

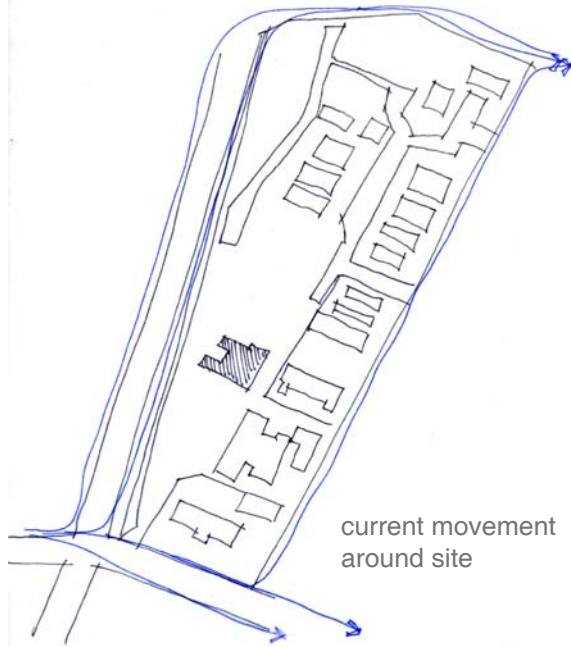
Now that the points on the line have been added and a line, our melody in the making, has been created, they are still lines and might or might not move about harmoniously. At this stage they are just paths that would ideally be used by people to walk along – to have them actually do this these melodies/lines of movement will have to be made harmonious.

To make a melody/movement harmonious, the spaces it passes through must be harmonious. The more harmonious the movement along these lines, the more chance of people actually walking there and having meaningful and perceptive movement. For just normal walking the magnets, proper roof and wall plane with correct proportioning are enough to ensure harmonious movement along that path. There can be repetition in the type of roof plane, as the type of movement remains the same along that path towards the building and the square and only at deciding points should the roof or wall planes change.

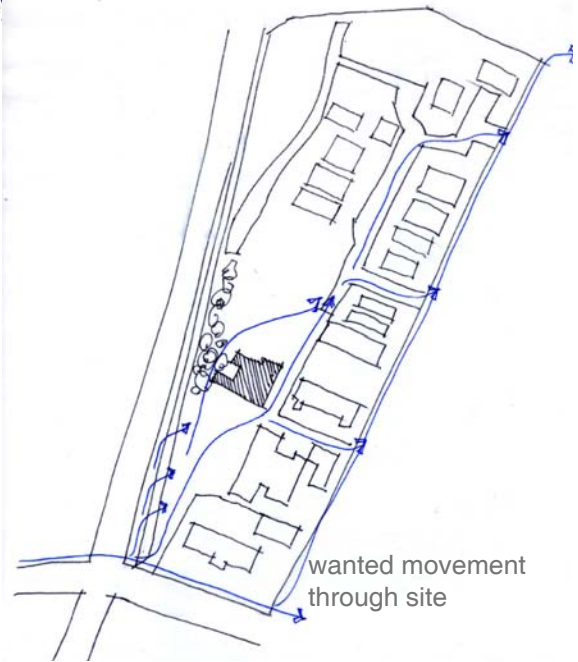
Now that the wanted movement has been laid out on the site and the entrances and exits have been decided on, some kind of plane can be generated from the lines that run through the site. This plane would be the footprint of the building and be generated to take movement, and thus the melody flowing through the site, into account. From this perspective it can be seen that:

- the main building mass will lie on the eastern side of the site to allow an open square on the western side just after the slope
- the MOTH club seems to hamper movement and will have to be bridged or incorporated to make it part of the site and allow the melody to flow on it
- the building itself will have to be open on the southern side of the MOTH wall to aid movement around the club and out of the precinct
- there is already a distinct possibility to distinguish between public and private space, formalised and informalised movement, all with their own requirements of the kind of melody that wants to flow there
- some kind of more solid edge will be necessary towards the N-W side of the slope, around the height of the MOTH club, to give the precinct a strong character and prevent the spilling of the melody down the slope all along the eastern side of Nelson Mandela Drive, thereby creating disorientation

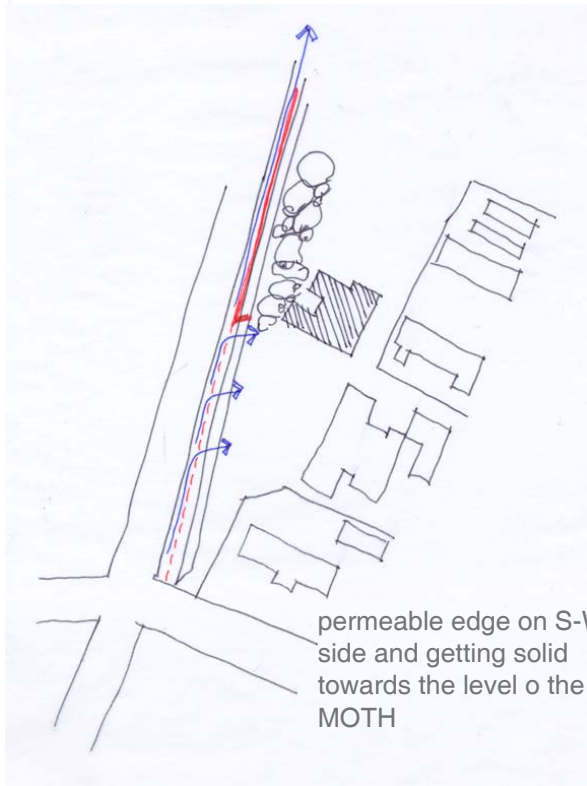
13  
plane



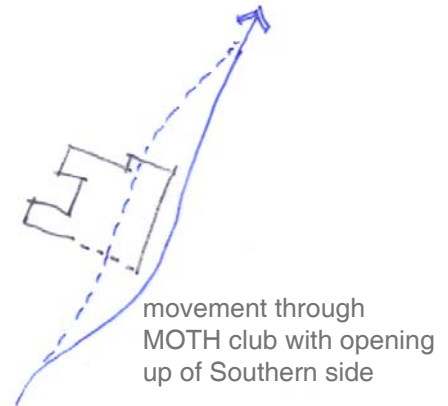
current movement  
around site



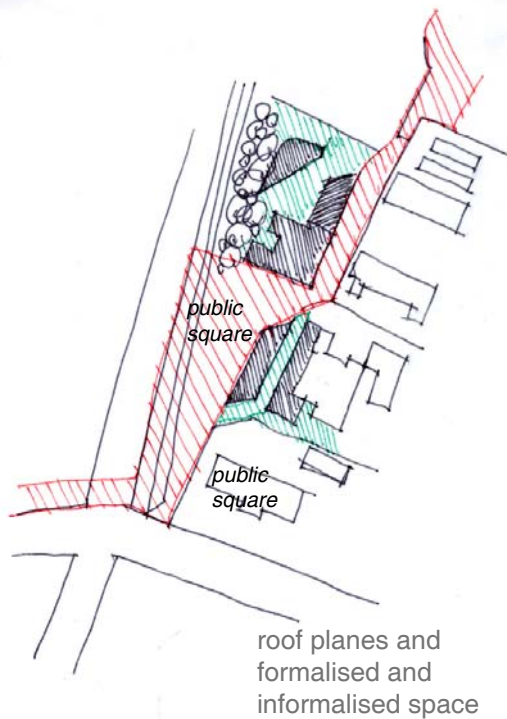
wanted movement  
through site



permeable edge on S-W  
side and getting solid  
towards the level o the  
MOTH



movement through  
MOTH club with opening  
up of Southern side

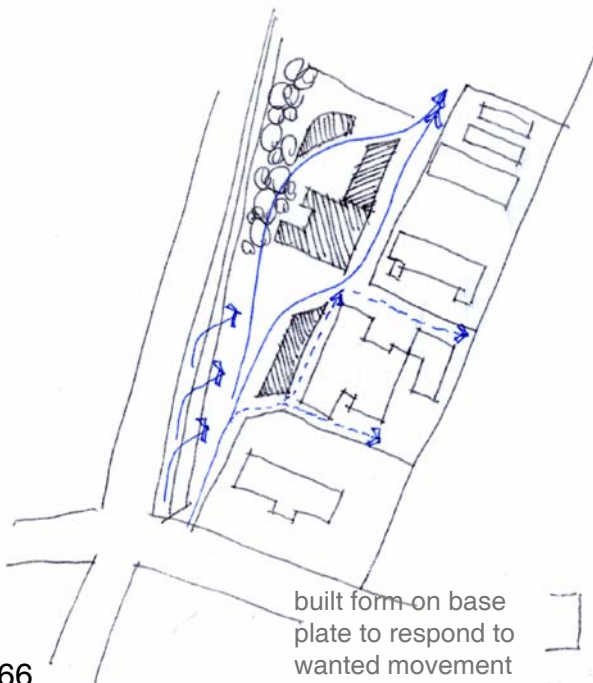


The design of the public square is vital for harmonious movement. The movement is drawn harmoniously to the site and there it must be kept harmonious. Public space - and especially in the city - should be of greatest importance in any project that has to respond to the public realm. As Jane Jacobs (Jacobs, 1961: 211) puts it a person needs to feel personally safe and secure on the streets amongst strangers. When people fear the streets they use them less, which makes them more unsafe. There needs to be:

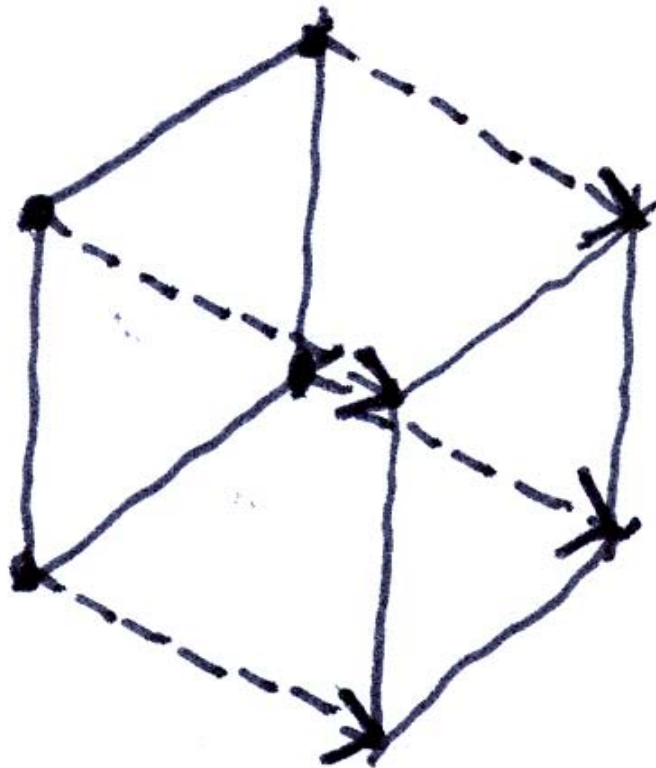
- clear demarcations between public and private
- eyes on the streets (other people or cameras)
- sidewalks with continual flow of users during all times of the day

Something must be offered to people to draw them there. This should be some kind of magnet that makes them want to walk past and cross the square on the way to their final destination. Including various types of activities during all times of the day does this. Video projections on the big screen are seen from far away and draw them there. The artisans from the workshops perform work outside, the community workshop attracts people and there are shops, restaurants and space for informal trading.

"Sittable" space is more important than the amount of space or its shape and Whyte asserts that "people tend to sit most where there are places to sit" (Hillier, 1996: 115), meaning that it is difficult to spoil a public space. The depth of the seating is important, which will be around two bums deep. For this purpose steps are the ideal solution and these will be of concrete. Again, people will want a roof plane where they sit, which is a removable shade net running on steel trusses. This gives the square a "stadium atmosphere" with many different activities on the square and enough seating available to watch this activity. Benches are inefficient and do not allow for many people to sit on them. People tend to sit on the ends and seldom will someone want to sit in the middle. Benches are reserved for the semi-private zones on the site.



Active surveillance is an easy addition, where the big screen on the wall can be used to project offences and make criminals think twice before committing an offence. This makes the type of protection light-hearted, as the screen will be showing people walking, which is either for purposes of the study of movement (the function of the building), or for the purpose of preventing crime. A camera surveillance spells control AND care, proscription AND protection and this balance needs to be kept. Improved detection is one thing, but deterrent qualities are even stronger.



The design is now at a stage where the nature of a point has been discussed, as well as how this character stems directly from the context it sits in. When this point is set in motion, a line is created and this line, this line of movement, is compared to a melody and the character of this melody is a result of the character of the spaces it moves through. The more harmonious the space, the more harmonious the melody and thus the more harmonious the movement of the people passing through the spaces. The more harmonious the movement, the better the perception. These melodies/lines of movement are drawn over the site and represent the ideal movement of people and certain parameters already exist to make this harmonious. From these melodies/lines of movement a plane can be generated, a footprint of the building. Point gave line, line gave plane and now plane will give volume.

14

volume

# PROPORTIONS

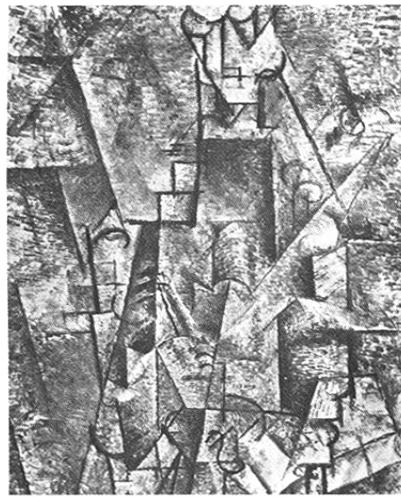


Plate 59 Pablo Picasso, *The Clarinet Player*, 1911.

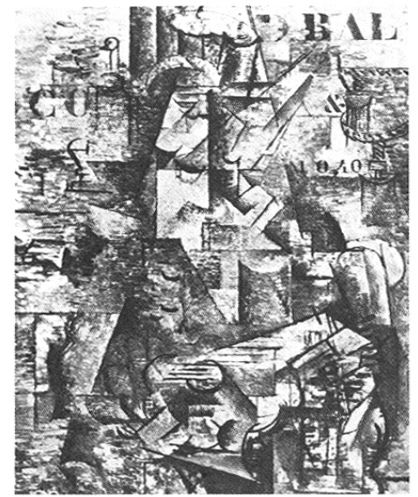


Plate 60 Georges Braque, *The Portuguese*, 1911.

To explain the making of volume, elaboration is needed on an idea that has already appeared in this text. This is the concept of proportion. Many a designer does not understand the freedom that a system of proportioning can offer. Too often it is seen as a formula that is followed and evolves a design without any intervention of the designer. But that is exactly what le Corbusier fought against in his own office, where his staff often let the Modulor do the design for them and not they themselves. Similarly, Karl Jooste used his 13-series Modulor only to finish his design, working as he would design anything and then taking out the series to finalise measurements. What makes the proportioning so important is that it instils the space with the touch of human proportion. The Modulor has not been referred to as a “humanisation of space” in vain, since it is based on the proportions of a human. All the measurements are representative of proportions that are comfortable to a human. This size might have been chosen arbitrarily, in this case the height of an English officer, but it is the relation between the parts of the human body that is important. This makes this system so suitable and universally applicable. It makes the beautiful and comfortable easier to reach.

The way to design space as a vessel for a melody to move through harmoniously, is to make this space take on natural and human proportions. For me the most powerful way to do is to employ a system that aids me in this. Together with this, these spaces also need to have the correct balance of pitch, duration, loudness, timbre, rhythm, harmony, phrasing, and orchestration and here the detailing also becomes important. Whereas in the movement outside there could be a certain amount of repetition, here a more detailed look at the different spaces is needed.

*“...but, you may ask, does the visitor actually experience these proportions? The answer is yes – not the exact measurements, but the fundamental idea behind them. You receive an impression of a noble, firmly integrated composition in which each room presents an ideal form within a greater whole, you also feel the rooms are related in size. Nothing is trivial, all is great and whole!”*  
(Rasmussen in Ching, 1996: 270)



# TRANSPARENCY

Another concept that should be a guiding factor in producing a building form that aids harmonious movement is the idea of transparency. As mentioned, the parameters of pitch, duration, loudness, timbre, rhythm, harmony, phrasing, orchestration and proportioning, which determine the character of the spaces, are only applied after the bulk of the design is finished. Before that the building is designed according to some general principles of good design, such as context, technical, acoustics, climate, detailing, energy usage, lighting, services and general functionality. Along with these there are some non-quantifiable principles that should be taken into account, being the intersection of volumes and transparency.

Rowe (1976) distinguishes clearly between two types of transparency, namely literal and phenomenal. He compares Pablo Picasso's *The Clarinet Player* (1911) to Georges Braque's *The Portuguese* (1911) and describes Picasso's painting as a pyramid with strong border, separated from its background and shallow space, not allowing the viewer to go deeper into it. Braque, on the other hand, introduces interlocking horizontal and vertical gridding with gaps and subsiding planes, thereby creating a primarily shallow space, inviting the viewer to be drawn into the painting until the final figure is revealed. When looking at the Bauhaus (1926) by Walter Gropius versus Le Corbusier's Villa at Garches (1927) the first one is seen as an example of literal transparency. The glass curtain wall performs the function of just being a translucent plane without concealing any further series of volumes behind it. The visitor sees the whole building in one without wondering what further depth lies in the planes. Garches, on the other hand, has different planes running parallel to one another, firstly the front glass plane (meeting the slab in such a way without clear mullions so as to wonder whether the slab carries something behind

it), then a narrow slot of space that runs parallel to the glass plane, the rear wall, running parallel to the other two and many smaller planes in between. As Rowe puts it "...transparency is effected not through the agency of a window but rather through our being made conscious of primary concepts which interpenetrate without optical destruction of each other" (Rowe, 1976: :168).

There is a contradiction between spatial dimensions, interaction between fact and implication, between deep and shallow space, between horizontal layers and vertical ones. It is not about just having a succession of spaces, but rather about having contradictions in the spatial dimensions of these. These ideals should be another

*"If one sees two or more figures overlapping one another, and each of them claims for them the common overlapped part, then one is confronted with a contradiction of spatial dimensions. To resolve this contradiction one must assume the presence of a new optical quality. The figures are endowed with transparency: that is they are able to interpenetrate without optical destruction of each other. Transparency however implies more than an optical characteristic, it implies a broader spatial order. Transparency means a simultaneous perception of different spatial locations. Space not only recedes but fluctuates in a continuous activity. The position of the transparent figure has equivocal meaning as one sees each figure now as the closer, now as the further one." (Kepes, 1944: 77)*



driving factor behind arriving at volume.

The easiest way to put down movement through a building is to briefly look at the plan, which described the movement on a horizontal level and was the movement on the bottom plane. Once this plane is projected vertically, a section will be the most powerful tool to determine the movement in the volume.

The floor plane still remains important to understand at which points the melody/line crosses the path of the building and from where it can be taken into or through the building. From those points the section will have to tell where the melody/line of movement flows from there.

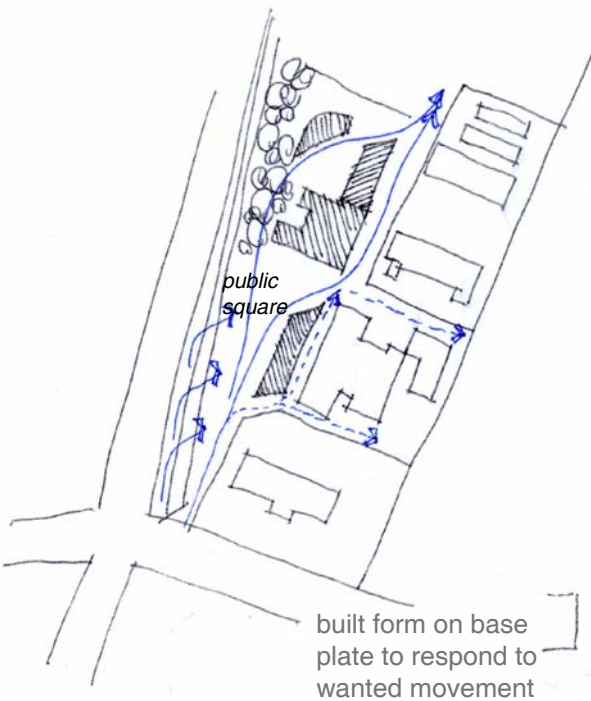
Here, the program of the building becomes the main determining factor in where the melody/line flows.

A look at the initial diagram will help to determine this. From this point onwards, the design process will follow naturally with the building being designed to fulfil all requirements of the program in terms of size of zones and inherent functions and good principles of context, technical, acoustics, climate, detailing, energy usage, lighting, services and general functionality. The guidelines of intersection of volumes and the phenomenal transparency also guide the decisions. These factors are necessary in any building for harmonious movement and cannot be added afterwards, because of the fundamental space and decisions these require. All the rest, the pitch, duration, loudness, timbre, rhythm, harmony, phrasing, orchestration and proportioning are only added later. They are used to finalise the design, used to make normal movement harmonious – a small yet very deciding factor.

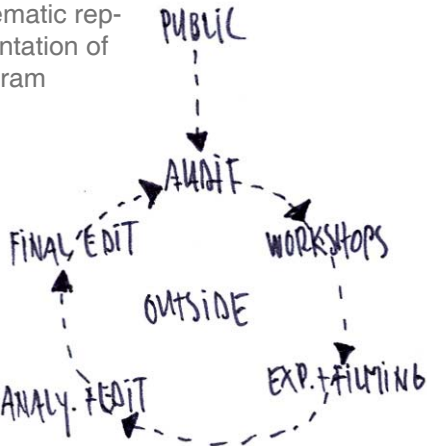
In all of this it must be seen to that the final form of the building still conforms primarily to good design principles and functional requirements. This method of design is just an aid to good design and will never replace skill or intuition, something that was already learnt in the first failed attempt. Just like the proportioning system is used to finalise design and make good design better, only coming in right the end, so this method will be used at the end to



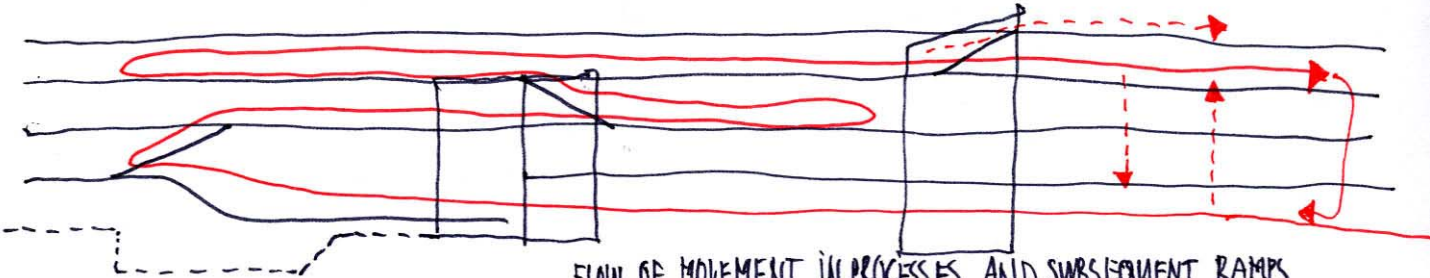
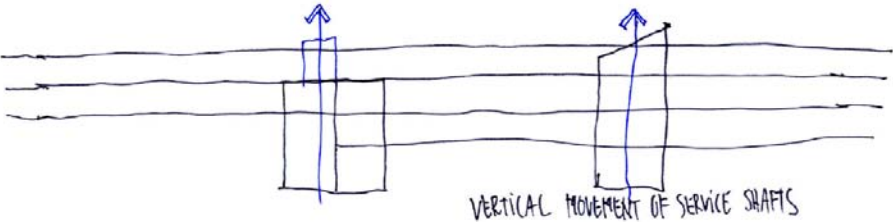
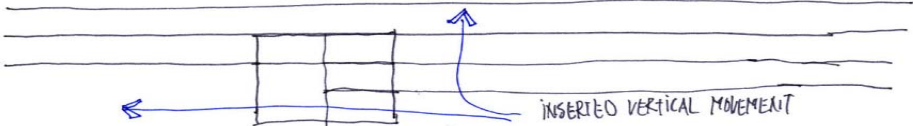
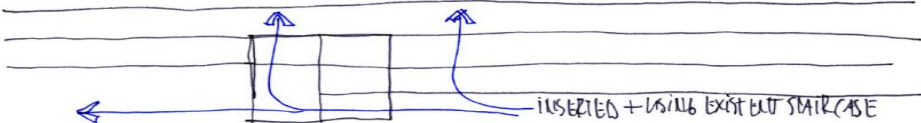
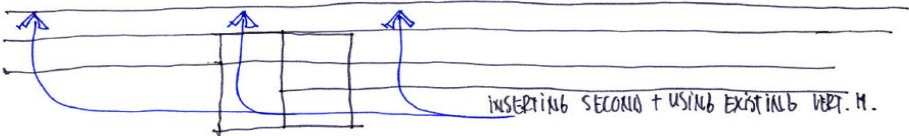
using the floor plane as developed from the existing and wanted movement on the site and having the resulting footprint of the building mass (and open public square) as a starting point from where to project this floor plate vertically and get to volume

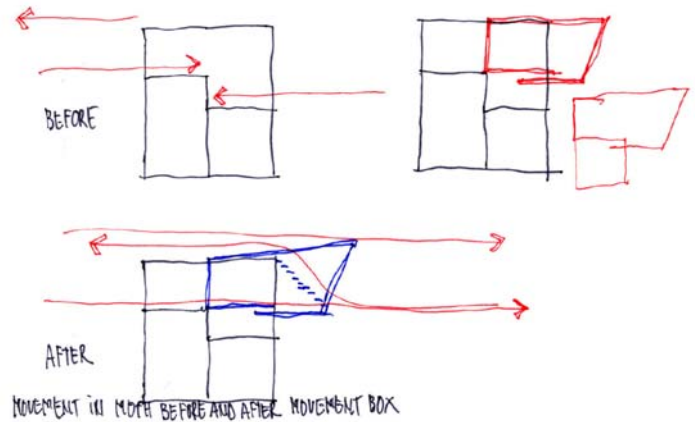
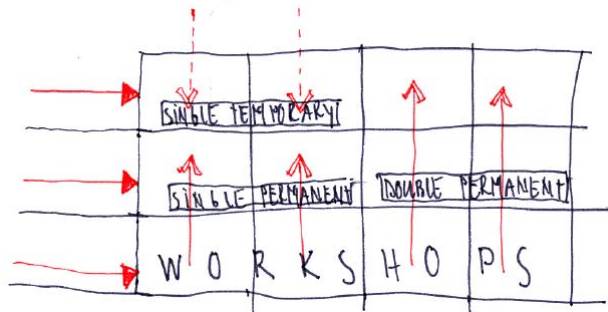
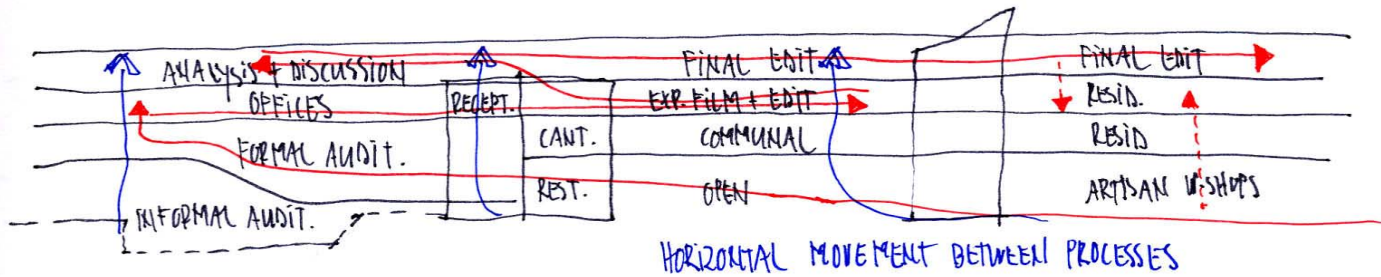
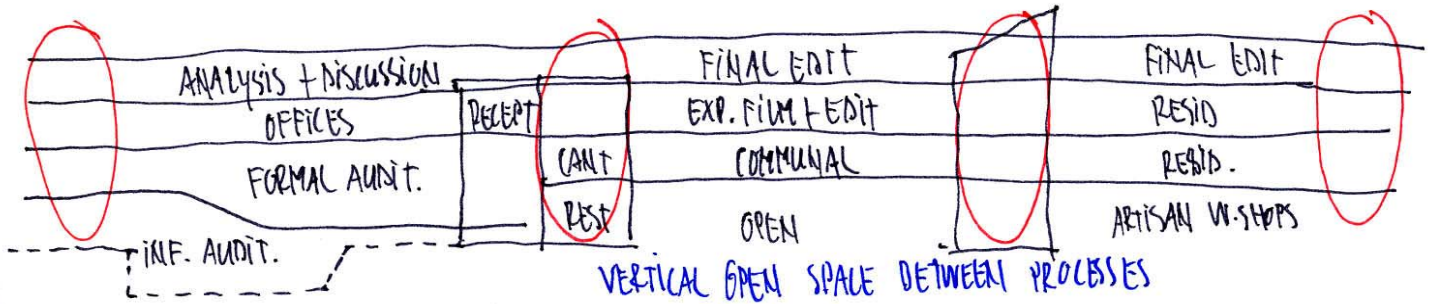


schematic representation of program



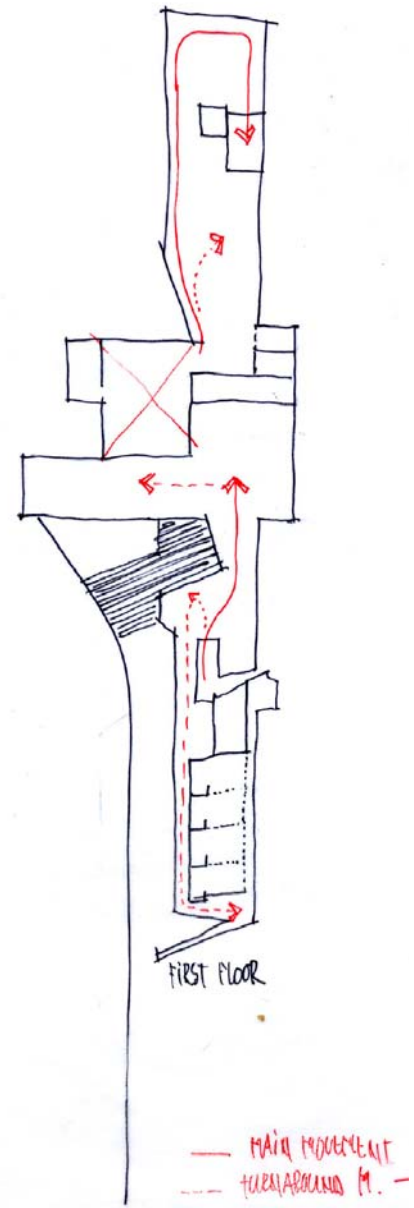
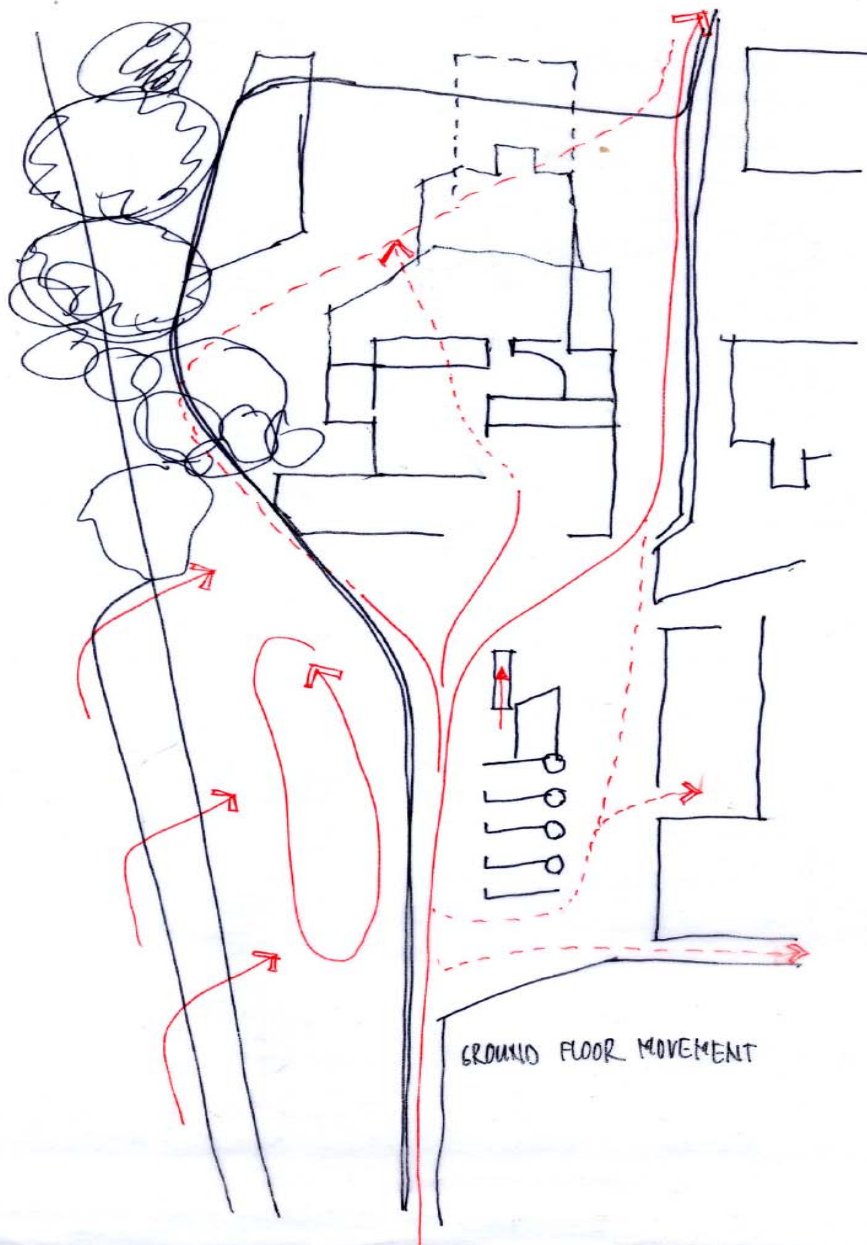
starting point at the foot of the MOTH club from where movement can be drawn vertically



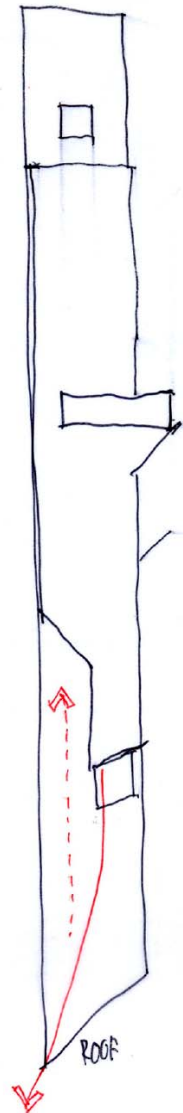
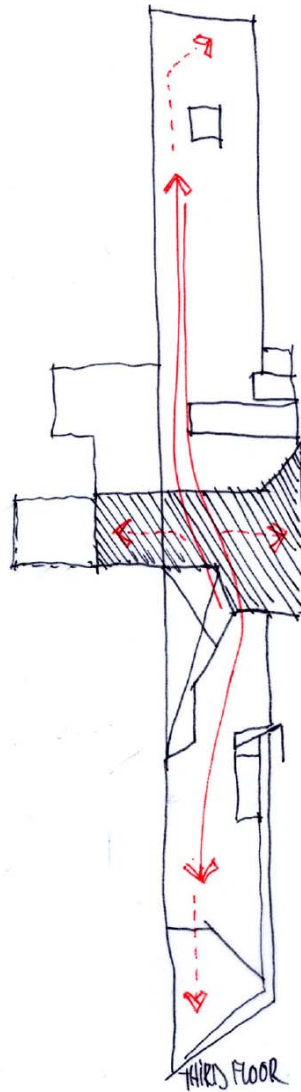
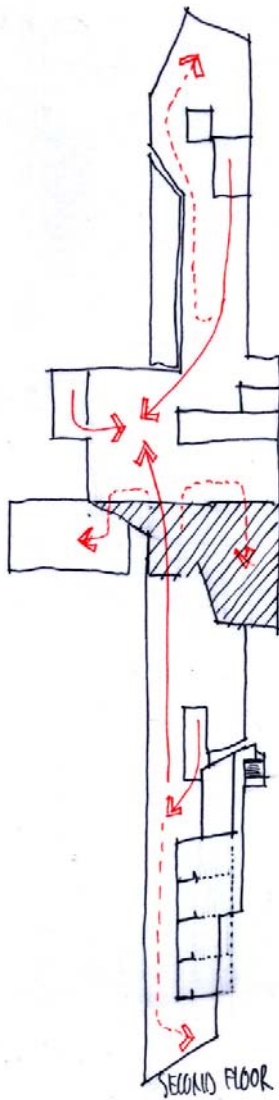


University of Pretoria – Meyer, M G (2005)

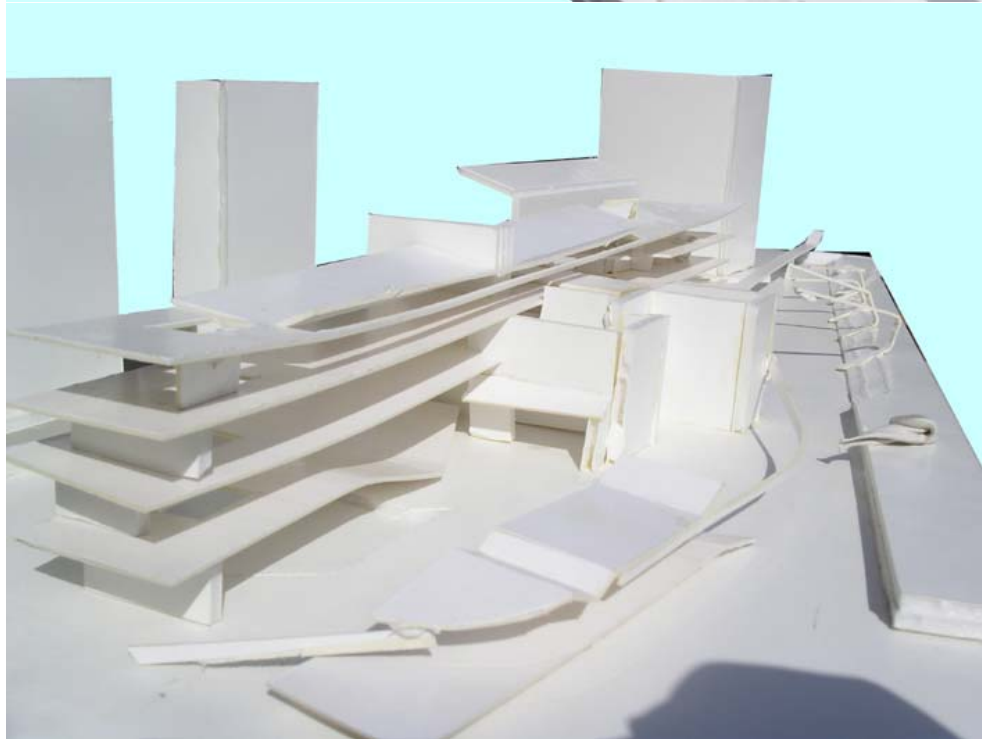
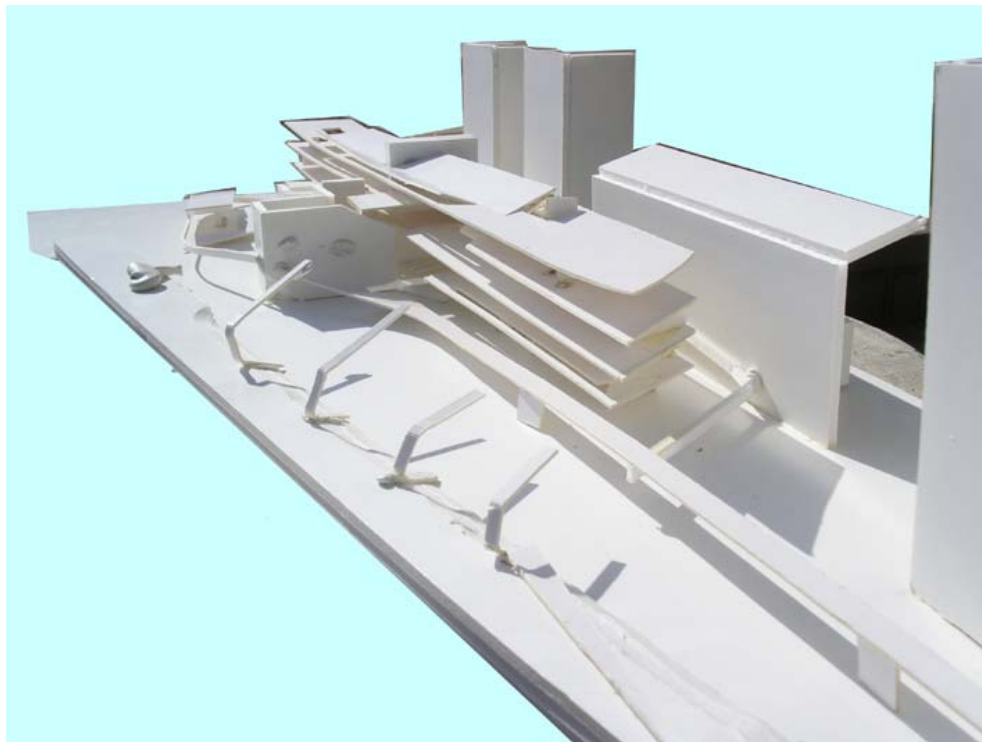
melody/movement drawn into building on ground floor and then passing through the other floors. solid lines represent main melody/movement, dashed lines secondary.





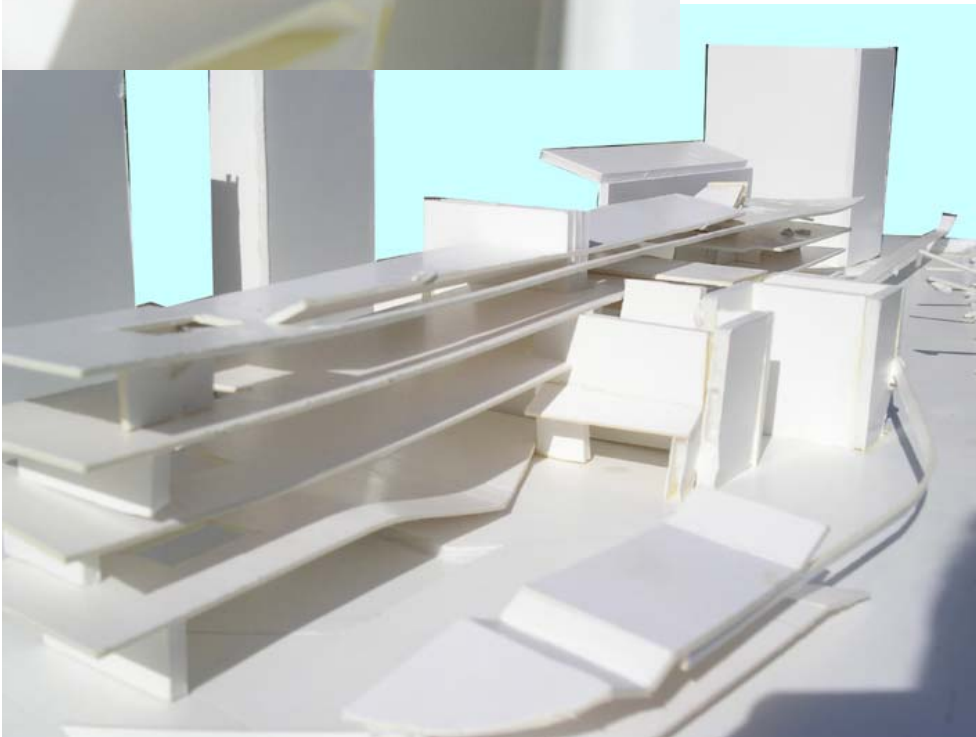


Now it is possible to look at some design principles that were used in the design. Please note that most of these are also dealt with in the chapter on the technical resolution. This should go as no surprise when one considers the technical as an integral part of the design, just as the design resolution is embedded in the technical requirements.



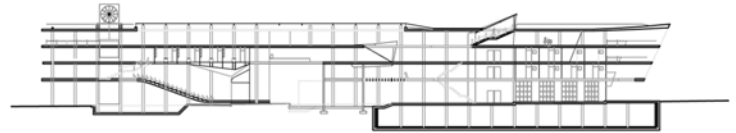


## CONCEPT MODEL

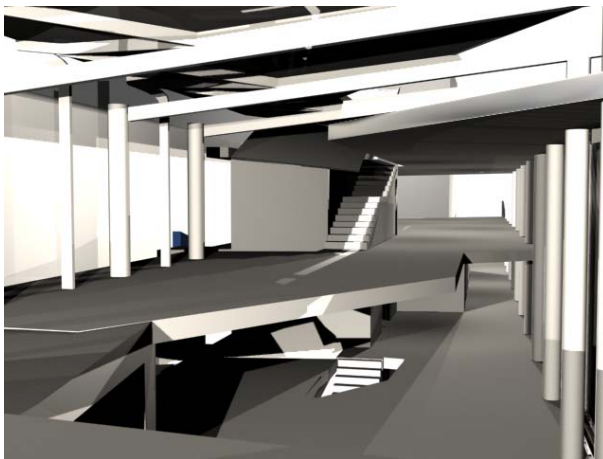


# TRANSPARENCY/INTERSECTION OF VOLUMES

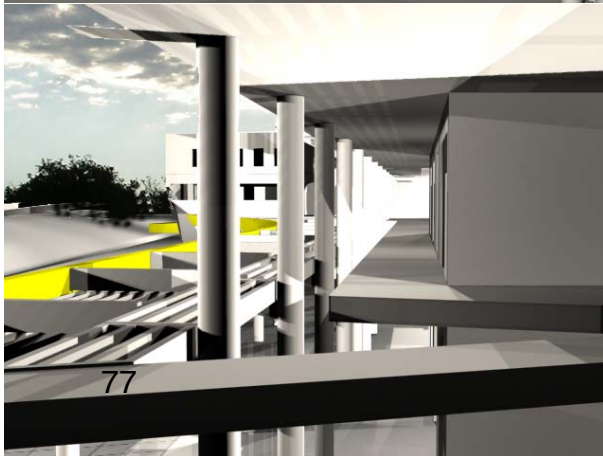
Transparency and the intersection of volumes were one of the main guiding factors during the design to ensure the possibility of harmonious movement before the more specialised analysis gets applied. It is not about just having a succession of spaces, but rather about having contradictions in the spatial dimensions of these. This would mean moving from single to double volume, open to closed, inside to outside, light to dark. It would also mean different planes running parallel to one another, both horizontally and vertically.



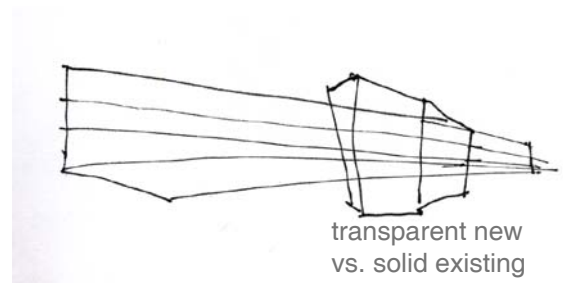
the building itself is also an example of transparency, showcasing the program and the processes going on inside with its structure

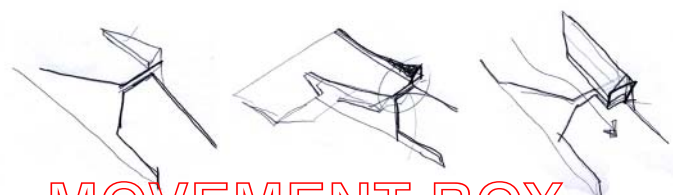
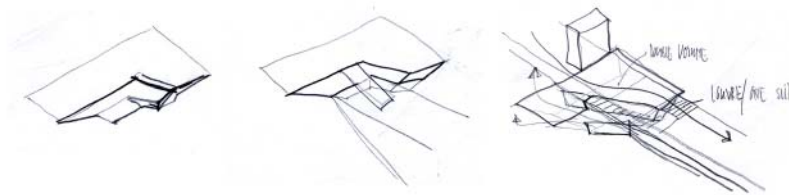


slabs cut back to create open volumes; columns run two storeys; flat concrete roof dipping under sloping wood roof; staircase punctures slabs; large window planes for play of inside and outside



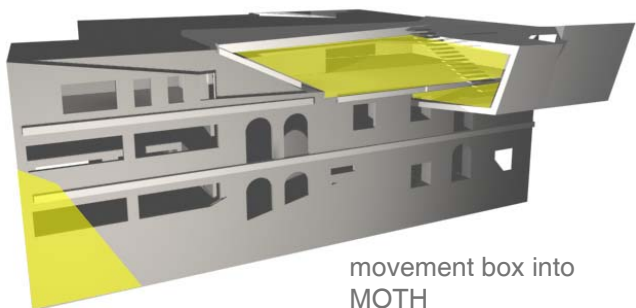
slab opens up to free volume and let columns intersect both floors; play of inside and outside



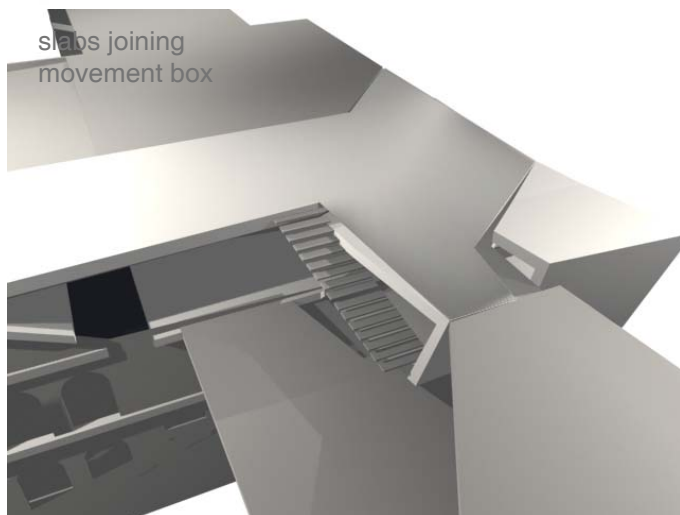


## MOVEMENT BOX

After the movement inside the building had been laid out the movement box was one of the first interventions needed to integrate the MOTH club into the building and make the new movement work. The MOTH has been altered over the years and strange floor levels were the result. The movement box looks to address this and not only make the whole building work better, but the MOTH too. Because of its solid nature it is also the perfect position for the sound studio and dark room. More detailed information is in the technical section.



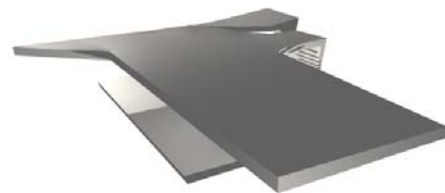
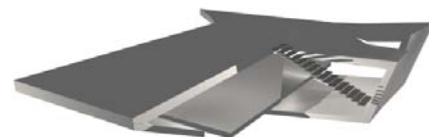
movement box into MOTH



slabs joining movement box



movement box into MOTH

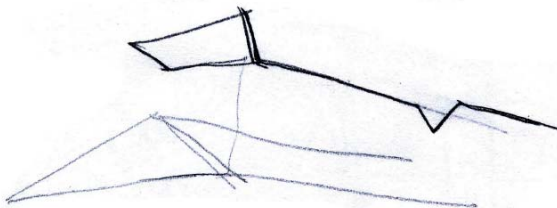


# CONTEXT

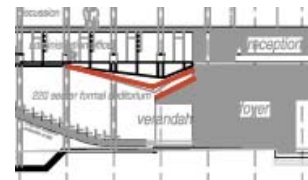
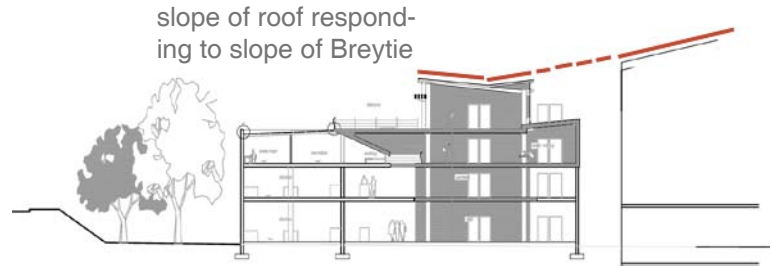
To respond to the existing on the site is vital for the success of any project. It takes too much effort, energy, time and money to try and work against the existing. A point will always want respond to its context and bring about a line, plane, volume that looks like that. It would be wrong to try and force the point into something else. This design responds to planting on the site, to the slope of the dip, the height of surrounding buildings, the existing facilities on and around the site.

It cut the MOTH club where it made sense in terms of windows to be kept, slabs to be joined, made the double volume foyer the entrance hall for the cinema and used the stoep and the roof over it as an integral part. The existing column grid was taken note of and followed, except in one place where this is celebrated with a non-standard roof truss.

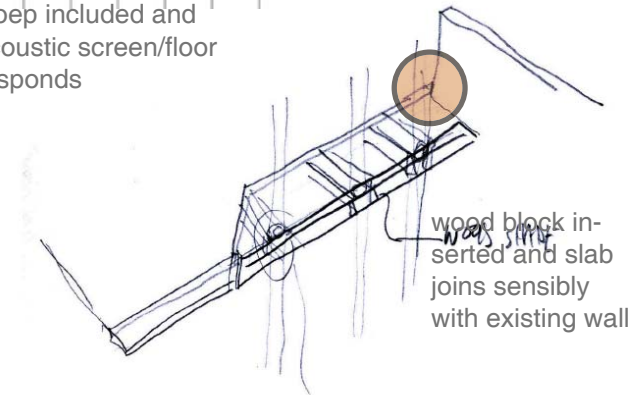
The wood block that was inserted into the concrete slab responds to the context of the trees next to it and at the same time ensures that the concrete slab joins the MOTH sensibly to let a wall cut into the building. Its underside doubles as an acoustic screen for the auditorium underneath. More detail in technical section.



community wood workshop responding to context of trees it lies in; made entirely out of wood



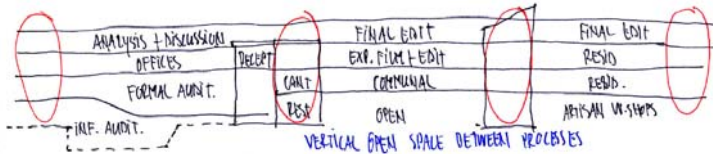
stoep included and acoustic screen/floor responds



wood block inserted and slab joins sensibly with existing wall

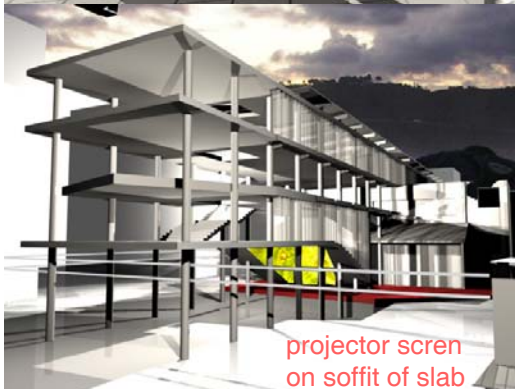
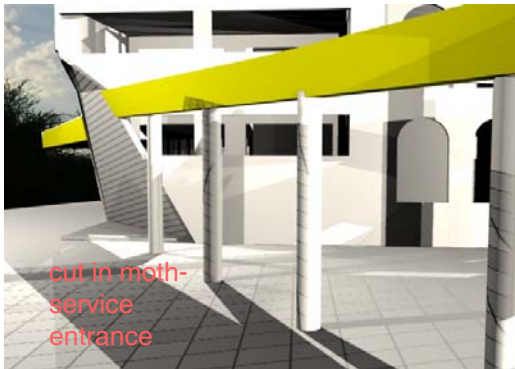


## OPEN SPACE



Open space, as already mentioned, performs a vital role in the program of this building. Thus it was seen as a design priority to design these open spaces and make them harmonious. They are designed in terms of what kind of open space they are (who is there and for how long) and then fine tuned to make them harmonious.

## DUAL PURPOSE



The multiple use of facilities for more than one purpose becomes integral in the long-term sustainability of a building. Here, underside of the seating in the auditorium becomes the screen for the informal auditorium, the facade of a hampering building becomes another screen, also solving the problem of providing a magnet and doing something with the repulsing facade. The floor of the wood block becomes the acoustic screen for underneath and the dramatic cut in the MOTHS becomes the pragmatic service entrance of the restaurant.



# CLIMATE

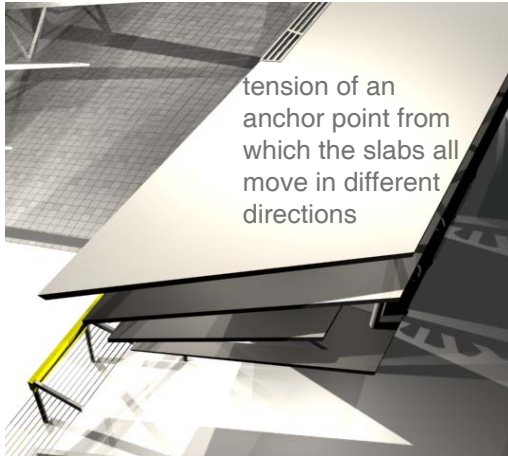
This will be discussed in more detail in the technical section, but it suffices to say that climate is - next to movement - probably the most important component of context. In times of global warming and energy crisis it is unacceptable to negate this issue. A building must be climatically sound, respond to the sun and rain and make these work to one's advantage. This building looks at external shading devices, water reticulation, wind energy, solar energy (both active and passive), existing and new planting, appropriate materials and building practices.

## LIGHT

Again, one of the core principles of good design is to understand and employ light correctly. Le Corbusier has already been quoted and it has been made clear how important light is in harmonious movement. This building employs a vast amount of daylighting, the best and most natural form of light. A system of louvres and planes is needed to make this light qualitative and not only existent. Volumes and forms come to life, the building starts to breathe.

Artificial light on the outside for evenings is also important and a system of fluorescent lights and lighting on steel cables runs through the site on the melody/movement path and adds the pitch needed to move along harmoniously.

## HONESTY



Honesty is similar to transparency in showing what is going on inside the building. The section of the building shows what is going on inside and the structure is exposed - beams are left open, trusses show, columns puncture through the roof and slabs run as the forces are transmitted.

## EXPOSE MOVEMENT

Honesty of movement is also important, the section showing where movement goes, where ramps, staircases, slabs travel and essentially where people, being on the line of the melody, move.

## TENSION

Tension is what makes a building interesting, makes parts relate to one another, is the epitome of movement in a structure. In this project there is tension between the old and the new, cutting open existing, slotting into existing slabs and column grids. There is tension between the wood block and the concrete slab it is inserted into, between the wood roof and the concrete roof, between the concrete slabs and the brick shaft that cuts them, between open and closed. The movement box is in constant tension, outstretching its arms to hold the old building in the one hand and the new structure in the other.

