Sustainability in health care capital works

Standard practice initiatives (July 2010)

1.0	Indoor environment quality	Phase
1.1	Appropriate design and internal layout to provide daylight for occupied functional areas (all areas likely to be occupied for at least one continuous hour per day).	Master plan
1.2	Appropriate internal layout to reduce excessive solar heat gain for patient areas.	Feasibility
1.3	Utilise internal, manually operated blinds to provide shade to occupants.	Schematic design
1.4	Use high-frequency ballasts for all fluorescent luminaries.	Schematic design
1.5	Lighting design to provide maintained illuminance levels of not greater than 25 per cent above the minimum maintained illuminance levels recommended in Table F1 of AS1680.2.5-1997 for 95 per cent of occupied functional areas.	Schematic design
1.6	Locate outside air intakes to reduce contaminants from entering the building, with minimum distances from sources of contaminants, such as major roads, loading dock or a waste collection facility.	Schematic design
1.7	Design for thermal comfort and zone heating, ventilating and air conditioning (HVAC) systems to maintain effective comfort in individual zones.	Schematic design
1.8	Consider the use of a wider and more variable internal temperature band (such as 19–26°Celsius) unless contraindicate d for clinical or operational reasons.	Schematic design
1.9	Photocopy rooms to be sealed from work and meeting areas and include provision of exhaust riser to remove indoor pollutants.	Schematic design
1.10	95 per cent of all wall and ceiling coverings, flooring and paints are low volatile organic compounds (VOC).	Schematic design
1.11	Use low formaldehyde emission options for particle and composite boards.	Schematic design
1.12	Access provided to ductwork to allow maintenance and cleaning in accordance with design guidelines for hospitals and day procedure centres.	Schematic design
1.13	The internal noise levels from building services meets the recommended design sound levels provided in Table 1 of AS/NZS2107:2000.	Schematic design

2.0	Energy	Phase
2.1	Orient and design the building, within site constraints, so that as close as possible to 100 per cent of the north façade is shaded at the noon solstice and there is minimal glazing (with shading) on the west façade.	Master plan
2.2	Maximise shading from existing trees and neighbouring buildings.	Master plan
2.3	Treat doorways and other external openings to manage prevailing winds and draughts.	Feasibility
2.4	Maximise use of stairs through location and design.	Schematic design
2.5	Insulation to meet levels specified in the Building Code of Australia.	Schematic design
2.6	Use light-coloured window frames to reduce heat absorption into the building.	Schematic design
2.7	Use skylights for day-lighting in single-storey buildings and the top floor of multi-storey buildings within travel areas.	Schematic design
2.8	Provide manually operable windows for natural ventilation in sub-acute patient and administration areas, where feasible.	Schematic design
2.9	All below-ground car parks to have carbon monoxide monitoring and variable speed drive (VSD) fan controls.	Schematic design
2.10	All three-phase HVAC system motors above 5kW to have variable speed drives.	Schematic design
2.11	Provision of solar hot water for domestic hot water (primary systems 60 per cent or pre-heater systems 20 per cent).	Schematic design
2.12	All linear fluorescent lighting to be T5.	Schematic design
2.13	The use of low-voltage halogen downlights is not permitted in any areas of the facility, including lifts, foyers/reception areas, toilets, meeting rooms, concessions and executive suites.	Schematic design
2.14	Install voltage reduction on all car parking lighting and external lighting systems.	Schematic design
2.15	Achieve internal lighting power density to less than 2 watts/m2/100 lux.	Schematic design
2.16	Include local control for all light zones of up to 100 m2.	Schematic design
2.17	Include occupancy and light sensors in rooms intermittently used, including dining rooms, activity rooms, meeting rooms, staff rooms, store rooms and staff toilets.	Schematic design
2.18	Avoid dead legs on hot water systems.	Schematic design
2.19	Install time controls on all boiling water units in kitchens and activity rooms.	Schematic design
2.20	Install minimum 0.95 power factor correction systems for building services.	Schematic design

3.0	Water	Phase
3.1	Include water-sensitive urban design, such as swales and bio-filtration, in external areas.	Schematic design
3.2	Install pressure-reducing valves on hydraulic appliances.	Schematic design
3.3	Provide rainwater tanks to collect water from roof tops, reverse osmosis (dialysis) and other areas where flows justify. Collected water to be treated and used for landscape irrigation and toilet flushing. Use of non-potable water to be in accordance with the *Guidelines for water reuse and recycling in Victorian health care facilities*.	Schematic design
3.4	Install tap-ware with maximum flow rate of 4.5 litres (6* WELS rating) in all ensuites and general amenity areas.	Schematic design
3.5	Install dual flush toilets with capacity of 3/4.5 litres (4* WELS rating).	Schematic design
3.6	Install showers with maximum flow rate of 7.5/9 litres (3* WELS rating).	Schematic design
3.7	Install waterless or non-potable water flushed 6* WELS-rated urinals for staff and visitors. Use of non-potable water to be in accordance with the *Guidelines for water reuse and recycling in Victorian health care facilities*.	Schematic design
3.8	Design landscaping to be water efficient, including use of mulching, plant selection and water-efficient irrigation system, comprising subsoil drip systems and automatic timers with rainwater or soil moisture sensor over-ride.	Schematic design
3.9	Adiabatic coolers and/or ultra-low water use cooling towers/closed circuit coolers are to be used.	Schematic design
3.10	Avoid cooling of equipment such as CSSD or compressors with single-pass water, use chilled water and heat exchangers or non-potable water instead where services are in close proximity. Use of non-potable water to be in accordance with *Guidelines for water reuse and recycling in Victorian health care facilities*.	Schematic design

4.0	Materials	Phase
4.1	Re-use fittings, furniture, workstations and materials from vacated and/or demolished premises.	Schematic design
4.2	Reuse existing structures/facilities on-site within design, where feasible.	Schematic design
4.3	Where practical select finishes and furniture designed and manufactured for low environmental impact (including sustainably managed plantation timber and joinery).	Schematic design
4.4	Provide infrastructure with appropriate access within facility to allow segregation of waste into reusable, recyclable, compostable and true waste components in accordance with waste management guidelines.	Schematic design
4.5	Minimise use of paint or finishes on exterior surfaces.	Schematic design
4.6	Require use of standard material sizes and components.	Schematic design
4.7	Use of post-consumer waste/post-industrial waste such as recycled aggregate, fly ash and silica fume for concrete and post-consumer recycled content or re-used steel.	Schematic design
4.8	Maximise use of locally produced building materials, construction workers and facilities.	Delivery

5.0	Ecology and land use	Phase
5.1	Maximise retention of existing ecological resources, contiguous ecosystems networks and native vegetation.	Master plan
5.2	Avoid land that is of prime agricultural value: below the 100-year flood operations location; subject to erosion, wildfire or landslides; wetlands; virgin forest or land; or any other area of recognised heritage or conservation value.	Master plan
5.3	Provide preference to previous commercially used sites where use outweighs remediation costs.	Master plan
5.4	Maintain balance of topsoil and fill on site, such that no topsoil is removed from site.	Master plan
5.5	Use locally consistent flora in landscaping.	Schematic design

6.0	Transport	Phase
6.1	Select site and design layout to maximise access to existing or proposed future public transport.	Master plan
6.2	Provide secure and conveniently located on-site bicycle parking for staff and visitors and 'after-trip' facilities for staff in accordance with provisions in the VPP clause 52.34, including where exemptions from the VPP exists.	Schematic design
6.3	Provide tele- and video-conferencing facilities.	Schematic design
6.4	Encourage reduction of car-parking numbers from planning allowances to encourage use of alternative transport without reducing accessibility to services for patients.	Schematic design
6.5	Provide 15 per cent of total parking spaces designed and labelled for small cars and/or motorcycles/mopeds, hybrids and alternative-fuel vehicles and carpools in preferential locations.	Schematic design
6.6	Develop an integrated transport plan (ITP) for the project consolidating all behavioural and infrastructural transport measures implemented on site and recommendations for future improvements.	Schematic design

7.0	Emissions to land, water and air	Phase
7.1	Minimise noise emissions to adjacent properties.	Feasibility
7.2	Use of water-sensitive urban design (WSUD) in all hard-surface and landscaped areas, including use of pollution prevention/interception devices as required to maintain stormwater quality leaving site.	Feasibility
7.3	Avoid ozone-depleting chemicals by sourcing recognised alternatives with low ozone-depleting potential (ODP), for example, hydrocarbon gases in air conditioning and thermal insulants.	Schematic design
7.4	Ensure no direct lighting is directed beyond site boundaries or upwards without falling directly onto a surface for illumination, being mindful of safety and 'ambience' requirements.	Schematic design
7.5	All trade waste discharges to meet requirements of *Standards for trade waste discharges to sewerage system* (SEWL, June 2007), or subsequent versions that supersede this document.	Schematic design

8.0	Management	Phase
8.1	Agency to assign responsibility for integrating environmentally sustainable design (ESD) into the project and provide input to relevant user group consultation.	Master plan
8.2	Appointment of Green Star – Healthcare accredited professional on design team.	Feasibility
8.3	Investigate use of government funding schemes to assist in implementing sustainability initiatives.	Feasibility
8.4	Develop a metering strategy (and install required meters) to allow measurement of energy and water from functional areas, concessions, areas of substantive electricity use (greater than 100 kVA) and areas of high water use (such as kitchen, laundry and CSSD). The strategy must indicate how data will be used to report against targets and benchmarks and influence behaviour change.	Schematic design
8.5	Installation of an electronic building management system (BMS) to report and control all energy- and water-consuming systems and allow for the optimisation of building systems (without the use of excessive controls).	Schematic design
8.6	Minimise adverse impacts from development during construction and operation on local streetscape/landscape and neighbouring residents and businesses.	Delivery
8.7	Adopt a project-specific formal environmental management plan (including waste) for demolition and construction.	Delivery
8.8	The managing contractor (builder) to have an environmental management system developed in accordance with ISO 14001.	Delivery
8.9	Commissioning in compliance with Chartered Institute of Building Services Engineers (CIBSE) and American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) commissioning codes.	Delivery
8.10	Provide a building user guide detailing the energy and environmental strategies, monitoring and targeting, building services, transport facilities, materials and waste policy, expansion/re-fit considerations, references and further information, and a building maintenance guide detailing the maintenance and access provisions to the building services and building fabric.	Delivery
8.11	Provide staff training in appropriate operational procedures.	Delivery
8.12	Provide appropriate equipment maintenance procedures.	Delivery
8.13	80 per cent by weight target for demolition and construction materials (excluding hazardous waste) to be re-used and/or recycled.	Delivery

Further information

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Case studies and the Department of Health *Guidelines for sustainability in health care capital works* can be found at http://www.capital.health.vic.gov.au/Sustainability/