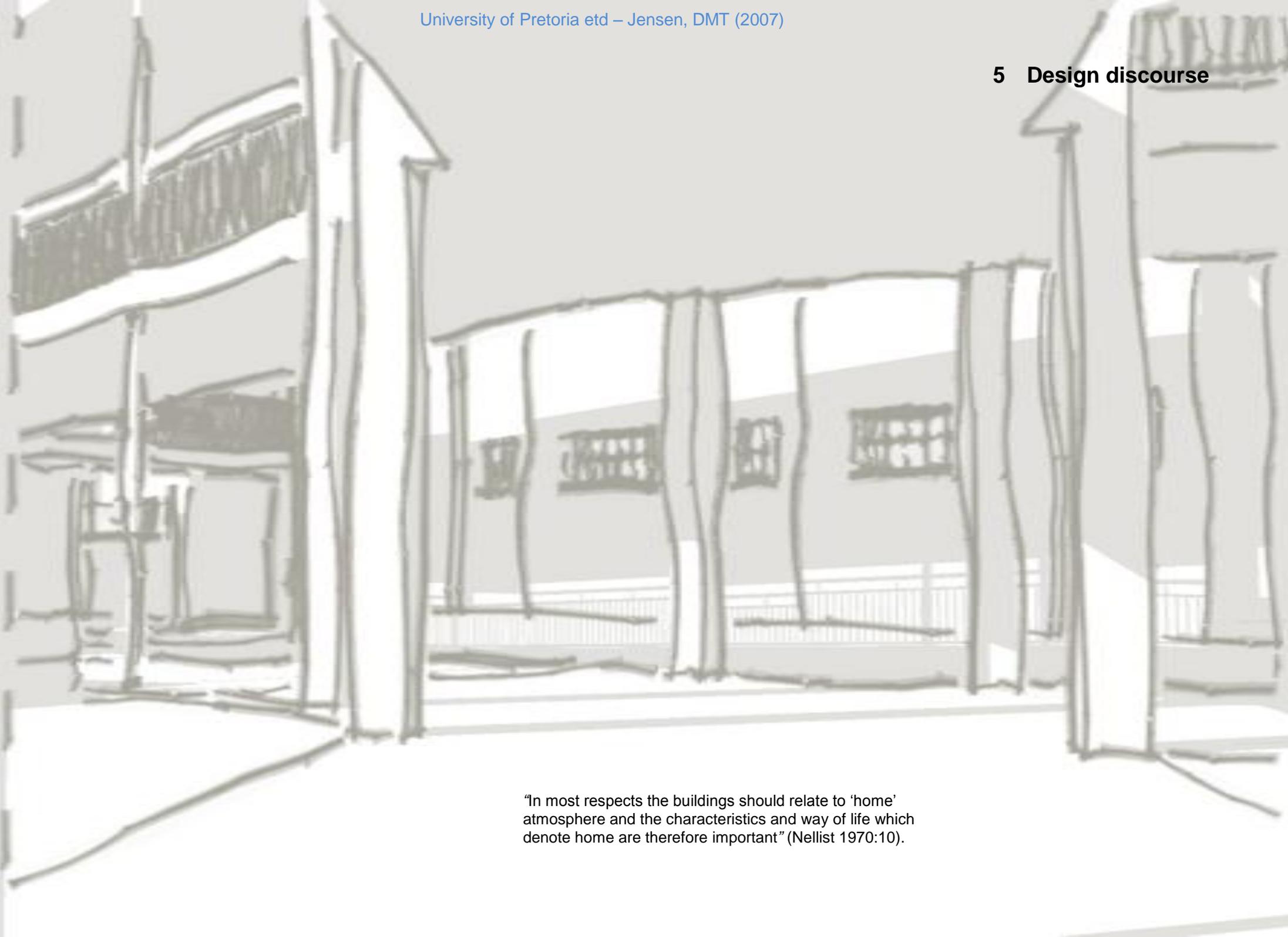


5 Design discourse



"In most respects the buildings should relate to 'home' atmosphere and the characteristics and way of life which denote home are therefore important" (Nellist 1970:10).

5.1 Hypothesis

Through the proper site selection and planning, and the proper detail planning of facilities, the physical, mental and spiritual requirements for the care of persons with profound intellectual disability can be satisfied in an economically viable and environmentally sustainable manner.

5.2 Requirements

This home will have to have sleeping, eating and ablution facilities for the residents, therapy and medical facilities, administration, a place of worship, staff facilities and supporting facilities such as kitchen and laundry. According to Little Eden Society's principles, these facilities must be accessible to all levels of ability and encourage the mental, physical and spiritual growth and development of residents to their full potential. The facility should accommodate activities and therapies, which foster a loving and caring environment, with a strong connection to nature.

According to Bronston (1980: 13) desirable conditions for living arrangements for persons with disabilities include:

- ready access
- aesthetics of facility (residential rather than institutional)
- physical comfort
- age appropriate facilities and services
- positive value image of service and clients
- intense programming
- individualisation
- respectful and warm social interactions
- social integration
- meaningful participation of consumers and public
- self-renewal orientation
- receptivity to research
- ties to academia.

5.3 Design principles

The basis of the below developed design principles is derived from a knowledge and understanding of the treatment and caring for people who suffer from an intellectual disability, the study of architectural

designs of homes for the intellectually disabled person as well as the needs the client expressed. These principles are defined below:

- *The residents' special needs* – First and foremost this facility must address the needs of the residents, many of whom will spend their entire life at a home. For example, the design should take into consideration that residents can often be confused and disorientated. Routes and pathways should be easy to follow, without becoming long intimidating corridors. According to Cox and Groves (1990:126) this can be achieved by providing spaces for meeting or withdrawing into, and if possible, with a connection, even if only visual, to the outdoors. They can also be combined with day areas.
- *A secure but open environment* - The security of the residents, staff and visitors is also important. Violence and crime is an unpleasant part of life and the design needs to take this into consideration. The security consideration should prevent unwanted visitors from entering the facility as well as prevent residents leaving the facility unsupervised. At the same time the design needs to ensure that it does not fall prey to the failed jail and fortress styled designs of some of the asylums. It is therefore unnecessary to have high intimidating walls everywhere, however there needs to be a secure perimeter which can be achieved simply by the choice of the site, as the use of external walls of buildings and landscaping techniques.
- *The safety of the residents* – Especially residents who have challenged behaviour, have little concept of self care and preservation and can injure themselves and others and damage their surroundings. Their behaviour can be managed with supervision and medicine for the most part, but the design of the building also needs to accommodate such possible happenings. For example, this constraint has a major impact on the decisions made for the types of finishes and materials used. Special care needs to be taken with the choice of materials used in structures like windows, some of which should have toughened glass or a clear plastic, for example, polycarbonate. Reachable windows should have limited opening ability.
- *Practicality* – From an operational point of view, the design must aid the day-to-day operations of the facility such as catering and cleaning as well as to cater for emergency situations, for example, when a resident requires prompt hospitalisation. Vehicle accessibility to the premises, and within the facility, is therefore important. The layout, proximity and accessibility of the various buildings are important considerations. On a medium to long-term

basis, the durability and maintainability of the buildings are equally important. Applying the latest thinking and trends in the design should be tempered with practical considerations. While the asylum design and architecture of surveillance proved not to be ideal it had many practical benefits that should not be disregarded for the sake of being progressive. “Quality and durability should not be compromised as skimping usually costs more in the long run” (Slaviero 2007).

- *The economy and environment* – As the facility will be built, operated and maintained purely on the budget of an NGO charity which is mostly reliant on donations for its income, the economic feasibility of the structure’s implementation as well as ongoing maintenance are key. This goes hand-in-hand with the environmental aspect of the design, especially as far as heating and cooling is concerned.
- *Community integration* - Compared to the old institutions, which deliberately encouraged a sense of withdrawal and physical restraint, Cox and Groves (1990:123) recommend that facilities should avoid a clear feeling of segregation from society. The involvement and support of the community in the home is important to ensure its long-term sustainability and success. The design must take into consideration its “community and visitor friendliness index”. It should encourage outsiders to want to visit and be involved in the new home. Aesthetic qualities and facilities available for use by the community, visitors and volunteers are therefore important considerations.

5.4 Experience of the architecture

The architecture of the new Little Eden Society facility is about how, through its buildings and other elements, the people, who would use it, should experience the facility and what feelings and emotions would be evoked. However, different people would experience the architecture in a different manner depending on the role they play within the facility. In trying to simplify things, the roles were whittled down to two core roles, which share common experience and emotional needs, namely:

- visitors and staff
- residents.

These are articulated and explained diagrammatically in Figure 68:

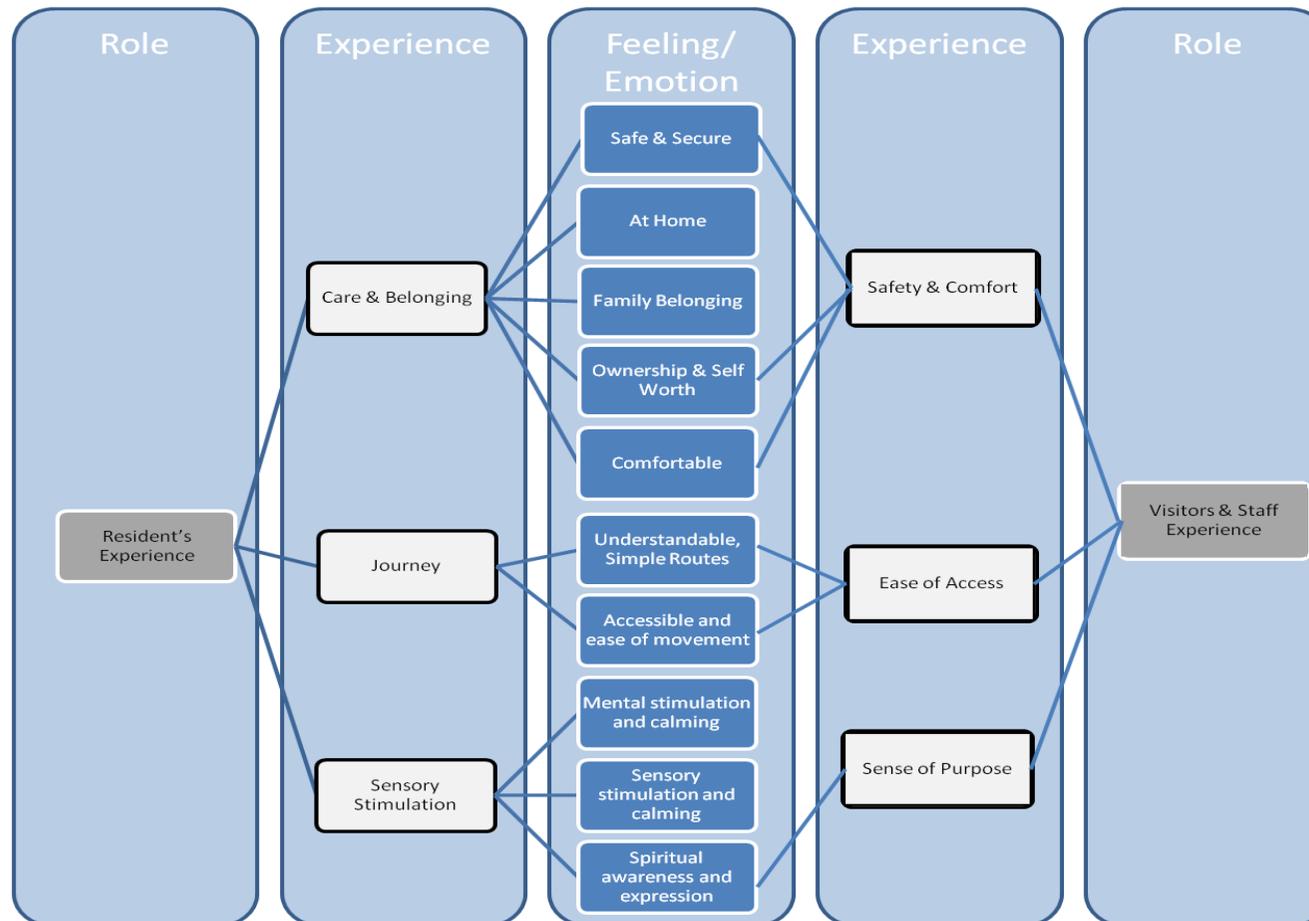


Figure 68 - The conceptualisation of the experience that the facility should provide

5.4.1 Safety, care, comfort and belonging

The design of the facility needs to cater for the emotional needs of the residents as well as of the staff and visitors in terms of safety, care, comfort and belonging. These include:

- safe and secure what??
- at home and family belonging
- ownership and self worth
- comfort.

Table 8 - Architectural concepts to achieve the safety, care, comfort and belonging experience

| Emotion/feeling | Architectural concepts through which this can be achieved |
|------------------------|---|
| Safe & secure | <ul style="list-style-type: none"> • A single access point to the facility will allow maximum access control. • Multiple security boundaries created through boundary walls as well as the layout of the buildings can achieve multiple security zones within the site without creating a “jailed in” feeling. • Ample secure parking within the site’s boundary walls • The use of rounded edges to minimise accident related injuries. • The use of materials that are robust, non-toxic and less likely to break. • The use of safety barriers such as railings for elevated walkways. • Quick access for emergency vehicle to the accommodation as well as throughout the site. |
| At home | <ul style="list-style-type: none"> • Incorporation of residential architectural elements into the architecture of the facility such as: <ul style="list-style-type: none"> ○ use of double pitched roofs ○ use of typical residential building materials like brick and plaster ○ creation of gardens around the various buildings, especially the accommodation area • The creation of a village concept within the facility, where various buildings fulfil functions of home, play, school, church, etc. |
| Ownership & self-worth | <ul style="list-style-type: none"> • Availability of amenities such as gardening where residents can perform simple tasks thus creating a perception of contribution and therefore self-worth. • Through scaling of personal elements such as bedrooms, to create a perception of ownership and private space i.e. smaller bedrooms of 2 to 5 beds as opposed to large dormitories of 10+ beds. |
| Comfort | <ul style="list-style-type: none"> • Ensuring the heating and cooling considerations are taken into account and correctly applied, for example: <ul style="list-style-type: none"> ○ building orientation must take into consideration solar heating conditions ○ overhangs and other shading mechanisms are employed and correctly configured to maximise benefits both in summer and winter ○ ventilation is effective and controllable • Ambient noise is considered when placing the building on the site, remembering that elements such as the accommodation and chapel require lower levels noise • The ability to move between buildings while being shielded from harsh weather such as heat and rain through covered walkways. |

5.4.2 Simple, quick and easy routes

The navigation of the facility should be intuitive and moving between buildings and elements should be quick and easy for staff and visitors as well as for residents. The resident should experience the journey around the facility as:

- understandable with simple clear routes
- accessible to and from all buildings and elements
- effortless where movement is facilitated as much as possible.

Table 9 - Architectural concepts to achieve the simple, quick and easy experience

| Emotion/Feeling | Architectural concepts through which this can be achieved |
|----------------------------------|--|
| Understandable, simple and clear | <ul style="list-style-type: none"> • The creation of a single main “movement” spine with direct as possible profile connecting the facilities’ buildings and elements which will make journey choices simple and easy. • Ensuring that movement structures such as walkways are as open as possible, not enclosed by walls or buildings on all sides. This assists the user with orientation as well as allows them to “journey” through the facility experiencing the various sights and sounds. • The ability of the user to see their end destination makes orientation and journey easier and less unknown. This is important where residents can become easily anxious if they feel they are lost. |
| Accessible and quick | <ul style="list-style-type: none"> • Buildings and elements should be placed in proximity to one another so as to minimise journey distances and times for anticipated high frequency commutes. • Access ways to and from buildings should be as close to primary movement paths as possible. • The creation of a single primary “movement spine” will also act as a pedestrian “highway”, facilitating rapid movement. • Movement walkways should be wide enough to allow passing traffic of wheel chairs, prams and carriages. • Vehicle access to buildings requiring pickup or delivery services. • Basic access to all buildings onsite via vehicle transport. |
| Effortless | <ul style="list-style-type: none"> • Especially for residents with physical disabilities movement needs to be facilitated through the use of ramps which must be conveniently placed and lifts where required. • Distances of high frequency commuting routes such as between the kitchen and accommodation and accommodation and therapy, should be as short as practically possible especially where users are required to transport people and goods on foot such as pushing a wheelchair or delivering food to the accommodation. |

5.4.3 Mind, body and soul

Talking about intellectually disabled children, Spivack (1984:72) says that, “[l]ocked within the perceptual, physical, and emotional handicaps that these children may have, we must assume there are capabilities and needs to love, aesthetic sensibilities, social needs, the desire to be as much a free, full human being as is possible within the limitation with which the child was born.”

The Little Eden Society is renowned for not only caring for its residents but also spending resources to develop each facet of the person’s abilities in terms of their mind, body and soul. The architecture of the facility should therefore also look to creating and encouraging:

- mental and sensory stimulation and calming
- spiritual awareness and expression.

Table 10 - Architectural concepts to achieve the mind, body and soul experience

| Emotion/Feeling | Architectural concepts through which this can be achieved |
|--|--|
| Mental and sensory stimulation and calming | <ul style="list-style-type: none"> • Access and exposure to natural sunlight is an important need of the residents. Buildings, especially the accommodation, should maximise sunlight exposure through large as well as strategically placed windows. These should generally be north facing to take advantage of the light and warmth properties. • Where natural lighting is required to create a more relaxed and reflective atmosphere, the use of indirect lighting is recommended. This would especially be applicable to the chapel. • Interaction with, and proximity to nature is an important mechanism to calm and stimulate the mind and senses. This can be achieved by: <ul style="list-style-type: none"> ○ planting gardens surrounding the various buildings of the facility, especially around the accommodation ○ creating gardens that are specifically grown for their sensory impacts in terms of sounds, visual, touch, taste and feel e.g. flowering plants and fruit trees ○ have plants in close proximity to the main walkways, in that way make the journey a sensory experience as well. |
| Spiritual awareness and expression | <ul style="list-style-type: none"> • The establishment of a chapel on site is an obvious measure to serve the spiritual needs of the residents, staff and visitors. The labyrinth facilitates a calming and spiritual journey. • Because the very reason for Little Eden Society’s existence is as a result of a deep spiritual devotion, it is consciously and should therefore architecturally also be a central aspect of the facility. This conscious reminder and recognition should be accentuated through the construction of a bell tower which is visible to residents, staff and especially visitors. |

5.5 Site layout approach

By reviewing of the architectural evolution of buildings which facilitated the care of people with mental illness and intellectual disability in the past, a number of building layouts and overall design principles have been discussed. The table below defines the various building types as well as an evaluation of each in terms of their applicability to the design of the new home for Little Eden - Prinshof:

Table 11 – Choice of site layout approach

| Building type | | Description | Evaluation against design principles | | | | | |
|------------------------|---|---|---|---|---|---|---|---|
| | | | Needs | Security | Safety | Practic-ality | Econo-my / environ-ment | Integra-tion |
| Contained block |  | This would entail a single self-contained multi-storey building, housing all the functions and services required. It would be surrounded by the gardens and other external elements. |  |  |  |  |  |  |
| Kirkbride plan |  | This design comprises a single self-contained building of no more than 2 storeys including various wings forming a long narrow stepped building. The gardens and external elements surround the building as well as occur within the courtyards created through the orientation of the wings. |  |  |  |  |  |  |
| Village |  | The Village layout entails separate buildings housing the various functions. Circulation is achieved through connecting walkways and roads. The landscape and external elements are integrated into the layout between and around the individual buildings. |  |  |  |  |  |  |
| Radial plan |  | The radial layout requires the various wings to be orientated in a star configuration around a central surveillance and control point. The gardens and external elements may be wedged between buildings in the star or around the complex. |  |  |  |  |  |  |

| | | | | | |
|------------|---|---|---|---|---|
| Key |  |  |  |  |  |
| | Does not address the principle | Only begins to address the principle | Partially addresses the principle | In the most part addresses the principle | Fully addresses the principle |

While all four layouts have their advantages, there is no outright “winner “ across all criteria. The village concept does score the highest and is also in line with current thinking and best practice. The village layout will therefore be applied in the design of the Little Eden - Prinshof home.

5.6 Core building and element identification

By means of the context studies conducted, it was also established that the home needs to provide a number of functions and services to make up a self-contained facility. Enabling these functions and services requires infrastructure, particularly building infrastructure. A number of buildings, structures and elements were identified to serve these needs. Table 12 lists the 14 buildings, structures and elements identified as required for the facility.

Table 12 – Listing of required buildings and elements for the new facility

| Functions & services required | Corresponding building/element | Functions & services required | Corresponding building /element |
|-------------------------------|--------------------------------|---|------------------------------------|
| Accommodation | Dormitories | Facility vehicle parking | Garages |
| Ablutions | | Minor structure and vehicle maintenance & repairs | |
| Day rooms | | Tool and part storage | |
| Reception | Administration | Backup generator | Service yard |
| Retail | | Waste storage & disposal | |
| Meeting & conference | | Outdoor staff and facility vehicle parking | |
| Offices | | Community religious services | |
| Physiotherapy | Therapy centre | Residents religious services | Chapel |
| Occupational therapy | | Fêtes and outdoor events | |
| Hydrotherapy | | Community sports training grounds | Open field & playground |
| Reflexology | | Outside activities for the residents | |
| Music therapy | | Sensory garden | |
| Large group therapy | | Orchard | |
| Concerts & entertainment | Hall | Vegetable garden | Gardens |
| Laundry | | Covered pedestrian access | |
| Kitchen | Services | Vehicle access | Covered walkway |
| Doctor's room | | Vehicles parking | |
| Nurse's office | | Labyrinth | Parking and access roads |
| | | Rain water reservoir | |
| | | | |

5.7 Site layout design

Once identified, the placement of each building and element within the site needs to be addressed taking into consideration constraints and characteristics of the site as well as full advantage of synergies between elements to ensure the optimum operation of the facility. When considering placement of the various buildings, structures and elements within the site, the following factors need to be considered for each:

1. level of public access
2. level of security
3. noise levels
4. required privacy levels
5. aesthetics and setting.

These 5 factors need to be evaluated and are articulated in Figure 69.

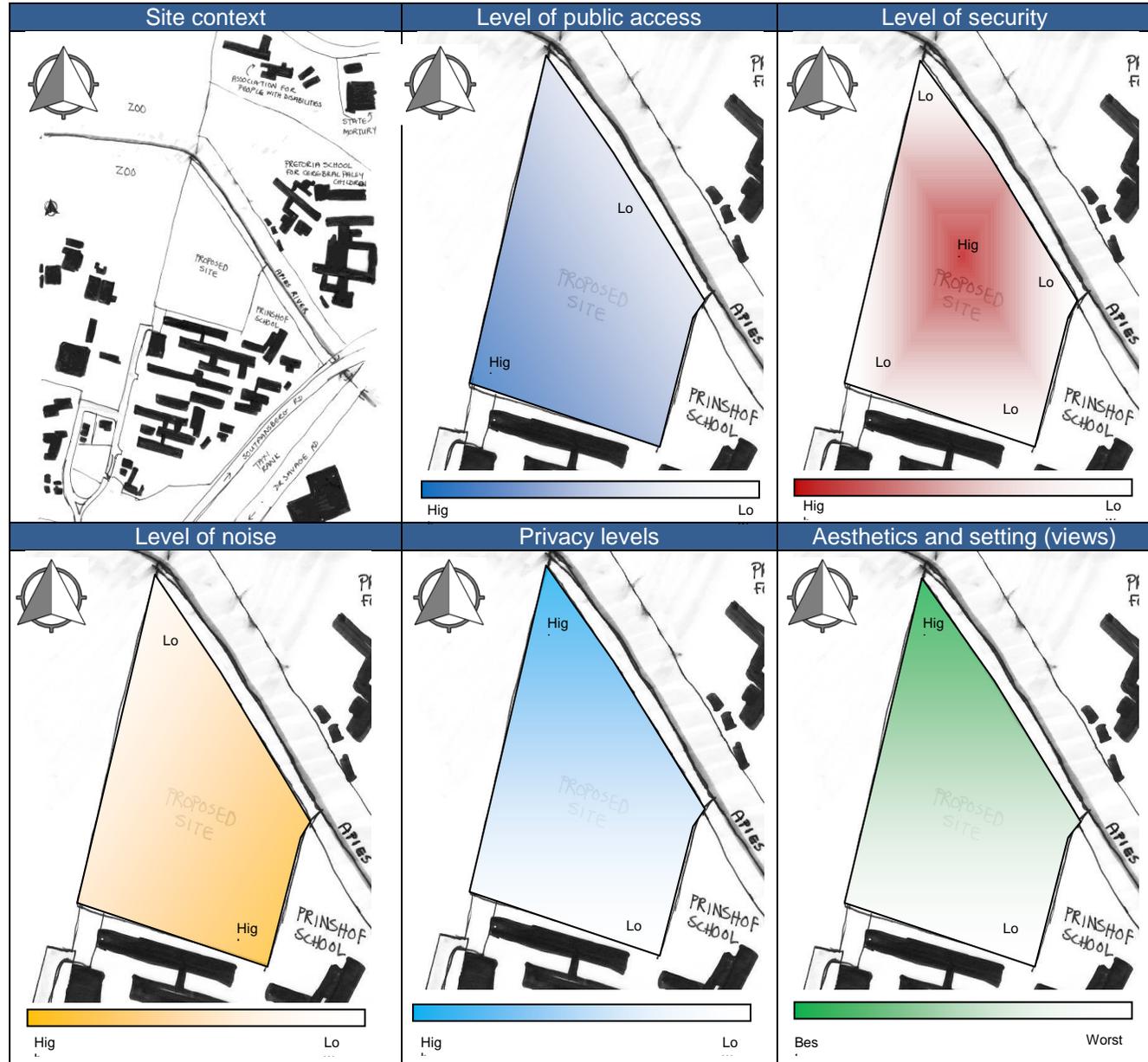


Figure 69 – Evaluation of various characteristics of the site

Once the characteristics of the site were understood they needed to be applied to the various buildings and elements in order to gain an insight as to where on the site their ideal placement would be. Each building and element was thus evaluated and ranked in order of importance against the 5 characteristics used to describe the site. This is shown in Table 13:

Table 13 – Ranking of the required buildings against the site evaluation characteristics

| Building/element | Level of required public access | Level of required security | Required reduced noise levels | Required privacy levels | Aesthetics and settings |
|---------------------------|---------------------------------|----------------------------|-------------------------------|-------------------------|-------------------------|
| Administration | 2 | 3 | 3 | 9 | 6 |
| Dormitories | 10 | 1 | 1 | 1 | 1 |
| Therapy centre | 9 | 2 | 4 | 2 | 4 |
| Hall | 7 | 7 | 5 | 5 | 7 |
| Services | 8 | 5 | 6 | 6 | 10 |
| Garage | 6 | 4 | 7 | 7 | 12 |
| Service yard | 4 | 8 | 8 | 8 | 11 |
| Chapel | 3 | 6 | 2 | 4 | 5 |
| Open field and playground | 5 | 11 | 10 | 10 | 8 |
| Gardens | 11 | 10 | 9 | 3 | 2 |
| Parking | 1 | 9 | 11 | 12 | 9 |
| Water retention pond | 12 | 12 | 12 | 11 | 3 |

| Level of importance ranking | | | | | | | | | | | |
|-----------------------------|---|------|---|---|----------|---|---|-----|----|----|------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Highest | | High | | | Mediocre | | | Low | | | Zero |

Finally, the interactions and importance of proximity between the buildings and structures themselves needed to be characterised and quantified in order to understand the relative positioning of each to one another. A relationship matrix was used which rates the importance of proximity between all building and structure this matrix is shown in Table 14.

Within the matrix, “hot spot” clusters can be identified which indicate a need for proximity between the buildings and structures within the cluster. By means of this method 3 proximity clusters and 2 cluster connections were identified:

1. *Reception cluster*: This cluster represents those buildings providing public facing service. The public parking, administration, chapel and hall buildings should therefore be placed in close proximity to one another.
2. *Services cluster*: These are the building and structures providing essential operational services to the rest of the facility and include the services building, garage and service yard which should be clustered.
3. *Residential cluster*: The dormitories, therapy centre, field, garden and pond represent the residential or living space within the facility. The building and elements should be clustered with one another.
4. *Services and reception connection*: The services and reception clusters should be located close to one another and have a strong link.
5. *Services and residential connection*: The services and residential cluster should be in close proximity to each other and have strong connectivity elements between them.

Table 14 – Building/Element proximity relationship matrix

| Rating | Importance of Close Proximity | Parking | Administration | Chapel | Hall | Services | Garage | Service Yard | Open Field & Playground | Therapy Centre | Dormitories | Gardens | Water Retention Pond |
|-------------------------|-------------------------------|---------|----------------|--------|------|----------|--------|--------------|-------------------------|----------------|-------------|---------|----------------------|
| 1 | Extreme | | | | | | | | | | | | |
| 2 | High | | | | | | | | | | | | |
| 3 | Mediocre | | | | | | | | | | | | |
| 4 | Low | | | | | | | | | | | | |
| 5 | None | | | | | | | | | | | | |
| Parking | | 1 | 1 | 2 | 3 | 3 | 2 | 1 | 3 | 4 | 3 | 5 | |
| Administration | | 1 | 3 | 2 | 1 | 1 | 1 | 5 | 3 | 4 | 5 | 5 | |
| Chapel | | 1 | 3 | 1 | 5 | 4 | 5 | 3 | 3 | 3 | 2 | 5 | |
| Hall | | 2 | 1 | | 3 | 3 | 5 | 1 | 1 | 5 | 2 | 5 | |
| Services | | 3 | 1 | 5 | 3 | 1 | 1 | 5 | 3 | 1 | 3 | 4 | |
| Garage | | 3 | 1 | 4 | 3 | 1 | 2 | 5 | 5 | 5 | 5 | 4 | |
| Service Yard | | 2 | 1 | 5 | 5 | 1 | 1 | 5 | 5 | 5 | 4 | 4 | |
| Open Field & Playground | | 1 | 5 | 3 | 1 | 5 | 5 | 5 | 2 | 4 | 2 | 5 | |
| Therapy Centre | | 3 | 3 | 3 | 1 | 3 | 5 | 5 | 2 | 1 | 1 | 4 | |
| Dormitories | | 4 | 4 | 3 | 2 | 1 | 5 | 5 | 4 | 1 | 3 | 2 | |
| Gardens | | 3 | 5 | 2 | 2 | 3 | 5 | 4 | 2 | 1 | 2 | 2 | |
| Water Retention Pond | | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 5 | 4 | 2 | 2 | |

5.7.1 Site layout

Using the site characteristic information as well as building/element proximity relationship matrix, the various buildings and elements were positioned upon the site. To do this, the site was initially divided into areas and each element included, obtaining a rough layout. After extensive further development based upon the initial rough layout a more defined site plan was obtained. These are illustrated in Figure 70.

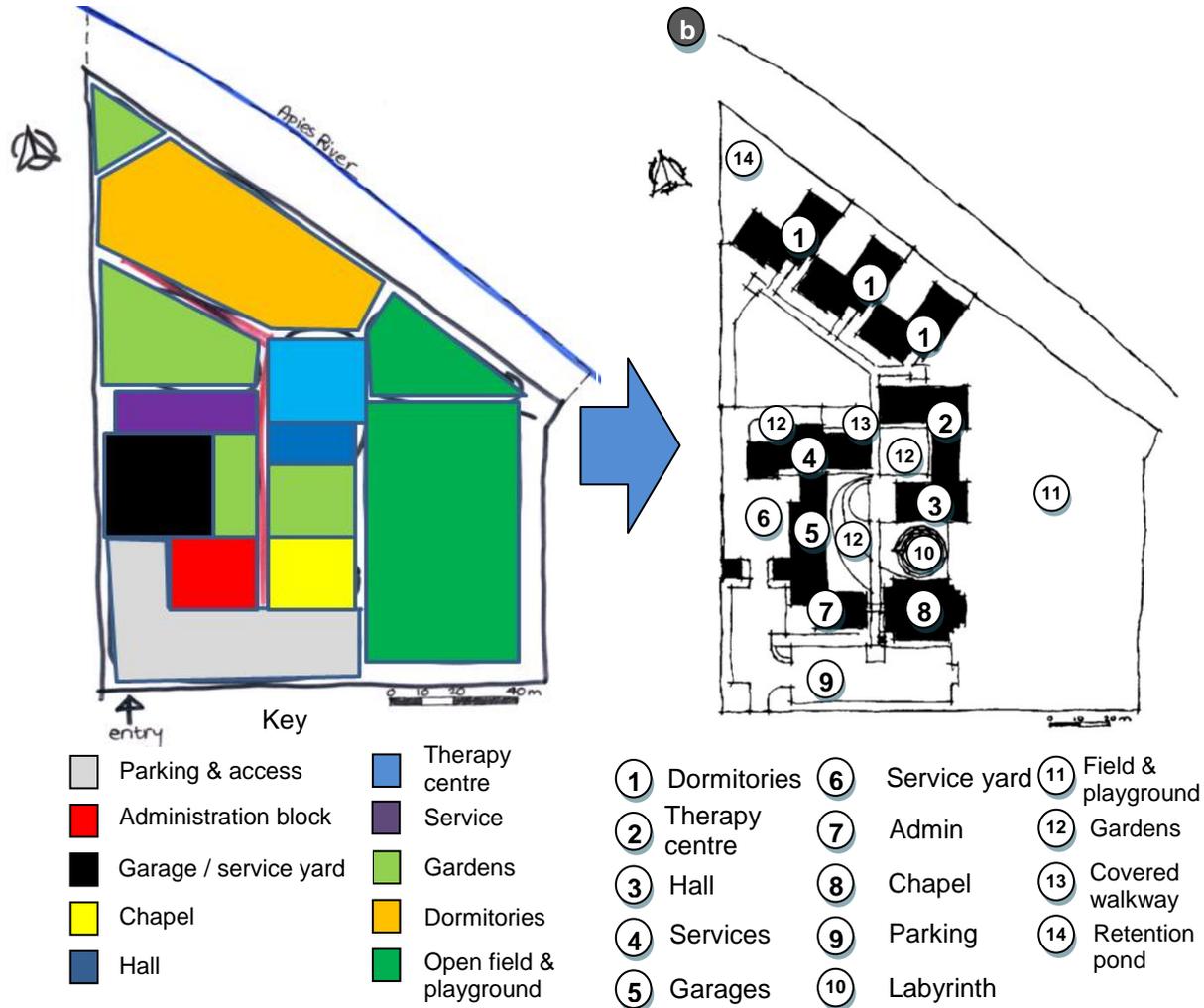


Figure 70 – Site plans showing (a) initial rough layout (b) final site layout design

5.7.2 A village layout

This layout design also achieves the chosen village layout plan. The buildings have been arranged in a village type of plan. 'Home' is where one eats, sleeps and baths. 'School' would be the therapy centre. 'Work' includes tending the gardens and helping in the laundry and kitchen. The chapel provides a place for prayer.



Figure 71 – A site plan illustrating the application of the village concept

5.7.3 Security and privacy layout

In order to create the safety and security for the residents, staff and visitors, various concepts and elements have been employed in the design of the facility including:

- A single access point from a quiet cul-de-sac road ensures entry and exit can be well controlled.
- The boundary walls and fences provide the primary line of security from external forces such as crime and violence, as well as keeping residents within a supervised environment. The site is surrounded on one side by the Zoo, two sides by the school and the river on the fourth side. The river boundary is the only side that presents a security risk because it is uncontrolled. This will be negated by the appropriate fencing on the boundary as well securing access to and traversal of the river through the implementation of barriers in conjunction with the neighbouring organisations and the City of Tshwane Metropolitan Municipality's plans for the upgrading of the Apies River.
- The buildings form part of the secondary security line which separates the public from the more private areas, and allows for a more controlled access of the public.
- The layout allows access for emergency vehicles such as ambulances and fire trucks around the site as the buildings are all at least 4m from the boundaries.

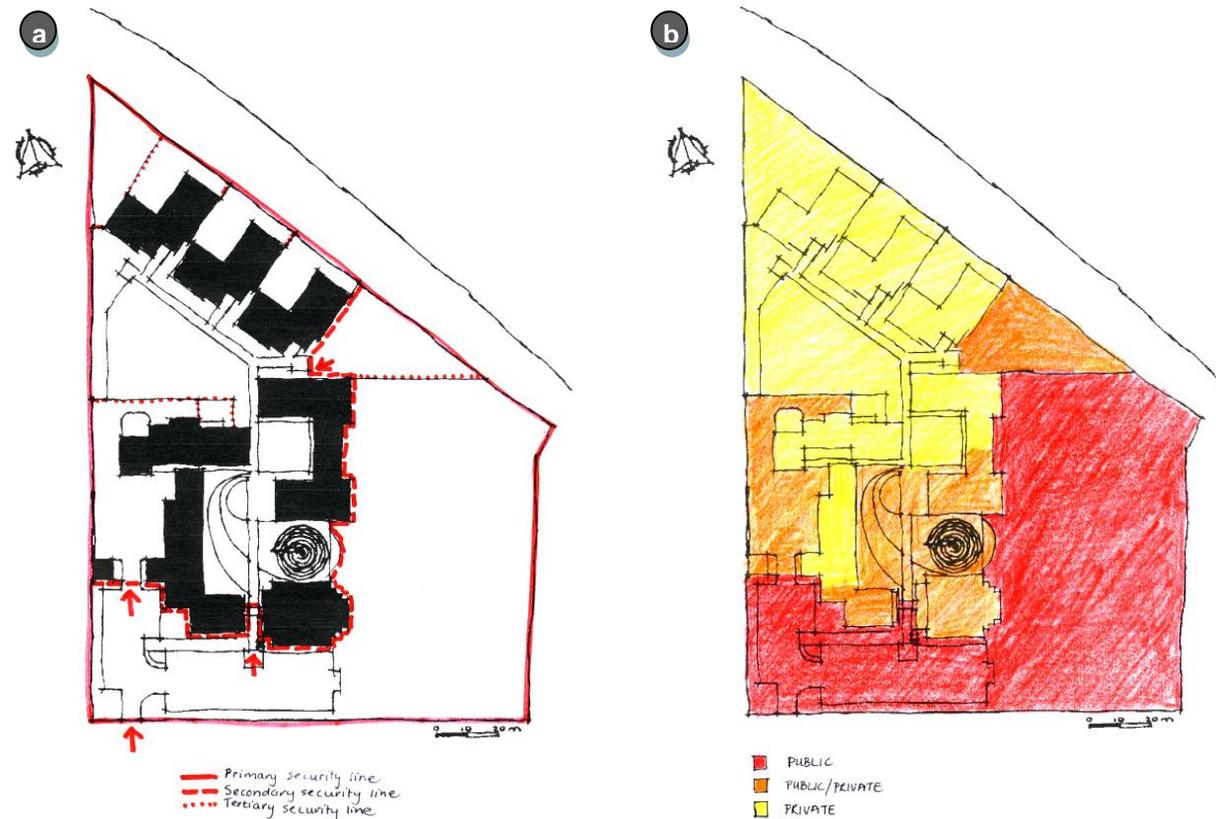


Figure 72 – Site plans showing (a) security lines and (b) public and private areas

5.7.4 Circulation

The final consideration before designing the site layout was the basic circulation. Three types of circulation were identified:

- normal vehicle circulation
- pedestrian circulation
- emergency vehicle circulation.

These were then applied to the grid site layout giving a very rough approximation of the required circulation for the site. Using the placement and circulation assessments and information, as well as an exhaustible number of design options the site layout was finally resolved.

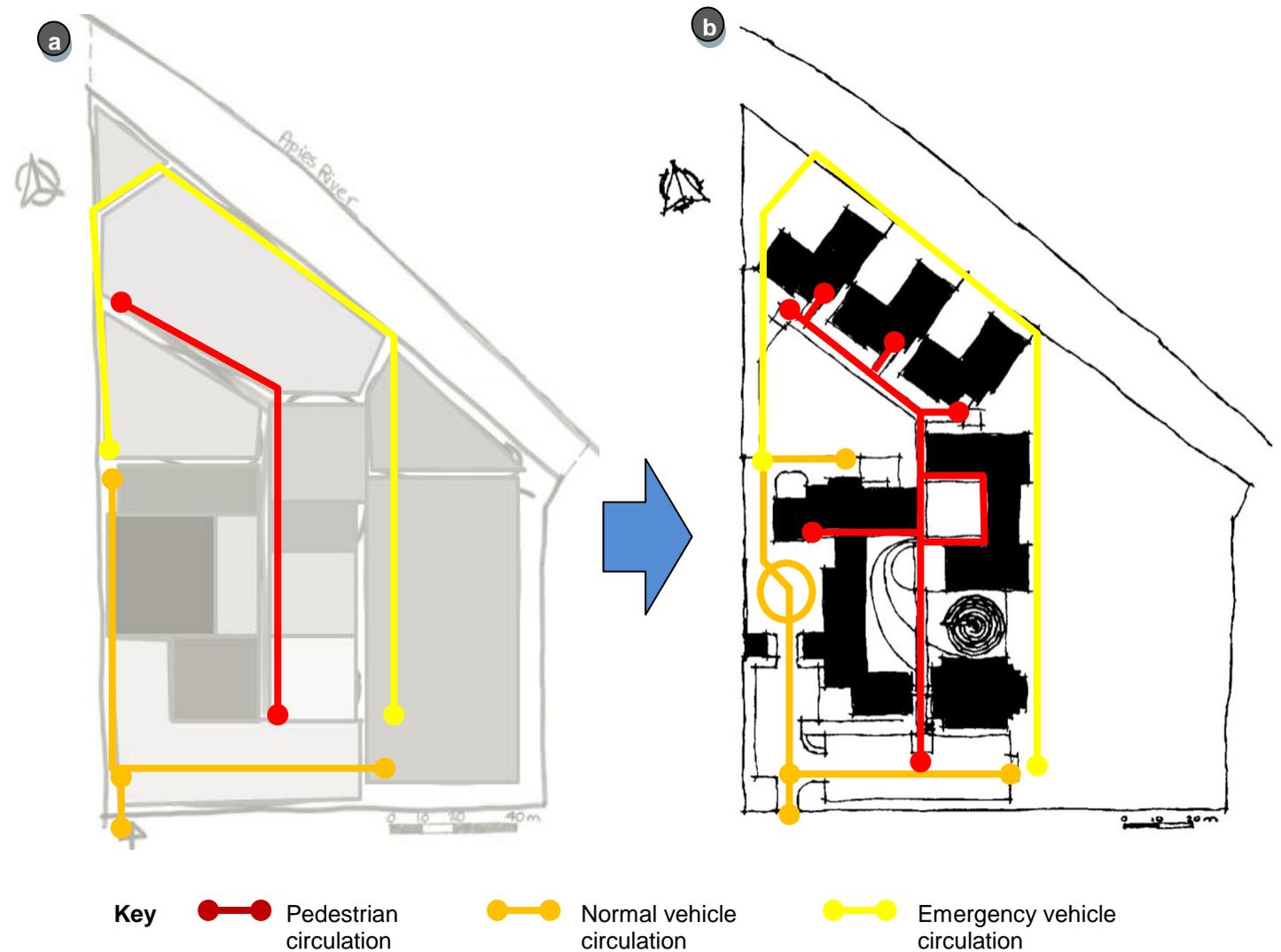


Figure 73 – Site plans showing (a) initial circulation layout and (b) final circulation design

5.8 Design

5.8.1 Common elements

Based upon the principles and ideas discussed in the preceding chapter on design principles and the experience of the architecture, the common and core elements of the architecture can be defined before proceeding into the detail of the design. These elements identified and to be discussed are:

- roofing
- walls
- windows
- walkways.

5.8.1.1 Roofing

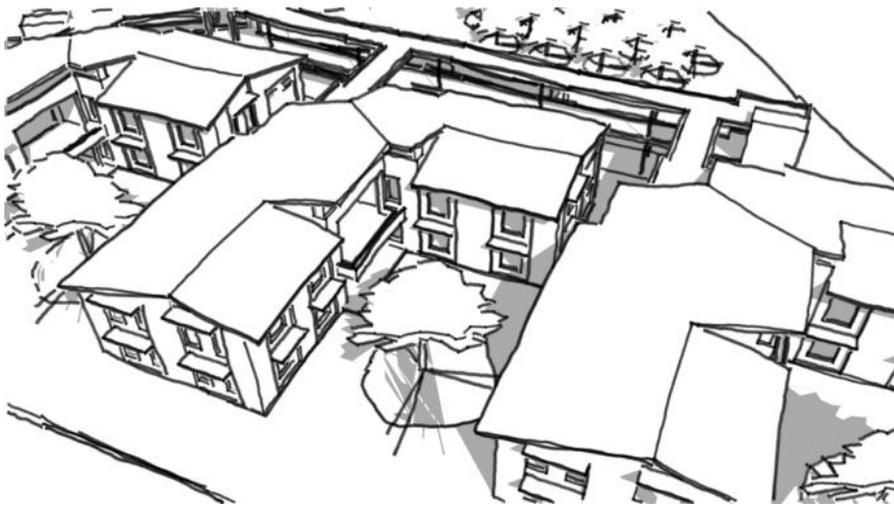


Figure 74 – A view of the modelled dormitory building roofs

Style: Double pitched with gabled ends. For the church and hall, single pitch will be used and a combination of both for the dormitories.

Pitch Angle: An overall pitch angle of 15° will be employed throughout with the exception of the church and hall where a shallower angle of 8° will be used.

Material: Brownbuilt roof sheeting.

Shading and overhang: The overhangs of the roofs have been designed to provide maximum shading during the summer months and heating during the winter months.

Application of principles and experiences: A more residential feel is gained through double pitching of the roof as well as through the use of sheeting which matches the styling of the surrounding residential buildings. Optimal sunlight penetration is achieved for both summer and winter times, through optimal building orientation and extended overhang of the roofs. This in turn reduces heating and cooling load costs and increases the comfort of the residents and other occupants.

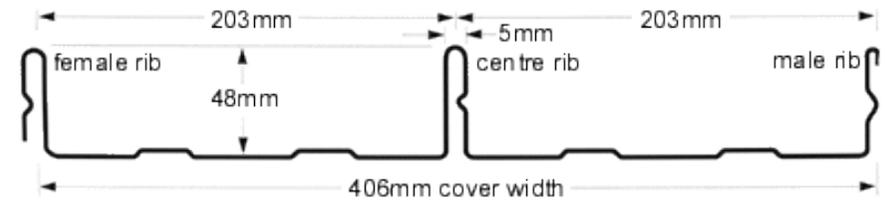


Figure 75 – cross section of Brownbuilt roof sections (Brownbuilt 2007)

5.8.1.2 Walls



Figure 76 - A view of the modelled brick and plaster finish for the dormitory buildings

Material: Plastered and off-white painted masonry walls with sections of red face brick.

Style: Stretcher bond is to be applied throughout with selected focal areas to have decorative brickwork and alternate bond styles such as stacked.

Application of principles and experiences: The use of face brick portions and plastered portions, which are common residential construction materials, further lend a residential feel to the buildings. In combination, they create an aesthetically appealing texture and finish to the buildings. Face brick also has low maintenance requirements, so when it comes to repainting this only has to be done to part of the facility.



Figure 77 – Photographs of various brick bonds (photos by author)

5.8.1.3 Windows

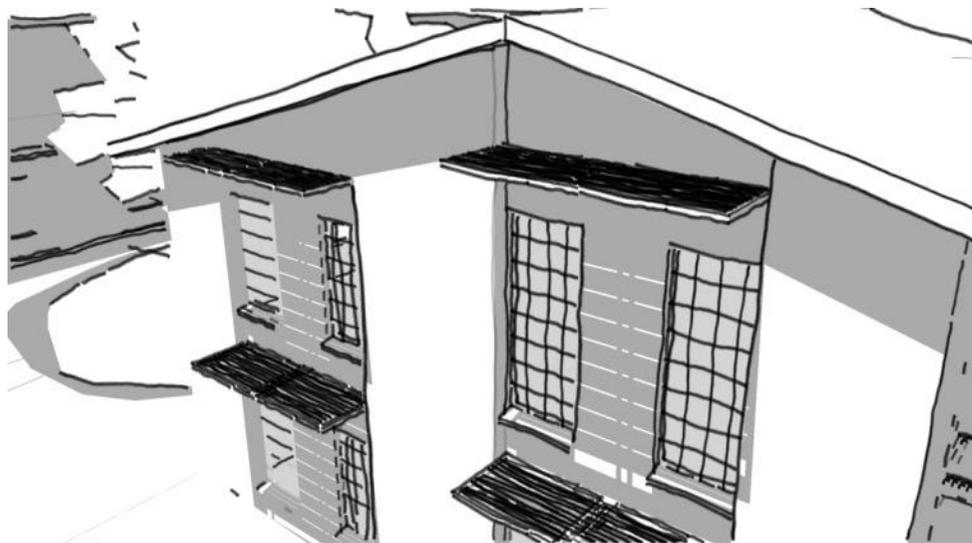


Figure 78 - A modelled view of the cottage pane windows used in the facility

Material: Steel frames. Safety glass to be used in the dormitories and therapy centre.

Style: Cottage pane with opening and fixed sections. Limited openings for windows accessible to residents, especially on the upper floor.

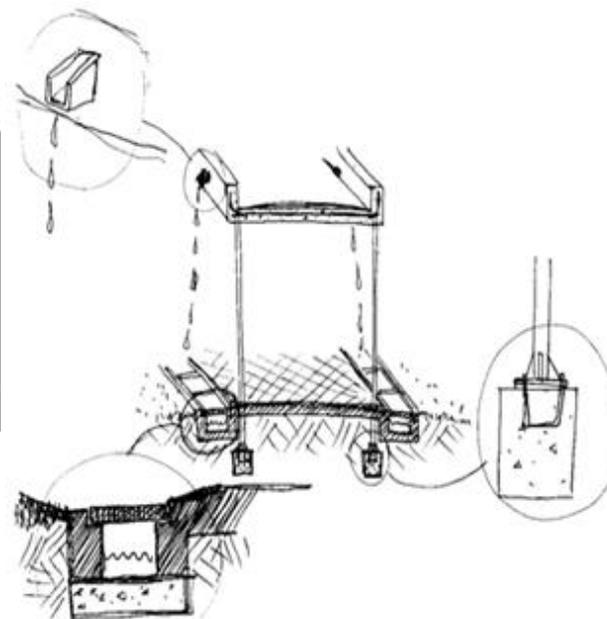
Shading louvers: Shading louvers will be applied where required to prevent excess sunlight penetration during the summer months.

Sizing and placement: Window areas are large and tall to maximise sunlight and views outside. Frames are to be set low in the wall to allow wheel chair bound residences to see outside.

Application of principles and experiences: Large and accessible windows ensure

that residents can get maximum sensory stimulation through exposure to adequate natural light as well as to maintain a connection to the natural environment. The use of cottage pane windows allows for security bars to be part of the overall design of the windows as opposed to accentuating their presence.

Figure 79 - Cross section sketch illustrating concept of the concrete walkway with foundation and drainage detail



5.8.1.4 Walkway

Material: Reinforced concrete roof on round steel tube pillars. Brick paved ground floor walkways.

Finish: Off-shutter concrete. Painted steel columns.

Safety: Elevated walkway has steel vertical bar balustrades.

Drainage: Drainage points will be located along the walkway roof. These will feed into steel grate-

covered gutters on either side of the walkway. This water is channelled along the walkway and eventually into the retention pond.

Application of principles and experiences: The use of concrete for the construction of the walkways makes it a strong and defined element within the architecture and differentiates it from the brick and plaster of the surrounding buildings. This makes navigation of the facility through the walkways clearer and more intuitive. The covered walkway also protects the user from the outdoor elements making movement within the facility comfortable and possible under most weather conditions. The use of round as opposed to more angled profile pillars reduces the likelihood of a serious injury if anyone were to fall against them. The walkway also serves the secondary purpose of rainwater collection and channelling it to the retention pond in the northwest corner of the site.

5.8.2 Design overview

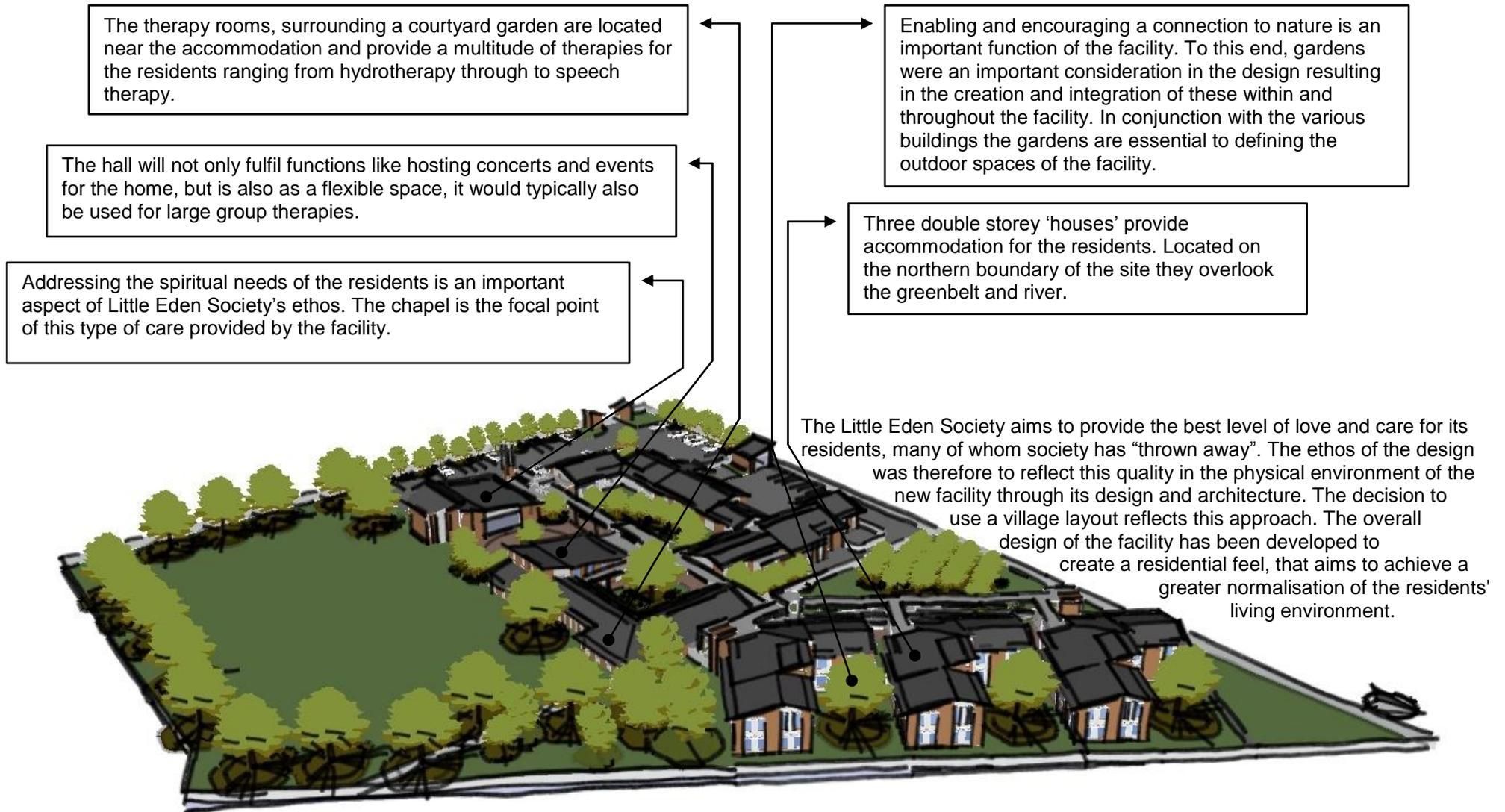


Figure 80 – A view of the modelled facility from the northern end of the site

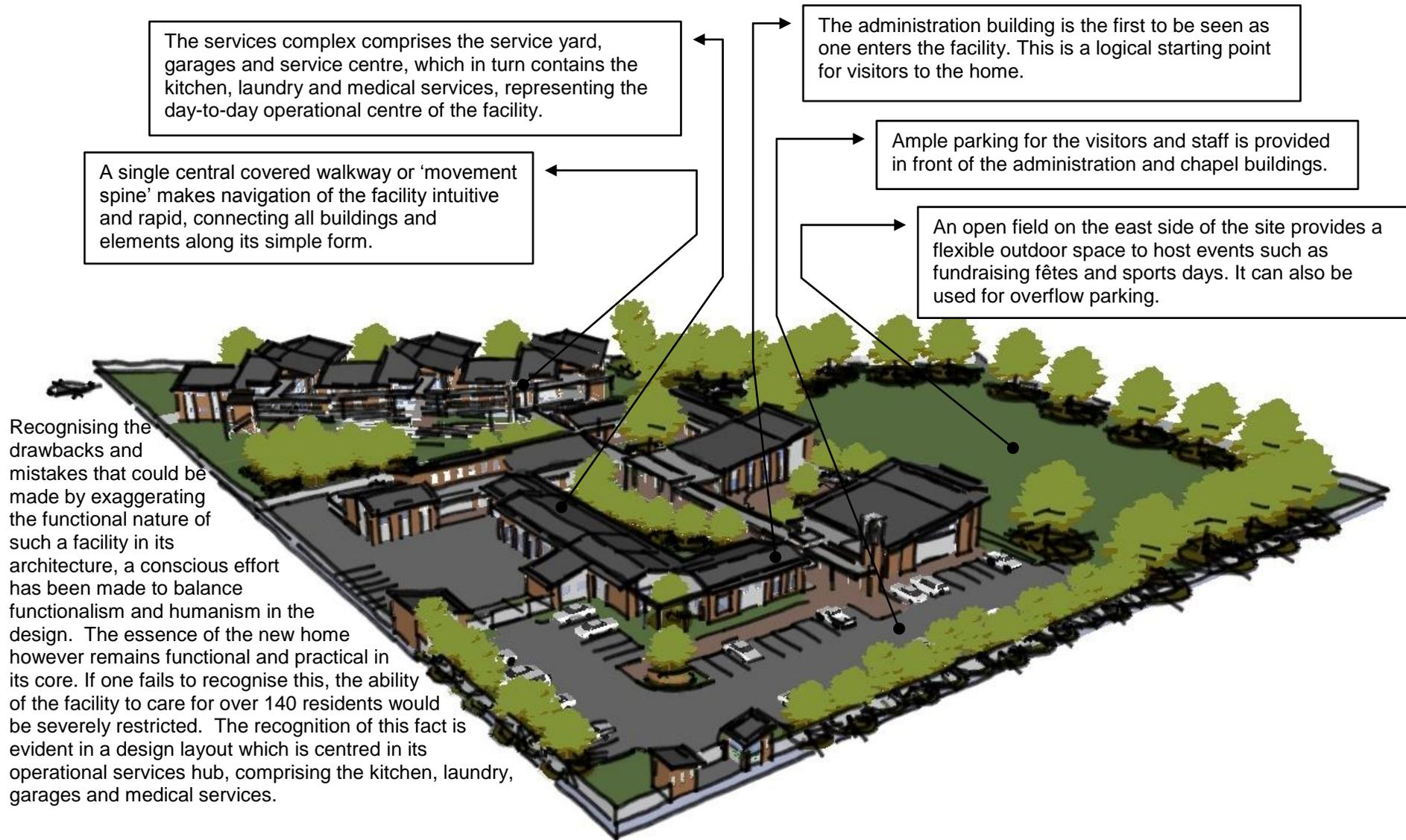


Figure 81 – A modelled view from the south west corner of the site



Figure 82 – Various modelled views of the facility: (a) a top or roof view (b) a view from the western side of the site (c) a view from the eastern side of the site



Figure 83 – Locality plan

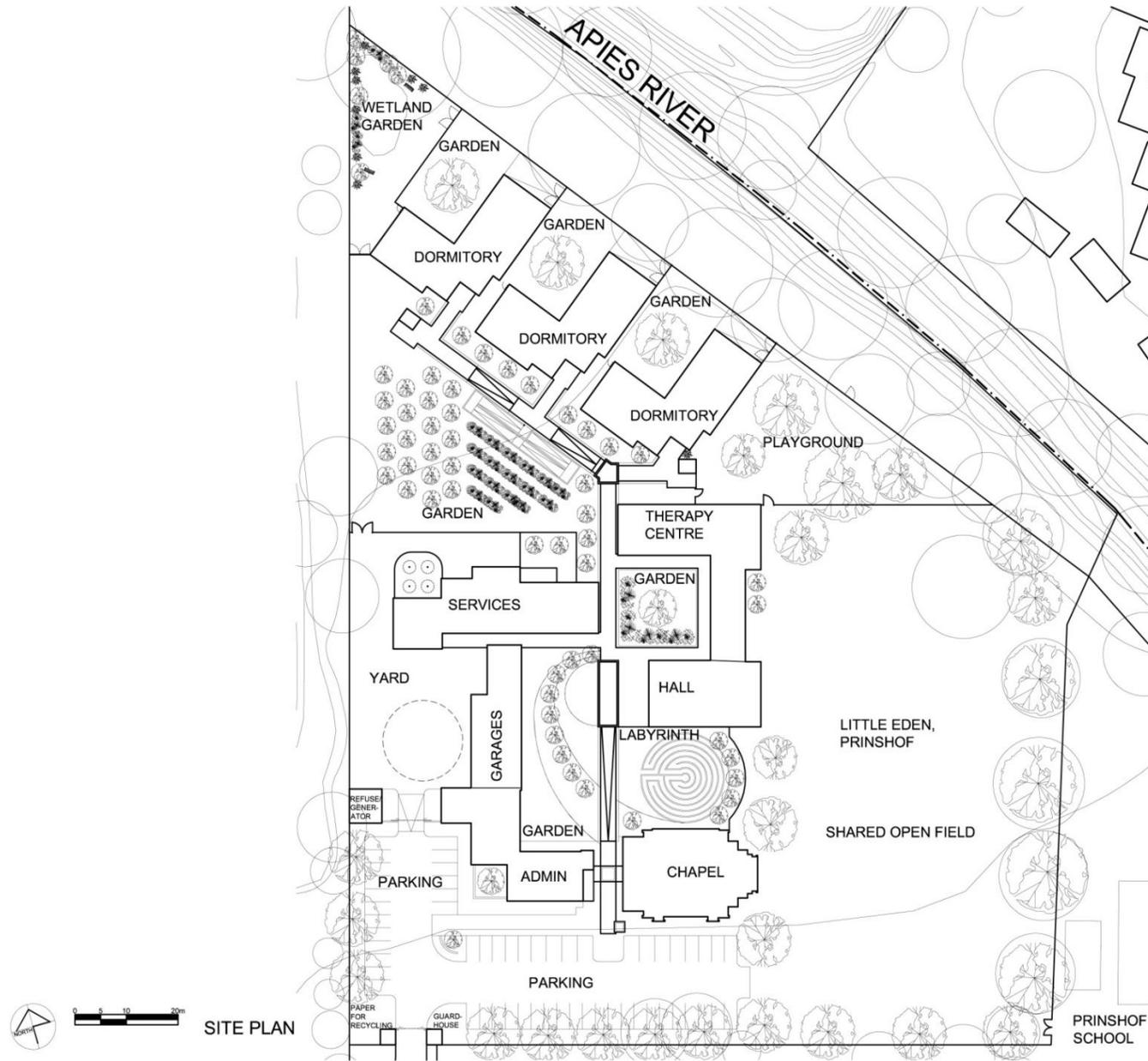


Figure 84 – Site plan



Figure 85 – North elevation

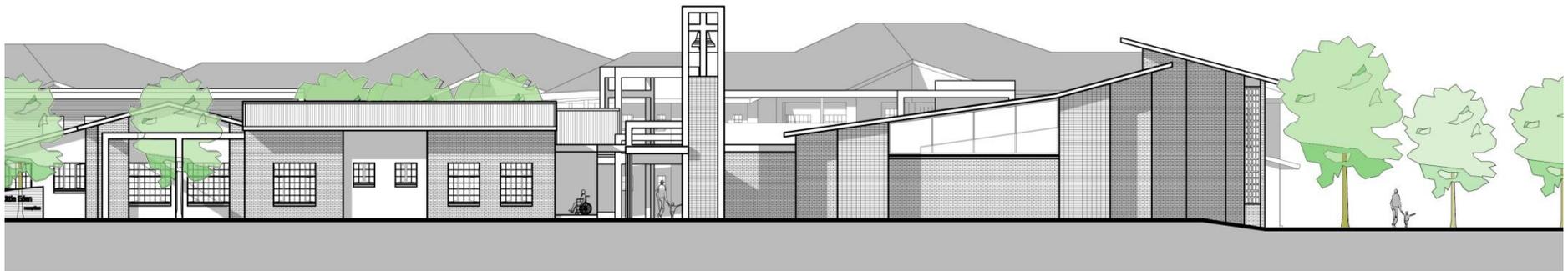
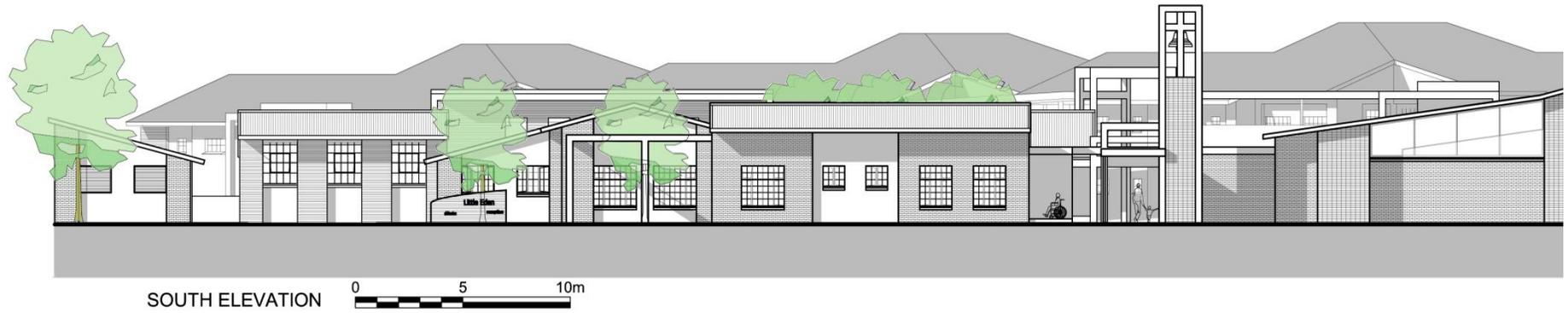


Figure 86 – South elevation

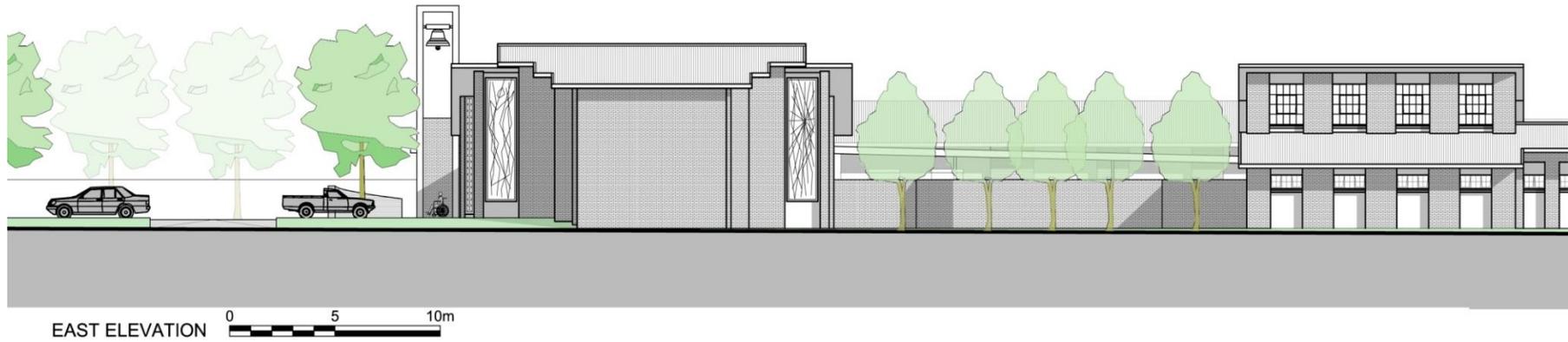


Figure 87 – East elevation



Figure 88 – West elevation

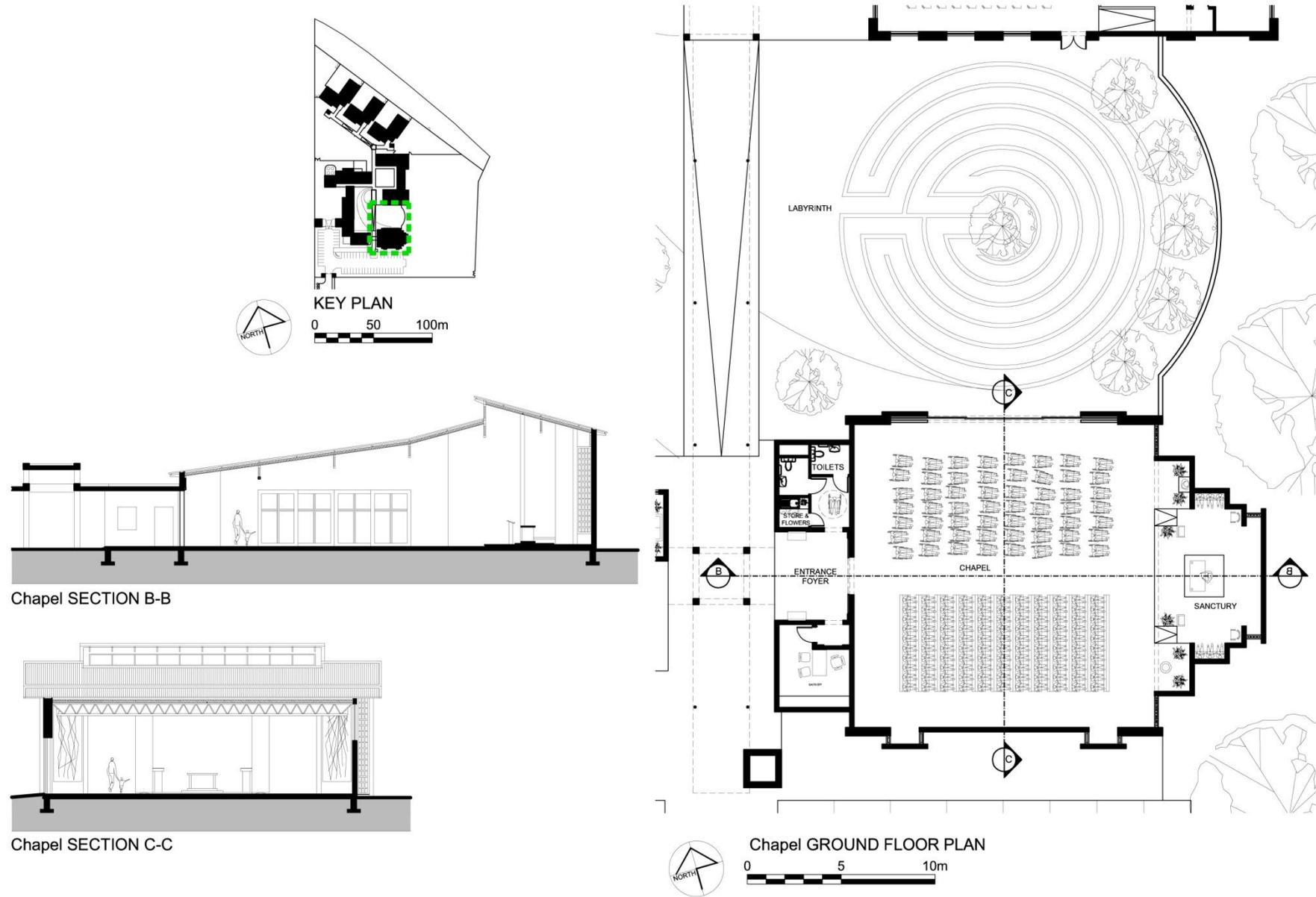


Figure 89 – Chapel plan

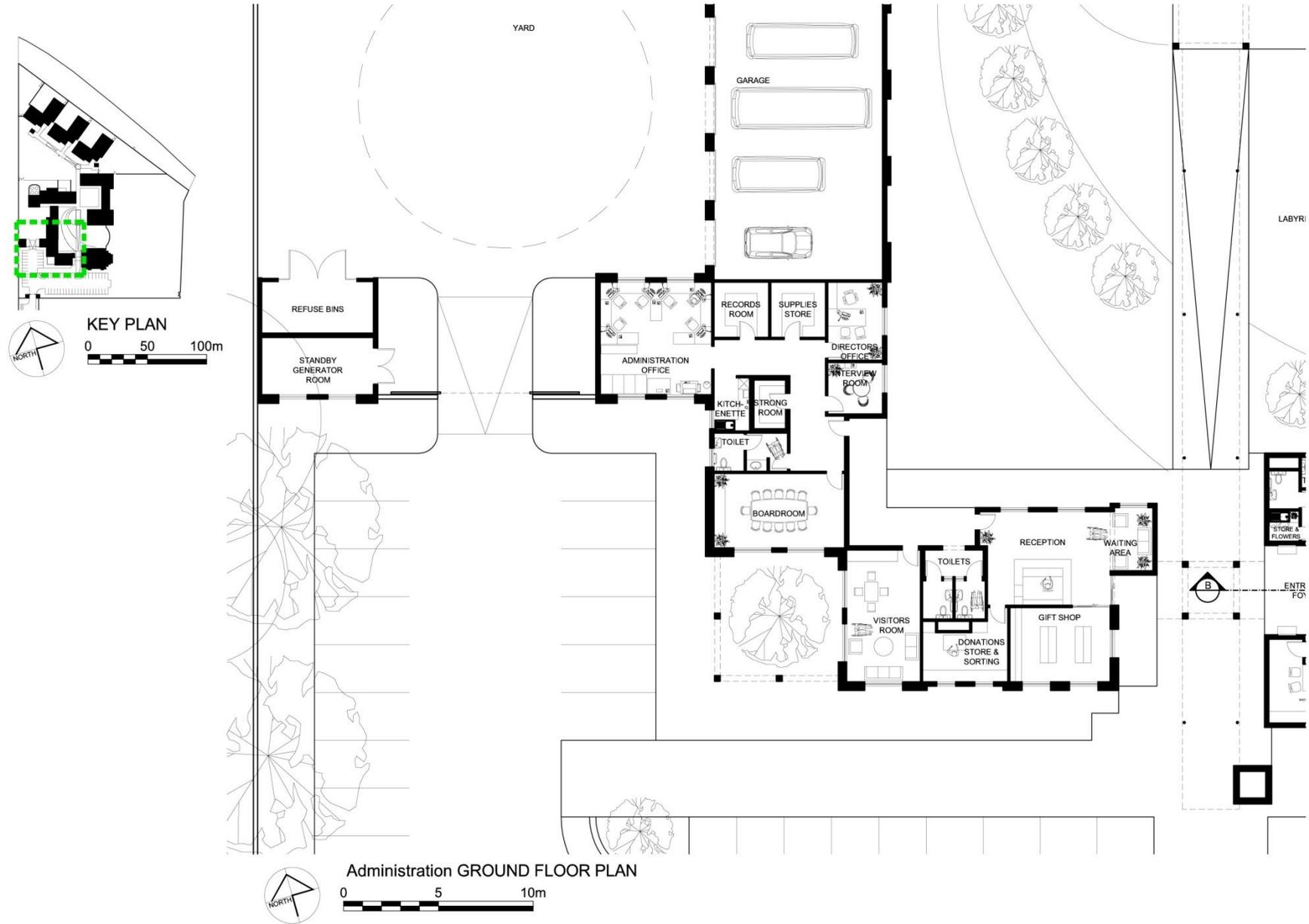


Figure 90 – Administration plan

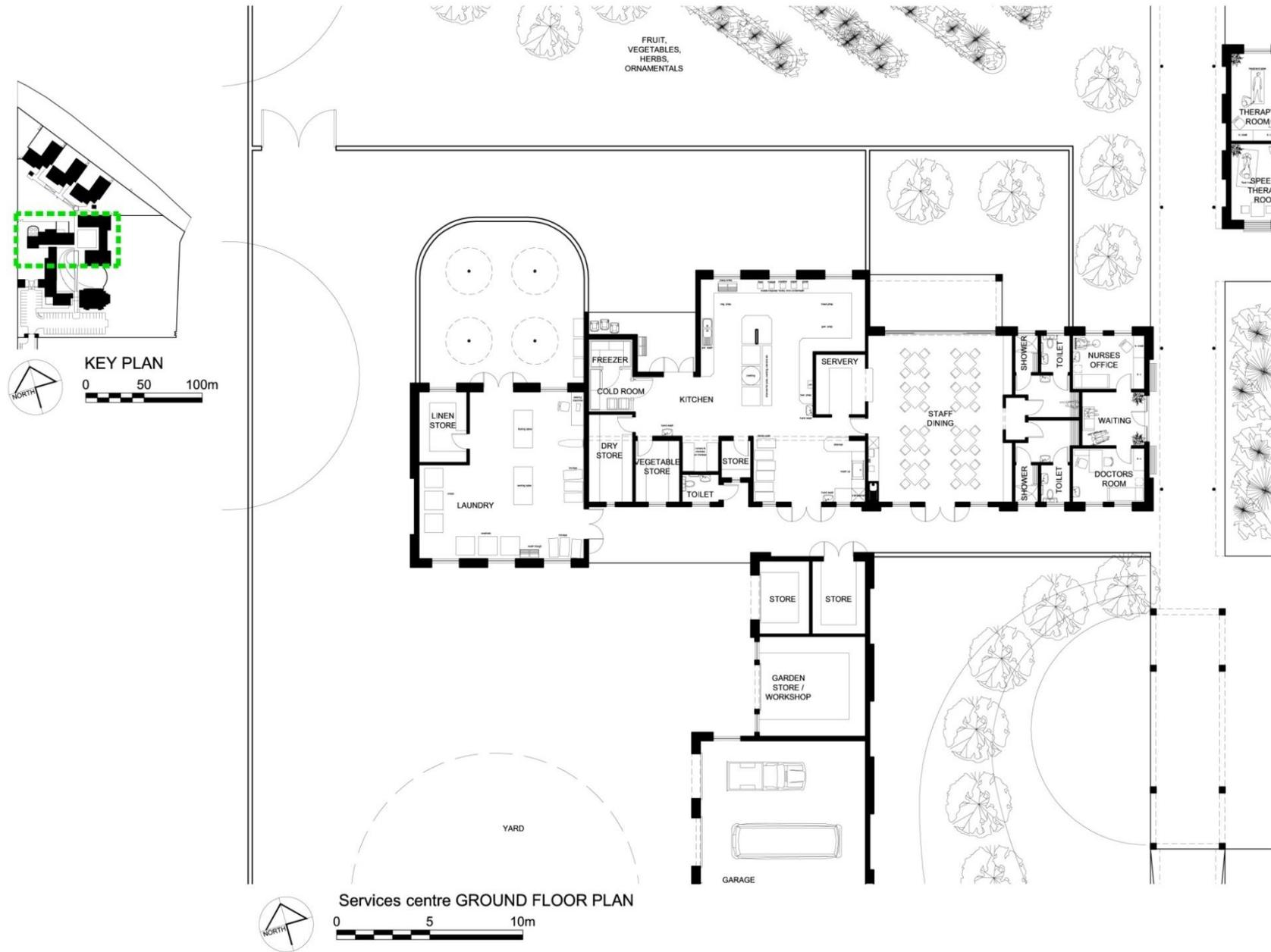


Figure 91 – Service centre plan

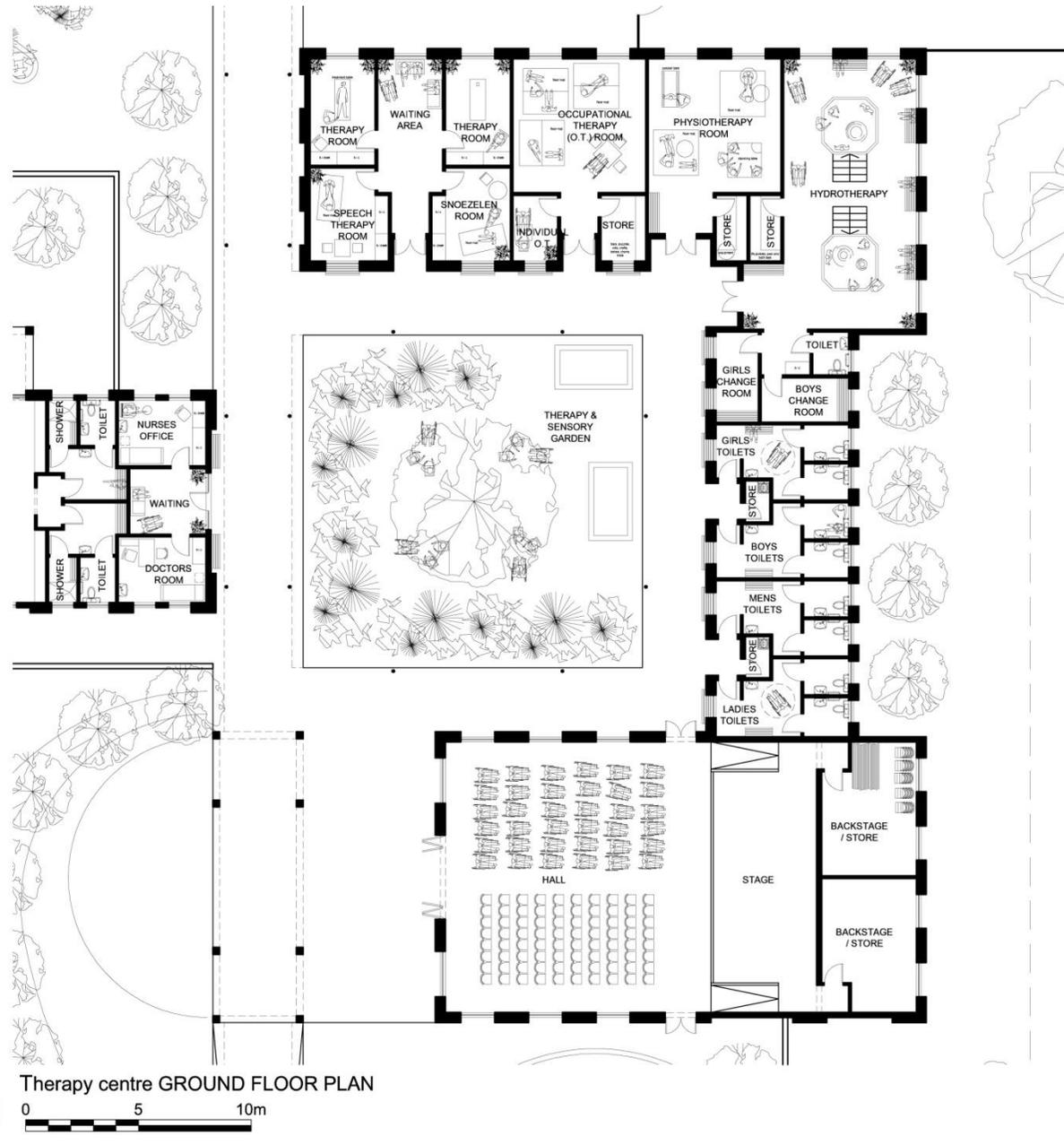
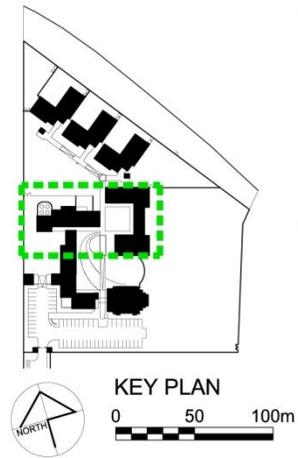


Figure 92 – Therapy centre plan



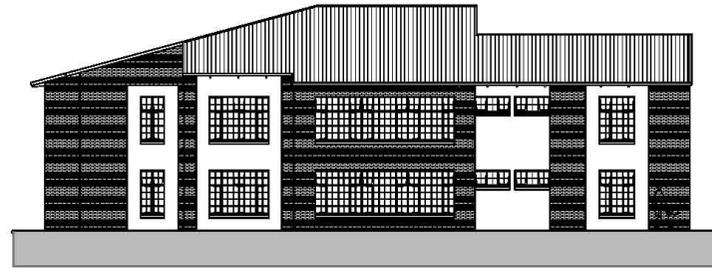
Figure 93 – Dormitory ground floor plan



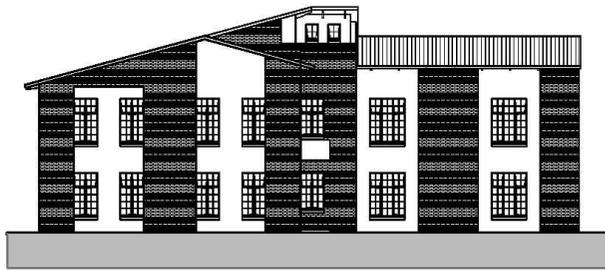
Figure 94 – Dormitory first floor plan



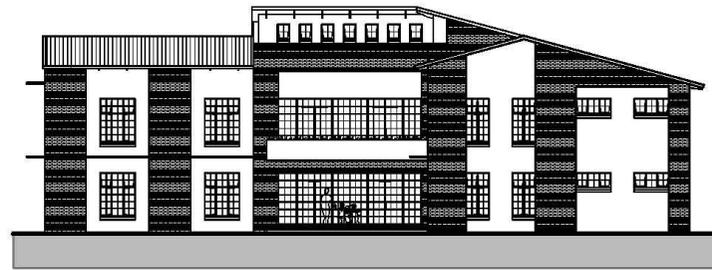
Dormitory SOUTH-WEST ELEVATION



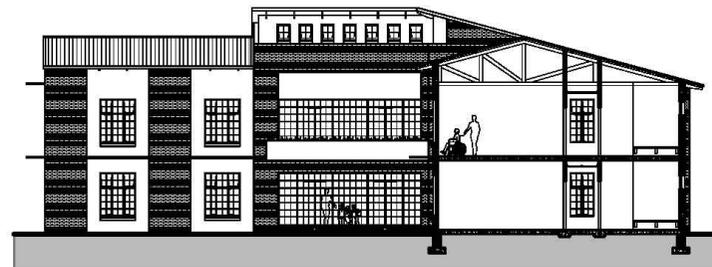
Dormitory SOUTH-EAST ELEVATION



Dormitory NORTH-EAST ELEVATION



Dormitory NORTH-WEST ELEVATION



Dormitory SECTION A-A

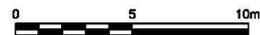


Figure 95 – Dormitory elevations and sections



Figure 96 – Render of the west side of the western dormitory



Figure 97 - Render of the walkway and terraced garden with the chapel in the background



Figure 98 – Render of the south side of the chapel



Figure 99 - Render of the entrance and administration building with chapel in the background



Figure 100 - Render of the therapy centre and hall courtyard

5.8.3 Administration

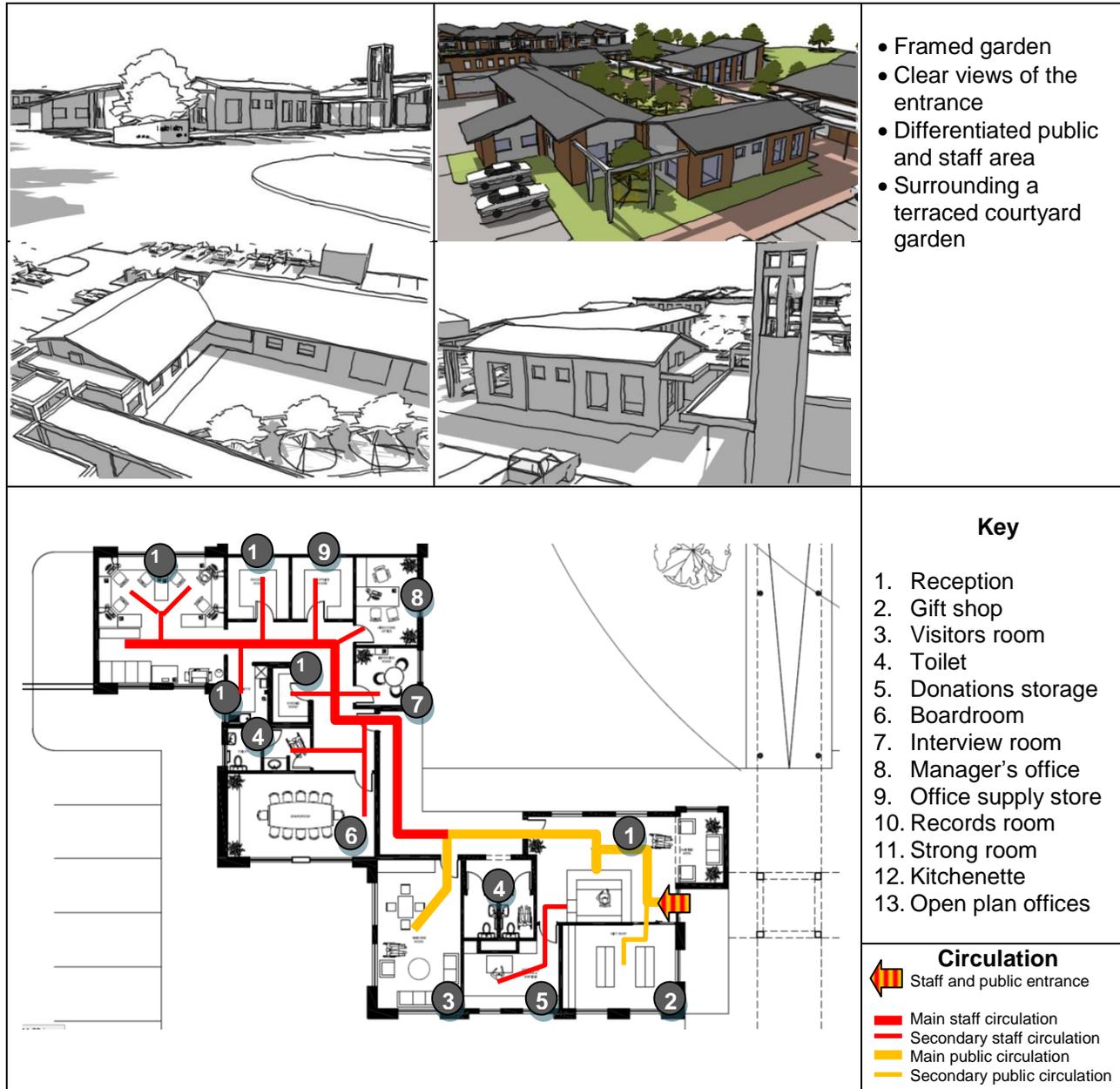


Figure 101 – Overview of the designs and layout of the administration building

5.8.4 Chapel

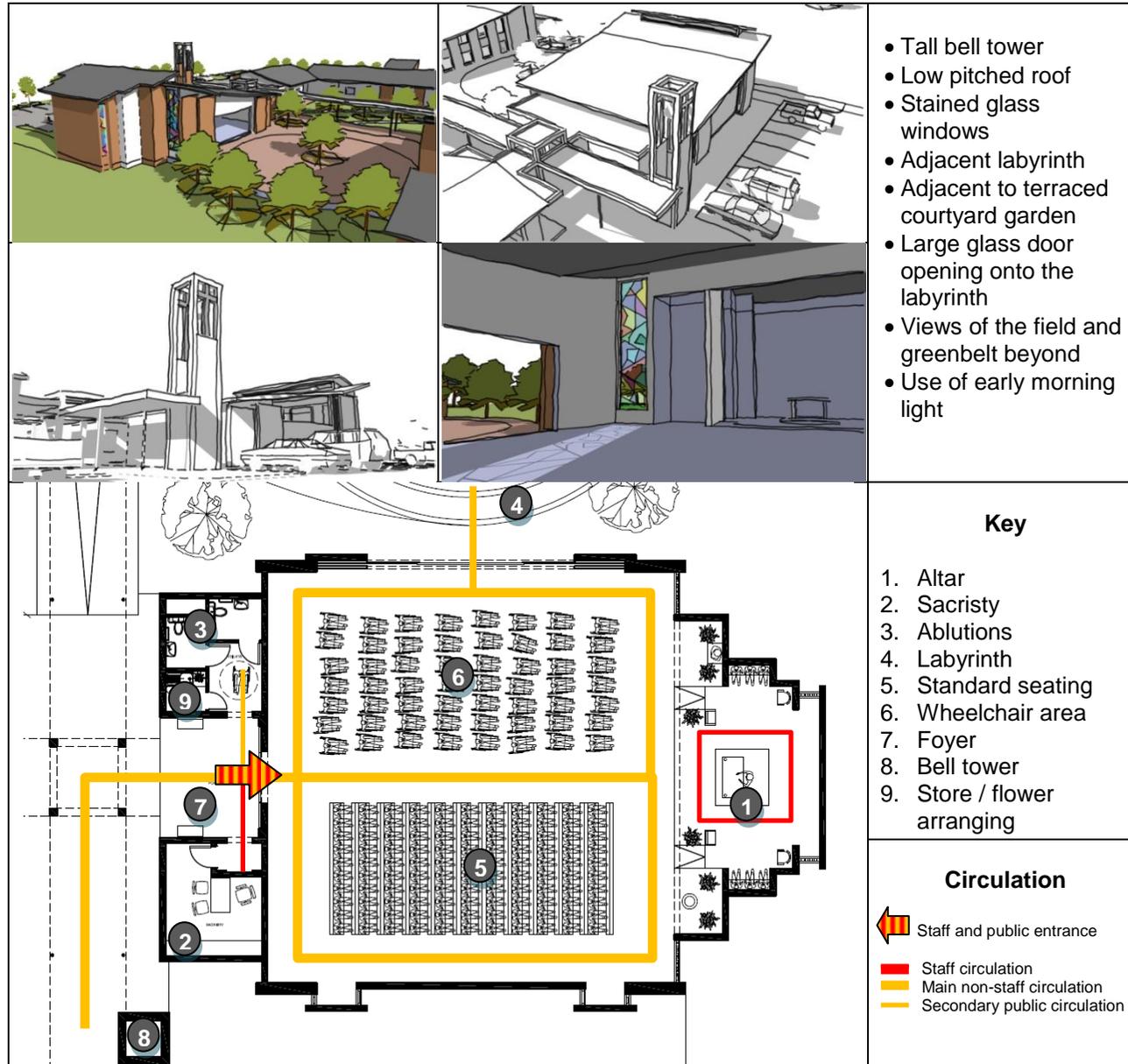


Figure 102 - Overview of the designs and layout of the chapel

5.8.5 Hall

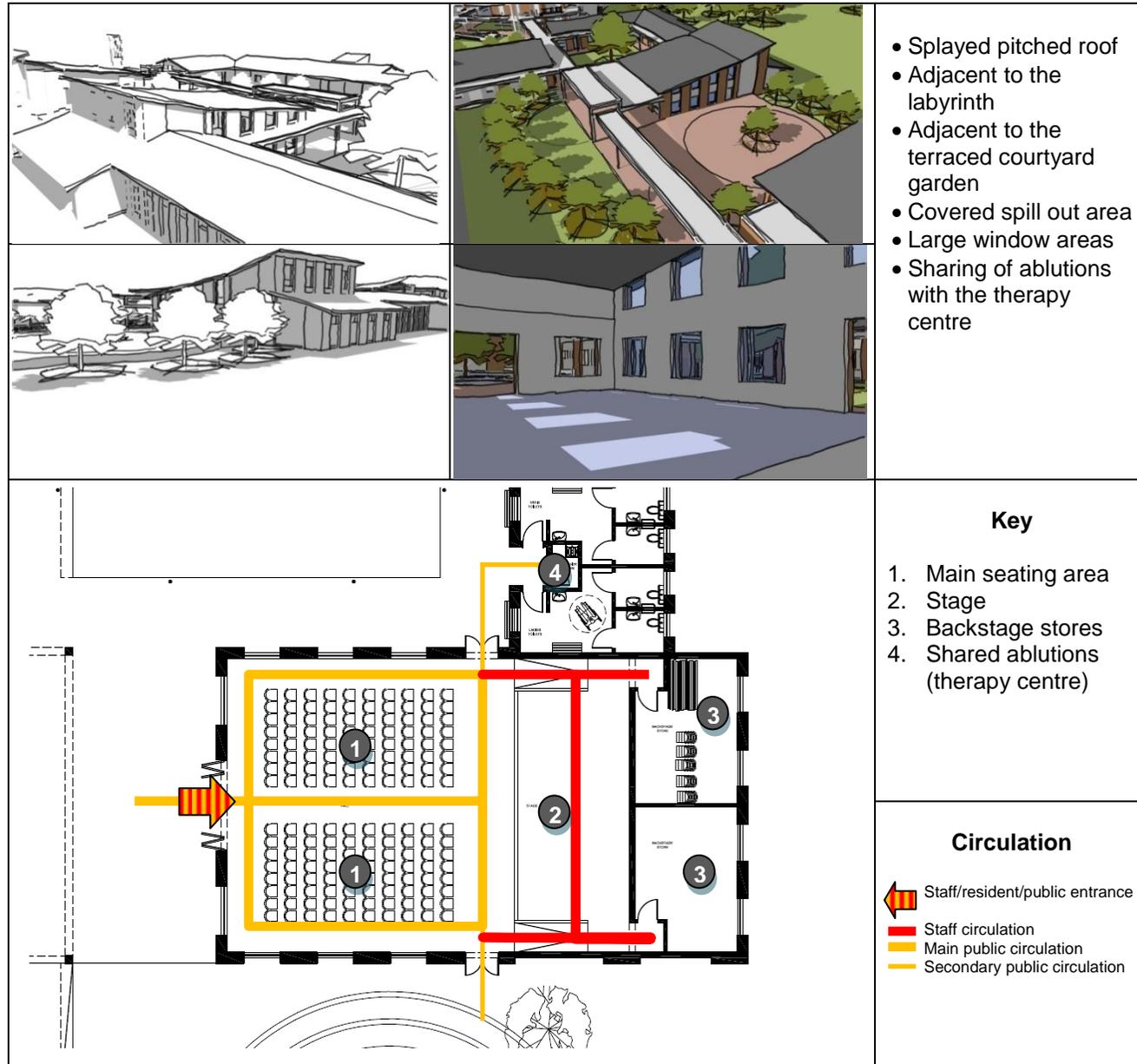


Figure 103 - Overview of the designs and layout of the hall

5.8.6 Therapy centre

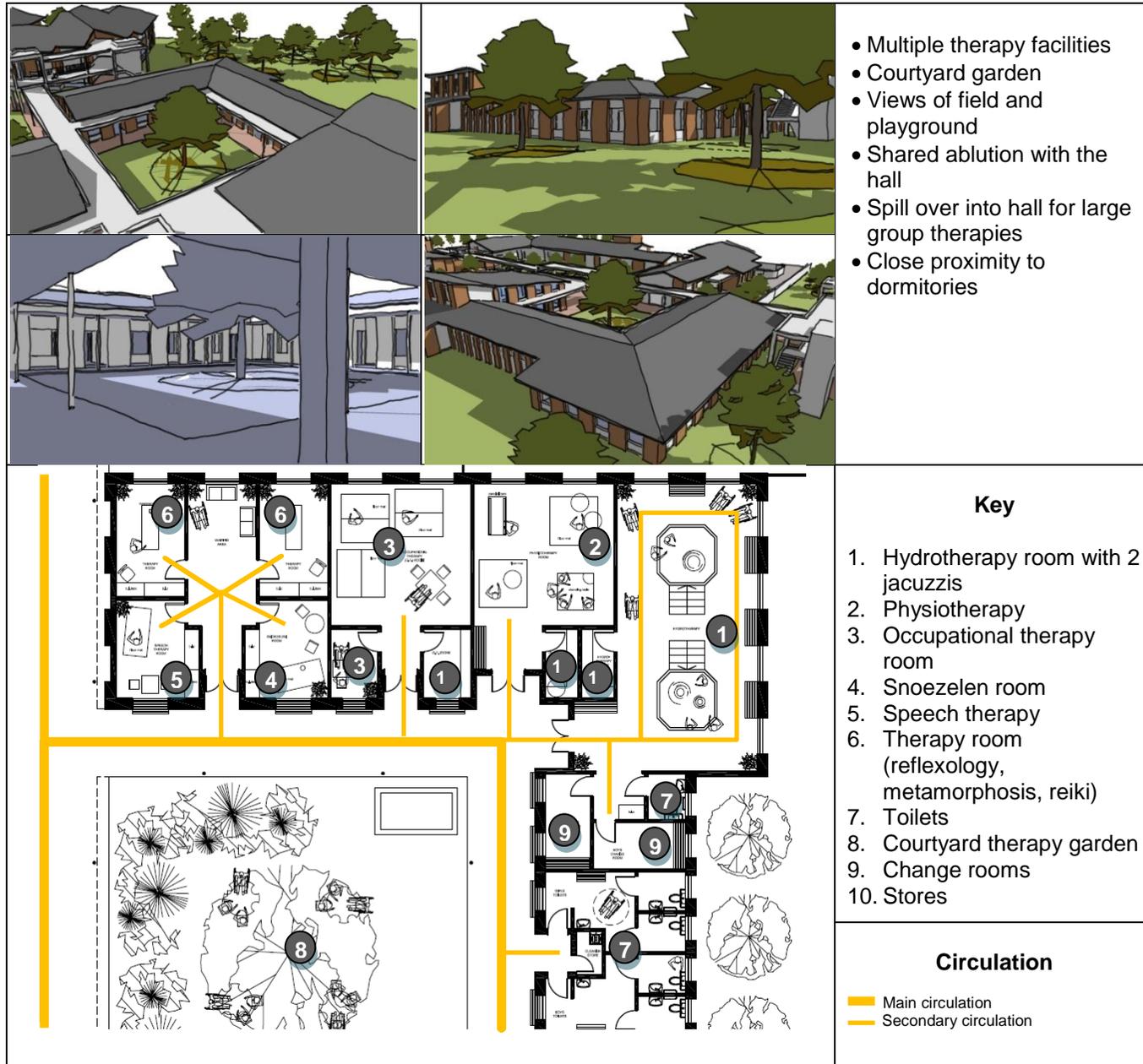


Figure 104 - Overview of the designs and layout of the therapy centre

5.8.7 Garage and service yard

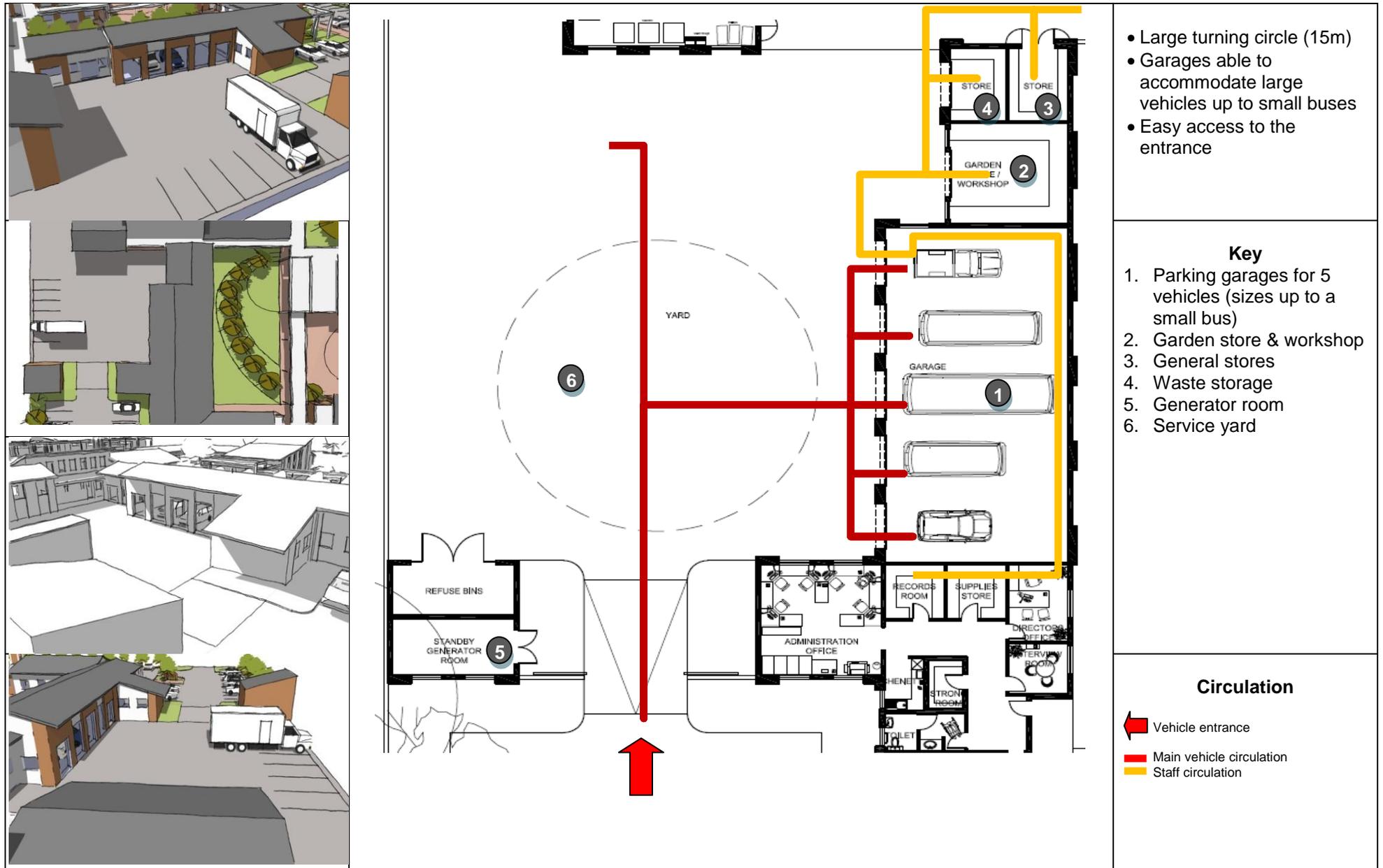


Figure 105 - Overview of the designs and layout of the garage and service yard

5.8.8 Services

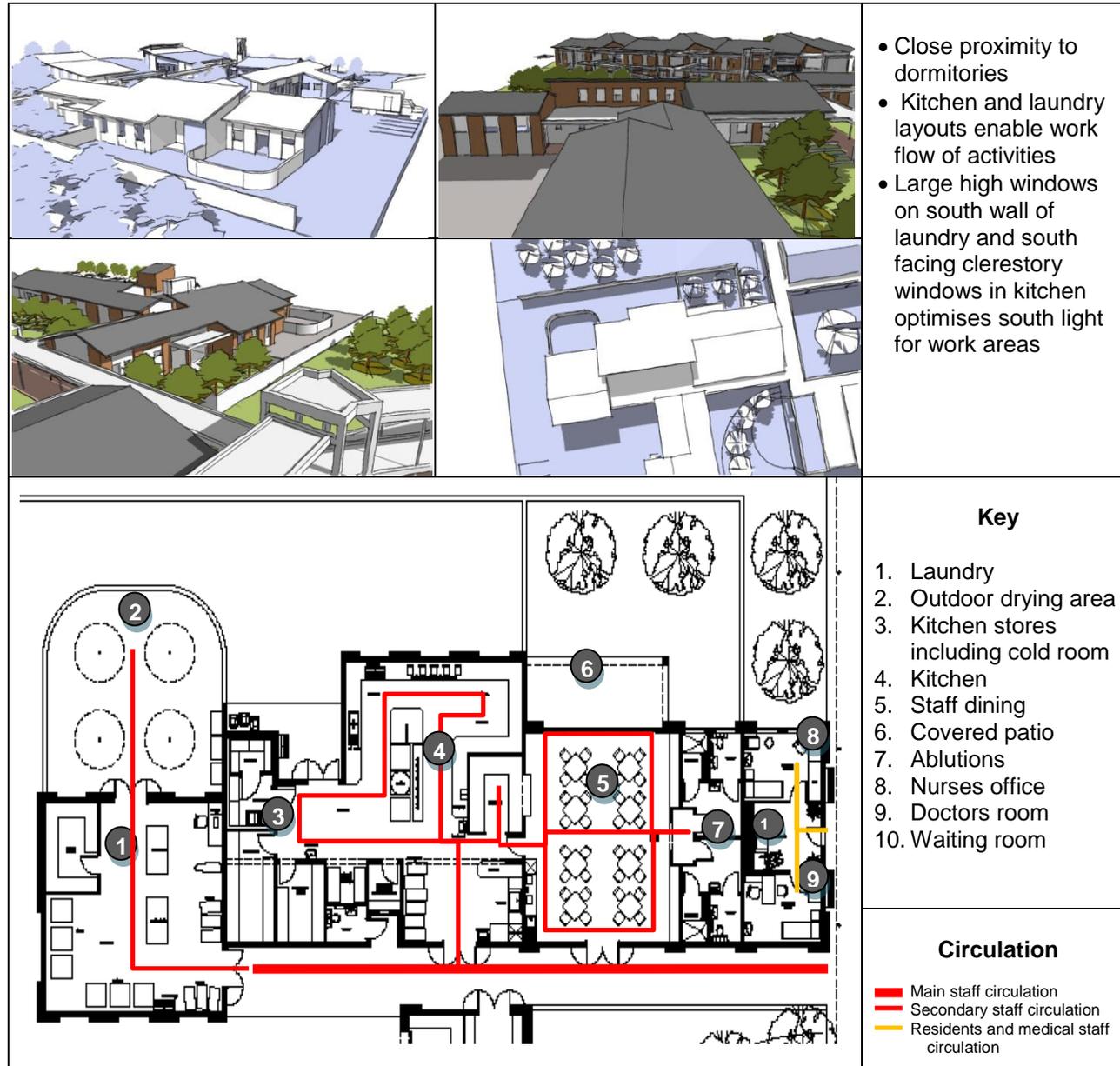


Figure 106 - Overview of the designs and layout of the services centre

5.8.9 Dormitories



Figure 107 - Overview of the designs and layout of the ground floor of the dormitories



Figure 108 - Overview of the designs and layout of the first floor of the dormitories

5.8.10 Walkway

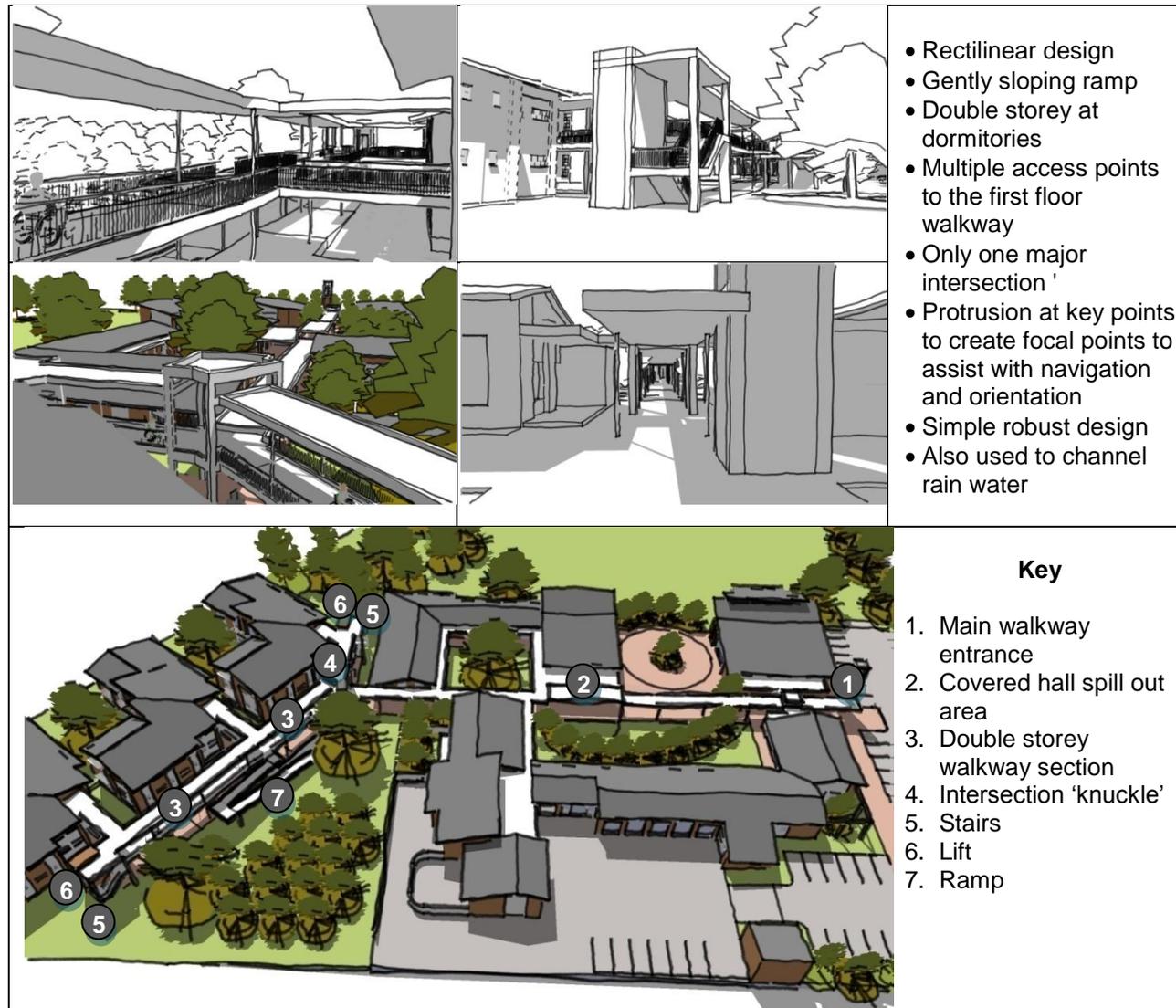


Figure 109 - Overview of the designs and layout of the covered walkway

5.8.11 Gardens

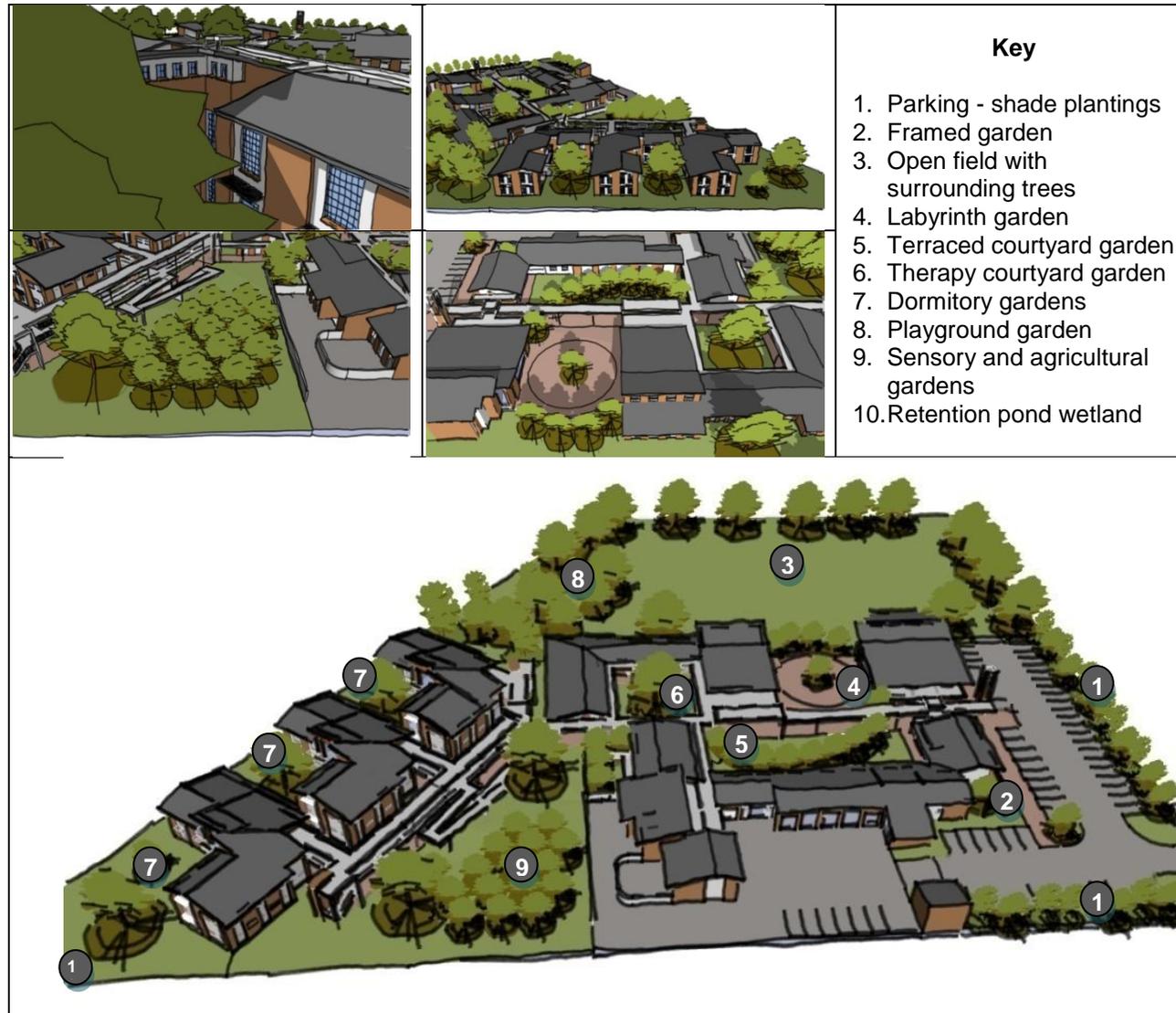


Figure 110 - Overview of the design and layout of the gardens

5.9 Application of design principles

5.9.1 Residents' needs first

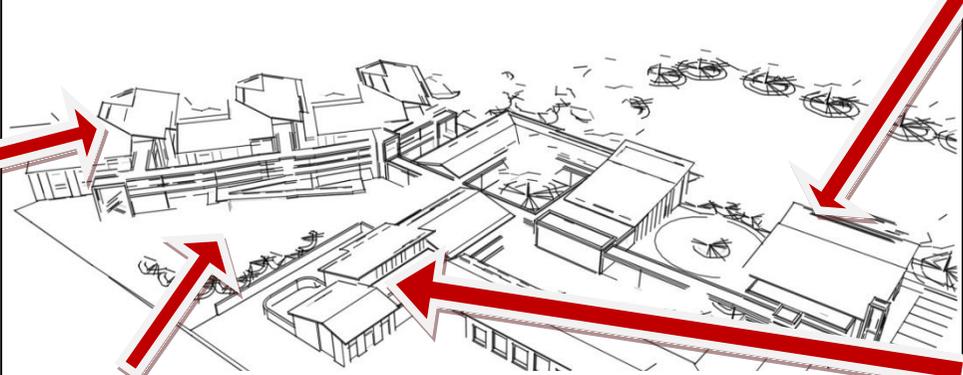
| | | | |
|---|--|--|--|
|  | <p>Therapy centre: The therapy centre will provide the necessary group and individual therapies for the residents including:</p> <ul style="list-style-type: none"> • Hydrotherapy - making use of the two jacuzzis • Physiotherapy • Occupational therapy • Speech therapy • Reflexology, metamorphosis, reiki • snoezelen room (see appendix) |  | <p>Chapel and labyrinth: The chapel will provide for the residents' spiritual needs through daily prayers and weekly services. The labyrinth outside the chapel is used as a spiritual and calming therapy.</p> |
| <p>Accommodation: The accommodation for the residents will be housed entirely within the three dormitory houses. The houses contain bedroom and dormitories for between two to five people. They also contain the necessary ablutions and support facilities like nappy change rooms. The day room functions as their dining room and living room where the residents would spend their time during the day when not engaged in external activities.</p> |  |  | <p>Services: The services centre provides for the food preparation services of the residents and staff. It also houses the laundry with industrial washers, dryers and outside hanging lines for washing and drying the resident's linen, clothes and nappies. The doctor's room and nurses office located closest to the main walkway will provide 24 hour medical services and care for the patients.</p> |
|  | <p>Horticultural gardens: There are gardens located throughout the facility, but those directly behind the dormitories, the orchard and vegetable garden, will specifically be used for sensory and horticultural therapy for the residents. The residents will also help cultivate the garden, which will include raised planters for access from wheelchairs.</p> |  | |

Figure 111 – Application of principles: addressing the residents' needs (1/3)

| | | | | | |
|---|--|--|---|--|--|
| <p>Sensory gardens: Gardens are situated throughout the facility including adjacent to walkways. This makes commuting between buildings and the outdoors play activities a sensory experience as residents observe, touch, hear and smell the vegetation around them.</p> |  |  | <p>Clear and simple navigation: Buildings and especially the main walkways have been designed to have linear and clean forms, without hidden corners and turns. The use of concrete for the walkway also differentiates it from the other buildings making it easy to discern and follow</p> |  | |
|  |  | <p>Connection with nature: Being in close proximity to, or interacting with the natural environment, has many therapeutic benefits for the residents. To enhance this connection with nature gardens and trees are situated around the dormitories. The dormitories were also intentionally placed on the northern boundaries of the site, facing north, to take advantage of the sights and sounds of the green belt, ridge and river.</p> | | | |
| <p>Open and bright environments: Many of the doors in the home especially in the dormitories are cottage pane. This combined with windows, which are intentionally larger; create spaces which are more open, better ventilated and brighter. Residents benefit greatly from increased natural light exposure.</p> |  |  | <p>Enhanced building accessibility: Mechanisms such as elevators and ramps make access to all parts of the facility by staff and residents possible, notwithstanding the disability they may experience.</p> |  |  |

Figure 112 – Application of principles: addressing the residents’ needs (2/3)

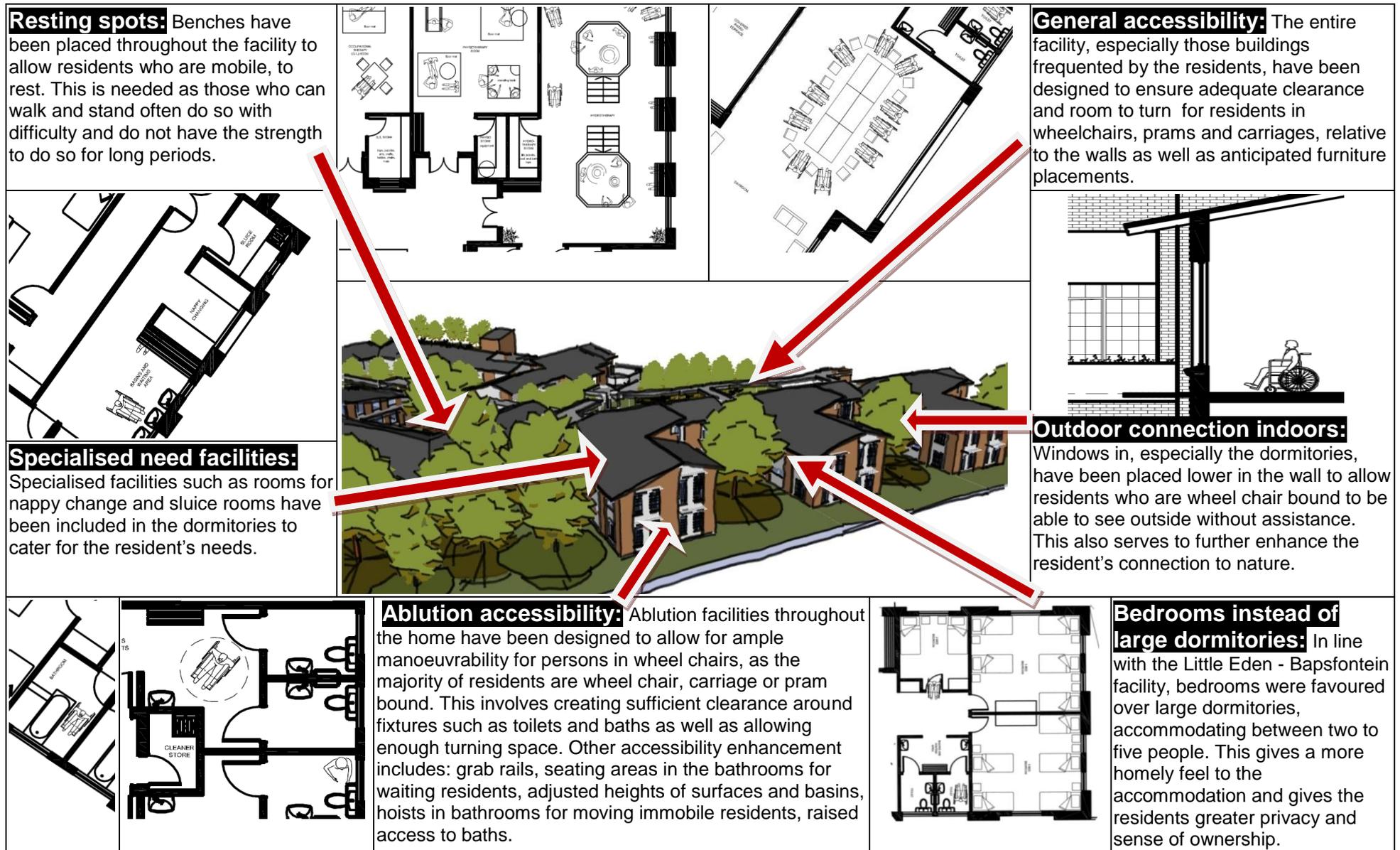


Figure 113 - Application of principles: addressing the resident's needs (3/3)

5.9.2 Secure but open environment

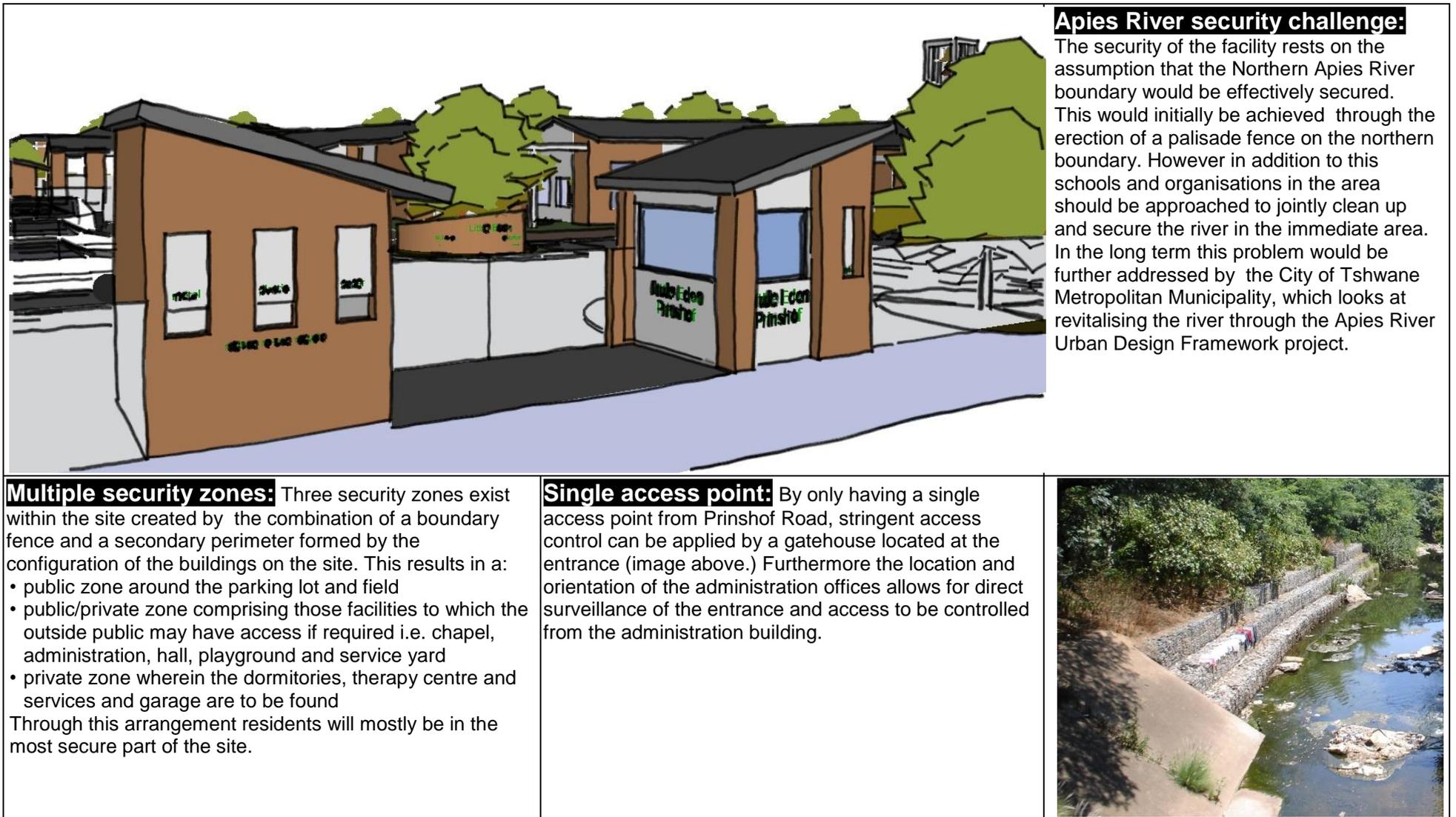


Figure 114 - Application of principles: secure but open environment

5.9.3 The safety of the residents

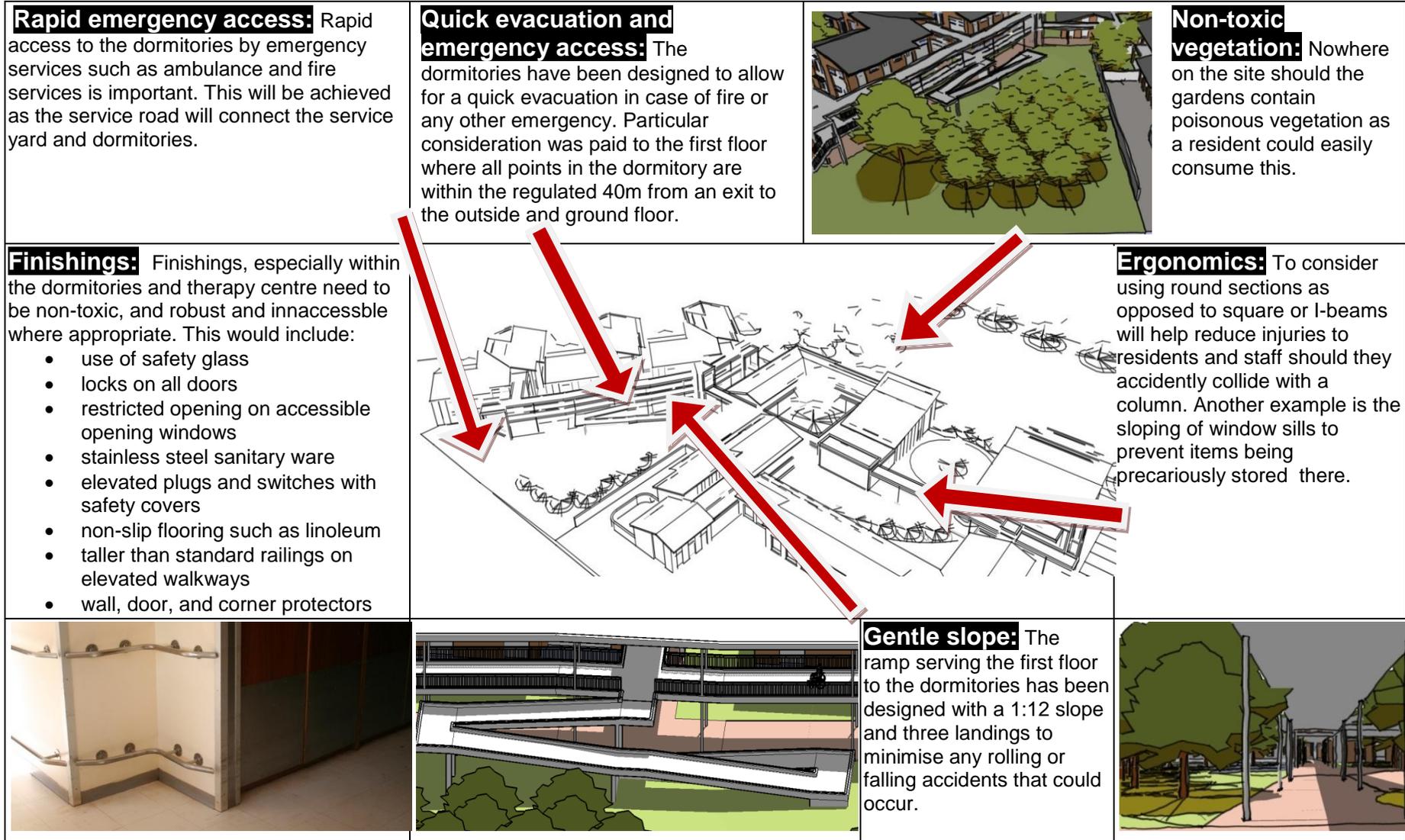


Figure 115 - Application of principles: safety of the residents

5.9.4 Practicality

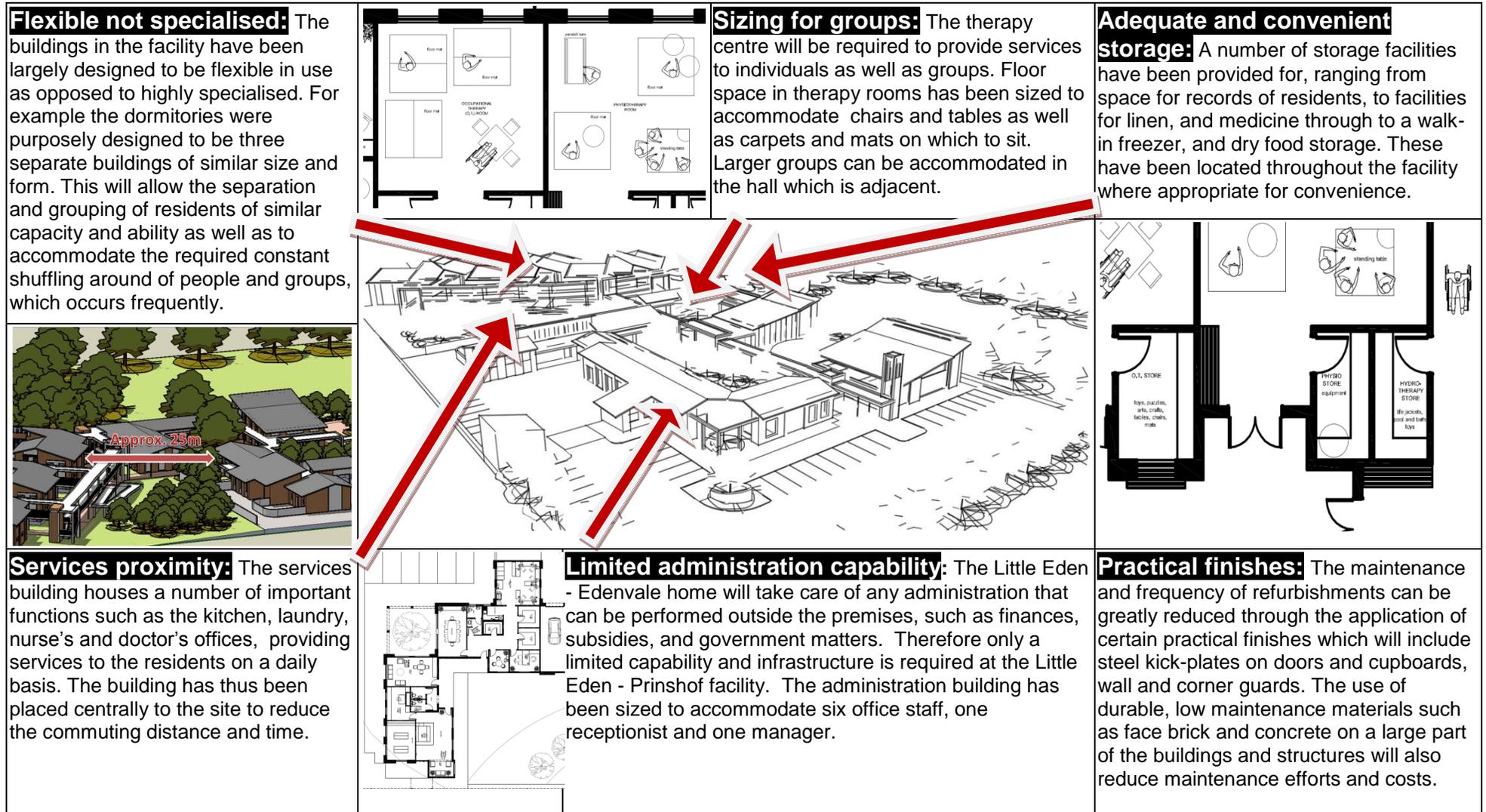


Figure 116 - Application of principles: practicality

5.9.5 The economy and environment

According to Slaviero(2007), the CEO of the Little Eden Society, “the relationship with the environment and caring for the environment is part of Little Eden’s functioning”. As a welfare organisation, the Little Eden Society is very cost sensitive. It is thus recognised that the economy of the facility, is in part, a function of its environmental impact, which translates directly into the cost of energy and other resources. Two green architecture practices have been integrated into the design of the new facility to reduce its environmental and economic impact:

1. passive heating, ventilation and cooling
2. a rainwater harvesting system.

5.9.5.1 Rainwater drainage and collection system

Rainwater catchment, drainage and storage systems have been integrated into the site layout and design to use circulation elements for collection and channelling of the rainwater. A retention pond is located in the northwest corner, the lowest part of the site. Catchment is achieved through collection of rainwater and run-off from the roofs of the various buildings and walkway. Most of the run-off water is channelled to the main walkway, which is easily achieved due to its proximity to the majority of the buildings in the facility. The main walkway’s layout is well shaped to channel the water to the retention pond adjacent to the most western dormitory. Rainwater from the garages, service yard and partly from the service centre and administration building is channelled using the emergency access on the western boundary down to the dormitories. The location of the retention pond has two advantages, (i) it can be used as a feature for the surrounding gardens and its location and (ii) proximity to the river allows for an easy solution to the problem of overflow.

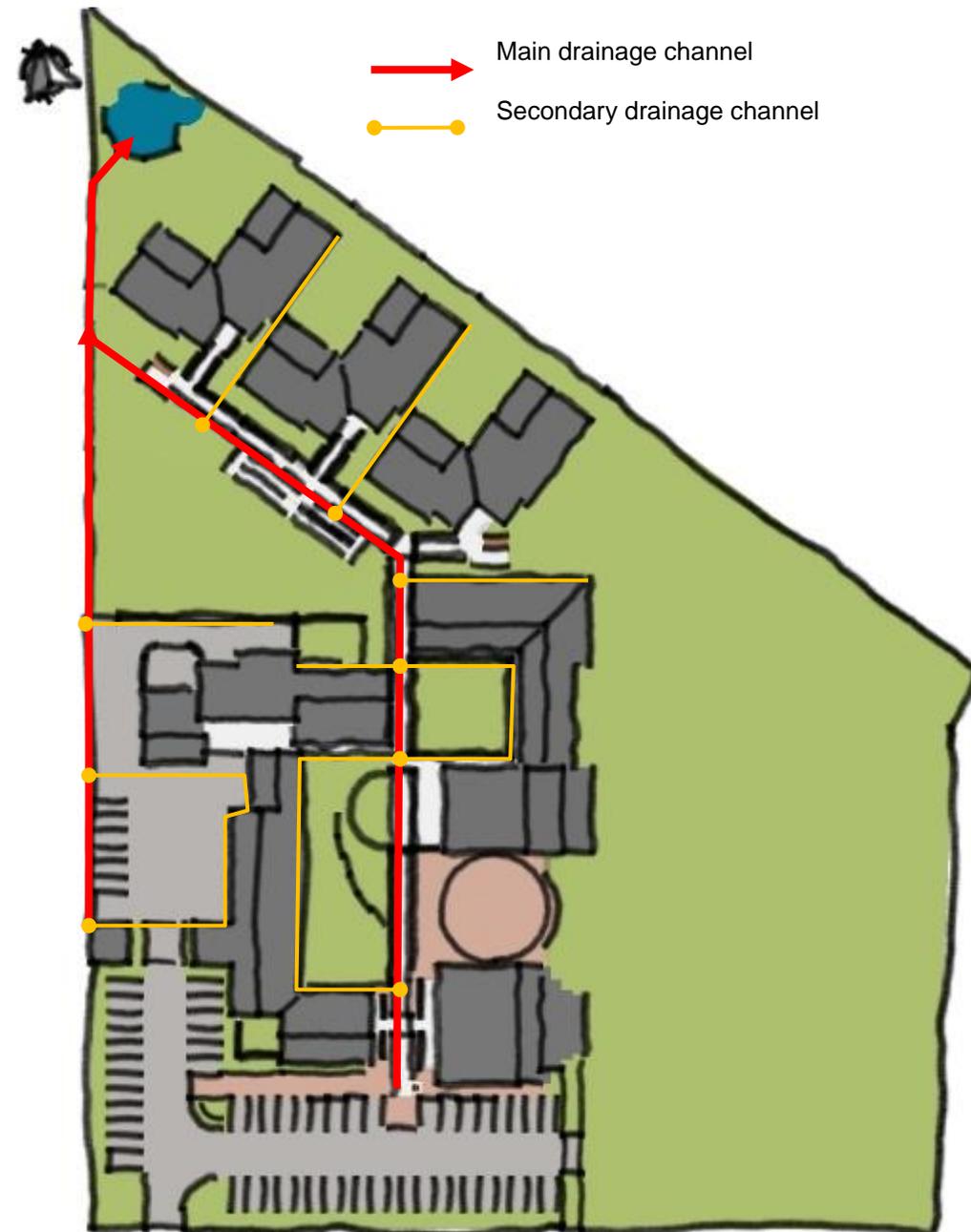


Figure 117 – The rain water drainage system

5.9.5.2 Passive climate control

Passive climate control elements have been integrated into the facility passive solar design of overhangs and louvered shading, tree shading, ventilation and solar water heaters. These mechanisms are illustrated and explained in Figure 118.

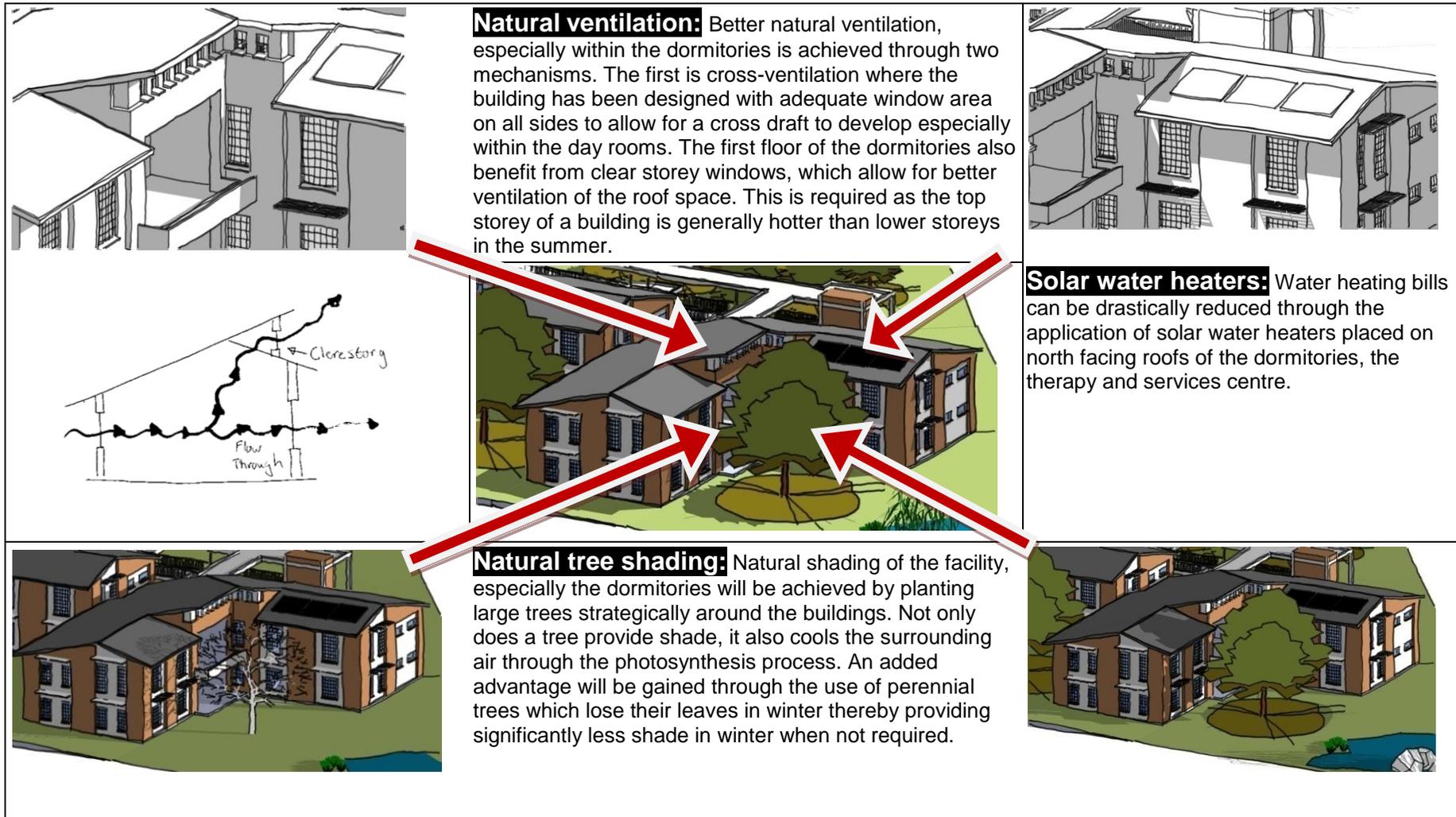


Figure 118 – Passive heating, ventilation and cooling

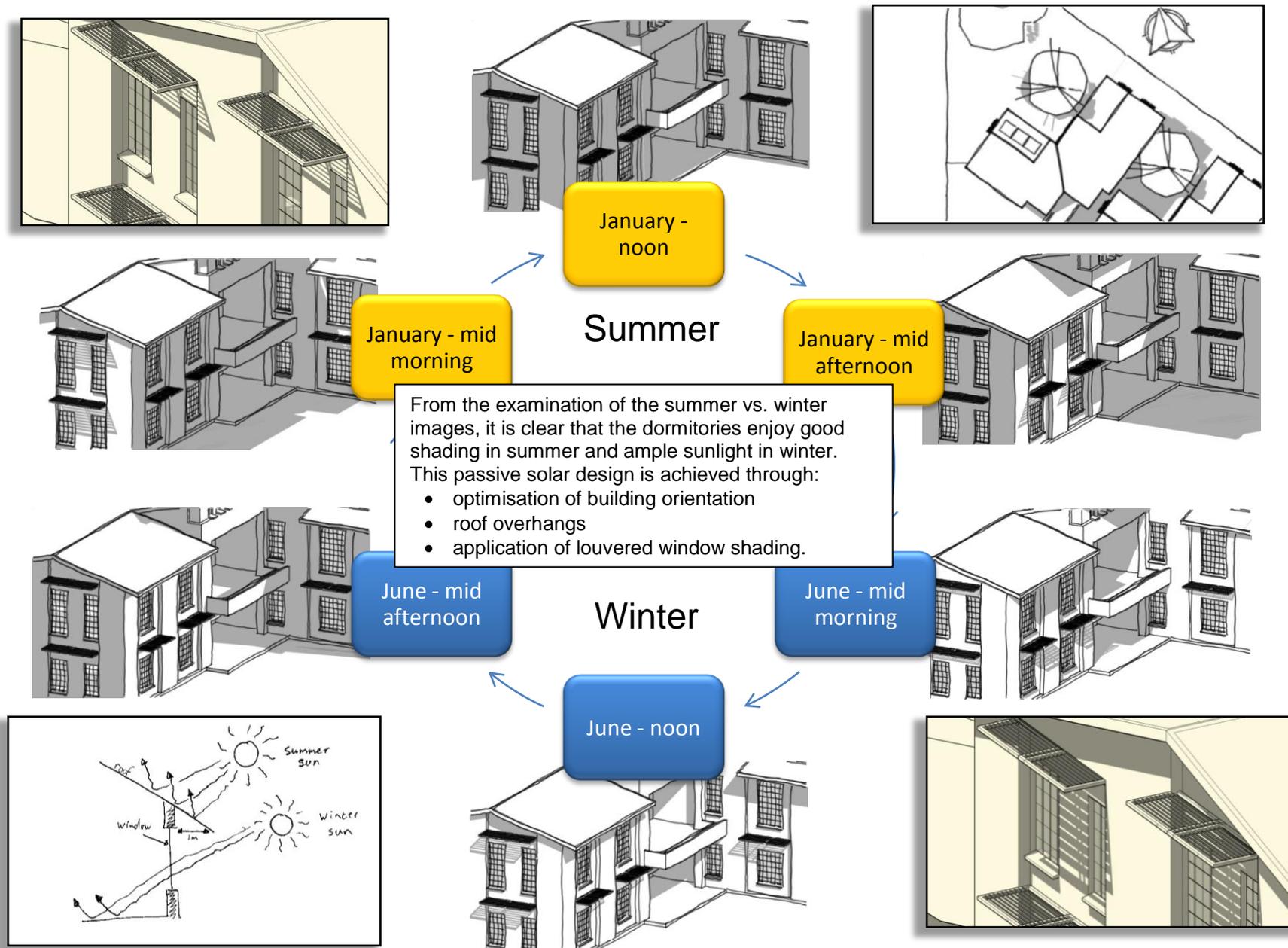


Figure 119 – A diagrammatic explanation of the passive solar design of the facility. Note the level of shading in the summer simulation images versus those of the winter

ig

5.9.6 Community integration

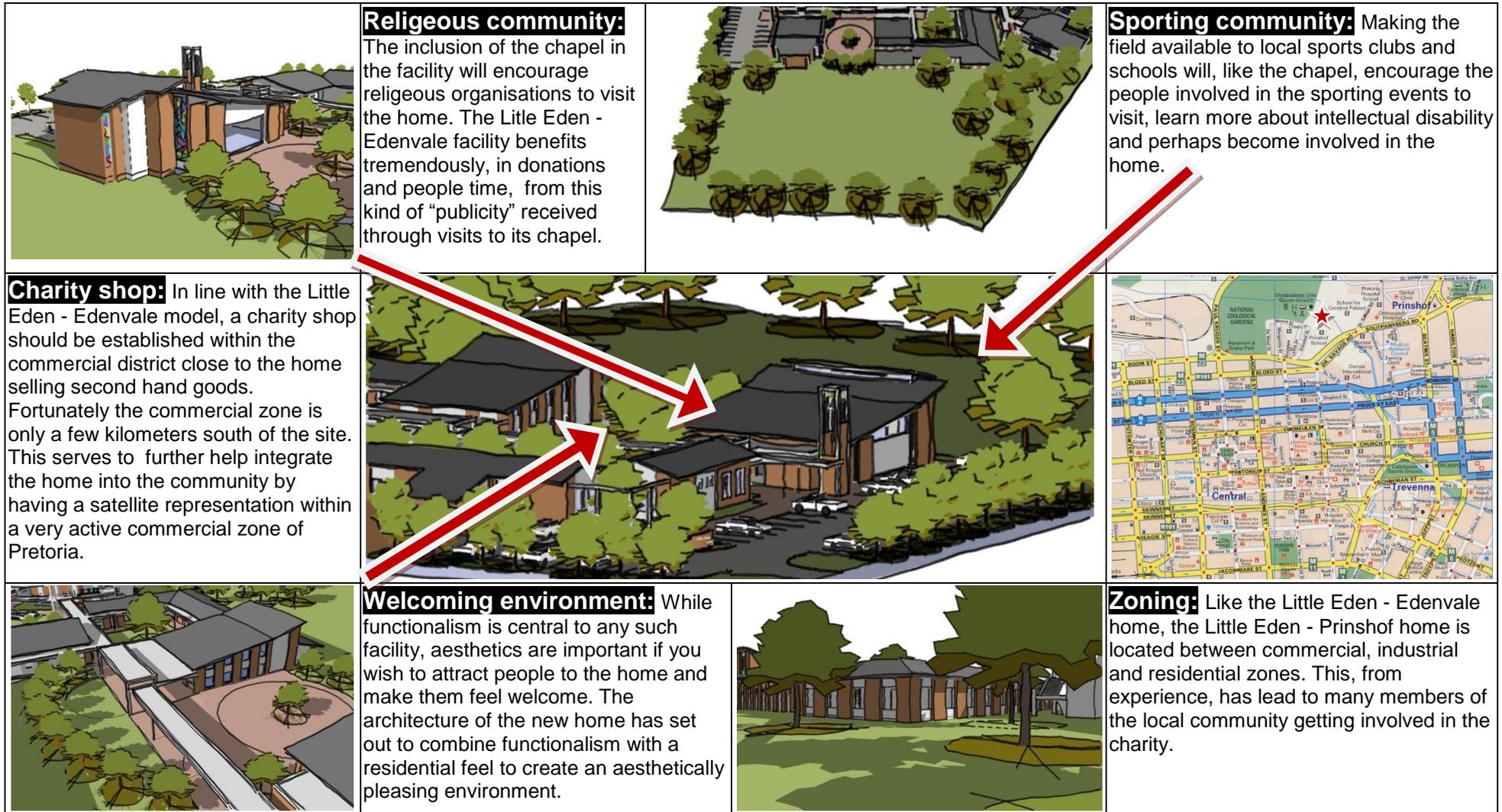


Figure 120 - Application of principles: community integration