Context, Built Form and Landscape

Built Form Design Strategy

1. Built Form to suit Existing
   The existing simple skillion roof form is further expressed throughout all learning neighbourhoods. The use of simple trapezoidal form provides a familiar pattern of learning areas for students.

2. Openings & Fenestration
   Openings are cut into neighbourhood forms providing natural cross ventilation to each learning area.

3. Passive Solar Design
   Further openings for passive ventilation and natural light are created from highlight clerestory windows.

4. Intermediate Built Form
   Repetition of simple built form, clad in alternative materials provides students with an intermediate space easily associated for different learning activities.

5. Sustainable School
   Alongside the application of solar panels, external shading & cooling devices alongside the above, each neighbourhood provides students with learning areas naturally cooled and ventilated for all conditions.
2. Sustainability, Efficiency and Durability I

Lake Cathie Public School masterplan has integrated the following sustainability principles in order to provide an informative environment; social and economic outcomes. SHAC have emphasized sustainability throughout all phases of design to ensure the school is durable, resilient and adaptable to meet future learning and environmental requirements:

- **a)** Be responsive to local climate including sun, wind and aspect
- **b)** Select materials and approaches to detailing that are robust and durable
- **c)** Integrate landscape planting and Water Sensitive Urban Design (WSUD) principles to enhance amenity and building performance
- **d)** Include deep soil zones for ground water recharge and planting
- **e)** Minimise reliance on mechanical systems
- **f)** Include initiatives to reduce waste, embodied energy and emissions, through passive design principles and the use of advanced energy production systems where possible
- **g)** Maximise opportunities for safe walking, cycling and public transport access to and from the school.
2. Sustainability, Efficiency and Durability II

Design Solutions

a) Two of the three new buildings are orientated towards north with the roof sloping south optimising desirable solar entry.

b) Materials are fit for purpose and robust.

c) Natural swales are used to mitigate over land water flow directing water to a frog pond on the site.

Refer to DR6007.

d) Landscape design includes deep soil planted areas.

Refer to DR6007.

e) Operable louvered windows allow for natural ventilation, minimising reliance on mechanical ventilation.

Refer to DR6004.

f) 50% of external walls are glazed, optimising daylighting & minimising reliance on artificial lighting.

Solar panels are integrated into the design and will be the main source of energy.

Refer to DR6004.

g) Entrance to the school is located adjacent to the proposed subdivision to facilitate walking to school, minimising the travel demands.

Bus bays provided to the new collector road that can also be used to service local public transport and for bus access to the local sporting fields adjacent to the school.

Refer to DR6004.

Bike parking accessible from the front gate facilitates and encourages students riding to school.