Montpelier Community Nursery

by AY Architects
# Project Details

<table>
<thead>
<tr>
<th>Practice:</th>
<th>AY Architects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designers:</td>
<td>Yeoryia Manolopoulou and Anthony Boulanger</td>
</tr>
<tr>
<td></td>
<td>Manolopoulou and Boulanger contributed equally to this project through their joint practice, AY Architects. In addition, Boulanger was responsible for the building’s contract administration and Manolopoulou served as a Trustee, Management Committee Member and building advisor of Camden Community Nurseries (CCN) between 2008 and 2012.</td>
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<tr>
<td>Title:</td>
<td>Montpelier Community Nursery</td>
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<tr>
<td>Output type:</td>
<td>Building</td>
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<tr>
<td>Function:</td>
<td>Nursery for 24 children (2–5 years old), voluntary and registered charity</td>
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<tr>
<td>Location:</td>
<td>Montpelier Gardens, Kentish Town</td>
</tr>
<tr>
<td>Client:</td>
<td>London Borough of Camden</td>
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<tr>
<td>Practical completion:</td>
<td>April 2012 (landscape completion: April 2013)</td>
</tr>
<tr>
<td>Budget:</td>
<td>£476,000 (construction cost £429,000, including demolition, excluding landscape works)</td>
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<tr>
<td>Area:</td>
<td>136m$^2$ internal gross</td>
</tr>
<tr>
<td>Structural engineers:</td>
<td>Price &amp; Myers</td>
</tr>
<tr>
<td>Low carbon consulting engineers:</td>
<td>King Shaw Associates</td>
</tr>
<tr>
<td>Cost consultant:</td>
<td>Stockdale</td>
</tr>
<tr>
<td>Main contractor:</td>
<td>Forest Gate Construction Ltd</td>
</tr>
<tr>
<td>Timber subcontractor:</td>
<td>KLH UK</td>
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<td>Funding awards:</td>
<td>£476,000 Early Years Capital Grant for Quality &amp; Access for All Young Children; £10,000 Awards for All; £1,000 Mercers Education Grant</td>
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Statement about the Research Content and Process

Description
This nursery building project brings pedagogy, local community, environment and architecture into productive dialogue through engaged and situated design research.

Questions
1. How can architecture strengthen communities and the social viability of urban neighbourhoods?
2. How can innovative small-scale buildings enhance green spaces in cities?
3. How can design and fabrication methods produce a flexible and stimulating school with an emphasis on sustainability and quality of space?
4. How can pedagogic research inform the environment’s role in the design process, and support the nursery’s growing ecological agenda?

Methods
1. Critical methodologies in collaboration with the nursery and local community: active involvement in fundraising; participatory workshops through making; conversation and consultation.
2. Design-led research on sustainable building construction and operation: economic and sustainable building methods and materials, CNC technology, prefabrication and quick erection with minimal impact on-site, passive energy use, improved relation to public gardens, enhanced local biodiversity.
3. Research into the geometry of the roof for optimal structural and spatial performance, natural ventilation and daylight throughout the year.
4. Focused study of different pedagogic approaches, including Montessori, Reggio Emilia, and Sure Start’s Guidance on children’s centres.

5. Analogue and digital drawing (2D and 3D) and physical model-making at different scales.

Dissemination


Statement of Significance

Won funding of £476,000 ‘Early Years Capital Grant for Quality and Access for All Young Children’ and £10,000 ‘Awards for All’.

Won the RIBA Stephen Lawrence Prize, an RIBA Regional Award (London) and an RIBA National Award; mid-listed for the RIBA Stirling Prize (2013). Based primarily on this project AY Architects was a Small Project Architect of the Year Finalist (2013).
Montpelier Community Nursery is located within Montpelier Gardens in Kentish Town, London. The nursery is one of two facilities run by CCN, a voluntary sector registered charity (No. 1002534) managed by parents.

CCN was established over 35 years ago and ran 14 community nurseries. From these only two nurseries, Montpelier and Sington, have survived but they are seriously threatened because of severe funding cuts. Montpelier Community Nursery operated from a dilapidated building, originally built in 1983 as a temporary day-care ‘shed’ with only 15 years’ life expectancy in an annex to the adjacent Montpelier House, one of the first buildings built in the area in the mid-1800s (currently used as a Behaviour Support Centre Resource Base for LB Camden).

CCN’s Management Committee is made up of parent representatives from each nursery, responsible for running the two nurseries. Between 2008 and 2012 Manolopoulou served as Management Committee member of CCN, influencing the overall direction of the organisation towards ecological pedagogic modes, inspired by the philosophy of Forest Schools.

Through design-led conversations, participatory workshops and events, AY Architects were responsible for instigating parents, children, staff and local authorities to combine their efforts to realise the new building. They worked through all stages of the project from initial conception, neighbourhood engagement, authority deliberations and fundraising, to design research production and building completion. [fig. 1]
Location plan of building within Montpelier Gardens
Site diagram of land swap with proposed areas of loss/gain for Montpelier Gardens
Aims and Objectives

The main research aim was the integration of interdisciplinary knowledge from the fields of ecology, pedagogy and manufacturing into the area of sustainable early years school design through site-specific design intervention. The project's significance lies in the value of the new building: without it Montpelier Community Nursery would have closed down because of its dilapidated state, eradicating 30 years of history of the most inclusive and affordable childcare facility in the local area.

The project placed strong emphasis on the unique green setting of Montpelier Gardens as a key aspect of the children’s learning experiences and had three further objectives:

To contribute to the social sustainability of the local area. A situated and research-led mode of architectural practice was developed, paradigmatic of how small architectural practices can play an instrumental role in the enhancement and sustainable upkeep of key buildings in local communities.

To produce a high-quality design for a sustainable building in construction and operation. Key areas of concern included: efficient prefabrication to reduce CO₂ omissions and impact on the nursery site and park; use of sustainable timber; excellent building physics for passive solar gain; maximum use of daylight to avoid artificial lighting; and a sedum mat roof.

To interrelate learning, building and nature in a harmonious set of relationships, encouraging flexibility, outdoors–indoors flow, and as much as possible a natural and neutral tone and undifferentiated materiality. Children’s creativity and self-direction in learning is of central value in the Montpelier Nursery’s philosophy and became an important aspect of the design thinking: children are encouraged to ‘dress’ the building with their colourful work over time, taking the role of designers/co-authors.

A critical appraisal of the existing nursery building demonstrated how it seriously failed in the following areas:
1. weak structure and building fabric,
2. 12 years beyond the building’s 15-year life expectancy
3. non-accessible space; non-compliance with Disabilities Discrimination Act (DDA)
4. cramped and insufficient space for positive children’s experiences
5. highly inflexible spaces
6. inappropriate connection between indoors and outdoors
7. lack of quiet sleeping space and staff room
8. lack of security within the public gardens
9. inadequate natural air and daylight
10. environmentally unfriendly and inefficient energy use.
The secluded green setting with the terraced houses in the background

Exterior view of original ‘shed’ building before demolition
A feasibility study was submitted to LB Camden, visually demonstrating the shortcomings of the existing building and justifying the urgent need for its demolition and replacement. After consultation with staff and parents, an outline brief for a new building at the same location was established: a larger, purpose-built, secure and environmentally friendly facility that would increase the 2–5 years childcare provision from 18 to 24 nursery places, enlarging the building’s footprint from 90m² to 136m². In January 2009 AY Architects initiated and coordinated a related application for an Early Years Capital Grant that successfully secured the necessary funding to build the project. [fig. 2–6]

Questions

How can architecture strengthen community bonding and the social viability of urban neighbourhoods?

Montpelier Community Nursery has a significant history of supporting multi-ethnic families, cultural diversity and community cohesion. AY Architects contributed to this social bonding through a participatory and project-led process of consultation, design and production. The process was sustained by shorter semi-independent collaborative projects happening along the way. Before the demolition of the existing shed building, Manolopoulou commissioned two engagement projects, supported by literary and oral history research about CCN and the Montpelier Gardens: 1) architect Guan Lee to document the nursery’s ‘self-portrait’, including portraits of the staff and children in the interior setting of the shed building, with the objective of installing these photographs in the new building; 2) architect Wanja Wechselberger to co-run a workshop for Montpelier and Sington nursery children together to build and inhabit their own imaginary cardboard nursery on the Montpelier site. These two projects reflected on the passage of time between demolition and new building as significant for the users and the local community, and questioned the typical lack of attention towards such transitions in the built environment. [fig.7]
Interior of original building, a collaged space created over time

Photograph Guan Lee
Montpelier Community Nursery

8 (previous page)
South view of building
facing the public
gardens with
opened shutters
Photograph Nick Kane

9
South view of building
facing the public
gardens with
closed shutters
Photograph Nick Kane
How can innovative small-scale buildings enhance green spaces in cities?

The new building creates an enhanced relationship with the communal gardens, which had previously become neglected and sometimes intimidating. A land swap with the gardens was negotiated with LB Camden to allow the new building footprint to make use of a neglected and shaded space between the original building and Montpelier House and in exchange give back to the community a larger and better-quality space of public gardens along the southern boundary of the building. The south wall includes a large window and shutter, giving the nursery a greater level of interaction with the gardens, which contributes to a safer and more respected open space for the community. In addition, a slender low bench is added on the south wall to be used by the public, adding another layer of integration between building, gardens and community. [fig. 7–9]

How can critical and advanced design and fabrication methods produce a flexible and stimulating school building with emphasis on sustainability and quality of space?

Roof physics
The superstructure is made up of cross-laminated timber panels and a series of free-standing glue-laminated timber columns. The physical properties of the roof are a direct response to the site conditions. In colder months when the sun is low, the roof takes advantage of solar gain, while in hotter months its large overhangs block out the sun to prevent uncomfortable conditions of overheating. A large north-facing roof window brings in a different abundance of daylight, facilitating cross-ventilation and views to the tops of the neighbouring terraced houses. The excellent quality of daylight achieved in the interior significantly reduces the use of artificial lighting even in shorter winter days. [fig.10–13]

Flexibility and indoors–outdoors flow
The interior is planned around a central flexible play space that generously opens out to the garden. Moveable furniture can slide wherever it is needed to create varied learning corners indoors and outdoors. The roof emulates the tree canopy and the columns echo the verticality of the trees trunks in the garden, creating a thicket-like continuity between indoors and outdoors. [fig.14–16]

Low carbon building construction
Montpelier Community Nursery is an energy-efficient building in operation and is low carbon in construction, developed with the assistance of engineering consultants King Shaw Associates who specialise in low carbon design. A cross-laminated timber panel system provided by KLH UK makes up the majority of the superstructure, significantly reducing the embodied carbon in the structure. The timber is sustainably sourced as a renewable construction material with zero waste in material production. The timber superstructure of the nursery has a volume of 48m³ with a weight of 22,973kg. This quantity of timber will remove approximately 38.4 tonnes of CO₂ from the atmosphere. The CO₂ is absorbed by the timber with approximately 50% or 19.2 tonnes of carbon ‘locked’ in the material. The external decking is FSC-certified Siberian larch. [fig.17–19]
Floor and roof plans showing the oblique angle of the roof openings in relation to the building envelope.

KLH fabrication-led 3D model
From top to bottom: north, south, east and west elevations

Section across the central space indicating daylight and cross-ventilation paths

Preliminary plan of flexible central space
View of central space, taken from the entrance

Photograph Nick Kane

Sections setting out the KLH panels
Energy-efficient design
The focus on energy efficiency in operation was based on good design and insulation, low air permeability and energy-efficient mechanical and electrical installations. No renewables were included in the design due to the required capital investment and limited construction budget. Lighting has been input as manual on and automatic off so that it will automatically be turned off by a mixture of daylight and occupancy sensors to achieve set 300 lux at 2.5 W/m²/100 lux. The air permeability at 5m³/hr @50pa is half that required by building regulations at the time of construction. This is achieved by constructional detailing and actual insulation and construction of high standards. The cross-laminated timber panel system is designed to 0.6m³/hr @50pa. A new mains gas installation running a 95% efficient condensing gas boiler has improved the carbon output of the building from 31.62kgCO₂/m²/yr to 14.54kgCO₂/m²/yr, based on a building of this nature with a size of 136m². The CO₂ output per year is calculated as 1977.48kgCO₂/yr. Underfloor heating is the primary heating system apart from the kitchen, which has a small electric kickspace heater. Peak heating demand for the building is 6kW.

Visual and material integration, biodiversity
The use of sustainable timber as the main building material enhances the surroundings of the nursery, characterised by mature trees. In contrast with the internal smooth whitewashed timber finish, the exterior of the building is clad with rougher decking to give the building a robust skin against vandalism. The decking is built vertically and has a dark ebony stain to create visual associations with the tree trunks. A mixed sedum blanket forms the roof finish to enrich the local biodiversity. This contributes to better views from the surrounding houses and enhances the children's knowledge of the natural world. It also helps water retention, reducing the volume of rainwater entering the public sewer.

How can pedagogic research inform the role of the environment in the design process, and support the nursery’s growing ecological agenda?
Studies included Maria Montessori’s writings (1936, 1949) and research on the Reggio Emilia educational approach. The new building informs and enriches children's experiences by increasing the visual references of the world around them even when inside the building (views of gardens, treetops, rooftops, sky and weather). It provides children with easy access to water (indoors and outdoors); practical references to how things work (visible electrical cables and pull-cords which can be used for lighting different areas); and a domestic sense of space (links to kitchen and quiet room). Children’s self-direction in playing, learning and communicating is an important aspect of the research and design thinking. AY Architects
Erection of superstructure, completed within four days.

View of entrance as a volume ‘cut out’ from the bigger envelope.

Photograph Nick Kane.
Questions

18 View of zinc roof, under construction

19 View of Siberian larch decking cladding, under construction

21 View of garden seen from the staff room
Photograph Nick Kane
24
Electrical and fire alarm cables set to cover different sections of the space and expressed visibly within the three-dimensionality of the ceiling.
25
View of central space
Photograph Nick Kane
26
Inverted ceiling plan

27
View of ceiling towards the north with hung work made by the children
acknowledged that over-specificity is counterproductive for children’s learning and asked how the building should take a quiet role with a materiality and tone similar to its natural setting. The intention is for the building to be enriched over time by the creativity of the users (children’s works and found objects) rather than through fixed and pre-described elements by the architect. [fig. 27]

**Context**

The project is situated within an interdisciplinary context because of its emphasis on pedagogy and community as well as ecology and design. Its originality lies in the simultaneous application of these fields to practice-led design, and its embodiment in the form of the realised building.

**Self-guided and ecological preschool education**

The project can be understood in the context of three different pedagogic approaches: 1) Maria Montessori’s emphasis on the child’s ‘absorbent mind’ and the ‘discovery’ mode of learning within a limited palette of materials; 2) the Reggio Emilia educational approach, which encourages parent involvement and community support in the children’s creativity, and sees the environment as ‘the third teacher’; and 3) John Dewey’s writings on ‘art as experience’. In the local context of the UK, it follows Sure Start’s Guidance on children’s centres.

**Activist and participatory architectural practice**

AY Architects’ mode of practice echoes Mikhail Bakhtin’s thought on the dialogic imagination and relates to a range of other participatory practices (see database Spatial Agency, UK) strengthening community empowerment and the relations between architects and non-architects as co-producers.

**Sustainable building technology**

The project is situated within contemporary research in prefabrication, low carbon construction, and energy-efficient design. It relates to projects that treat wood, in different processed forms, as a natural and cultural material.

**Contemporary school design**

References were made to recent buildings by Tezuka Architects; and the Dutch structuralist movement in texts and buildings by Aldo van Eyck and Herman Hertzberger. [fig. 28 & 29]
Exploded axonometric emphasising the indoors–outdoors life of the new nursery

Drawing by Michiko Sumi
Conceptual drawing of the new building in the context of Montpelier Gardens
Drawing by Michiko Sumi
A collaboration with architect Wanja Wechselberger who invited the children to imagine and ‘build’ their own nursery. A matrix of cables was preinstalled and covered by recycled cardboard panels painted by the children. The workshop marked the transition from old to new building. Ongoing consultation was focused on the children’s understanding of the design process.
Critical and situated practice-led methodologies, including:

1. Manolopoulou’s ongoing and active involvement in the direction of CCN for four years (2008–2012)
2. founding and running the CCN Architecture Group and the Montpelier Fundraising Groups
3. participatory events and workshops through physical making, e.g. Workshop ‘We’re building our own nursery’
4. formal consultation and informal conversation through different roles (user/client/neighbour/local architect/researcher)
5. photographic documentation of the history of the nursery before demolition to record the accumulated ‘archaeology’ of surfaces and objects made by the children. This project led to the decision to minimise colour use in the nursery and allow this to emerge over time through the children’s activities in the building. [fig. 30 & 31]

Practice-led research on sustainable building construction and operation:

Design research was carried out to determine the project’s structure and materiality. It focused on economic and sustainable building methods through the use of cross-laminated timber systems, loadbearing prefabrication, 3D modelling and CNC technology. Research also concentrated on technical literature, specifications and design testing about the type and size of panels with the aim of achieving effective delivery and erection with minimal impact on site. [fig. 32 & 33]

Extensive research into the geometry of the roof for optimal structural and spatial performance, excellent natural ventilation and daylight throughout the year:

Experimentation with the undulated and dissected form aimed to maximise daylight and allow the building to be optimally ventilated. Three strip windows with north–south orientation span the plan diagonally. The rising and falling geometry challenged the KLH loadbearing prefabrication system, which is typically used for more standard rectilinear and symmetrical constructions. Solar studies and research through modelling defined the exact orientation and size of the openings and overhangs in order to welcome the sun appropriately throughout the year. [fig. 34 & 35]
32
Plan and sections of roof panels

33
Detail sections

34
Section through the undulated roof with the storage wall units in elevation

35
Model study of light distribution
Focused study of different pedagogic approaches and UK-based design guidance:

In addition to the study of theoretical literature on child psychology and pedagogy (Montessori, Regio Emilia, Dewey) described above, important design guidance was made reference to:


Wide-ranging analogue and digital drawing (2D and 3D) and physical model-making at different scales:

Analogue and digital drawing was used throughout the process, including sketches, diagrams, measured drawings, 3D visualisations, technical details and specifications. Photography was used extensively for analysis and critique, and a range of feasibility, consultation, planning and technical documents were produced. However, physical model-making was the main reflective tool for developing and communicating the design. AY Architects produced tens of models at different scales to test the geometry of the roof and the daylight distribution in the space. These models were combined with accurate solar studies in drawing. In the final production stage a fabricator-led advanced 3D model was produced to set out all the KLH panels and connections in full detail. This underwent a two-stage sign-off procedure by AY Architects. [fig. 36–38]
36
3D model in preliminary stage, created to calculate the KLH panel system

37
Model view of the entrance in 1:20 scale
Different views of one of the 1:20 scale models
Dissemination

To date the project has been reviewed in the *Architects’ Journal* by Sarah Wigglesworth, and in *Dezeen, Domus, ArchDaily,* and *Designlines.* It has been discussed in the local press by the *Camden New Journal* and the *Ham & High,* and has been featured on the RIBA, BBC and *Independent* websites.

**Further dissemination through related projects includes:**

‘Montpelier Portrait’, a photographic project capturing the existing building before demolition by Guan Lee (2010)
‘We’re building our own nursery’, a children and families workshop by FIRSTNAME Wechselberger with Manolopoulou (2010)
Presentations to other schools, including Forest School, Walthamstow, and Torriano Juniors, Camden, by Anthony Boulanger (2011)
Related writings by others

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Charlotte Newton, ‘Much-loved nursery gets funding for new building’, Ham & High (22 Oct 2010).

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‘Architect of the Year Awards 2013: Small Project Architect of the Year’, BD Online (Sep 2013): http://www.awards.bdonline.co.uk/small-project-architect-of-the-year
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Bloom
by Alisa Andrasek
and José Sanchez

House of Flags
by AY Architects

Montpelier Community Nursery
by AY Architects

Design for London
by Peter Bishop

2EmmaToc / Writtle Calling
by Matthew Butcher
and Melissa Appleton

River Douglas Bridge
by DKFS Architects

Open Cinema
by Colin Fournier
and Marysia Lewandowska

The ActiveHouse
by Stephen Gage

Déjà vu
by Penelope Haralambidou

Urban Collage
by Christine Hawley

Hakka Cultural Park
by Christine Hawley,
Abigail Ashton, Andrew
Porter and Moyang Yang

House Refurbishment in Carmena
by Izaskun Chinchilla
Architects

Refurbishment of Garcimuñoz Castle
by Izaskun Chinchilla
Architects

Gorchakov's Wish
by Kreider + O’Leary

Video Shakkei
by Kreider + O’Leary

Megaframe
by Dirk Krolikowski
(Rogers Stirk Harbour
+ Partners)

Seasons Through the Looking Glass
by CJ Lim

Agropolis
by mam

Alga(e)zebo
by mam

Chong Qing Nan Lu Towers
by mam

ProtoRobotic FOAMing
by mam, Grymsdyke Farm
and REX|LAB

Banyoles Old Town Refurbishment
by Miàs Architects

Torre Baró Apartment Building
by Miàs Architects

Alzheimer’s Respite Centre
by Niall McLaughlin
Architects

Bishop Edward King Chapel
by Niall McLaughlin
Architects

Block N15 Façade,
Olympic Village
by Niall McLaughlin
Architects

Regeneration of Birzeit Historic Centre
by Palestine Regeneration Team

PerFORM
by Protoarchitecture Lab

55/02
by sixteen*(makers)

Envirographic and Techno Natures
by Smout Allen

Hydrological Infrastructures
by Smout Allen

Lunar Wood
by Smout Allen

Universal Tea Machine
by Smout Allen

British Exploratory Land Archive
by Smout Allen
and Geoff Manaugh

101 Spinning Wardrobe
by Storp Weber Architects

Blind Spot House
by Storp Weber Architects

Green Belt Movement Teaching and Learning Pavilion
by Patrick Weber

Modulating Light and Views
by Patrick Weber