

School voor buitengewoon onderwijs Woudlucht in Heverlee

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Team C



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1.0 Introduction

The identity of Woodlucht School has been designed as a collection of related buildings creating a tranquil clearing “in the forest of Heverlee.”

Each of the nursery, primary and secondary school buildings is easily identified, retaining its own identity, but within a coherent new school campus entered from the principal courtyard on Prosper Dreef.

Each building is structured around an internal courtyard, which draws light and air into the buildings, as well as allowing flexibility for the school accommodation to be configured to suit the specific needs and numbers of children as they change over time. The courtyards provide safe outdoor teaching opportunity and respite for staff and children.

Uniting the dedicated play spaces for each of the schools, a shared external landscape and gardens are structured as imaginative outdoor spaces and sensory environments to celebrate the beauty of this location, and the creative achievements of the horticultural training demonstrated by the school community.

A school designed for children as individuals.

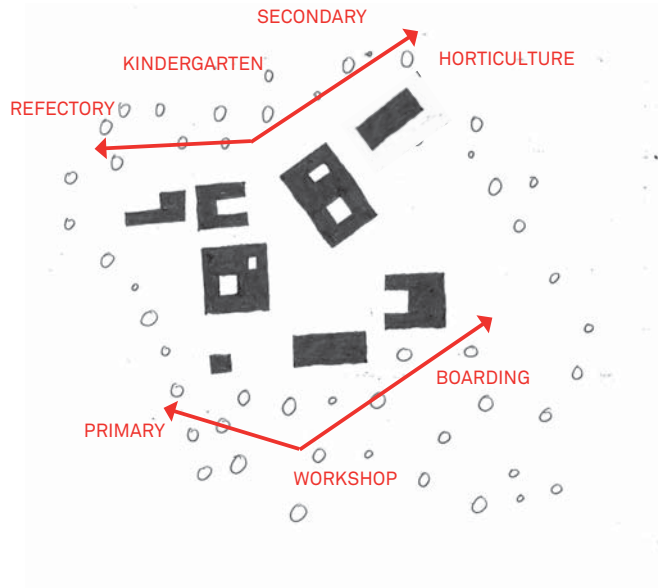
Within this landscape space is defined to respect the individual learning and enjoyment of each child’s own personality as well as their collective achievements.



2.0 Design Approach

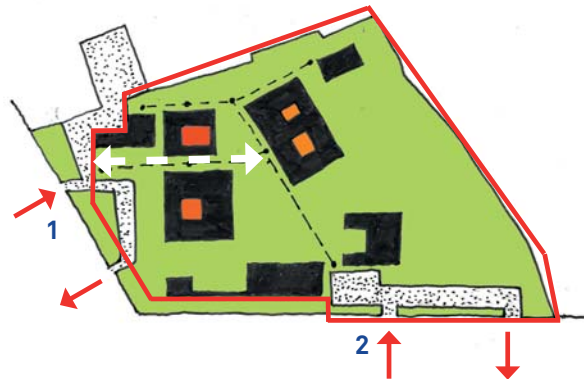
A collective identity

Each of the buildings form their own identity and sense of place, but are recognised as part of the collective identity of Woodlucht School, sharing a design aesthetic within the wooded setting.



A single secure school campus

To create a safe environment for all children, perimeter security can be integrated within the natural hedging and tree planting which characterises the site. A clear axis to each building is offered from the main entrance on Prosper Dreef,



1. Principle delivery and parking are clearly separated from areas accessible to children.
2. A secondary entrance courtyard for boarding and workshops also provides dedicated parking for secondary and potential community use of the grounds.

Three Schools together

A gradation of dedicated play spaces through to managed shared space will generate maximum flexibility and use of the school grounds.

- Dedicated play courtyards for each age group
- Horticultural and sports grounds managed by the Secondary School
- Structured sensory landscape uniting the schools



1. Secondary School
2. Primary School
3. Kindergarten and therapists

2.1 Entrance Courtyard



Within the forest of Heverlee, the school of Woodluch is celebrated for its achievements in providing specialist education for children with special needs.

The entrance courtyard is framed by the new brick houses for primary and nursery education and the re-clad refectory to provide natural supervision onto this shared space.

The secondary school is entered through the central courtyard and engages with the broader landscape uniting the specialist buildings for horticultural and workshop training.

Within the language of secure and durable brick houses, an interior language of white glazed brick reveals lighter interior spaces, bathed in light which is filtered by translucent and clear glass to suit the specific teaching needs of the students, and create either intimate or diffused relationships with the landscape.

2.2 Masterplan

The external appearance of the school is what first greets visitors and pupils, and a well designed landscape will celebrate the achievements of the school and create a stimulating natural environment for all.

Welcoming but secure

We have defined a natural line of perimeter security, largely held by the hedging and trees on the site. From a calm entrance courtyard, visitors are greeted at a clearly defined reception and can see directly to the entrances of each of the main school buildings. Approached on a central axis, each of the buildings are framed by internal landscape and the surrounding forest.

Within the site boundary, pedestrian movement is prioritised so that vehicular movement is clearly separated from pupils.

A stimulating landscape

Celebrating the horticultural training of Woodlucht School, the landscape is defined as a series of protected and open courtyards which allow the different ages and abilities of children to play, exercise, and learn individually and together.

The landscape definition seeks to avoid the use of fenced enclosures, but rather to utilise subtle changes in level, raised planters and low hedges to create a layered view of the landscape.

The central quadrangle is a more formal space which allows the participation of different groups of children and informal play which compliments the open playing fields retained to the east of the site.

The horticulture greenhouses establish a sensory and kitchen garden at the northern boundary of the site which creates a stimulating promenade to the refectory for the whole school community.

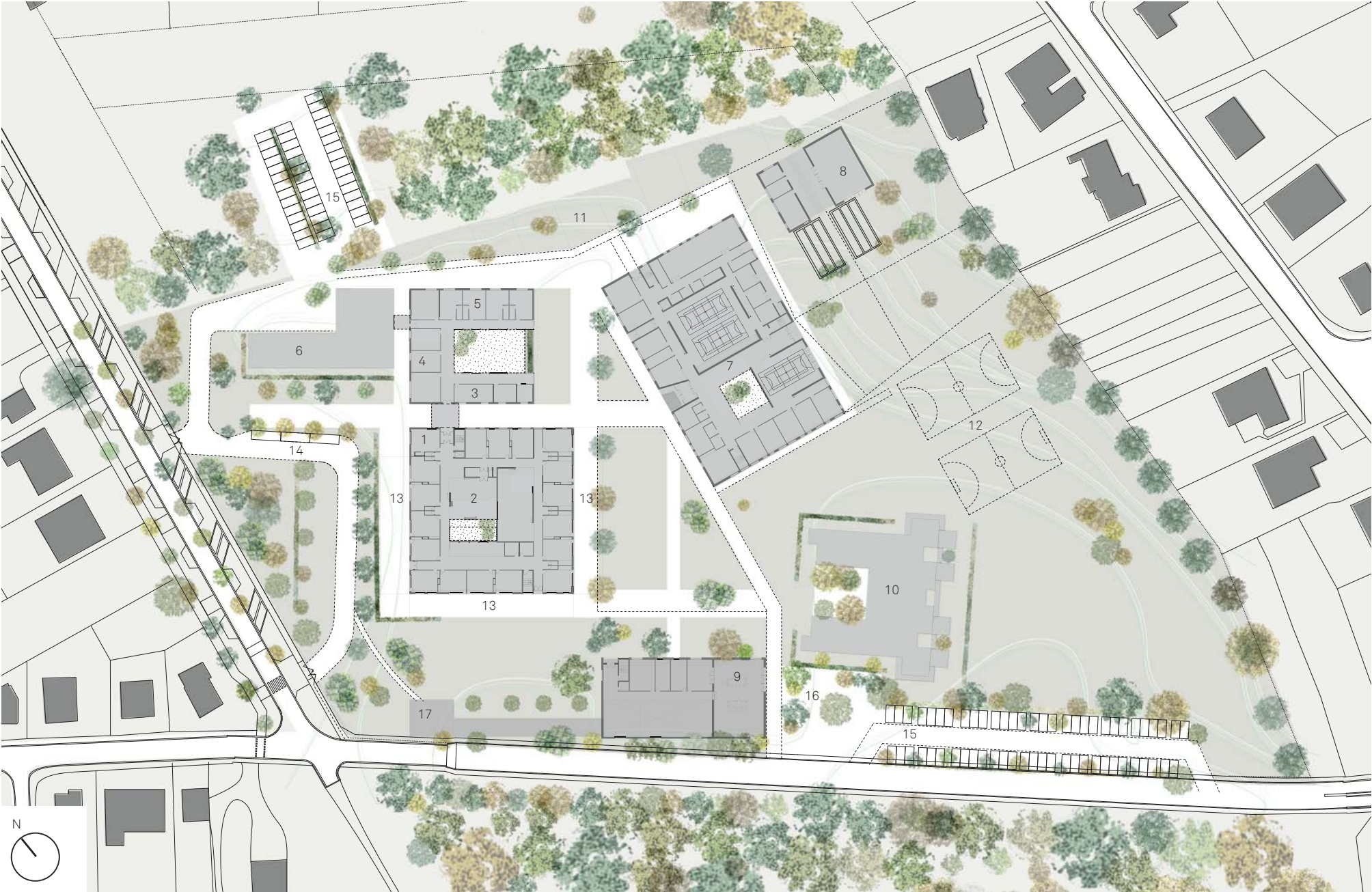
Our vision is to allow the planting of the landscape to be carried out with the assistance of the pupils of Woodlucht. The landscape architect within our team would work in collaboration with the school to offer apprenticeships and a structure for maintenance of the gardens which can also be carried out as part of the curriculum.

right: The landscape will create a strong sense of texture, sound and fragrance to be enjoyed by the children.



KEY

- 1 Reception
 - 2 Primary School
 - 3 Administration
 - 4 Therapy
 - 5 Kindergarten
 - 6 Refectory
 - 7 Secondary School
 - 8 Horticulture
 - 9 Workshops
 - 10 Boarding House
- External*
- 11 Sensory kitchen garden
 - 12 Sport
 - 13 Primary School external play space
 - 14 Drop off
 - 15 Parking
 - 16 Delivery Courtyard
 - 17 Cycle park



Proposed Site Plan, scale 1:1000

2.3 Kindergarden Courtyard



Existing View

2.4 Kindergarten Plan

KEY - Kindergarten & Primary

- 1 Administration
- 2 First Aid
- 3 Speech Therapy
- 4 Occupational Therapy
- 5 Physiotherapy
- 6 Type 2 Autism Nursery Classroom
- 7 Type 2 Nursery Classroom
- 8 Nursery Play Courtyard
- 9 Type 2 Primary Classroom
- 10 Type 2 & Autistic Type 2 Primary Playground
- 11 Autistic Cookery Classroom
- 12 Type 2 Primary Autism Classroom
- 13 Type 1 & 8 Primary Playground
- 14 Type 1 & 8 Autism Classroom
- 15 Type 1 & 8 Autism Primary Play
- 16 Religion Classroom
- 17 Catholic Religion & Ethics Classroom
- 18 BLIO Classroom
- 19 WC
- 20 Material Store
- 21 Multipurpose hall
- 22 Courtyard Play
- 23 Open Plan Art Space
- 24 Gymnasium
- 25 Type 1 Primary Classroom
- 26 Type 8 Primary Classroom
- 27 Play Terrace
- 28 Open Plan Multi-Media



KINDERGATEN
scale 1:250



The Kindergarten is structured around a generous courtyard, which provides sheltered play space for the youngest pupils. Their learning bases also open onto the sensory kitchen gardens.

Diffused glass will be used to establish degrees of privacy to the courtyards where it is needed, with specific windows allowing controlled visual connectivity.

Within the primary school the courtyard also unlocks the plan by drawing light into interior social spaces for break-out, where children can engage in one to one tuition, staff can interact, or where parents can meet teaching staff. This central area creates a sense of place for the school community.



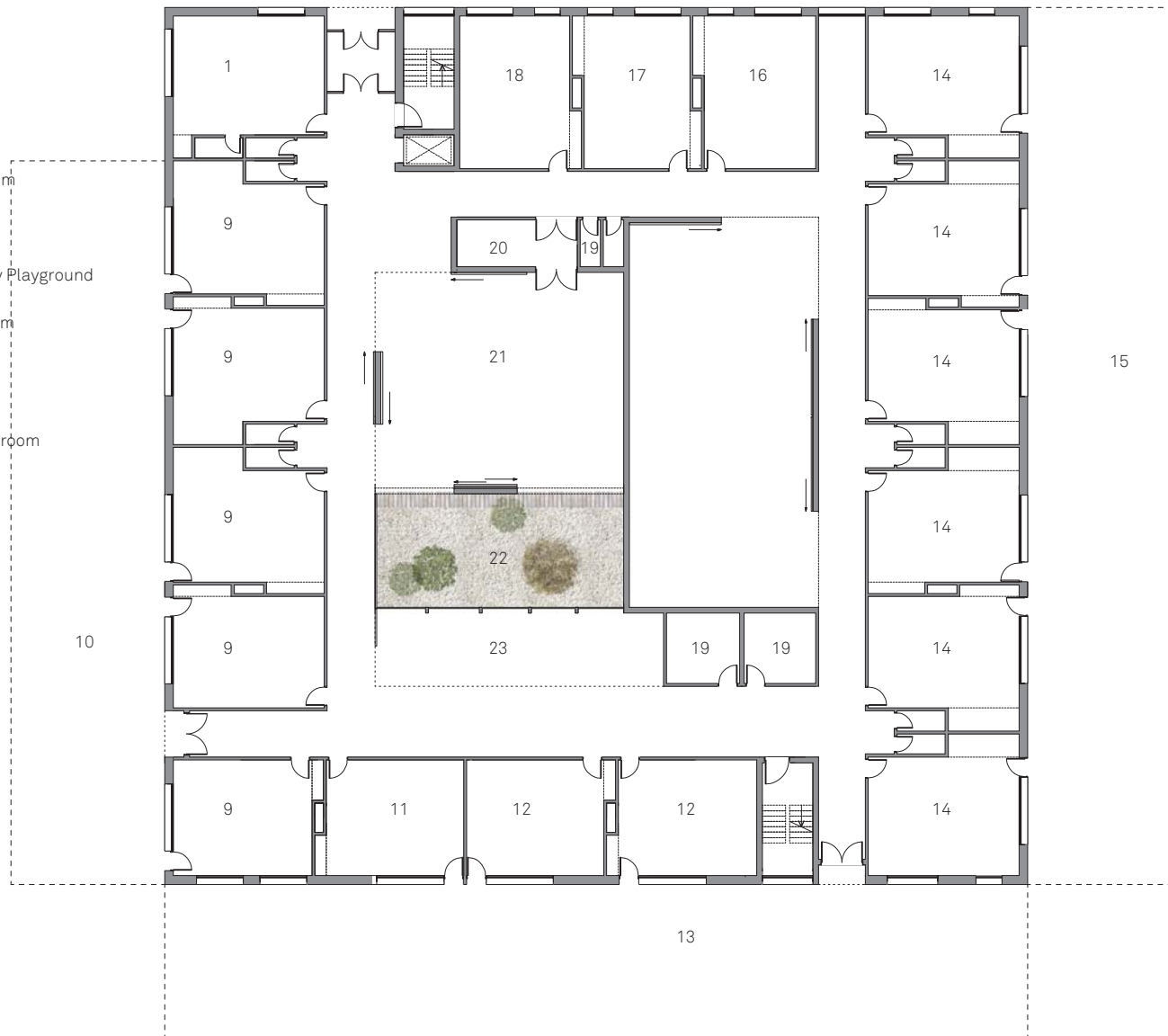
2.5 Primary School Courtyard



2.6 Primary School Plans

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PRIMARY SCHOOL - Ground Floor
scale 1:250

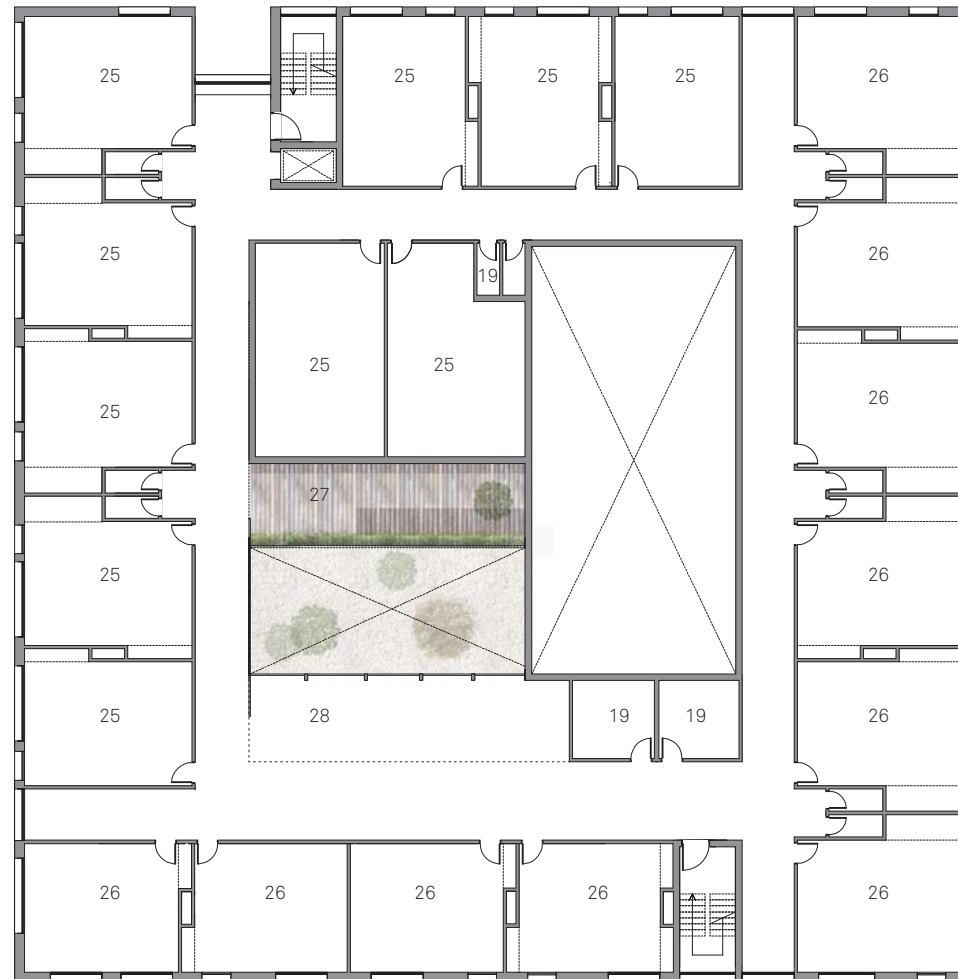




Visually pronounced entrance offering views to green space/courtyard beyond

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PRIMARY SCHOOL - First Floor
scale 1:250

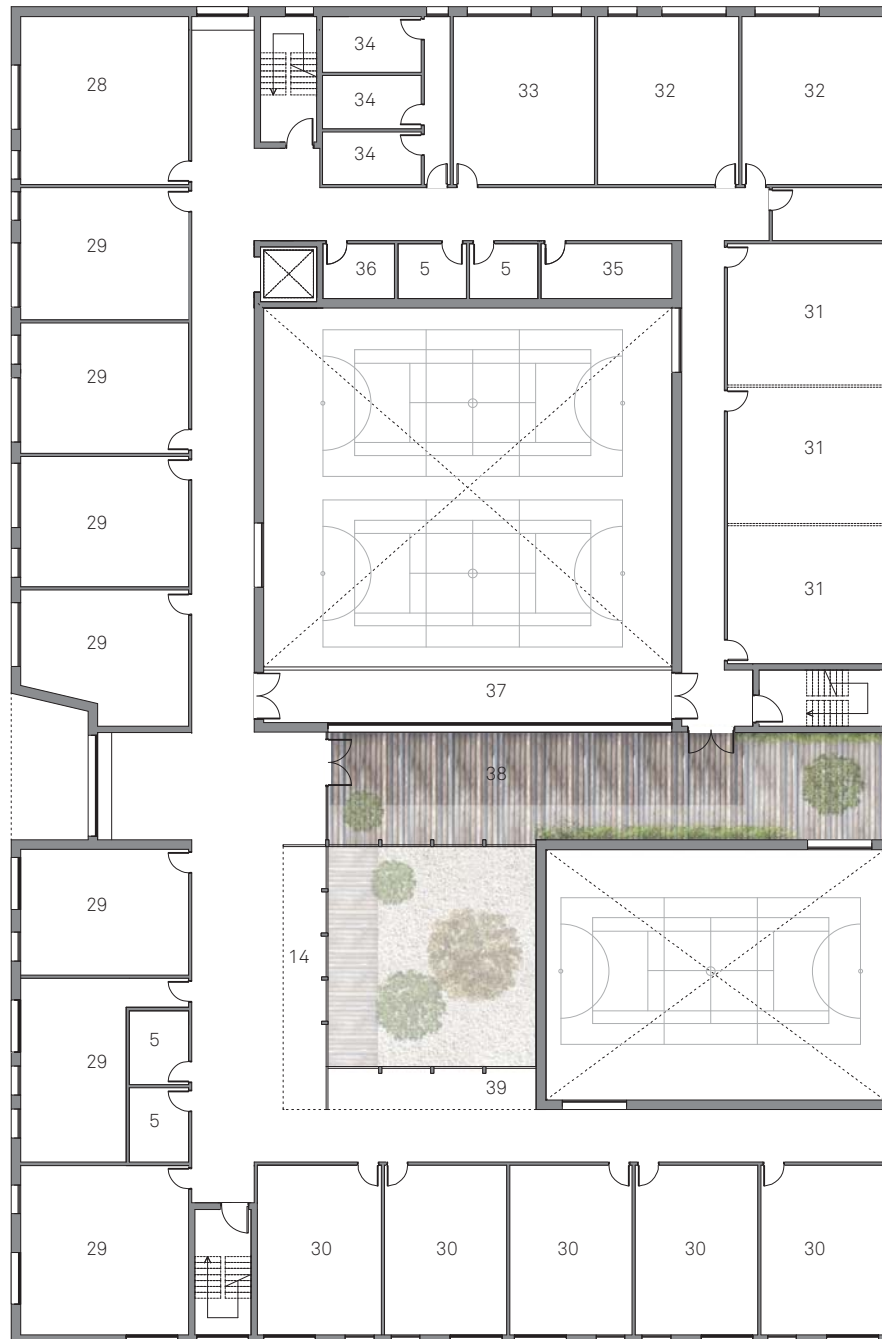
2.7 Secondary School Plans



SECONDARY SCHOOL - Ground Floor
scale 1:250



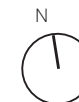
2.7 Secondary School Plans



KEY - Secondary School

- 1 Directors Office
- 2 TA Office/ TAC Office
- 3 Boarding Office
- 4 First Aid
- 5 WC
- 6 Staffroom
- 7 Religion Classroom
- 8 Local Area Classroom
- 9 OV3 Classroom
- 10 OV2 Classroom
- 11 Gym
- 12 Courtyard
- 13 Local Computer Area
- 14 Multipurpose Teaching Area
- 15 Secretary's Office
- 16 Cuddle
- 17 Occupational Therapy
- 18 Speech Therapy
- 19 Physio Therapy
- 20 Store Room
- 21 Cooking- Hot Kitchen
- 22 Meeting Room/ Restaurant
- 23 Female Changing Rooms
- 24 Male Changing Rooms
- 25 PE Teachers Changing Room/Office
- 26 Material Store
- 27 Laundry
- 28 Autism Cookery
- 29 Autism Classrooms
- 30 OV3 Classroom
- 31 OV1 Classroom
- 32 Cold Kitchen
- 33 First Year Catering
- 34 Changing area
- 35 Archives
- 36 Autism Timeout
- 37 Internal link
- 38 Raised Courtyard
- 39 Reading Area

SECONDARY SCHOOL - First Floor
scale 1:250





Multipurpose hall for a range of uses throughout the school day

2.8 Secondary School Perspective Section

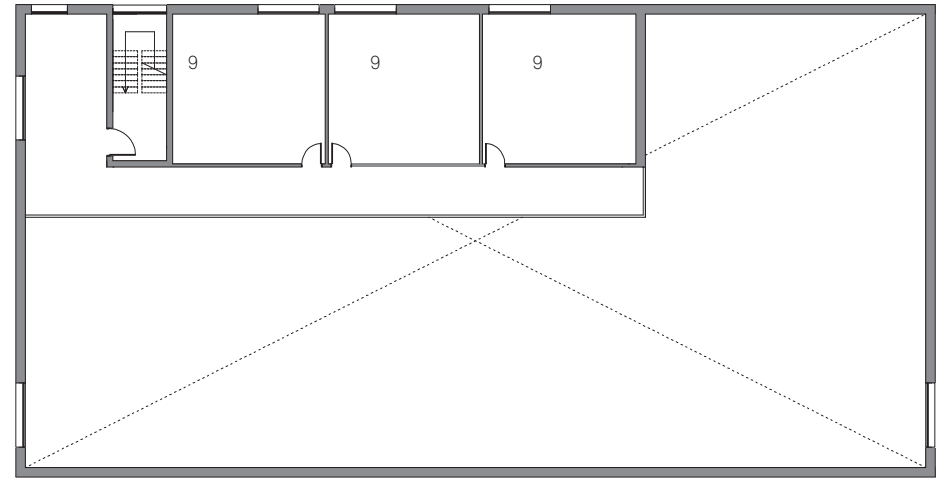


Courtyard providing flexible learning and play space

2.9 Workshop/Horticulture Plans



Dynamic roof geometry to break up large volumes

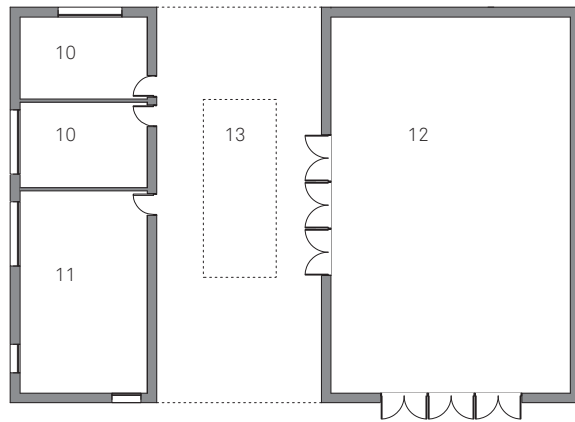


WORKSHOP - First Floor Plan
Scale 1:250



WORKSHOP - Ground Floor Plan
Scale 1:250

2.9 Workshop/Horticulture Plans



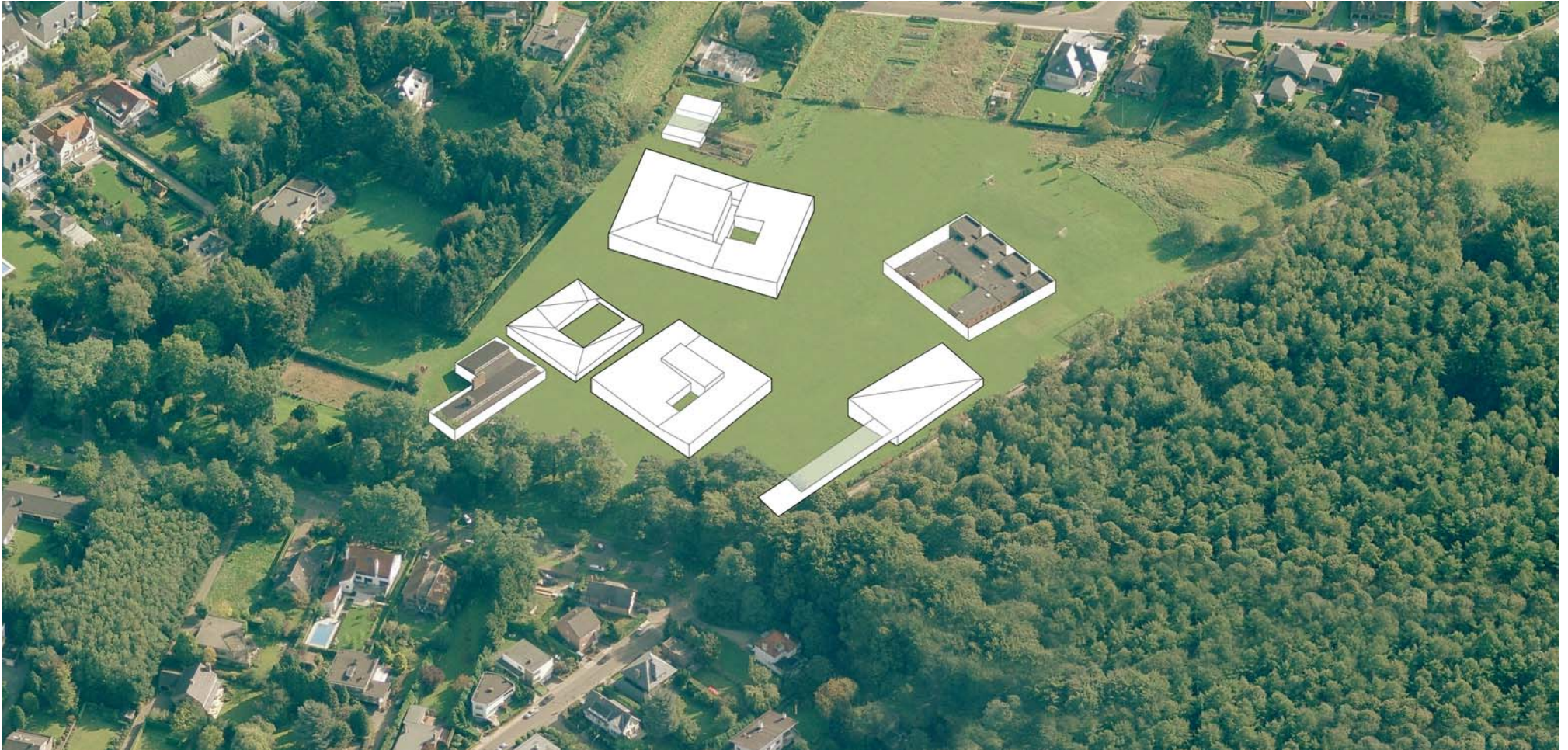
HORTICULTURE - Plan
Scale 1:250

KEY - Workshops / Horticulture

1. Woodwork Classroom
2. Changing Rooms
3. Local OV2 Classroom
4. Warehouse
5. Machine Room Workshop
6. Local OV2 Workshop
7. WC
8. Bike Store
9. Interiors Classroom
10. Horticulture Classroom
11. Autistic Classroom
12. Horticulture Shed
13. Covered Working Area

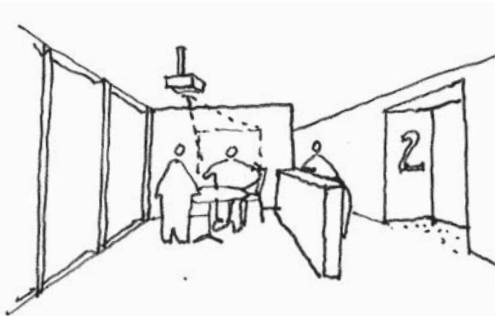
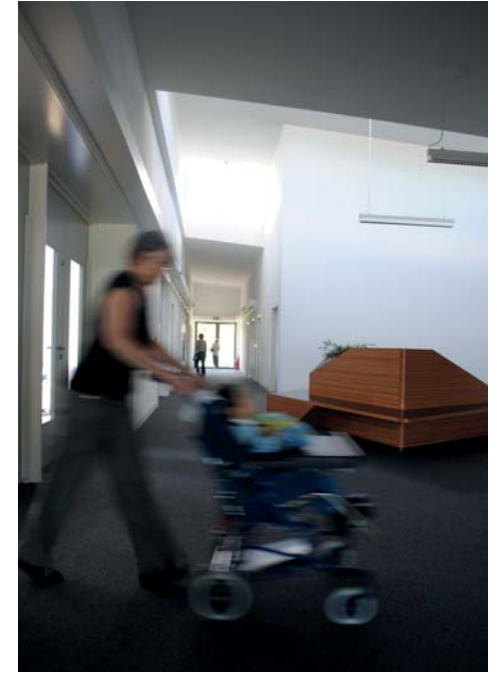
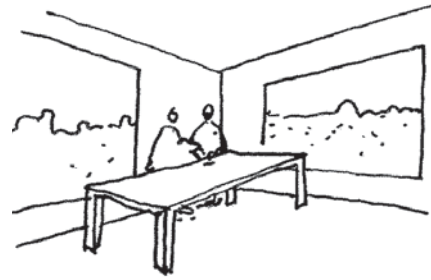


Landscaped and sensory gardens that changes colour with the seasons



The collection of simple pavilion buildings provides as strong framework should it need to be extended or reconfigured in the future to accommodate changes in the school population.

2.10 Flexibility



Break out Clusters

Shared spaces have been made, often adjacent to courtyards, to encourage opportunities for staff to communicate, and to provide break out space at the class clusters. These spaces can also be utilised as media and / or art spaces.

Active interiors

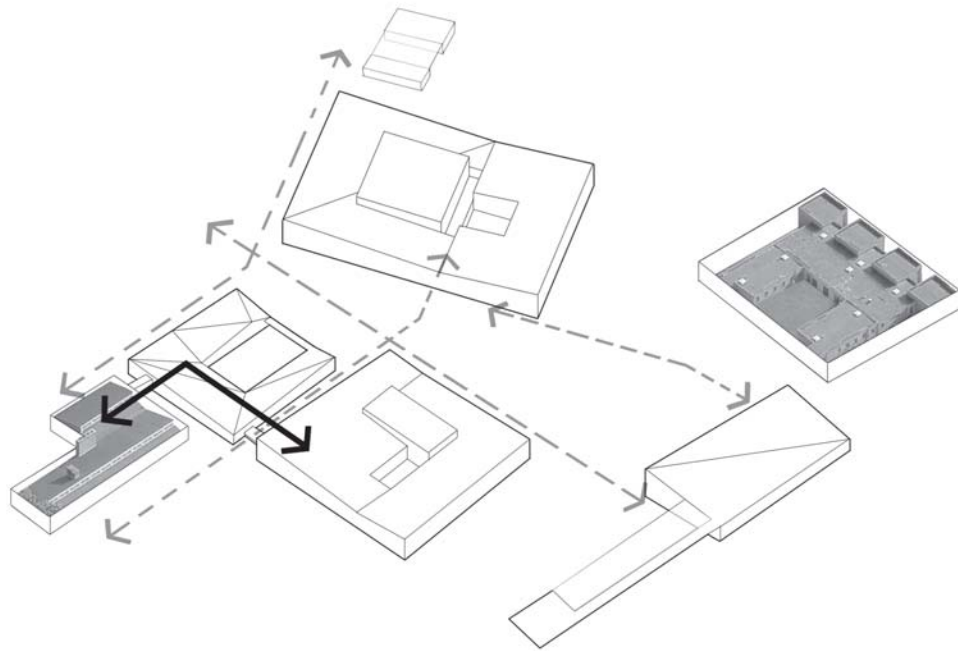
The halls have been positioned and designed so that they can offer themselves to inventive uses at different times of day. Acoustic lining of the space will help it respond to the different needs as it is important that the children feel proud of their school, and enjoy adapting its use to suit their desires.

Windows

Classroom windows are used to create a variety of settings and relationships to the outdoors. A combination of panoramic windows, and specific low windows for focused attention, are used to create settings appropriate to the different needs of the children.

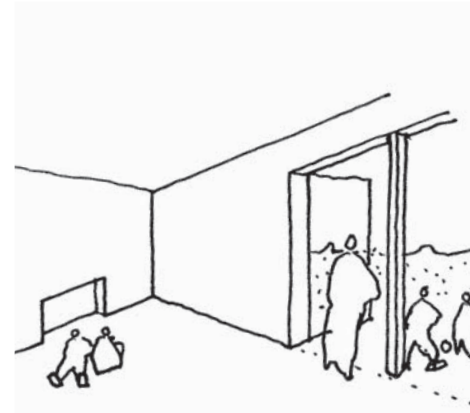
Access

Level access is provided throughout the site, with lift access to first floor accommodation. Particular care is needed at threshold conditions for children with mobility impairment but who are not confined to wheelchairs.



Movement

A series of covered walkways and defined routes encourage movement between individual buildings so that the campus forms a collective whole.



Inside Outside

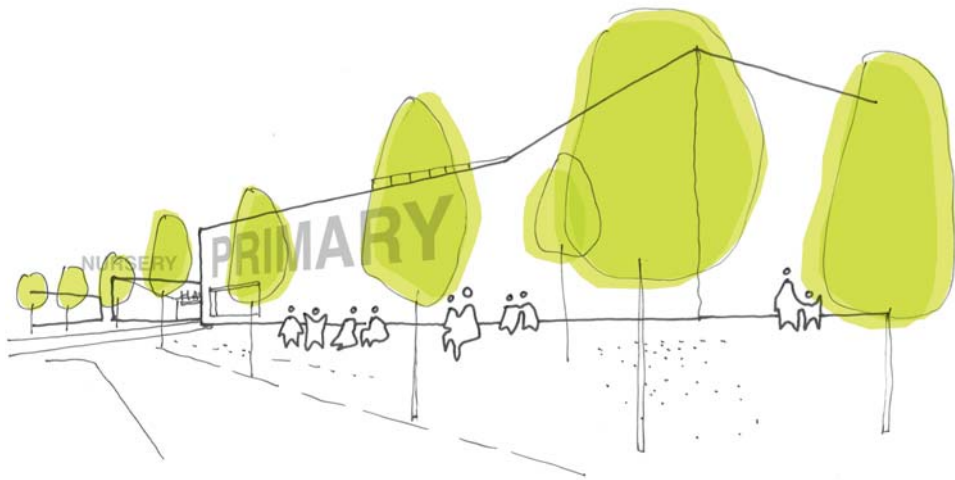
Physical exploration and enjoyment of the natural environment is promoted wherever appropriate. Both generous and focussed views to the landscape and outdoor terraces are provided to maximise the opportunity to experience nature, with generous covered play areas to allow outdoor spaces to be used in all weather.



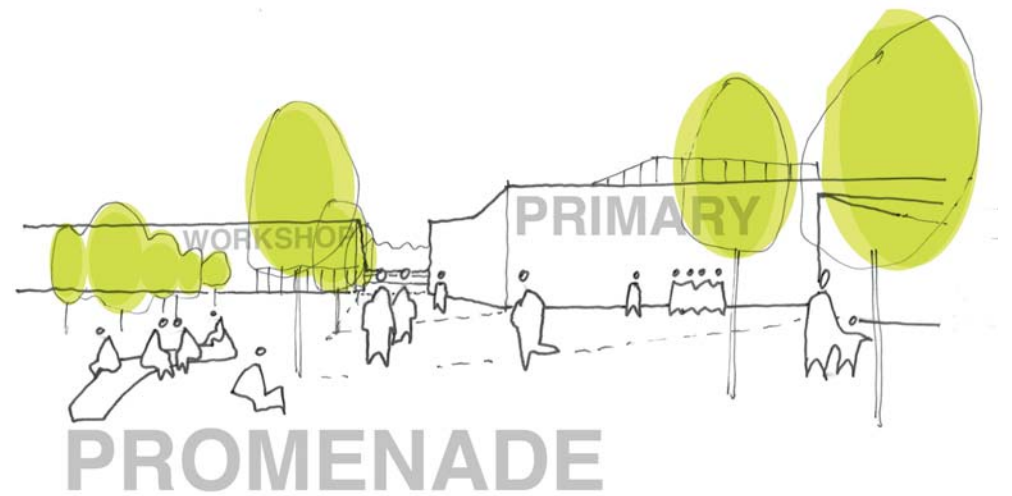
Storage

Built in storage designed throughout the school will allow the flexible use of spaces and open storage will be carefully controlled in appropriate locations only where it does not cause a distraction to pupils.

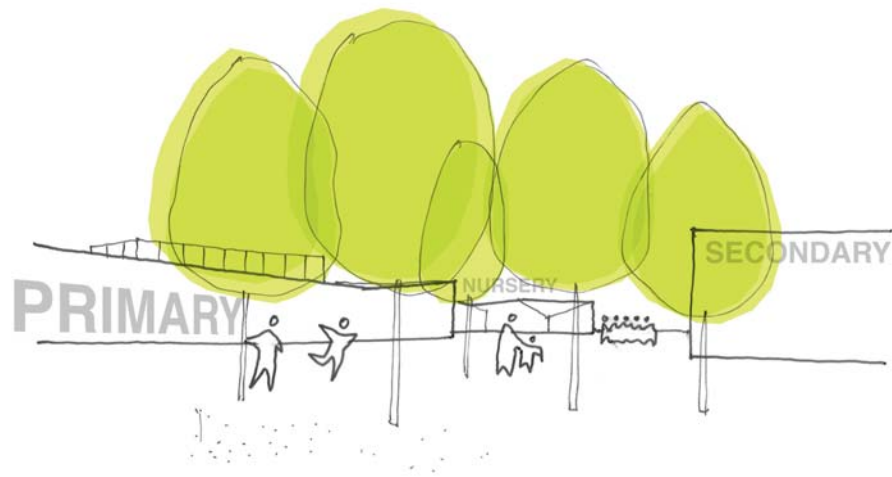
2.11 Journey through landscape



View from vehicle access road to main entrance



View from centre campus towards workshop



View from workshop towards primary and secondary school



View from sensory garden towards workshop

3.0 Materials, Solidity and Air

A Durable School

Building on the local context, the design of the new school buildings compliments the green landscape setting of Heverlee, with a series of dark brick buildings which accentuate the perception of landscape.

These strong sculpted forms have a primary concrete frame to emphasise the solidity of the buildings. This strength is complimented by generous areas of glazing which reflect views of the surrounding forest and landscape during the day, to gradually reveal the interior life of the school as dusk falls.

Light filled interiors

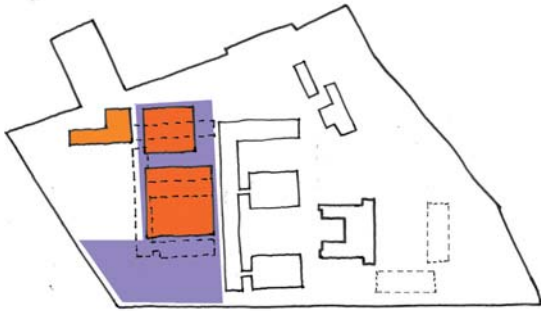
Within the solid brick forms of the school pavilions, the entrances reveal interiors lined with white brick, which are glazed to reflect light from the interior courtyards and generous windows to the stairwells.

The use of colour within the interior is carefully controlled to minimise visual distractions, allowing graphic signage to take prominence as clear system of navigation. Generous areas of glazing are used with different degrees of translucent and clear glass to suit the particular building use and in particular to limit visual distraction to the children with autism. Throughout the school views of the landscape are carefully controlled to situate the experience of the school.



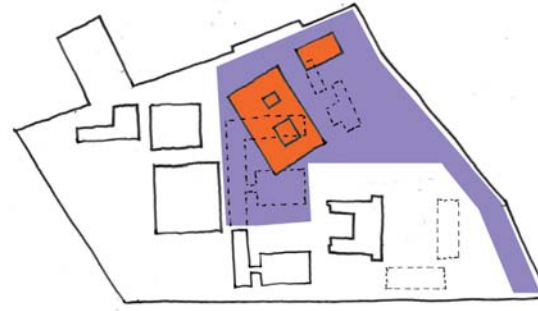
4.0 Phasing and Construction

The phased delivery of the project is broadly in line with the briefing scenario, although we have simplified this into 3 distinct faces for ease of understanding.



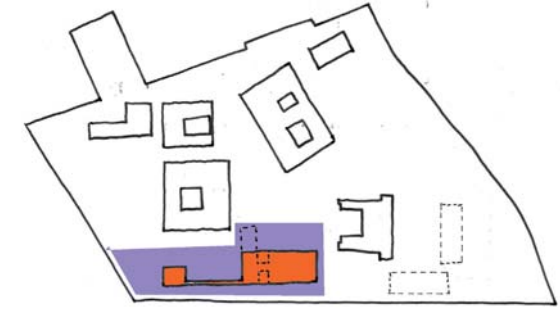
PHASE 1

Re-cladding and refurbishment of the refectory.
Demolition and rebuilding of kindergarten and primary accommodation.



PHASE 2

Demolition and rebuilding of new secondary accommodation including cooking and horticulture specialisms.



PHASE 3

Demolition and rebuilding of workshops and new bike stores.
Completion of landscaping

5.0 Sustainable Construction

Climate change adaptation

It is important that sustainability is accessible within a school environment. This will help the school community to engage with issues of climate change, as part of the curriculum. Complicated technology is very difficult to understand for children within an SEN environment.

Passive design

Within the site and design constraints of retained buildings, we have taken advantage of form, orientation, glazing design and shading to control excess solar gains in summer while allowing useful winter gains and providing good levels of daylight. All classrooms are naturally ventilated, with opening rooflights on the upper floor, and wind chimneys on the lower floor.

Compact building form

Each of the school buildings has a very efficient wall to volume ratio, with large volume halls buried within the plan, and courtyards to provide cross ventilation and natural daylight into the depth of the plan.

Sustainable and durable materials

Energy demands will be reduced through passive design and high energy efficiency standards with very good levels of insulation and air tightness. Ground granulated blastfurnace slag (ggbs) Concrete uses up to 70% recycled product in place of cement, and will be utilised for the primary concrete structure.

Avoiding overheating

Increased summer peak temperatures mean that the buildings need to be designed to reduce the risk of overheating, both to enhance comfort and to avoid future installation of cooling. We will reduce internal gains with low energy lighting and appliances; reduce solar gains with adjustable shutters and shading; using living roofs, walls and planting, and utilising the concrete structure's thermal mass.

With an emphasis on avoiding overheating in classrooms, we propose manual shutters as being a further effective way to keep out unwanted summer heat gains with the least impact on useful winter gains and daylight.

Functional, flexible, adaptable design

The use of courtyards, and local clusters within the school allows great flexibility for how the school to adapt to changing specialist needs over time.

Renewable energy

Renewable electricity will be generated on site via photovoltaic panels integrated into building rooftops taking maximum advantage of available feed in tariffs. Advanced energy efficiency standards including mechanical ventilation with heat recovery will be explored as an option for reducing external noise and air pollution.

The integration of solar PV cells to the curriculum can be explained with the introduction of a solar fountain so that young children can see the effect of shadows on the PV cells..

Green space

Trees, green spaces, roofs and walls will contribute to summer comfort outdoors and inside. So will the evaporative cooling effect from widespread use of porous surfaces designed to retain modest quantities of rainwater, without altering the site-wide drainage strategy.

Water Conservation

Water efficient sanitaryware, and rainwater or greywater collection will be utilised to reduce water usage generally.. Short retention greywater units such as EcoPlay and prototype small-volume, gravity-fed rainwater systems are possible options. They have internal or architecturally integrated, above-ground collection tanks, which are preferable to buried tanks given site ground conditions. These systems also have low / no pump energy use and much smaller than average tanks. This reduces adverse lifetime environmental impacts of the systems for a relatively small reduction in water saving potential, which may be an appropriate trade-off in this location.

Communication technology

It is widely recognised that smart utility grids and corresponding smart metering and smart appliances will be required to manage demands in real time across utility networks. This will also be necessary to help enable increased use of distributed renewable generation such as PV and greater charging and use of electric vehicles which should be encouraged within the school's parking network.

