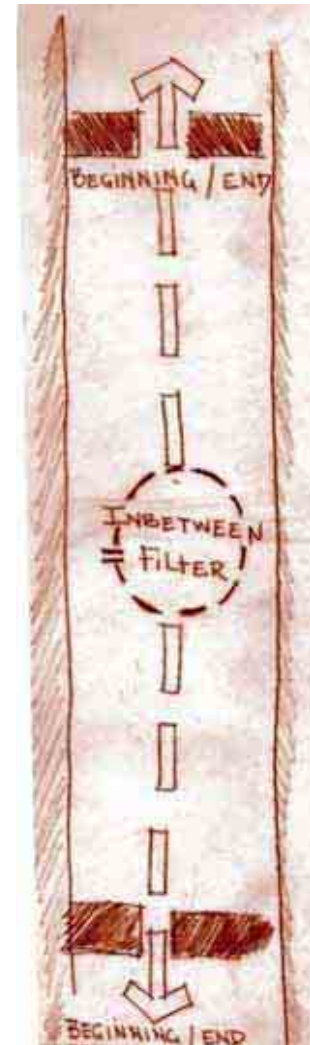
This design development involves the adjustment and enhancement of the spaces contained. The identified edges that require high levels of security are articulated to communicate this by using solid and opaque material, allowing the user narrower options for physical and visual penetration. Thus, the user begins to sense a change in the site programming. The open spaces are accessible in all possible directions, through permeable interfaces. The Initial sketches of possible spatial organisation are formalized below (fig. 4.35).

The threshold buildings and site are perceptually enhanced and define new movement and standing activities. These buildings frame the envelopes that contain the newly developed movement patterns, rather than describing the patterns directly.



c) Tertiary threshold- Addressing the articulation of entry

The current university entrances are not legible as self proclaimed entities, reinforcing the feeling of being isolated from the activities of the university. 'Access point should be perceived as hospitable interactive nodes, not a boundary to keep the neighbor out'. By openly exposing the university gateway entry, the design instills a feeling of comfort in the occupants of the site. Limits no longer feel as obtrusive, but rather subconsciously communicated, while maintaining visual access to what lies beyond. No distinct Genius Loci around campus is perceived, with all the associated boundaries - the University of Pretoria becomes an island within the city.



The rationale behind the positioning of the proposed entry into the university is informed by the direction in which a majority of occupants may approach the site. In this way the gateway is easily identifiable, continuing the idea of the transparency of barriers. By highlighting the threshold entry and exit, the in between is emphasized.

4.38



d) Defining the square as a liminal space

The site has the potential to accommodate both pedestrian interactions without sacrificing the parking essential to the university. The motor vehicle has become a necessity to be catered for and tolerated. We must be careful, however, not to place it ahead of the pedestrians who are still the majority of the district's and university's users.

These dual uses frequently result in thresholds in-between one functional space and another. This can be manipulated in the design process to intensify the notion of phenomenal transparency, as defined in this paper. For example, the shared access to the parking between students/personnel and the general public (though at different hours), begins to endow a psychological sense of entitlement to the space and thus a sense of belonging.

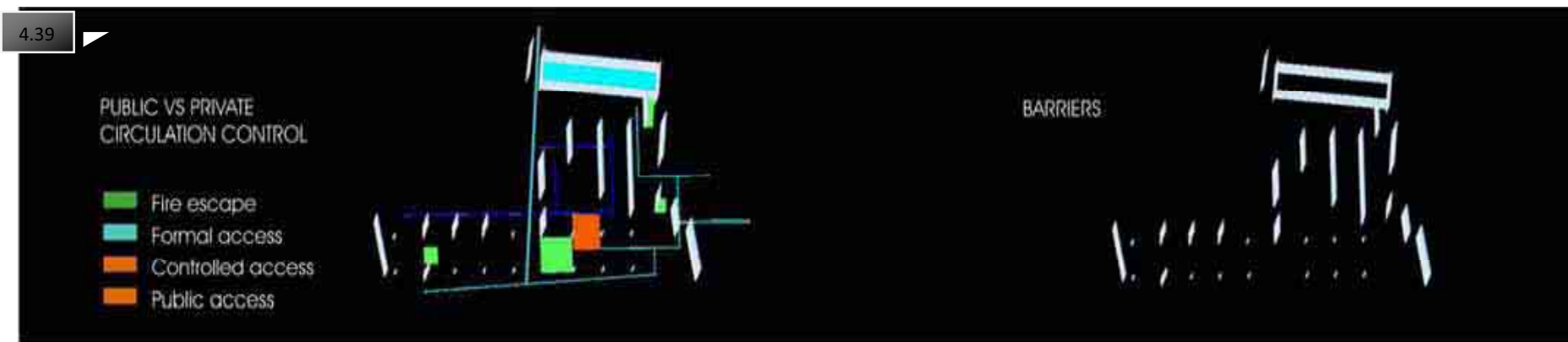
(Fig. 4.39) Fire escapes are situated strategically to service the three distinct areas to allow different researcher groups and the Business Enterprises Offices easy escape.

e) development Facilities

The Collaborative Institute is to be situated on the Hatfield main campus of the University of Pretoria; the first to break away from the ring-fenced property. Entry is obtained at ground floor, with camera surveillance of the entire site on a 24-hour basis. Staff and students obtain access from the development into the university through use of activated staff or student cards.

The Collaboration Research Institute development houses the following sections/services:

- Woolworths grocery store
- Restaurant
- Coffee shop
- Cafeteria
- Incorporated existing bus/taxi stop
- Academic Information Services (library)
- Cafeteria
- Computer Aided Instruction Centre (40 work stations)
- Management Administration
- Institute faculty Administration
- Lecture rooms equipped with computers, video and data projectors
- Business Enterprise offices (client interface service)
- Research support- outsourced or permanent
- Flexible spaces of instruction
- Telematic facilities equipped with satellite and video conference facilities/ debating rooms



f) Structural design- Concept 1

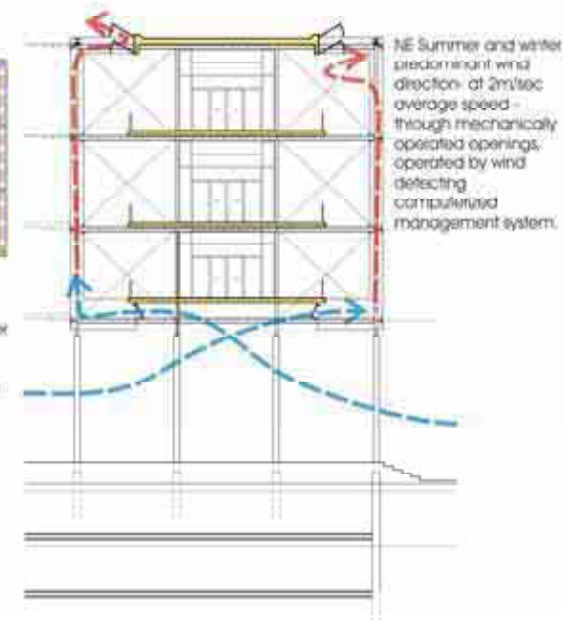
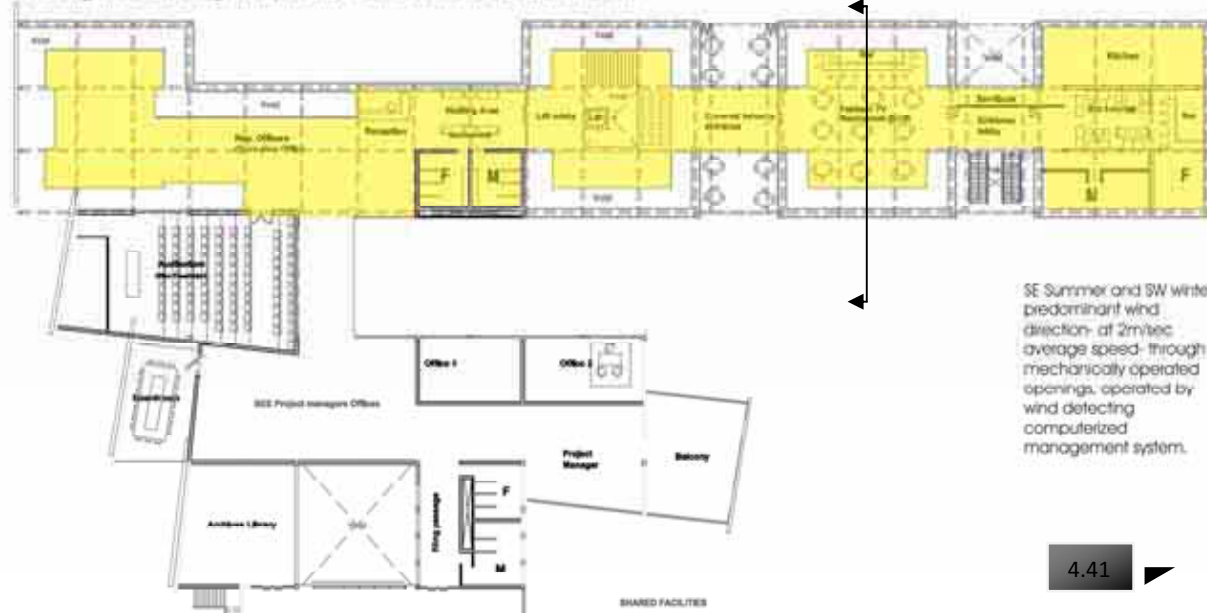
Applying the concept of liminality and the in between in the structural planning design process

LIMINALITY

Exploring ways of imparting the concept to the public by predetermining perceptions of the architecture.

Primary threshold/ encounter with the University

- Double skinned glazed wall
- Floating floors, allowing transparency and accessibility between floors.



SE Summer and SW winter predominant wind direction - at 2m/sec average speed - through mechanically operated openings, operated by wind detecting computerized management system.

NE Summer and winter predominant wind direction - at 2m/sec average speed - through mechanically operated openings, operated by wind detecting computerized management system.

4.40

The secondary threshold

- To reading on plan as a continuous linear form, creating a divide between the primary and the secondary gathering space

4.41

Structural design- Concept 2

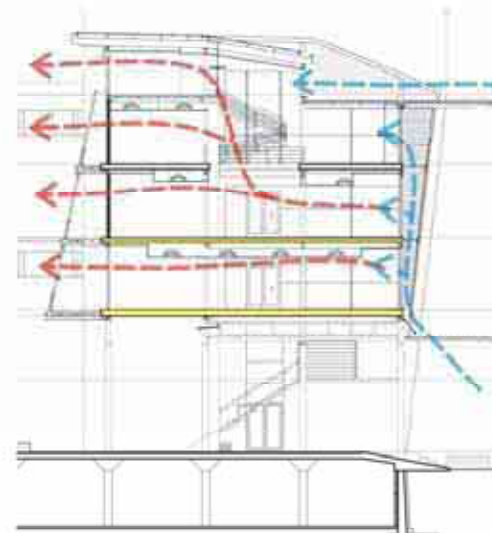
Evolved into a pragmatic solution:

- Double skinned glazed wall only were required- north facing
- "transparency" and accessibility between floors not practical on the commercial floor. Its position out ways the original concept.



4.42

- The form is retained, the extruded forms are emphasised
- Facades to be treated in a contrasting manner to primary threshold, in that visual accessibility diminishes, making ones progression towards the university.



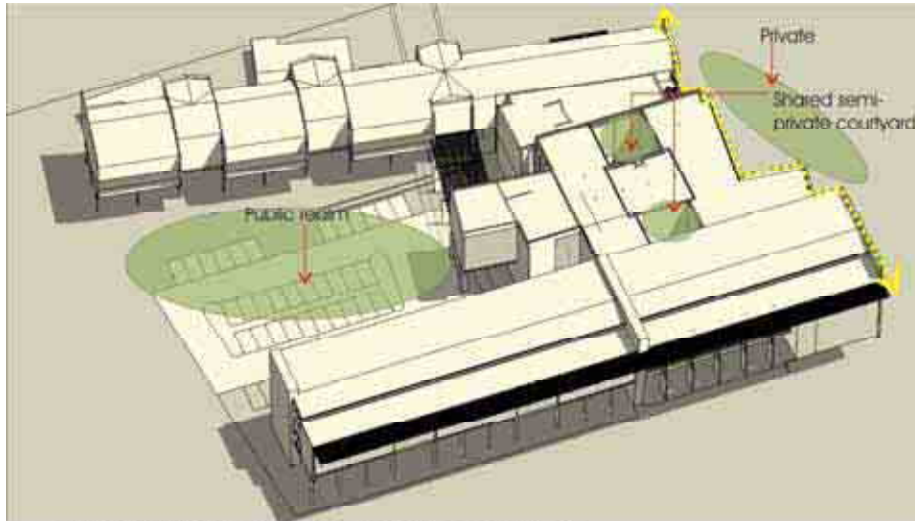
Section A-A: NE Summer and winter predominant wind direction - at 2m/sec average speed - through mechanically operated openings, operated by wind detecting computerized management system.

4.43

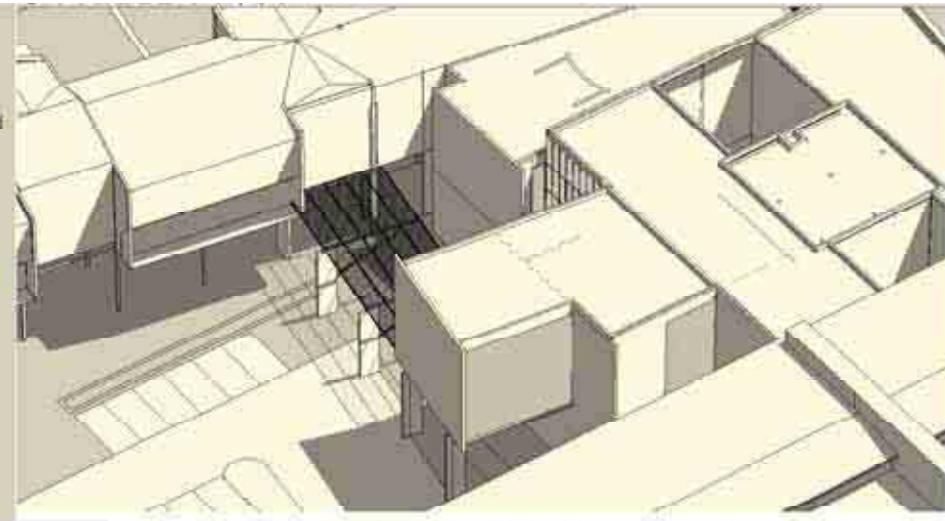


Section A-A: SE Summer and SW winter predominant wind direction - at 2m/sec average speed - through mechanically operated openings, operated by wind detecting computerized management system.

4.44



4.45 Hierarchy of space must not only be expressed through layout of functional internal spaces, but through the formation, and size of open spaces.



4.46 Linear walkway through development, to university pedestrian entrance. Continuity of linkage.



4.47

Creating perceptions through form

- Spatial structuring elements- allowing the experience of space 'within'
 - The liminal thresholds- dividing while bringing together
 - Thresholds - defining hierarchy of public spaces:
 - Burnett Street
 - Proposed 'university square'
 - The tourism department
 - Internal university
- Thus, the development becomes defined as the **interface of the campus**, between itself and the urban district on the activity spine...

3. CONCLUSION

The research has revealed the influence that “spatial configuration and delineation” has on human behaviour, in addition to an ability to measure the location and extremes of spatial thresholds and envelopes. The study also establishes that human behaviour is influenced by “form positioning and articulation,” enabling an analysis of the human subconscious and fore-conscious perceptions.

For example, the current spatial threshold of the university (site), does not read as a point of entry, but rather as a prohibiting verge to an inaccessible region. The university is thus perceived as an unapproachable region apart from a whole. With this in mind a building can be designed to manipulate human perceptions as required by the brief.

Inherent in the process of interpreting the idea of phenomenal transparent urban compositions, is that of mediation. Ambiguous spatial relationships are sought through the overlapping of the parts (university and district) both spatially and functionally, thus exploring the concept of phenomenal transparency. By establishing an order in terms of how the various parts relate to one another, it becomes possible to recognise not only the basic parts, but also those between produced by their interaction. As a designer one has to be careful not to simply apply concepts without interpreting them for the context concerned. The project does not call for the pictorial response defined, when applied to architecture, by the originators of the concept Phenomenal Transparency. The dilemma in addressed in this dissertation is ‘urbanistic’, thus the concept must fulfill these needs.

The architecture of the project requires an articulation of various spatial components that induce different perceptions, as the currently untapped market of users enter and then move through the development's thresholds into an architectural translation of liminality.

From a site intervention, a greater awareness is made possible, beyond the current situation, of the university's existence and relevant position within the area.