hybrid design

Bringing the Digital Realm to Pretoria West.

Special Thanks to:

My parents, for their continued support and encouragement.

To my brother, who would have been so proud of me.

To Christo, for his unfailing support.

'Believe in the importance of love, for it is the strength and beauty that brings music to our souls.'

By Marike Venter

Submitted in partial fulfilment of the requirements
for the degree Master of Interior Architecture
(Professional)

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PROGRAMME

Ebook publisher and leisure space

SITE DESCRIPTION

Old lithography workshop, located in Pretoria West

SITE LOCATION

341 Carl Street, Pretoria, South Africa

DESIGN PREMISE

Adaptive Reuse

DESIGN APPROACH

Interior design as a mode of cultural production: The emergence of the digital realm

RESEARCH FIELD

Heritage and cultural landscapes

Abstract

The contemporary world is continuously evolving and changing. This can be ascribed to technological development. There exists an expanding digital realm that is changing the way society interacts with its surroundings and context.

Interior design is a discipline that alters existing structures. This dissertation explores the role of interior design in adapting existing structures to technological development, focusing on digital development.

Theories concerning hybrid design were investigated and compared in order to generate a design approach to the problem. Contextual analysis was done in order to establish important factors that would contribute to the generation of an appropriate programme. Thereafter precedents were analysed in order to supplement the body of knowledge.

The final product is a mixed-use facility which includes an electronic book (e-book) publishing facility for *Van Schaik Publishers* as well as a facility for the contextual public where interaction with digital media is facilitated.

The dissertation provides a project that acts as a mediator between the material and digital realms. Simultaneously, the product acts as a catalyst for bridging the great 'digital divide' one finds in a country like South Africa, where the larger population has no access to the digital realm.

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chapter 01

PROJECT OUTLINE

This chapter provides background to the dissertation. It includes a description of the subject matter, the selected site and various other influencing factors.

1.1 Project Outline

1.1.1 INTRODUCTION

“Interior design can and ought to make important cultural commentary” (Caan, 2007: 55).
This dissertation explores the role of interior design in connecting the material realm with the expanding digital realm as society becomes more dependent on digital media to access information.

The dissertation firstly provides a general background to the project undertaken. This is then followed by a theoretical investigation to provide a knowledge base that informs the design process. Building analysis and larger contextual analysis have been included in order to understand various influencing factors that contribute to the make-up of the site. This is followed by an overview of various precedent studies to supplement the design process. The prospective programme, client and user group are then established, followed by conceptual exploration and a final design proposal with technical documentation.

1.1.2 THE REAL-WORLD PROBLEM

The digital revolution influenced the way in which the information culture is consumed. Technologies seem to improve continuously. Western society seems to have become more reliant on non-physical loci. “The introduction of advanced electronics and digital technologies, ubiquitous computing, wireless global networks, and real-time communications has effectively transformed how society takes place” (Roscoe, 2007: 99).

However, these doors are only opened for people who have access to the digital realm. The scenario changes significantly for developing countries such as South Africa. Eugenio Tisselli states that in Africa, less than 15% of people have access to digital media, whereas the number exceeds 70% in North America (2010: 262). The real challenge of the digital domain lies in breaking through its dominant modes of usage and finding new, liberating possibilities, where everyone has access to this domain.

1.1.3 PROBLEM STATEMENT

Innovation is a constant. Newer technologies and developments introduced the digital realm, where society becomes more dependent on non-physical loci. Interior design is a discipline that alters existing structures in the material realm. How does interior design approach the material realm, while adapting to suit the realm of the expanding digital culture and newer technologies?

1.1.4 DISSERTATION TOPIC

This dissertation investigates the creation of a hybrid design to blur the distinction between the digital and material realms. The dynamic state of the hybrid allows for continuous evolution or innovation.

1.1.5 OBJECTIVES

The dissertation aims to revive the lost heritage of commercial printing in Pretoria. Simultaneously, the dissertation aims to investigate the potential of interior design to act as a mediator between the material and digital realms and to provide a product that connects both realms, thus embracing hybrid design. Hybrid design suggests the evolving condition of site and context. This dissertation thus aims at connecting the material past culture with the newly expanding digital realm.

The final product also aims to promote the reading culture in Pretoria, making digital reading material accessible to larger communities. The goal of this is also to provide a product that promotes the bridging of the 'digital divide' we find in the current South African context.

1.1.6 RESEARCH QUESTIONS

Certain research questions have been formulated as sub-problems in order to establish a theoretical framework to substantiate and inform the design process. These questions include:

- What are the implications of the emerging digital realm on people's perception of reality?
- How does the digital realm influence the creation of contemporary space, thereby influencing interior design?
- Can interior design create a niche where the digital realm and material entities connect and interact?
- What are the implications the digital realm holds for a developing country like South Africa?

1.2 Site Selection

1.2.1 GENERAL

Site Address: 341 Carl Street, Pretoria West (Industrial Precinct)
Erf Number: 3/1913
Architects: Hendrik Vermooten Du Plooy and Oosthuizen Architects
Building Date: The structure was erected in the early 1980s
Ownership: The site is currently owned by a private body, originally belonged to the *Saambou Nasionale Bouvereniging.* The site for this dissertation was chosen prior to the theoretical investigation. The site contains a building that was originally used as a lithography workshop, thus the site is of a factory typology. Refer to Chapter 3 for a detailed building analysis.

1.2.2 LOCATION

The Pretoria West area is currently a declining industrial area.. Fig. 1.1 and 1.2 show the location of the site, with its main street-facing facade.

Fig. 1.1
The southern, street-facing facade of the site

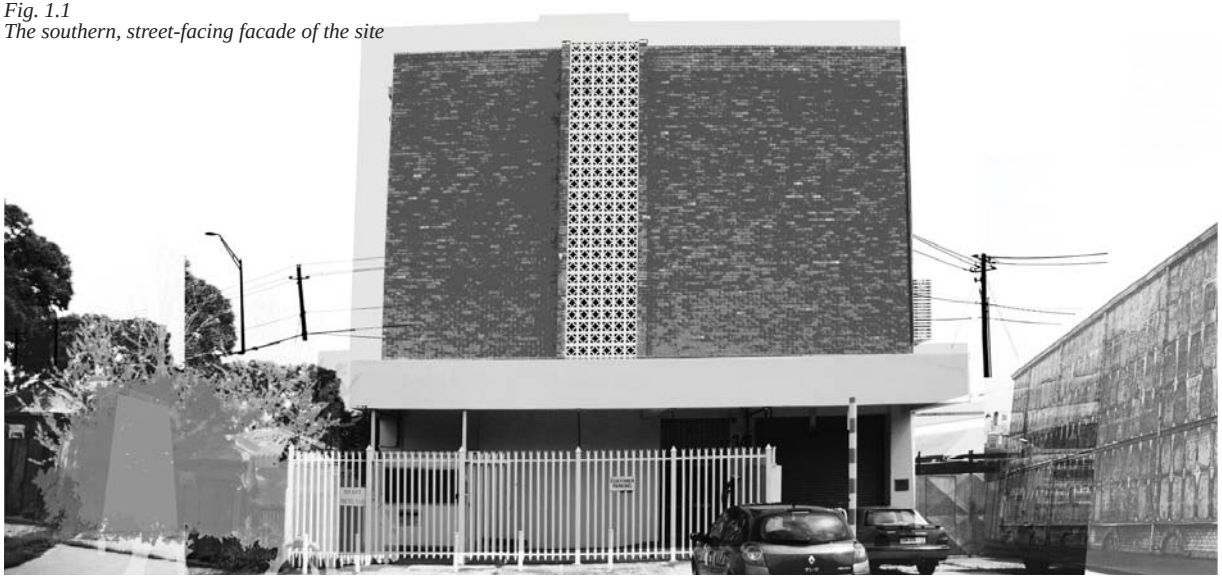


Fig. 1.2
Cartesian map illustrating the greater Pretoria West area with the location of the site

1.3 Delimitations and Assumptions

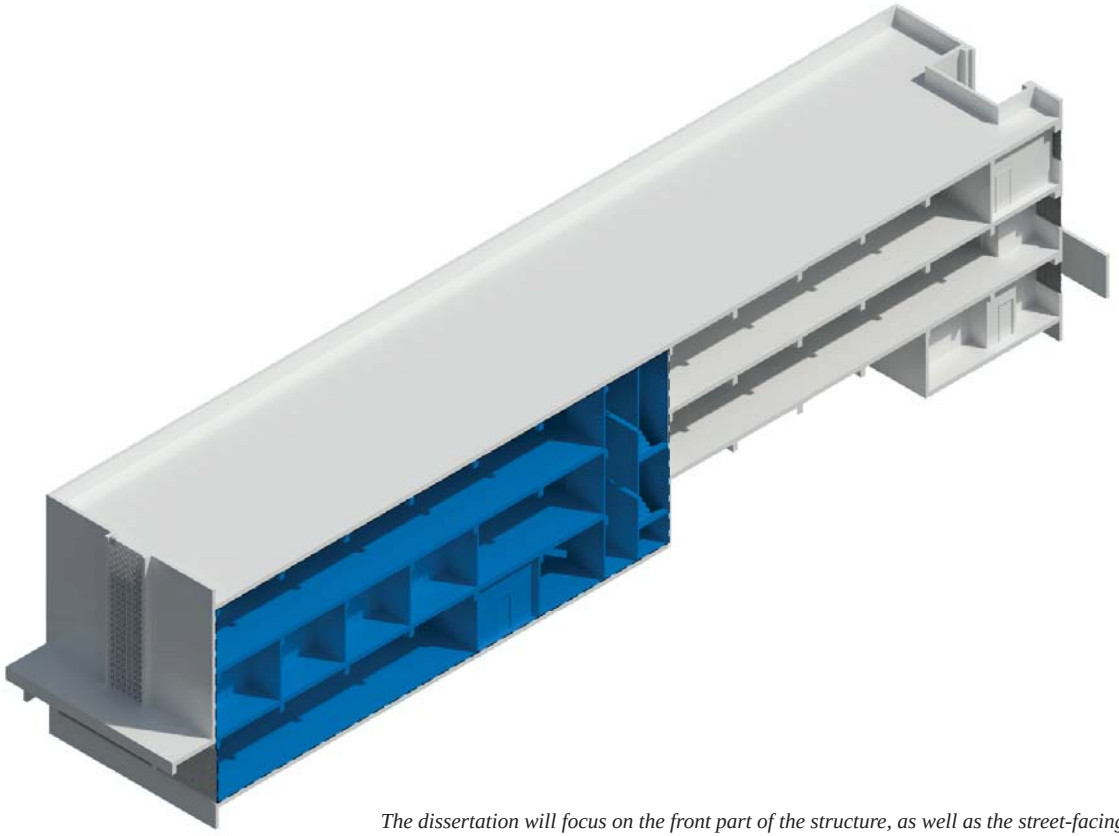


Fig. 1.3
The dissertation will focus on the front part of the structure, as well as the street-facing facade

1.3.1 OUTLINE OF STUDY

The larger context and framework will be investigated, but the main focus of the dissertation will be on the design and alteration of the interior of the building, as this dissertation is a reflection of the interior design discipline.

The study includes a detailed analysis of the entire building, in order to gain holistic knowledge of the functioning and composition of the structure. However, detailed design development will be limited to the ground floor of the building and the southern facade, which forms the interface between the building and the street. Refer to Fig. 1.3. The dissertation is based on the assumption that the area of Pretoria West is already in the process of urban densification and revivification. Thus the dissertation finds itself in a proposed future contextual scenario, where Pretoria West is reconnected with Pretoria CBD in a city that is vibrant, busy and dense. Refer to Chapter 3 for further explanation of the proposed framework for Pretoria West.

1.4 Research Approach

1.4.1 RESEARCH METHODS

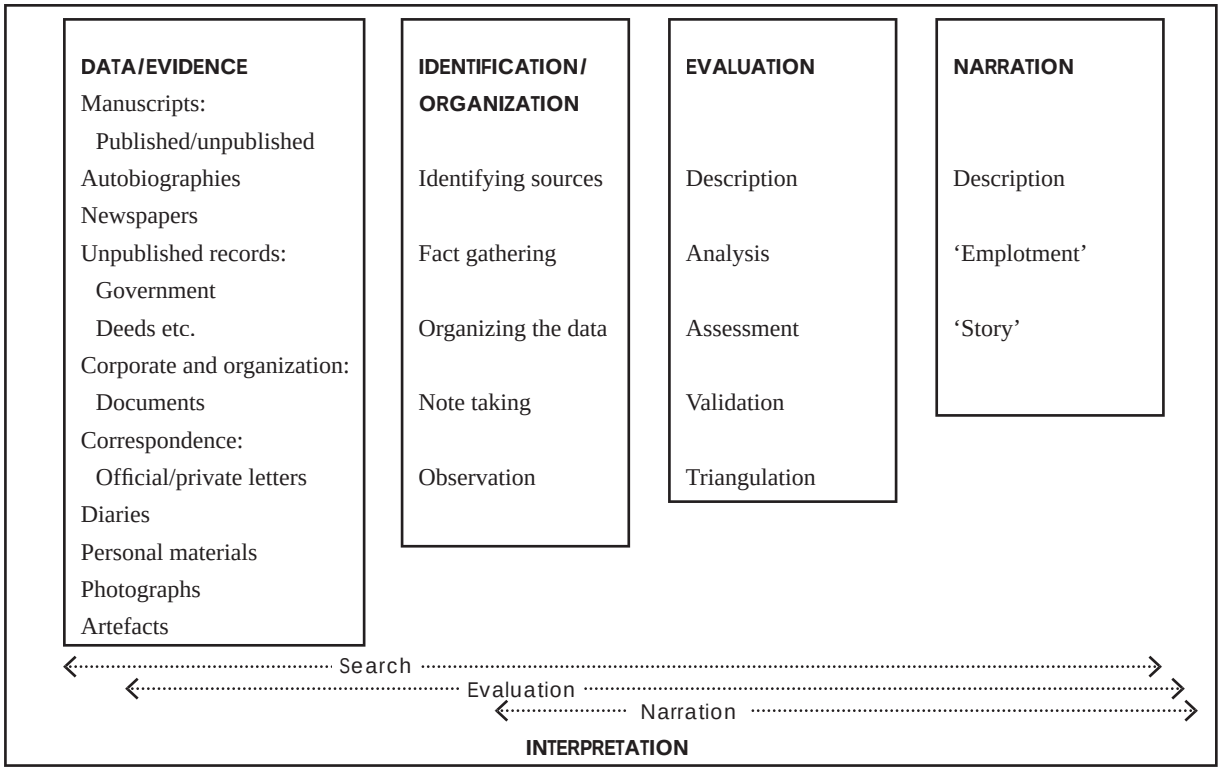
A combination of research methods was selected in order to complete the study, namely the 'interpretive-historical research method' and the 'strategy of qualitative research,' as discussed in the book Architectural Research Methods, by Groat & Wang (2002).

The emphasis of 'interpretive-historical' research is on accessing evidence from the past and includes fact finding, fact evaluation, fact organization and fact analysis (Groat & Wang, 2002). The strength of this strategy lies in the following:

- The framing of past events in a narrative manner (Groat & Wang, 2002).
- Making use of archives, interviews and similar sources (Groat & Wang, 2002).

The 'interpretative-historical' research method can be summarized as seen in Fig. 1.4.

Fig. 1.4
Outline of the 'Interpretative-Historical Research Method' (Groat & Wang, 2002)



"The strategy of 'qualitative research' is one of first-hand encounters with a specific context. It involves gaining an understanding of how people in real-world situations make sense of their environment and themselves" (Groat & Wang, 2002). This method focuses on the acknowledgement of the interpretation in the collection and presentation of data. The aim of qualitative research includes the following (Groat & Wang, 2002):

- To gain a holistic overview of the context under study
- To be open-ended in theoretical conception and research design
- The analysis through words, whether represented in visual display or narrative devices
- The personal informal writing stance that connects the writer and the reader

Therefore the method of research adopted for the proposed study is one that makes use of data and real-world situations, involving a continuous process of organization, interpretation and evaluation. The research method aims to be open-ended and to document the findings from a narrative stance.

1.4.2 DISSERTATION FORMAT

Frazer Hay suggests that four analytical strands can be employed (2007: 35):

- The understanding of the building's structural composition
- The historical and functional factors
- The structure's context and environment
- The future function intended for the building

Other aspects have been added to Hay's suggestion in order to add more strands for a more thorough analysis. The research methodology that will be followed in this dissertation is as follows:

- The quality, character and emotion of the interior spaces
- The understanding of the building's structural composition
- The site's historical and functional factors
- The analysis of the structure's context and environment
- The statement of building significance
- The proposed future function intended for the structure
- The analysis of precedents to inform the design process and conceptual stage

The quality, character and emotion of the structure play an important role in depicting the narrative of the structure. This part of the analysis will focus on proportion, colours, textures, psychological associations, identity, specific/unique details and sensory associations.

In order to understand the building's structural DNA, the designer needs to understand the existing structure. The analysis of the existing structure should include (Hay, 2007: 35):

- Exterior and interior dimensions
- Column grid spacing, floor and ceiling heights

- Location and dimensions of exterior and interior openings
- Location of interior bearing and non-bearing partitions
- Composition of structural frame, floor, ceiling and roof systems
- Composition of exterior walls and interior partitions
- Survey of vertical transport systems

The historical and functional factors are important to consider, as they informed the spatial arrangement and form of the initial building. Important elements to consider in this analytical step are the construction methods and materials used, as well as the intended programme for the building, as this dictated the form of the structure.

The fourth analytical strand is the consideration of the structure's context and environment. The relationship of the structure with its surrounds is important to consider when proposing a new design for the structure. "Considering and questioning the relationship established with the adjacent structures, public spaces, the natural elements and landscape help establish a clearer representation of the structure to be remodelled" (Hay, 2007: 36).

A statement of the significance of the building is compiled in order to generate an approach to the adaptive reuse of the structure which is grounded on a good analytical base.

The last analytical strand Hay discussed is the future function intended for the structure. This forms the proposed design intervention. This analytical strand requires spatial planning, conceptual development, identification of the social implications, the compatibility with the site and the aim/objective of the intervention. These factors will be addressed through the design intervention by means of illustrations and detailed drawings.

The research method should encompass guidelines as set out for the discipline of interior design. The interior spaces are analysed first, followed by the structure and the larger context analysis. The analysis thus expands from the interior outward (see Fig. 1.4), reinforcing the identity of the interior design discipline.

1.4.3 CONTRIBUTION TOWARD INTERIOR DESIGN DISCIPLINE

"Design assumes a role of cultural leadership when it creates innovative scripts that communicate ideas and meanings beyond conventional understanding" (Ganoe, 2008: 7). A concise definition of interior design is: "Interior design is a mode of cultural production which engages in the design of enclosed spaces in existing structures, with emphasis on the design of volume" (Königk, 2010:60). Therefore interior design has the capability to reflect the cultural values of society.

This dissertation contributes to the field of interior design in that it investigates its possibilities to be a mode of cultural production and expression that reflects the cultural values of today. This is done by exploring the possibilities of interior design to become hybrid, to connect the digital and material realm in an innovative way, commenting on the contemporary culture. Finally, the dissertation's aim is to offer a design that "challenges the imagination and offers emotional rewards regardless of its pragmatic duty" (Hewlett, as cited in Ganoe, 2008: 1).

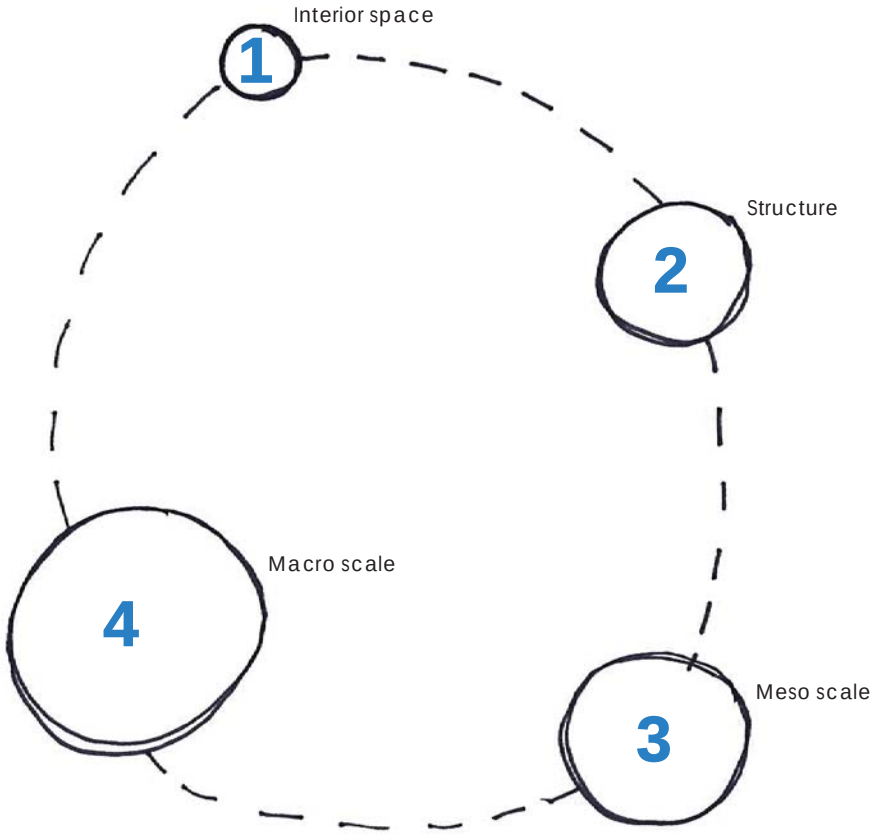


Fig. 1.5
The analysis of the existing is preceeded by the analysis of the interior space and extends outward

chapter 02

THEORETICAL DISCOURSE

This chapter describes the theoretical framework that informed the design process.

2.1 The Digital Realm: A New Reality

2.1.1 INNOVATION : A CONTINUOUS EVOLUTION

"Innovation is constant" (Santana, 2010: 225). The transfer of knowledge and information has evolved considerably, from mouth to mouth, from hand to hand, and finally, from computer to computer (Machado, as cited in Tisselli, 2010: 265). New expressions of contemporary culture, involving the transfer of knowledge, often leave the public shocked, revolted, and feeling unsafe (Santana, 2010: 225). The hope of finding a safe, stable place in a society's culture is dismal, as change is constant in the universe of culture and its expression, due to innovation. Cultural expression is constantly changing.

However, change needs to be embraced, as it reflects the achievements and developments that humans have facilitated. Innovation should not be something that repulses society or scare people. Rather, innovation should be something that needs to be embraced, as new innovations are closely linked to current global understanding (Santana, 2010: 226). The general misconception regarding change is that new things replace the old. This is frankly not true; innovation merely alters the relationship between things that are already existing. This shouldn't be a threat to society, as innovation aims to improve the living environment. Innovation is the process by which new ideas and artefacts lead to new cognitive and behavioural practices such as genres, ways of going and organising and new conventions (Anheier & Isar, 2010: 4).

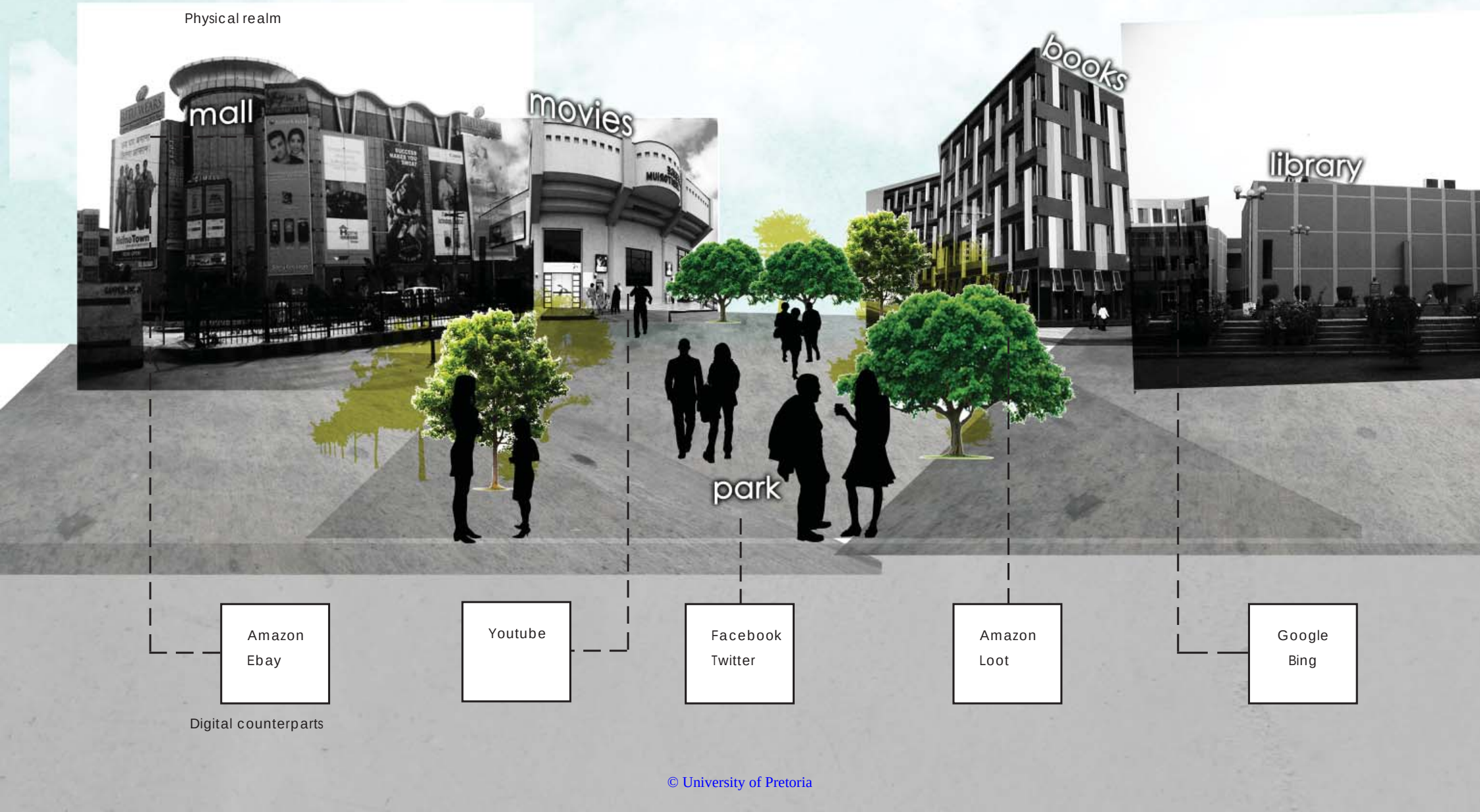
2.1.2 CYBERSPACE: A SECOND SPACE

"Space is a medium by which we understand our world, ourselves, and each other. And cyberspace is its electronic extension" (Anders, as cited in Roscoe, 2007: 100). The developing technologies surrounding digital media resulted in society becoming more dependent on non-physical loci. "The introduction of advanced electronics, digital technologies, ubiquitous computing, wireless global networks, and real-time communications has effectively transformed how society takes place" (Roscoe, 2007: 99).

The so-called 'Information Age' is a generator of an expanding immaterial reality, or immaterial space. The digital realm is no less real for not being material. Despite the lack of physicality, the digital realm, or cyberspace, is a real place. An example is social platforms like Facebook and Twitter. The individual is able to communicate with his/her friends and engage in social activities without having to be present.

Santana (2010: 225) poses interesting questions in this regard: "Can a sculpture I cannot see as a solid object be considered a sculpture? Or how can a person dance with another person that is not present?" Cyberspace creates opportunity for quicker access to media or social interaction without having to be present at a specific place. Therefore it can be said that the digital realm constitutes a second space to the material realm, where interaction and exchange take place.

Fig. 2.1
The relationship between the physical realm and its digital counterparts



2.2 Conflicting Spaces

2.2.1 THE MATERIAL AND THE DIGITAL FINALLY MEET

The emerging digital space seems to stand in opposition to the material culture. With the expanding digital culture, the realm of the material and digital seem to be in continuous conflict with each other.

It is tempting to think that there will always be a desire to hold the physical object in one's hand. It might be true of the current generation, but what of the next? The current generation is fast becoming used to a different model, where access to information, such as music, research etc. is more convenient through the digital realm.

Tara Roscoe (2007: 100) states that the digital realm causes 'dematerialisation' of the physical. Dematerialisation is a process by which technology replaces physical, tangible events and artefacts with digital or electronic counterparts. Roscoe uses the example of photography. The physical photo is replaced by a digital image made up of pixels and stored in electronic files. This results in the traditional paperback photo being dematerialised (2007: 100). Roscoe seems to identify the digital realm as a threat to the current material culture.

Simultaneously, many people are opposed to certain changes that the digital culture enforces. The 'Slow Media Movement' opposes the use of digital technologies such as email, smart phones and social media. According to Buddenburg (2012), the 'Slow Media Movement' argues that communication, news and entertainment ought to be consumed deliberately and thoughtfully, not just at the highest speed possible. The movement attracts people who feel that technology needs to be chosen, not embraced blindly. "It is frustrating. I think people are fundamentally ruining the quality of their lives. We are social beings. Overusing electronic media almost violates one of the design features of the human species" (Friman, as cited in Buddenburg, 2012). This statement is further substantiated by Eugene Tiselli (2010: 269), who states that the digital realm facilitates dialogue and social interaction, but provides connected individuals with weak social ties.

The material and digital realm both have very strong and negative traits. One can argue that the material realm needs to change in order to accommodate the digital realm and the digital realm needs to find its identity within the material realm. This raises questions regarding the authority of these two polar identities.

It therefore becomes necessary to design the material realm according to digital considerations. There needs to be a symbiosis between the two realms.

Fig. 2.2
The emergence of the digital realm causes the dematerialisation of certain material aspects

2.2.2 THE EMERGENCE OF HYBRID SPACE

The clash between different polar identities has spawned new ideas and approaches to design. Hybridity in terms of space encompasses a dual spatiality, or dual reality. Hybrid design blurs the distinction between the two poles and amalgamates the two entities into a holistic spatial experience. The amalgamation of the material and digital influences how space is perceived. The real challenge for creativity in the digital domain lies in breaking through its dominant modes of usage and finding new, liberating possibilities (Leat, 2010: 261).

Hybridity does not lead to traditional or regular design. These creative spaces are more than just buildings, spaces or districts. Hybrid spaces are socially constructed products of physical facility/ place, people, and programming/operational resources (Duxbury & Murray, 2010: 201). These spaces operate between current reality and possibility, and they carry significant iconic or symbolic value.

"Hybrid space has no fixed or stable identity. The dynamic state of the hybrid relies upon the continuing evolution of polar identities in order to rebuild and inform its own creation" (Roscoe, 2007: 101). Hybrid space is fluid, liquid and changeable. According to postcolonial theory, hybridity is the margin where oppositional cultures overlap. It is the edge where cultural differences clash and conflict, disrupting the stable identities that are constructed around oppositions such as past and present, inclusion or exclusion, material and digital (Roscoe, 2007: 101).

Hybridity remains vague, despite the definitions provided by the above mentioned authors, and requires a problem-solving approach in order to determine the level of engagement of the two different realms in a design. This is done by identifying the benefits and shortcomings present in both realms. Fig. 2.3 compares the two realms with each other, with their respective strengths highlighted in blue. The aim of this exercise is to initiate possible guidelines to consider when designing hybrid space.

Fig. 2.3
A table comparing the hybridity existing between the material and digital realm

Comparative Element	Digital Realm	Material Realm
Accessibility	Quicker access to information. The digital realm provides vast amounts of information. The information can be accessed any time and at any place. Global access causes the homogenisation of information.	Needs to arrive at a specified material place. The material artefact provides information selectively. Information is specific, selective and limited. The material artefact is individual and special.
Technological Development	Showcases technological development and progress. The digital realm showcases innovation.	Houses technological development and progress. The material realm also showcases innovation.
Spatial Quantity	Digital media takes up very little space.	Material artefacts take up more physical space than their digital counterparts.
Sensorial Quality	Digital media remains to be a mostly visual experience.	Material artefacts provide more sensorial stimulation and texture. “That which remains tangible, tactile, and material has the power to potentially root us, as human beings” (Roscoe, 2007: 105).
Social Interaction	Social interaction in the digital realm creates weak social ties and involvement (Tiselli, 2010: 269).	The material realm provides opportunity for direct social involvement. People are social beings (Friman, as cited in Buddenburg, 2012).

2.3 The Emergence of Hybrid Design

2.3.1 DESIGN GUIDELINES

"Immaterial culture introduces new structural components to the design process" (Roscoe, 2007: 101). Converging material space with digital space results in the creation of new centres and margins, informed by the process of globalisation, intensifying interest in the processes of spatialisation (Duxbury & Murray, 2010: 200). However, the issue lies in having to cater for both domains and to synergise these spaces in one holistic spatial experience.

The strengths and weaknesses of both domains were determined in the preceding section. "The spatial linkages that we have come to expect are loosened. The constituent elements of hitherto tightly packaged architectural and urban compositions can begin to float free from one another, and they can potentially relocate and recombine according to new logics" (Anders, as cited in Roscoe, 2007: 104).

The integration of advanced technologies and digital media results in the availability of more physical space, as digital media takes up very little thereof. This additional physical space provides opportunities for the incorporation of other non-digital spatial activity. These activities can be anything and range from a lounge space to meeting areas. Contextually, these spaces should ideally include accessibility to the digital realm for the greater populace, as the accessibility to digital technologies in South Africa is extremely limited (refer to Chapter 1).

Simultaneously, encouraging direct, strong social contact becomes necessary. There exists an opportunity for the material realm to facilitate direct social contact and to provide opportunity for strong face-to-face interaction and discussion.

Fig. 2.4
Hybrid design amalgamates the opportunities that the material and digital realm provide to interact with each other

The material realm →

Hybridity

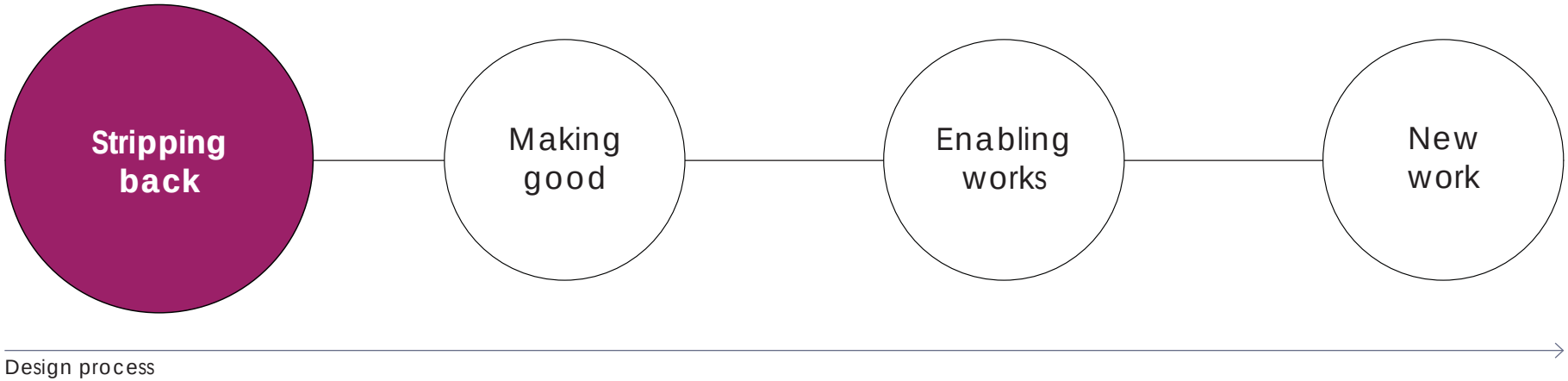
← The digital realm

chapter 03

BUILDING ANALYSIS

“Interior Architecture is the spatial manipulation of an existing building whilst engaging with its structural composition, history, context, orientation and proposed programme” (Hay, 2007: 35). In order to strengthen the identity of the interior design profession, the building analysis of the selected site precedes the larger contextual scale analysis.

Fig. 3.1
Summary of the design methodology



3.1 Approach

The building analysis was conducted in order to start "suggesting an outline anatomy of the work of intervention" (Scott, 2008: 107). The building analysis forms part of the 'stripping back' of the structure, which can be defined as the process by which the intervention designer acquires an understanding of the host building in order to develop a structural affinity as a preparation for the correspondence between the designer's work and the existing (Scott, 2008: 108). Refer to Fig. 3.1 for a summarised placement of the building analysis within the design methodology followed.

Supplementary to Scott's suggestion, Frazer Hay (2007: 35) suggests analytical strands that can be employed for the analysis of the structure:

- The quality, character, and emotion of the interior spaces
- The understanding of the building's structural composition
- The site's historical and functional factors

The quality, character and emotion of the structure play an important role in depicting the narrative of the structure. This part of the analysis will focus on proportion, colours, textures, psychological associations, identity, specific/unique details and sensory associations.

In order to understand the building's structural DNA, the designer needs to understand the existing structure. The analysis of the existing structure should include (Hay, 2007: 35):

- Exterior and interior dimensions
- Column grid spacing, floor and ceiling heights
- Location and dimensions of exterior and interior openings
- Location of interior bearing and non-bearing partitions
- Composition of structural frame, floor, ceiling and roof systems
- Composition of exterior walls and interior partitions
- Survey of vertical transport systems.

The historical and functional factors are important to consider, as they informed the spatial arrangement and form of the initial building. Important elements to consider in this analytical step are the construction methods and materials used, as well as the intended programme for the building, as this dictated the form of the structure.

3.2 The Existing Interior Space

3.2.1 A QUALITATIVE DESCRIPTION

The interior spaces in the building seem to be haunted by its past. The initial impression the interior creates is that the enormous structure seems incredibly empty. The long, dark hallways and vast rooms create an eerie atmosphere; they are mostly empty, devoid of any function or human presence, as the building is currently unoccupied. The absence of any ambient noise amplifies the sound footsteps make on the cold, hard concrete floors and contributes to the gloomy atmosphere. This space seems to be forgotten and lost.

The materials used to construct the interior spaces are shown in Fig. 3.2. All of the surfaces, excluding the floor, are painted white. The floor is painted in a light grey and in some places carpets were laid. The uniform colours and repetitive nature of the structure give the interior a monotonous and cold feel. Refer to Fig. 3.3 for the illustrated spatial experience. It is evident that the structure was previously used as a workshop, or for light industry, as remaining elements provide clues to the previous functioning of the building. The interior spaces seem vast and allow natural daylight to penetrate through the large windows.

There are few decorative elements. Patterned concrete blocks form the only decorative feature and are located at the entrance of the building.

Fig. 3.2
Visible textures and materials pertaining to the existing building

Fig. 3.3
Initial spatial experience of the building interior

3.3 The Structural Composition

3.3.1 OVERVIEW OF THE STRUCTURE

The load-bearing structural components consist of a concrete column frame, with reinforced concrete floor slabs. Windows have been fitted, and a shop front on the ground floor provides the main entrance and access to the building. The load-bearing structure is rigid, fixed and permanent, providing flexibility and opportunity for alteration through the skin/enclosure. Refer to Fig. 3.4 and Fig. 3.5 for a basic analysis. The full analysis can be found in Appendix A.

3.3.2 THE STRUCTURAL SYSTEM

The structural components of the building echo modern principles in building. Structural columns are placed on a grid which in turn supports horizontal beams and structural floor slabs. These elements are composed of reinforced concrete. The building is divided into repetitive modules that can be defined as a monotonous grid.

3.3.3 THE SPATIAL SYSTEM

The interior partitions located on the ground, first and second floor are constructed of masonry work. These interior partitions are not load bearing. In some instances, the partitions intersect with the windows in the outer skin, which is undesirable. The interior partitions form a poorly planned interior spatial layout and create uncomfortable circulation patterns in some instances.

3.3.4 THE SKIN/ENCLOSURE

The main elements that form the enclosure/skin of the building are masonry infill and windows. The skin allows for daylight penetration into the building, as well as natural ventilation. The skin is located between the structural columns, thus exposing the structural frame.

3.3.5 SERVICES AND CIRCULATION

Services enter the building through the skin and do not penetrate into or interfere with the structural components. Electrical distribution, air condition and plumbing are surface mounted and exposed. This makes the service distribution very flexible for future alteration or adaption. Vertical services include three staircases, distributed evenly throughout the building. A service lift is located at the centre of the building.

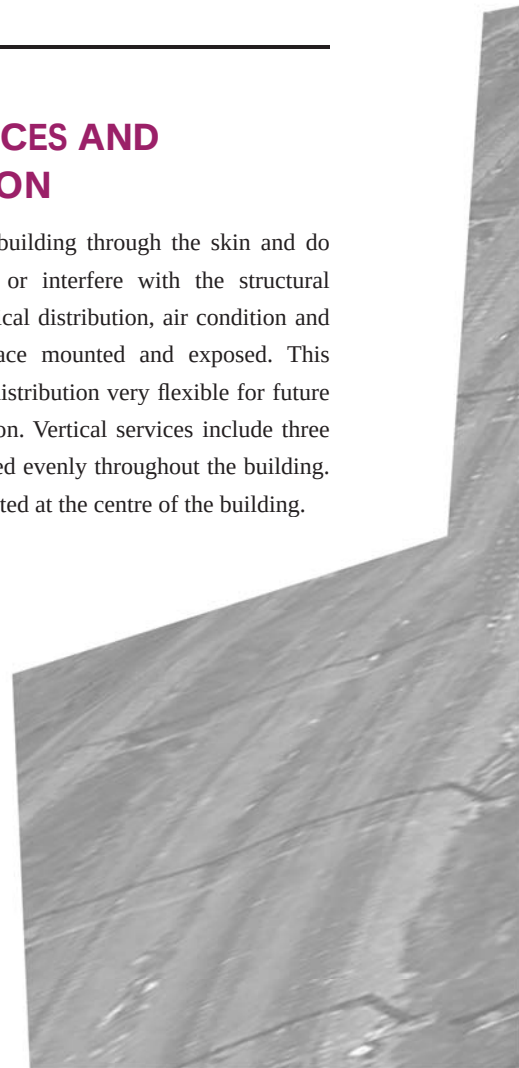


Fig 3.4
The existing structure on site

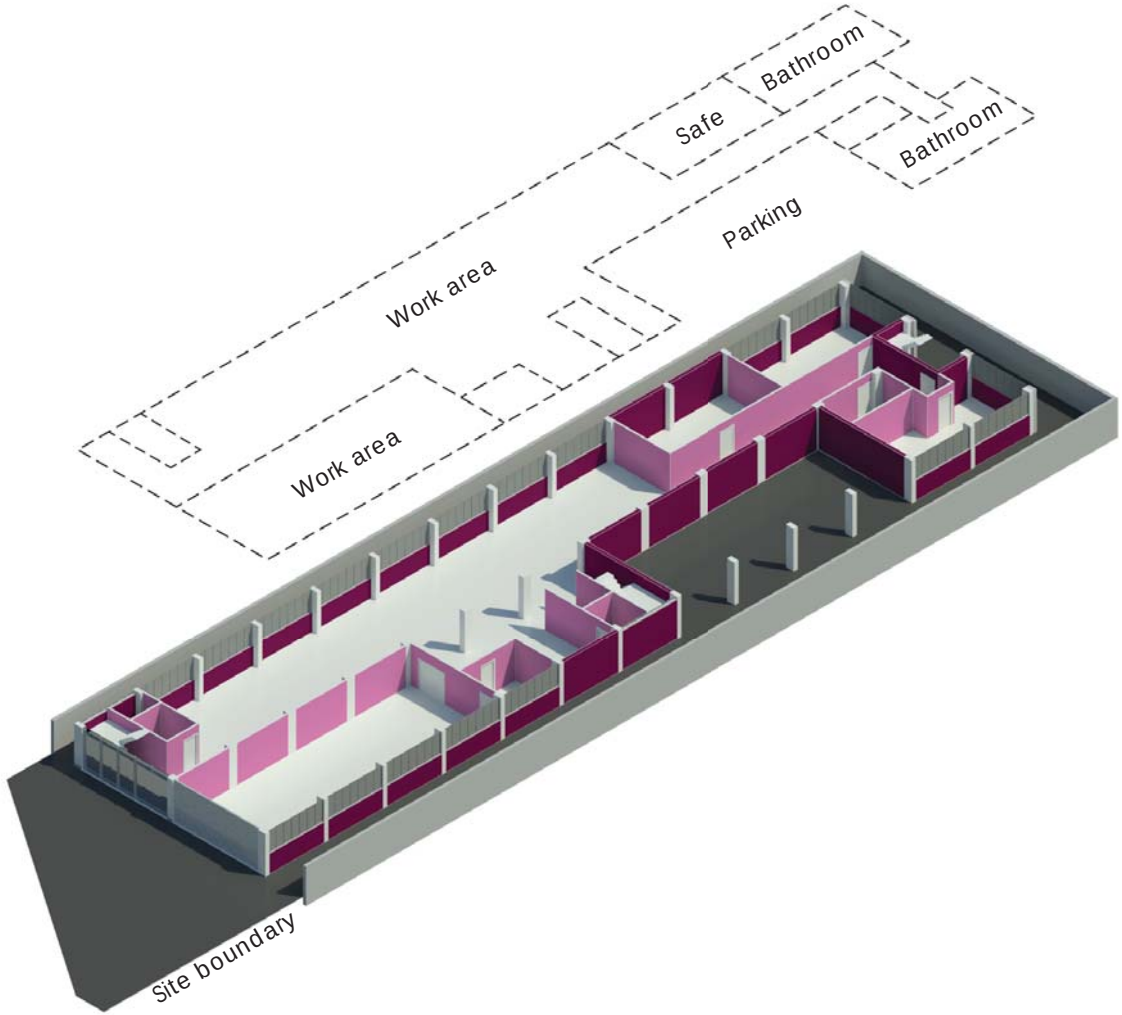
Fig 3.5
The existing spatial layout of the structure

Floor areas:

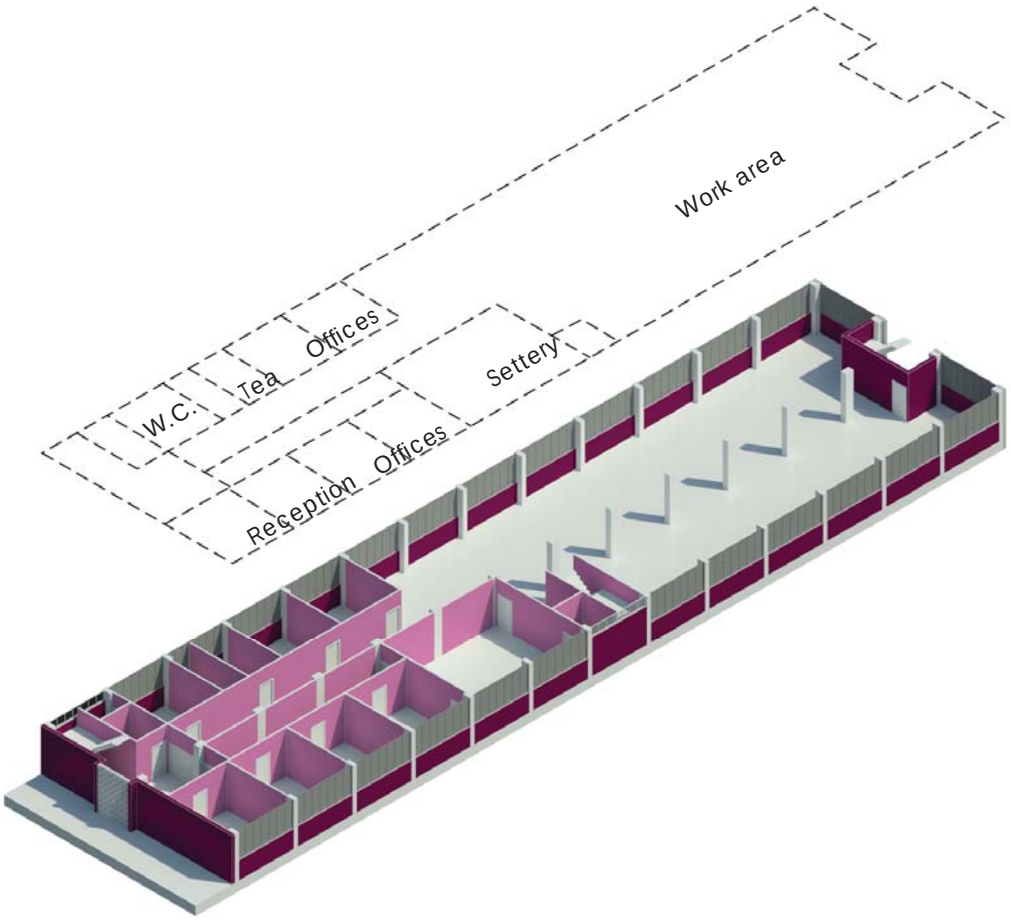
Ground floor: 692 m²
First floor: 821 m²
Second floor: 821 m²

Total floor area: 2334 m²

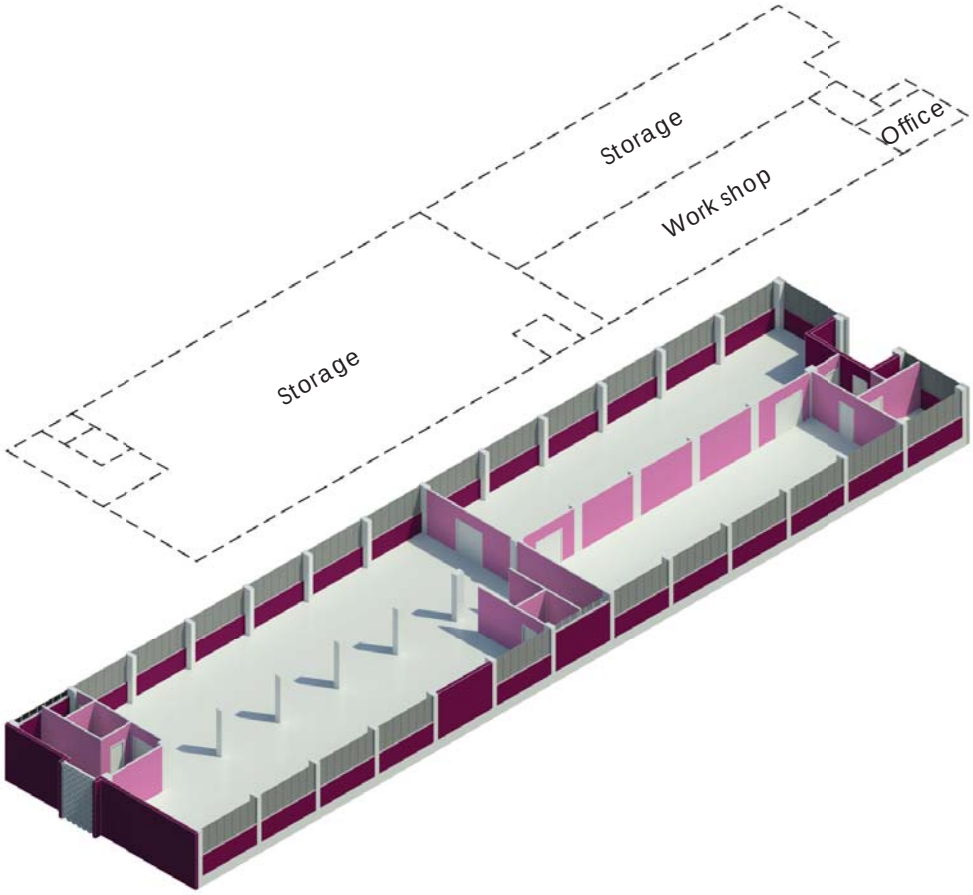
Skin/enclosure
Interior partitions
Structural components



Ground floor

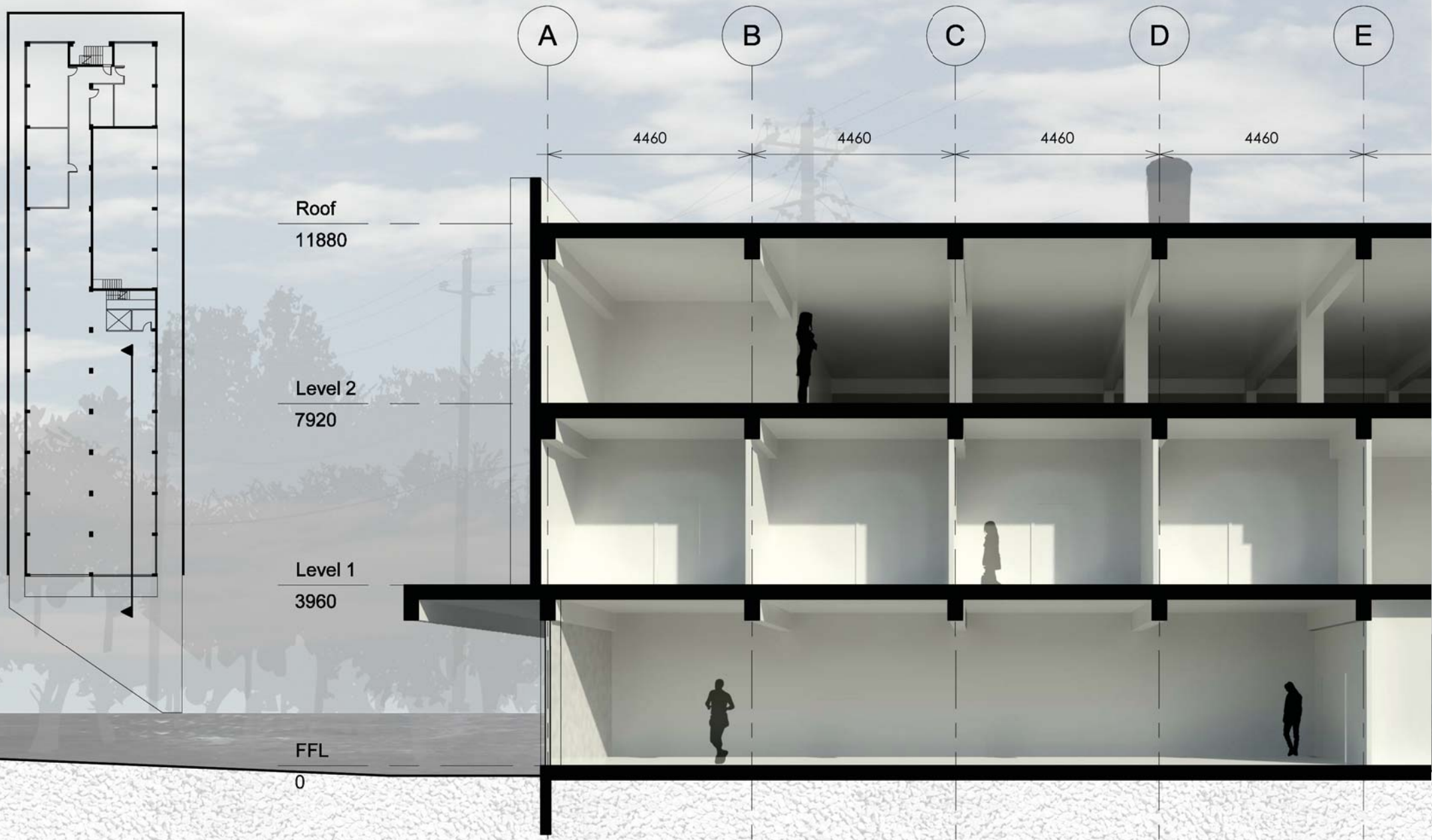


First floor



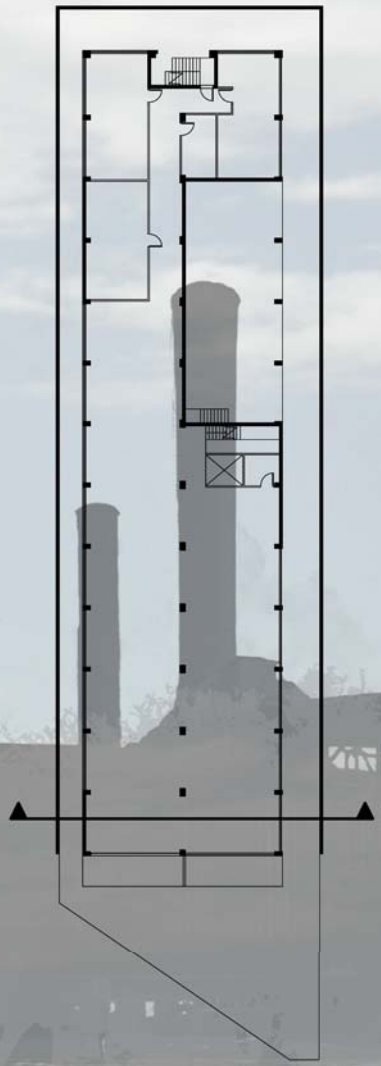
Second floor

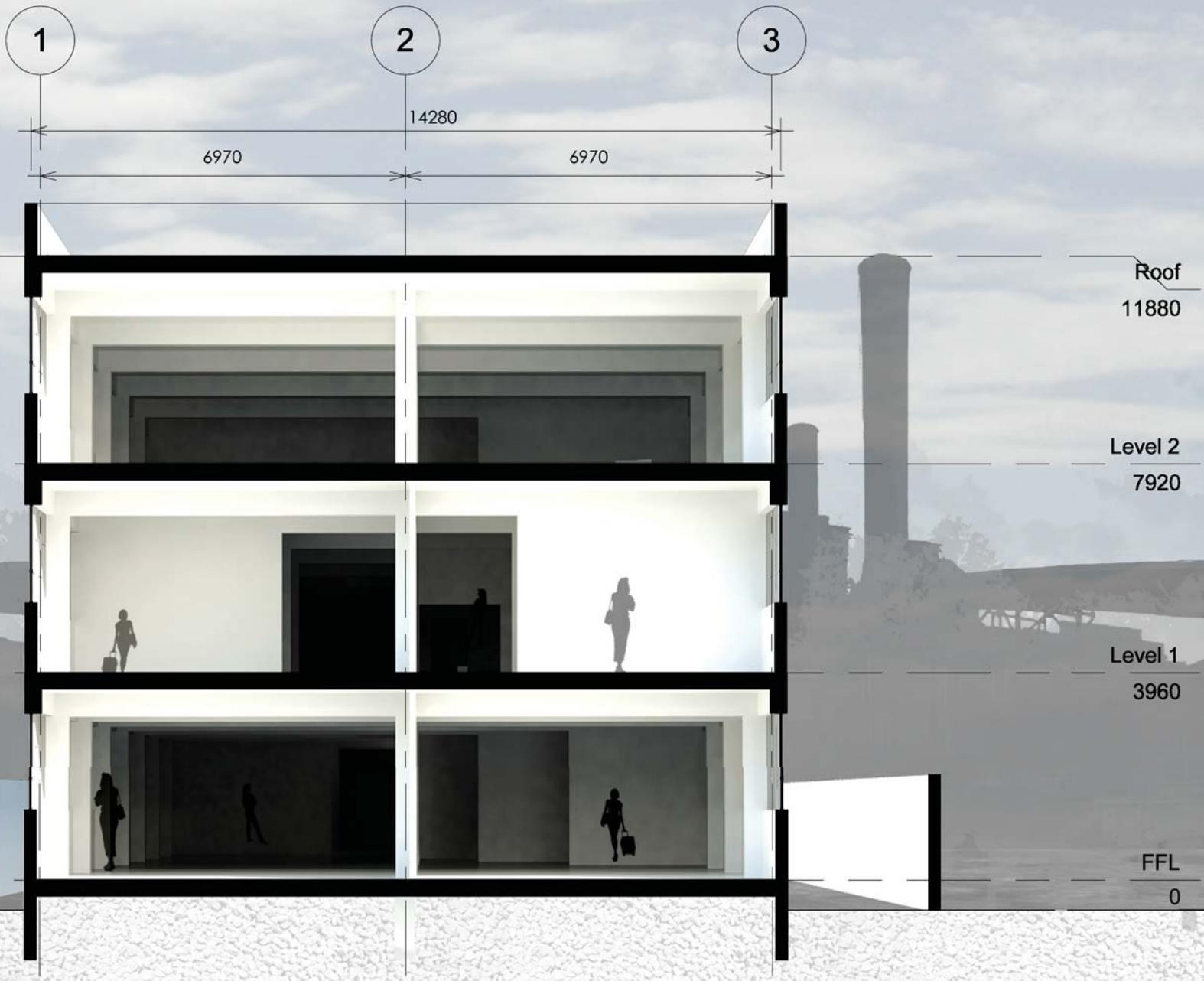
Fig. 3.6
Longitudinal section showing the basic dimensions of the structural grid



SECTION A
SCALE 1:100

Fig. 3.7
Section through the building width, showing the basic dimensions of the structural grid





SECTION B
SCALE 1:100

3.4 Historical Factors

3.4.1 A HISTORY OF PUBLISHING

341 Carl Street was initially built to function as a lithography studio. The structure was built in the early 1980s by *Hendrik Vermooten Du Plooy and Oosthuizen Architects*. The *Saambou National Building Society* was the client for this operation (Du Plooy, 1983). This is evident in the structure, as remnants of the industrial nature of commercial lithography are still present in the building.

This discovery also ties in with the cultural production history of Pretoria. Roger Fisher stated that Pretoria housed various cultural institutions. It was where many of the Afrikaner press and publishing houses were based, for instance *Die Volkstem* and *Van Schaik* respectively (1998: 126). Therefore the area has a rich history of cultural production, pertaining to a specific cultural group.

The type of lithography used in the building was probably offset lithography, or offset printing. Gornall states that offset lithography is still a printing method used today for printing commercial newspapers, books, and magazines (2012). The process was adopted by the commercial publishing industry in South Africa roughly in the 1960s, and is still widely used today.

"It should be remembered that the original condition of the building is inaccessible, as with all things past" (Scott, 2008: 108).

3.4.2 THE REUSE OF THE BUILT FABRIC

An engraving found on the postbox of the building indicates that the building was later occupied by the company *Uniross Batteries*. This company occupied the building until 2005, when Uniross was bought by an international company (Rogers, 2012). The structure was occupied again after 2005 and was used as a store for furniture wholesalers. The owner of the furniture store remains the owner of the building, but the building has since been vacated. 341 Carl Street remains unoccupied today. The industrial functioning of the structure quieted down at the same time the area of Pretoria West started to experience a decline in industrial activities. The current vacated state of the building mimics the larger contextual shift, to be discussed in Chapter 4.

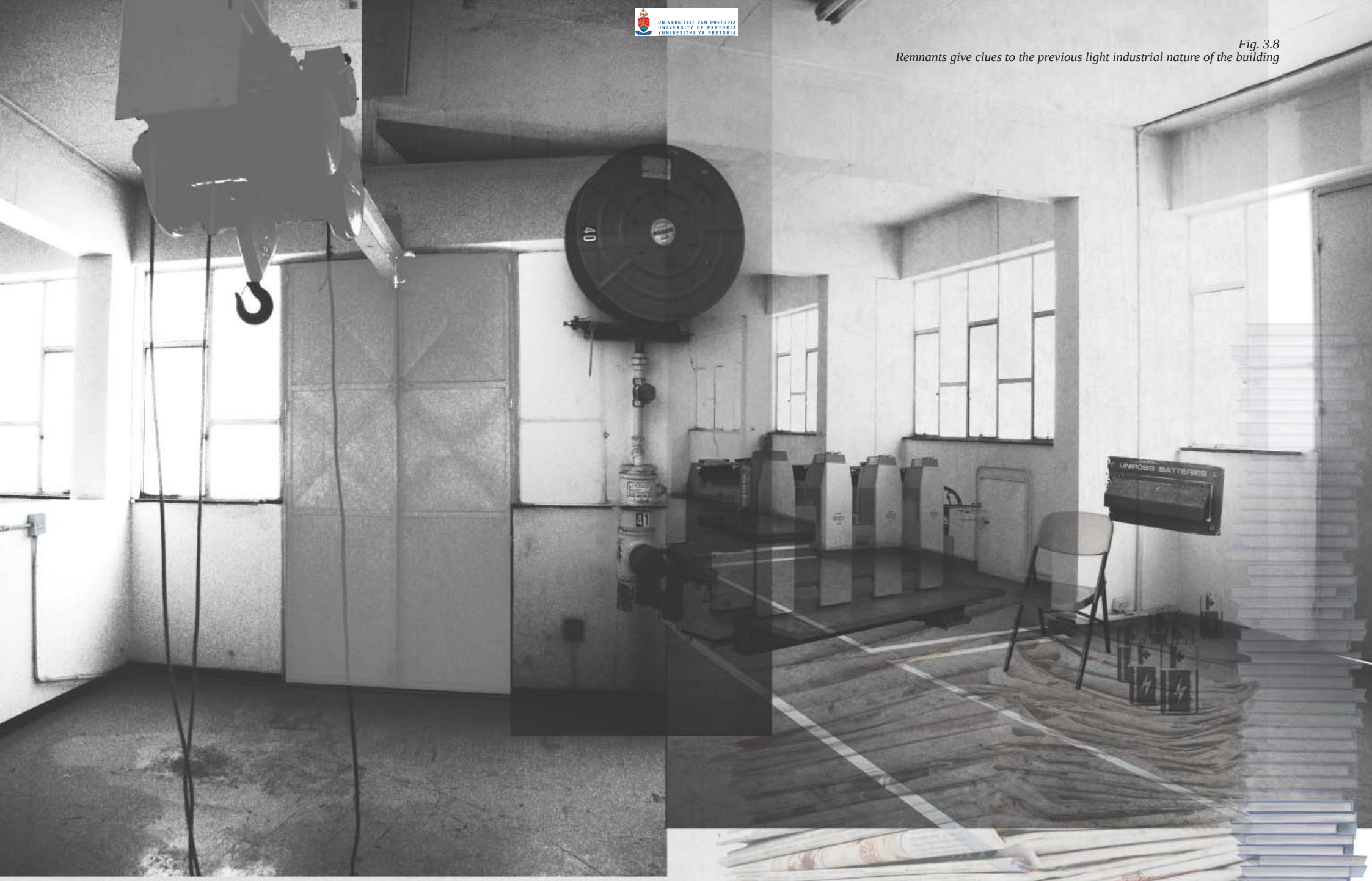
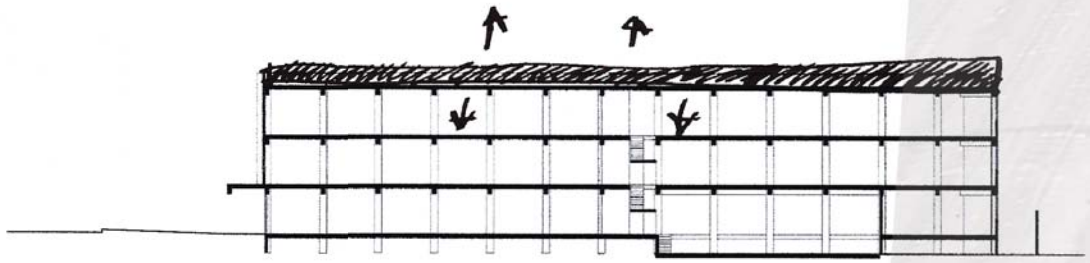


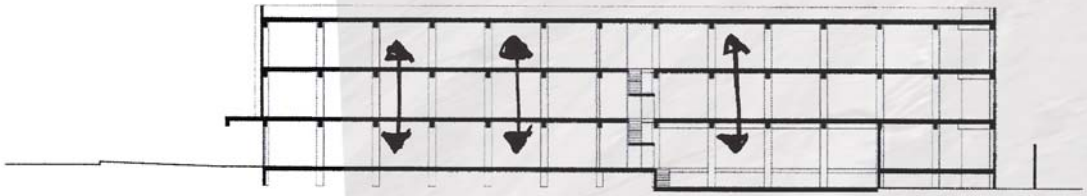
Fig. 3.8
Remnants give clues to the previous light industrial nature of the building

3.5 Hybrid Elements

As mentioned in Chapter 2, hybridity can be defined as an entity that blurs the distinction between two polar identities, spawning new ideas and approaches to design. The theoretical component (Chapter 2) focused on the hybrid state that exists between the digital and material realm. However, more polar identities exist that need to be defined as part of the building analysis. Fig. 3.9 defines these various hybrid entities within the existing building and the possible hybridities when dealing with an intervention. It is important to identify these hybridities, as they will assist in the establishment of the design approach. The approach toward these hybridities will be discussed further in Chapter 7.

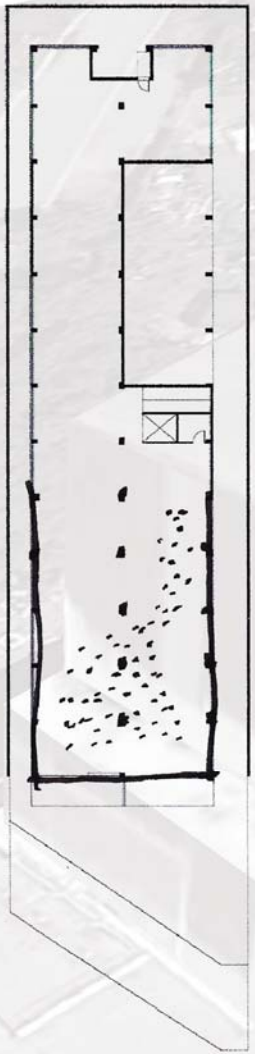


Interior and exterior

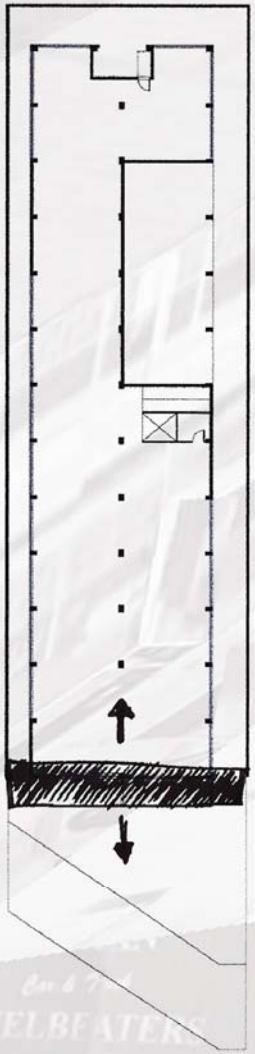


Level difference

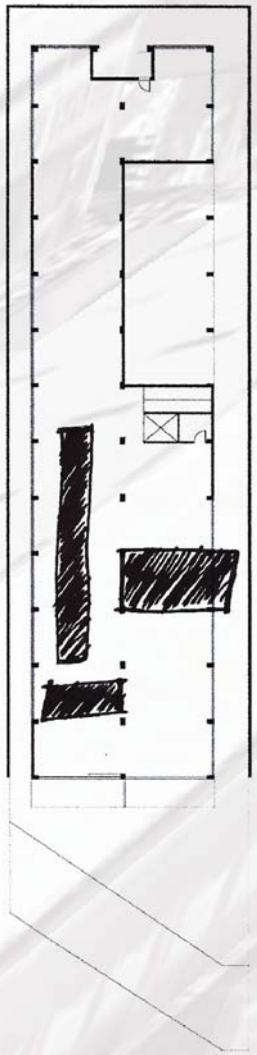
Fig. 3.9
Hybrid conditions existing in the built structure



Material and digital



Public and private



Existing and new works

3.6 Significance of The Building

3.6.1 THE IDEAL MODERN BUILDING

Fred Scott states that any building that is considered architectural has a relationship to an ideal form, which will be obscured by reality or usage or by some failure in execution on the part of the architect (2008: 109). This ideal needs to be understood in order to better understand the intended style of the building, or what the building aspired to be.

“Modernism is the umbrella name for a vast array of movements with ideologies including formalism, functionalism, and rationalism, its main-stream representing an intellectual approach through abstraction and idealisation” (Porter, 2004: 95). Carroon states that the main objectives of the majority of the Modern Movement were to build projects that were rational, functional, innovative and rich, with strong political and cultural identities - futuristic in all senses, and bathing in the optimistic faith of progress (2010: 364).

In this case, the structure located on 341 Carl street is a ‘run-of-the-mill building,’ not serving as an iconic example of great modern architecture or innovation. The functional ideals are, however, implied in the built structure - few decorative elements were added to the building and the construction is expressed, leaving the materials exposed and used honestly. Fig. 3.9 illustrates the highlighted structural elements on the western facade of the building.

Given the vast numbers of these ‘run-of-the-mill’ modern buildings, preservation becomes important, both in terms of culture and the environment. The biggest challenge that confronts the use of these buildings from the recent past is a loss of cultural memory and appreciation for the reasons these buildings were built in the first place (Carroon, 2010: 365). The building forms a part of the “architecture of the recent past” (Carroon, 2010: 363), therefore the adaptive reuse of modern buildings, including the run-of-the-mill, needs to be sensitive with regard to its typology and ideals, as it forms part of the history of built structures.

Fig. 3.10
A partial view of the western facade indicated the exposed structural elements

3.6.2 STATEMENT OF BUILDING SIGNIFICANCE

The statement of significance has been compiled as per the guidelines set out by the Australia ICOMOS Charter for Places of Cultural Significance, otherwise referred to as the 'Burra Charter.' This charter refers to the term 'cultural significance' as the **aesthetic, historic, scientific or social value** for past, present or future generations (Australia ICOMOS, 1999: 12).

The structure located at 341 Carl Street, Pretoria West, is a currently unoccupied modern building, built in the early 1980s. The **aesthetic value** of the building lies in its modern typology. It is necessary to keep document of these buildings, as they form part of our near past, as well as our culture and history.

The structure is currently not protected by heritage legislation. **Historically,** the structure is an example of the development of sub-industries in the Pretoria West area, a result of the establishment of the large steel industry, *Iscor,* and its many associated industries.

Scientifically, the initial programme that was intended for the building contributes to the history of commercial printing in South Africa. Pretoria was, according to Jenkins, the origin of the commercial printing industry in South Africa (n.d.: 370). The building was constructed to accomodate a lithography studio, used in the 1980s as a commercial printing media. This is an important part of the cultural heritage of South Africa and needs to be preserved.

The site's social value arises from its original ownership. The building was originally owned by the *Saambou Nasionale Bouvereninging,* which formed part of the political history of South Africa. Simultaneously, the initial programme intended for the building, namely commercial printing, has social merit.

chapter 04

CONTEXT ANALYSIS

“The structure’s context and environment play a key role in the building’s makeup and continue to play a major part when creating a new design solution for a building’s reuse” (Hay, 2007: 36). The meso and macro contexts as they currently stand are investigated, followed by the history of the Pretoria West area. This is concluded with a proposed framework for the larger context.

4.1 Approach

Hay considers the analysis of the proposed site's context and environment as crucial to supplement the understanding of the existing structure. "Considering and questioning the relationship established with the adjacent structures, public spaces, the natural elements and landscape help establish a clearer representation of the structure to be remodelled" (Hay, 2007: 36). Scott also incorporates the analysis of the surrounding context in his proposed alteration strategy, as can be seen in Fig. 4.1. The analysis of the larger context forms the next step toward the 'stripping back' of the structure. "The host building needs to be understood intrinsically in terms of its setting" (Scott, 2008: 108).

Thus, the aim of the contextual analysis is to gain a better understanding of the environment that ultimately helped to shape the structure in question. Furthermore, the contextual analysis might give an indication of a viable new use for the existing structure.

Fig. 4.1
Summary of the design methodology

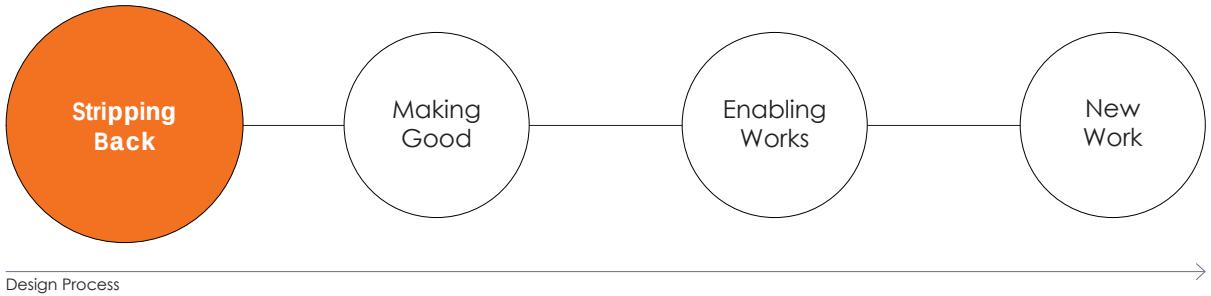
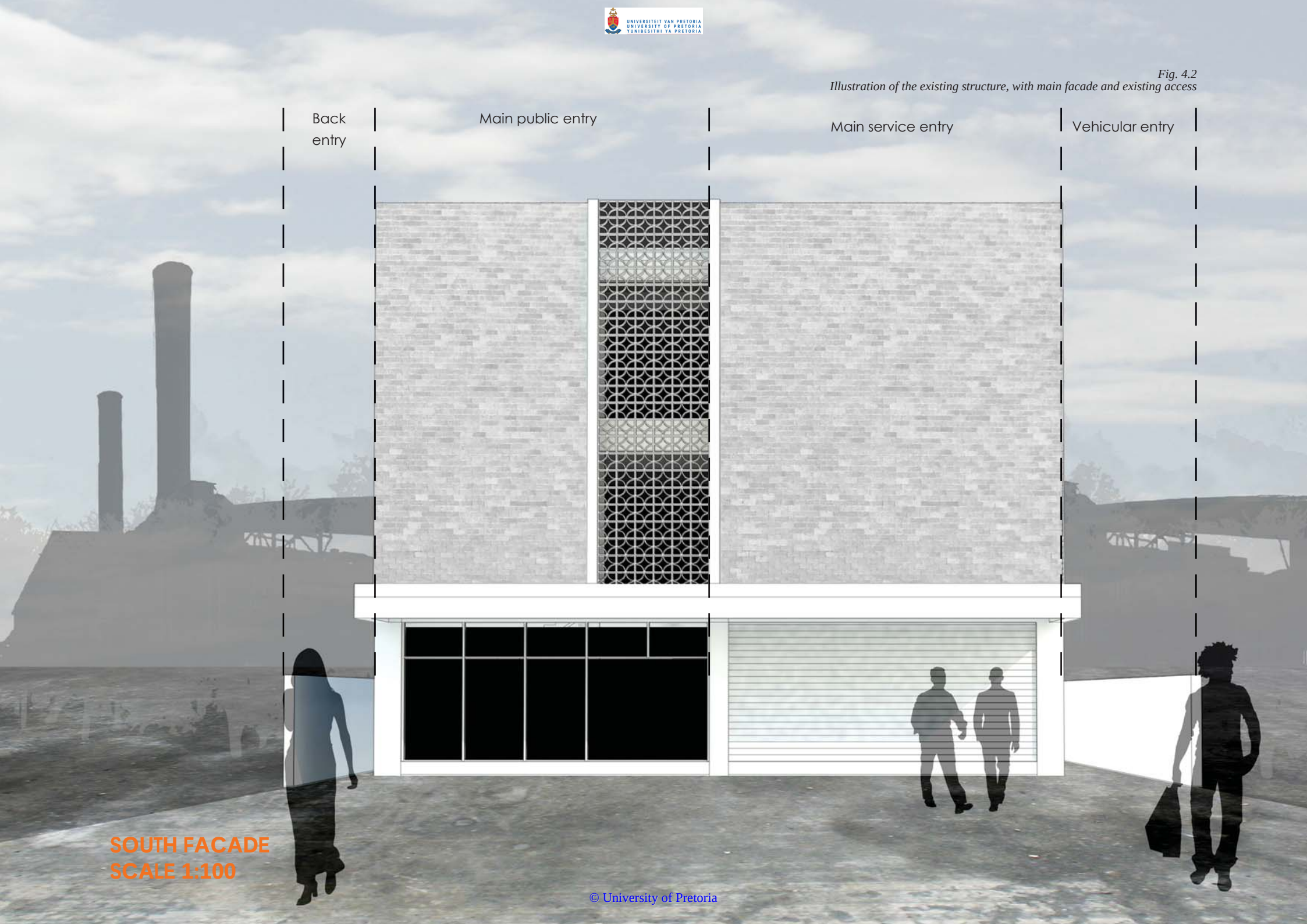


Fig. 4.2
Illustration of the existing structure, with main facade and existing access



4.2 Meso Scale Analysis

4.2.1 THE STREET-FACING FACADE

The south-facing facade is the only facade from which access to the site is facilitated. This facade also exists as the interface between the site and the street edge. Fig. 4.2 provides a basic street view of the southern facade, with Fig. 4.3 providing a street view of Carl Street, with the main southern facade of the chosen site as well as its opposite views.

The site seems desolate and forgotten, crouched in a corner of Carl Street, Pretoria West. The neighbouring sites are currently unoccupied and empty. The area is quiet, unlike in the past, when this area was a node of bustling light industrial activity. The closing down of various sub-industries led to the infiltration of activities such as panel beaters and auto body repairs, which is poorly planned in relation to the city. Carl Street is a back road and forms the southern boundary of the Pretoria West area. The proposed site is located opposite the railway.

4.2.2 MAPPING EXERCISE

The meso scale analysis includes an analysis of the context that directly surrounds the site. This analysis has been accomplished by mapping exercises and aims to show the existing infrastructure and built elements that surround the site directly. The aim of this exercise is to gain a familiarity with the direct surrounds of the site, including pedestrian patterns and other activity nodes. Fig 4.3 and 4.4 illustrates the mapping on the meso scale.

Fig. 4.3
The relationship of the site to the street

Site: street-facing facade

Corresponding view from site

Fig. 4.4
Meso scale analysis indicating transport routes and pedestrian access to the site

The site is situated on a corner of Carl Street. Carl Street is a quiet back road located opposite the railway system, which defines the southern boundary of Pretoria West. Vehicle access to the site is limited to the east, as Carl Street is cut off from Mitchell Street on the western side. Pedestrian activity past the site increases during peak times, as the site is located between two railway stations, therefore providing the site with plenty of passers-by.

Fig. 4.5
Current activities surrounding the site

The neighbouring sites to 341 Carl Street are currently unoccupied and empty. The area is rather quiet. Other activities on the block mostly include welding and auto body repairs and maintenance. However, stable infrastructure remains in the area, providing opportunity for the revivification and upliftment of the area. The railway system, roads and other forms of infrastructure provide opportunities for the area to grow and expand into something that is vibrant and busy, serving the closer community.

4.3 Macro Scale Analysis

4.3.1 HISTORY OF PRETORIA WEST

Pretoria West is mostly associated with industrial activities today. However, the area has first been laid out as an extension of the Pretoria CBD, in order to provide compensation for the Burghers. The street plan for the new Pretoria West area was set out in 1892. By 1910, the area was mostly developed with single-storey, middle class houses.

The Pretoria West Power Station, which is one of the key landmarks of Pretoria West today, was built in 1922, in order to supply the ever-demanding Pretoria with electricity. The parliament established Iscor (South African Iron and Steel Corporation) in 1928. The establishment of the two industrial giants alleviated much of the poverty and unemployment issues during the *Great Depression*. Iscor created an expanding steel industry that not only benefitted Pretoria, but the various developing sub-industries (Stark, 1952: 105). The by products from the steel manufacturing caused the infiltration of various sub-industries in the once residential Pretoria West area.

The industrial development that happened in the area might not have been that complex than that of other South African cities. But Geoffrey Jenkins state that what the area lacks in complexity, it compensates in its diversity. Industrial products ranged form gin, jewellery, ivory, and even radio-active isotopes (n.d. : 361). The printing industry also had its origin in Pretoria through the ‘want of a free paper, in which the inhabitants could give vent to their thoughts (Jenkins, n.d.: 370).

4.3.2 PRETORIA WEST TODAY

Today, Pretoria West is a richly diverse area, with residential and industrial infrastructure intertwined. The Pretoria West power station and Iscor are closing down shop, which implicates that many of the sub-industries which came to form the industrial sector of Pretoria West have vacated. The industrial infrastructure is now mostly occupied by various automotive industries and panel-beaters. Fig. 4.6 illustrates that the area speaks of poverty, pollution, neglect, and a general disconnect to the Pretoria CBD.

In the current day, the shift toward more sustainable cultures force designers to re-address existing built infrastructure. Jean Carroon states that the greenest building is the one that is already built (2010: 7). Preserving resources implies investigating the already existing. Pretoria West is currently experiencing and urban decline, but the already stable infrastructure creates opportunity for urban revivification. The main sources of pollutants in the area, namely *Iscor* and the *Pretoria West Power Station*, are being closed down, thus eliminating the main negative factors that diluted the development possibilities of the area. The current existing infrastructure, transport routes and activity nodes have been identified by means of mapping. These factors are necessary to know as they contribute to the formulation of an appropriate programme for the site, that the benefits the surrounding community.

Fig. 4.6
The current associations of the Pretoria West area

Fig. 4.7
Key landmarks in Pretoria West

Fig. 4.7 indicates key landmarks in the Pretoria West area. The site lies close to the Tshwane Events Centre and the Pilditch stadium as well as many other landmarks, including a park.

Fig. 4.8
Possible informants for the programme of the site

There are various educational facilities within walking distance from the site. These facilities include a tertiary college and two primary public schools. Fig. 4.8 illustrates the location of these facilities in relation to the site.

Other facilities in close proximity to the site include a shopping mall, a church and a theatre. The users of these facilities could potentially also benefit from the proposed programme for the site.

Fig. 4.9
Identified activity zones in the Pretoria West area

The site is located in the light industrial activity zone, as illustrated by Fig. 4.9. Currently, this zone mainly contains industries such as panel beaters, automotive repairs and paint factories. The site also lies close to some residential areas, providing additional possible users to interact with the site. The residents of Pretoria West fall mostly within the middle to lower income class. This also resonates throughout the rest of the urban fabric within the area.

Fig. 4.10
Important transport nodes in Pretoria West

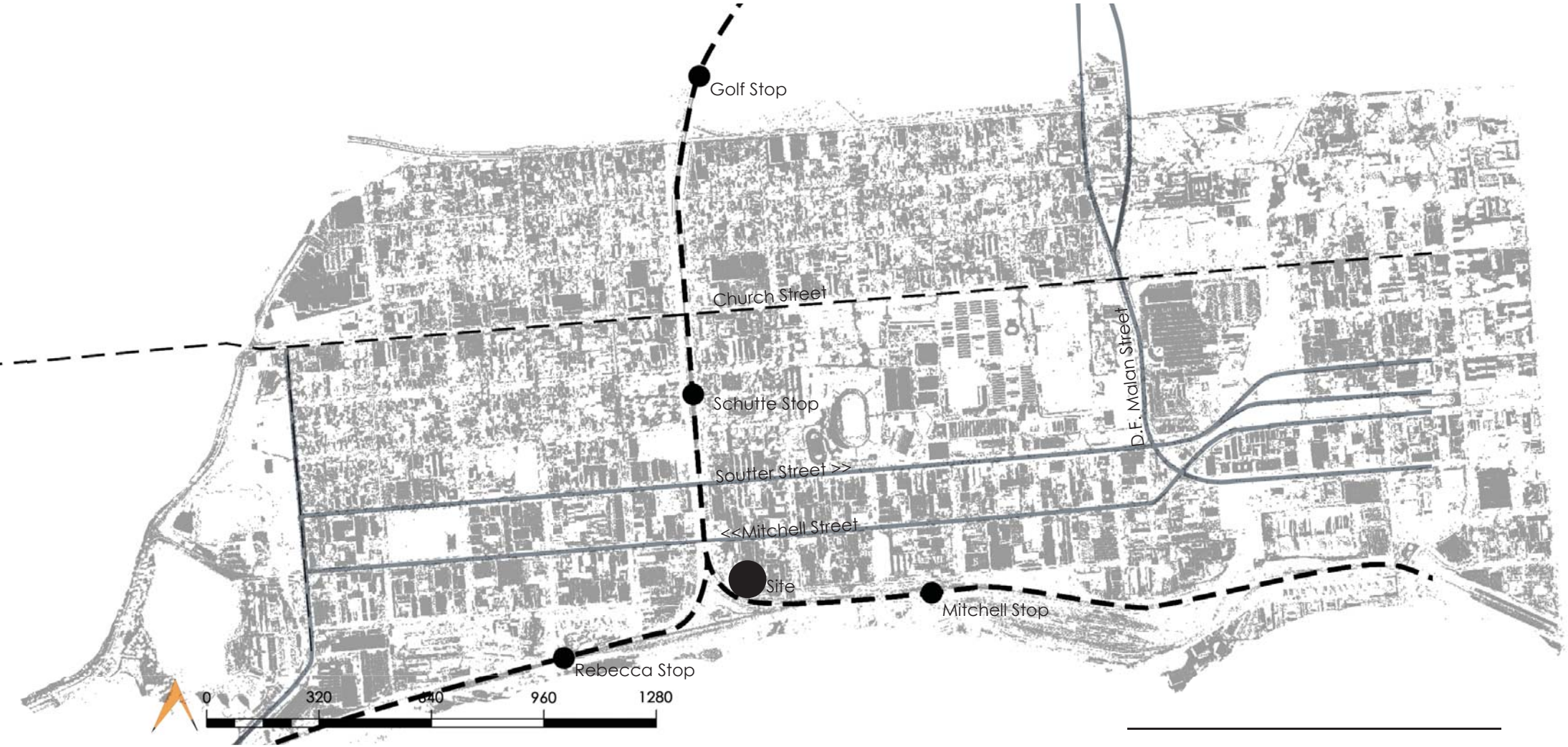


Fig. 4.10 illustrates important transport nodes in the general Pretoria West area. The site is located between two railway stations, which provides bustling pedestrian activity past the site during peak hours. The site lies close to Mitchell Street, which is one of the main streets of the area, providing easy access for possible users of the site by public transport facilities such as buses and taxis. This further facilitates access to the larger area. Access to the site by car is also possible.

4.4 Envisioned Pretoria West

4.4.1 PROPOSED FRAMEWORK

From the larger contextual study it can be concluded that besides the concerns regarding safety, pollution, abandoned sites and poor cross-programming, the area is experiencing urban sprawl.

However, Pretoria West has the necessary infrastructure to facilitate urban regeneration. The area also has a rich history of industrial production. These two factors form an important role in the history of the area and need to be considered in the proposed framework, as they are part of the cultural history of Pretoria West.

The proposed framework is adopted from the *Pretoria West Group* of 2010. The framework vision of the group is for Pretoria West to become an urban support cell to encourage a greater urban renewal of the inner city of Pretoria and counteracting urban sprawl (Davey, 2010: 52). The area already has a stable infrastructure that makes it easy for the development of the area to accommodate a walkable, liveable work sector of the city. The area can also accommodate a wide range of programmes connected to provincial and national systems of production, trade and transport (Davey, 2010: 52).

The area has the potential to utilise its history in order to shape its future vision. The richness in history of industrial production and residential landscapes reinforces the possibility for the proposed future framework to unify the concepts of production and living once again. The result is an area that will carry more embodied meaning as a place where production and habitation are amalgamated, as it used to be. Refer to Fig. 4.11.

The envisioned framework therefore proposes Pretoria West as a denser area that is rich in diversity and texture, with a range of various new inhabitants. The area is to be an amalgamation of production and living that speaks of the heritage of the area. At the same time the revivification of the Pretoria West Area supports urban renewal for the larger Pretoria context.

Fig. 4.11
The proposed framework for Pretoria West, where production and living are amalgamated

chapter 05

PRECEDENT STUDIES

This chapter examines various precedents. Precedent studies aid in the accumulation of information with regard to the theme, concept, program and implementation of a project in order to provide a knowledge base that supplements the design proposal. The precedent studies were selected according to their relevance to the design problem.

5.1 Fai-Fah Project

Remodelled: 2010
Architects: Sparch
Location: Bangkok, Thailand
Client: TMB Bank

5.1.1 DESIGN RELEVANCE

The use of colour as a means of navigation throughout the space is relevant, as is the service distribution. Finally, the construction of the 'pod' that is fixed to the structure of the ground floor is also investigated.

5.1.2 OVERVIEW

Fai-Fah is a corporate social responsibility project that is managed by TMB Bank and aims to be a catalyst for change in Thai society. The programme works with underprivileged children and teenagers in their community, using arts as a vehicle for self-development and creative thinking (King, 2002).

The studio is made up of five floors that contain an art studio, a multi- purpose 'living room,' library, gallery, dance studio and a rooftop garden. This project entailed the refurbishment of two shop houses located in a residential district of Bangkok.

The facade was changed in such a way that the building looks significantly different from its neighbouring structures. Fig 5.1 is an image of the facade with the covering lattice structure, and large logo of Fai-Fah. The facade also creates a 'fun' and 'approachable' front, inviting people inside.

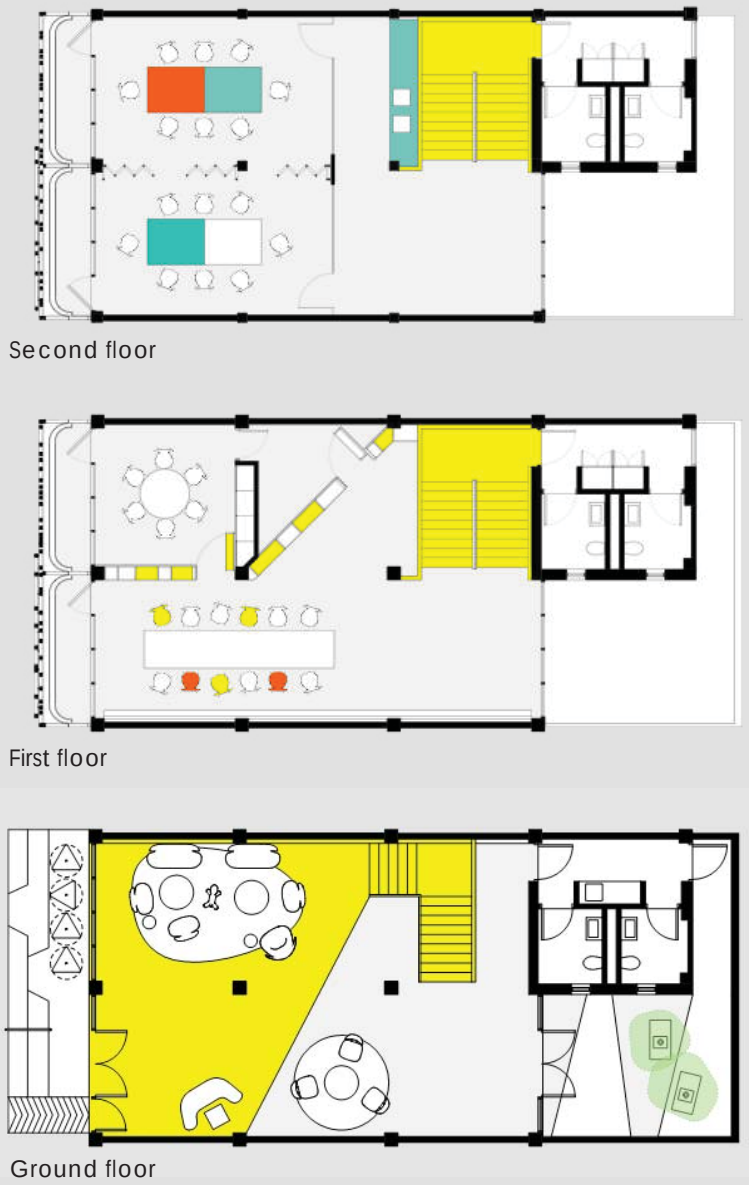
5.1.3 ANALYSIS

Different colours have been incorporated into the design to differentiate each level's activities. Fig. 5.2 and Fig. 5.3 show the yellow staircase, which forms the central, main circulation route. Fig. 5.3 shows different colour use for the different levels, thus indicating the different activities in the building. The colours used underline the positive nature of the programme (King, 2012).

Fig. 5.1
Fai-Fah Facade
(Ho, 2012)

Fig. 5.2
Fai-Fah Staircase
(Ho, 2012)

Fig. 5.3
Spatial Layout
(Ho, 2012)



Services are introduced to the building by means of a ‘utility stick’ (King, 2012).Utilities and services are housed in an inverted L-shaped structure that latches onto the building. This is plugged into the back of the building, rising from the ground floor and bending to form a garden store at the top of the roof. The ‘utility stick’ is clearly distinguishable from the existing structure and mimics the interior design, pulling it outward.

The first two levels are composed of a double volume, with a bright yellow ‘pod’ that rests on the structural frame. Thus, upon entry, the user is confronted with a playful interior space which reflects the creative activities that takes place within the centre.

Fig. 5.4
Utility Stick
(Ho, 2012)

Fig. 5.5
Pod
(Ho, 2012)

5.2 Macro Museum

Remodelled: 2010
Architects: Odile Decq & Benoit Cornette Architectes Urbanistes
Location: Rome, Italy
Client: Museum of Contemporary Art of Rome

5.2.1 DESIGN RELEVANCE

This precedent addresses the hybrid condition between the old structure and the new insertion. Specific focus will be given to the materials used in order to distinguish the old and the new structures, as well as the nature of the insertion of the intervention. Lastly, the journey through the structure will also be discussed.

5.2.2 OVERVIEW

In December 2010 the new wing of the Macro museum of contemporary art was inaugurated. The wing is set in a converted 19th century Peroni brewery, which is an important part of the city's heritage.

Fig. 5.6
Museum exterior with main entrance (Halbe, 2010)

Fig. 5.7
Museum interior with auditorium
(Halbe, 2010)

5.2.3 THE INTERVENTION

The new intervention is clearly distinguishable from the existing structure. The new intervention goes against the traditional approach of integrating the old and the new within a historical setting, as the new wing does not blend with the existing at all. The architects used amorphous forms to introduce the new function, which strongly contrasts with the rigid remnants of the existing structure. Fig. 5.8 illustrates the differentiation between the existing structure and the new insertion. This introduces a new dynamic and new layer of complexity within the building.

Fig. 5.5 illustrates the main entrance to the new wing. The new addition of the museum looks like a suspended glass box at the main entrance, with further additions of glass along the facades. As part of the mandate, the exterior walls of the brewery were to be left untouched (Bennett, 2010). The visitors enter under the raised glass corner and proceed through the building by means of walkways that slowly escalate up to the roof level. The historical interior fabric has been completely removed and replaced with the new glass and steel structures. A bright red polygon shape houses the auditorium within the museum wing.

5.2.4 THE MATERIAL ASPECT

The architect managed to distinguish the old structure from the new by introducing new materials that contrast with the old. Glass and steel structures with bright colours are newly inserted into the existing building, which mainly consist of masonry and plaster. The colour red has been introduced on the polygon structure as well as the ramps and walkways. This symbolises the “pulsing heart of the building” (Bennett, 2010). Fig. 5.7 provides the basic material palette for the intervention. The materials used for the intervention are those commonly used in the contemporary era, distinguishing the old from the new.

Fig. 5.8
The materials palette for the Macro museum

5.2.5 FROM EXTERIOR TO INTERIOR

The hybrid condition that exists between the exterior and the interior is addressed by means of the movement through the spaces. Upon entering through the raised glass main entrance, the user proceeds through the interior by means of walkways that slowly escalate up to the roof level. These walkways circulate around the large red auditorium, providing the user with a changing visual experience. These walkways then ultimately lead to the exterior roof space, which has been converted into a piazza. The idea of the piazza on the roof relates back to the traditional architecture of Rome and “truly connects to the city” (Bennett, 2010).

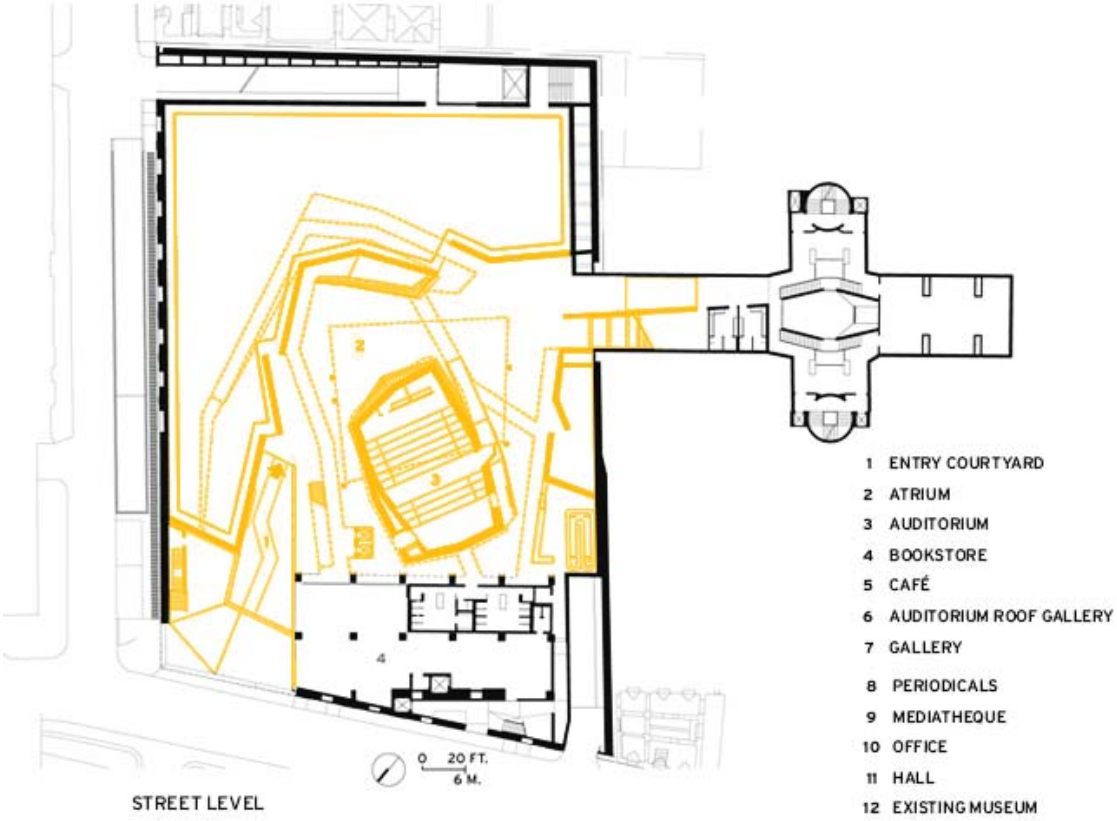


Fig. 5.9
The new intervention at the Macro Museum (Ground Floor Plan) (Halbe, 2010)

5.3 The Googleplex

Project Date: 2008
Architects: Camenzind Evolution
Location: Zurich, Switzerland
Client: Google

5.3.1 DESIGN RELEVANCE

This precedent is relevant to the design problem as it caters for the design of a space that needs to manifest digital media.

5.3.2 OVERVIEW

The Google online search engine is an incredible centre of power and can be seen as the icon of the 'information age.' Google provides a convenient digital platform for people to consume information freely. It signifies the cultural paradigm shift from material culture to the digital.

The possible loss of culture through the dematerialisation of artefacts is counteracted by the concept intended for the design of the Google offices. Google has many offices worldwide, and each has a unique look, according to its location. Expressions of each location, from a mural in Buenos Aires to ski gondolas in Zurich, showcase their own region and personality (Google Company, 2012).

This precedent focuses on the Googleplex located in Zurich, Switzerland. The project entailed the refurbishment of the 12 000 m² interior into office and leisure spaces. The challenge was to find a way to reflect the digital culture that Google represents in a physical environment. The newly created office space is creative, motivational and dynamic.

5.3.3 ANALYSIS

The complex is mainly composed of offices, meeting areas, informal meeting areas and communal and special areas. The special areas include a game room, massage room, communal areas with quick access to the digital sphere and a water lounge, where staff can relax and reminisce in 'bathtub' structures. These areas promote a healthy work environment by creating a relaxed environment that integrates everyday activities, thus boosting productivity by placing staff in a 'fun' environment.

A diverse team of the Google office workers was assembled and represented the entire staff by approving or rejecting every single aspect of the interior fit-out (Wiener: 2008). The involvement of the local community led to unique perspectives and ideas that created an office space with a unique identity representing the local culture.

While productive working space was essential, the designers reflected the Google values by making the space fun and enjoyable to work in. A survey regarding the office workers revealed that personal work spaces needed to be neutral, but communal working spaces had to offer strong visual and more aesthetically enjoyable and entertaining qualities to stimulate creativity, innovation, and collaboration (Saieh, 2009).

Fig. 5.10
Plans of the Googleplex in Zurich showcasing the spatial layout (Saieh, 2009)

The hybridity that exist between the material and digital realms are addressed by providing the staff with a fun, whimsical and playful working environment, which can also be experienced when using the Google platform to access digital media. The richness of this scheme is born from the careful consideration of the designers' decision to include Google staff members in the actual design process. The result is a space that not only functions as a productive office, but includes elements that make the work place appealing to the staff.

Fig. 5.11
The meeting igloos connect the Zurich Googleplex to its locality (Saieh, 2009)

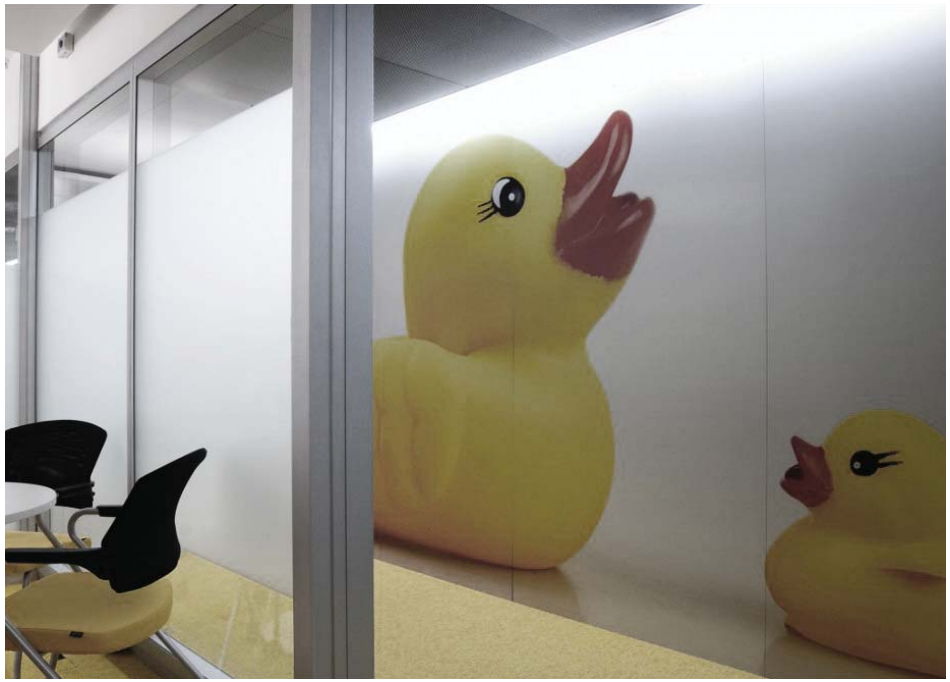


Fig. 5.12
The office spaces provide whimsical elements with large graphic prints (Saieh, 2009)

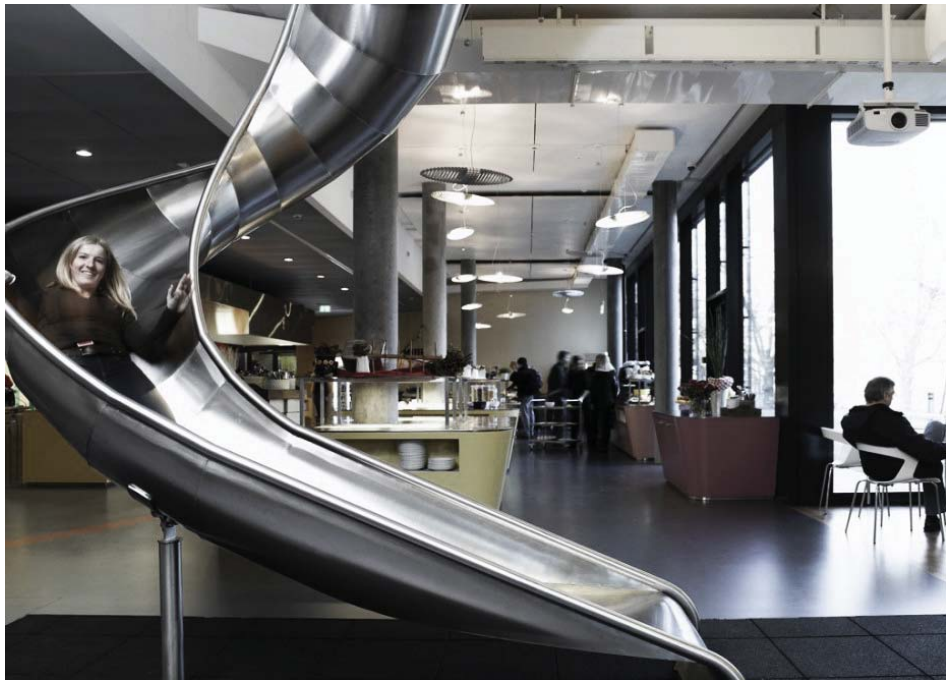


Fig. 5.13
The slide to the cafeteria provides a fun approach to circulation
(Saieh, 2009)

Fig. 5.14
The water lounge allows a space for relaxation and inward thought
(Saieh, 2009)

5.4 Moleskine Kindle Cover

Product Date: 2010
Designer: Moleskine Group
Client: Kindle Users

5.4.1 DESIGN RELEVANCE

This precedent is relevant to the design problem because it demonstrates the hybridity that exists between the material and the digital realm, and how the product has adapted in order to suit newer technologies.

5.4.2 OVERVIEW

Moleskine is a well-known brand of notebooks. These notebooks are used by artists and thinkers and are specially designed for this purpose. The book has a simple black cover, rounded corners, a paper pocket and blank paper pages.

It all started many years ago, with a pocket-sized black object, the product of a great tradition. The Moleskine notebook is, in fact, the heir and successor to the legendary notebook used by artists and thinkers over the past two centuries: among them Vincent van Gogh, Pablo Picasso, Ernest Hemingway, and Bruce Chatwin. A simple black rectangle with rounded corners, an elastic page-holder, and an internal expandable pocket: a nameless object with a spare perfection all its own, produced for over a century by a small French bookbinder that supplied the stationery shops of Paris, where the artistic and literary avant-gardes of the world browsed and bought them. A trusted and handy travel companion, the notebook held invaluable sketches, notes, stories, and ideas that would one day become famous paintings or the pages of beloved books (Moleskine, 2012).

5.4.3 ANALYSIS

The Moleskine notebook range is built on the tradition that it followed for so many years. Yet with technological development taking place and fear of falling behind, the *Moleskine Group* thought it necessary to expand their market and to introduce the brand to new users.

Books become more available electronically. Various platforms have been developed to support the reading of digital books. The Kindle-reader is a portable device on which electronic books can be downloaded and read. Moleskine adapted and expanded their product base to suit the age of digital development. The Moleskine Kindle Cover resembles the classic Moleskine notebook, but a pocket has been added to the interior in order to hold the Kindle device, thus combining the material with the digital. Moleskine manages to preserve the tradition and ‘romantic’ notion associated with the notebook while keeping up with contemporary technology, providing a product that retains personal identity associated with the material artefact while accommodating the digital realm.

Fig. 5.15
Moleskine Notebook and protective Kindle Cover
(Moleskine, 2012)

chapter 06

PROGRAMME AND USERS

This chapter provides the background that informed the formulation of the programme intended for the site, and identifies the proposed client and user groups. Spatial requirements and hierarchies have also been determined.

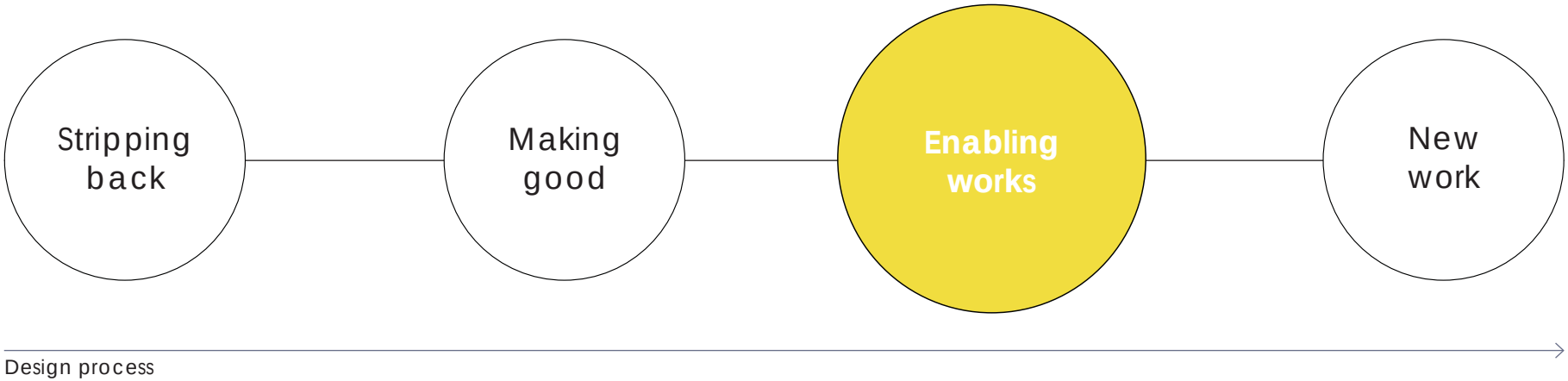


Fig 6.1
Summary of the design methodology

6.1 Approach

Enabling works are those activities whereby the existing structure is prepared for the new work. The 'ruin' is to be prepared, and this requires some breaking of the host building which will be seen to be crucial later in the proposed process of alteration (Scott, 2009: 127).

Chapter 7 will further discuss the spatial alterations and approach to design. A new configuration of the spatial relationships and hierarchy of the new occupancy needs to be established prior to the conceptual approach.

In order to formulate an appropriate new programme for the site, David Kincaid supplements Fred Scott's theories by establishing a method for finding viable uses for redundant buildings. In order to establish a viable new use for the existing structure, Kincaid (2002: 21) considers the following characteristics:

- Supply
- Demand
- Performance requirements
- Decision procedures

The **supply** characteristics take into account the physical opportunities and constraints of the building, namely the location, the structure, facilities and support services. The **demand** characteristics describe the demand-led needs of the user and organisation. **Performance requirements** are the interface between supply and demand, matching the physical provisions with the set of operational requirements. The **decision procedures** describe the means by which the use viability, physical viability and financial viability of alternative options may be assessed.

These factors were taken into consideration with regard to the formulation of a suitable programme. The larger context and the history of the area and site respectively were also contributing factors to the decision-making process.

6.2 Establishing the Programme

6.2.1 PROGRAMME INFORMANTS

"It should be remembered that the original condition of the building is inaccessible, as with all things past, even for a building that is only a few years old" (Scott, 2008: 108). The programme is informed by four strands of analysis. The first strand is the **analysis of the building**, followed by the **analysis of the larger context**. This is followed by the **proposed framework** for the larger context and finally by the conclusions derived from the **theoretical premise**.

An important factor to consider with regard to the **analysis of the building** is its historical context. Designers often seek to begin with a clean slate, but this is not possible for interior designers as they mostly deal with existing structures. "Physical matter already contains memory" (Weinthal, 2007: 119). Therefore the designer need to consider the already written history of the structure in question. In this case, the building was constructed as an industrial structure, to serve the initial purpose of housing a lithography studio for commercial printing - a reflection of the information culture of the time.

The most prominent **contextual** element that ties in with the history of the structure is the history of commercial printing in Pretoria. As previously mentioned, Pretoria was the first city to introduce commercial printing in South Africa. Thus Pretoria formed the heart of the information culture of the time. This piece of history seems lost, and it becomes necessary to revive it, because it contributes to the larger cultural heritage of the commercial printing industry in Pretoria and in South Africa.

The **proposed framework** for the Pretoria West Area proposes densification and urban renewal strategies so as to create an area that is a mixture of production processes and living spaces, thus preserving the area's history. This allows an influx of new, vibrant and diverse life, adding a support cell to encourage revival in the larger Pretoria context. The proposed programme should contribute to the framework by creating an entity to support this vision.

Theoretically, adopting the concept of hybrid design becomes crucial in order to reflect the current global understanding and movement. It becomes imperative to design a dual site where the material meets the digital, thus embracing innovation. Digital technologies are more compact and require less physical space for execution, thereby providing opportunities for other non-programmed spaces, like a cafeteria or meeting areas. Digital media supports anytime, anywhere activities. Therefore it becomes important to generate a functional need to suit a place, something that will be attractive to people. "This may come down to a good cup of coffee, a lively social setting, or a beautifully designed space" (Roscoe, 2007: 105). Embracing hybridity means creating an interior solution that is complementary and an active agent of its cyber counterpart (Roscoe, 2007: 104).

6.2.2 CONTEXTUAL ISSUES

South Africa is currently experiencing what is called a crisis in the reading culture. It is stated that only a very small portion of the public buys books for leisure and educational purposes, and even public libraries are in decline (Lehulere, 2010).

The reading culture is further inhibited by limited access to newer technologies. As previously mentioned, less than 15% of the population in Africa has access to digital technologies. An opportunity exists to expand the reading market by providing access to the digital realm for the public. By exposing the greater public to digital technologies and electronic reading materials, the digital 'canyon' in South Africa can be bridged.

6.2.3 PROGRAMME

"Why should a building be frozen, for that is surely what is intended, as it was a week ago or three hundred years ago?" (Scott, 2008: 123). As technology changes society, buildings need to adapt accordingly. The programme that is proposed for the site aims at connecting the initial function of the building with a new, refreshed take that connects the surrounding community with the technological development of distributing information. Fred Scott (2008: 123) reinforces this idea by stating that it is the responsibility of the designer to carry a building over from the past and through the present, so it will survive into another age.

The proposed programme is aimed at providing a mixed-use centre which will accommodate a 'reading emporium,' or 'reading hub,' and a production space for the publishing of e-books. In order to connect the history of the site with hybrid change, the programme proposes an electronic book (or ebook) publisher, while providing additional leisure space. The leisure space aims to attract the public to the site and to promote a culture of reading in the Pretoria West community. This leisure space aims to connect the community with the realm of digital information.

6.3 Client and User Groups

6.3.1 CLIENT

The potential client selected for the dissertation is *Van Schaik Publishers*, which is one of the first publishing houses established in Pretoria, thus contributing to the heritage of the information industry of Pretoria. Fig 6.1 shows the formally recognised logo of this publishing house. These publishers specialise in academic literature, but their distribution range also includes other forms of literature, such as general fiction, non-fiction, short stories and poetry.

There exists an opportunity for Van Schaik to produce their books in e-book format. This opportunity needs to be embraced, as there is a growing demand for digital resource books and academic material. Graham Stanley states that if authorised publishers do not embrace the digital realm, a proliferation of other websites will offer illegal copies of their books (2009). Legal digital copies of literature need to be provided in order to prevent the illegal dissemination of their material.

Fig. 6.2
Van Schaik Logo
(Van Schaik, 2012)

6.3.2 USER GROUPS

The users foreseen for the site are deduced from the larger contextual analysis (refer to Chapter 3) as well as the client's needs. The mapping exercise executed in Chapter 3 reveals that the site lies in close vicinity to public transport nodes, such as the railway, taxi and bus facilities and main routes. The investigation further revealed that the site lies close to educational facilities, which include a primary school, high school, and a tertiary institution. Finally, the site lies in close proximity to residential areas. The site will be able to respond to these contextual factors and to cater for these possible user groups while simultaneously satisfying the client's needs.

User profiles have been generated according to the previously mentioned informants. Refer to Fig. 6.2 for a detailed description of the proposed users of the site.

Fig 6.3
A description of the user groups for which the proposed programme is intended

The aspiring author

The aspiring author seeks to consult with *Van Schaik* on a professional basis.

The scholar

The macro scale mapping exercise conducted in Chapter 3 reveals that Pretoria West contains several academic institutions in the area which can benefit from the services the programme aims to provide. Discussion groups, book clubs and access to research material will help promote reading among this user group.

The socialiser

The mapping exercise conducted in Chapter 3 reveals that Pretoria West contains several academic institutions in the area which can benefit from the services the programme aims to provide. Discussion groups, book clubs and access to research material will help promote reading among this user group.

The escapist

This user is a wishful thinker who likes to get lost in books. The escapist is a daydreamer, who likes to curl up and read a good book.

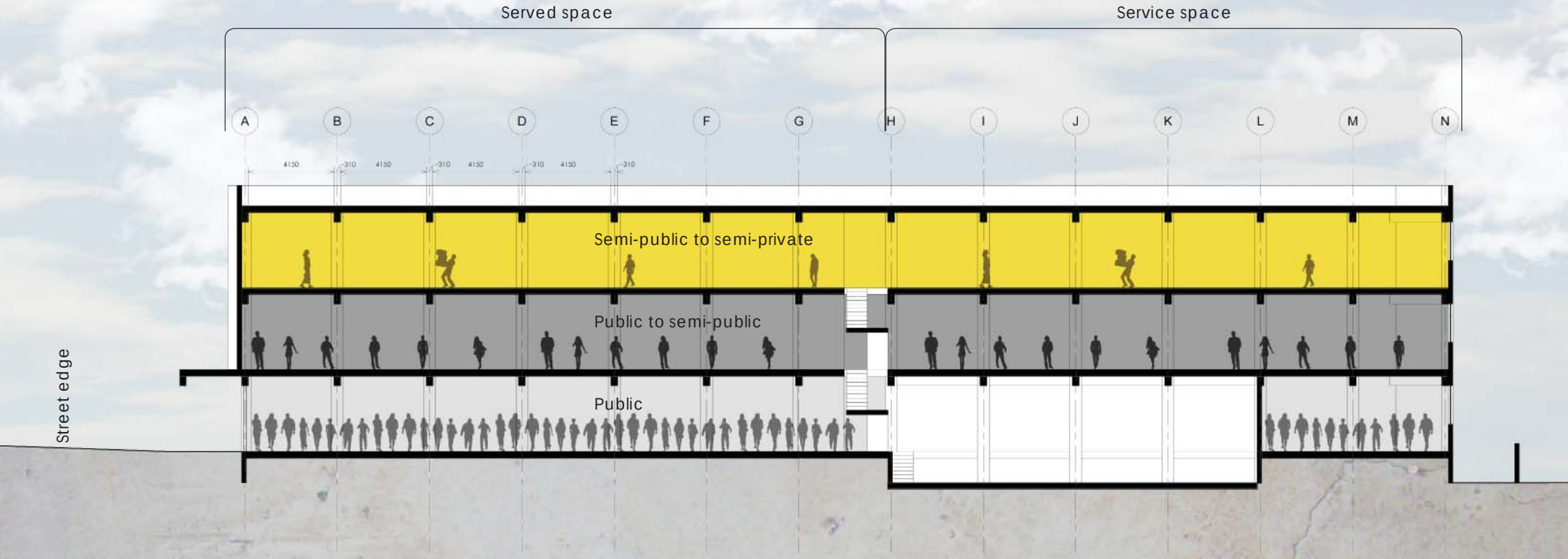
The passer-by

The passer-by is a person who walks past the building casually or by chance. The site is ideally located between two railway stations, providing pedestrian activity past the site on a daily basis.

6.4 Spatial Hierarchy and Schedule of Accommodation

The southern facade of the structure is the only street-facing facade, and public access to the site is limited to this facade only. It seems logical to then establish a spatial hierarchy according to the public entry. As can be seen in Fig. 6.3, such a hierarchy has been established. The ground floor level is conceived mainly as a public floor space, ascending to the semi-public to semi-private second floor. The structure is then further divided in ‘served’ and ‘service’ spaces, which will aid in the placement of the various different spatial requirements established for the programme. Fig. 6.4 provides a basic schedule of accommodation together with the floor area required for each space.

Fig 6.4
The spatial hierarchy of the structure is determined according to the public entry of the building



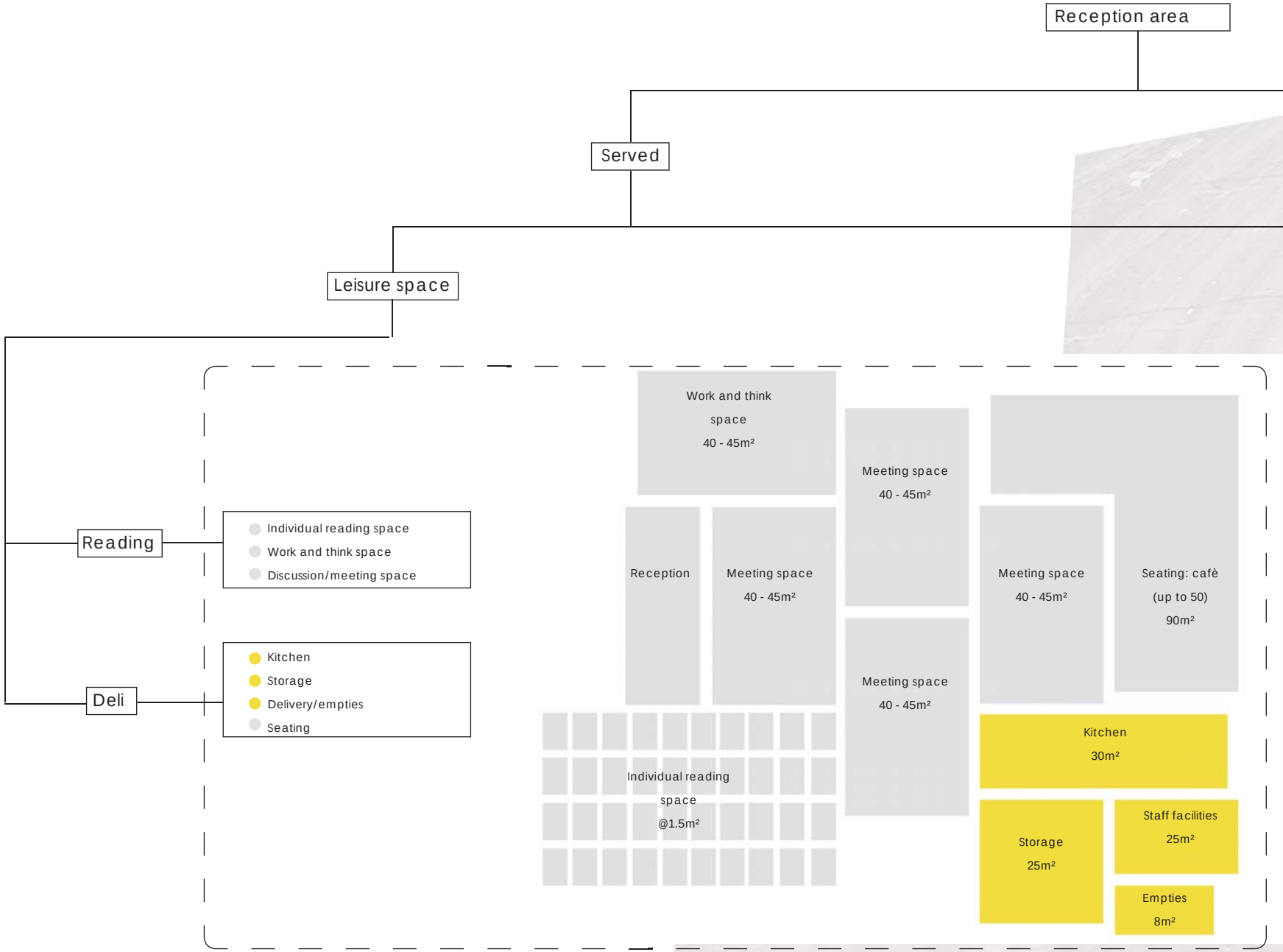
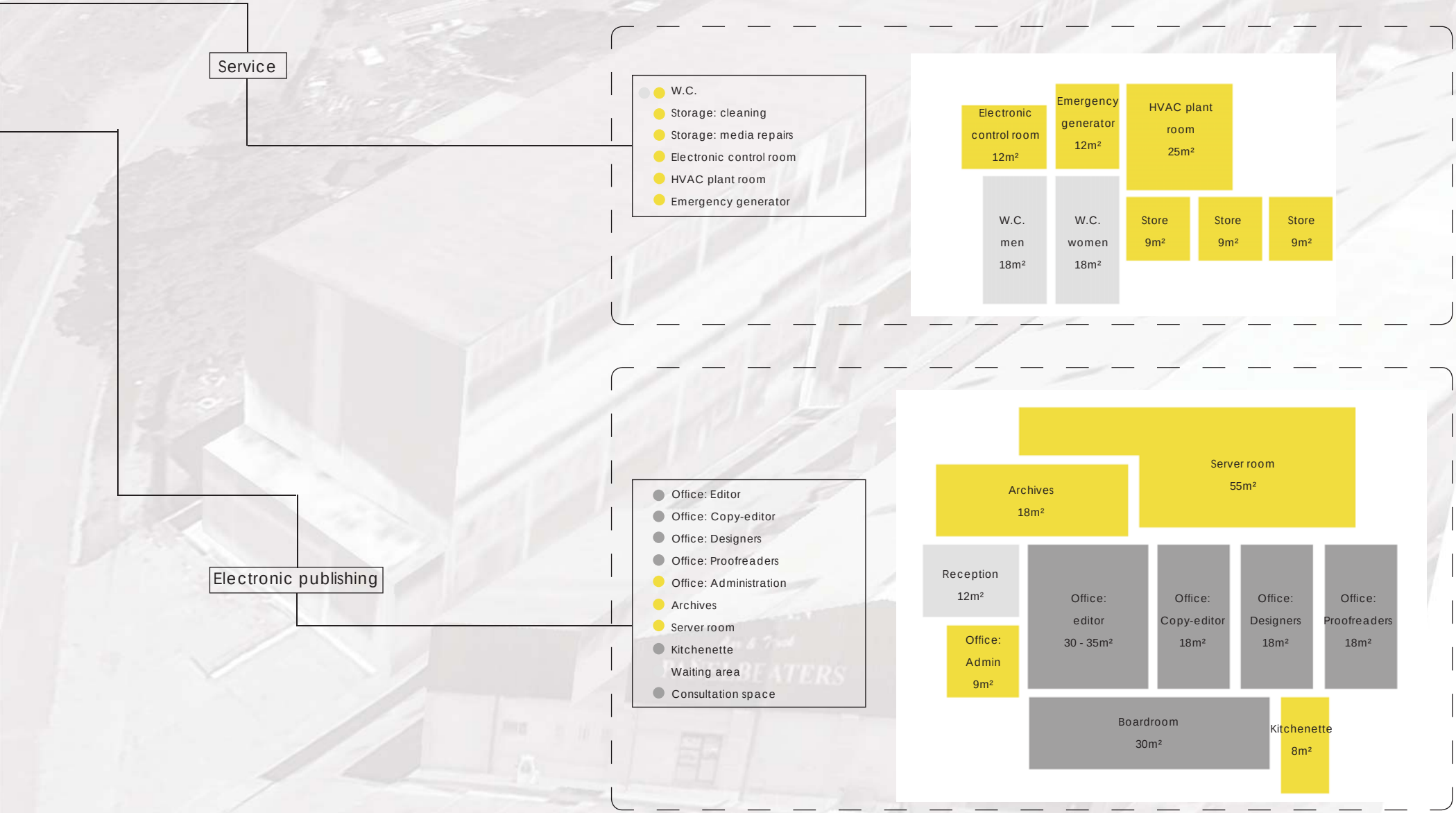


Fig 6.5
Schedule of accommodation with required floor areas



chapter 07

DESIGN STRATEGY

This chapter describes the design approach taken for this dissertation. The type of intervention is explained, followed by the requirements set out for each space. This is then followed by spatial planning and concluded with the conceptual approach.

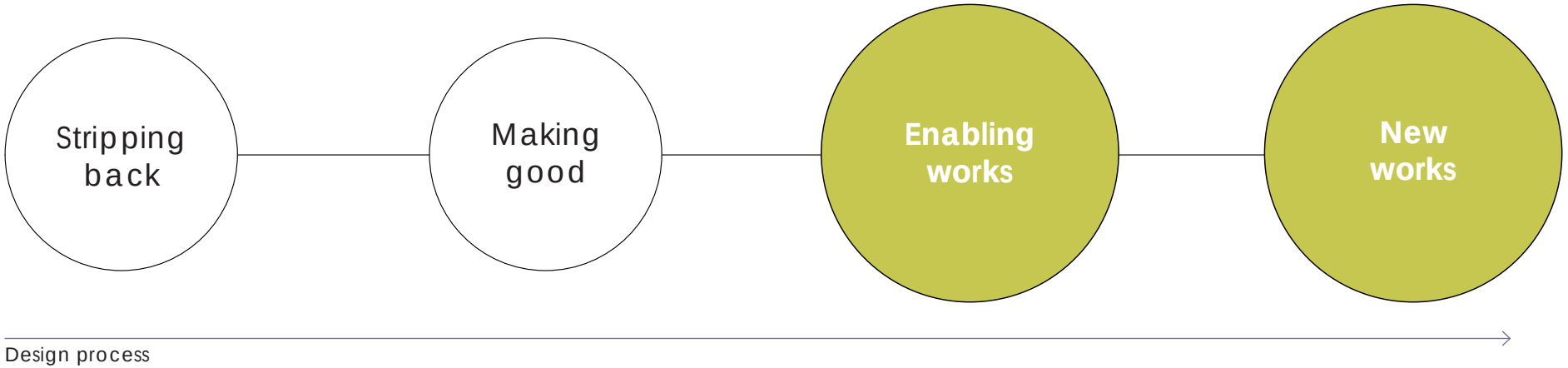


Fig 7.1
Summary of the design methodology

7.1 Approach to the Existing Structure

7.1.1 MAKING GOOD

Making good implies the process in which the existing building is repaired, rotten fabric is removed or replaced and damaged elements are restored (Scott, 2008: 116). The building that is the subject of this dissertation is well maintained. The structure is sound and there is no rotten fabric that requires replacement. However, services attached to the interior must be removed or replaced due the change of use proposed for the building.

7.1.2 ENABLING WORKS

The process by which the existing structure is prepared for the new work can be referred to as enabling works. Enabling works prepare the 'ruin,' and require some breaking of the host building which will be seen to be crucial later in the proposed process of alteration (Scott, 2009: 127).

In this case, the first preparation to take place is the demolition of all the interior walls. Fig. 7.1 illustrates the location of the interior partitions and highlights those that are to be demolished. The aim of this step is to prepare the interior for the new work by removing the ill-placed partitions that impede circulation and to allow implementation of the programme in the space.

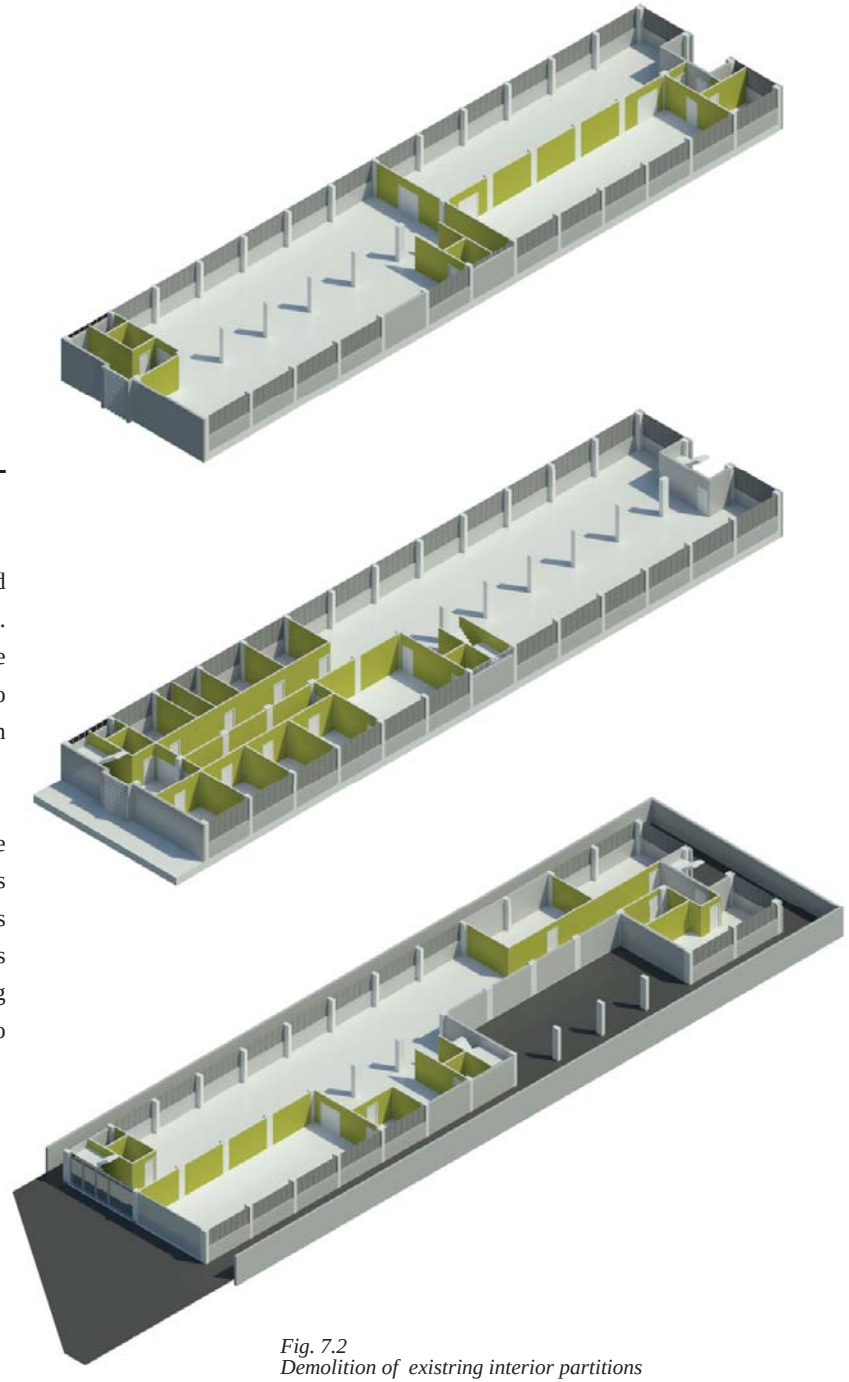


Fig. 7.2
Demolition of existring interior partitions

7.2 Concept: Approach to Hybrid Conditions

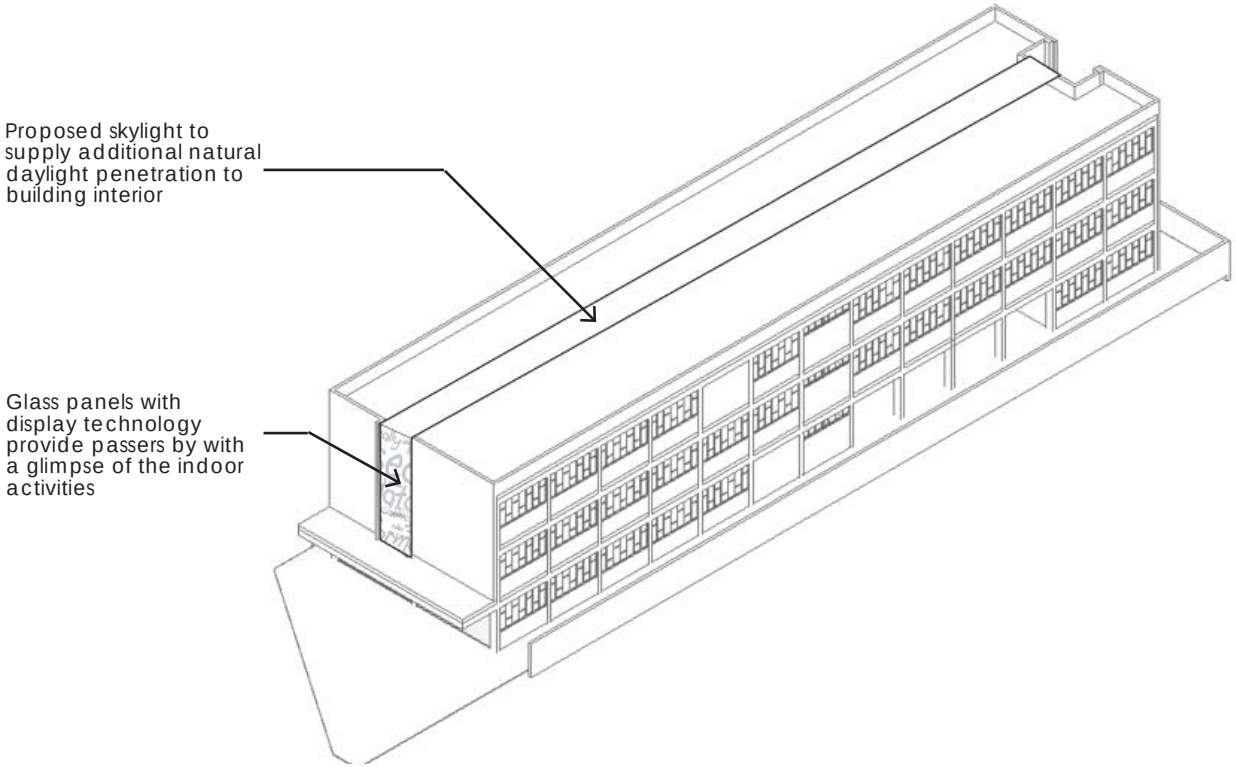


Fig 7.3
Addition of an external element that connects the interior to the exterior of the structure

The different hybrid conditions that exist within the site and its surroundings, as well as the proposed intervention, were identified in Chapter 3. These hybrid conditions fall within the scope of the new work. The approach to each of these conditions will be established in this section.

7.2.1 INTERIOR AND EXTERIOR

The hybrid condition that exist between the interior and the exterior of the structure require the introduction of an element that blurs the distinction between the two polarities. The proposed element is a skylight inserted into the existing structure in order to allow natural daylight to penetrate into the interior. Furthermore, the existing decorative element on the facade is replaced with glass panels on which digital media can be projected, thus giving the users and passers-by an exciting glimpse of what the interior programme entails from the exterior of the building.

7.2.2 LEVEL DIFFERENCE

"The existing needs to be broken in a manner to allow for a resolved intervention" (Scott, 2008: 175). The existing conditions of the building allow for little vertical communication between the three levels. Vertical communication is limited to the vertical circulation points, which include staircases and a service lift. The proposed intervention cuts through floor levels and introduces the use of atriums in order to establish a link between the three levels, resulting in floor levels that communicate more readily and openly with each other. These atriums aim to maintain the structural integrity of the building while at the same time exposing hidden structural elements, thus exhibiting the existing structure.

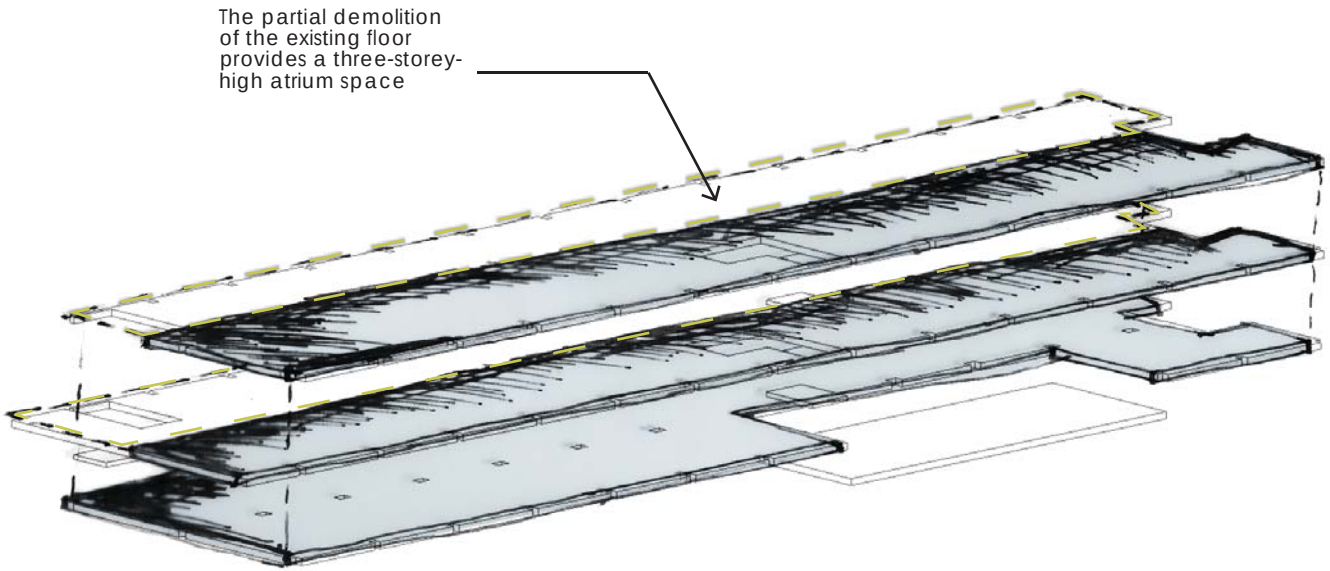
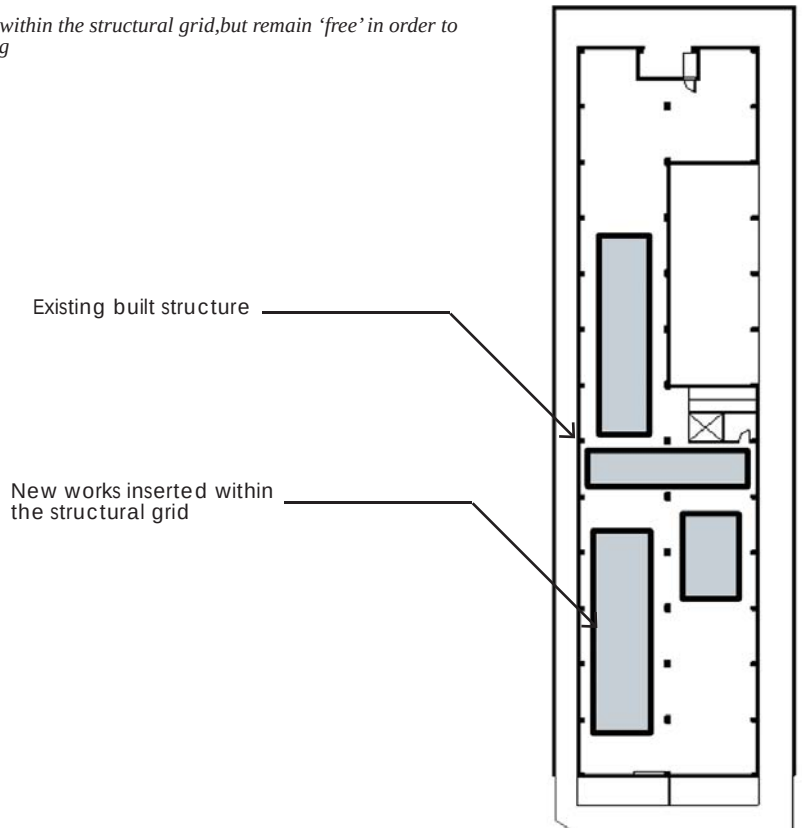


Fig 7.4
Partial demolition of the floor space will facilitate communication between the three levels

Fig 7.5
The intervention will fit within the structural grid,but remain 'free' in order to contrast with the existing



7.2.3 EXISTING AND NEW WORKS

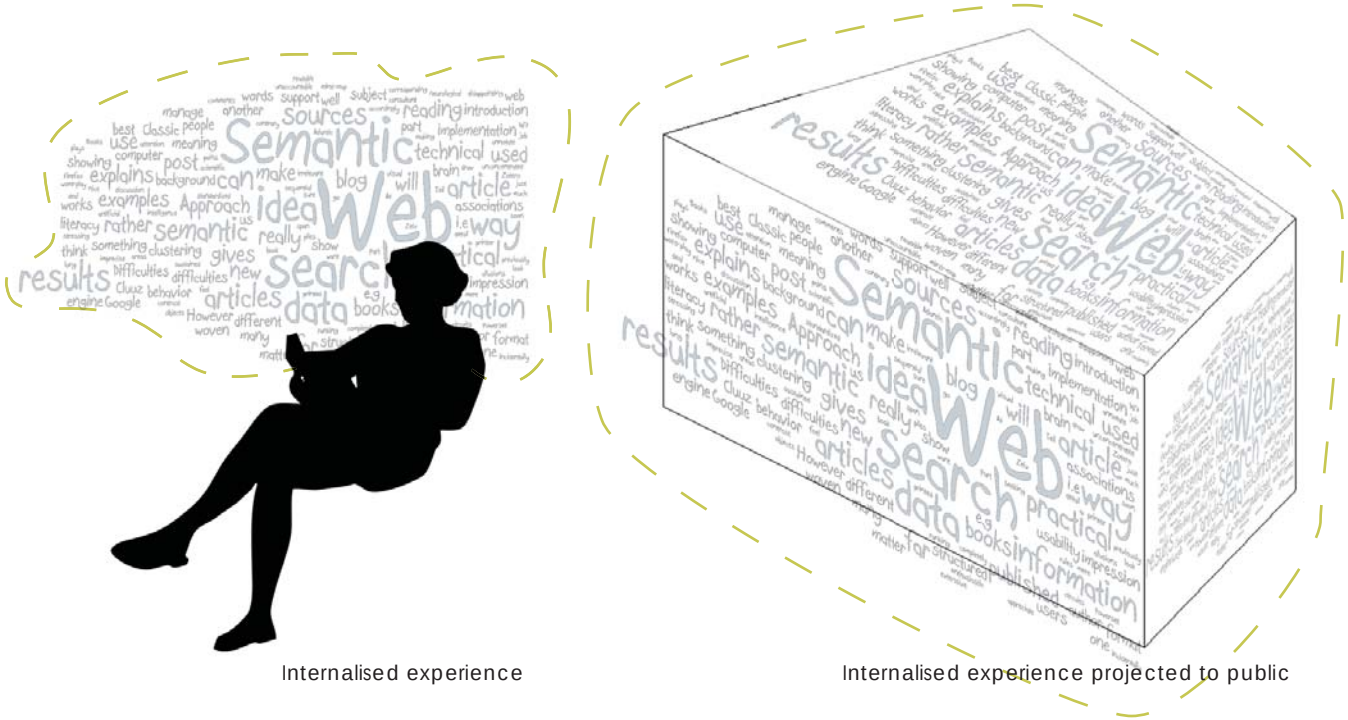
"Change of use almost always requires spatial and physical changes" (Scott, 2008: 171). The industrial typology of the existing structure needs to adapt in order to introduce the new, more delicate programme, making the structure suitable for public use.

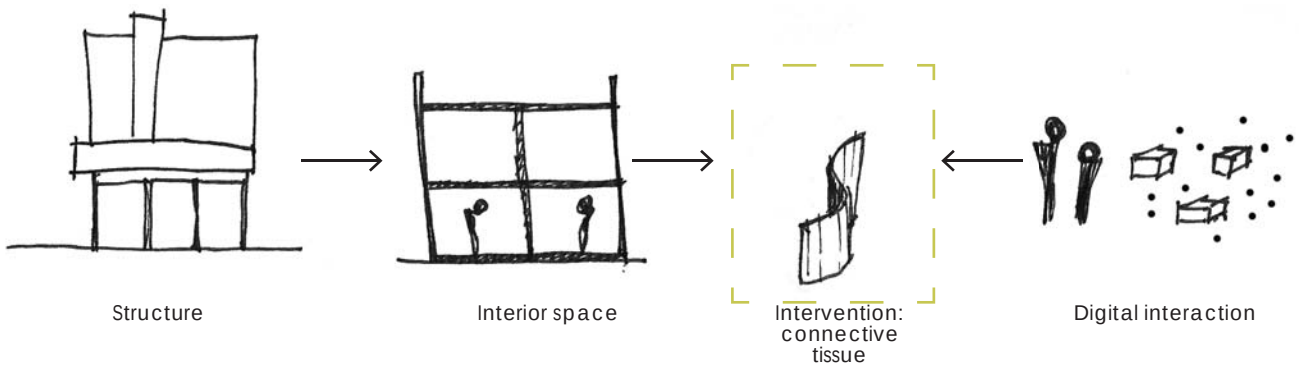
New life is manifested in the building through new materials and new forms in order to give the product a 'temporal twist' (Scott, 2008: 174). The existing structure and the new works are to remain polarized in terms of materials and construction. This is done to preserve the honesty of the structure. The alteration introduces forms and elements that fit loosely within the structural grid, thus the existing structure's identity is retained and the new works are easily distinguished from the existing. Dry construction methods will be used for the new works as far as possible, thus further distinguishing the existing structure from the alterations.

7.2.4 PUBLIC AND PRIVATE

The public and private spatial hierarchy has been established as seen in Chapter 6. As stated in Chapter 2, humans are social beings, and providing opportunities for direct social interaction becomes a main theme in the programme. To supplement this theme, spaces have been designed that range from public to private. Meeting and social spaces are proposed for direct social interaction, study spaces for selected social interaction and private spaces for individual use. The proposed meeting pods are flexible in terms of privacy control. Electronic or switchable glass enables the users to determine their own privacy during meetings, and the pods provide surfaces on which digital media are to be displayed for the public to see, thus projecting the activity as a public exhibition.

Fig 7.6
Previously internalised experiences such as reading can now be projected onto surfaces via digital media





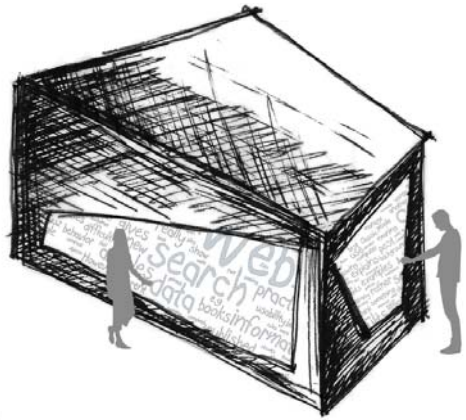


Fig 7.7
The intervention connects the existing structure with the digital realm

7.2.5 MATERIAL AND DIGITAL

Refer to Chapter 2 for a more detailed theoretical approach to the material and digital hybridities. This hybrid entity proposes an amalgamation between the material and digital intervention, integrating the two polarities into one entity. This spawns a new reality where the material and the digital are fused into one entity. Various new technologies create the opportunity for many surfaces to become interactive. The approach is to manifest digital technology to materials in order for them to become interactive surfaces. These surfaces remain fixed in materiality, but can change digitally, according to new functions and scenarios, thus adding flexibility.

The intervention proposes to be like a connective tissue, providing a ‘skin’ where the interior spaces are connected with objects of interaction.

7.3 Spatial Layout

A basic spatial layout for the entire building has been compiled in order to organize the appropriate amount of space for each function. Fig. 7.9 shows floor layouts of the three levels and the basic spatial arrangement.

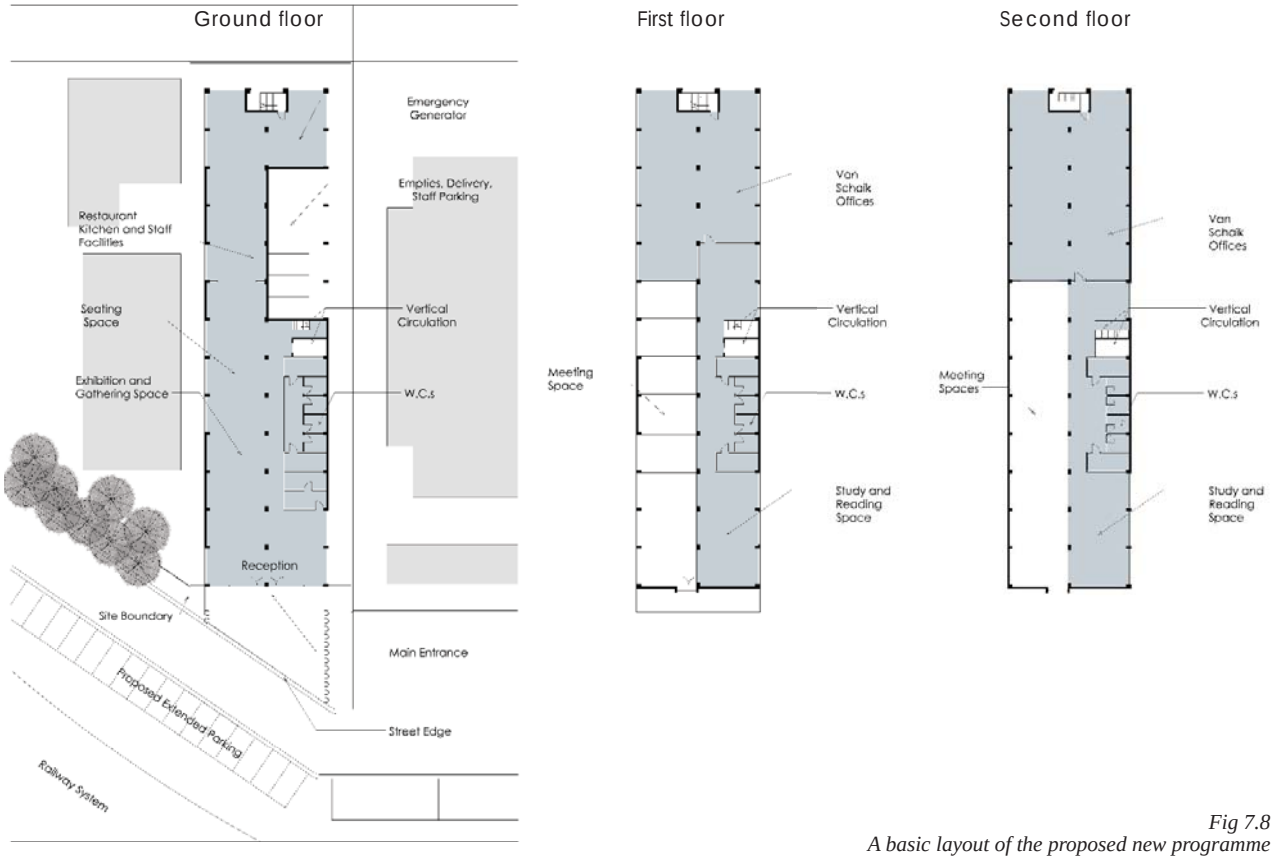
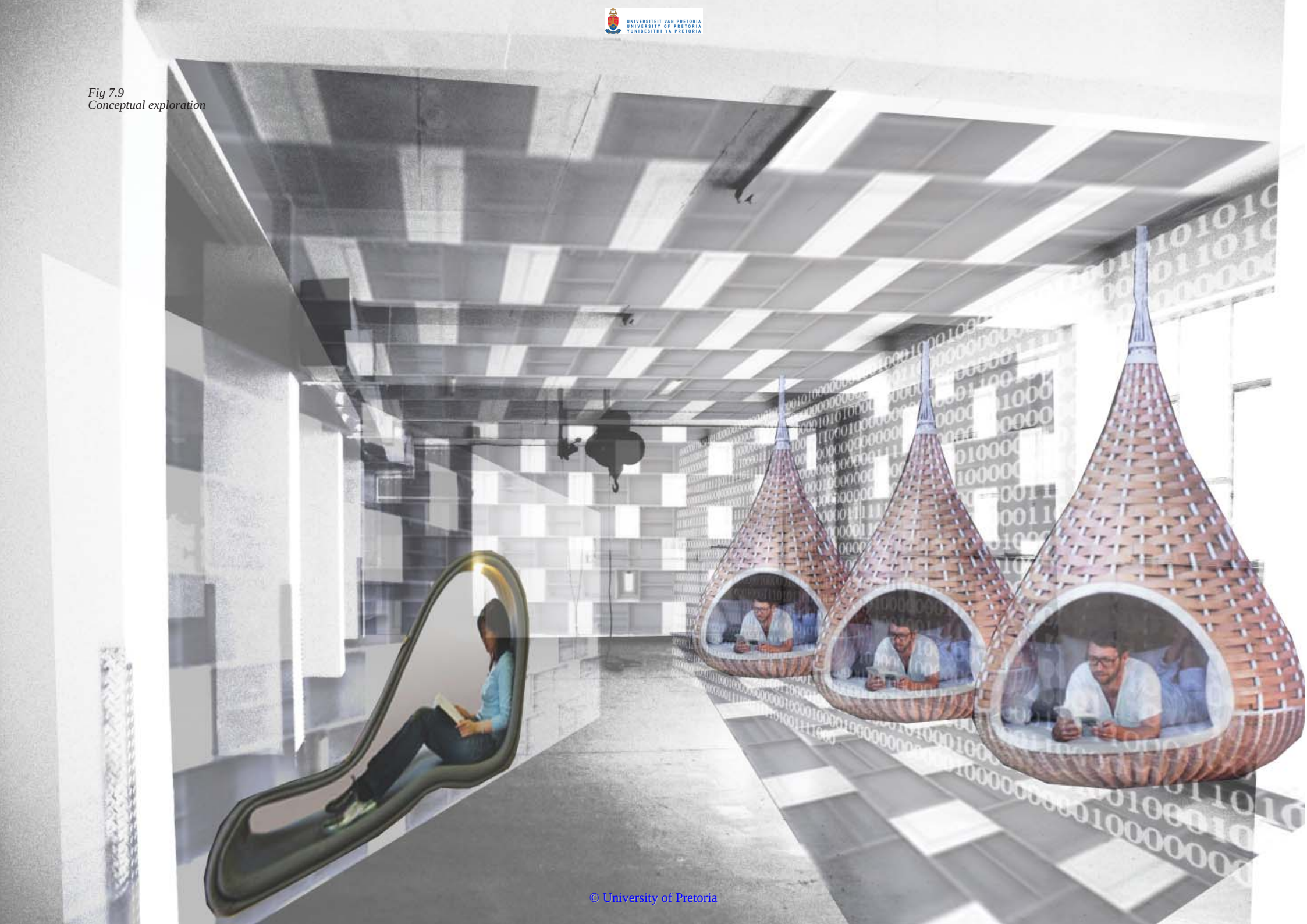


Fig 7.8
A basic layout of the proposed new programme

Fig 7.9
Conceptual exploration



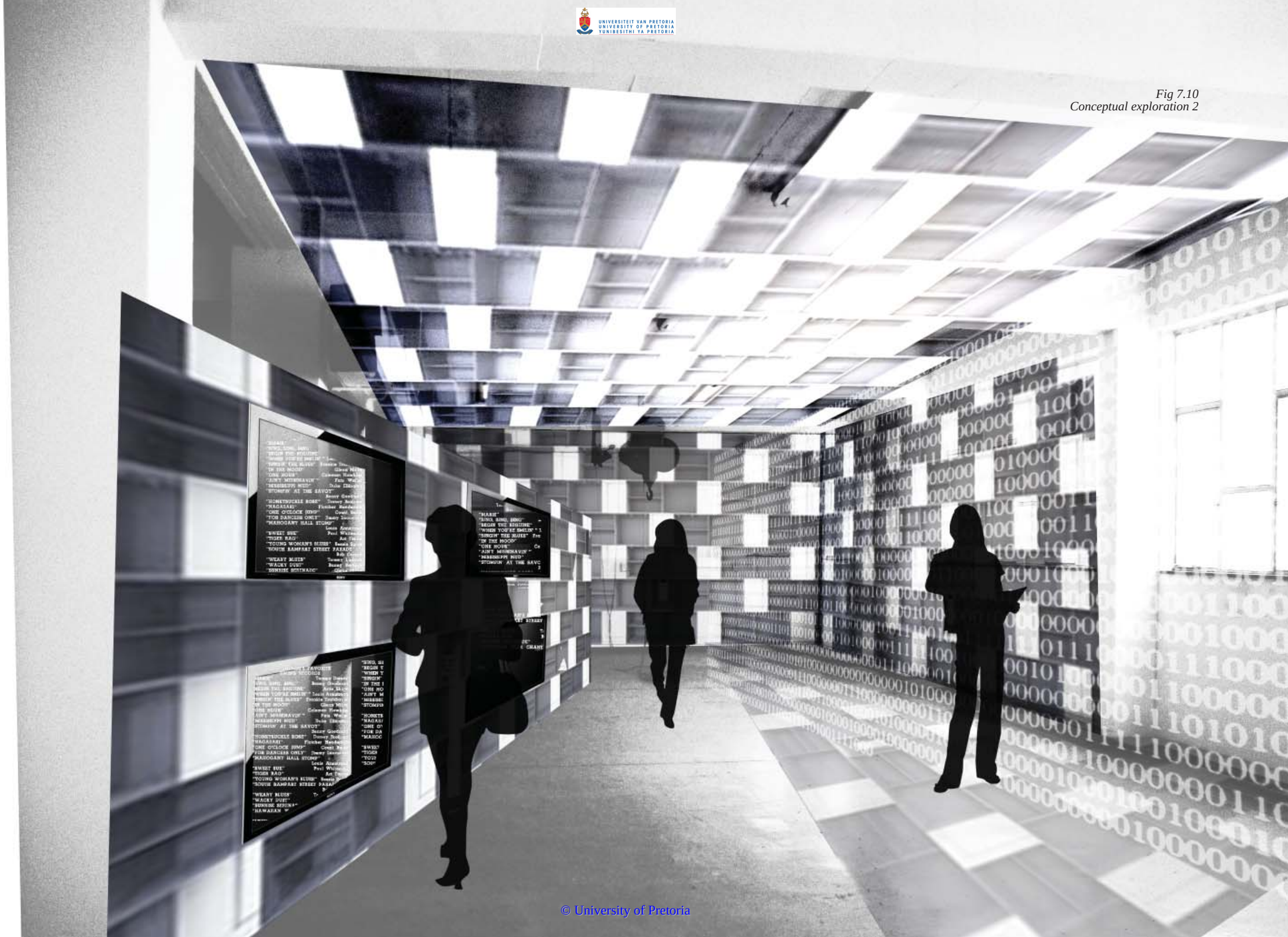


Fig 7.10
Conceptual exploration 2

chapter 08

DESIGN DEVELOPMENT

This chapter builds on the design approach discussed in Chapter 7 and integrates the principles into a design solution.

8.2 Design Walk-Through

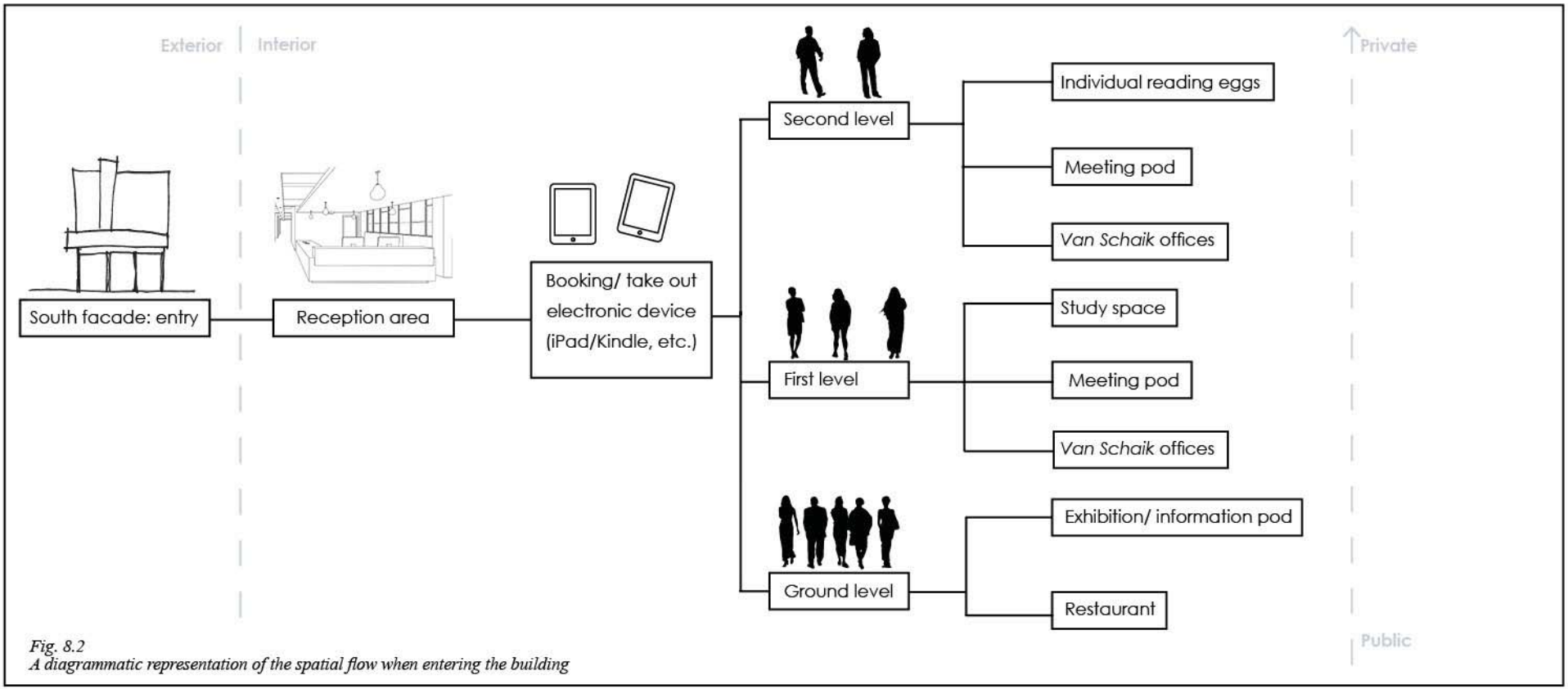
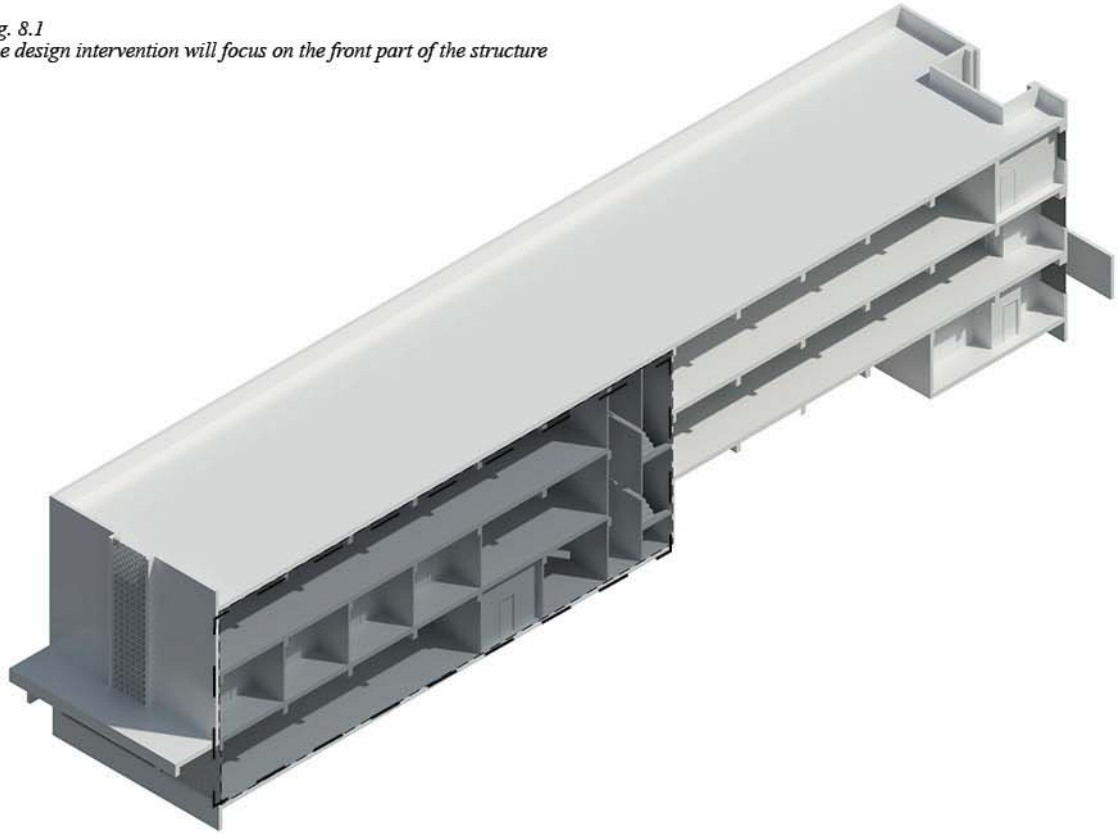


Fig. 8.2
A diagrammatic representation of the spatial flow when entering the building

8.1 Design Focus Area

Fig. 8.1
The design intervention will focus on the front part of the structure



As stated in Chapter 1, the design focus is limited to the front portion of the building. A basic spatial layout was established in Chapter 7 for the whole building. The technical specifications and additional technical information as developed for the front portion of the building are to be applied to the rest of the building in a similar manner.

Fig. 8.3
South facade: main entry

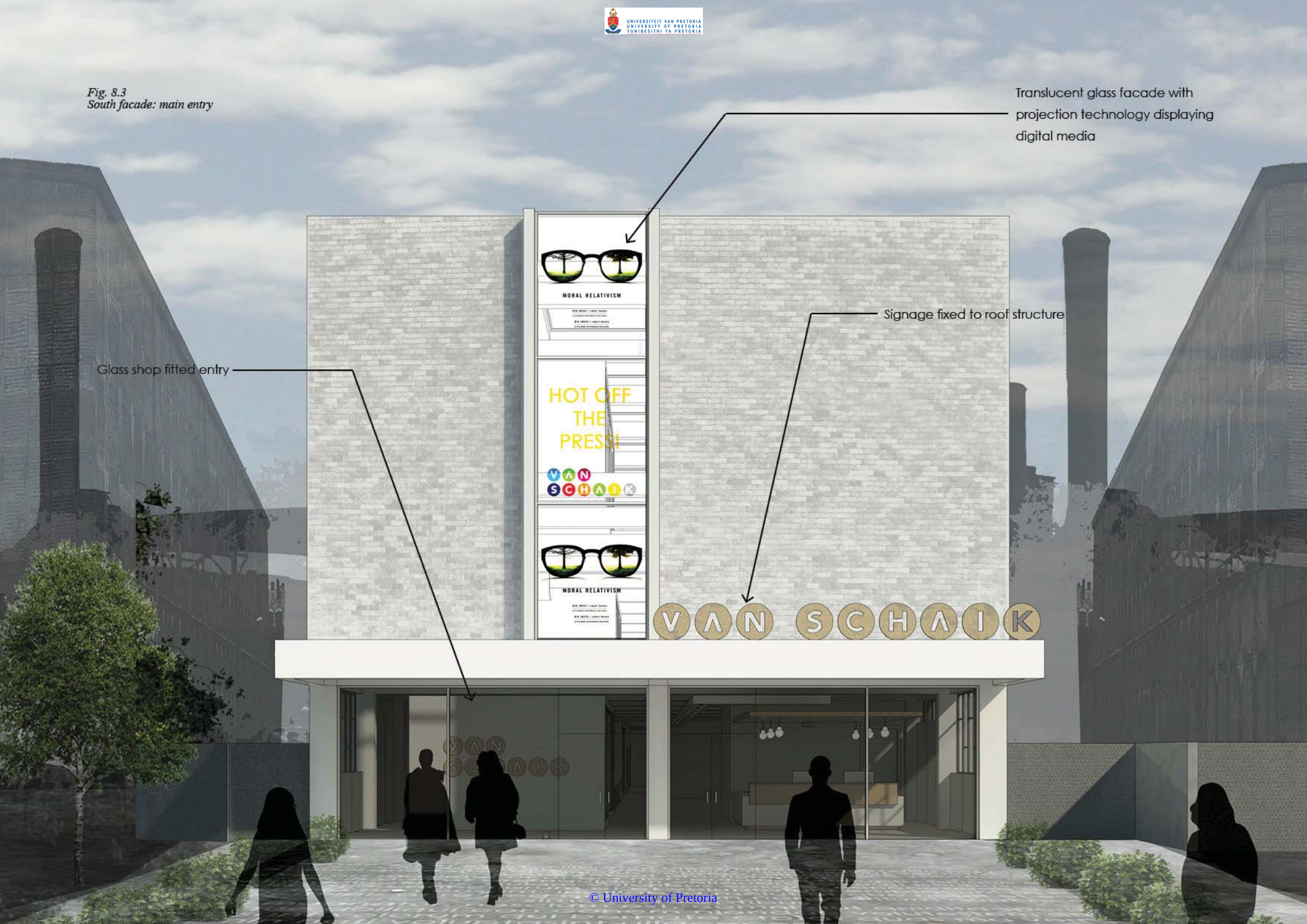


Fig. 8.4
Foyer with reception and information centre

Fig. 8.5
Meeting pod exterior with switchable glass set to opaque

Fig. 8.6
Meeting pod exterior with switchable glass set to transparent

Fig. 8.7
Meeting pod interior

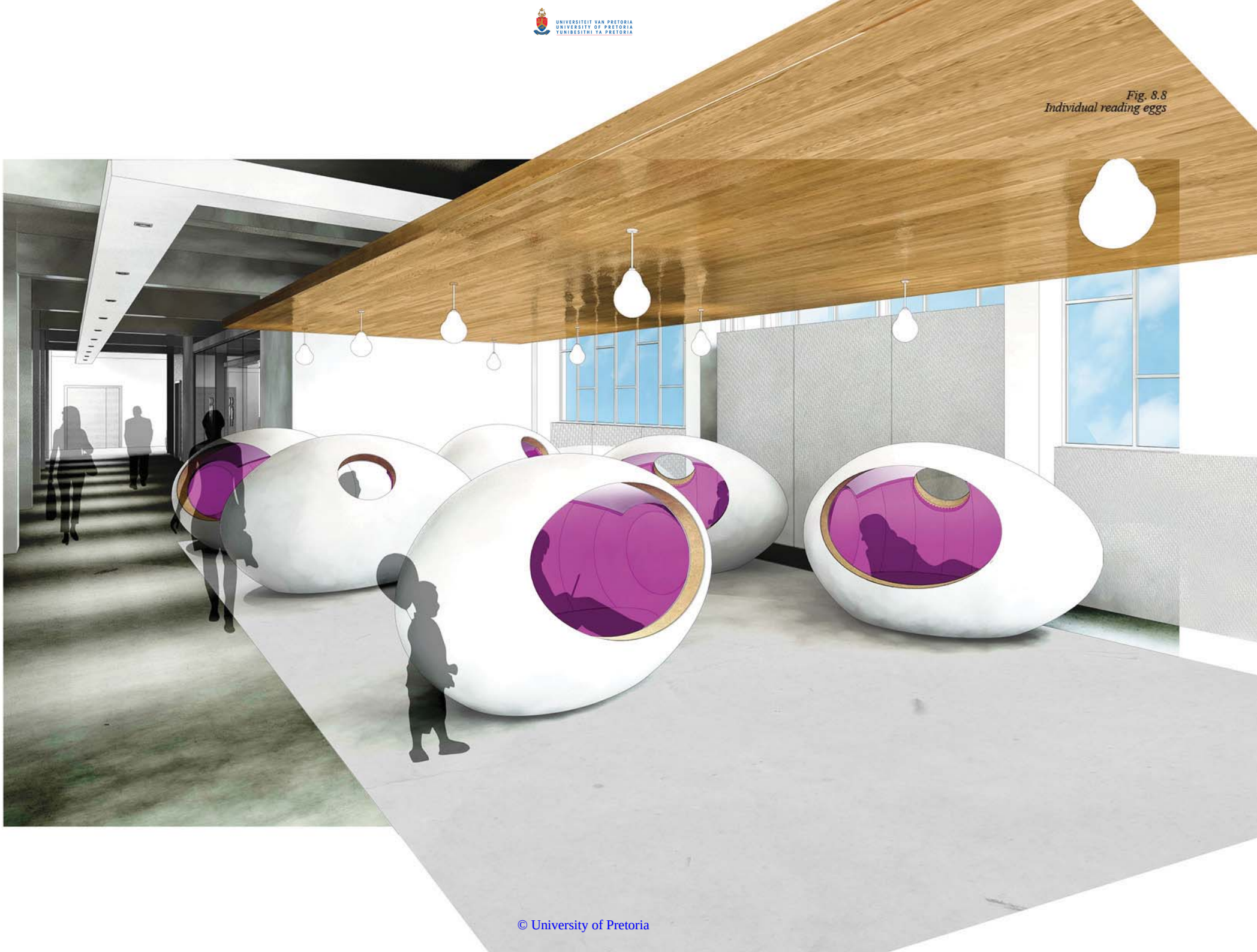
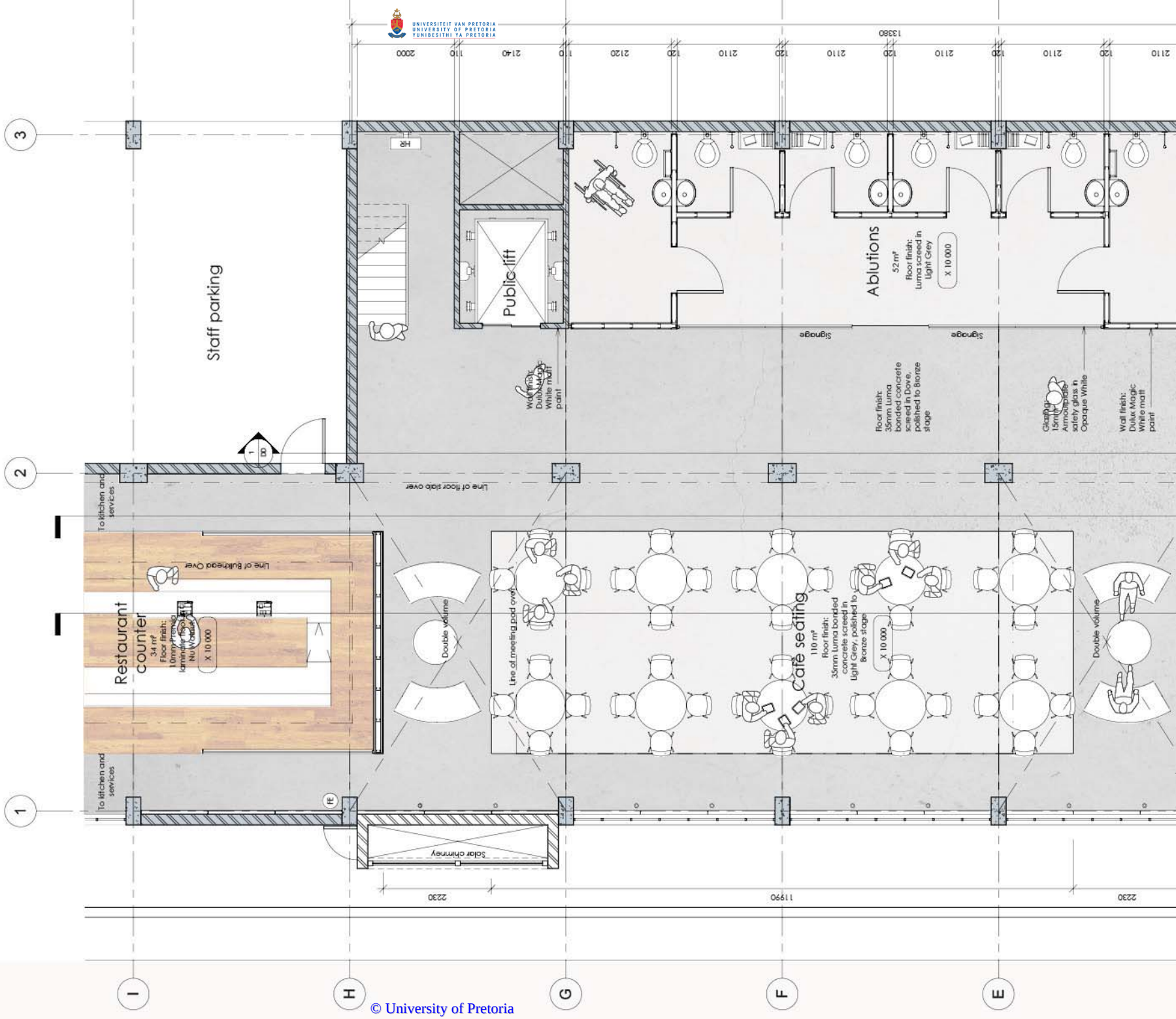
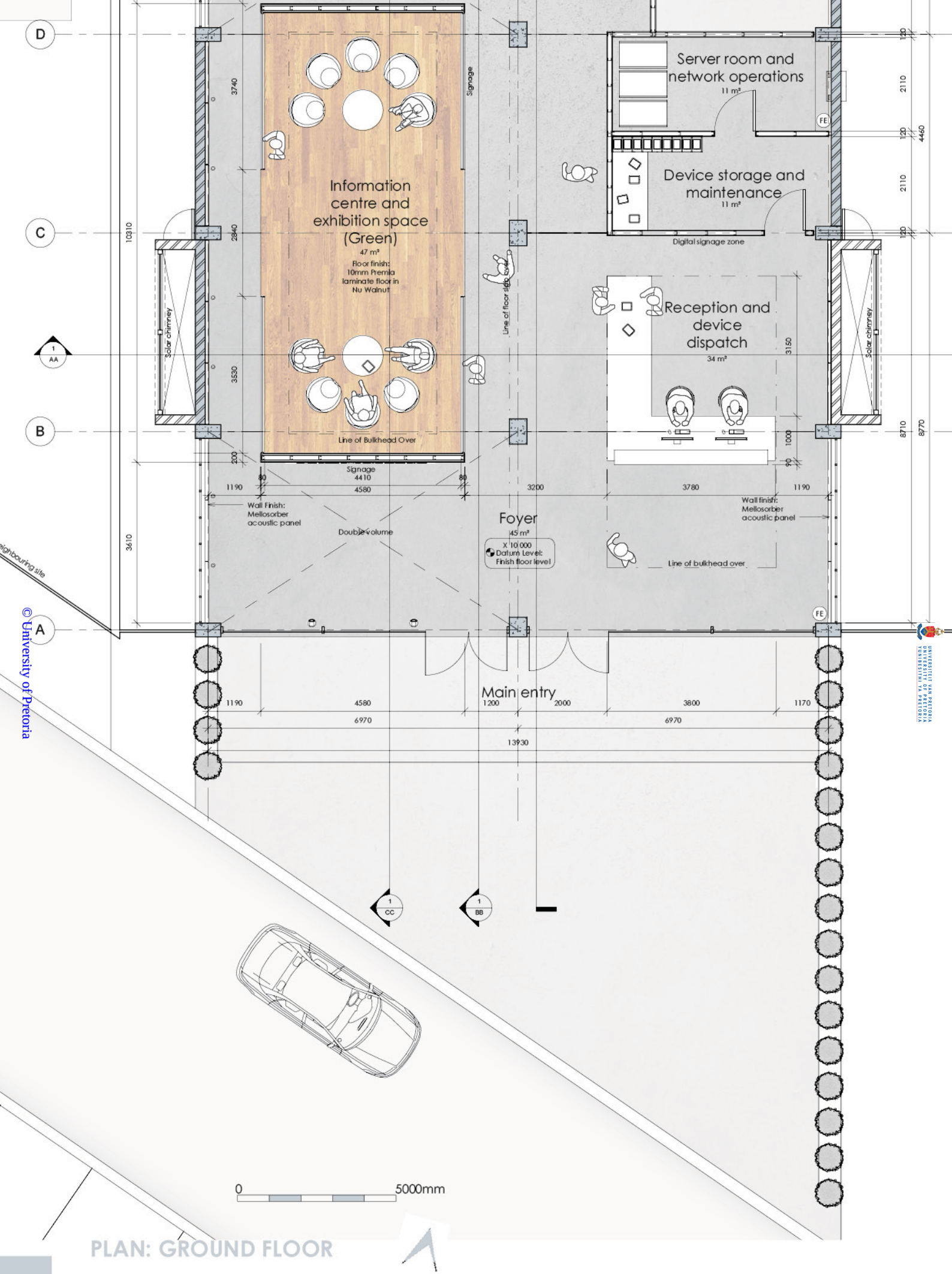


Fig. 8.8
Individual reading eggs

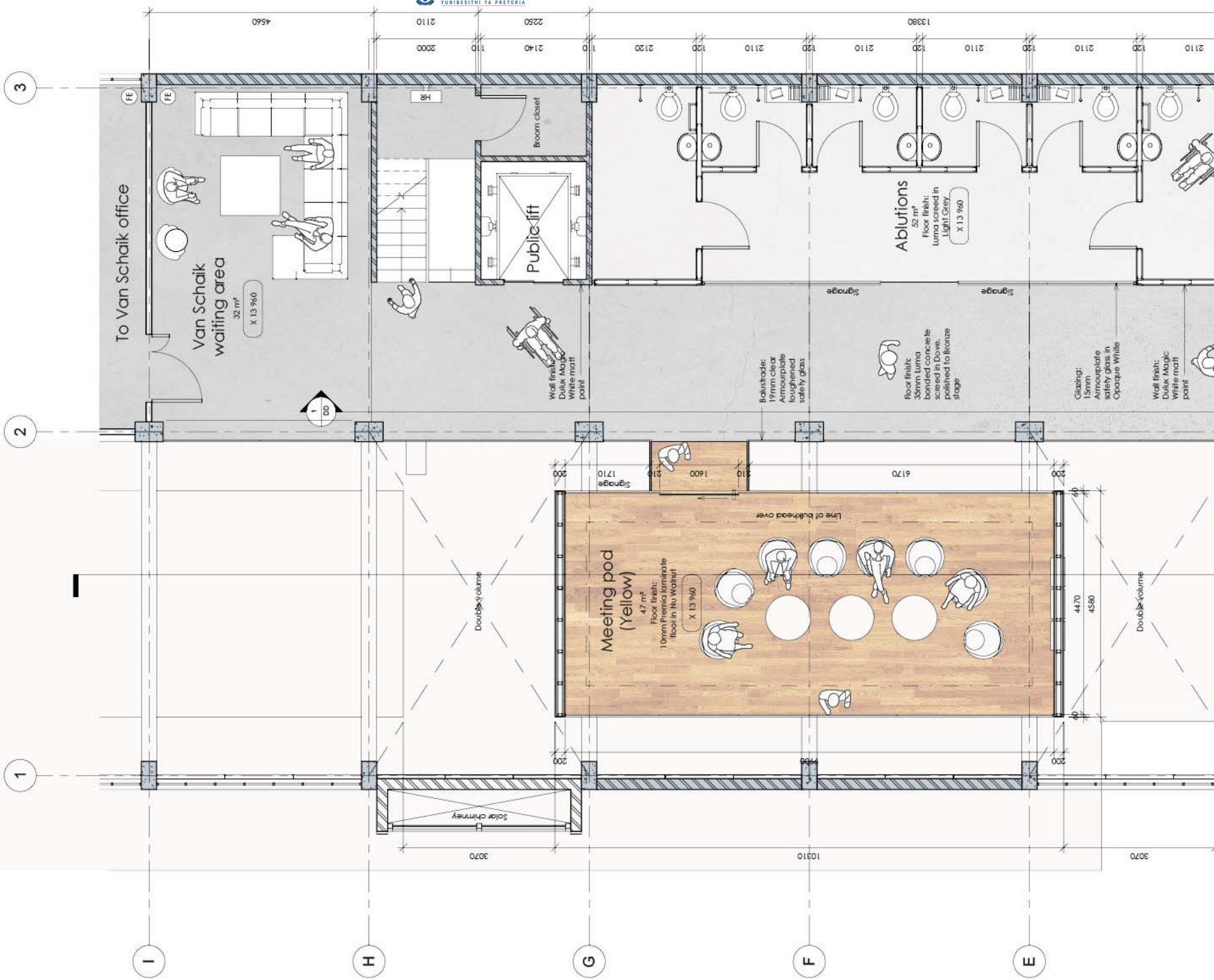
Fig. 8.9
Plan: ground level

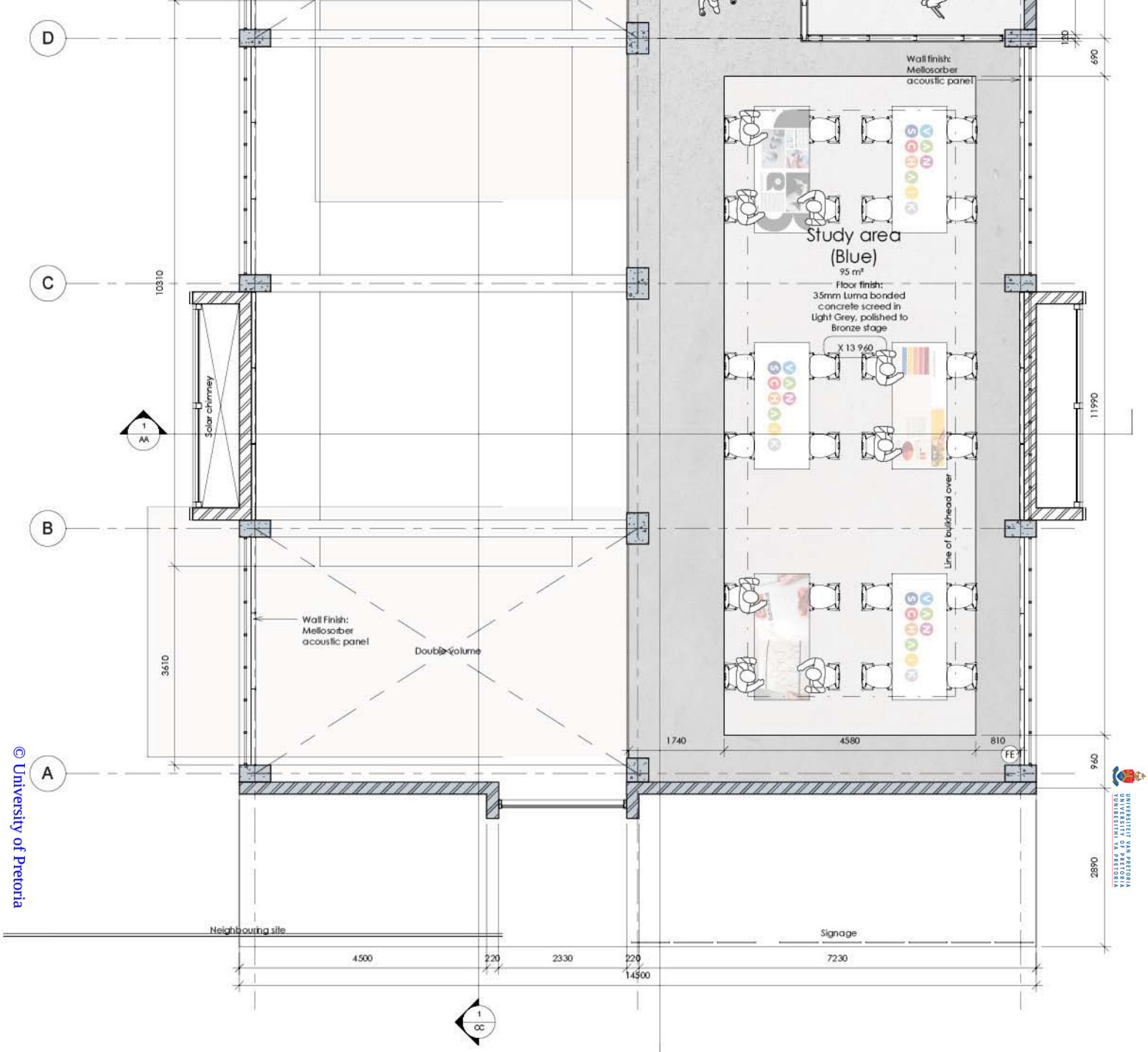




PLAN: GROUND FLOOR

Fig. 8.10
Plan: first level





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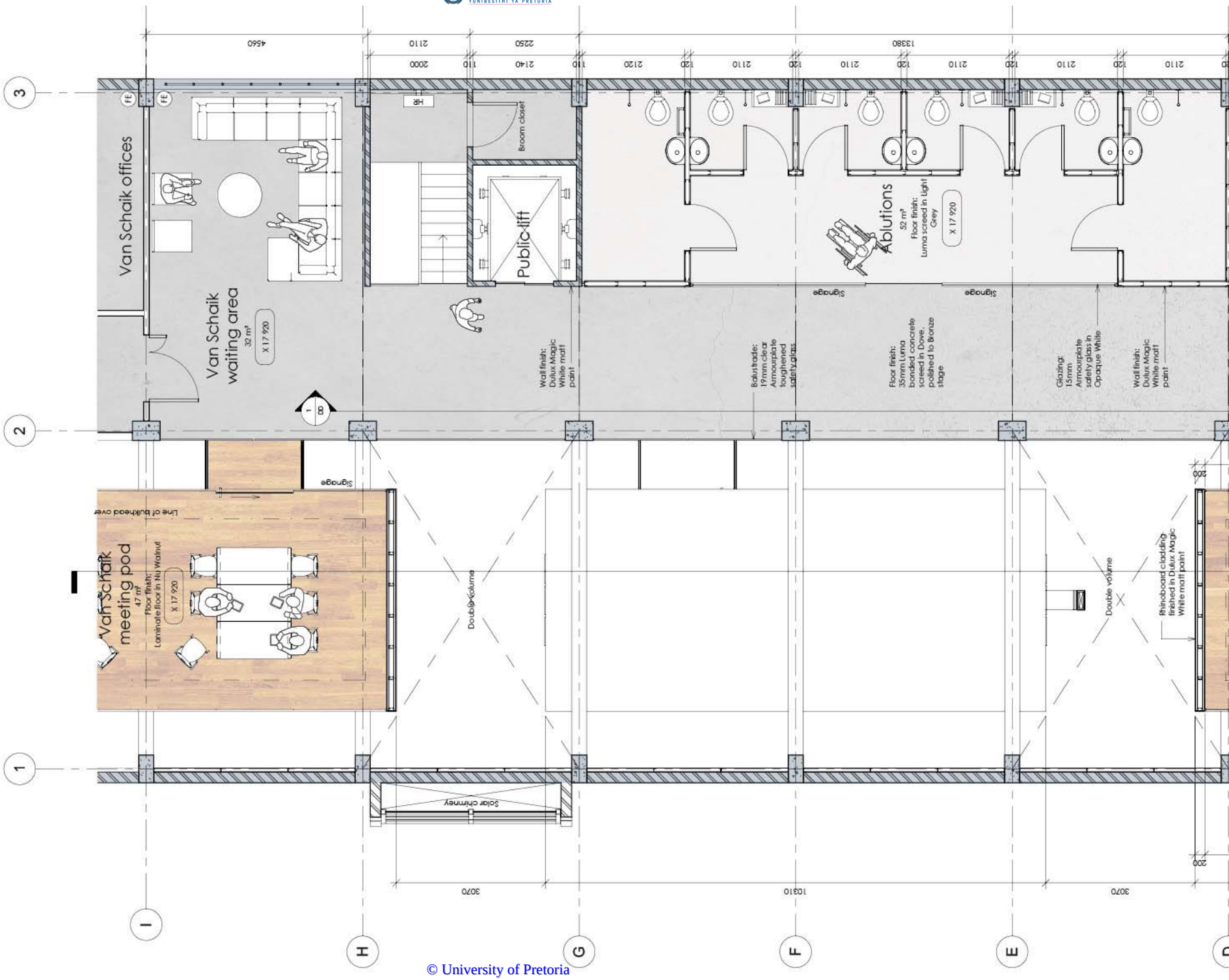
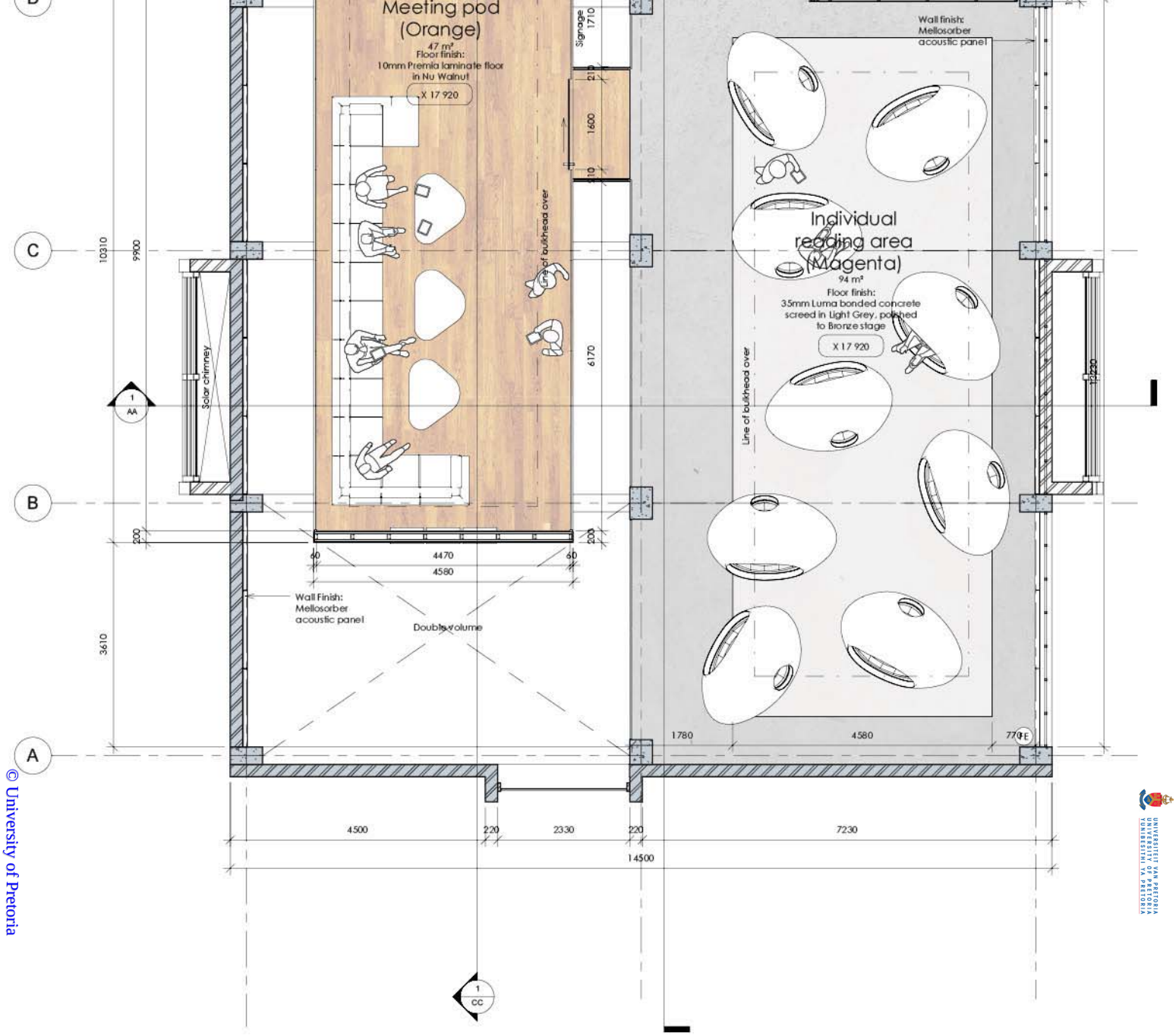
PLAN: FIRST FLOOR

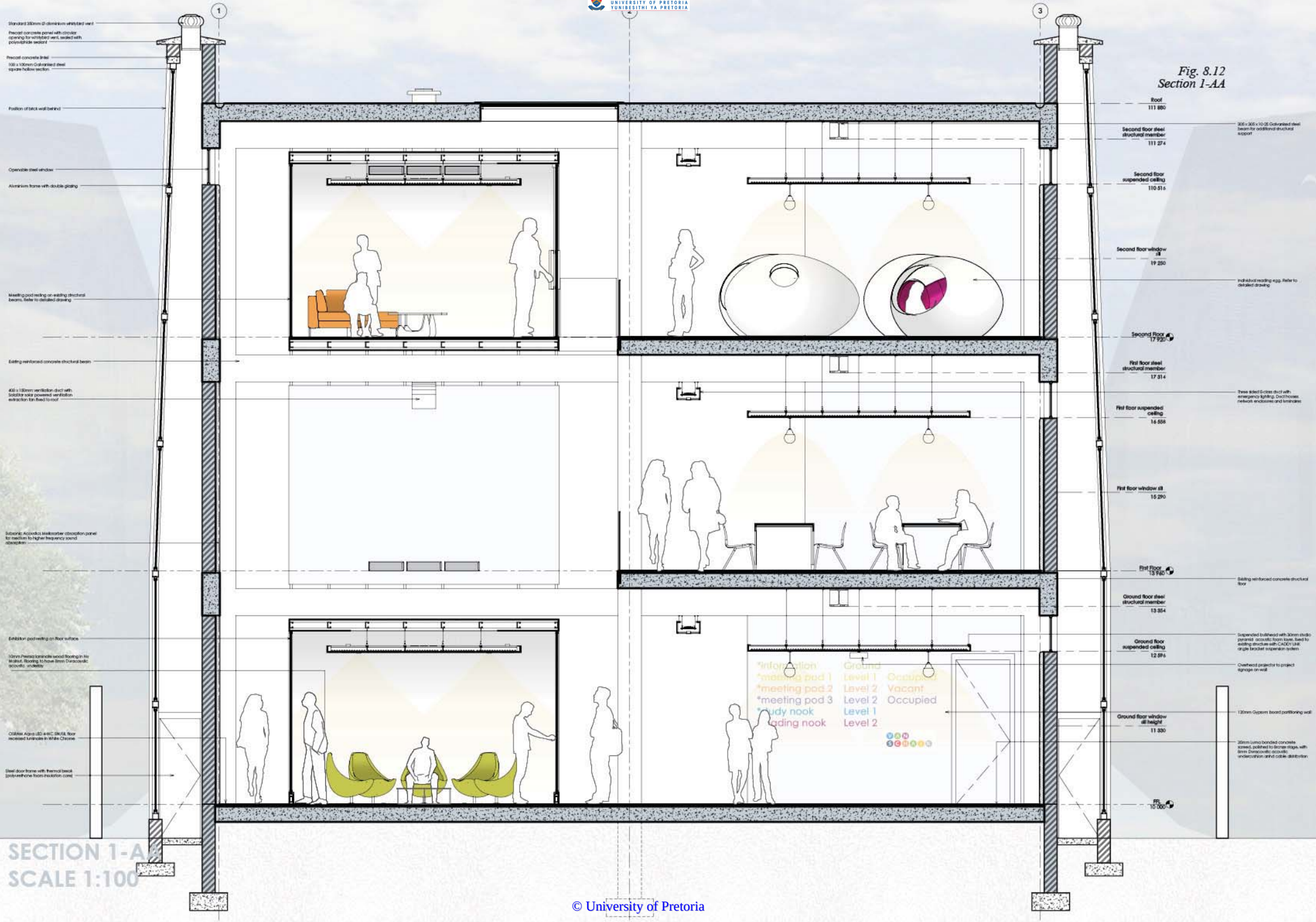
Fig. 8.11
Plan: second level





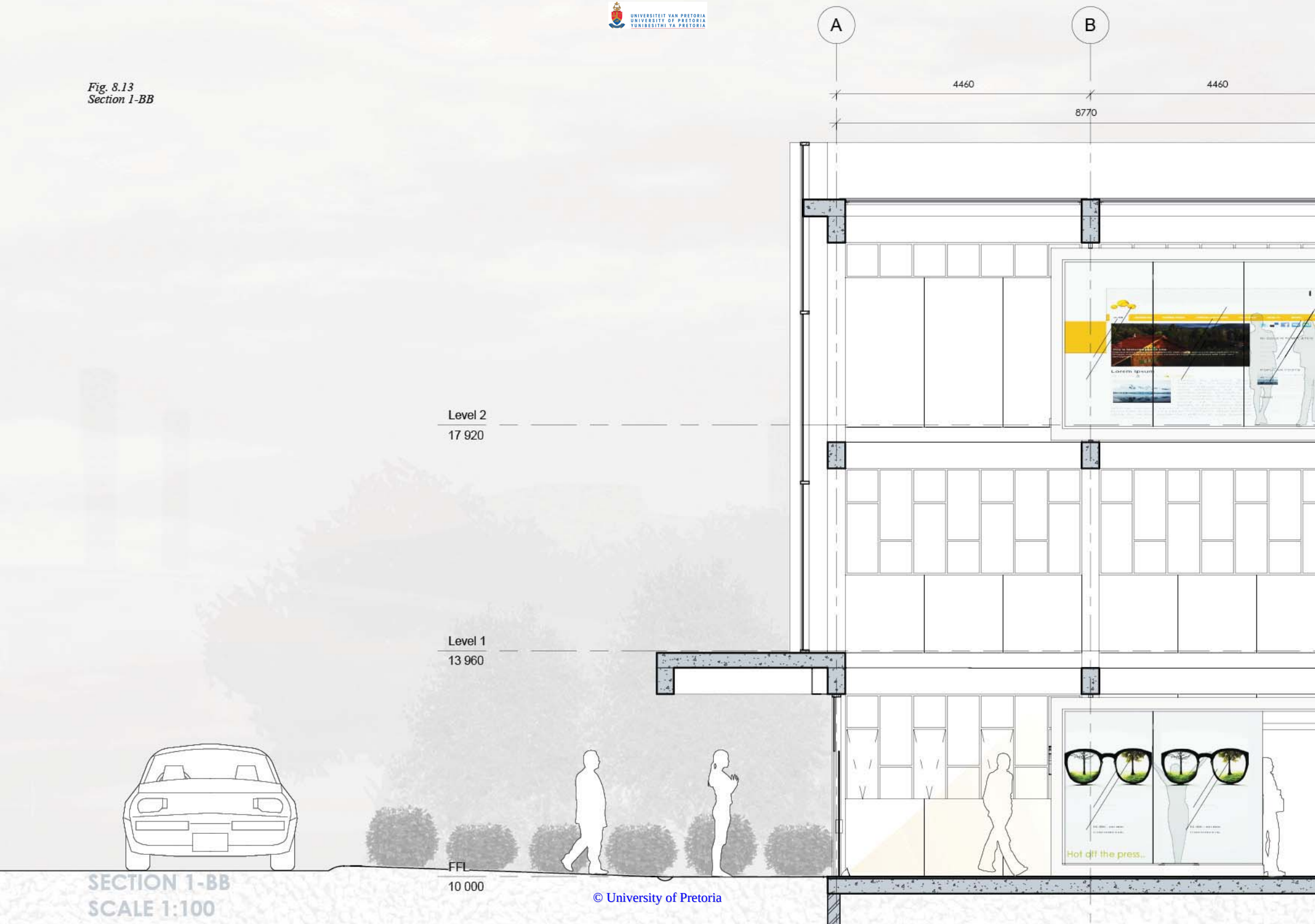
PLAN: SECOND FLOOR

Fig. 8.12
Section 1-AA



SECTION 1-AA
SCALE 1:100

Fig. 8.13
Section 1-BB



SECTION 1-BB
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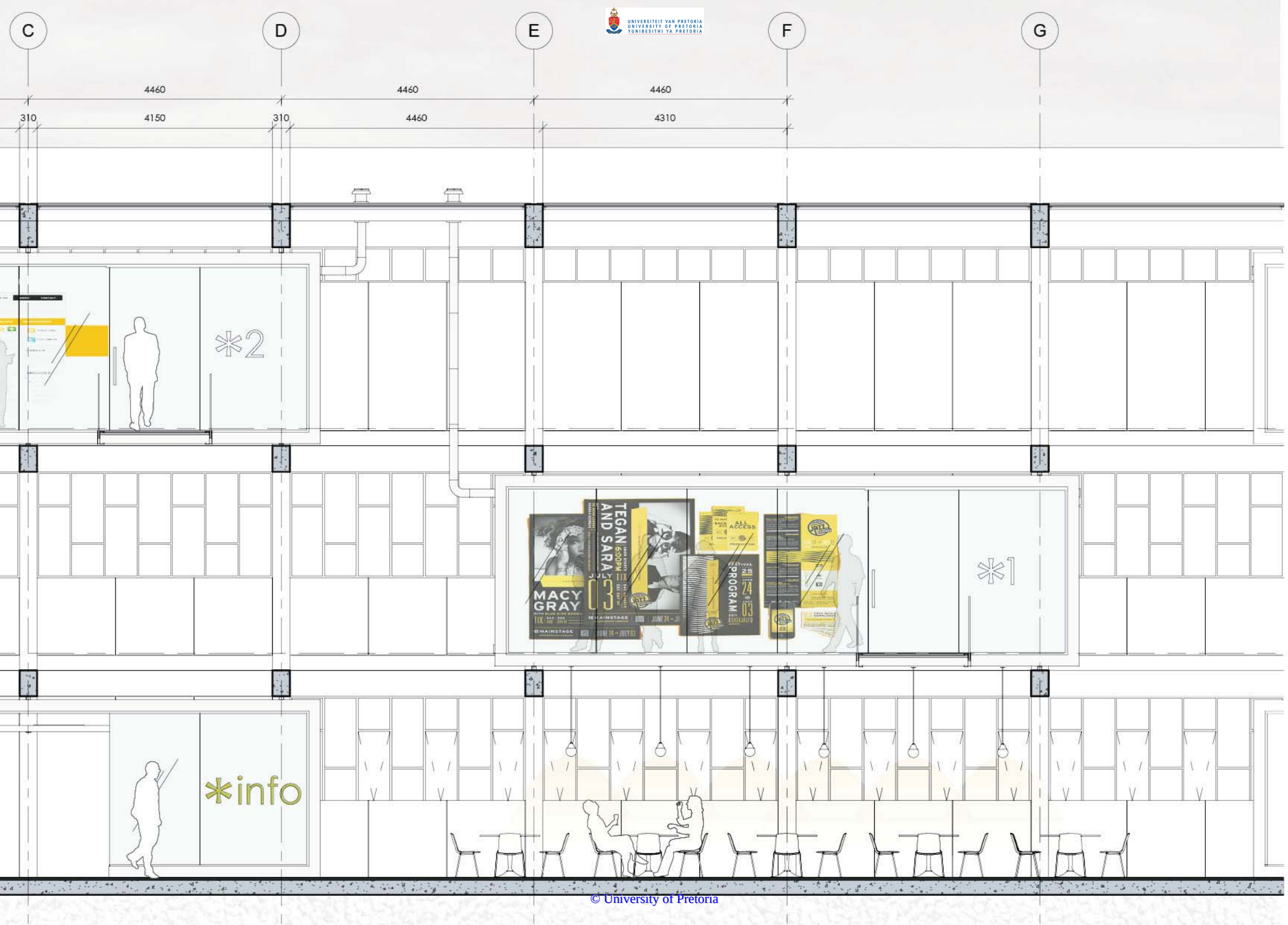
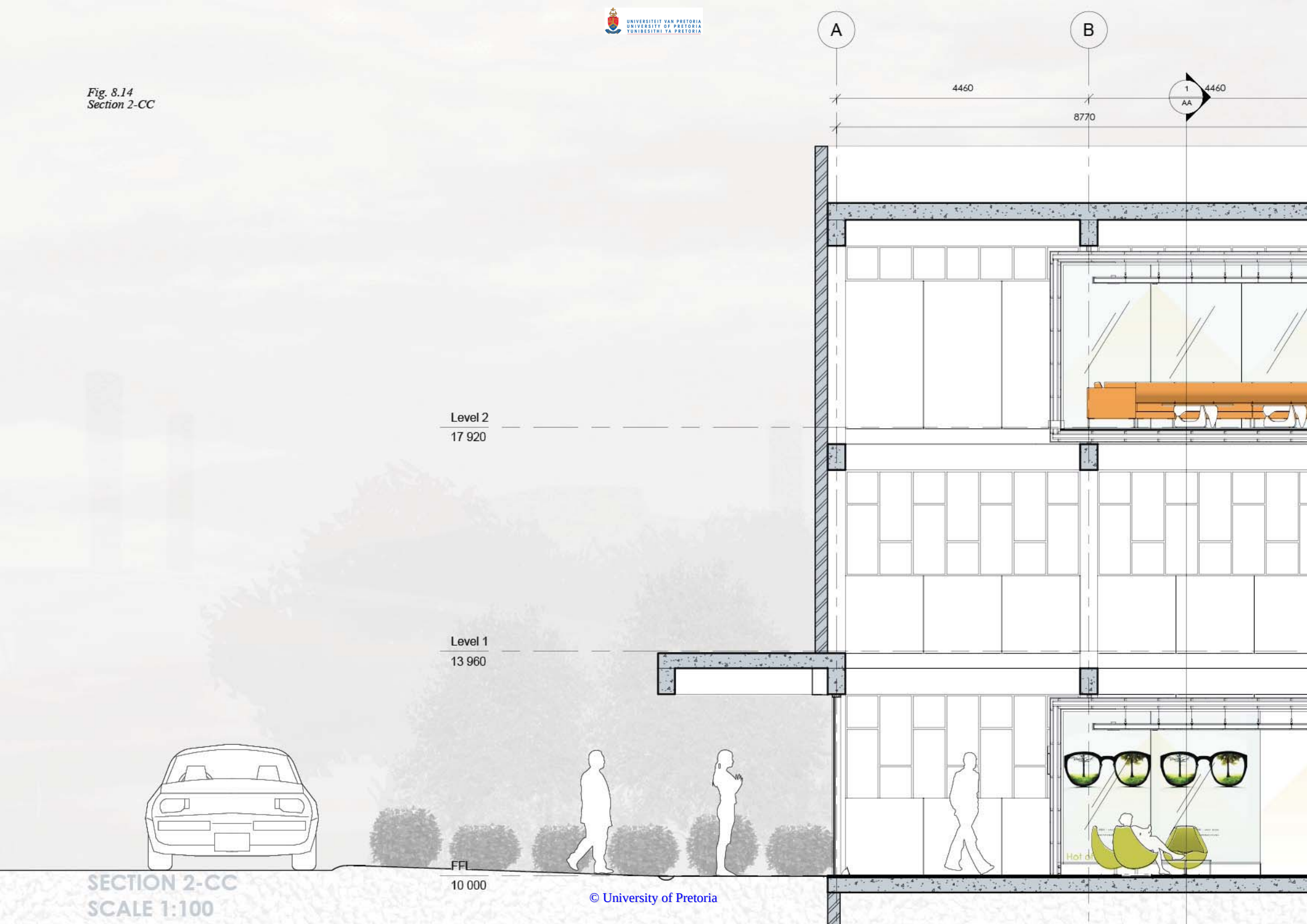


Fig. 8.14
Section 2-CC



SECTION 2-CC
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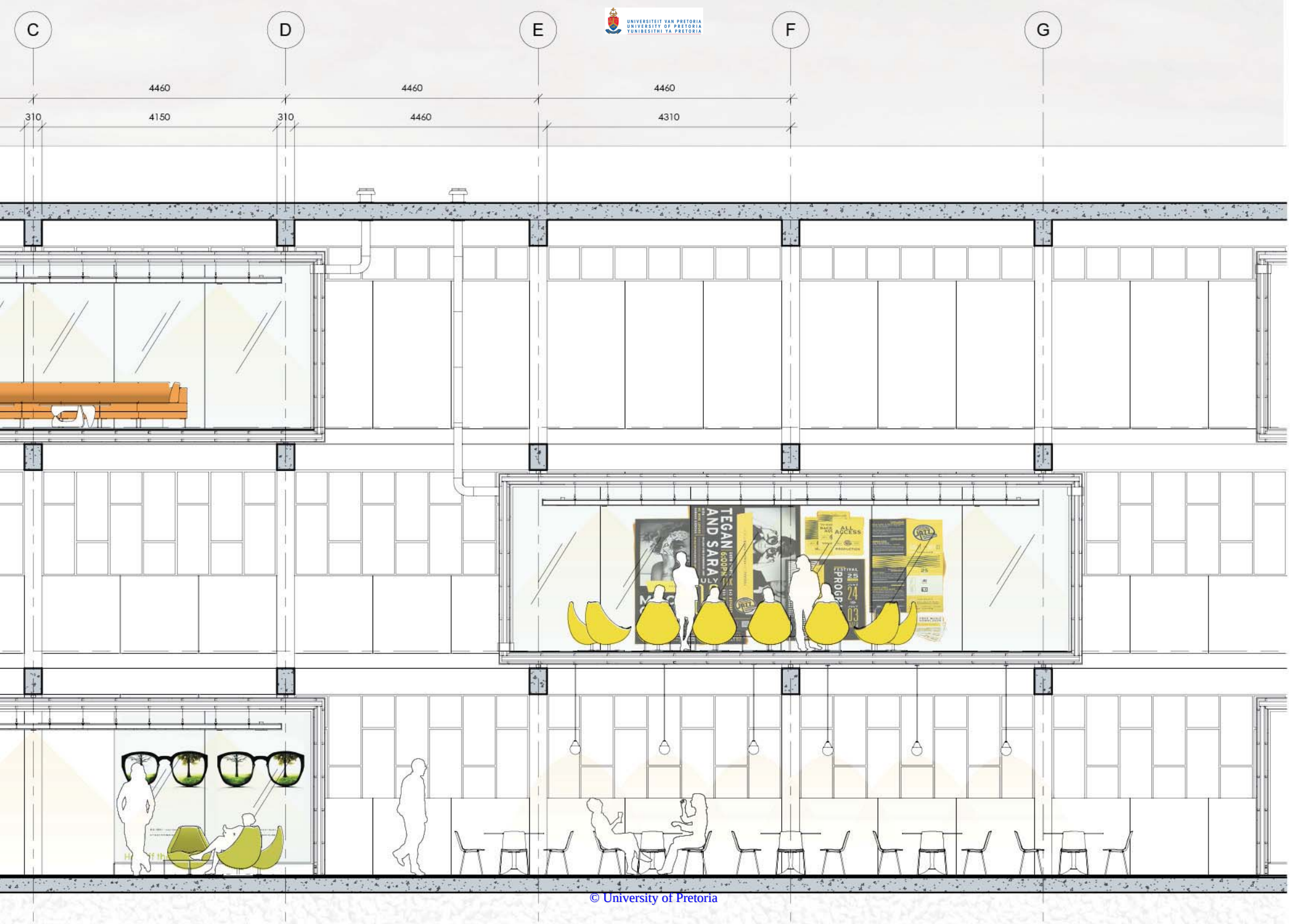


SECTION 1-DD
SCALE 1:100

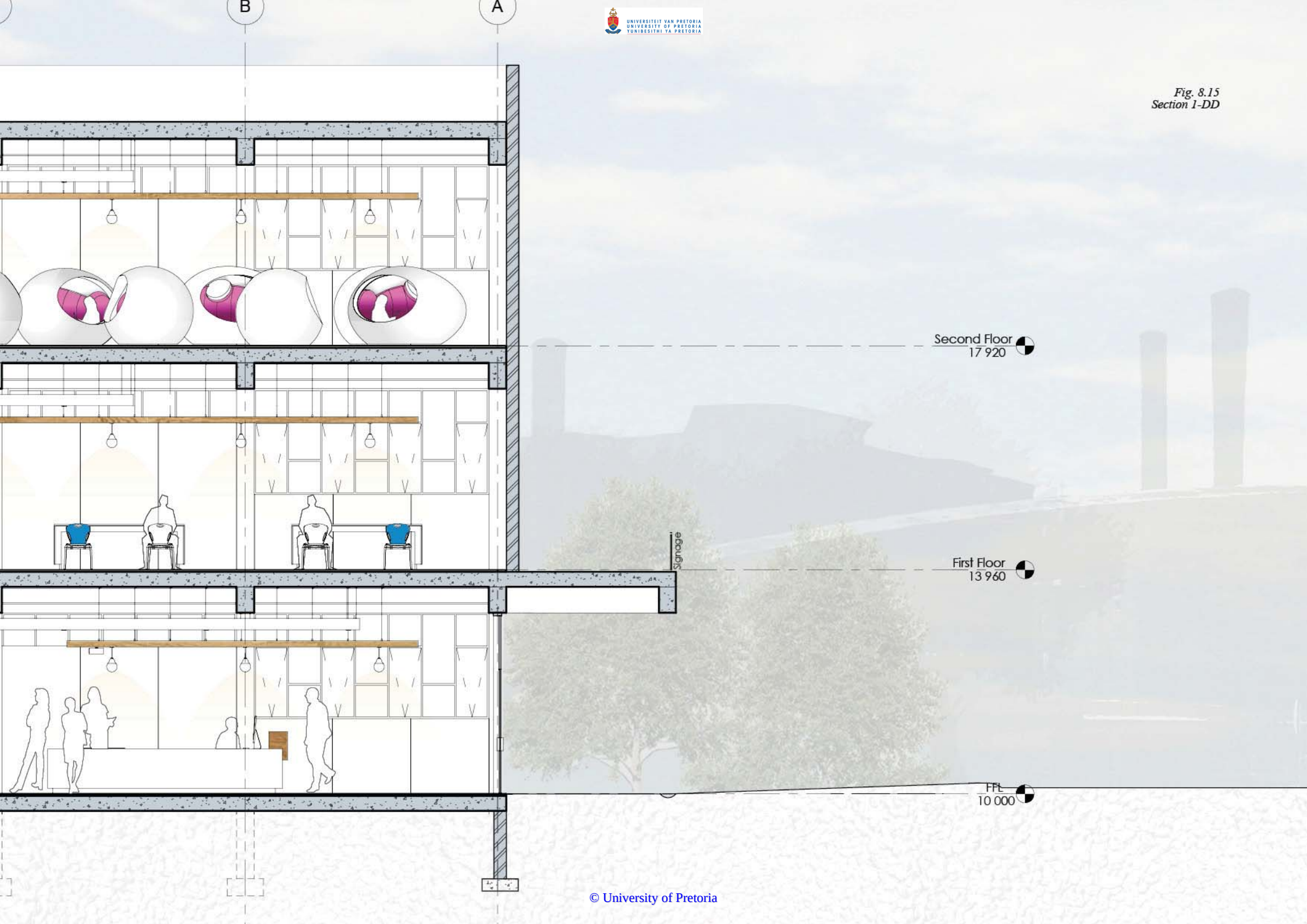


Fig. 8.15
Section 1-DD

Detail: Meeting Pod

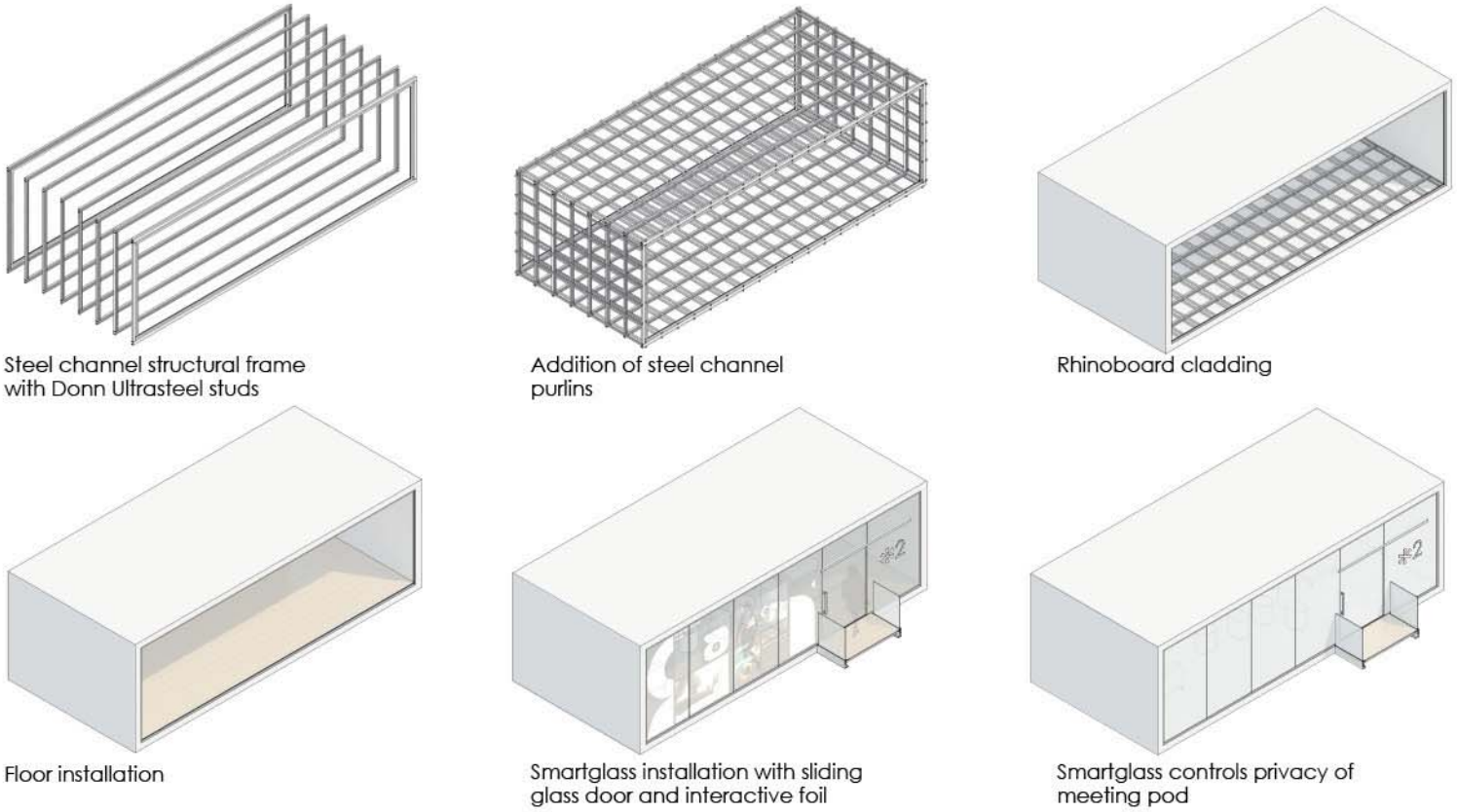


Fig. 8.16
Axonometric assembly drawings of meeting pod

Fig. 8.17
Materials and palette: Meeting pod

Steel

Gyproc Rhinoboard

Duracoustic acoustic floor underlay

Rhoms laminated wood in Canyon Maple finish

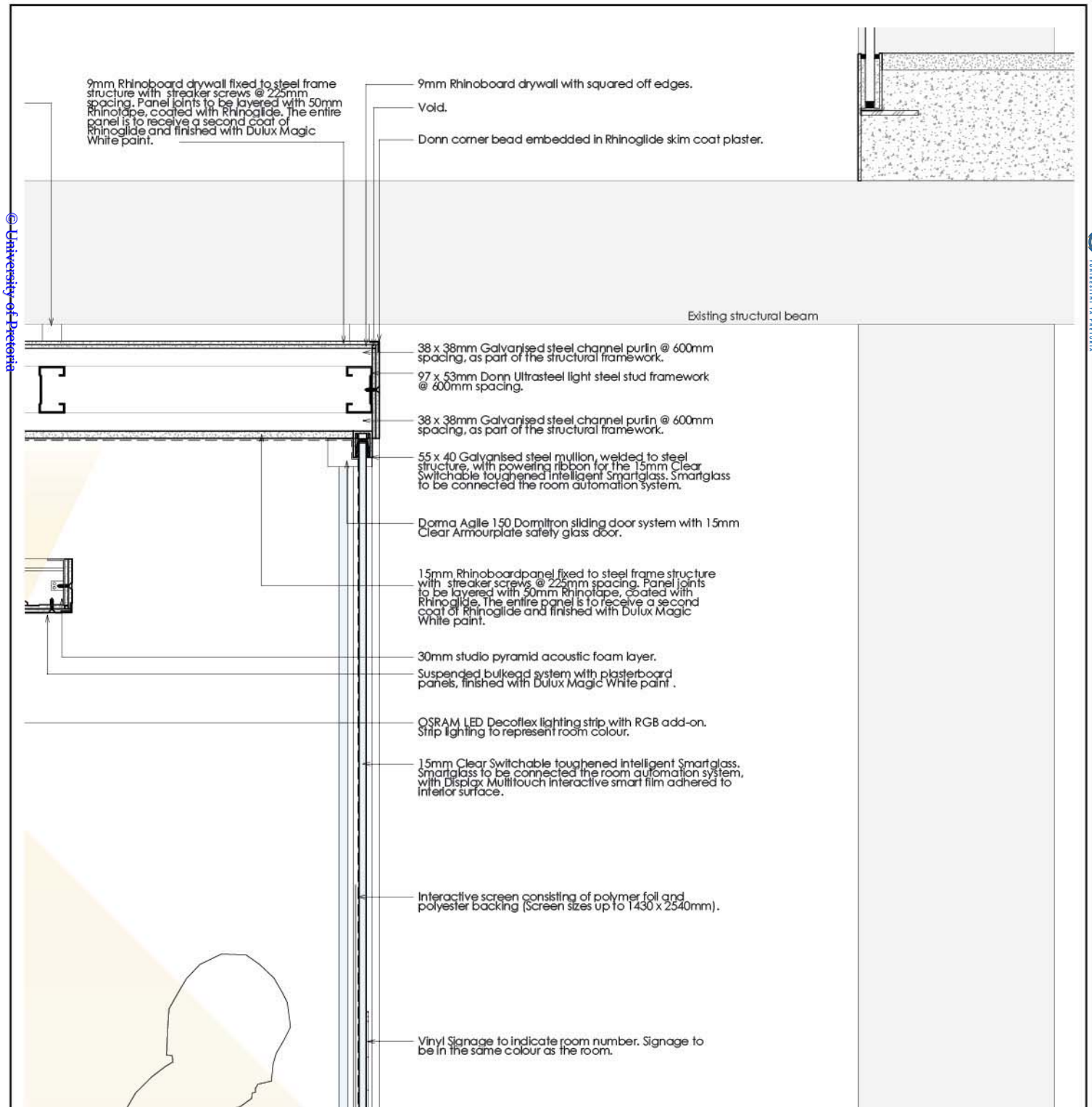
Glass

Displax interactive touch screen foil

Side elevation

Front elevation

Fig. 8.18
Elevations of meeting pod showing basic dimensions



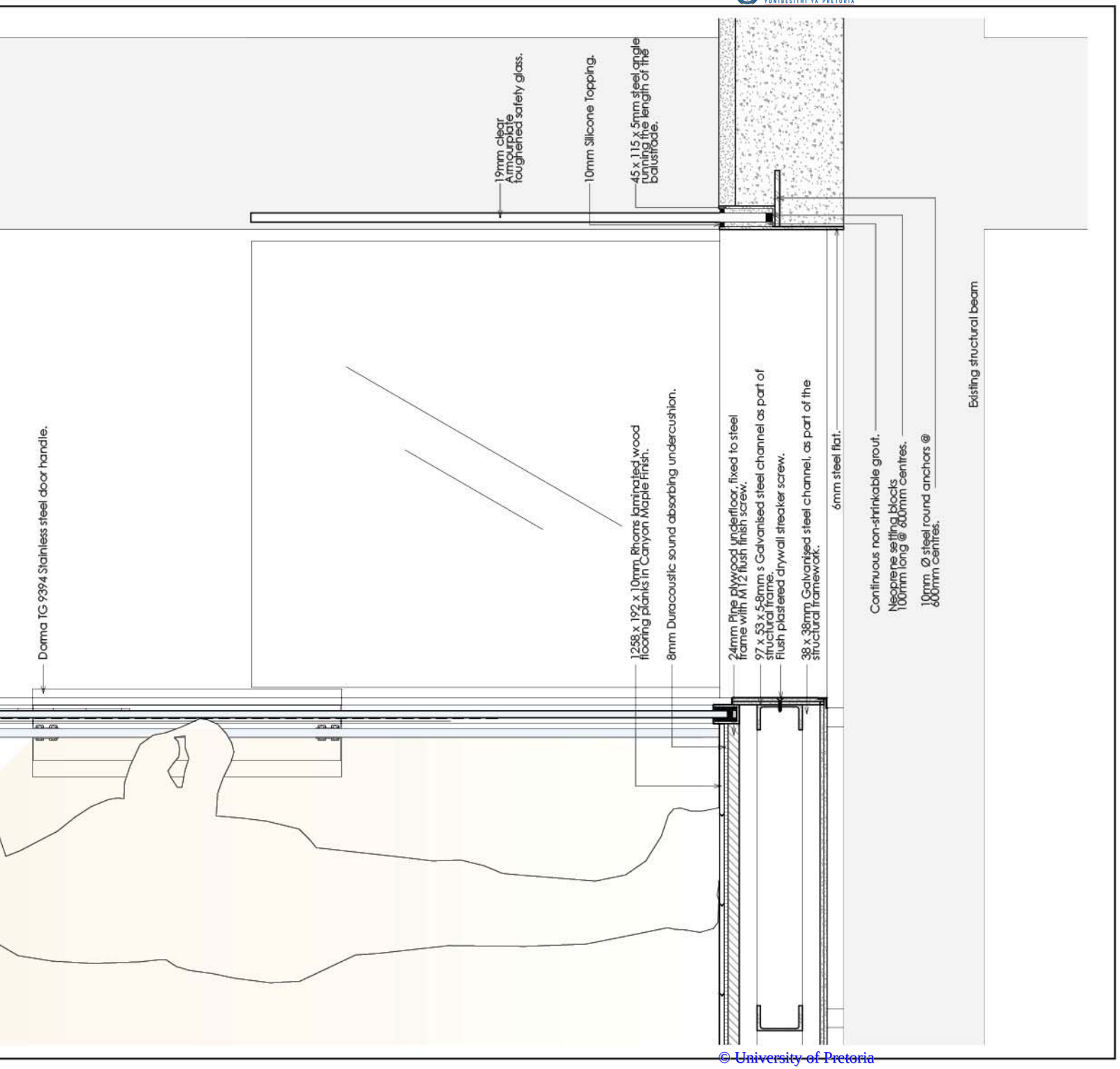


Fig. 8.19
Sectional detail through the width of the meeting pod

Detail: Reception

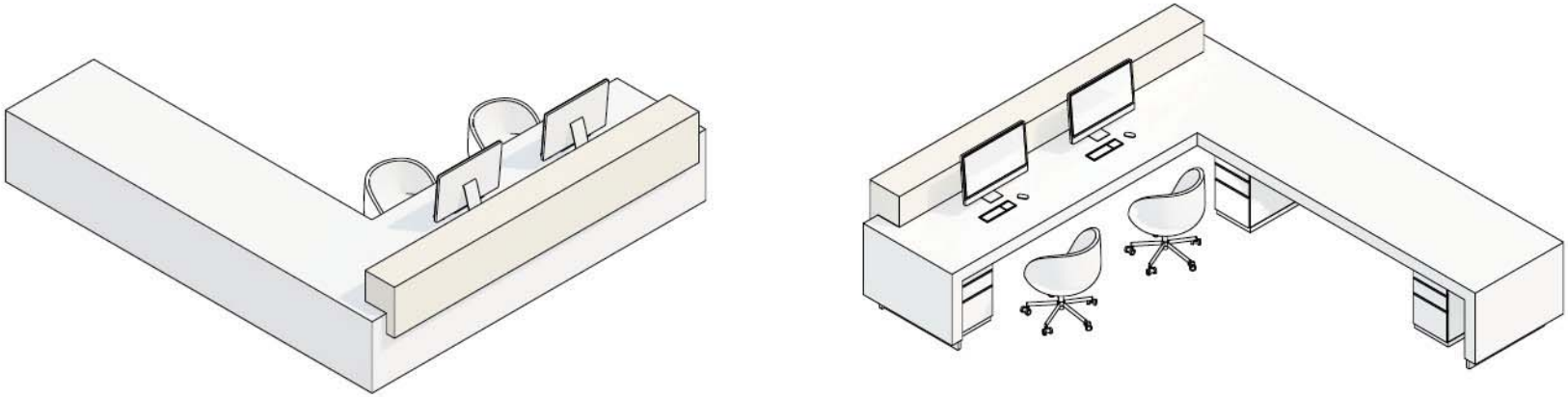


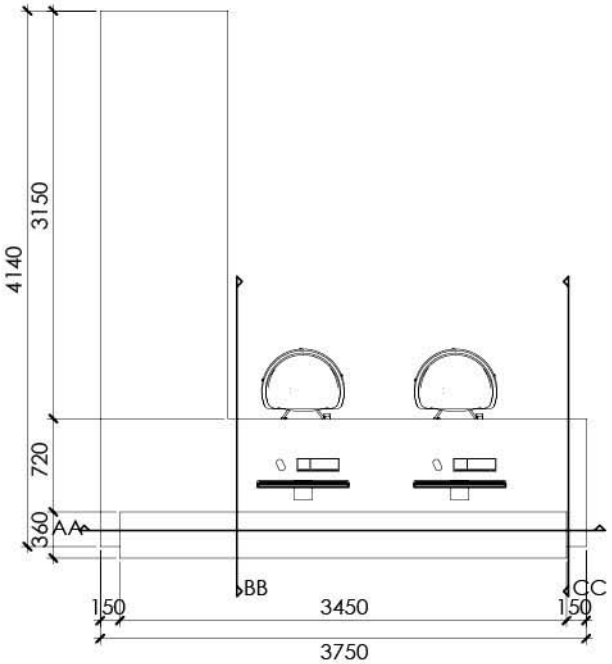
Fig. 8.20
Axonometric illustration of reception desk

Fig. 8.21
Materials and palette: Reception desk

Supawood

Corian solid surface material in Designer White

Rhoms laminated wood in Canyon Maple finish



Plan view

Front elevation

Fig. 8.22
Plan and elevation of reception desk showing basic dimensions

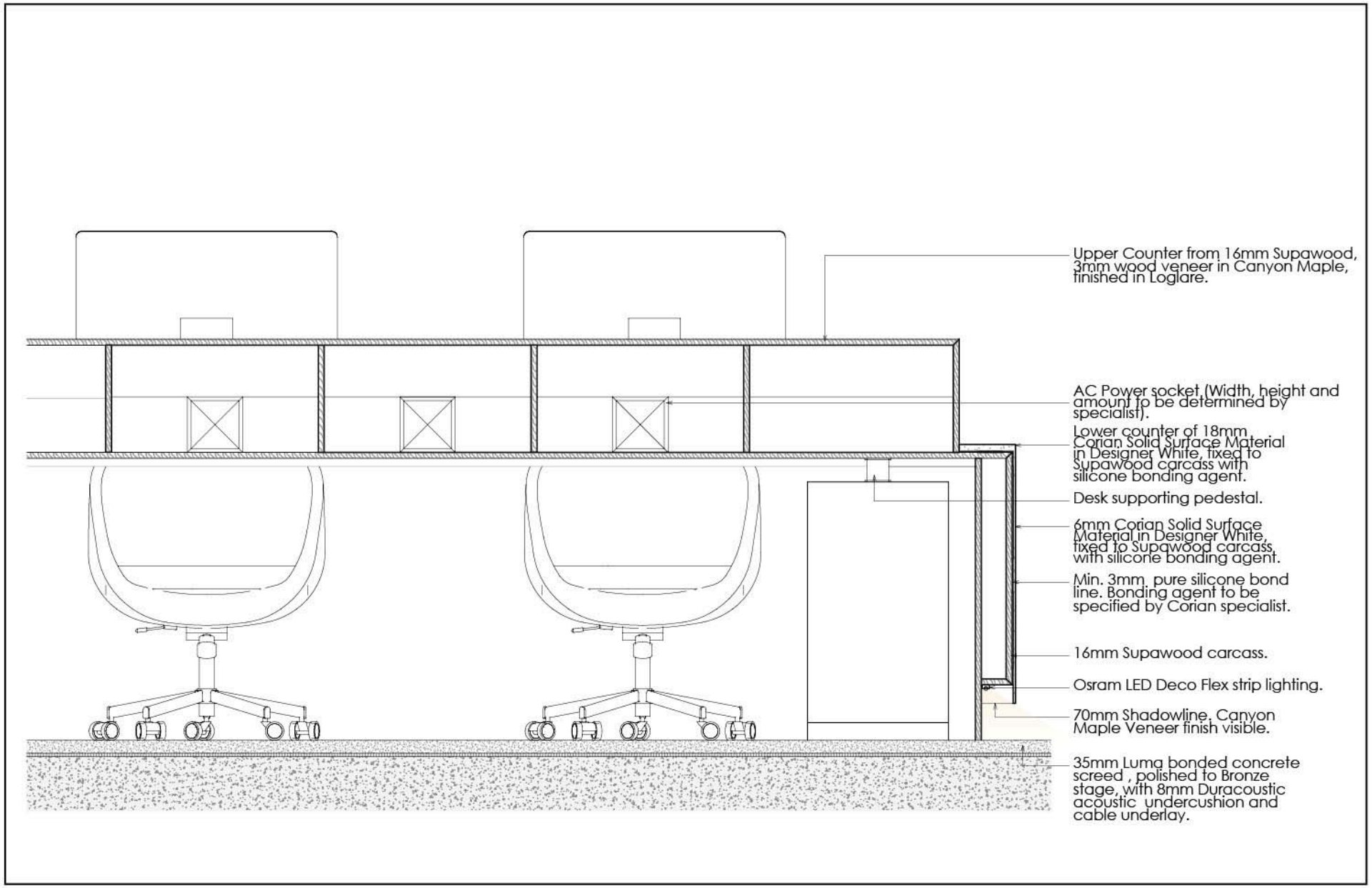


Fig. 8.23
Section - AA: Reception

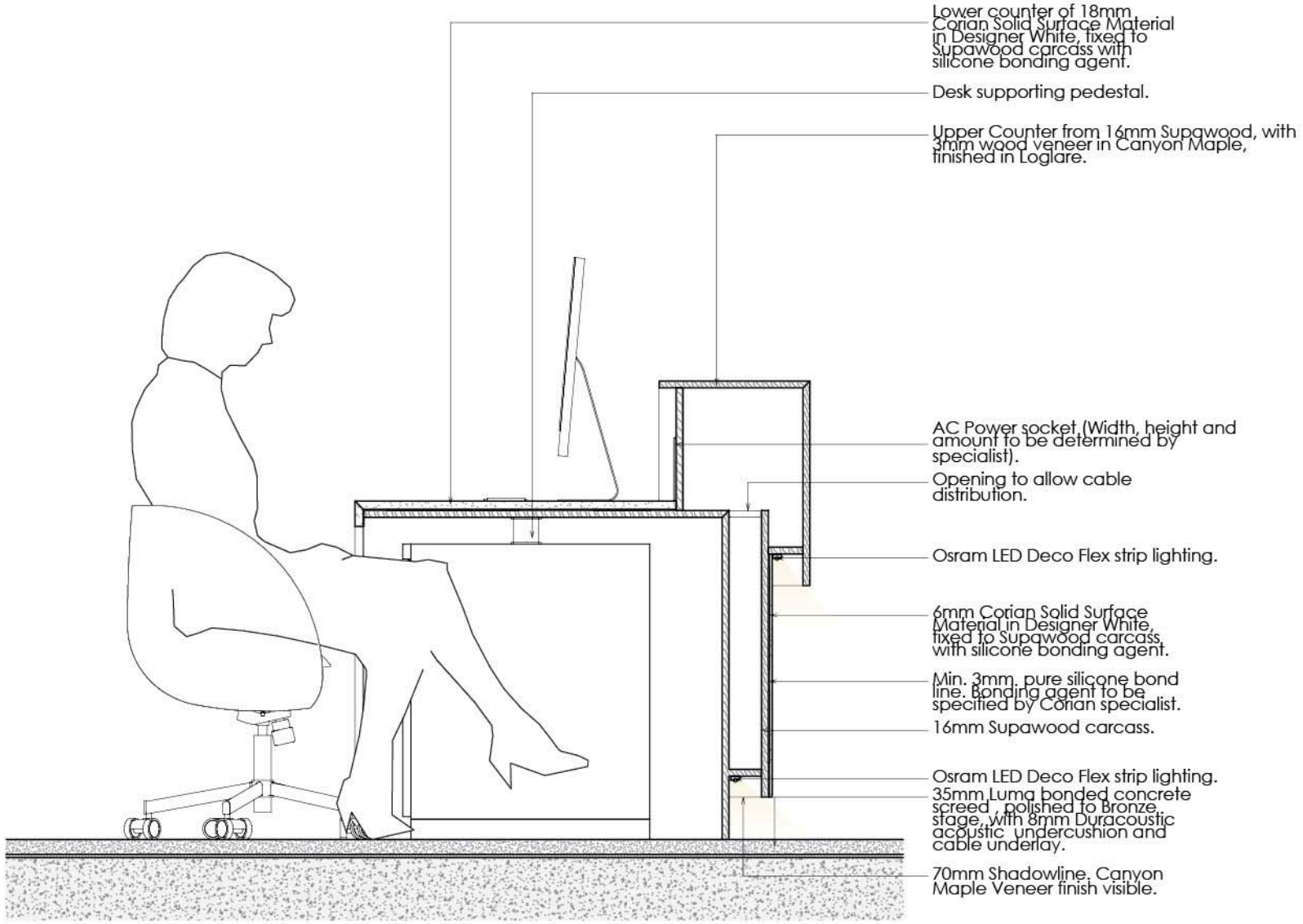
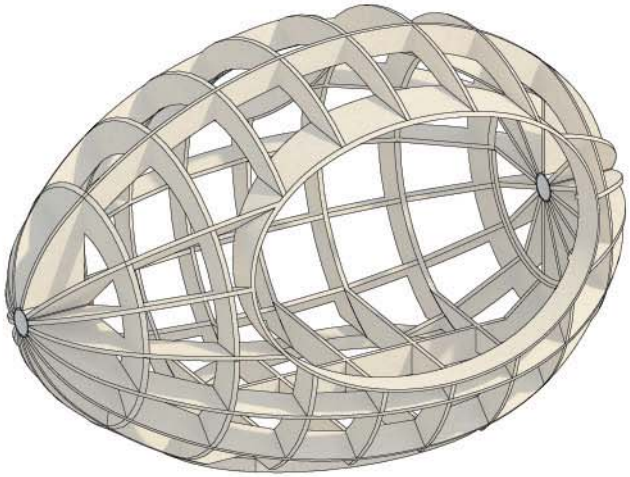
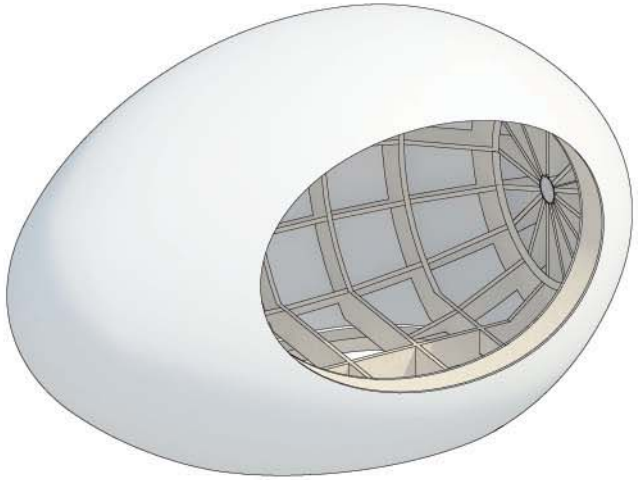


Fig. 8.24
Section - BB: Reception

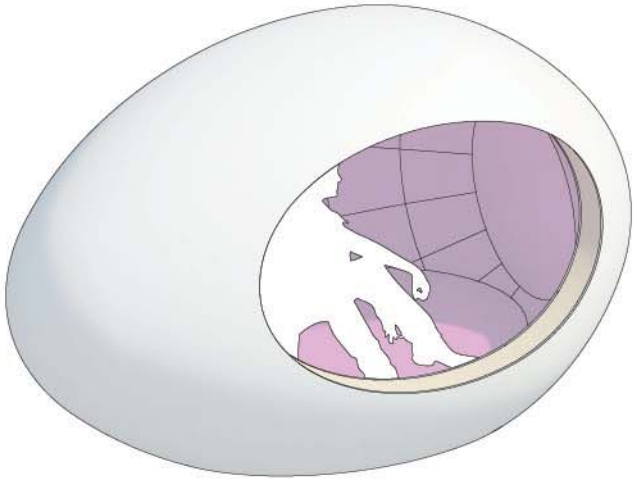
Detail: Reading Egg



Interlocking carcass structure



Exterior and interior cladding



Upholstered inserts installed

Fig. 8.25
Axonometric assembly drawings of reading egg assembly

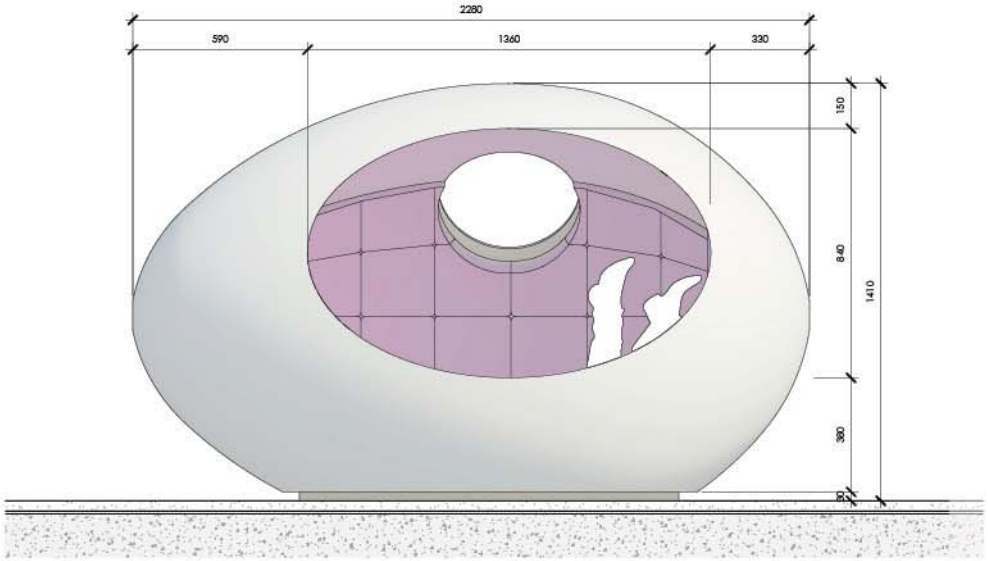
Fig. 8.26
Materials and palette: reading egg

Supawood

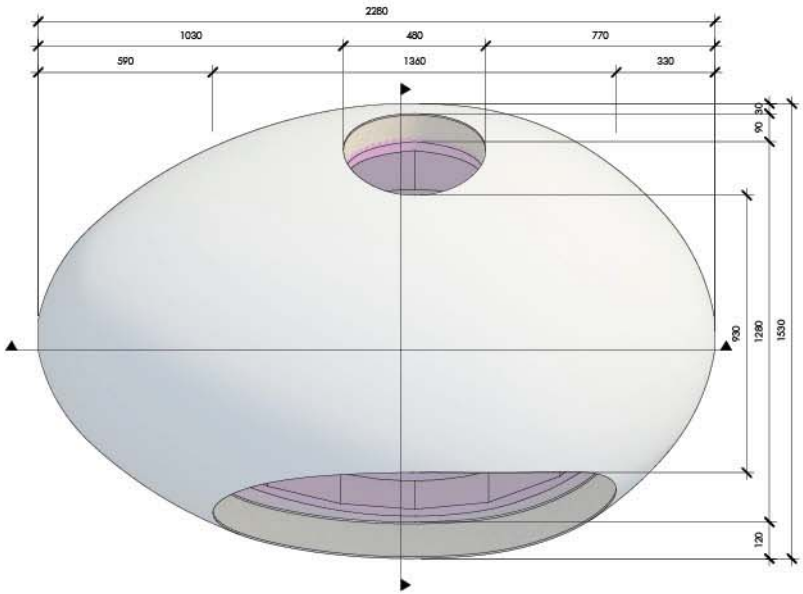
Polycarbonate (PC) in Opal White U068

Home Fabrics Express range fabric in Magenta

Fig. 8.27
Elevations of reading egg with basic dimensions



Front elevation



Plan View

Fig. 8.28
Section through reading pod from the front

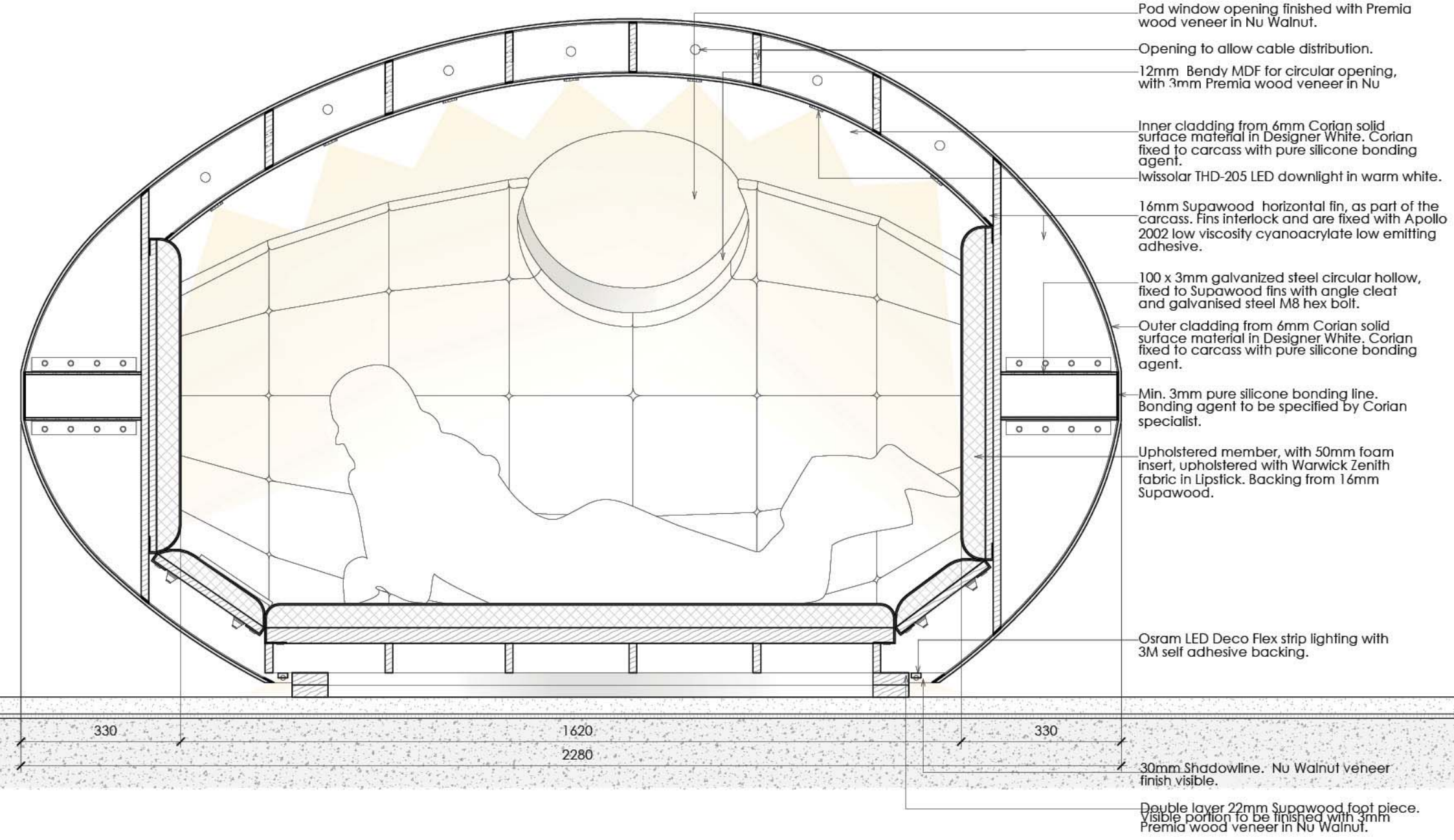
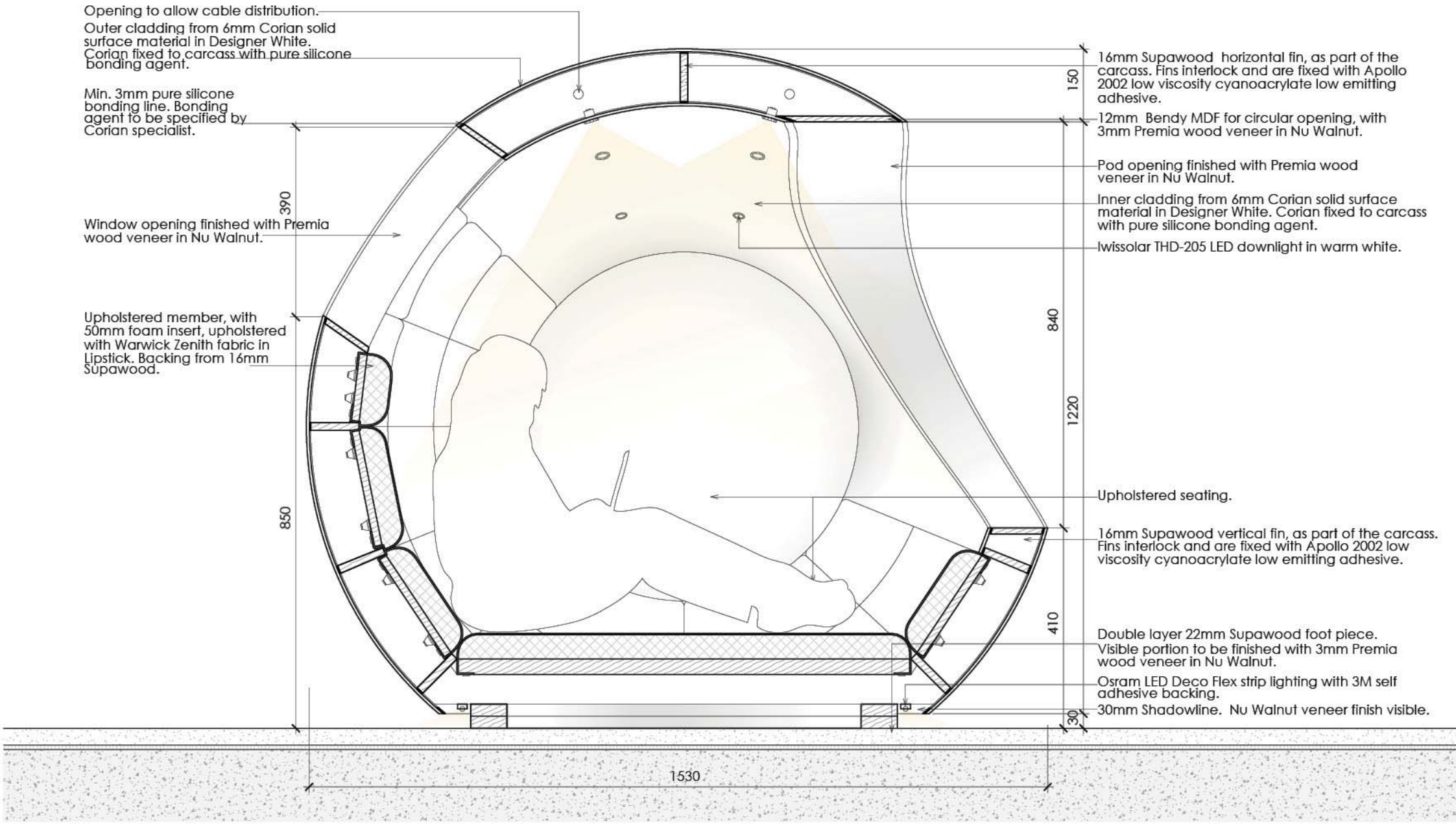


Fig. 8.29
Section through reading pod from the side



chapter 09

ADDITIONAL TECHNICAL INFORMATION

9.1 Service Reticulation

As discussed in Chapter 3, the existing services enter the building through the skin, and do not penetrate or intervene in the structural components. Electrical distribution and plumbing are surface mounted and exposed. This makes the service distribution very flexible for future alteration or adaptation.

The approach toward the service distribution thus retains the approach that was taken when the building was initially designed. Services are to be reconfigured to suit the new programme of the building, but will still be surface mounted.

Regarding the building interior, electrical distribution will be done mainly by means of designed cable trays mounted to the ceilings. This will supply most lighting systems and network equipment with power. Cable infrastructure is also embedded in the new applied floor finishes. This will supply power to the meeting pods, study area and individual reading space as well as the recessed lighting systems positioned in the floor.

Electrical supply by cable trays and suspended ceilings

Wet services surface mounted to the exterior

Interior

Exterior

Electrical supply to activities by floor distribution.

Fig. 9.1
Basic distribution of services

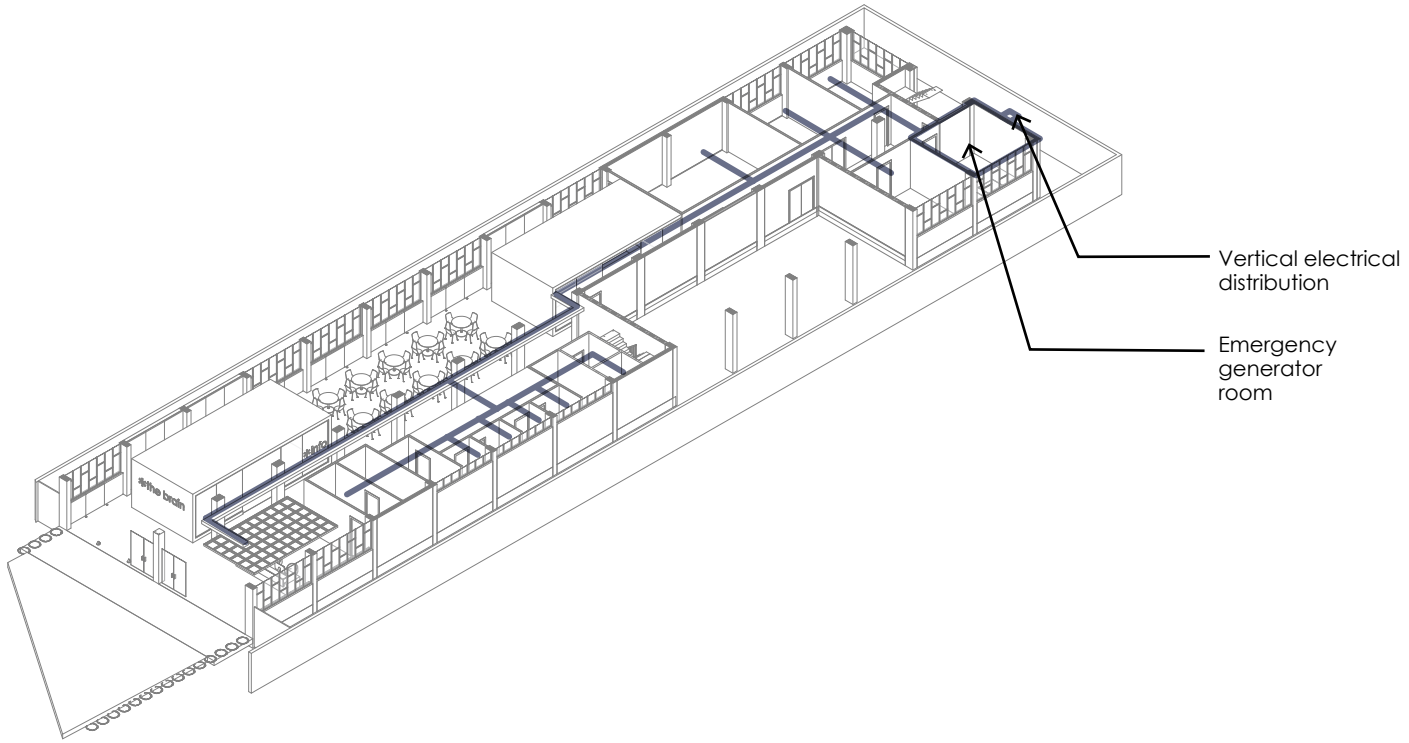
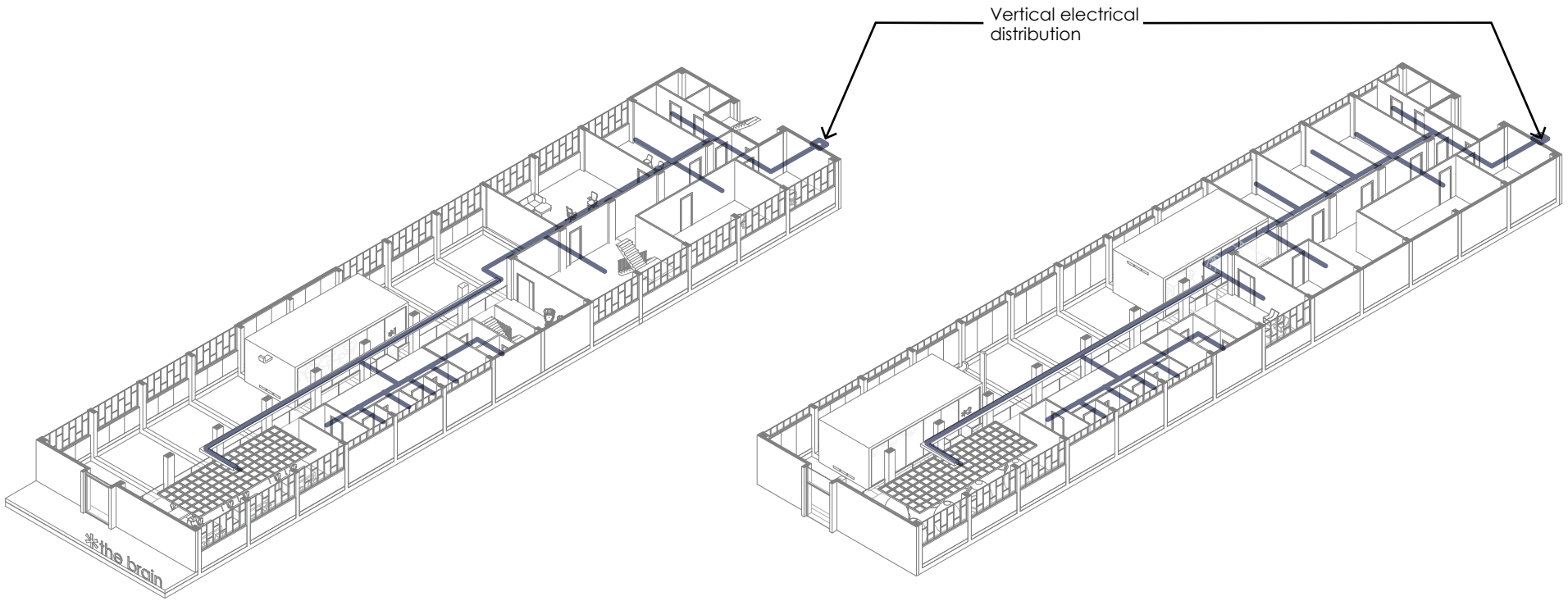


Fig. 9.2
Electrical distribution



First floor

Second floor

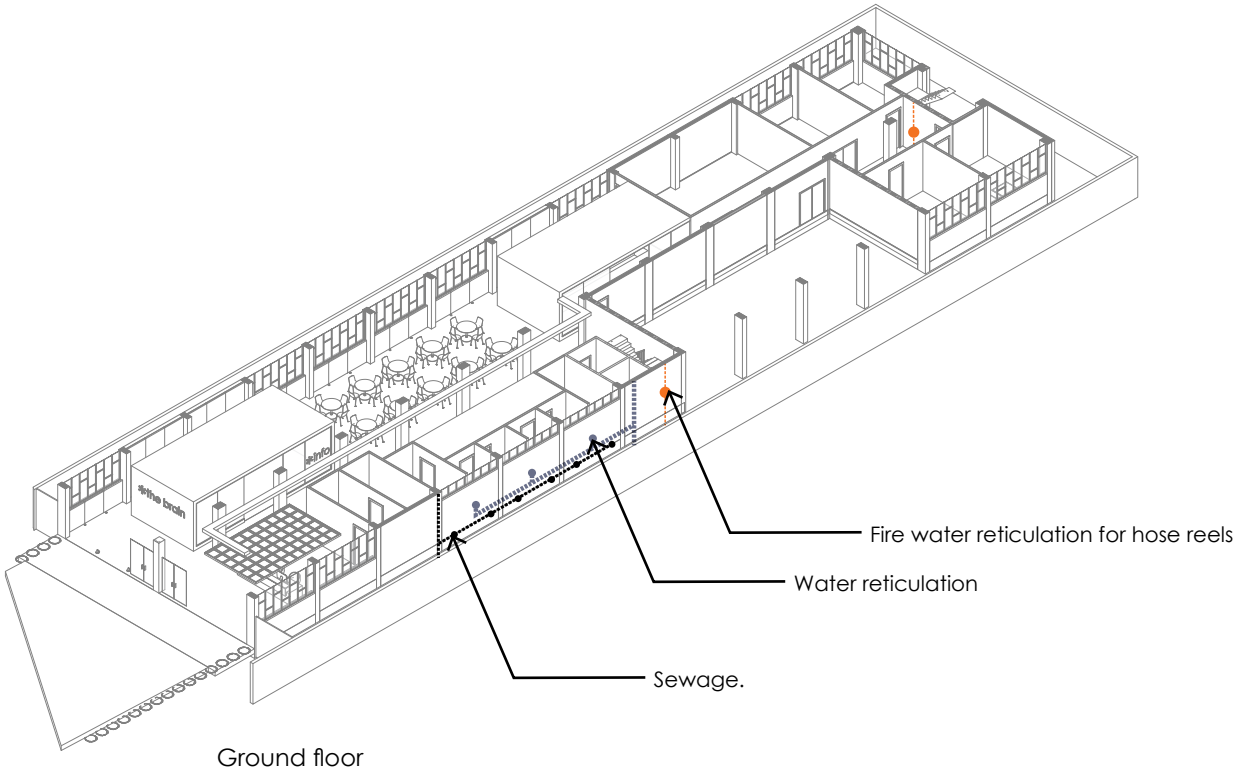
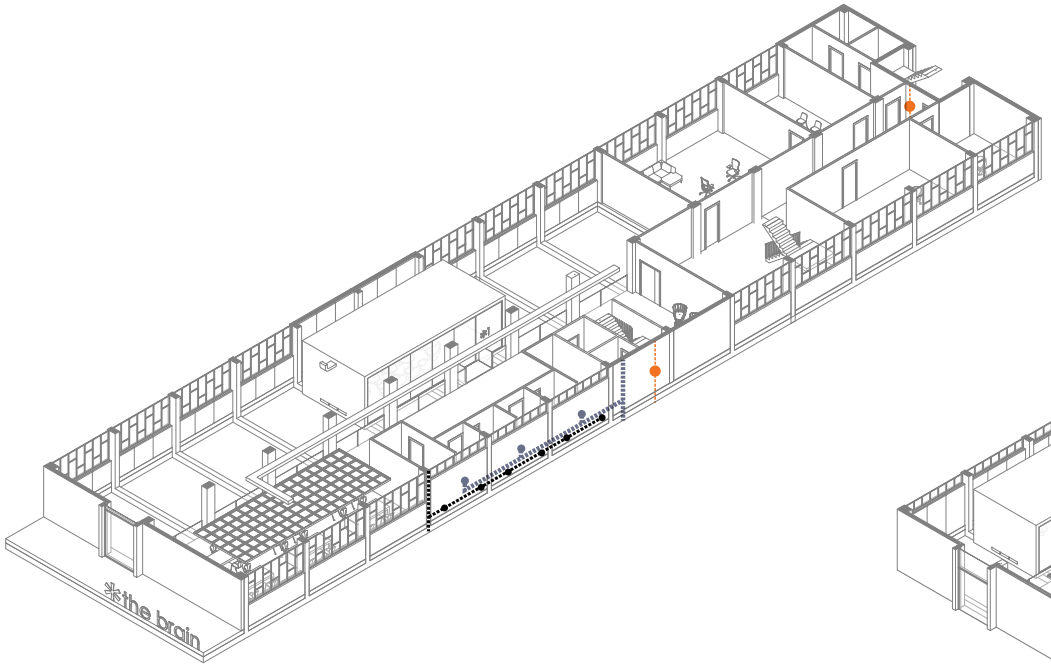
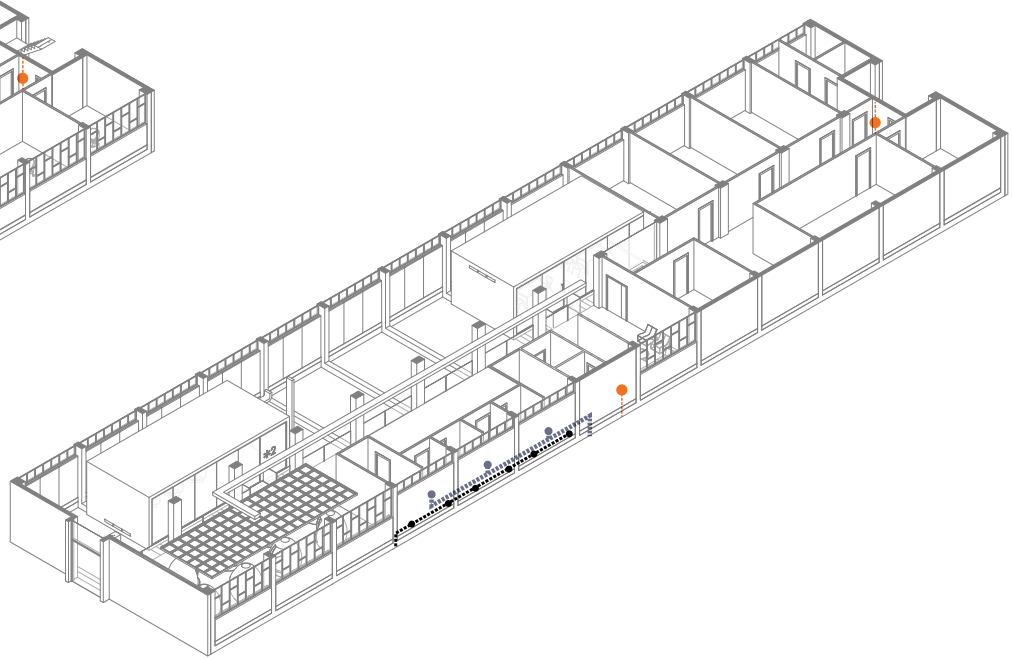


Fig. 9.3
Wet service distribution



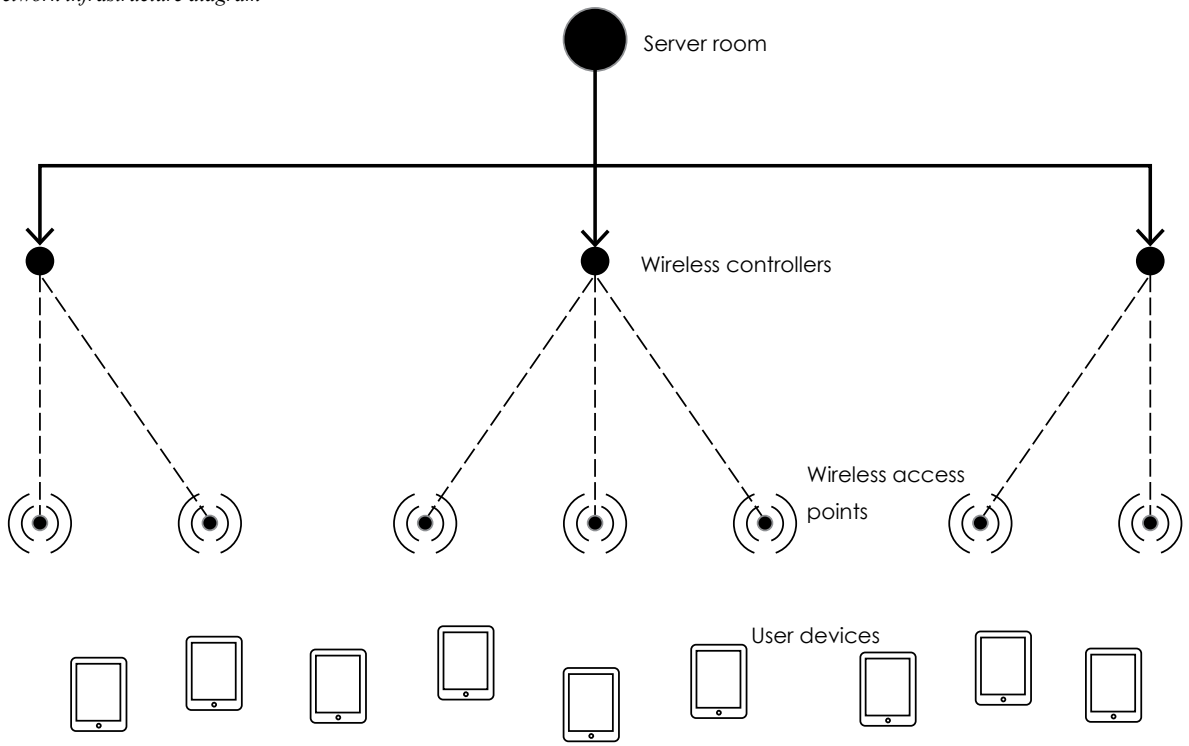
First floor



Second floor

9.2 Network and Data Configuration

Fig. 9.4
Network infrastructure diagram



The server room houses the network and internet access facilities. Hardware is kept in 600 x 1070 mm enclosures. The room must be kept dust free and requires a stand-alone A.C. unit.

One wireless controller is required per floor, connected to the server room by a cable system. The size of the wireless enclosure is approximately 440 x 440 mm.

These points are connected to the wireless controller by a POE (Power Over Ethernet). The enclosure size of the access points is approximately 200 x 200 mm. Multiple access points need to be placed on each floor to ensure consistent wifi coverage throughout the building. These are to be installed on the designed cable trays. The network can then be accessed by devices such as iPads and Kindles. Additionally, the devices control the room automation systems that are located in the meeting pods and act as a mediator between the interactive wall surfaces located in the meeting pods and the processing unit located in the server room.

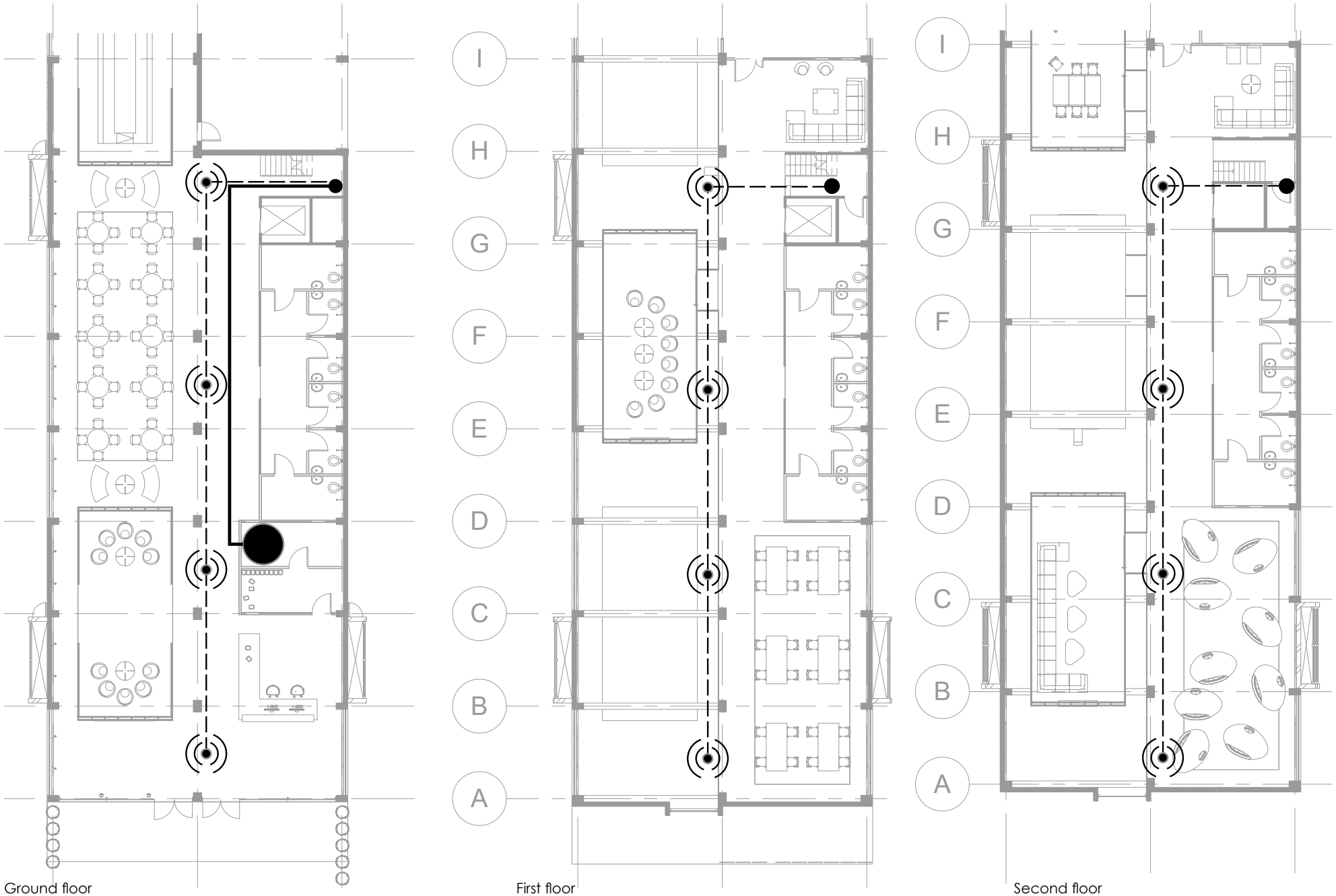


Fig. 9.5
Network infrastructure placement in building interior

9.3 Ventilation Strategies

The intervention provides one large open space, created by the atriums and the partial demolition of the floor structure. The addition of trombé assisted solar chimneys encourages air flow through the building.

The meeting pods however, are closed spaces. It is therefore proposed that these areas are ventilated by an extraction ventilation strategy as well, which draws in and filters air from the interior of the building, and releases the spent air to the exterior of the building again The meeting pods are equipped with a solar powered extraction fan, in order to facilitate air flow from the building interior, through the meeting pod, and ultimately releasing this air to the building exterior.

The server rooms need to be temperature controlled. It is therefore proposed that the two server rooms are equipped with stand-alone air conditioning units.

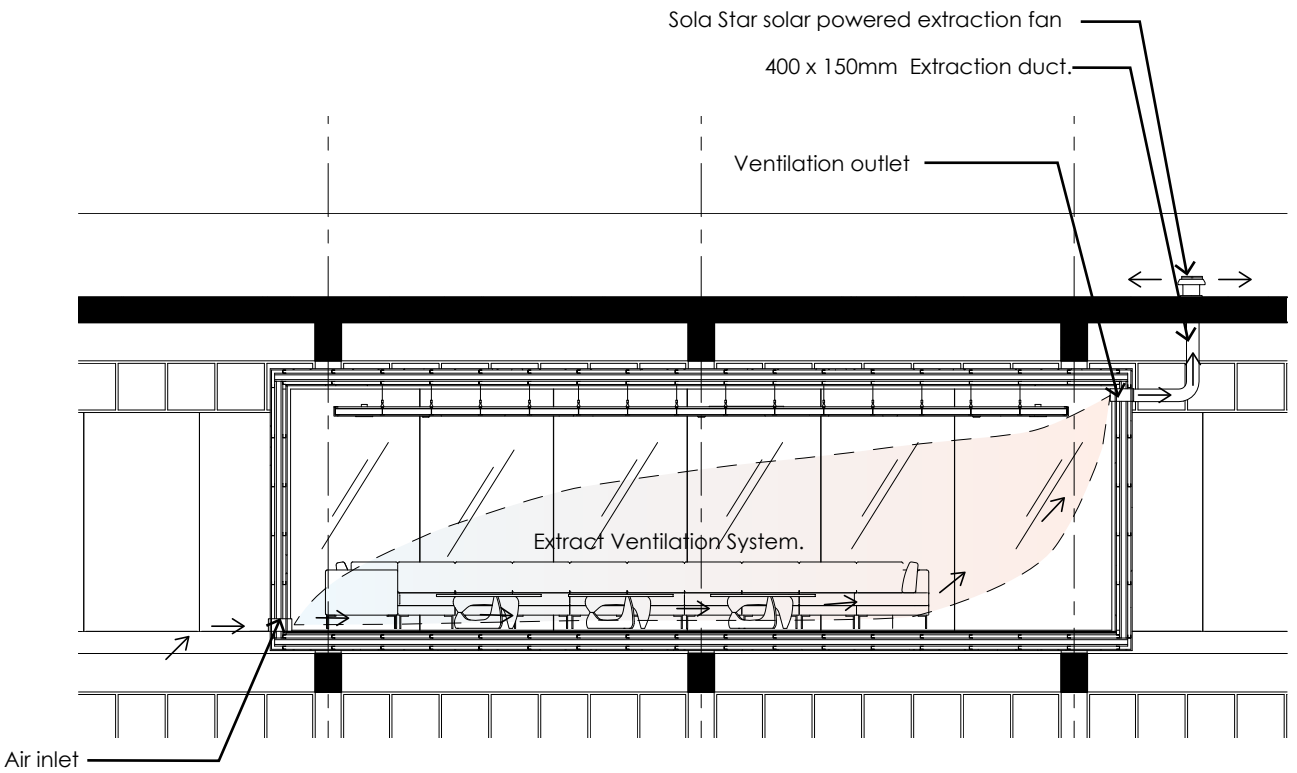
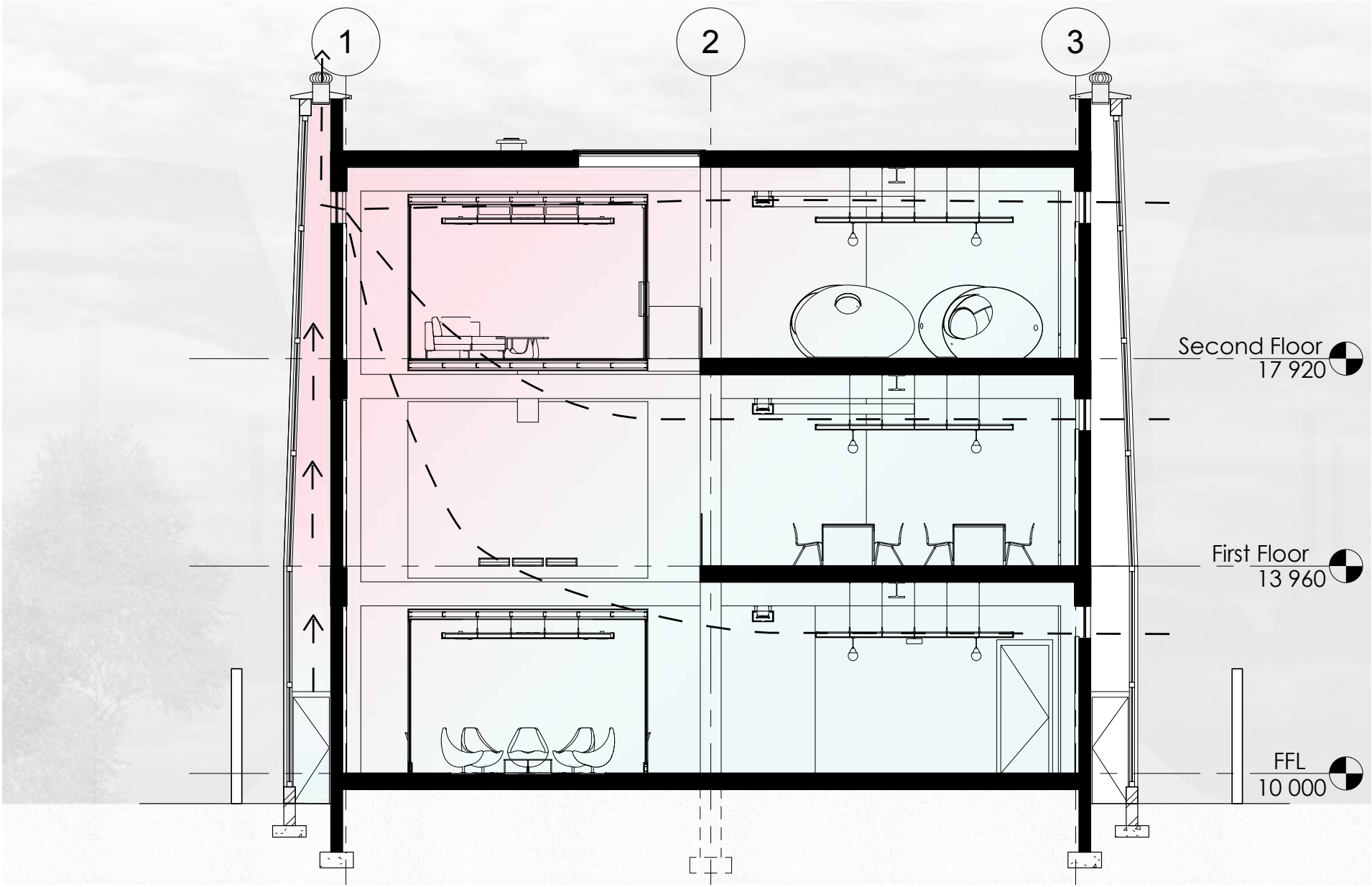


Fig. 9.6
Sectional illustration of the ventilation strategy as specified for the meeting pods

Fig. 9.7
Sectional illustration of the applied ventilation strategy to the larger building interior

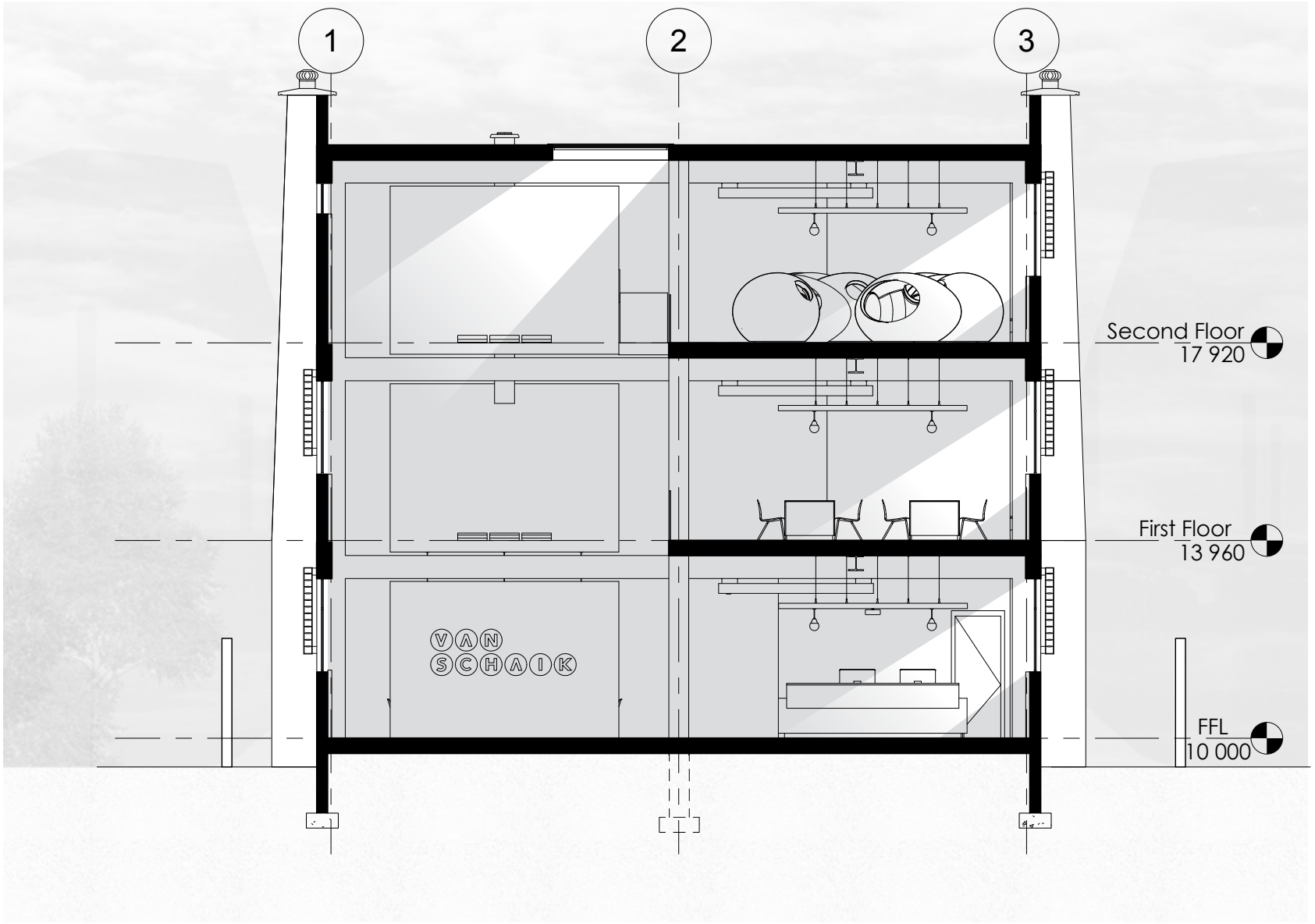


9.4 Natural Lighting Strategy

As part of the design approach, it is proposed to provide additional daylight penetration into the building by installing skylight systems. The proposed skylight contains an electronically switchable glass panel, which can be controlled to allow more or less natural light into the building as needed. The skylight system also contains argon-gas-filled cavities, which act as insulation and prevent heat gain inside the building. Additionally, the existing windows are equipped with adjustable solar louvres mounted to the exterior surface to prevent heat gain in the building in the summer, and to allow heat gain in the winter. Simultaneously, the solar louvres help prevent glare.

The meeting pods are deliberately not affected by the natural daylight penetration. These units need to have a more enclosed, controlled environment suitable for their specific task of displaying large-scale digital media. Therefore the meeting pods have been equipped with artificial lighting systems controlled by the room automation system.

Fig. 9.8
Sectional illustration of the applied natural lighting strategies



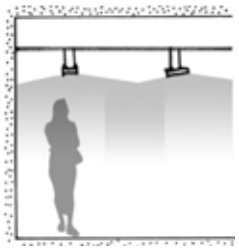
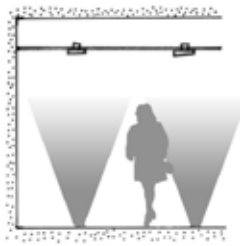
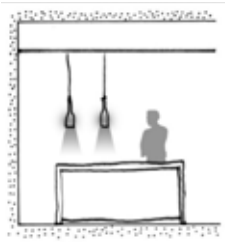
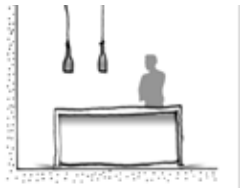
9.5 Artificial Lighting Strategy

The choice of the artificial lighting source depends on the lighting task and the architectural intention of a design. Various layers of artificial lighting is introduced, which includes ambient, task, focal and decorative layers. This also plays a vital role in energy efficiency, as different layers are placed on different circuits that can be switched on and off as desired.

The lamp types have been selected according to their energy efficiency. Halogen and LED technology were mainly selected as these lamp types are some of the most efficient on the current market.

The DALI (Digital Addressable Lighting Interface) system from Osram has also been incorporated in the artificial lighting scheme. The system provides lighting controls, sensors, operating devices and electronic control gears that all work together with a professional interface standard. This is incorporated in the room automation system for further management.

Fig. 9.9
Lamp selection and application

	Halospot - R111 Eco halogen downlight from Osram		Application: Due to the dimming properties of the lamp, the product is used in the meeting pods where direct downlight is required. The product serves as ambient lighting.	Efficacy: This lamp has a lifespan of 15000 hours and a lamp efficacy of 100 lm/W.
	LDV M 830 L12 WT LED downlight from Osram		Application: This lamp type serves as navigation lighting and task lighting throughout the building.	Efficacy: This lamp has a lifespan of 50000 hours and a lamp efficacy of 125 lm/W.
	AQUALED Floor recessed LED lamp from Osram		Application: This lamp type serves as navigation lighting throughout the building.	Efficacy: This lamp has a lifespan of 25000 hours and a lamp efficacy of 55 lm/W.
	STAR Deco Classic A LED retrofit lamp from Osram		Application: This lamp type serves as ambient and task lighting.	Efficacy: This lamp has a lifespan of 25000 hours and a lamp efficacy of 48 lm/W.
	Deco Flex LED strip light from Osram		Application: The Deco Flex strip lighting is used as ambient lighting in the meeting areas, where the RGB add-on is utilised to denote each room by its specific colour. The strip lighting is also used as accent lighting for the reception counter.	Efficacy: This lamp has a lifespan of 25000 hours and a lamp efficacy of 24 lm/W.

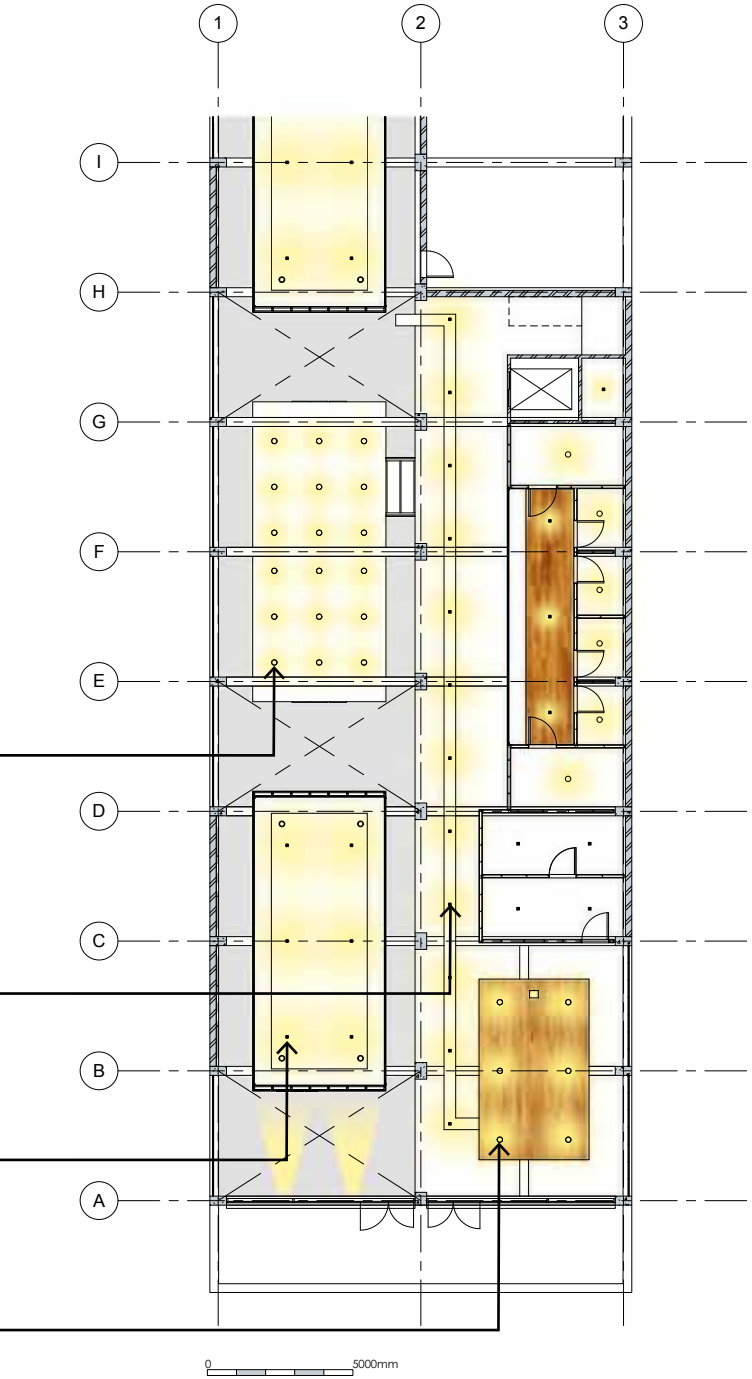
STAR Deco Classic A
LED retrofit lamp from
Osram

LDV M 830 L12 WT
LED downlight
from Osram

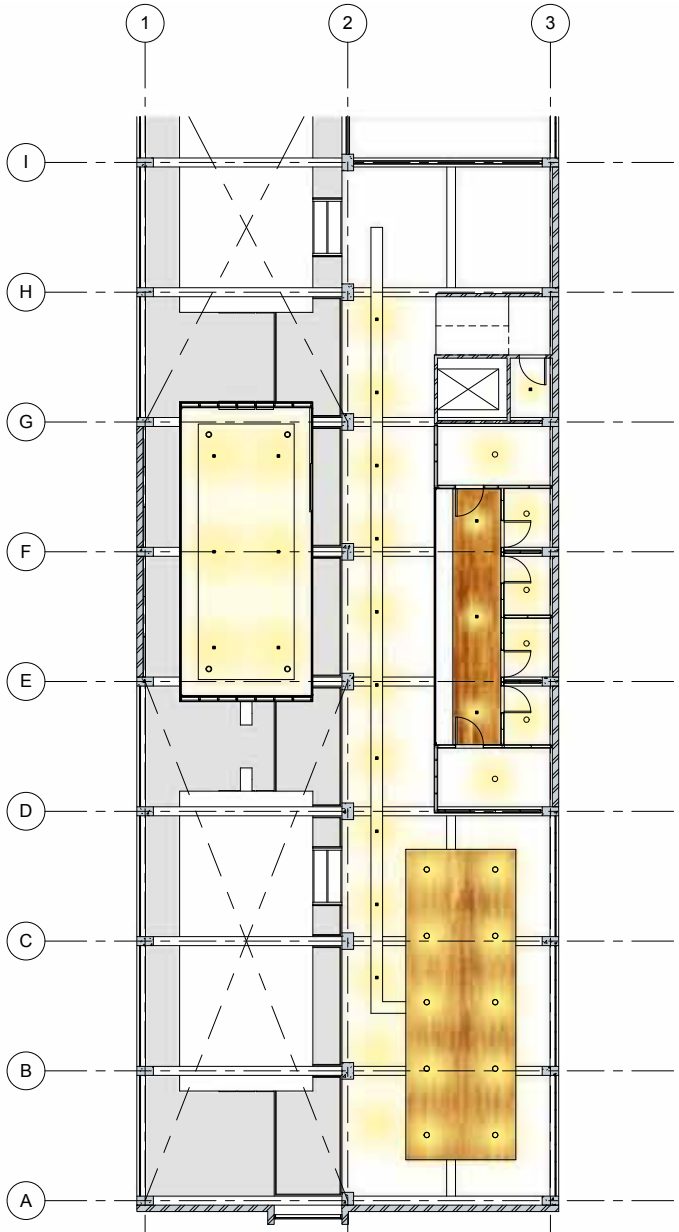
Halospot - R111 Eco
halogen downlight
from Osram

STAR Deco Classic A
LED retrofit lamp from
Osram

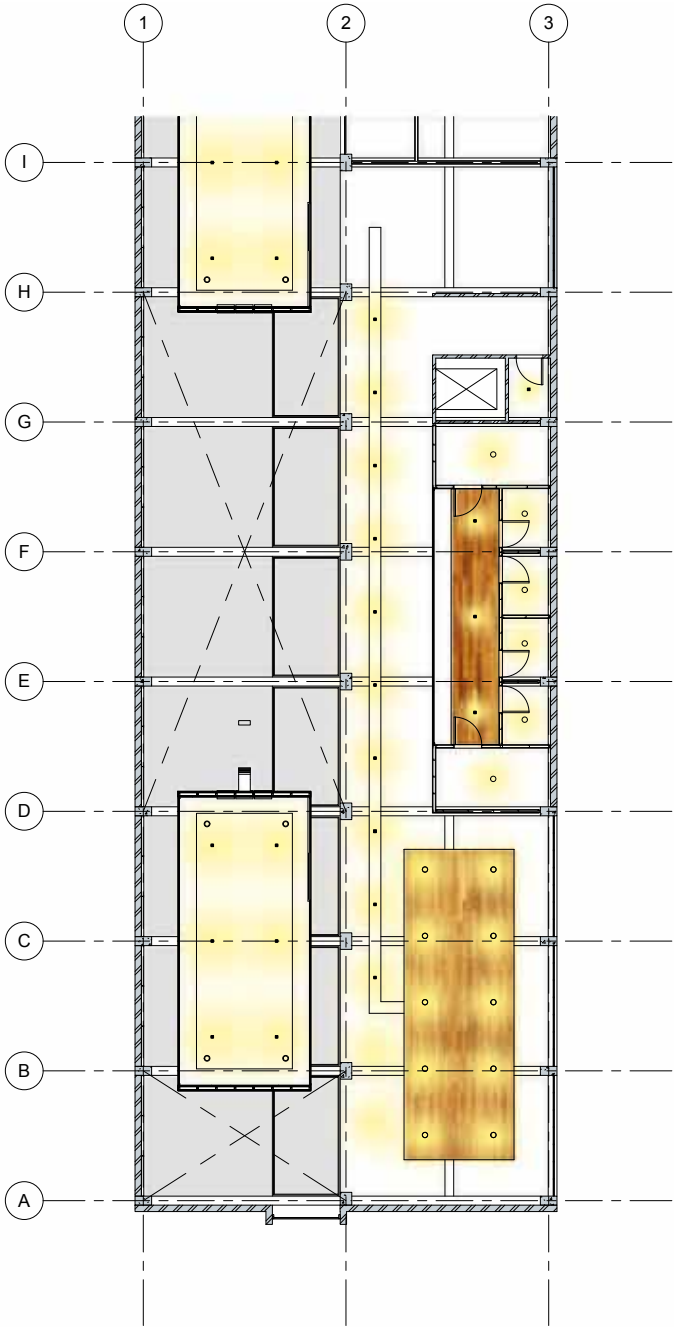
Fig. 9.10
Ceiling plans with light selection



Ground floor



First floor



Second floor

9.6 Acoustic Strategy

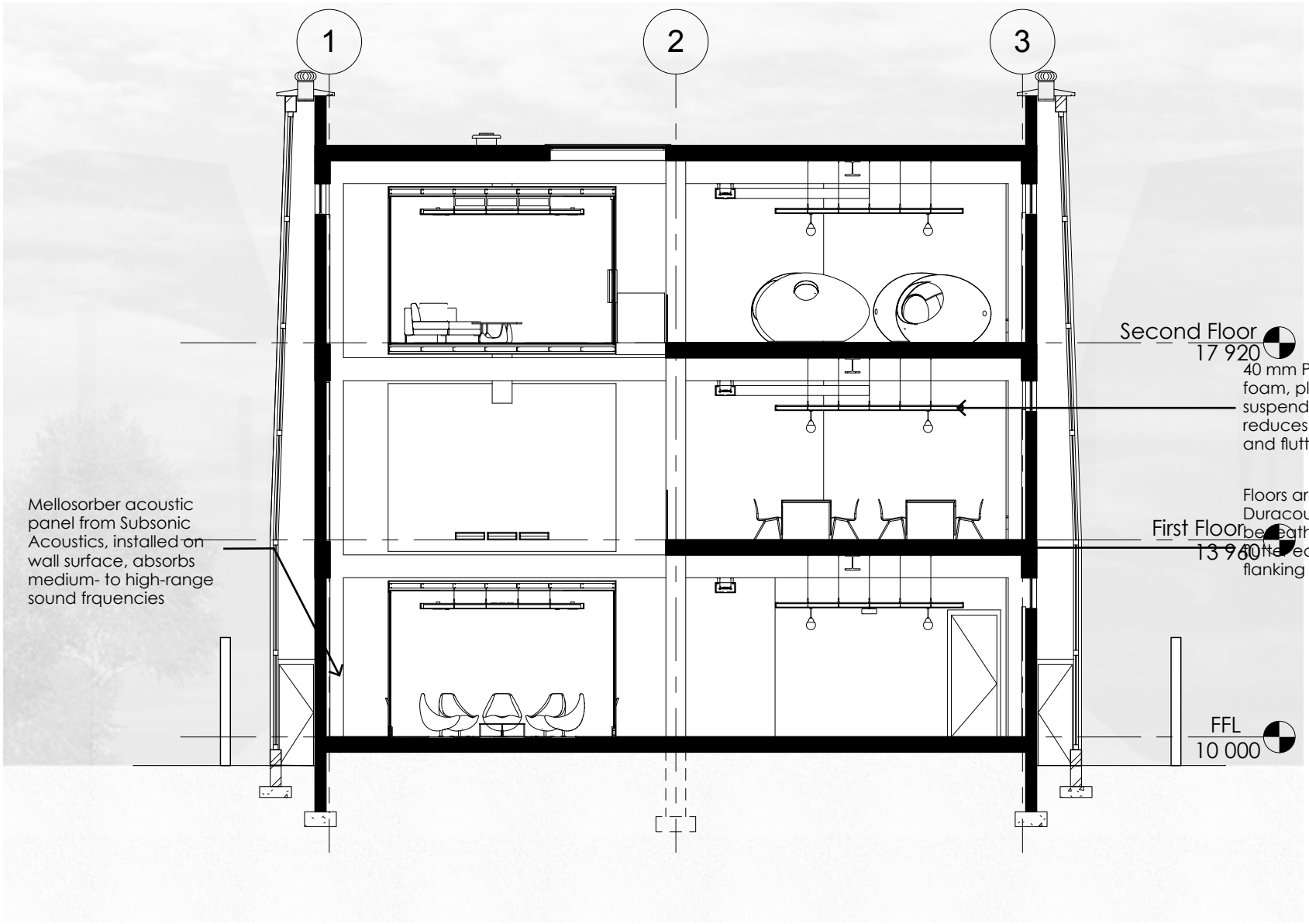
The creation of a comfortable acoustic environment in a room depends on five main factors (Maekawa, Rindel & Lord, 2011: 223):

- Any intrusive noise should be avoided
- Speech intelligibility should be satisfactory
- Music should be pleasing and have warmth
- Uniform distribution of sound throughout the room
- There should be no defects such as echoes or flutter

When the above-mentioned conditions are satisfied, the design can be seen as successful. The design scheme proposes two main types of space - the enclosed meeting spaces and the open interior of the building. The acoustic approach toward each of these spaces remains the same. In order to minimize flutter echoes, an acousitc floor undercushion installed under the floor finishes is proposed. This underlay acts a a decoupler by breaking the transmission path through the floor-ceiling assembly and prevents noise flanking from room to room. The underlay also eliminates flutters and echoes such as the clicking of heels on the floor surface.

Other acoustic considerations include the installation of absorptive panels to the exisitng walls and the placement of acoustic foam layers on top of the suspended bulkheads. These panels aid the absorption of background noise, thus reducing the reflected energy at hearing point. These installations are effective in absorbing medium to high frequencies of the sound spectrum. The selective use of plush furniture where applicable also aids in the absorption of unwanted background noise.

Fig. 9.11
Sectional illustration of the applied acoustic considerations



9.7 Fire Escape Routes

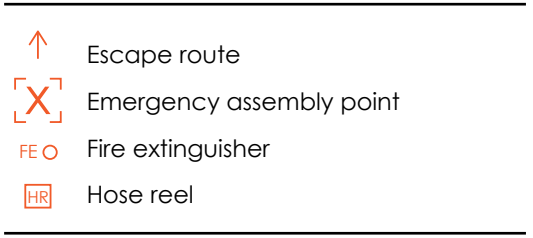
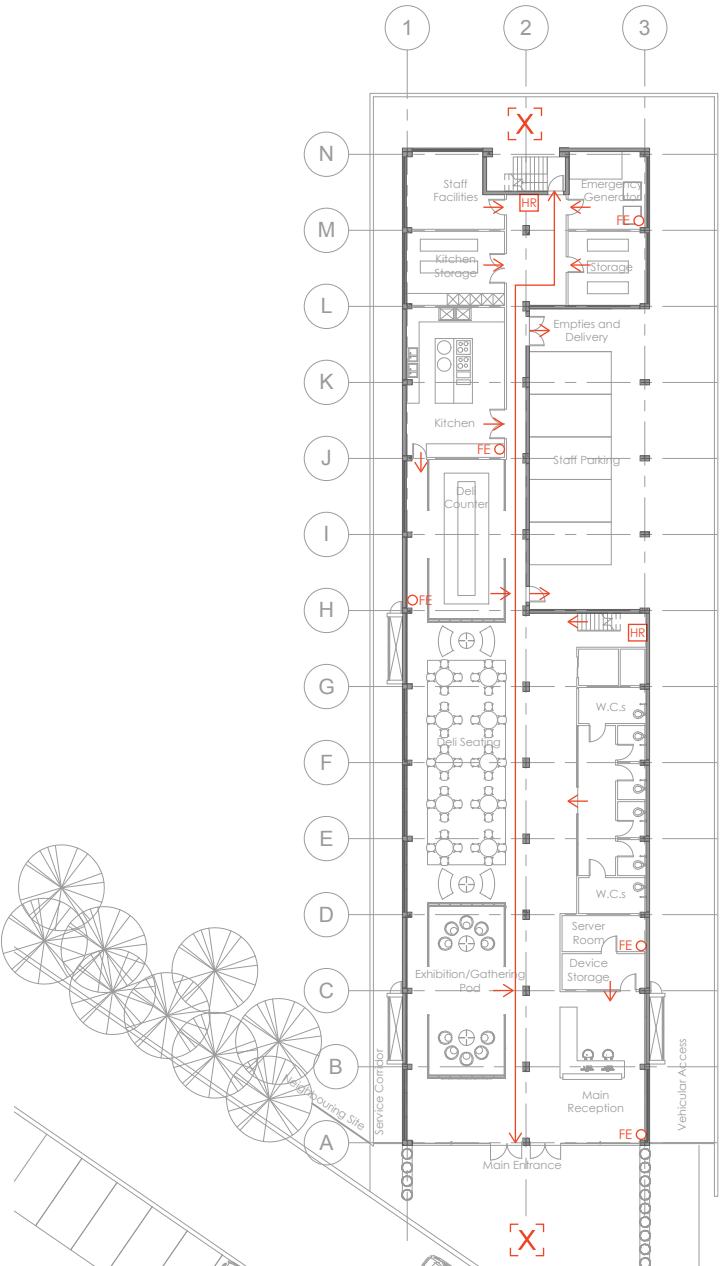
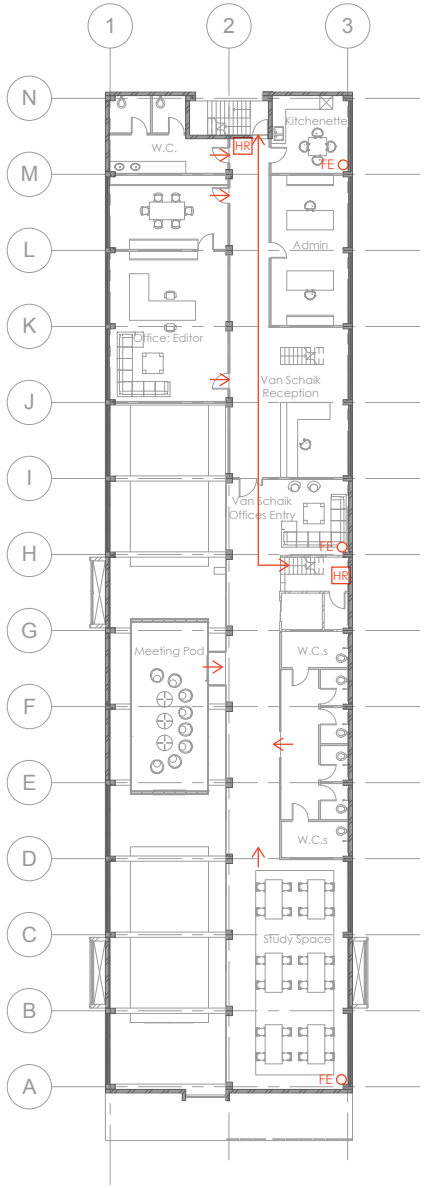


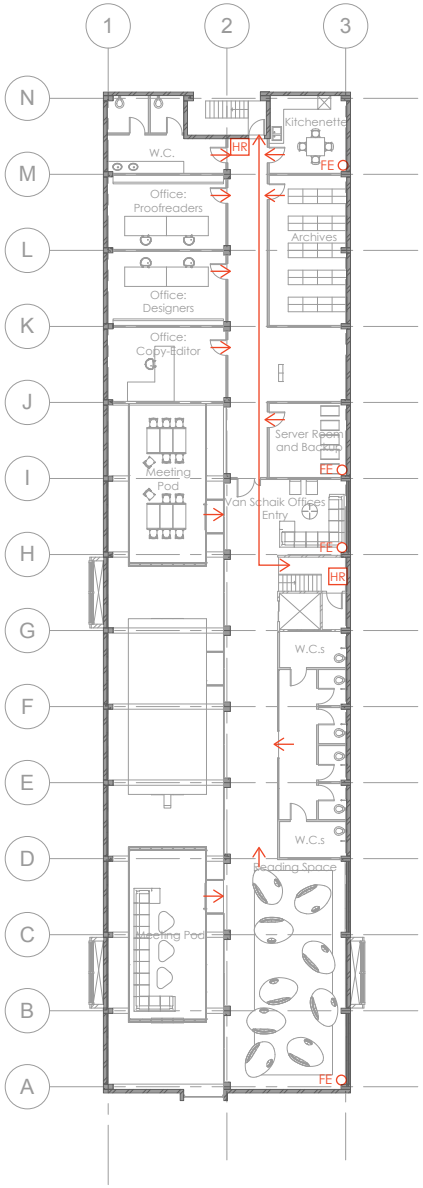
Fig. 9.12
Fire escape route, with emergency assembly points and fire retardants



Ground floor



First floor



Second floor

9.8 Material Selection

Chapter 7 established the basic approach toward the material selection. The hybrid condition between the existing structure and the new intervention is to remain polarised in terms of materials and construction methods. This distinguishes the existing structure from the new works. The new works consist mosly of dry construction methods, excluding the floor screed.

The existing structures are mostly composed of structural concrete, masonry and plaster. The materials proposed for the intervention aim to provide the space with a warmer feel, and introduces colour. The materials are generally more sophisticated than the crude existing structure, and therefore also act as a mediator between the rougher existing structure and the more sophisticated programme proposed for the space. Fig. 9.11 provides a mood board of the proposed material use in contrast to the existing structure, and Fig. 9.12 provides a description of each material selected.

Fig. 9.13
Material approach

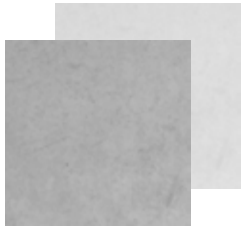
	Luma bonded concrete screed floor	Application: The Luma bonded screed finish is applied to the existing floor slabs for a more sophisticated floor finish. The finish is polished to the 'Luma Bronze' stage, where a smooth finish is achieved without exposing aggregate.	Environmental Considerations: The floor finish is low maintenance and extremely durable. The screed can be re-used as a sub-base gravel in new construction projects.
	Rhoms laminated wood in Canyon Maple finish	Application: The product is applied to the meeting room areas as a floor finish.	Environmental Considerations: The product is FSC (Forest Stewardship Council) certified, which implies that the product is manufactured from forests that are under a sustainable stewardship. After use, the product can also be manufactured into board products.
	Steel	Application: Various steel components are used to form structural framing and for bulkhead construction.	Environmental Considerations: Steel is extremely durable and is recyclable.
	Gyproc Rhinoboard	Application: The Rhinoboard is used as the cladding medium for the meeting pods, as well as the cladding medium for some suspended ceilings in the project.	Environmental Considerations: Rhinoboard is durable and recyclable. The product is further coated with Dulux Magic White paint, which is low in VOCs (Volatile Organic Compounds).
	Supawood	Application: Supawood is used as a carcass material for the reception counter, reading pods and some suspended bulkheads.	Environmental Considerations: Due to its limited recyclability, the product has been used sparingly. Sheets have been kept as thin as possible, and rectangular designs minimises board waste.

Fig. 9.14
Materials proposed for the new intervention

	Corian solid surface material in Designer White	Application: The product is used as a cladding material and desk surface for the reception counter.	Environmental Considerations: Corian has low VOC emiisions, and the product is extremely durable. After use, the product can be removed, recut, and reinstalled to a new project. The product contributes to a building's LEED certification.
	Polycarbonate (PC) in Opal White U068	Application: The product is used as a cladding material for the reading pods.	Environmental Considerations: The application of polycarbonate in this project is limited to cladding purposes, which in turn makes the material durable. Polycarbonate is a recyclable polymer.
	Glass	Application: Glass is used for balustrades, and switchable Smartglass is used as meeting pod glazing/screens.	Environmental Considerations: Glass is composed of natural materials and is fully recyclable.
	Displax interactive touch screen foil.	Application: The touch screen foil technology is applied to the study area work surfaces, as well as the meeting pods' glazing. The film acts as an interactive touch screen.	Environmental Considerations: The film consists of polymer foil and polyester backing, both of which are recyclable.
	Warwick Zenith faux leather fabric	Application: The fabric is used to upholster the reading pods as well as other plush furniture, in corresponding room colours. The fabric is composed of 100% polyester.	Environmental Considerations: The fabric is soft and comfortable to the touch, but extremely durable. The fabric has a water repellant finish and has a good flame retardancy. The fabric consists of polyurethane with a cotton backing, thus emitting less VOC's than its PVC counterpart.

9.9 The LEED Rating System

The environmental responsibility of the interior designer is to provide healthy, enjoyable and comfortable interior spaces while minimising consumption and contributing to future human development. Aspects such as the use of sustainable, and renewable materials, the use of energy efficient components and waste management need to be considered.

The Green Building Council of South Africa developed tools in order to rate the sustainability and efficiency of a building, but tools specific to the interior design discipline are still in development. The LEED (Leadership in Energy and Environmental Design) rating system was developed in America, but it can be applied locally. The LEED green building rating system is designed to promote design and construction practices that increase profitability while reducing the negative environmental impacts of buildings and improving occupant health and well-being (Natural Resources Defense Council, 2012). The LEED system addresses five categories:

- Sustainable sites (SS)
- Water efficiency (WE)
- Energy and atmosphere (EA)
- Materials and resources (MR)
- Indoor environmental quality (IEQ)

Bonus categories include innovation in the design process and regional priority credits. The total points amount to 110.

The tool is ideally used on a building that is completed, however for the purpose of this project it is used theoretically. Fig. 9.13 shows the respective scores achieved for each category. The overall score of the project is 70/100, achieving gold status. Futher improvements can be made to the project's water and wast management systems.

LEED 2009 for Commercial Interiors

Project Checklist

Sustainable Sites — Possible Points: 21

Y	?	N			
Y	2		Credit 1	Site Selection	1 to 5
Y	6		Credit 2	Development Density and Community Connectivity	6
Y	6		Credit 3.1	Alternative Transportation—Public Transportation Access	6
Y	1		Credit 3.2	Alternative Transportation—Bicycle Storage and Changing Rooms	2
Y	2		Credit 3.3	Alternative Transportation—Parking Availability	2

Water Efficiency — Possible Points: 11

Y	?	N			
Y			Prereq 1	Water Use Reduction—20% Reduction	
Y	6		Credit 1	Water Use Reduction	6 to 11

Energy and Atmosphere — Possible Points: 37

Y	?	N			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
Y	5		Credit 1.1	Optimize Energy Performance—Lighting Power	1 to 5
Y	3		Credit 1.2	Optimize Energy Performance—Lighting Controls	1 to 3
Y	10		Credit 1.3	Optimize Energy Performance—HVAC	5 to 10
Y	3		Credit 1.4	Optimize Energy Performance—Equipment and Appliances	1 to 4
Y	5		Credit 2	Enhanced Commissioning	5
Y	2		Credit 3	Measurement and Verification	2 to 5
		N	Credit 4	Green Power	5

Materials and Resources — Possible Points: 14

Y	?	N			
Y			Prereq 1	Storage and Collection of Recyclables	
Y	1		Credit 1.1	Tenant Space—Long-Term Commitment	1
Y	2		Credit 1.2	Building Reuse	1 to 2
		N	Credit 2	Construction Waste Management	1 to 2
Y	2		Credit 3.1	Materials Reuse	1 to 2
		N	Credit 3.2	Materials Reuse—Furniture and Furnishings	1
Y	1		Credit 4	Recycled Content	1 to 2
Y	1		Credit 5	Regional Materials	1 to 2
Y	1		Credit 6	Rapidly Renewable Materials	1
Y	1		Credit 7	Certified Wood	1

Indoor Environmental Quality — Possible Points: 17

Y	?	N			
Y			Prereq 1	Minimum IAQ Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
		N	Credit 1	Outdoor Air Delivery Monitoring	1
Y	1		Credit 2	Increased Ventilation	1
		N	Credit 3.1	Construction IAQ Management Plan—During Construction	1
		N	Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
Y	1		Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
Y	1		Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
Y	1		Credit 4.3	Low-Emitting Materials—Flooring Systems	1
Y	1		Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
Y	1		Credit 4.5	Low-Emitting Materials—Systems Furniture and Seating	1
		N	Credit 5	Indoor Chemical & Pollutant Source Control	1
Y	1		Credit 6.1	Controllability of Systems—Lighting	1
		N	Credit 6.2	Controllability of Systems—Thermal Comfort	1
		N	Credit 7.1	Thermal Comfort—Design	1
Y	1		Credit 7.2	Thermal Comfort—Verification	1
Y	1		Credit 8.1	Daylight and Views—Daylight	1 to 2
Y	1		Credit 8.2	Daylight and Views—Views for Seated Spaces	1

Innovation and Design Process — Possible Points: 6

			Credit 1.1	Innovation in Design: Specific Title	1
			Credit 1.2	Innovation in Design: Specific Title	1
			Credit 1.3	Innovation in Design: Specific Title	1
			Credit 1.4	Innovation in Design: Specific Title	1
			Credit 1.5	Innovation in Design: Specific Title	1
			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

			Credit 1.1	Regional Priority: Specific Credit	1
			Credit 1.2	Regional Priority: Specific Credit	1
			Credit 1.3	Regional Priority: Specific Credit	1
			Credit 1.4	Regional Priority: Specific Credit	1

Total — Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

Fig. 9.15
LEED rating for the proposed project

Sustainable Sites:

- Brownfield redevelopment
- Adaptive reuse of site and existing infrastructure

Water Efficiency:

- Water use reduction: All taps and water fixtures to be equipped with water aerators. The hand wash basins are to be equipped with a 5litre/ minute aerator. Kitchen water supply are to be equipped with 7.6litre/minute aerators.

Energy and Atmosphere:

- Energy use is optimised in the category of artificial lighting. Energy efficient lamp types such as LED technology is implemented in the design. Furthermore, room automation systems have been incorporated to accurately control the artificial lighting conditions, further reducing energy consumption.
- Natural daylight penetration is encouraged by the installation of additional skylights. These skylights contain a layer of Smartglass (Switchable glass), which enables control over the amount of daylight that is allowed into the building interior.
- HVAC systems have been replaced with natural ventilation strategies. Where accurately controlled cooling is required, such as the server rooms, Energy Star rated air conditioning units have been installed. These have been kept to a minimum.
- All electronic equipment and appliances required for the programme are Energy Star rated.

Materials and Resources

- The building is currently unoccupied. The adaptive reuse of the building requires less construction as the basic structure is already provided.
- The selection of materials were based on the materials' local availability, recyclability and possible reuse. The selected wood products are FSC certified.

Indoor Environmental Quality

- The proposed ventilation strategy increases ventilation in the built interior.
- All materials selected are low in emitting VOC's (Volatile Organic Compounds).
- Artificial lighting systems are controlled by room automation strategies. The different light schemes are also placed on different electric circuits.
- More than 75% of the proposed spaces have access to natural lighting conditions.

conclusion

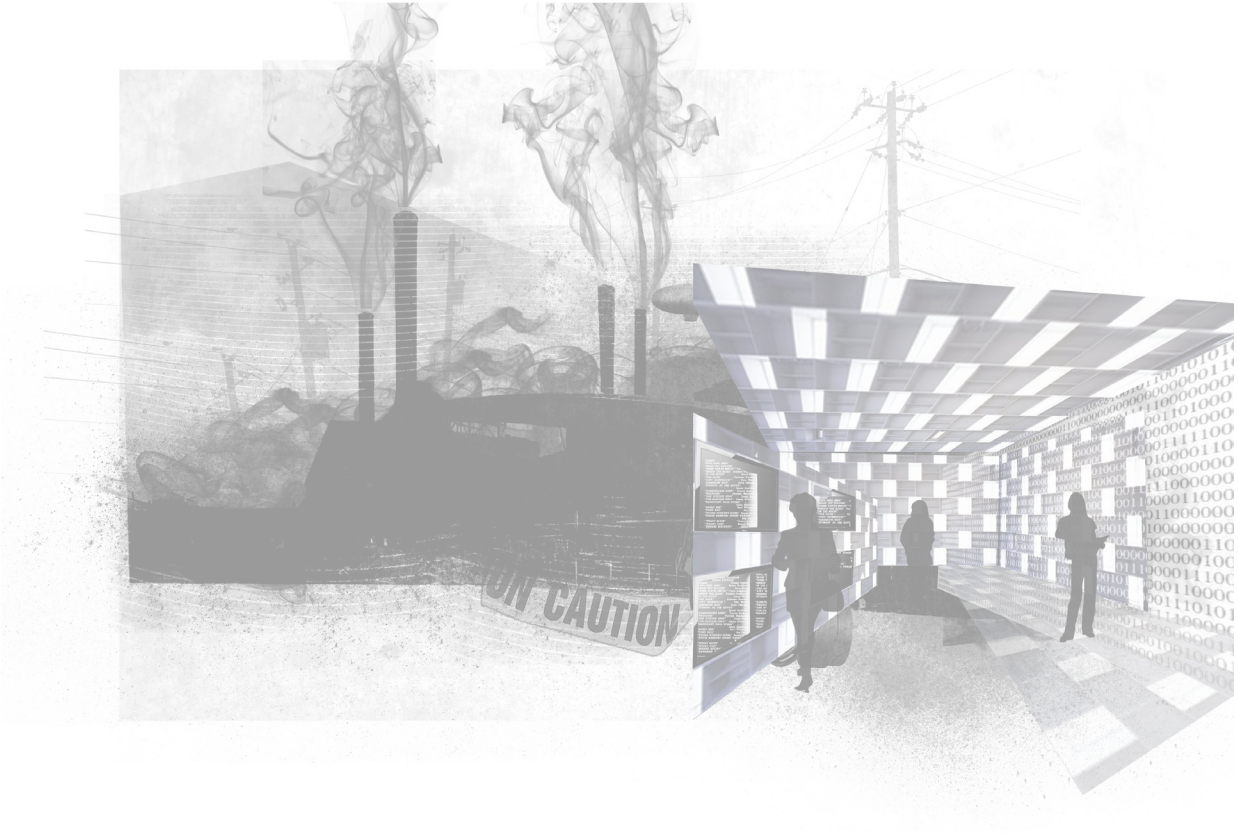
The objective of the dissertation was to investigate the creation of a hybrid design, to blur the distinction between the digital and material realms. The way in which humans perceive their worlds is continuously changing, adapting and evolving due to technological advances. Interior architecture has the ability to act as a mediator between physical space and digital space, to synergise these two entities in one hybrid entity.

Interior design focuses on making space while focusing on the user's needs. The project created a niche where the digital and material realms are fused, providing interactive spaces for users.

Contextual issues inspired the development of a programme that provided the community of Pretoria West with access to digital material. Access to digital media remains an issue in the broader South African context, where few people have the privilege to own technologies concerned with the digital domain. Similar projects in other areas will ultimately result in the digital divide becoming smaller. If the digital divide is not addressed, the general population will fall further behind in technological development.

Spatially, the project embraced the opportunity to provide a material space where direct, social contact is possible. Fusing digital media with material space results in spaces that are more flexible and adaptable. Where spaces were previously bound by the functionality they provided, the digitalisation of these functions results in spaces becoming more flexible and able to change into what they need to be at the time. Digital technologies influenced the physical space in such a way that fixed materials have the capacity to become flexible, interactive pieces that people can use and control in order to gain access to the digital media. Simultaneously, digital technologies facilitate the realisation of ideas such as room automation which give the users with more direct control over their environment.

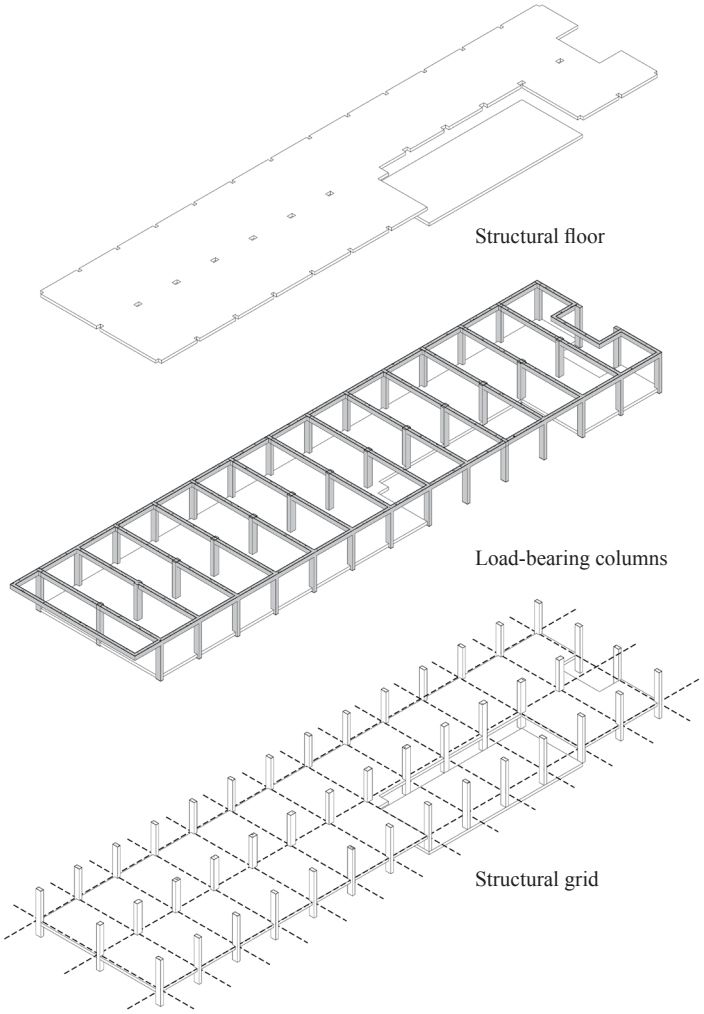
As technology continues to evolve and digital media continues to become more sophisticated, interior design will continue to adapt and change as well. Technological development should be embraced; it will continuously provide exciting design challenges and opportunities for the built environment.



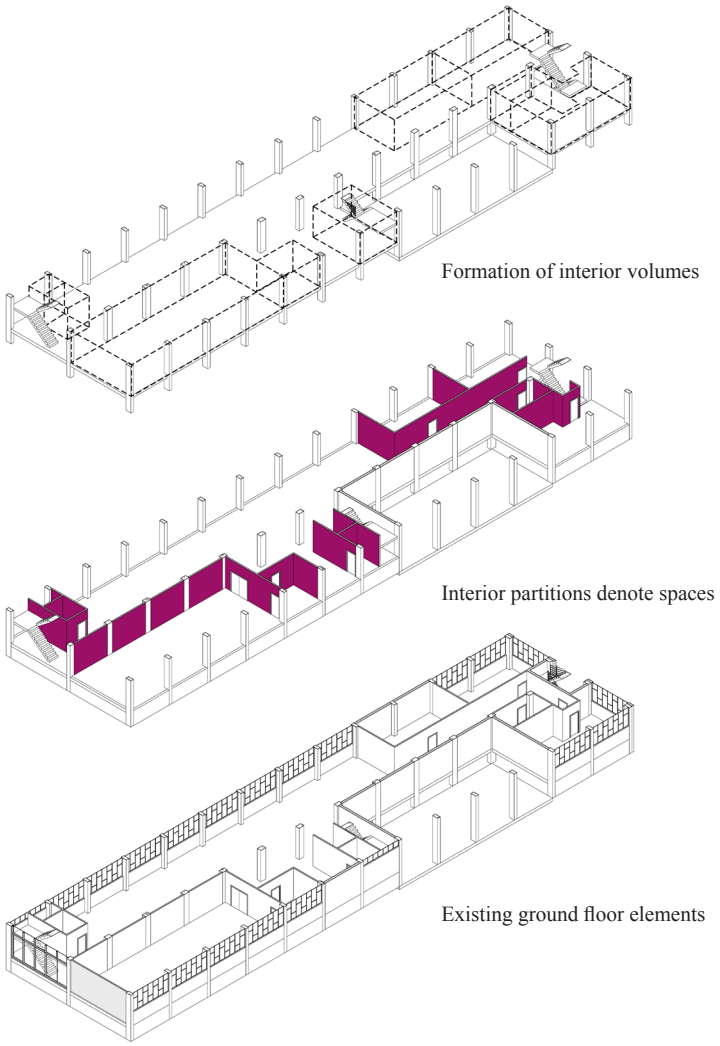
appendix

Appendix A

Building Analysis: The Structure, Spatial Layout, Skin, and Services

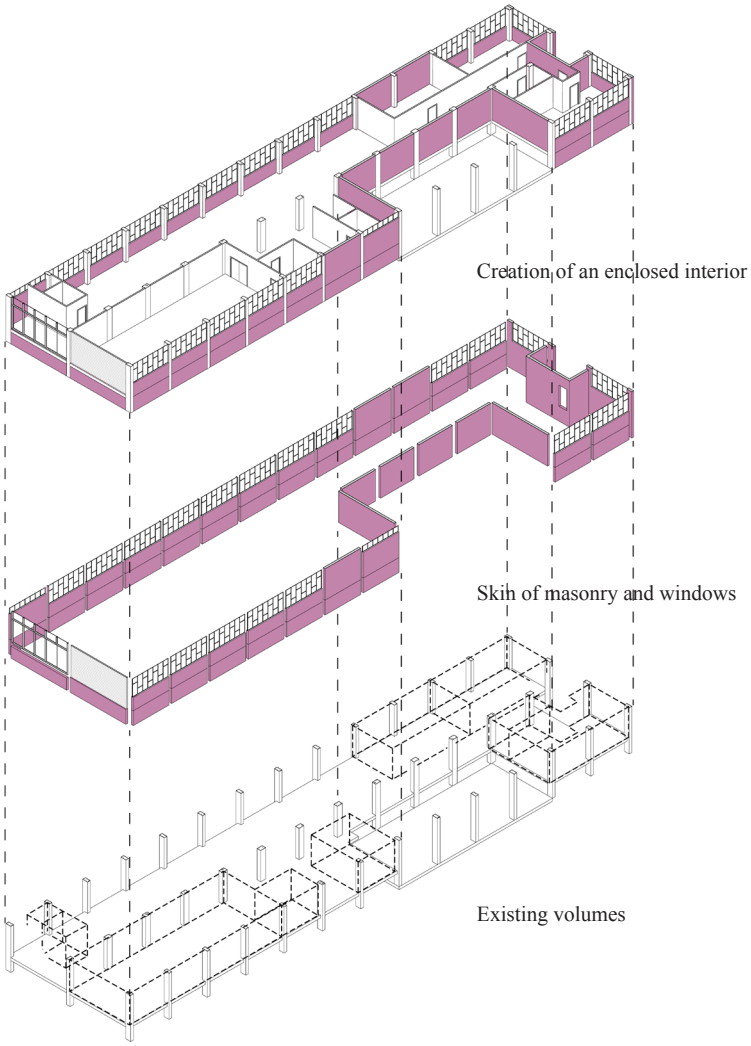


The Structural System

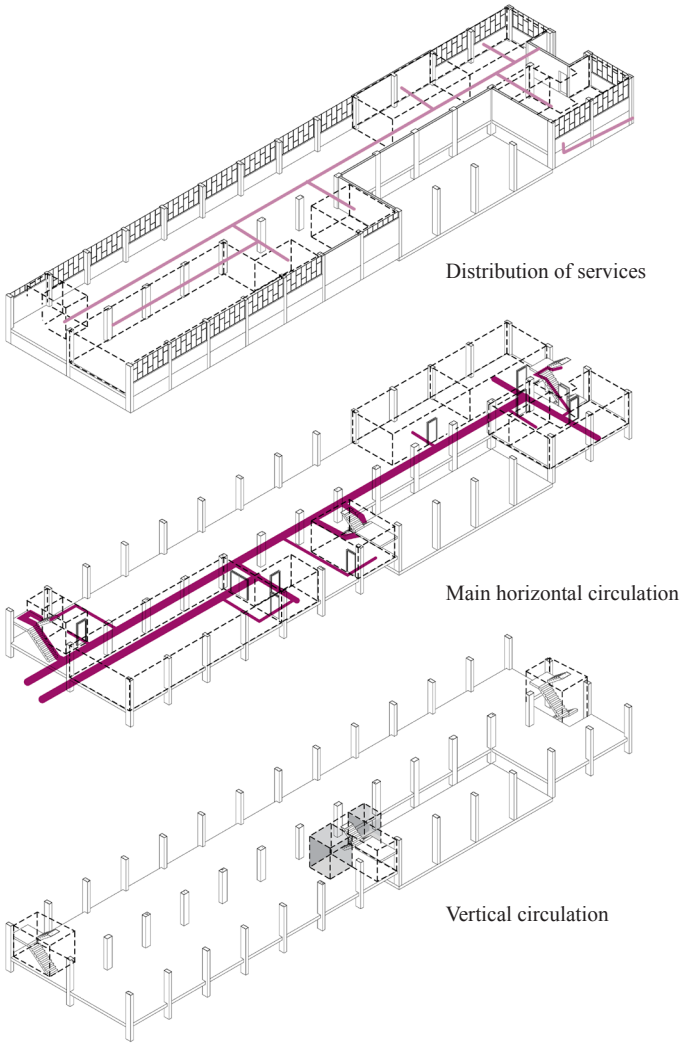


The Spatial System

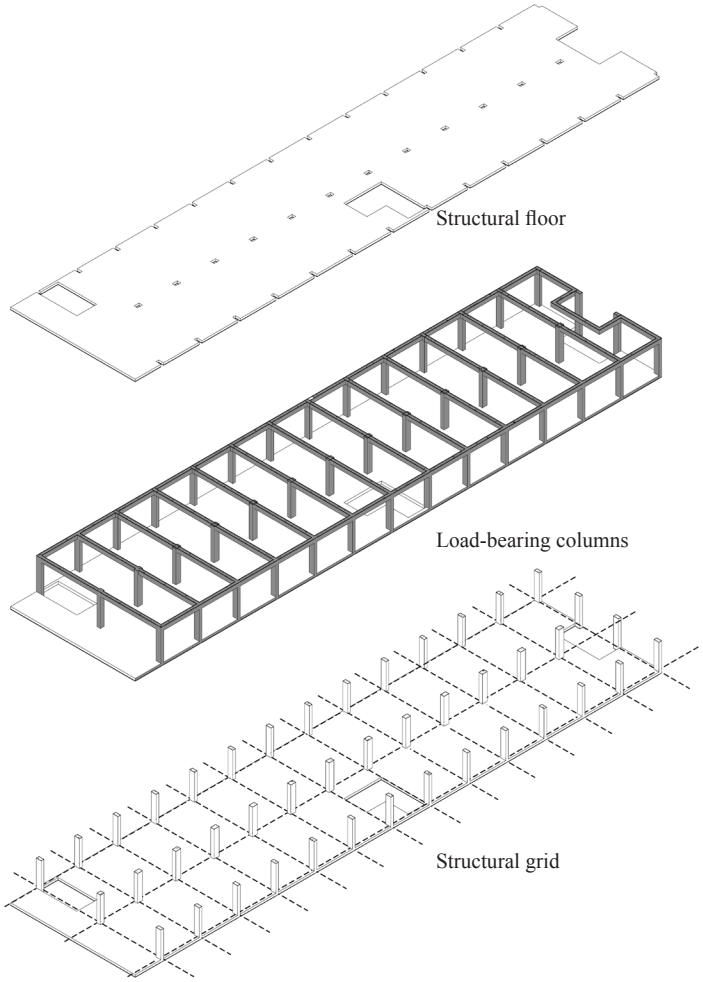
The Ground Floor



The Skin/Enclosure



Services and Circulation



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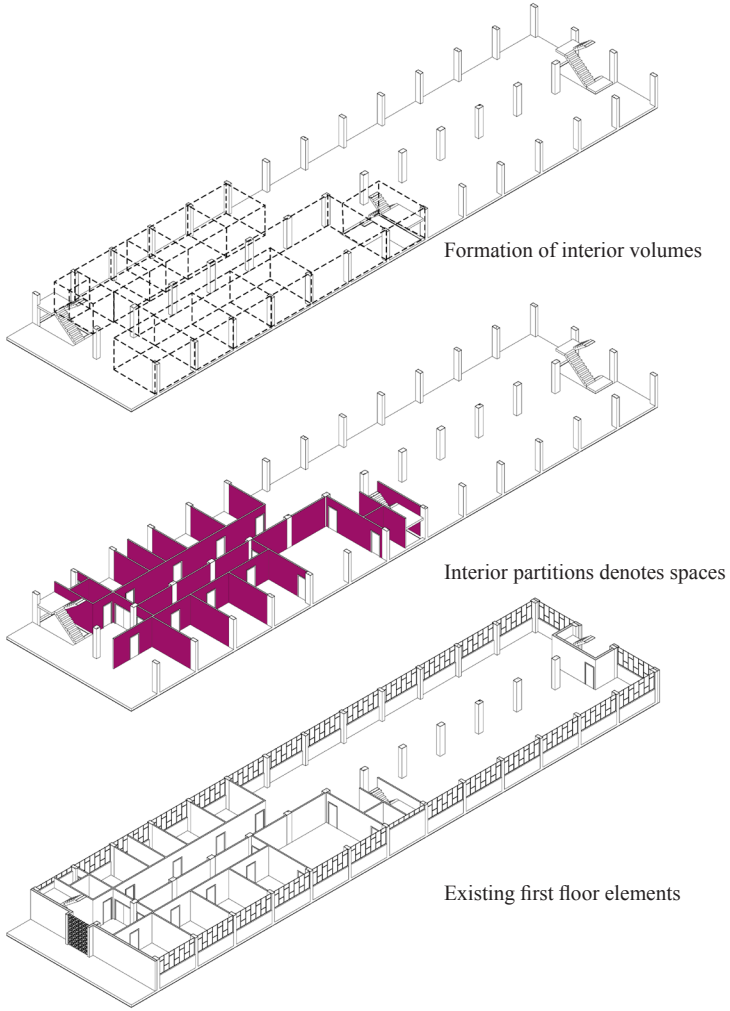
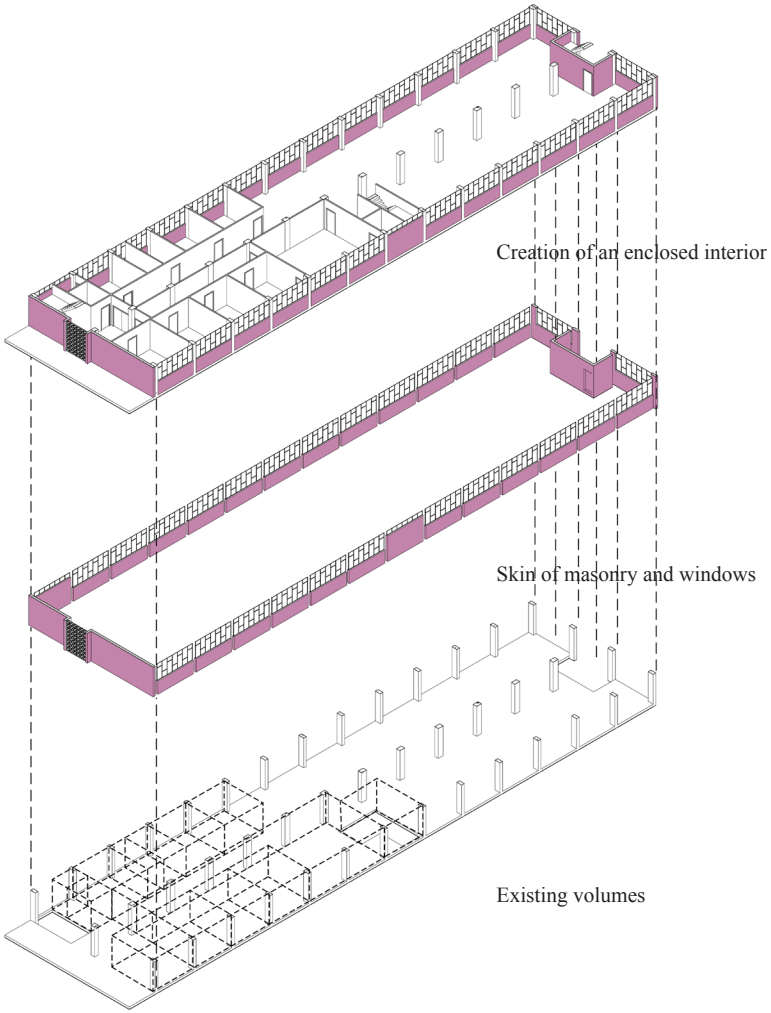


The Spatial System

The First Floor



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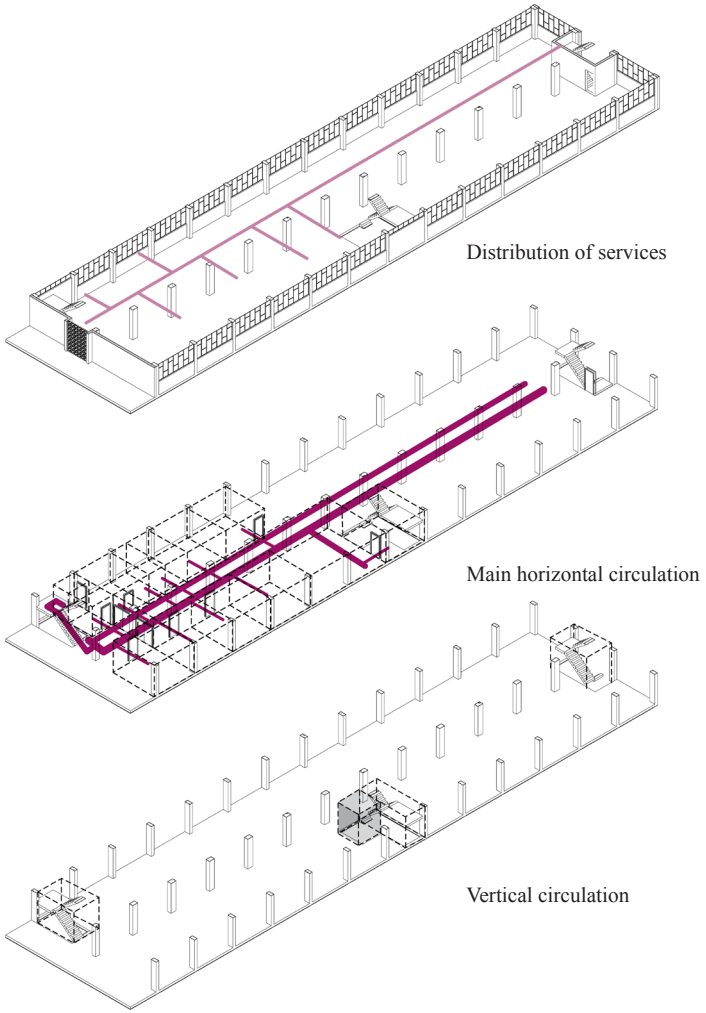
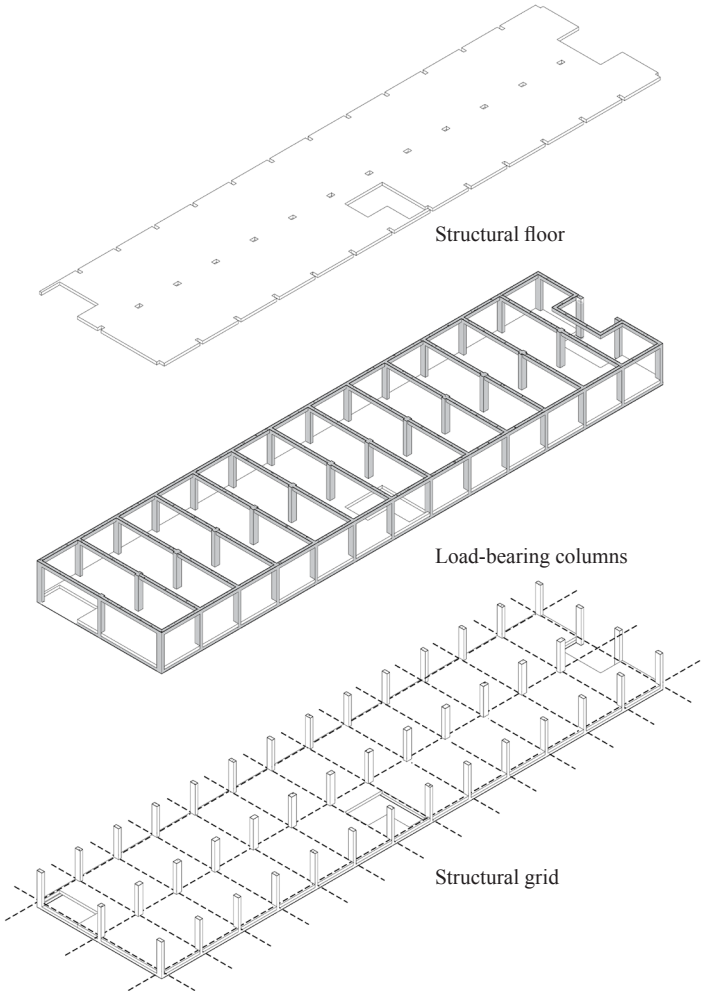
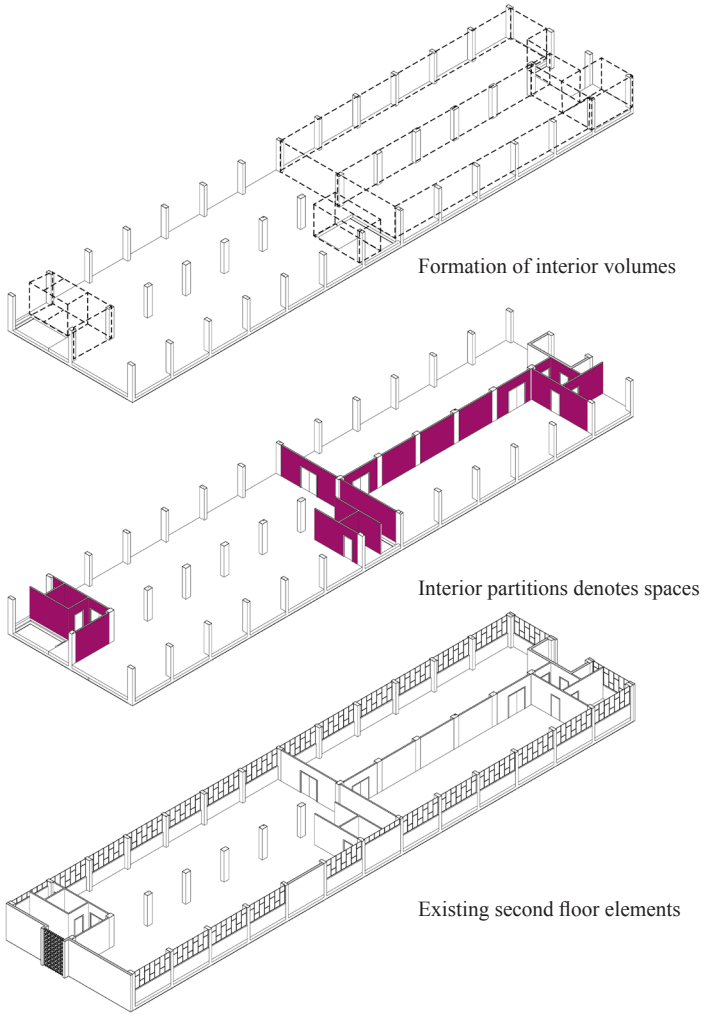


Services and Circulation

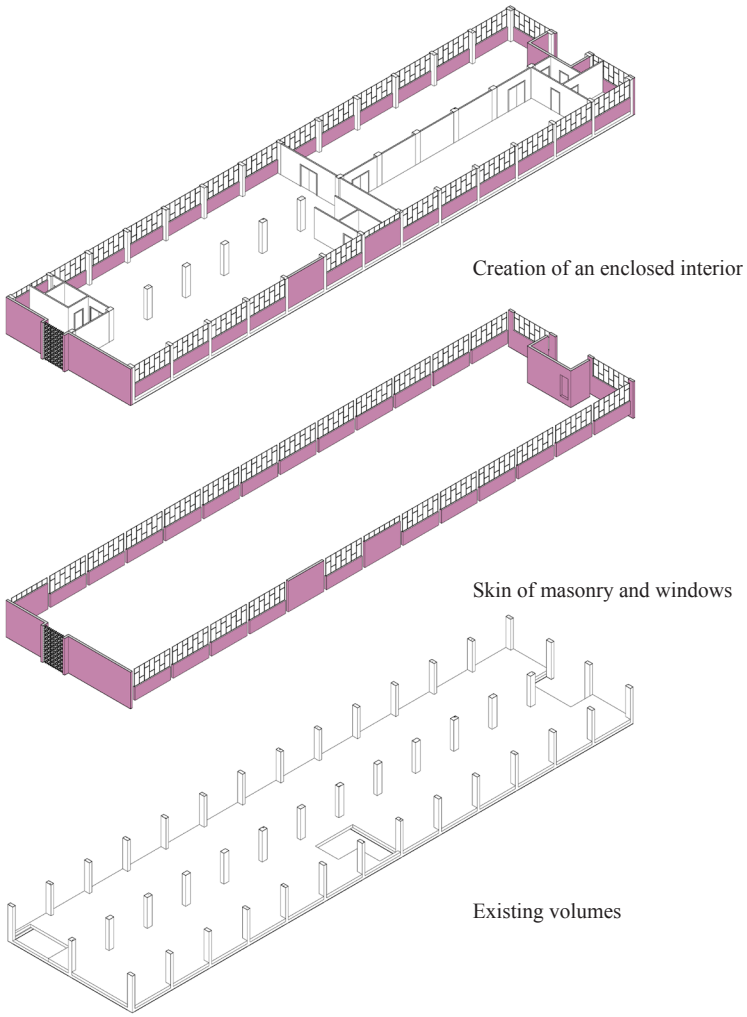


The Structural System

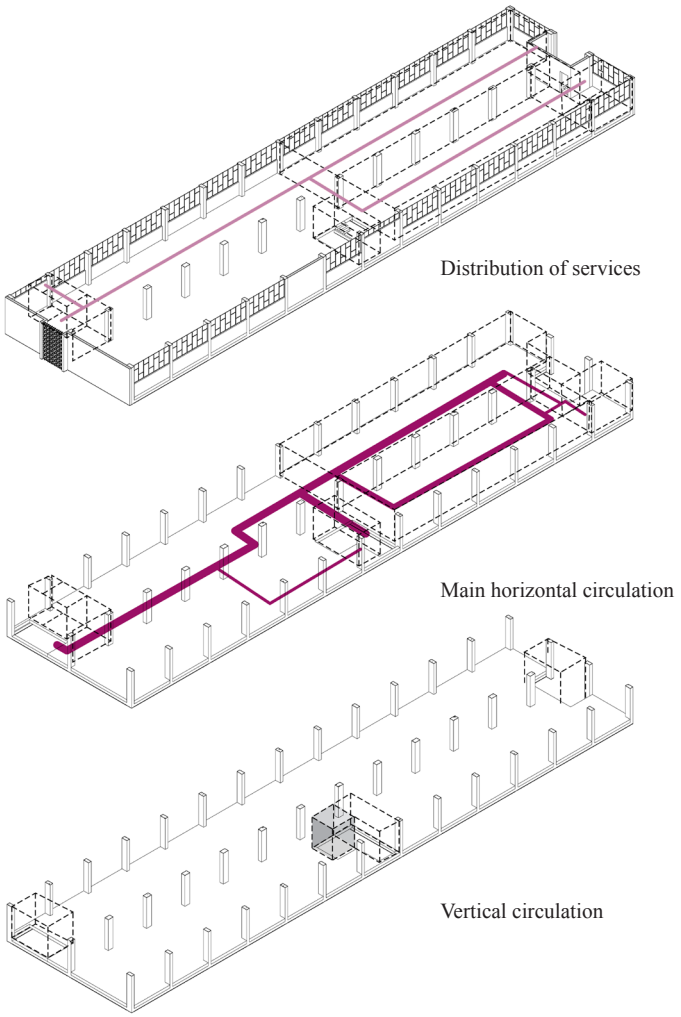


The Spatial System

The Second Floor



The Skin/Enclosure



Services and Circulation

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