PART 3
Design and Technology

3.1. Introduction

The previous two essays explored the theoretical basis, intentions, conceptual approaches and situation on site as to form the foundation for the project's design and technological implementation which will be explored in this essay. The structure of this essay will be divided into two main parts: the design implementation and the technological application of the design. With the design implementation section, the design will be explained in two parts. First a general overview of how the three conceptual approaches were combined and implemented on site according to the spaces identified in the site analysis. Secondly an illustration of how one, as a public user, would move through and experience the spaces created as well as engage with the private programs on the interior of the building through the use of a storyboard.

For the technological section of the essay, three themes would be looked at. We will look at a structural concept to facilitate and further exemplify the conceptual design approach discussed in essay two. With this, primary, secondary and tertiary structural elements are identified which would be applied as principles across the design. Secondly how materiality is used to signify specific uses and/or actions throughout the building and finally what systems are used to control the thermal comfort of users in private interior spaces.

3.2. Design Implementation Overview

Looking at the three conceptual approaches of separating skin from interior, discovering the program as one moves through site and the notion of passive and interactive interfaces between private and public we can start to draw a parti diagram of how the building develops from a simple block distinguished from its skin, to a fragmented ensemble of massing and voids connected through horizontal circulation and engagement between private and public. We can start to treat the interior massing in different ways by leaving some of them void, creating open courtyard spaces flanked by the separated skins of the surrounding building masses. Adding more complexity to this diagrammatic combination of concepts is its placement on site where the differences in the site conditions lead to different treatments of similar elements, depentding on the

spaces afforded by the existing buildings as discussed in essay two.

In the following parts (3.3 - 3.5) a more indepth discussion will be had on how these particular elements of the courtyards, the seperating elements between courtyards and these elemnts' implications on the treatment of the interactions between public and private spaces have been implemented as a factor of the theoretical understanding developed in essay one and the conceptual approaches extrapolated from this theory in essay two.

Part 3.6, will look at how the program is superimposed onto this larger schematic, and the specific treatment of each individual element/ space as well as their relation to the ideas discussed in the previous essays.
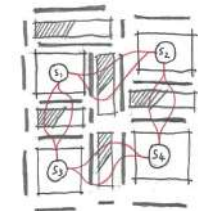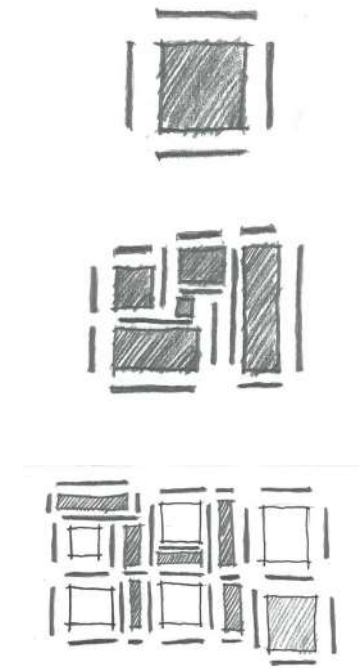
Public circulation
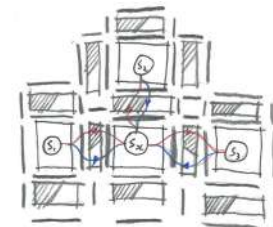
Public circulation (red)
Programatic Sequence (blue)
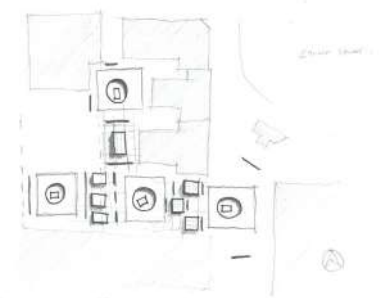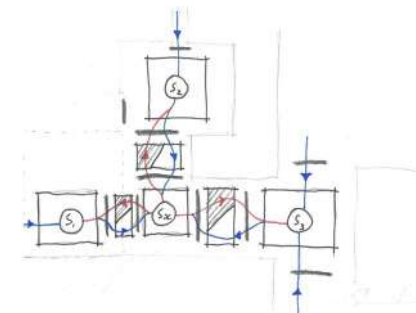
Fig.134: A combination of the three programatic approaches in plan starting from the general seperation of skin and interior and progressing to programatic sequence and public circulation, interfaces at the intersection points of program and circulation and the application of said concepts on site (Author 2020).

Key

New Iteration

Public Circultion

Flow of Program Sequence

Fig.135: 3 dimentional combination of the three conceptual approches and application on site (Author 2021).
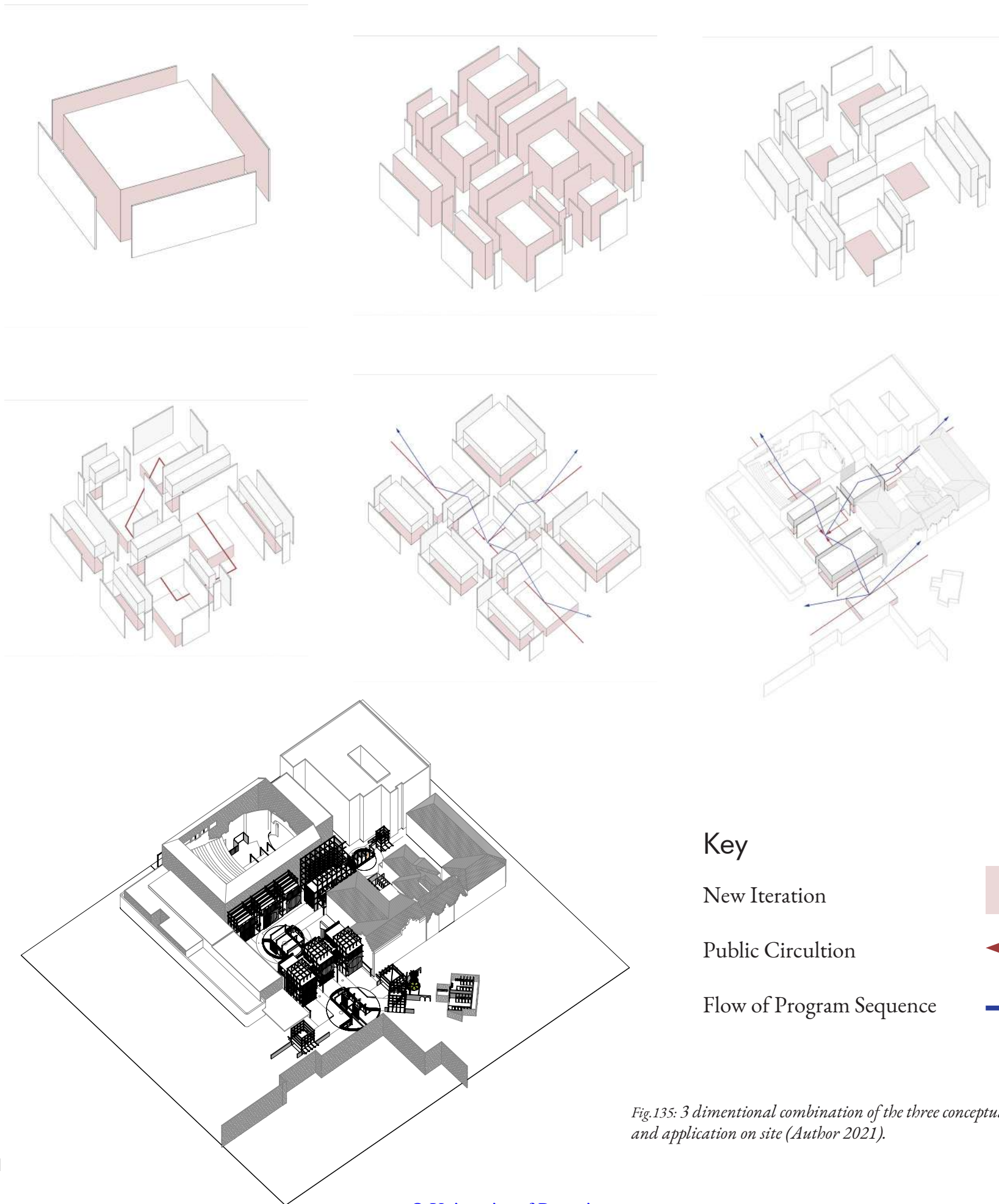
3.3. Courtyards: Gardens for the Sublime

Courtyards become a central organisational tool for the massing over the entirety of the intervention by functioning as anchors/ breaks to the public circulation through the site. Courtyards, historically and etymologically, has an ambiguous meaning and function (Nelson 2014: 8-16). In the lexicon of European languages, almost all share the term's construction from the notions 'court' and 'yard'. The latter having the same derivation as the term 'garden' (the Germanic term 'garten') and the former having mostly interior connotations referring to "...a kind of tribunal chamber where weighty matters of state or rights are determined." (Ibid: 10-11). As such the merging of these terms "...magically reconciles indoors and outdoors..." (Ibid: 11), allowing the building to "... start again, as if the façade that fronts onto the street yields to another

façade..." on its interior (Ibid: 9). A sense of infinity is created through the framing of the sky by its encapsulating facades. The vertical framing of the sky, rather than a horizontal framing of the surrounding landscape, creates a sense of awe as one's relation to a grandiose world is created by one's only reference to the world beyond the building being the infinite sky. This sense of infinity is furthermore complimented with the sense of uniformity provided by the courtyard's facades. As such the courtyard can be afforded the quality of the sublime, similar to the way in which the aesthetic category is described by Edmund Burke[4] (2015: 66-79), to which ideological meaning can be attributed. These courtyards therefore lend themselves well to spaces where passive interfaces between the public and private program can exist, where the act

of observing (through sight and sound), as opposed to directly interacting with, the program signifies the politics that accompany it.
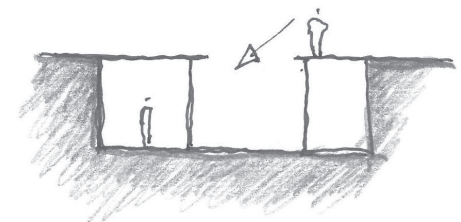
Fig.136: Courtyard as a sublime space (Top) and as a platform for passive interface (Author 2021).

4. See Burke's (2015: 53-79) "Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful" which delves into great depths to explore the full extent of the effects and forms (architecturally as well as in the other arts) the category of the sublime can have and take. Though it is beyond the scope of this dissertation, further reading on the topic by Burke may lend nuance to the argument.

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3.4. Seperating Courtyards:
   Giving and Hiding
   Meaning

Looking at the separating elements between the courtyards i.e. the above ground massing of the project, we can start to ascribe three different functions to their implementation: first they serve the courtyards through their skins defining the courts onto which particular signifiers can be inscribed to support the passive interfaces, secondly because the massing is above the ground, they serve as the platform on which interactive interfaces between public and private can be based, and thirdly they serve as the threshold spaces between the courtyards where the representations/ symbolic element of the skin of the building breaks down and political engagement with program happens.

In its relation to the courtyard the envelope of the building mass is the mediating element between inside and outside, both in terms of its representation of the political and in terms of the interior which it envelops (Zizek 2010). As such the skin of the building mass can be a deceiving element, making the interior seem larger than it actually is by exceeding the interior spaces behind it. When transitioning through the skin, its representational role to a building therefore becomes more apparent to the user. This correlates with the broad concept of the project being a perpetual separation of interior and envelope discussed in the previous essay. The question of representation of symbols on the building facades facing the courtyards can be answered in tandem with the passive interfaces in the courtyards. The vertical skins of the building, through the use of louvres, function as a type of optical illusion, similar to artworks of Marco Cianfanelli (the installation artist who designed the installation at the Nelson Mandela Capture Site) where, when stood at a particular spot in a courtyard and looking at the facade, the user is prompted, through a symbol cut/ etched into the louvres, to look at a particular part of the building where you can see the private spaces of the program (such as a stack of posters in a printing room). As such a type of triangulation happens in the mind of the public user. As one approaches a point in the courtyard, the image on the facade comes into focus. This image draws the attention of the user, through the use of some sign or symbol, to the interior of another part of the building where the user is unable to interact with the private space, but only observe it; in essence pointing the user where to look and shifting the focus of the skin as representation of interior to a representation of the external courtyard.

Behind the skin, the above ground massing allows for public-private interfaces to be more interactive, where, instead of observing/ looking into private spaces, the user is able to participate in the program through a physical medium provided by the building structure. These interfaces, to be interactive, need to be able to take information from the public user, by them performing an action, to the private user before the private user then responds to and changes this information. The altered information is then returned to the public user through the same mechanism. As such the interactive interfaces within the building mass become a type of media in itself by functioning as an information medium between private and public. The exact form of these interfaces will be discussed later on.

Finally the masing between the courtyards would necessarily serve as threshold spaces between the courtyards. Catherine Smith (2001: 2) in her article

'Looking for Liminality in Architectural Space', characterises liminal spaces as transitional and ephemeral passages between different states. These type of spaces are generally defined as in-between spaces. As such the public spaces within the massing of the building can be characterised as types of liminal spaces between the idealised spaces of courtyards where the idealisation of the courtyard breaks down and where one can ready oneself for the next, idealised courtyard.
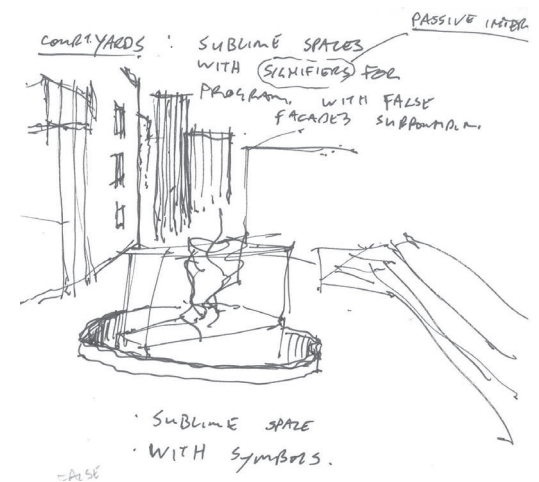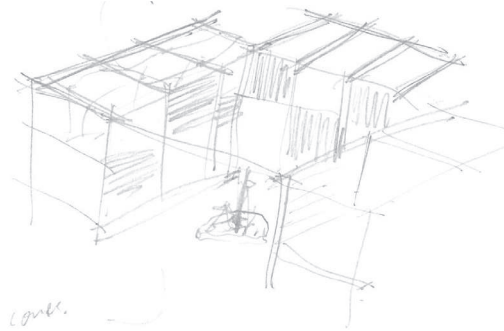
Fig.137: Idea of facades serving and representing the courtyard (Author 2021).
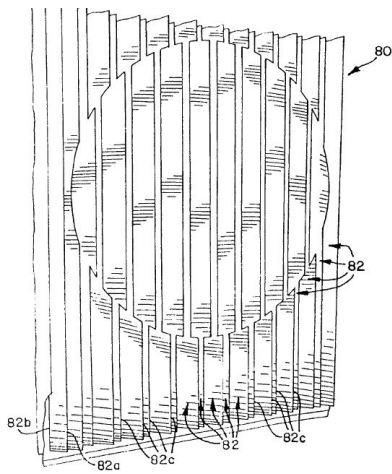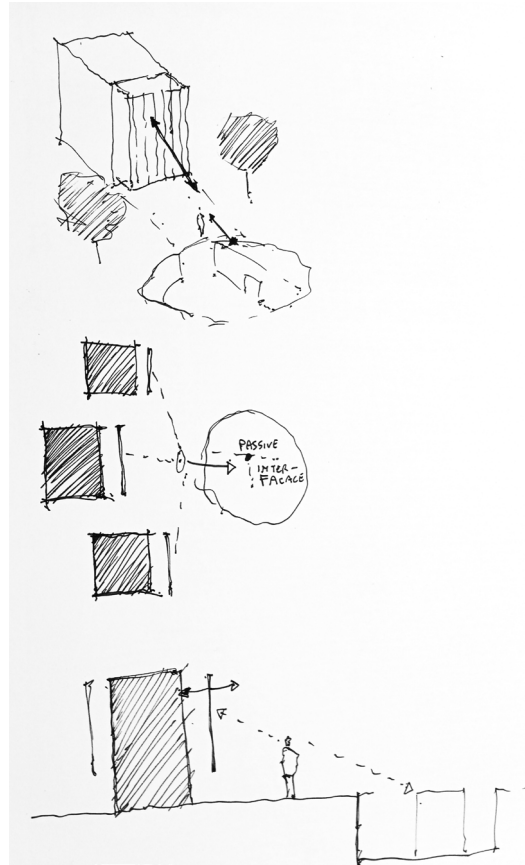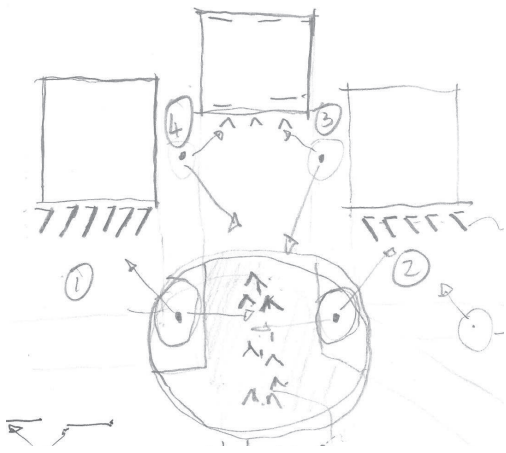
Fig.138: Mechanic for how a parti of the court-yards can be cut into louvres (Ruggles 1990).
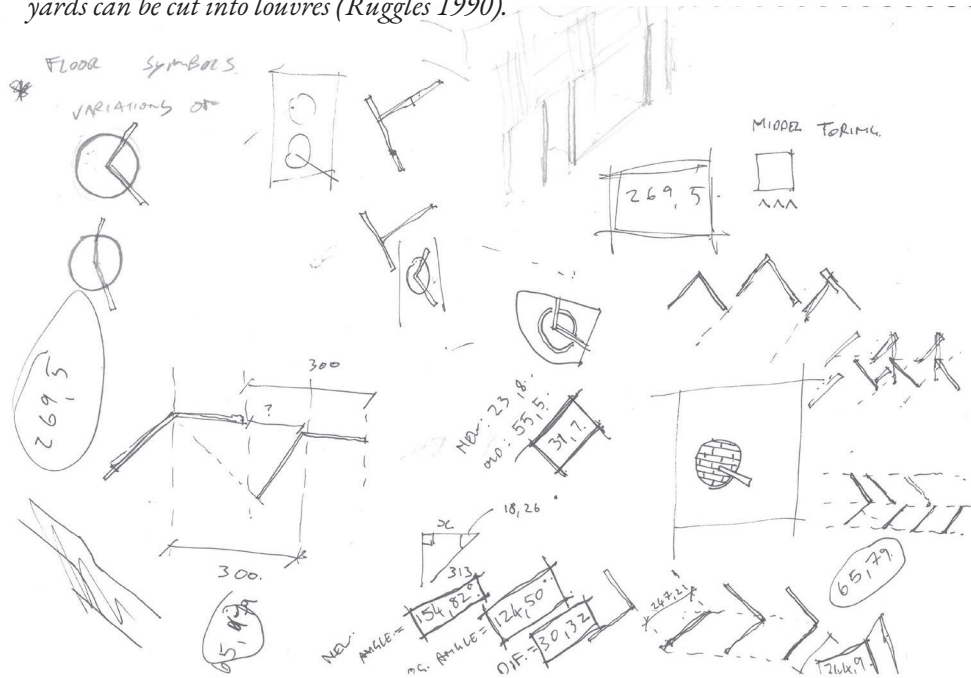
Fig.139: (Above sequence of diagrams) development of facade as louvres to create a perspective dependant optical illusion (Author 2021).
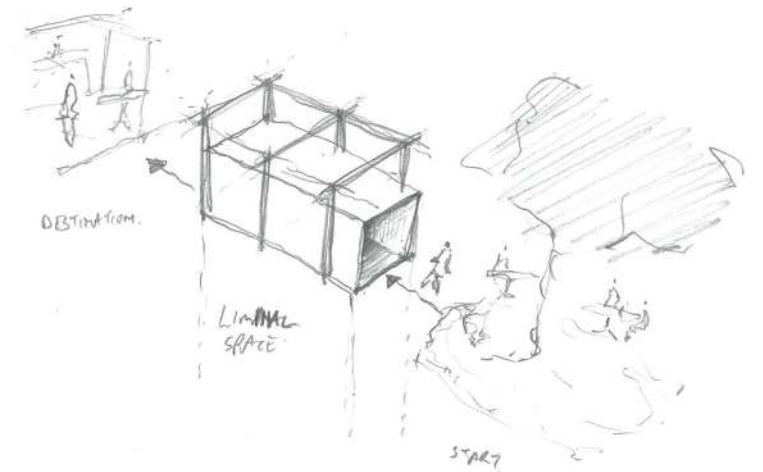
Fig.140: (Top) Cianfanelli's Mandela sculpture before it comes into focus (Cianfanelli 2012).
Fig.141: (Middle) Cianfanelli's Mandela sculpture after it comes into focus (Cianfanelli 2012).
Fig.142:(Bottom) The notion of liminal space (Author 2021).

3.5. Circulation: Private-Public Separation

Looking at how the public user would move through the building, the main focus is on how the pubic would seamlessly move from one courtyard to next i.e. the circulation connections between courtyards. The issue here comes into view when combining the necessary private spaces of the program to this public circulation. When private program is superimposed over the courtyards with massing separating them, the courtyards become populated to the extent that it no longer functions as an open public space and the massing between the courtyards become impenetrable. We must therefore ask how the public and the private can be separated without losing the qualities of the massing between the courtyards whilst simultaneously allowing the public and the private to interact.

During my exploration, I tested some ways in trying to answer this question including fragmenting the massing, to make it permeable for the public, organising all parts of the program into the massing of the building, spreading the program over a larger area on site thus retaining the open courtyards and bleeding elements of the program into the square both on ground level as well as on basement level. The solution I ended up using proved to be simpler than the previous iterations and provided for a way to implement both interactive and passive interfaces between private and public. By separating private and public spaces vertically, either suspending private spaces above ground or below ground level, public spaces effectively become completely liberated. What one ends up having is a ground floor level completely open for public use with

suspended boxes over it and basements bellow. Within the courtyard spaces, the private functions would be cut into basement level, allowing the public to walk over the private spaces below with openings into the basement allowing the public to passively observe the functions on the interior of the basement level. This allows the courtyards to retain the volumetric (and sublime) qualities of an interior landscape.

The ways in which the vistas into the basement are formally manifested are through the use of courtyard spaces at basement level which are open to sky above; essentially becoming courtyards within courtyards. As such the public is able to look down into the basement viewing particular parts of the production processes of media objects (the parts of the program which are less suited

to be interacted with such as printing rooms) without being able to access it. On the basement plan these spaces would then be connected with tunnels so each basement court is easily accessible to the private users. Where the interiors are elevated above the public ground floor at the massing zones, another type of interior-exterior space is created. Where with a courtyard, you have an enclosed space open to the sky, under the elevated boxes you have an open space around you, yet you are enclosed from above. The elevation of these boxes can then be organised to follow the existing hight hierarchy on site thereby varying the volumes of the spaces underneath the elevated boxes. The interactive interfaces between the public ground floor and the private upper floors once again become a type of vertical interface, similar to the passive interfaces in the courtyards. Yet with these interfaces public and private users can perform acts onto the interface which then transfers information between public and private. For these interfaces vertically movable panels were used onto which private users can post iterations of their design product (each specific to the medium and process) to the public, before the public can write and draw over these iterations and vote for final products to be used as media in political protests. The way these panels would be moved up and down between public and private is through a type of counterweight crane system with pullies at the top of the structure where if one panel is lowered, the other is lifted, meaning that there is always one panel on the public ground floor level and one panel in the above private spaces to be used as a type of working board/ for designers to iterate ideas on or the public to comment on.
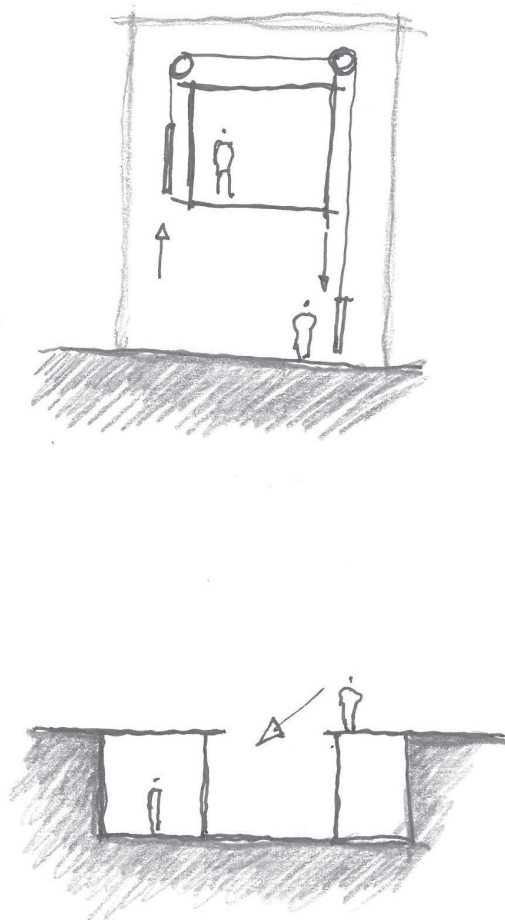

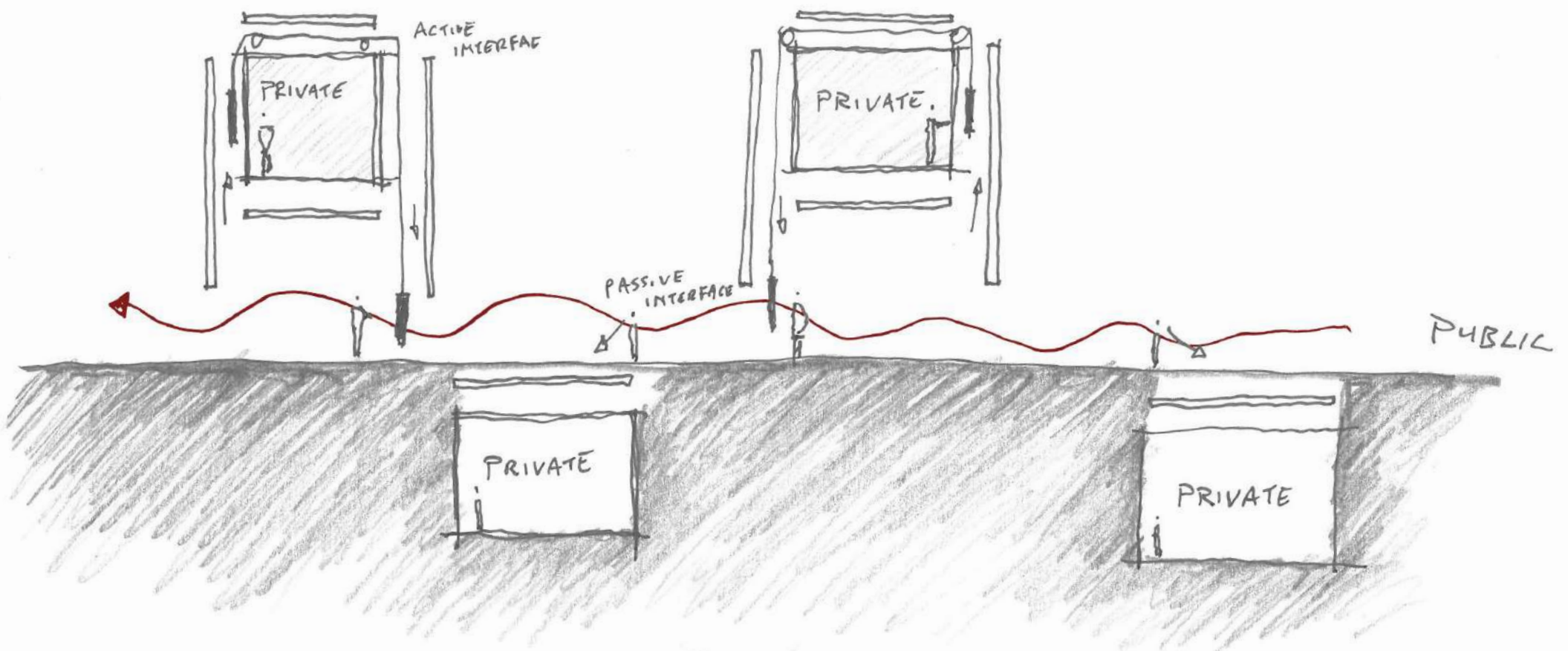Fig.143: *Interactive (top) and passive (bottom) interfaces (Author 2021).*

Fig.144: Seperating private and public vertically with passive interfaces below and interactive interfaces above private spaces (Author 2021).

3.6.Program and Layout of Spaces

As discussed in essay two (and to a limited extent in essay one), the program of a political media printing works can be divided into three themes: graphic printed media, written media and video/ moving pictures media. Each of these themes share similarities in their steps from conception to final product. All start with the conception of a brief which dictates the parameters of the information to be contained in the final media product. This is followed by a creative, design orientated process where media products are planned both through individual ingenuity as well as political interactions with others. The next step in the process is production where the final media product template gets reproduced. Finally is the distribution step where the product is disseminated amongst the public. Each of these steps beget different types of

interfaces with the public depending on the amount of involvement with people. The brief is often written by a small group of individuals out of the public sight and is therefore suited for passive interfaces; the design step, where design iterations and planning is benefitted the more people provide a creative input, for interactive interfaces; the production process, being more mechanical, for passive interfaces and the distribution of the product for interactive due to the necessary public element to it. Applying this logic to the programmatic themes, we can create a sequence of spaces for each (alternating between passive and interactive public-private interfaces). For the printed graphic media in order: brief writing space, graphic design studio, printing rooms and poster distribution space/ shop. For the written media: brief writing space, research and writing

offices, printing rooms and journal and pamphlet distribution space/ shop. For moving pictures media: brief writing space, video planning and script writing offices, video (post) production offices and film screening/ distribution space.

When considering the courtyard spaces identified in essay two, we can now start to apply these sequences to particular zones on site. Each of the courtyard spaces identified on site begets the appropriate programmatic theme and organises the program into a northern, eastern and western wing. The northern wing, with its courtyard tightly embraced by the existing surrounding buildings and consequently protecting it from the majority of the sound pollution of the street, lends itself to the written media sequence. The eastern wing, being the most visible, is appropriate for the
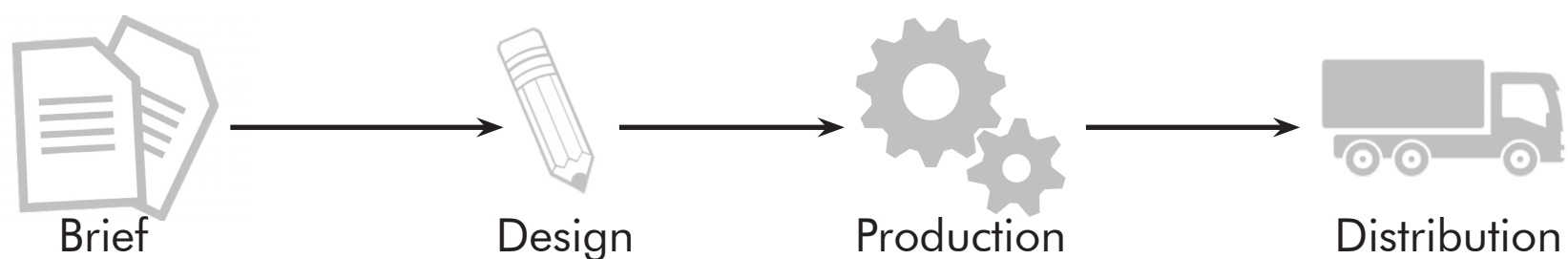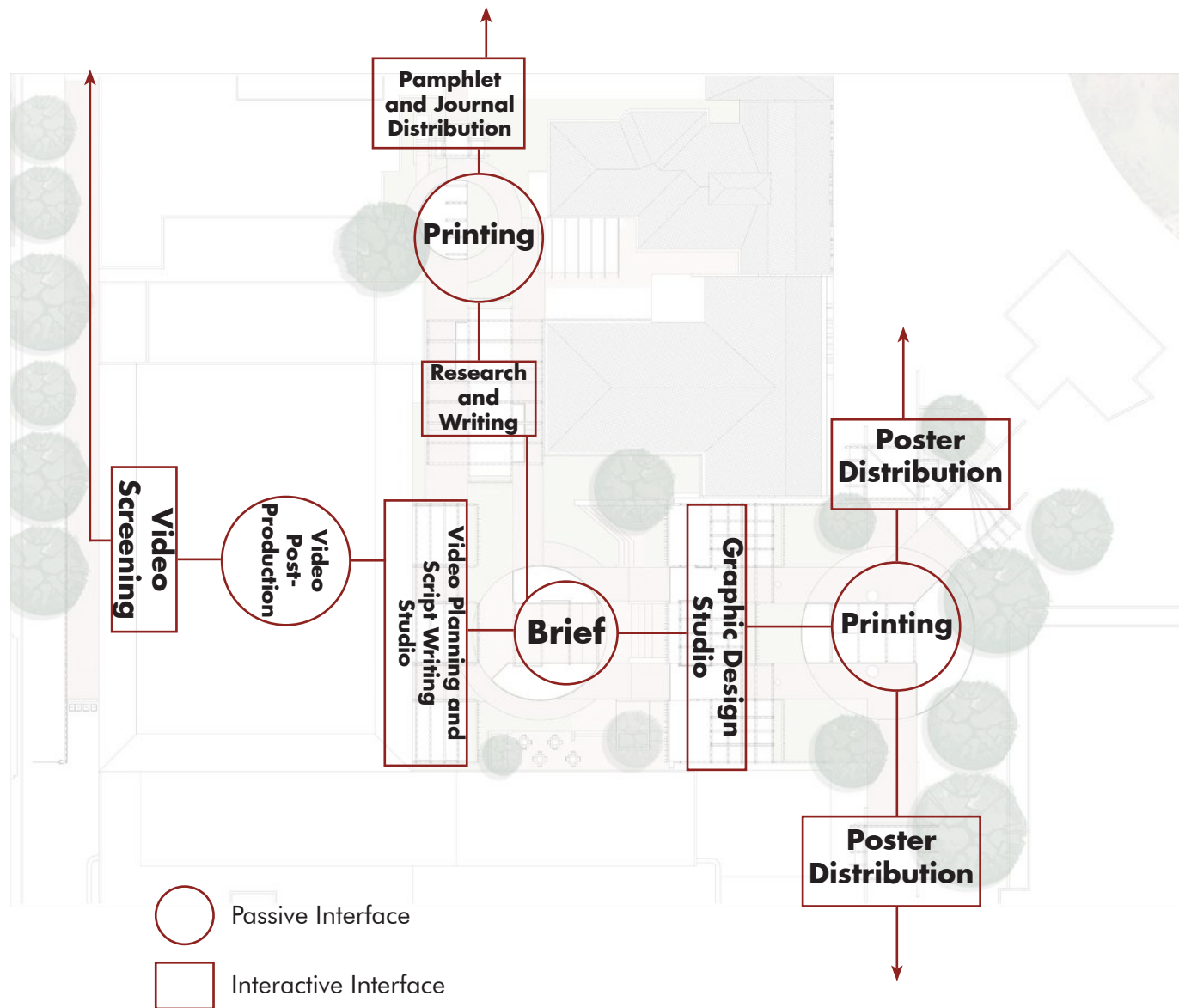

Fig.145: General sequence of media product production (author 2021).

graphic design media sequence. With the dark interior court of the capitol theatre, the western wing fits the telos of moving pictures media, as it is suited for light projection. At the centre, connecting these wings, the shared brief writing space populates the final square. The resultant product of this application is a central courtyard from which the different themes of the program radiates into different directions and finding architectural form in alternations of building mass and courtyards; interactive and passive interfaces; elevated and sunken spaces; politicised and idealised, sublime spaces. In the following part we will run through each of these sequential spaces of the program and briefly discuss how they are used as well as their relation to the three conceptual approaches discussed in essay two starting with the brief writing space, followed by the eastern wing, the northern wing and the western wing in sequence from the planning spaces to the distribution spaces[5].

Pamphlet and Journal Distribution

Printing

Research and Writing

Poster Distribution

Video Screening

Video Post-Production

Video Planning and Script Writing Studio

Brief

Graphic Design Studio

Printing

Poster Distribution

○ Passive Interface

▢ Interactive Interface

5. *For a more in-depth description of the layout and precise usage of each space discussed, see appendix.*

*Fig.146: Specific programatic sequencing applied to site (Author 2021).*

Brief Writing Courtyard

The central courtyard is characterised as the destination where public users end up to discover the origin of the media production sequences (the writing of a brief) i.e. the final reveal of the media production process. At basement level, a conference room and radio station is implemented where the brief is discussed and documented and where these proceedings are broadcasted. In terms of the passive interfaces (that characterises the public courtyards), the program is revealed to the public not through sight (though there is some visibility into the private space at basement level, this visibility is limited) but rather through sound. When standing on the roof of this basement space, sound (of the proceedings) from the private space below is reflected to this public spot on ground floor via sound amplifiers (broadcasting the radio) and the curved walls of the

basement. This gives the impression of the clients of political campaigns, i.e. those with political and economic power being faceless entities whose voices, interests and influence can be felt echoing in everyday realities. Furthermore, the optical illusion of the surrounding screens forming the separated envelopes of the surrounding buildings come into focus on this point, showing the user how the interface works, whilst simultaneously idealising this meaning through the sublime feeling created through their scale and verticality.

Fig.147: Development of points where the facades' optical illusions come into focus for the brief courtyard (Top) and the diagram of the parti to be etched into the louvers of the facade (the image that comes into focus) (bottom) (Author 2021).

Church Square

Groundfloor

Basement

*Fig.148: Focussed plans of Brief court (Author 2021).*
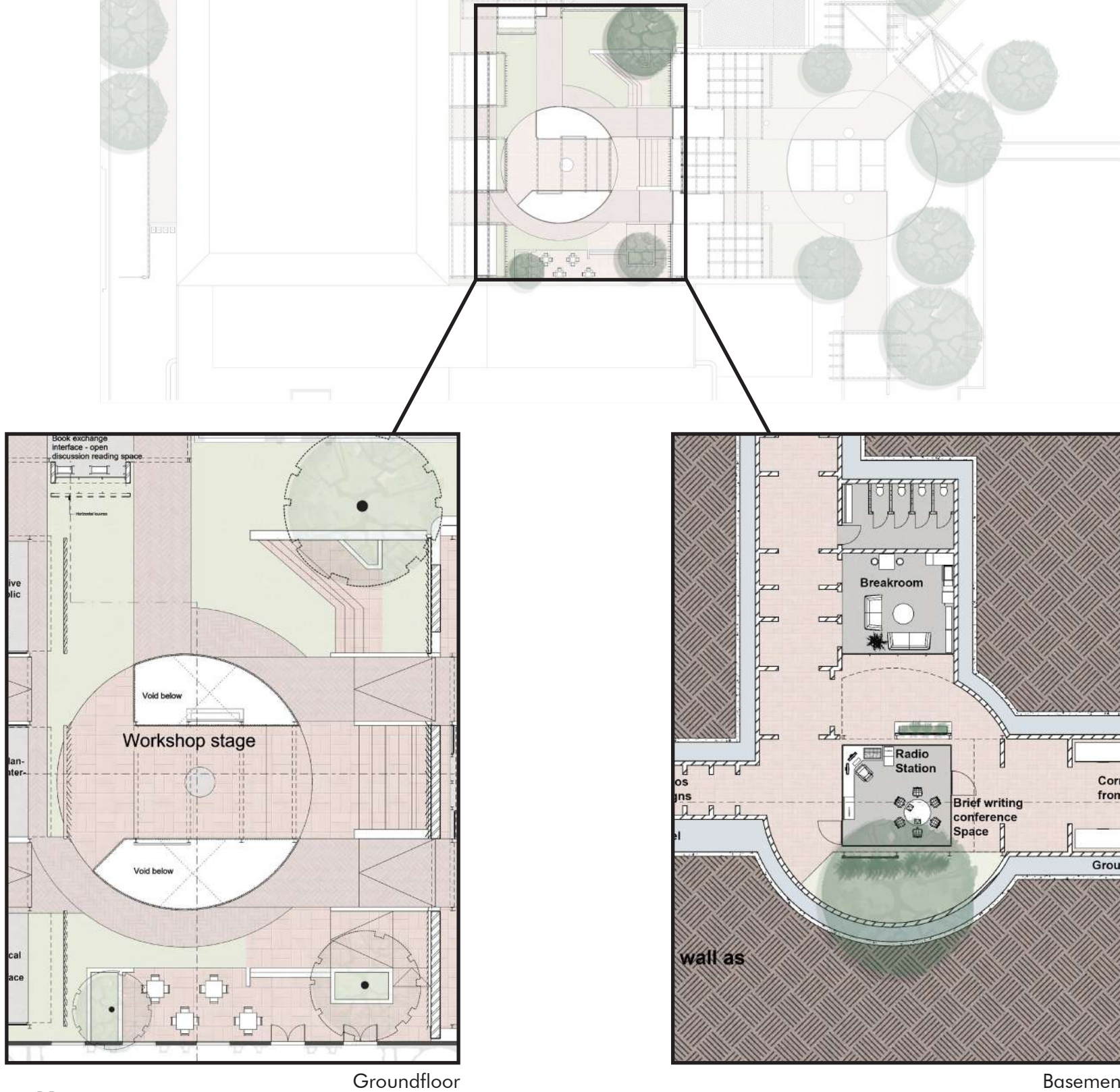
Graphic design Studios

Looking at the three private boxes of the upper floors, the northern box facilitates a slogan writing and conceptualisation studio, the middle box, a more formalised interior space where posters are designed in more detail and reiterated to a final presentable product and the southern box a crit space where final poster and banner iterations are critted, discussed, discarded and a final selection for use is made. Below each of these boxes on public ground floor level, the public is able to interact with each of these studios via an interactive interface taking form in vertically movable panels oscillating between private and public[6]. What is revealed to the public is an aspect of the political nature of the design process where inputs and inspiration is necessary from many individuals in order for design projects to be iterated and finalised, i.e. signifying the design

process as a social practice. As such ones socio-political influence can tangibly be felt through participation and seen the iterative development and final media product. These spaces are in stark contrast to the sublime idealisation of the adjacent courtyard with the effect being a breakdown of the representational nature of the passive interfaces when moving through the false building skin (louvres) and when met with this new political reality behind the envelope.

6. Here the public is able to draw over/ add to information contained on the panels originating from the private users in the studio above. The precise usage of each interface of each studio can be found in the appendix, though the broad notion of using the panels to transfer information remains the same, and only differs in slight particularities in the public's interaction with them.

Fig.149: Development of the design studio structures (Author 2021).

93

Groundfloor

Upper Levels

94

Fig.150: Focussed plans of design studios (Author 2021).
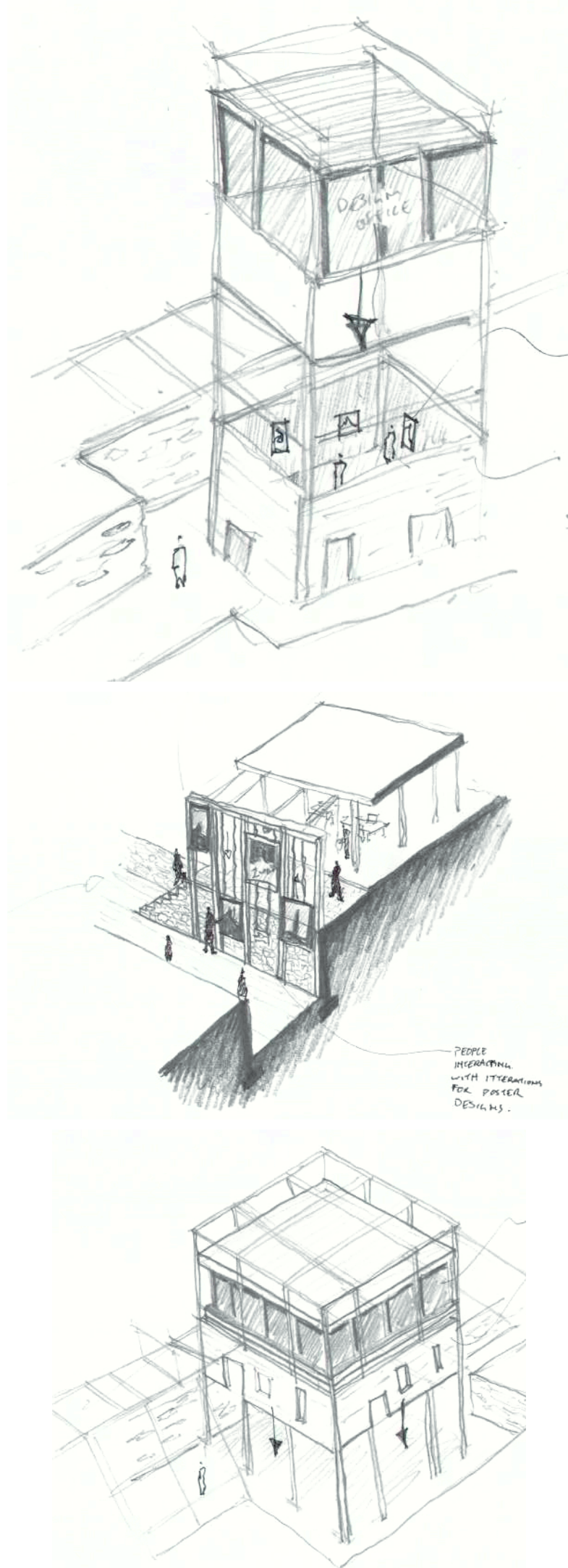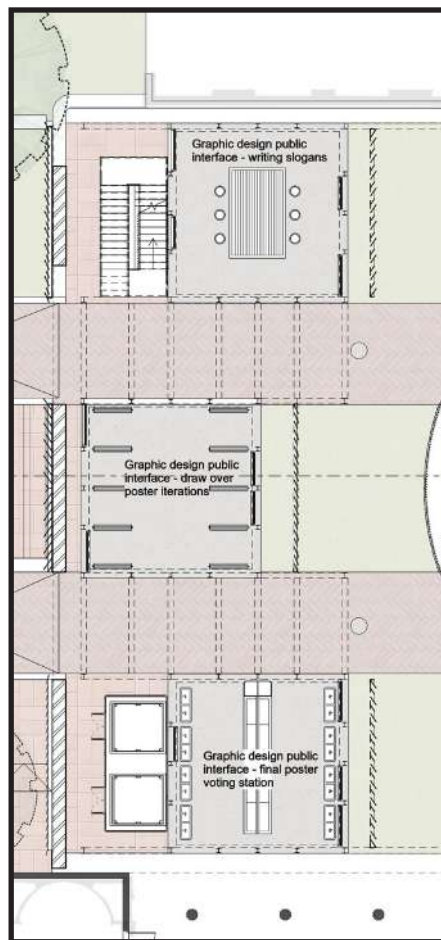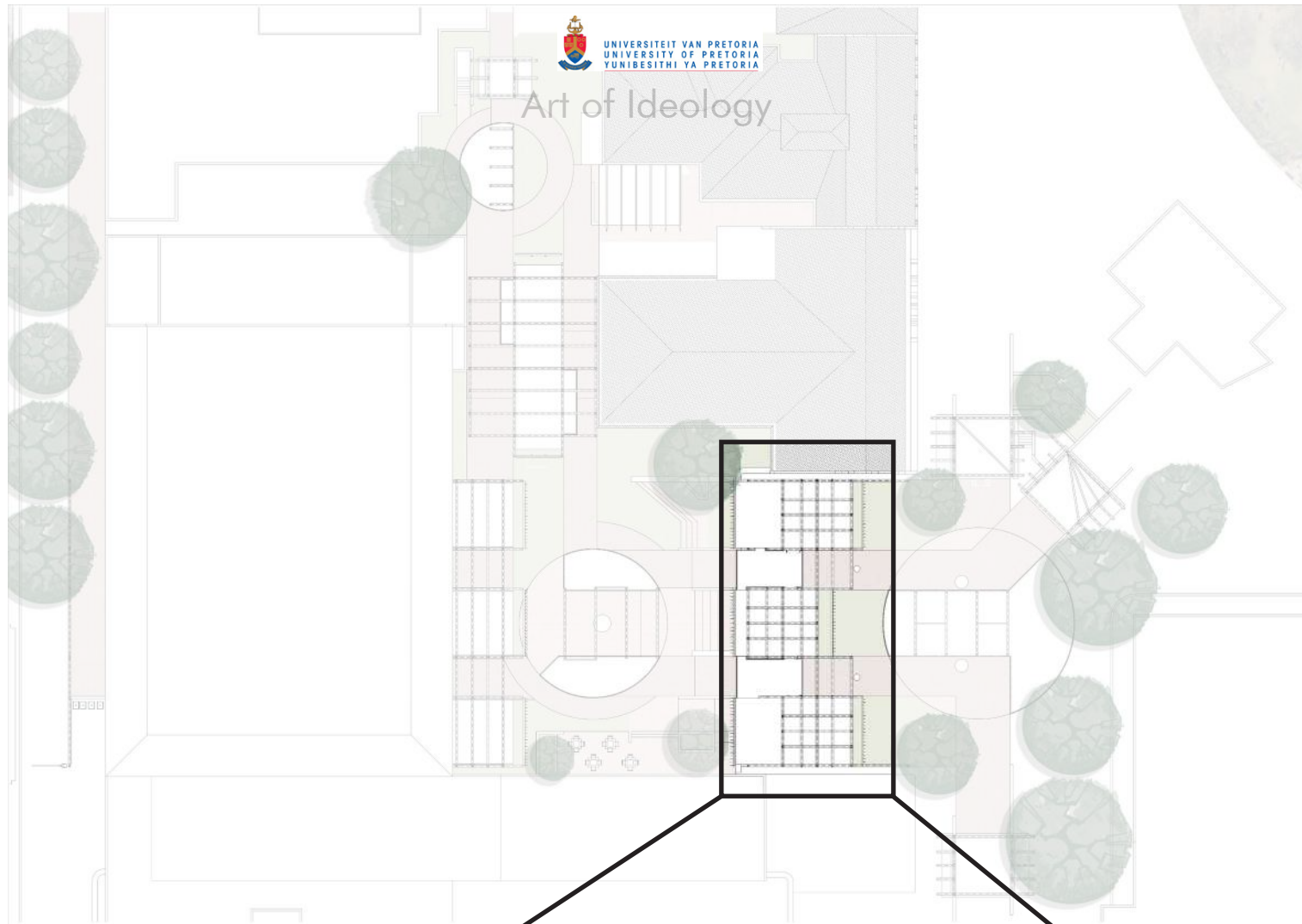
Poster printing courtyard

In the eastern courtyard poster printing rooms are submerged below the open public space. Here final posters/ banners are produced on mass. For its passive interface the process of poster production is revealed visually at particular spots where one has vistas into the rooms below a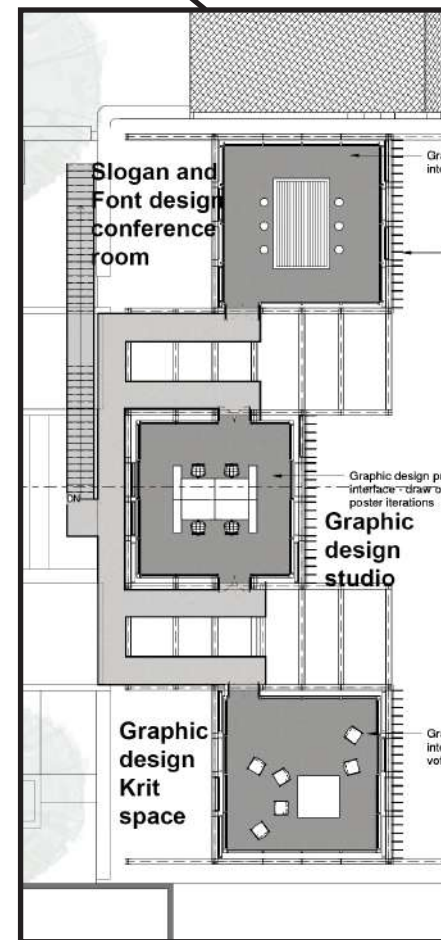nd where the illusions carved into the louvred skins of the buildings come into focus (again indicating to the user where to look). At the spots where one is able to look into the space below, screening elements block one's view of the technicians themselves, only revealing the printing machines, making the process seem almost fully automated with the printers spitting out posters on one side and stacked on the other, the technician merely becoming a cog in the machine. As with the other courtyards, this message of the politics of impersonality in production gets aestheticized

and elevated through the feeling of the sublime created by the vertical louvres of the surrounding buildings as well as the imposing façade of the Raadsaal fronting the court on the east.
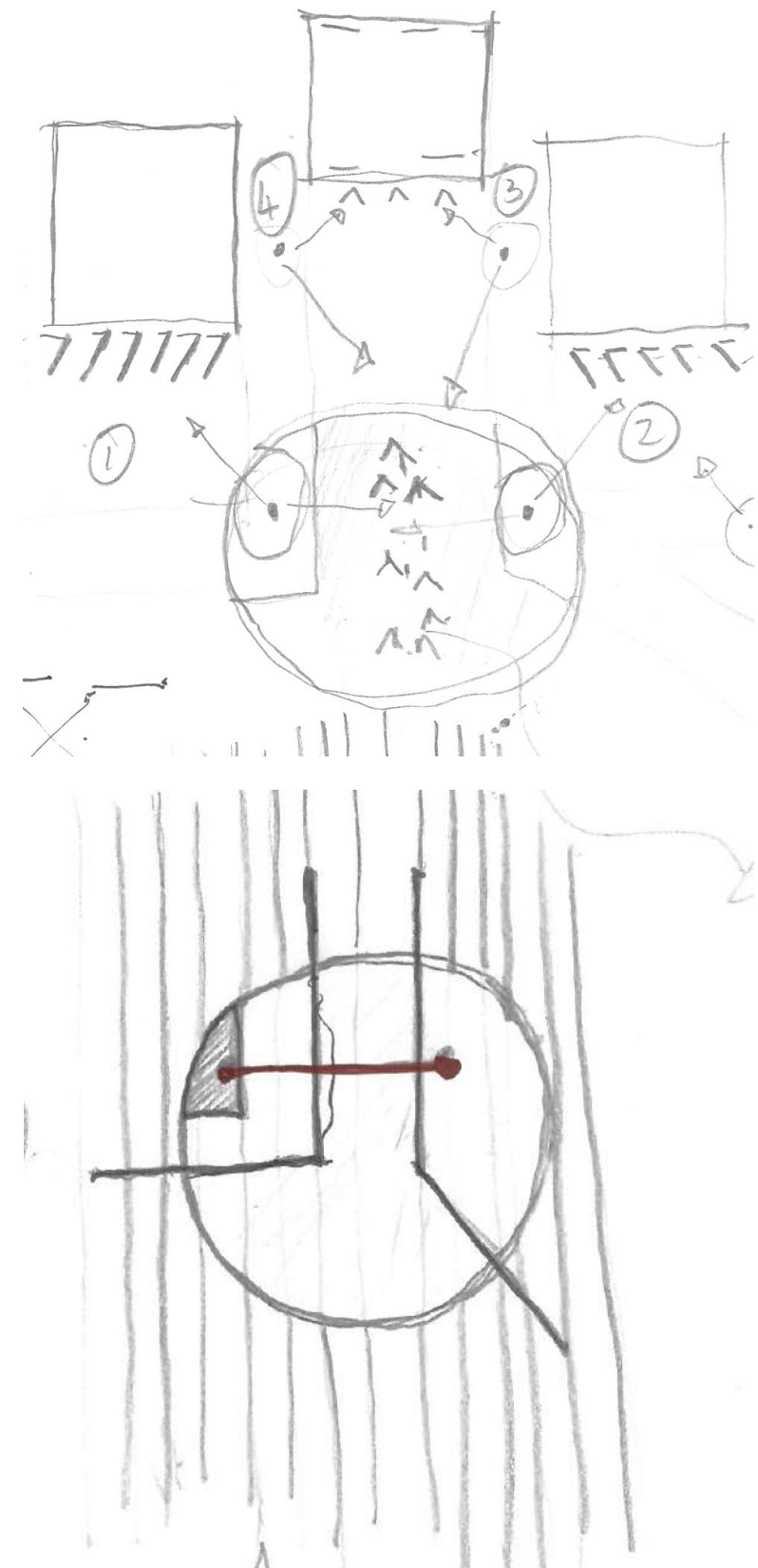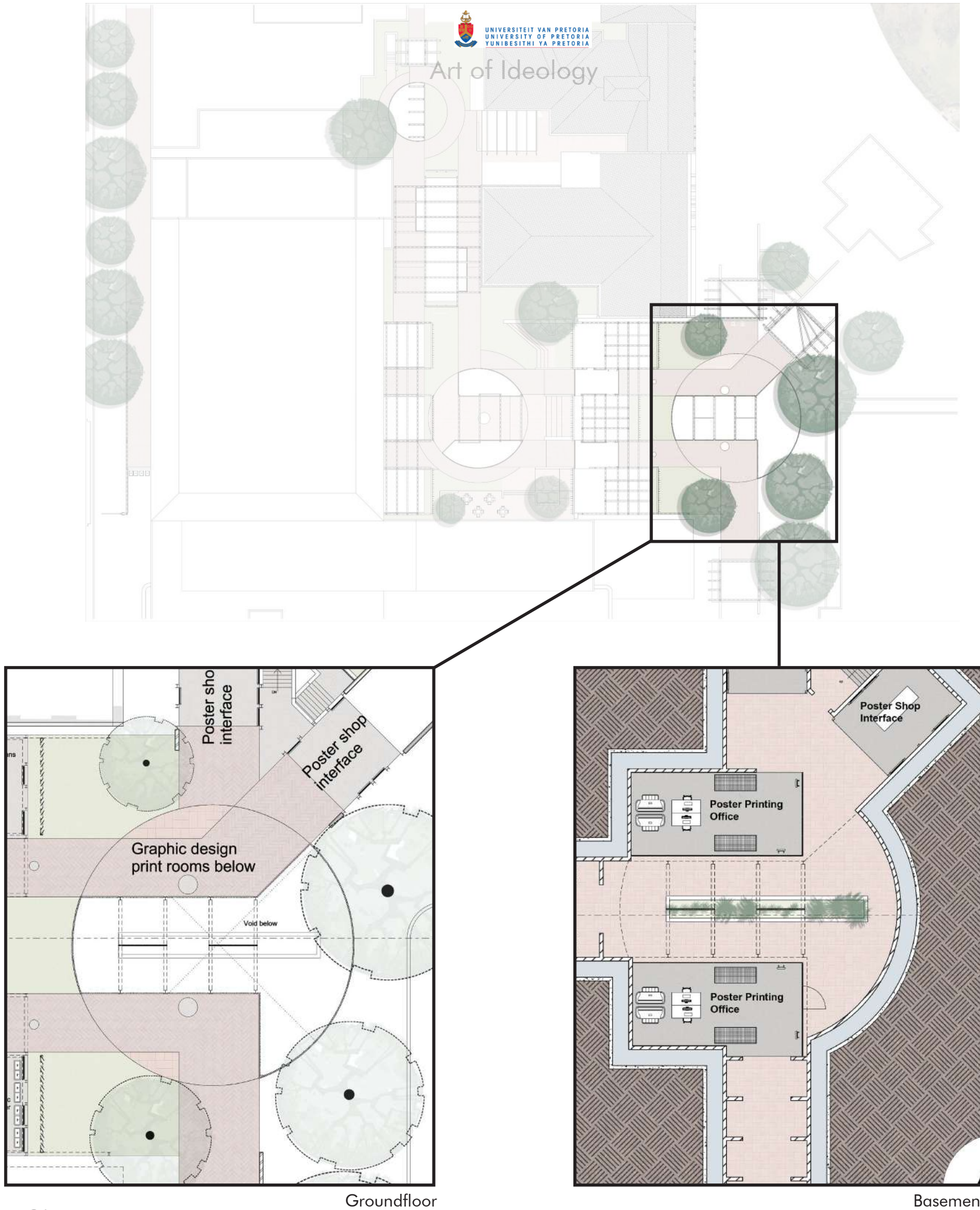

Fig.151: Development of points where the facades' optical illusions come into focus for the poster printing courtyard (Top) and the diagram of the parti to be etched into the louvers of the facade (the image that comes into focus) (bottom) (Author 2021).

95

Groundfloor

Basement

96

Fig.152: Focussed plans of poster printing courtyard (Author 2021).

Poster Distribution Structures

These framed boxes are where the posters are taken to after printing to be sold or distributed to the public. This is the first point of contact between the public and the program where they encounter the final product before unveiling the rest of the process as they move deeper into the building. Similar to the design studios, the interactive interface between public and private is mediated with a vertically movable panel between the two, transferring posters from basement to ground level. The difference being that the private space is submerged below the ground level (both give the intervention a softer edge as well as to ease the flow of products from production to distribution). Distributing the posters in this fashion reveals the political relation between buyer and seller, distributer and distributee where one has to perform an action for the other to benefit and

vice versa. Due to the parties not being in direct contact, one's decision to buy/take a poster is not influenced by the rhetoric of a salesperson, but by your own interests and duties toward the political procession of which you form part. As such the private-public relation is distilled to its purest political form.
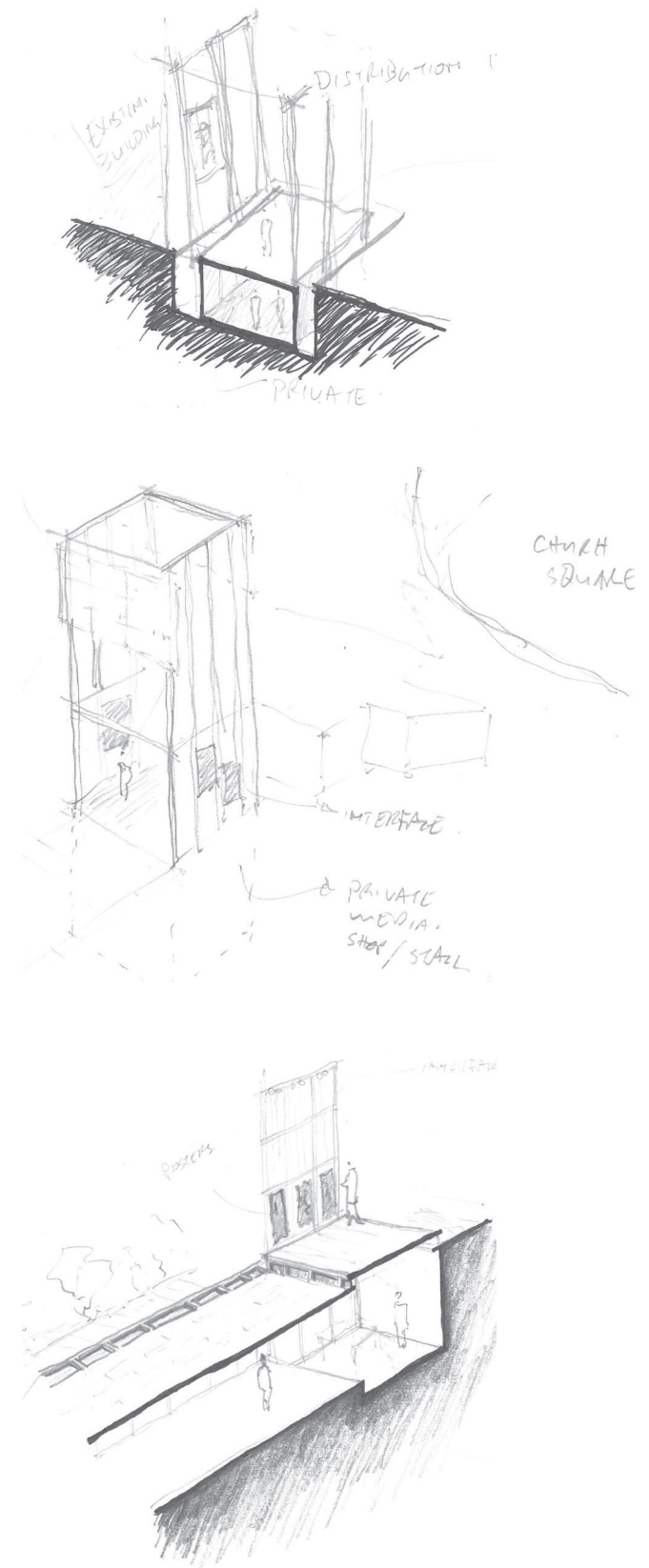

Fig.153: Development of the poster distribution structures (Author 2021).
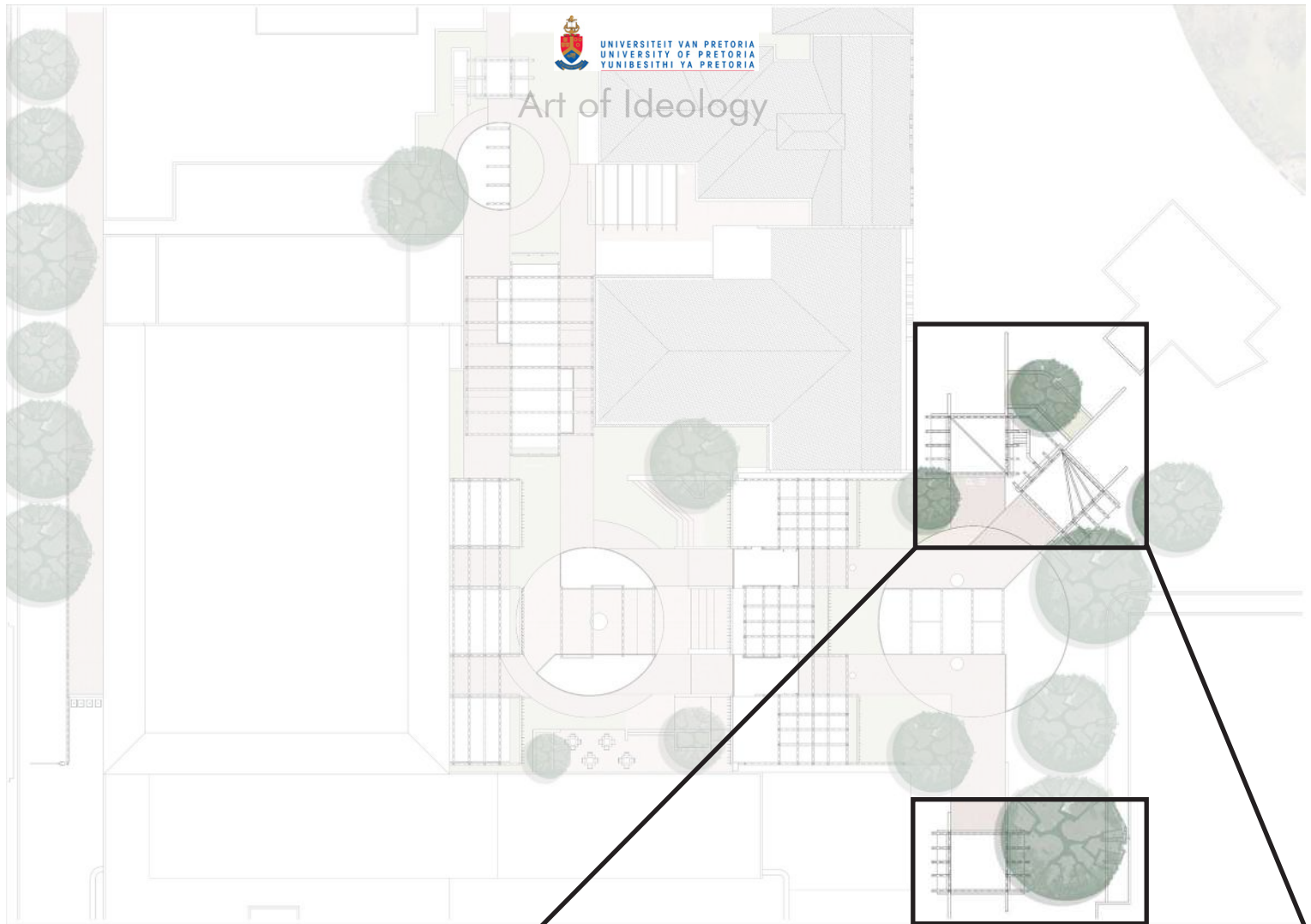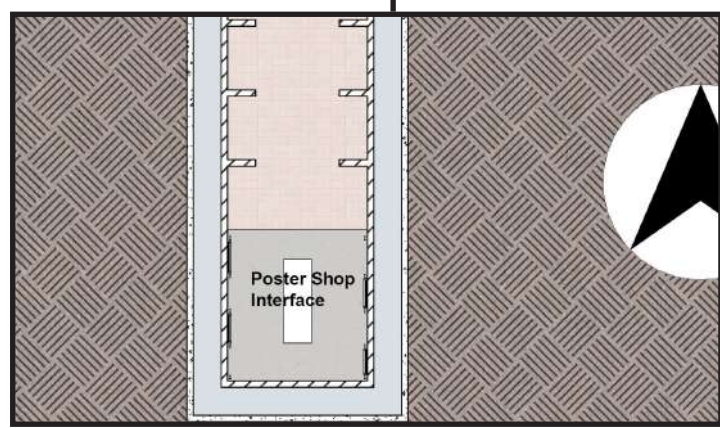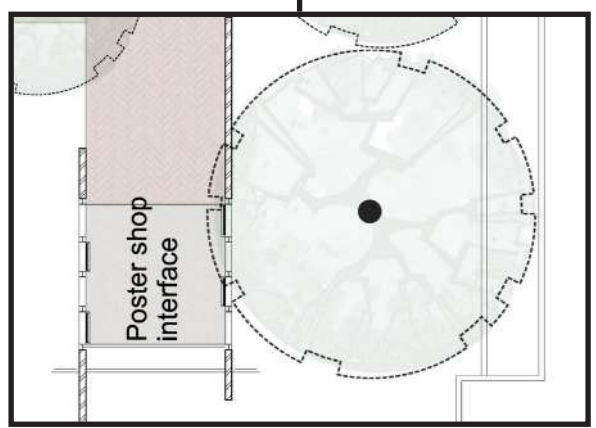
Fig.154: Focussed plans of poster distribution structures (Author 2021).

Poster shop interface

Poster shop interface

Poster shop interface

Poster Shop Interface

Poster Shop Interface

Poster Shop Interface

98

Groundfloor

Basement
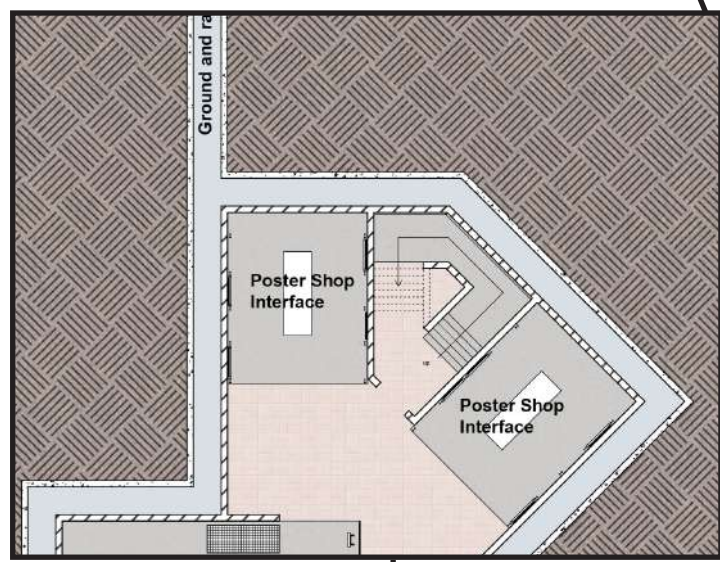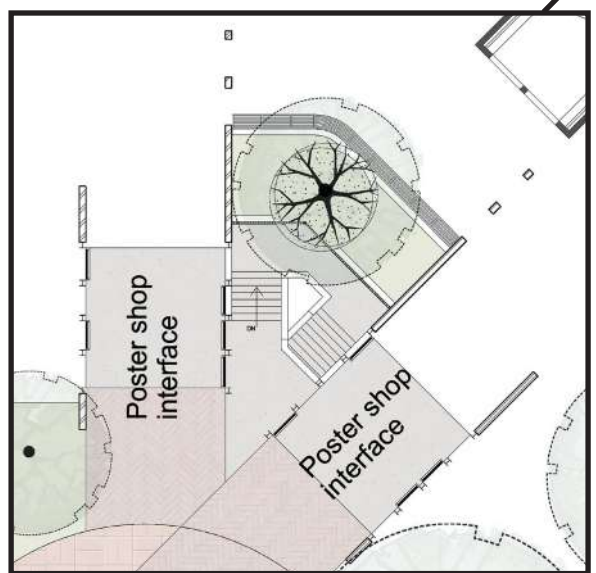
Writing Offices and Reading Space

Moving towards the northern wing of the site, we find the research and writing spaces with office type spaces at the upper floors and a public library type space at ground floor. The public discovers this step in the programmatic sequence with an interface similar to the vertically movable panels previously discussed, except instead of movable panels, one has movable bookshelves. The movable shelves are open for the public to take and donate books (akin to a free book exchange). These books will ultimately be used and referenced by academics and writers in the final media product. In that way the public is able to influence the writers and their publications which the public themselves read. As such a political relation between writer and reader is revealed. Through this exchange, literature is posited as a social production between these groups with our knowledge of the world being dependant on, and often constructed by, the knowledge, views and material conditions of others – in a sense it posits the literature we write as a construction of our own zeitgeist. Looking at the envelope of these spaces, the interior structures hang within a large steel lattice extending beyond the interior spaces and stepping in accordance with the height hierarchy on site. This structure is open to the envelopes of the existing surrounding buildings (the theatre and the old Netherlands bank) making it seem as though they become the envelope of the new structure whilst simultaneously being dived and framed into the new building's grid. The new (second) skin of the building work in the same way as the others in the form of louvres separated from the internal spaces, albeit horizontal.
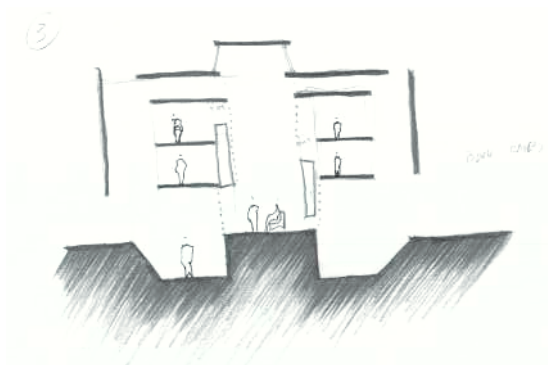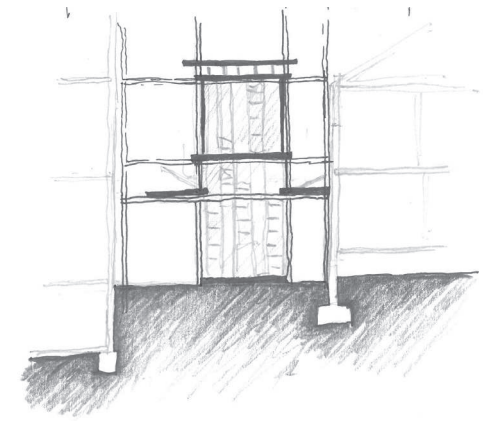
Fig.155: Development of the writing offices and reading space (Author 2021).
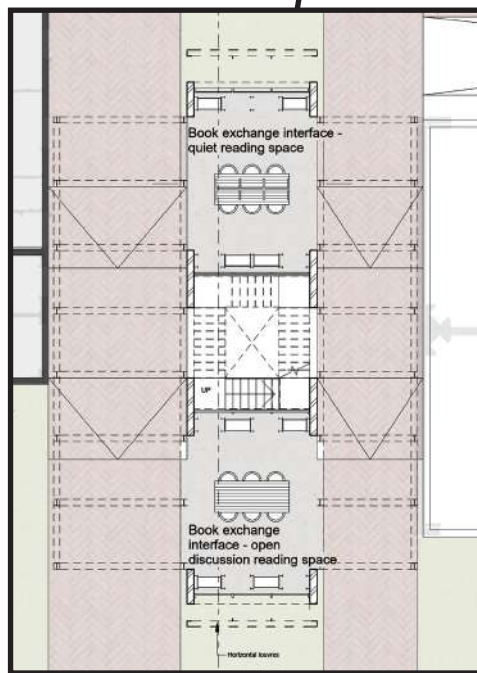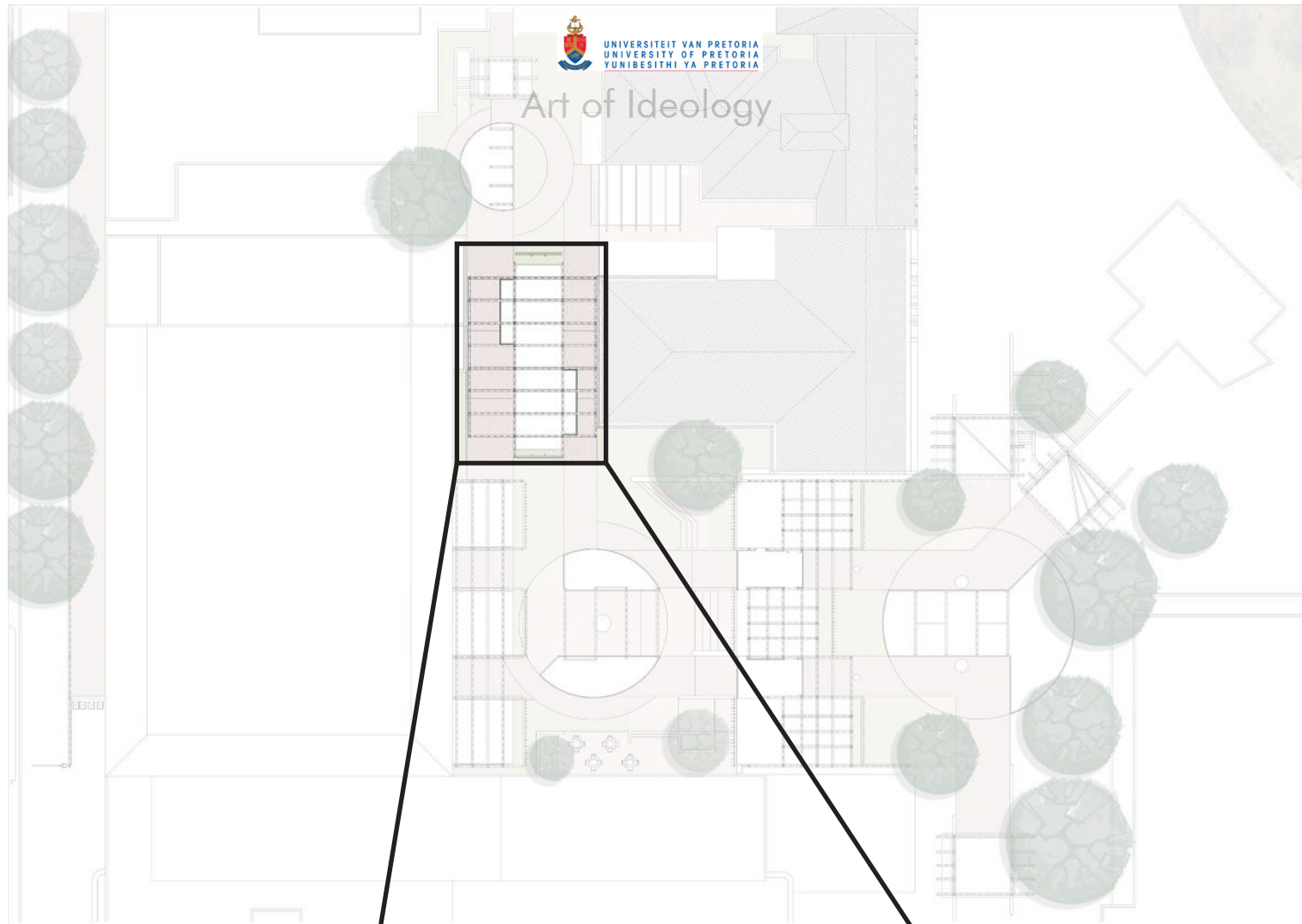
Groundfloor
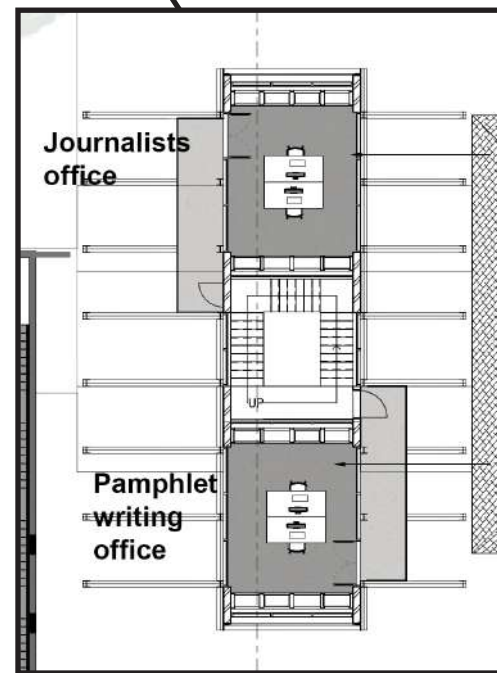
Upper Levels

Fig.156: Focussed plans of writing offices and reading space (Author 2021).

Pamphlet and Journal Printing Courtyard and Distribution Space

The northern courtyard and its accompanying distribution space follow the same logic as the eastern courtyard above the poster printing spaces albeit at a much smaller scale (and the panels adapted to facilitate journal type documents) due to the limited space afforded by the surrounding buildings. The courtyard allows visitors to see the printing process at basement level in a fashion that hides the technician and makes it seem automated whilst the distribution space allows the user to buy/ take posters in an impersonal manner from the private space below. As such it suggests the same meaning and interpretation of the spaces as the poster sequence. The only fundamental difference to the printing sequence is that the distribution space (as another entrance to the inter-

vention), is hidden from the street and can be discovered by the public when looking down the alleyway that precedes it (similar to the Queen street mosque in Pretoria CBD), perhaps poetically in the same way a rare book is discovered when browsing a second-hand bookstore.
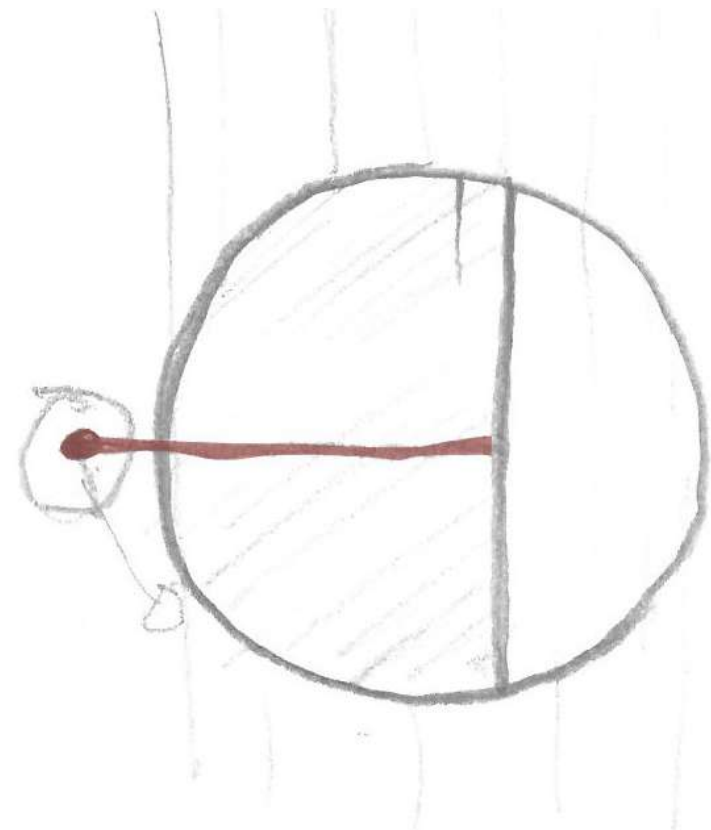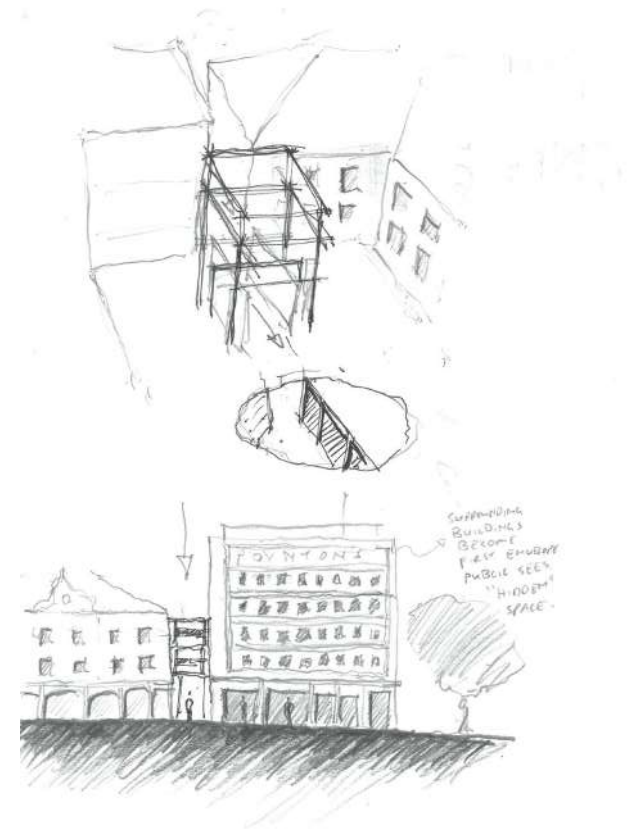
Fig.157: Development of Pamphlet and journl distribution spcae (Top) and the diagram of the parti to be etched into the louvers of the facade (the image that comes into focus) of the pamphlet and journal printing courtyard (bottom) (Author 2021).

of Ideology

B >

Poster shop interface

Void below

Pamphlet printing below

Groundfloor

Pamphlet Shop Inter-

Pamphlet Printing Office

to be stored in Cafe Riche basement

Basement

Fig.158: Focussed plans of the pamphlet and journal printing court and distribution space (Author 2021).
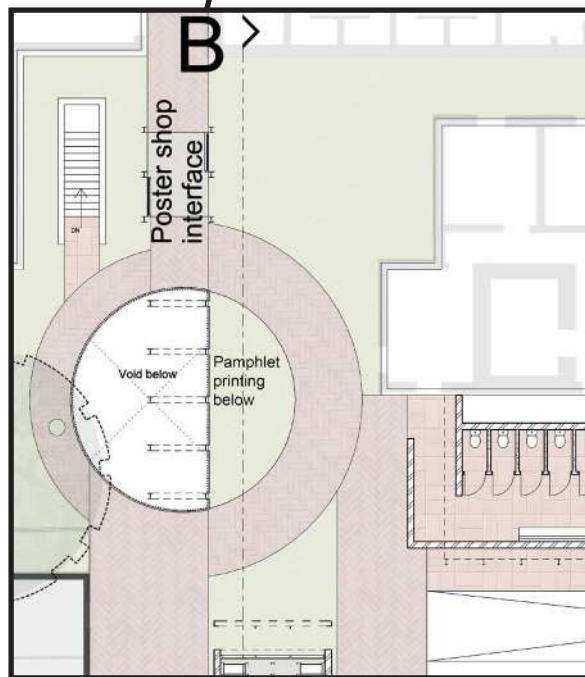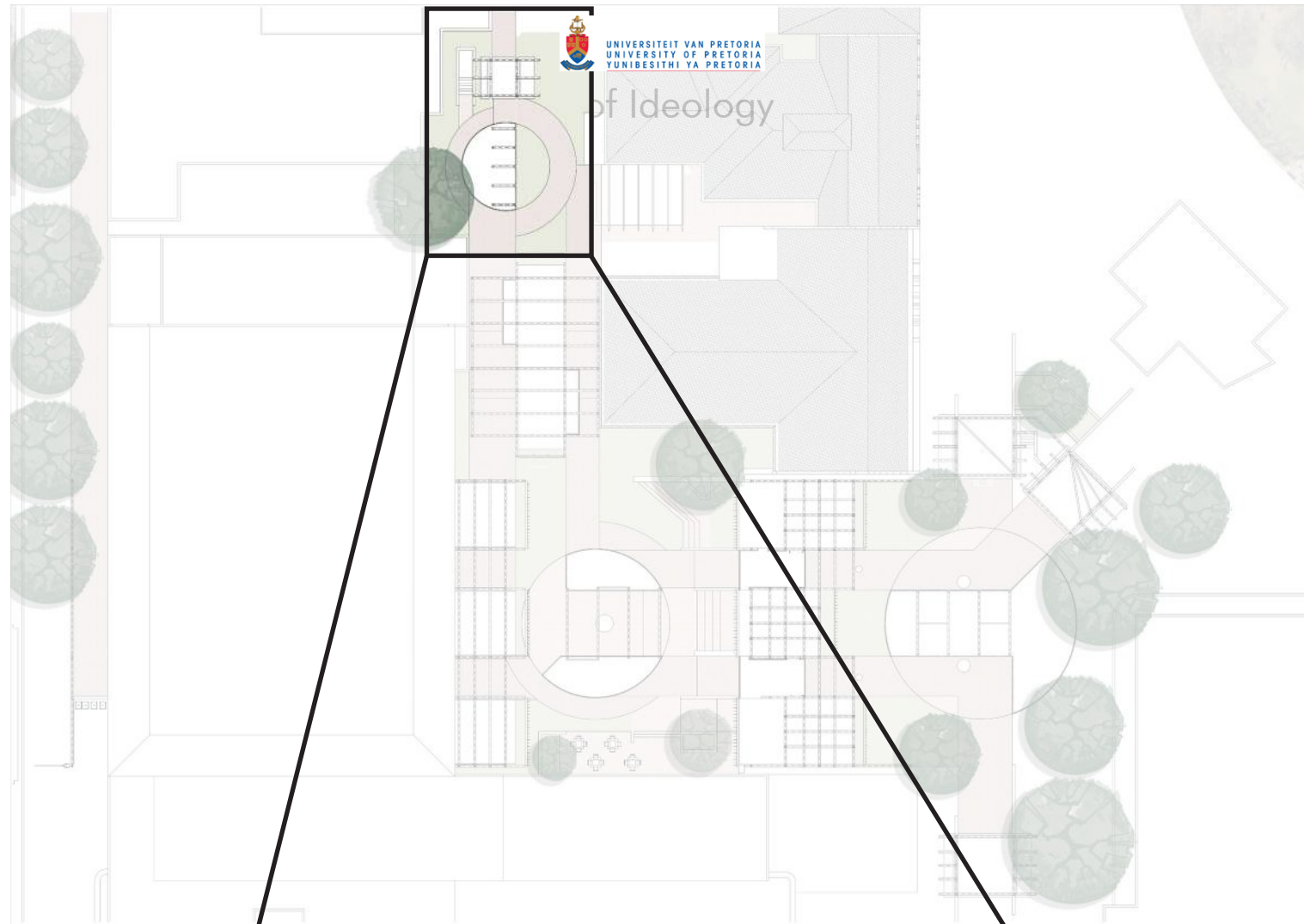
Video Production Planning Offices

At the western wing we find the video media production sequence cutting into and occupying the interior of the capitol theatre. The elevated boxes create private spaces for planning and script writing for videos and films and cut into the outer skin of the theatre, protruding out a few metres. Speaking with Wickus van Wyk (2021) (educated and experienced in screenwriting for the SAPS) about the processes involved in planning and executing a video/ film production, three parts can be distinguished that is necessary before a professional video shoot can happen: the formulation of a storyline, scene by scene storyboarding (including sound effects, music and script) and the practical planning of the video. Each of these parts are ascribed to each of the boxes. Similar to the design studios, one discovers these parts of the

creative production process as a social production between various individuals and groups, particularly between film producers, directors, scriptwriters, playwriters, etc. (authorities on film production) and the public layman. Between these two parties (layman and professional) the same movable panel system is used as elsewhere in the project, though with differing treatment of the panel surfaces to accommodate the particular uses relevant to each space. This allows the pubic to actively participate in and influence the creative film design process. As opposed to the idealised spaces of the courtyards, where one simply absorbs the information presented to you at the passive interfaces, here you engage in a political interaction with the private. As such the political is presented as a real personalised experience influencing a tangible visual medium. In a sense everyone becomes an actor in the film design process where the collection of

scenes in the final film product become a tapestry of public diversity which map their frustrations, thoughts, ideological leanings and so on. The louvred screens, that formalise the separated skin of these structures, veil these private and public spaces from the courtyard. With this the second skin on the western side of these structures takes form in the existing interior decoration walls of the theatre (which coincidentally was meant to be the second, representational skin for the theatre's interior). As such a dialogue between the old and new false/ separated envelopes are created, hinting at a political tension between existing heritage and new development.
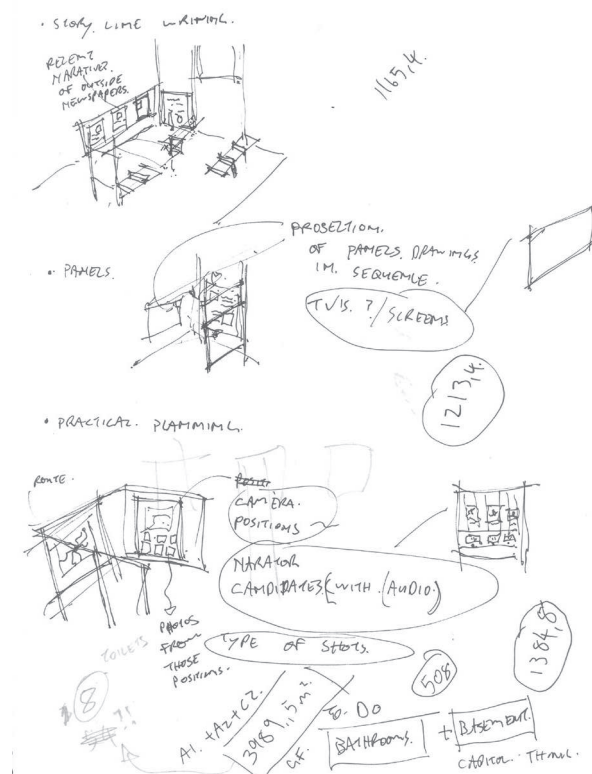
Fig.159: Development of the video production planning offices (Author 2021).

Groundfloor

Upper Levels

Fig.160: Focussed plans of the video production planning offices (Author 2021).
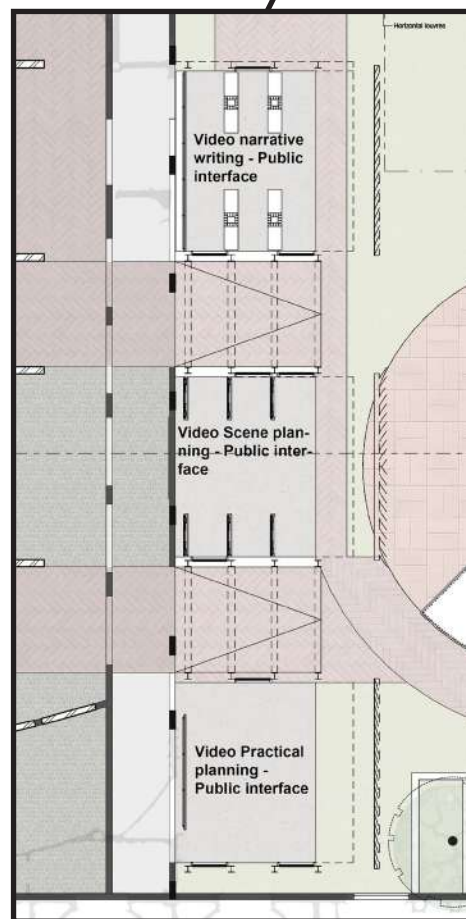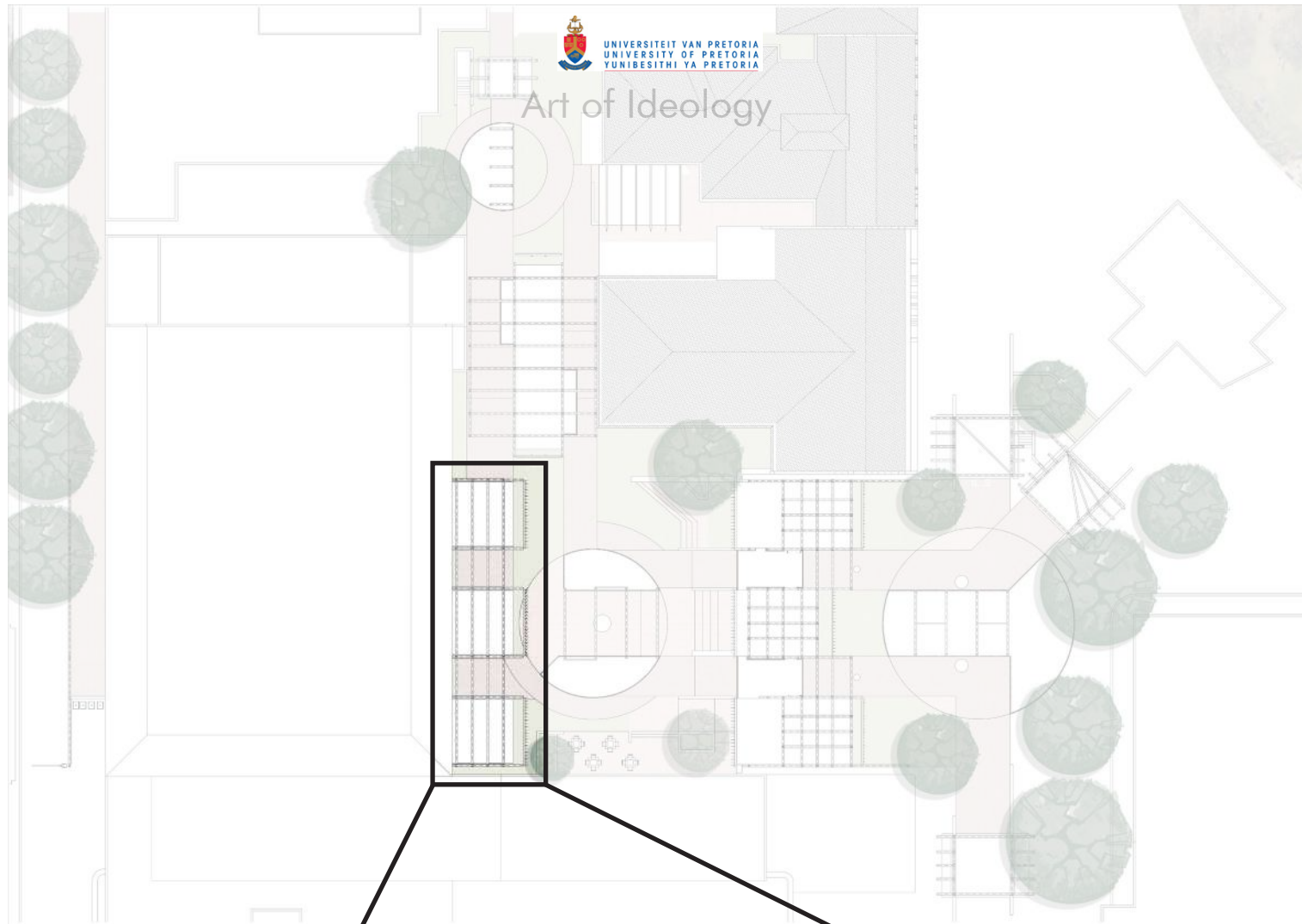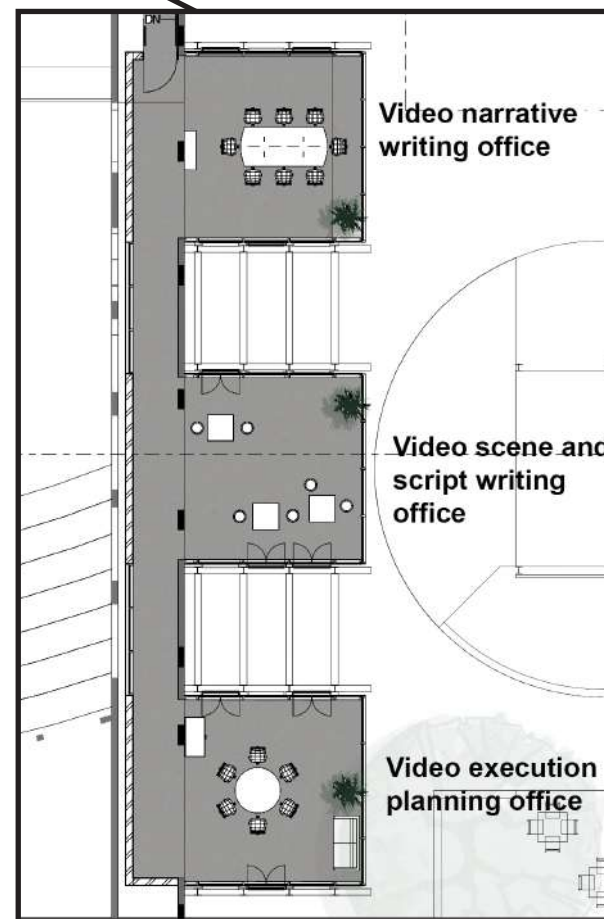
Video Post-Production Courtyard

In the western courtyard inside the Capitol theatre, the video production space where videos, after being filmed, are spliced together into a final product is accommodated for at basement level. Due to the media being produced in and the dark context of this space, this courtyard in particular and the space of the theatre in general, plays with the notion of projection. The passive interface reveals to the public user the interior of the post-production office with the use of mirrors on the curved wall of the basement courtyard when stood on the roof of said private space. As such the private user is projected towards the public and vice versa. This prompts the question: who is projected to whom, and, following Foucault's (1976: 93) power-knowledge relation, who has power over whom? As such one is confronted with the politicised idea of observation over another affording one power over said other in the same way video editors, in observing video footage of others, endow them with power to change the meaning of the footage and consequently exercise power over the subjects of the film[7]. The sublime quality afforded to this space by the massive volume of the theatre interior and its inward facing false envelope, elevates this meaning to a universal, idealised level, and as such transferring ideological meaning to the subject in the techno-aesthetic manner described by Mako (2014) and Šuvaković (2014).

7. This is antithetical to the meaning of the printing spaces where the absence of observation over a subject makes one feel powerless over the mechanical process of production in the same way a technician might feel powerless against the threat of unemployment through automation.

Fig.161: Development of the video post-production court (Author 2021).

Video and movie
screening space

Video
writi
inter

Video production space
at basement

Video
ning -
face

Vide
plan
Publ

Groundfloor

Video
Production
Office

water Channel

Corri
from

Ground ar

Permea
per eng

Basement

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Fig.162: Focussed plans of the video post-production court (Author 2021).
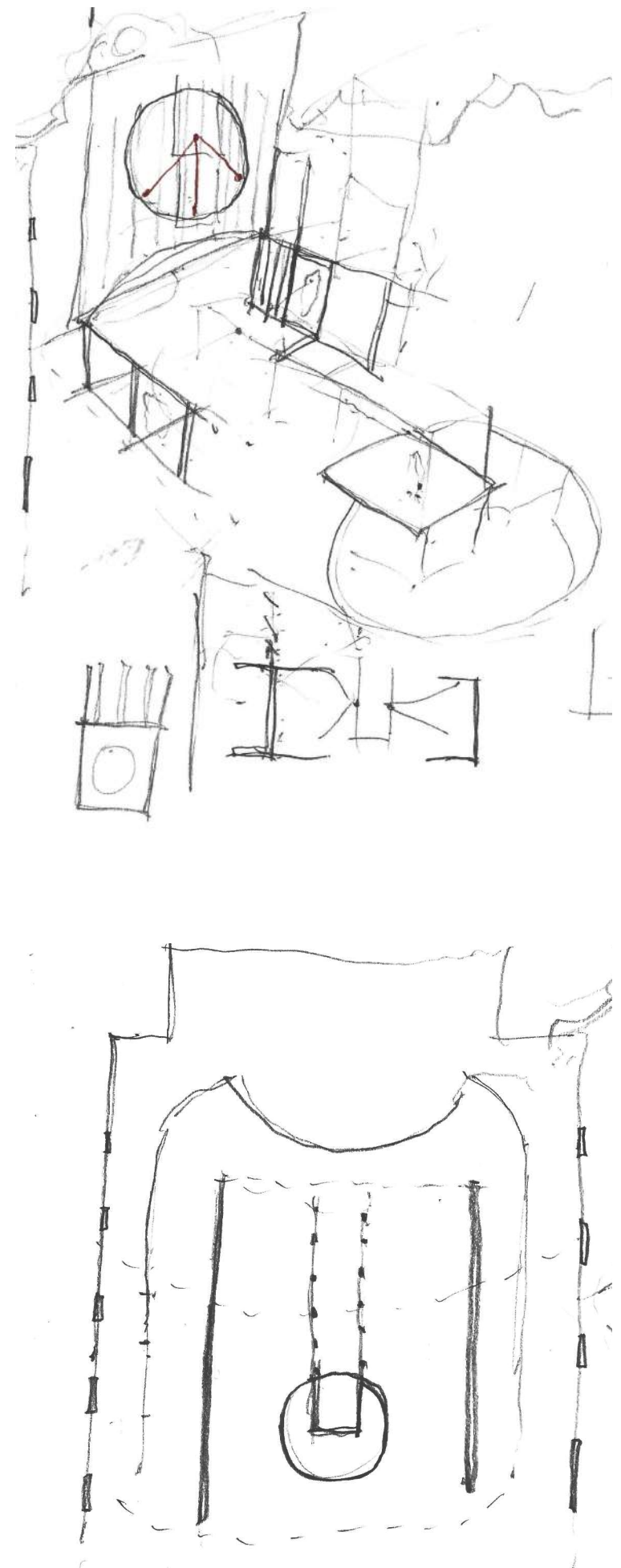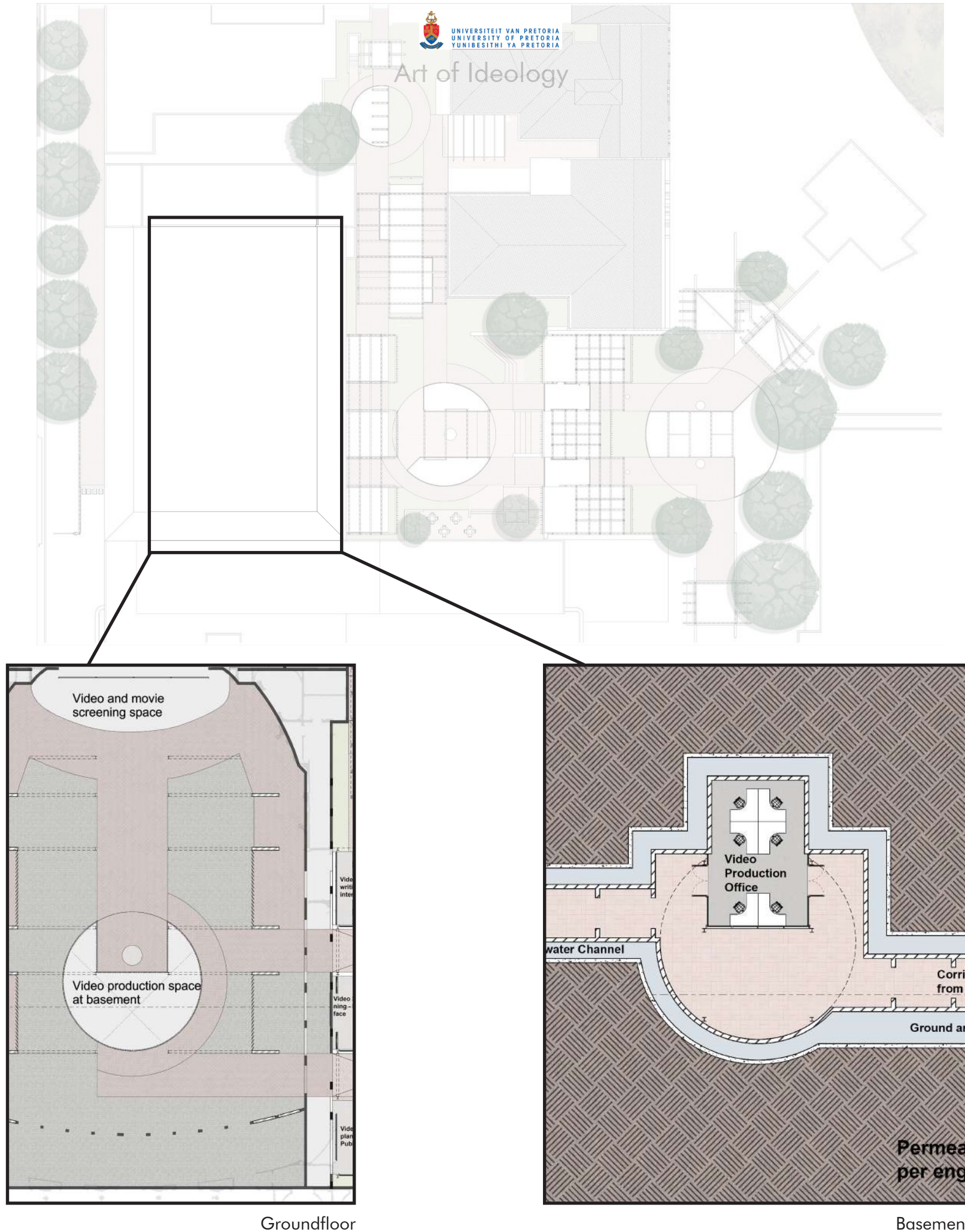
Video Viewing and Distribution Space

The first contact the public has with the video format media when entering the intervention from the western side is video distribution space. Due to the incorporeal nature of videos (especially in the digital age), the form in which these products are distributed differs from the other distribution spaces, both spatially and in its political meaning. Rather than an interface pointing towards a political relation between two individuals/ groups, the political relation between history and the present is brought to the fore. A passage is created with new projection screen walls, onto which the final video products are back-projected, adjacent to the existing ornamental interior skin of the theatre, thus acting as a threshold into the theatre interior. The juxtaposition of these screens contrasts the past with the present both

formally and in terms of the evolution of entertainment and representation. Between the 1930's and the 1980s, the historic ornamental wall was used as the mechanism for creating the context and illusions for performative media. Today all of that can be achieved on one single panel (more absurdly on a device small enough to fit in one's pocket); a form of media which is slowly negating the grandiose way of telling stories in the past, as is evident in the dilapidated condition of the existing wall. By placing the user in the middle of this antagonism, they are presented with a politicised narrative of history. The notion is driven home by making the videos downloadable via a QR code mounted to the existing wall, forcing the user to actively look at the past whilst simultaneously engaging with an interface from the present. As such the depersonalisation and desocialisation of entertainment is inscribed in the meaning of this space.
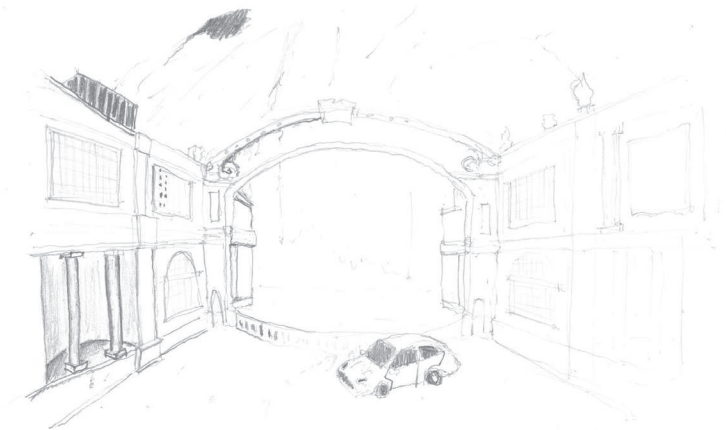
Fig.163: Development of the video screening/ distribution space as a dichotomy between old and new; decay and development (Author 2021).
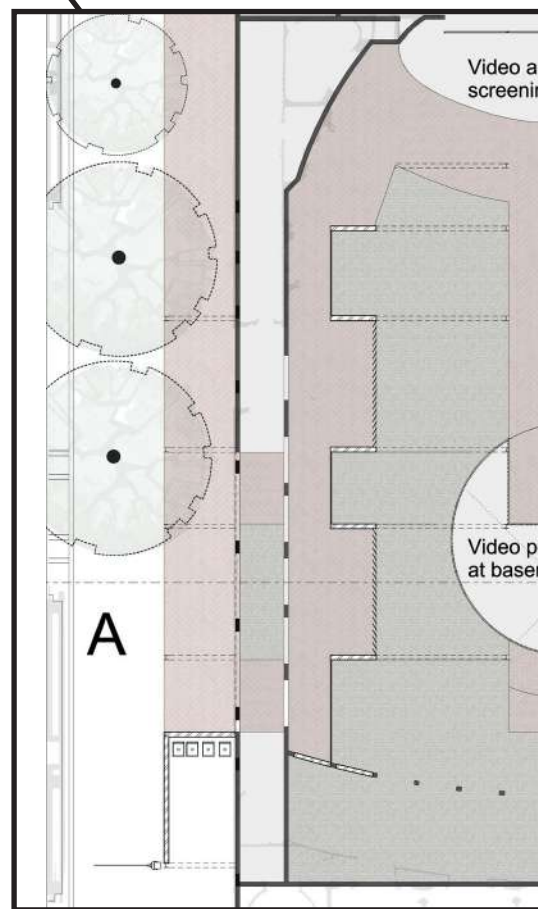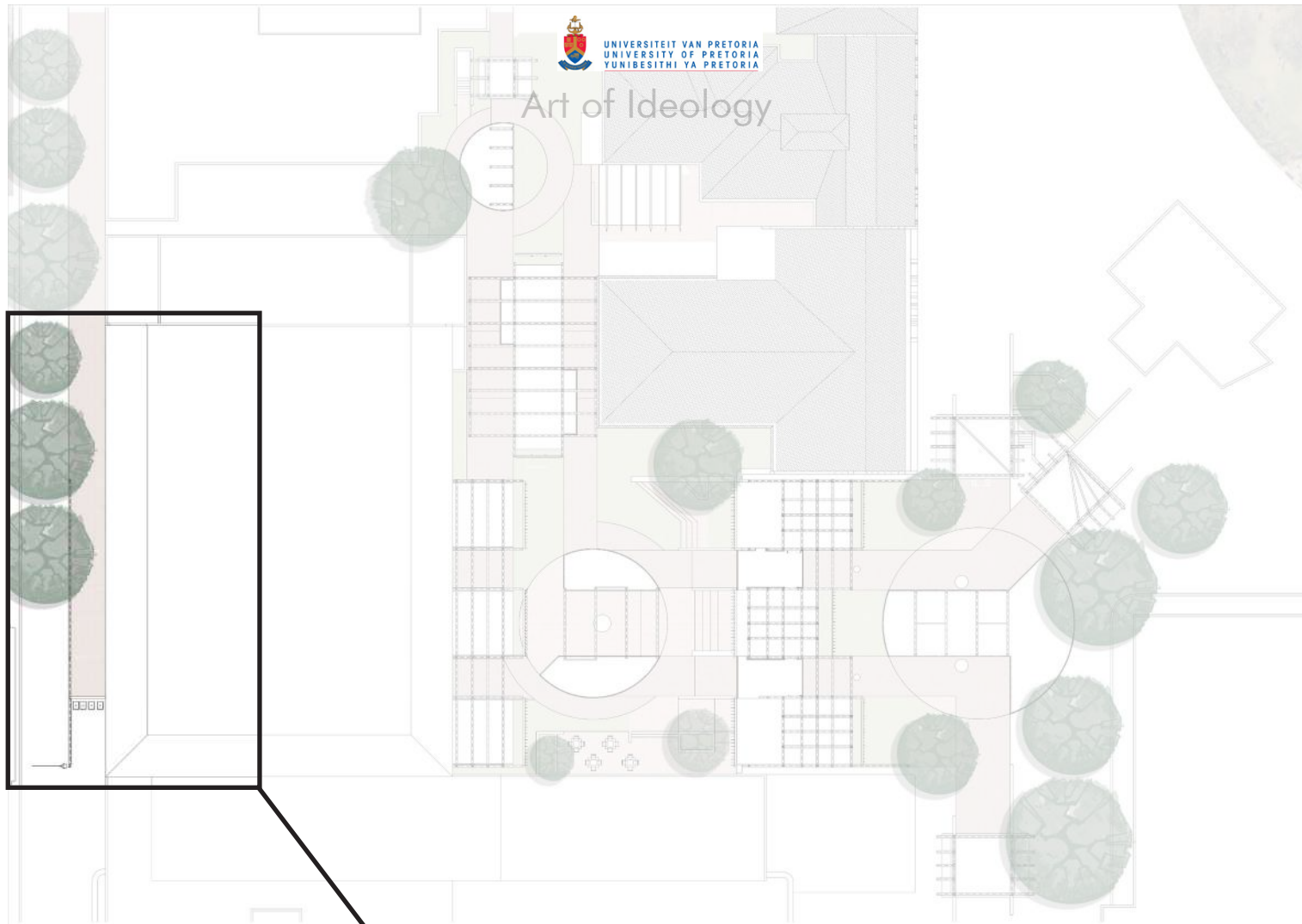
Fig.164: Focussed plans of the video screening space (Author 2021).

Groundfloor

Basement Court Connections

As a final note to how the design is laid out on site, it is important to note the private spaces on basement level, which exist below/ in conjunction with the public courtyard spaces, are al connected on basement level with underground vaulted corridors (vaulted to efficiently transfer loads from above to the foundation) to make all the underground spaces accessible to the private users. These vaulted corridors also has the secondary function of being an archive for previous political movements' media which can then be used/ referenced for future campaigns.

Corridor Archive for posters from past media campaigns

riting ence

Ground and rainwater Channel
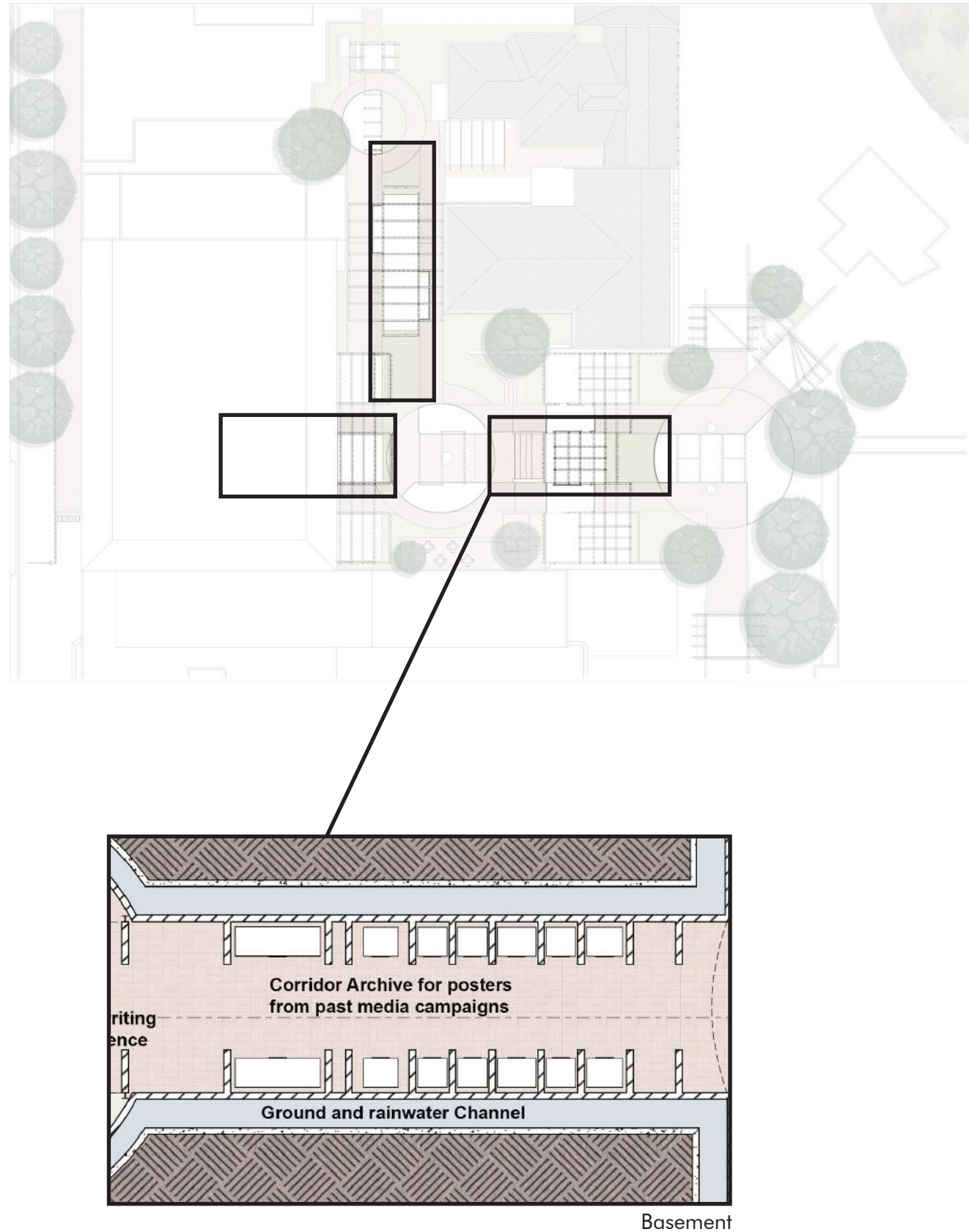
Basement

Fig.165: Focussed plan of the connections between the spaces at basement level doubling as archival spaces (Author 2021).

3.7. Plans and Sections

Cafe Riche

Church Square

Old Poyntons

Law Chambers

Old Netherlands Bank

Capitol Theatre

Fig.166: Site Plan (Author 2021).
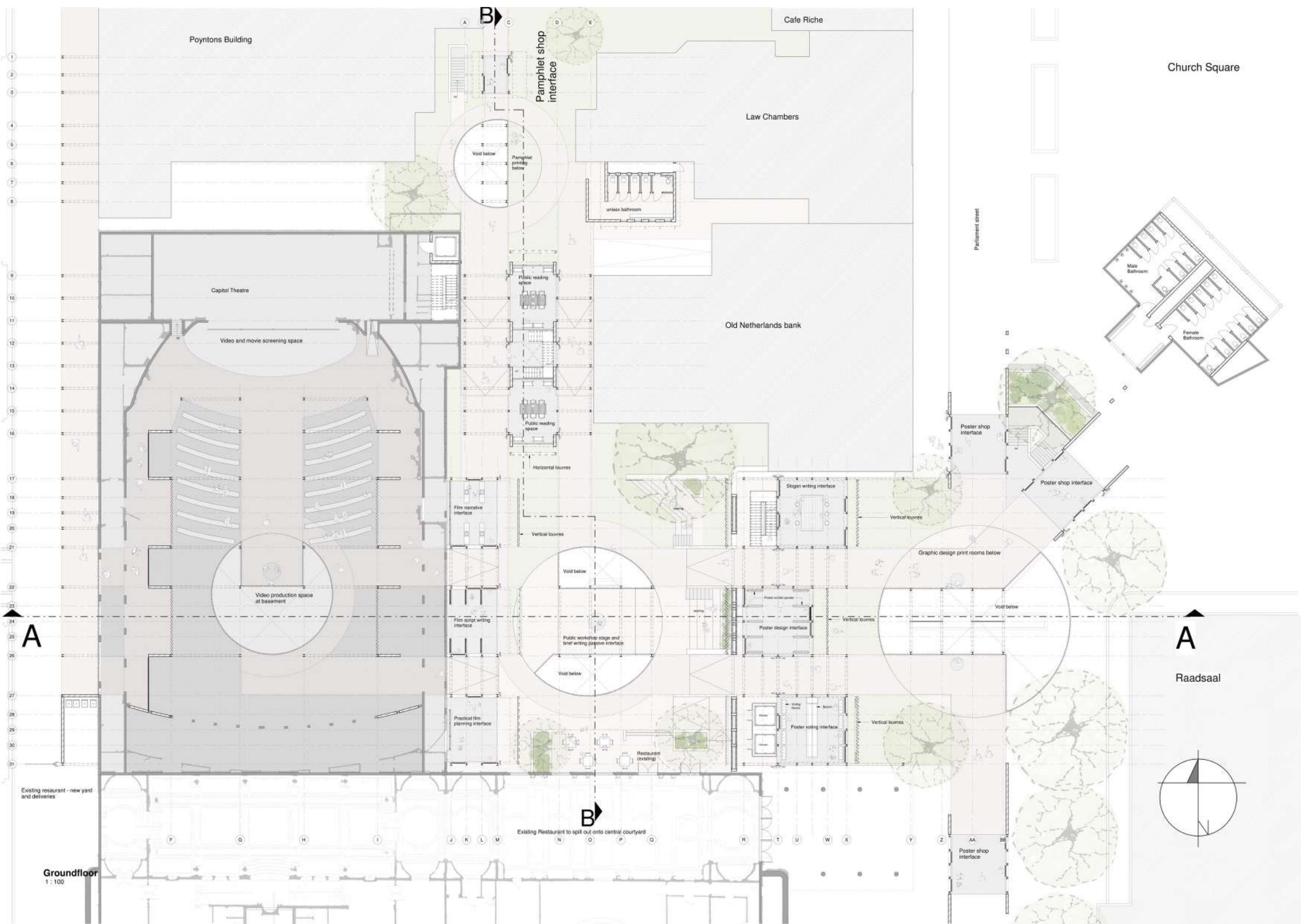
Fig.167: Ground floor plan (Author 2021).

111

Fig.168: Basement Plan (Author 2021).
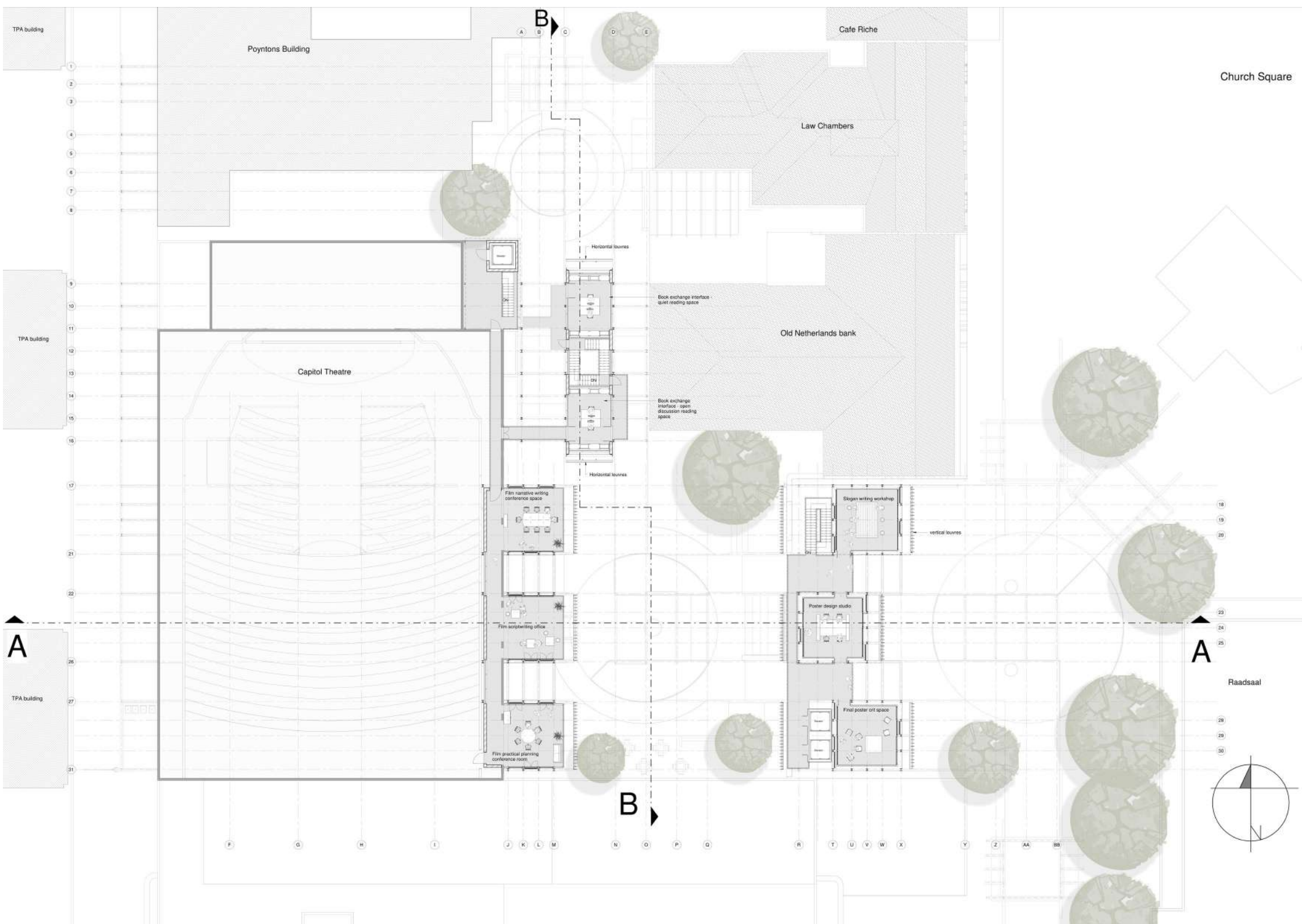
Fig.169: Upper levels (Author 2021).
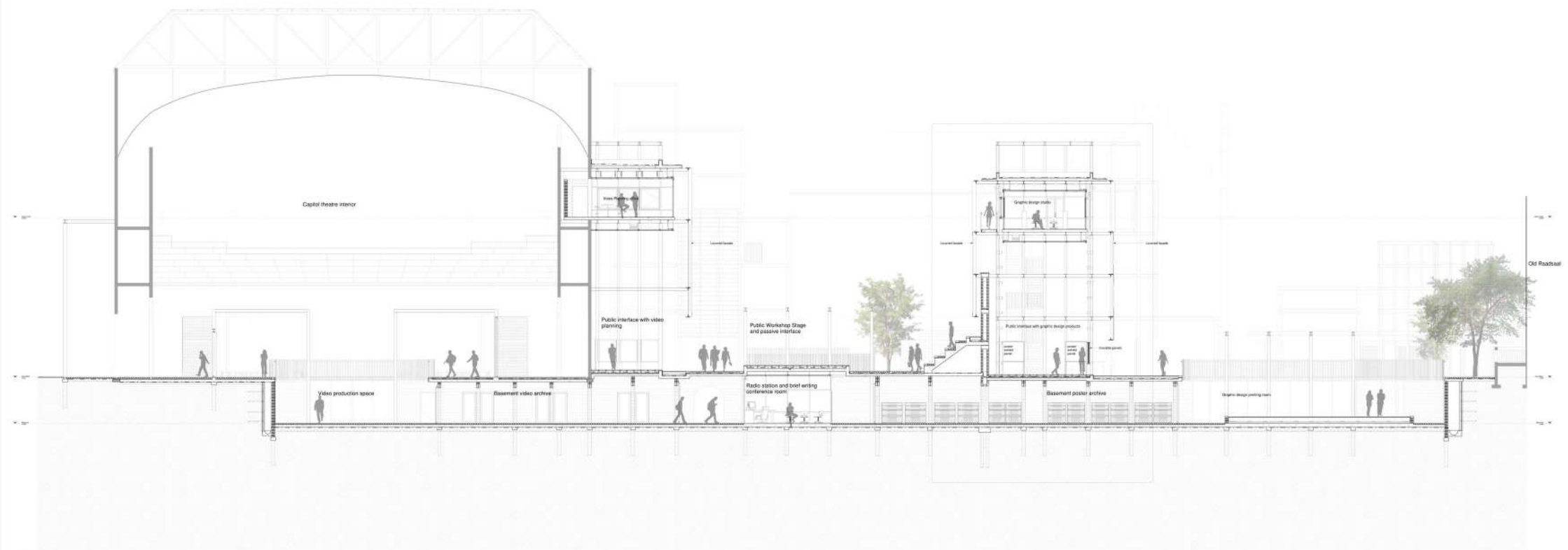
Fig.170: Section AA (Author 2021).

114
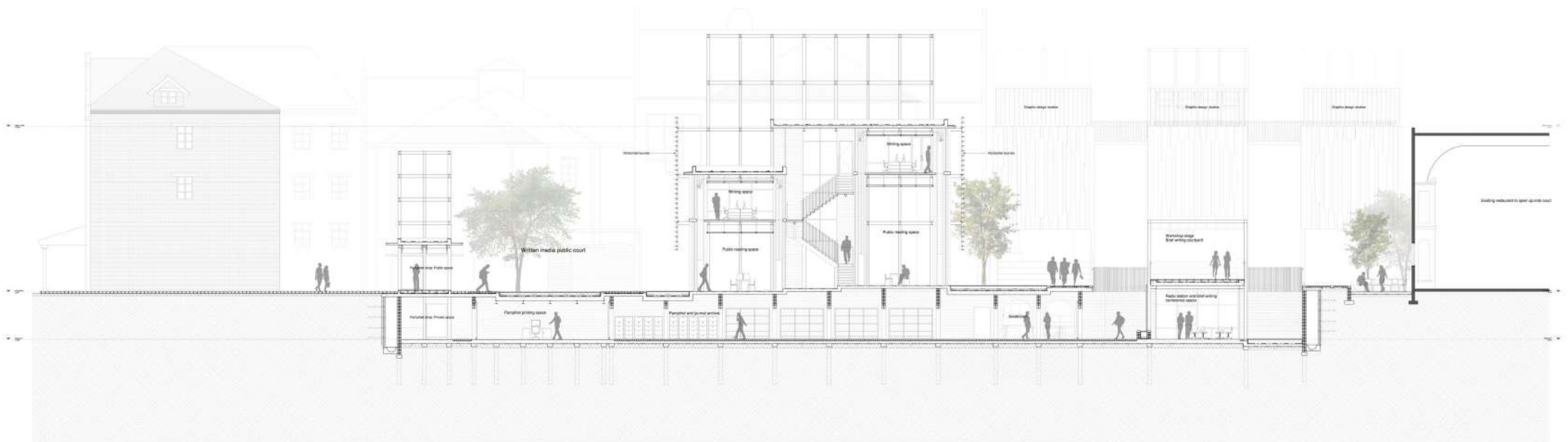
Fig.171: Section BB (Author 2021).
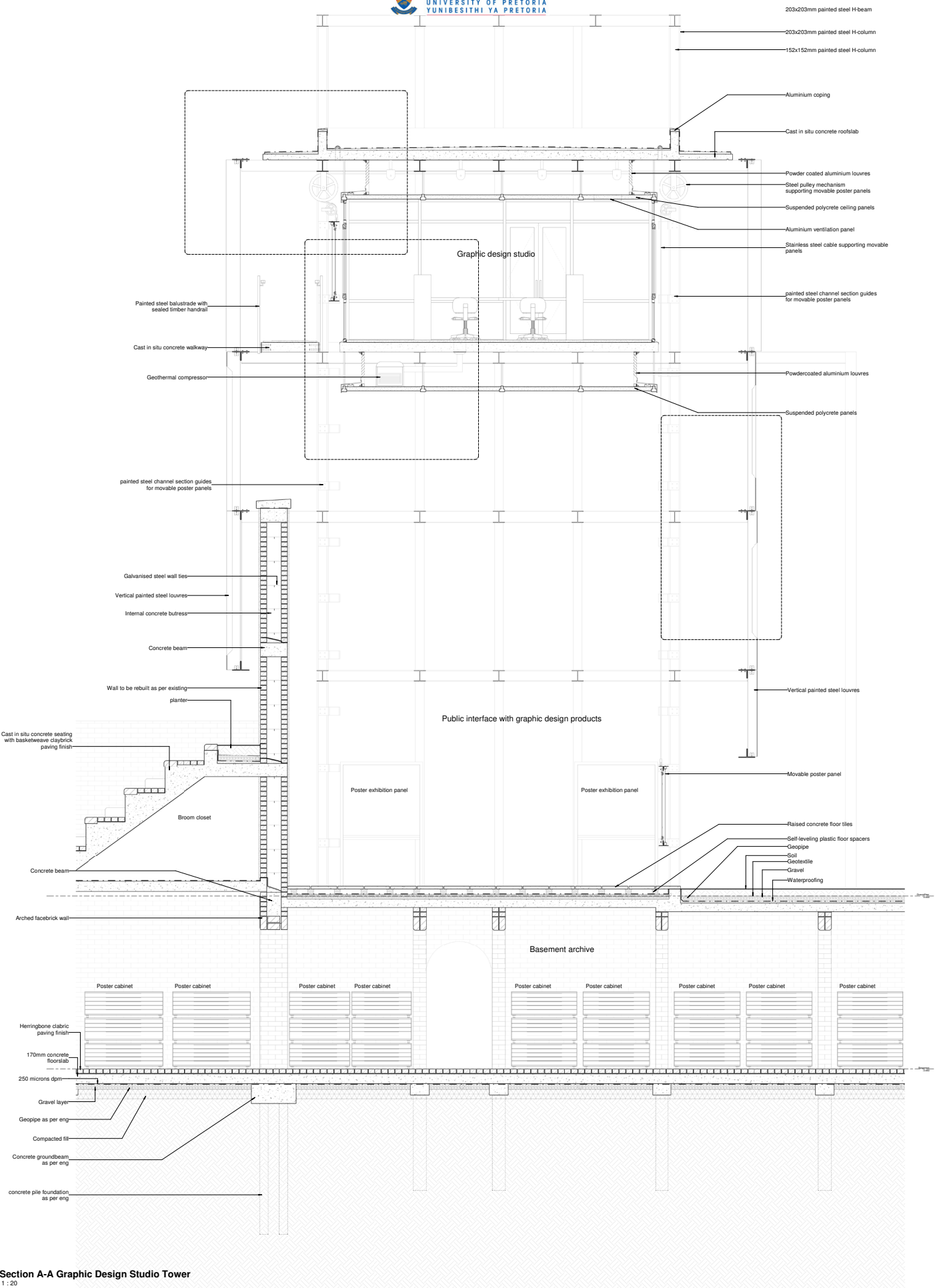
Fig.172: Section AA: Graphic Design Studio Tower (Author 2021)

Capitol Theatre

Screenwriting office

Film post production interface

Film post production office

Screenwriting public interface

Film Archive

Brief writing interface

Brief writing conference space and radio station

Poster design interface

Poster printing interface

Poster printing space

Old Raadsaal
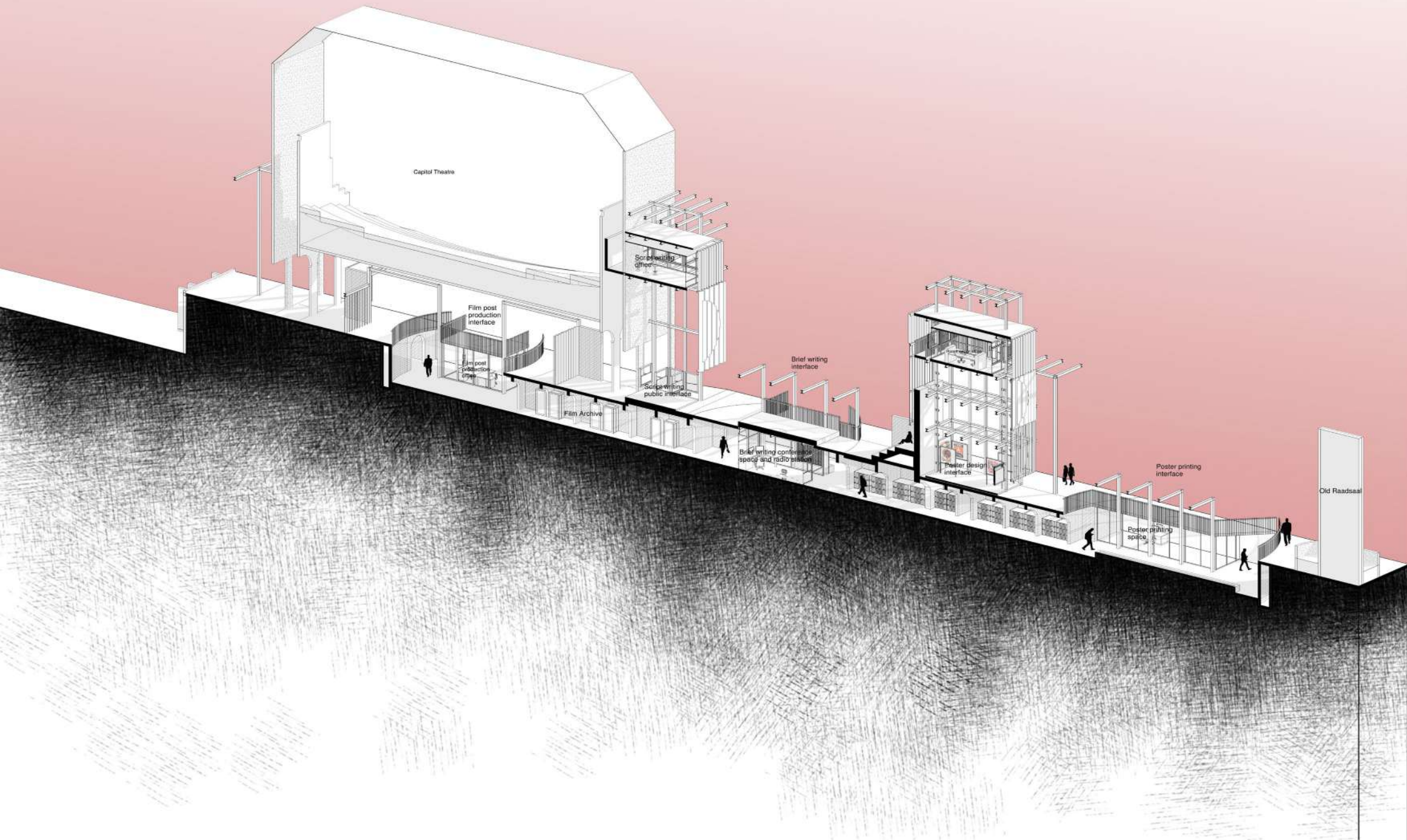
Fig.173: Sectional Perspective (Author 2021).

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Storyboard

Eastern entrance: poster design
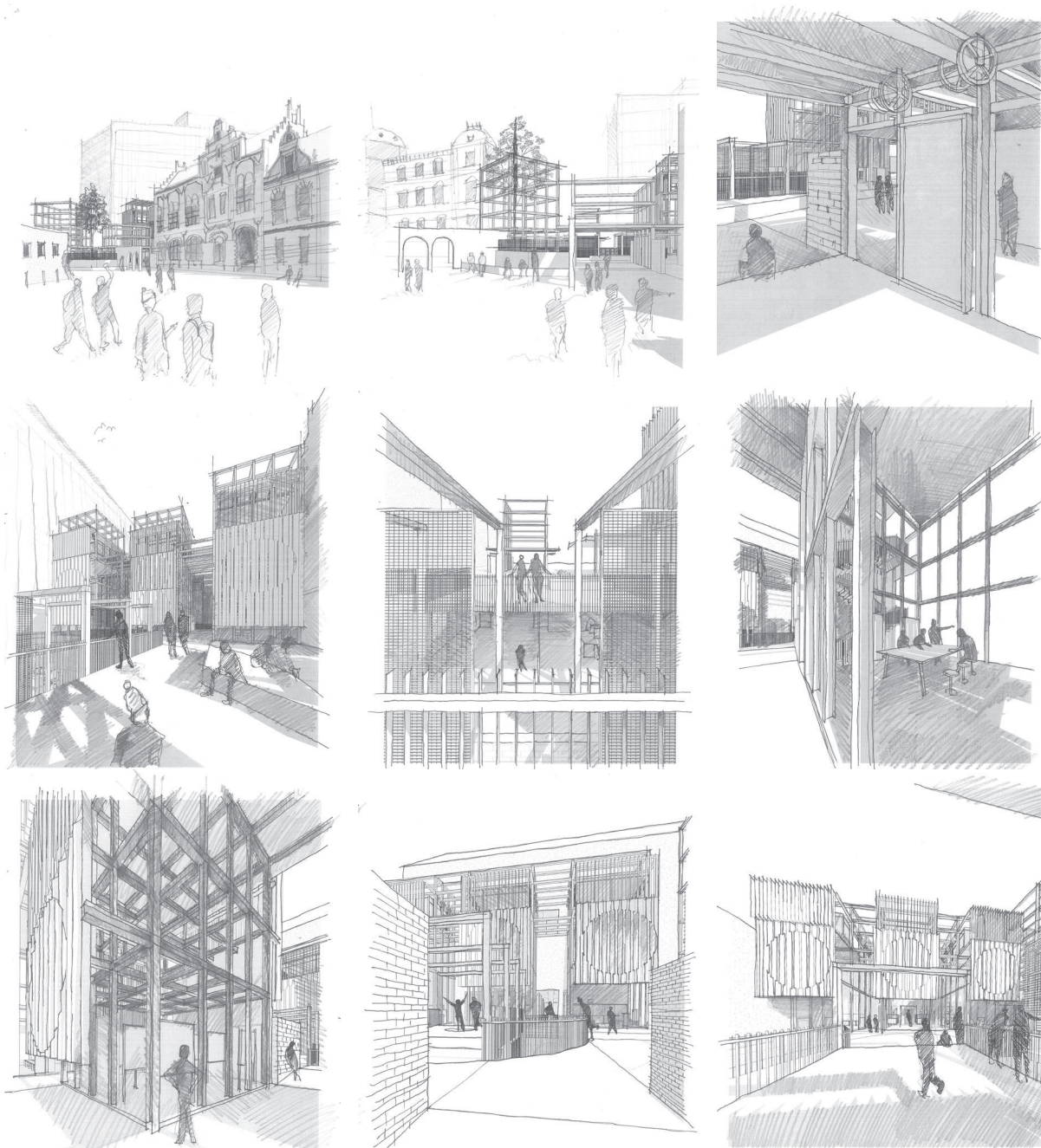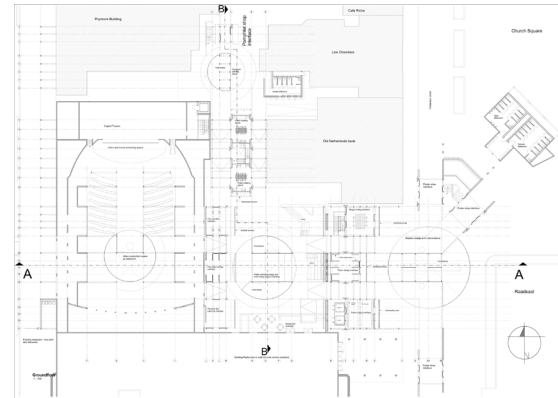
Fig.174: Storyboard entering from the eastern wing (Author 2021).

Storyboard

Northern entrance: Writing
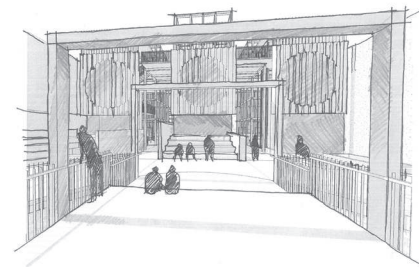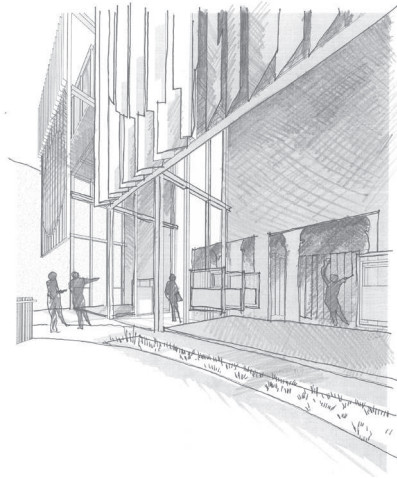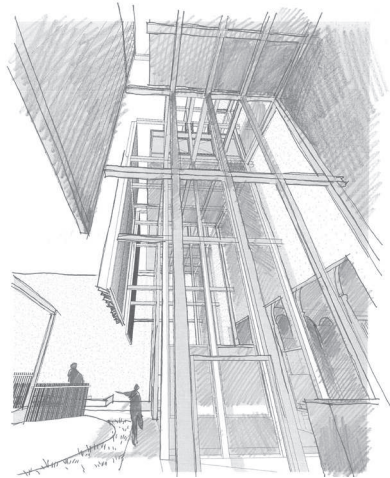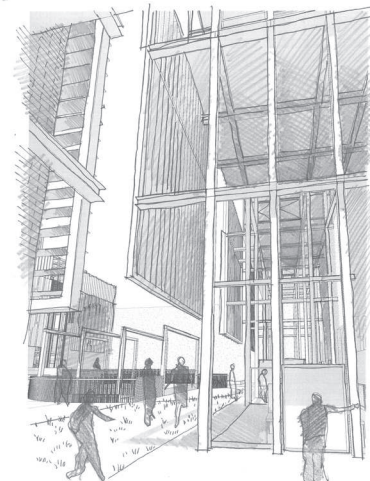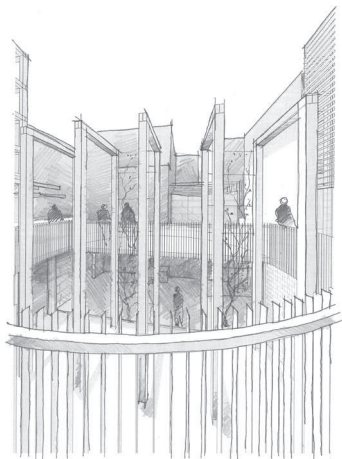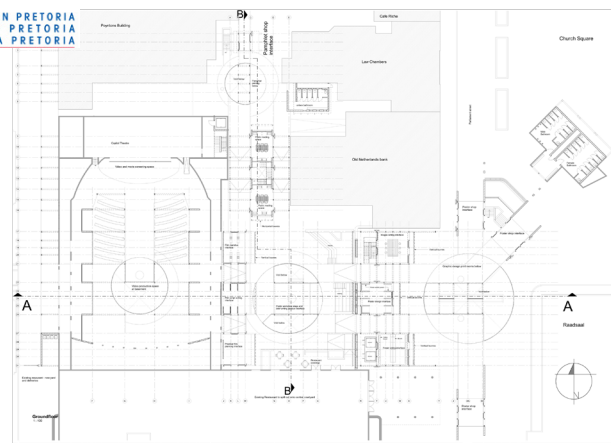
Fig.175: Storyboard entering from the northern wing (Author 2021).

Storyboard

Western entrance: film production
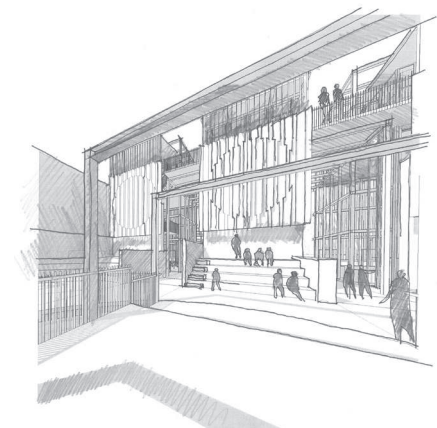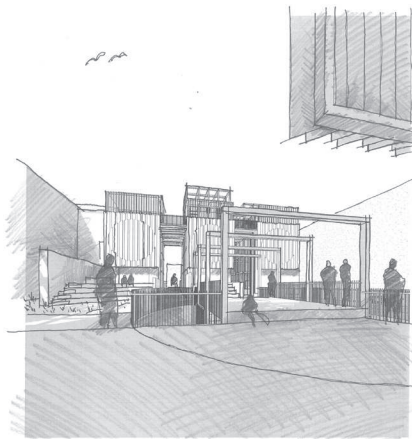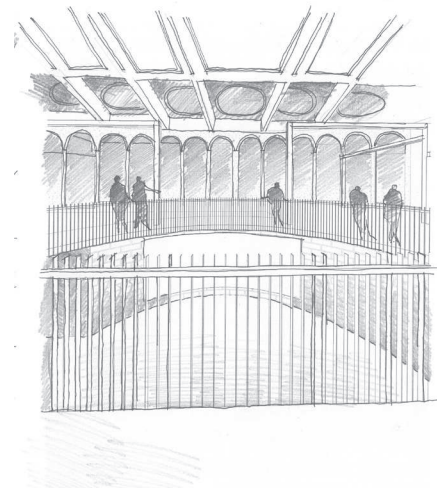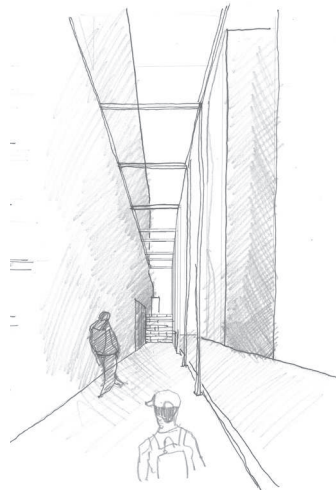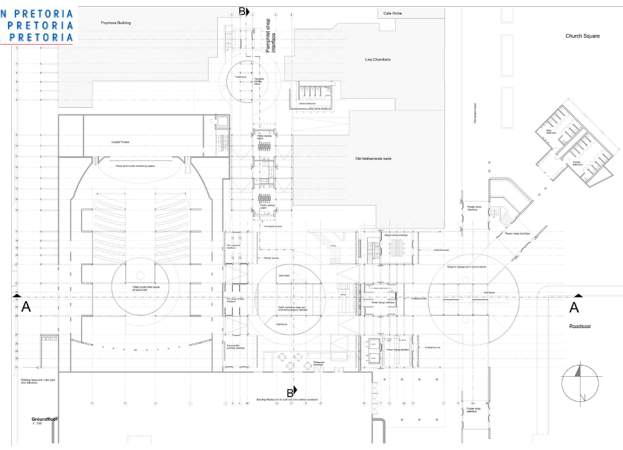
Fig.176: Storyboard entering from the western wing (Author 2021).

3.9. Technology: Concept

Following from the overarching design concept of separating the building interior from its envelope and consequently having interior boxes floating within their skins, the technical question becomes how these different elements (skin and interior) are supported (structurally) and kept in relation to each other without losing/ subtracting from their quality of being separated elements floating in space. How does one mediate the envelope and the interior? This must furthermore be done whilst simultaneously facilitating the interfaces between public and private (both interactive and passive).

The notion of the armature as "[i]ron bars used in tracery, to support canopies, bosses etc., or to otherwise strengthen parts of a building" (Curl 2006: 24) can be a useful idea in the context of the technical question. The term seem to have its origins in military history, being derived from the Latin 'armatura' meaning 'armour' (or to armour up)

(Cresswell 2010: 23) and is often used in the context of providing a frame over which some sort of covering (such as armour plating) is placed. As such the notion refers to some hidden structure which supports a main, protective skin/ layer. This notion points towards a type of tectonic steel frame structure that acts as a fine binding between the skin and the enclosed boxes. The framed structure allows the ground floor to remain permeable to the public and support the boxes on its interior and the envelope on the exterior. What one ends up having is a double skinned building with a frame in between (private boxes hanging inside the frame and representational skin suspended around its outside). The interior envelope of the boxes provide thermal protection from the outside elements whilst the outer skin becomes a representational element which hides/ blurs the tectonic quality of the structure (that is until one moves through it). The outer skin has the secondary benefit of protecting the inside boxes from immediate

climatic conditions such as providing shading (particularly from the eastern sun seeing that a large portion of the building's elevation fronts east) and protection from the rain. The second, interior skin can thus be dedicated to controlling the micro climate of the interior. A final benefit a steel armature structure offers is the enhancement of the feeling of the sublime. As noted in the theory section, eighteenth century writers have afforded the use certain architectural elements with the quality of enhancing the feeling of the sublime. These elements, being elevated structures, simplicity/ legibility of form and colonnades (Mako 2014: 14), are all present in an armature structure: the main structure consisting of beams and columns (and as such colonnades), how the structure works is easily understandable and reads the same at any point when viewed and it is used to elevate structures above the ground, together enhancing the building's sense of sublimity.

TECHTONIC. UPPER
LEVELS.

FALSE
FACADES.

THIRD.
FALSE
FACADE

PUBLIC. GROUND FLOOR

PRIVATE

STEREOTOMIC. BASEMENTS.

ACTIVE
PRIVATE.

PUBLIC

PASSIVE
PRIVATE
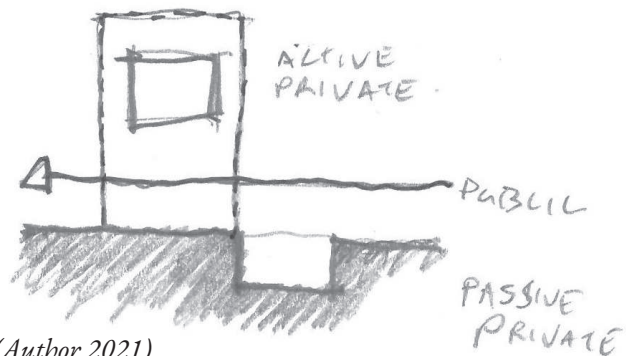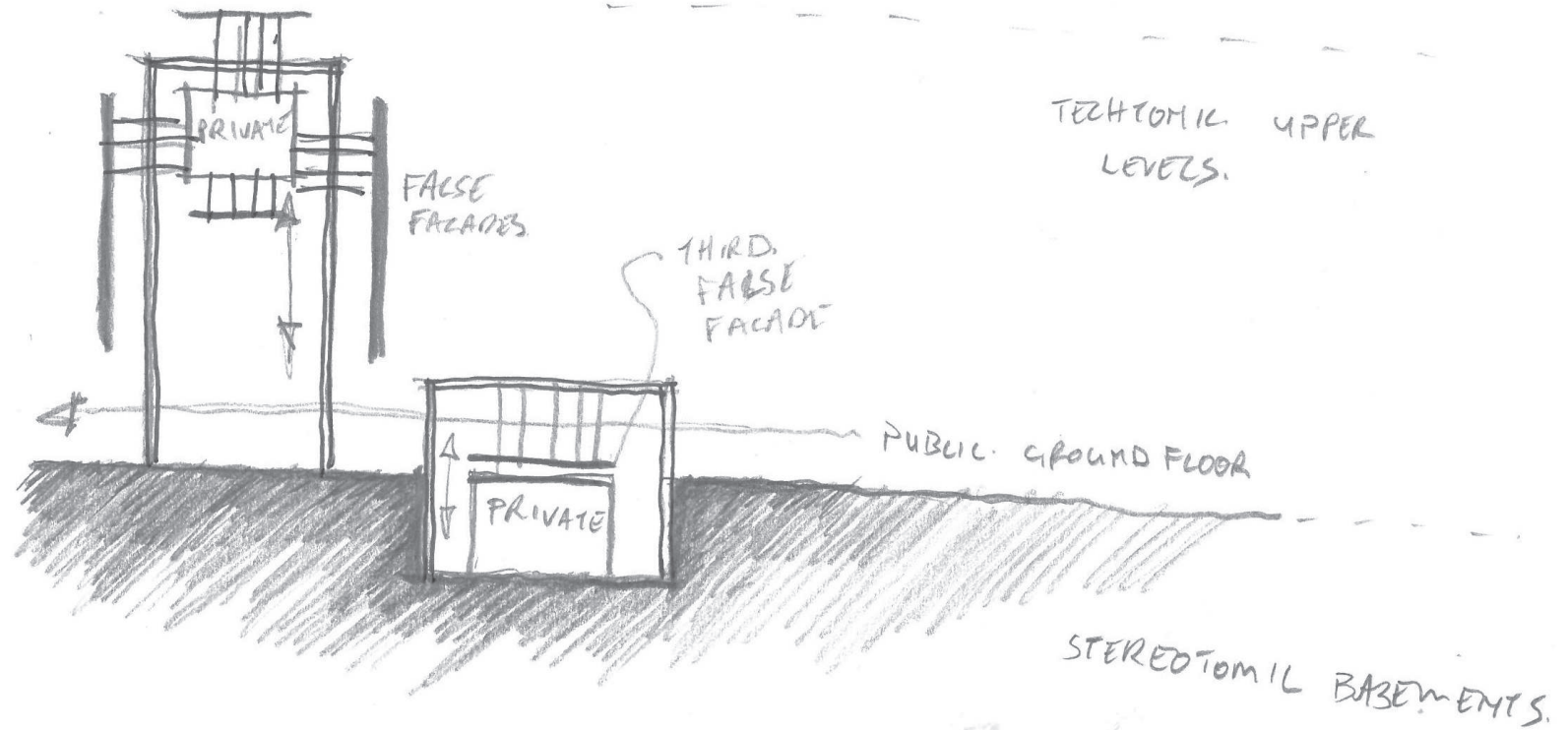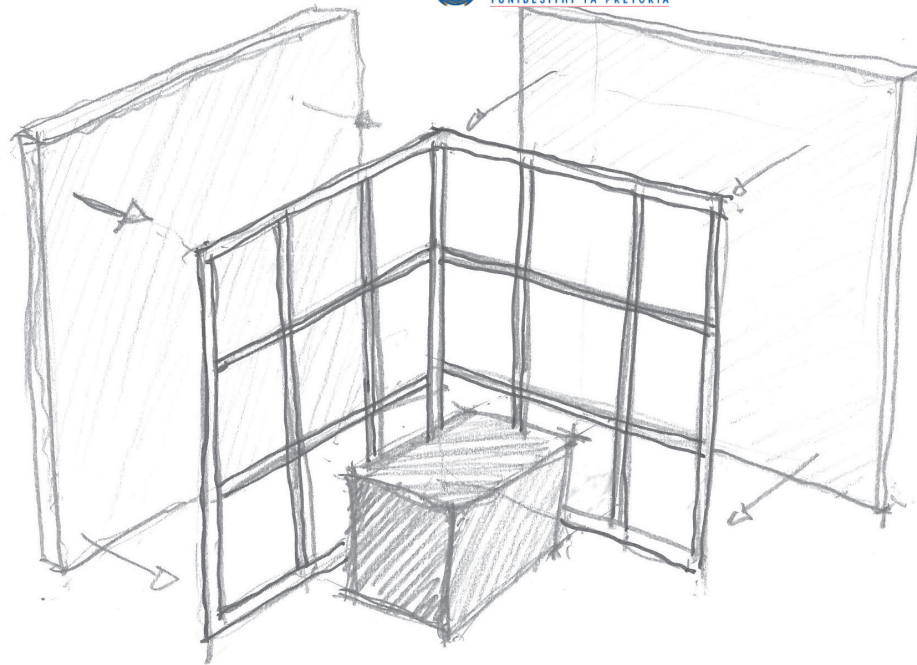
Fig.177: Technology concept (Author 2021).

3.10. Primary Structure

Consequently, the primary structure of the building would naturally follow to be this armature steel frame that supports all of the elements suspended within and without. The Steel frame supports the interior boxes through beams on which the secondary and tertiary structures rest. Where the columns meet the ground two conditions exist: where the columns intersect the basement walls and where there are no basements the columns can be directly supported by foundations. The Pretoria CBD region is underlaid with andesite and shale geologies of the Pretoria group which is sloped 30° towards the north. This means that the soil conditions in the CBD is clay-based soils which usually requires raft foundations (Verster 2009: 19). However, considering the scale of my intervention, such monolithic solutions as raft foundations become impractical. As such the issue of clay-based soils can be circumvented by the use of pile foundations (McCarthy 2014: 384) which support concrete ground beams on which the main steel structure of the building is bolted. For the parts of the building not intersected by/ above a basement level, these piles would be standardly implemented. At the points where the above steel structures are intersected by the basements, the columns are bolted to the brick walls of the basement. At basement level the roof of the basement (and as such the floor structure of the ground level) is supported by vaulted brick walls which run perpendicular to the basement corridors. These ribs line up with the structural grids of the structures above to form niches in which archive material is stored. As such the columns of the above structures rest on the structural walls of the basement which is then supported by their own, slightly deeper pile foundations.

FRAME
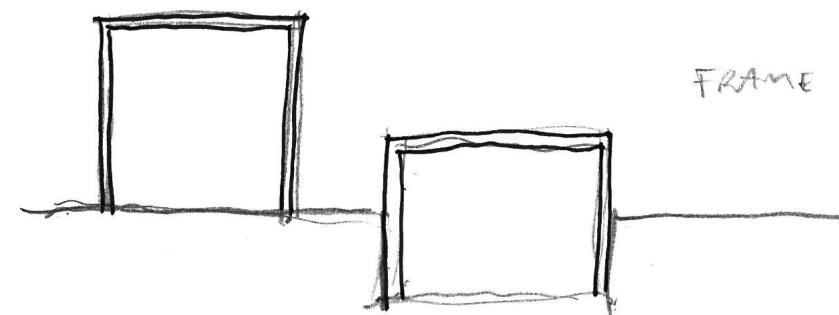
Fig.178: Primary Structure (Author 2021).

3.11. Secondary Structure

The secondary structures to the building are the boxes supported inside the steel armature i.e. the second envelope of the interior spaces. These structures consist of concrete floor slabs which rest on steel beams running below them, double glassed shopfront walls with openable windows and suspended, insulated ceilings boards enclosing the private spaces of the upper floors. The individual elements of these boxes are supported by the beams of the steel frame with the exception of the curtain walls which are supported by their concrete floors. At basement level a similar principle applies though to a lesser extent as the only envelope (that is seen by the public and not including their courtyards into which the public can look) is its roof i.e. its fifth elevation. Though it is harder to articulate the secondary structures at basement level in the same way as the

elevated boxes of the upper floors, this is still done in a slightly more nuanced way. The open courtyards of the basement are used to articulate the steel frame supporting the basement roofs of its private spaces where the steel frame is placed over the courtyards thereby framing the voids beneath i.e. a type of inversion of the elevated boxes where, instead of having a box suspended inside the frame with another envelope on the outside of the frame, you have the box outside the frame with another envelope on the inside of the armature.
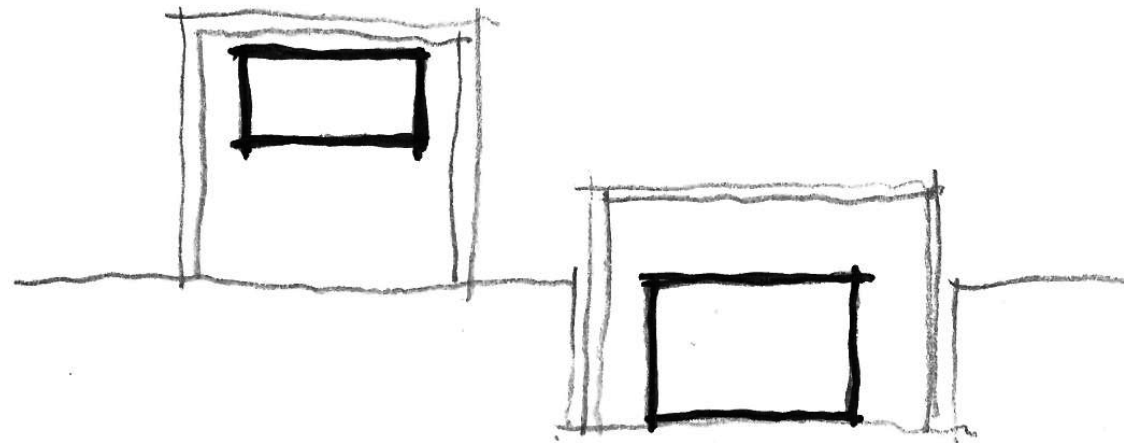
Fig.179: Secondary structure (Author 2021).

3.12. Tertiary Structure

On the exterior of the steel armature structures one finds the tertiary structures: the first skin/ the false façade of the building. These come in form of steel louvres which have a double purpose: (1) to create an optical illusion through cut-outs in the steel that work in tandem with the passive interfaces in the public courtyards and (2) to act as shading devices for the interiors of the private boxes on the upper floors. In accordance to the general design and technical concepts, these skins are offset from the main steel structure via smaller steel members. The louvres are implemented to each structure on the facades, facing the respective courtyards, in the orientation appropriate for the solar conditions of each structure. This means structures fronting north-south having horizontal louvres and those fronting east-west having vertical louvres.
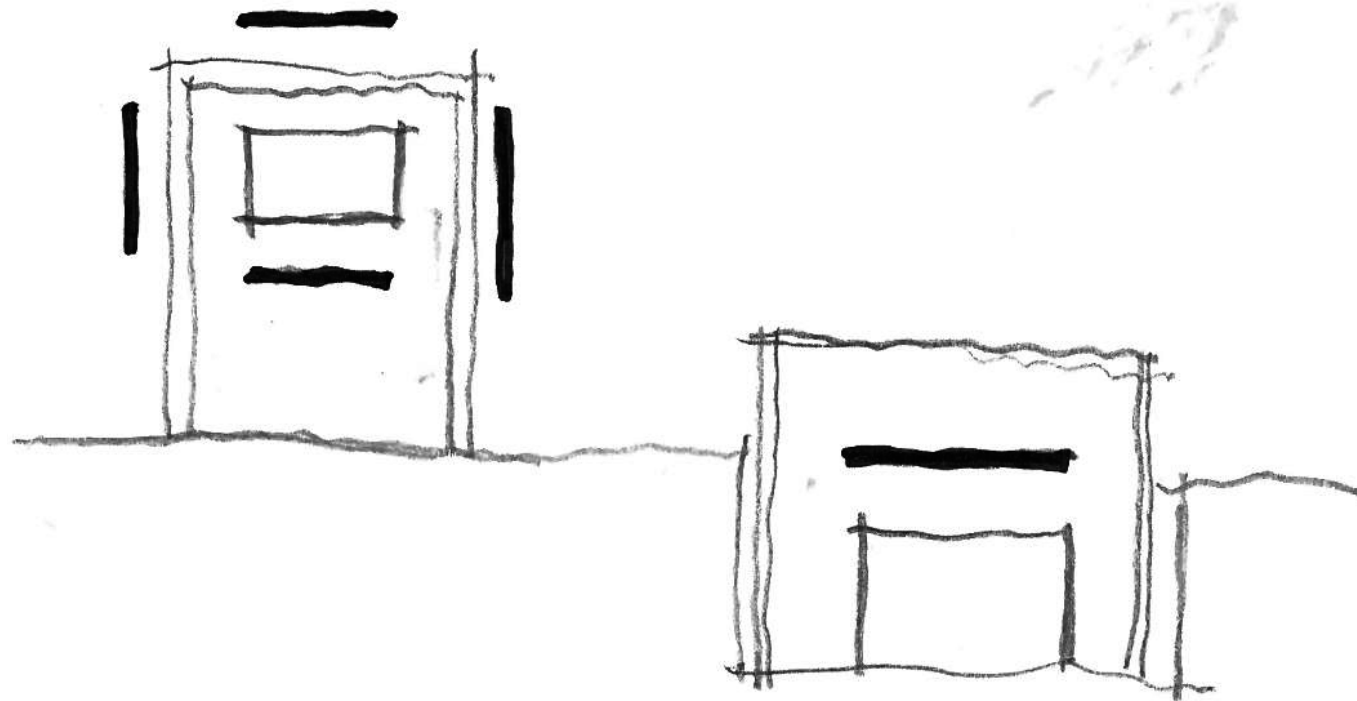
Fig.180: Tertiary structure (Author 2021).

3.13. Interactive Interface Structures

In the gap between the inner and outer skin of the elevated boxes, the primary steel frame supports the fourth element to the building i.e. the vertically movable panels/ interactive interfaces between private and public. The panels move through a counterweight system where you have two panels on either side of a box or a panel on one side and a simple counterweight on the other which are connected via a cable going over the secondary structure through a pully system which is bolted to the beams of the primary steel frame.

A project that illustrates a similar mechanism to this interface is the firm Olsen Kundig's 242 Street Gallery renovation (2013) which utilises a perhaps slightly overdesigned pully and counterweight system to lift up a large curtain wall to open up the gallery space to the street. The mechanisms and large steel frame is the main change and attribution to this building and its effects allows the spaces to be flexible (Frearson 2014). As such a similar mechanism, with large steel pulleys suspended between two envelopes are used to lift and lower the panels between upper and ground floor.

203x203mm painted steel column @ 6000mm cc supported by concrete groundbeam and pile foundation system to eng spec.

152x152mm painted steel column @ 1400mm cc supported by concrete groundbeam and pile foundation system to eng spec.

Powder coated aluminium sloped aluminium coping clipped onto aluminium bracket

Aluminium coping bracket screwed to timber sheathing board @ 600mm cc.

38x150mm timber sheathing board fixed to concrete parapet with fischer plugs

340x152mm cast in situ concrete parapet

Derbigum torch-on waterproofing tucked under aluminium parapet coping

Min. 25mm screed layer to fall

25x25mm painted steel angle section fixed to concrete roof slab with Fischer plugs

203x203mm painted steel beam welded to steel columns @ 1400mm cc

150x150mm painted steel angle bolted to steel H-beam @1440mm cc

150x150mm painted steel angle welded to steel back angle

70x70mm painted steel angle bolted to 150x150mm steel angle @300mm cc

4x300mm painted steel louvres bolted to steel angles

Dripline

203x203mm Painted steel H-beam welded to steel columns @1400mm cc

Painted steel pulley mechanism welded to steal H-beam

Painted steel pulley mechanism welded to steal column

Stainless steel cable suspending movable poster panel

100x100mm painted steel angle frame suspended by steel cable

90x90mm painted steel angle frame welded to steel angle frame

Aluminium window frame screwed to steel angle frame

Painted steel flatplate welded to steel angle frame

Removable aluminium poster clamp bolted to steel frame

10mm safetyglass panel in aluminium window frame

2x 6mm plexiglass panels clamped together with poster between by aluminium clamps

Fullbore outlet

Derbigum Torch-on waterproofing tucked under aluminium coping

25mm min screed to fall

170mm cast in situ roofslab

Stainless steel guide pulley bolted to concrete roofspab

Powdercoated aluminium louvre frame screwed to steel angle

50x50mm Painted steel angle bolted to concrete roofslab

Powdercoated aluminium louvres as per manufacturer spec

50x50mm Painted steel flatplate bolted to concrete roofslab @1400mm cc

20x20mm Painted steel angle welded to steel flatplate

Powder coated aluminium flashing cliped onto aluminium louvres and aluminium bracket

Aluminium bracket screwed to timber sheathing board @700mm cc

102x38mm timber sheathing board fixed to polycrete ceiling with fischer plugs

75mm precast polycrete ceiling panels resting on suspended precast concrete beams

Precast concrete beam bolted to steel flatplate welded to steel angle.

Powdercoated aluminium angle bolted to concrete beam

Powdercoated aluminium window frame screwed to aluminium angle

Double glazing window panel as per manufacturer spec

Side hung double glazed window panel in aluminium frame as per manufacturer spec

Fig.181: Studio box roof detail (Author 2021).

203x203mm painted steel column @ 6000mm cc supported by concrete groundbeam and pile foundation system to eng spec.

152x152mm painted steel column @ 1400mm cc supported by concrete groundbeam and pile foundation system to eng spec.

Side hung double glazed window panel in aluminium frame as per manufacturer spec

2x 6mm plexiglass panels clamped together with poster between by aluminium clamps

40x4mm Painted steel flatplate balusters welded to steel rods @ 100mm cc

10mm dia. bent painted steel rod welded to steel balusters @1000mm cc

50x5mm painted steel flatplate welded to steel rod

70x50mm sealed timber handrail screwed to steel flatplate

10mm safetyglass panel in aluminium window frame

Removable aluminium poster clamp bolted to steel frame

Painted steel flatplate welded to steel angle frame

Aluminium window frame screwed to steel angle frame

280x130mm painted steel flatplate bolted to steel column @1000mm cc

200x50x20mm Painted steel lipped channel guide rail for movable pannels welded to steel flatplate @ 1000mm cc

90x90mm painted steel angle frame welded to steel angle frame

100x100mm painted steel angle frame suspended by steel cable

Double glazing window panel as per manufacturer spec

Powdercoated aluminium window frame screwed to aluminium angle as per manufacturer spec

Powdercoated aluminium flashing clipped into window frame

25x25mm painted steel angle fixed to concrete slab with fischer plugs

25mm min screed to fall

170mm cast in situ walkway slab

5x170mm painted steel flatplate bolted to concrete slab

10mm dia. painted steel rods welded to steel flatplate

203x203mm painted steel H-beam welded to steel columns

Dripline

25x25mm painted steel angle welded to 50x50mm painted teel flatplate bolted to concrete floorslab @1400mm cc

50x50mm Painted steel angle bolted to concrete roofslab

Powdercoated aluminium louvre frame screwed to steel angle

Powdercoated aluminium louvres as per manufacturer spec

Powder coated aluminium flashing cliped onto aluminium louvres and aluminium bracket

Aluminium bracket screwed to timber sheathing board @700mm cc

102x38mm timber sheathing board fixed to polycrete ceiling with fischer plugs

Precast concrete beam bolted to steel flatplate welded to steel angle.

Geothermal heating/cooling outlet as per manufacturer spec

40mm min screed

170mm cast in situ concrete floorslab

Geothermal heating/ cooling duct as per manufacturer spec

203x203mm painted steel H-beam welded to steel columns

25x25mm painted steel angle welded to steel flatplate bolted to steel beams @1400mm cc

Geothermal compressor unit as per manufacturer spec

Precast concrete beam bolted to steel flatplate

75x1400mm precast polycrete panels resting on suspended precast concrete beams

Fig.182: Studio box Floor detail (Author 2021).

Typical Louvre Cutout

4mm Painted steel flatplate louvre bolted to steel angle frame @ 300mm cc and angled at 28 degrees clockwise on its vertical axis

Cutout in steel louvre to create optical illusion

203x203 painted steel H-column @6000mm cc on pile foundation and concrete groundbeam system

152x152mm painted steel column @1400mm cc on pile foundation and concrete groundbeam system

150x150mm welded back to back angles bolted to steel H-beams @ 1400mm cc

70x70mm painted steel angle bolted to steel angle @ 300mm to line up with louvre spacing

203x203mm painted steel H-beams welded to steel H-columns

280x130mm painted steel flatplate bolted to steel column @1000mm cc

200x50x20mm Painted steel lipped channel guide rail for movable pannels welded to steel flatplate @ 1000mm cc

Fig.183: Facade Louvre Detail (Author 2021).

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Main painted steel H-section frame onto which louvre frame is to be bolted

Steel cross bracing bolted to steel angle frame

Steel angle louvre frame bolted to main steel frame of building

Steel angle louvre brackets bolted to steel louvre frame

Painted steel louvres with circle illusion cutout to form base for parti of courtyard to be painted onto louvres to be bolted to steel angle brackets
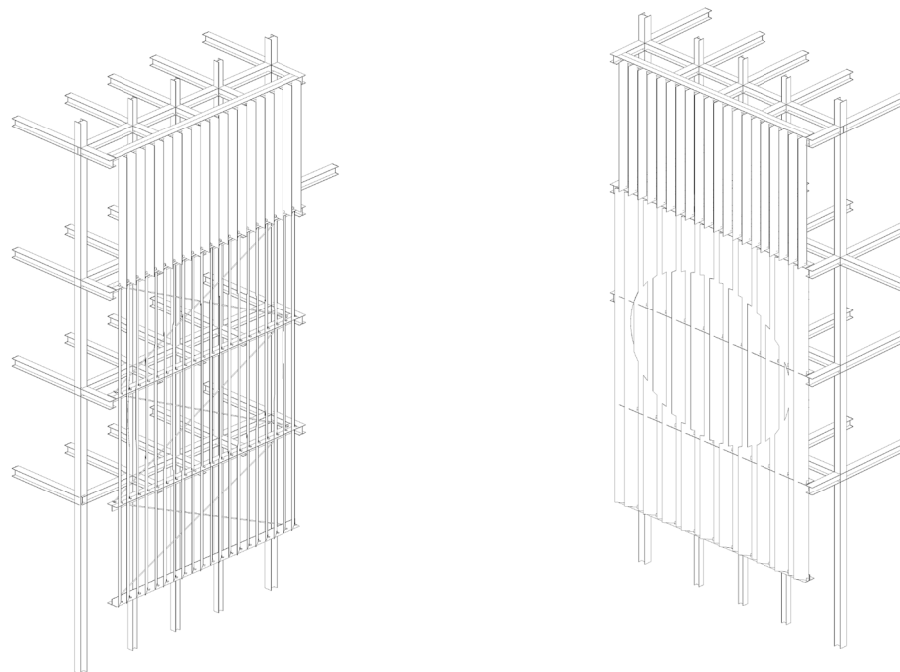
Fig.184: Passive interface: louvred screen construction (Author 2021).

Main pinted steel H-structure

Stainless steel cable

painted steel channel section guides
for movable poster panel

safetyglass panel in aluminium window frame
screwed to steel angle frame

Painted steel angles for movable poster panel
welded back-to-back

removable aluminium clamps for plexiglass
panels bolted to steel angle frame

Plexiglass panel clamped in removable
aluminium frame

poster

Plexiglass panel
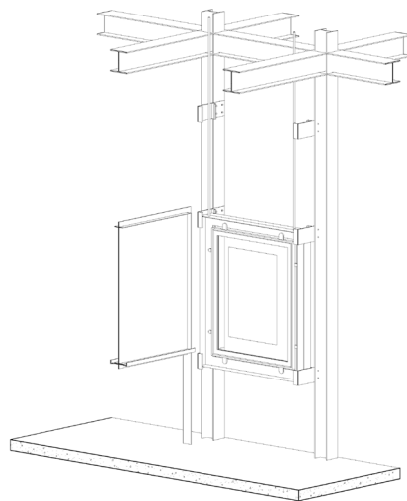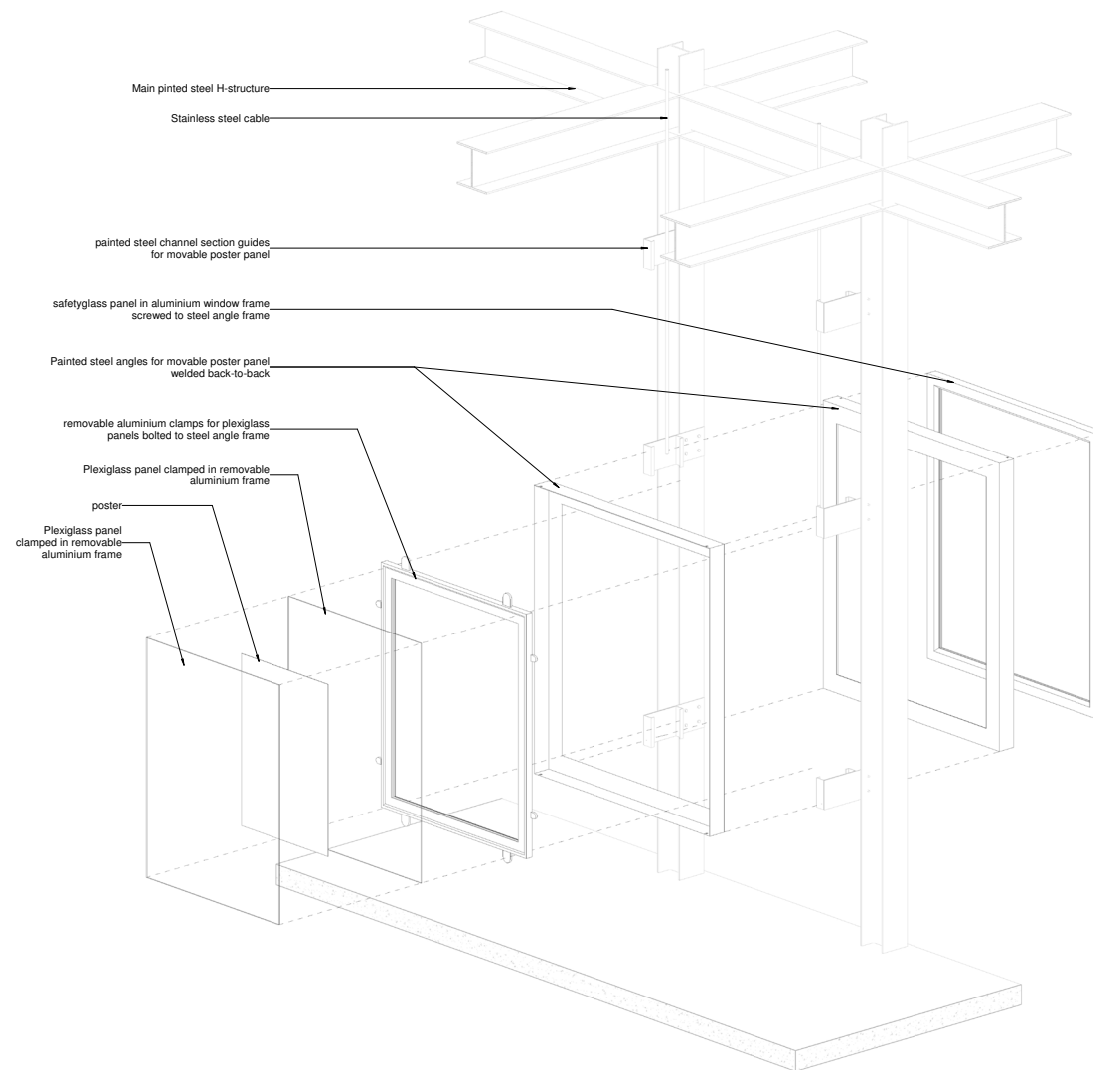clamped in removable
aluminium frame

Fig.185: Interactive interface: Movable poster panels construction (Author 2021).

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3.14. Materiality

The material pallet used in the building ranges from industrial materials (such as steel in the armature structure) to more human scaled materials (such as brick) depending on the programmatic usage of the spaces. The use of industrial versus non industrial materials are used as a signification technique to indicate where and how spaces must be used and consequently where one interfaces with the program (on the private levels) when on the public level. As such when a material finish is encountered on the ground floor which is different/ stands out from the rest, it is an indication of either an active or passive interface with the private spaces above or below you.

For the ground floor, since it is essentially a large open space occupied by the public, non-industrial materials such as clay brick pavers and grass blocks are used for their human scale and for the quality of being able to arrange them in different patterns to signify different uses in spaces. For the main horizontal circulation lines/ routes through site a slim herringbone pattern are used to signify the movement through site whilst grass blocks and double or boxed basket weaved patterns are used to indicate breaks in the circulation. Concrete finishing is used on this level to indicate where one interacts with the program, either passively or actively. In the public courtyards the spots at which one needs to stand to observe the passive interfaces in the building façade and the courtyards below are marked by an elevated concrete element in the paving on which one can sit (or climb onto) to observe the program. This is also the case for the spaces supporting the interactive interfaces underneath the upper levels though without the elevated step. The idea of these concrete elements functioning as programmatic signifiers can be taken further by inscribing onto the concrete some form of symbol, repeated throughout the project, that further informs the user of where to look/ how to use the space. From this the private spaces of the upper and basement levels, where the different elements of the program are housed, are also finished in industrial materials such as concrete and glass curtain walls.
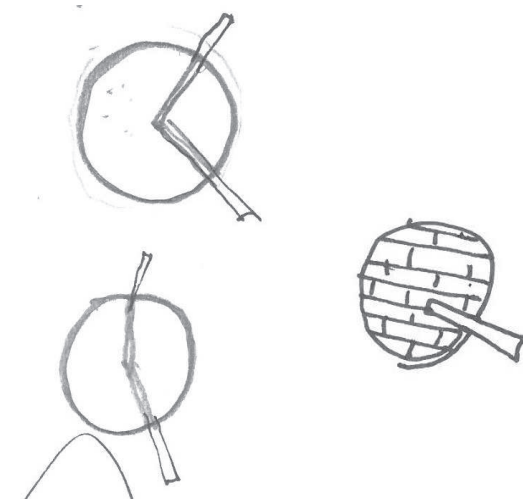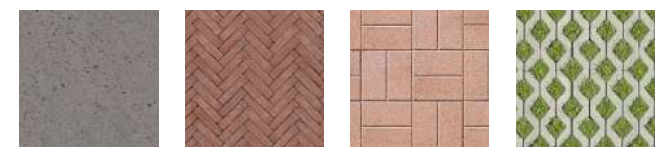

Fig.186: Material palette and insignia on floors (Author 2021).

3.15. Systems

The groundwater in the Pretoria CBD is generally relatively shallow, though it fluctuates depending on the rainfall, ranging between 3m on average during the rainy season and 6m during the dry season and moves in a general direction of south-east to north-west (Verster 2009: 21). Because the water table is so high, waterproofing at the basements can pose a serious problem to the functionality and safety of the building. As such a system must be conceived to keep the groundwater, and by extension rainwater, out of the basements. The groundwater threat, however also provides an opportunity for a sustainable way to harvest groundwater for irrigation and cooling throughout the building.

According to David Kingsnorth (2013) when considering basement structures two main things should be taken into account when deciding on design strategies for waterproofing basements: the usage of the basement spaces, which fall into three grades of habitability (grade three referring to completely habitable spaces and grade one not being inhabited for long periods of time), and the water table conditions of the soil, ranging from low permeability to a high water table. This intervention falls within grade three usage, as they house office spaces and within a high water table. Kingsnorth (2013: 21-22) goes on to explain the three approaches to waterproof basement structures: Type A (tanking), Type B (integral/ shell protection) and type C (drained protection). For a grade three basements with high a water table context, type C/ a drainage solution is the most appropriate solution (Kingsnorth 2013: 22). As such all along the basement structure a more

or less 1m concrete channel is installed with the basement skin on one side and a permeable Gunite wall with soil nailing retention structures on the other. This allows groundwater (as well as rainwater from above) to be drained and collected whilst simultaneously being accessible for maintenance as well as acting as a corridor for the building's other services.

These channels lead the water north (as it is the natural fall of the site) toward a collection sump in the basement of Café Riche where the water then gets pumped into water tanks (with overflows leading to the city's rainwater runoff system). This water gets used in three ways: irrigation for the landscaping in the new intervention as well as on Church Square, non-potable water for flushing toilets and for cooling the interior spaces of the building. For controlling

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the micro climates on the interiors of the building, advantage is taken from the relative consistent temperature of groundwater. From the storage tanks, water is pumped through a filtration system in the basement of Café Riche, to remove the large particles, to a compact heat pump mounted between the two horizontal skins of the upper levels (between the floor and/ or roof and the suspended ceiling below it). These pumps can be used to either extract heat latent in the water to heat the rooms during the winter or to absorb heat from the rooms during the summer before the water is pumped back into the ground to restart the process (Ampofo, et al 2006: 337 and Gjengedal, et al 2019: 36-37).
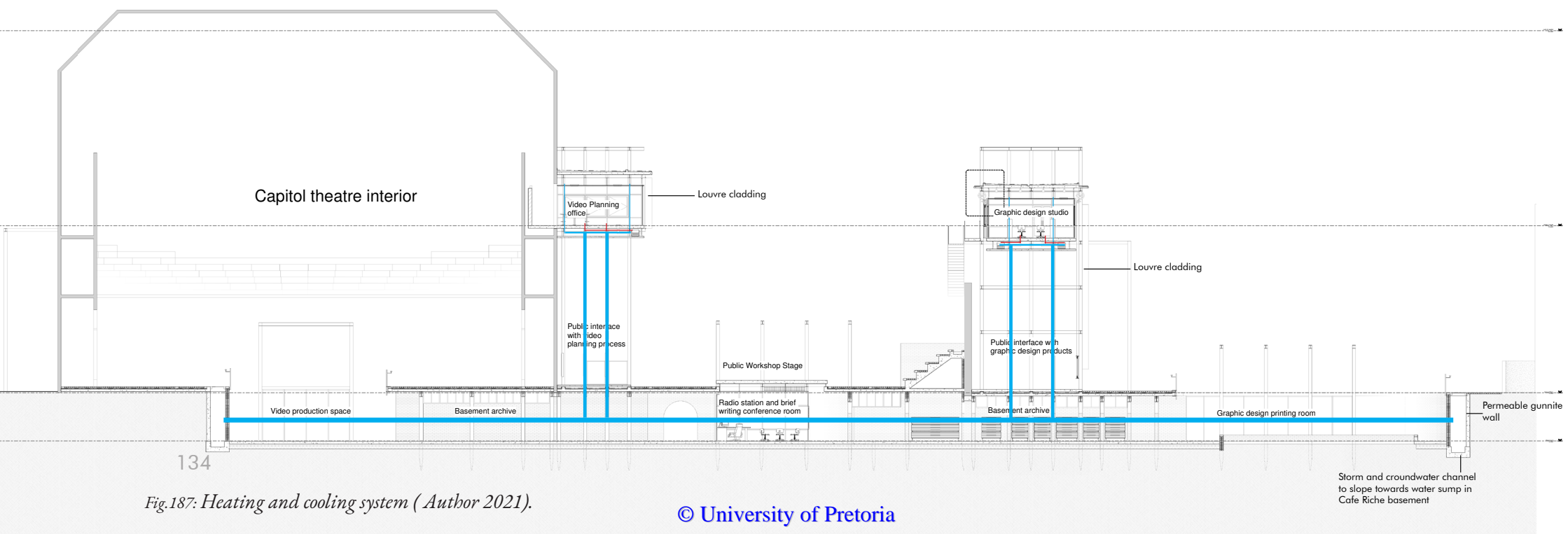

Fig.187: Heating and cooling system (Author 2021).