

The following statement has been prepared for Brookvale Public School project in accordance with the terms and conditions for new hall building development (April-2019). The content of the statement has been developed to summarise the sustainability approach for this development and to demonstrate how it addresses the DCP Part 3.5 Sustainability requirement set by the Northern Beach Council.

The development building is located within the exiting Brookvale public school complex, consists of a communal hall, supporting facilities and a covered outdoor learning area (COLA). The areas include the following:

- Building GFA (Internal area) – 476 m²
- COLA – 217m²

The North Beaches Council requires the development to meet the Sustainability requirements stipulated in the *Manly Development Control Plan 2013 Amendment 11*. The Brookvale Public School project has GFA under 500m², and therefore only DA statement of Environment Effects addressing the paragraphs 3.5.1 to 3.5.8 is required for the development.

Table 1 Manly DCP – Amendment11, clause 3.5.6 Table 17 Energy Efficiency & relevant sustainability objectives

Figure 17 - Energy Efficiency/ Conservation Requirements

Development type	What must be complied with	Information to be submitted with development application
New business premises, retail premises, office premises and industrial buildings involving a gross floor area of greater than 500sqm.	<p>The total anticipated annual energy consumption and greenhouse gas emission production must be in line with current best practice to be determined in the Energy Performance Report. This Report must outline how these targets will be achieved under objectives 6 and 9 at <i>paragraph 3.5</i> of this plan. See also Council's Administrative Guidelines</p> <p>The Energy Performance Report will investigate and evaluate the use of the least greenhouse gas intensive form of energy such as trigeneration and solar farm technology.</p> <p>New or replacement hot water systems of domestic/ residential scale must be solar hot water in accordance with <i>paragraph 3.5.2</i>.</p> <p>Energy star rated electrical appliances must be supplied in accordance with <i>paragraph 3.5.4</i>. See also <i>paragraph 3.4.1.3 Overshadowing Solar Systems</i>.</p>	<p>Energy Performance Report including evidence from an accredited energy consultant to confirm compliance with the total anticipated energy consumption and investigation of trigeneration and other emission reduction energy sources.</p> <p>The DA Statement of Environmental Effects must include considerations referred to in <i>paragraphs 3.5.1 to 3.5.8</i> of this plan with particular discussion of sustainable design principles and controls.</p>
New developments and alterations and additions to Commercial, industrial, retail, restaurant and café developments between 100sqm and 500sqm.	<p>New or replacement hot water systems of domestic/ residential scale must be solar hot water in accordance with <i>paragraph 3.5.2</i>.</p> <p>Energy star rated electrical appliances must be supplied in accordance with <i>paragraph 3.5.4</i>. See also <i>paragraph 3.4.1.3 Overshadowing Solar Systems</i>.</p>	<p>The DA statement of environmental effects must include considerations referred to in <i>paragraphs 3.5.1 to 3.5.8</i> of this plan with particular discussion of sustainable design principles and controls.</p>

DCP Part 3.5 Requirements	Design consideration
3.5.1 Solar Access	<p>The proposed building consists of rectangular profile with long sides orientate toward North-East and South-West; and the short sides towards North-West and South-East. The glazing design consideration included:</p> <ul style="list-style-type: none"> North West – No provision of glazing, avoid severity of summer afternoon sun North East – [Communal space] ceiling height, narrow horizontal window with awning above, provide constant daylight throughout, but minimise midday direct solar heat & glare; [office & stores] no provision of glazing, avoid direct summer morning sun. South East – Full height bifold glazing and shaded by the COLA's roof. Allow for indirect daylight but minimise direct sun penetration. Consideration of double-glazing unit system may be required if space to be air-conditioned. South West - Full height bifold glazing for part of the façade area; long roof awning and existing tree shading are incorporated to maximise seasonal solar heat requirement. Skylight – provision of skylights to external COLA and four internal spaces.
3.5.2 Energy Sources and Systems	<p>Energy efficient services and onsite energy generation options to be considered for the project:</p> <ul style="list-style-type: none"> Solar PV – Not required. However, provision of solar PV panels present opportunistic saving for energy consumption by the fans/light/water pumps. Solar Hot Water Systems – Not required. Very limited hot water demand for the Access WC and Kitchenette usage only, gas instantaneous is sufficed for hot water on demand. Trigeneration & Cogeneration – Not a viable option for the project as the building energy consumption is low, does not consist constant demand profile, and no provision of onsite power generator. Ceiling fans for space cooling – Ceiling fans to be incorporated to all occupied space.
3.5.3 Ventilation	<ul style="list-style-type: none"> Glazed louvres are provided on three sides of the building (NE, SE an SW) to promote cross ventilation. The louvre windows are placed high near the ceiling level to induce stack effect to the internal space, whilst allow unobstructed prevailing north easterly and easterly breezes (Detailed louvre operation control strategy to be confirmed during detailed design stage).
3.5.4 Energy Efficient Appliances and Demand Reduction and Efficient Lighting (non-residential buildings)	<ul style="list-style-type: none"> Electrical Appliances – All base building appliances will be selected within one energy efficient star of the best available. Air conditioning units – All supplied units will have a minimum 4 star energy rating for cooling only; reverse cycle unit will have a minimum of 4 star on one cycle and 3 star rating on the alternative cycle. Gas heater - All base building gas heater will be selected within one energy efficient star of the best available. Lighting energy consumption will be minimised by using LED and other high energy efficient fitting design and control with daylight

DCP Part 3.5 Requirements	Design consideration
	<p>sensor. Motion sensors will be installed in all areas with sporadic uses, such storage, WC, services and circulation areas.</p>
3.5.5 Landscaping	<p>Provision of the following landscape:</p> <ul style="list-style-type: none"> • Tree protection zone (TPZ) – existing trees are located on West and East sides of the building, provide canopy shading to reduce summer heat gain for both the morning and afternoon sun. • Other new landscape plants must be selected from low water use or indigenous species that are suited for the local environments. One proposed consideration is to provide deciduous trees to the SW glazing to block out solar heat penetration during the summer season. • Plants selection criteria to be considered: <ul style="list-style-type: none"> ○ Canopy density ○ Seasonal character ○ Growth pattern & size ○ Low water requirement & low maintenance
3.5.6 Energy efficiency/conservation requirements for non-residential developments	<ul style="list-style-type: none"> • All electrical appliances will be complied to the required energy star rating as per paragraph-3.5.4 • No nearby neighbouring properties with solar collectors and hence paragraph-3.4.1.3 <i>Overshadowing Solar Systems</i> is not applicable. • NABERS Rating Scheme – Not required (School building and less than 2000m²)
3.5.7 Building Construction and Design	<ul style="list-style-type: none"> • Environmentally sound building materials – Materials to be sourced from responsible supplier, low embodied energy, minimum environmental and occupant health impact products. The proposed project commitment included: <ul style="list-style-type: none"> ○ Low Volatile Organic Compounds (VOC's) and Formaldehyde products, such as paints, sealants, adhesives, medium density fibreboard (MDF), and vinyl floor coverings. ○ All Timber sourcing, temporary and permanent timbers are to be: <ol style="list-style-type: none"> 1. Certified or verified as recycled, or reclaimed (preferably FSC certified) 2. Sourced from State Forest plantations, Australian farm or recycled timber enterprises 3. Sourced from lawfully harvested trees 4. Treated with environmentally accepted preservatives 5. Do not possess of toxic adhesives, formaldehyde or chlorines ○ Avoid PVC products as a range of toxin associated with the manufacture of PVC. Where PVC products must be used, ensure they are sourced from compliant PVC manufacturers (minimum 90% by cost, common products are typically included cabling, pipework, conduits and blinds). • Thermal Mass – As the building is lightweight construction, the thermal mass will be maximised through roof and wall insulations and the provision of concrete slab-on-ground, allowing the internal space

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	<p>to regulate by the low fluctuated ground temperature throughout the seasons. Additionally, as the hall and storage spaces are non-permanent occupancy spaces, the benefit of thermal comfort induced by the thermal mass construction will not be perceived as crucial by the transitional occupants.</p> <ul style="list-style-type: none"> • Glazing – All glazing & skylights to be complied with BCA section J Part-J2 requirement. • Insulation - All building fabrics to be complied with BCA section J Part-J1 requirement. • Glazing and Insulation will comply with J2 and J1 regardless of if the building is being air-conditioned or not. This will ensure maximum thermal comfortability for occupants and future proof against future upgrade with air-conditioning.
3.5.8 Water Sensitive Urban Design	<ul style="list-style-type: none"> • Stormwater management <ul style="list-style-type: none"> ○ Provision of stormwater management plan/stormwater plan as per Council's design guideline ○ Minimise direct connection to stormwater system, onsite stormwater detention system to be provided. ○ Where required, the rainwater tank may design to enhance detention capacity • Potable water conservation <ul style="list-style-type: none"> ○ Fittings water rating to be equal or higher <ol style="list-style-type: none"> 1. Showerhead – 3 Star 2. Urinals – 3 Star 3. Dual flush toilet – 4 Star 4. All taps (except garden & Clean outlet) – 4 Star ○ Specific water efficient dishwashers and washing machine. ○ Provision of rainwater tank for landscape irrigation. • Groundwater Quality Management – Ensure the development minimise its impact on groundwater quality, project designs and practices to be consistent with the principles set by the NSW State Groundwater Policy and 'The NSW State Groundwater Policy Framework Document'.

The checklist had been created to provide high level architectural design guidance only, detailed design strategies are to be developed and refined as more information become available