

# Conceptual Development

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[Part 003]

[003] Conceptual Development

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The architectural issues, as established in part [001] and [002] of the research component have presented material design problems. Part [003] of the research component presents various architectural approaches to these issues.

The Chapter is structured under the following headings:

- Integration within the Urban Fabric
  - The connections the building makes with its surroundings
- Response to Context
  - The relationship of civic architecture in a residential context
- Designing for Children
  - The relationship between architecture and children, encouraging a positive environment
- Appropriate Architectural Expression
  - The architecture that is representative of its civic nature and also its residential context
- Public Spaces
  - The level of integration and connectedness in order to create a 'place of safety' into a community
- Technical and Environmental Considerations
  - Technical considerations required in the design of a courthouse
  - Environmental considerations specific to the Namibian climate

In order to enable the building to positively contribute to its surrounding context whilst representing its purpose in a dignified, child-friendly manner it is endeavored that through the study of precedents architectural approaches will be identified that can further inform the design process in part [004].

# Integration within the Urban Fabric

Civic buildings of a semi-public nature like a Child Justice Center should seek to integrate into its context by responding to existing activities and identified issues specific to the context area. In understanding the characteristics of a context, such as the inherent site privacy gradients, a more meaningful architectural response can be formulated that suitably accommodates a range of public to private activities on and around the site. In conjunction with this the creation of a controlled environment must be of primary importance. These principles will have a material influence on the relation of buildings to the public realm and urban fabric.

The following buildings have been analysed for the way in which they integrate into the urban fabric and in the meaningful connection made with their surrounding physical and cultural context.

## Melrose Arch (1996) Johannesburg

Osmond Lange Architects & Planners and Urban Solutions Architects

Melrose Arch is a major urban development comprised of several mixed use buildings, each designed by a different architectural firm, governed by well contemplated building regulations which encouraged the development of spatial hierarchy within the development. This approach has embraced "New Urbanist" theories in creating active street edges, pedestrian orientated space and "just-about line" urban planning that promotes the definition of positive, contained urban spaces.

Despite its positive public spaces and quality of space, Melrose Arch remains isolated from its surrounding urban fabric and that of the city.



Figure 026. Above. Aerial View of Melrose Arch



Figure 027. Points of hierarchy and views along streets allow for spatial orientation



Figure 028. Pedestrian prioritised space. The vehicle's presence is kept to a minimum.

## Red Location Museum of Struggle (2006) Port Elizabeth

Noero Wolff Architects

Sited within the Red Location, the design sought to address and respond to the harsh environment, having few trees and hardly any form of street interaction. The surrounding environment is dominated by low scale monotonous residential housing.

Gestures made in the building typology and material selection integrates the building into its surrounding urban context. In response to the harshness of the site the straightforward utilisation of materials creates a low maintenance building. The unadorned use of block work and corrugated sheeting bear a resemblance to the materials common in the Red Location and New Brighton areas.

The public space at the entrance of the building is incorporated as part of the building. The low timber pergola creates a semi-sheltered space that feathers the building edge in connecting it to the surrounding context.

In an attempt to break down the scale of the building and enhance interaction between the public and the building certain facades have been broken down with smaller scaled elements. However, the mass of the building is still industrial in scale and could be deemed to be insensitive to the surrounding finer grain of residential dwellings.



Figure 029.  
Aerial view



Figure 030.  
Satellite View

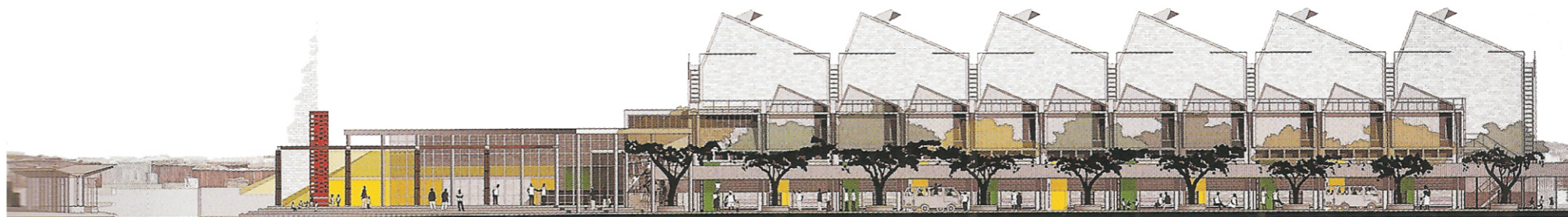


Figure 031. Eastern Elevation of the Red Location Museum. The articulation of the 3D form is reduced in scale and pattern on active pedestrian edges. Vegetation in the form of trees has been introduced to soften public thresholds. The material selection and frame and panel arrangement related the museum to its surroundings.



Figure 032. Longitudinal section of the Museum.



Figure 033. Photograph of the Eastern Facade. Simple tectonics and the use of materials common to the area integrates the

# Response to Context

Courthouses should convey the importance of the venue whilst not overwhelming the surrounding environment. In order for a building to be rooted in its place, its expression should draw cues from the physical and cultural environment in which it is placed. In response to a context, a building can create visual tension in contrast to its surroundings, or seek to combine background and foreground moments in creating moments of hierarchy.

A building can respond to its context in a way that respects the existing scale, forms, rhythms, materials and expressions. These background buildings structure the built environment by creating continuous street scapes of buildings that relate to one another whilst forming a background to public spaces. Alternatively it can contrast its surroundings, giving hierarchy to important points in the urban fabric, thus defining important spaces and activities. These buildings make use of a range of architectural 'tools' such as scale, form, proportion and material to create a distinction from the surrounding fabric.

## The Village, (2005), Windhoek, Namibia

Leon Barnard Architects

As part of an urban renewal project the Village is part of a mixed use development over a series of residential plots.

Simple material sets have been combined to create residential scaled commercial properties that achieve an interplay of fore-ground and back-ground buildings. Indigenous vegetation has been promoted and utilized in collaboration with local materials and a clear understanding of their tectonics to produce buildings that activate shared public and private edges. The design also takes consideration of the local climate and interprets responses to these conditions, for example broad shaded verandas and adequate roof overhangs to shade interiors.



Figure 034. Buildings that require ahierarchical expression are articulated as foreground moments. A street scape is created by combining background with foreground forms



Figure 035. A photo of entrance to a café establishing a relationship with the exterior spaces



Figure 036. A photo of a courtyard that combines tranquil elements and local materials and vegetation to create a romantic nature of space

## Early Childhood Development Centre (2002), Philippi, Cape Flats

KrugerRoos Architects Urban Designers

The Early Childhood Development Centre located in a residential area that could be considered to be in its infancy establishes a civic expression in its significant, grounded articulation. Signifying permanence it creates a central meeting place and acts as a symbol of community

'Un-compromised by any sense of domesticity' the bold geometric composition, results in a building that dominates the street scape in a composed manner. On the street front, shoulder high plinths and seating create a public edge with a clearly defined entrance via a niche in a tower. The high walls, vertical entrance tower and the elevated sheltering canopy effect its prominent presence in its surroundings.

The strict control expressed on the outer facade is contrasted by the transparency of the interior, creating visual links to ensure surveillance of children in the facility. Inward inclined roofs result in a public facade of high walls whilst creating an intimate child-orientated interior. The compilation of classrooms, administration, ablutions and tower are linked by a broad patio and covered walkways to create a protected courtyard.



Figure 037. The Early Childhood Development Center in context



Figure 038. The Center's restrained formal expression distinguishes it from its

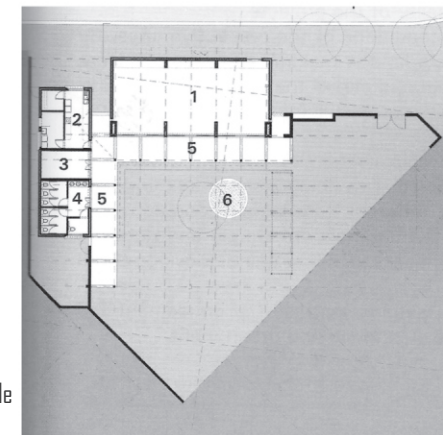


Figure 039  
Plan - not to scale

1. Classrooms
2. Kitchen
3. Office
4. Ablutions
5. Veranda
6. Sandpit

## Appropriate Architectural Expression

In order for a community to maintain their unique identity new developments need to respond in a site specific way and engage positively in the creation of place as opposed to the creation of meaningless objects. In order to achieve this, the building must carefully take into consideration and respond to cultural and social characteristics specific to the site.

The values, customs and cultural preferences of the community should be examined so as to inform the design without relying on copying cultural motifs in the attempt of creating a meaningful identity. Repeatedly utilising familiar cultural motifs could result in a meaningless, patronising architecture.

Therefore the design of a Child Justice Centre as a civic entity should be a representation of the community it serves whilst representing the inherent power of the justice system. A number of buildings have been identified and investigated in the creation of an appropriate architectural expression within their respective context and building programme. Such principles are important in the design process of this treatise.

### Yeoville Clinic, (1995), Johannesburg

Paul Schlapobersky Architects

Located on what were two unutilised tennis courts the clinic is accessed off a busy road and an adjacent taxi rank. The entrance has been designed so as to allow a discrete entry path. The main entrance is set back from the road whilst a cantilevering overhead plane defines the entrance.

The building's urban facade addresses the public nature of the clinic whilst the residentially scaled service areas of the building reduce the overall scale. Material relations to its surroundings have also been made, the neighbouring brick swimming pool informed the material palette.

Planned around a central waiting area, long institutional corridors allow for airy ventilated spaces. The incorporation of a government facility into a well integrated and articulated building removes the institutional character often associated with such public services.

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Figure 040. The Clinic is arranged around a central courtyard with its entrance set back from the public road



Figure 041. Photo of Yeoville Clinic

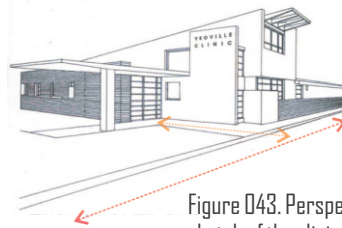


Figure 043. Perspective sketch of the clinic



Figure 042. Eastern facade of Yeoville Clinic is scaled to related to its residential context



## High Court of Namibia, (2009), Oshakati

Erhard Roxin Architects

In understanding the local conditions as well as the functional and judicial processes appropriate to a building of its kind the designers sought to create new relationships between spaces and conditions for work and incorporate the local culture into a humane and environmentally conscientious design.

The building is open to the front street edge, utilising a glass wall and a floor that cantilevers out towards the street that defines the entrance and seeks to be inviting to the public. The articulation of forms has been followed through in a functional manner in order to create a monumental building that represents the power of the justice system without over-emphasising the power of the state. The compact, internalised building creates a sense of enclosure and protection whilst being inviting to the public.

The spatial order of the building is arranged along a main circulation spine. The main entrance is located on the North side and is approached from a busy street via a public outdoor courtyard. The cantilevering library wing defines an edge to the public courtyard and delineates the entrance to the building.

In addition to the functional influences on the building form, environmental issues like natural lighting and ventilation, temperature control and sun movement influenced spaces and formal responses. The central atrium within the building functions as a natural cooling space for the centre, utilising a water pond with the thermal mass of thick concrete walls to cool the space. This triple volume is lit with indirect natural light. In order to reduce direct sunlight and prevent heat from entering into the interiors major glass openings have been slanted at 30°.

In response to the harsh Namibian climate ancillary spaces located on the western and eastern facades act as a thermal buffer to heat gains as well as adequate material selection and finishing, for example white painted roofs that reflect heat, are utilised to improve the sustainable nature of the facility. In order to generate a building that is synchronised with its environment locally sourced materials were chosen as far as possible.

Defensive structures, such as; screens, rails, doors and security systems, are integrated with the overall architectural language. For example; “Droppers” over the windows double as protection screens against sunlight and thrown objects but also symbolize fence materials of the area. A simple composition free from overtly culturally related archetypes, supported in the selection of locally available materials, roots the High court in its surrounds.



Figure 044. The public facade of the courthouse, the cantilevering library wing defines the building's main entrance



Figure 045. Windows slanted at 30° to limit solar insolation



Figure 046. The central atrium allows for thermal control and natural lighting



Figure 047. The public foyer

## South African Constitutional Court, (2004), Johannesburg

OMM Design Workshop, Urban Solutions Architects and Designers

The design makes use of a bold formal expression that contrasts the existing context whilst making use of a variety of textured surfaces that contribute to a rich spatial quality. Ultimately the architectural expression evokes a civic sense whilst also having a welcoming character. This has been carried through in allowing local artisans and community involvement in decorating so as to relate the building back to the people it was ultimately built for. Modernist aspects like the free flowing plan and widespread transparency are combined in unison with the historic buildings on site to relate it back to its site history. According to Noble (Joubert; 2009: 116) "...iconic and tectonic elements resonate with African craft and sculpture traditions. The disaggregated massing of the building is well adjusted to the particularities of the site, providing a poignant symbol of the multiplicity of South African society".



Figure 048. The Constitutional Court  
Bold formal architectural expression



Figure 049. The Constitutional Courtroom  
A varied use of textures and natural light to enhance the quality of space



Figure 050. Courthouse Foyer

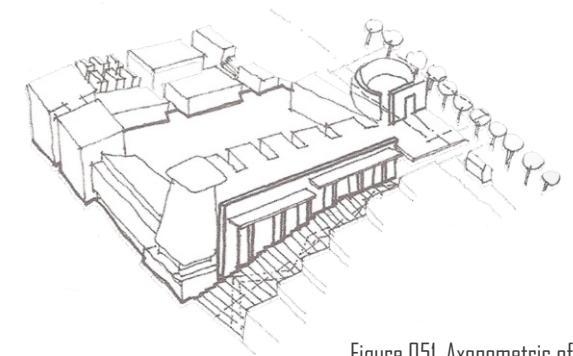


Figure 051. Axonometric of the Courthouse Building

# Child-Friendly Environment

As an adult our differing mental and physical perception of the environment presents the designer with the specific challenge of suitably manipulating the surrounding built environment in a manner suitable to the way in which a child perceives its environment, yet representative of its civic role.

## Zwelihle Primary School, 2010, Hermanus

DesignSpaceAfrica Architects



Figure 052. Aerial

The school is situated between two previously separated residential communities, as a result the design sought to reflect its identity as an institute for education and communal gathering. The school is organised around two courtyard spaces flanked by classrooms that are sheltered by covered walkways. The courtyards allow for protection from poor weather and also facilitate teacher surveillance.

Spatial orientation and the identification of the various functions are created in utilising layered spaces and colour coding amongst others. The arrangement of substantial internal passages and protected gathering spaces assist learners with easy orientation within the school building. The concept behind creating naturally lit internal gathering spaces was to encourage positive play and learning interactions indoors without having to be inside a formal classroom.

The variety of functions contained within the school is linked by a circulation activity spine of internalised corridors and covered walkways. Chalkboard painted panels and benches have been provided along these passages and in gathering spaces in order to optimise the variety of spaces that can function as impromptu learning spaces for small groups. The use of primary colours and robust materials further assist in creating a child friendly environment that requires limited on-going maintenance.

It should also be noted that the forum and the school field, facilities serving both the community and school, are located in close proximity to the administrative section so as allow for the safe functioning of this dual role.



Figure 053. One of the school courtyards. The building scale is broken by articulation of 3D form

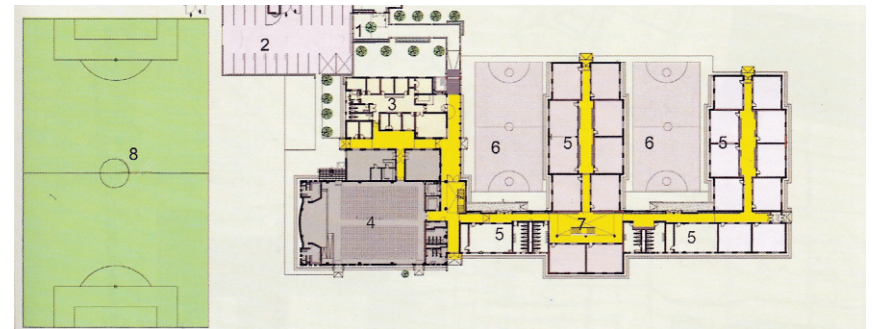


Figure 054. Plan illustrating an internalized path arrangement



Figure 055. The use of natural light and articulation of structure adds to the quality of circulation spaces

## Wesbank Primary School no.2, (2010), Kuilsrivier, Western Cape

Revel fox and Partners

The design of the school serves a dual role of being a place of education whilst also being a safe haven for children from the crimes associated with violence and poverty in the Western Cape.

The medieval cloister was examined and interpreted in order to solve the problem of safety. A courtyard arrangement allows for a compact, covered circulation path that fringes the outskirts of a central protected quad, thus sheltering the learners from the surroundings and its climatic extremes. The school hall similarly, was conceived as a covered courtyard with ancillary spaces on its edges.

Due to budgetary constraints the architectural form and finishes were kept simple and durable. The scale of the facility was reduced with mono-pitch roofs sloping towards courtyards. The covered walkways or 'verandas' provide climatic control and an interactive threshold between classrooms and play areas.



Fig 056. Aerial of the school



Fig 057. School courtyard fringed with shaded patios



Fig 058. School Hall



Fig 059. Protected courtyards allow for mixed uses



Fig 060. School building on approach

## Delft Day Care Centre, (2004), Delft South, Cape Town

Noero Wolff Architects

In response to its corner position the centre takes on a triangular form. Organised around a central courtyard a protected play environment is created. This is flanked by three classrooms that look onto a separate western courtyard.

Orientation of the building in creating streetscapes whilst scale and space are manipulated with well resolved, uncomplicated detailing.

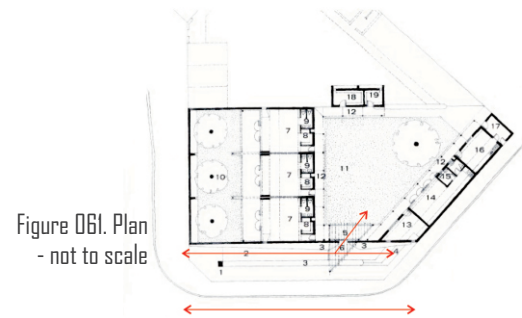


Figure 062. Street facade of Delft Day Care Centre

## Olifantsvlei Crèche, (2006), Johannesburg

Institute for Experimental Architecture, University of Innsbruck, Austria

Surrounded by primary and secondary schools, the crèche site is treated as a large playground to which the building plays an integral part. The roof plane not only is a sheltering element but also demarcates play areas around the classrooms. Colour coded skylights add a playful touch whilst seating and landings are incorporated into the design in order to enhance the children's educational experience.



Figure 065. Plan  
- not to scale

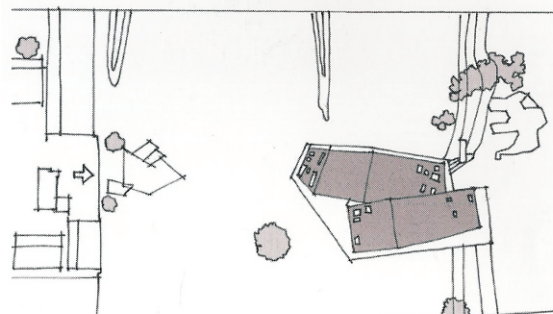


Figure 064. Site Plan  
- not to scale



Figure 063. The roof plane serves as a multi-functional object, one that defines spaces, plays with light and views and allows interaction

# Public Spaces

Windhoek's suburbs in general lack urban social spaces and due to security concerns residences are increasingly separated by dull high garden walls, creating no sense of community. Public spaces are limited, those that exist are neglected with unimaginative, steel play-frames exposed to the full force of the sun. As a result, built interventions must consider the external spaces that they create so as to encourage positive social interaction.

## VPUU Urban Park and Active Box, (2010, Khayelitsha, Cape Town)

Jonker& Barnes Architects

In order to achieve a surveyed urban space a clear definition between public and private realms was required with well-lit easily surveyed pedestrian routes. Sustainable landscape practises, community participation with design and implementation, and the use of durable long lasting materials that the locals could maintain, sought to integrate the public space with the local community and ensure its ongoing existence. In designing a public building, principles creating shared, overlooked public space are to be considered.



Figure 066. Aerial View of the Urban Park in its context

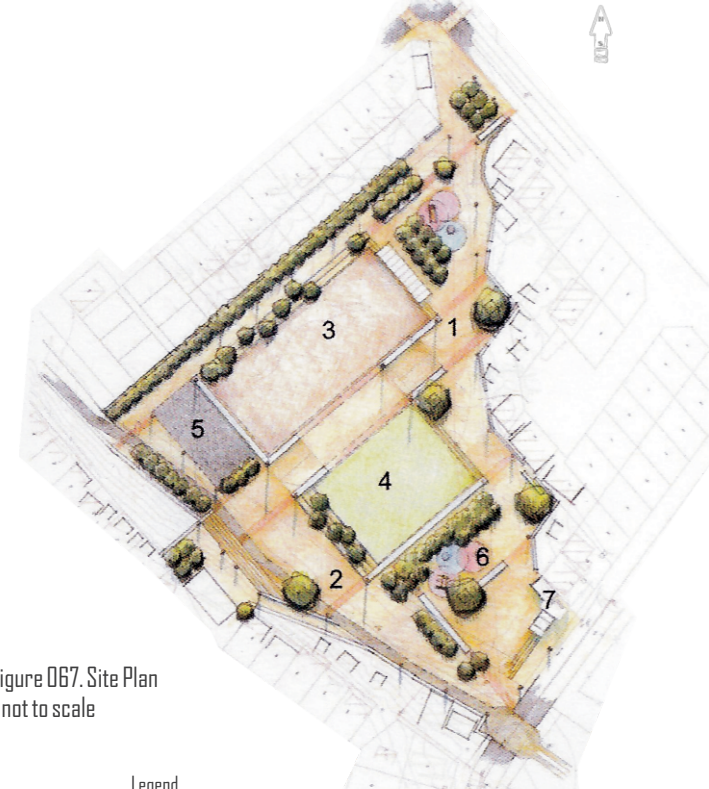


Figure 067. Site Plan  
- not to scale

### Legend

- |                      |                              |   |               |
|----------------------|------------------------------|---|---------------|
| 1. Pedestrian Route  | 2. Cycle Route               | 3. Football Kick About & Storm Water Detention Pond |               |
| 4. Grassed Play Area | 5. 'Football for Hope' Field | 6. Children's Playground                            | 7. Active Box |

# Environmental & Technical Considerations

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# Environmental Considerations

Architecture should be climatically appropriate and responsive to environmental conditions, especially as a result of the global energy crisis which the world is currently experiencing. The incorporation of sustainable design principles in public buildings will reduce the carbon footprint of those facilities and can also perform as a passive teaching instrument, imparting the value of sustainability. However, due to the security requirements of the child justice centre mechanical methods are necessary in order for the building to function safely.

## Heat & Light

A primary climatic concern in Namibia is heat. The design should seek to create a cool building utilising passive solar principles, although thermal comfort during the short winters is to be considered.

Buildings are to be elongated along the east-west axis with minimal north-south width. Due to Windhoek's location in the tropics (north of the Tropic of Capricorn) the summer sun falls slightly more on the southern facade than the north. As a result main openings are north facing whilst openings on the east and west facades are to be restricted. Large roof overhangs are required to shade walls and allow in winter sun but exclude summer sun. In addition to utilising thermal mass to cool interior spaces, cooling through evapotranspiration is very effective in dry climates. Planted courtyard spaces and the retention of indigenous vegetation on site is instrumental in achieving this.

The optimisation of natural lighting must be carefully considered for the comfort and safety of building users. The greatest energy consumer in a building is artificial lighting; as a result permitting natural lighting is considered an integral part of the design process. Artificial lighting also emits large amounts of heat that can potentially drive up cooling costs or require further natural ventilation.

Building orientation in relation to the sun is crucial. Consideration should also be given to how the orientation in relation to the plan and building form will perform and how this orientation will effect window sizing and distribution; verandas and overhangs as well as positioning of trees and vegetation. Windhoek receives an average of 8 to 9 hours of sunlight per day, making it the ideal location for solar hot water geysers and photovoltaic cells.

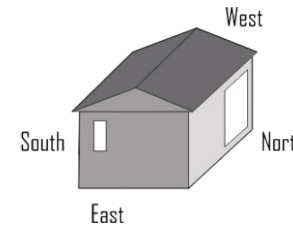


Fig 068. Orientation of Windows.  
Promote north and south light, limit east and west light

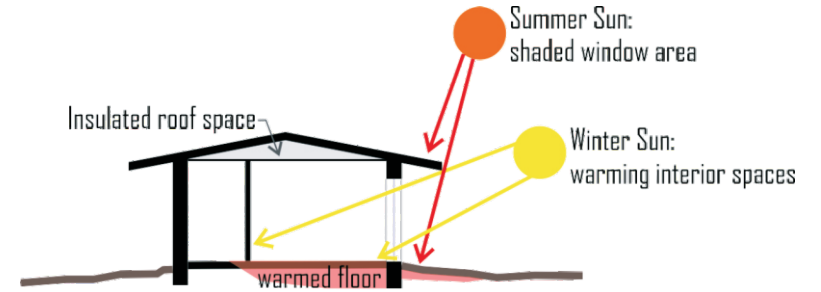


Fig 069. Roof Overhangs.  
Sun protection in summer and sun penetration in winter

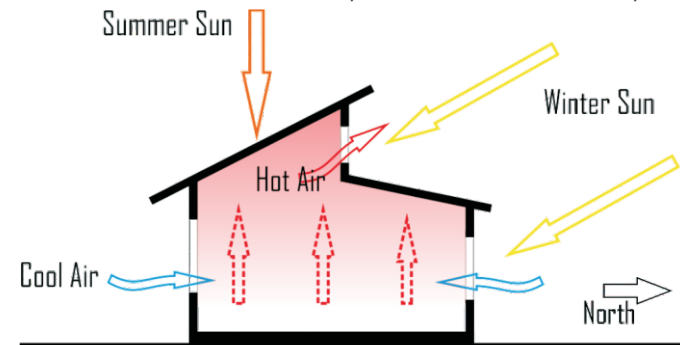


Fig 070. Thermal Comfort.  
Design considerations for better thermal comfort

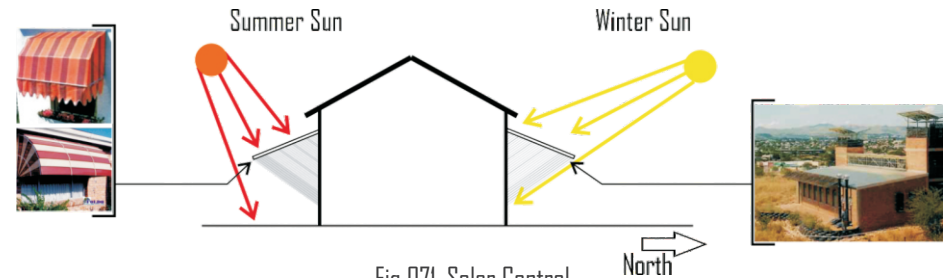


Fig 071. Solar Control.  
Northern facade utilising louvres to filter sunlight whilst the south should allow for dynamic control



## Ventilation

Temperature and, to a lesser extent in Namibia, humidity control are essential when considering that the building will be occupied 24/7. Due to the restrictive security requirements in a child justice centre a combination of natural ventilation and artificial ventilation is required. Artificial ventilation has significant energy costs and as a result buildings should be orientated to maximise any prevailing winds. As learnt in the Habitat Research & Development Centre precedent study (to follow), low energy evaporative cooling systems in collaboration with utilising the stack effect maximise natural ventilation whilst cooling interior spaces. Inland wind speeds are low, as a result openings should be positioned directly opposite in order to maximise cross-ventilation. Combining higher internal volumes with clerestory windows allow hot air to rise and escape, this combined with passing cooler air over building components like floors and walls maximise internal air movement.

## Water Storage

Roof surfaces have the capacity to serve as water catchment areas for rainwater storage. If this is considered in the design, built structures can collect rainwater for utilisation in cooling systems as well as irrigation of grounds. In addition to this, grey water recycling systems can be utilised in order to further reduce the centre's reliance on municipal supplies.

## Vegetation

It is crucial that at no time shall the placement of plants compromise the security requirements of the centre. With this in mind plants should be utilised for their beneficial climatic control qualities. Plants are excellent climate moderators, providing cooling shade and shelter from winds whilst also purifying and humidifying air. However, it is crucial to consider that in Windhoek's harsh climate indigenous trees will fare best with limited rainfall and high temperatures.

## Material Selection

It is imperative that materials utilised in the design have a low embodied energy (in origin, manufacture, transport, construction and re-use) whilst also requiring minimal maintenance. A child justice centre after all is a municipal facility, as a result reduced construction and maintenance costs are crucial. Local Namibian materials should be utilised as far as possible.

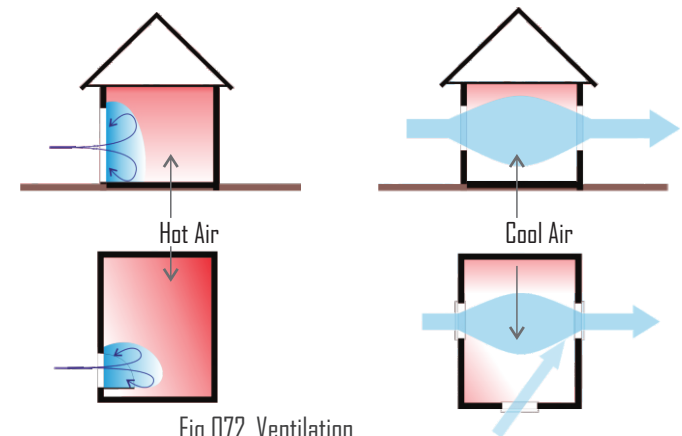


Fig 072. Ventilation.

To promote thermal comfort cross ventilation is required. Diagonal ventilation is not sufficient.

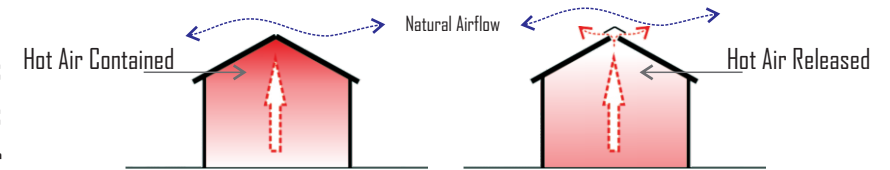
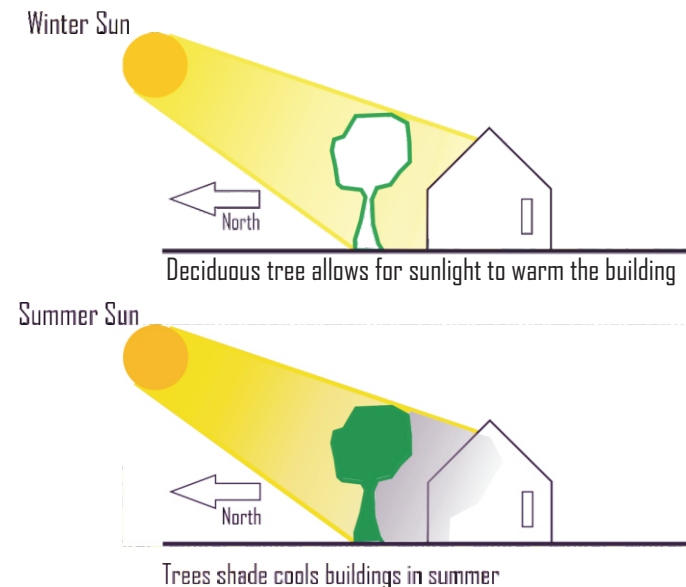


Fig 073. Ventilation. Thermal comfort is maintained by maximising vertical ventilation.



Trees shade cools buildings in summer

Fig 074.. Vegetation. Careful selection of vegetation can influence the thermal performance of a building

# Habitat Research and Development Centre, Katutura, Windhoek

Nina Maritz Architects

The building is centred around combining various sustainable construction approaches into a single development. This has been achieved without overly romantic notions of sustainability, but rather practical, well resolved cost-effective solutions to creating sustainable architecture. Innovative use of locally available and recycled materials incorporating natural lighting and ventilation are just some principles forming part of the design solution. Thermal performance is enhanced by high thermal capacity materials working in-hand with natural ventilation. Innovative and experimental materials, such as rammed earth and patented polystyrene blocks combined with local craftsmanship create a unique style of architecture.



Fig 075. View of the eastern elevation



Fig 076. Solar Panels provide power to the development



Fig 078. Overlooking the Multi-Use Area



Fig 077. Locally available building materials are utilised



Fig 079. Vegetation. Careful selection of vegetation can influence the thermal performance of a building



Fig 080. Re-use and recycling of materials in collaboration with local artisans

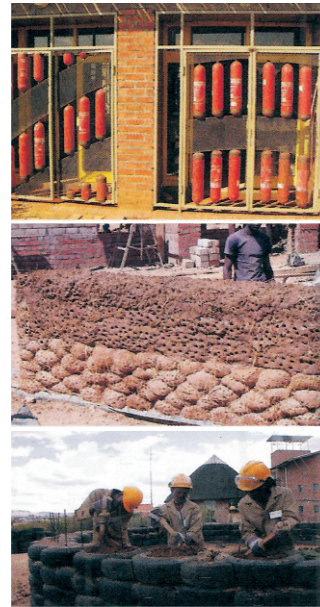


Figure 081. Left  
Local skills, materials and art



Figure 082. Sustainable practices, like filling the cooling tower door with foam as insulation provides opportunities for education.



Fig 083. Shaded Northern Facade



Fig 084. Roof top planting acts as insulation



Fig 085. Solar Panels incorporated into an overhead plane

# Technical Considerations

## The Courthouse

'Courthouses are the visible manifestation of one of the most fundamental set of principles upon which our society is based'. Courthouses traditionally reflect the perceived role of law in a society, as a result the exterior articulation of a courthouse and the response of the building to its surroundings are of crucial importance. In the same way the internal organization should reflect the relative importance assigned to the specific programme and the roles of the various groups that utilise the building. Courthouses should impart the importance of the venue but should not dominate the immediate surroundings.

The focal point in any typical courthouse is the courtroom in which all parties to a case are likely to meet. As epitomized by Louis Kahn, one can consider a courtroom as the primary 'served' space around which the 'servant' spaces are arranged. However it must be remembered that in the context of a One-Stop Court the courtroom is considered the last resort in the administration of juvenile justice. Hence the courtrooms in such a system are still of significant importance, but the need to provide a safe, child-friendly environment in which restorative practises can be exercised must be of paramount importance.

The overriding concern within any courthouse is the need to accommodate segregated circulation routes, more specifically in this context; for judges, staff, juvenile defendants, juvenile victims and witnesses and to a lesser extent members of the public. Due to the sensitive nature of cases, One-Stop Centers are not open to the general public beyond the reception spaces. These routes should allow for the respective parties to make their way to the courtroom without being exposed to one another. Consequently dedicated entrances are to be provided for:

- ~ Judges
- ~ Defendants held in custody
- ~ Family, witnesses and defendants - arriving from secure care facilities or house arrest

In order to minimise the number of entrances to the courthouse and to facilitate proper control, the Magistrate's entrance should be available to the staff. Only family members and involved members of the public are permitted within the courtroom in a One-Stop centre. As in a typical courtroom they would enter the court from the rear or the side and be seated to the rear of the room; neither public nor witnesses pass areas in which other participants are located (e.g. prosecutors or defendants in custody) on entering or leaving the courtroom.

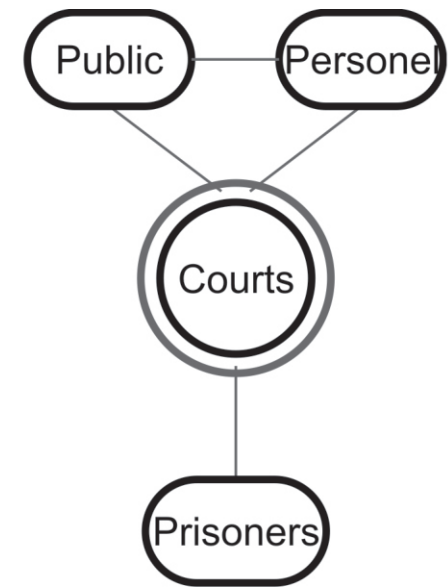


Figure 086.  
Primary Spaces and circulation pattern

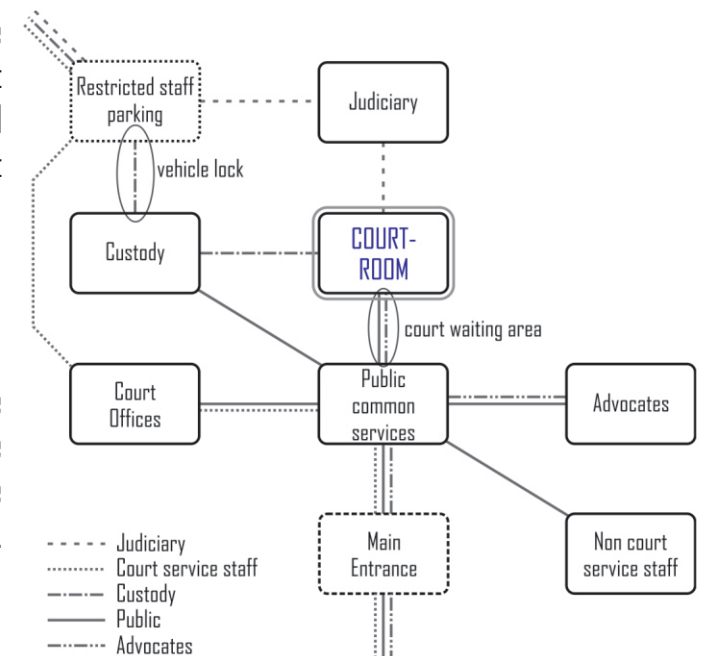


Fig 087. Functional Diagram for a simplified Courthouse

## Relationships within the Courtroom

The layout within a courtroom should integrate the specific relationships among the assorted participants by way of cautiously arranged sight-lines, distances and levels.

The main parties in court cases are:

- ~ Judge
- ~ Defendant
- ~ Victim
- ~ Legal representatives (lawyer and prosecutor)

In addition to this, only family members and involved members of the public are permitted within the courtroom in a One-Stop centre. As in a typical courtroom they would enter the court from the rear or the side and be seated to the rear of the room; neither public nor witnesses pass areas in which other participants are located (e.g. prosecutors or defendants in custody) on entering or leaving the courtroom. Each party must be within close enough proximity in order to facilitate the ability to hear and see each other clearly at all times without mechanical or electrical aids, and without excessive turning from side to side.

## The Courtroom Environment

A well-detailed, comfortable and quiet courtroom with efficient and simply managed ventilation, lighting and acoustics is the ideal.

### Ventilation

In order to maintain comfort levels within the courtroom and facilitate its efficient operation without distractions, well-balanced environmental conditions are essential. Natural ventilation via open able windows is the current trend supported by most users. The courtroom will be subjected to increased temperature fluctuations that can be minimised with the assistance of automated control systems. Where natural ventilation is unsuitable due to noise ingress or poor air flow mechanical assistance should be utilised. In order to reduce energy consumption it is often more efficient to have separate air handling units for each courtroom operated on timers and occupancy sensors.

### Lighting

Direct sunlight must be controlled whilst still allowing for sufficient natural lighting within the courtroom. The provision of natural light should at no point compromise security measures within the courtroom. Daylight improves environmental comfort but as soon as it becomes insufficient, artificial lighting should be provided. In order to enhance the atmosphere within the courtroom a combination of up-lighters and down-lighters should be utilised. In addition, this method of artificial lighting will reduce glare and enhance contrast within the space. It is important that at all times comfortable and clear observation of articles and writing is possible.

### Acoustics

The acoustics and noise levels should guarantee that the proceedings are audible in all parts of the courtroom; whilst preventing disruption and frustration due to movement of any parties within the courtroom. To this end reflective and absorptive wall and ceiling surface treatments should be applied.

## Atteridgeville Magistrate Court, (2004), Atteridgeville, Pretoria

Noero Wolff Architects, Dayabhai Schrueder Architects and Selby Sheba Architects

The Courthouse project was an effort by a collaboration of firms in response to the specific problems presented by the context of a typical South African township. A courthouse requires several segregated circulation routes. Instead a well resolved, simplified circulation system has been accommodated. As evident in figure 091 the courts are located in close proximity to the adjacent residential areas more so than the vehicle orientated road. This gesture increases the courthouse's integration into the community it serves. However, due to planning regulations the building could be likened to a fenced in residence, thereby weakening the sense of place.

Environmentally and economically sensitive measures like pine panelling, as evident if figure 090, was utilised in the courtrooms. This simplified courtroom design has been influential on subsequent South African courthouse designs, as is the case with the Nerina child Justice Centre.



Figure 088. Courthouse in Context



Figure 089. Residential Context



Figure 090. Courtroom Interior



Figure 091. Aerial View

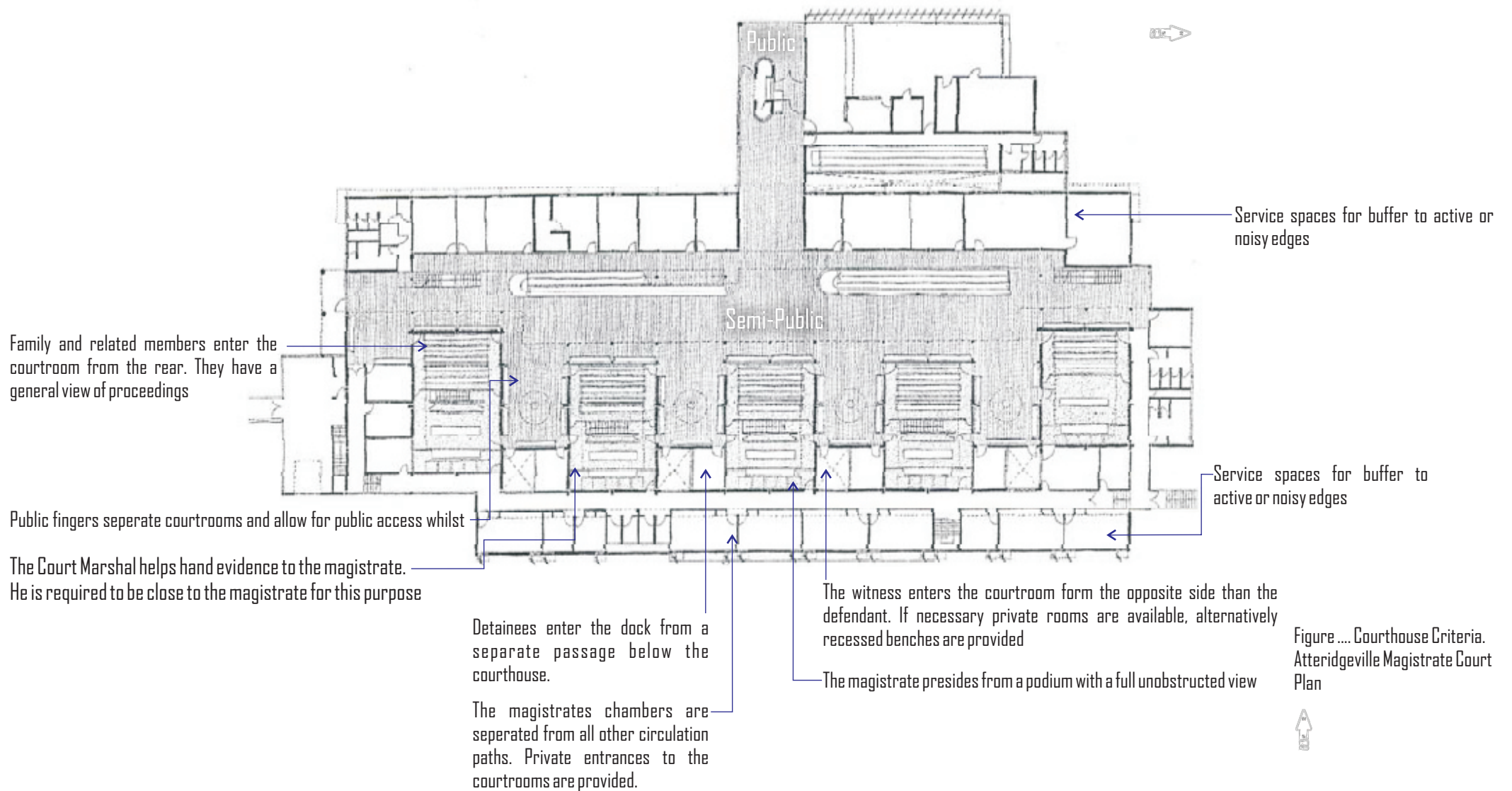
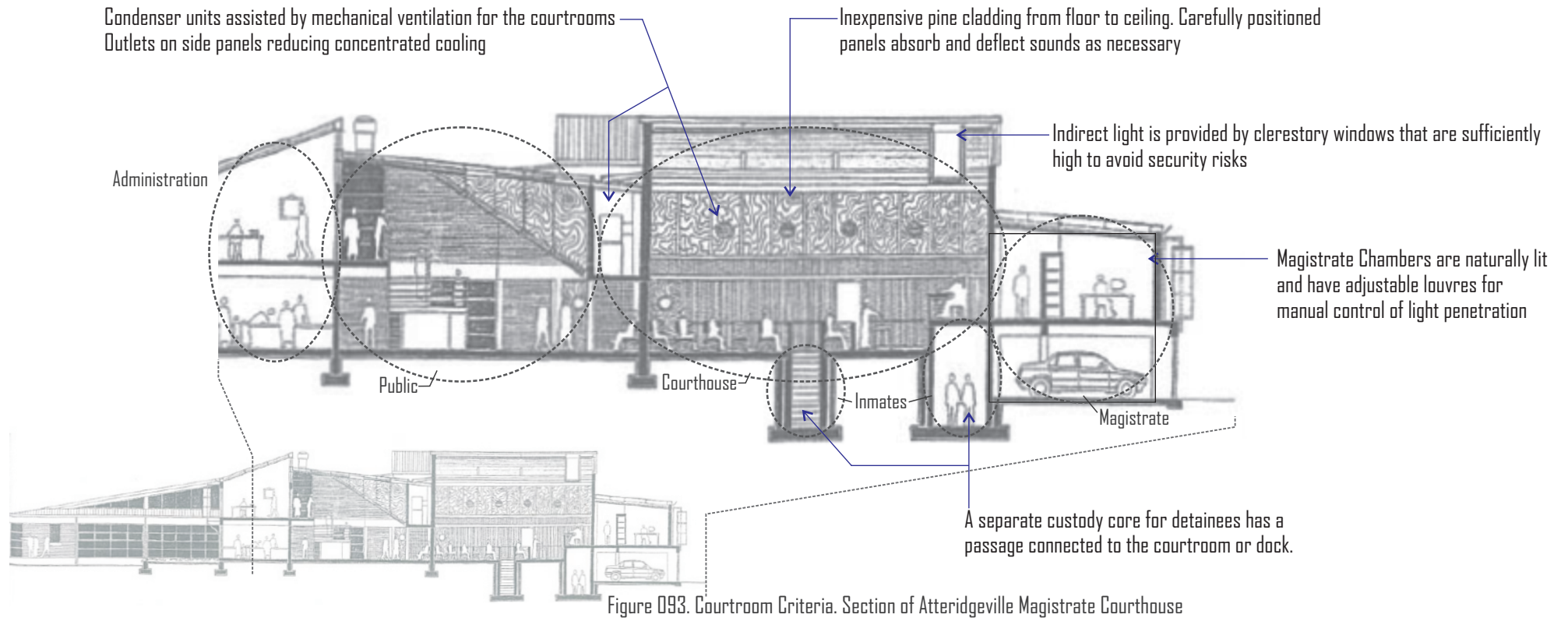


Figure .... Courthouse Criteria. Atteridgeville Magistrate Court Plan



Figure 092. Plan - not to scale



(Addendum A) Case Study: The Nerina One-Stop Child Justice Centre, Shauderville, Port Elizabeth



Figure 094. As with the Atteridgeville Magistrate's Court, The Nerina One-Stop Child Justice Center in Port Elizabeth is disconnected from its surrounds for security reasons.



# Conclusion

Valuable lessons learnt in analysing precedents within the architectural challenges within the design of a Child Justice Centre. Insight from these has been gained as to approaches towards addressing these challenges and in improving the design of such a facility. The following issues were explored and were found to be relevant to the design process of this treatise:

- Integration within the Urban Fabric
  - Integrating the facility by creating positive connections with its surroundings.
- Response to Context and Appropriate Architectural Expression
  - Correlating facets of institutional architecture with the residential environment without overtly assigning to specific cultural architectural types.
- Designing for Children
  - Creating space that not only directs child behaviour positively, but that also is considerate of the child's perceptive interactions within that space.
- Public Spaces
  - Building edges are to interact with and relate to the street and contribute to the surrounding area.
- Technical and Environmental Considerations
  - A positive, efficient working environment is required, as improved staff morale will improve their interactions with children.
  - Architectural responses and detailing is to be environmentally appropriate tailored to local, vernacular construction techniques.

