

DESIGN DEVELOPMENT



Functional Characteristics

Multi Purpose Hall-

Size: Main hall - 110s/m²

Program:

Ablution room 42m² - direct connection to hall

Store: 12m² - direct connection to hall

Admin office 6m² - entrance control

Flow scheme:

People arrival: external waiting area

Admin + queries: admin office

Dress for training: ablution room

Equipment: storage

Training: main hall

Instructor equipment: control cupboard

Watching area: external benches (stairs)

Martial arts -

Capacity - 20-30 p (2-3m² p.p)

Equipment - basic

Method - Instructor with a group

Population - mainly youth

Hours - noon/afternoon

Dance class -

Capacity - 20-30 p (2-3m² p.p)

Equipment - music

Method - instructor with a group

Population -all ages

Hours - afternoon

Drama -

Capacity - 20 p

Equipment - chairs, podium, curtains on windows

Method - instructor with a group

Population - youth/adult/old age

Hours - all day

Lectures -

Capacity - 50p (0.46m² p.p)

* Maximum capacity 200p for special occasions

* Over 50p would use the community hall

Equipment - chairs, podium, music, speakers,

Method - lecturer with audience

Population - youth/adults

Hours - afternoon/evening

Unique needs - acoustics

Gymnastic activities -

Capacity - 20-30p

Equipment - mattresses, weights

Method - instructor with a group

Population - youth/adults

Hours - all day

Restaurant

Size - 245m²

Program:

Tables' area: 165m²

Kitchen area: 80m²

Seats: 114 (72 in house + 42 outdoor)

Vehicle Offloading area: Check + Unpacking area

Store: general, cold, frozen, vegetables

Preparation area: three secondary areas

Cooking area: grill, oven, fry, boil

Finishing: put food at the plate

Serving - waiters take food / bring back dishes

Wash up area: prepare, rinse, washing machine, dry, storage

* Rubbish - hidden outdoor area close to preparation area

* Sinks - wash up area, hand washing area (staff)

* Ablution - female + male toilet

* Ventilation - above cooking area

* Waiters - one waiter per 10-16 people (depends on peak time)

Scrap metal workshop

Size: 198m² + upper storage 27m²

Capacity: 20-25p

Program:

Working hall 144m² - working benches surrounded by machines

General storage 60m² - ground + first floor

accessible to working area

Tool box storage + sink 6m² - direct access to working area

Dressing room + toilets 14m² - upper floor

Display courtyard in front of the working area

Flow scheme:

Offload area: back ramp Washing area: rinse, immerse, dry

Store: portable trolley/racks (lever upper floor deck)

Cutting area: abrasive cutting (2x1.2), hand guillotine (1x1.5)

Processing stations: forge (2x1), welding plant (2.8x2.5), brazing (co2+asetilen 2x3), drill (1x2), hand grinder (1x2), work bench (2.5x2)

Finishing area: painting (2x2), acid (1x1.5)

Store: indoor display (shelf), upper floor

Space budgeting for scrap metal and wood workshops

Benches - 15% - 30%

Machines - 10% - 20%

Assembly - 5%

Storage - 20% - 30%

Amenity - 3% - 5%

Desks - 8% - 10%

Display - 3%

Circulation - 25% - 30%

Wood workshop

Size - 64.5m²

Capacity - 6-10p

Flow scheme:

Offloading area: back ramp of metal workshop

Store: open area (racks)

Cutting area: radial saw (1.5x3), power saw (2x1)

Working area: carpenter's bench (3x4.5),
lathe (2x3), dust Collector (1.5x2)

Finishing: painting / brushing (3x2)

Environmental centre -

General: activities for primary school classes during day hours, and for youth/adult at afternoon

Classroom (water issues)

Size: 84m² (classroom + library & homework)

Capacity: 20-25 students

Equipment: 12 double tables, 4-6 sinks, open to square

Art workshop:

Size: 60m² environmental art workshop

Capacity: 20-25 students

Equipment: 12 double tables, painting board, sink, paper cupboard, store

Ceramic workshop

Size: 173m²

Capacity: 20p

Programme: Store 3.5m² - direct connection to delivery

(40k.p.bag x 250k.p.week)

1000k. delivery per month = store for 25 bags

Preparation room 14.5m²

Working area 96m²

Kiln room 12m²

Office 7.5m²

Flow scheme:

Offload: trolley from restaurant to stairs
hand lifting through stairs to store

Store: 25 powder bags on floor

Preparation: water, mixer, pug mill, bench

Processing: wedge (1.5x2), wheel (1.5x1.5),
throw (0.8x1.6 p.p), paint (0.7x1.4 p.p)

Drying: shelves

Firing: kiln (1x2), shelves-

Display: shelves

Painting workshop

Size: 108m²

Capacity: 15 - 20p

Equipment: drawing table (3.45p.p),
regular tables (2.0p.p), store,
easels, sink, paper cupboard

Sewing workshop

Size: 62m²

Capacity: 10p

Equipment: working table + machine (2.2 p.p),
store.

Conceptual Diagrams for the Site

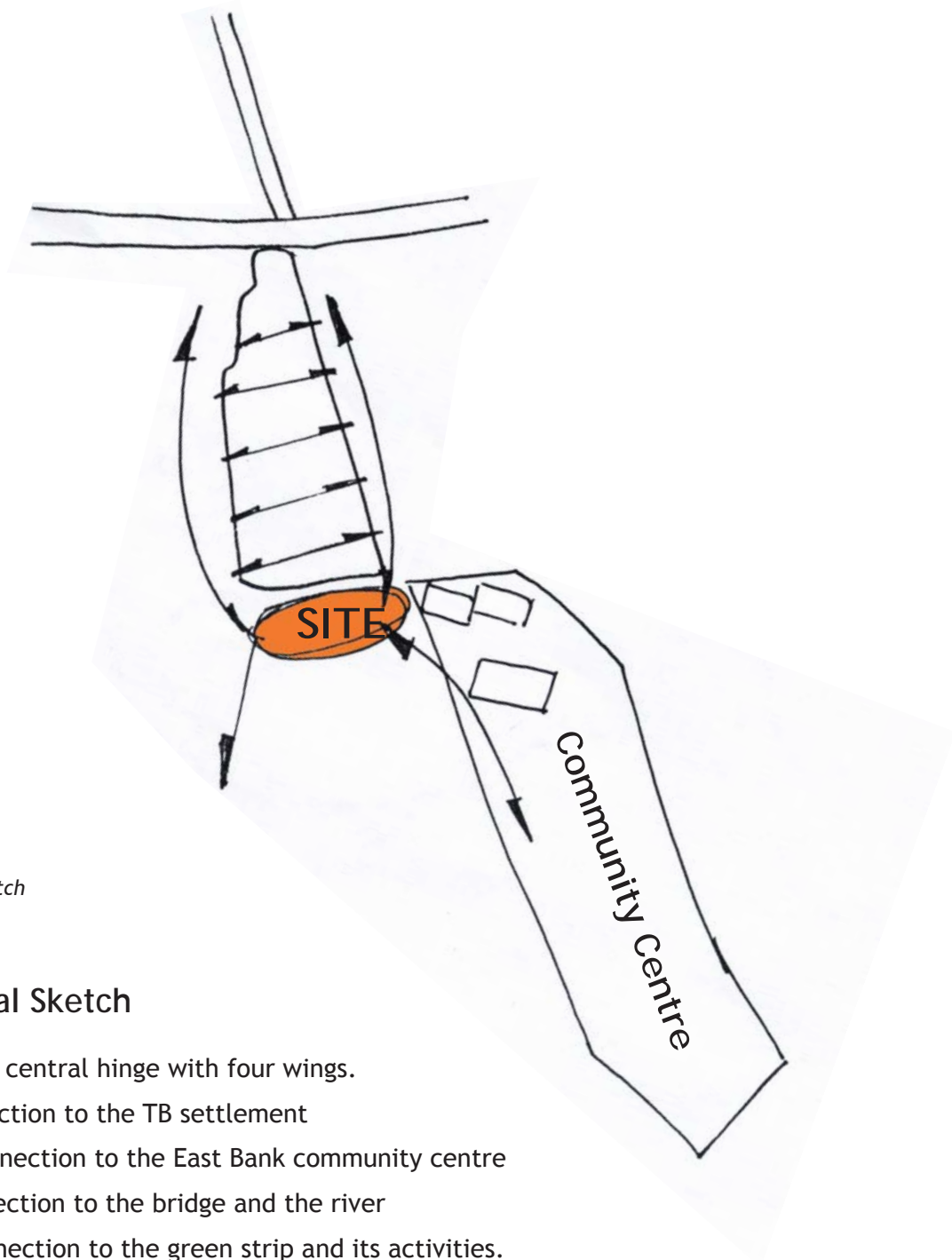


Figure 82
Conceptual sketch

Conceptual Sketch

- The site as a central hinge with four wings.
- First - connection to the TB settlement
 - Second - connection to the East Bank community centre
 - Third - connection to the bridge and the river
 - Fourth - connection to the green strip and its activities.

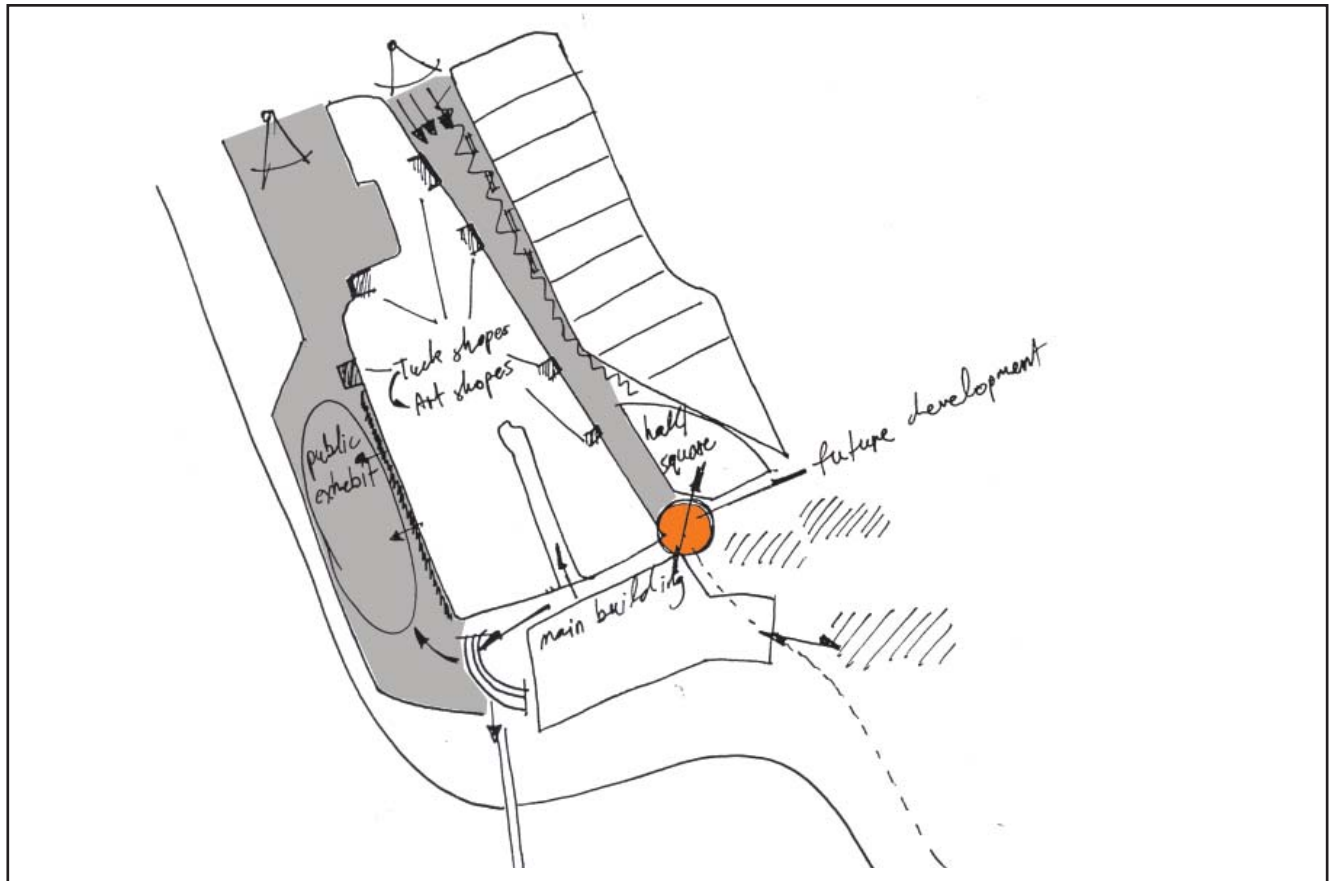


Figure 83
Main corridors which lead to the site.

Corridors to the site

Two main corridors leading to the site:

The “urban” corridor which links the site with the main street. That space is characterised by tuck shops in front of the TB settlement houses. On the other side, the East Bank new houses are surrounded by walls. The settlement houses open to the street with shops.

That space will serve as a lobby to the centre and probably gather a lot of street activity.

The “natural” corridor mainly gathers pedestrian movement through the green strip alongside the river. That movement is characterised by youth who come to play and enjoy outdoor activities.

This space would serve as outdoor exhibition/function area with a strong link to the centre.

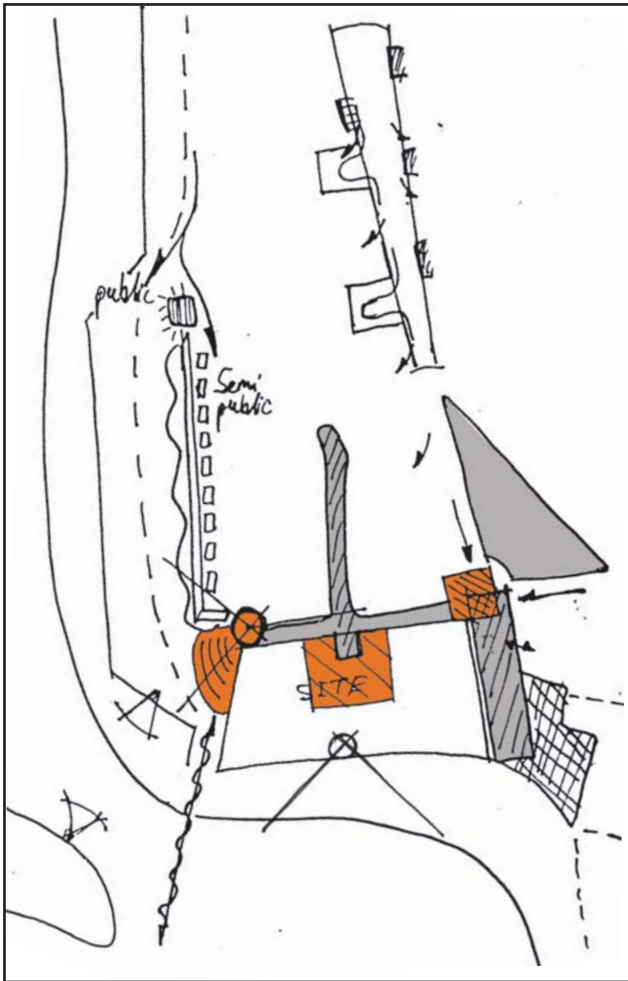


Figure 84
Spaces around the site.

Public spaces around the site

Various types of spaces surround the site and create an opportunity to unite the different existing activities with the new centre. The ability to unite both sets of activities at an interesting gathering space will be a key to the design of the centre as a community gathering place.

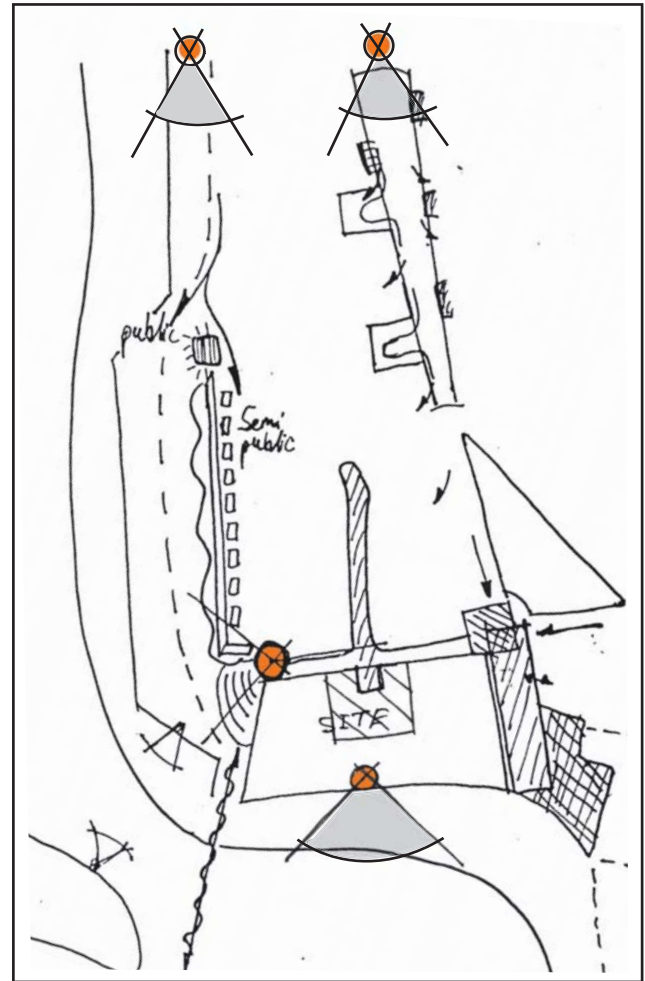


Figure 85
The main view points located around the site.

View points

The main view point is located at the western part of the site. It is higher than the green strip area and has a great view of Old Alex, the river and the playground activities. From the south, the site also lies on the edge of the river and should be open with easy access to the river's edge.

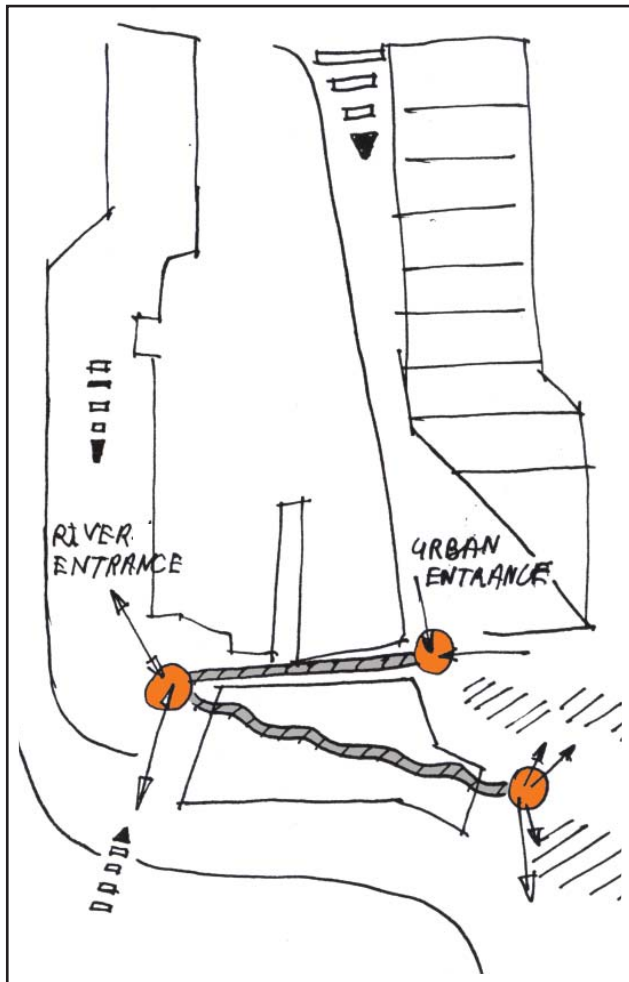


Figure 86
There are three focal points around the site.

Focal points

Three focal points surround the site in a close circle; the “urban” entrance functions as the main entrance. The “natural” entrance from the west. The community centre’s focal point gathers the main activity at the existing centre. There is natural movement between the community centre’s gathering space and the “natural” entrance from the green strip and the bridge.

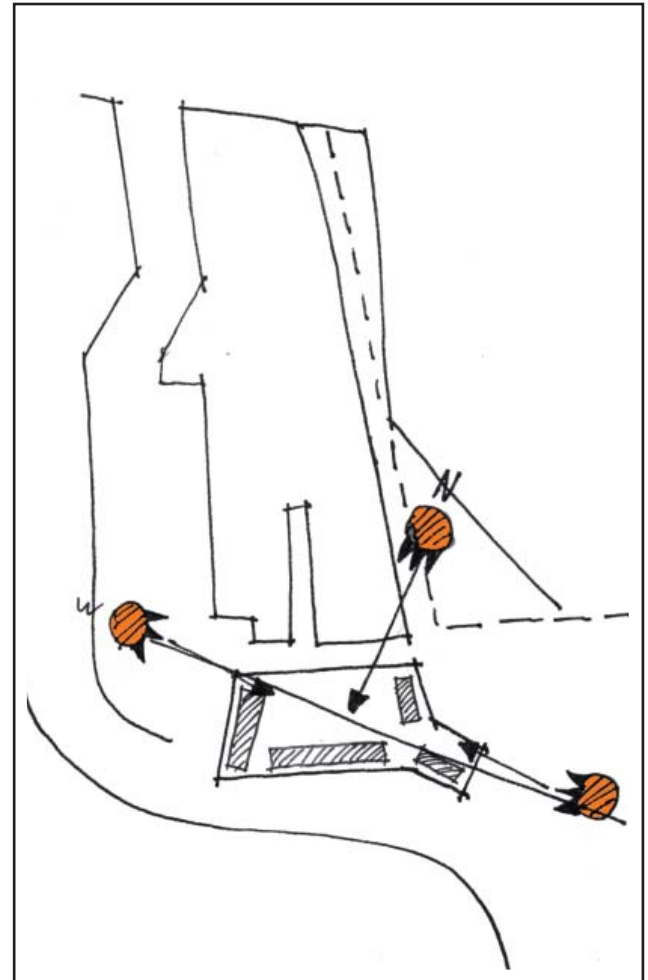


Figure 87
The site is exposed to sun as it faces north.

Climate

The buildings would face the main public space within the northern part of the site. This enables all buildings to be exposed to the sun.

Development of the Plan

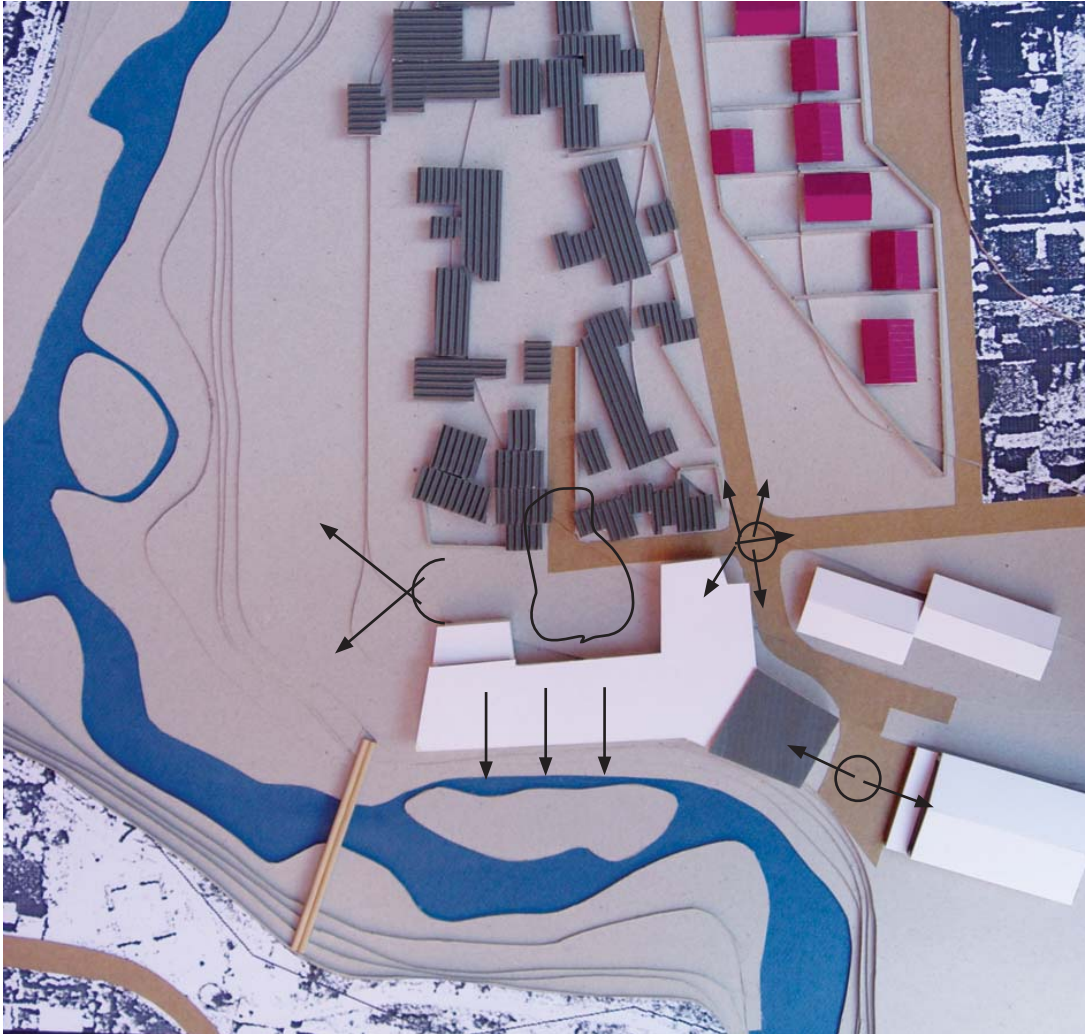


Figure 88
Aerial view of the site.

Aerial Model - Primary model of the centre

- Main semi-public square faces to the neighbourhood in the public area.
- “Urban” entrance link to the main junction.
- “Natural” entrance opens to the green strip and the bridge.
- The existing community centre hall connects to the new development.
- The whole elevation to the river defines the edge.

Sketches of the Focal Points

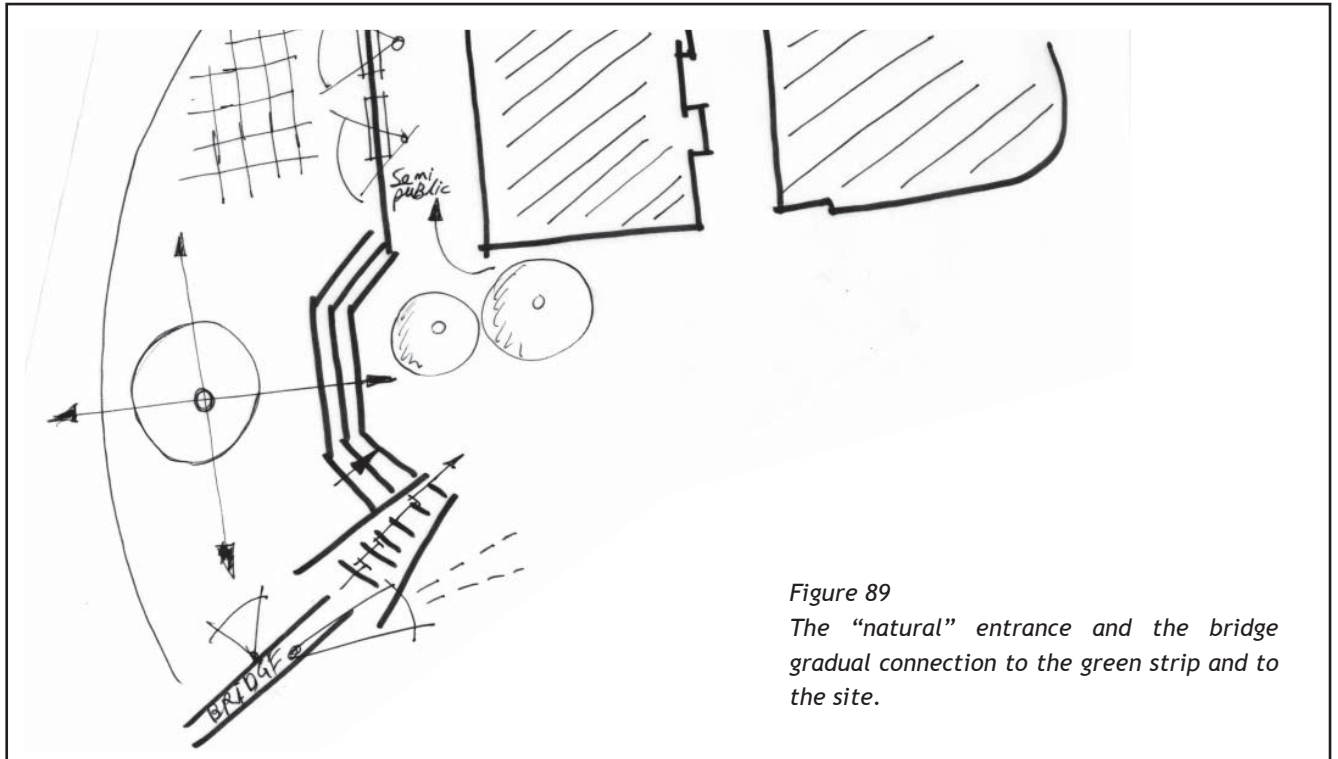


Figure 89

The “natural” entrance and the bridge gradual connection to the green strip and to the site.

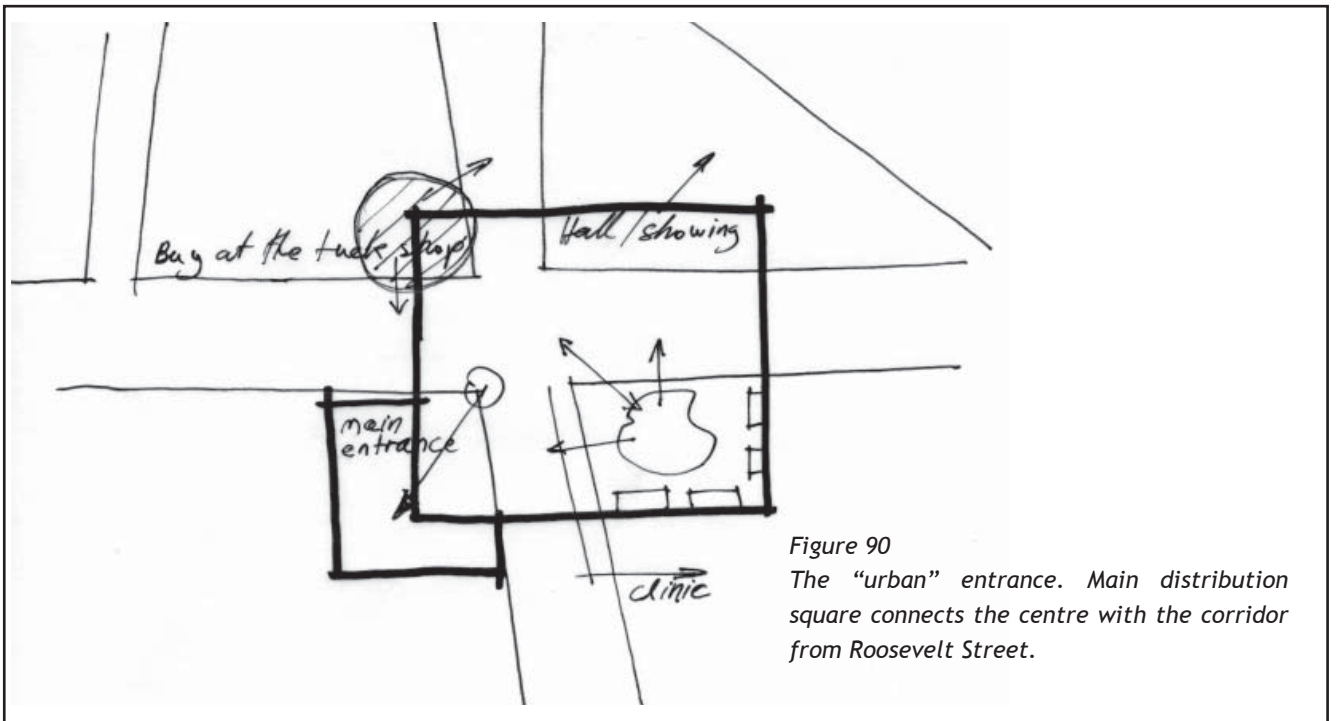


Figure 90

The “urban” entrance. Main distribution square connects the centre with the corridor from Roosevelt Street.

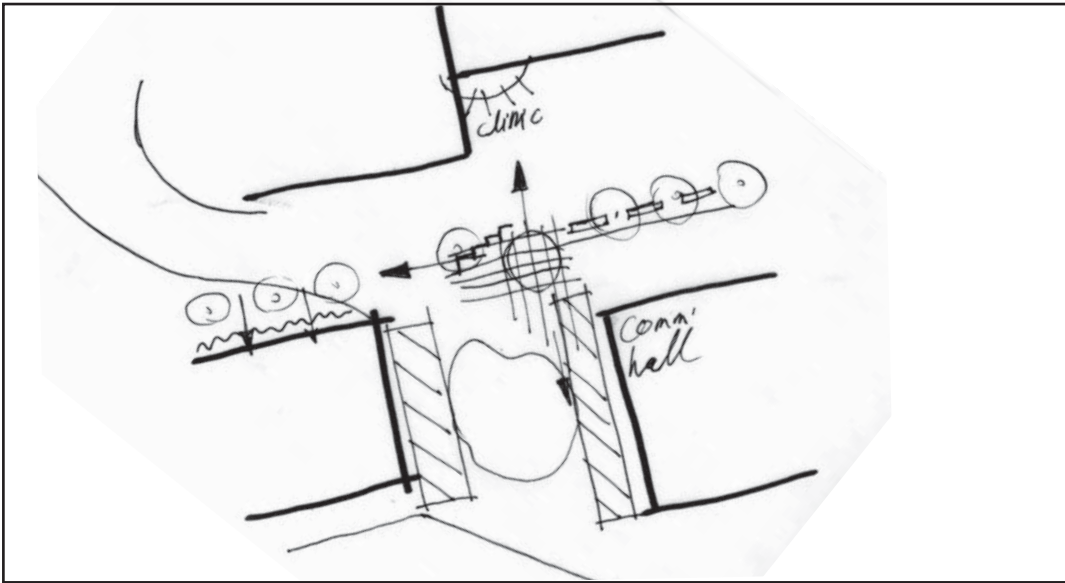


Figure 91

The space between the community hall and the clinic to the new Art Centre.

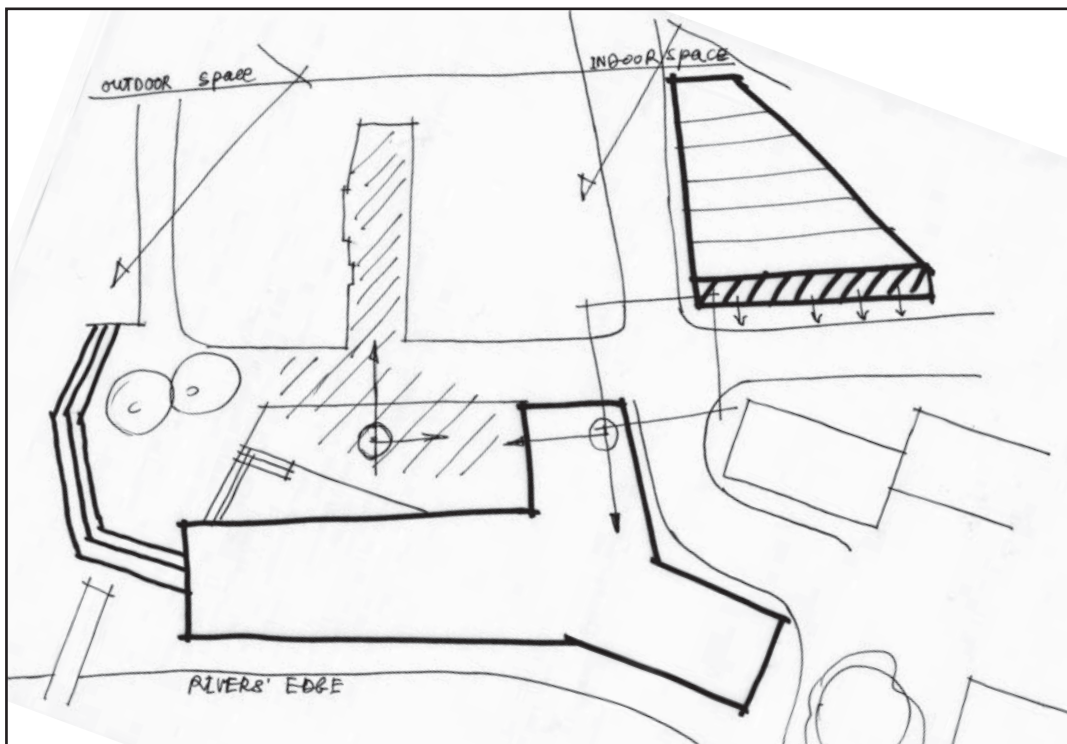


Figure 92

Sketch of the Centre with possible connection to the vacant triangle. The western side of the building opens to the green strip and its activities.

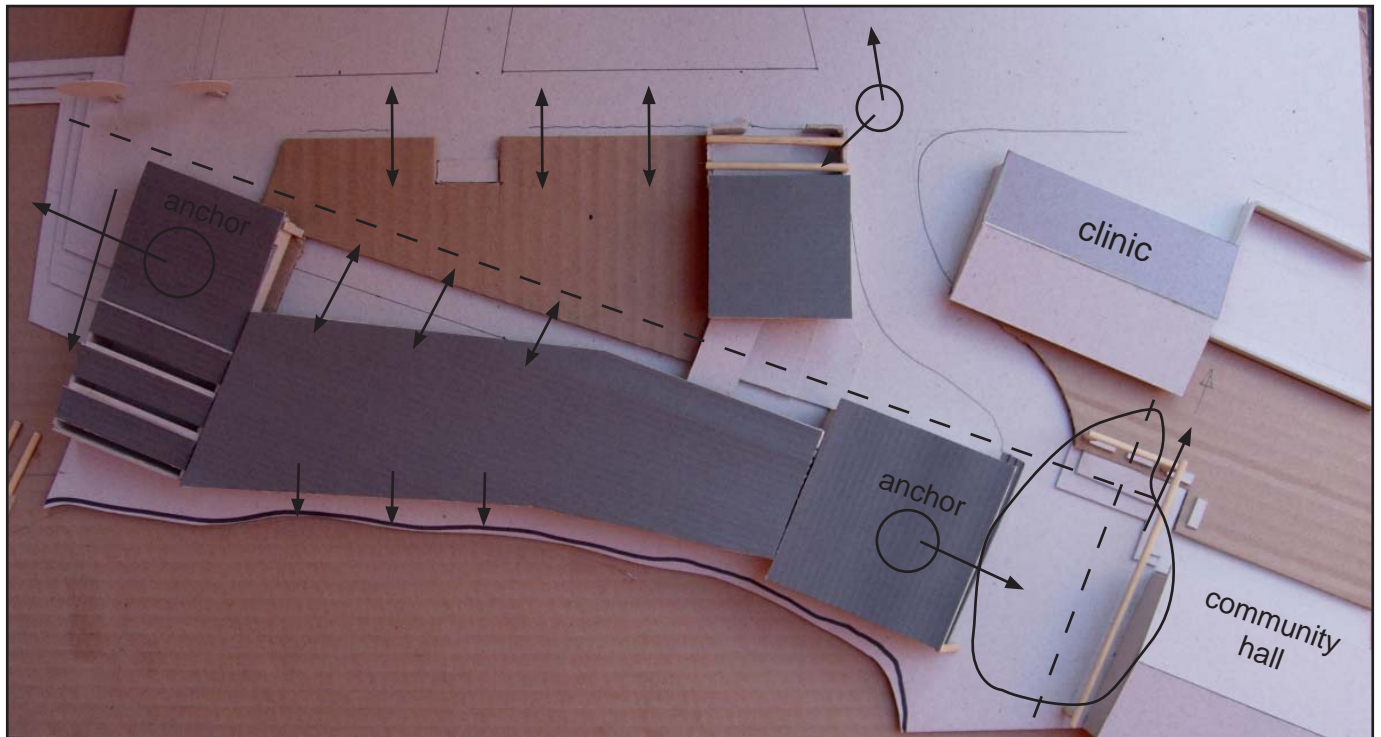


Figure 93
A model of the site.

Site Model 1

- Main building as an entrance lobby with gradual heights
- First anchor - (medium size hall) to the side of the community hall as a link to the centre
- Second anchor - (scrap metal workshop) faces the green strip and the bridge as a potential outdoor extension to the exhibition area.
- Developing of the natural movement line between the community hall and the green strip.
- Create an open square to the public area.

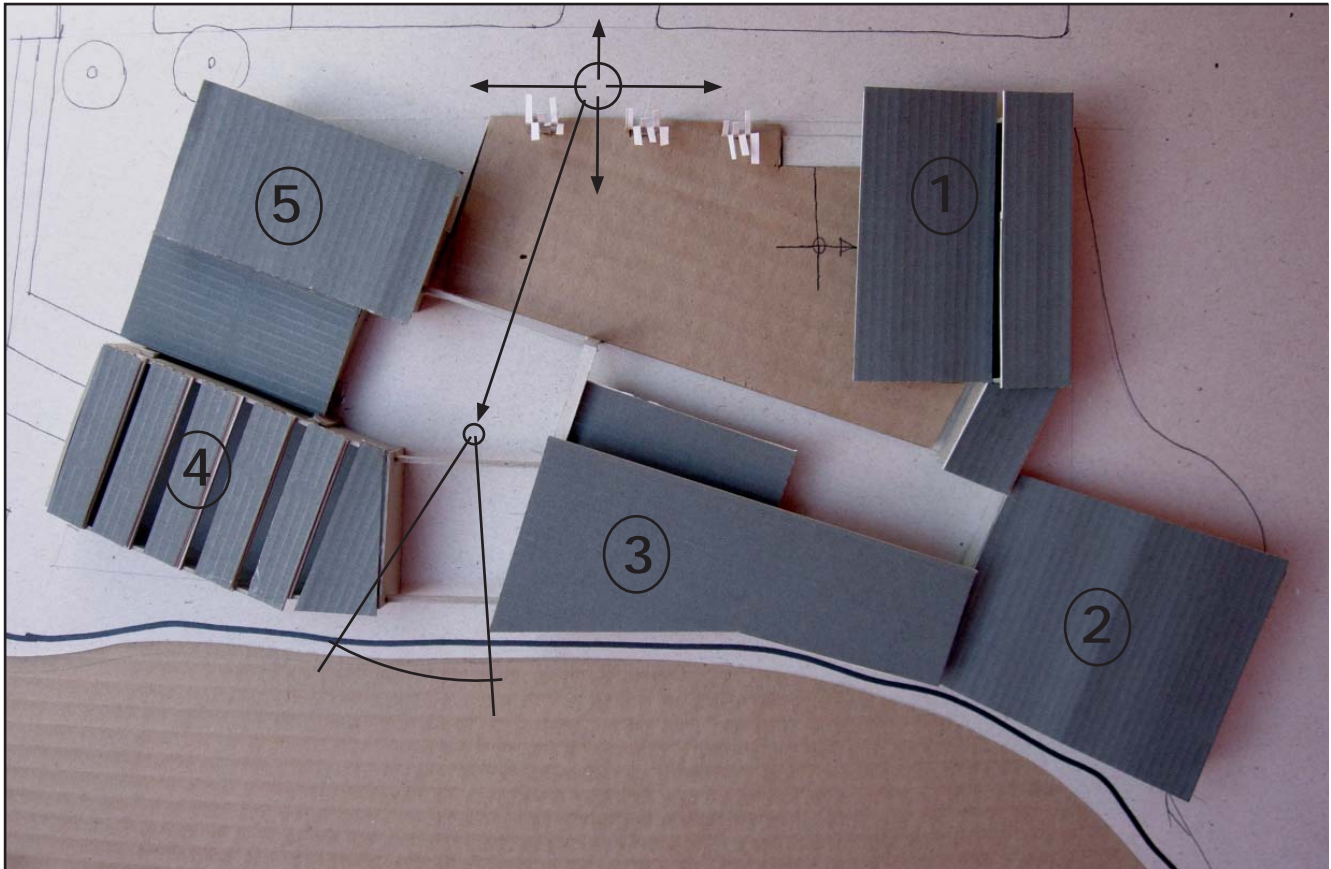


Figure 94

Site Model 2 shows how the site is divided into 5 different components.

Site Model 2

Dividing the centre into different components:

1. Entrance/lobby/exhibition hall
2. Medium size hall
3. Workshops building
4. Scrap metal workshop
5. Restaurant/entertainment building

- The main movement line is blocked in order to check the movement system with one main entrance.
- A space between the buildings was made in order to open the centre to the river and give access to it.

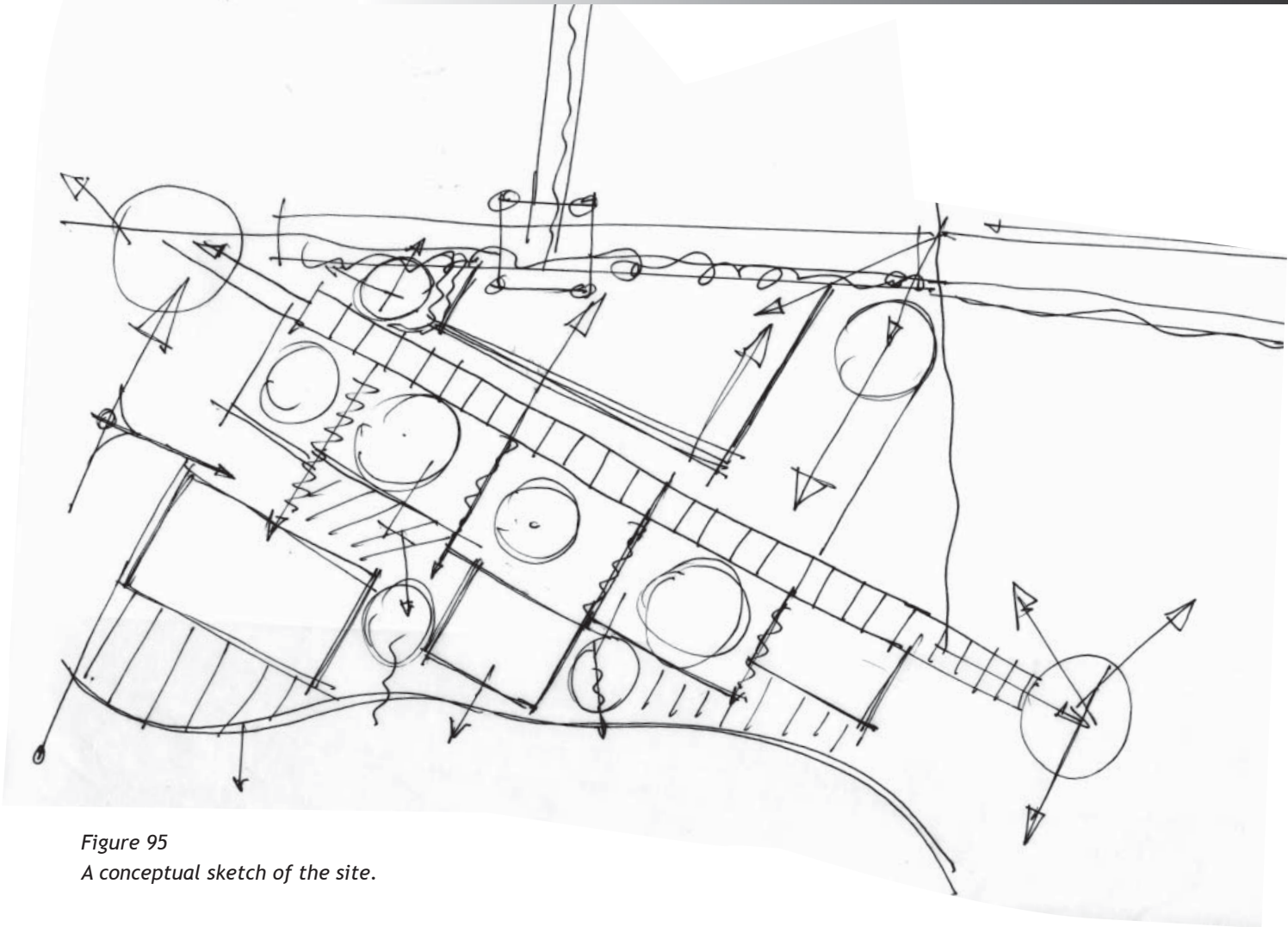


Figure 95
A conceptual sketch of the site.

Conceptual Sketch

- Emphasizing the “distribution line” as the main movement system.
- Defining the grid system for the plan.
- Creating a public/semi-public more open area to the north of the “distribution line”
- Creating a private/semi-private area between the “distribution line” and the river, with more dense buildings.

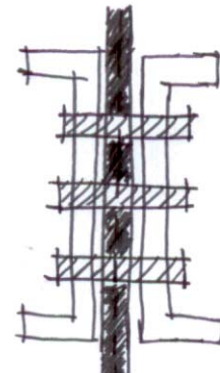


Figure 96
Conceptual sketch - capturing the movement path.

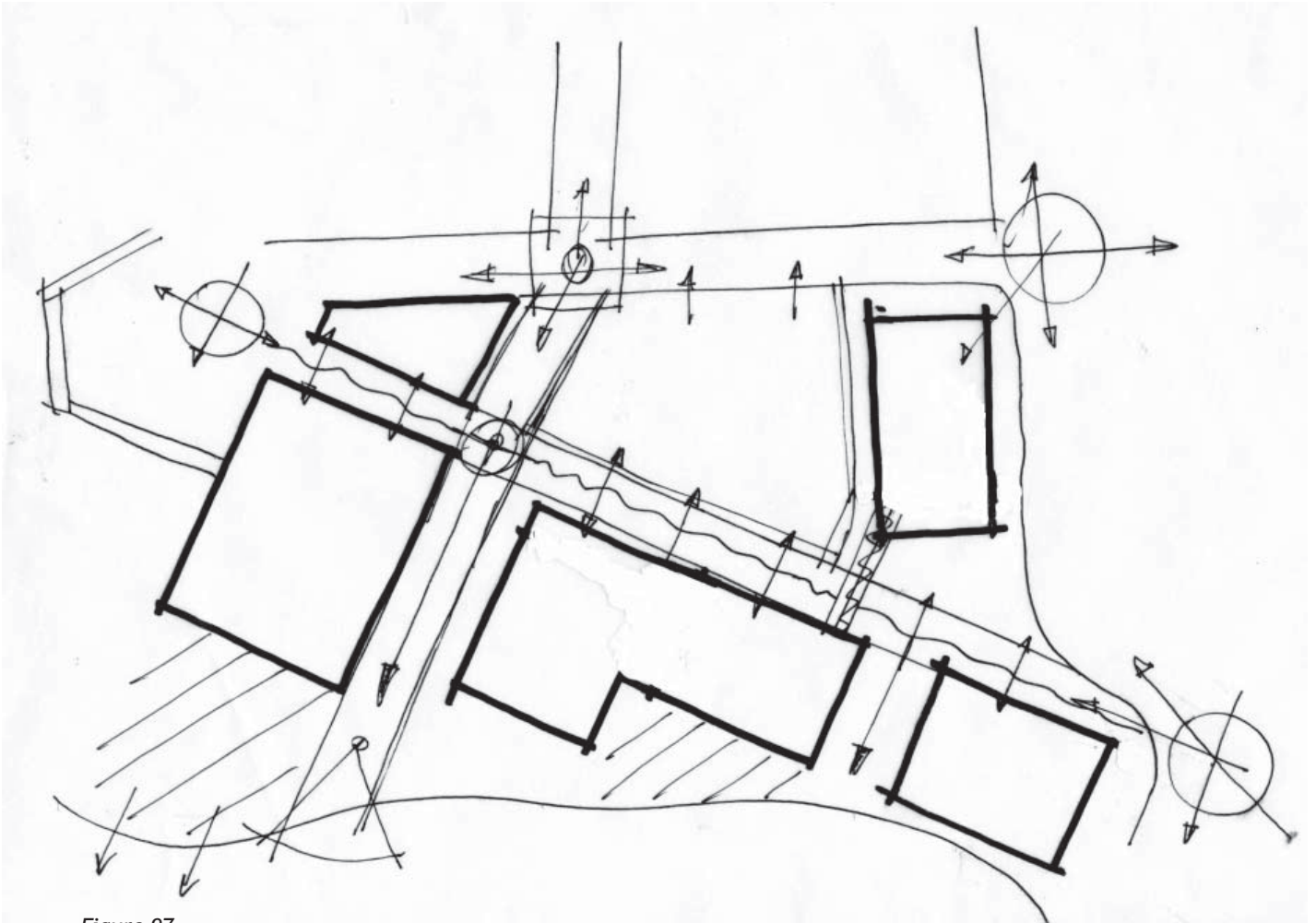


Figure 97

Conceptual sketch translating to form blocks.

Conceptual Sketch translates to form blocks

- Locating of the blocks according to the movement system and its grid.
- The entrance block breaks the grid in order to to create boundaries for the site.
- The site is divided into the public area (north of the main movement line) and the private area (south of the movement line).

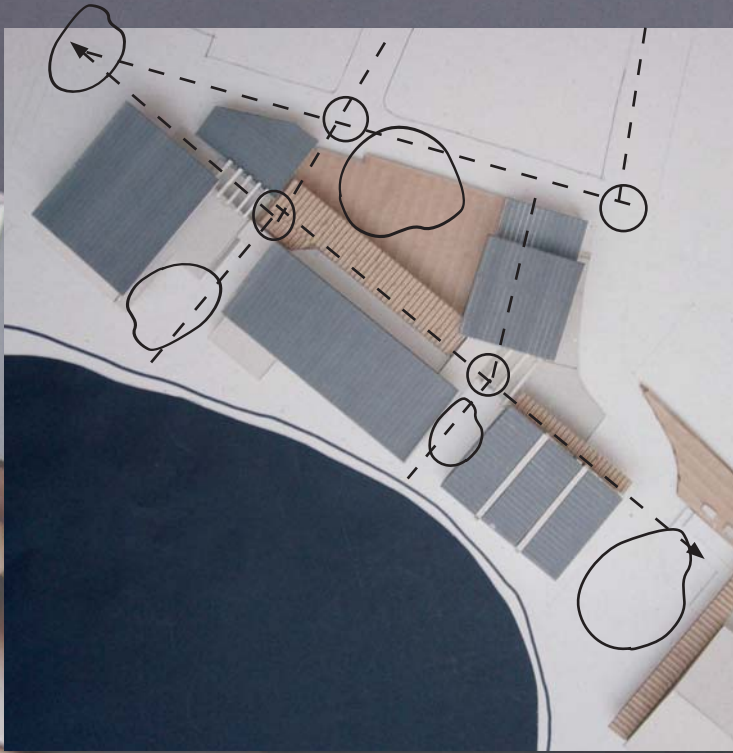
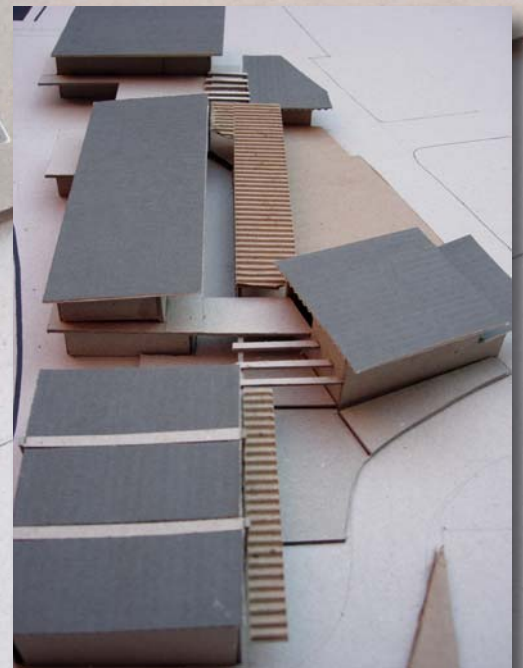
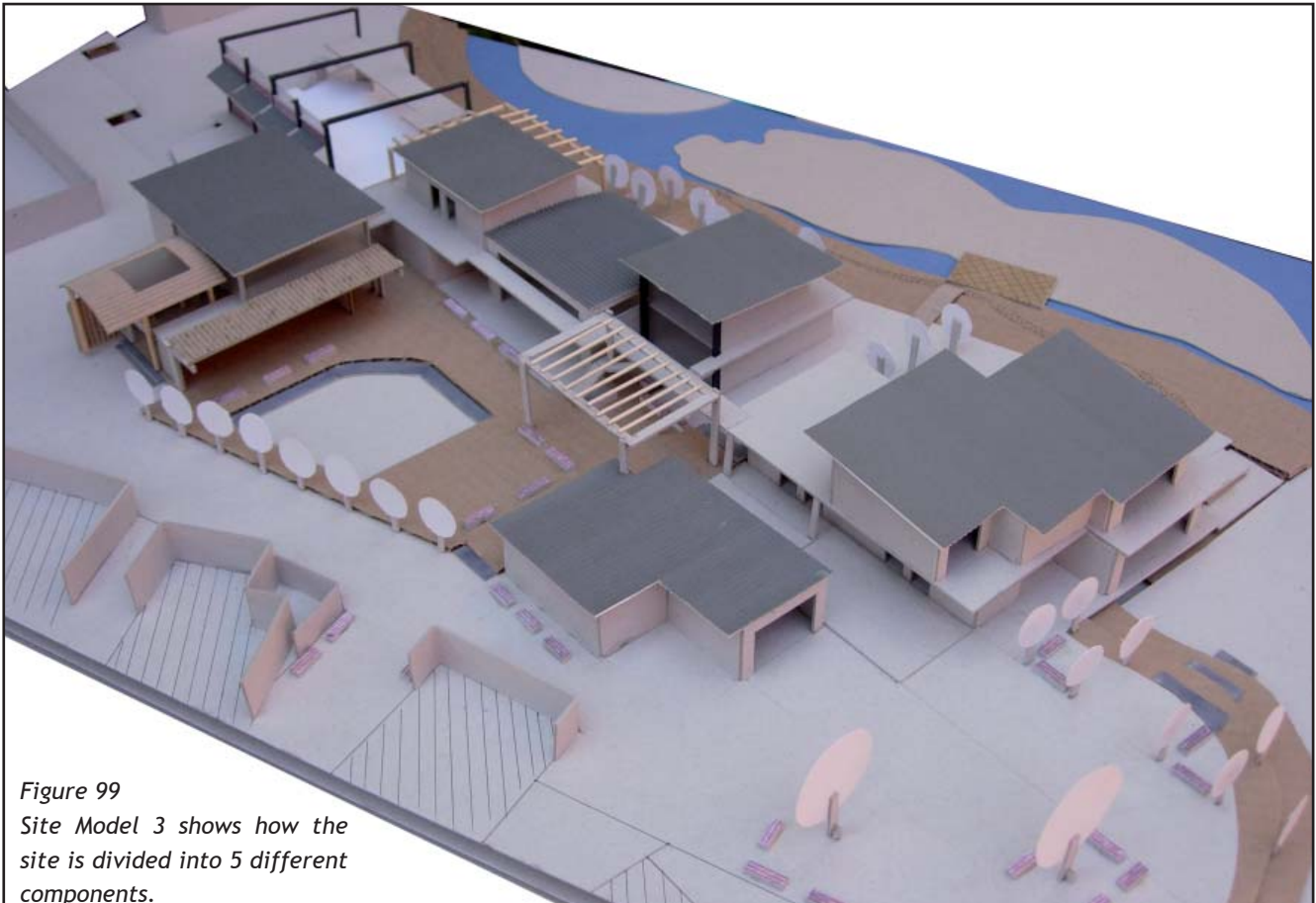


Figure 98
Final concept model.

Final Concept Model

- Main distribution line covered/semi-covered
- Main buildings as an activity component
- Different spaces as an informal activity area
- Permeability through the centre to all directions as part of the theoretical concept.





Site Model 3

- * All buildings linked to main path which opens to the main square.
- * Defining entrance building by gradual roof heights from the street level up to exhibition hall.
- * Articulation movement point emphasized by gum pole canopy.
- * Western workshop's building defines open space for environmental activities and link to the river.
- * Gradual steps and landscape works define natural balcony and concentrate both pedestrian movement lines from the green strip and the bridge.

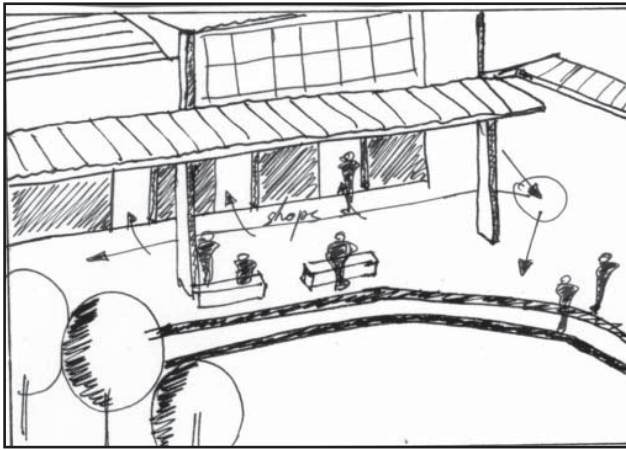


Figure 100
Main square.
Relations between artshops to main square.

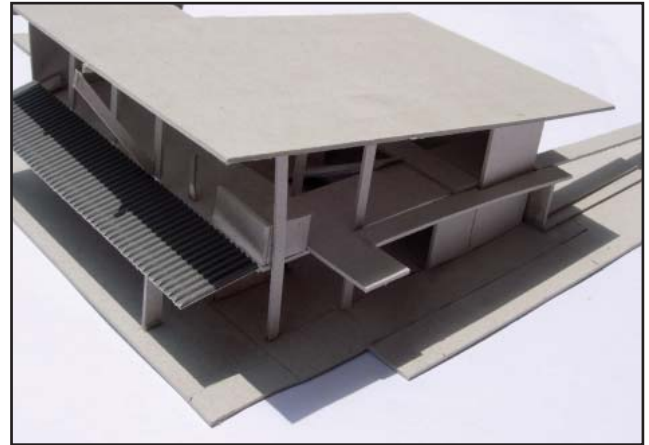


Figure 101
Exhibition hall. The main roof in relation to the lower canopy above the artshops.

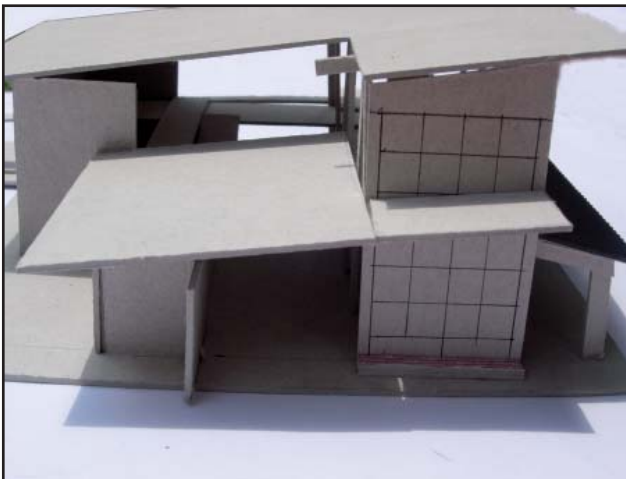


Figure 102
Exhibition hall and lobby model.

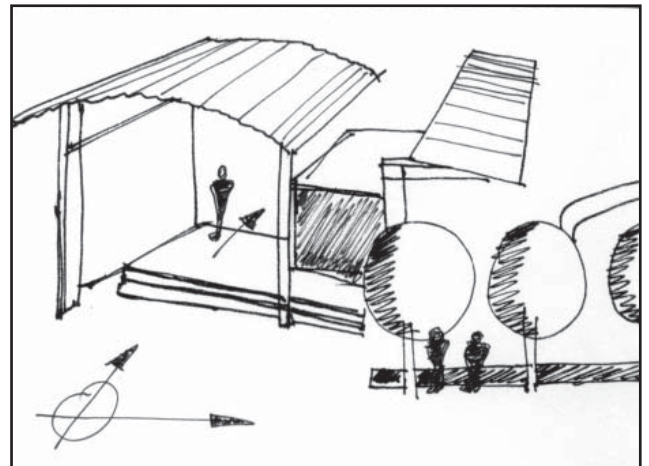


Figure 103
Entrance sketch. An early sketch of the entrance.

Lobby and Exhibition hall

- * Gradual roofs slope, points to main square as indication for important space.
- * Light canopy to shade over art shops, and to create comfortable watching area equipped with benches towards the main square.
- * A long ramp located in parallel to the path until it reaches the exhibition hall's bridge .
- * Glass wall faces to the south and to the west with sun louvres.

Articulation movement point

- * Visible to pedestrians and first floor workshop
- * Stairs and benches be used as seats
- * Main entrances to restaurant, multi purpose hall and art workshop linked and define the space

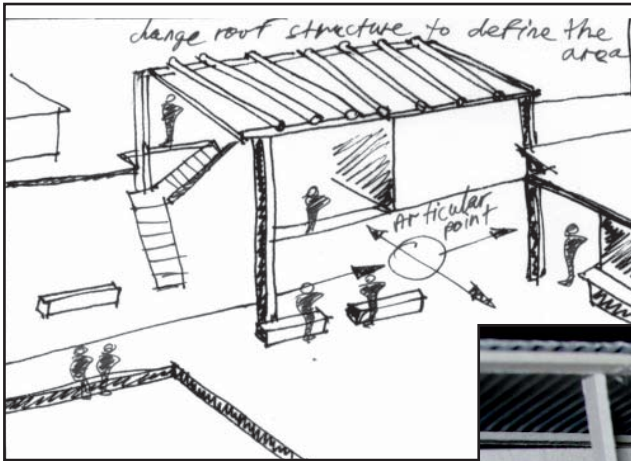


Figure 104
Articulation point.



Figure 105
Articulation point model.

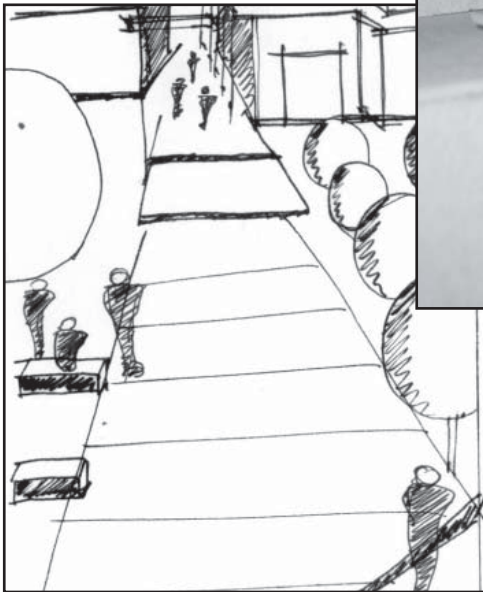


Figure 106
"Natural entrance".

"Natural Entrance"

- * Defining the movement line by trees and benches
- * One storey building from north side (restaurant) enables penetration of sunlight, while the roof and canopy provide shade.

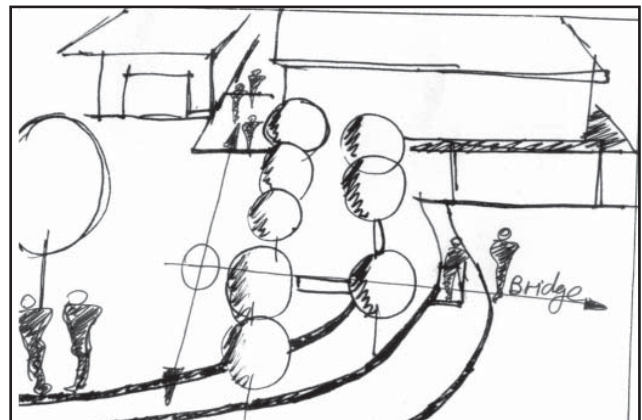


Figure 107
Connection to the bridge by gradual steps and trees.

Multi purpose hall

- * Gradual stairs for seating used as guidance for activities at the hall and defines the main path to the courtyard and the hall itself.
- * First floor path used as a canopy above courtyard and also as a balcony, to enable visual connection with the hall's activities.

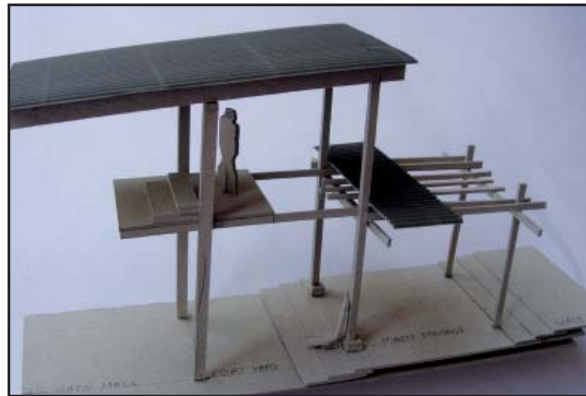


Figure 108
The hall and the courtyard.

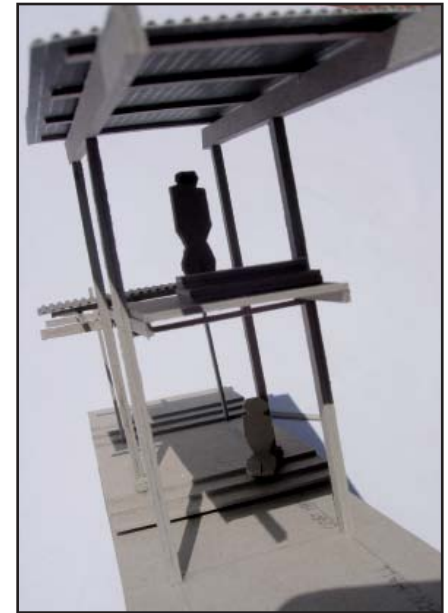


Figure 109
The viewing deck to the main hall.

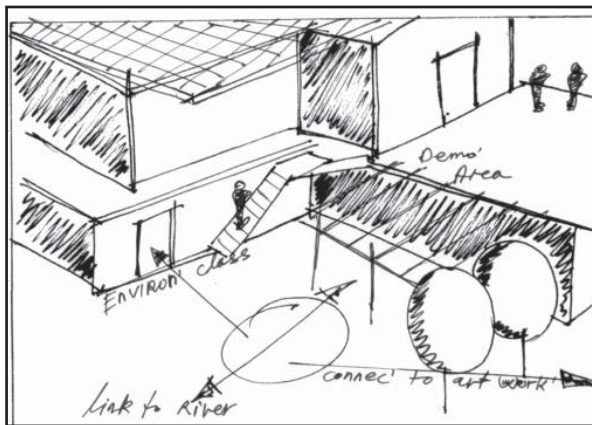


Figure 110
Environmental centre.

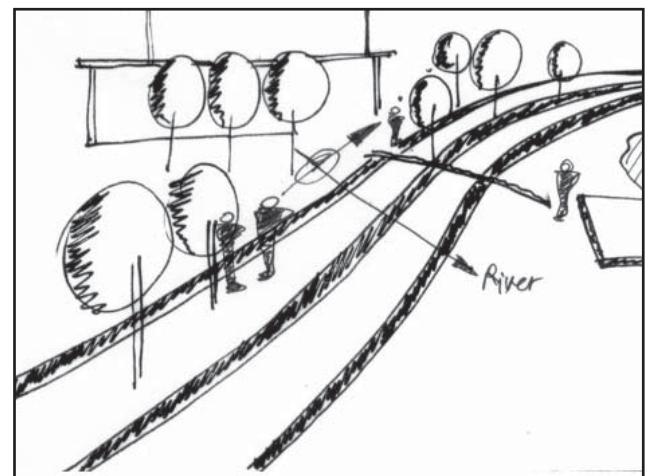


Figure 111
Connection to the river.

Environmental centre

- * Linked directly to the river but still defined by ramp and trees.
- * The building defines the space from the north and west side to show relation to the river.
- * The flat roof above the artist's workshops, which is used for solar demonstration, exposed visually to the ground open space.

Accommodation

1. Exhibition hall -	
Ground floor - 193m ² :	154m ² public service 39m ² art shops
First floor - 125m ² :	50m ² offices 75m ² exhibitions
Total:	318m ²

2. Scrap metal workshop -	
Ground floor -	198m ²
First floor -	45m ²
Total:	243m ²

3. Central building	
Ground floor -	
Wood workshop -	62m ²
Art shops -	28m ²
Multi Purpose Hall - 110 + 84 =	194m ²
Environmental art workshop -	77m ²
First floor -	
Sewing workshop -	62m ²
Painting workshop -	108m ²
Total:	531m ²

4. Environmental building	
Ground floor -	
Environmental class -	107m ²
Artist's workshops -	90m ²
First floor -	
Ceramic workshop -	172m ²
Total:	369m ²

5. Restaurant -	225m ²
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Total ground floor - 1174m²
 Total first floor - 512m²
 Total build area- 1686m²

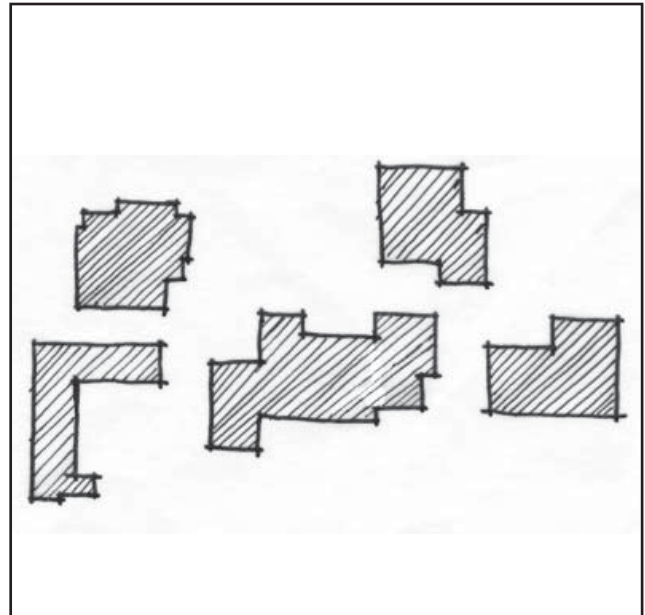


Figure 112
Ground floor plan - 1174 m²

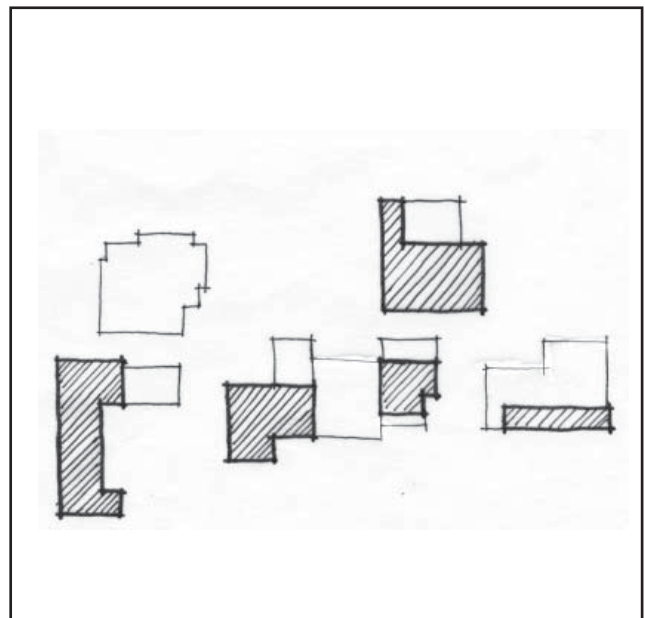


Figure 113
First floor plan - 512 m²

Allocation of functions

The Centre is divided into four circles:

First circle - Public spaces surround the Centre, developed to increase interaction with the area around the site.

Second circle - Public facilities within the Centre, located on the edge of two main entrances, continue into the Centre.

Third circle - semi-public open spaces, designed to cater for informal activities.

Fourth circle - private facilities/workshops, divided into four categories:

- * Training art workshops
- * Artists' workshops
- * Students' environmental centre
- * Multi purpose hall

The *First circle* is composed of a few spaces: the square and the vacant triangle in front of the main lobby, the space proposed to serve as a transportation node, public parking and outdoor space; the sports ground in between the Community Hall to the scrap metal workshop, designed to contain youth activity and also gather people who wait for the East Bank Clinic; the natural balcony connected to the green strip and the bridge.

The *Second circle* contains the main lobby and exhibition hall, which function as a welcome and a presentation area for art products, information desk and administration offices. In addition, the restaurant, which defines the “natural” entrance, slopes with its seats into a view of the river and Old Alexandra.

The *Third circle* composes of small shaded spaces, connected to buildings' entrances, and creates a gradual entering process.

The *Fourth circle* is composed of a few functions: training workshops, located on the main path that define it; artists' workshops that define the “natural” entrance; the multi purpose hall which has a transparent façade to the main path and the square; the classroom at the Environmental Centre concentrates the connections to the river.

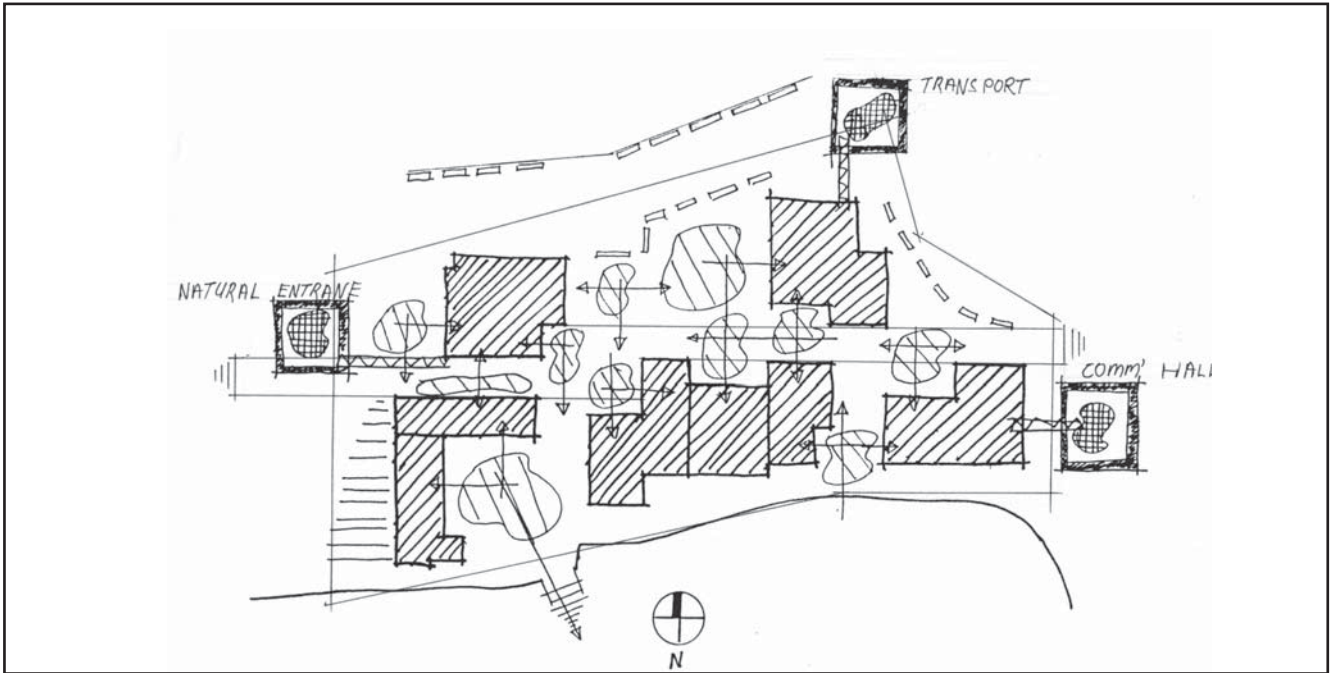


Figure 114
Entrance and internal spaces.

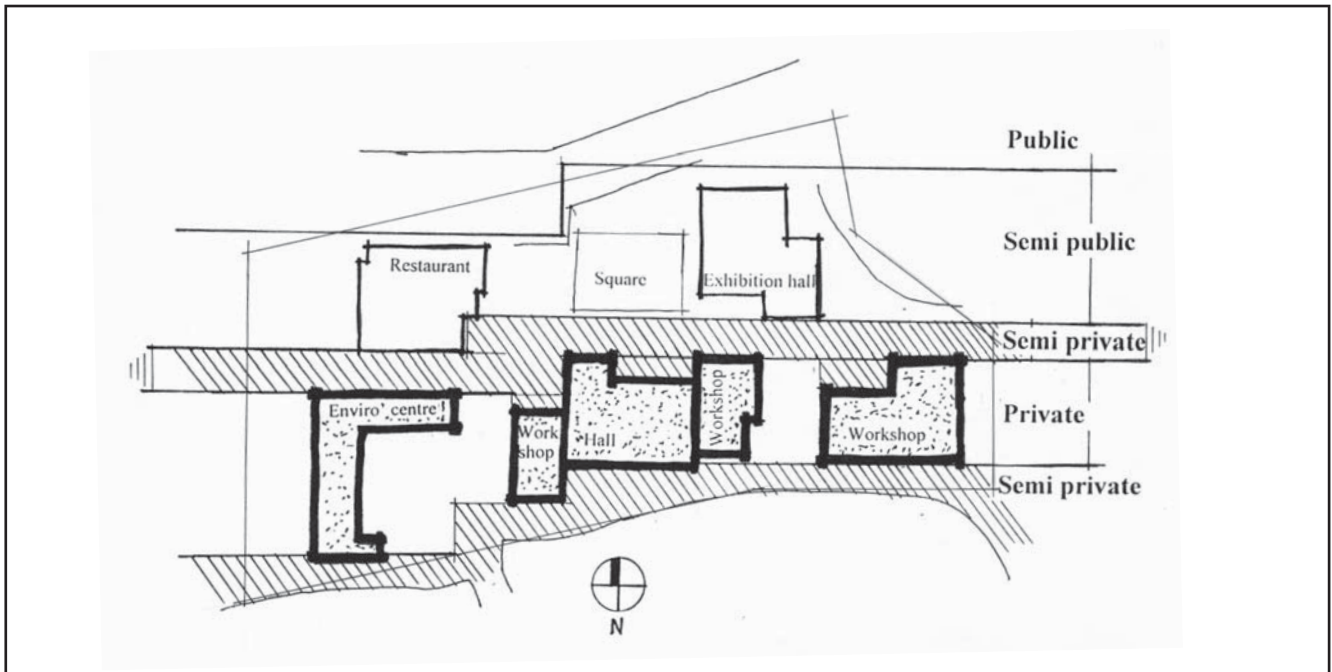


Figure 115
Public/private division of the site.

Climate concept

Latitude: 26 degree south

Longitude: 28 degree east

Altitude: 1515 meters above sea level

With hot and rainy summers (but not humid), and sunny winters, Johannesburg's climate allows people to have outdoor activities almost all the year.

This data led to design concept that takes into consideration the significance of outdoor spaces as a unique opportunity for communal activities.

Sunshine

Johannesburg experiences intense sunshine in summer (50%-60%) while in winter, the intensity is less, but 70%-80% days are sunny.

Outdoor spaces will be fully/partly covered, while the main square is exposed to direct sunlight with shaded areas around it.

Workshops are designed to have a central activities room with an overhang roof to the north that caters for outdoor space beneath in order to protect from summer sunlight and rain. On the southern side, the workshops have a shady and cooler balcony, facing to the view of the Jukskei River.

Ventilation

Corrugated sheet metal with thermal insulation sheets designed to decrease the heat of the sun. In addition, open roof construction with windows enables better ventilation to remove hot air.

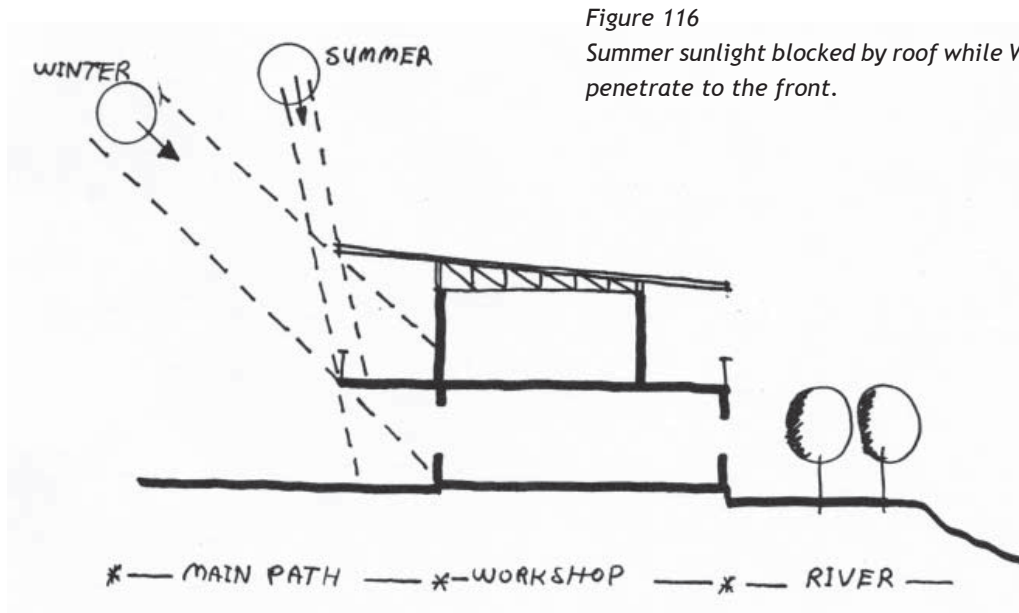


Figure 116

Summer sunlight blocked by roof while Winter sunlight can penetrate to the front.

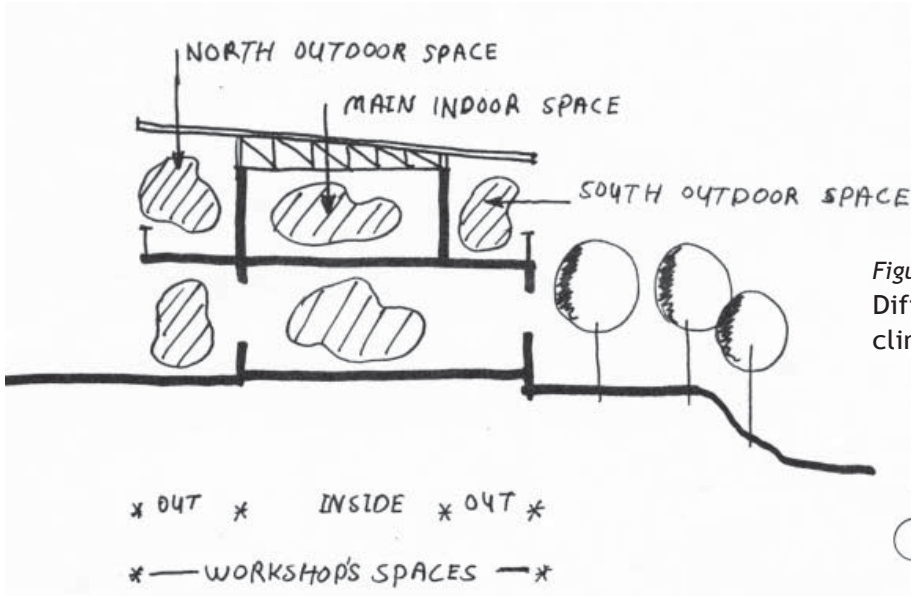


Figure 117
Different types of spaces according to climate changes.

Figure 118
Ventilation scheme uses cold air from the south to cool down the workshop.

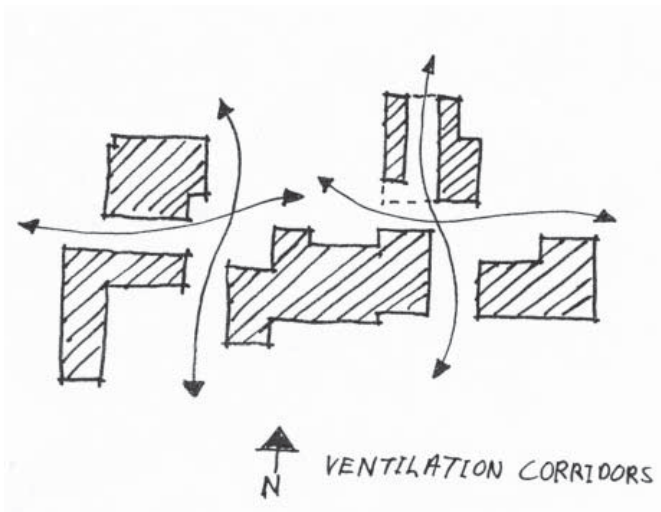
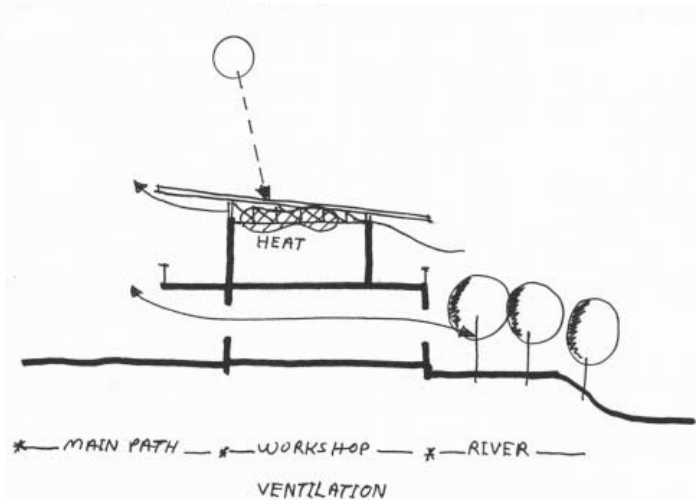


Figure 119
General view of building's location in relation to ventilation.

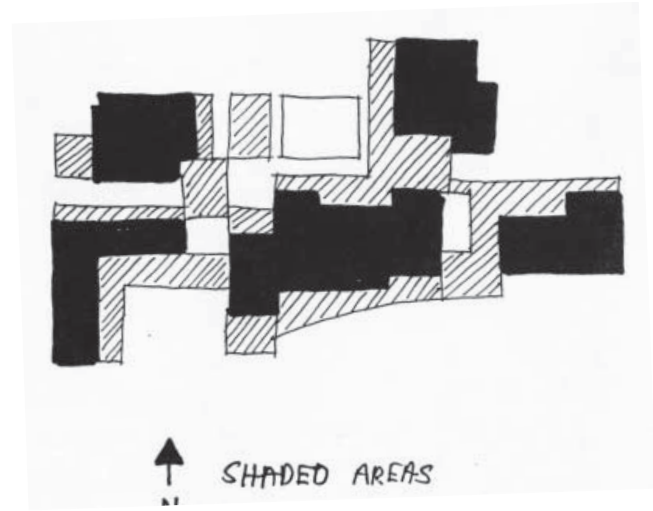


Figure 120
Shaded areas around buildings, created by roof/canopy/tree/building.

Design Influences

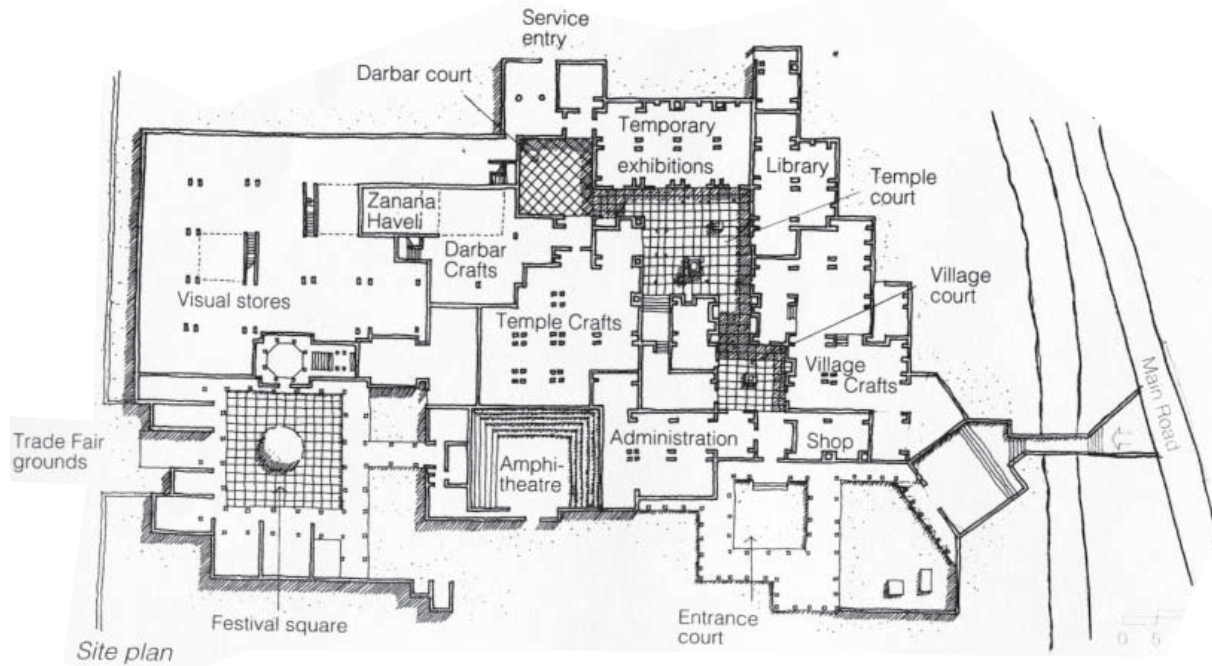
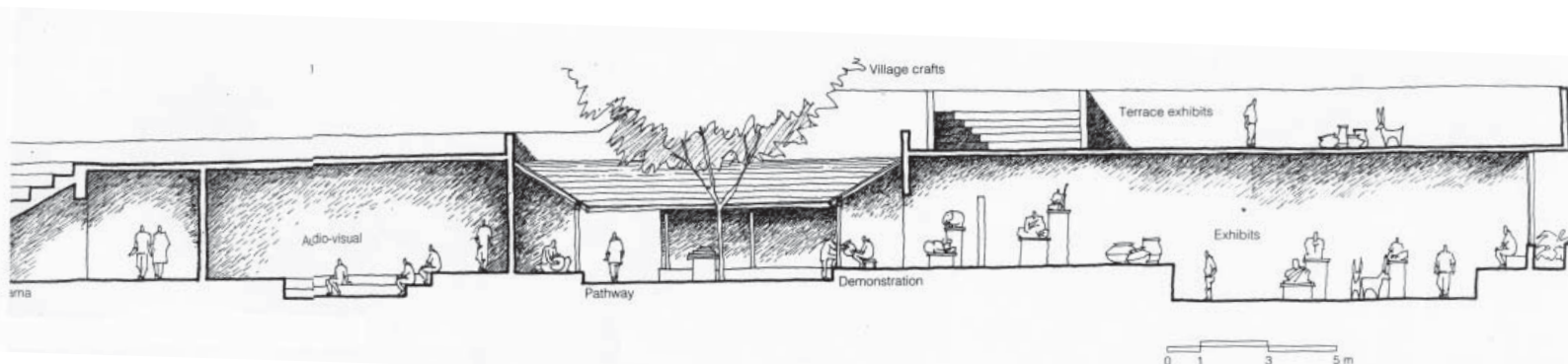


Figure 121
National Crafts Museum - site plan
Delhi 1975-90.
Architect - Charles Correa

Simple shapes of buildings with varied public spaces. A pathway used as a spine, which takes the people through the Museum’s halls, a metaphor of the Indian street where you go from a village to temple to palace.

Figure 122
Section of the National Craft Museum.



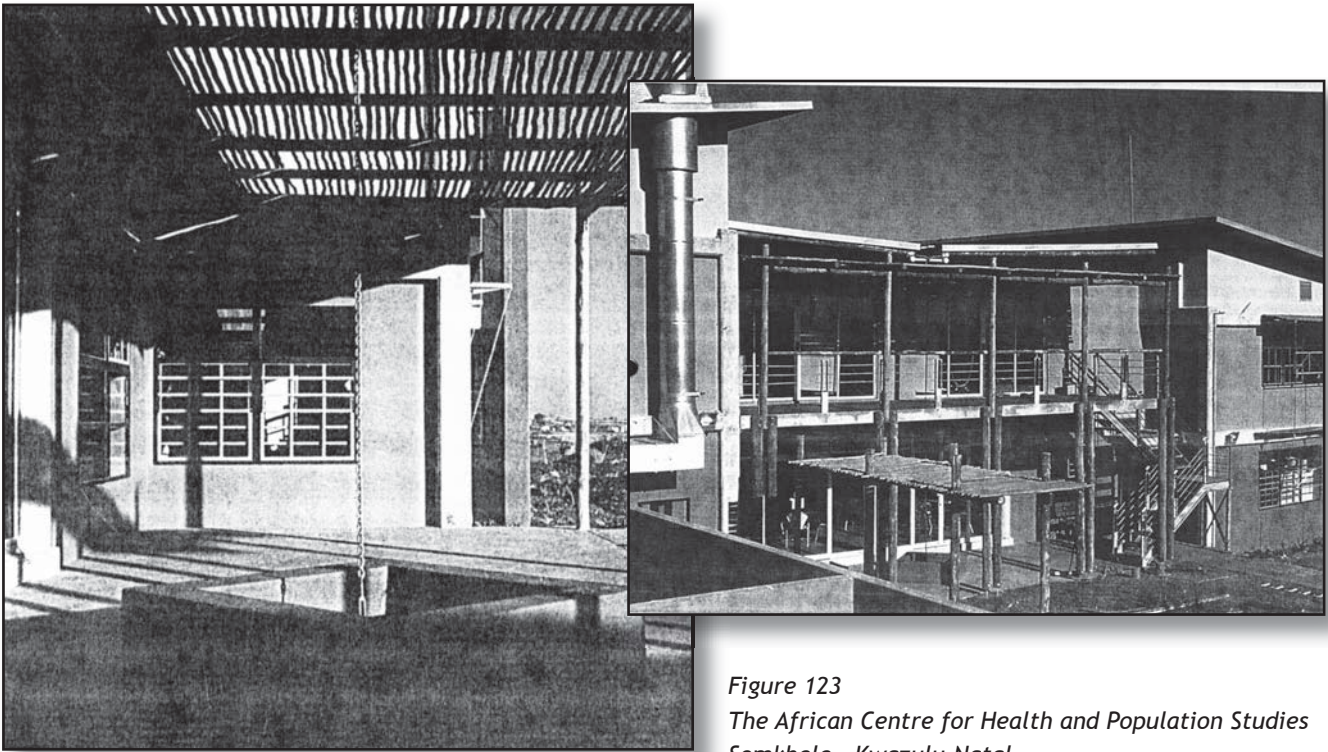


Figure 123
The African Centre for Health and Population Studies
Somkhele - Kwazulu-Natal
Architects - East Coast Architects
Using gum poles as a double column and as shading material.

Figure 124
Habitat Reesearch and
Development Centre,
Katatura, Namibia
Architect - Nina Maritz
Daily materials used for
specific details at the centre
and enrich the texture of
the buildings.

