



# the earwitness

listening through the personal geography of  
objects

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## Note of Thanks

## Abstract

The Earwitness endeavours to explore the sonic qualities of the city, the spaces that sounds occupy and possibilities of how these spaces can be inhabited. The ability of sound to travel around corners and through walls led to a process of urban exploration within the Pretoria Central Business District that identified a diverse range of ‘inbetween’ spaces that are not traditionally seen as inhabitable.

The diversity of these spaces led to the development of an architectural strategy based upon the chair as a spatial device. Its ability to be interpreted on an individual level and employed in the widest range of scenarios makes the chair an ideal candidate to respond to the unique acoustic qualities of the spaces identified.

The chair is thus seen as the earwitness to the acoustic qualities of the city and, through a process of transformation and mutation, begins to respond spatially to the personalities of the spaces encountered, taking on mythical personalities of its own. Through occupying the inbetween spaces of the city block, the chairs become a subversive inhabitant of the city – locating spaces that can be listened to.

The investigation of the chair as a spatial device is grounded within a sonic festival scenario for the city of Pretoria that aims to re-establish the relationship between the user, sound and the spaces of the city. The festival is operated from a proposed infill typology that completes a more traditionally architectural element to the thesis, whilst maintaining the initial conceptual integrity of the exploration.

The process of critical investigation and exploration followed in the thesis aims to reveal methods with which architectural-acoustic installations can promote user engagement with, and awareness, of the city. The Earwitness thus explores the fictions and fragments inherent in the experience of the city through probing the effects of audio culture and architecture. It hosts a set of curious confrontations between the field of the real and imaginary through a collection of quasi-cultural artefacts. These artefacts range from object to installation to event and engage the auditory aspects of the city – questioning the role of design in an immersive world in which freak mutations and mistakes are the norm, perhaps even the key, to success.



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## An Incomplete Manifesto for Interior Architecture

The broad term of architecture can be defined as any purposeful intervention into architectural space, and thus includes the various architectural disciplines of architecture, interior architecture and landscape architecture. The nature of these interventions is not necessarily a physical one, or permanent, although it is through them that the world around us is interacted with and understood; given meaning. When the term architecture is used within the document it is usually in its broadest capacity, as outlined above.

Interior architecture is a discipline that is difficult to define, being both young in age and wide in scope, as well as continually striving to differentiate itself from the practices of interior design and decorating. Critically, however, the practice of interior architecture strives to interrogate the relationship between space, user, and object.

The interventions of interior architecture contribute to how a space, within an envelope of architectural space, is understood and occupied. It is a combination of spatial form leading to spatial effect that encompasses structure, form and materiality. It creates environments that provide for the functional and emotional needs of its users. It is experience constructed by form, but understood through effect. It is therefore important to recognize that form is not the endpoint of the design, but rather a side-effect of the process of the design. This view posits architecture, landscape architecture and interior architecture as a process of inquiry that endeavours to establish a laboratory condition.

The very nature of interior architecture, being less temporally bound, allows for more dynamic and fluid interventions than traditionally perceived as architecture. It is through these interventions that the users' sense of space and place is heightened and they are engaged in the actual experience, and production, of space. Traditionally, the designer's work begins after the content of the project has been decided, thus deciding

how things are said rather than what. Through extending the role of architecture to encompass critical interrogation, architecture begins to engage with culture more directly, producing not form but content.

The production of said content can be achieved through a variety of means and scales and it is here that interior architecture displays its versatility and freedom, being able to intervene through branding, product design and spatial design. As such it needs to be cognizant of the fields outside of architecture including, but not limited to, graphic design and art. Indeed it is perhaps in the overlaps and collaborations between disciplines that the role of the interior architect can be more fully explored.

The intimacy of scale inferred by the space-user-object triad necessitates careful consideration of the ideas of interface and connection. This implies not only the physical means of connection between one material and another, but also a more ephemeral and intangible quality suggested through the design.

One of the most pertinent applications of interior architecture is the adaptive reuse and redirection of energies within existing spaces and structures. This aims to extend the lifespan of existing spaces by reengaging the relationship between user and space, either functionally or emotively. The reuse of existing spaces contributes to an overall ethos of sustainability that permeates any contemporary discourse on design.

The approach to interior architecture as outlined above aims to manipulate perceived boundaries between disciplines and proposes architecture as frame; a frame for questions, for activity and interaction, for conjecture and speculation. It is thus grasps at a more difficult and tenuous thing that perhaps does not point at specific answers but allows for the persistent interrogation of concept, content and context.





## An Incomplete Manifesto for Growth in Interior Architecture

(with apologies to Bruce Mau, 1998)

In 1998 Bruce Mau set down the beliefs, motivations and strategies of the Bruce Mau Design Studio. It is reproduced here in an edited format that can be applied to the practice of Interior Architecture.

### 1. **Allow events to change you.**

Growth isn't something that 'happens', it has to be engaged and produced. The openness to experience events and the willingness to be changed by them is a prerequisite of growth

### 2. **Design Events. Change Experience. Change People.**

### 3. **Forget about good.**

Growth is not necessarily good. Real growth is an exploration of unlit recesses that may or may not yield to research.

### 4. **Forget about Beauty.**

### 5. **Remember the bad.**

### 6. **Take everything you can.**

Learn from everything.

### 7. **Process is more important than outcome.**

When the outcome drives the process we will only ever go to where we've already been. If process drives outcome we may not know where we're going, but we will know we want to be there.

### 8. **Love your experiments.**

Work as beautiful experiments, iterations, attempts, trials, and errors.

### 9. **Go deep. Go thick.**

The deeper you go the more likely you will discover something of value. The more value you create the deeper the experience.

### 10. **Capture accidents.**

The wrong answer is the right answer in search of a different question. Collect wrong answers as part of the process. Ask different questions.

### 11. **Make mistakes.**

### 12. **Ask stupid questions.**

Growth is fuelled by desire and innocence. Assess the answer, not the question.

### 13. **Study. Anywhere.**

A design studio is a place of study. So is everywhere else.

### 14. **The necessity of production is an excuse to study.**

### 15. **Take field trips.**

Explore the internet, the movies, the TV, but never forget that the bandwidth of the world is greater than that of any media. Explore the city, explore spaces; open doors and climb through windows.

### 16. **Drift.**

Wander aimlessly. Explore adjacencies. Lack judgment. Postpone criticism.

### 17. **Daydream.**

Imagine the spaces where design isn't. Explore the possibilities and un-realities of paper. What if gravity wasn't?

### 18. **Harvest ideas. Edit applications.**

Produce a high ratio of ideas to applications.



### 19. **Slow down.**

Desynchronize from standard time frames and surprising opportunities may present themselves.

### 20. **Don't be cool.**

Free yourself from limits of this sort.

### 21. **Collaborate.**

Every collaborator brings an entire world more strange and complex than can be imagined. The space between people working together is filled with conflict, friction, strife, exhilaration, delight, and vast creative potential. Worlds folded on worlds, neither being the same again

### 22. **Listen carefully.**

Listen to the details and subtleties, needs and desires, ambitions and goals. Listen to everything and everyone, regardless of status and image.

### 23. **Design is Design is Design.**

Let everything influence and inspire you: film, music, automotive, graphic, product, art, gastronomical, nature, theatre, dance, material, clothing, designers, exhibition, event, conversation/dialogue

### 24. **Stay up late.**

Strange things happen having gone too far, been up too long, worked too hard, and separated from the rest of the world.

### 25. **Work the metaphor.**

Every object has the capacity to stand for something other than what is apparent. Work on what it stands for.

### 26. **Repeat yourself.**

If you like it, do it again. If you don't like it, do it again.

### 27. **Creativity is not device-dependent.**

### 28. **Use, abuse and misuse tools.**

Tools amplify capacities and reveal explorations, so even a small tool can make a big difference, whether used appropriately or inappropriately.

### 29. **Explore the other edge.**

### 30. **Stand on someone's shoulders.**

You can travel farther carried on the accomplishments of those who came before you. And the view is so much better.

### 31. **Don't clean your desk.**

You might find something in the morning that you can't see tonight.

### 32. **Make new words. Expand the lexicon.**

The new conditions demand a new way of thinking. The thinking demands new forms of expression. The expression generates new conditions.

### 33. **Scat.**

When you forget the words, do what Ella did: make up something else...

### 34. **Imitate.**

Don't be shy about it. Try to get as close as you can. You'll never get all the way, and the separation might be truly remarkable.

### 35. **Break it, stretch it, bend it, crush it, crack it, fold it.**

### 36. **Coffee breaks, Road trips, Film breaks, Shopping breaks.**

Real growth often happens outside of where we intend it to – take notes.

### 37. **Avoid fields. Jump fences.**

Disciplinary boundaries and regulatory regimes are attempts to control the wilding of creative life. They are often understandable efforts to order what are manifold, complex, evolutionary processes. Jump the fences and cross the fields.

### 38. **5 Senses... + 1.**

### 39. **Kipling's five faithful servants.**

They taught him all he knew: who, what, where, when, why, how.

#### 40. **Pay attention to the details.**

Small things amuse small minds... but perhaps some of the greatest things are built on the smallest details.

#### 41. **Scale.**

Consider scale, assess the situation, provide a relevant intervention. The changes between one scale and another influence how the whole is perceived.

#### 42. **Global and Local.**

#### 43. **Initiate.**

Initiate change, collaboration, investigation.

#### 44. **The Art of Looking Sideways.**

Alan Fletcher.

#### 45. **Have fun.**

#### 46. **Remember.**

Growth is only possible as a product of history. Without memory, innovation is merely novelty. History gives growth a direction. But a memory is never perfect. Every memory is a degraded or composite image of a previous moment or event. That's what makes us aware of its quality as a past and not a present. It means that every memory is new, a partial construct different from its source, and, as such, a potential for growth itself.

#### 47. \_\_\_\_\_.

Allow space for the ideas you haven't had yet, and for the ideas of others.



# Introduction



“We are challenged to solve two difficult problems when we build architecture in a simulated city. One is how we can create a work of architecture as entity while goods as entities are losing their significance, and another is how we can build architecture that endures time while local communities are nullified, and the network of communications via media appears and disappears instantly...

For the first problem, we are required to solve the question of how to make fictional or video-image-like architecture; for the second problem, we need to learn how to make ephemeral or temporary architecture. I do not mean that architecture should be replaced with video images or that temporary buildings should be used. We should rather build fictional and ephemeral architecture as a permanent entity.”

Toyo Ito (in Taylor 1997:236)

▲ Fig. 1 (previous page)  
*The earwitness, mark 1*

Architecture currently finds itself in a difficult and unfamiliar position: having always held the esteemed position of providing the theatre for human interaction and embodying the physical manifestation of a prevalent paradigm, it now finds itself burdened by its own materiality and unable to keep pace in a new era of immediacy and connectivity. In the traditional sense of enclosing and demarcating a certain programme, architecture has become awkward in respect to the way contemporary life is conducted.

The experience of the city, however, has always depended more on the ‘soft’ than the ‘hard’. Indeed “...the soft city of illusion, myth, aspiration, nightmare, is as real, maybe more real, than the hard city one can locate in maps and statistics, in monographs on urban sociology and demography and architecture.” (Raban 1974:2). It is a place where we loose and find ourselves continuously – often waiting for us to imprint ourselves and our identity upon it, whilst never feigning to neutrality itself. It is often the ‘imaginary’, existing in text, photographs, paintings and song – the spaces of perception and interpretation – that maintain, or provide, experiential importance and memory.

*The Earwitness* endeavours to explore the fictions and fragments inherent in the experience of the city through probing the effects of technological media, audio culture and architecture. Sound and the city, the spaces these sounds occupy, and possibilities of how these spaces can be inhabited

form the basis of a parasitic insertion within the existing built fabric. It hosts a set of curious confrontations between the field of the real and imaginary through a collection of quasi-cultural artefacts. These artefacts range from object to installation to event and engage the auditory aspects of the city – questioning the role of design in an immersive world in which freak mutations and mistakes are the norm, perhaps even the key, to success.

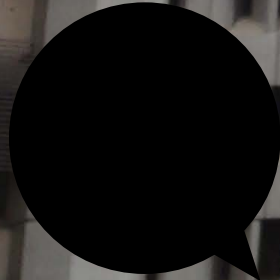
## Project Brief

Working within the Pretoria CBD the thesis follows a process of critical investigation and exploration that aims to reveal methods with which architectural-acoustic installations can promote user engagement, with and awareness of, the city.

## Research Questions

- How do we relate to the each other and the city through sound?
- How is sound art approached from an architectural/spatial perspective?
- What would be the most appropriate architectural strategy with which to respond to the open field of sound?
- What is the connection between object (fast), environment (slow) and sound (resonant)?
- Can an augmented object provide the basis for the re-use of abandoned and forgotten inner city spaces?
- Is it possible to inhabit the lost spaces of the city through acoustic-architectural installations?

► Fig. 2-3 (following spreads)  
*Spaces speak, are you listening?*  
 Digital Collage of buildings on Vermeulen Street, Pretoria CBD.





**spaces speak,  
are you listening?**



# Theoretical Framework



## The Contemporary Urban Condition

Electronic media has enveloped the world, connecting anybody, anywhere, anytime. It has fundamentally changed the way in which information, both public and private, is sent and received, and has thus restructured the relationship between physical place and social place, and the way social space is inhabited. As a result, the physical structures that divided society into many distinct *spatial* settings have been reduced in social significance (Meyrowitz, J. 1985:vii). The resultant homogenized places and experiences have become common denominators that link all of society regardless of status (Meyrowitz, J. 1985:viii) – “wherever one is now - at home, at work, or in a car – one may be in touch and tuned-in” (Meyrowitz, J. 1985:308). The planning of Modern cities has also contributed to the downfall of true public space, being predicated on “the erosion of public space and the proliferation of spectacular media” (Fernandez, M. 2007:80). Socially oriented activities have been shunned in favour of places of commerce and production; in essence the mall and the factory have replaced the public square. People no longer *participate* in public space; they are merely *customers* in it and thus shirk many of the responsibilities necessary to maintain *place* on a variety of physical and metaphysical levels (Atelier Bow-Wow in White 2009).



▲ Fig. 5-7  
*The changing social place of architecture: Ancient Roman Agora, Athens, Greece; Menlyn Park Shopping Centre, Pretoria, South Africa; Wireless Internet Access, Anywhere, Anytime.*

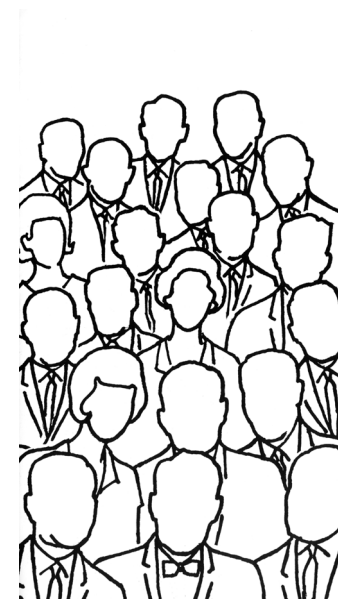
The conception of ‘social place’ thus needs to be rethought, and indeed has been in recent times: social networking sites, mobile phone networks and minibus taxis are all examples of how other systems and networks are replacing the social role of architecture. They are a collection of *fast-architectures* that provide the platform for micro-architectural scenarios; they are able to respond to the desires and needs of the user almost instantaneously and on an individual scale.

Architecture, in its traditional sense of enclosing and demarcating a certain programme, finds itself in a difficult and

▲ Fig. 4 (previous page)  
*Shouting child*

### Definition: Fast-Architecture

Fast-Architectures are any of a number of systems that play a significant role in the way in which people assert their positions within society and interface with each other. Usually device and technology driven. Examples include: twitter, facebook, internet, mobile phone networks, public transport infrastructure. These systems now provide the frame for society that up until recently has been provided by architecture.



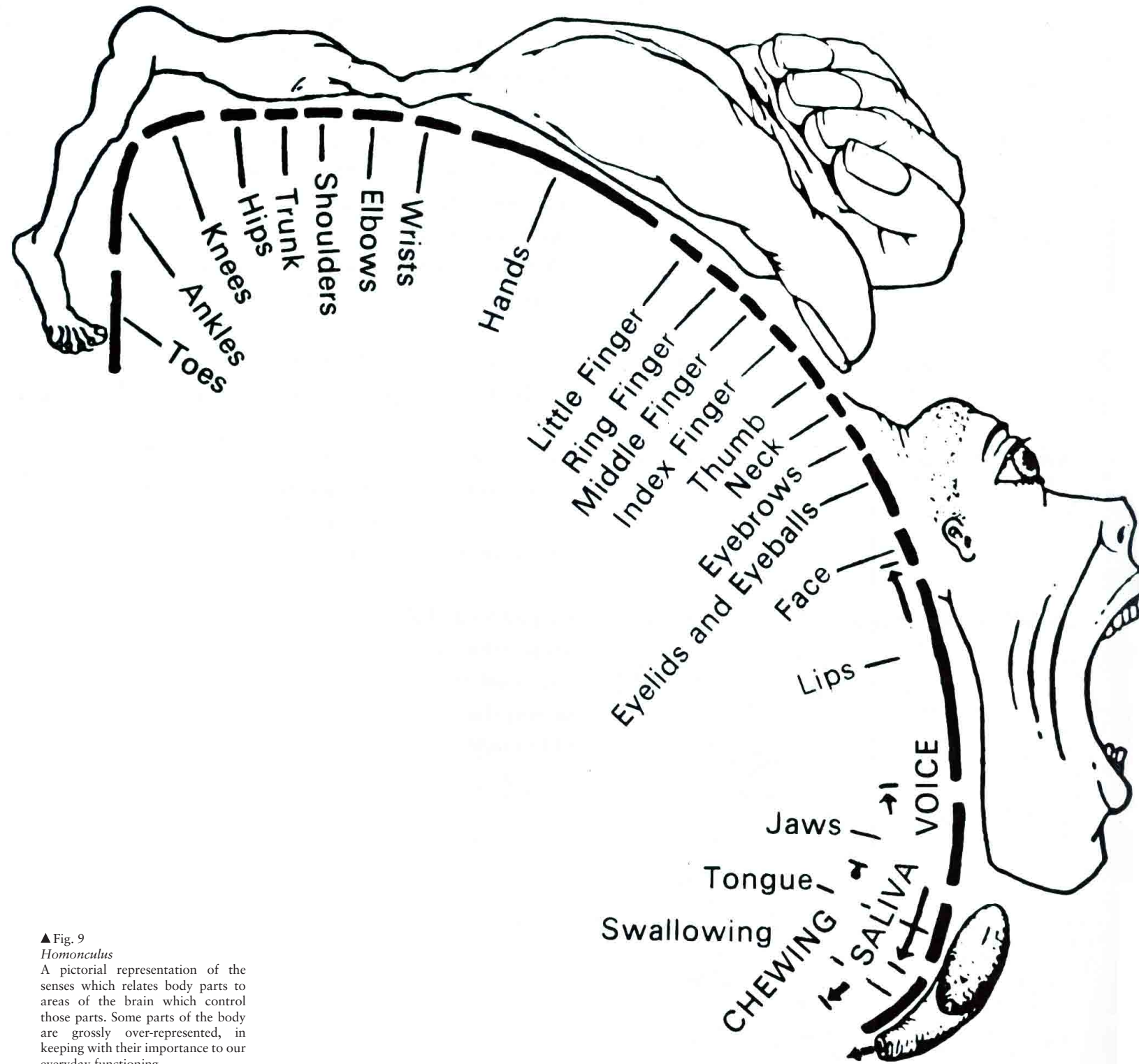
▲ Fig. 8  
*Blasé individuals*  
 The Blasé Individual

In 1903 the German sociologist Georg Simmel developed the notion of the blasé individual, whose nerve endings, bombarded by the continual simulation of modern metropolitan existence, had become so frayed that they had learned to renounce all forms of response (Neil Leach in *This is not Architecture* 2002:231). To become blasé was a product of – and a defence against – the pace of the modern city, its intoxicating impulses and kaleidoscopic sensations. In today’s narcissistic, aestheticised, and anaestheticised world, Simmel’s concepts persist; we have become both introverted and self-absorbed, locked in the interior world of our computer screens, divorced from our immediate surroundings, a group of lonely individuals – both distracted and immersed.

unfamiliar position. Having traditionally held the esteemed position of providing the theatre for human interaction and being the physical manifestation of a prevalent paradigm, it has now become awkward and, in a sense, a hindrance to connectivity. It has been left behind by a new world view constructed from concepts such as relativity and quantum mechanics. It no longer holds the memories of a people within its walls; it no longer communicates the embodied knowledge of a time. In an era of immediacy and connectivity, of instant dialogue and communication, architecture has even become a hindrance (Bouman, O. 2005:15).

## Connectivity and Communication

The idea that one is continuously ‘in touch’, that connectivity is now instantaneous, has changed the way that one not only relates to space, but also to time; as Bouman (2005:14) states: “whereas time was once considered to be the fourth dimension, it is now the first. In understanding our place in the world, it has been increasingly important to answer the question of ‘when’ rather than the question of ‘where’”. Through connectivity people assert their social relations (Bouman, O. 2005:15). Although these moments of connectivity still require a space in which to occur, the nature of this space is no longer conceived as a physical one. In fact, machines and devices have all but replaced physical, social space as this means of synchronisation. These machines though have enabled people, through their ability to interface in a variety of ways, to connect to each other in an asynchronous way, no longer being compelled to the adjacency and synchronicity imperative of human interaction, connecting just as they decide, using asynchronous interfaces (Bouman, O. 2005:16). If human behaviour and interaction is no longer framed by place, but is a matter of making strategic decisions and experiencing moments at remote and asynchronously related sites, then architecture loses its character as a consistent and integrated form of cultural communication (Bouman, O. 2005:21). At this point, it is not just the meaning of architecture that becomes arbitrary, but its function of shelter, occupation, enclosure and material consistency (Bouman, O. 2005:16). The increasing arbitrariness of architecture, the very fabric of the city, has seen it removed from society’s consciousness. This has resulted in a society of ‘blasé individuals’ that are unaffected by, and detached from, their surroundings.



▲ Fig. 9  
 Homunculus

A pictorial representation of the senses which relates body parts to areas of the brain which control those parts. Some parts of the body are grossly over-represented, in keeping with their importance to our everyday functioning.

## Interactive Spaces

One response to the erosion of architectural effect has been the production of interactive spaces. These are spaces that embody the idea of 'reaching people directly', spaces in which wireless, embedded technologies lie latent. These technologies can no longer be seen or felt, and can also no longer be switched off (Bouman, O. 2005:15). Providing a frame for connectivity between individuals has always been the essence of the social significance of architecture, but this act of connecting no longer requires the interface of bricks and mortar. Yet it is precisely bricks and mortar that forms the fabric of the city and the spaces that we work and play in.

The possibilities of interactivity in architecture should not however be limited to a technological premise, but can be seen as a form of actively engaging the user in the production and understanding of the complex organism that is the city. While technology can form an enabling structure that merges into the fabric of space (as prevails in Europe and North America), it is important to recognise how an interactive architecture, based upon the experience of form and space, can fulfil a socially enabling role within the city. In order for architecture to regain its social significance, it must produce "new forms of poetic experience... that will inspire complicated and unusual pleasures" (Garcia, M. 2007:53).

## Sensory Sampling

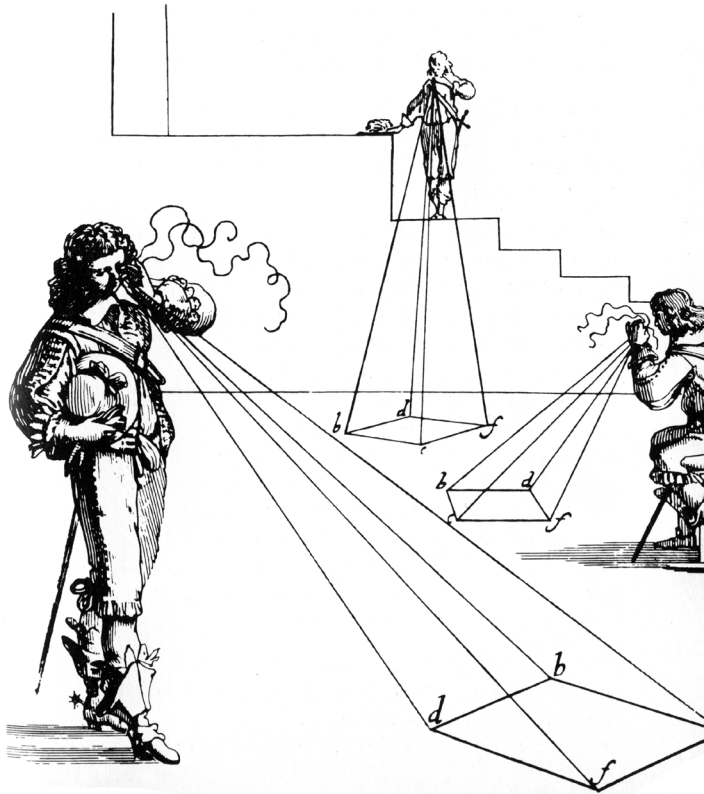
Humans perceive the world while being within the world; it is 'known' through a complex interaction of senses and cognitive perception. Maurice Merleau-Ponty (in Pallasmaa 2000:78) states: "my perception is [therefore] not a sum of visual, tactile, and audible givens: I perceive in a total way with my whole being; I grasp a unique structure of a thing; a unique way of being, which speaks to all my senses at once." Although there are limitations to this perceptive mechanism, they are broken by moving through space and thus engaging in a process of *revealing* the world.

This process of revealing immerses the user in sensory-experiential space, and exposes the world as an open field of spatial opportunity and interpretation that awaits discovery. Objects do not extend themselves *to* the individual; rather, the individual finds them. Understanding the world as *field* differs from understanding it as a simple dialectic relationship between solid and void, a world of binary extremes. In a world of fields, *difference* is a measure of *degree*, rather than *is* or

*is-not*, and thus opens the world to individual interpretation – and it is this aspect of individuality that is key.

Novak (1996) argues that the ‘real’ world cannot be in its entirety as the senses act “as much [as] shields as bridges” (Novak 1996), isolating the surrounding world from inner cognitive mechanisms that translate raw inputs into meaningful patterns. Whatever continuity perceived in the world is an illusion, constructed through the act of sensory ‘sampling’ (Novak 1996). If meaning and feeling are found during encounters with the world, it is because the “individual finds a piece of himself or herself. The person precedes the perception” (Kahn 2001:27)

Maurice Merleau-Ponty (in Pallasmaa 2000:78) argues that the task of architecture is to make visible ‘how the world touches us’, but in order to do this to its full potential it should make use of the full scope of experience that sensory-experiential space has to offer. Modern consciousness however, has evolved towards the dominance of vision as the critical sense (Pallasmaa 2000:78), something which has affected the everyday understanding of the world by creating ‘visionary beings’ (Levin in Pallasmaa 2000:78).

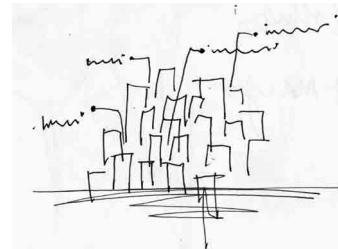


#### A World of Stories

Stories explain our worlds to us and to others; they give form and understanding to the transience of experience. Without these stories, ‘reality’ would be largely unintelligible. Roland Barthes (1977:79) points out that:

“...[t]he narratives of the world are numberless... [a]ble to be carried by articulated language, spoken or written, fixed or moving images, gestures, and the ordered mixture of all of these substances.”

Using architectural narratives to form the basis of intervention allows people to relate to the intervention more personally and dissolves the barrier between the profession of architecture and the actual experience of the city.



▲ Fig. 10  
A World of Stories

◀ Fig. 11  
Renaissance perspective tools



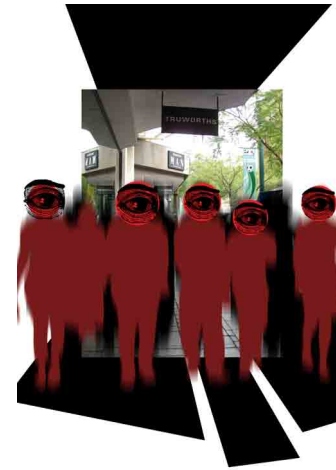
## Visual Hierarchy

The dominance of the visual may be attributed to the physiology of the eye as a sensory device. The eye creates space where there can only be one thing at a time. Light focused on the back of the eye ensures that two objects will not, and cannot, occupy the same place at the same time. This has contributed to the linear, sequential, and logical Western scientific models that dominated thinking in the past (McLuhan and Powers 1989:38). These linear models also created the phonetic alphabet and writing, the sequential ‘sentence’ as the critical conceptual device. The mind, conditioned from an early age, teaches the eye to see an object ‘right side up’, on a plane and in perspective space.

Responding to the world through sight differs markedly from the other senses; seeing is objective, it places the viewer outside the world, looking in. According to Yi Fu Tuan (in Mavash 2007:58) “...seeing does not involve the emotions deeply... the world perceived through the eyes is more abstract than that known to the senses”. The dominance of the visual over the other sensory realms has turned architecture into an art form of “instant visual image... project[ing] retinal images for the purpose of immediate persuasion” (Pallasmaa 2000:78); a shallow architecture that does not engage the user in the scene.

The electric revolution of the 20<sup>th</sup> Century however moved man into an era of simultaneous information, an era in which reason is no longer uniform, connected and stable – the *field* condition spoken of previously. The new structures of reality are simultaneous, discontinuous, and dynamic, existing in a world that is essentially a unified field of instant relationships (McLuhan, M. 1964:275). Today action and reaction occur almost at the same time. From an era of ‘either-or’; of setting priorities; of making past and future distinctions, to an era of ‘both-and’; of events having the quality of equal time – a mentality of ‘multitude’, of simultaneity, of constant flux. In the arts, the response was the advent of Cubism: presenting the inside, outside, top, bottom, back, front etc in two dimensions; the illusion of perspective is removed in favour of instant sensory awareness of the whole (McLuhan 1964:13). To get a ‘truer’ sense of the world, one must be within it, immersed in it and cognisant of its effects.

McLuhan terms this new type of space ‘acoustic space’: “In the same way that the sense of hearing apprehends details from all directions at once, within a 360-degree sphere, as



▲ Fig. 12  
A Crowd of Individual(s)

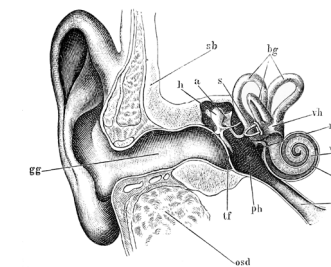
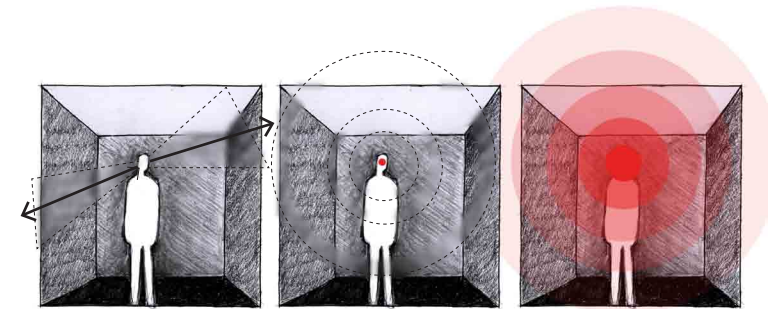


**Open Fields of Spatial Opportunity**  
According to Henri Lefebvre space making can be understood as an expression of society's collective mind and the social interaction of the everyday. Thus space is a realm of possibility in which spatial ability is defined as the capacity to present knowledge about space and to organise spatial information. This open field mentality closely corresponds to an African conception of space in which the whole is favoured over the piece. This open field raises questions of how to intervene in such a condition - requiring dispersed nodes of experience and interaction placed freely within it.

it were, in a manner similar to a magnetic or electrical field; so knowing itself is being recast and retrieved in acoustic form” (McLuhan, M. & Powers, B.R. 1989:13). His analogy harks back to our initial forms of oral communication, but can be expanded to form a three-fold analogy between electromagnetic field, data or information fields, and acoustic fields to create the space that is experienced in the everyday of ‘now’.

Thus the sense of hearing can be defined as the first ‘open’ field, and the sense that best responds to the contemporary condition, and an African understanding of space. It is through probing sound that the architectural spaces of the city can be reactivated in the imaginations of the user.

► Fig. 13  
*Sense of sight vs. sense of hearing*  
Whilst sight relies on our looking and directly perceiving an object, sounds surround us entirely and can be detected from any direction.



▲ Fig. 14  
*Anatomy of the Ear*  
The sense of hearing relies on the ability to perceive sound by detecting minute vibrations in the air. These vibrations are the result of pressure changes caused by soundwaves and their size depends on the frequency of the sound. In humans these vibrations are detected by the ear and translated into neural impulses that are perceived by the brain.

◀ Fig. 15  
*2nd Century AD Roman Theatre, Bosra, Syria*

### Sound: A New Primacy

There is little certainty as to when man first became consciously aware of the significance of sound and the possibilities for its manipulation other than for purely practical purposes. The cupping of the hand behind the ear is a gesture old enough to have become instinctive (Gibbs, 2007:20). It is the first attempt, along with the placing of the hands in front of the mouth to aid projection, to deliberately influence the sounds that are made and heard (*ibid*). The first musical instruments begin to appear around the time of the last ice age, and it becomes clear that people made use of the acoustic properties of particular spaces and places. Cave paintings, for example, are often found in locations with distinctive acoustic qualities (Devereaux in Gibbs 2007:21), suggesting an early for of multimedia event.

Stronger evidence of deliberate acoustic design occurs in Ancient Greece: control of acoustics in open air theatres through use of stage doors as sonic reflectors was augmented through the use of masks which contained horn-like structures

or resonating cavities to reinforce and project the voice (Gibbs 2007:20). By the time of the theatres designed by Marcus Vitruvius Pollo in the first century BCE the “...theatre could be played by the actors as if it were a musical instrument” (Smith in Gibbs 2007:21).

Sound became then a property of architecture that was to be manipulated according to the functional parameters of the building. Architectural space modifies sound through reflection, absorption, refraction and diffraction; it plays with sound in the same way it plays with light: “Listen! Interiors are like large instruments, collecting sound, amplifying it, transmitting it elsewhere” (Zumthor in Mueke and Zach, 2007:260).

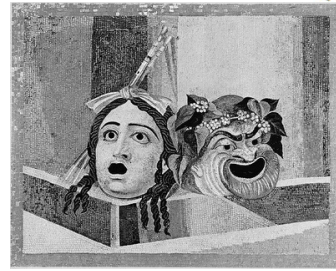
Sound thus forms a critical aspect in our relationship with, and experience of, architectural space. As Jacques Lusseyran (in McLuhan, M. & Powers, B.R. 1989:36), who was accidentally blinded, points out:

“Sounds had the same individuality as light. They were neither inside nor outside, but were passing through me. They gave me my bearings in space and put me in touch with things. It was not like signals that they functioned but like replies...but most surprising of all was the discovery that sounds never came from one point in space and never retreated into themselves. There was the sound, its echo, and another sound into which the first sound melted and to which it had given birth, altogether an endless procession of sounds...”

It is the overlapping qualities of sound and architecture that merit investigation: they are immersive – their power, as Paul Valéry states (in Sterken 2007:22), comes from their capacity to surround man entirely, to deal with space in a way visual arts cannot. Walter Ong (in Mueke and Zach 2007:252) asserts that, whereas sight isolates and dissects, sound incorporates and unifies:

“[S]ight situates the observer outside what he views, at a distance sound pours into the hearer. Vision dissects... When I hear, however, I gather sound simultaneously from every direction at once: I am the centre of my auditory world, which envelopes me, establishing me at a kind of core sensation and existence” (*ibid*).

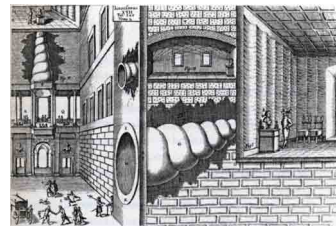
R. Murray Schafer, a prominent sound artist of the 20<sup>th</sup> Century, made a number of critical observations about the sonic



▲ Fig. 16-17  
Ancient Greek Theatre Masks

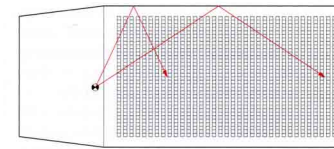


▲ Fig. 18  
Technique with which to make a statue appear to speak (Rome, 1650)

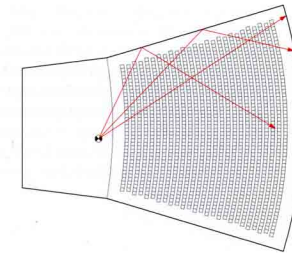


▲ Fig. 19  
An installation of listening horns used to overhear servants and guests (Rome, 1673)

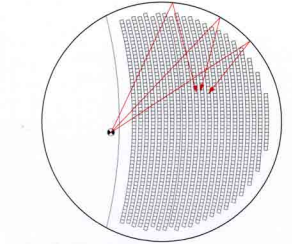
The above images illustrate the interest people have had with manipulating their sonic environment since a very early time



(a)



(b)



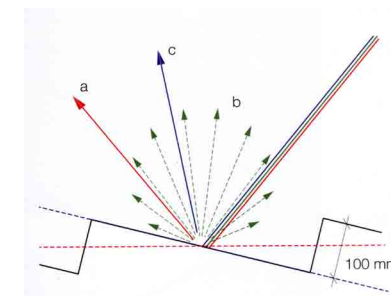
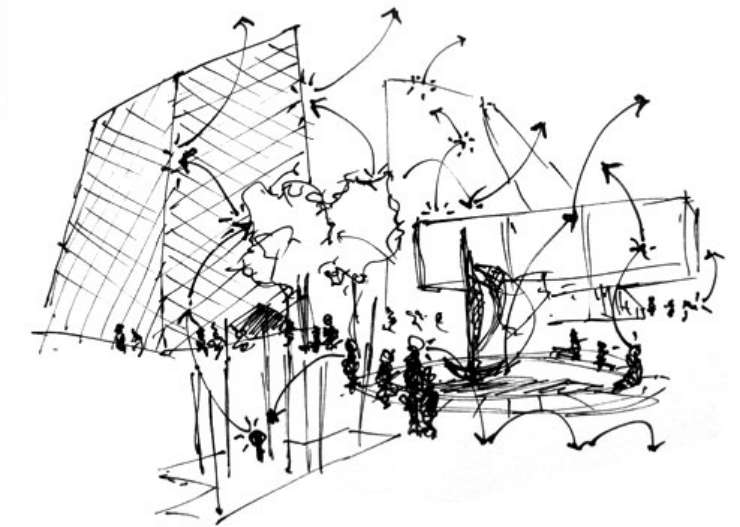
(c)

▲ Fig. 20  
How the plan shape of a room affects the early reflections from the side walls; (a) Narrow, rectangular rooms send reflections from the side walls to the seats, (b) If the room widens toward the rear, the sound is reflected to the rear of the room, (c) Concave plan shapes focus the soundwaves which usually leads to disturbing concentrations of sound.

► Fig. 21  
Indiscreet Music  
Architecture directly influences the sonic environment through its forms and materials

► Fig. 22  
Reflection of soundwaves on a surface  
Soundwaves are reflected in various directions from structured surfaces; (a) Low frequencies ignore the structure if the wavelength is large compared to the dimensions of the structure; the sound energy is reflected geometrically with respect to the dotted red line, (b) Medium frequencies are scattered more or less evenly in different directions, (c) High frequencies are reflected geometrically from the individual surfaces (dotted blue line) because in this example the dimensions of the structure are large compared to the wavelengths.

environment. He argues for a primacy of sound over light, as sound touches us more than sight and is able to excite us more than visual imagery (Yi-Fu Tuan in Mavash 2007:59). He also points out that “[b]iologically we are not capable of closing our ears” (in Mavash 2007:59), we have no ‘earlids’, and are thus constantly exposed to a tumultuous multitude of sound and voice – silence does not exist, “even in absolute silence, as we think, we speak voicelessly to ourselves” (Murray Schafer in Mavash 2007:59). It is only through a complex process of psychological filtering of the desirable and the undesirable, the inside and outside, that the ear has any protection at all (Schaefer 1995), and it is precisely this process that has desensitised the sense of hearing. The experience of space is greatly extended by hearing, soaking up information from all angles beyond the visual field. As auditory space extends beyond walls and around corners, it becomes necessary to increase the awareness of the surrounding sonic environment, the soundscape of the city.





## Soundscape and Place

The soundscape of a given place is a unique and rich data bank of history, culture, and nature. It informs the referential and imaginary – a taxonomy of sounds used to inform a taxonomy of new types of spaces. It can be considered as a composition in which the user is the audience, composer and performer (Murray Schafer in Mavash 2007:65). It is important to note then that it is a constantly evolving piece that responds to the context of time and of place. It has varied, and will continue to vary, according to any number of contributing factors, but perhaps the most important of which were the two revolutions: the Industrial and the Electric.

The Industrial Revolution injected an entirely different soundscape into the ears of the city’s inhabitants: machines of all scales and varieties that had a particular acoustic quality. Around this time, the Futurists, headed by Filippo Marinetti and Luigi Russolo, began taking note of the sounds that their new environments were creating. Russolo, in his *Art of Noises Manifesto* of 1913, describes the importance and frequency that noise has come to have in the city.

Today there exists an almost entirely different set of sounds from the time of Russolo. While the sounds of heavy industry have slowly migrated out of the city centres, the loss has been more than compensated for by the eternal grumble of the internal combustion engine, the general cacophony of the office environment in the digital age, and the persistence of monetary exchange. One of the biggest changes to the soundscape of the contemporary city however has been the advent of digital devices. These devices, whilst streamlining the user interface of connectivity, use sound to presence themselves in the environment. Mobile phones, PDAs, printers and fax machines all emit sound as a way of registering and informing the user of their inputs.

Mini-Precedent: I am Sitting in a Room – Alvin Lucier

I am Sitting in a Room (1969) features Lucier recording himself whilst narrating a text, then playing the recording back into the room and re-recording it. The new recording is then played back and re-recorded. This process is repeated, until the resonant frequencies and harmonies of the room itself replace the words of the text. The process highlights the individual sonic qualities of the space it is performed in and thus results in a different work each time.

### Definition: Soundscape

A soundscape is the audible characteristics of a place or environment. The term is attributed to R. Murray Schafer, a Canadian born artist who in the 1960s documented the soundscape of his native Vancouver (Gibbs, 2007:28).

### World Soundscape Project

The World Soundscape Project was established in the 1960s by R. Murray Schafer. The project grew from Schafer’s attempts to draw attention to the sonic environment and the way in which it was being degraded through various methods of noise pollution. The groups’ first project documented the soundscape of Vancouver, before moving in to complete many other recordings in North America and Europe.



► Fig. 23  
*Oral Communication in African cultures*  
The power of story telling to relate events is a tradition that continues today and is arguably more powerful than the written word in conveying meaning

## Personal Soundscapes

The effect of mobile phones on the soundscape of the city is not just additive as described above, but in their use have changed the very nature of the way in which sound is experienced. The mobile-phone-person is one of the most common sights and sounds of the contemporary city, flouting public space and stepping over the threshold of exhibition (Baudrillard, 2003:81). Mobile phones and MP3 players change ones focus from the external to the internal. Through these devices one is able to customize one's own personal soundscape, creating a soundtrack to life that is alien to its surroundings. The ghetto blaster in the 80s produced a similar effect – changing the immediate soundscape according to the desires of its users. All of these technologies owe their existence to the invention of phonography in the late 19<sup>th</sup> Century – an act that begun the separation of sound from space.



### The Art of Noises

“Every manifestation of our life is accompanied by noise. The noise, therefore, is familiar to our ear, and has the power to conjure up life itself. Sound, alien to our life, always musical and a thing unto itself, an occasional but unnecessary element, has become to our ears what an overfamiliar face is to our eyes.

Noise, however, reaching us in a confused and irregular way from the irregular confusion of our life, never entirely reveals itself to us, and keeps innumerable surprises in reserve. We are therefore certain that by selecting, coordinating and dominating all noises will enrich men with a new and unexpected sensual pleasure.”

Luigi Russolo, The Art of Noises Manifesto, 1913 (in Gibbs, 2007:22)



▲ Fig. 24  
*Headwork in the Garden*  
An early wireless device for receiving radio transmissions

◀ Fig. 25  
*Beethoven's Trumpet*



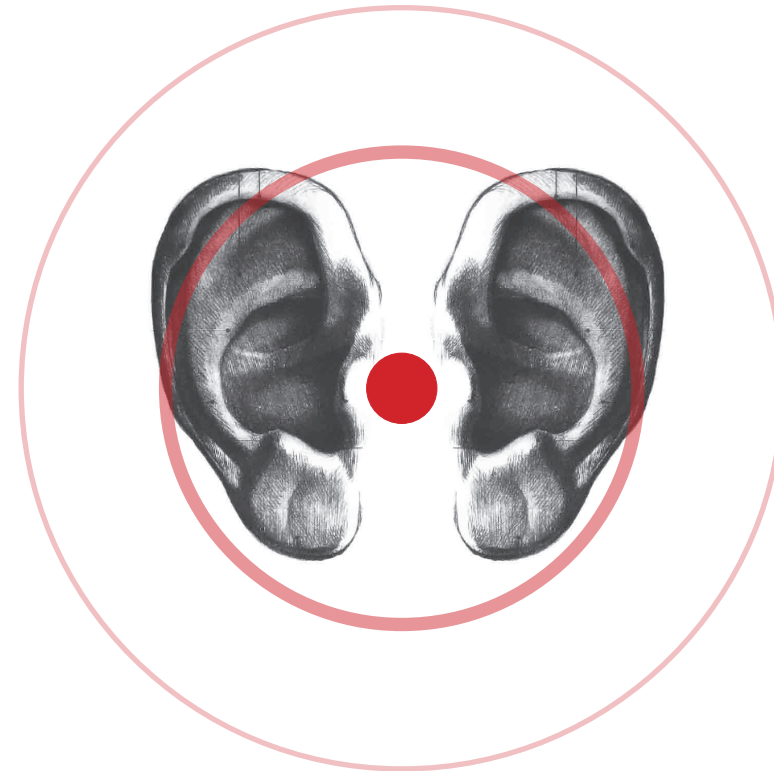
## Conclusion: The Listening System

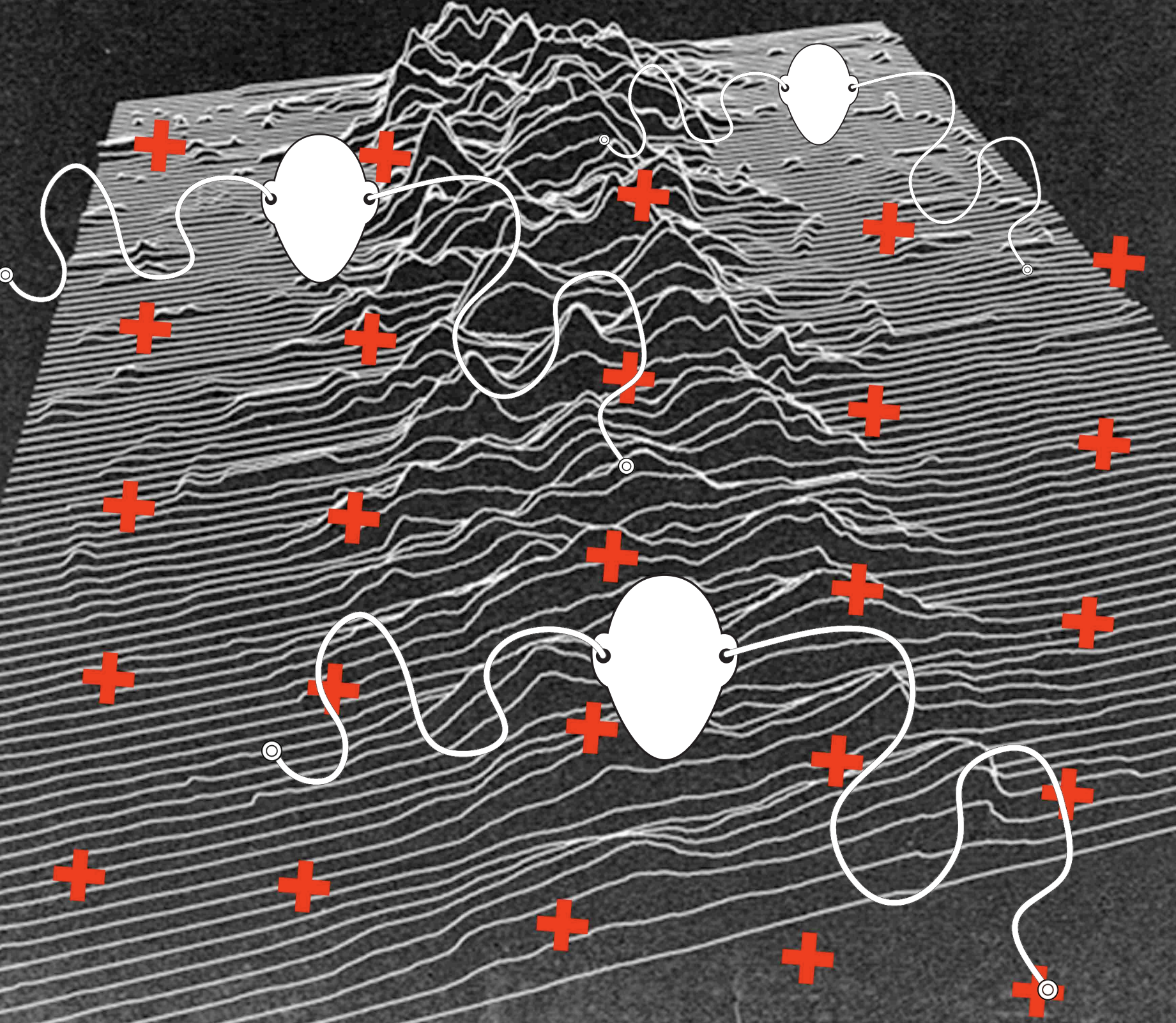
Despite the changes in sonic content of the city and despite the advent of devices that allow the direct manipulation of the city's sonic content on a personal level, the role of the listening system as remained much the same. The act of hearing, orientation and identification using a complex system of muscles and cognitive processes places oneself in *a* context – be it artificial or real. The role of architecture though must be to spatialize this placing, to encourage real and lived experience.

Three critical terms have been drawn from the theoretical argument outlined above. These terms have played a significant role in generating the solutions proposed in this thesis. They are:

- Resonance
- Spatilization
- Multiplicity

The three terms combine to inform the urban framework, context analysis, and design proposal.



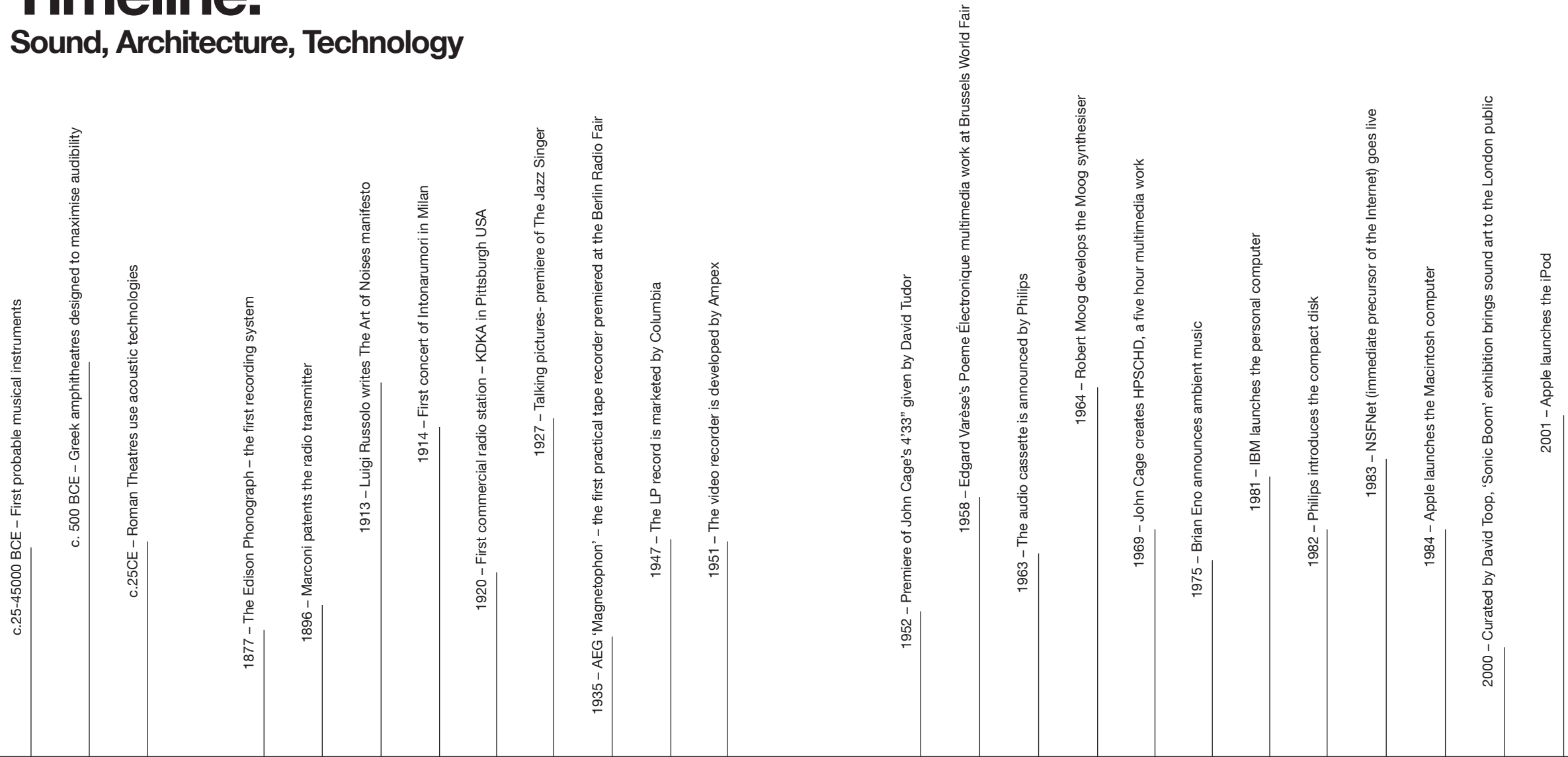


◀ Fig. 27  
*CitySoundScape*  
Each user of the city will experience the  
soundscape differently depending on  
their own background

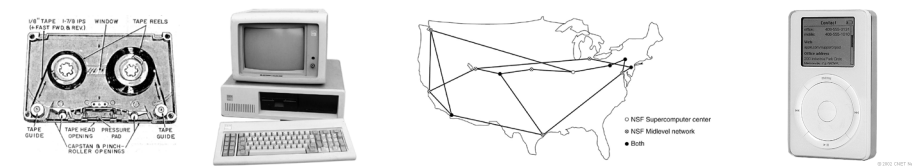




# Timeline: Sound, Architecture, Technology



▲ Fig. 29-39  
Images of various developments in the relationship between sound, architecture, and technology



The theoretical basis of the thesis informed a process of investigation that consisted of: (a) understanding the types of sound in the city, and (b) the spaces that these sounds occupy. The ability of sound to occupy, and be heard from, any space prompted a search for spaces within the proposed study area that would not necessarily be considered for architectural interventions.

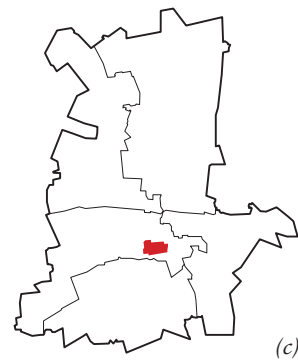
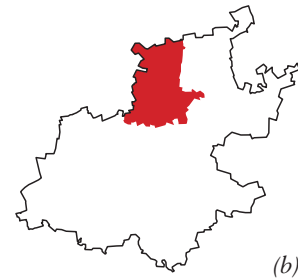
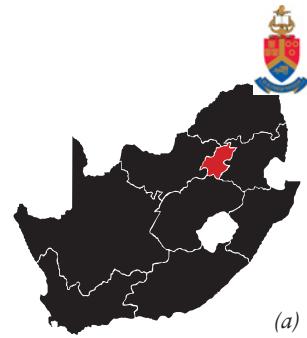
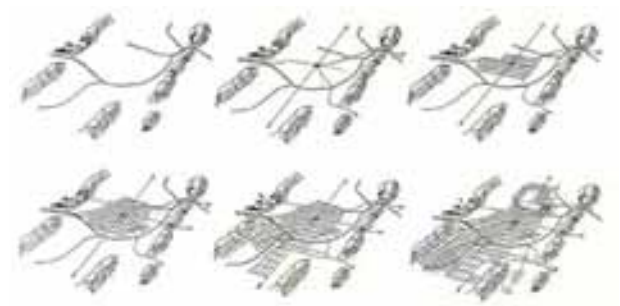
As such the analysis is split into three parts. The first is an analysis of the physical aspects of the city and includes an introduction to the city, the process of exploration that was carried out (as outlined by the group framework proposal), and an introduction to the study area. The second part consists of a sonic analysis of the study area, overlaid on the physical context. The third deals more directly with the sites of intervention and incorporates both the physical and sonic qualities.

## Part 1: Physical Context

### History

The Pretoria Business District is found at the centre of the municipal ward of the City of Tshwane. The name Pretoria applies to the area bordered by D.F. Malan Drive to the west, Nelson Mandela Avenue to the east, the Pretoria railway station to the south and Boom Street to the north.

Pretoria was founded in 1855 and due to its orientation and positioning developed along a predominantly east-west direction, restrained by the terrain to the north and south. The city's historical and contemporary centre is Church Square, previously known as Market Square. From this centre the CBD follows a logical, grid-based layout, predominated by wide streets. The area between Prinsloo Street in the east and Bosman Street in the west is dominated by high-rise modern structures that house retail on the ground floor and offices above. The occupancy rate of the city currently lies below optimum levels despite recent regeneration and development programmes. Thus the city centre remains an area of intense, yet dormant, potential.

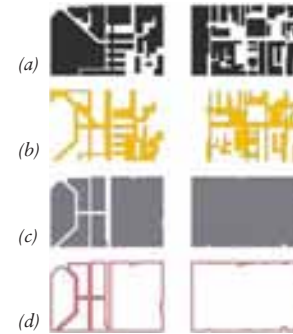


▲ Fig. 40  
*Physical context*  
(a) South Africa (Gauteng highlighted);  
(b) Gauteng (Tshwane highlighted); (c)  
Tshwane (Pretoria CBD highlighted)

◀ Fig. 41  
*Pretoria as 'Urbs Quadrata'*



▲ Fig. 42  
*SchizoCity mascot*



▲ Fig. 43  
*Two typical Pretoria blocks*  
Diagram illustrating: (a) figure-ground  
study, (b) assumed accessible spaces, (c)  
nali diagram of block, (d) actual active  
edge

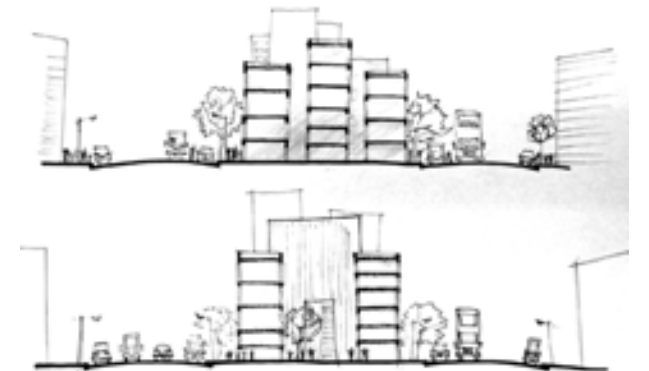
▶ Fig. 44  
*Interrogation of the city block*

## Framework of Intervention: SchizoCity Urban Framework

In developing the discourse surrounding a possible urban framework proposal it was necessary to investigate the relationship between programme and existing block typologies that are found in many contemporary cities, including Pretoria.

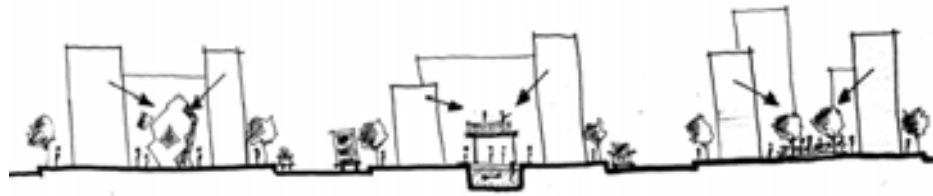
The grid has been the de facto generator of urban form since antiquity, a way of human civilization to logically define its presence on the earth. This framework accepts the condition of the grid as a given, but questions the nature of urban design itself, denying the nominally efficient process of planning and zoning and instead proposing a large-scale architectural mindset that is spatially and programmatically driven, a mindset that allows specific interpretations of context and program without necessarily being restricted by an inhibiting framework.

The 'efficient' and pervasive grid that structures Pretoria CBD has to be accepted as a given condition to react to – leading to an interrogation of the block itself as a formal typology to be investigated and executed differently. The destructive nature of Pretoria's continuous sprawl necessitates a counter-action that posits an insertion of new programme and form within the existing structures of the city – alien program that begins to inform urban regeneration, as well as formal possibilities suggesting programmatic interventions.





◀ Fig. 45  
Existing Tshwane spatial development framework

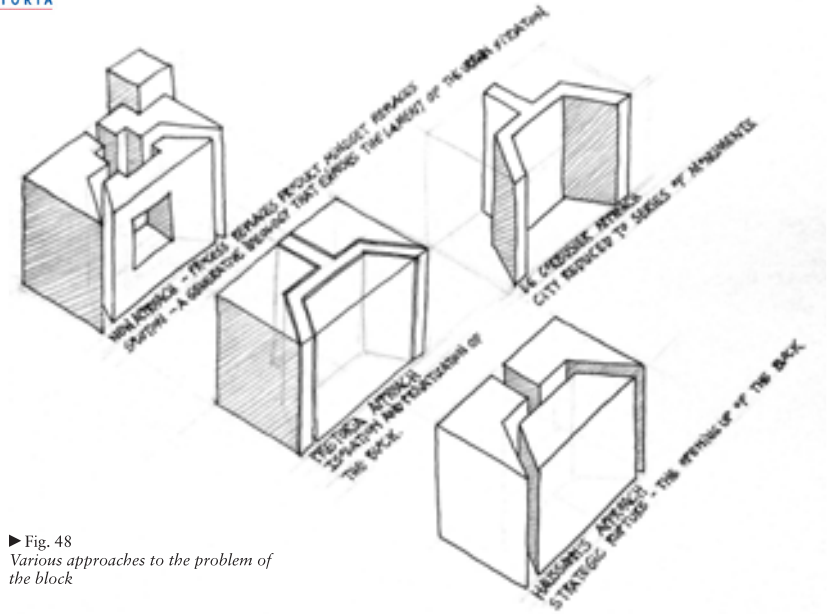


▲ Fig. 46  
Theatres of 'collective appropriation' within the existing city blocks



◀ Fig. 47  
Digital three-dimensional exploration of permeable city block concept

▶ Fig. 49  
Conceptual collage showing three dimensional exploration of Pretoria city block



▶ Fig. 48  
Various approaches to the problem of the block





◀ Fig. 50  
Conceptual diagram: lack of scalar  
and spatial hierarchy in Pretoria public  
spaces

#### Problems of Pretoria CBD

(as identified by the SchizoCity Urban Framework)

##### Privatisation

- Ownership
- Permiability

##### MONOCity

- Dull City
- Art-less
- Mono Function
- Mono Level
- Curfew
- Monochrome
- Lack of Identity

##### Orientation

- City Communication
- Transport Language
- Connective Tissue

##### Public Comfort

- Public Facilities
- Safety
- Urban Health
- Green Space
- Green Heirachy
- Repose Spaces

##### Heirarchy

- Scales
- Spaces
- Functions
- Public Space



▲ Fig. 51-52  
Haussmann's Paris  
Photographs of wide boulevards and ruptured urban fabric

#### Haussmann's Process of Strategic Rupture

- A Network of Large Avenues
- North-South and East-West Openings
- Rings of Boulevards
- A Network of Districts
- Squares at crossroads
- Railway Stations
- Monuments
- Modern Public Facilities
- Green Spaces

One of the more well known urban projects of recent history is that of Haussmann in Paris, an endeavour that was initiated and executed between 1850 and 1870. Haussmann's development of Paris was guided by capitalism and viewed the city as a business – a business that had become cumbersome in the modernised global economy.

It is important to note that Haussmann was reacting to an already structured urban environment and through a process of limited intervention imposed a specific spatial model on the city that created a “new type of space... not totally dissociated from the old space but capable of reinterpreting it, to reproduce or to deviate its forming mechanisms, to develop them into a more ample and coherent project” (Panerai et al. 2004:7). Haussmann's ambitious project remains the dominant experiential ordering factor of contemporary Paris, a tribute to the quality and depth of his thinking at his time. His program of networked, connected spaces, wide sidewalks and a series of aesthetic and experiential guidelines established the grain of Paris as it is known today.

Globally the city block experienced a metamorphosis as a process of classification, specialisation and zoning sought to modernise existing structures in order to better respond to the modern industrial landscape that had been generated. This process removed much of the finer grain of the city, resulting in blocks that no longer handled transitions between ascalar places and varying functions. The additional layer of control and separation imposed on Pretoria through security concerns has removed complexities of difference and continuity. The complex interior-exterior, private-public relationships of the city, the influence they have on spatial practice and ideas of hierarchy and control, have been destroyed.

Haussmann's process of strategic rupture, the opening of the block both physically

and experientially creates opportunities for previously interiorised spaces of the block to become the 'theatre of collective appropriation' into which individual modes of expression can be imprinted. The possibilities of this previously inaccessible space allow for an urban tissue of greater depth and experience, a tissue that forms a framework for human experience that successfully supports its inhabitants and their complex needs. It is the success of this framework of interaction that determines the success or failure of the city, and of the life of its inhabitants. Jan Gehl, a Danish architect, subscribes to the aphorism that 'life takes place on foot'; but with the advent of automobiles, computers and the internet on a massive scale, the possibilities and opportunities for chance encounters and interaction that were for so long an everyday occurrence have diminished (Barnett, 2003:17) – people have stopped engaging with their environment on a variety of levels. This situation Gehl believes can be remedied through the design of a physical environment that promotes 'optional activities' (Barnett, 2003:17) such as lingering in the shade of a tree, watching a water fountain, pausing for a cup of coffee – which in turn promotes an environment of sociability and community so crucial to the convivial nature of a successful urban space.



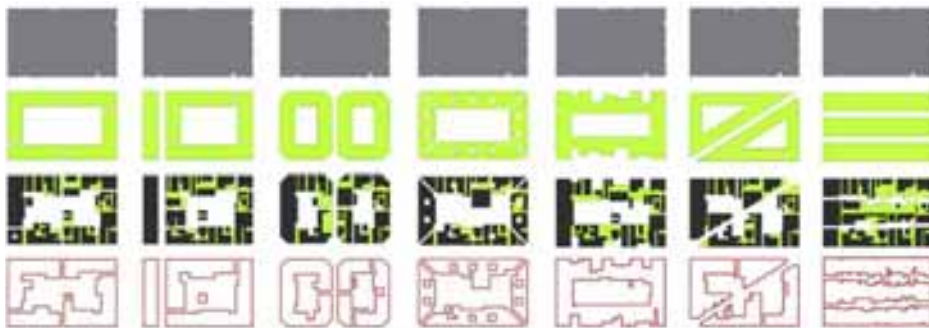
**SchizoCity is an experiment that questions accepted practices of urbanism - practices that fail to address complexities of existing context and fabric.**

**Process replaces product, mindset replaces solution – a generative ideology that exposes the latent multiplicity of the urban situation.**

**The experiment interrogates and violently mutates the role of urban architecture as an instrument of social invention.**

*SchizoCity Manifesto*

▼ Fig. 53  
*Latent Potential of Block Typologies*



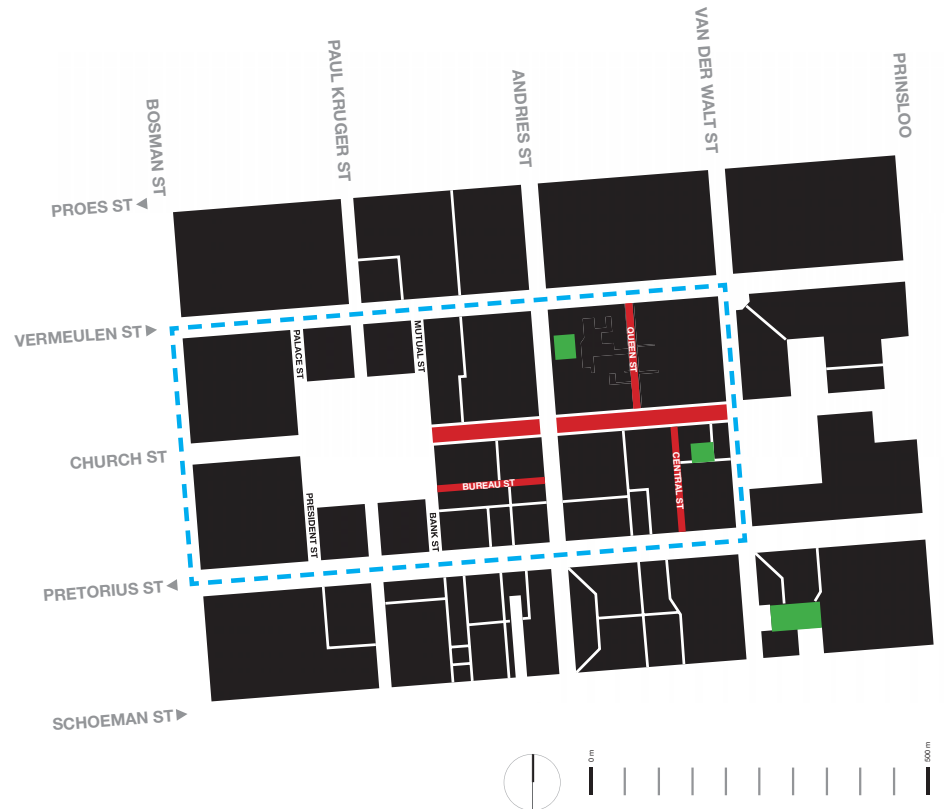
**The Block Typology**

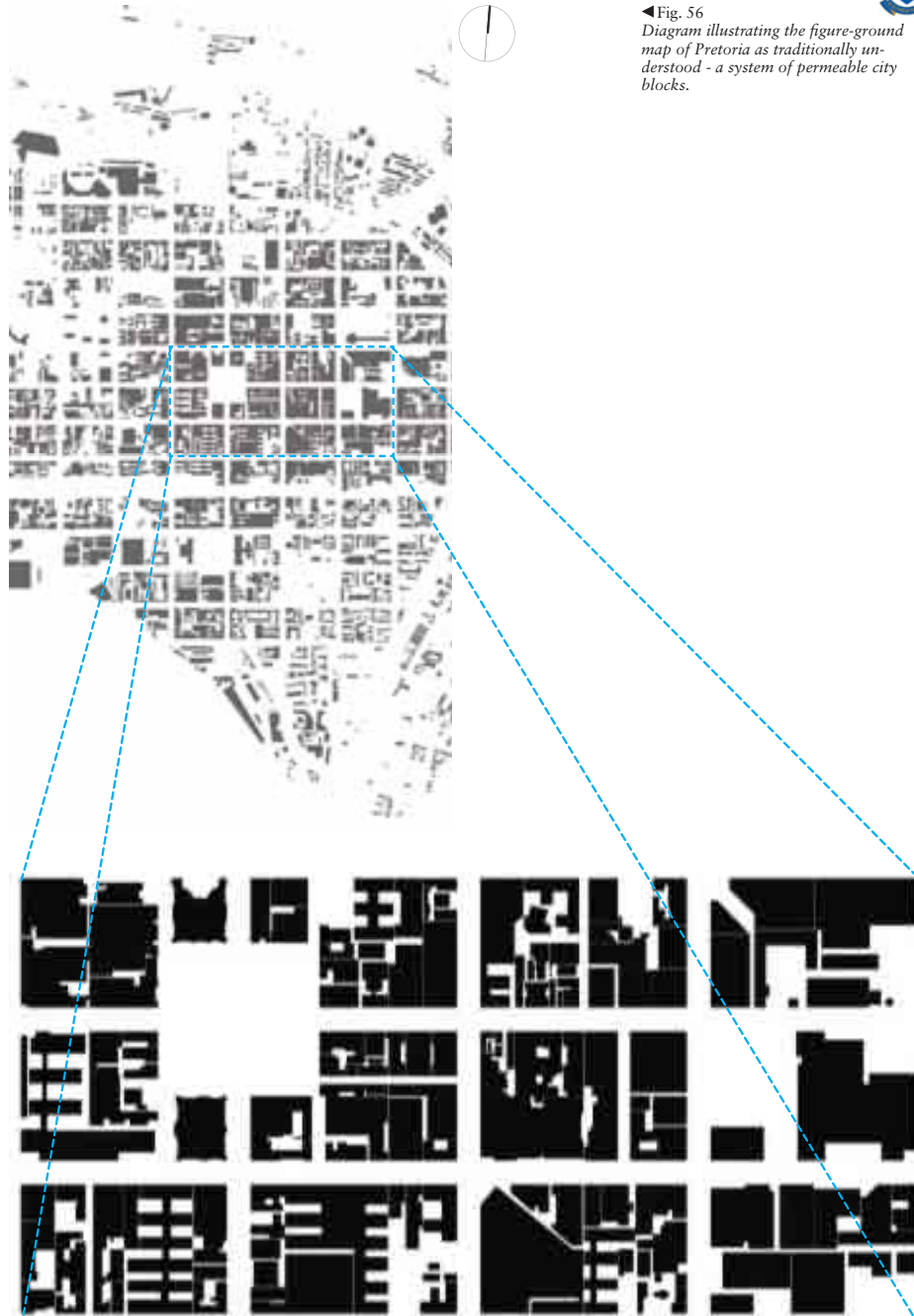
In order to investigate the possibilities latent within the block typology of Pretoria, a study area was set out and investigated. This study area is bounded by Vermeulen Street (North), Pretorius Street (South), van der Walt Street (East) and Bosman St (West). The study area encompasses the area of the CBD in which the grid is most rigorously applied. It includes the historical centre, the arcade system, and the main pedestrian artery of Church Street. The investigation was carried out by attempting to access areas of the blocks not usually open to the public or not traditionally seen as inhabitable. These were seen as 'points of initial rupture' that could be further expanded upon at a later date.



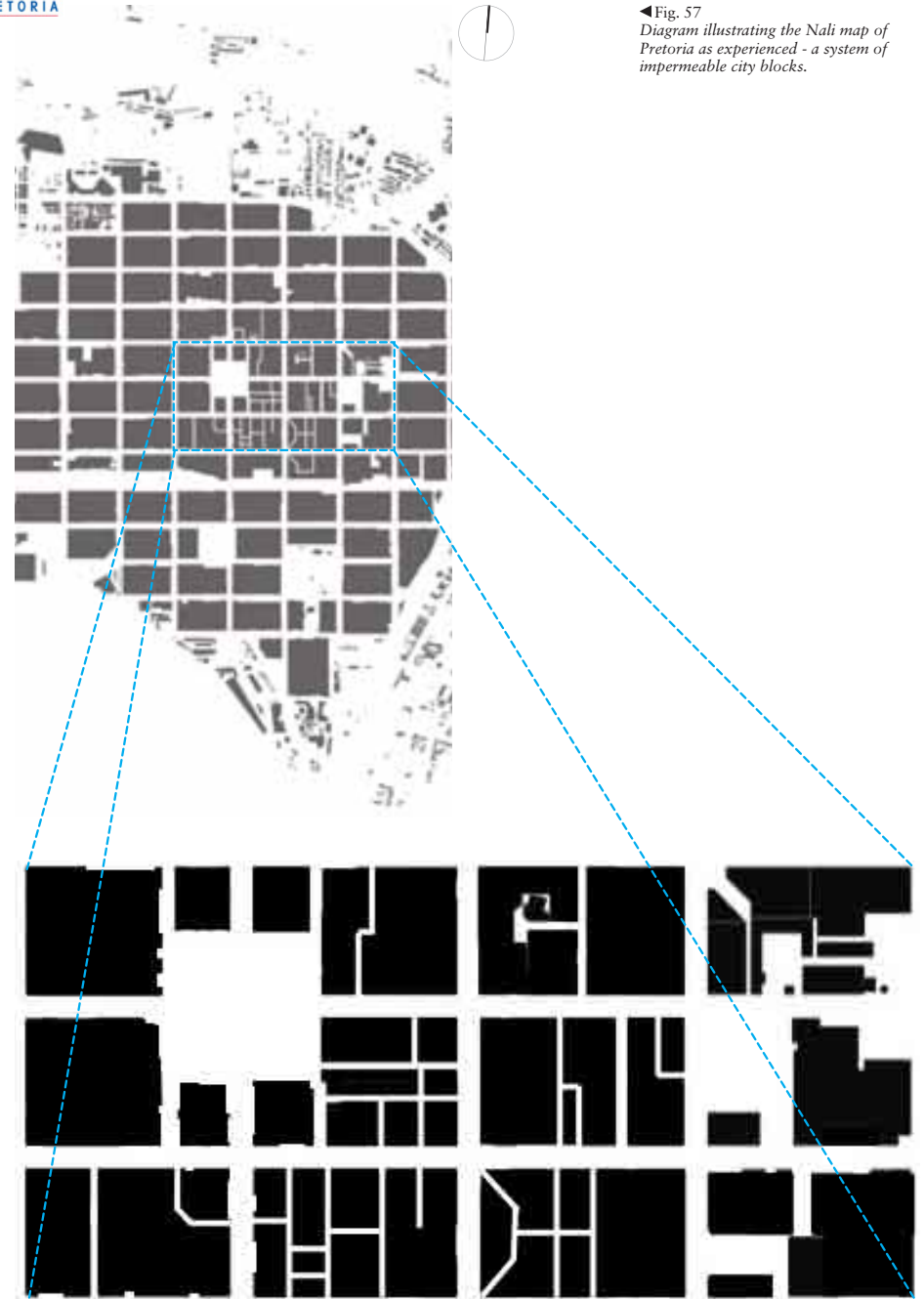
▲ Fig. 54  
*Aerial photograph of the historical centre of Pretoria, showing Church Square*

▼ Fig. 55  
*Proposed area of study within Pretoria CBD (indicated by dotted blue line)*



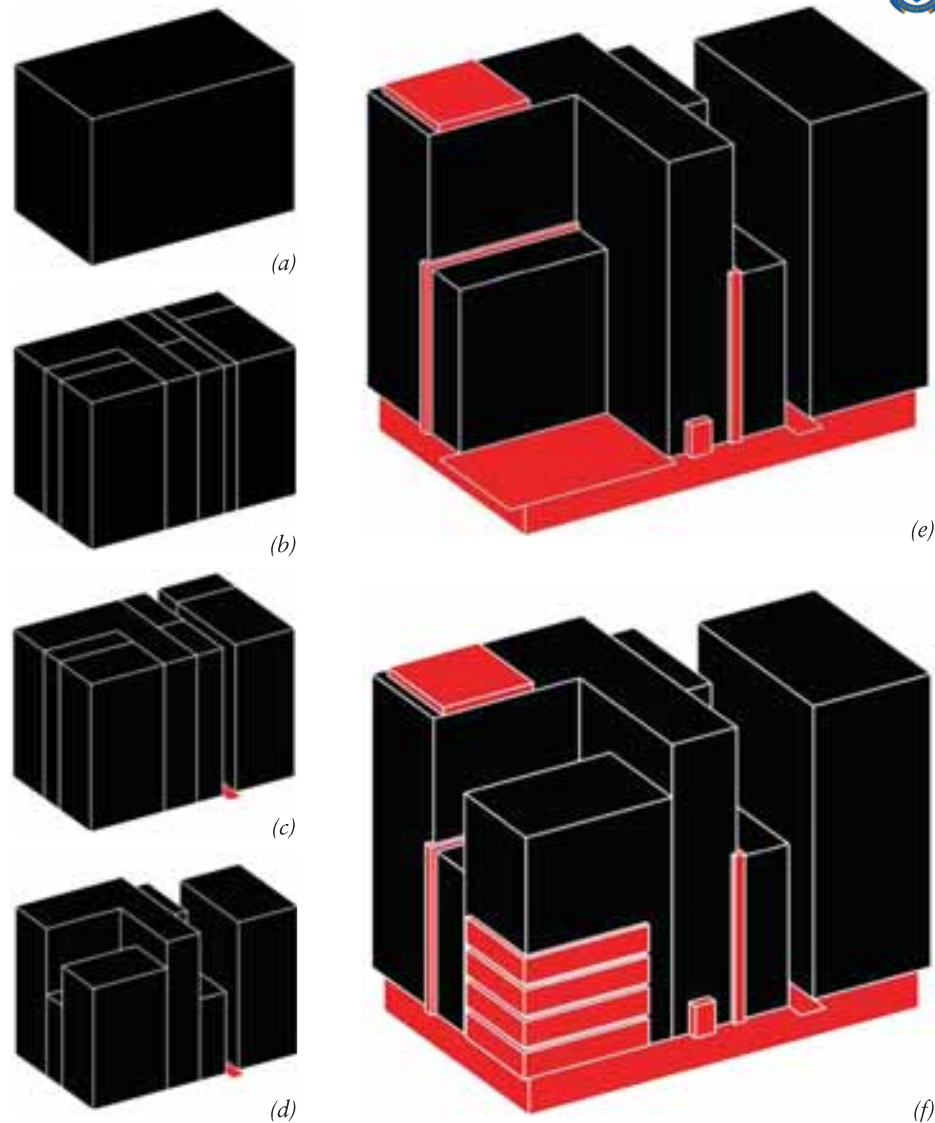


◀ Fig. 56  
Diagram illustrating the figure-ground map of Pretoria as traditionally understood - a system of permeable city blocks.

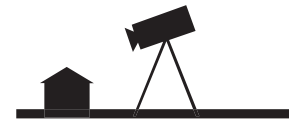


◀ Fig. 57  
Diagram illustrating the Nali map of Pretoria as experienced - a system of impermeable city blocks.





▲ Fig. 58  
Diagrams illustrating progressive deconstruction of the city block: (a) the block before deconstruction begins; (b) individual building boundaries within the block; (c) pedestrianised street cut through the block; (d) individual building heights; (e) deconstructed block showing rooftop spaces, service alleys, closed arcades, open squares and basements; (f) as (e), but with multi-storey car park and internal atrium



#### An Exploratory Film

On April 13th 2009 Philip du Toit (24022528), Jaco Bruwer (24006760) and myself presented a short video documenting the exploration of a city block. The film consisted of a number of scenes filmed from within the block and featured a soundtrack composed of on-site recordings. The film aimed to reveal the hidden spaces of the block that could be accessed through (determined) exploration, and also the types of sound that dwell in these spaces.



▲ Fig. 59-61  
Images from the short film

The investigation identified a number of ways in which the city blocks of Pretoria are deconstructed and spatially permeated, including:

- Basements
- Service Alleys [Pedestrian]
- Service Alleys [Vehicular]
- Pedestrianised Streets
- Open Arcade
- Closed Arcade
- Atrium or Enclosed Volumes
- Multi-Storey Parking Lots
- Open Squares [Soft]
- Open Squares [Hard]
- Roofs
- Gaps between Buildings

These main categories, in addition to a number of smaller anomalies, such as facade indentations, form the physical make-up of the city blocks of Pretoria. Through documenting these spaces, listening to them and observing, it hoped that either functional or recreational programme will be suggested. Thus, by taking advantage of a large number of smaller spaces, the blocks themselves begin to break apart and become accessible. These 'points of initial rupture' form the basis in which the thesis is carried out.

#### Porosity by Richard Goodwin

*Porosity* (2007) was submitted in application for a PhD in Fine Arts by Richard Goodwin at the University of New South Wales, Australia. His dissertation explores the functional boundaries of built form through haptic experience, and thus the revision of public space within the city. Although not specifically an architectural thesis, the investigation into the relationship between art installation and built form proved to be useful, and the sheer depth of the research has provided a solid grounding on which to build. The intersection between public and private spaces in the city is seen as an open framework ready to be interpreted. This is achieved through the reinterpretation of existing circulation spaces as 'game spaces' that respond to the desires of the buildings themselves.





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# 80 spaces

During each visit to the CBD an effort was made to document as many inbetween spaces as possible within the study area. Shown here are a collection of 80 such spaces. Although not a comprehensive selection it never the less illustrates the variety of spaces that lay dormant within the block typology of the city.



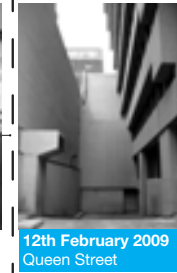
11th April 2009  
Lilian Ngoyi Square



12th February 2009  
Queen Street



12th February 2009  
Queen Street



12th February 2009  
Queen Street



12th February 2009  
Queen Street



20th April 2009  
Andries Street



20th April 2009  
Andries Street



12th February 2009  
Church Street



12th February 2009  
Church Street



12th February 2009  
Church Street



12th February 2009  
Vermeulen Street



12th February 2009  
Queen Street



20th April 2009  
Bureau Lane



20th April 2009  
Bureau Lane



20th April 2009  
Vermeulen Street



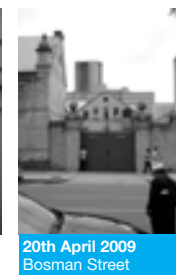
20th April 2009  
Pretorius Street



20th April 2009  
Andries Street



20th April 2009  
Queen Street



20th April 2009  
Bosman Street



20th April 2009  
Andries Street



20th April 2009  
Vermeulen Street



20th April 2009  
Burlington Arcade



20th April 2009  
Andries Street



20th April 2009  
Andries Street



20th April 2009  
Andries Street



20th April 2009  
Queen Street



20th April 2009  
van der Walt Street



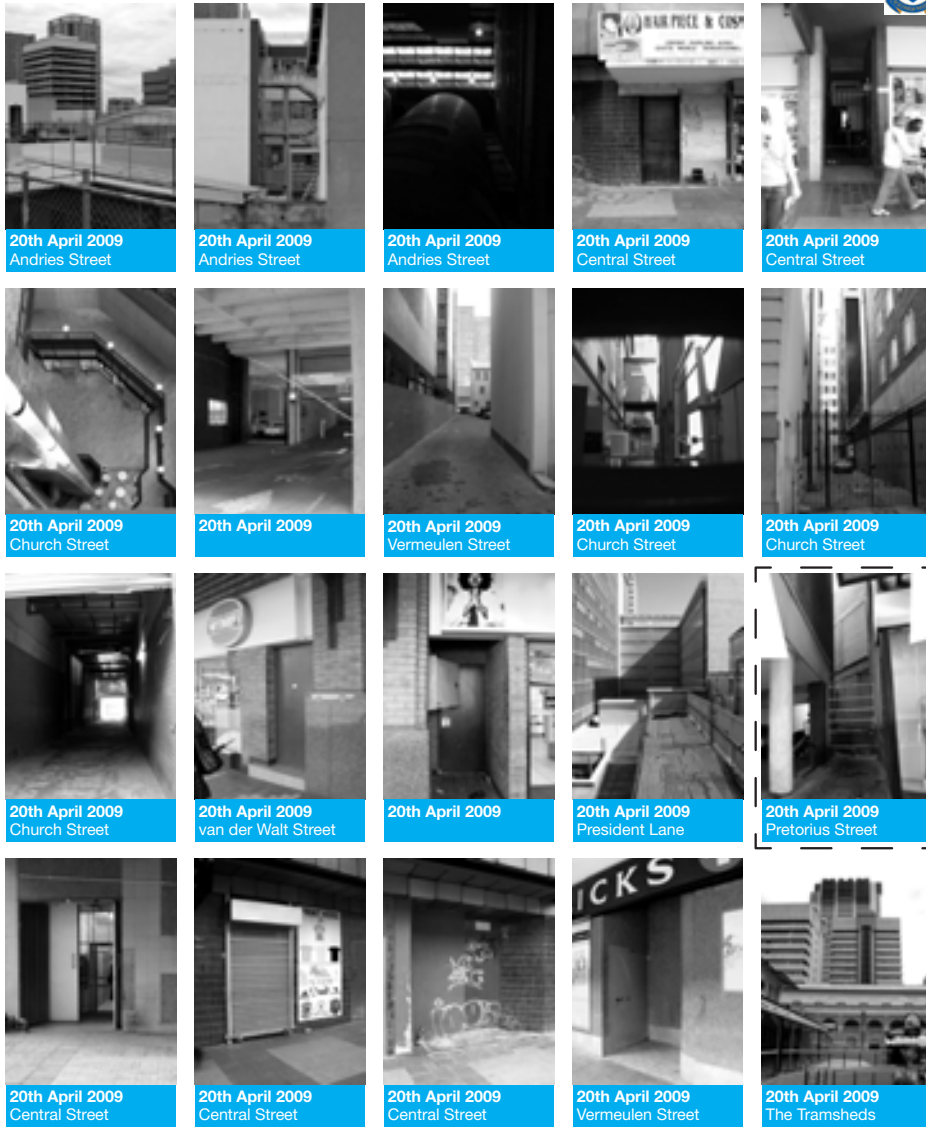
20th April 2009  
Central Street

► Fig. 62-142  
Photographs of the 'inbetween' spaces of the Pretoria CBD

no investigation into sound and the city would be complete without a trip through Burlington Arcade, where jazz fills the air on a daily basis

the space between these two buildings on the western side of Church Square will eventually become the site for the proposed infill typology and festival that will be encountered later in the document

listening to the sound of the mosque from this space had special significance during the process of investigation - alerting the author to the possibilities of sound structuring and instigating activities within the city



the form and sound of this space, situated between two building on Pretorius Street, are very closely related and reflect the nature of the relationship between space, sound and architecture. possibilities of how to inhabit and listen to such spaces are explored later in the document

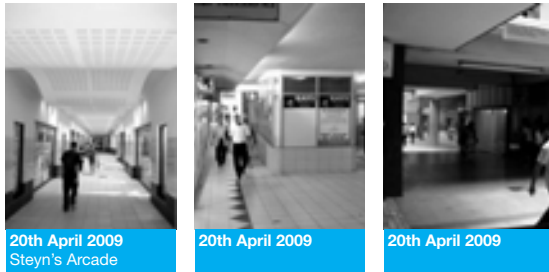


public squares offer a hive of acoustic activity

one of the smallest, and most intriguing spaces encountered during the urban investigation - a space where two buildings refuse to touch by the smallest of margins

"[S]omewhere in the middle of all these buildings as a place where you can clap your hands and be heard in heaven." Allen Ginsberg in *Managua* (2009:143)

one of the more difficult spaces to get to, but worth it in the end



rooftop spaces revealed some peculiar secrets, including accommodation.



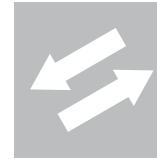
▲ Fig. 143-144  
Still images from *City Slivers* (1976)

**Mini-Precedent:  
Gordon Matta-Clark**

Gordon Matt-Clark is closely associated with images of the deconstruction of abandoned buildings, his oeuvre packed with a variety of architectural cuttings and slicing. *City Slivers* (1976) continues his philosophical enquiry into urban spaces, but does so using film as its medium, showcasing architectural snippets as vignettes of activity and movement.



Sounds of Nature



Sounds of Movement



Sounds of People



Sounds of Alert



Sounds of Buildings



Sounds of Trade & Industry



Sounds of Culture

**Part 2: Sonic Context**

Kouros Mavash proposes in his article *Site + Sound: Space* (Resonance, 2007:53) a method of design and analysis based purely on the sounds of the site, allowing access to a “unique and rich databank of history, culture and [the] nature of the site” (Resonance, 2007:63). His method of observation, documentation and representation does not point to any specific conclusions, but rather acts as a complementary system with which to analyse a given site.

Mavash points to R. Murray Schafer in his discourse, sighting the latter’s comprehensive taxonomy of sounds according to their referential aspects. This included sounds of nature, of human activity, of society, and of industry as well as “mythological sounds”, “utopian sounds” and quiet and silence (Resonance, 2007:63). Murray Schafer also defined the following three categories of sound (Resonance, 2007:64): **keynote sounds** (natural and man-made background sounds), **signals** (foreground sounds), and **soundmarks** (community sounds which are unique or possess qualities which make it specially regarded or noticed by the people in that community).

Mavash’s categories of sound were developed into a graphic protocol that enabled the study area to be mapped according to its sonic qualities. Particular attention was paid to the in-between spaces identified in the deconstruction of the block; what could be heard within these spaces and what could be heard from them.

Firstly, a series of soundwalks were conducted within the CBD, followed by a closer look into a specific environment.

◀ Fig. 145  
Graphic Protocol based on Kouros Mavash’s categories of sound

# Soundwalks



This soundwalk, conducted on the 26th of March 2009, attempted to reveal the awakening of the city during the morning. The recordings revealed a number of activities that grew in intensity and volume as the morning progressed. Of particular significance, and sonic contribution, was the tolling of the bell on Church Square and the swifts. The swifts provided a natural contrast to the trade and industrial driven sounds that dominate the city. The most prevalent sounds are those of automotive transport, such as buses and taxis. Accompanying this however are the sounds of people gathering and waiting for transport - causing pools of conversational sound within the city.

- 06:30 | van der Walt St | long distance conversation
- 06:35 | Church St | vendor setting up stall
- 06:45 | Vermeulen St | taxi horns
- 06:55 | Church Square | film crew meeting
- 07:00 | Church Square | bell
- 07:02 | Church Square | pigeon taking off
- 07:05 | Church Square | photography group
- 07:10 | Pretorius St | people queuing at bus stop
- 07:15 | Pretorius St | wheel chair lift on bus
- 07:17 | Pretorius St | bus doors
- 07:20 | Central St | vendor setting up stall
- 07:30 | Queen St | vendor pushing cart
- 07:30 | Queen St | swifts
- 07:40 | Vermeulen St | coffee cups

Pretoria CBD | March 26th 2009 | 06:30-08:58



▲ Fig. 146  
Soundwalk map for 26th March 2009

# Soundwalks



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- 07:40 | Vermeulen St | coffee cups

Pretoria CBD | March 26th 2009 | 06:30-08:58



▲ Fig. 146  
Soundwalk map for 26th March 2009

# Soundwalks



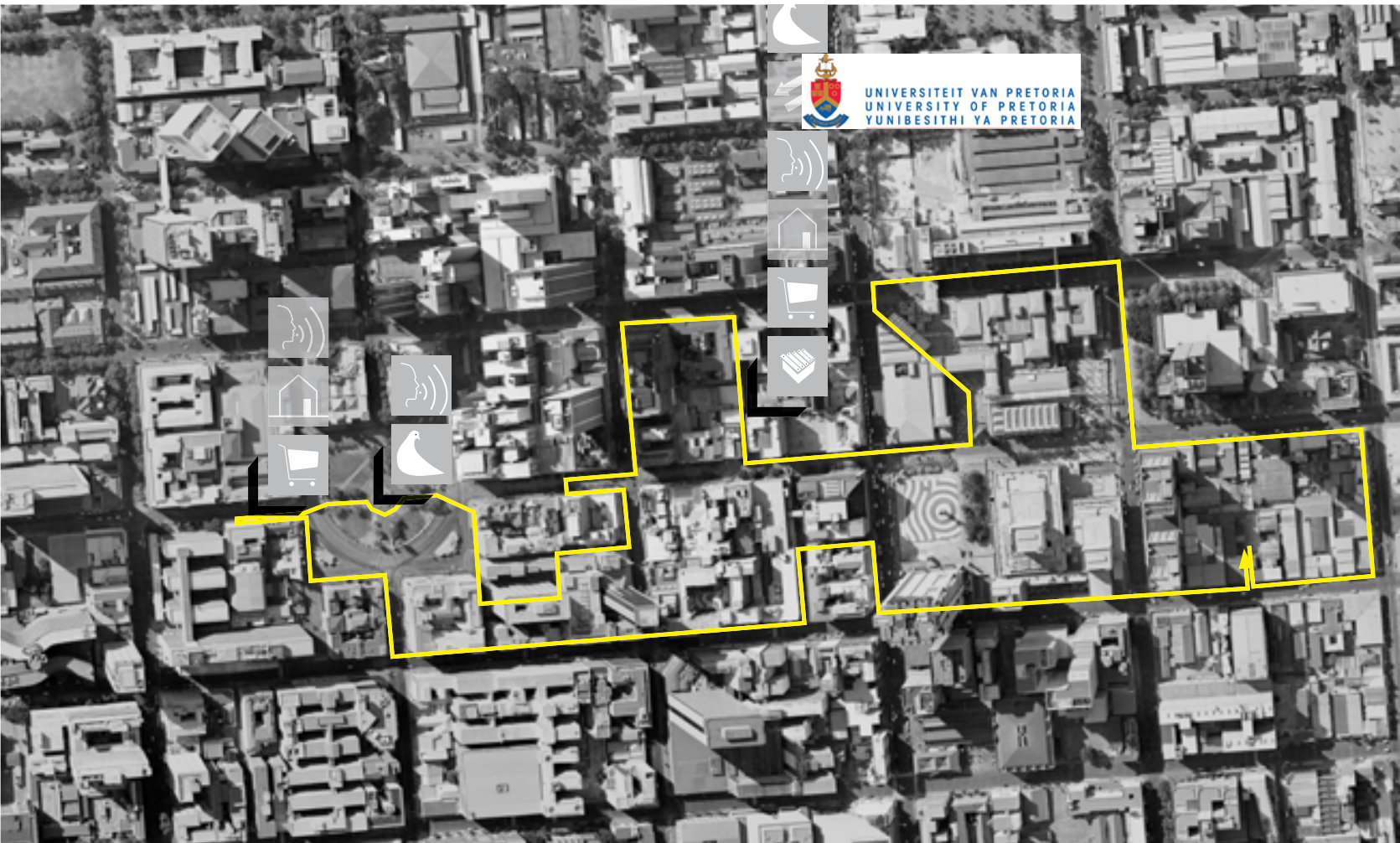
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- 07:30 | Queen St | vendor pushing cart
- 07:30 | Queen St | swifts
- 07:40 | Vermeulen St | coffee cups

Pretoria CBD | March 26th 2009 | 06:30-08:58

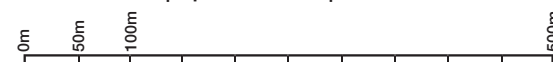


▲ Fig. 146  
Soundwalk map for 26th March 2009



On the 1st of April 2009 a second soundwalk was conducted, this time blindfolded. The intention was to mask off the dominant visual sense and focus concentration on the particular acoustic qualities of the experience. Although it took some significant time to become accustomed to being led around the city, it became possible to identify certain types of space through their acoustic characteristics. For example, arcades are naturally more reverberant due to the closed ceiling. Open Squares, such as Church Square, can be perceived as sounding different from spaces enclosed between buildings. The State Theatre has a very particular sounding HVAC system. The sounds of the spaces could be felt quite physically, a very different experience from looking at the city from outside. The heightened sense of hearing also brought with it a heightened sense of touch and smell; passing from internal to external spaces and fruit and vegetable dealers were particularly apparent. Lastly, having been sat down for coffee, it was necessary to orient one's proximity to the street and wall by 'sounding' them out; locating them based on the sound of one's own voice and surroundings.

Pretoria CBD | April 1st 2009 | 09:30-11:09

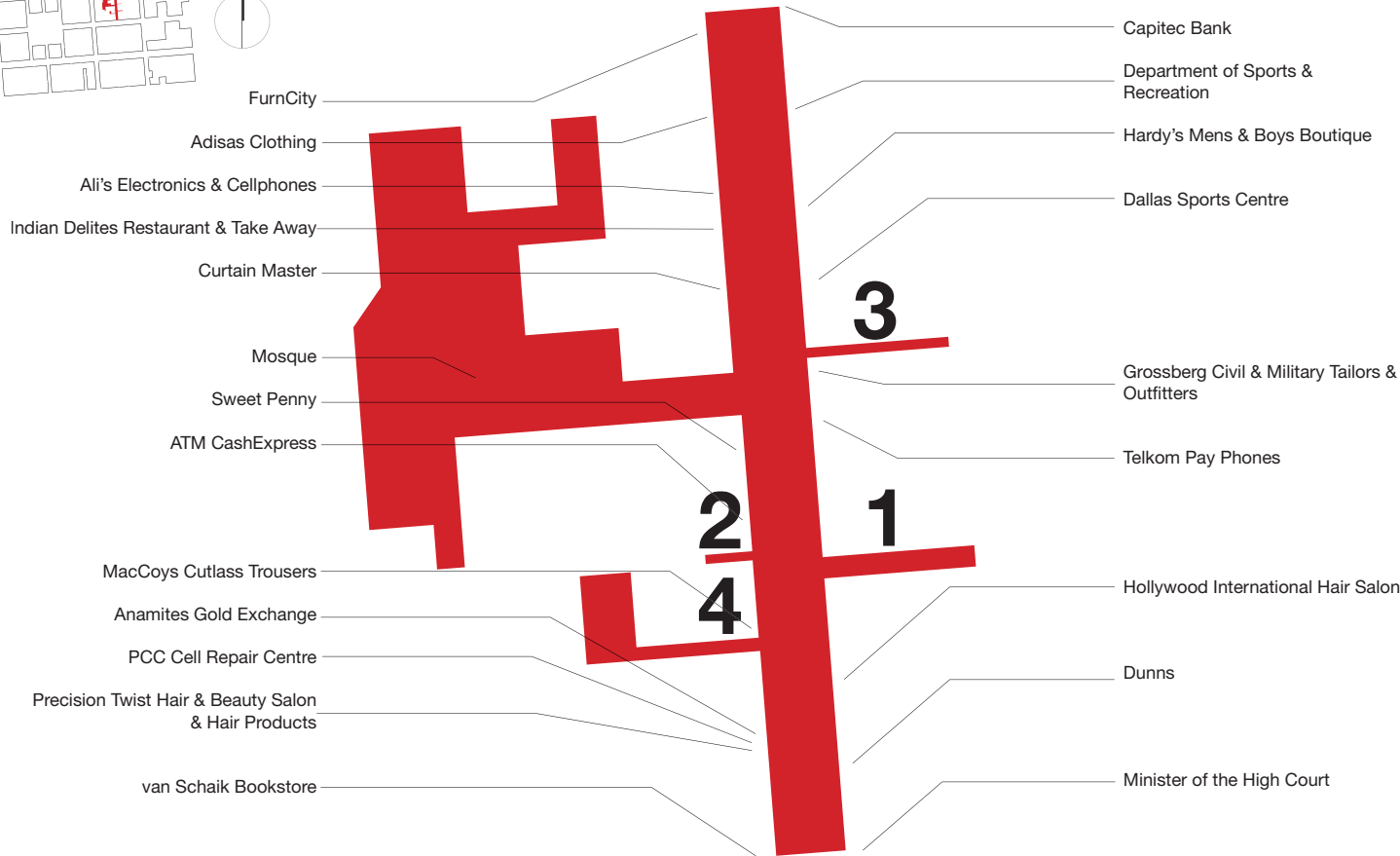
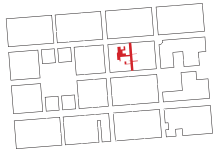


▲ Fig. 147  
Soundwalk map for 1st April 2009





# Queen St Study

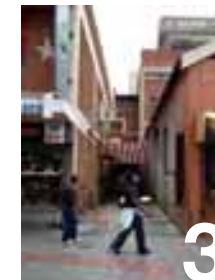
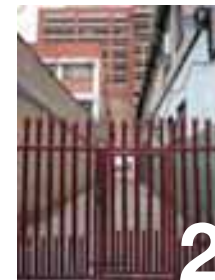


Within the study area defined previously, Queen Street was selected for a more thorough examination. The pedestrianised street revealed a number of inbetween spaces and sonic characteristics. A list of the functions contained within the street was made and assessed according to their physical size, sonic contribution, and cultural impact. Further, the graphic protocol developed was overlaid onto the street in order to identify particular sounds that contribute to the overall affect.

▲ Fig. 148  
Diagram of Queen Street pedestrianised road, Pretoria CBD

► Fig. 149-151  
Three views of Queen Street pedestrianised road, Pretoria CBD

► Fig. 152-154  
Four inbetween spaces located within Queen Street pedestrianised road, Pretoria CBD

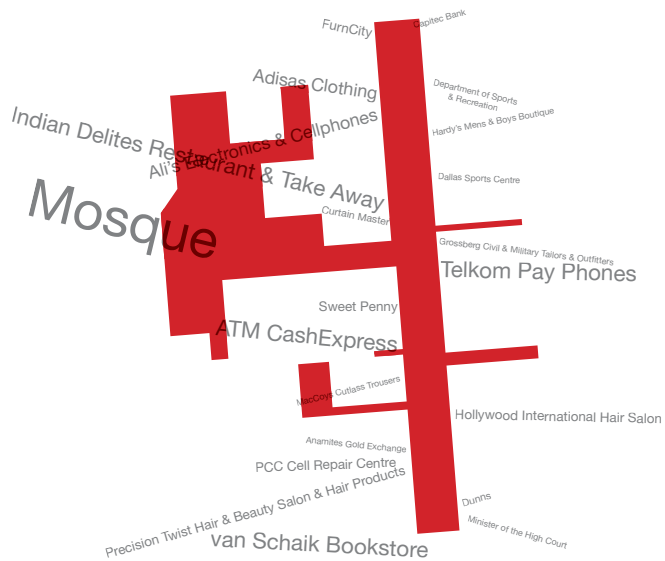




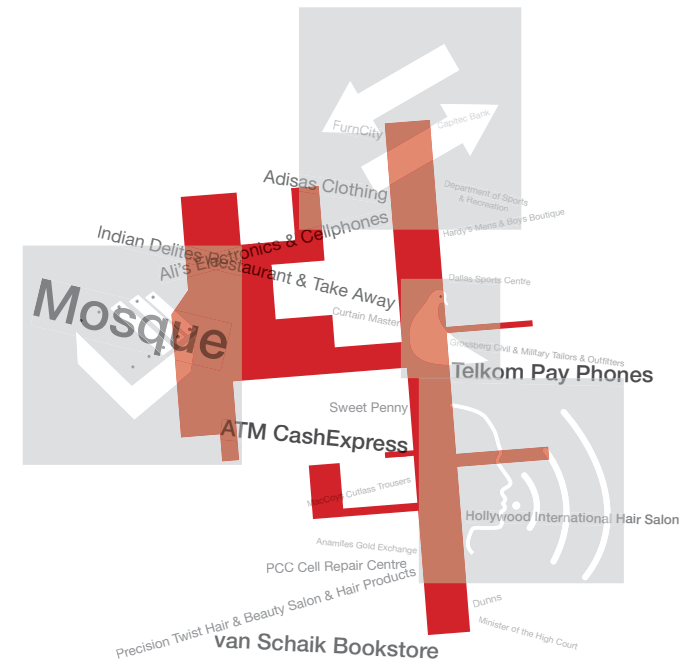
► Fig. 155  
Diagram Showing Physical Size of Functions on Street Front



► Fig. 157  
Diagram Showing Sonic Contribution (Enhanced)



► Fig. 156  
Diagram Showing Sonic Contribution of Functions (According to Volume)



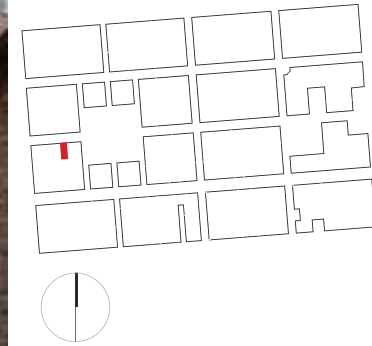
► Fig. 158  
Diagram Overlaid with Graphic Protocol

The sonic study revealed particular sonic characteristics within each of the 'points of rupture' identified previously. These characteristics are based on the qualities of the materials within each of the spaces and what the spaces play host and witness to. The question of how to intervene within these sonic environments required a closer inspection of three sites in which an installation will later be proposed.

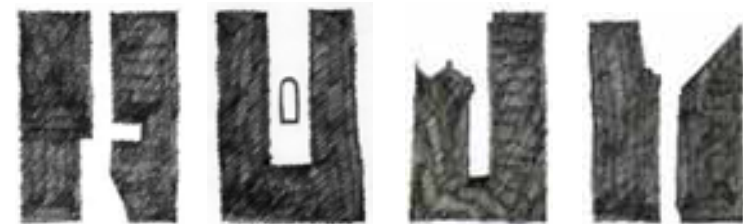
The three sites were chosen based on their potential for intervention. Although the study identified a multitude of types of space, the spaces identified as possible sites of intervention were chosen for their proximity to human activity. Whilst the rooftop spaces discovered are fascinating, the potential for people to inhabit during their normal city routines is admittedly slim. The sites chosen are therefore situated on ground-level and are spaces that are currently un-or-under-used.



# Space 1: Church St



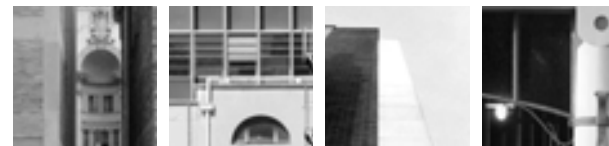
## Forms



## Materials



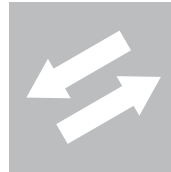
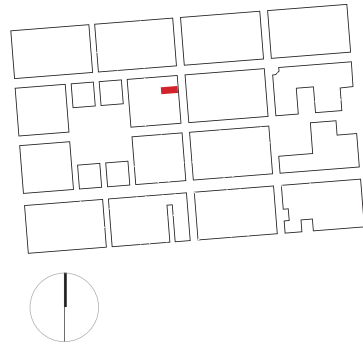
## Vignettes



► Fig. 159-161 (following pages)  
Combined physical and sonic analysis  
of three urban spaces, Pretoria CBD;  
Church Street, Andries Street and  
Pretorius Street



# Space 2: Andries St



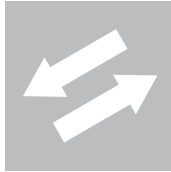
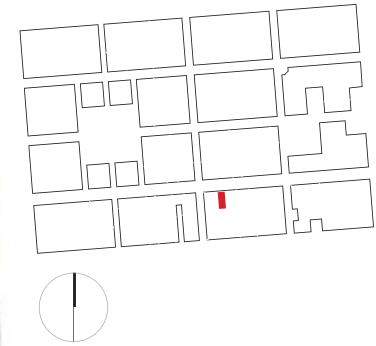
Forms



Materials



# Space 3: Pretorius St



Forms



Materials



There are five precedent studies examined in this section. The first deals with the compositional relationship between sound and space. The second and third engage with the process of revealing untold acoustic stories of objects and spaces. The fourth is a conceptual take on the ability of architecture to compose the soundscape of a place and the fifth explores the ability of architecture to reveal the latent qualities of a soundscape through careful spatial design. These precedent studies are complemented by a series of examples and ideas that have permeated the rest of the document.

# Precedent Studies

# 1. The Philips Pavilion: 'Poème Électronique'

Design: 1956-1958

Construction: 1958

Architects and Composer: Le Corbusier, Iannis Xenakis, Edgard Varèse

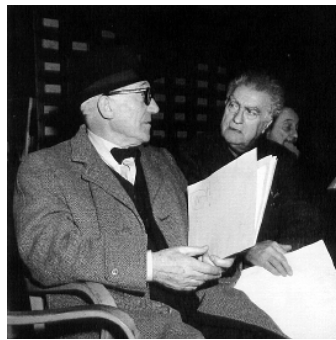
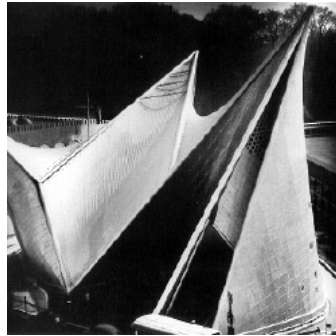
Client: The Philips Corporation, Holland

Programme: World Fair Pavilion to showcase the electronic audio/visual technologies of the Philips Corporation.

## Description

In 1956 the Philips Corporation began to make preparations for their pavilion at the 1958 World's Fair in Brussels. The fair, the first since the end of World War Two, was to celebrate the rejuvenation of civilization after years of wartime destruction (The Philips Pavilion - Poème Électronique).

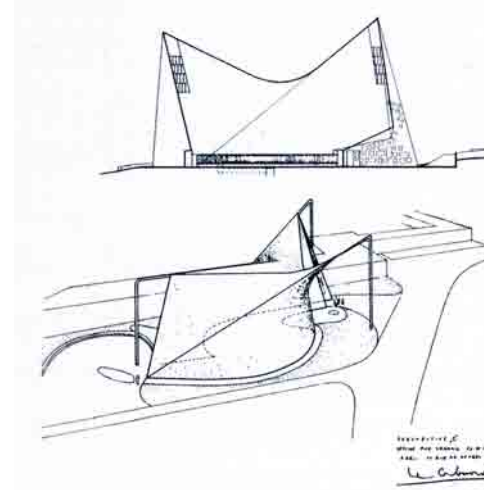
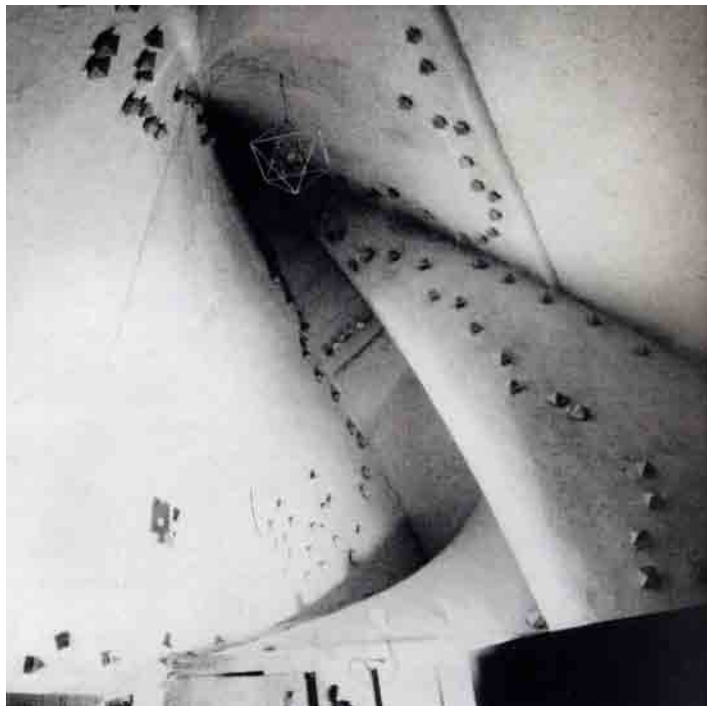
The company proposed that, instead of simply displaying commercial products, they should assemble an international team consisting of an architect, an artist and a composer to create a pavilion that would showcase electronic technology to its fullest potential. They approached Le Corbusier, who was reportedly enthusiastic, replying: "I will not make a pavilion for you but an Electronic Poem and a vessel containing the poem; light, colour, image, rhythm and sound



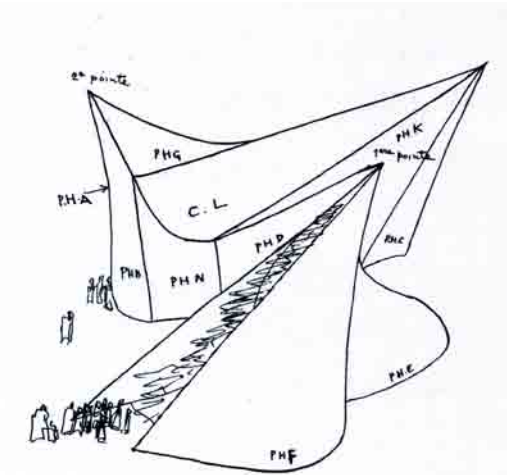
▲ Fig. 162  
Exterior view of Philips Pavilion

▲ Fig. 163  
Le Corbusier

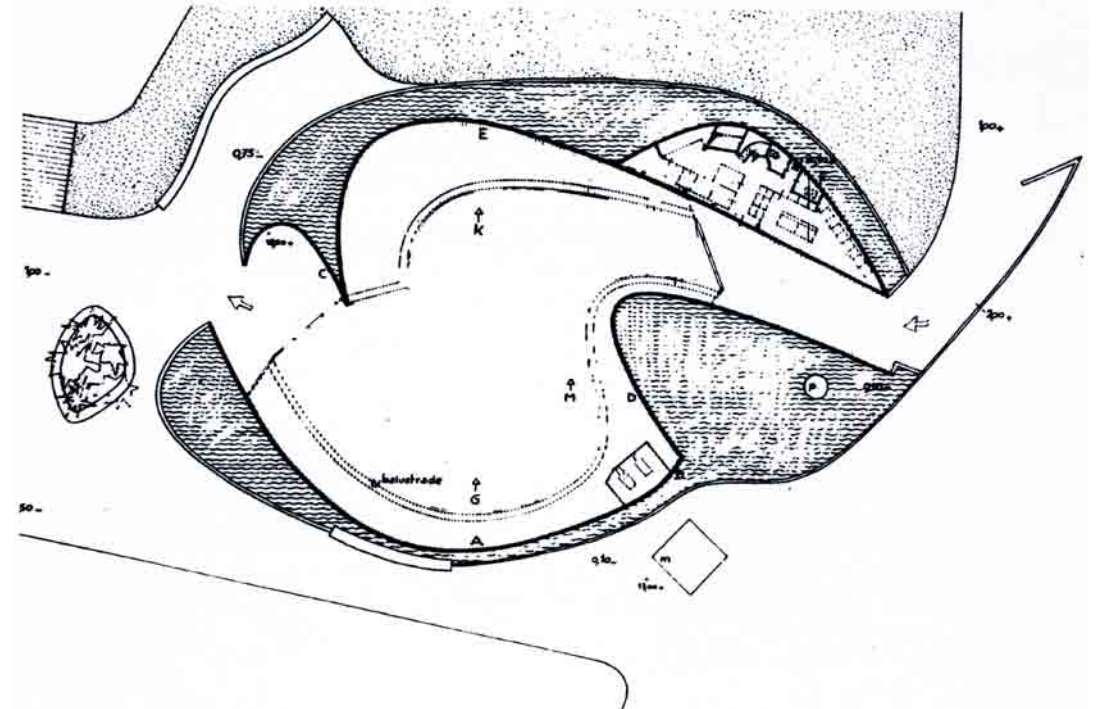
◀ Fig. 164  
Interior view of roof showing sound system



▲▶ Fig. 165-166  
Sketches of the exterior of the the pavilion



▼ Fig. 167  
Plan of the pavilion



joined together in organic synthesis.” (The Philips Pavilion - Poème Électronique). Le Corbusier insisted that he also be responsible for the artistic and visual elements and that Edgard Varèse be the composer for the installation.

Le Corbusier initially provided a rough outline as to look and function of the event and installation:

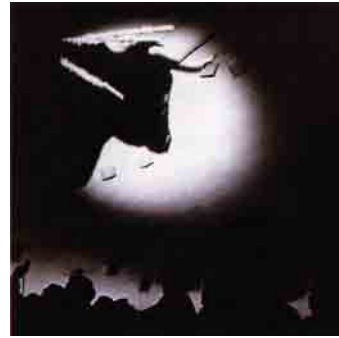
- The interior, to be shaped like the stomach of a cow, would hold audience members in groups of 500 that would be allowed to enter in ten minute intervals.
- As the audience entered the interior a two minute transition piece would be played, followed by the darkening of the room and the commencement of the eight minute music and light show.
- The eight minute show consisted of coloured lights, images, and film that would immerse the audience. The music specifically was composed to be played over a huge array of speakers – the sound thus surrounding and traversing the audience.
- The music and visuals would not be synchronised in any way, except by chance and a specified moment of silence six minutes into the work.

The project was managed by Iannis Xenakis, a young architect at Le Corbusier’s office that would also come to compose the shorter transition piece. Indeed, Xenakis would become the principal coordinator of the project during the two years of development – creating the exterior design, structural details, and coordinating the artistic team.

The audio component of the piece was to demonstrate the effects of stereophony, reverberation, and echo: sounds appeared to move through the space from different directions and around the audience. The piece was one of the most elaborate and site-specific projects ever created: the sound being written for the space and vice versa.

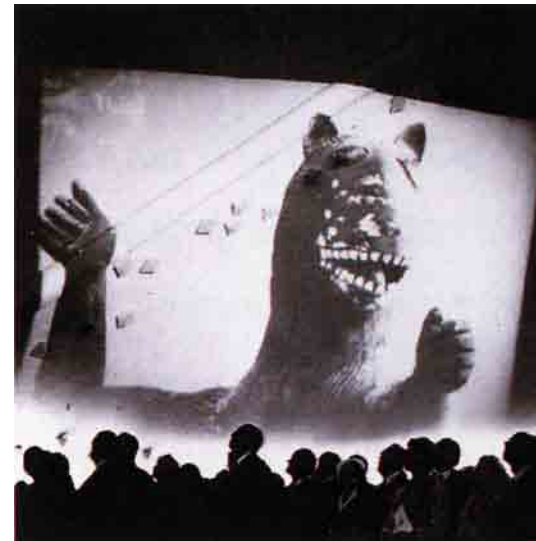
## Design Considerations

The Philips Pavilion was one of the first immersive installations in which sight, sound and space were designed and manipulated together to such an extent as to influence each other. Although less shocking today thanks to MTV, the effect of quickly moving and changing images and sounds in 1958 was revolutionary. The images and sound were designed to create a specific atmosphere and feeling that immersed the viewer completely in experience. The effect



▲► Fig. 168-170  
*Interior projections (as created by Le Corbusier)*

► Fig. 171  
*Exterior view of Philips Pavilion*



however was very carefully choreographed and relied heavily on technology to achieve it. The sounds and images were not the sounds of the everyday and could only be experienced within the hermetically sealed and controlled environment of the pavilion. It does not allow for chance encounters with its content but rather forces it upon the user. For the purposes of this thesis it the role of chance encounters within city that drive the design and ultimately provide opportunities for the poetic experience of sound in the city.

## 2.1 Recorded Delivery

### Description

Janek Schaefer was trained as an architect at the Royal College of Art, London before becoming interested in sound as an art form. His first encounter with sound as an art medium in itself came in the form of a piece called 'Recorded Delivery', produced in 1995 for the 'Self Storage' exhibition curated by Brian Eno, Art Angel and Laurie Anderson. The space allocated to each artist was a generic room in a self storage centre, not a physical or specific place to which the artists could respond. The question was how to create a piece that was specific to 'a place' without having visited the place itself. For Janek the aspect of 'delivery' became pertinent. Delivery essentially involves the movement of an object from one specific place to another specific place (Schaefer, 1995). This 'movement of objects' informed the creation of a 'parcel with ears' – essentially a voice activated tape recorder placed inside a parcel that would 'listen' to the 'interesting bits' of its journey to the exhibition (Schaefer, 1995).

### Design Considerations

'Recorded Delivery' documents the life of a seemingly ordinary object during a seemingly ordinary day; a story that would ordinarily never be heard. The effect of highlighting the parcel's journey draws attention to the vast and varied soundscape that surrounds society's daily interactions; with each other, objects and built space.

## 2.2 Vacant Space

Installation: 25<sup>th</sup> November 2006 to 25<sup>th</sup> January 2007

Artists: Janek Schaefer, in collaboration with Chris Watson and David Tinapple

Venue: Southall Park Gallery, London

Program: Audio-Visual Immersive Installation

### Description

The second piece by Janek Schaefer that merits investigation is entitled 'Vacant Space'. His architectural training necessarily involves him reacting to the specifics of a given place rather than the 'virtual idea' of it (Schaefer, 1995), creating very site-specific sound works in the process – the idea that sound and space combine to create unique places. When confronted with the generic white void of the contemporary art gallery,



▲ Fig. 172-175  
'Recorded Delivery' by J. Schaefer



▲ Fig. 176-180  
'Vacant Space' by J. Schaefer

Janek explored the nature of the void in respect to vacant or vacated spaces that he had encountered late at night after his live performances. Listening to these 'vacant spaces', he discovered that that: (a) there is no such thing as silence, (b) sound travels around corners and through barriers and (c) it forces you to imagine the source of the sound itself. He thus decided to amplify these spaces – record them and turn them into a piece for public consumption in the form of an audio-visual immersive installation.

Working with sound-recordist Chris Watson and Media Art MA student David Tinapple (who programmed the software), Janek created a blank white wall within the space of the exhibition room onto which was projected life-size, scrolling, 360° panoramic images of the spaces he had recorded. The scrolling of the images was controlled by, and reacted to, the soundtrack of the piece – audio snippets of the spaces themselves. For example, silence caused the image to pause and increased volume caused the image to brighten. The 'art' of the piece took place in the blurring boundaries between the visual-spaces and the sound-spaces.

The conceptual installation was also broken down into a number of deliberate actions that the viewer had to perform: walking into the space, picking up a pair of headphones, putting them on (dampening the ambient sounds of the gallery), walking to the wall, plugging into the wall itself and standing or sitting within a certain distance of the projection (causing it to appear life-size and making the viewers shadows interfere or participate).

### Design Considerations

'Vacant Spaces' is an artwork that requires you to participate in its creation with a carefully choreographed routine. The process of interaction carefully reveals the makeup of the work as the user becomes more involved and more immersed. The act of 'plugging in' to the sounds of the projected spaces captures the user in the activity of listening; the void of the gallery becoming the frame for untold stories of built space.



### 3. Mix House

Date: 2007

Architects: Joel Sanders, Karen van Lengen, Ben Rubin

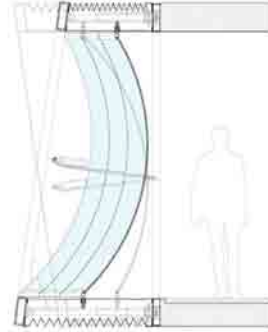
Programme: Residential unit that provides the inhabitants with the opportunity to actively produce both the internal and external sonic environments.

#### Description

*Mix House* extends the Modern notion of visual transparency to include aural transparency. The house itself consists of two sound-gathering volumes that contain three 'audio-visual' windows. The windows contain a louvered glass window that regulates the ambient sound of the environment, and a parabolic dish that electronically targets domestic sounds. The recorded sounds can then be used to manipulate and control the acoustic environment of the interior, and also projected into the neighbourhood.

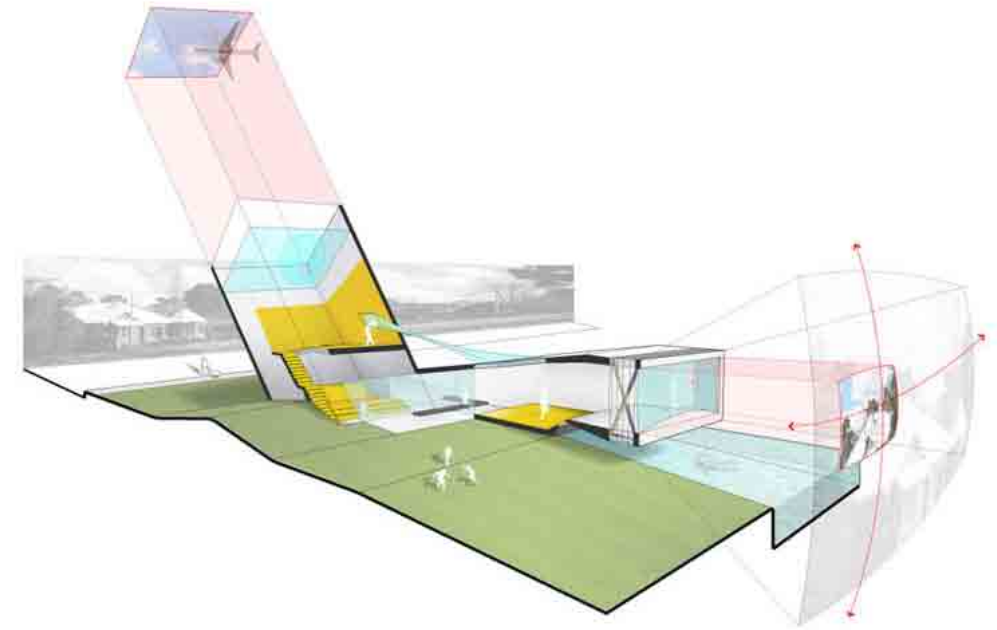
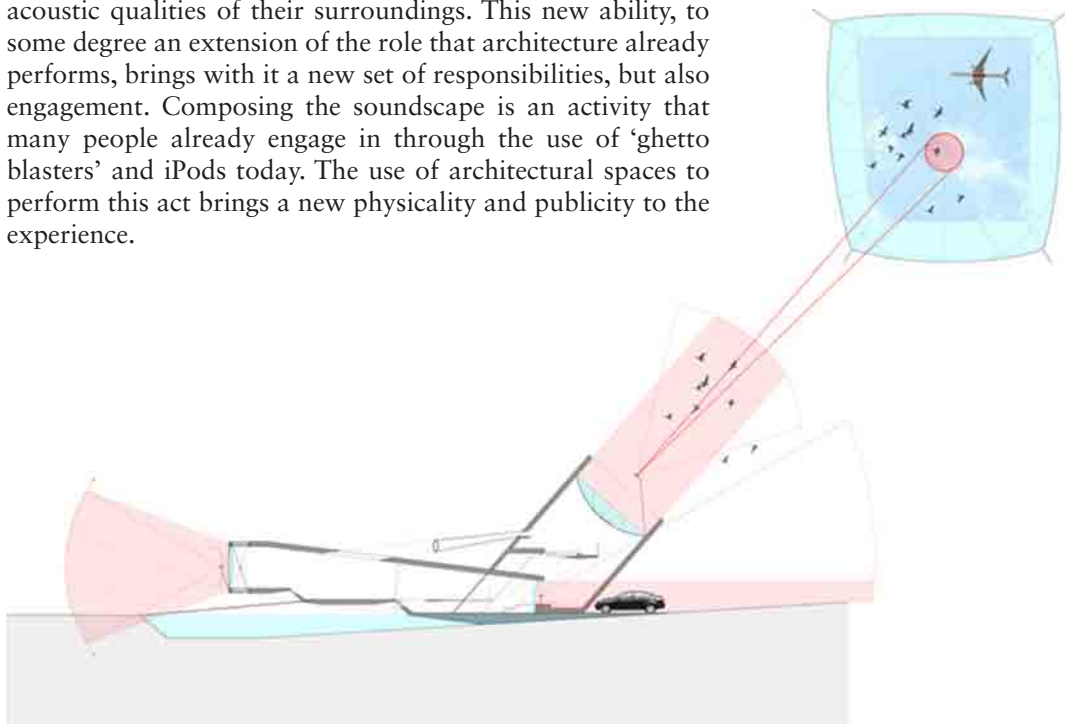
#### Design Considerations

Entirely conceptual in its execution, *Mix House* poses more questions than practical answers. A series of such buildings would have the ability to compose the soundscape of a neighbourhood and allow people to actively produce the acoustic qualities of their surroundings. This new ability, to some degree an extension of the role that architecture already performs, brings with it a new set of responsibilities, but also engagement. Composing the soundscape is an activity that many people already engage in through the use of 'ghetto blasters' and iPods today. The use of architectural spaces to perform this act brings a new physicality and publicity to the experience.



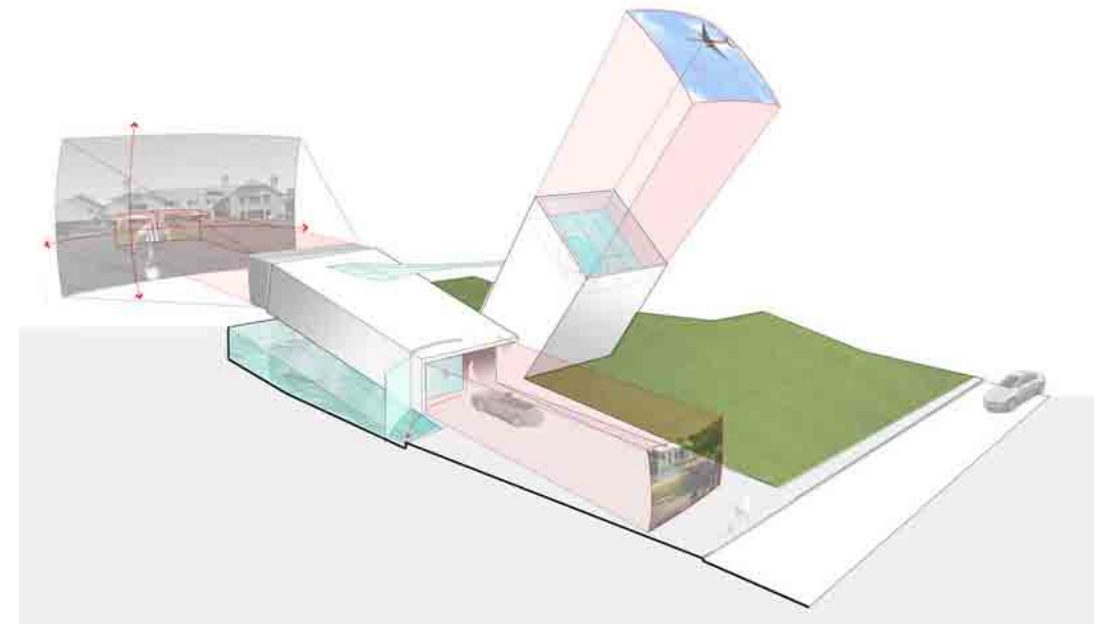
▲ Fig. 181  
*Mix House, amplifying window detail*

▼ Fig. 182  
*Mix House, section*



▲ Fig. 183  
*Mix House, exterior view*

▼ Fig. 184  
*Mix House, exterior view*



## 4. Swiss Pavilion for the 2000 Exposition in Hannover

Date: 2000  
 Architect: Peter Zumthor  
 Programme: Exposition pavilion

### Description

The everyday Scandinavian image of stacked timbers has been skilfully translated into a grid of walls that create a volume that is at once open and closed. The walls themselves are comprised of unseasoned timber members that are stacked without mechanical fixings. The labyrinthine effect created by the walls is permeated by larger open volumes that serve as gathering and performance spaces. In essence the entire building has been turned into a giant musical instrument that is 'played' by nature. The galvanised gutters that form the roof, for example, cause the sound of rain to reverberate through the entire volume.

### Design Considerations

The irregular rhythms of nature create impromptu performances that the pavilion enhances; being open enough for the user to feel a part of these rhythms, and sheltered enough for the performances to be experienced comfortably. The programme of the pavilion complements these natural performances through hosting culturally expressive musical performances.



▲ Fig. 185  
*Swiss Pavilion, aerial view*

▲ Fig. 186  
*Swiss Pavilion, roof*

▼ Fig. 187  
*Swiss Pavilion, interior view*

▶ Fig. 188  
*Swiss Pavilion, interior view*



The investigation into the study area revealed a number of spaces in which sounds dwell but people do not. An architectural strategy was developed in order to emphasize both the spatial and sonic qualities of these spaces and make them inhabitable. This strategy centres on the chair as a spatial device that enables the act of sitting and listening. The chair can be seen as one of the smallest architectural strategies with which to occupy the most diverse of spaces. The investigation of the chair in the city is situated within an acoustic festival framework for Pretoria that is controlled from a proposed infill typology that takes advantage of the types of spaces discovered and the myriad of concrete framed buildings within the city centre.



# Design Investigation

## The Little Red Chair: A Rationale

The Little Red Chair becomes an emblem for the research undertaken, the first of a possible series of ‘tactical objects’ that conceptualise certain ideas in designed form. By using an object-driven methodology for a spatial investigation, the chair avoids the fundamental pitfalls that have affected the relevance of the traditional idea of architecture. The chair is a recognizable archetype, both functionally and aesthetically. Chairs, in their ability to be moved around with relative ease, promote micro-architectural scenarios of interaction and response – one can sit on a chair alone, they can be grouped together intimately, or arranged in ordered rows – each configuration suggests a certain use and interaction. The way chairs are used can also be interpreted on an individual level, for example in the way they are sat upon will vary from person to person.

However, by augmenting the object, by subverting its intended and easily legible use, in turning it into a tactical object for the use of research, it can become more than simply an object; it can take on a personality of its own. Geoff Manaugh (2009) discusses the role of furniture typologies in the artworks and installations of Chinese artist Ai Weiwei. For Weiwei, furniture plays a greater role than the traditional idea of simply ornamenting a space: it breaks up space, offers moments of rest and stoppage, gives rhythm and can be deliberately misused; furniture can “interrupt, challenge, and deform” (Manaugh 2009). Gerrit Rietveld, the Dutch architect, furniture designer, and De Stijl member wrote that “... chairs will become abstract-real artefacts of future interiors” (in Manaugh 2009), suggesting that furniture could “anticipate [or] even require new ways of experiencing architectural space... demanding the very space which it comes to dominate... [and affecting the way] we understand and inhabit space tomorrow” (Manaugh 2009). For Ai Weiwei, his furniture pieces are not ‘passive inhabitants’ of a room but exert a transformational force on the spaces around them. Manaugh (2009) invests great energy to describe Ai Weiwei’s pieces in the poetic manner they deserve, for example:

“*Tables at Right Angles...* is really just one table that has misunderstood itself, reeling back from its own projected double. Mistaking its own eccentric solidity for the architecture that surrounds it, this table will never realize that the world it thinks it touches is just another part of itself.”

(Manaugh 2009)



▲ Fig. 189-191  
 Images of Ai Wei Wei's furniture pieces  
 From left to right: table with three legs,  
 table at right angles, grapes

In this way he enhances the symbolic and implied content of the pieces, highlighting their inherent character, destiny, and tension.

Bernard Cache (in Speaks 1994:298) suggests that architecture is the art of the frame and that the relationship between furniture and architecture is one of how to frame the landscape or geography. However, although geography is understood as something that lies *exterior* to architecture, he also describes furniture as a peculiar type of ‘personal geography’, thus geography *becomes* interior as furniture images. Thus Cache (in Speaks 1994:298) practices architecture by manipulating things that are supposed to be framed, and doing it in relation to the frame architecture provides.

If furniture, but more specifically in this case chairs, are considered remnants of our ‘personal geographies’ mapping our interactions and response to them and to differing social situations, collecting untold stories of the people and places they encounter, would it be possible to turn these simple objects into witness’s of our contemporary urban condition; objects with ‘ears’ that listen to the open fields that they meet. Thus, through an exploration of a chair as an augmented furniture typology, it becomes possible to *listen* to the contemporary urban condition and inform an architectural response that is a spatial side-effect of their listening capabilities.



**Mini-Precedent: Bins and Benches**  
 Bins and Benches by Greyworld is a collection of bins and benches that have the ability to interact with the public and with each other. Solar-powered and GPS enabled, the street furniture navigates its way around a public square – running for shelter when it rains and singing when the sun comes out. Greyworld is a collective of artists and architects that specialise in performative public art works.

▲ Fig. 192  
*Bins and Benches by Greyworld*



**Mini-Precedent: Boombench**  
 Boombench is a piece of street furniture that plays music transferred to it from passing mobile phones via Bluetooth. Its execution at the Urban Play 2 event illustrates the possibilities in fusing electronic components and street furniture to create an interactive and performative piece.

▲ Fig. 193-194  
*Boombench by NL Architects*



**Mini-Precedent: Interior Design**  
*Interior Design* is a film set in Tokyo about a young woman who feels useless in life. One day she turns into a wooden chair and begins to find a sense of purpose,

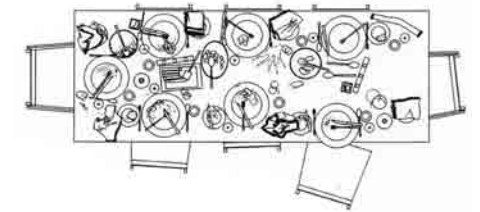
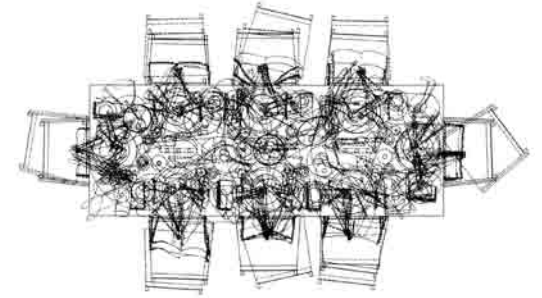
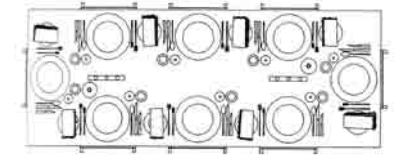
▲ Fig. 195-199  
*Still images from Interior Design film*



◀ Fig. 203  
*What is the true scale of a chair?*

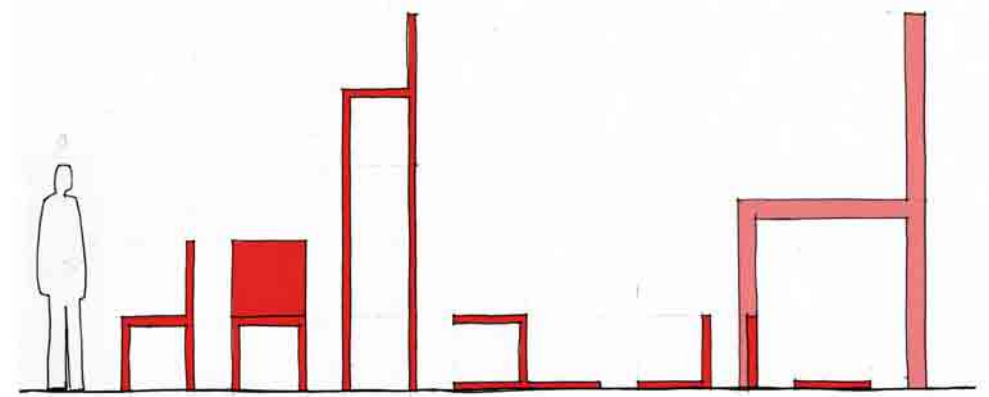


**“Furniture: a kind of mobile architecture that mediates directly between body and space; the stuff with which to furnish and accommodate. The most beautiful pieces of furniture have a stature and nobility of their own, but are flirtatious too. They want to be part of the space game in a room, and to look as though they belong without losing a defiant independence that can justify their autonomy as objects.” Coates, 2003:297**



▲ Fig. 200-202  
*Table Manners*  
 Rotring ink line drawings showing the table before, during and after dinner

▼ Fig. 203  
*What is the true scale of a chair?*



## Experimental Investigations

### Object with Ears

During a crit session on the 16<sup>th</sup> of July 2009, a simple, red, plastic chair was equipped with ‘ears’ – a voice activated tape recorder strapped to the underside of the object. The chair took on the role of a silent witness during the crit session, recording snippets of conversations, derisive remarks, footsteps of pacing individuals etc. The chair became a reliable informant regarding the nature of its acoustic surroundings. The inhabitants of the space were unaware that they were being observed and went about their business as usual, the chair listening on silently.

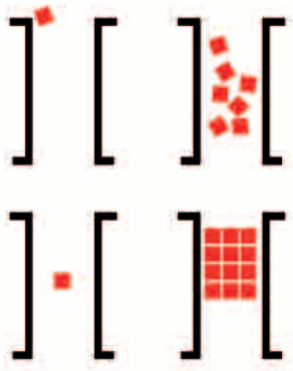
During the same crit a set of speakers were hidden in the room that played bird song and the sound of rain, traditionally associated with the external environment. The idea explored the insertion of alien sound sources within and existing space and the effect this has on its inhabitants.

#### Outcomes:

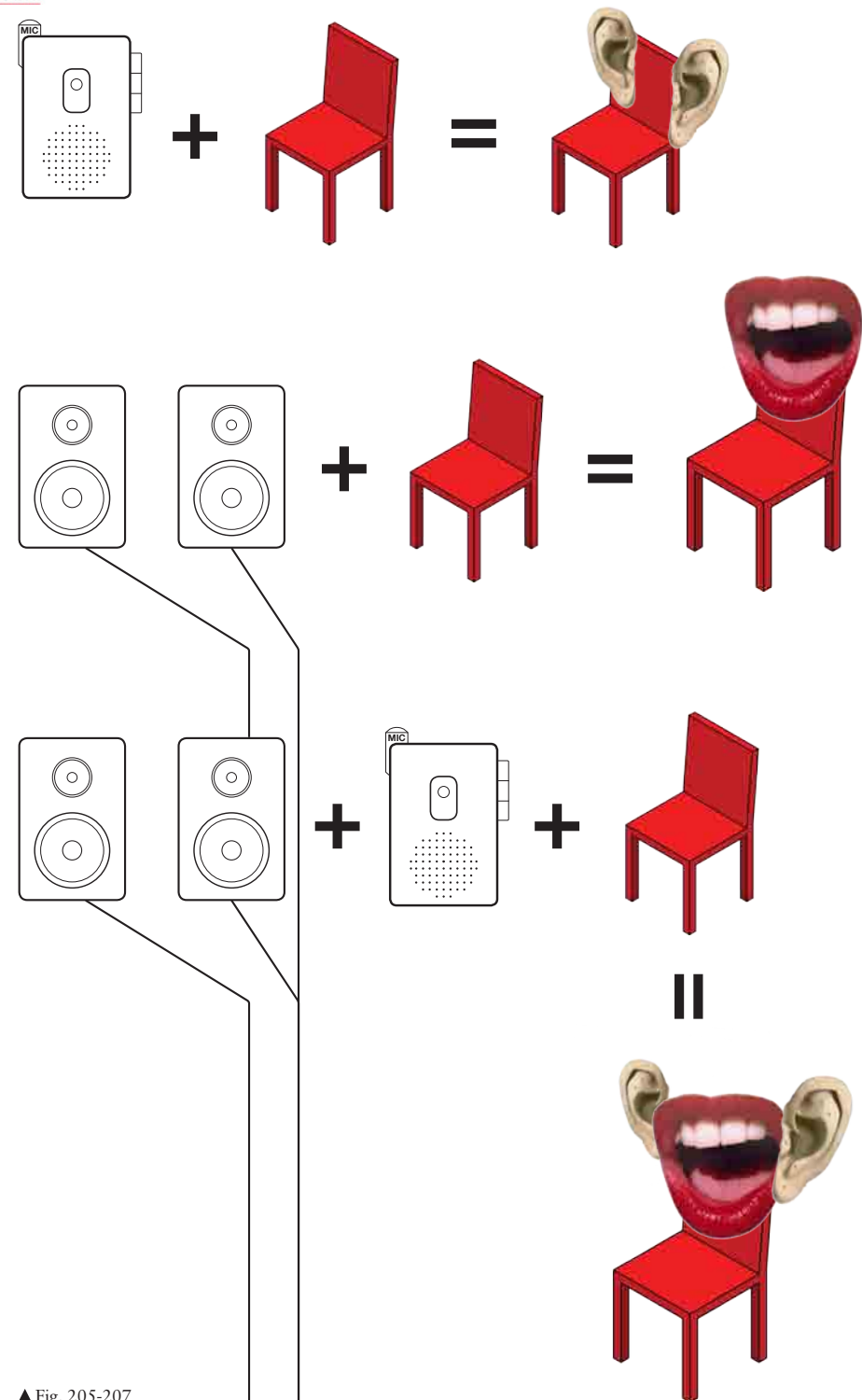
Despite testing the setup before the experiment, the voice activated tape recorder was too sensitive and resulted in too much content being recorded. Rather than the ‘interesting’ bits, the chair listened to everything within its vicinity. What was recorded though did reflect the acoustic nature of the room – quiet and slightly reverberant.

### Micro-Architectural Scenarios

By placing the chair, or a group of chairs, in an environment where people can interact with them, the object reveals patterns of use that show, perhaps, what the object wants or desires spatially.



◀ Fig. 204  
Micro-Architectural scenarios and mapping



▲ Fig. 205-207  
Augmented chair; listening, talking, listening and talking



# The Robin Day Stories

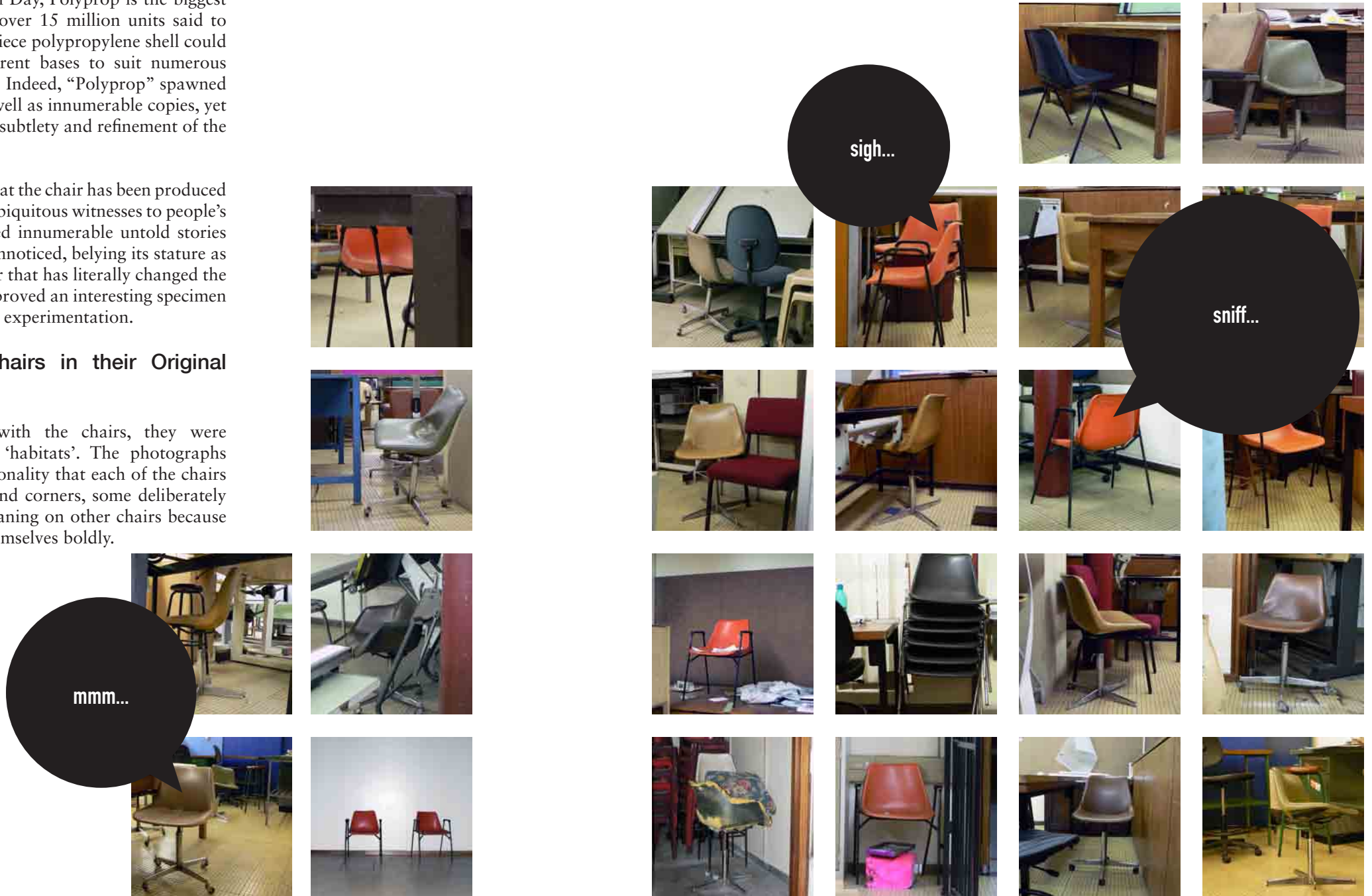
Whilst investigating the chair as a both a spatial typology and a silent witness, a large number of ‘Polyprop’ chairs were discovered lurking in the studios of Boukunde. Designed in 1963 by British designer Robin Day, Polyprop is the biggest selling chair of all time, with over 15 million units said to have been produced. The one-piece polypropylene shell could be fitted to a variety of different bases to suit numerous environments and applications. Indeed, “Polyprop” spawned an entire family of its own, as well as innumerable copies, yet very few can compare with the subtlety and refinement of the original.

The sheer volume of numbers that the chair has been produced in has created one of the most ubiquitous witnesses to people’s lives. Polyprop has accumulated innumerable untold stories and memories, yet often goes unnoticed, belying its stature as a true design classic. It is a chair that has literally changed the fabric of our environment and proved an interesting specimen with which to carry out further experimentation.

## Documentation: The Chairs in their Original Habitats

Before anything was done with the chairs, they were documented in their original ‘habitats’. The photographs reveal a certain individual personality that each of the chairs possessed – some lurking around corners, some deliberately concealing themselves, some leaning on other chairs because of damage, some presenting themselves boldly.

▼ Fig. 208-232  
*Polyprop in its existing habitats*





## Missing: Responds to Polly

On the evening of July 26<sup>th</sup>, all 43 of the Polyprop chairs in their various forms and guises were secretly removed from their studio locations and hidden away. Their disappearance was accompanied by a ‘missing persons’ poster appearing on the doors of Boukunde; suggesting that the chairs themselves had run away due to abuse and neglect. The act tried to create awareness of Polyprop as a designed object and as the ubiquitous backdrop against which many of life’s activities have been played out.

A number of updates were posted during the week, trying to create tension and mystery as to the location of the chairs. A number of responses were noted – from genuine concern that someone may have stolen the chairs, to wry smiles and bemusement.

## Found! An Installation of Chairs

On August 3<sup>rd</sup> during a deserted night in Boukunde, the chairs amassed themselves in the foyer of the building, taking over the space for three days. The installation, under the guise of a design awareness project, was accompanied by a short fact sheet and collectible cards. However, the chairs were secretly witnessing the reactions to their sudden reappearance through the use of a voice activated tape recorder attached to the underside of one of the chairs.

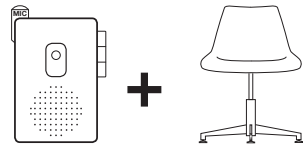
On the first day the chairs simply witnessed; however on the second they replayed the recordings from the previous day whilst again trying to record people’s reactions. On the third an alien soundtrack was inserted into the space featuring natural sounds, static noise, sound effects, and monologues from John Cage and Alvin Lucier.

► Fig. 233  
Missing propaganda poster and updates





Day 1:



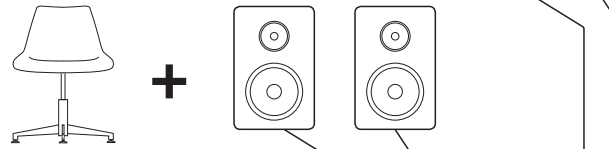
► Fig. 234  
Promotional cards illustrating types of Polyprop chair

Day 2:



◄ Fig. 235  
Illustrations of event programme; day 1, day 2, day 3

Day 3:



Outcomes:

The installation recorded the acoustic life of the building throughout the day; the unlocking of the doors in the morning and the arrival of various staff members, the cleaning of the floors, the startled on-lookers, concern for test not studied for, the midnight security inspections.

Conclusion

The experiment aimed to probe the chair as (a) a sonic witness, (b) a spatial device and (c) a visual cue. The range of reactions to the group of chairs varied from person to person, and was more distinct when snippets of sound were recognised. Particularly effective was the bird song and applause that was played on the third day; observers seemed to derive particular enjoyment from inanimate chairs singing to them and applauding them as they entered the building.



▲ Fig. 236  
Installation in use by students, day 3

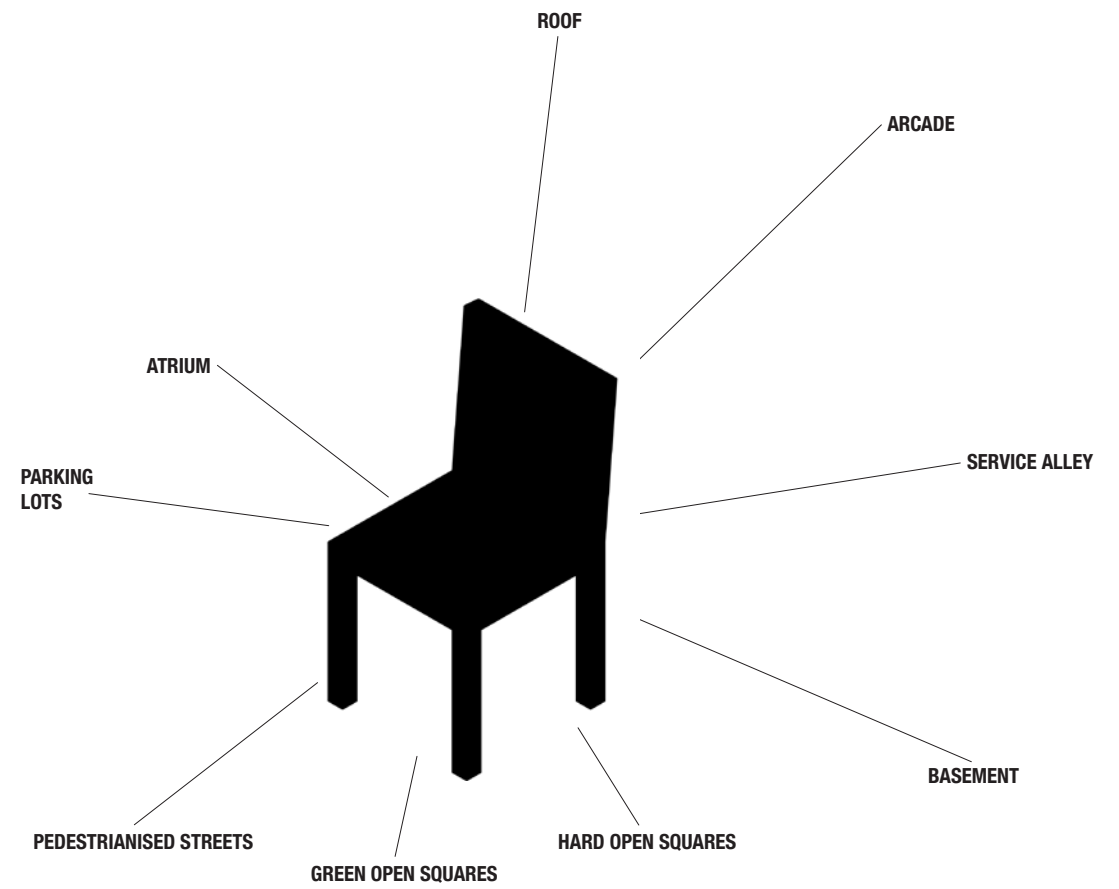
◄ Fig. 237-239  
Photographs of installation

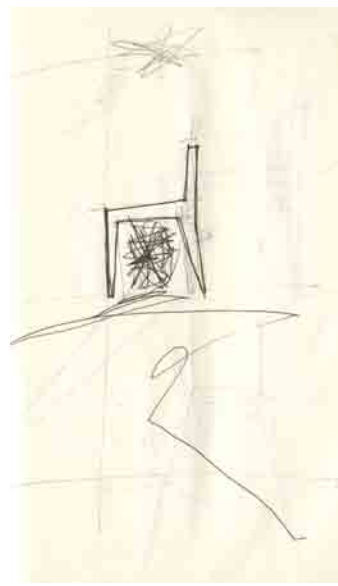
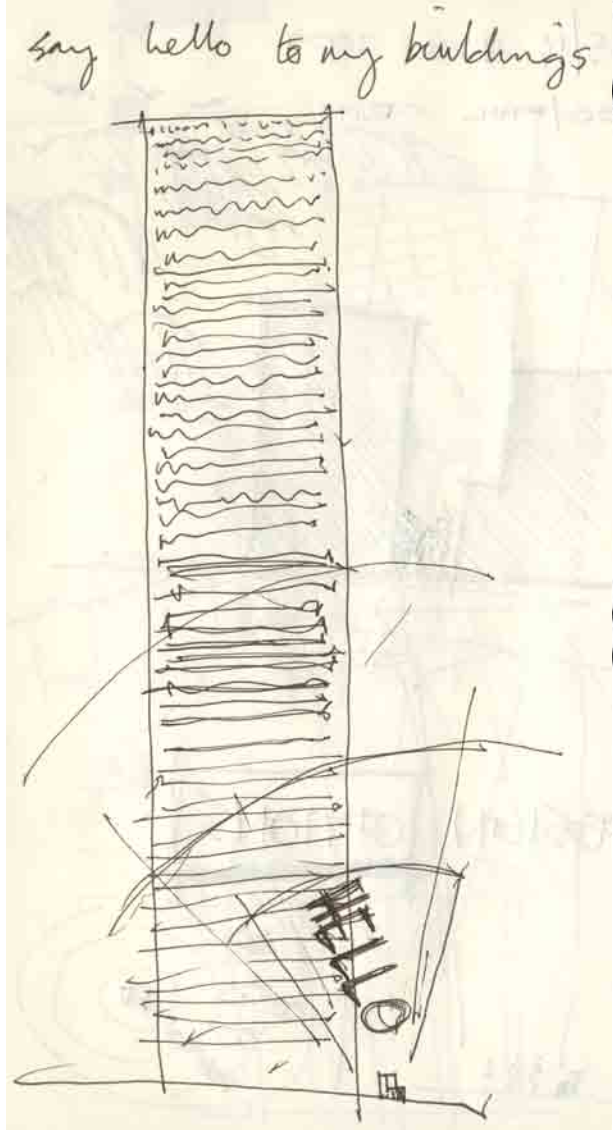
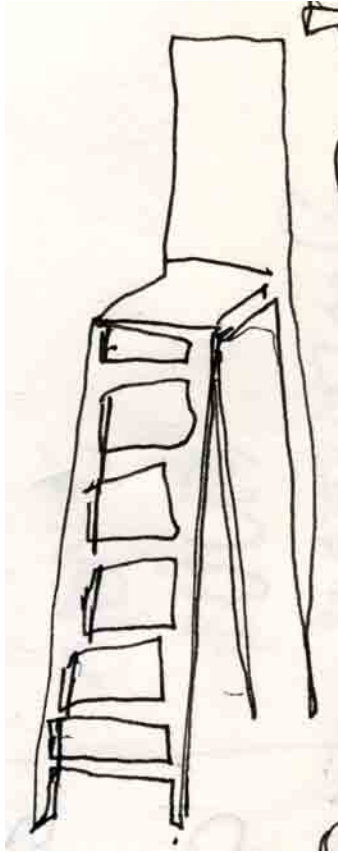
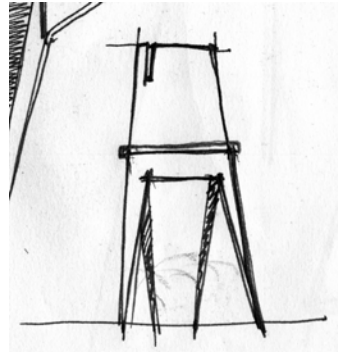
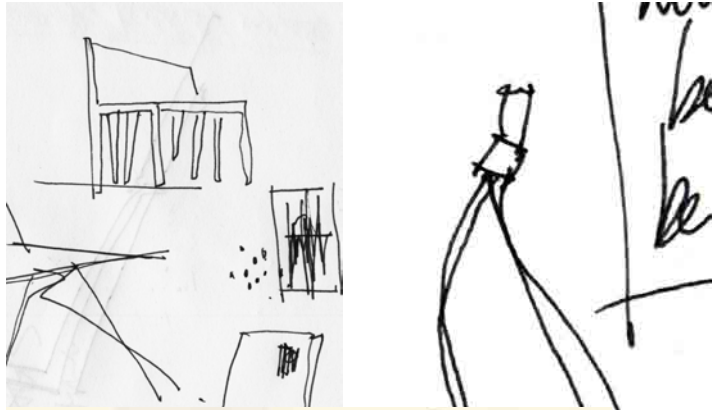


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UNIVERSITY OF PRETORIA  
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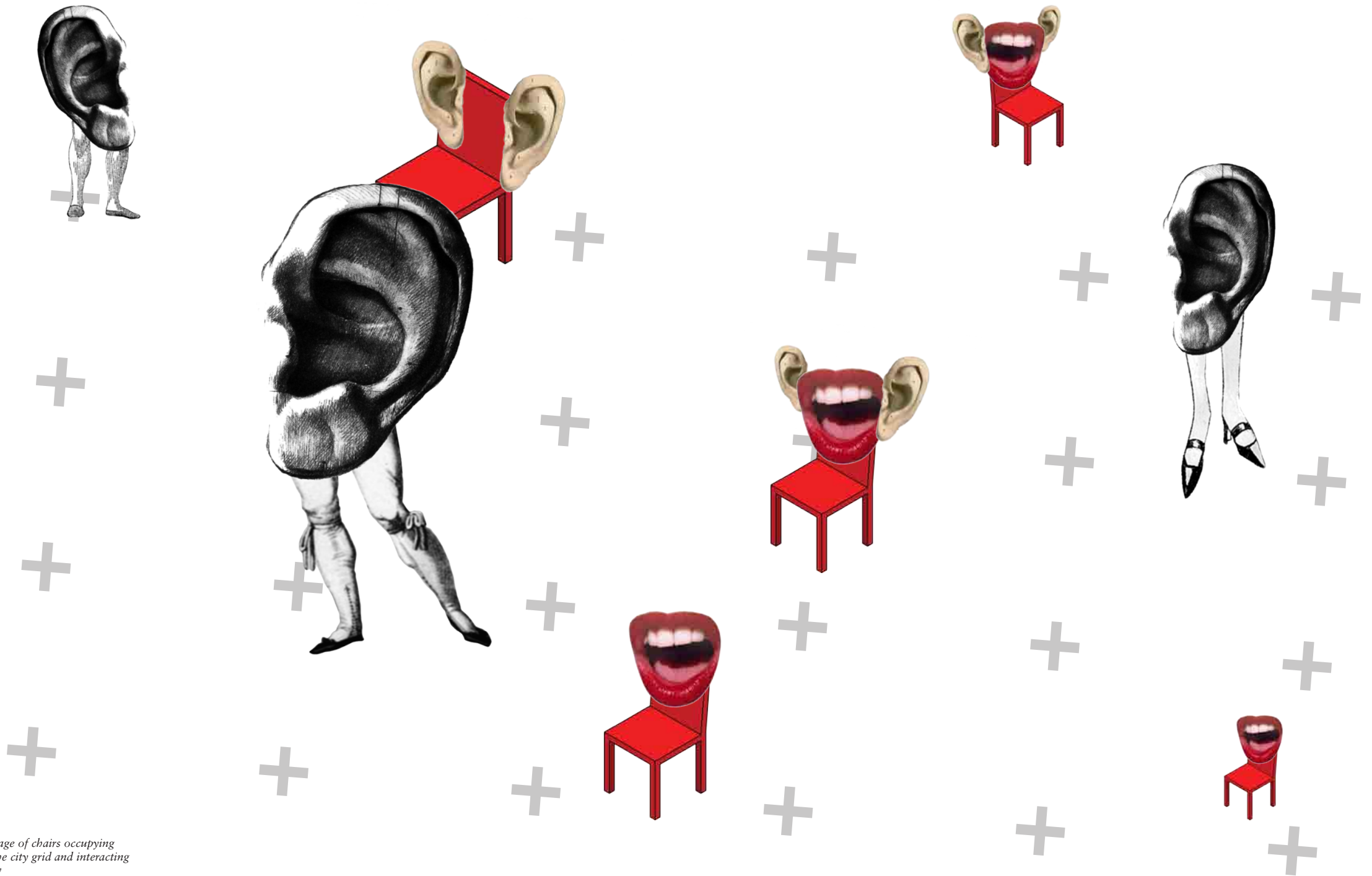
◀ Fig. 240  
Famous chair forms chosen for aesthetic value

▼ Fig. 241  
Diagram: how would the archetypal chair form change according to the sonic personality of its surroundings?





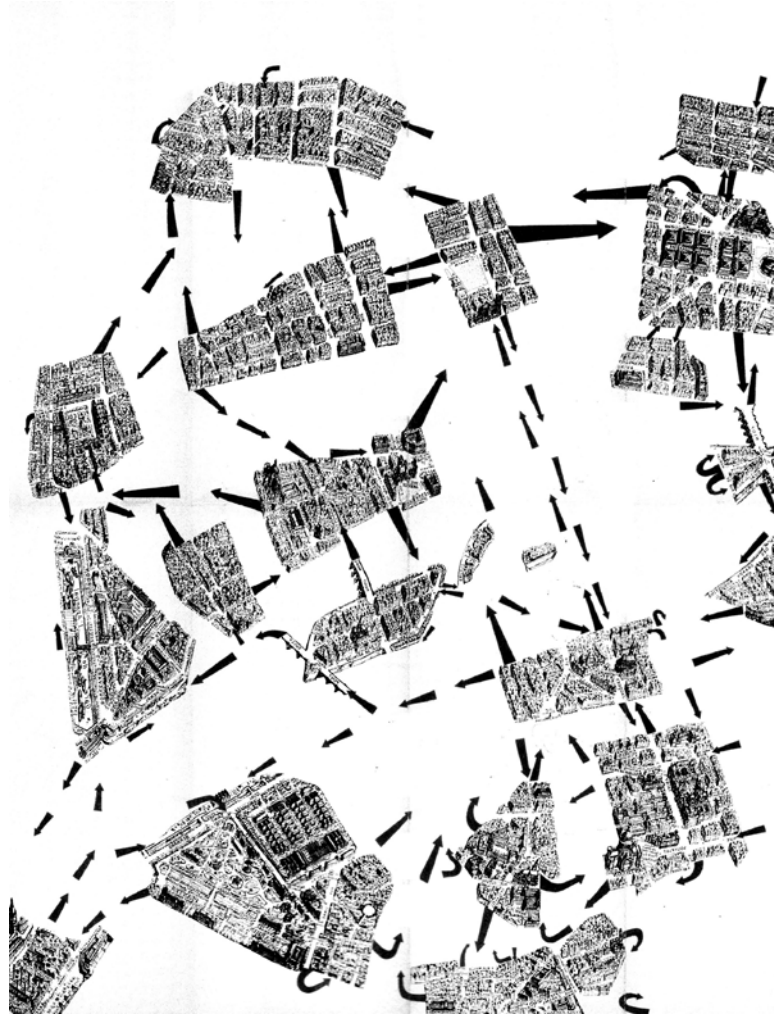
▲ Fig. 242- 248  
Concept sketches



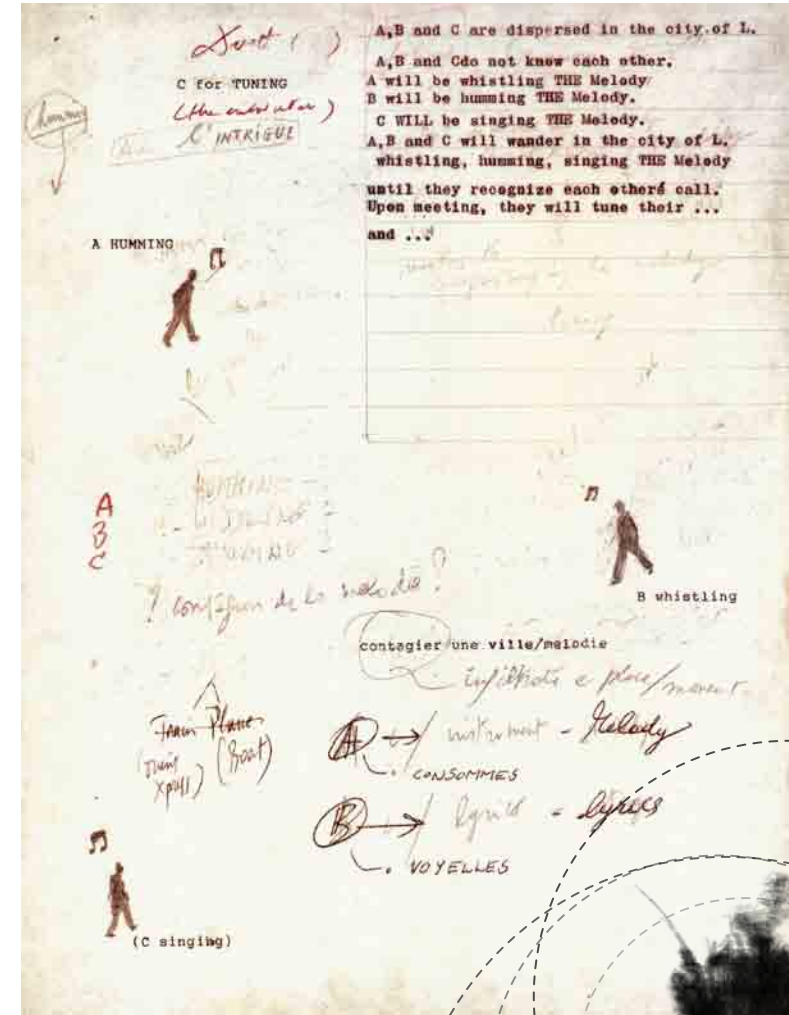
▲ Fig. 249  
Conceptual image of chairs occupying  
the spaces of the city grid and interacting  
with passers-by



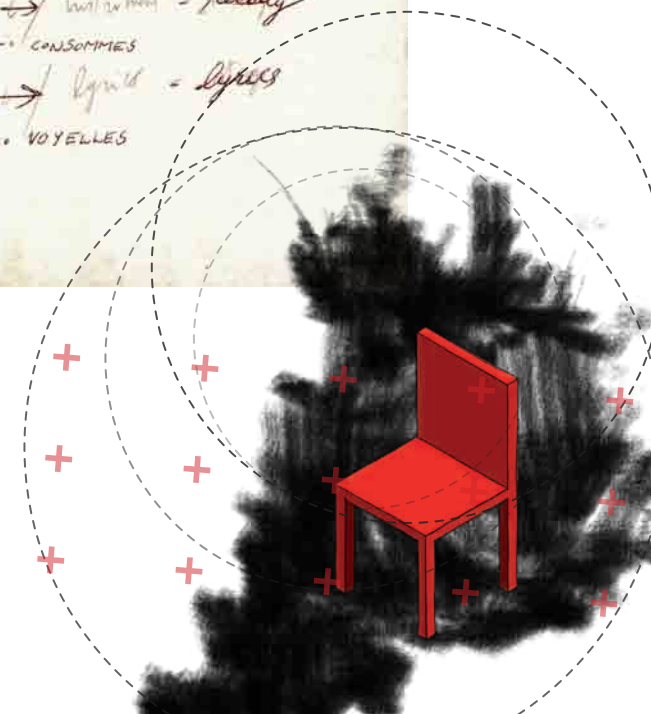
# Using the possibilities of the chair as a spatial device =



▲ Fig. 250  
Guide psychogéographique de Paris.



▲ Fig. 251  
Instructions for A, B, and C; C for Tuning, A for Humming, B for Whistling



## Sonic Festival + Infill Typology

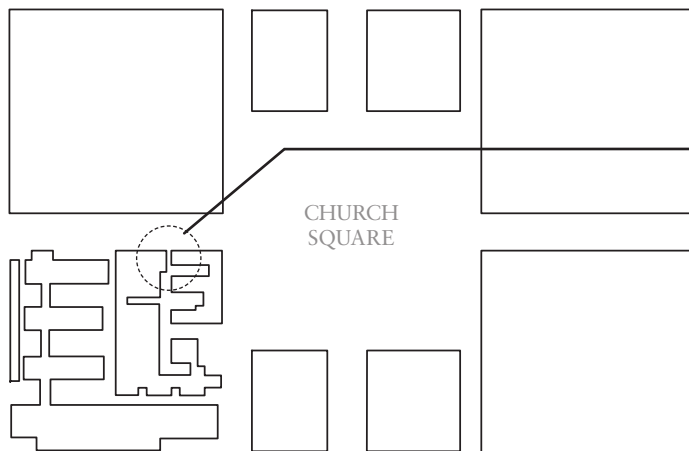
The investigation of the chair as a spatial device and earwitnessb, although valid, required a touchstone with the city to ground the exploration. It was decided to situate the experiment within the context of a sonic festival framework. The festival would provide the backdrop for a number such experiments that interrogate the sonic qualities of the city.

The festival mentality reaches out to people as an invitation to interact, thus re-establishing the relationship between the user, sound and the spaces of the city.

The basecamp for the festival is to be inserted within one of the inbetween spaces investigated, thus completing a more traditionally architectural element to the thesis, whilst maintaining the initial conceptual integrity.

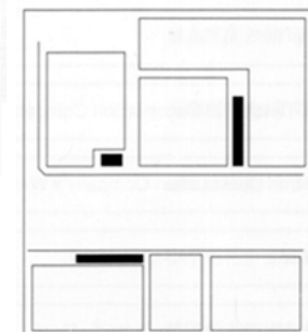
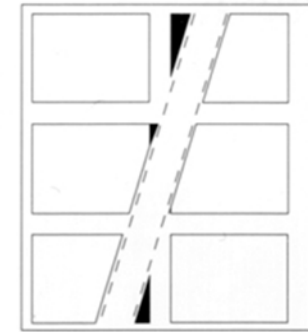
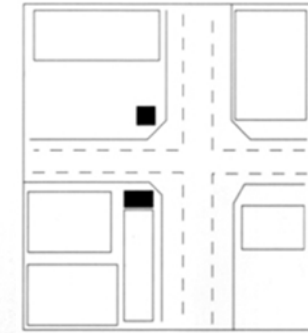
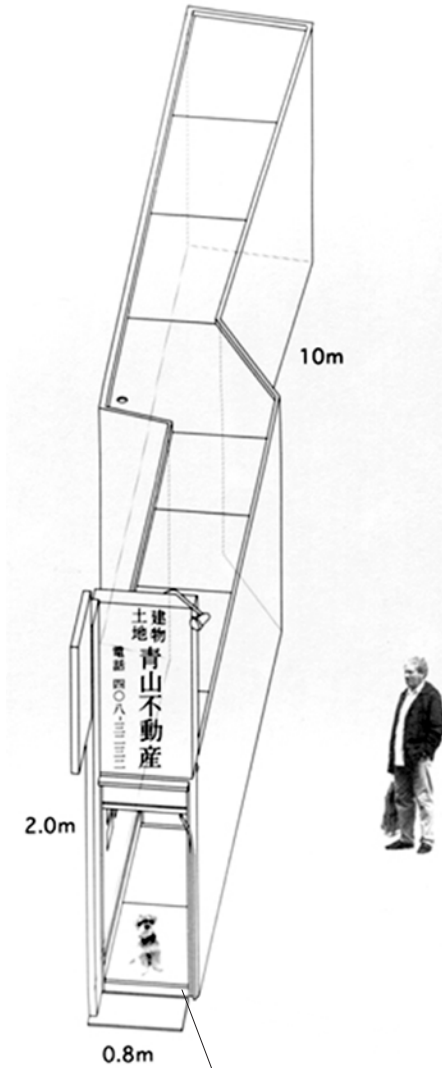
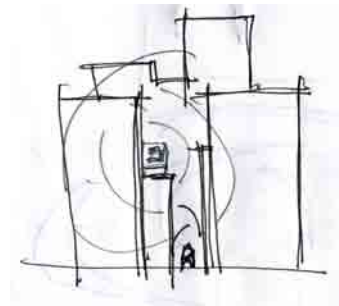
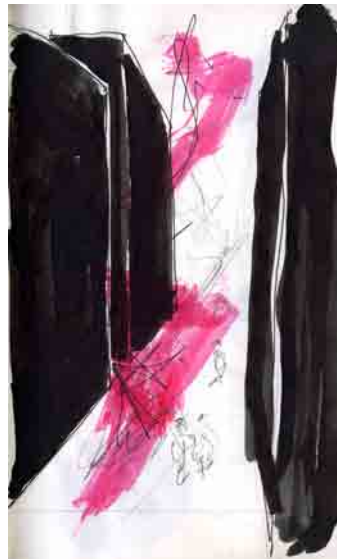
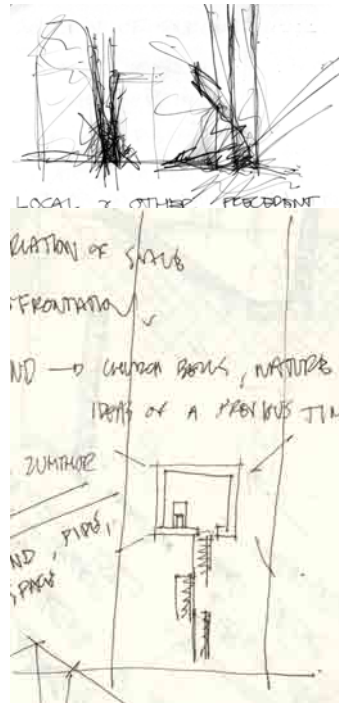
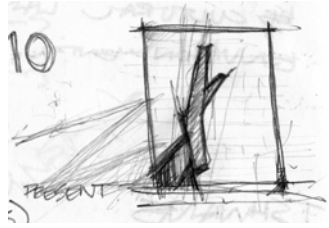
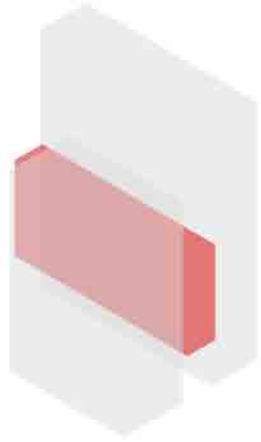


▲ Fig. 254  
Photograph of site



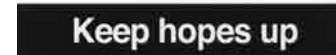
▲ Fig. 252  
Possible festival brand

◀ Fig. 253  
Location of site next to church sq



▲ Fig. 255-262  
Conceptual Sketches

◀ Fig. 263-64  
'Pet Architecture Series' by  
Atelier Bow-Wow - parasitic  
infill architecture of Japan



▲ Fig. 265-268  
*'True' public art installation - project generates public response and participation by covertly occupying public space in unexpected ways*



# Design Resolution



## FANTASTIC CHAIRS AND WHERE TO FIND THEM

### ABOUT THESE CHAIRS

Featured here is a collection of mythological chair types that inhabit the city of Pretoria. They have taken on the personalities of the spaces they inhabit and evolved into a family of curious beings that occupy our inner city spaces. Their personalities are based on what they ‘hear’ – what they acoustically witness. Some enjoy their surrounds, others fear them, and still more begin to project their own sound effects into the spaces. Importantly though, it is necessary to recognise the individuality of each and the environs in which they are located. If they serve as nothing else but a reminder to stop and listen every once in a while, they will have fulfilled their purpose.

### A BRIEF HISTORY OF CHAIR AWARENESS

The chairs are believed to be as old as the city itself and have continued to inhabit it alongside humans since the beginning. According to available records, chairs and people used to enjoy a close and friendly relationship – the chairs revelled in the variety of acoustic environments being created as the city developed. However, during the period of heavy construction during the middle and latter half of the 20th century, the onset of modernism fuelled the destruction of a great number of these habitats. As such, the record of chairs that is available at present is vastly incomplete and the chairs’ dwindling numbers bear this out. No longer are the patrons of the city greeted by a friendly chair in the morning as the remaining survivors have taken to listening rather than anything else. It is believed that the chairs migrated into the hidden and inbetween spaces of the city in search of greener pastures.

### CHAIRS IN HIDING

Although many chair types have been accounted for, some may have slipped through the notebooks of the intrepid chair-ologists that have recorded their existence. Some are believed to have camouflaged themselves so well as to go undetected and have morphed into the spaces that they once occupied.

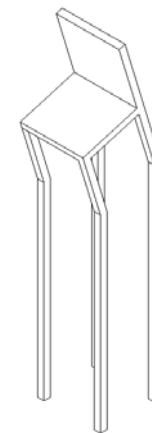
## WHY CHAIR-ZOOLOGY MATTERS

If we are to understand the existence of these fantastic chairs and conserve them for future generations, it is necessary for us to understand the habitats they occupy. It is only through awareness and listening that we can begin to understand the full story of the chairs and what we can learn from them.

### WHAT TO DO IF YOU ENCOUNTER A CHAIR

Should you be in the fortunate position of encountering one of these rare creatures in the city, be not afraid – simply take a seat and listen.

## A COMPENDIUM OF CHAIRS AND THEIR SPATIAL EFFECTS



### Rooftop

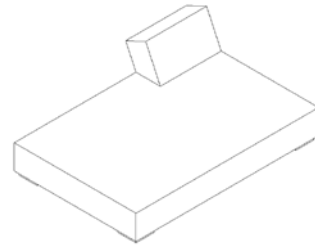
Looks down upon the city from its lofty height, and as such believes it has far more perspective than any other chair. It comes across as indignant, smug and unwarrantedly majestic. It enjoys its view of the sky and the horizon beyond. It shares its rooftop home with the birds of the city and concerns itself with their well-being, gathering them close so as to hear their stories. Often though it over-hears noises that reach it from below – quiet because of their distance – and wonders about conversations that are happening and slips into gentle contemplation. Even the sounds of taxi’s and buses, so often grating when heard from street level, obtain the a more gentle quality up high. Despite the feeling of superiority then, often finds itself gazing downward rather than upward.

▲ Fig. 269  
Fantastic chairs of Pretoria



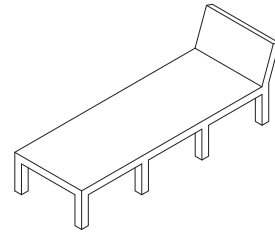
### Basement

The basement-dweller grew to like its cavernous, underground dwelling; enjoying the sanctity of being hidden away from the noises of the street, aware only of the faint ripples of sound that reach it from above. The bassy-rumbles that reverberate through the structure of its surroundings are nothing more than a pleasant massage when felt from underground, and it is to these rumbles that it prefers to listen to – spreading itself wide and low; basking pleasantly in sonorous sound waves. In the evenings, when all is quiet, it is said to sing softly to itself, returning the ripples of sound to the surface – although no-one is around to hear it.



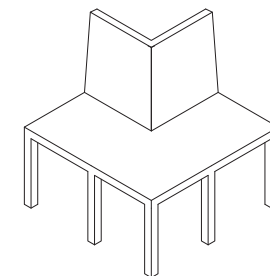
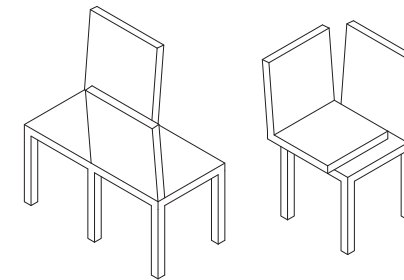
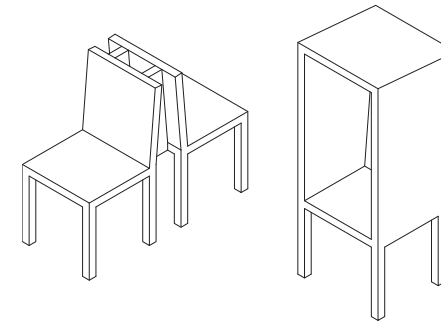
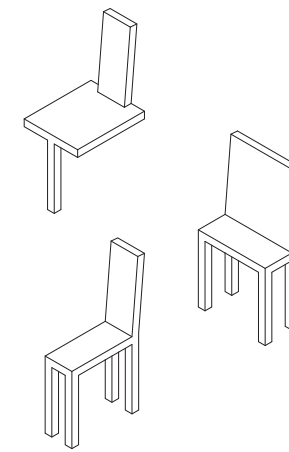
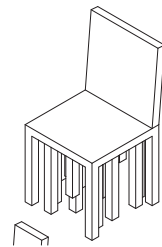
### Multi-Story Parking Lot

The greedier cousin of the basement-dweller, takes up more and more room in its efforts. More pompous and indiscreet than its cousin, it broke free from the underground in an effort to hear more of the world. Lurking demurely under the pretence of utility and cloaked by commercialism and privacy, it lies in wait for its victims. Twice a day, around eight and five, it springs into life and, having waited patiently, it greets with gathered exuberance, spluttering the day's news at a somewhat incoherent pace. Exhausted after such outbursts, it takes its time to recover, sharing the space with its other silent partners and listening sleepily.



### Atriums and Enclosed Volumes

A confused individual, mutated by the reverberations of its artificial interior. Sounds reach it through tunnels, light is filtered through skylights, plants are ever-green plastic. Nervous, it tries to please all – emulating the pastiche of its surroundings.



### Gaps

Wanders the city at night trying to fit into the gaps between buildings, but no gap is quite right – being too wide mostly. Once nestled it awaits, trying it on for size and fooling people into thinking that it isn't there. Inevitably someone stumbles across it, and forces it into use; but that isn't its purpose; it is only there to seek out the voices of ghosts between two buildings that refuse physical contact with each other.

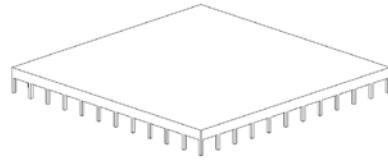
### Pedestrianised Streets and Open Arcades

The most popular of the chairs, but more by chance than personality, the XXXXX found itself surrounded by people and activity. As such it has spawned numerous types and forms in response to the sounds it follows around. Always busy and always talking, wanting to interact with people, the XXXXX is forceful, rude perhaps, and overly interested in the conversations between people. It puts you on display and doesn't allow privacy, waiting for its chance to unleash the latest rumours that it has eavesdropped on. One can feel its cravings for rumours growing, a gathering excitement that clamours forth in its outbursts. No-one or no-thing is safe, and if it has been heard it will be repeated.

Fig. 270-80  
*Fanstastic chairs of Pretoria*

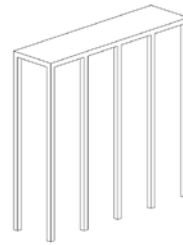
### Hard Square

Open to all sounds, from all sides and all directions. However, despite its friendly and gracious nature, the sounds only reach it from a distance. It can't understand why, but no matter how hard it tries it can't get them to come closer. Most definitely giving more than getting, it spreads a little more by a little more, trying to edge itself closer to where it knows the sounds are coming from. Occasionally people stop by, rest for a moment, and its heart is warmed; but before long, and far too quickly for the XXXXX, they move along and out of ear.



### Closed Arcades

Feels trapped, longing for fresh air and a view of the sky. It is believed to be an original resident of the city of Pretoria, but has become stifled in recent years, choosing rather to sulk in its darkness - slightly bittered with the passing of time and neglect. It wasn't always like this and it often reminisces of a grander time when everyone would pass by and greet it warmly. It would play songs and entertain children, give advice on the latest fashions and generally contribute positively to the city.



### Service Alley

Watches furtively as the world goes by. Few heed its presence, only rushing past with occasional gestural politeness; yet it continues to call softly, and await softly, unnoticed and underappreciated. It remains polite at all times and readies itself for the regularly occasional use it knows it shall receive. The most polite of the family and always willing to serve, it spends its days listening to the hustle and bustle of the street that lies just out of reach. Often it slips into daydreams of glamour but is swiftly brought back to reality by the drones of air-conditioning ducts and the flutter of pigeon wings - its only company in its dwelling.



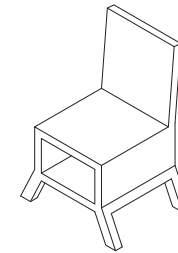
### Soft Squares

Guards its borders fiercely, holding onto the small collection of natural sounds it has hoarded. As such it is tremendously shifty and easily startled by unnatural noises, before brutally drowning out whatever has attempted to encroach upon its territory. It is almost impossible to approach directly, but can be snuck past carefully, as long as one doesn't bring anything artificial sounding into the space. When it isn't patrolling its territory, it sits quietly and indulges in the simple pleasure of listening to the sounds of birds, of the wind, of grass and flowers - content with this small collection of the natural in a city which has been overtaken by commerce and industry.



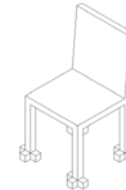
### The Greedy One

Makes its way slowly through the city, imperceptibly moving and slowly growing wider, bigger, fatter. It collects all the sounds it comes across and stores them away, breathing in everything to the point that, if one passes it, one perceives a change in volume of the surroundings. Snippets of conversation go missing and have to be repeated; sirens suddenly die down and flare up again; mating birds have to move as it crawls past causing their songs to disappear. Goodness knows what will happen if, one day, its seams burst and it releases a torrent of noises back into the city.



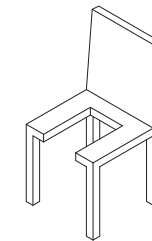
### Zoo

Was brought up in the zoo but escaped. It sneaks around the city projecting the sounds of its childhood: elephants, zebras, monkeys...



### The Wall-Listener

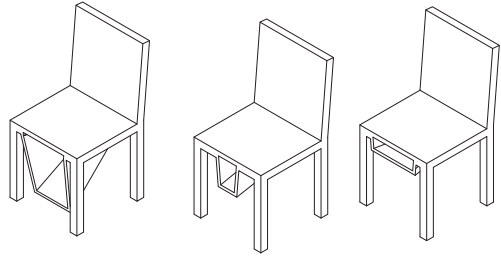
The Wall-Listener approaches walls, carefully at first, trying to hear if there are any faint echoes or reverberations still lurking in its material. If it picks up something, however faint, its mood changes, becoming far more bold. It latches on to, or around, and sucks in whatever it can, tasting conversations and noises from days gone past, soaking up the hidden stories of the city. It guards this knowledge jealously, keeping it to itself and quickly running on to the next possibly place where it can sit, listen and clean up acoustic residue.



▲ Fig. 281-287  
Fantastic chairs of Pretoria

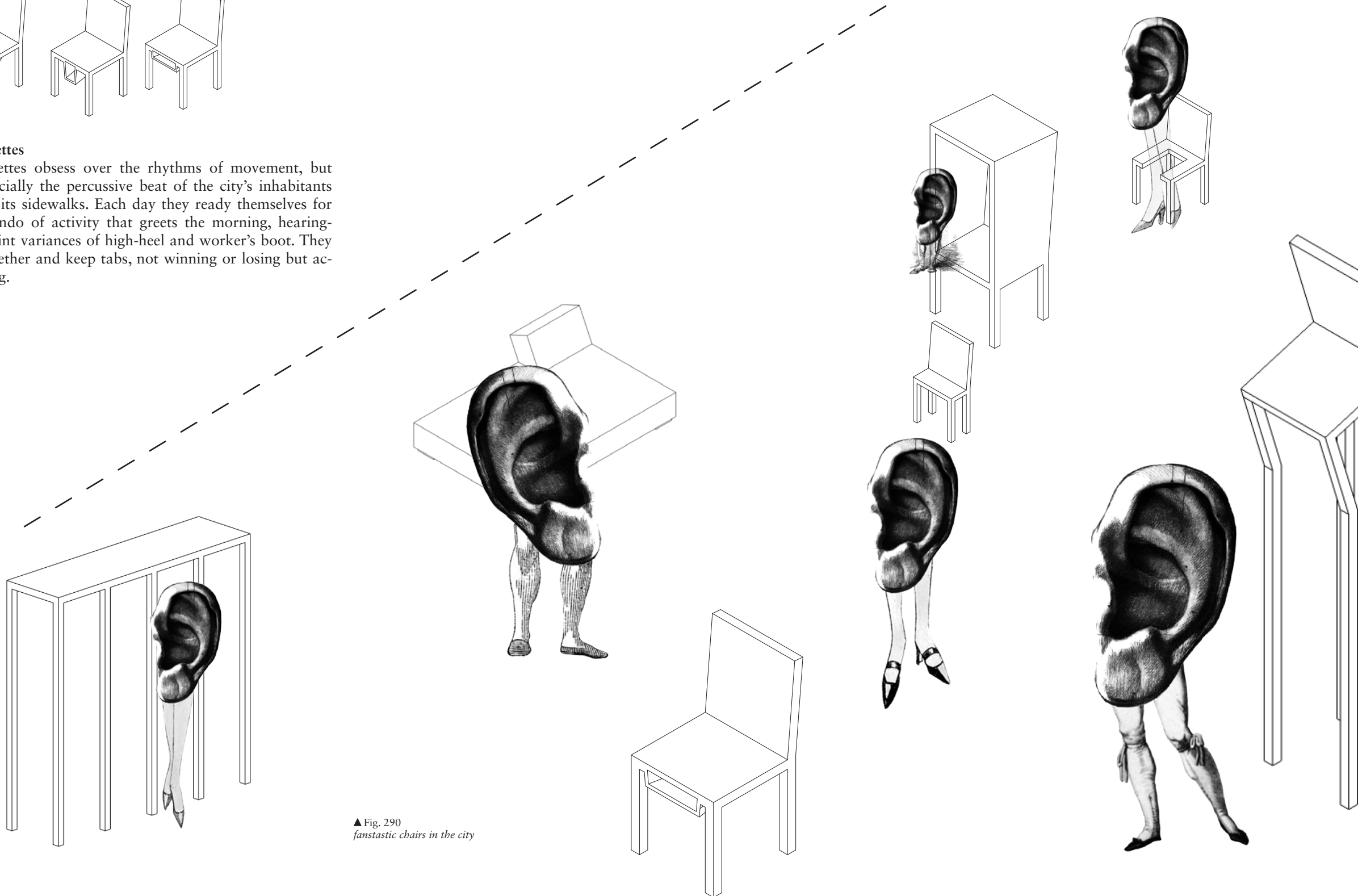


◀ Fig. 287-289  
*Fantastic chairs of Pretoria*



### The Triplettes

The Triplettes obsess over the rhythms of movement, but most especially the percussive beat of the city's inhabitants pounding its sidewalks. Each day they ready themselves for the crescendo of activity that greets the morning, hearing-out the faint variances of high-heel and worker's boot. They group together and keep tabs, not winning or losing but accumulating.



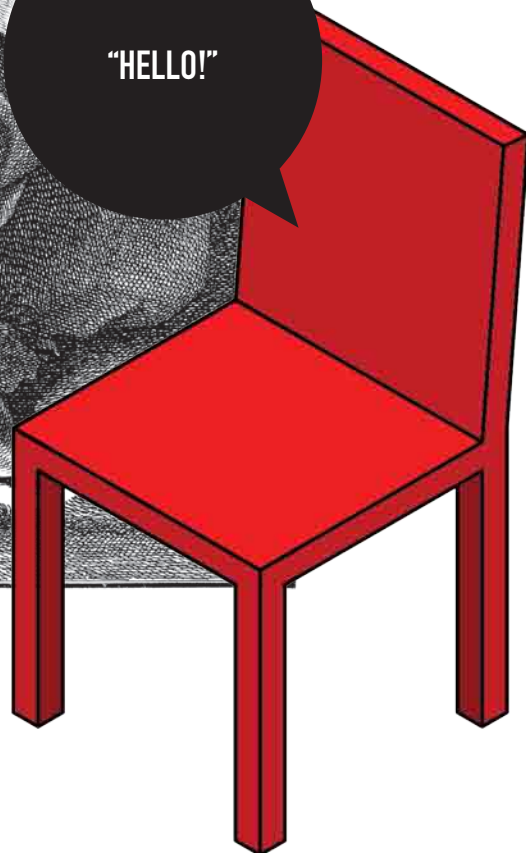
▲ Fig. 290  
*fantastic chairs in the city*



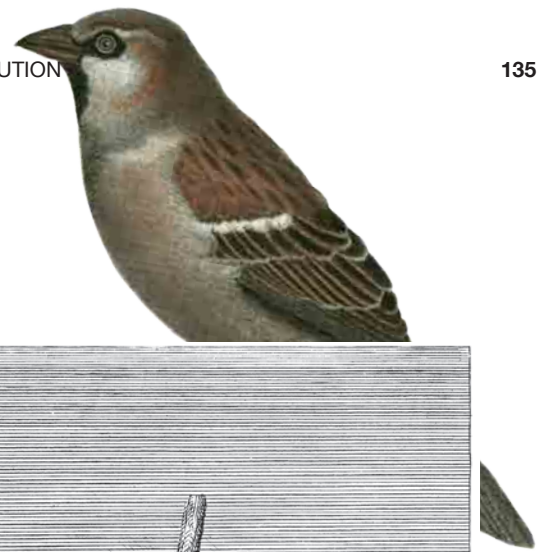
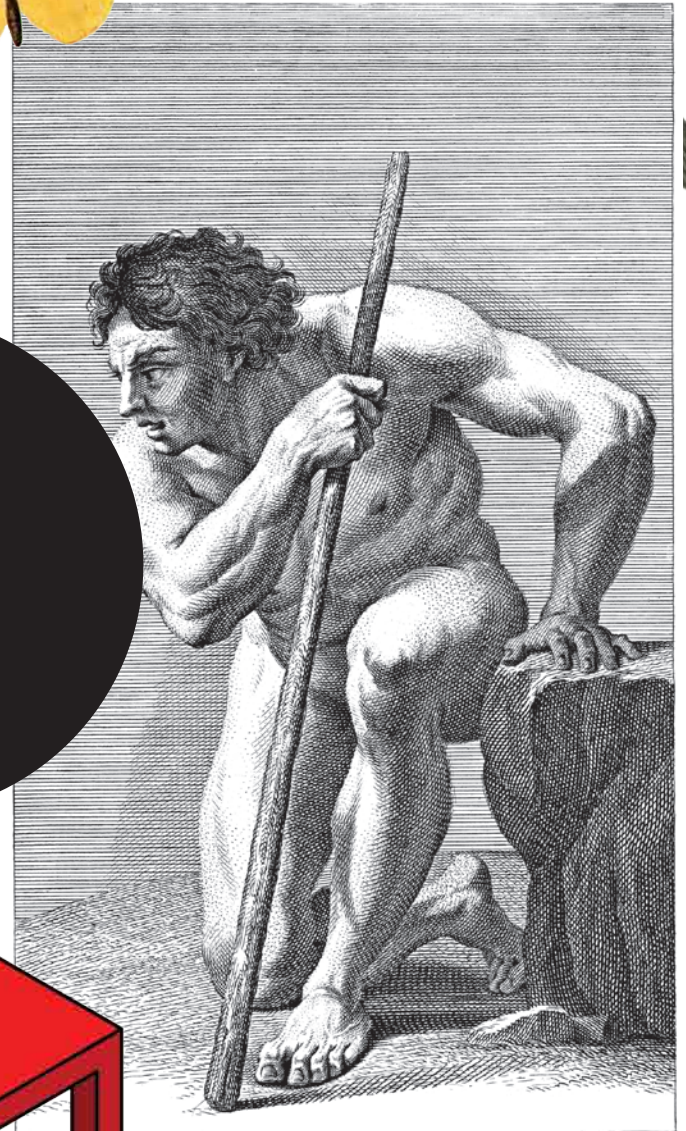
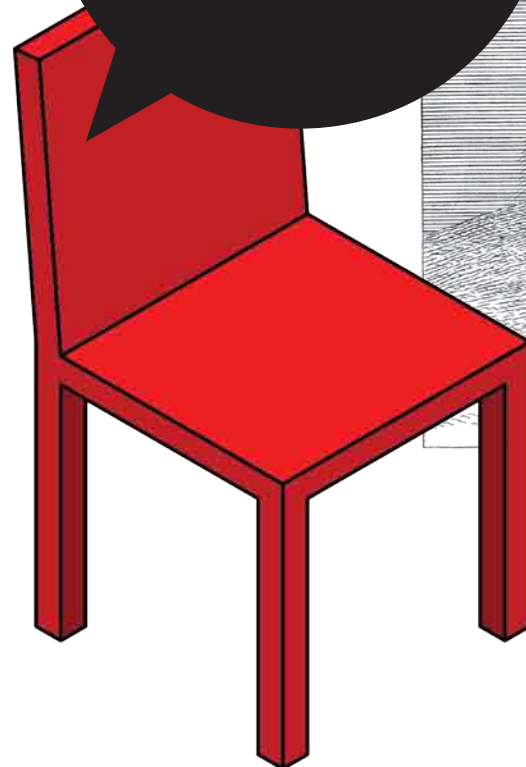
“LOOK!”



“HELLO!”



“GRRRR”



▲ Fig. 291-292  
Conceptual collages



▲ Fig. 293-294  
Conceptual collages

## Chairs in Hiding

Although many chair types have been accounted for, some may have slipped through the notebooks of the intrepid chair-ologists that have recorded their existence. Some are believed to have camouflaged themselves so well as to go undetected and have morphed into the spaces that they once occupied.

Thus far three such spaces have been discovered and will be briefly discussed here.

### Space 1: Andries Street

The chair that occupied this space preferred peace and quiet and thus snuggled into the quietest space it could find. Situated close to the previous premises of the National Library, this space is acoustically shielded from the cacophony of the surrounds.

### Space 2: Pretorius Street

This chair on the other hand revels in the reverberations of the modern city and simply loves the sounds of cars and buses and taxis and trucks as they whizz by. As such it has created an echoing chamber that amplifies the effect of the passing traffic and throws it back out into the streetscape.

### Space 3: State Theatre

The most recently discovered space was found to be masquerading as an air-conditioning duct. However, the tall metal section allows the sounds of nesting pigeons to ripple down to street level. In effect it is an acoustic periscope bringing the sounds of rooftops down into the street.

### Conclusion

These spaces occupy the inbetween spaces of the city and respond in form and material to the spaces and sounds around them. When used by the city-dweller they become oversized instruments and acoustic toys from which to project yourself into the city, sit back quietly and listen, or get a within earshot of the natural side of the city centre.



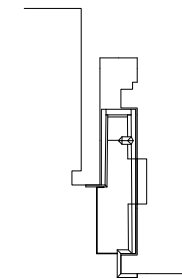
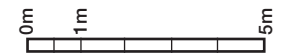
## Space 1: Andries St



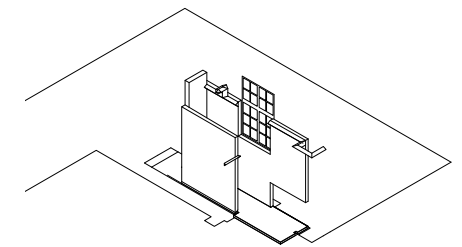
▲ Fig. 295-296  
*Social Instruments*



Elevation



Plan



Axonometric

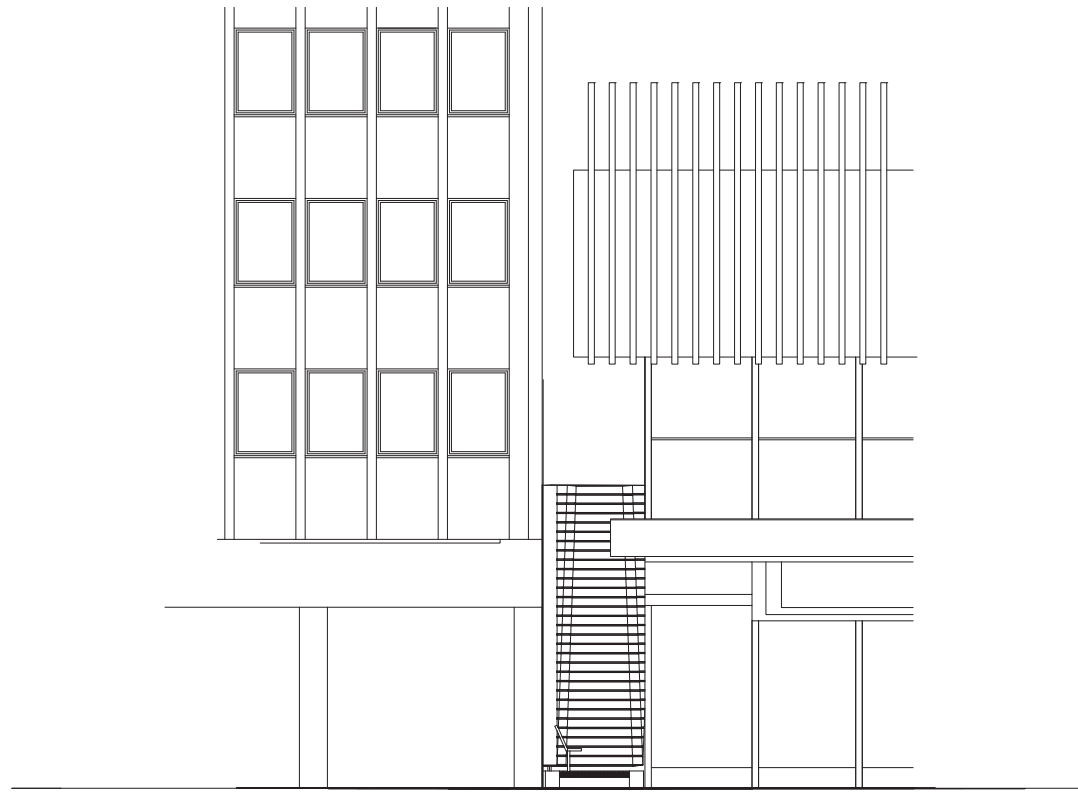
▲ Fig. 297-299  
*Diagrams: Space 1*



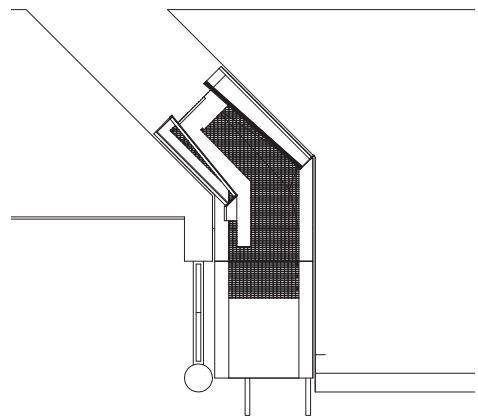
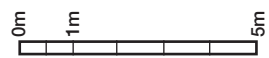


### Space 2: Pretorius St

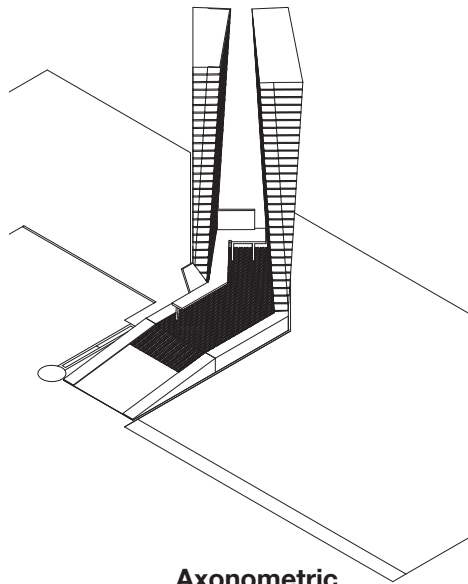
### Space 3: Acoustic Periscope



Elevation



Plan



Axonometric

▲ Fig. 300-302  
Diagrams: Space 2



▲ Fig. 303  
Diagram: Space 3

## Part 3: Infill Typology and Festival

### Description

This part of the design proposes an infill building typology that can be used as a live/work space, office space or private studio. From such a building it would be possible to house the requirements for hosting a sonic festival – the infill providing a base and meeting point within the city centre.

### Choice of Site

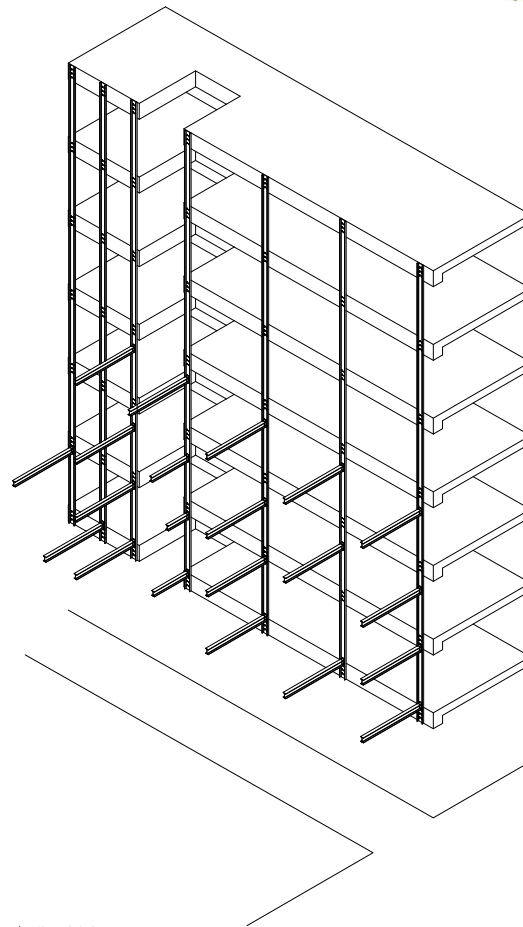
The choice of site was governed by its sonic qualities, but also by its dimensions and locale. Of the sites investigated it was felt that the proximity to Church Square, Cafe Riche, and other thesis proposals within the same block provided an ideal location.

### Chairs and the Festival

A festival framework allows the above mentioned hypothetical chairs to be re-situated within reality. The ‘little red chair’ now functions as a visual signpost to an acoustic quality or event.

### Elevated Structure

The proposed structure for the infill typology is to be suspended from the existing concrete-framed Poynton’s Building that borders the western edge of the service passage. The concrete structure of the building is typically over-engineered and therefore able to accommodate alterations and additions with relative ease. A second consideration is the heritage building that forms the eastern boundary. It was decided to design structure that would not impact upon this building. The third consideration is the network of services that run in the ground beneath the passage. These services eliminate the possibility of

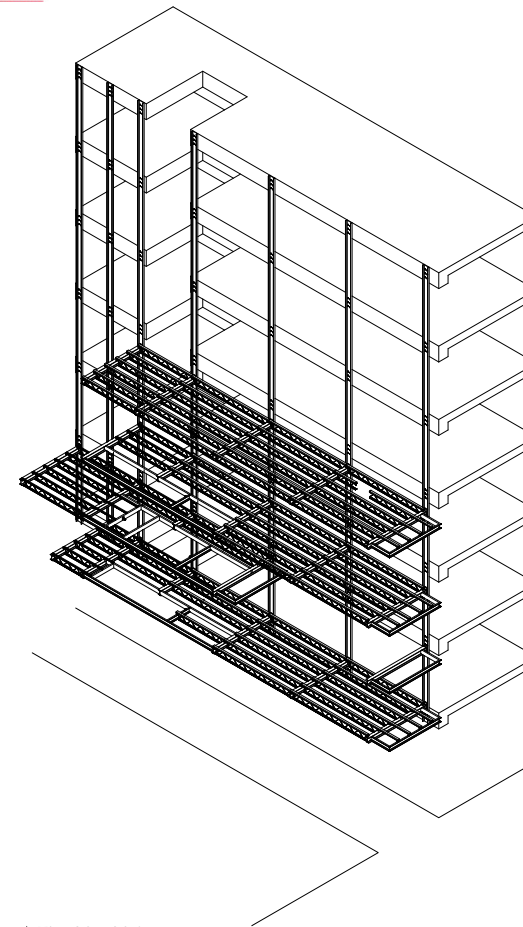


▲ Fig. 304  
Primary Structure

typical groundworks associated with a new building.

### Primary Structure

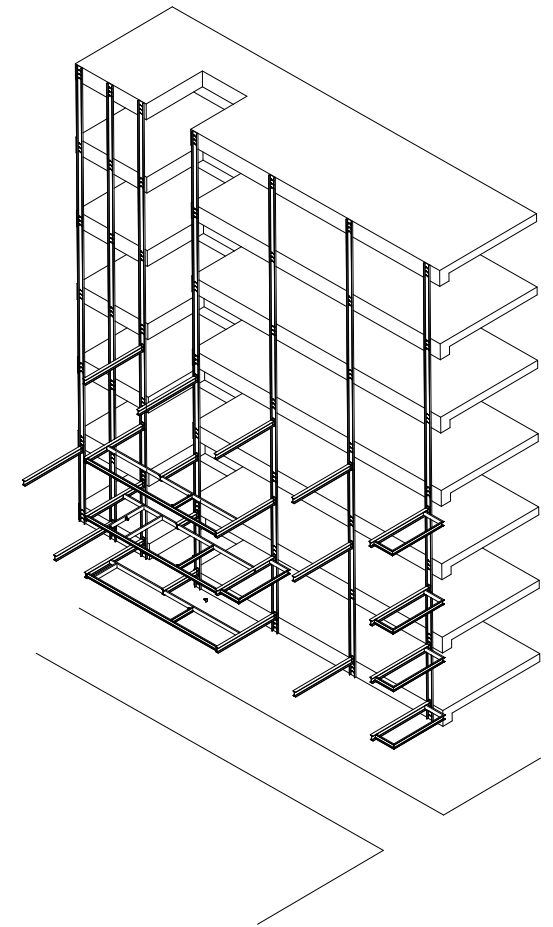
A series of steel channels is attached to the concrete floor slabs of the existing building. Welded to these are a number of steel beams, in essence forming a series of structural brackets.

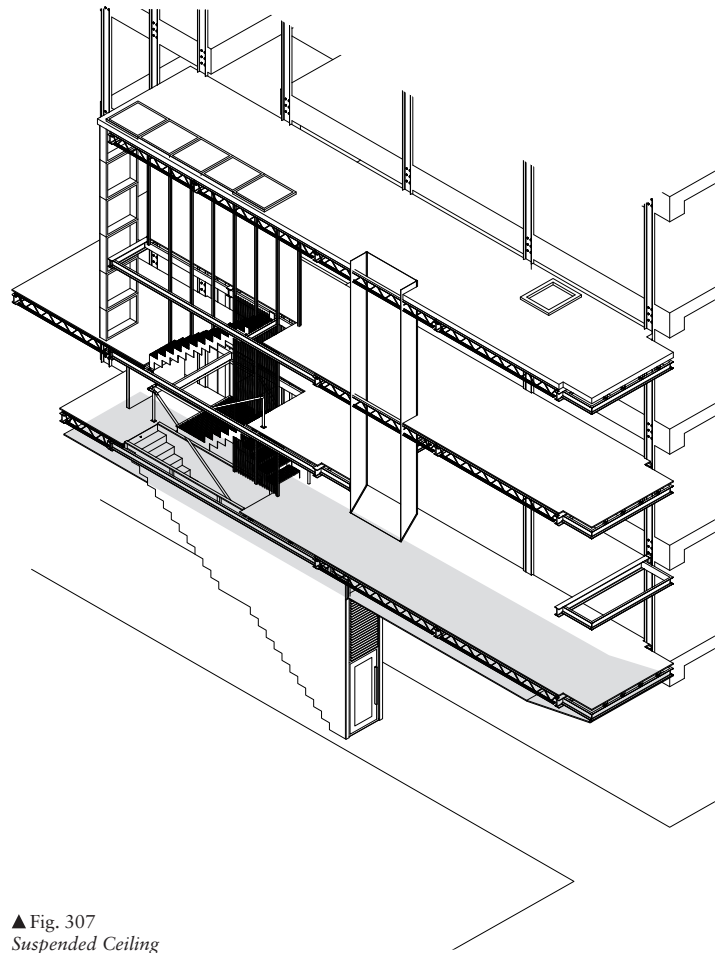


▲ Fig. 305-306  
Secondary Structure

### Secondary Structure

The latitudinal rigidity between the brackets is created by a series of open-web joists. The joists are lightweight and spaced so as to accommodate the internal floor structure. Where openings are necessary, for circulation and glazing for example, steel channels are used to brace the structure. These channels also form the members to which internal staircases are attached.



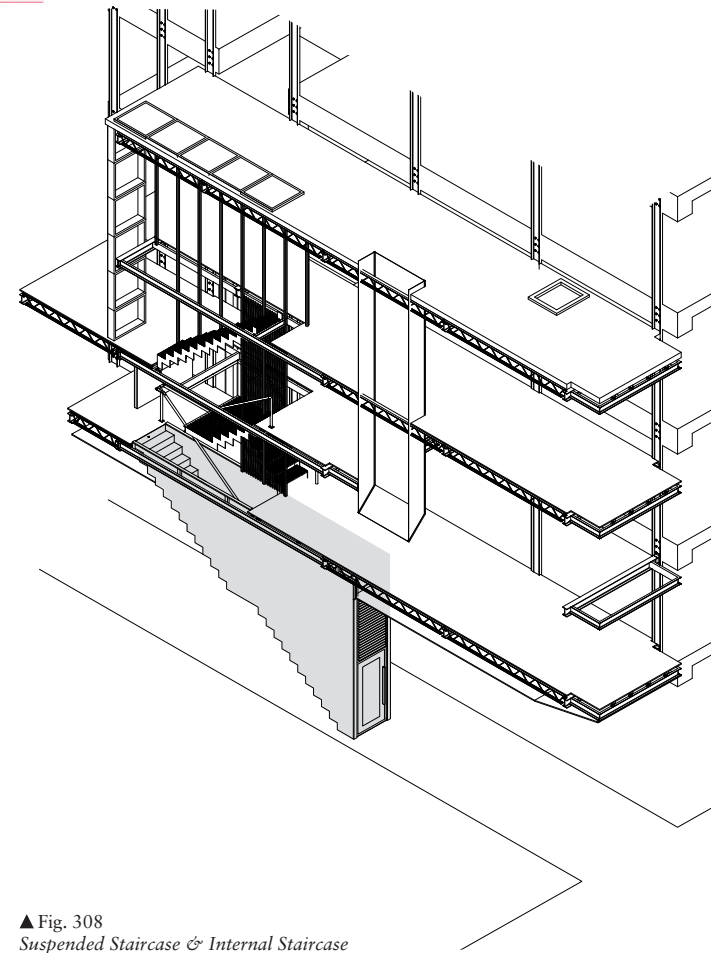


▲ Fig. 307  
*Suspended Ceiling*

## Arcade/Suspended Ceiling

The elevated structure creates a covered walkway that connects Church Street to the exterior spaces outside the Capitol Theatre and behind the Gauteng Tourism Office (previously the Old Nederlandsche Bank). The passage links to other thesis projects by Jason Wiggin and Carien Theart, who propose new uses for the Capitol Theatre and TPA Building respectively.

The suspended ceiling contains lighting and audio that allows the atmosphere of the passage to be manipulated depending on the event. The ceiling is angled upwards at the northern side and functions as a sound-reflective board. This allows sounds to be projected into the street and can be used for performances of music, poetry readings, or for people wanting to project their own thoughts and sounds into the streetscape.



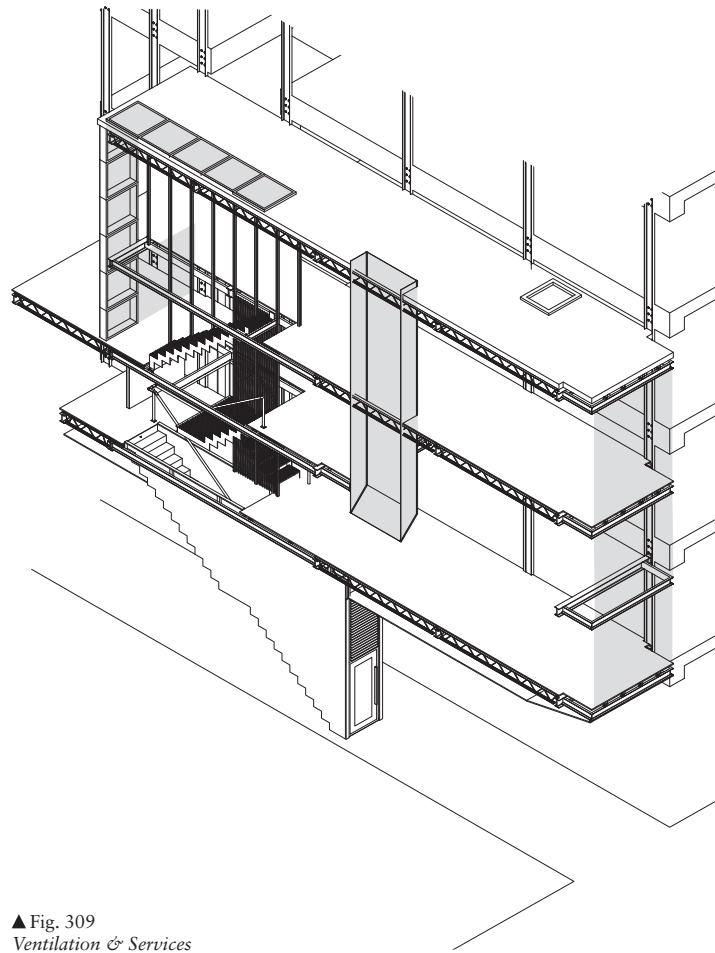
▲ Fig. 308  
*Suspended Staircase & Internal Staircase*

## Suspended Staircase

Access to the new structure is provided by a suspended staircase. The staircase, as with the structure, does not touch the ground. The cladding provides an opportunity for branding depending on the occupants of the work space.

## Internal Staircase

The internal circulation is provided by a staircase that connects the three levels. Its design features open risers that allow light to permeate down from the skylights. This effect is further enhanced by the use of steel gratings as the treads.

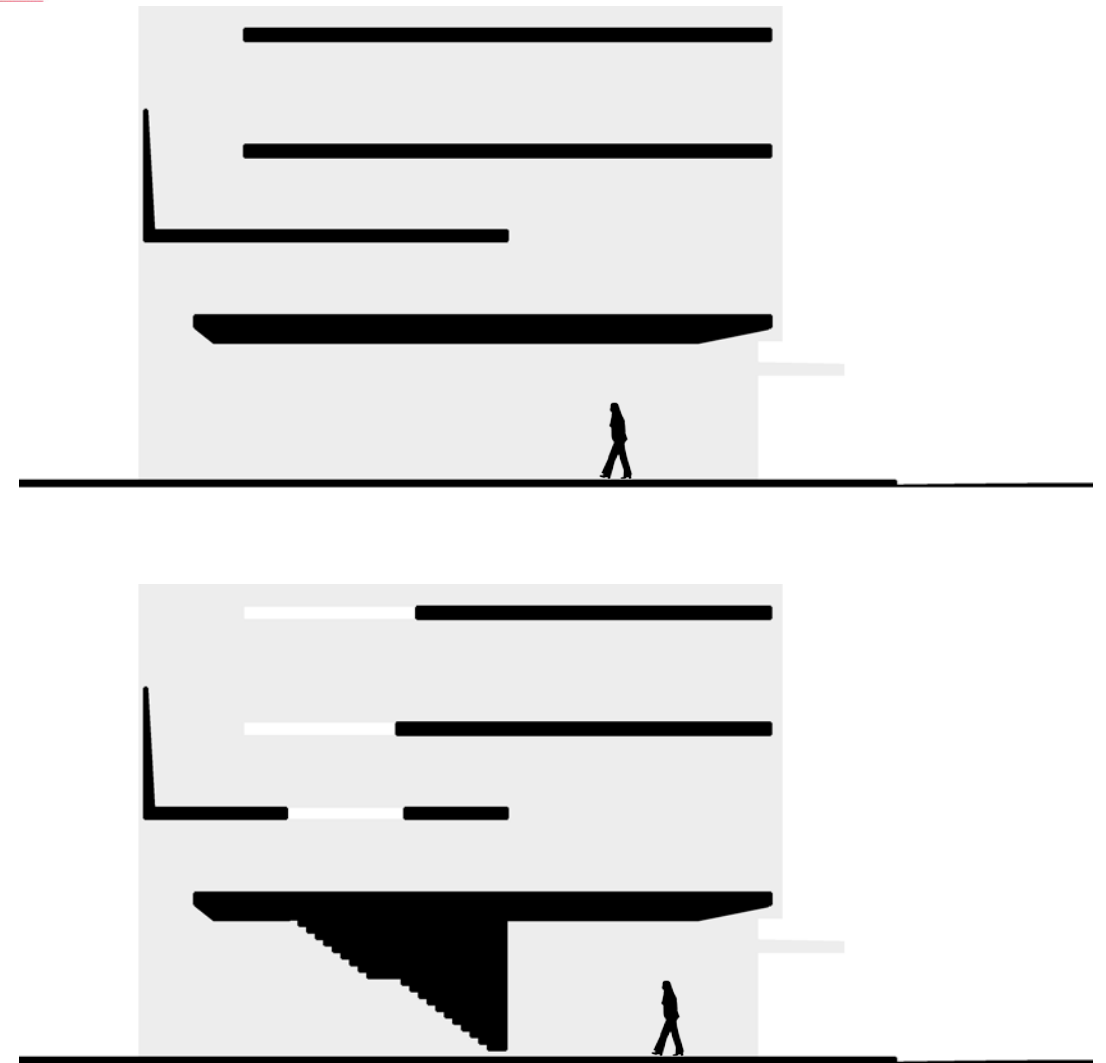


▲ Fig. 309  
Ventilation & Services

## Ventilation & Services

Natural ventilation is provided by openings in the front (northern) and rear (southern) facades, as well as by ventilated skylights above the staircase.

Water supply and sewerage connections rely on the existing connections of the Poynton's building. Electricity is provided through solar panels placed on the roof. Services are placed on the western side of the proposal, allowing them to be grouped together neatly and carried to connection points at ground level.

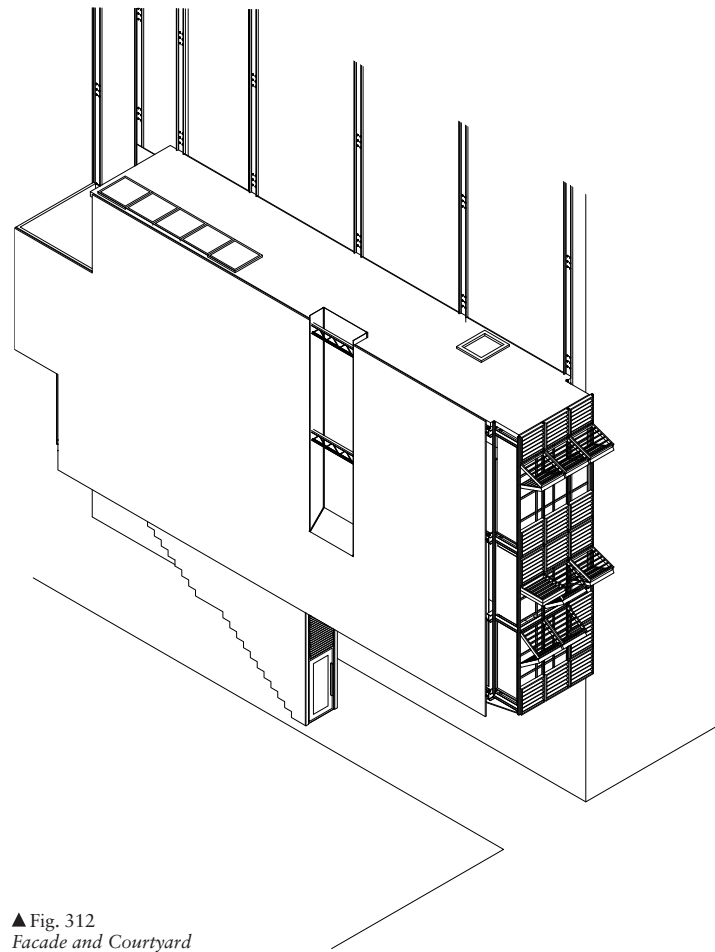


▲ Fig. 310  
Diagrammatic section showing floor levels

▲ Fig. 311  
Diagrammatic section showing floor cuts and entrance

## Floor Levels

The internal volume of the building is divided into three levels that denote various uses. The first level is an open work space. The second is a mezzanine that provides access to an internal courtyard and creates a double volume above the workspace below. The third level is a more private living/studio space.



▲ Fig. 312  
*Facade and Courtyard*

## Facade

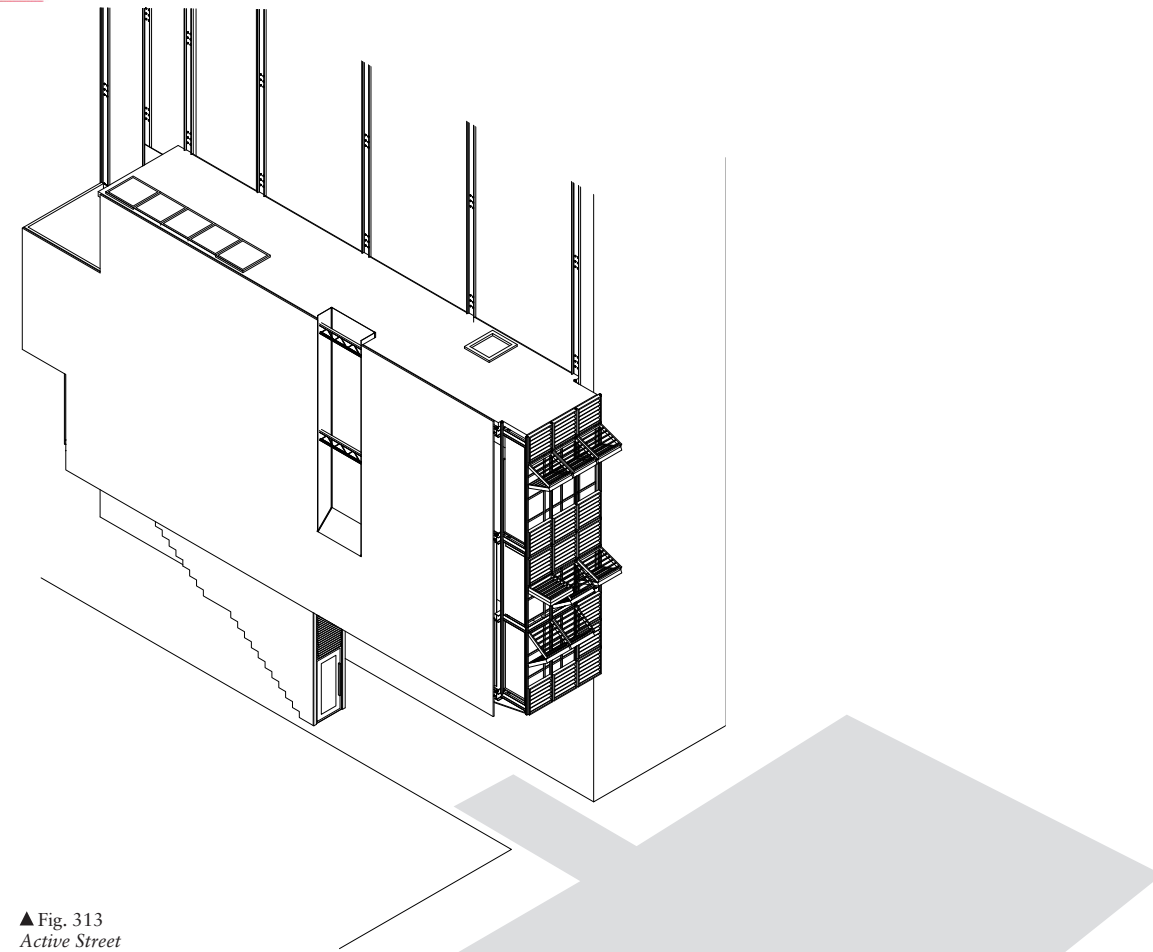
The northern facade serves as a sun screen and external projection surface. It consists of a glazed internal curtain wall and an external system of louvred panels.

## Courtyard

The internal courtyard provides a private, quiet area that is open to the sky. It also allows additional southern light to penetrate the building.

## Other Facilities

To function as a festival base, additional facilities can easily be housed within the structure including wi-fi access, Bluetooth, and FM radio transmission. These facilities allow

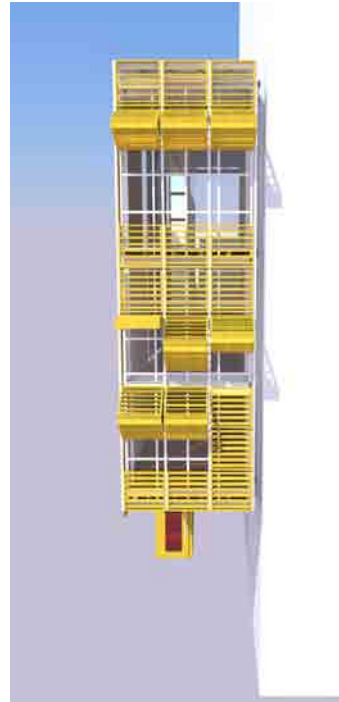
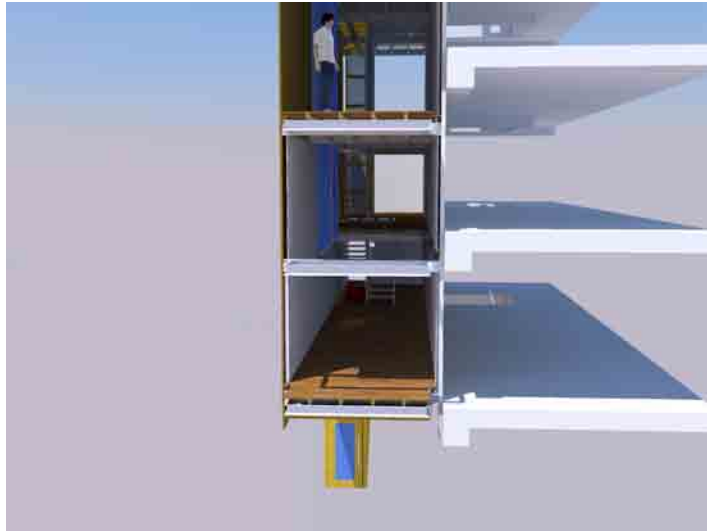


▲ Fig. 313  
*Active Street*

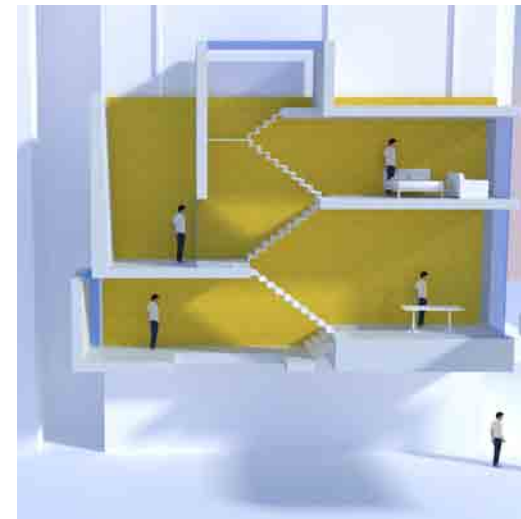
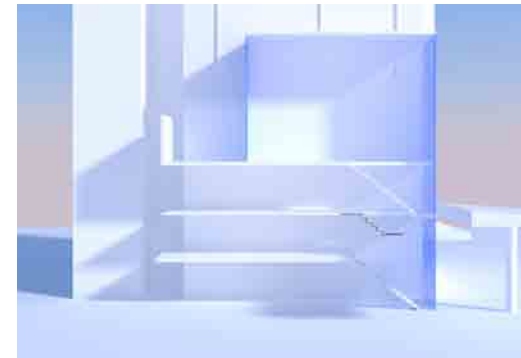
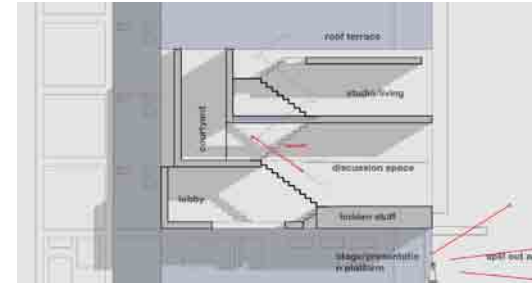
the activities of the festival to covertly penetrate the digital communications network of the city.

## Active Street

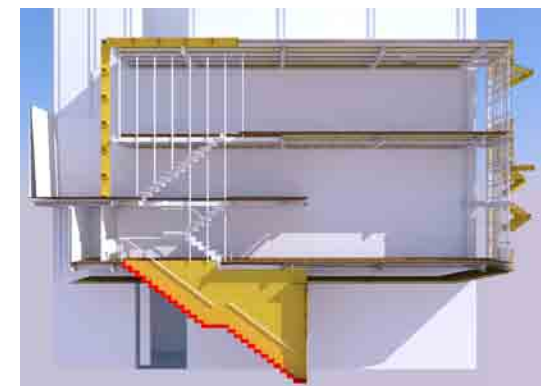
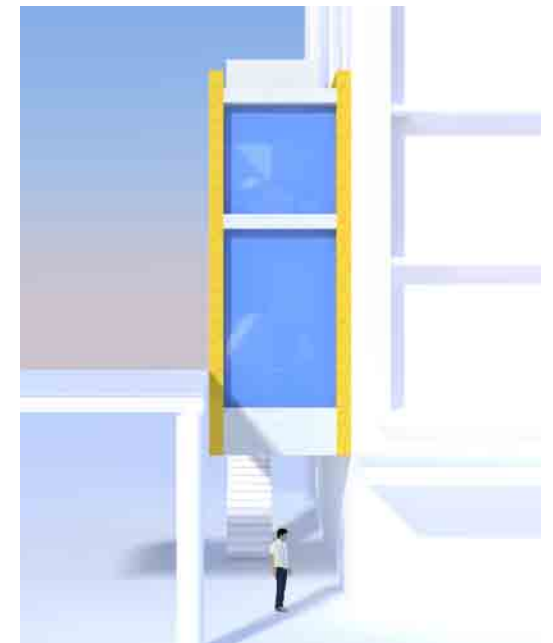
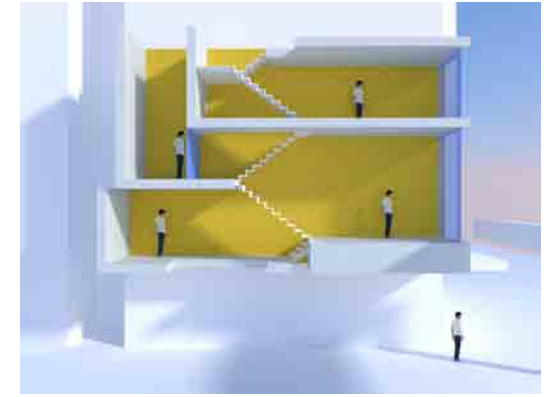
The positioning of the site next to Church Square and looking out onto a relatively quiet portion of Church Street provides a space for activities external to the building itself. This active street can be occupied for meetings, exhibitions, performances and the like. The facade of the building can then be used as a projection surface on which films and images can be displayed.



▲ Fig. 314-316  
*Three-dimensional development*



▲ Fig. 317-322  
*Three-dimensional development*





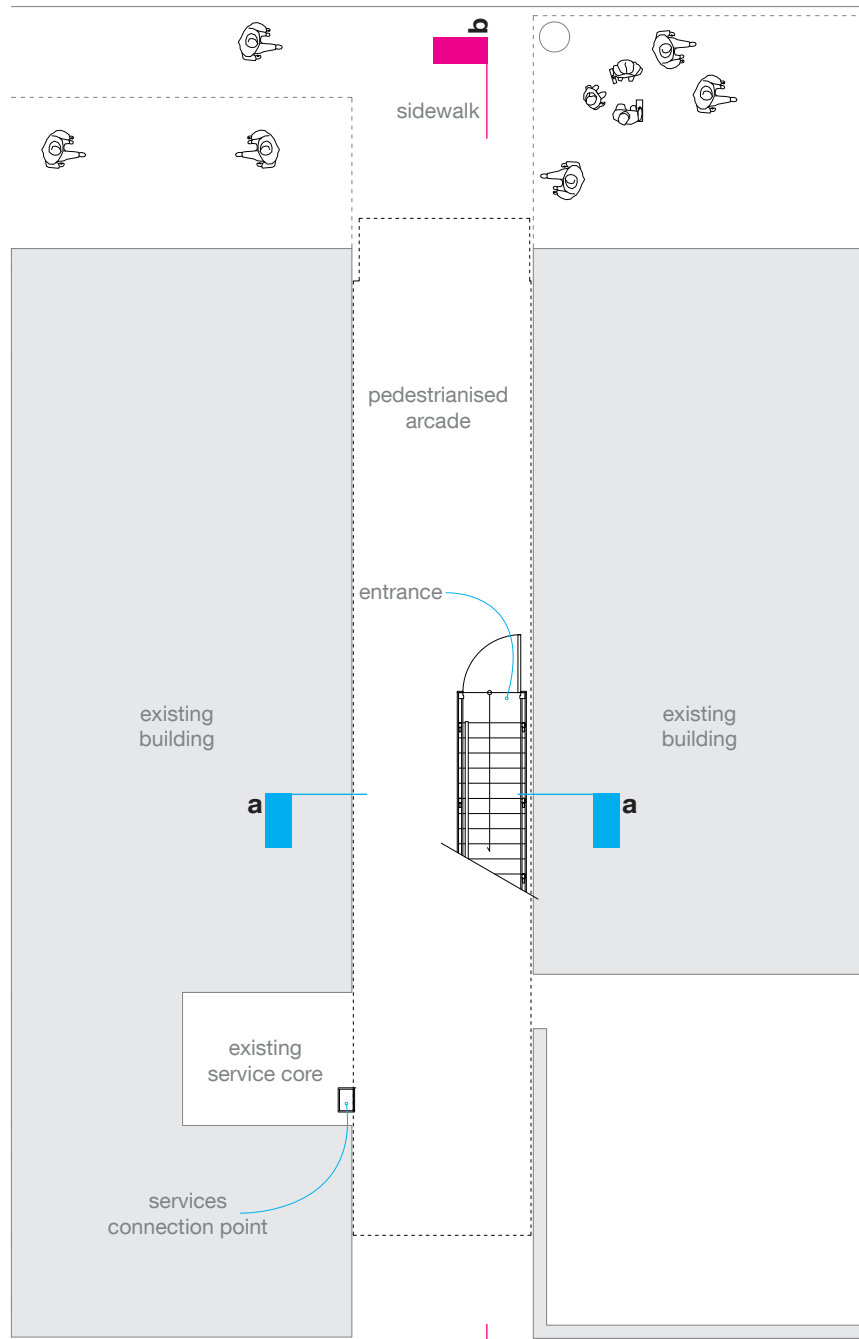
▲ Fig. 323  
Three-dimensional section



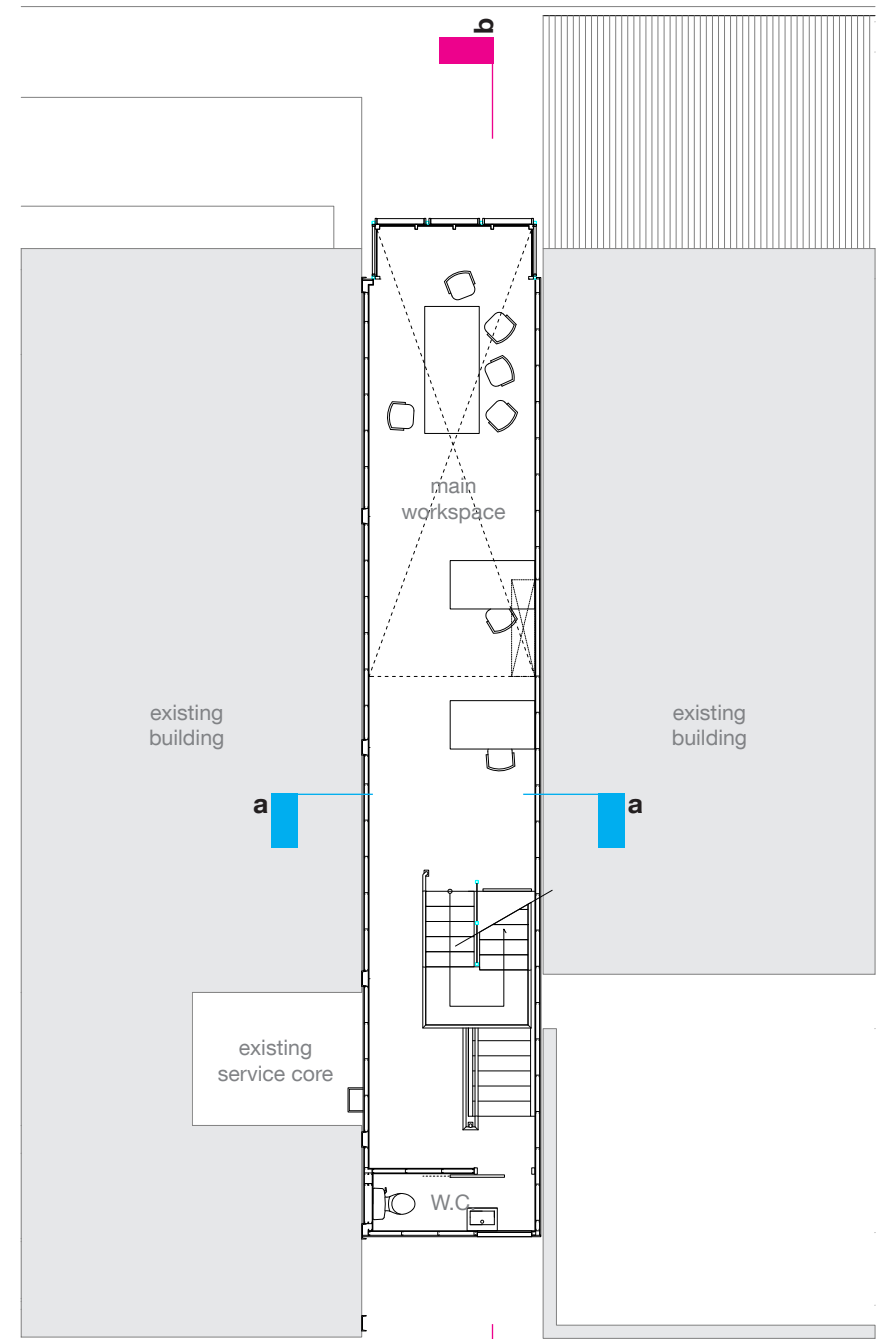
▲ Fig. 324-325  
External views



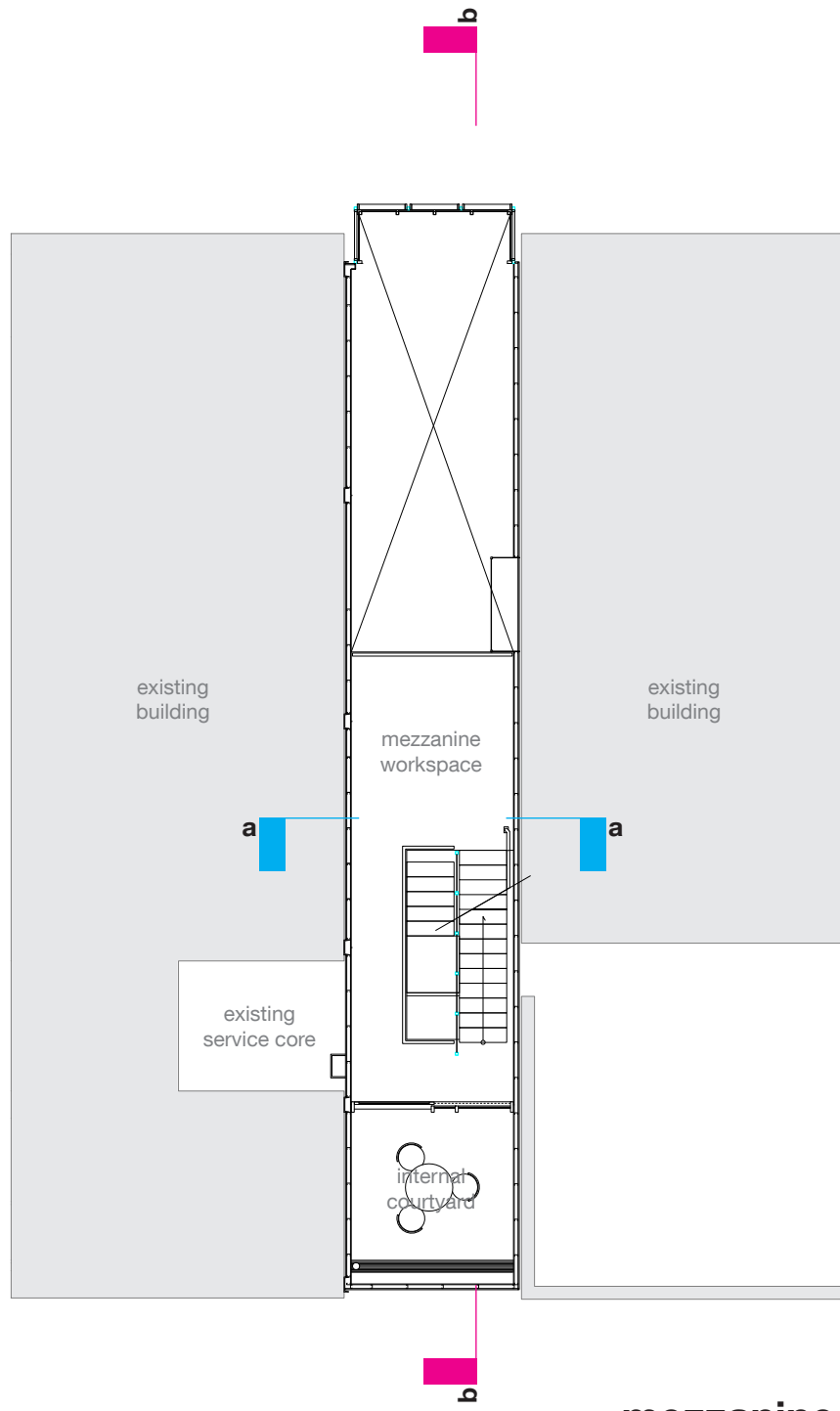
# Technical Documentation



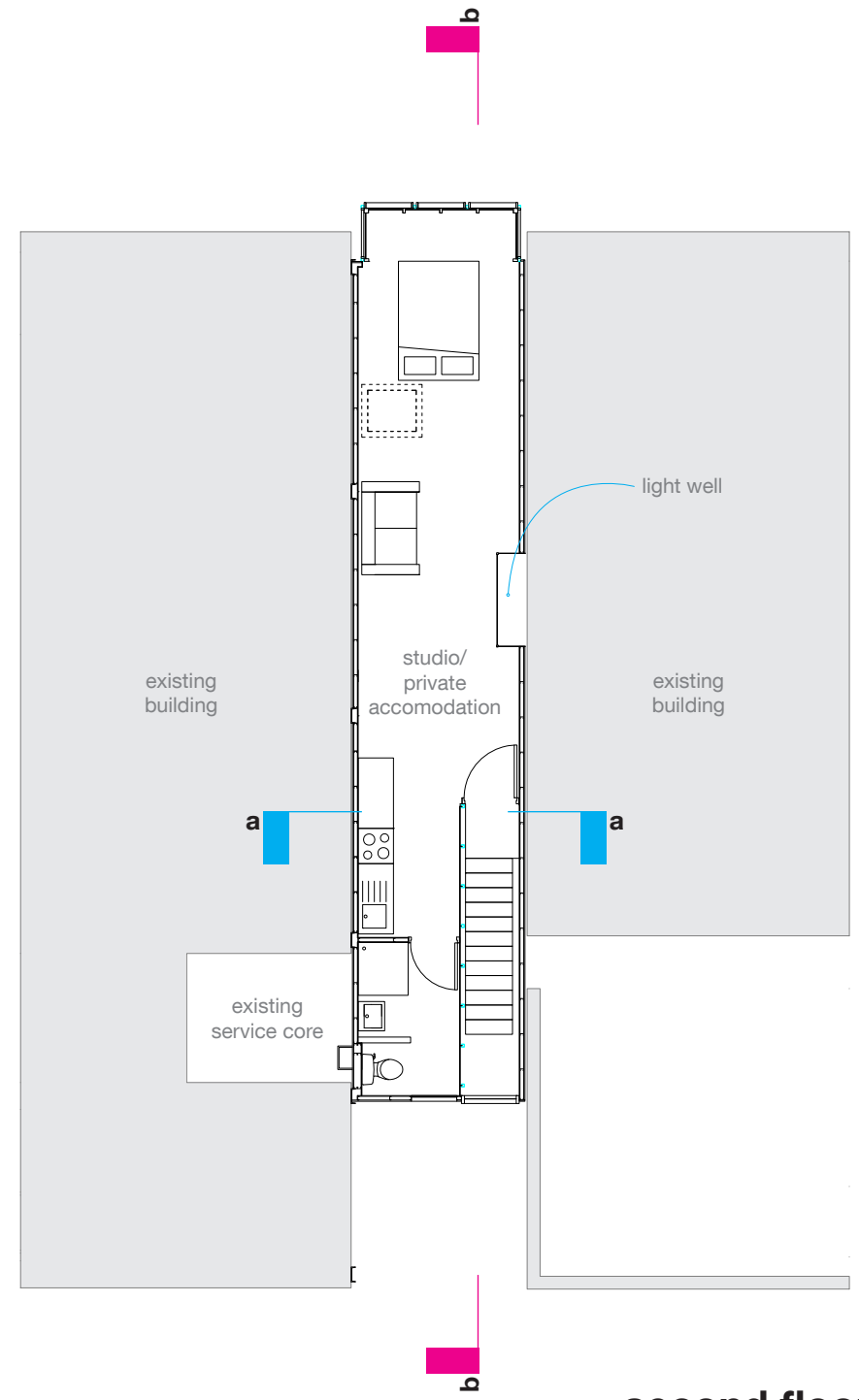
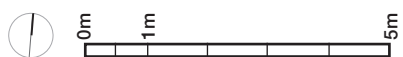
**ground floor plan**



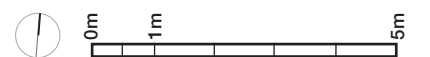
**first floor plan**

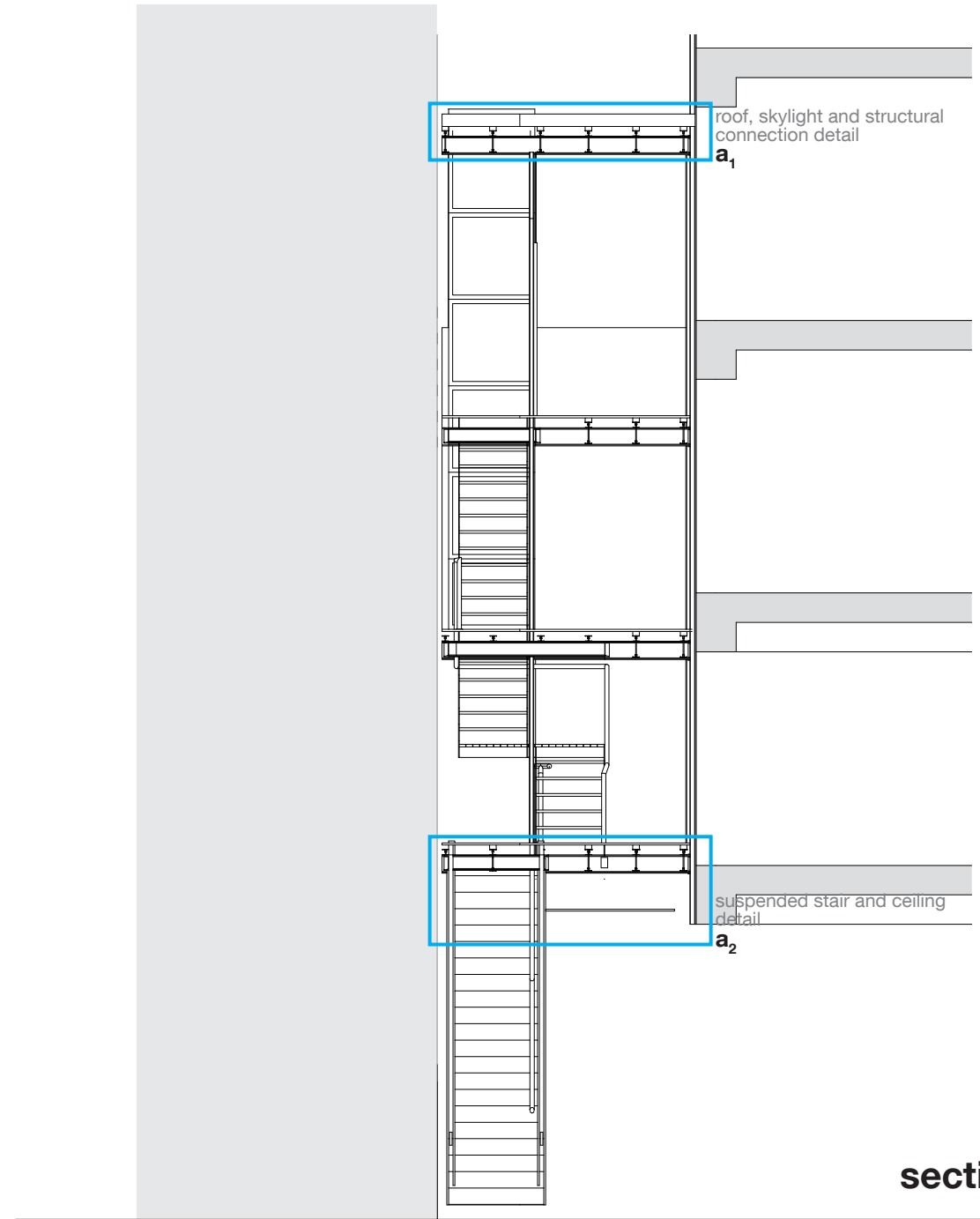
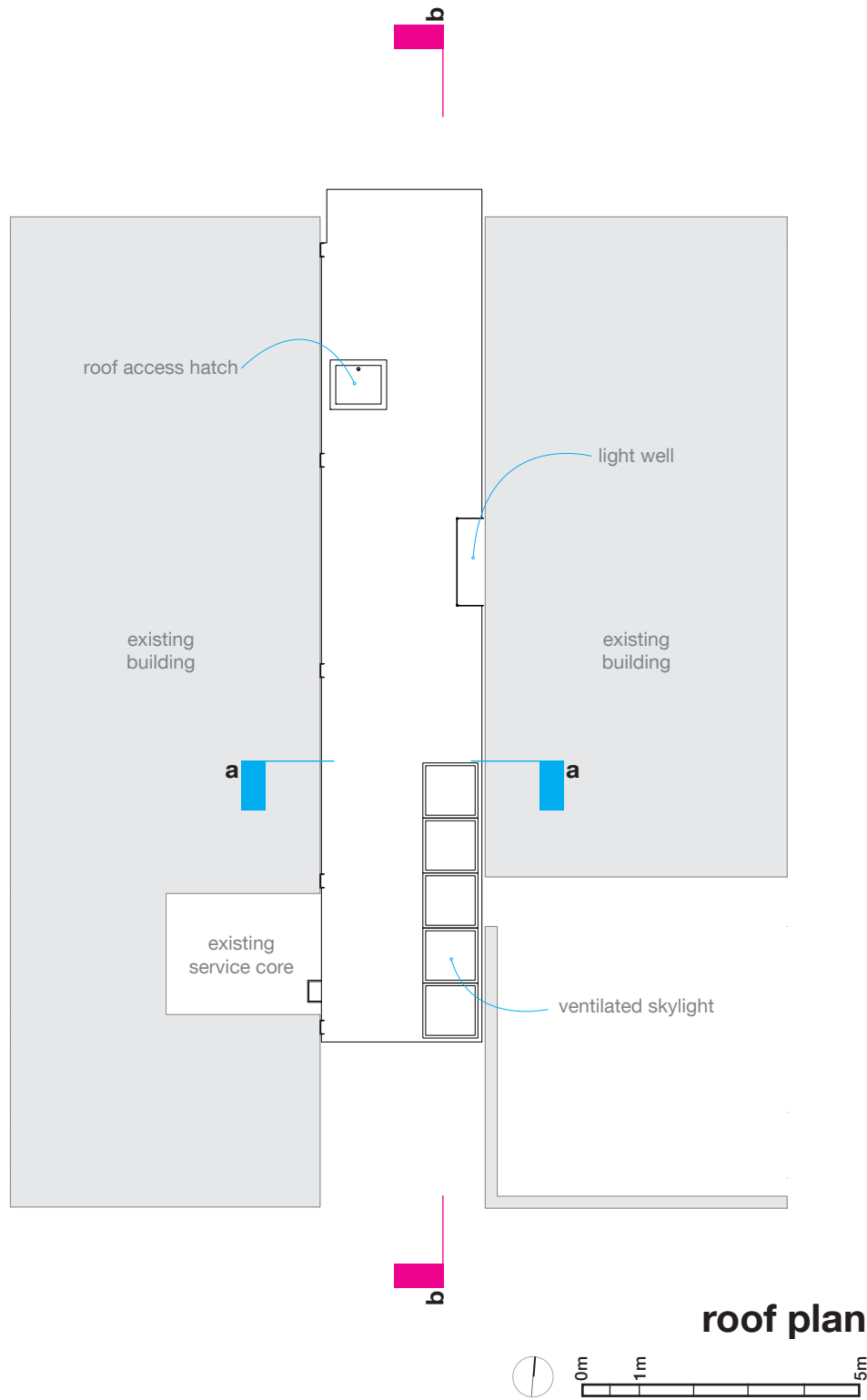


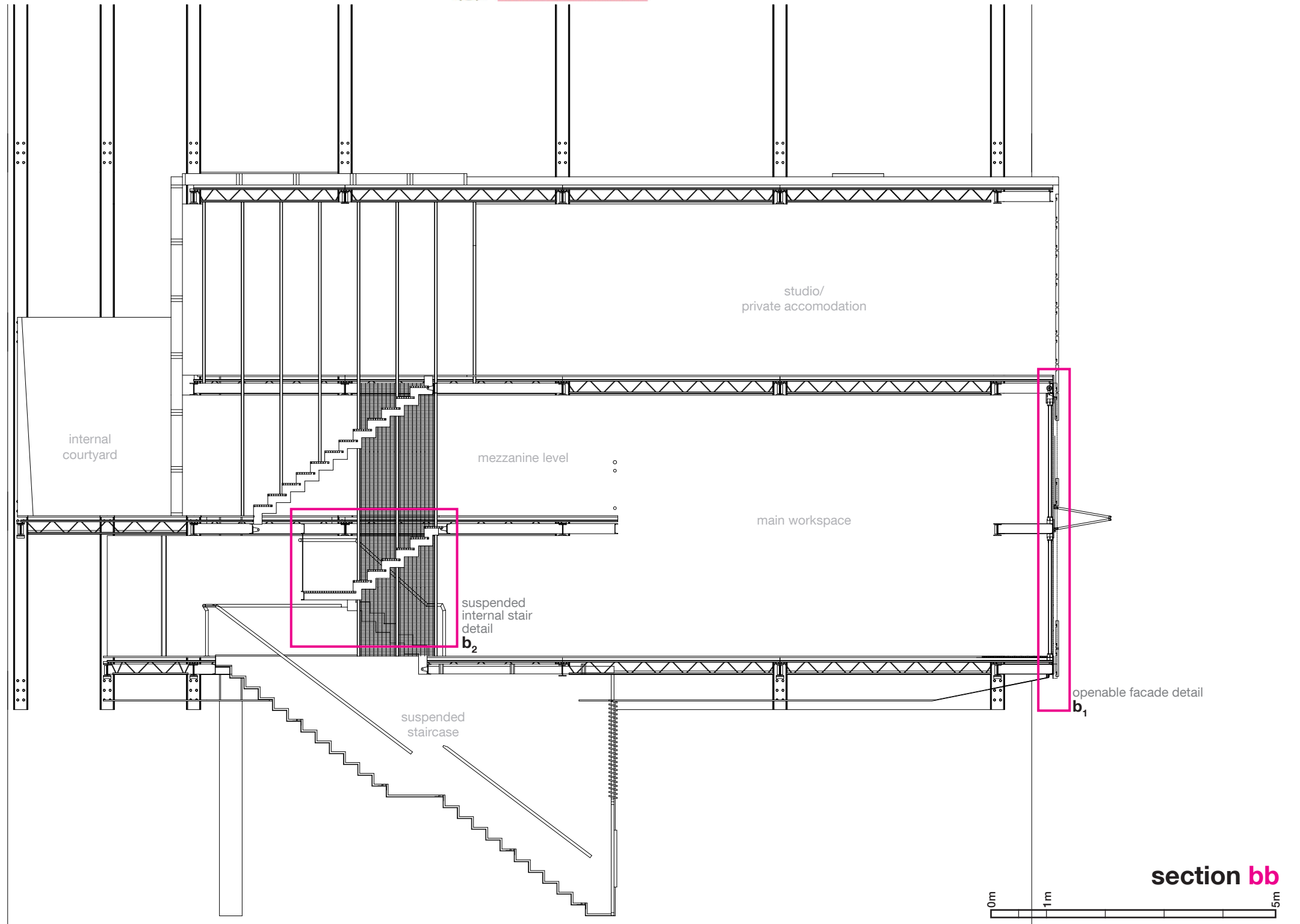
mezzanine plan

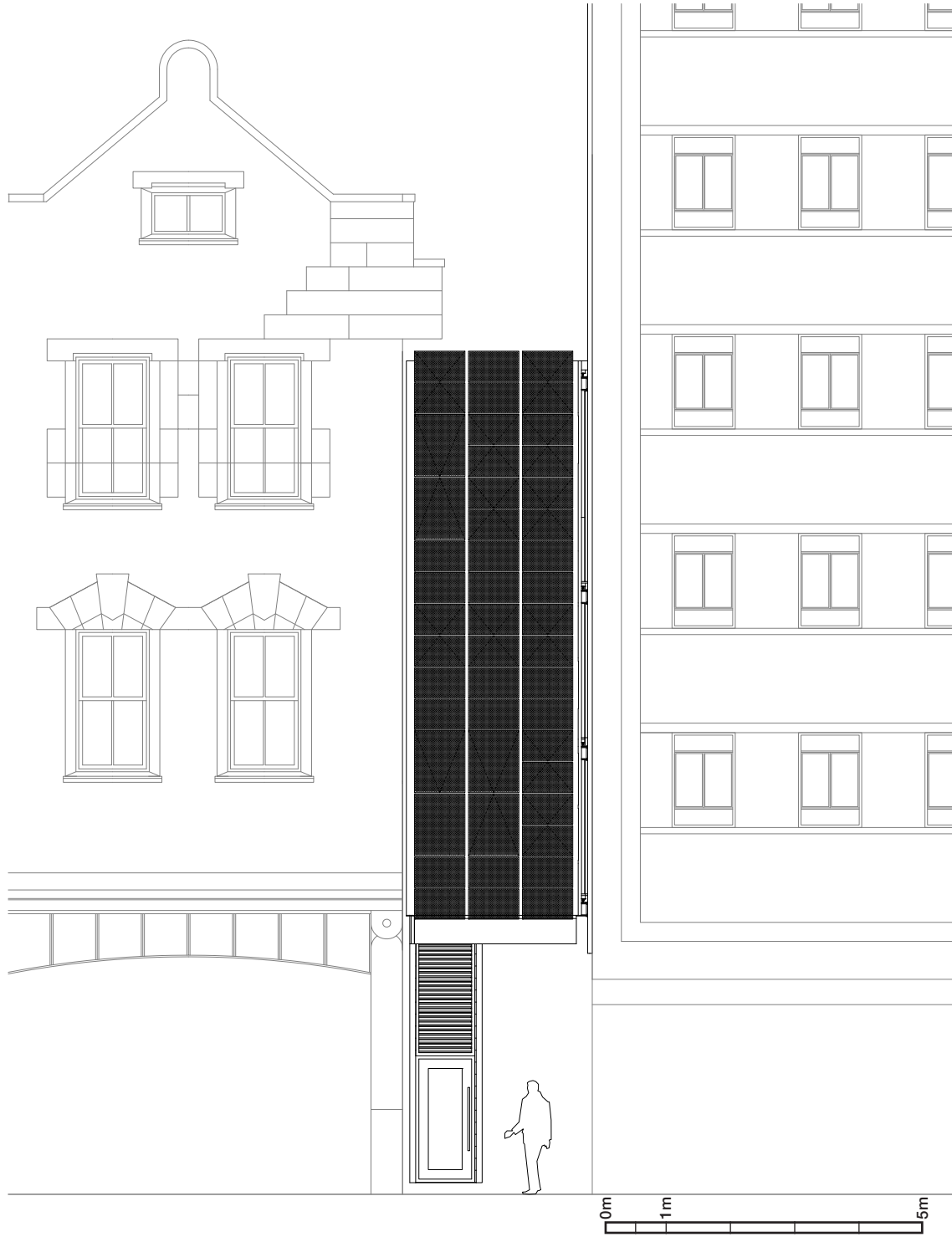


second floor plan

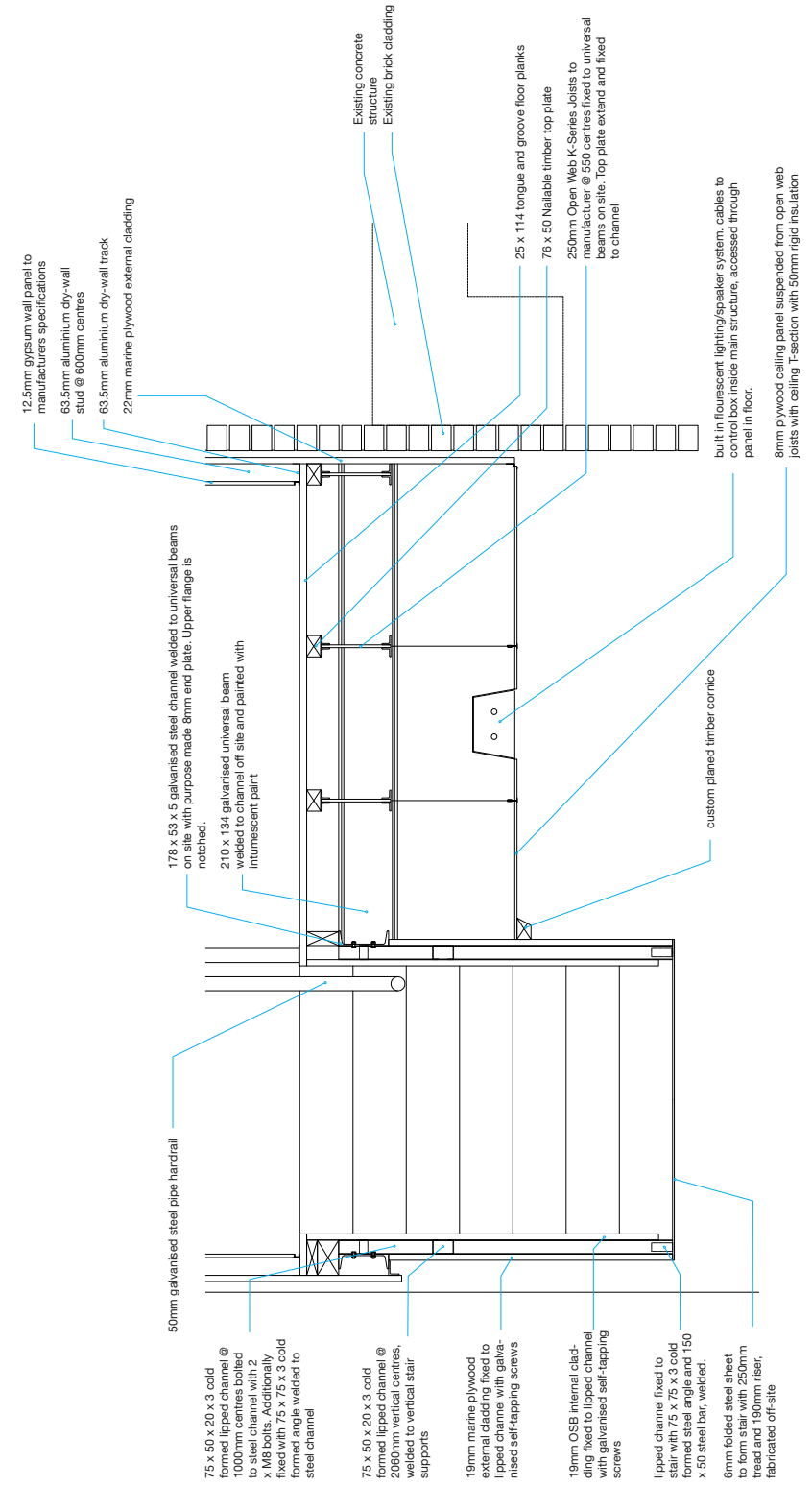








street elevation



suspended staircase detail n.t.s

12.5mm gypsum wall panel to manufacturers specifications  
63.5mm aluminium dry-wall stud @ 600mm centres  
63.5mm aluminium dry-wall track  
22mm marine plywood external cladding

178 x 53 x 5 galvanised steel channel welded to universal beams on site with purpose made 8mm end plate. Upper flange is notched.  
210 x 134 galvanised universal beam welded to channel off site and painted with intumescent paint

50mm galvanised steel pipe handrail

75 x 50 x 20 x 3 cold formed lipped channel @ 1000mm centres bolted to steel channel with 2 x M8 bolts. Additionally fixed with 75 x 75 x 3 cold formed angle welded to steel channel

75 x 50 x 20 x 3 cold formed lipped channel @ 2080mm vertical centres, welded to vertical stair supports

19mm marine plywood external cladding fixed to lipped channel with galvanised self-tapping screws

19mm OSB internal cladding fixed to lipped channel with galvanised self-tapping screws

lipped channel fixed to stair with 75 x 75 x 3 cold formed steel angle and 150 x 50 steel bar, welded.

6mm folded steel sheet to form stair with 250mm tread and 190mm riser, fabricated off-site

Existing concrete structure  
Existing brick cladding

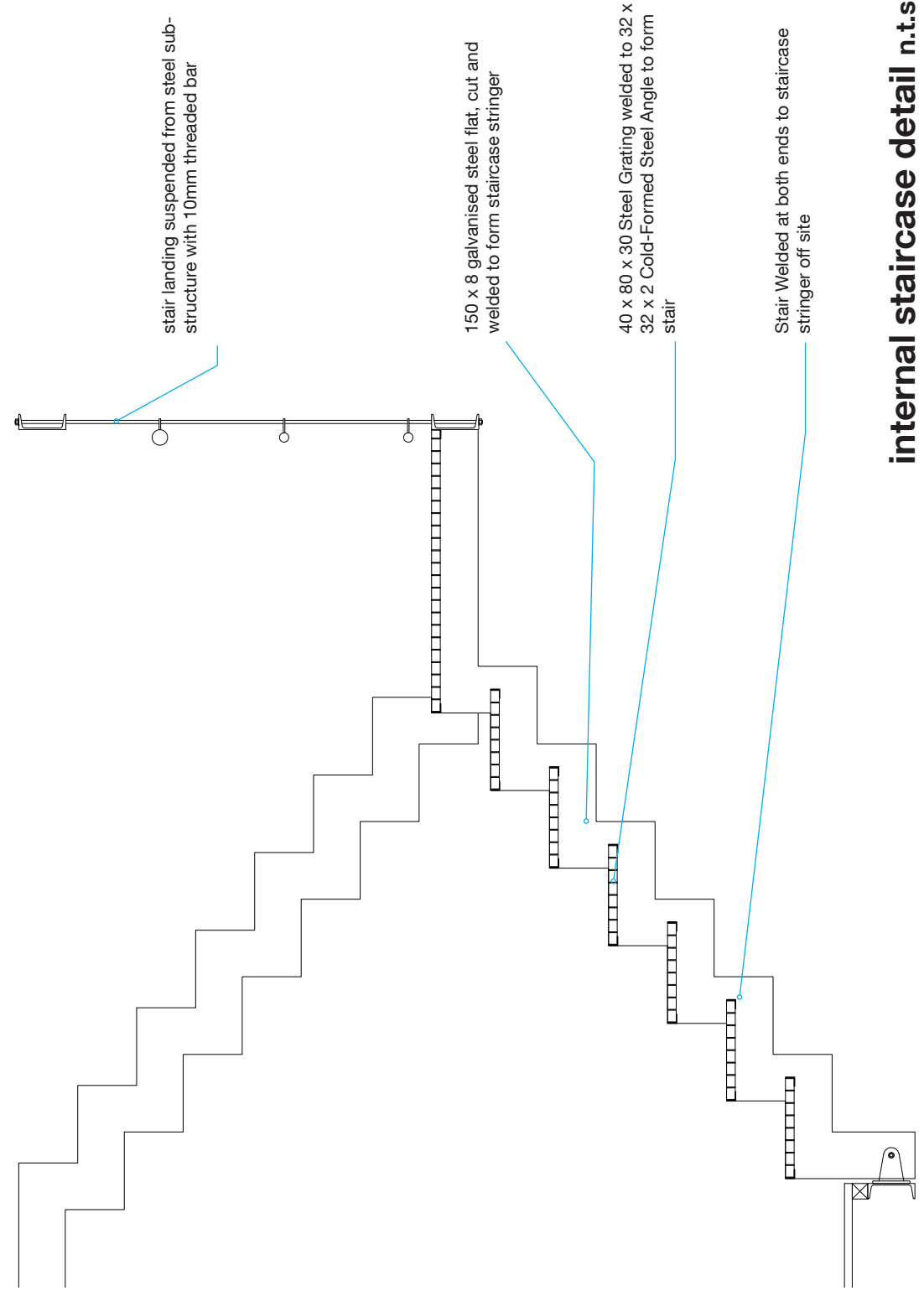
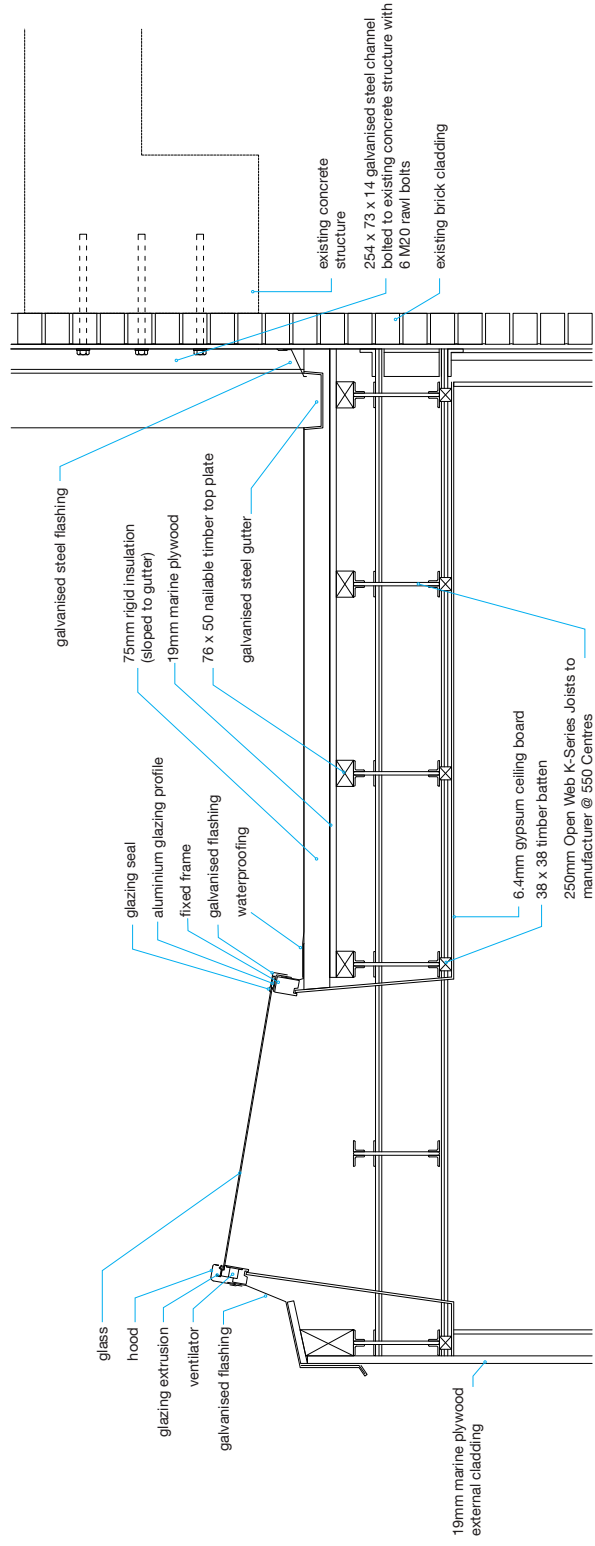
25 x 114 tongue and groove floor planks  
76 x 50 Nalable timber top plate

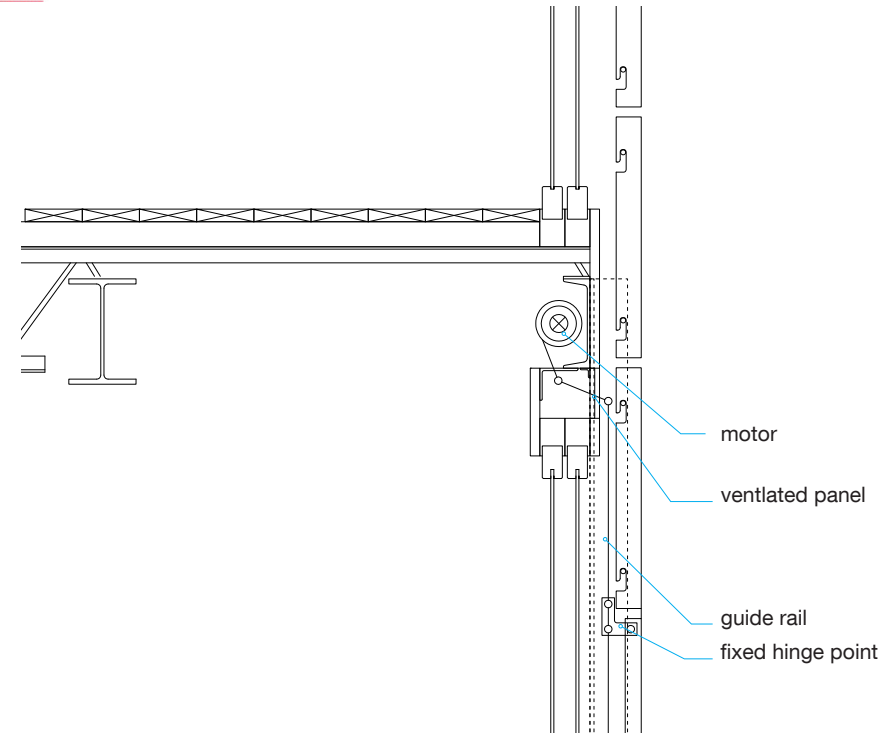
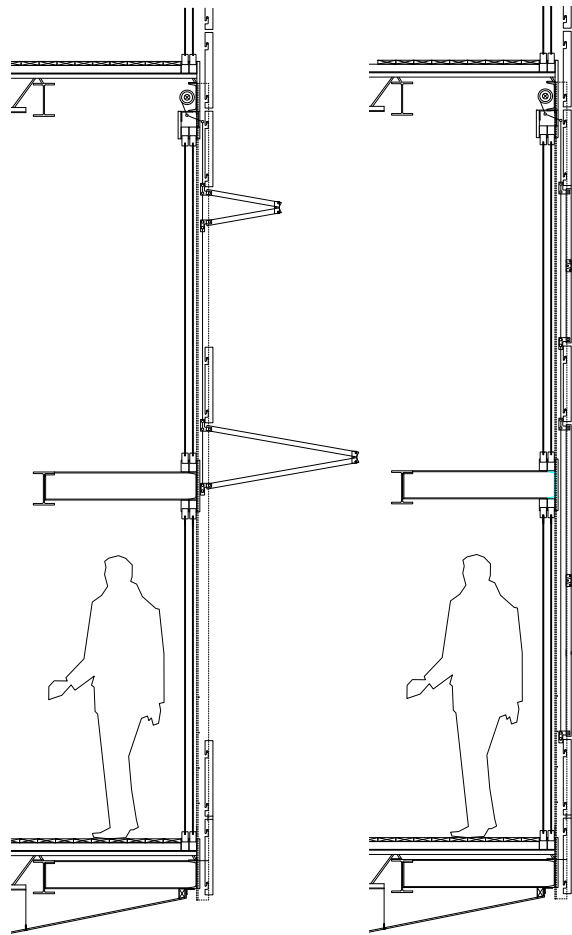
250mm Open Web K-Series Joists to manufacturer @ 550 centres fixed to universal beams on site. Top plate extend and fixed to channel

built in fluorescent lighting/speaker system, cables to control box inside main structure, accessed through panel in floor.

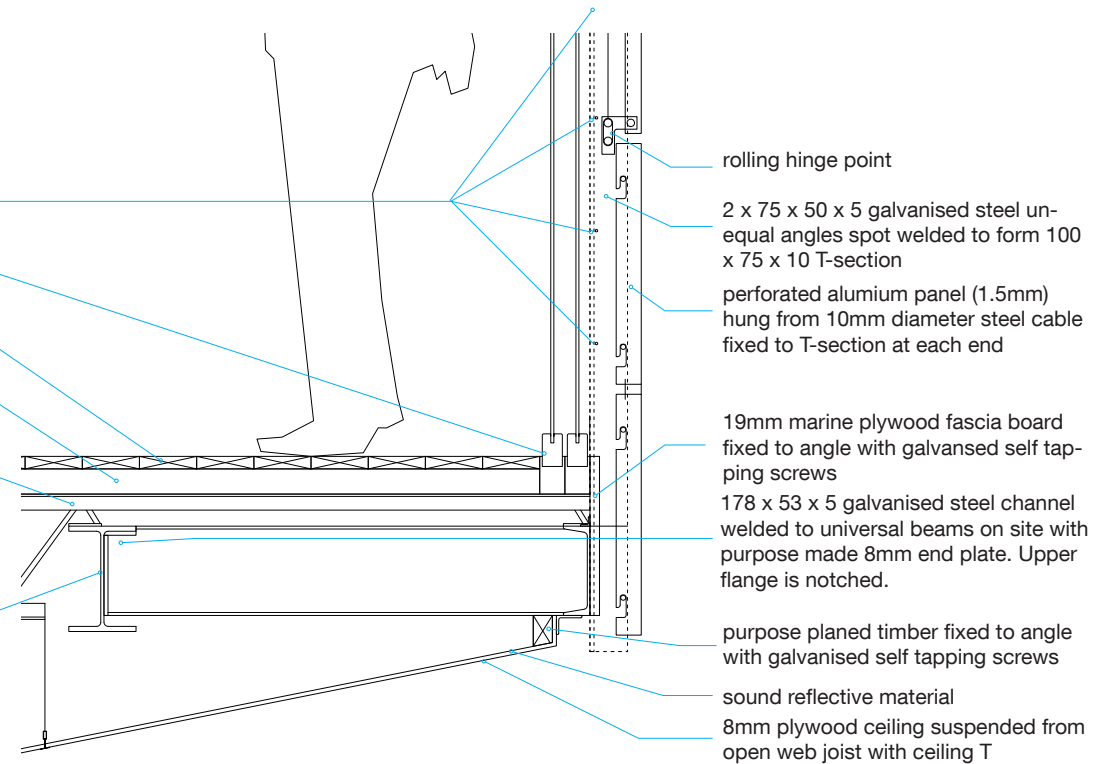
8mm plywood ceiling panel suspended from open web joists with ceiling T-section with 50mm rigid insulation

custom planed timber cornice





- 5mm diameter cables acting as guard rail
- Horizontal sliding aluminium door frame with 6mm safety glass
- 25 x 114 tongue and groove floor planks
- 76 x 50 Nailable timber top plate
- 250mm Open Web K-Series Joists to manufacturer @ 550 centres fixed to universal beams on site. Top plate extend and fixed to channel
- 210 x 134 galvanised universal beam welded to channel off site.



**openable facade details n.t.s**





## SBAT Rating System

The SBAT rating system analyses the sustainability of the building in three main categories: social, economic, and environmental. These categories are further subdivided into individual criteria by which the building's/design's performance is analysed.

The proposed infill typology and urban framework are thoroughly grounded within a general approach to sustainability that is a prerequisite for any new design project.

The site, a narrow service alley between two buildings, has many limitations and advantages that lead to an uneven performance according to the SBAT rating system. For example, the parasitic approach of using existing service connections and structures save on costs; yet the limitations of weight and dimensions severely limit possibilities of inclusive design.

Rather the proposal should be seen within a broader context, both within the scope of this thesis and alongside others proposed by members of the master's class. The reinterpretation of the city block fosters an approach of 're-inhabiting' the city, which in itself is sustainable by encouraging new use.

Some of the criteria of the SBAT rating system are now expanded on in more detail to show the virtues and shortcomings of the design.

### Social Sustainability

#### Occupant Comfort

Natural daylighting and ventilation are provided through windows and skylights. The northerly exposure of the site provides adequate day-lighting to the main functional areas of the building, whilst day-lighting for the rest of the building is augmented by a light well, skylights and the careful manipulation of levels and circulation elements. Noise reduction was a principle consideration in the design of the building, and as such it shields its occupants through the use of acoustic insulation and double glazing.

The site, between two existing buildings, effectively shields the proposal from large fluctuations in temperature and wind. The glazed northern facade provides picturesque vignettes of the heritage buildings across the street.

Circulation however is somewhat compromised due to the narrow alley and the desire to keep the service way open for existing users.

#### Inclusive Environments

The difficult site prevents much planning for inclusive environments due to size and weight restrictions. However, it is possible that these problems could be avoided with more careful planning.

#### Access to Facilities

The proposal is situated within the heart of Pretoria CBD and is such situated within walking

distance to nearly all amenities.

#### Education, Health and Safety

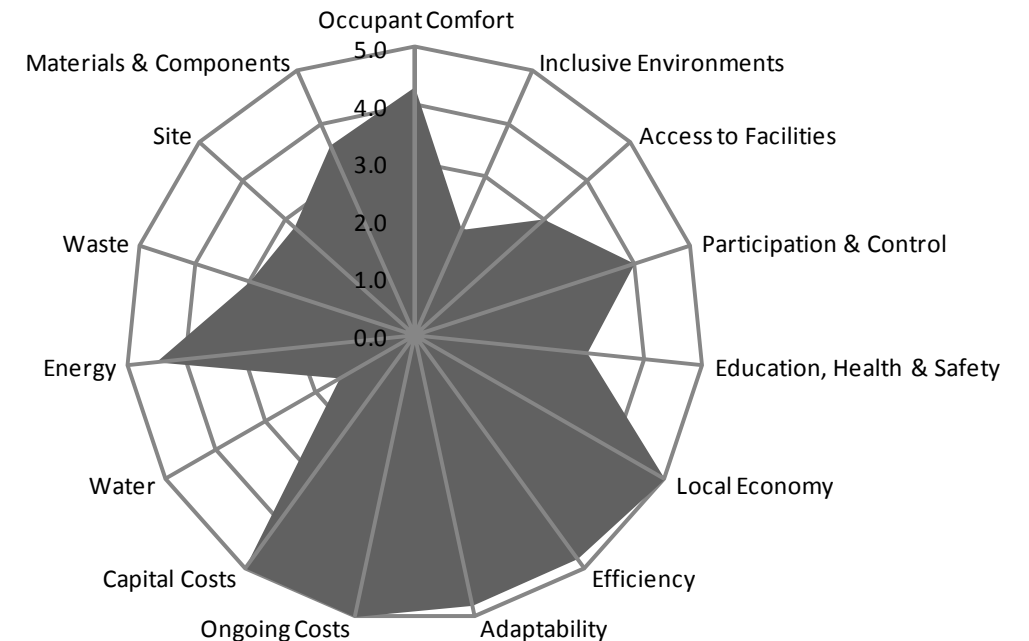
The proposal contributes to the safety of the area in general by increasing the occupied hours of the area and by providing additional lighting on the street

#### Economic Sustainability

The benefits of a parasitic insertion show here, as much of the traditional ground works and service connections required for a new build are avoided. The limited size also keeps costs down, but the fabrication of the steel elements may prove to be expensive. Fortunately Pretoria has a more than adequate supply of building contractors, fabricators and material stockists that allow most of the required elements to be sourced locally.

#### Environmental Sustainability

Consideration was taken from the start to use renewable solar energy where possible and to also harvest rain-water run-off. The roof effectively catches water from the two neighbouring buildings to further increase yield.

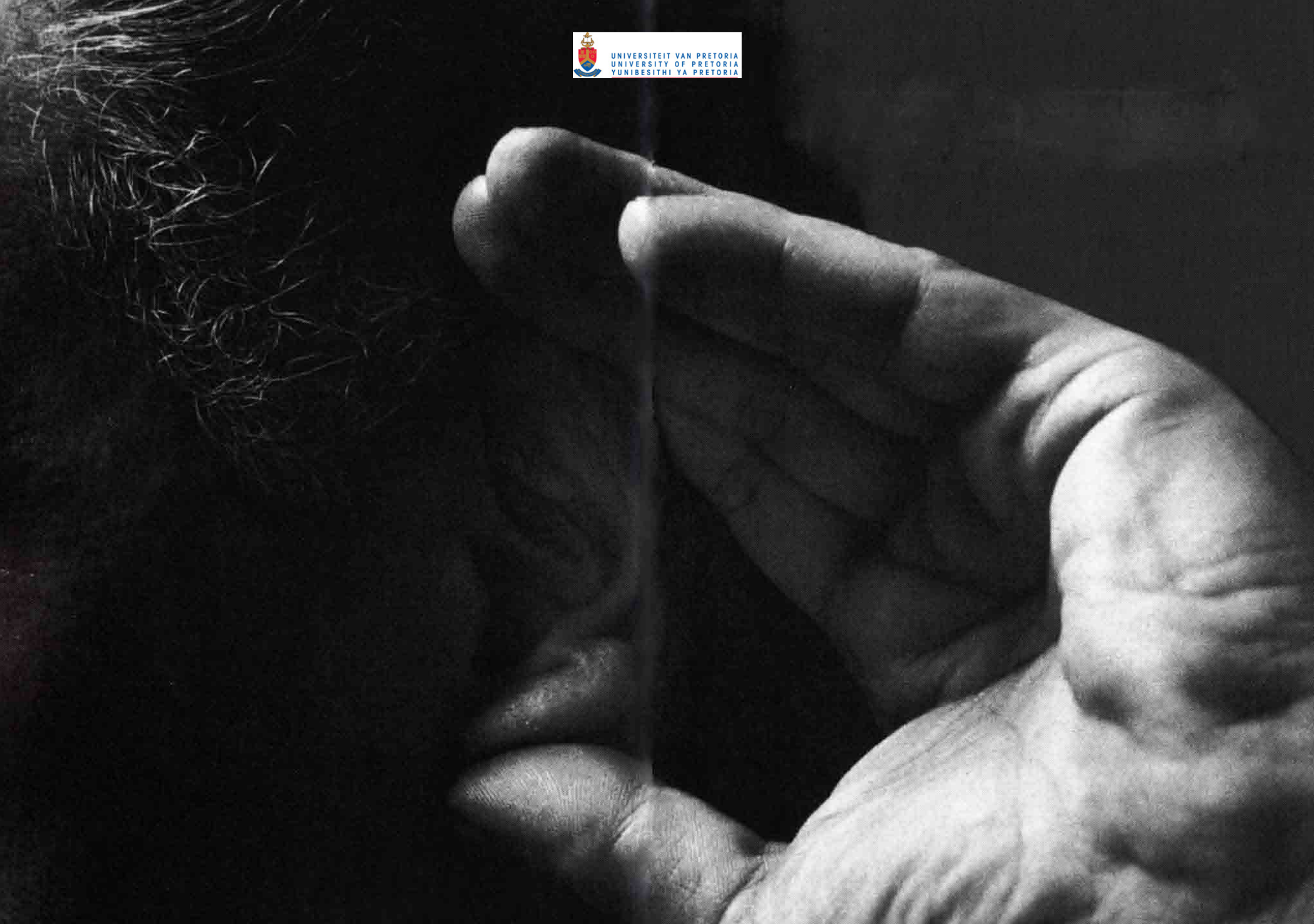


## Conclusion

The Earwitness investigation interrogates the space-user-object relationship that forms the basis of the interior architectural discourse. Through the use of sound as an additional enabling factor, the project aims to use an interior architectural mindset to discover possibilities of inhabiting the city in new, provocative ways.

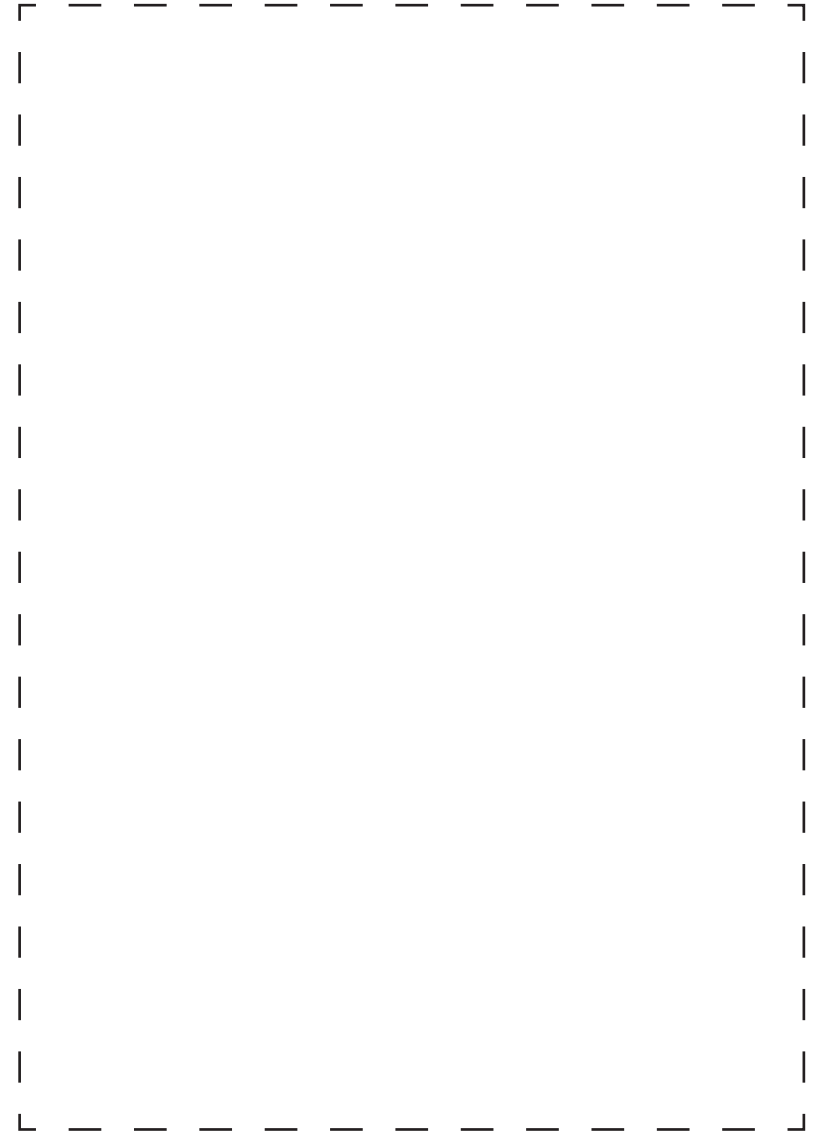
The series of objects and installations subvert existing dialogues between the city's inhabitants and its spaces - creating new avenues of interaction and ownership.





# Appendices





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