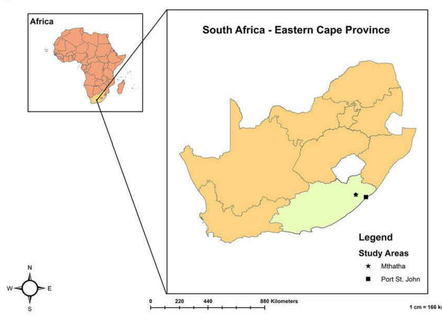
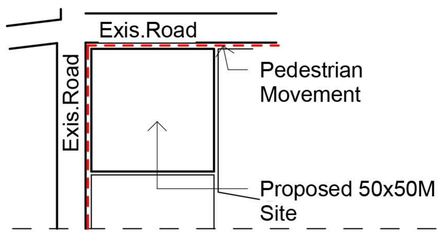
iNQUBELA
Pre-school

Mhatha, situated in the Eastern Cape of South Africa, has a mild temperate climate with seasonal variations. Designing infrastructure and urban spaces in this region requires careful consideration of climate factors such as temperature fluctuations, precipitation levels, and seasonal changes to ensure sustainability and resilience.

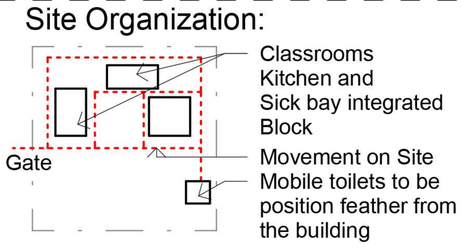
Design Considerations
Architectural Adaptations
Ventilation & Shading: Given the warm summers, structures should incorporate passive cooling techniques such as cross-ventilation and shaded outdoor spaces.
Insulation: For cooler winter months, buildings should be designed with effective insulation materials to maintain comfortable indoor temperatures.



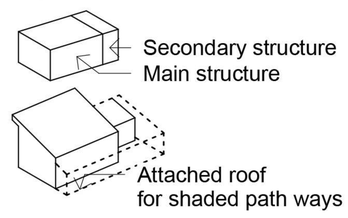
Site and Movement:



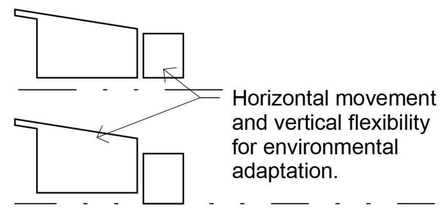
Site Organization:



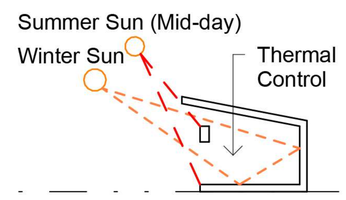
Form:

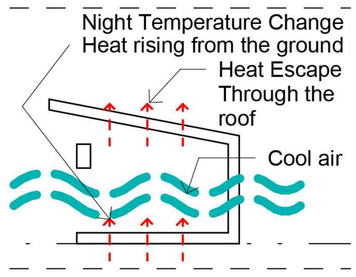


Transformation:



Passive Design:





South East Elevation
Scale 1:100

North East Elevation
Scale 1:100

North West Elevation
Scale 1:100

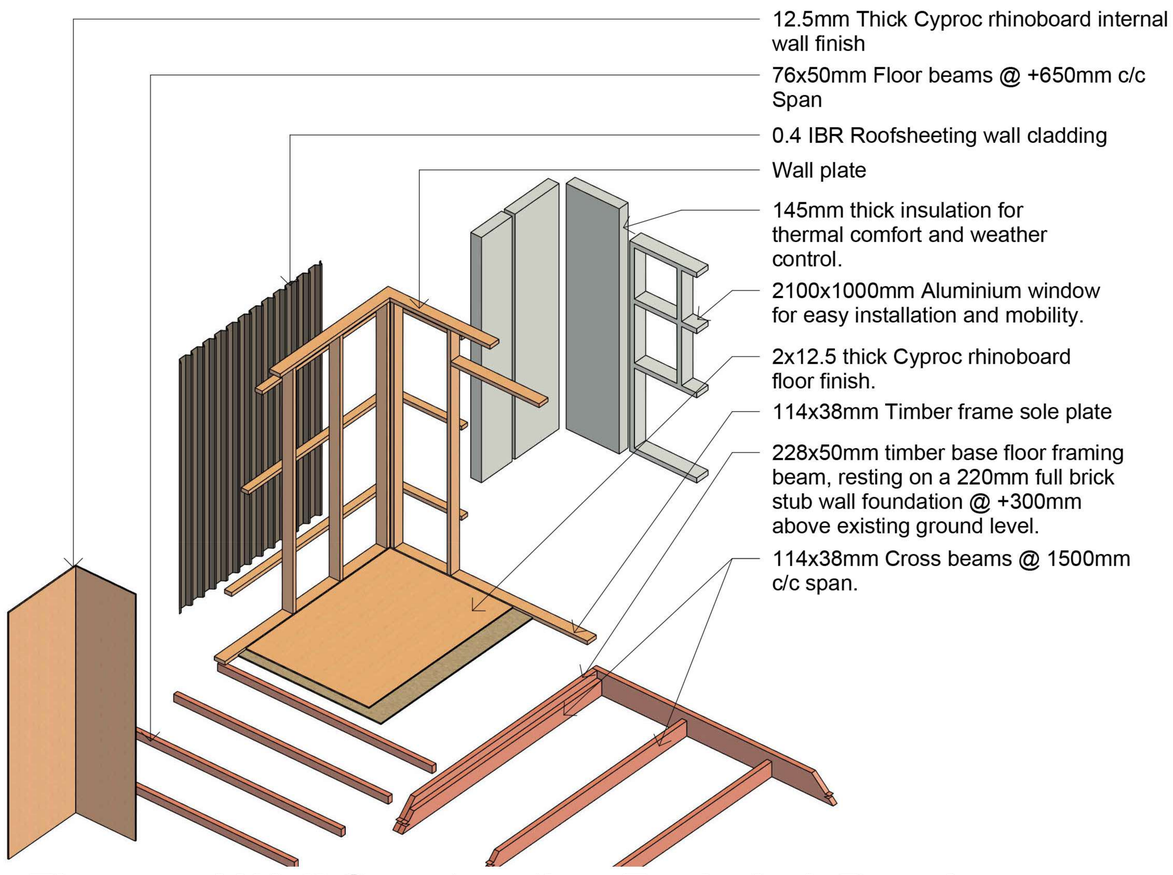
Precedent Study:

Name of Project: The Armadillo Creche/
Architects: Cornell University Sustainable Design.
Year: 2011
Category: Schools
City: Johannesburg
Country:South Africa

Inqubela Pre-school draws inspiration from the sustainable principles of The Armadillo Crèche. It emphasizes passive design strategies and material honesty to create a nurturing, energy-efficient learning space. Locally sourced, low-impact materials respond to environmental and cultural context, while the scalable design allows adaptation across diverse climates and communities. Modular construction enables cost effective replication and flexibility. Orientation, natural ventilation, and solar shading enhance comfort with minimal energy dependence. The project reflects a commitment to social upliftment, sustainability, and responsive architecture offering an inclusive, adaptable model for early childhood education in under resourced areas of South Africa.

Design overview:

Visual round windows showcasing outdoor spaces including the play ground view from inside class.
Exposed rafters



Floor and Wall Construction Exploded. Drawing
Scale 1:50

Courtyard Play Ground filled with soft sand

Rubber Play Ground

Maximum Natural light and ventilation
Roof Sheeting used for wall cladding on exterior walls exposed to rain.

View from the main Gate

Dining area

BTC80

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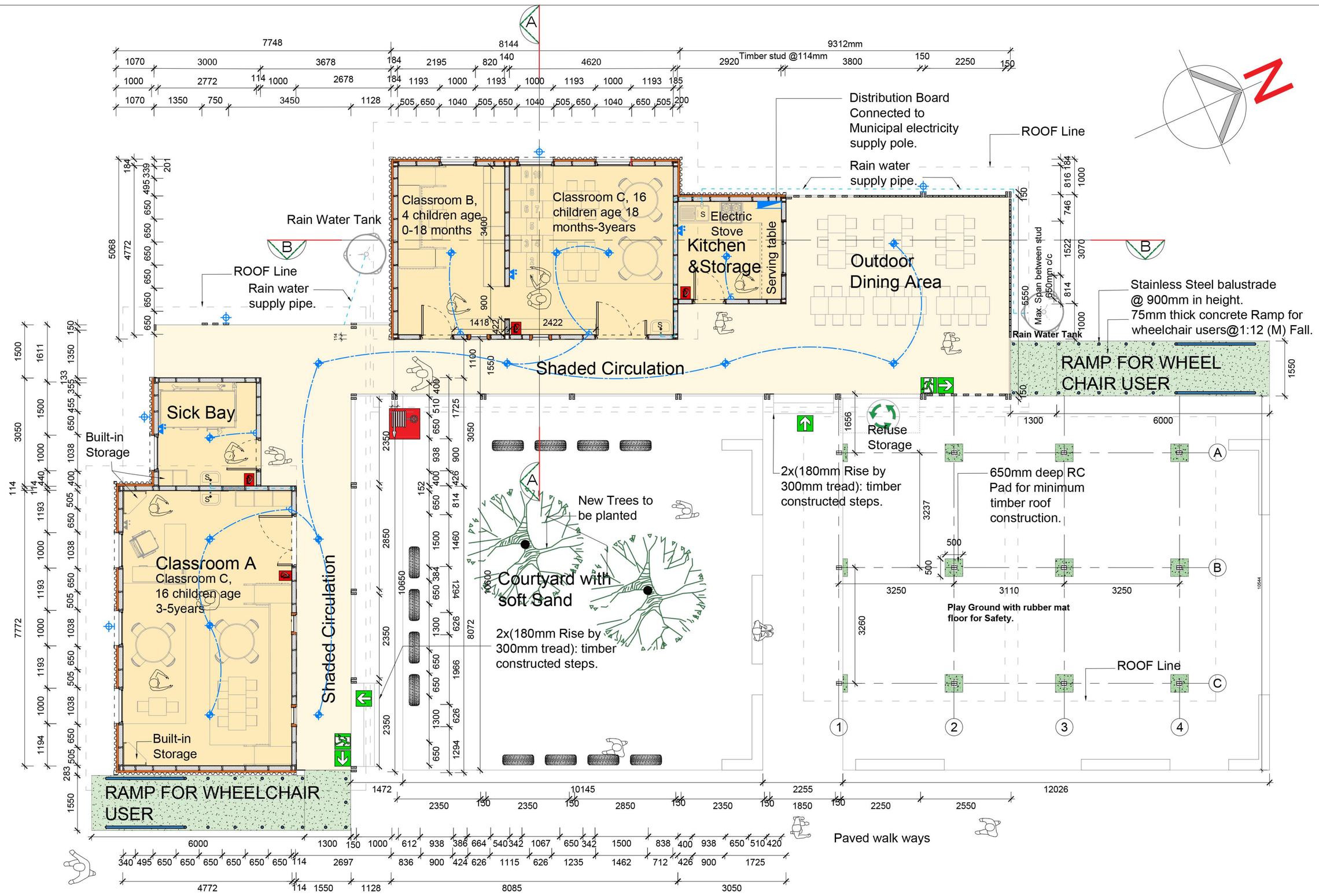
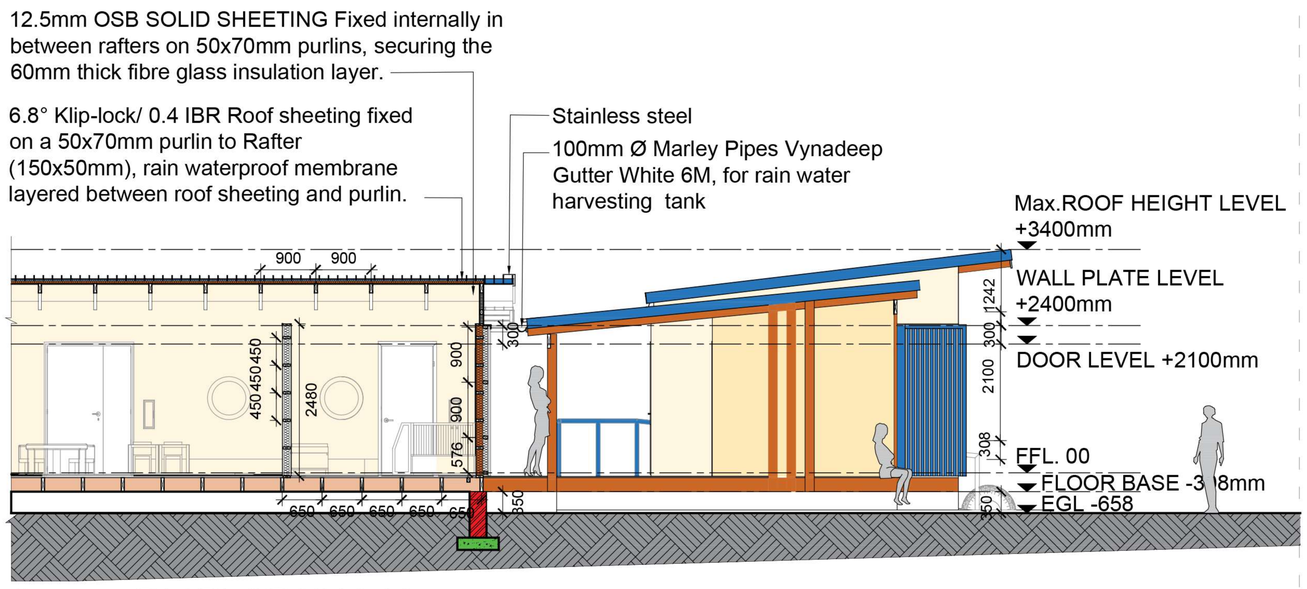
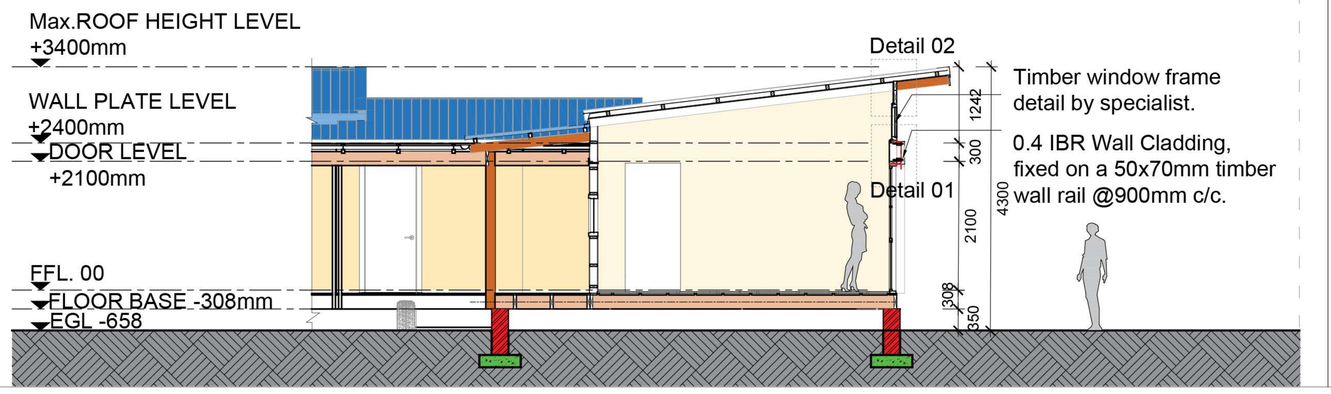
Pre-school



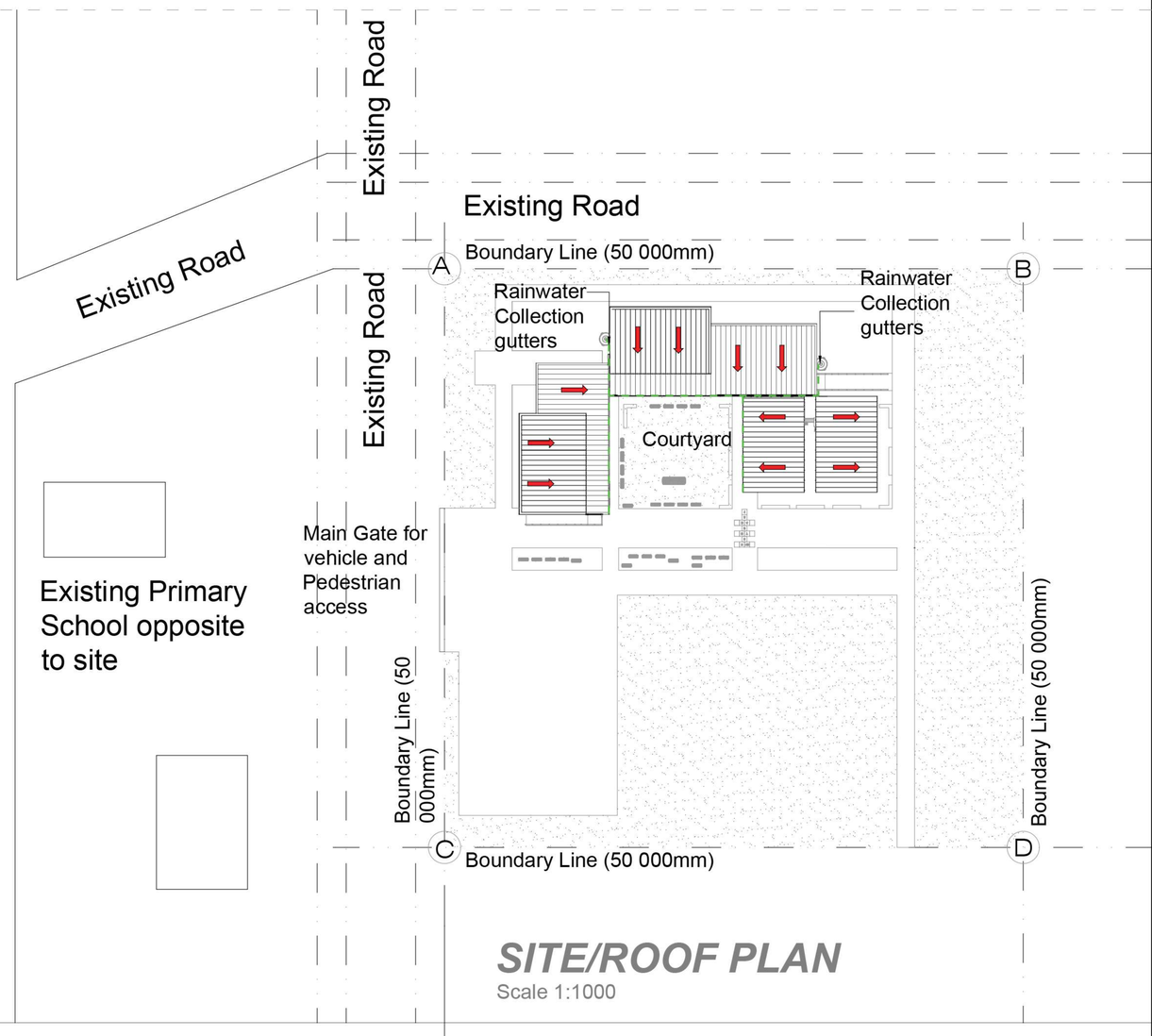
North East Elevation
Scale 1:100



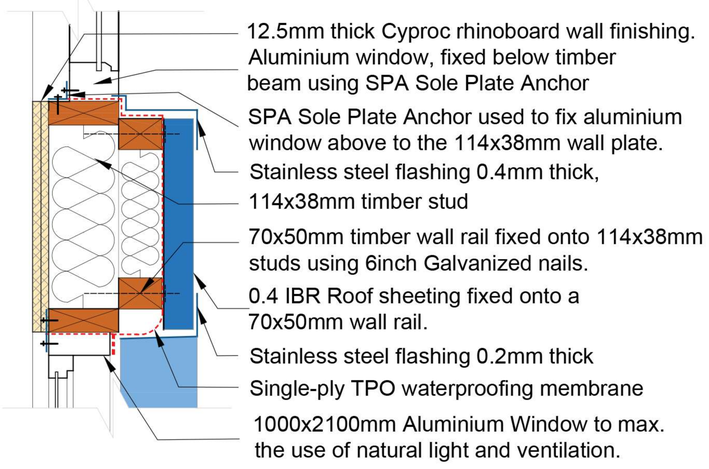
Long SECTION B-B
Scale 1:100



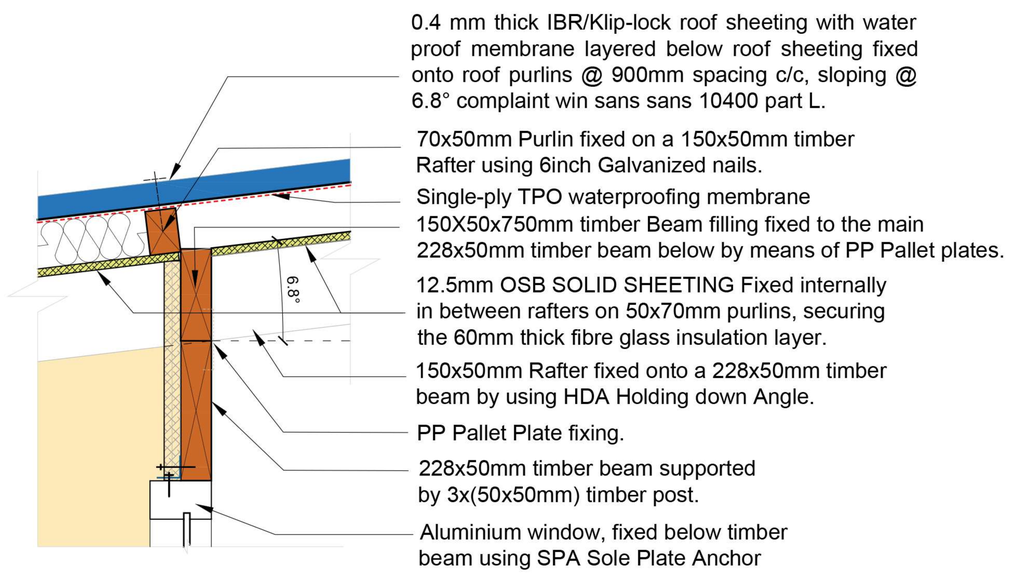
Cross SECTION A-A
Scale 1:100



SITE/ROOF PLAN
Scale 1:1000



Wall-Window Detail 01
Scale 1:10



Roof Detail 02
Scale 1:10

Accommodation Schedule

Classroom A
Wooden Floor board Finish Floor Area: 37m²
Ventilation: 1.05m²x4(Openable window area) =11.5% >10% regulation. Natural Light:12.4 m²(W.Area) =33.5% > 5% regulation.

Classroom A
Wooden Floor board Finish Floor Area: 37m²
Ventilation: 1.05m²x4(Openable window area) =11.5% >10% regulation. Natural Light:12.4 m²(W.Area) =33.5% > 5% regulation.

Kitchen
Wooden Floor board Finish Floor Area: 8.11m²
Ventilation: 1.35m² (Openable window area) =16.64% >10% regulation. Natural Light: 1.35m²(W.Area) =16.64% > 5% regulation.

Sick Bay
Wooden Floor board Finish Floor Area: 8.11m²
Ventilation: 1.5m² (Openable window area) =18.8% >10% regulation. Natural Light: 2.1m²(W.Area) =26%% > 5% regulation.

BTC80