design development: conceptual exploration

proposed campus framework

The graduate class of 2008 has developed a group framework for the future development of the University of Pretoria campus. The vision statement that has been formulated proposes “transforming the University of Pretoria from an isolated, fragmented knowledge production institution, to a University City, a city of innovation” (see Appendix B).

proposed site framework

In conjunction with landscape architecture student Elmie Erasmus and architecture student Pedri Lotz, a framework was developed to improve the South Campus and to attain the goals stated in the vision for the site. Site implementations include an art and architecture building by Pedri Lotz. This building acts as a living bridge across Lynnwood Road to improve the connection between the South and Main Campuses. A parkade is proposed for the eastern corner of the site to help solve the current parking problem on campus.

To establish the site as a living laboratory, various ecological and technological approaches are introduced. Elmie Erasmus’s landscape design implements both vegetation and water strategies, including a wetland system. Unutilized buildings are re-designed to house new functions. New building functions include an Earth Centre, Internet Café and Biotechnical Laboratory.

Figure 119: Conceptual site model, June 2008.

Proposed framework plan NTS

Figure 120

building form development

The building form is generated by the surrounding context and by programmatic implications. Movement patterns of vehicles and pedestrians on the **existing site** are taken into consideration. The corner site represents an important visual node for vehicles waiting at the intersection.

In order to reinforce the **edges** along University and Lynnwood Roads, an L-shaped building is proposed. The enclosure thus achieved generates an open social square which gives definition to the campus space. In keeping with the scale of the existing buildings, the main **volume** of the new building should have a height of approximately 10m.

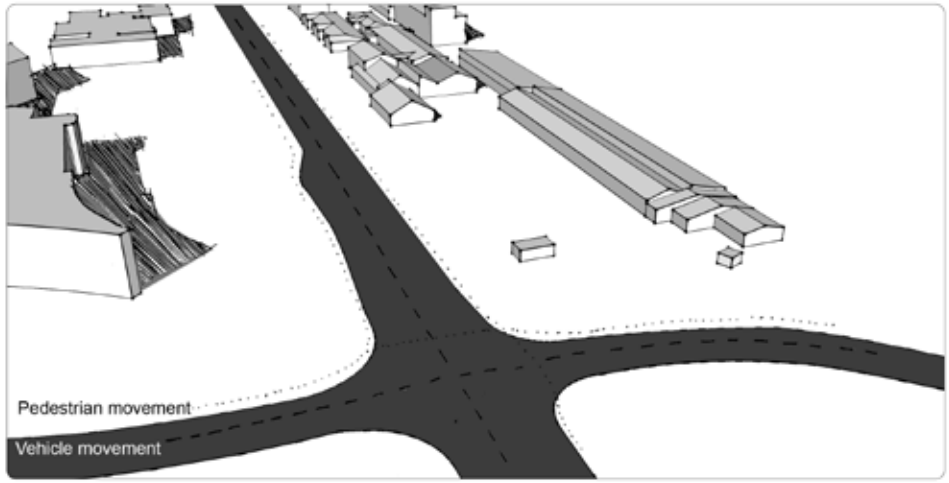


Figure 121: Perspective view of the existing site.

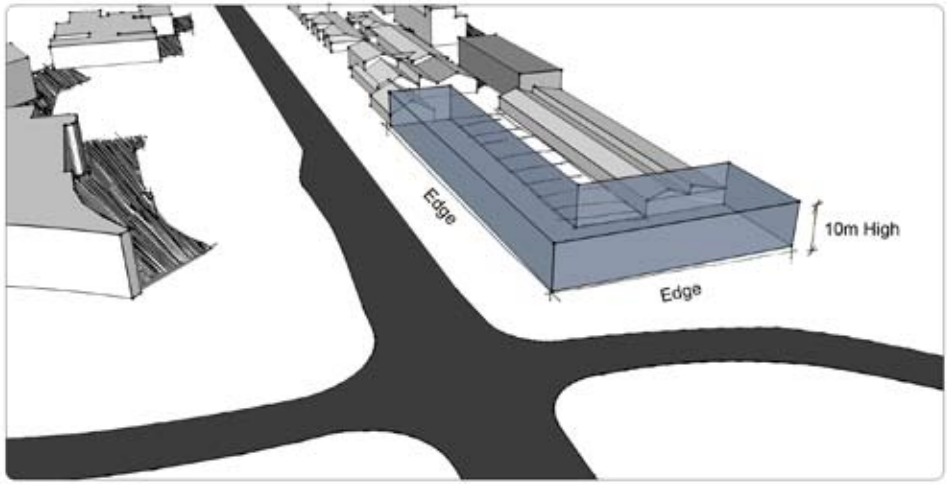


Figure 122: Perspective view of the edge design.

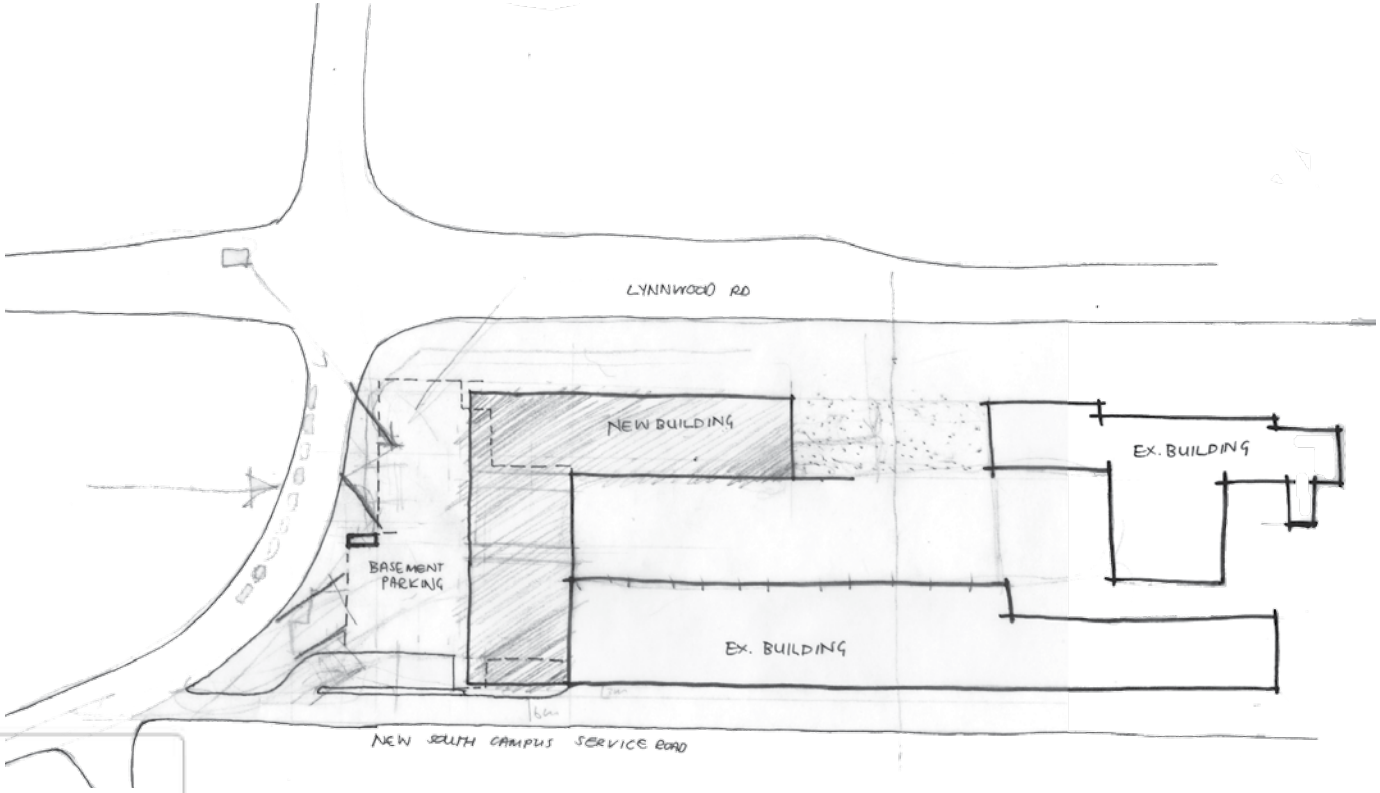


Figure 123: Plan concept sketch of the length of the building, May 2008.

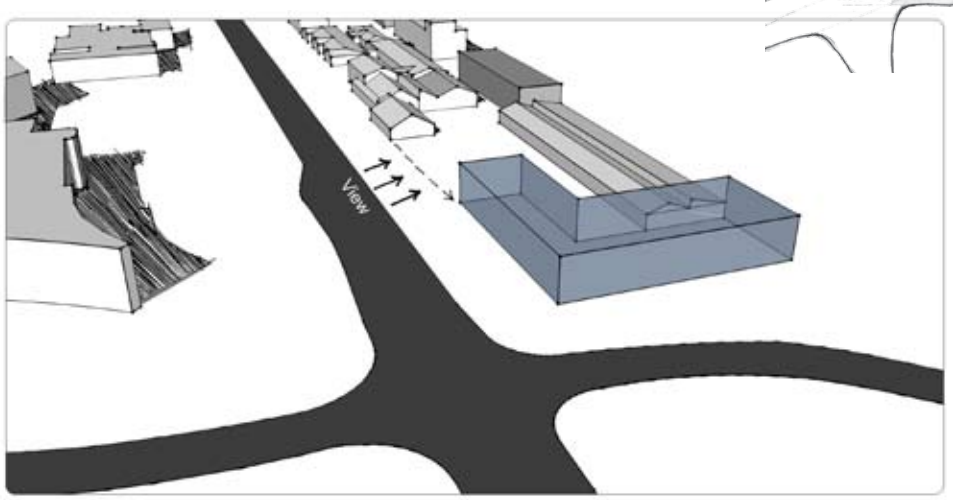


Figure 124: Perspective view of the length of the building.

To mitigate the claustrophobic feeling that exists on the South Campus, the **length** of the building from east to west is reduced. The open section thus created allows views to and from the street.

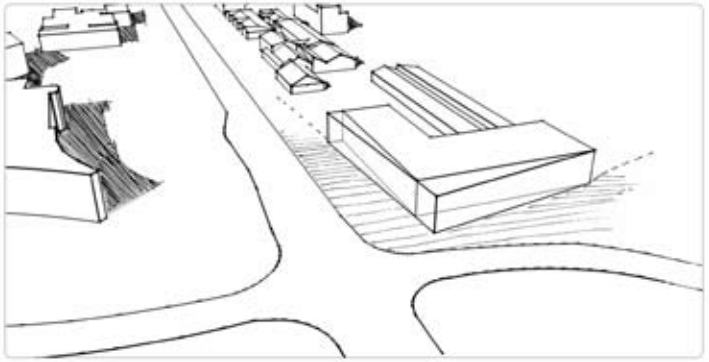


Figure 125: Conceptual design of the building façade.

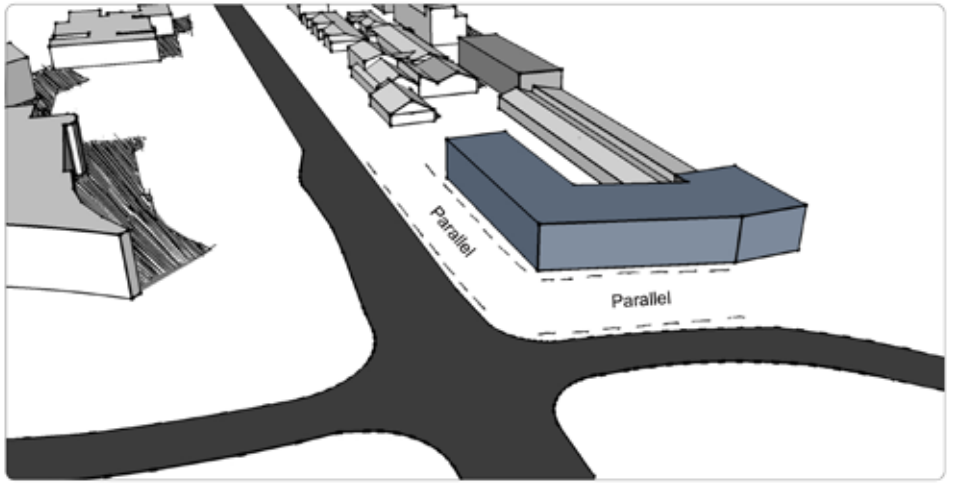


Figure 126: Perspective view of the final façade concept.

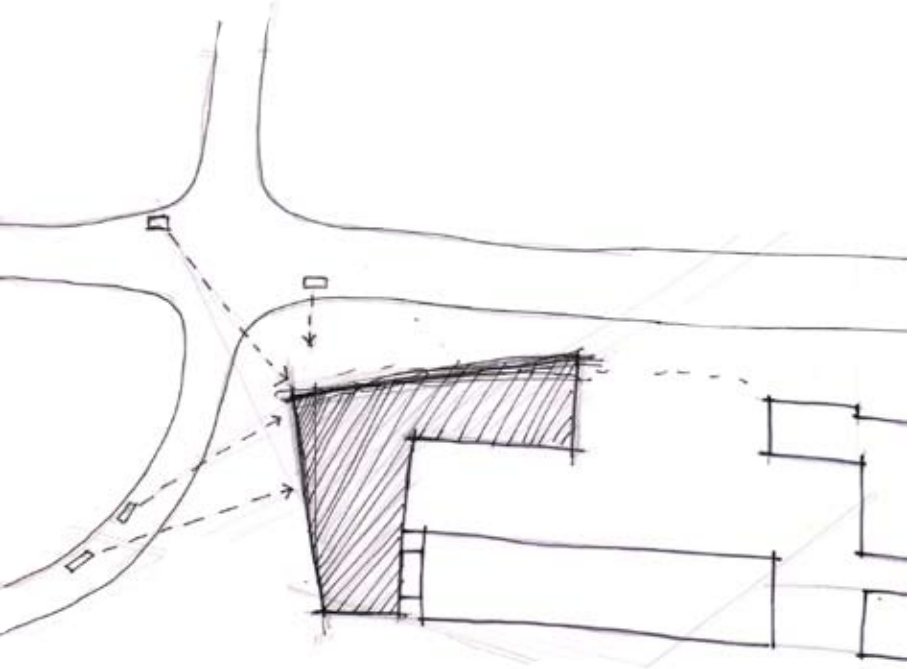


Figure 127: Plan concept sketch of the façade development, June 2008.

Conceptually, the north and west **façades** were set at a slight angle to University and Lynnwood Roads respectively. The motivation for this was to establish a visual relationship with the traffic moving through the gateway to and from of the CBD. However, the angles interrupted the existing edge conditions, creating uncomfortable sidewalk spaces. Therefore the building façades were changed to follow the line of the adjacent road angle.

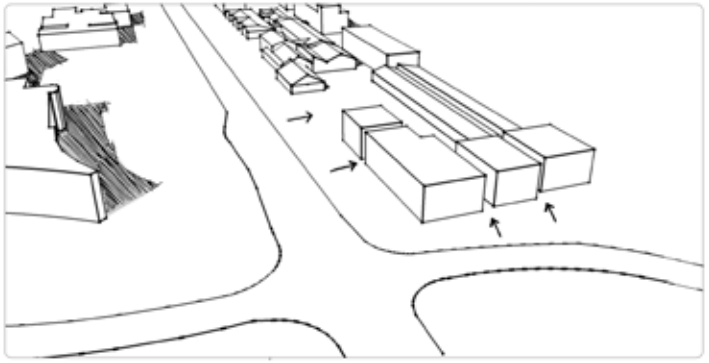


Figure 128: Conceptual design for permeability.

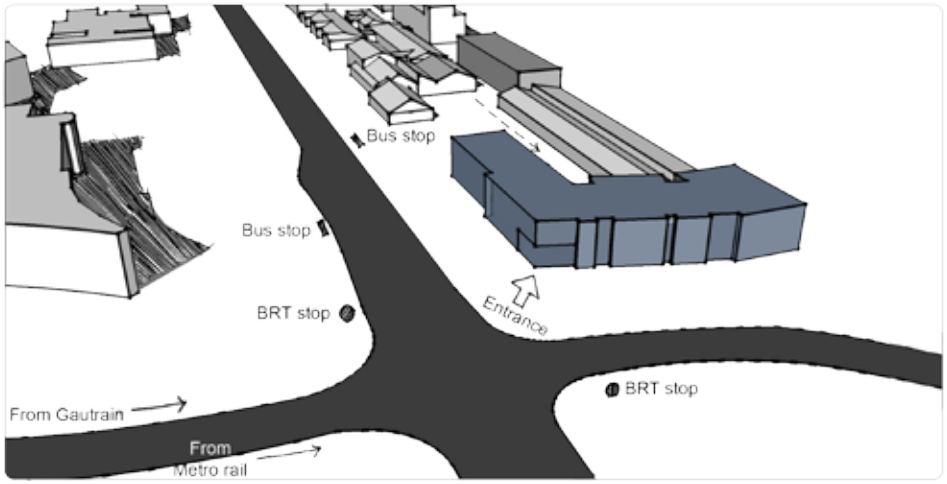


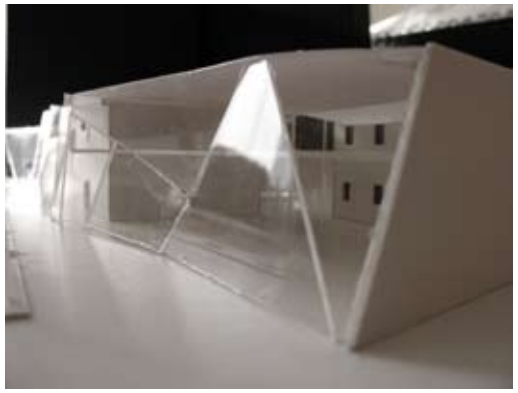
Figure 129: Perspective view of the final entrance concept.

Permeability is achieved by allowing movement into the site through the building. Multiple entrances were allocated, separating different functions within the building. This concept introduces the idea of different structures, each with its own function. However, the envisioned goal of the institutional building demanded several functions to be grouped together in one facility. Consequently a dominant entry point was established.

A visually legible corner entrance grants **access** to the building. Visitors approach the school from on-site parking, street parking, or public transport amenities located at the intersection. The primary movement of visitors is thus towards the north-west corner of the building. Students coming from the Main Campus will approach from the east, therefore a secondary entrance is provided from the inner courtyard.

The materials selected for the building **skin** are responsive to the different conditions at each face of the building. Façades facing the courtyard consist of red brick corresponding with the existing buildings, while street facing façades introduce contrasting glass and steel.

Figure 130: Concept model, June 2008.



precedent study

Figure 131: Walkway along the street edge.

Figure 132: Seattle Public Library.

experience

Cinema creates an experience over time. Through movement inside and around the building, certain experiences are generated. An initial concept of a tilted building was developed to arouse a reaction from the passer-by. This concept was refined to a single slightly slanted wall on the northern façade which stimulates curiosity and enhances the spatial experience of the observer.

Rem Koolhaas designed the **Seattle Public Library** with nearly 10 000 pieces of glass positioned at dynamic angles. The angled glass façade makes the building “transparent and open” (Jodidio, 2006:334) and activities on every floor are visible from street level. The purpose of the unusual structural shape is to control the quality of light reaching interior spaces. A glass overhang extends the building onto the sidewalk. People passing the library pass through the slanted walkway and experience a part of the building.

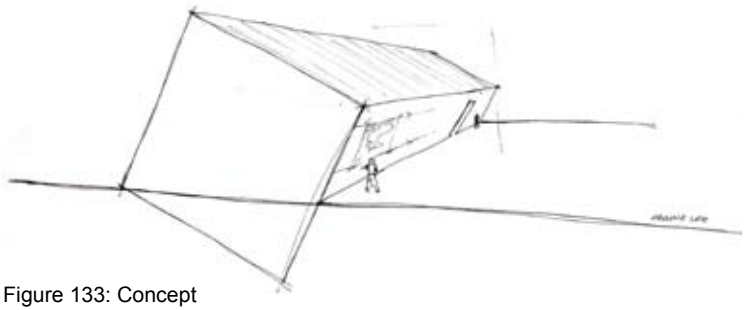
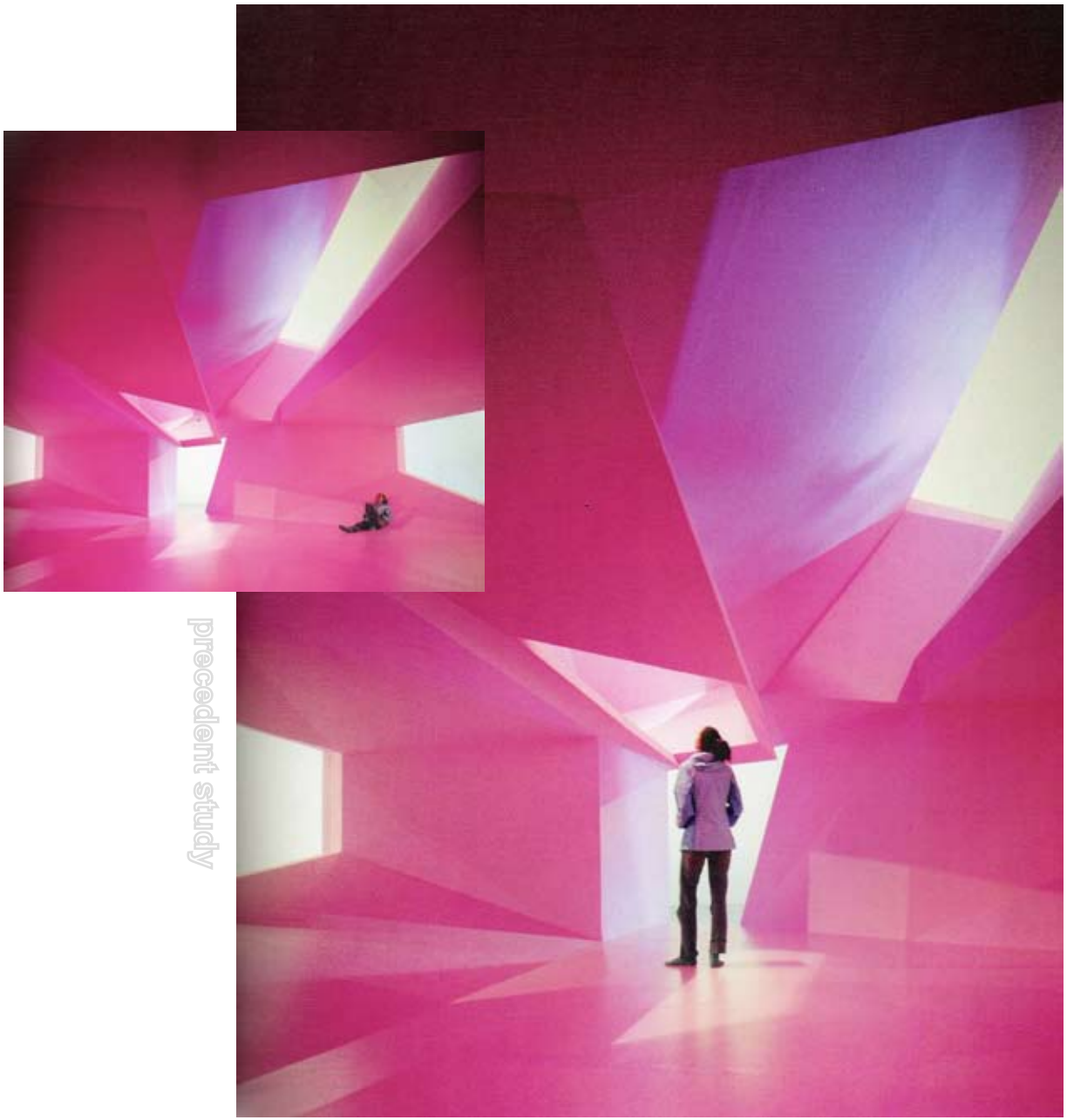


Figure 133: Concept sketch, March 2008.

Figure 134: Proposed perspective view of the slanted wall on the northern façade.



precedent study

Figure 135:
Holiday Home.

Similar spatial experiences are evoked in the interior of the proposed building, where screens are placed at unexpected angles. Several precedents, including UN Studio's **Holiday Home** and Steven Holl's **New York University Department of Philosophy**, illustrate the spatial effects generated by multi-faceted walls. In the proposed experimentation cinema, multiple projection screens are installed at different angles. Screens are located adjacent to the side walls and ceiling, introducing another spatial dimension to the room. Projections onto these screens are made possible through roof-mounted projectors. Fragments of the film are shown on the side screens creating the illusion that the motion picture continues towards the viewer into the realm of reality. Interplay between the real and the virtual is produced. The screens can be adapted as students explore the different projection possibilities. Screens are made of coated fibreglass fabric with a special acoustic weave to assist in acoustic absorption (Prolith Africa, n.d).

Figure 136: Acoustic
fibreglass fabric.

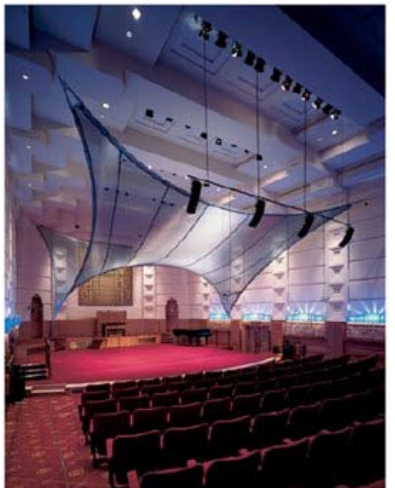


Figure 137: NYU Department of Philosophy.

Figure 138: Proposed cinema perspective illustrating the multiple projection possibilities.

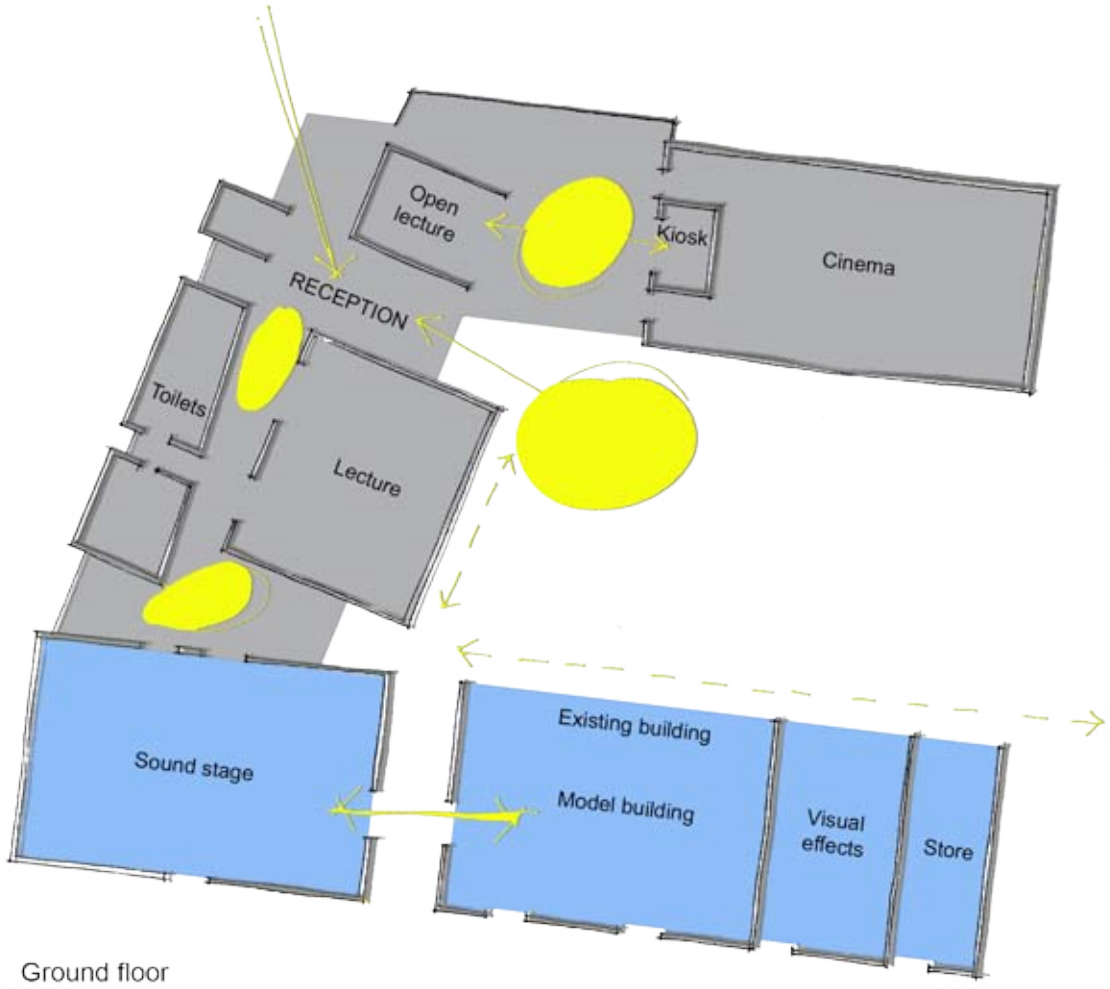
The proposed building concept involved two main contradictory spaces defined as:

Real Tangible Solid	versus	imaginary intangible void

The real or tangible spaces are enhanced by traditional brick and concrete construction. Transitional zones, where movement or pause between functions occurs, become the imaginary or intangible spaces. These spaces are enclosed by lightweight steel and glass construction.

movement

The building is made up of a series of events so that movement through it offers a sequence of experiences. Visual legibility allows unfamiliar visitors to navigate the building with ease. Similar functions are grouped together, for example pre-production, production and post-production activities. Publicly accessible spaces are limited to the ground floor while students and lecturers are located on the first and second floors respectively. To reinforce legibility, different colours are used to classify each floor. Signage and furnishings on each floor are colour-coded to establish a clear identity.



Ground floor

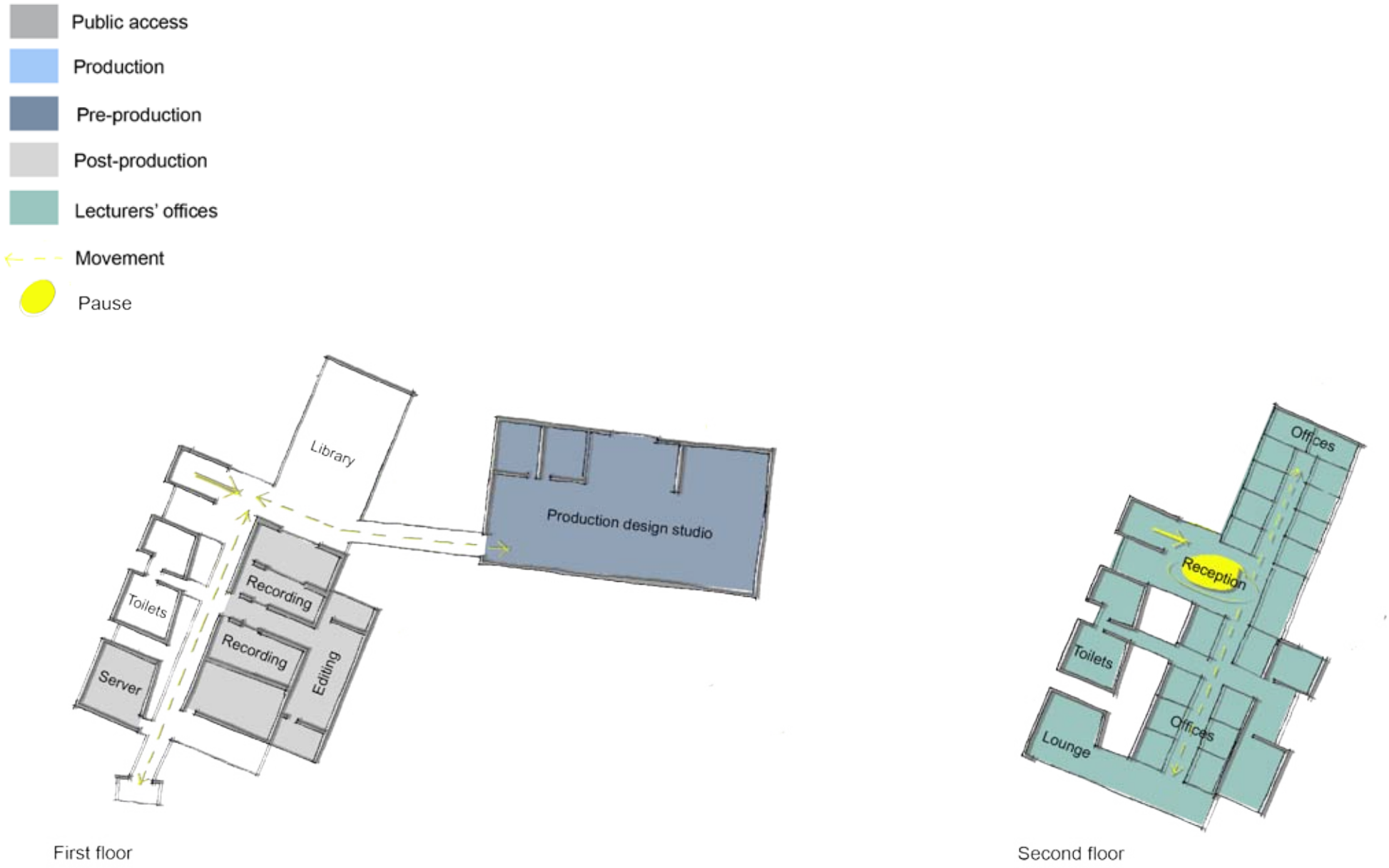


Figure 139: Proposed floor plans illustrating internal circulation patterns.

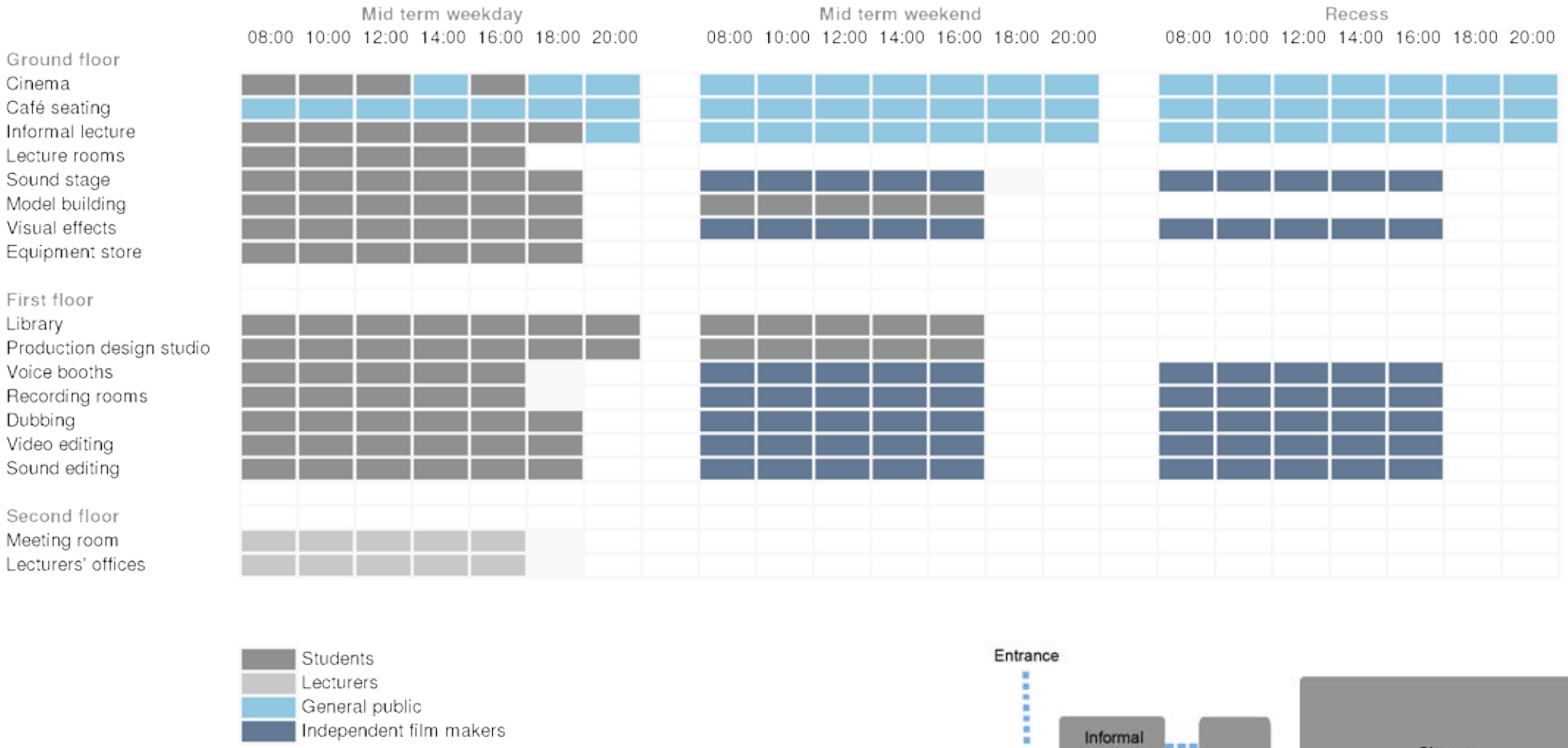


Figure 140: Building occupation time sheet.

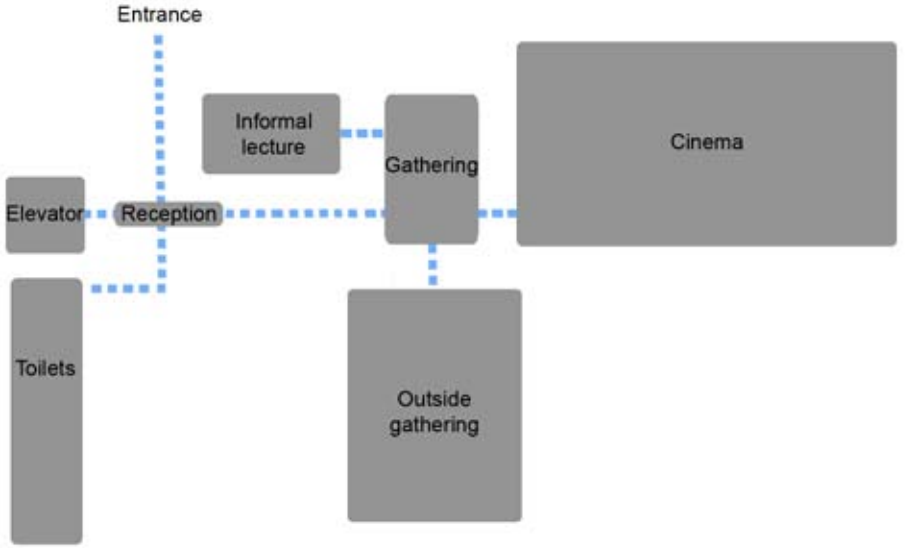


Figure 141: Visitors circulation: ground floor.

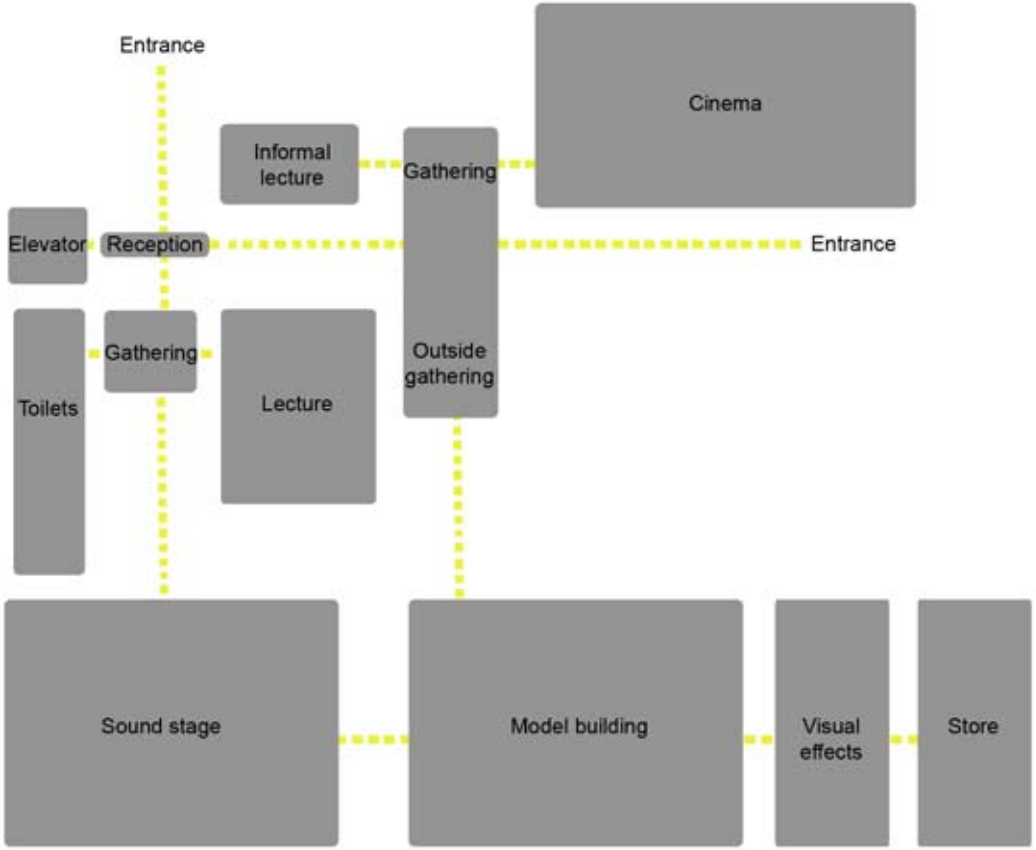


Figure 142: Students circulation: ground floor.

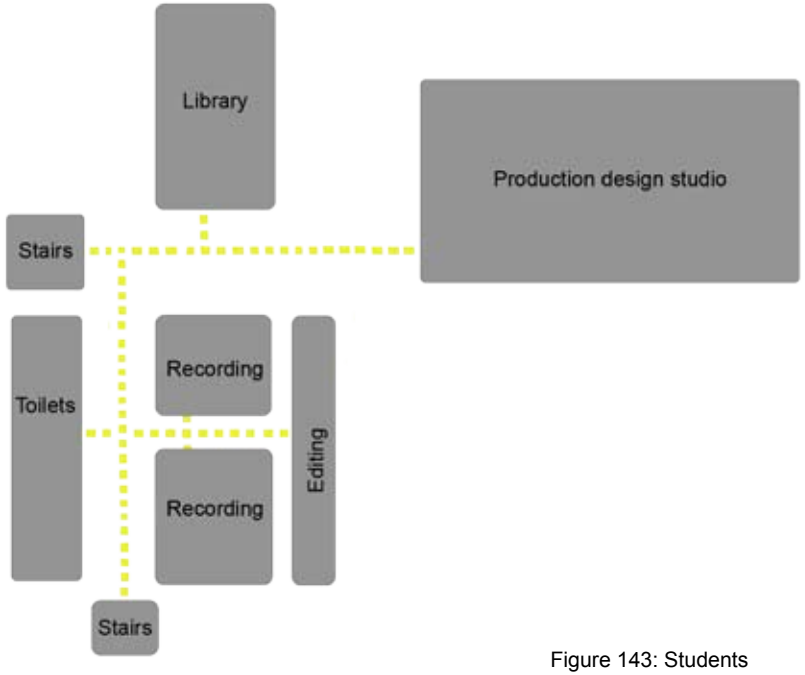


Figure 143: Students circulation: first floor.

transparency

The process of film making becomes transparent through the structure. Windows are located throughout the building to allow views into the lecture rooms, sound stage and recording studios.

An open lecture room questions the need for traditional closed spaces and introduces informal viewing. Student films are screened throughout the day and visitors can watch while they wait. Rem Koolhaas introduced the idea of an open lecture room in the **Seattle Public Library**. Another example is the suspended cinema in the **Cinematheque Quebecoise in Montreal** by Saucier and Perotte.

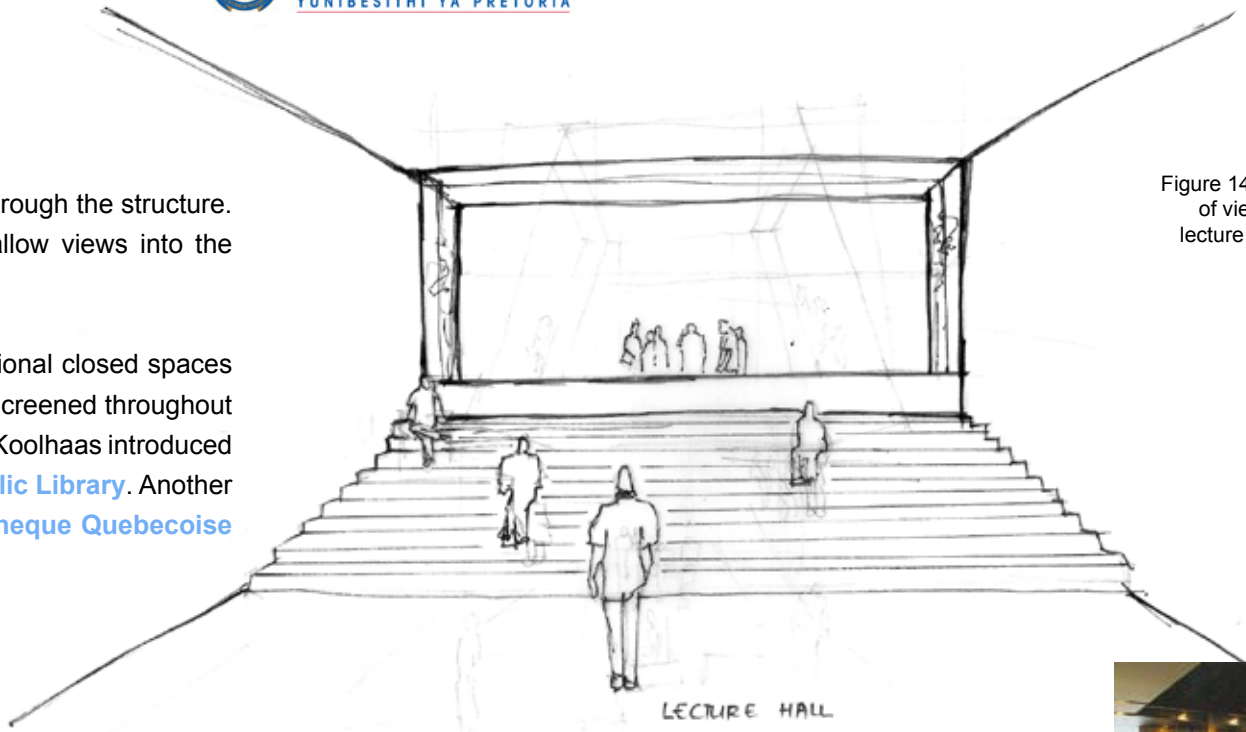


Figure 144: Concept sketch of viewing windows into lecture rooms, April 2008.

Figure 145: Suspended cinema of the Cinematheque Quebecoise.

precedent study

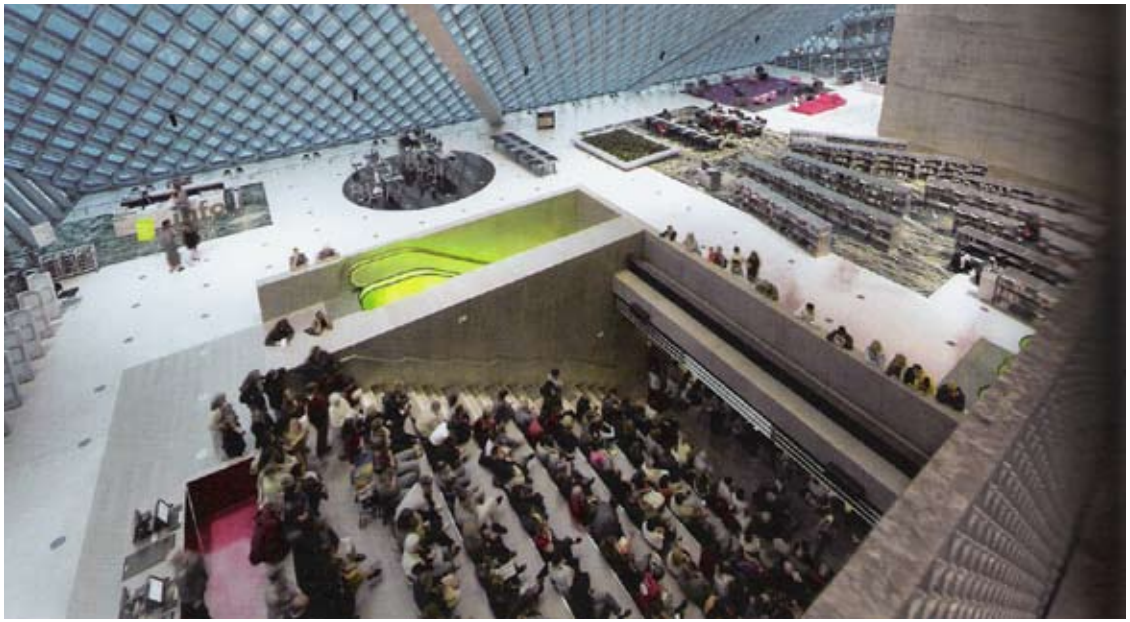


Figure 146: Open lecture room of the Seattle Public Library.

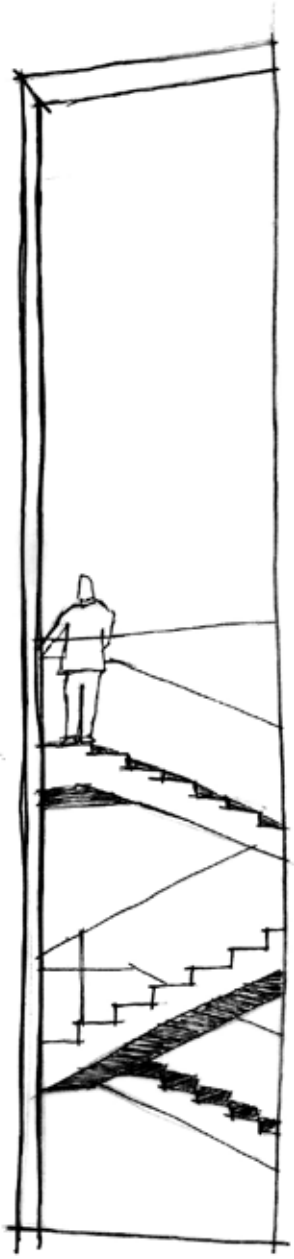


Figure 147: Concept sketch of framed views, April 2008.

Windows are consciously located to frame specific views of the interior or exterior. The architecture therefore focuses one's attention on certain views, generating a sequence of images as one move through the building. Framed views include a narrow cityscape visible from the western staircase, a sky view through several skylights and a longitudinal view into the staircase. Meeting rooms and studios are also visible from the atrium, inviting guests to understand the filming process. Strategic placement of window openings also introduces various light patterns which penetrate the building interior, creating a phenomenal experience of light. Precedents include the **Chapel of Notre Dame du Haut** in Ronchamp by Le Corbusier, **Sarphatistraat Offices** in Amsterdam by Steven Holl, and **Baragwanath Transport Facility and Traders' Market** in Johannesburg by Urban Solutions.

Figure 148: Baragwanath Transport Facility.

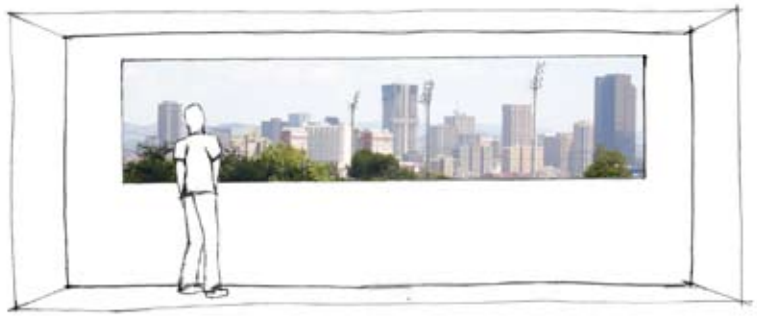


Figure 149: Concept sketch of city view, March 2008.

precedent study

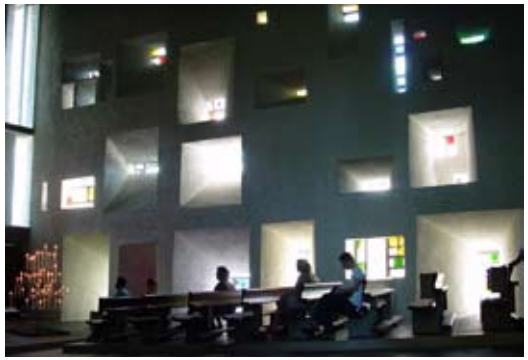


Figure 150: Notre Dame du Haut.

Figure 151: Sarphatistraat Offices.

Figure 152: Sarphatistraat Offices: interior.

Figure 153: Sarphatistraat Offices: night view.

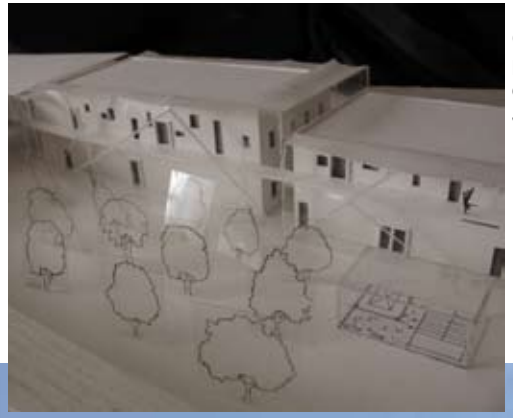


Figure 154: Concept model of proposed building's east elevation, June 2008.

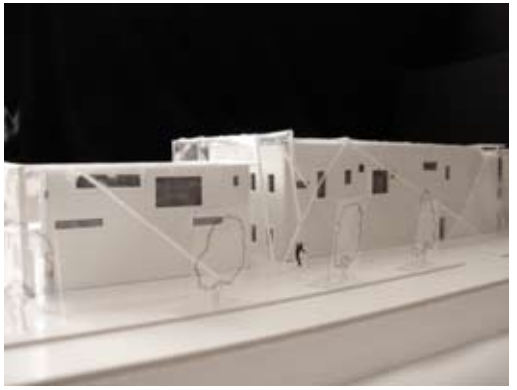
Figure 155: Proposed perspective view from the south-east.

interactivity

The building skin acts as an interactive public interface. Throughout the design development the northern façade has evolved from a rigid envelope into a dynamic skin. The façade is composed of glass louvres continuously rotating to provide optimal solar shading. As the façade goes into motion the appearance of the building changes. Human activity is visible inside.

The west elevation includes a translucent glass screen. Projections onto the screen become part of the building texture visible to oncoming traffic. Movement of people inside the building becomes entwined with the images projected onto the screen, blurring the boundary between reality and illusion.

Figure 156: Concept model of building skin, June 2008.



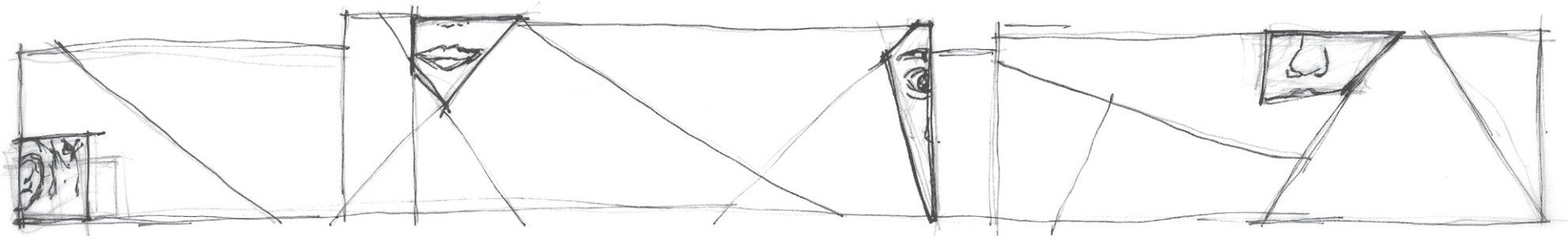


Figure 157: Concept elevation of the north façade, April 2008.

Figure 158: Proposed perspective view from the north-west.

Figure 159: Crown Fountain.

Crown Fountain is an interactive public fountain located in Millennium Park in Chicago. Jaume Plensa designed the fountain as a black granite reflecting pool located between two glass brick sculptures (Millennium Park Chicago, 2008). Water is incorporated in the form of a cascade and spouting water nozzle and the fountain is animated through a dynamic exhibit of lights and electronic images. Digital videos of Chicago residents are displayed on LED screens, creating the illusion that water is spouting from their mouths.

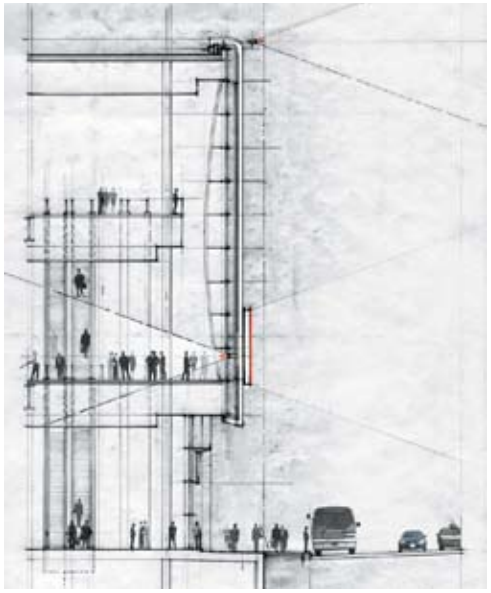


Figure 160: Moscone Convention Centre.

Diller, Scofidio and Renfro's Facsimile installation on the **Moscone Convention Centre** in San Francisco contains a street-facing video monitor suspended from the roof via a steel skeleton. The monitor moves slowly along the periphery of the glass façade. A video camera is mounted on the back, recording the crowded gathering space and transmitting live feed to the monitor. Pre-recorded video footage is randomly substituted. The screen acts as a magnifying lens exhibiting a virtual transparency of the office building.

A similar concept is adapted for the screen on the western façade of the proposed building. Student footage filmed in the school, as well as film trailers and university advertisements are displayed.

Walkways accommodate various events rather than solely facilitating movement. As a result open spaces and walkways encourage activity and lingering. Digital displays along the walkways interact with the user and allow ‘windows’ into the rooms beyond. Live feed from cameras are projected onto the displays, making the filming process transparent to visitors.

Images and sound are selected at various points and relocated at other points, creating intriguing effects throughout the building.

Figure 161: Proposed perspective showing digital displays located in building walkways.