Chapter 5

design investigation

Fig.68: Concept Model July 2007

5.1 Accommodation schedule

NAME	DESCRIPTION	CONSIDERATION	SIZE
BREWERY			
Brew House	**Area containing the equipment necessary for the first phase of the brewing process. Contains the mash tun, lauter tun, and boiler.**	**Visually accessible for pedestrians. Boiler needs to be visible.**	
Control	User area for controlling the brewing process		120 m²
Store Room	Storage for brew house equipment	Fire proof	25 m²
Reception/office	Reception foyer and reception office to the brewery for the public and the brewers		40m m²
Laboratory	**Infrastructure for beer research. Facilities for users to manage their products.**	**Services required: Water from filter tanks; electricity; washable floors.**	
Brew Lab L1	Open laboratory for research through means of small scale brewing. Intermediate brewers		125-150 m²
Store room: B.L.L1	General storage for brew lab L1	Fire proof	25 m²
General brewers office: B.L.L1	Open office with facilities for brewers to manage their business		40 m²
Brew Lab L2	Open laboratory for research through means of small scale brewing. Advanced brewers		125-150 m²
Store room: B.L.L2	General storage for brew lab L2	Fire proof	25 m²
General brewers office: B.L.L1	Open office with facilities for brewers to manage their business		40 m²
Services	Contains processing equipment and services for the brewery	Not open to the public	
Mass Storage	Storage of empty kegs, full kegs, raw materials for brewing purposes, processed materials for recycling		80-100 m²
Holding Bay 01	Regulating deliveries and pickups		20 m²
Holding Bay 02	Regulating deliveries and pickups		20 m²
Security Control/Office	Regulate security at deliveries and pickups	Able to view Holding bay 01;02 and Mass Storage	5 m²
Delivery yard	Contains two delivery bays 1105 high, 3350 wide. Ramp @ 1:12	Under cover Adjacent to Mass Storage	150 m²
Kegging room	Finished processed beer stored in kegs.		100m²
General Store Room	General storage room for service block		20 m²
Control Office: Kegging	Control and regulate kegging process		25 m²
Processing room	For the processing of yeast. Contains the yeast roaster and the yeast grinder	Adjacent to Mass Storage. Heat build up	100 m²
Control Office: Processing room	Controls and regulates the grinding and roasting processes		25 m²
Water Filter Room	Contains water filter and tanks containing filtered water for use in the brew house, brewery labs, school labs		80-100 m²
Fermentation flasks	Contains 16 fermentation flasks. Phase two of brewing process.	Strict temperature regulation. Visually accessible to the public	125 m²
Plant room: fermentation flasks	Contains the chiller to cool the fermentation flasks		30 m²

Pump room	Contains pump to pump beer from phase one to phase two and to pump cooled water from plant room to fermentation flasks		15 m²
Maturing room	Contain 16 maturing flasks. Phase three of brewing process	Strict temperature regulation. Visually accessible to the public	85 m²
Plant room: Maturing room	Contains the chiller to cool the maturing room flasks		30 m²
Brewing master's office	Office for the Brew master of the brewery		10 m²
Lounge	Lounge for brewers		50 m²
Security check	Shared staff entrance for kitchen and the service block of the brewery	Contains lockers for all users	30 m²
Offices	General offices		35 m²
Ablution	**Ablution for all of the brewery, only accessible to the users**		
Male	1xWC; 4xurinal; 4xbasin; 1xshower		20 m²
Female	3xWC; 4xbasins; 1xshower		20 m²

BREWING SCHOOL

School	Facilities to educate students	Separated from brewery by security access door	
Entrance Foyer	Central space leading to all areas of the school	Accessible to the public	50 m²
Security Check	Prevents unauthorised personnel from entering the school		20 m²
Reception/office	Reception for the public and students to enterthe brewery and reception office		35 m²
Classroom 01	To seat 40 students		45 m²
Classroom 02	To seat 40 students		45 m²
Circulation space	Notice boards; information; display etc.		50 m²
Administration office	Responsible for school administration		30 m²
School Brew Lab	Open laboratory for research through small scale brewing by students		150 m²
Store Room: SBL	Storage for the school brew lab	Fire proof	25 m²
Kitchenette	Accessible to students		15 m²
Offices	General administration and lecturer offices		45 m²
Ablution	**For use by the students only. Ablutions for auditorium is shared with restaurant**		
Male	1xWC; 3xurinal; 3xbasin		15 m²
Female	3xWC; 3xbasin		15 m²
Public	**Facilities to educate the public**		
Auditorium	To seat 120		150 m²
Control room	Regulate operations in auditorium.		5 m²

BREW PUB & RESTAURANT

Restaurant	**Restaurant and Brew pub selling beer produced at the brewery and the school.**	**Open on to public space**	
Seating area: inside	Tables and a bar		180-200 m²
Seating area: outside	Benches		80-100 m²
Bar	Serves drinks to waiters and serves directly to users	Maturing flasks above bar need to be visually accessible.	50 m²
Kitchen	**Complete kitchen**		
Cold Room	Walk in fridge for food	Accessible from service area and kitchen	10 m²

function relationship

Dry store	Storage for dry foods	Accessible from service area and kitchen	15 m²
Washing	Washing of dishes and other kitchen appliances	Adjacent to preparation area.	10 m²
Preparation	Where the food is prepared	Have a view over all of the kitchen	20 m²
Locker room	For waiters, barman, cooks, Chef. Contains lockers for all employees; 1xWC; 1xshower.		10 m²
Chefs office	Office for chef of the restaurant for regulation		10 m²
Ablution	**Shared by the users of the auditorium**	Not accessible to the public	
Male	2 x WC; 5 x urinal; 5 x basin		15 m²
Female	4 x WC; 5 x basin		15 m²
Disabled	1 x WC; 1 x basin		3.5 m²

ACTIVITY SPACE

	Under cover platform for multiple uses. Shoulds for trading	Creates a buffer between the road and public space	100 m²

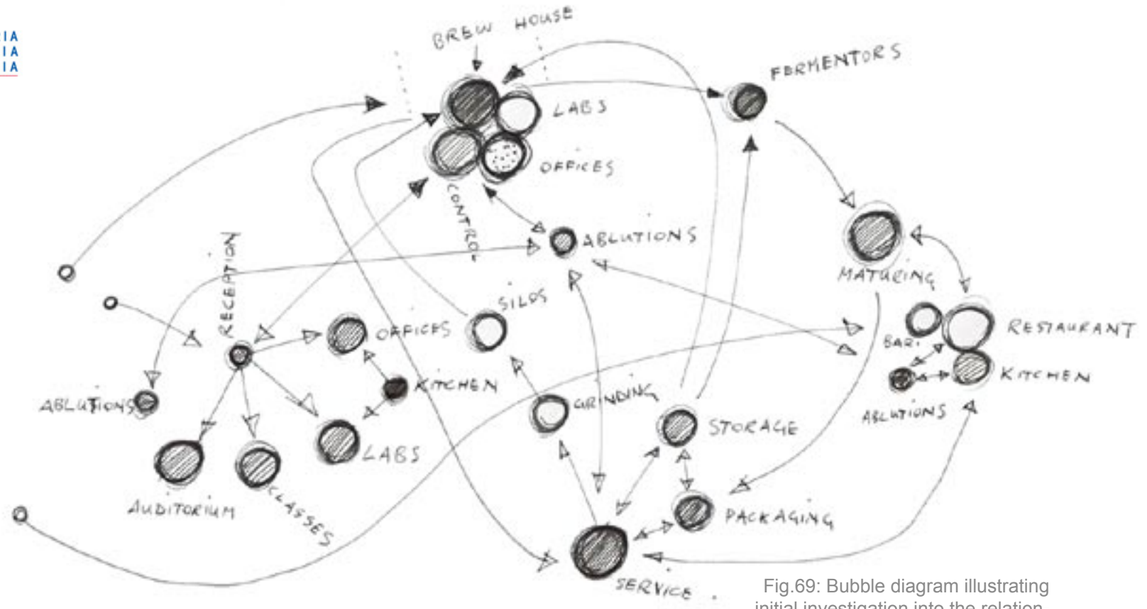


Fig.69: Bubble diagram illustrating initial investigation into the relationships between parts of the building

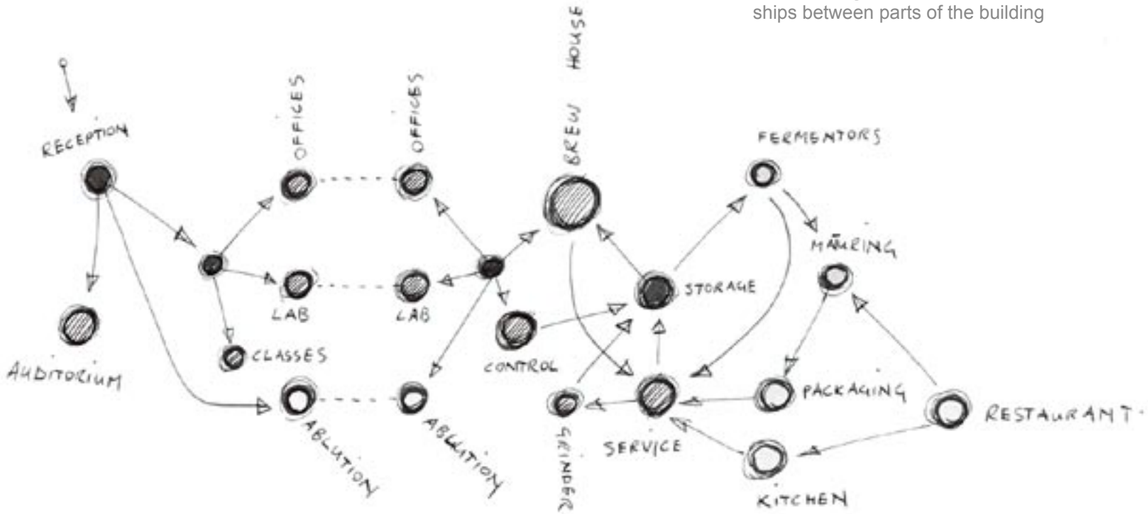


Fig.70: Bubble diagram illustrating advanced investigation into the relationships between parts of the building

5.3 – City block design

When considering the potential of the city block it becomes evident that most parts do not perform optimally. This, in conjunction with the new urban proposals for the Pretoria CBD, calls for the city block to be re-investigated and re-designed so as to optimise efficiency.

Fig.71: Remaining building on site.

5.3.1 Buildings on site

a. Buildings to be removed: The buildings that will be demolished on the site include the vacant office building on the northern edge, all the buildings forming part of the fluorescent sign manufacturing facility on the south-eastern corner, and the shared building on the southern side selling number plates. These buildings do not optimise the strengths and opportunities of the city block and have very limited potential in terms of expansion or addition.

b. Buildings to remain: The buildings that will remain on the city block include the ABC Sweet shop on the western side as well as the retail and office building on the south-western corner. These buildings are currently not well utilised but are capable of improving with relative ease. Demolition would not be economical at this stage.

Fig.72: Movement after demolition.

5.3.2 Movement after demolition

c. Pedestrian movement on site: The city block is situated on the CBD edge and forms part of an extended green corridor aimed at an improved pedestrian environment. Movement on site will follow this green corridor leading pedestrians either down around the city edge or through the city edge. The green dots indicate destinations on site and off site whereas the green lines indicate the typical movement paths between destinations.

d. Vehicular movement: To the north and to the east of the city block are major roads that separate the city block from the TUT campus hostels to the north and Arcadia to the east. The orange arrows indicate direction of traffic flow.

e. Hard edge: This edge of the city block is also the edge of the city CBD. It consists of Struben Street and Nelson Mandela Drive and creates an undesirable crossing point for pedestrians.

f. Visual and physical focus point: This is where pedestrians gather when crossing Struben Street from the TUT, or crossing Du Toit Street when moving east in Struben Street. This point is also an important visual focus point for all cars driving southeast in Boom Street and is visible up to the crossing with Bloed Street.

Fig.73: Focus points.

5.3.3 Focus points

g. Pedestrian focus point: This point has the highest intensity of crossing pedestrian paths on the entire city block.

h. Green focus point: This point is a potential green space on the corner of the CBD. It has large trees standing on it and can optimally form part of the extended green corridor proposal.

i. Visual focus point: This point of the city block is an important visual focus point as it is visible while driving north in Nelson Mandela Drive and when driving west in Proes Street.

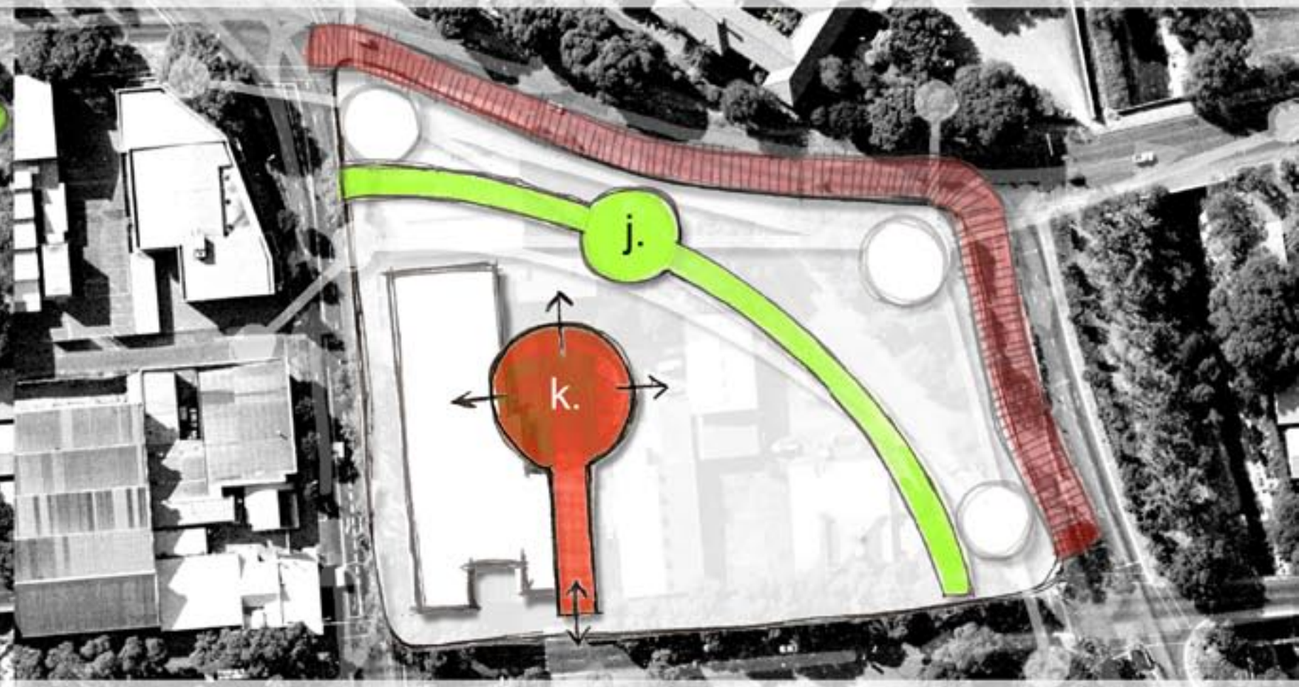


Fig.74: Walkway and service entance.

5.3.4 Walk path and service entrance

j. Walk path and central gathering point: The pedestrian focus point (g.) should become a social and public gathering space. Uninterrupted pedestrian flow should be accommodated between the corners of the city block (f. to i.) and through the public space.

k. Centralised service core: By focusing on pedestrians, services should be removed from the streets. A service yard will be reserved in the centre of the city block and be accessible from Proes Street. It will allow a rigid 16 tonne truck to enter and turn and will service all the buildings on the block.

Fig.75: Building zones.

5.3.5 Building types

l. Solid: These buildings must have hard edges that respond to the walkway.

m. Transparent: These buildings must have transparent edges that respond to the walkway and serve as a buffer between it and the road.

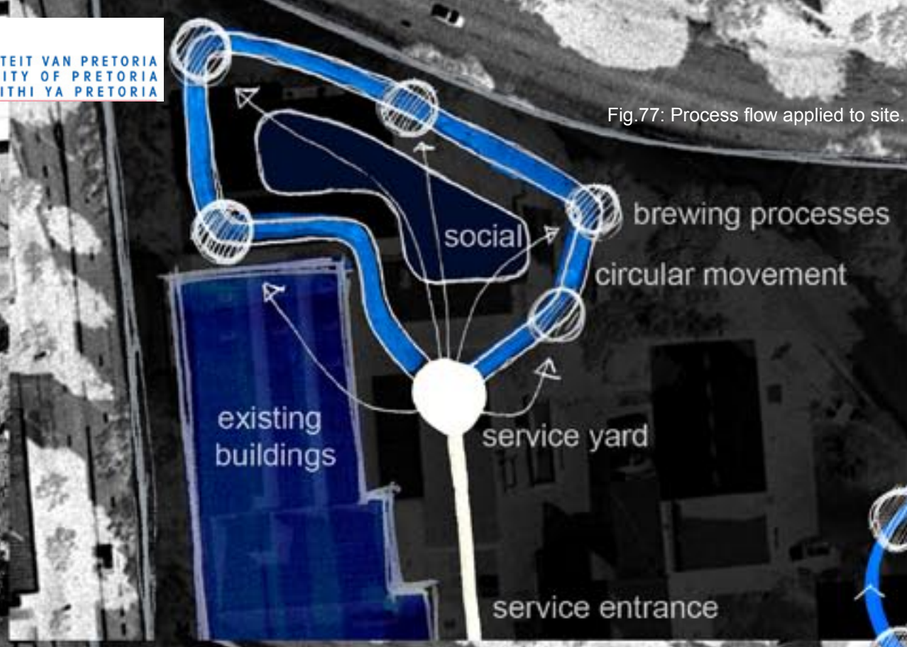
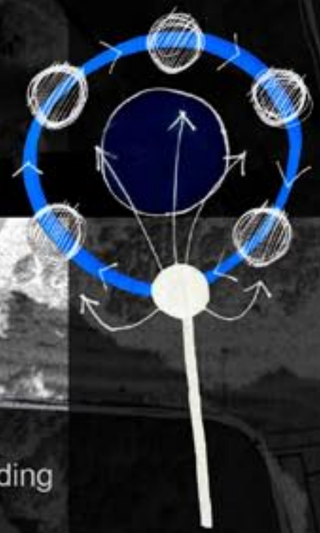


Fig.77: Process flow applied to site.

A central service core is proposed around which the brewing processes flow in a circular manner, ending where it started (Fig. 76; 77). The social interaction will be focused in the centre. By superimposing this placement of functions on to the site an initial form for the building can be derived (Fig. 78).



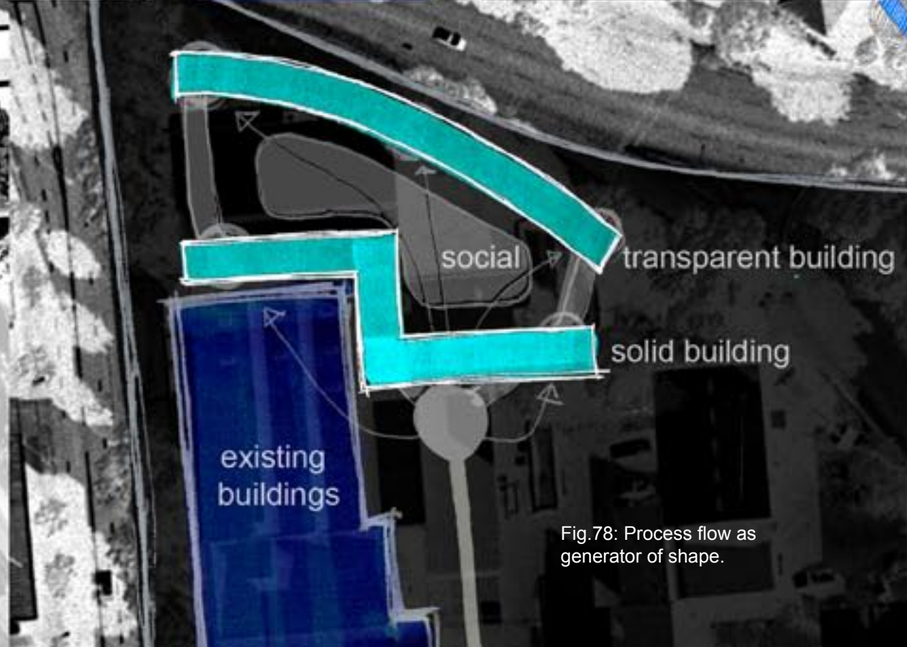


Fig.78: Process flow as generator of shape.

Fig.76: Process flow of brewery.

Fig.79: Concept sketch June 2007.

5.5 Design development

Fig.80: Concept model May 2007.

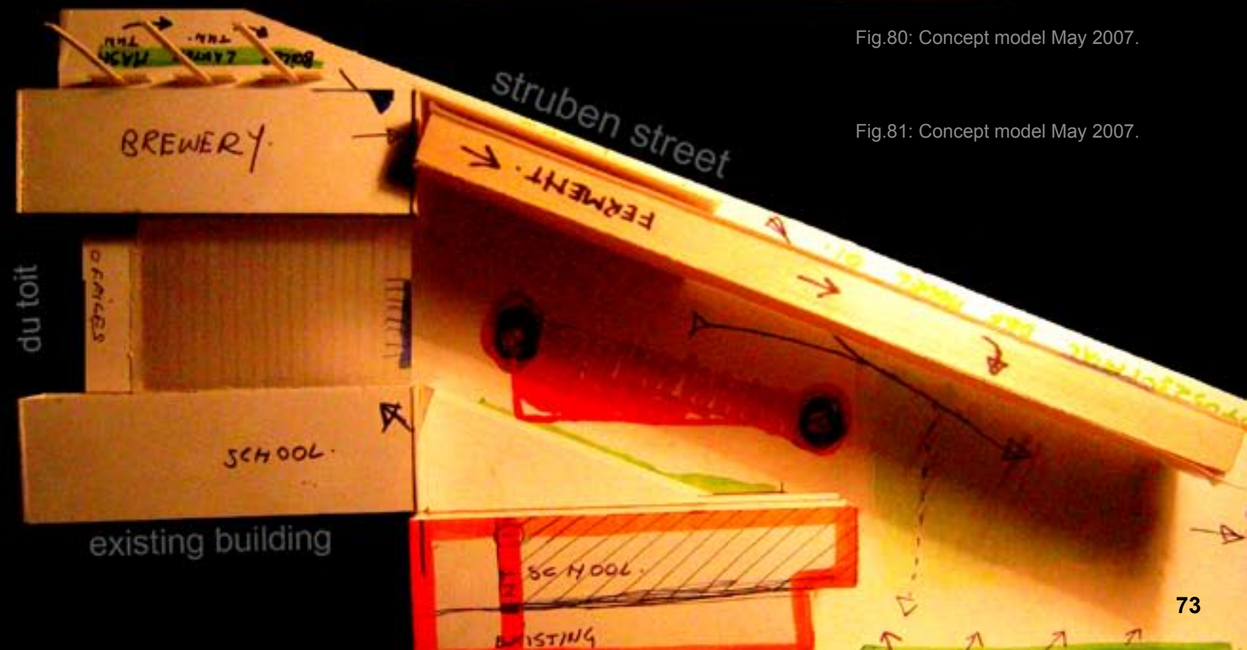


Fig.81: Concept model May 2007.

Fig.82: Concept model June 2007.

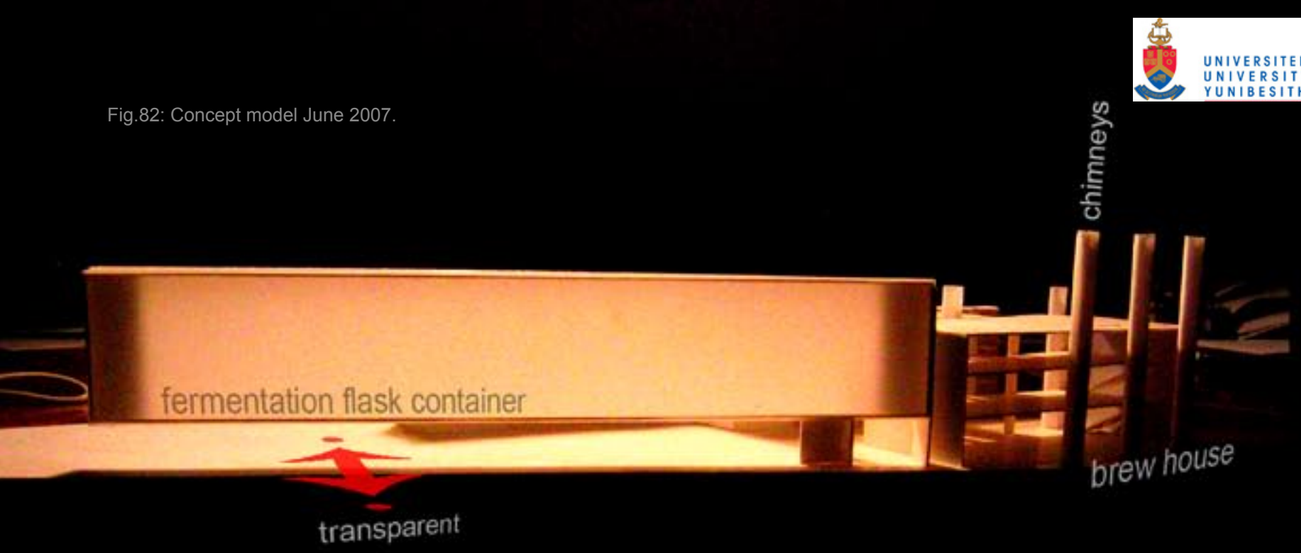


Fig.83: Concept model June 2007.

Fig.84: Structural concept model July 2007.

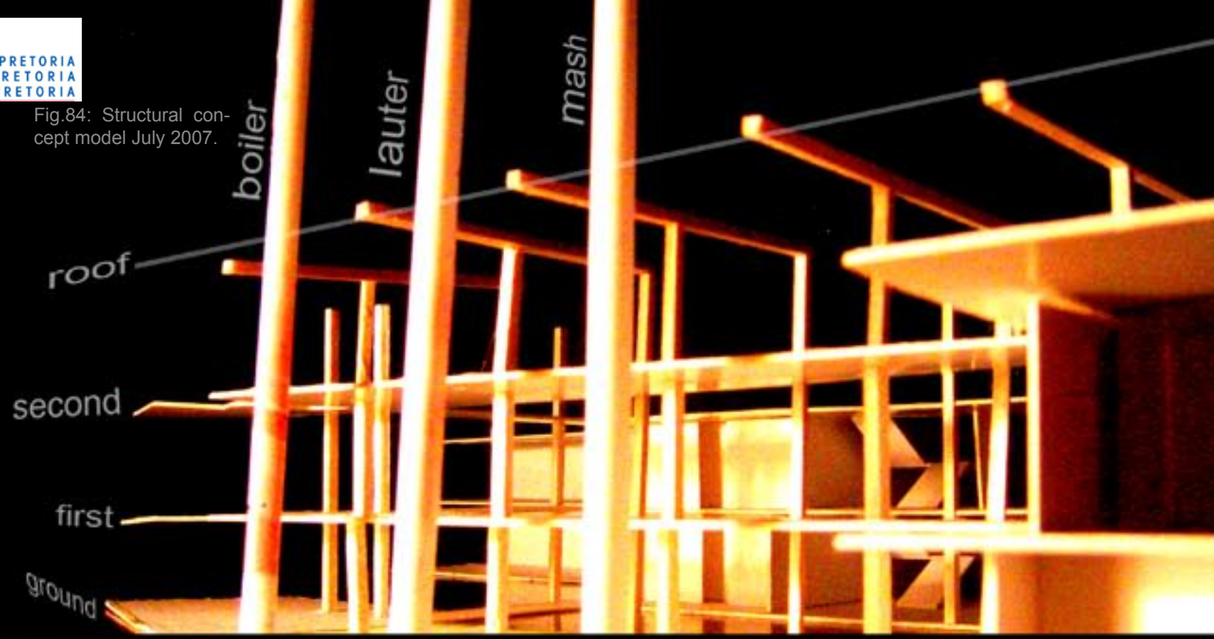


Fig.85: Concept model June 2007.

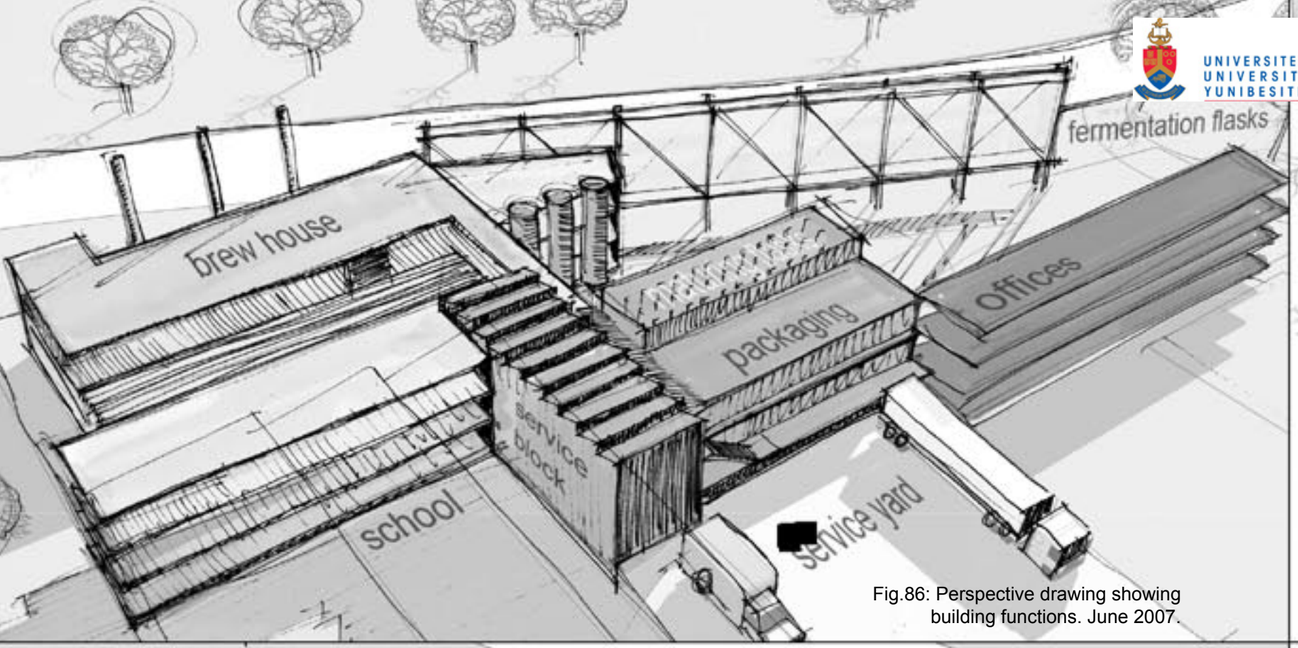


Fig.86: Perspective drawing showing building functions. June 2007.

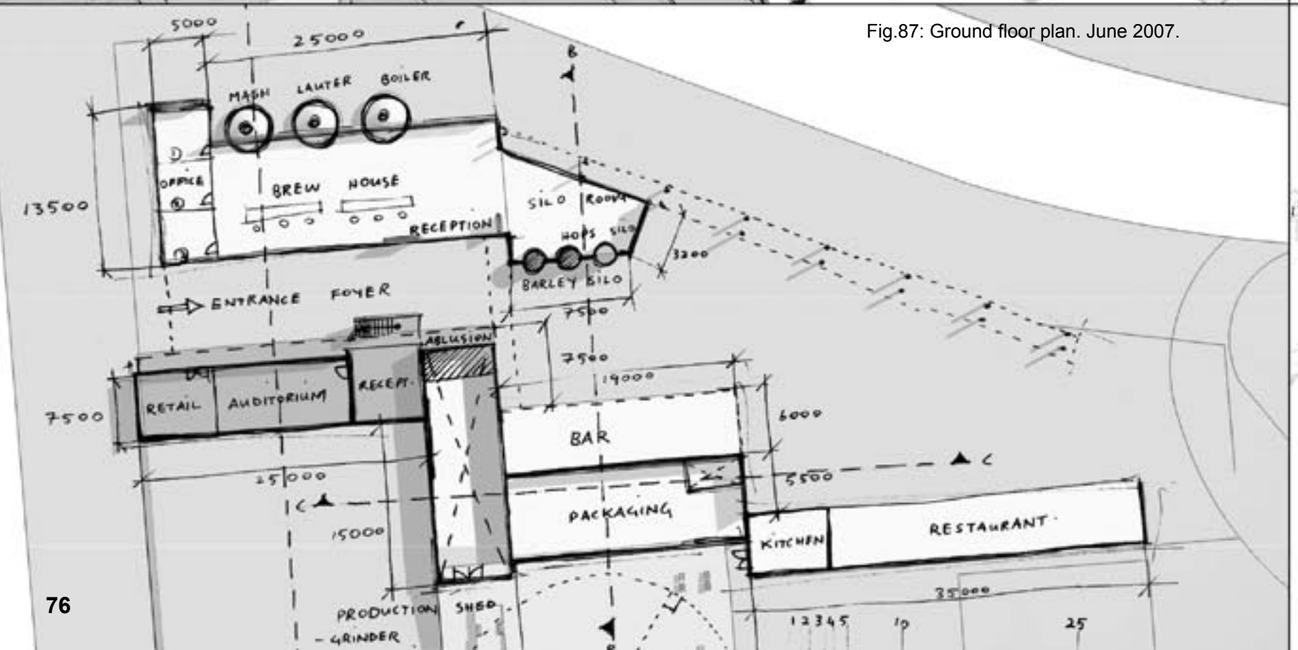


Fig.87: Ground floor plan. June 2007.

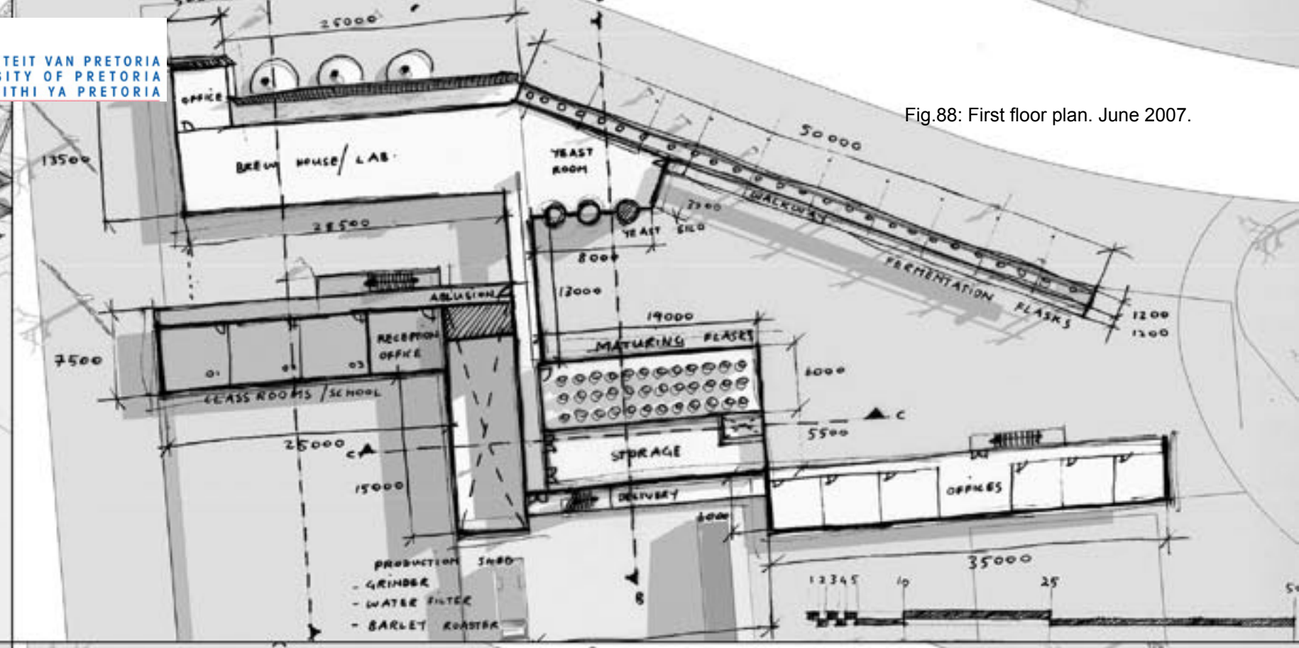


Fig.88: First floor plan. June 2007.

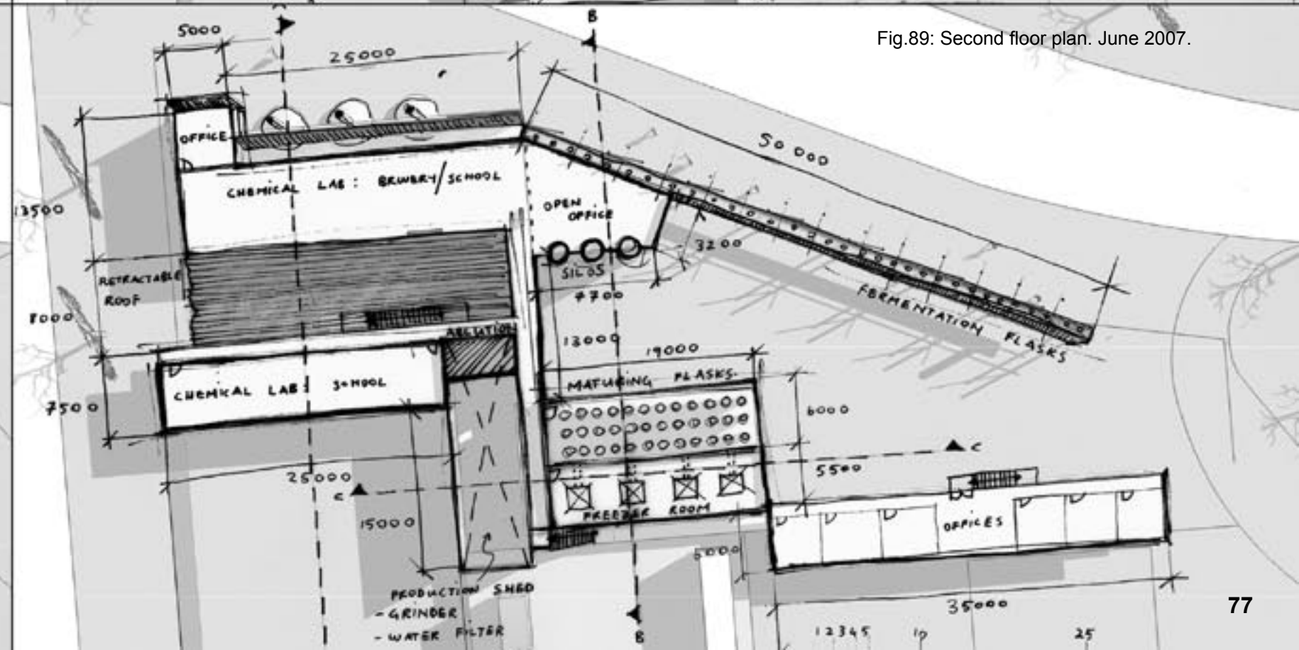


Fig.89: Second floor plan. June 2007.

Fig.90: 3D rendering showing pedestrian movement past brew house.

Fig.91: 3D rendering showing pedestrian movement between the brewing school and brew house.

Fig.92: 3D rendering showing pedestrian movement underneath fermentation flasks.

Fig.93: 3D rendering showing initial design for brew house and laboratories.

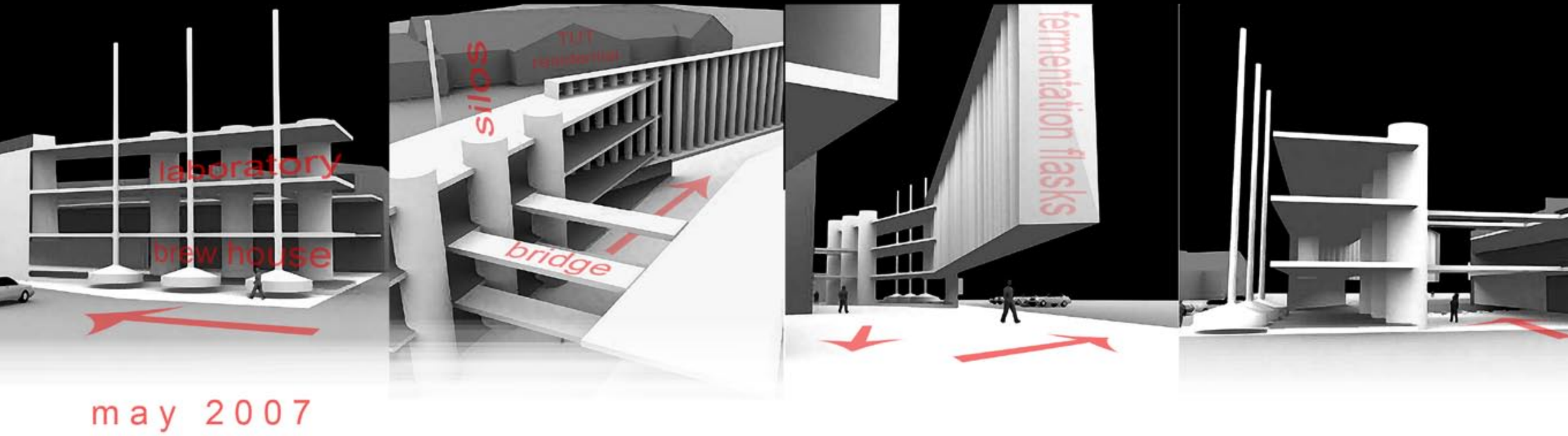


Fig.94: 3d Model July 2007: School facade investigation.

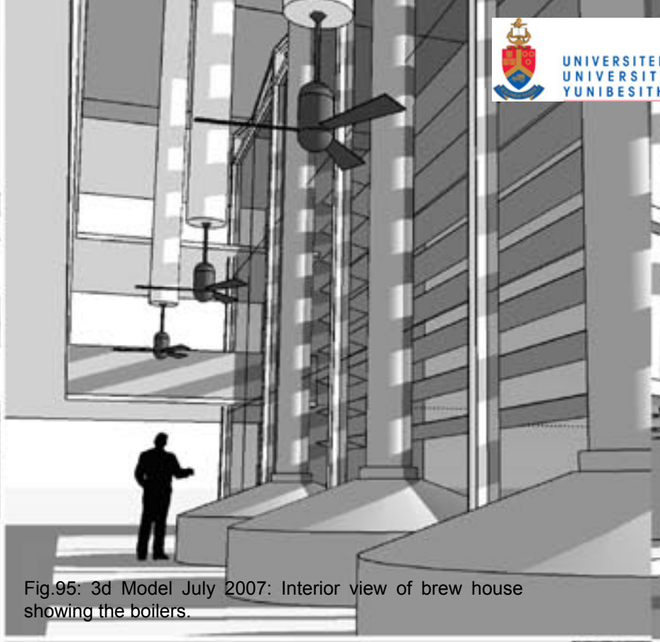


Fig.95: 3d Model July 2007: Interior view of brew house showing the boilers.

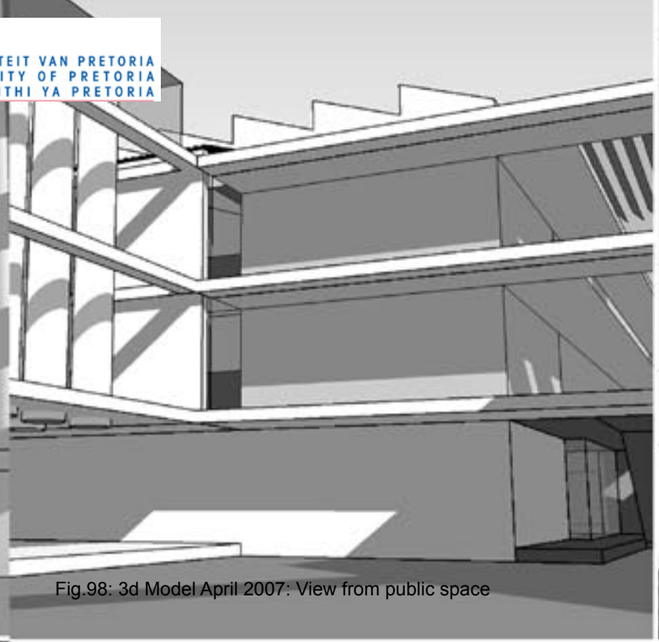


Fig.98: 3d Model April 2007: View from public space

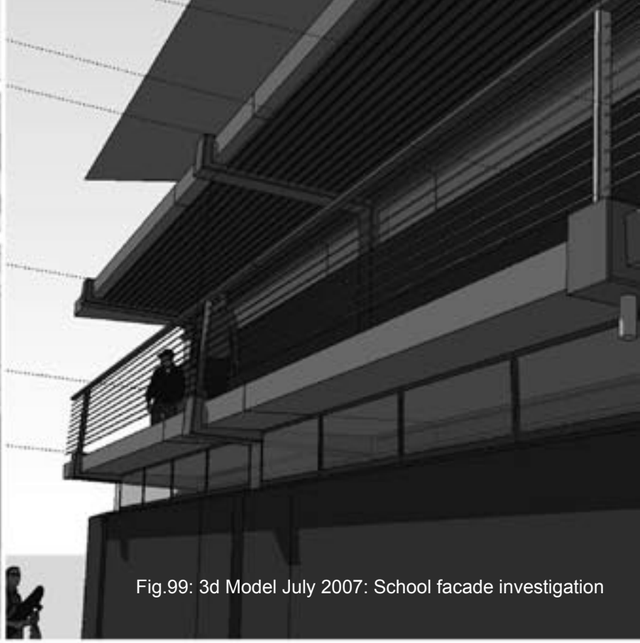


Fig.99: 3d Model July 2007: School facade investigation

Fig.96: 3d Model July 2007: Back facade of Brew House.

Fig.97: 3d Model July 2007: Front facade of Brew House showing the chimneys.

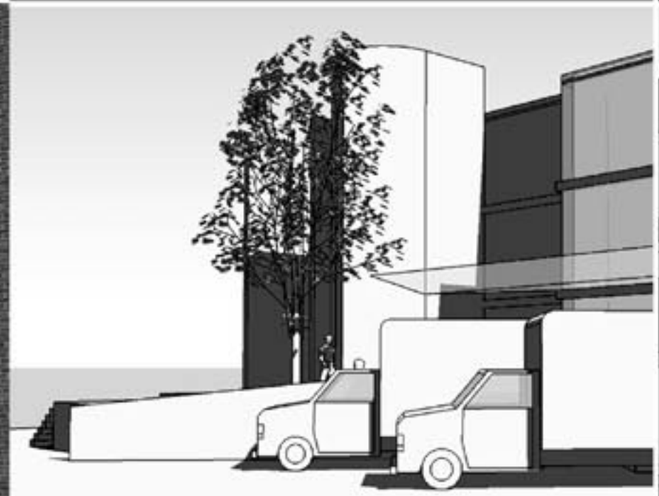


Fig.100: 3d Model May 2007: Service yard with ramps and loading bays

Fig.101: 3d Model April 2007: Walkway passing between the school on the right and the brew house on the left

Fig.102: Conceptual north elevation August 2007.

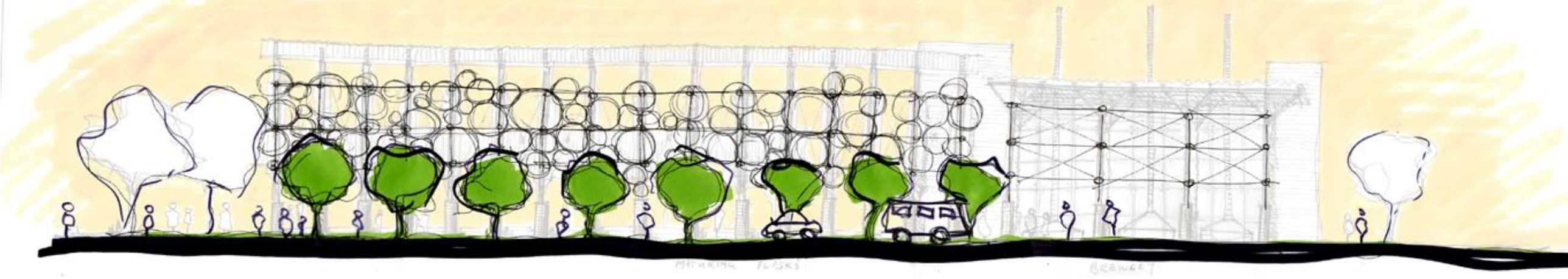


Fig.103: Conceptual north elevation with solar screen August 2007.