

Standard

DECD design standards

DECD14/5606

Summary

The Design Standards provide mandatory requirements for all Capital Works, Medium Works, Minor Works, site funded and maintenance projects at DECD education facilities.

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1. Title

DECD Design Standards

2. Purpose

The Design Standards have been developed to assist architects, designers, builders, contractors and schools in creating high quality learning environments that utilise best practice to optimise the participation of all students. This document also provides reference information for the development of project facilities briefs, detailed planning and technical information for the design of DECD education facilities and a reference source for all information relevant to the provision of DECD education facilities.

3. Scope

The DECD Design Standards provide mandatory requirements for all employees and contractors for Capital Works, Medium Works, Minor Works, site funded and maintenance projects at DECD education facilities.

4. SECTION 1 – DOCUMENT GUIDELINES

4.1 Introduction

This document has been developed in collaboration with the Department of Planning, Transport and Infrastructure (DPTI) to specify requirements of the Department for Education and Child Development (DECD) in the design and construction of new school facilities and the redevelopment of existing school facilities.

DECD school facilities are required to comply with all relevant Acts, Codes and Government Legislation including, but not limited to, the Building Code of Australia (Class 9b buildings and other areas as applicable), Australian Standards, the Environment Protection Act and the Disability Discrimination Act 1992. However, DECD may also specify to a higher standard where it is mandatory to comply with specific details for safety, security, maintenance or performance reasons as outlined in this policy. Mandatory requirements are identified by the word shall.

As part of the Design Standards, Ecologically Sustainable Development (ESD) principles have been incorporated in to all sections to ensure DECD school facilities create learning environments that promote social, environmental and economic sustainability. This is to ensure that ESD principles are seen as an integral component in the design and construction of DECD education facilities.

Although the Design Standards have been developed as a result of best practice and specific requirements, they are in no way complete and have been structured for continual improvement to incorporate new developments, concepts and feedback. Where schools and preschools, designers, builders or users have feedback, both positive and negative, they are encouraged to contact the Asset Policy & Environmental Resources team to facilitate continual improvement.

4.2 Document Guidelines

The DECD Design Standards have been developed to outline specific DECD requirements for education and care facilities. In some circumstances DECD requirements are above those stated in the Building Code of Australia (BCA) and Australian Standards, which will be specifically outlined in the following document by the word shall. As a minimum, the following requirements shall be adhered to at all DECD facilities:

DPTI GUIDENOTES AND DRAWINGS

The DECD Design Standards have been developed in collaboration with DPTI to provide a central location for all information relating to the design and construction of DECD facilities. As a result, DPTI's Guidenotes and Drawings are referred to throughout the document and can be accessed through DPTI's Bpims library available at: www.bpims.sa.gov.au/bpims/login/home.jsp

Note: To search for Guidenotes and Drawings, please use the referenced identifier (e.g. G44) to search for the document/drawing. For a full list of DPTI Standard Drawings please search for D04 – DPTI Standard Drawing Index. Appendix A of this document is a list of DECD specific Guidenotes and Drawings.

DECD EARLY CHILDHOOD FACILITIES – DESIGN STANDARDS AND GUIDELINES

The DECD Early Childhood Facilities Design Standards and Guidelines is a separate document which informs the planning and design of new early childhood facilities and the redevelopment of existing facilities. These facilities may include preschool, long day care, occasional care, integrated services and children's centres.

NATIONAL CONSTRUCTION CODE (NCC)

The National Construction Code, incorporating the Building Code of Australia (BCA) and the Plumbing Code of Australia, is a mandatory requirement for all design and construction work and shall be adhered to in all Major, Medium and Minor Works, and site managed construction work being undertaken at DECD facilities.

AUSTRALIAN STANDARDS

Where Australian Standards have been referenced in the following document, it is expected that the latest version is adhered to as the Australian Standard referenced in this document may be superseded. Australian Standards have not been referenced where they are mandatory as per the Building Code of Australia (BCA). In some circumstances DECD requirements are above those stated in Australian Standards which will be specifically outlined by the word shall.

DISABILITY DISCRIMINATION ACT 1992

Due to the specialised nature of education and care facilities, greater consideration shall be given to the Disability Discrimination Act to ensure schools are accessible for all children, as well as all members of the community. In some circumstances DECD requirements are above those stated in the Australian Standards for disability access to ensure schools and education facilities are fully accessible.

DISABILITY (ACCESS TO PREMISES – BUILDINGS) STANDARDS 2010

The Premises Standards provide guidance in the design, construction, certification and management of buildings to provide equitable and dignified access to new buildings and when existing facilities are redeveloped. The Premises Standards provide a single set of design and construction requirements and have been developed to work in conjunction with The Building Code of Australia, and shall be complied with for all projects undertaken at DECD sites and facilities.

ENVIRONMENT PROTECTION ACT 1993

The Environment Protection Act 1993 shall be complied with for all projects undertaken at DECD sites and facilities.

ASBESTOS MANAGEMENT PROCEDURE

The DECD Asbestos Management Procedure shall be complied with for all projects undertaken at DECD sites and facilities. To access the procedure please go to:

<https://www.decd.sa.gov.au/sites-and-facilities/facilities-maintenance-and-design/asbestos-management>

5. SECTION 2 – BUILDING DESIGN AND SPECIFICATION

5.1 Site Analysis

All projects which involve the construction of new facilities and/or redevelopments shall undertake a site analysis to determine the feasibility of the project and identify any major cost considerations. The size of the project will determine the extent of the site analysis which is required, however the following should be considered:

- Heritage Buildings
- Bushfire Zones and Building Requirements
- Climatic conditions as per ESD principles
- Disability access and the learning and participation needs of children and students with a disability
- Cultural and Indigenous Heritage
- Infrastructure and Services – Water supply, power supply, sewerage, telecommunications, stormwater and stormwater treatment
- Power supply – Large projects may require an infrastructure upgrade for the sites transformer or main switch board which can increase costs significantly
- Existing environment – Flora and Fauna including significant trees
- Soil type and the presence of rock, deep uncontrolled filling or other problematic conditions in the soil which may affect building footings and structure
- Soil contamination which may require management, containment and clean-up as per the Environment Protection Act

DPTI GUIDENOTES

The following Guidenotes shall be referred to:

- G37 – Site Contamination
- G96 – EPA Environmental Information
- G100 – Selection of Site Contamination Consultant
- G101 – Using a Site Contamination Auditor
- G103 – Development Proposals for Heritage Assets

HERITAGE PLACES

Prior to any work being undertaken at a DECD facility, the Australian Heritage Places Inventory, SA Heritage Register and Local Heritage Register shall be checked to confirm if schools and preschools are Heritage listed and require development approval.

The DDA intention for all buildings to comply may not always be possible for heritage places where the cultural significance stands to be unacceptably harmed. More information on Heritage Places and the types of works requiring Developmental Approval, please go to the following address:

www.environment.sa.gov.au/our-places/Heritage/Owning_a_heritage_place

Please also refer to the DPTI Guidenote G103 – Development Proposals for Heritage Assets

5.2 Urban Design Charter

The Urban Design Charter shall be considered in all major capital works and redevelopments that incorporate urban design or have the capacity to influence the quality of urban design outcomes. The following principles have been referenced from the Urban Design Charter to be considered:

- **Searching out community aspirations** - Invest project teams with effective consultation strategies responsive to the social well-being of the community and the needs of end users.
- **Nurturing cultural expression** - Recognise the importance of public places to all South Australians and support increasingly varied social, cultural and artistic activities through the enhanced physical condition of such places.
- **Reinforcing local character** - Forge positive connections with the 'urban grain' of the locality, its historical development and patterns of use and movement.
- **Integrating a diversity of interest and expertise** - Build the capacity of agencies to identify design potentials and establish alliances with local government, the private sector and utilities appropriate to good urban design.
- **Formulating concepts and testing ideas** - Integrate good processes and sound design principles to connect people with places and create viable, safe, efficient and adaptable places capable of long-term use and enjoyment.
- **Combining community interest, public property and private initiative** - Harness community interest in public places and facilitate the interaction of market forces and the potential of places to balance social, cultural, environmental and economic values.
- **Being environmentally responsible** - Optimise resource use, energy and water conservation and biodiversity through the conscious design and good management of public places.
- **Investing in quality** - Raise agency awareness of the whole-of-government position on the benefits of good urban design and the role of urban design in agency business to contribute to 'whole-of-community' benefits.

5.3 Design for Accessibility, Participation & Learning

Due to the specialised nature of education and care facilities, greater consideration shall be given to the design of schools to ensure they are accessible for and optimise the learning and participation of all children, including children with disability, as well as provide access to the community. The design and construction of new facilities and the redevelopment of existing facilities shall meet the requirements of the Building Code of Australia, the Premises Standards and the latest version of AS1428.1 to ensure equitable access. Further to this, in some circumstances DECD requirements are above those stated in the Australian Standards for disability access to ensure schools and education facilities are fully accessible which will be identified by the work *shall*.

DECD accessibility requirements have been incorporated in to all relevant sections of the DECD Design Standards. The following sections include specific DECD requirements which shall be adhered to:

- Section 5.5 - Acoustics
- Section 5.9 Doors (Refer to automatic doors)
- Section 5.12. Amenity Provisions and Design

- Section 6.10 Lifts
- Section 6.11 Communications and ICT (AV Solutions, Hearing Augmentation Loops)
- Section 7.3 Tap Ware (Drinking Troughs/Fountains)
- Section 7.6 Joinery
- Section 8.1 Access (Site Access, Building Access and Ramps)
- Section 8.2 Parking

Please also refer to DPTI Guidenote G119 Disability Access Checklist for general government building requirements.

DISABILITY DISCRIMINATION ACT 1992

The Disability Discrimination Act (DDA) includes obligations for building owners and designers to ensure that, as far as reasonable, there is no discrimination against people with any disability. In regards to access, the main objective is to provide safe, equitable and dignified access to buildings, services and facilities.

The DDA is a Federal Act which overrides the Building Code of Australia (BCA) and Australian Standards, and compliance with the BCA and Australian Standards can still leave the building owners liable under the DDA to a complaint of discrimination. Being complaint based legislation, it is not possible to provide information that will guarantee that no complaint of discrimination will be made and the DDA makes no distinction between new, old or heritage buildings.

It is the intention of the DDA that all buildings will eventually comply with the requirements of non-discriminatory access. As such, it is also the intention that all DECD facilities will eventually comply with this intention.

DISABILITY DEFINITIONS

The Disability Discrimination Act defines 'Disability' in the following terms:

- Total or partial loss of the persons bodily or mental functions; or
- Total or partial loss of part of the body; or
- The presence in the body of organisms causing disease or illness; or the presence in the body of organisms capable of causing disease or illness; or
- The malfunction, malformation or disfigurement of a part of the person's body; or
- A disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction; or
- A disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgement or that result in disturbed behaviour.

BUILDING CODE OF AUSTRALIA AND THE AUSTRALIAN STANDARDS

New buildings are required by law, under the Building Code of Australia (BCA), to provide access to people with disabilities in accordance with the latest version of AS 1428.1.

The Building Code of Australia states where access must be provided (e.g. to which areas in a school), and the Australian Standard says how it is to be provided.

While the BCA and AS1428.1 are the legislative requirements, where possible and not cost prohibitive, designs should aim to meet the requirements of AS1428.2 Design for access and mobility - Enhanced and additional requirements – Buildings and facilities and AS1428.3 Design for access and mobility - Requirements for children and adolescents with physical disabilities. Designs should also aim to minimise the likelihood of a complaint under the Disability Discrimination Act.

MINOR WORKS AND REFURBISHMENTS

When undertaking minor works or refurbishments, advice should be sought from a qualified disability access consultant to ensure modifications optimise the learning and participation of children and students with a disability. Where facilities are undertaking minor building alterations or upgrades, the following shall be considered to determine the extent to which provisions for people with disabilities will be incorporated:

- The nature of the building work required. For example:
 - The upgrade of toilets should include the provision of suitable disability access toilets
 - The upgrade of a foyer/reception should include disability access and appropriate joinery
 - The upgrade/replacement of a ceiling does not require access considerations
- Current access provisions on the site
- The feasibility of achieving a satisfactory and economic solution

Where alteration works are to be carried out to only part of a building, compliance with disability access requirements may only be applicable to the area being altered. Where works are carried out and include site works, appropriate site access requirements shall be considered. Appropriate access to buildings should also be included in this work where applicable.

SEVERE AND MULTIPLE DISABILITIES

Students classified as having Severe and Multiple Disabilities (SMD) require special provisions and additional facilities which are not covered by this document. SMD units in schools will be briefed separately and shall undertake a user analysis for children and students with SMD to ensure design meets the specific needs for this cohort.

Further more detailed information and guidance can be obtained from:

- The Department for Education and Child Development
Special Education Resources Unit (SERU)
72A Malborough St Street (Entrance off Northey Avenue)
Henley Beach SA 5022
P. 8235 2871
W. <http://web.seru.sa.edu.au/>
- Department for Communities and Social Inclusion
Disability Services
103 Fisher St, Fullarton SA 5063
P. 8272 1988
W. <http://www.sa.gov.au/disability>

5.4 Roof and Roof Plumbing

- Roof coverings shall be 'Zincalume' or 'Colorbond' 0.48mm steel sheeting or equivalent. Avoid 'Zincalume' where reflected glare may cause problems to neighbours or to upper floors of adjoining buildings.
- Box gutter systems shall not be provided in new buildings except where no alternative is possible, such as at junctions with existing buildings.
- Low pitch roofs shall be installed at falls higher than the manufacturer's minimum standard to protect them from distorting and collecting water caused by possible roof traffic. 1-2 degree falls are not preferred due to the increased likelihood of leaks and water damage.
- Thermal insulation shall be provided to all roofs/ceiling which form part of the building envelope and a higher insulation rating than the BCA is preferred to reduce heating and cooling load. Consideration should be given to heat reflective coatings to reduce heat gain. A lifecycle analysis comparing the heating and cooling load compared to increasing insulation and/or heat reflective coatings is recommended.
- Roof colour shall be light in colour to reduce summer heat load, unless inappropriate for the local environment e.g. glare or cultural/heritage requirements.
- Gutter height should be a minimum 2400mm to reduce the likelihood of individuals climbing on to the roof and damaging the gutters.
- Keep valleys to a minimum in bushfire prone areas to prevent the build-up of debris and/or the trapping of embers.

DOWNPIPES

- Domed ball guards shall be provided to all downpipe gutter outlets.
- Downpipes shall be a minimum of 1mm thick up to 1800mm above ground level to reduce their likelihood of damage.
- Downpipes shall be fixed at the top and bottom for each storey of building as close as practical to the building or post face to reduce the likelihood of damage and to avoid them being used to climb on to roofs.
- Downpipes should consider the location of adjacent buildings and services such as rainwater tanks to restrict access to roofs.
- 100mm minimum diameter or square downpipes shall be provided to all buildings to prevent tennis balls being lodged in them.
- Avoid use of offsets at the base of downpipes. Run downpipes directly into PVC stormwater riser which shall finish a minimum of 75mm above paving level.
- Robust and easily accessible cleaning eyes should be provided to all downpipes. Internal downpipes shall not be provided.
- If PVC downpipes are used they shall be sewer grade.

5.5 Acoustics

The performance of learning areas and staff spaces in schools is significantly affected by the sound quality of the spaces and the degree of transmission of sound between spaces. Children with hearing loss experience the greatest challenges in acoustically inappropriate classrooms whereas quiet rooms allow them to use hearing aids and cochlear implants far more effectively. Research has shown that all children and staff benefit from learning spaces with low background noise and short reverberation times.

The design of DECD buildings shall take into account the need to restrict sound transmission between spaces, to reduce internal reverberation and reduce the impact of external noise such as traffic.

Refer to section 6.11 ICT & Communications for information relating to Hearing Augmentation Systems.

GENERAL REQUIREMENTS

To increase the acoustic performance of schools and preschools, the following shall be complied with:

- Specialist acoustic advice shall be sought from a certified acoustic engineer and DECD Special Education for all Major Projects (new and redevelopments) to provide quality advice on the most appropriate design, details and materials to ensure that the required DECD design sound levels and reverberation times are met.
- Carpets are preferred in teaching and learning areas to improve acoustic performance (refer to section 5.7 Flooring).
- Internal walls which separate general learning and/or office areas shall extend past the ceiling to the underside of the roof.
- Noise generating spaces such as design and technology workshops and music studios shall not be located adjacent to noise sensitive spaces e.g. general learning areas and offices.
- Material display/pin boards with a minimum NRC rating of 0.4 are recommended for general learning areas (GLA) and science laboratories.
- Provide seals to doors and opening window sashes where necessary to reduce sound transfer in to or out of spaces.
- Attention shall be paid to avoid sound paths which amplify or channel sound.
- Attention shall be paid to the location of windows and openings in buildings to external noise sources such as roads and play areas.
- Avoid gloss finish to internal walls, which can increase reverberation

SOUND LEVELS & REVERBERATION TIMES

Due to the specialised nature of DECD facilities, maximum design sound levels shall aim to meet 'Satisfactory' levels as per AS/NZS 2107:2000, unless cost prohibitive. In cases where the satisfactory level is cost prohibitive or not achievable, approval shall be sought from DECD. As a general guide, learning areas should achieve a maximum sound level between 35-45dB in unoccupied rooms.

Designs shall aim to meet the lower Reverberation Time as listed in AS/NZS2107. For example, primary school teaching spaces have a recommended reverberation time of 0.4.to 0.5 (please check the latest version of AS/NZS2107); designs shall aim for 0.4. Where a space is not listed in AS/NZS2107, the most comparable space should be selected and the above followed.

The following areas have specific DECD minimum requirements:

| Room Type | Maximum Sound Level (dB) | Reverberation |
|---------------------------------|--------------------------|---------------|
| Multipurpose Activity Halls | 40 | 0.6-0.7 |
| Design and Technology Workshops | 45 | - |
| Drama and Music Rooms | 40 | 0.4-0.5 |
| Withdrawal Rooms | 35 | 0.4 |

New facilities constructed specifically for and dedicated to students with special needs, including those with learning difficulties, Aboriginal learners, those with English as a second language, and learners with hearing impairments shall have reverberation times no higher than 0.4 seconds in all of their learning spaces. This shall also apply to facilities specifically modified to accommodate such students.

SOUND TRANSMISSION AND ISOLATION

- Internal walls separating GLAs, open learning areas and office areas shall aim for a minimum R_w rating of 40. This allows for a reduction in performance from laboratory test conditions as per the BCA.
- Where the design and location of a building necessitates and cannot avoid the co-location of occupied learning areas and noise generating areas such as design and technology workshops, a minimum R_w rating of 50 shall be met.
- Where an occupied space is adjacent to a low frequency external noise such as a major road and/or air and rail traffic, a minimum $R_w + C_{tr}$ rating of 35 shall be met.

ACOUSTIC CEILINGS

The following Noise Reduction Coefficients (NRC) and Ceiling Attenuation Class (CAC) ratings shall be met as a minimum to assist in reverberation control:

| Room Type | NRC | | CAC |
|---|-----|------------------|-----|
| | Min | Ceiling Coverage | Min |
| General Learning Areas (GLA) | 0.7 | 80% | 35 |
| Open Learning Areas, Science Laboratories, Design & Technology Areas, Art Rooms, Material Preparation Areas | 0.7 | 90% | 40 |
| Offices, Meeting Rooms, Seminar Rooms, Quiet Rooms, Staff Room | 0.5 | 90% | 30 |
| Corridors, Foyers, Reception | 0.5 | 100% | 35 |

5.6 Ceiling

- The minimum ceiling height in learning areas shall be 2700mm.
- Ceiling spaces shall be fully accessible to allow for services to be installed and modified, especially data services. Ensure that adequate access is also available between wall cavities and ceiling spaces for service modifications.
- Plasterboard sheeting finished to a light colour is preferred to allow for service modifications and to increase the benefits of natural lighting. Alternative materials shall only be specified with approval from DECD.
- Special attention shall be given to the acoustic requirements of areas in which significant noise can be generated, such as workshops and laboratories or areas where a hearing impairment upgrade is required.
- Avoid exposed roof trusses and ledges at ceiling level which collect dust, due to cleaning maintenance limitations and to concerns about allergies.

5.7 Flooring

Schools are subject to high traffic and wear and tear and require durable and appropriate flooring to reduce maintenance and the need for early replacement. Floor finishes shall comply with all relevant Australian Standards to ensure longevity and reduce maintenance.

GENERAL REQUIREMENTS

- Minimise the number of different floor finishes in any building, and on any site, to simplify the cleaning and maintenance requirements.
- Carpets are preferred in teaching and learning areas including seminar/withdrawal rooms, music and drama areas, resource centres, offices and staff work areas to improve acoustic performance. Alternative floor finishes including vinyl, linoleum and rubber may be proposed as long as the maintenance and cleaning requirements, volatile compound (VOC) content and acoustic performance are considered and with approval from DECD.
- All floor finishes shall be easily cleanable without requiring specialised methods or equipment.
- Maintenance instructions shall be provided to the site for the floor materials installed upon completion of the project.
- Consideration shall be given to the use of the area, such as its relationship to external areas and acoustic requirements for noise reduction.
- Floor finishes shall have low volatile compound (VOC) content, low toxicity and low formaldehyde.
- Resilient flooring materials such as on-slip sheet vinyl or epoxy coatings shall be provided in wet areas, practical activity, science, art, design and technology areas, home economics, and early childhood activity areas.
- All flooring and mats shall meet AS/NZS 4586:2013 - Slip resistance classification of new pedestrian surface materials

CARPETS

- Carpets shall meet the Australian Carpet Classification Scheme (ACCS) 'Contract Extra Heavy Duty' grade (or similar with approval from DECD) and meet proper installation and maintenance requirements to comply with the products warranty and AS2455 Textile Floor Coverings – Installation Practice - General.
- Carpets should meet, and preferably exceed, the Carpet Institute of Australia's 'Environmental Certification Scheme' Level One certification.
- Medium strength colours with patterns (fleck or graphic) are preferred. (Light colours show marks and stains and dark colours show dust.)
- The preferred carpet in general learning areas and withdrawal rooms in pure wool, wool/nylon blend, or nylon.
- The use of carpet tiles should be investigated due to their ease of maintenance and replacement. Consideration should be given to areas of high traffic and areas with close proximity to wet areas (e.g. areas where the chance of spillage is increased)
- Carpet underlay shall be provided in the following circumstances:
 - Junior primary and primary general learning areas and withdrawal rooms where students spend time sitting on the floor.
 - Where carpet is being laid over existing timber or uneven floor surfaces.

- Where improved acoustic performance is required.
- The following carpet underlay is preferred:
 - For wool/nylon – Needled underfelt
 - For level loop or cut pile – Rubber underlay
 - The required underlay to electrostatically flocked nylon is a high density latex cushion type. The 'double-bond' method is preferred with underlays to avoid re-stretching carpet.
- Naplock shall be provided where carpet adjoins other floor finishes. Metal hammered naplock is preferred.
- Skirting to carpet areas shall be timber or flat vinyl

VINYL, LINOLEUM AND RUBBER

Vinyl, Linoleum and Rubber may be specified and shall consider maintenance and cleaning requirements, volatile compound (VOC) content, acoustic performance and slip resistance of the product and meet the following minimum standards.

- Minimum thickness of 2mm.
- Homogenous material or inlaid pattern with a minimum wear layer thickness of 0.7mm.
- The general cleaning regime shall require only sweeping, a damp mop and vacuum cleaning.
- Slip resistance (wet and dry) to AS/NZS 4586.
- There shall be no requirement for sealing, waxing or polishing.
- Resistant to staining and deterioration from chemicals.

WET AREAS AND AMENITIES

- Impervious floor finishes shall be provided in all wet areas and be covered up the wall to a minimum 150mm with impervious joints in corners.
- Toilet amenities shall have durable, low maintenance and non-slip finishes to AS/NZS 4586 that can be easily cleaned e.g. ceramic tiles, vinyl or epoxy coatings. Ceramic tiles shall be a maximum 200x200mm for ease of installation and to increase slip-resistance.
- It is recommended that all wet areas meet the requirements of AS/NZS 4858 Wet Area Membranes.
- In rooms where wet areas may be confined to only part of the space, consideration can be given to providing a slip resistant resilient sheet strip to the floor of that part of the space.
- Welded sheet vinyl can be used in special situations such as toilet areas in facilities for students with severe and multiple disabilities and should be covered to walls in these instances.

MATS

- Floor mats shall be provided to the inside of external doors, be the full width of the door and be at least 600mm deep.
- Floor mats shall meet the requirements of AS4586:2013 Slip resistant classification of new pedestrian surface materials and AS1428.1 Design for access and mobility.
- Mats shall be removable to enable them to be cleaned, and from a suitable proprietary manufacturer.
- Mat-wells recessed into concrete slabs shall not be provided.

SPORTS FLOOR FINISHES

A range of sports floor finish materials are available and each product has particular characteristics, cost and maintenance implications. Prior to specifying sports floor finishes, it is recommended that a specialised sports floor consultant is engaged in collaboration with the school. This is to ensure that the appropriate floor finish is specified for the schools sporting requirements and also ensures the flooring finish allows for natural seasonal movement.

- Specialised sports floor finishes shall be provided in primary school multipurpose general activity halls and secondary school gymnasiums. Finishes shall be included in the building contract, and include line marking to the range of games required.
- The floor finish shall be hard wearing, easy to maintain and easy to refurbish.
- To protect the sports floor finish from dust and grit it is desirable to provide floor finish to other adjoining rooms in the building, including store rooms.

5.8 Walls

Materials and finishes shall be selected for their ability to resist damage and their low maintenance characteristics.

EXTERNAL WALLS

- The preference is for materials that are self-finished and very durable, that do not require additional coatings to reduce the effects of damage, and that minimise the maintenance requirements.
- Sheet materials or painted surfaces are preferred to be in small sections for ease of replacement in case of damage.
- Corrugated metal sheeting is not preferred due to the possibility of glare.
- Corrugated sheet metal shall not be specified horizontally as this increases cleaning, maintenance and weatherproofing requirements and can create a safety hazard for finger entrapment.
- Anti-graffiti coatings shall only be specified for existing buildings in specific school situations that are exposed to public access and as approved by DECD. New buildings should have self-finished and durable surfaces that are easy to clean and replace and should not require anti-graffiti coatings.

INTERNAL WALLS

- Internal walls shall be of materials and finishes that resist damage and marking, especially up to 1200mm above floor level e.g. 13mm high impact resistant multi-purpose lining or similar.
- Internal linings should be of a single thickness for the full height of the wall to allow for ease of installation, maintenance and replacement
- General learning areas, circulation spaces and high impact zones should have 13mm sheeting as a minimum unless approved by DECD.
- All stud walls and noggings shall be designed and constructed to meet the manufacturers required installation specifications for internal linings. General learning areas, circulation spaces and high impact zones shall have a nogging at 1350mm AFL to reduce the likelihood of damage.
- Internal walls shall extend past the ceiling to the underside of the roof to provide increased acoustic performance.
- Internal walls shall be finished in a light colour to increase natural lighting.
- Fibre Cement Sheeting is not preferred.

WALL TILING / SPLASHBACKS

- Provide 300mm high splashback to all walls behind bench tops that contain sinks and provide tiling behind washing machines.
- In toilets the minimum extent of tiling shall be to provide a 150mm skirting all around the base of the wall.

5.9 Doors

- All doors to occupied spaces shall have a minimum clear opening width of 850mm to facilitate wheelchair access.
- Pivot doors shall not be used in DECD facilities as they can cause severe injury to fingers.
- Glazing in doors shall be minimum 6.3mm laminated safety glass and/or meet AS1288 Glass in buildings – Selection and installation.
- Glazing in lower door panels below a mid-rail shall not be specified unless visibility is required for safety reasons as it is subject to breakage. Fully glazed doors may only be used at appropriate main entrances and shall have a mid-rail.
- Doors shall not be higher than 2100mm, as they become too heavy for students to use and door furniture is subject to excessive stress.
- Sliding doors shall not be used as they can be dangerous when used by students, are a security risk and become difficult to maintain.
- Sliding wall panels are the current preferred method of providing flexibility between general learning areas and can open up to 50% of a common wall.
- Automatic opening doors shall only be provided in special situations such as Severe and Multiple Disability (SMD) Units, as briefed.

EXTERNAL DOORS

- Where external doors are the main entrance doors to buildings or rooms they shall have glazed panels; otherwise solid doors are preferred.
- External doors shall not be set back in deep building recesses as they can create security problems.
- External doors shall be aluminium (with glazing or other panels) or timber solid core (42mm thick). Fully glazed doors shall have a mid-rail. Aluminium doors and frames shall be heavy duty commercial series with a wide profile for ease of maintenance and operation. Domestic/residential suites are not acceptable and shall not be specified.
- Natural anodised or colour anodised finish shall be used for aluminium doors as it is more durable than powder coat finish in a school environment. Avoid expensive anodised colours.
- Outward opening external doors shall consider the hazard of opening into passage ways, and potential damage caused by opening past 90°. Bollards and buffers shall be installed to protect doors in these instances.
- Timber doors are only to be used externally if protected from the weather by a minimum 2.4m veranda. External ply lining shall be marine grade.
- External doors in exposed locations shall have a full galvanised metal cladding.
- Paint finish to timber doors shall avoid dark colours when exposed to the sun, as these fade.
- Screen security doors shall only be provided to openings where there is a specific requirement such as canteens, and shall be lockable

- Double door sets at entrances are not required as they may increase security risk and are generally not opened fully. Consider two single doors to allow for entry and exit.

EXTERNAL DOOR FITTINGS

Closers

- External doors shall be fitted with heavy duty commercial door closers. Surface mounted types are preferred as they are easier to adjust and require less maintenance in the school situation. Closers shall be mounted to allow for the full swing of the door opening capability.
- Ensure door top rail is deep enough to mount closer.
- Closers to external classroom doors and main building entrances require provision of hold open functions.
- Inward opening doors are preferred to have floor mounted magnetic stops to facilitate the hold open function.

Handles

- Handles on external doors shall be fixed D-handles or push/pull plates, depending on the locking/latching system to be used. The preference is for Australian Made from a local supplier such as Brass Craft of SA or equivalent.
- Door handles shall be fitted between 900mm and 1100mm above floor level.
- Provide engraved “push/pull” signage where it is not obvious which way door is to be opened.

Door Seals

- Seals shall be fitted to each edge of the door to restrict air infiltration.
- Brush strip seals are acceptable for bottom door seals.
- Ensure suitable tread-plate for electrically driven wheelchair access.

Hinges

- External doors shall have fixed pin hinges, or security hinge bolts (one per hinge) when on outward opening doors.
- Four hinges per leaf are required on all side hung doors.

Grilles

If required, ventilation grilles in external doors shall be robust to ensure building security.

EXTERNAL DOOR SCHEDULE

Information on door hardware, keying systems, electronic access and security systems is available in the DECD Asset Security Policy and Procedure. Please contact the DECD Security, Bushfire & Emergency Management team for more information on 8226 1099.

ROLLER DOORS

- Commercial quality roller doors are preferred to provide greater resistance to break in and tampering
- Roller door controls shall be fixed wired. Remote controls shall not be specified
- Where commercial quality roller doors are not suitable, roller doors shall have a 50mmX25mmX4mm strengthening bar fixed/bolted to the bottom rail at 600mm centres.

INTERNAL DOORS

- Generally internal doors are preferred to be of a timber foam core construction.
- Doors to learning areas shall be half glass or have glazed viewing panels to reduce the hazard to students of doors opening without warning.
- Glazed doors shall only be specified with a mid-rail.
- All internal doors, moveable panels or partitions that provide flexibility between general learning areas should aim for a minimum Rw rating of 25 to increase acoustic performance of spaces.

Sliding panels

Sliding wall panels are the current preferred method of providing flexibility between general learning areas and can open up to 50% of a common wall. Ensure that the operation of the door does not create a finger entrapment hazard.

Accordion doors

- Accordion doors are not preferred due to their high maintenance in a school environment.
- Accordion doors shall only be specified with approval from DECD and shall be a proprietary system having a steel pantograph frame with continuous vinyl coated fabric on each side, hung from an overhead track.

Operable walls

- Operable walls are not the preferred method due to the time and effort required to operate them.
- Operable walls shall be a proprietary system having panels hinged in pairs, hung from an overhead track, manually operated, centre stack and able to be located at either side of the opening. They shall have display board on both sides when dividing learning areas.
- The preferred maximum height is 2100mm to ensure ease of manual operation and reduce the possibility of damage to door stops and hardware.
- Mechanical seals shall be fitted.

INTERNAL DOOR FITTINGS

Door Closers

Internal doors do not require closers, except for doors to toilets.

Door Stops

- If doors open to impact on walls, joinery or other protrusions then a door stop shall be provided. Metal types with rubber buffers secured to floor or wall are required. Plastic types are not acceptable.
- Door stops shall not present a trip hazard when the door is closed.
- Door stops shall be located within the outer third of the door to avoid any lever action of the door putting stress on the hinges.
- Where hold open function is required on inward opening doors the preferred stop is a magnetic type.
- Chubb prison door stop, HEWI floor mounted stops, or Boyd DS433 stops fixed to floor with expanding bolts are acceptable.
- Walls shall be protected from damage by door handles either by the door stop placement or some protective material on the wall.

Door Handles

Door handles shall be return lever type for ease of use and safety. Round door knobs are not acceptable, as they are difficult to use, especially for children and those with limited hand strength and do not comply with AS1428.1:2009.

Hinges

- Morticed butt hinges mounted flush with the door and frame edges are required.
- Interfold door hinges shall not be used.
- Pivot hinges shall not be used.
- Three hinges per door are required.

Kick Plates

- Kick plates shall be provided on timber doors to learning areas and toilet doors.
- Kick plates are required to be securely and permanently screwed and glued to the door.

Grilles

Full chevron louvres shall be provided to reduce sound transmission for privacy and confidentiality, where this is required, such as offices, interview, meeting and conference rooms.

INDOOR SCHEDULE

| | |
|---------|---|
| Outside | ▪ Lever handle with latch or key cylinder. |
| Inside | ▪ Lever handle ▪ Free lever handle if door lockable. |

Door furniture shall be solid brass of commercial quality, Australian made from a reputable manufacturer of commercial furniture, and to Australian Standards.

TOILET DOOR SCHEDULE

Due to DECD requirements outlined in Section 1.12 Amenity Provisions and Design, standard toilet cubicles and doors are no longer accepted and full heights doors are now required.

| | |
|----------------------------|--|
| Single toilet doors | |
| Outside | Fixed pull handle with key and cylinder |
| | Key retracts latch bolt and hold back |
| Inside | Fixed pull handle with through bolt fixing to the outside handle |
| | Thumb turn retracts latch only for egress |

DOOR KEYING SYSTEMS

Information on door hardware, keying systems, electronic access and security systems is available in the DECD Asset Security Policy and Procedure. Please contact the DECD Security, Bushfire & Emergency Management team for more information on 8226 1099.

5.10 Windows

Windows shall be externally shaded from direct sun for the normally occupied time of the school day and year.

DAYLIGHT

- 90% of the usable floor area shall receive a minimum daylight factor of 2.5 as measured at the floor level under a uniform design sky.
- 90% of usable floor area shall have a direct line of sight externally.
- Special attention shall be given to window design and locations in technology workshops, computer rooms and laboratories, as glare is a safety issue.
- Visual Art studios require high quality natural light.
- Additional natural lighting may be provided by the use of skylights, in order to minimise the use of artificial lighting. Design and placement of windows shall ensure glare and uncomfortable brightness contrasts are avoided.

WINDOW SYSTEMS

- Aluminium windows shall be heavy duty commercial grade. Domestic suites are not acceptable.
- All learning areas shall have opening sashes to provide natural ventilation. Sliding sashes can be a security risk and if used are to be a commercial suite with secure locking capability. Awning opening sashes can only be used if above head height where they open out on to an accessible area.
- Window winders shall be located in a way not to cause a hazard.
- Anodised finish is required as it is the most durable in a school environment. Avoid expensive anodised colours.

GLAZING

- The desirable maximum pane size is in the order of 1200mm x 1200mm to reduce maintenance costs where window breakage occurs.
- Glazing in new windows shall be minimum 6.3mm laminated safety glass and/or meet AS1288 Glass in buildings – Selection and installation.
- Window sills shall generally be at a height of 1000mm above floor level, allowing furniture and storage units to be located against the wall. It is DECD policy to replace any glass below 1000mm which is broken with a solid panel.
- Low level glazing to floor level shall not be provided in school facilities, although it may be approved by DECD as appropriate in particular instances and locations where vision to outside at floor level is desirable.
- Solar/safety film can be used on existing windows to provide sun shielding and protection against forced entry.
- Mirror reflective film is not acceptable as it causes discomfort from reflected glare externally.
- In situations where a high level of security is required, polycarbonate sheet shall be used as the preferred glazing material.

INSECT SCREENS

- Insect screens shall only be provided to windows and doors of food preparation (Canteen and Home Economics) areas.

- They may also be provided on other windows in DECD facilities in locations where insects are a major problem such as in the north and west regions of the state and the Riverland, or where requested in the project brief.
- Insect screens shall be of metal mesh material.
- Window units with integral insect screens are not to be specified for DECD facilities.

WINDOW KEYING SYSTEMS

- Information on door hardware, keying systems, electronic access and security systems is available in the DECD Asset Security Policy and Procedure. Please contact the DECD Security, Bushfire & Emergency Management team for more information on 8226 1099.
- Window locks shall be heavy duty types.
- Plastic locks and plastic hinges are not acceptable.
- Operable high level windows that are not easily accessible shall be provided with a remote winder system.

SKYLIGHTS / ROOF LIGHTS

Skylights / roof lights may be used to provide additional natural daylight in rooms or areas with limited window area. Roof lights can be proprietary square or rectangular units. Skylights are generally not desirable as they introduce a range of issues such as limited roof space for services, increased heating load, cleaning requirements for exposed external structures and the requirement for safety mesh to be installed.

The following shall be adhered to:

- Skylights shall be oriented and designed to avoid direct sun shining into learning areas.
- Small proprietary roof domes with highly reflective shafts can be used although the light they introduce is only concentrated in a small area.
- Clear roof sheets can be used to introduce light into large areas such as activity halls.
- Mesh conforming to AS/NZS 4389 - Safety mesh, shall be provided under all roof light domes and sheets for safety and security purposes
- Ensure purlin centres are compatible with skylight sheeting material.
- Roof lights shall not be located directly above ceiling fans to avoid potential strobing effects.

5.11 Stairs and Balustrades

Due to the high traffic and possibility of vandalism in schools, stairs and balustrades shall be constructed of sturdy and vandal resistant materials. Stairs risers shall have a maximum 180mm and goings a minimum 270mm.

BALUSTRADES

- Glass balustrades shall not be specified due to the possibility of damage, vandalism and scratches in a school environment.
- Wire balustrades shall not be specified due to the possibility of damage and loss of tension in a school environment.

Although balustrades are not required for landings below 1m in the BCA, the specification of balustrades should consider the age group of adjacent learning areas to ensure the safety of younger children. For example, where stairs are adjacent spaces occupied by children aged 5-8 and landings are between 700-1000mm high, balustrades should be considered to reduce the possibility of children falling when stairs/landings are used inappropriately.

5.12 Amenity Provisions and Design

The following DECD design standards for toilet amenities in schools have been developed based on recommendations from international research. These standards will help prevent bullying, reduce vandalism, and make the amenities more attractive and user friendly, cleaner and safer for student use. The standards are considered to reduce the need for time spent in toilet areas, and eliminate the opportunities provided by traditional areas where anti-social behaviour can take place.

- The following standards shall be incorporated within all new schools, including new permanent building facilities, redevelopments and major upgrades of existing permanent buildings and facilities on school sites.
- Parts of existing schools that are not affected by a redevelopment or upgrade do not need to comply.
- It is not intended that this standard be applied to the provision of individual single or dual transportable buildings on school sites, unless they are provided as part of larger teaching and support space complexes.
- Refer to the Early Childhood Facilities Design Standards & Guidelines for birth to age 8 toilet amenities.

Note: For existing schools with significant increases in school enrolment, the Building Code of Australia shall be used to assess toilet provisions and determine adequate provisions.

BUILDING CODE OF AUSTRALIA (BCA) AND DECD SPECIFICATIONS

DECD toilet amenity design standards have referenced and interpreted the BCA requirements for toilet provisions. The following changes shall be complied with:

- Male student and staff urinals shall be converted to closet pans.
- An equal number of closet pans shall be provided for both sexes. This will result in an increase in entitlement for female WC cubicles in some circumstances.
- Staff WC provisions shall be self-contained cubicles with a closet pan, wash basin and space for a sanitary disposal unit. This may result in an increase in wash basins compared to the BCA.

DPTI DRAWINGS

The following DPTI Drawing should be referred to: DD13 – Nappy Change Bench

DESIGN OF STUDENT TOILET AMENITIES

- Student toilet cubicles shall be fully enclosed for complete privacy, with floor to ceiling walls and a door extending to the floor. It will contain a closet pan, space for a sanitary disposal unit and be adequately ventilated to prevent odours.
- Gaps between doors and partitions shall be designed to ensure privacy e.g. students should not be able to easily see between gaps in to the toilet cubicle.
- Student wash basins shall be provided as part of common ablutions areas which incorporate 'passive' supervision. Wash basin provisions for students shall meet the requirements of the BCA.
- Ablution areas shall incorporate passive supervision which may be achieved through the use of windows and/or opaque glass which provide a partial view in to the common ablution area only. Passive supervision should be possible both externally and internally.
- Where student toilet amenities are accessible both internally and externally, they shall have a lockable door to the external entrance of the toilet amenity - refer Section 1.10 Doors.

- Drinking water amenities shall not be located near toilet amenities. Refer to section 3.3 Tapware – Drinking Fountains/Troughs for more information.
- All fittings shall be vandalism resistant and provide a clean, maintenance free, aesthetic environment, e.g. stainless steel fittings are preferred (Refer to Section 3.3 Tapware and 3.4 Amenity Fittings).

DESIGN OF STAFF TOILET AMENITIES

- Staff toilet cubicles shall be self-contained suites with floor to ceiling walls and full sized doors. The cubicle will contain a closet pan, a wash basin, hand drying facilities, a space for a sanitary disposal unit and be adequately ventilated to prevent odours.
- All fittings shall be vandalism resistant and provide a clean, maintenance free, aesthetic environment, e.g. stainless steel fittings are preferred (Refer to Section 3.3 Tapware and 3.4 Amenity Fittings).

TOILET PROVISIONS

- The numbers of toilets required will be determined by the average theoretical calculation of occupancy for all learning and support spaces within the building/floor, in accordance with current DECD standards.
- The capacity calculation is to be applied to each floor separately within a building.
- Clusters of toilets for students shall not exceed four (4) individual cubicles for each sex in any one location.
- Where the scale of provision requires more than four (4) cubicles for each sex, create separate clusters that are located strategically to suit the needs of the occupants within the facility.
- Toilet amenity clusters can include male and female student, staff and disability access facilities located adjacent to each other.

AMENITY FITTINGS

Please refer to Section 3.3 Tap Ware and 3.4 Amenity Fittings for more information.

5.13 Materials and Finishes

TIMBER PRODUCTS

- Any timber internally and externally which is to have a painted finish shall be primed all around before fixing.
- Avoid large areas of internal timber wall surfaces with gloss finish, as this creates acoustic problems.
- Maximise use of natural timber and low emission manufactured board products to limit chemical emissions into learning environments.
- If Particleboard and/or MDF are specified, use only Australian-made as they are guaranteed to meet the E1 classification specified in AS 1859.2:2004 - Reconstituted wood-based panels – specifications.

PAINT FINISHES

Paints shall be selected from the Australian Paint Approval Scheme (APAS) as per DPTI NATSPEC specifications, to ensure paints have low Volatile Organic Compounds (VOCs). Light colours should be selected to increase natural light and to consider the needs of students with disabilities such as Autism Spectrum Disorder and Alcohol Spectrum Disorder which may be impacted upon by bright colours.

The following finishes are recommended for DECD facilities. The preference is to maximise the use of pre-finished materials to reduce on-going maintenance.

EXTERNALLY

| | |
|---|---|
| Concrete/cement render | satin acrylic |
| Fibre cement wall cladding | satin acrylic |
| Timber fascia, barges, rafters | flat acrylic (A) |
| Steel beams, posts, handrails, balustrades, bag racks | System C & gloss enamel or galvanised finish (B). |
| Fibre cement soffits | low sheen acrylic |
| Timber doors & frames | full gloss enamel (c) |
| Timber window frames | full gloss enamel: or gloss acrylic. |

INTERNALLY

| | |
|-----------------------------------|---|
| Plaster & plasterboard walls | satin acrylic |
| Plasterboard ceilings & bulkheads | flat acrylic |
| Fibre cement toilet partitions | factory polyurethane |
| Timber doors & frames | full gloss enamel (C) |
| Timber windows | full gloss enamel |
| Timber sills, skirtings, & trim | full gloss enamel or clear finish |
| Timber joinery | full gloss enamel or clear finish or melamine surface |
| Steel columns & beams | full gloss enamel (B) |

Notes: (A) – External timber subject to weather is best protected with oil based pink primer and flat acrylic finish coats.

(B) – Galvanising is the preferred finish to metal surfaces that take wear. Metal surfaces to be painted should first be treated with System C protection and not galvanising.

(C) – Full gloss enamel is the preferred finish to timber surfaces that receive any hand contact, internally and externally.

5.14 Covered Ways

- Covered ways adjacent to buildings and between buildings shall be designed to maximise protection from rain.
- Consider the particular site condition and exposure to wind and wind driven rain.
- Covered ways shall include gutters and downpipes to connect to the site stormwater disposal system to protect the paving and building entrances from water.
- Covered ways shall be at an appropriate height and designed to restrict access to building roofs.
- The design and materials shall be such as to avoid providing exposed roosting places for birds.
- Steel construction is preferred over timber to reduce maintenance.

6. SECTION 3 – BUILDING SERVICES

6.1 Demand Management

The introduction of demand charges (network tariffs) by SA Power Networks (previously ETSA) has resulted in a number of DECD facilities being charged for both their consumption and the demand they place on the electricity network. Demand is a separate measurement (kVA) to consumption (kWh) and is calculated on the peak electricity load sites place on the network.

As a result of demand/network tariffs, DECD facilities shall be designed to reduce peak electricity load where appropriate. Annual demand periods are 12pm to 8pm weekdays from December to March. The following shall be considered:

- HVAC, lighting and ICT represent the largest electricity consumption and demand generated in schools; load shedding technologies shall be investigated and solutions proposed.
- The design and specification of HVAC systems shall investigate centralised control systems which incorporate load shedding capabilities. The central control system should also be capable of monitoring temperature to ensure load shedding does not adversely impact upon indoor temperatures
- Where specified, Building Management Systems shall incorporate load shedding technologies and be programmed to limit demand prior to hand over.
- Where sites require an electrical infrastructure upgrade, gas powered HVAC systems shall be investigated.
- Where sites require a new or upgraded electrical transformer which incorporates control equipment to limit the sites load to the Agreed Service Capacity, load shedding technologies shall be investigated to ensure the site does not lose complete power during operation.
- Alternative energy sources such as solar hot water shall be investigated where large amounts of hot water are used during school hours.
- Daylight and motion sensors should be provided to areas not occupied for long periods such as store rooms, staff rooms, offices and toilets
- Lighting timers should be provided to areas of intermittent use such as halls and music rooms

6.2 Heating, Ventilation & Cooling (HVAC)

The following describes the DECD requirements for the provision of a HVAC system (Air conditioning). The term 'air conditioning' is generally used in the following to describe a HVAC mechanical plant that provides heating, ventilation and cooling in buildings. Air conditioning does not imply the tight control of temperature at a constant figure all year round. HVAC systems are provided in DECD facilities to alleviate extreme temperatures only.

For schools and children's centres, DECD requires the provision of adequate and complying heating, ventilation and cooling in new buildings, redevelopment projects and as part of the replacement of existing plant and equipment which has failed. The type and extent of provisions for specific areas are scheduled in the General Requirements section below.

It is expected that all new buildings and redevelopment projects shall incorporate innovative passive building design principles and solutions that are complemented by mechanical systems to meet peak and extreme heating and cooling requirements. On suitable and pleasant days when heating and cooling may not be required, the

innovative passive design solutions coupled with opening windows and vents should be capable of providing adequate passive heating/cooling.

DEMAND MANAGEMENT

As per section 6.1 Demand Management, the design and specification of HVAC systems shall investigate centralised control systems which incorporate load shedding capabilities. The central control system shall be capable of monitoring temperature to ensure load shedding does not adversely impact upon indoor temperatures.

- Load shifting technologies that reduce peak electricity demand shall be investigated e.g. thermal storage air-conditioning systems.
- Air conditioning equipment shall have the capability to incorporate load shedding controls.
- Innovative air-conditioning systems that reduce energy consumption and improve indoor air quality e.g. mixed-mode air-conditioning, demand responsive systems, variable speed drives, energy recovery ventilation should be investigated.
- Investigation in to building thermal modelling should be undertaken to determine the most efficient building and system performance.

VENTILATION

All new projects including occupied areas in schools and children's centres shall comply with the Building Code of Australia (BCA) requirements for the provision of outside air by means of opening windows or vents, which shall preferably be manually controlled. Where this is not achievable, then the provision of outside air must be introduced by mechanical equipment/systems. Doors shall not be included in the calculations for the provision of outside air.

Redevelopment projects of existing buildings shall incorporate mechanical ventilation, with operable windows utilised as a means to provide ventilation as a last resort.

The minimum ventilation rate in learning areas shall be 10 litres per second per student, and assuming a maximum occupancy of general learning area (GLA) classrooms of 30 students. Refer to a project's specific Project Brief for occupancy numbers in other spaces. Refer below for general requirements for other spaces.

Note that Australian Standard AS1668.2 – 2012 calls for 12 litres per second per person for students up to 16 years of age. Current cost effective equipment suitable for individual classrooms cannot deliver this rate within the maximum noise level requirement of 45dBA. A minimum ventilation rate of 10 litres per second is required from ventilation equipment.

GENERAL REQUIREMENTS

Ventilation, heating and cooling requirements for specific areas shall be as follows (where sites elect to provide heating and cooling in spaces that are not current standards requirements, they are to do so at their own cost and the proposal shall be approved by DECD). Refer to Section 6.3 Mechanical Exhaust Systems for more information.

| | General learning areas & learning support | Home economics room | Science laboratories | Administration | Design & Technology | Art Studios | Gymnasium/ Activity halls | Performance area (music and drama) | Photography dark rooms | Toilets |
|--|---|---------------------|----------------------|----------------|---------------------|-------------|---------------------------|------------------------------------|------------------------|---------|
| Ventilation | | | | | | | | | | |
| Meet the above requirements | • | • | • | | | • | | • | • | |
| Exhaust systems ducted to the outside | | • | • | | • | | | | • | |
| Ventilation only by opening windows or vents in new projects is acceptable** | • | • | • | • | • | • | | | | |
| Natural ventilation shall be by low and high level vents | | | | | | | • | | | |
| Heating | | | | | | | | | | |
| Meet the above requirements | • | • | • | • | | • | | • | • | |
| Flued gas radiant heaters | | | | | • | | • | | | |
| Cooling | | | | | | | | | | |
| Meet the above requirements | • | • | • | • | | • | | • | • | |
| No cooling | | | | | • | | • | | | |
| Other Requirements | | | | | | | | | | |
| No energy recovery ventilator equipment is to be provided | | • | | • | • | | • | | • | |
| Mechanical extraction by ducted systems to the outside | | • | • | | • | | | | • | |
| Exhaust fans shall be provided above stoves (eg staff lounge) | | | | • | | | | | | |
| Mechanical exhaust ventilation to the outside | | | | | | | | | | • |

* These include classrooms, withdrawal and seminar rooms, library resource centres, general activity spaces, multipurpose rooms, wet areas and art rooms. Relocatable classroom buildings are to meet the same performance requirements.

** Applies to failed plant replacement & new provisions for technical studies workshops, art studios, administration facilities and relocatable classroom buildings.

DUCTED AND NON-DUCTED SYSTEMS

The design of a mechanical plant can be broadly classified into either ducted or non-ducted supply systems.

- Ducted supply systems are usually semi-commercial or commercial package units which can serve more than one room space from a single unit using ductwork to distribute the treated air to the spaces. These systems are capable of providing fresh air as an integral part of the mechanical plant which shall meet the requirements of this document.
- Existing ductwork shall only be reused if it is polyester insulated ducting, it can be effectively integrated with the new system and shall comply with current BCA Section J.

- Non-ducted supply systems are generally considered to be package reverse cycle split systems, under ceiling, cassette or wall mounted units with inverter, recirculating the air within the space.
- Non-ducted supply systems may be utilised with the provision of adequate fresh air to the room either by;
 - Opening windows (excluding doors) in accordance with the standards stipulated in the BCA, ie open window space must be at least 5% of the room floor area served by the split system, or
 - In instances where sufficient opening window area cannot be achieved then fresh air shall be mechanically introduced into the space utilising energy recovery technology, or
 - Windows need to be modified to ensure compliance with the BCA requirements, or
 - A combination of opening windows and mechanical ventilation shall be considered.
 - A sign indicating that the windows must be opened in order to provide fresh air shall be mounted adjacent the unit controls.
 - For non-ducted supply systems designers must ensure that the proposed system is capable of coping with the introduction of untempered fresh air, as well as any mechanical exhausting required and indicated in General Requirements.

HEATING AND COOLING

- Learning areas in schools and children's centres shall have heating and cooling equipment capable of maintaining temperatures within the range of 20 – 26°C when the outside air temperature is between 6.5°C and 37°C (for Adelaide). When the outside temperatures fall outside these 'design temperatures', then room temperatures may be below 20°C in winter and above 26°C in summer. For design temperatures for other parts of South Australia refer to Australian Institute of Refrigeration Air Conditioning and Heating (AIRAH) Application Manual DA9.
- Temperature controls shall be set to 21°C for heating and 25°C for cooling. This range provides both comfort and energy conservation
- Design and technology workshops, gymnasias, activity halls, performance areas, and canteens are not required to have temperatures maintained within this range but are to have equipment provided to meet particular requirements – refer to General Requirements for details.
- Areas such as design and technology workshops, art studios, photography darkrooms and science laboratories are to have exhaust systems installed – refer to General Requirements for details.

NOISE

Maximum room noise levels arising from the air conditioning and ventilation equipment in learning and administration areas shall meet AS 2107:2000 – Recommended design sound levels and reverberation times for building interiors.

CONTROLS

- Unit controls for heating and cooling are to be with on/off switches incorporating timers to automatically turn off the units after a pre-set time.
- Individual classroom control provided via a variable 0-2 hour push button timer with 'on' light and reset capability. The temperature setting controller shall be out of reach of the operator and independent of the on/off controller.

- Controls for ventilation are to be by a motion sensor, incorporating a 10 minute delay and a 10 minute run on when no movement is detected.
- They are not to be interlocked with the operation of the air conditioning units otherwise when the air conditioning is not operated there will be inadequate ventilation.
- Where non-ducted supply systems are utilised tamper/vandal proof signs indicating that windows must be opened in order to provide fresh air shall be mounted adjacent the unit controls.

MAINTENANCE

Equipment is to be located where it is readily accessible for routine maintenance and eventual replacement. Where possible, avoid locating equipment on roofs and in roof spaces. If equipment is located on roofs safe access with platforms and catwalks shall be provided. Temperature sensitive equipment is to be located in a well-ventilated area as per manufacturer's requirements.

Documentation shall be provided to DECD and the site detailing the maintenance scheduling requirements for the installed equipment.

SECURITY

External HVAC equipment shall have appropriate and approved DPTI security cages to protect from damage, while still allowing for ease of maintenance. Details can be provided by DPTI Project Services.

Please refer to DPTI Drawings DG24 and DG26 Plant Enclosure Details.

CEILING FANS

Ceiling fans shall not to be installed lower than 2400mm and/or below existing luminaires (to avoid strobing effects).

ENERGY STAR RATING

Air conditioning units shall have a minimum 4 star energy rating and comply with current MEPS requirements.

ECOLOGICALLY SUSTAINABLE DEVELOPMENT IN DECD PROJECTS

All new building projects to be delivered as part of the DECD Capital Works Program shall be required to be designed, constructed, operated, monitored and maintained to comply with a 5-Star rating under the Green Building Council of Australia Green Star – Education rating tool.

Any major additions to and redevelopments of existing buildings shall be required to be designed, constructed, operated, monitored and maintained to comply with the maximum practicable achievable Green Star rating for facility type.

Please refer to Section 1.1 Ecologically Sustainable Development for more information on DECD requirements.

SA STRATEGIC PLAN

Projects shall comply with the targets set in the SA Strategic Plan 2011 and aim to comply with Target 61. Energy Efficiency – Government buildings: Improve the energy efficiency of government buildings by 30% by 2020.

SA GOVERNMENT ENERGY EFFICIENCY ACTION PLAN (EEAP)

New projects shall aim to meet the objectives of the EEAP to minimise whole-of-life costs and reduce greenhouse gas emissions in the operation of new government buildings (including privately owned buildings constructed for government use), and government occupied buildings, both owned and leased, that undergo major refurbishment.

The EEAP requires that the construction of new buildings and major refurbishments of existing assets will include a life cycle approach to the design and specification of the project, to ensure cost effective energy saving options are incorporated from the design stage.

Please refer to the following DPTI Guidenotes for information on EEAP:

- G128 – Energy Efficiency Action Plan
- G46 – Energy Efficiency Action Plan Compliance
- G41 – Energy Efficiency Action Plan Lead Agency Compliance

Baseline common data is to be used in undertaking the life cycle analysis of alternative systems as defined in below in Lifecycle Analysis.

Innovative system solutions must take into account capital cost, outside air ventilation, air quality, energy consumption, greenhouse gas emissions, maintenance access and expenditure, noise levels, availability of equipment and replacement parts.

LIFECYCLE ANALYSIS

Baseline common data to be used in life cycle analysis for a typical general learning area (GLA) located in Adelaide. Outside the metropolitan area local meteorological data and energy costs are to be used.

| | |
|---|---------------------|
| Classroom (GLA) floor area (from DECD) | 54 square metres |
| No of students per general learning area (from DECD) | 25 - 30 |
| Outside air requirements (Australian Standard & DECD) | 300 litres/sec/GLA |
| No of school days per annum (from DECD) | 205 pa |
| School hours per day (from DECD) | 7 hrs (8:30 – 3:30) |
| Annual school hours (from DECD) | 1,450 hrs |
| Average Heating – full load hours pa for Adelaide (Bureau of Meteorology) | 340 hrs |
| Average cooling – full load hours pa for Adelaide (Bureau of Meteorology) | 100 hrs |
| Life cycle costing discount rate (set by treasury and may change) | 6% |
| Inflation rate (set by treasury and may change) | 2.5% |
| Present worth factor for 20 years life of equipment | 14.3 |
| Greenhouse gas (CO ₂) output per electrical kWh input (from the Australian Greenhouse Office) | 1.186 kg |
| Maximum classroom noise levels (Australian Standard) | 45 dBA |
| Adelaide ambient design temperatures Summer / winter (AIRAH) | 37 / 6.5 degrees |
| Cooling temperature set point | 250C |
| Heating temperature set point | 210C |

6.3 Mechanical Exhaust Systems

- Areas such as technical studies workshops, art studios, photography darkrooms and science laboratories shall have an exhaust system installed.
- Exhaust ventilation systems shall meet noise exposure requirements of the Work Health and Safety Regulations 2012 – Chapter Four – Hazardous Work.
- The installation of exhaust ventilation systems shall consider the proximity of other buildings and spaces to ensure adjacent services are not impacted by increased external noise.
- All exhaust ventilation systems shall be vented to the atmosphere.

Mechanical exhaust ventilation shall be provided in areas where heat, odour and fume build-up can be a problem such as:

- Stoves / kitchens
- Printing machines
- Toilets

Mechanical exhaust systems vented to the atmosphere shall be provided to extract dust, fumes and heat from hazardous areas and particular items of equipment as follows:

- Woodwork machines
- Welding equipment
- Fume cupboards
- Chemicals storage units
- Photographic processing spaces
- Spray booths
- Kilns

Please refer to DPTI Drawing DD19 Typical DECD Chemical Store Layout.

6.4 Fire Protection

- Fire services shall be designed to comply with the Building Code of Australia, relevant standards and to the SA Fire Services requirements.
- Where mains pressure is not available or inadequate, a fire water storage tank is required to provide a minimum flow and pressure in accordance with AS 2441:2005 – Installation of Fire Hose Reels. Ensure flow and water tests are carried out to identify any such need.
- Fire hose reels are not required in classrooms and associated corridors in a primary or secondary school, however, some DECD facilities such as gymnasiums and halls are classified under different categories in the BCA.
- Hose reels shall only be provided in DECD buildings that are designated for community use and which have a floor area greater than 500m². This would normally only apply to large Activity Halls, Gymnasiums and Community Libraries
- External fire hydrants shall be provided in accordance with the BCA and its referenced standards.
- Fire blankets shall be provided in science and home economics rooms, canteens, technology workshops and Early Childhood Facilities kitchens.
- Fire detection shall be integrated with security detection systems (PSSD Control Room monitoring).

FIRE EXTINGUISHERS

- Fire extinguishers shall be provided to all DECD facilities in line with all relevant legislative and regulatory references.
- Generally fire extinguishers shall be ABE Dry Chemical Powder with associated signage, of nominal 4.5kg capacity, however the specification of fire extinguishers shall consider adjacent services e.g. electrical equipment, to ensure the appropriate fire extinguisher is specified.
- The extinguisher shall be mounted in accordance with the Australian Standard, and where new extinguishers are provided they shall be enclosed within a heavy duty plastic bag.
- The fire extinguisher safety pin shall be a 100mm extended travel type. The pin is to be inserted such that it can only be removed once the extinguisher is removed from its mounting and the plastic bag.
- Consider providing a recess in the wall to house each fire extinguisher for protection.
- Where a fire source feature dictates a requirement for a special purpose fire extinguisher, a suitable unit for that circumstance in line with the Australian Standard shall be provided.
- Extinguishers shall be located in occupied spaces (e.g. general learning areas) rather than corridors.

6.5 Plumbing

Plumbing waste systems shall include the following specific requirements:

- Science laboratory waste pipes, where they are in inaccessible areas (i.e. under floor slabs) shall be in High Density Poly-Ethylene (HDPE)
- Elsewhere, waste pipes shall be PVC SWV
- Science laboratory waste pipes preferred to be enclosed in service ducts with removable access panels
- Floor trap grates in vinyl floor areas shall be fitted with a damp type fitting as “Blucher” or equivalent
- Internal surface inspection openings (SIO’s) shall be chrome plated brass inserts
- External surface inspection openings shall be cast iron and concrete ring
- Sewer vents through metal roofs shall be flashed with an up-stand of similar material to the roof and fitted with a PVC weathering cone
- The tops of gully trap grates in paved areas shall finish 12mm above surrounding paving
- Paving is to ramp up to the top of the grates
- Refer to Trade Waste Discharge procedure for further information.

6.6 Water Services

WATER TEMPERATURES

- Cold water is to be provided in general student toilet hand basins and any hand basins in general learning areas.
- Heated water shall be provided in accordance with AS 3500 Plumbing and drainage Part 4 – Heated water services.
- Water at a maximum 45°C is only to be provided to the following ‘General Areas’ (Locations not listed shall only be serviced by cold water):
 - Staff and Student disabled access toilet hand basins
 - Staff and Student showers
 - Staff toilet hand basins
 - Sick room hand basins
 - Staff room hand basins and kitchen sinks
 - Canteen hand basins and kitchen sinks
 - High school home economics hand basins and sinks
 - High school student common room sinks
 - Science staff preparation area sink (one hot water outlet only)
 - Art learning area sink (one hot water outlet only)
 - Photography preparation area sink (one hot water outlet only)
 - Stephanie Alexander Kitchen Garden kitchen sinks
 - Nappy change hand basins
 - Baths and showers in early childhood centres
 - Early childhood kitchen hand basins and sinks
 - Staff materials clean up trough in early childhood centres
 - Laundry troughs
- Hot water at 60-65°C can be provided to the following areas:
 - Design and technology – Metalwork, Automotive etc. (one per workshop)
 - Sluice sinks
 - Cleaners sinks/troughs (provided they are not freely accessible by children)
 - Washing machine outlets

HOT WATER SERVICES

- All hot water services shall have a Thermostatic Mixing Valve (TMV) as per AS 3500.4 to limit the temperature to 45°C in “General Areas” (listed above) to prevent severe scalding. TMVs shall comply with AS4032.2.
- Instantaneous gas hot water heaters are preferred over storage heaters in most situations to limit electrical load. Electric continuous flow hot water services may be specified and can provide an energy efficient option where long pipe-runs are required.
- Instantaneous water heaters shall meet the following temperatures:
 - Servicing outlets within 6m - Set to 45°C
 - Servicing outlets over 6m - Set to 60°C

- Storage water heaters shall be set at 60-65°C in accordance with AS 3500.4 to avoid the likelihood of the growth of Legionella bacteria.
- Mains pressure storage hot water services shall not be provide in joinery fittings e.g. under-sink heaters in bench cupboards.
- Mains pressure storage hot water services shall not be located inside buildings where they could compromise occupied areas, fixtures or fittings through flooding due to leakage or malfunction.
- Where no alternative exists and mains pressure storage hot water systems must be installed inside, it shall be located to ensure flooding is directed outside of the building or flooding is contained within waterproofed and bunded areas e.g. wet areas with impervious floors graded to a drainage outlet.

FOOD PREPARATION AREAS & SPECIALIST EQUIPMENT

Hot water supplied to kitchen sinks at DECD schools and preschools is NOT suitable to sanitise food contact areas, utensils and specialist equipment. Where required to meet sanitising requirements for food preparation areas and sanitisation, sites may install a dishwasher to wash the dishes/utensils above 65°C AND/OR use a food grade sanitiser to wash benches/utensils etc.

Dishwashers and food grade sanitisers shall meet Food Safety Standards. For more information please go to: www.foodstandards.gov.au/Pages/default.aspx. For further information on sanitising food contact areas, the Department for Health and Ageing have released a Food Industry Bulletin which can be accessed at: www.health.sa.gov.au/pehs/Food/food-industry-bulletin-1-06.pdf

Refer to the Eat Well SA Healthy Eating Guidelines for SA School and Preschools (Healthy Eating Guidelines) at www.decd.sa.gov.au/eatwellsa for food safety legislation requirements under the Food Act 2001 and regulations under the Act.

6.7 Power & Gas Supply

- Sub-metering of buildings shall be included where appropriate to facilitate the monitoring of energy use. Sites which include co-located facilities which will operate independently, such as preschools and children's centres, shall have a sub-meter.
- Combined Circuit Breaker/Residual Current Devices (RCD's) shall be installed in switchboards to protect each socket outlet circuit. For any renovations or alterations which affect power socket outlet circuits RCD protection shall be provided.
- Provide dedicated power circuits for special applications and equipment. Provide sufficient socket outlets to service all equipment expected to be used in a particular situation.
- All general purpose outlets shall be double outlets.
- In general learning areas provide a minimum of three double switched socket outlets.
- Overhanging power cables shall not be specified between buildings and facilities. Cabling shall be trenched as per the relevant AS.
- Refer to the DECD ICT Design Standards for power supply requirements for ICT equipment.
- Power requirements for Technical Studies workshops shall be briefed separately with approval from DECD.

EMERGENCY ISOLATION SWITCHES

Provide emergency isolation switches in each secondary school science laboratory, home economics rooms and design and technology workshops (Push to isolate, key operation to reset). Isolation Switches shall be located in a prominent location free of equipment and fixtures. The preferred location of the isolation switch is adjacent to the teacher/demonstration bench to reduce student interference and allow for quick activation. Where not feasible the isolation switch shall be located adjacent to the main exit of the room.

GAS – EMERGENCY ISOLATION SWITCHES

Emergency isolation switches shall be provided for gas supplies in science laboratories in a prominent location free of equipment and fixtures (Push to isolate, key operation to reset).

SURGE PROTECTION

Provide power surge protection to all equipment within the central communications room, using a three-mode surge reduction filter, installed in a visible location.

Provide local transient surge protection for Administration and other critical function PC's only.

ACCESSORIES

All accessories shall have fixed cover plates. Light switch mechanisms shall be rated for fluorescent loads and secured with a retaining screw within the cover plate.

All accessories shall have circuit identification corresponding to the protection device in the distribution board.

6.7 Cleaning Storage Provisions**Cleaning stores should be provided at the following dimensions**

- A store room of 6m² (approximate proportion of 3m x 2m) shall be provided for an aggregated building area of up to 1,500m²
- An additional store room of 3m² (approximate proportion of 2m x 1.5m) shall be provided for every additional 1,000m² (or part thereof) aggregated building area above the initial 1,500m²
- Room dimensions should allow easy access into the store without the need to remove equipment.

Cleaning store location and access

- Locate centrally within buildings, on each level of multi-storey buildings, in proximity to an exit door on the building perimeter and provide reasonable vehicle access for equipment delivery
- Disperse evenly across a site where more than one cleaning store is required
- Adjacent to wet facilities for cost effective water supply and plumbing access (the provision of a cleaner's sink is optional)
- Where relocatable buildings are grouped at a distance from solid buildings, provide a temporary cleaning storage facility within a transportable building, either as a partitioned space if available or a lockable cupboard.
- Cleaning stores shall not interfere with the teaching requirements and functions of a school
- Storage sheds are not considered an acceptable provision for cleaning storage facilities due to the inherent and unacceptable risk exposures of such facilities (e.g. security risk)

Storage requirements

The types of equipment that need to be stored can range from vacuums, polishers, blower vacuums, auto scrubbers, buckets, mops, brooms, multiple chemicals in 5-10 litre containers (20 litre containers must be stored on the floor only) and janitor's trolleys.

Store room materials and services

- All wall surfaces shall be resilient and hard wearing
- Wall surfaces shall be painted with a semi-gloss finish to enable easy cleaning of surfaces
- Flooring shall be slip resistant to AS/NZS 4586 and have coved skirtings to a minimum 150mm with impervious joints in corners.
- Incorporate falls and floor drainage where applicable – refer section 5.7 Flooring
- Doors shall be solid core, flush panel doors with no viewing panels with a locking latch from outside and free access from inside at all times. Return D-handles shall match other door furniture
- Provide a double power outlet for testing of equipment
- Mechanical ventilation shall be provided to prevent the accumulation of fumes and odours
- Provide a broom rack and lockable cupboard with timber shelving and chemical resistant laminate to interior surfaces
- Provide wall stripping with timber shelving & chemical resistant laminate finish
- Provide a flammable liquids storage cabinet (main store room only)
- Warning signs regarding the storage of chemicals shall be permanently fixed to the external door and the storage cupboard door (compliant with WHS Regulations).

6.8 Internal Lighting

High efficiency surface mounted luminaires are preferred for all internal applications to promote energy savings and provide ease of maintenance and replacement through local contract arrangements. Natural lighting should be utilised wherever possible and artificial lighting should be designed to complement natural lighting. Energy usage minimisation is paramount and luminaires with proven energy minimisation characteristics are to be selected.

- LED lighting shall be specified for all internal areas unless specialty lighting is required or where LED lighting is not appropriate. All lighting shall be specified in accordance with AS1680 Interior Lighting.
- Standard recessed or surface mounted luminaires in general facilities (classrooms, teaching areas, and administration areas) shall be located at between 2400mm and 2700mm above floor level without exception. Ceilings generally will be at 2700mm. Where higher or raking ceilings are approved or for existing facilities, luminaires shall be rod or channel suspended at the required level. LEDs may be located above 2700mm AFL and recessed due to the expected life and maintenance requirements of LEDs.
- Luminaires in design and technology workshops to be mounted at the highest level, where possible e.g. above 2700mm AFL. Refer to the [Guidelines for the Safe use of Machinery](#) for lighting requirements above machinery.
- Where ceilings are lower than 2400mm and in large resource centres with T-bar ceilings, luminaires shall be recessed.
- For all luminaires that are with-in easy reach, mounted less than 2100mm AFL, such as in-ground uplighters, bollard lights, wall lights (recessed or surface-mount), the touch-temperature of all exposed parts must not exceed 50°C.
- Switching and/or Daylight Sensors (Photo Electric Sensors) in banks and rows shall be provided to suit varying light requirements to utilise natural daylight wherever possible and to reduce energy consumption.
 - Photo electric sensors to be set at 20 minutes “on” as a minimum.
 - Banks shall be clearly marked with signage to allow ease of use and increase the likelihood that banking will be utilised.
 - Luminaires at the front teaching portion of the room shall be separately switched for AV presentations.
- In areas with irregular activities and classes, timer switches and/or motion detectors shall be specified to reduce energy usage. When specifying motion detectors, ensure that detection devices are located so they are not unnecessarily tripped.
- In rooms which are dedicated to the use of computers, the lighting shall be in accordance with AS1680.2.2:2008 - Interior and workplace lighting - Specific applications - Office and screen-based tasks.
- In rooms which are dedicated to colour sensitive activities (art, photography), energy efficient lighting with high Colour Rendering Index, CRI>90 are recommended to ensure accurate perception of colours.
- In activity halls/gymnasiums luminaires shall provide a minimum of 320lux, be mounted at maximum height, and be of impact resistant construction with shatterproof diffusers.
- Switches shall be located at 1000mm above floor level to comply with Disability Access codes.
- Luminaires shall not be located above ceiling sweep fans (to avoid strobing effects).
- Suspended luminaires shall be rod fixed or 4-wire suspension to avoid excessive swaying

6.9 External Lighting

LED lighting shall be specified for all external areas unless specialty lighting is required or where LED lighting is not appropriate. High energy efficiency and low maintenance lighting solutions should be investigated where LED lighting is not appropriate while ensuring that adequate lighting levels are not compromised. For all luminaires that are within easy reach, mounted less than 2100mm AFL, such as in-ground uplighters, bollard lights, wall lights (recessed or surface-mount), the touch-temperature of all exposed parts shall not exceed 50°C.

SECURITY LIGHTING

- The surface method or target directed lighting is most effective in a school environment. Targeted lighting is directed at the building rather than away from it. This means that potential offenders close to a building are clearly illuminated.
- Vandal resistant, energy efficient security lights supplying an adequate level of security as specified above shall be provided around all buildings, preferably at eaves level and under verandas.
- Effective security lighting should provide between 30 and 75 lux to provide adequate security levels.
- Courtyards and hidden areas shall be illuminated.
- Luminaires shall be mounted in a horizontal position and be operated by photo-electric solar switches (Daylight Sensors).
- Consider using movement activated lighting to reduce electricity usage and provide access lighting for staff movement after hours.

ACCESS LIGHTING

- Access lighting shall be provided to pathways, steps, ramps and car parks to allow safe access to and between buildings.
- Care is to be taken to prevent glare from these lights.
- Pole or building mounted luminaires shall be used for access lighting. As far as practical all luminaires shall be directed vertically downward and shall have a light distribution cut-off not exceeding 80° from the vertical (e.g. no light above horizontal).
- Poles shall be 4 metres high. Bollard lighting is not to be used.
- Luminaires with high pressure sodium lamps are preferred for this application.

FLOOD LIGHTING

Security issues should be resolved by the use of appropriately located access lighting. Where unavoidable, floodlighting can be provided and at a minimum height of 5 metres above ground. Floodlights aimed horizontally or near horizontally are not acceptable and shall be designed to minimise nuisance lighting in to neighbouring properties.

6.10 Lifts

- Passenger lifts are the preferred method of disability access and shall meet the requirements of the latest version of AS1735.12 – Facilities for persons with disabilities.
- Passenger lifts shall be low speed hydraulic or roped hydraulic systems and shall be card/key operated.
- Scissor and platform lifts shall only be specified with approval from DECD.

6.11 Information and Communications Technology

COMMS CABLING

- Fibre backbone cabling shall be provided from the main comms cabinet to other comms cabinets in every building in a star topology.
- The fibre backbone cabling shall have 10GB capability, and comply with AS/NZS 3080:
 - for less than 300m from the main comms cabinet, minimum 6 – 12 core OM3, shall be used.
 - for between 300m and 550m from the main comms cabinet minimum 6 – 12 core OM4 shall be used.
 - for more than 550m from the main comms cabinet minimum 6 – 12 core OS2 (single mode) shall be used.
 - If the measurements are within 5m of distance limitations a cable type then, the next grade of cable shall be used.
- All cores shall be terminated in fibre trays with LC connectors.
- The key contact person for the DECD site (school principal, preschool director etc.) shall be formerly advised of the type of fibre cable (single mode or multimode) as it impacts on the networking equipment that they need to purchase. All network devices will be provided by the DECD site (school, preschool etc.)
- Cabling to the data points shall comply with AS/NZS 3080 and be minimum Cat6 SYS 1071E, preferred Cat 6A 1091B (Cat 6A 1091B shall be used for new builds and refurbishments where all cabling to data points are replaced).
- Where there are more than 48 cables together, they shall be reticulated using wire mesh trays. For less than 48 cables, they shall be reticulated using catenary in bundles of up to 24 cables
- For telephony, backbone Cat.3, gel filled phone cabling shall be used. If this cabling is being installed externally, the cabling shall be outdoor rated.
- There shall be a minimum of 25 pairs connected to a 24 port patch panel. Additional pairs shall be added in increments of 25 pairs connected to 24 port patch panels.
- There shall be at least 1 pair (to each cabinet) for every phone that the cabinet services with approx. 25% for future growth.
- Comms cabling shall be installed as per AS/CA S009 and manufacturer installation guidelines and be kept separate from power cabling by at least 50mm or a physical barrier.
- All copper and fibre Comms Cabling shall be tested to the requirements of AS/NZS 3080 in accordance with AS/NZS ISO/IEC 61935.1 (copper) and AS/NZS ISO/IEC 14763.3 (fibre)
- All data points and patch panels shall be labelled in accordance with AS/NZS 3085.1
- All patch cords supplied shall be from the same cabling manufacturer as the horizontal and backbone cabling.
- 2 patch leads shall be provided per data point. 50% of the total number of patch leads should be 3m in length, 25% 1m, 15% .5m and 10% 2m.
- Cabling contractors installing the Comms Cabling shall have an ACMA Open Cabling Registration (OCR) and be certified to install the nominated Comms Cabling manufacturer to ensure a 20 year warranty can be applied to the site
- Data point heights – The purpose of the data point should be considered when determining the heights. For example:
 - Data points intended to be used for a wall mounted phone should be mounted at 1500mm AFL

- Data Points to be used for phones or computers on an adult or secondary student desk should be mounted at 900mm AFL

**Note for higher green star points/ratings, substitute PVC covered cabling for LSZH (Low Smoke Zero Halogen)

COMMS ROOMS

- The main communications room is the preferred location for servers (file servers, web-servers, database servers, etc.), the core network switch(es), routers, primary node data communications cabinet(s), PABX and telephone MDF.
- The room should preferably be located centrally to all the site buildings and close to the site perimeter to minimise internal cable runs as well as the external links to services running along adjoining roads.
- The physical requirements of the main communications room are:-
- Floor Area:
 - Schools and Children's Centres - minimum of 3m x 3m 9-10m² (primary school and Children's Centre), 12-15m² (secondary school), with a long blank sidewall and the door in the short wall.
 - Preschools – minimum of 8m², with a long blank sidewall and the door in the short wall.
- Shall comply with AS/NZS 3084.
- Removed from sources of Electro Magnetic interference.
- Secure (equal to secure store requirements).
- Movement and smoke detectors shall be installed.
- Minimum of 3 blue double power sockets on separate circuits, surge protected.
- Surge protected 15A power outlet sockets to service communications equipment racks and the PABX.
- Temperature Control
 - For the main core Comms Rooms that contains servers, an air-conditioning solution with sufficient redundancy shall be provided, with a heat rejection load of 100% of the heat load of intended initial equipment with an additional 25% to cater for future growth.
 - The temperature needs to be maintained at 22°C with a Relative Humidity between 40%-60% (maintained by all units simultaneously)
 - There should be an Alert for check at 25°C – for e.g. a red light flashing outside the comms room
 - There shall be an Alert for Shutdown at 27°C - to a sequential mobile list developed by the DECD site that continues to loop until it is answered by someone on the list.
 - In locations that only contain network switches and Preschool main core comms rooms, an exhaust fan shall be provided with a local thermostat to activate the fan set to 24°C
 - In Pre-School comms rooms, provisions shall be included to enable an air-conditioning solution as detailed above to be added at a later date if required.

COMMS CABINETS

- All comms cabinets shall be a minimum of 600mm deep
- All comms cabinets in the main comms room must comply to EIA-310-D 19"W and need to be 45U high, 1200mm deep and at least 800mm wide. The cabinet shall be fitted with metered PDUs with a minimum of 24 outlets.

- Comms cabinets in other comms rooms shall include adequate PDUs to run intended equipment be large enough to house
 - Required fibre trays,
 - Required phone angled patch panels,
 - Required network patch panels
 - servers provided by the DECD site
 - and switches provided by the DECD site.
- The DECD site should be consulted for the physical measurements of Servers, UPSs and switches.
- All cabinets and metallic components within the cabinets shall be earthed in accordance with AS/CA S009
- Angled patch panels shall be used in open frame comms racks (not comms cabinets) to save vertical space

UPS (UNINTERRUPTABLE POWER SUPPLIES)

- These are used in comms cabinets to protect IT equipment from damage due to power failures and surges. All UPS equipment will be provided by the DECD site
- A 15amp Computer GPO shall be provided for all UPS equipment less than 3000 VAs
- If the DECD site intends to use UPS equipment that is more than 3000 VAs, more than 15amps is required. Subsequently each UP will require hardwired connection to electricity.

POWER REQUIREMENTS

- The main comms room shall be on a separate circuit with three mode surge reduction filter installed in a visible location
- Other comms rooms also shall be on separate circuit with local surge protection
- Dedicated computer GPOs for powering computers and computer monitors shall be on a separate circuit to the general GPOs to prevent computers being affected by short circuits caused by other equipment.

WIRELESS NETWORKS

- Wireless network coverage shall be throughout all internal areas except for toilets and storage areas. Coverage shall also be provided for undercover outdoor learning areas where possible.
- Data point locations for wireless access points (WAPs) shall be sent to DECD for review prior to tender call.
- A double data point shall be provided at every WAP location
- Data points for WAPs shall be mounted in the ceiling cavity wherever it is structurally possible and easily accessible.

CCTV

Double data points for CCTV cameras should be provided near all building entry/exit doors

AV SOLUTIONS

- When determining the position of AV solutions, the effect of glare from windows in the room needs to be considered. Building joinery on the window side of the AV Solution is recommended to assist with glare issues e.g. screens.
- The AV solution needs to be installed by an AV specialist. If the builder and AV specialist can coordinate prior to first and during second fix electrical, to confirm service location requirements, the best outcome will be achieved. This is the preferred approach.
- If this is not possible then access as detailed below in Fig. 1. needs to be provided for the AV specialist to install the solution, post construction.
- All AV equipment will be provided by the DECD site.

HEARING AUGMENTATION SYSTEMS

- Sound Fields assist all students in the learning space and help to protect teachers voices and should be considered for all AV solutions
- Consultants/Contractors shall work with DECD Special Educators (Hearing) to finalise the selection and installation of soundfield systems and induction loops.
- Sound Fields shall be provided for AV solutions in classrooms for hearing impaired students.
- The BCA code for AV solutions and hearing augmentation requirements must be adhered to.
- As a minimum:
 - **In general schools:**
 - Install an AS1428.5 compliant Hearing Augmentation Loop as part of the AV system in a School Assembly Hall or Performing Arts hall.
 - Install an AS1428.5 compliant Infrared Sound Field system as part of the AV system in classrooms dedicated for students with special needs.
 - Install an AS1428.5 compliant Infrared Sound Field system as part of the AV system in once instance in each type of Serviced Learning Area that is intended for use by students with special needs.
 - Install a portable counter-top Hearing Augmentation Loop device for Reception and Student Services desks
 - **In special schools**
 - Install an AS1428.5 compliant Hearing Augmentation Loop system as part of the AV system in a School Assembly Hall or Performing Arts hall.
 - Install an AS1428.5 compliant Infrared Sound Field system as part of the AV system in General Learning Areas.
 - Install a portable counter-top Hearing Augmentation Loop device for Reception and Student Services desks
 - **In pre schools**
 - Install an AS1428.5 Infrared Sound Field system as part of the AV system in Learning Areas.
 - Install a portable counter-top Hearing Augmentation Loop device for Reception and Student Services desks

PROVISIONS FOR GENERIC AV SOLUTIONS

- Generic AV provisions shall only be provided for new walls.
- On existing walls, the AV installer shall retro fit the solution.
- Bracing for the AV solution shall always be provided by the AV installer
- The following provisions should be made to enable access in an average classroom
 - The location for the AV Solution is to have 3000mm wide of dedicated completely flat, wall space. Any pin boards or other wall mounted items (apart from the services detailed below) should not be mounted anywhere above the skirting in this space.
 - 1 x 50mm conduit and 1 x 32mm conduit to be concealed in wall with draw wire from a blank wall plate at the pc location, to a location behind the IWB or TV and continued 1000mm into the ceiling cavity at the centre of the location for the AV solution. Conduit may be corrugated, and shall be securely fixed into position.
 - Computer GPO, and data points for the computer to be provided with the blank wall plate @ 900mm above floor level. This should be provided at the location of the desk for the computer as indicated by the DECD site. If it is desired to be next to the AV solution then the blank wall plate should be 400mm from the right edge of the 3000mm dedicated wall space and power and data located as shown unless otherwise indicated by the DECD site. If the ceiling is not accessible then a 600mm x 600mm ceiling access hatch is to be provided. Locate access hatch at the centre of the 3000mm dedicated length of wall.
 - All additional power and data to power and network the AV solution (i.e for IWB,TV and/or Projector) should be provided in the required locations by the installer of the AV solution.
 - For an interactive whiteboard or TV, they should be mounted according to the relative age of students. Please see recommended heights below. For OHSW of staff, an IWB should not be mounted any lower than 650mm from floor height to prevent head injury on the projector. There can be an exception to this if required. E.g. for a special needs class where some students may need to lay on the floor, some may need to be in a wheelchair and some may be standing, the IWB can be mounted on a height adjustable frame
 - Recommended heights
 - B-2 students – 650mm
 - Yr 3-4 students – 700mm
 - Yr 5-7 students – 720mm
 - Yr 8-12 Students – 800mm

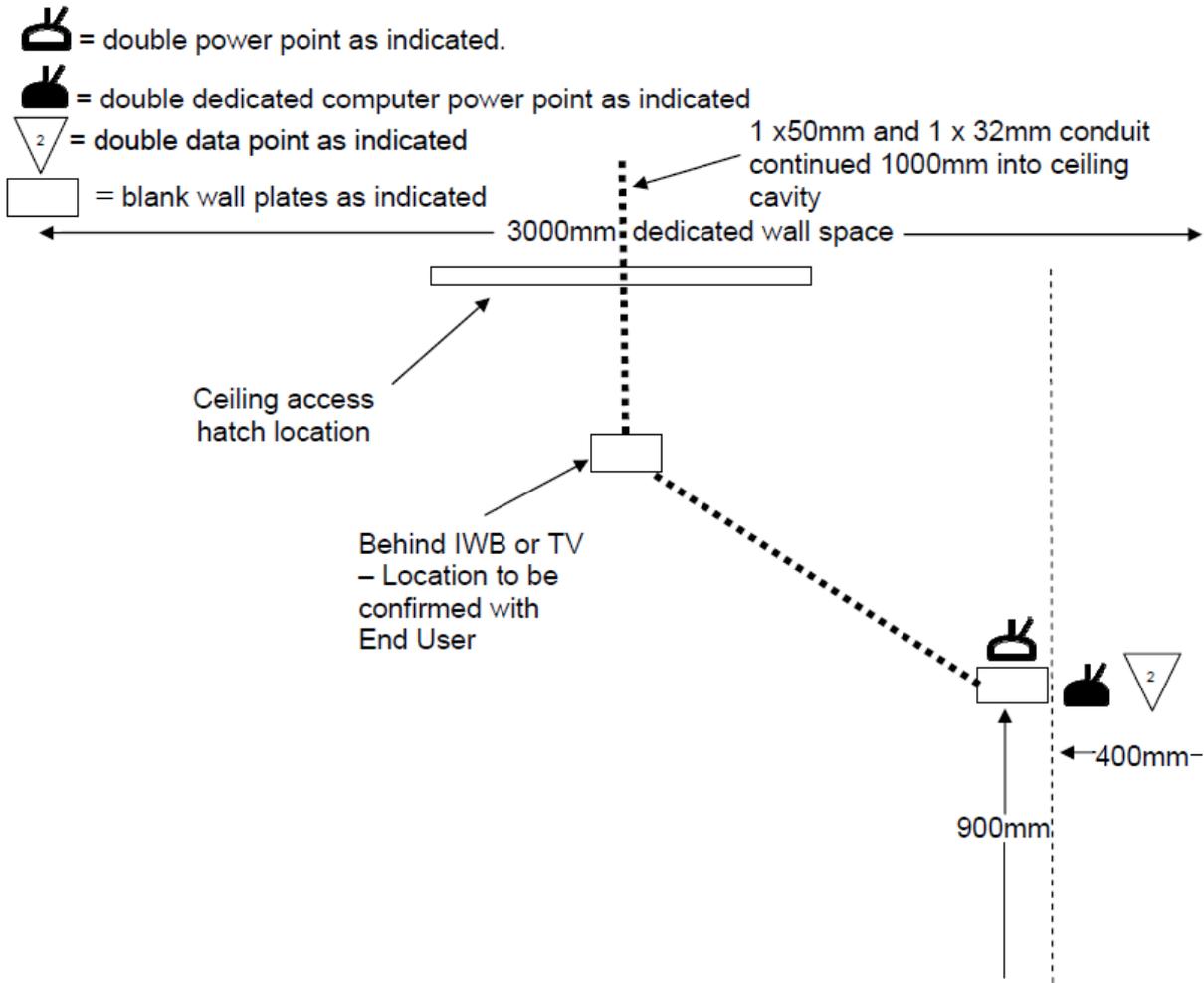


Figure 1: AV Solution

PRINTERS

- Ensure that a data point is included wherever a printer is to be located, even if it is just in a one person office.
- Users cannot print wirelessly to a printer and print usage cannot be monitored unless the printer is connected to the network.

TYPICAL ROOM DATA REQUIREMENTS

| Room Type | Minimum number of data points |
|------------------------|-------------------------------|
| General Office | 3 |
| Finance Office | 5 |
| Reception | 6 |
| GLA | 6 |
| SLA – (Computer Suite) | 40 |
| Tech Studies Workshop | 10 |
| Resource Centre | 20 |

ADMIN OFFICES

Consultation, regarding specific equipment is required. Please also consider the following:

- Ensure that each, single user admin office (i.e. key contact person for the DECD site, deputy etc) has a minimum of two double data points. This allows connection for phone, computer and printer with one spare for other use.
- Finance offices may need additional data or phone ports for eftPOS machines and may have a second computer near a service window.
- Reception offices may also have printers, fax machines and/or eftPOS machines that also require data points

CONSULTATION

- The lead agency representative and the electrical engineer should meet with the DECD site, using the signed off concept plans as part of the development of room data sheets, to establish the location and type of all IT and AV equipment, including phone handsets to ensure that adequate infrastructure is being provided to meet site operational needs
- Please refer to the table below for recommended services for typical types of equipment.
- Some DECD sites use CCTV. Data points are required for the cameras. Depending on the type of camera, power also may be required. The school should specify which areas require coverage

| Equipment | Power | | | | Data | AV | Wall Plate Panel |
|-------------------------------|---------------------|---------------------|----------------------------|----------------------------|------|----|---|
| | Double Computer GPO | Double Standard GPO | Double 15 amp Computer GPO | Double 15 amp Standard GPO | | | |
| Staff PC Workstation | 1 | 1 | | | 1 | | HDMI, VGA, PC Audio, May also require USB, RCA, Component |
| Per 2 Student Workstation | 1 | 1 | | | 1 | | |
| AV solution | 1 | 2 | | | 1 | 1 | 1 |
| Lg AV Solution | 1 | 2 | | | 1 | 1 | 1 |
| Phone only | | 1 if cordless | | | 1 | | |
| Multiple User Network Printer | | 2 | | | 1 | | |
| Wireless Access Point | | | | | 1 | | |
| Single User Network Printer | | 1 | | | 1 | | |
| Network Photocopier | | 1 | | 1 | 1 | | |
| Fax or EftPOS | | 1 | | | 1 | | |

7. SECTION 4 – FIXTURES, FITTINGS AND FURNITURE

7.1 Curtains and Blinds

Use passive design principles to regulate internal environments as far as practicable.

Sun control shall be achieved by the design and location of the windows and the use of fixed external screens or verandas, and shall not rely on internal curtains or blinds.

Curtains and blinds are generally provided and installed by the school and are not normally provided as part of the building contract, except as follows:

Blackout provisions shall be provided in:

| | |
|------------------------------|-------------------------|
| Secondary School photography | No windows in darkrooms |
|------------------------------|-------------------------|

Dim out provisions shall be provided in:

| | |
|-------------------------------------|---|
| Primary School Multipurpose Rooms | Curtains or blinds |
| Secondary School Physics Laboratory | Curtains or blinds |
| Secondary School Drama | Curtains and stage curtains where windows exist |

Where curtains are specified they shall include commercial grade tracks and operating systems.

Curtains and blinds shall have a fire retardant incorporated in their manufacture in accordance with the relevant Australian Standard.

CORDED INTERNAL WINDOW COVERINGS

Internal corded window coverings shall not be installed in unsupervised learning areas such as sensory rooms and withdrawal rooms. For all other areas, corded window coverings shall only be installed with the cord fixing mounted at a minimum 1600mm or above. Where windows are obstructed by a cupboard or fixture and fixing is unable to be mounted at 1600mm, the cord fixing shall be mounted at a level which is accessible to staff and does not pose a risk for Work Health and Safety.

CURTAINS

Curtains with no cord attached are the preferred window covering as they have minimal working parts and do not pose a risk to students through cords being broken or wrapped around their necks. Heavy Duty/Commercial curtain tracks are preferred and curtains shall meet the relevant Australian Standard for fire retardants.

MECHANICAL WINDOW COVERINGS

Where sites require specialty daylight control in areas such as sensory rooms and withdrawal rooms, mechanically operated systems may be installed.

7.2 Sinks and Troughs

Sinks and troughs shall be Stainless steel, grade 304, except the following:

| | |
|---|---|
| Secondary School science laboratory and preparation areas (and other areas where chemicals are to be used). | <ul style="list-style-type: none"> ▪ Grade 316 stainless steel sinks and troughs ▪ Vitreous china sinks for student use |
| Photography: | <ul style="list-style-type: none"> ▪ Polypropylene sinks |

Sinks with front lip and tile skirt are preferred over inset sinks.

Student toilet hand basins may be stainless steel or vitreous china.

Please refer to the following approved DPTI Drawings:

- DD16 - Basic Laboratory Sink/Cupboard
- DD17 - Laboratory Sink Island Demonstration Model
- DD18 - Art Sink
- DG17 - Photographic Sink
- DG18 - Sluice Trough
- DG19 – Silk Screen Cleaning Trough

7.3 Tap Ware

GENERAL

- Basin and sink taps shall be specified to a minimum 5 Star WELS rating.
- All outlets and breeching pieces shall be manufactured from de-zincification resistant material approved by SA Water.
- Tap heads shall be modified capstan, vandal proof type, having red and blue indicator buttons permanently attached to the centre, where hot and cold water is provided. Finish to be bright chrome plated.
- Taps can be wall or bench mounted. If bench mounted they shall be secured to the bench top and not just to the sink or trough.
- Swivel outlets shall not be used.
- Student ablution areas shall have one pillar cock for cold water to each basin, push button activated spring valve with delayed return.
- Staff ablution areas shall have one basin set with aerated fixed outlet.
- Specialist areas shall have tap ware as briefed.
- Mixing valves are only to be provided in disability access toilets and designated bays in specialist areas.

DRINKING TROUGHS / FOUNTAINS

Where new drinking fountains are being specified, or where existing fountains are being replaced, disability provisions shall be considered to ensure equitable access. Although not required at every fountain, convenient access for both able bodied and disabled persons should be considered.

They shall be stainless steel proprietary items in convenient locations around the school and shall be located away from toilet areas. For ease of maintenance and cleaning, it is preferable that the drinking outlets are above stainless steel troughs, particularly if they are located outside of buildings.

Provide a sturdy, low maintenance stainless steel bubbler outlet with integral mouthguard and a self-closing tap that offers appropriate hygienic performance. They should include a provision for filling water bottles in a quick and easy manner. Drinking fountain outlets should aim for a minimum 5 Star WELS rating. The bubbler outlet shall be set at the following heights except where disability provisions are specified:

| | Height |
|--------------------------|---------------|
| Junior Primary schools | 600 to 650mm |
| Primary & Middle schools | 750 to 800mm |
| Secondary schools | 900 to 1000mm |

Provision of refrigeration and/or filters to the drinking water is not a standard provision and is not financially supported by DECD. Where schools or preschools elect to install refrigeration and/or filters, installation and ongoing maintenance is the responsibility of the school. If provided ensure any electrical connections do not pose a trip hazard.

7.4 Amenity Fittings

EMERGENCY CALL SYSTEM

An emergency call system shall be provided in every Accessible Toilet. Provide a call button and locate the audible and visual warning device in the administration area in a location where a staff member is permanently located during operating hours. The warning device shall continue to operate until it is reset from within the administration area.

An emergency warning light shall be fitted outside accessible toilets to ensure timely assistance.

The emergency call system may be wired in to security alarm systems however shall be programmed as an "Assistance Alarm" only. Emergency call systems shall not be programmed as a "Duress Alarm".

PARTITIONS

Fully enclosed toilet cubicles with adequate ventilation shall be provided and comply with the Building Code of Australia and referenced Australian Standards.

Refer to Section 5.12. Amenity Provisions and Design for more information on DECD toilet design requirements.

TOILETS

- Specify the most water efficient equipment practicable, aiming for a 4 Star WELS rating.
- Toilet pans shall be stainless steel or white vitreous china of basic design, with single flap seat (no lids). Disability toilets shall have a dual flap.
- Toilet pans shall be adult size in all primary and high schools.
- Cisterns shall be plastic dual flush, with vandal-proof push buttons.
- Toilet roll holders shall be adequately secure to prevent rolls being removed by students.

- Sanitary disposal in female cubicles will be supplied by DECD as freestanding units, under a separate servicing contract.
- Urinals shall not be provided in male student or staff/visitor toilets. The required male student urinals stipulated in the BCA are to be converted to closet pans. Please refer to section 5.12. Amenity Provisions and Design for more information.

AMBULANT TOILETS

A full sized adult ambulant water closet pan shall be provided as per AS1428.1.

Where an ambulant toilet is required in a preschool or children's centre, please refer to the Early Childhood Facilities – Design Standards and Guidelines available at:

<https://www.decd.sa.gov.au/doc/early-childhood-facilities-birth-age-8-design-standards-and-guidelines>

HAND BASINS

- Vanity units should be seamless stainless steel with integrally moulded basins for ease of cleaning maintenance and vandalism resistance.
- Hand basins shall be white vitreous china or stainless steel in student toilets, mounted on heavy duty brackets.
- Student hand basins shall have one tap hole for cold water only.
- Hand basins shall be mounted at the following heights:

| | Height |
|-------------------|--------|
| Primary schools | 700mm |
| Secondary schools | 850mm |
| Staff facilities | 900mm |

HAND DRIERS

- Electric hand driers are the preferred option in all toilets, one per amenity facility.
- Hand driers shall have metal casing, with fixed air nozzle and push button operation.
- Hand driers, such as air jet hand driers, that require the user to reach over the top of the unit shall not be specified in disability toilets.
- Where hand driers are not preferred and/or suitable for facilities such as special needs schools, paper towel dispensers may be specified with approval from DECD.
- The operable outlet of the hand drier shall be mounted at the following heights:
 - Staff and secondary student toilets - 1200mm above floor level
 - Primary student and disability access toilets - 1000mm above floor level
- Hard-wire each hand drier via an isolator mounted at high level.
- Hand driers shall be RCD protected.

MIRRORS

Mirrors shall be vandalism resistant, an appropriate size for the age group, and provided in each toilet amenity cluster.

Staff toilets shall have individual mirrors contained in a frame fixed to the wall above each hand basin. Mirrors 600mm high by 450mm wide are an appropriate size.

7.5 Showers

STUDENT AND STAFF SHOWERS

- Shower heads shall be specified to a minimum 3 Star WELS 4.5-6L rating.
- Student showers are normally only provided as part of change rooms in secondary schools.
- Separate cubicles including a seat shall be provided for male and female change rooms.
- A single unisex staff shower shall be provided as part of the school administration facilities. This can be part of the staff toilet suite or included in the disability/special needs toilet area.
- Please refer to DPTI Drawing DD02 – Pre-finished Fibre Cement Shower Partition

EMERGENCY SHOWER / EYEWASH

A hand-held shower shall be provided in every science laboratory and design and technology workshop, mounted on a bench. Enware model EL540 (or equivalent) is an acceptable fitting and can be used as a shower and eye wash. Eyewash facilities shall be in an easily accessible and unobstructed location.

A drench shower and eye wash unit shall be provided in the science laboratory preparation/store room. Enware model EC090 (or equivalent) is an acceptable fitting. This shall include a floor trap connected to the building sewer waste system.

Emergency shower/eyewash drainage shall not be plumbed in to the waste water system and shall drain in to a neutralisation pit.

7.6 Joinery

FIXED JOINERY

The preference is to minimise fixed joinery and to provide flexibility with loose furniture. System furniture workstations are similarly not desirable as they restrict flexibility in general work areas.

Fixed joinery doors in schools may be hung on concealed hinges under the following circumstances and conditions:

- In staff areas, early childhood and primary school facilities: Two hinges per door shall be fitted to under-bench joinery.
- In secondary school facilities (except as listed below): Three hinges per door shall be fitted to under-bench joinery
- Doors to cupboards under benches shall be no more than 450mm wide.
- Doors to cupboards taller than bench height shall be no more than 600mm wide and shall have four hinges
- Hinges shall be of commercial standard and have a cam for height adjustment and not a slotted screw
- Joinery doors in secondary school technical studies workshops, doors which are required to be wider than 450mm, and other identified high risk areas in a project shall be hung on piano hinges.
- All concealed cupboard door hinges are to have a 170° opening unless the cupboard is adjacent a wall in which case the door may open to 90°
- Cupboard doors and drawers shall have D-handles.

- Cupboard door locks are only to be provided where specifically briefed, such as secure storage in specialist areas.
- Open corners of bench tops shall be rounded or mitred at 45° angle for safety reasons.
- Bench top surfaces in science laboratories shall be chemical resistant.

Fixed joinery is generally provided only in the following areas:

| | |
|-------------------|--|
| Primary Schools | <ul style="list-style-type: none"> ▪ Reception area and general office ▪ SSO work area and printery ▪ Staff lounge kitchen ▪ Storage cupboards in classrooms ▪ Benches and cupboards in classrooms, including wet strips. ▪ Library charge desk and work room benches and cupboards. ▪ Canteen servery and preparation areas |
| Secondary Schools | <ul style="list-style-type: none"> ▪ Reception area and general office ▪ SSO workroom and printery ▪ Staff lounge kitchen ▪ Design and technology workshops ▪ Art studios ▪ Science laboratories ▪ Home economics ▪ Serviced classrooms ▪ Library charge desk and workroom benches and cupboards ▪ Canteen servery and preparation areas |

PARTICLE BOARD AND MEDIUM DENSITY FIBREBOARD (MDF)

If Particleboard and/or MDF are specified, use only Australian-made as they are guaranteed to meet the E1 classification specified in AS 1859.2:2004 - Reconstituted wood-based panels – Specifications.

BENCH HEIGHTS

- Administration, Reception, Canteen and Library areas shall have a bench/counter suitable for disability access as per AS1428.2.
- Dropdown counter tops are not preferred due to finger entrapment
- Benches with adjustable heights between 700mm to 850mm are ideal to suit all users.
- Bench heights for Junior Primary and Primary School student areas shall be 720mm, including sinks and troughs.
- Bench heights for Secondary School student areas shall be maximum 770mm for seated use and 850mm for standing (or stool) use. (These heights match the heights of standard school tables supplied as furniture items).
- Bench heights for all school staff areas shall be 720mm for seated use and 900mm for standing use to conform to industry standard and allow dishwashers to fit.

7.7 Fixtures

BAG STORAGE / LOCKERS

- Bag storage shall be provided in close proximity to general classrooms in primary schools to accommodate bags for 100% of the enrolment.
- Fixed free standing units under covered ways or against external walls are the preferred locations secure from external interference
- Student lockers shall be provided in Secondary Schools for all students. Lockers shall be distributed across the site, located particularly with the general learning areas, including in corridors (ensure adequate width), in shelters, alcoves and on verandas externally. They are not to be consolidated in locker rooms.
- Consider placing the lockers in locations where the possibility of vandalism is reduced.
- The use of traditional metal lockers is recommended when located externally.
- External plastic lockers are at risk of melting and create toxic fumes if set alight.

COAT STORAGE

- Coat hooks shall be provided in close proximity to general classrooms in Primary Schools.
- Include pelmets to provide protection from accidental injury.
- Coat hooks are not required in Secondary Schools. Coat storage is provided by the student lockers.

DISPLAY BOARDS

- Display boards shall be provided fixed to internal walls in learning areas, offices and staff work areas. A minimum length of 4800mm shall be located on a designated teaching wall of each learning area, either side of a central fixed whiteboard.
- Display boards shall also be provided in all other learning areas, and in rooms as briefed.
- Avoid locating display boards above sinks.
- Ensure GPO's, switches, controls and other fittings do not coincide with display board locations.
- Front runner fabric adhered to 'Soft Board' is the preferred display board material. (It allows 'Velcro' strips to adhere to it).

| | |
|-----------------------------|---|
| Primary age student areas | Display boards generally shall be 1800mm high in learning areas and starting at 300mm above floor level. |
| Secondary age student areas | Display boards generally shall be 1200mm high in learning areas and starting at 1200mm above floor level. |

FIXED WHITEBOARDS

Fixed whiteboards shall be provided to the teaching walls of all learning areas and in staff offices, preferably fixed to the wall. A whiteboard 2400mm x 900mm high is the minimum required size in learning areas, 1200mm above floor level.

WALL STRIPPING

- Wall stripping shall be fixed to walls of learning areas, offices and staff work areas only where it is required for shelving (on brackets) to be installed, or to support relocatable chalkboards and whiteboards.

- Wall stripping shall be metal double slotted lengths of wall stripping in standard grey powdercoat finish.
- Locations shall be as briefed. The stripping shall be fixed at exactly 1200mm centres. The school is to purchase the brackets and shelving as loose furniture items to hang on the wall stripping.
- Ensure that the stripping is securely fixed at each mounting point to masonry or wall studs and not just to wall linings. Shelving may be heavily loaded so secure fixing is essential.
- Ensure wall stud spacing is to suit wall stripping centres where these are required.

COMPACTUS UNITS

- Compactus storage units shall be provided generally in store rooms, combined staff preparation/store rooms and where specifically briefed.
- Use proprietary units 900mm deep by 2000mm high. Unit lengths, shelf depths and fit-out of the unit shall be as required for each particular location and as briefed.
- The end mobile bay shall be 400mm deep to provide stability.
- For disability access and safety ensure that floor finish is level with the top of the tracks.
- Where tracks are laid on the floor slab, form a ramp on the entry side of the unit and infill between tracks with flooring. Where plinth units are used, provide identification warning strips to edge of step.

KEY CABINET

A secure key cabinet shall be installed in the Administration area. It shall be securely fixed to a solid wall. The size of the cabinet shall be to suit the school's key requirements.

PIGEON HOLES - STAFF

Staff pigeon-hole units shall be located in or near the Staff Lounge to provide one compartment for each staff member (maximum projected school enrolment) plus 10%. Compartment size is to allow for A4 size envelopes to lie flat. Shelves shall be at least 16mm thick to allow staff names to be displayed horizontally.

SAFE

- A freestanding safe shall be provided for primary and secondary schools. An acceptable safe is a "Chubb Protector", or equivalent.
- An alternative is a wall safe that can be securely and appropriately installed.
- The safe shall be installed in the Administration area, preferably in the Secure Store room.

SIGNAGE - INTERNAL

Signage shall be provided in buildings and to rooms to provide appropriate identification. The system shall be consistent with the SAMIS building and room numbering where this is appropriate.

Signage shall be robust and securely fixed to walls and doors. Rooms generally are preferred to be numbered rather than named, as room functions can change over time.

7.8 Loose Furniture

All loose furniture items will be purchased by the site, including the following items:

- Tables, chairs and stools
- Desks
- Unfixed whiteboards and chalkboards
- Shelving that is to be hung on wall stripping
- Clocks
- Microwave ovens and refrigerators
- Design and technology equipment
- Computers
- Dishwashers

CLOCKS

- Battery operated clocks will be purchased by the site as a furniture item.
- Wall mounting points in all teaching and staff areas shall be provided for the clocks to be hung on.

KILNS

Schools are responsible for the purchase of kilns. Provision should be made for their inclusion as follows:

| | |
|-------------------|---|
| Primary Schools | One electric kiln for the Art/Practical Activity Room. |
| Secondary Schools | <ul style="list-style-type: none"> ▪ One or more gas or electric kilns in an outdoor enclosure adjoining the Ceramics room of the Art area ▪ Provide the appropriate gas or electricity supply, ventilation and extraction systems, and an enclosure for the kiln |

SHELVING

- Metal shelves are purchased by the site as a loose furniture item to be hung on the wall stripping.
- Fixed shelving shall be provided by the project for specialist storage requirements such as in workshops, kitchens and studios when required.

WHITEBOARDS

Where required as a loose item to be hung on the wall stripping, whiteboards can be purchased as a furniture item by the school.

8. SECTION 5 – SITE WORKS

8.1 Site Access

GENERAL

- School site access points shall be planned to consider building entrances, street design, school catchments, the physical and emotional needs of children and students with a disability and their carer, the requirements of pedestrian and cyclists, proximity to pick-up and set down zones, Council planning requirements, community use of facilities and the movement of vehicles on the site.
- DECD facilities shall be accessible to all users to approach, enter and use with safety and convenience, facilities in the built environment as per the Building Code of Australia (BCA) and Australian Standards.
- Fencing adjacent to main roads should be considered for controlled access on to main roads.
- Design to avoid conflict between pedestrian, cycle and vehicle paths.
- The need for vehicles to reverse on the school site shall be kept to a minimum and if possible avoided.
- Ensure that future and existing relocatable buildings can be brought on to and removed from the site with minimal disturbance to surroundings.

BUILDING ACCESS

Access to all DECD facilities shall be designed and constructed to provide safe, equitable and dignified access to buildings, services and facilities. Access to buildings for those with a disability shall be available through the principal street entrance.

While paths providing direct access to buildings on sloping sites may be stepped, ramped access shall be provided to cater for the following:

- People with a disability and their carer
- Hand truck deliveries where service roads do not permit vehicles to deliver directly.
- Movement of transportable equipment including book trolleys, television sets and science trolleys etc.
- Community use, i.e. Pushers

Where sites are undertaking internal works or refurbishments, such as foyer/reception refurbishments or toilet upgrades, the provision of disability access and facilities shall be incorporated as per Section 5.3 Design for Accessibility, Participation & Learning.

RAMPS

- The preferred DECD ramp gradient is 1:16 or less. Where not achievable, ramps shall either be in accordance with AS1428.3 or shall be approved by DECD.
- Due to the specialised nature of education facilities, greater consideration shall be given to the design, location and specification of ramps and shall consider the overall site layout and location of buildings and services.
- Walkways are preferable to ramps wherever possible. Walkways shall have gradients less than 1:20 and do not require handrails or kerbs. Refer to AS1428.1 for walkway specifications and gradients.
- Unobstructed width between handrails shall be 1200mm as per AS1428.3.
- Steps should be provided to adjacent to ramps as an alternative means of access.

STEP RAMPS

- Step ramps are not preferred. Where no other option is available, step ramps shall not be provided for more than one interval e.g. step ramps shall have a maximum total rise of 190mm and shall not proceed to a landing with another ramp (step ramp or standard ramp).
- Where space does not allow for a full sized ramp, access to ramps via a step ramp shall only be provided with approval from DECD and shall have a second landing e.g. step ramp to a landing – followed by a second landing - proceeding to the second ramp as per AS1428.1.

PEDESTRIAN ACCESS (PATHS/WALKWAYS)

- Pedestrian paths are to be provided to link all points of access and located to take into account the need for convenient access.
- If paths are diverted from the most obvious and practicable routes, planting or fencing may be used to direct pedestrians along the appropriate path and discourage alternative routes.
- Main path width shall be at least 2000mm wide and secondary paths at least 1200mm wide.
- Pavement adjacent to a building and with little pedestrian traffic shall be at least 900mm wide.
- Pavement design adjacent to a building will also depend on structural/geotechnical engineering requirements.
- All pavements to have non slip finish.

BICYCLE ACCESS

Bicycle access points and paths shall be kept separate from vehicle traffic and shall have logical access to bike parking/storage.

VEHICLE ACCESS

Student safety is an important design consideration. The separation of pedestrian and cyclist traffic from vehicular traffic is paramount.

- Ensure emergency vehicles can gain access to all buildings, hard-play and grassed areas as per performance requirements of the BCA.
- Preferred surface is asphalt with a minimum thickness of 30mm or 80mm thick interlocking pavers.
- Allow for 3000mm wide double gates for ambulance access onto courts.
- Ensure access by taxis, buses and access cabs is available to appropriate parts of the site that minimises travel distances to buildings and exposures to the elements.
- It may be necessary to provide a delivery drop off point for goods to be taken by hand truck to the point of requirement. Trade Union regulations restrict the distance over which this form of transport may be used.
- Landscaping shall be designed in such a way that it will not obstruct driver vision.
- The design shall prevent the need for vehicles to reverse if possible.
- Preferred surface is asphalt using 10mm aggregate.

The location of the following facilities needs careful consideration to avoid vehicle/ pedestrian conflict and unnecessary cost (length of roadway, construction and future maintenance) for service vehicle access:

- Canteen
- Library resource centre (workroom entry)
- Design and technology workshops
- Administration (medical suite, book room)
- Gymnasium
- Dental clinic
- Grounds maintenance
- Mechanical and electrical plant (air conditioners, transformers, etc.)
- Waste disposal area
- Emergency Services (medical evacuation in particular)
- Taxis, access cabs
- Buses

BUS ZONES

- Where practicable, a bus zone is to be provided at a convenient location on a street abutting the school. Where a bus zone cannot be provided external to the school site, a bus access road with a loading point may be provided in consultation with DECD.
- Bus Bas zones pavements to be appropriately designed using 80mm thick interlocking pavers as a minimum.
- In area, rural and special rural schools where buses are used daily, provision is to be made for suitable parking zones. Each situation shall be studied and provisions made as a result of the schools' requirements.
- In designating the bus zone, it is important that access roads and student bicycle and pedestrian paths do not conflict. Suitable access roads shall be provided as buses are not permitted to reverse on school grounds.

INTERNAL ROADWAYS

- Access roads into the school site shall be kept to a minimum and only to provide convenient delivery of goods to the administration, canteen, design and technology workshops and art buildings, for grounds maintenance and access to mechanical and electrical plant, and to waste disposal areas. The objective is to keep vehicles to the periphery of the school site.
- Vehicle reversing in school grounds shall be avoided wherever possible.
- Access and manoeuvrability of industrial bin collection vehicles shall be considered.
- Two-way roadways are a minimum of 5500mm wide between kerbs.
- One-way roadways are a minimum of 3000mm wide between kerbs.

SPEED REDUCING DEVICES

Speed humps may be used on service roads and access roads to ensure traffic slows down to an acceptable speed. However speed reducing devices should consider heavy vehicle access and slow vehicles at entry. Humps shall be constructed and painted in accordance with AS 2890.1:2004.

If there is some doubt as to whether the device is visible to the driver appropriate signage shall be used in accordance with AS 1743:2001, Road Signs - Specifications and AS 1744:1975, Forms of letters and numerals for road signs.

ROAD SURFACE TREATMENT PEDESTRIAN CROSSING

A variation in texture or colour can be used to indicate a potential danger area such as a pedestrian crossing or a conflict point. These provisions effectively:

- Slow down and direct pedestrian traffic
- Prevent flow of vehicular traffic through areas used by students
- Avoid potentially dangerous situations

PROVISIONS OF SAFETY FEATURES EXTERNAL TO THE SCHOOL

The following features are to be considered by the designer in consultation with relevant bodies:

- Avoid congestion at entrance and access points
- Vehicle speed inside the facility
- External traffic volume passing the facility at any time
- Are traffic lights and other monitoring systems required
- Visibility and site conditions
- Median strips
- Pick up/ set down and parking bays
- Special surface treatments
- Street signs
- Fences
- Landscape design

Consultation with Local Government, Transport SA and other bodies such as the School Council shall take place at the feasibility and design stage.

Where practicable, pick up and set down zones should be provided for students travelling by car or bus. A median strip off site is a desirable feature as it provides additional pedestrian safety and prevents vehicles from making U turns.

8.2 Parking

CAR PARKING

Car parks shall be designed and constructed in accordance with:

- AS 2890.1, Parking Facilities Part 1 - Off Street Car Parking, and;
- AS 1742 Set-2010, Manual of uniform traffic control devices Set

The following shall be adhered to:

- Appropriate security and area lighting shall be provided as per AS 1158, Lighting for roads and public spaces.

- Car parks are preferred to be asphalt using 10mm aggregate and a minimum thickness of 30mm, should have kerbs and channels, bollards to restrict vehicle access, and have 100mm wide white line markings.
- Consideration shall be given to the location of car parks using compacted quarry material, as these are generally dusty in the summer and may be muddy in the winter.
- Wheel stops shall only be provided adjacent to buildings, landscaped areas or pedestrian access areas and pathways which may be impacted by car overhang.
- Schools should develop a traffic management policy which reflects the local traffic and parking issues.
- Recycled pavement materials shall not be used for any road pavements as per DPTI Guidenote G36 Recycled Pavement Materials.

PARKING FOR PEOPLE WITH DISABILITIES AND THEIR CARERS

- All car parks for people with disabilities and their carers shall be in accordance with AS 2890.6, Parking facilities - Off-street parking for people with disabilities.
- Car parks shall be located as close as possible to the main entrance with an accessible pathway.
- Parallel parking spaces shall meet minimum dimensions as per AS2809.6, however 3700mm is preferable (excluding any required shared area).
- A minimum of one space for people with disabilities and their carers shall be provided in primary schools and two spaces in high schools. It is preferred that two spaces are provided in primary schools, with only one marked initially to allow for future requirements.
- Provide appropriate security and area lighting.

STAFF AND VISITORS CAR PARK

Car parking shall be provided for staff and visitors located close to and in view of the Administration area, and designed to avoid conflict between pedestrian, student and bicycle access and site circulation.

Provide one car parking space for each staff member (full time equivalent) plus 10% for visitors (or five spaces whichever is greater).

With the increasing use of schools by the community negotiations should be undertaken by the School, in consultation with DECD, with the local council to provide additional off-site parking adjacent to the school, or as part of neighbourhood facilities.

SENIOR STUDENTS PARKING

- DECD does not provide an area for student car parking on the school site, even in instances where the local council prohibits parking in the surrounding streets.
- The allocation of space by schools for senior student parking shall only be specified with written approval from DECD.
- DECD will not undertake or incur costs for this provision. No compensation will be considered if the area is required later for other educational purposes.

PICK UP AND SET DOWN PROVISIONS

Pick up and set down provisions shall not be provided on primary or secondary school sites unless there is an exceptional circumstance which has written approval from DECD.

Such areas are to be constructed on the public thoroughfare in order to afford users protection under the Road Traffic Act.

Negotiations are to be undertaken with local government authorities to provide these facilities on roads or public reserves adjoining the school.

Negotiations may be entered into concerning the grant of an appropriate portion of school property to local government for the purpose of constructing a pick up and set down facility.

DECD may assist with funding for the construction of pick up and set down areas adjacent to schools, provided that the development is undertaken as part of the school construction phase.

BICYCLE PARKING

- Locate bicycle parks in areas easily accessible by students and able to be supervised from teaching areas.
- Primary schools - Allow for a minimum 15% of enrolment
- Secondary schools – Allow for a minimum 10% of enrolment
- Consider enclosing bicycle parks within an 1800mm high chain mesh fence with lockable gates, where the local situation requires this level of security.
- Bicycle parking area shall be paved.
- Refer to AS 2890.3, Parking facilities – Bicycle parking facilities, for bicycle parking standards.

8.3 Paths and Paving

GENERAL

- Interlocking unit pavers, concrete and bitumen are the preferred materials. Specify clearly the type, shape, colour, thickness, pattern and starting point for paving layout. Pavers shall be a maximum 200mm x 200mm to reduce the likelihood of damage due to vehicle access.
- Pedestrian paths shall meet AS4586 – Slip resistance classification of new pedestrian surface materials.
 - For sloped surfaces with a slope greater than 1:20, specify the next highest classification than the required class for a level surface.
 - For more information on slip resistance pedestrian materials please refer to HB 197:1999 An Introductory Guide to Slip Resistance of Pedestrian surface Materials.
- All pavements shall be designed and constructed appropriate to substrate type, location and possible usage e.g. vehicle access and pedestrian traffic. Where vehicular access is required, heavy duty interlocking unit pavers shall be specified.
- Pavement shall be designed so as to avoid becoming a tripping hazard with changed conditions (i.e. reactive soils).
- Large pavers susceptible to cracking shall only be specified in areas of pedestrian traffic.
- Recycled materials PM71 & PM 81 (Transport SA specifications) shall not be used, and are not acceptable alternatives to PM21 & PM 32.
- For paving edges please refer to DPTI Construction Drawing G38 - Concealed Concrete Edge Restraint for Unit Paving.

INSITU CONCRETE

- Concrete pavement to have a non-slip finish, e.g. broom finish
- Concrete edge restraints detail is required to prevent movement of the edge of the block pavement.

ASPHALT & BITUMEN PAVEMENT

Generally, on school sites a layer of hot mix asphalt is specified as the wearing surface using an asphaltic concrete (AC) mix. Alternatively, bitumen sprays may be used due to the cheaper upfront cost, however lifespan is reduced compared to hot mix asphalt and shall be considered.

8.4 Landscaping**LANDSCAPE DESIGN**

The design of outdoor environments shall be developed in conjunction with building design and site layout to ensure outdoor environments provide multi-functional education spaces. Where possible, landscaping shall be designed to enhance passive design in buildings to reduce mechanical heating and cooling and improve site climatic conditions.

Landscaping shall comply with all relevant legislation, regulations and local council and water authorities. DECD recommends a landscape designer/architect is commissioned to design the landscaping in conjunction with the building designer/architect.

Note: Students, staff and visitors will take the most direct path to and between facilities e.g. between classrooms and the school canteen. Landscaping should be designed to provide direct and easy access.

Landscape design shall consider the following:

- Proximity to power lines and subsequent maintenance requirements. Refer to the guidelines set out in the Electricity (Principles of Vegetation Clearance) Regulations 2010. At no stage shall a tree touch, overhang or be able to fall across an overhead power-line (DECD Guideline)
- Proximity to underground services and potential root system growth
- Proximity to buildings and paved areas
- Hazard prevention – Consider trip hazards, fire risk, health hazards and falling limbs
- Damage to buildings due to soil moisture changes as a result of vegetation
- Proximity of site works to neighbouring properties

Landscape design should consider the following:

- Landscape design should enhance existing site biodiversity and replace any lost biodiversity due to site construction work
- Plant selection should be from local native vegetation as they have adapted to local soil and climatic conditions
- Where possible, planting should take place before the school is occupied to allow for plants to become established
- Plants should have sufficient space in which to mature
- Plants with excessive water demands, invasive root systems or are short lived should be avoided. Ongoing maintenance requirements should also be considered.

- Grassed areas have a high water demand and require considerable maintenance and should only be provided for essential requirements.
- Consider small to medium sized trees which are not subject to limb loss
- Planting should be used to direct or restrict pedestrian traffic
- Provide tree guards for specimen trees in paving, courtyard and heavily trafficked areas
- Provide garden watering points to planted areas, preferably connected to rainwater tanks
- Contact local councils and nurseries prior to selection of plants – many provide lists of recommended plants and invasive species relevant to the area

REDUCING FIRE RISK

- Planned planting designed to reduce potential fire danger risk shall be incorporated in to the specification of landscaping and vegetation.
- Plants shall be spaced so that there is not a continuous canopy or line of flammable undergrowth from the surrounding vegetation to site buildings.
- Trees shall not be planted in close proximity to buildings and tree canopy at adult maturity shall be considered to ensure overhanging trees are eliminated.
- Deciduous trees are more suitable for planting closer to buildings as they do not drop litter during summer. Avoid conifers and rough barked Eucalyptus or species which shed bark and may create fire hazards.

SITE SECURITY

Landscaping should consider site security and avoid creating spaces for intruders to hide and impede surveillance.

- Dense foliage should be avoided to allow security surveillance
- Plantings shall be species that allow clear undisturbed vision above 1m and below 3m.
- The minimum acceptable tree canopy height above ground is 1.8m

LEGAL LIABILITY – TREES

The school on behalf of the owner (The Minister) is responsible for any damage or injury a tree may cause, including to neighbours and their property.

Sites shall comply with the 'Development Act 1993' and the 'Development (Regulated Trees) Amendment Act 2009' when a development approval includes a 'Regulated' or 'Significant' tree which may be affected by construction activity. This includes substantial damage to the root system of trees as a result of trenching and any damage caused by construction work.

The Electricity (Principles of Vegetation) Regulations 2010 shall be complied with.

TURF MANAGEMENT AND GRASS SELECTION

Climate conditions in South Australia often require drought resistant and warm season turf grasses to reduce water consumption. DECD recommends a site analysis is undertaken prior to specifying a turf grass to ensure the intended usage and climatic conditions are considered.

Appropriate soil preparation e.g. correct soil type and depth shall be undertaken.

The following shall be considered when selecting turf grasses:

- A water budget should be developed to ensure the cost of maintaining grassed areas does not overburden school budgets.
- DECD recommends warm season Kikuyu or Couch grasses as they require 30-50% less water than cool season grasses. However, warm season grasses such as Kikuyu are prone to frost damage which should be considered prior to selection.
- If Kikuyu is selected, ensure to specify Male Sterile Kikuyu for any high demand lawn areas
- Where turf is subject to intensive winter activity, over sowing in autumn with a cool season turf species, such as transitional rye grass, will improve wearability without requiring additional watering
- Due to the prevalence of Kikuyu in South Australia, keeping Kikuyu out of sports fields is cost prohibitive
- Consultation with a turf specialist is recommended prior to specifying an alternative grass type to Kikuyu or Couch

8.5 Outdoor Play Areas

To ensure schools continue to play an active part in the community, play areas shall be designed to be easily accessible by the community and meet all relevant Acts, Standards and Government Legislation. If school sporting facilities (ovals/courts) are intended for both school and community use, they should meet the standards and requirements as specified by the relevant regulatory body e.g. South Australian National Football League (SANFL).

Landscape design shall consider the needs of current and possible future students with a disability to participate in outside play and sport.

If community facilities are within an acceptable distance, it is recommended shared use is investigated to reduce duplication of existing infrastructure and services.

GRASSED PLAY AREAS

The preference is to provide flexible grassed areas that enable a range of formal playing fields to be marked out as required, while also allowing for informal play area.

Where schools are also specifying playing fields for school, district, state or national competition, the relevant regulatory bodies should be referenced. Sites should also consider the age group being specified for, and amend playing field size to the appropriate size. The regulatory body will depend on the sporting activity and may include, but are not limited to, the following bodies:

- **Football:** South Australian National Football League (SANFL)
- **Soccer:** Federation of International Football Association
- **Cricket:** South Australian Cricket Association
- **Hockey:** International Hockey Federation

GRASSED PLAY AREA GUIDELINES

- All grassed playing areas shall have easily accessible emergency vehicle access
- Playing fields shall have a north-south orientation wherever possible, especially if designed for competition use.

- An additional 3000mm (3m) run off grass shall be provided around playing fields
- Cross-fall on playing fields is to be constant and in one direction. Hips and valleys are not to be included.
- Grassed areas shall be designed for ease of maintenance, shifting equipment and reticulation.
- Additional area allowance shall be made for embankments on sloping sites where the site requires cutting and filling to achieve playing field sizes.
- Banks shall be no steeper than 1:4 to ensure grassed areas can be maintained by a ride on mower.
- An irrigation budget shall be drafted to calculate watering requirements and ensure maintenance costs are within the sites budget (Refer to section 5.8 Irrigation for more information).

The following specifications should be used as a guide for the provision of green space. The provision of grassed play areas shall be assessed depending on the sites location and the proximity of community facilities.

| <i>SCHOOL TYPE</i> | <i>DIMENSIONS</i> | <i>AREA</i> |
|---|-------------------|----------------------------------|
| PRIMARY SCHOOL (600 STUDENTS) | | |
| Football oval | 110m x 80m | |
| Hockey Pitch | 60m x 90m | |
| 1 football oval/ cricket/ hockey pitch | 130m x 110m | 14300m ² |
| Activity/ adventure play area | | 1500m ² |
| 15% incidental play area | | 2200m ² |
| Total grassed play area | | 18000m² |
| AREA SCHOOL (600 STUDENTS) | | |
| 1 football oval/ cricket pitch (maximum joint use facility) | 155m x 125m | |
| 1 soccer pitch/ hockey field | 105m x 64m | |
| HIGH SCHOOL (1250 STUDENTS) | | |
| 1 main football oval | 140m x 110m | 15400m ² |
| 1 junior football oval | 120m x 95m | 10500m ² |
| 1 soccer pitch | 120m x 90m | 10800m ² |
| 1 hockey field | 90m x 60m | Include in area for soccer pitch |
| 10% incidental grass area | | 3800m ² |
| Total grassed play area | | 40500m² |

PRACTICE CRICKET PITCH NETS

Construction and design of cricket practice net fencing enclosures shall be in accordance with AS1725.4:2010 Chain link fencing – Cricket net fencing enclosures.

Pitch fencing should have chain mesh cover especially when located near play areas, pedestrian traffic, buildings and car parks.

HARD PLAY AREAS

A minimum of 3m² multiple use hard play area per student shall be provided. This does not include walkways, outdoor learning areas or courtyards, but may include tennis, basketball and netball courts. Additional court spaces may be provided as subsidy items.

If there is the possibility of duplicating nearby community court facilities, consideration can be given to shared use. However, adequate hard play area is to be provided for minor games, physical education lessons and play activities within the school.

Hard play areas in asphalt shall use a 7mm aggregate

In junior primary, primary and area schools, it is desirable to include an area suitable for the establishment of two adjacent netball or basketball courts.

As a guide the following hard play areas should be provided:

| Primary School | Secondary School |
|---|---|
| <ul style="list-style-type: none"> ▪ 2 paved netball courts plus 600m² informal paved area, or ▪ 2 paved basketball courts plus 600m² informal paved area | <ul style="list-style-type: none"> ▪ 6 tennis courts ▪ 2 netball courts |
| Total area approximately 2000m ² . | Total area approximately 4800m ² . Informal paved 500m ² . |

COURTS

All courts shall be designed and constructed in accordance with the relevant regulatory authority which may include, but are not limited to, the following bodies:

- **Tennis:** International Tennis Federation – Rules of Tennis
- **Netball:** International Federation of Netball Associations
 - Note: For junior netball competition, the court size remains the same, but the pole height can be reduced from 3050mm to 2440mm.
- **Basketball:** International Basketball Federation
 - Note: For domestic competition, the basketball court length can be reduced from 28,000mm to 24,000mm, and the width can be reduced from 15,000mm to 13,000mm

Where netball, basketball and tennis courts are specified, courts will be constructed with backstops, line marking and inserts for net posts. The school will be required to fund and install equipment such as nets, backstops, goals, etc.

8.6 Site Fixtures

FENCES

Information on internal fences and security fences is available in the DECD Asset Security Policy and Procedure. Alternatively please contact the DECD Security, Bushfire & Emergency Management team on 8226 1099.

TENNIS COURT FENCING

- Tennis court fencing shall be minimum 3600mm high with top and bottom rail. Where tennis courts are adjacent to private property, investigate increasing the height in consultation with the neighbouring property owners.
- Fence to have one 3000mm wide double gate for ambulance access.
- Provide pedestrian gate/s.

SWIMMING POOL FENCING

All Swimming pool fencing shall be in accordance with the Building Code of Australia and AS 1926.1:2007, Swimming Pool Safety Part 1 – Safety barriers for swimming pools.

As an additional safety measure DECD requires that the minimum height shall be 2400mm if mesh with an aperture up to 100mm is used.

All gates to be provided with child proof self-locking latch.

BOLLARDS

- Bollards may be placed across points to prevent vehicles entering areas used by students or where regular use by vehicles could damage surfaces provided.
- The bollards shall be able to be removed or lowered to allow delivery, maintenance or emergency vehicles to enter.
- All traffic control devices shall be in accordance with the Road Traffic 1961

OUTDOOR SEATING

Some fixed outdoor seating is considered desirable to be incorporated into the Siteworks. Consider outdoor teaching areas and courtyards. Seating could be incorporated into retaining walls or fixed to building walls or as tree surrounds.

| | |
|-------------------|-------------------------------------|
| Primary Schools | Seating height 325mm to 450mm high |
| Secondary Schools | Seating heights 325mm to 600mm high |

Preferred seating materials are those that do not require planting or maintenance and can withstand the weather and heavy use. Recycled plastic products should be considered due strength and little maintenance.

Seating is incorporated in the design of outdoor learning and recreational areas to cater for one third of the estimated total student enrolment.

BINS

- Consultation with DECD is required prior to finalising the number of bins to be provided for each specific site. However, as a general guide, on average the equivalent of one 140 Litre litter bin per 30 students is recommended.
- Provide opportunities to maximise recycling and composting and reduce waste.
- On new and existing sites, wheelie bin poles with a concrete base shall be provided to secure the bins at all times.
- On new sites, a lockable storage facility shall be provided to safeguard the bins from theft and vandalism during weekends and school holidays.

FLAGPOLES

- A flagpole for the Australian National Flag shall be provided in a new school in a suitable location.
- Provide a 6m high standard commercial flagpole the flagpole may be attached to a building with a reduced height.

- Refer to Australian flags – Part 2: The protocols for the appropriate use and the flying of the flag available at <https://www.itsanhonour.gov.au/symbols/flag.cfm#fact>

SIGNAGE – EXTERNAL

Clear, distinctive signs are to be provided to indicate the following:

- School name on main road frontage
- Visitor car-parking
- Signs to direct to Administration and any community use facilities
- Standard regulatory and safety signs (use these as teaching aids)
- Male, female and wheelchair access toilets
- Erect clear and unambiguous warning signs about trespass and potential Prosecution in areas that may be accessed by the public

The Department's logo shall be used on all signage as described in the DECD logo Guidelines (2011). All signs shall be robust and preferably mounted on buildings. The signage system shall relate to the Strategic Asset Management Information System (SAMIS) building and room numbering system where this is appropriate.

Other signs for buildings, rooms and to give direction can be considered where appropriate and/or where required by Occupational Health & Safety or Australian Standards.

SHEDS

- A grounds person's shed shall be provided for storage and as a workplace on each school site. Power and water supply requirements shall be briefed separately by DECD.
- Provide metal mesh lining for security, and ensure adequate security to doors.
- Provide a concrete floor with ramp access.
- Provide lighting and power.
- Connect downpipes to underground stormwater system where convenient.
- Sheds are required to be approved by the Local Government Authority.

COVERED OUTDOOR LEARNING AREA STRUCTURES (COLAS)

- Covered outdoor learning area structures provide for formal undercover courts to be established, for assemblies, for other outdoor learning activities and for general provision of shade.
- The design requirements for each site shall conform to the manufacturer's specifications and standard designs as well as the following requirements:
- The structure is preferred to be freestanding. If it is intended to abut an existing building, a structural engineer shall advise on the structural requirements.
- These structures are designed to be a covered outdoor learning area only and should not be designed to be subsequently enclosed.

General Structure Sizes

(Dimensions are clear distances between columns, height is clear height to lowest point of structural frame, excluding bracing)

- 21.00m X 14.00m x 5.0m high: Appropriate for primary schools with enrolments from 150 to 500 students and to secondary and area schools with enrolments up to 400 students.
- 22.00m x 18.50m x 7.0m High: Appropriate for primary schools with enrolments over 500 students and to secondary and area schools with enrolments over 400 students.
- 37.00m x 22.00m x 7.0m High: Large enough to allow a regulation netball court to be marked out as well as basketball, tennis and three volleyball courts, including required run-off areas all around.

Structure

- Framing components shall be galvanised steel sections, bolted together with high tensile zinc coated fasteners.
- Columns shall be supported by concrete footings specifically designed for the site conditions, and independent of any floor slab. Columns and base connections below pavement level shall be encased in concrete.
- Frames shall be portal frames (not trusses) with bracing as required.
- Corrosion protection to steel sections shall be Z350 coating (Z450 coating in severe or aggressive locations). Corrosion protection to fabricated components and connections shall be hot-dipped galvanised with Z600 coating.
- Paint finish to all exposed frame members shall be two coats full gloss enamel as part of an approved paint system for galvanised surfaces.

Roof

- Roof cladding shall be Zinalume or Colorbond 0.48mm BMT steel sheeting.
- Some clear roof sheeting may be considered in full length strips to provide additional daylight, taking care not to cause glare. Any clear roof sheeting shall have safety mesh installed underneath conforming to AS/NZS 4389 - Safety mesh.
- Roof water is to be collected in Zinalume or Colorbond roof gutters and downpipes and discharged into a site stormwater collection system.

Infill

- Mesh infill between columns may be provided as scheduled in the Project Brief. This can be retractable netting.
- No solid wall cladding is to be provided.
- Column protectors shall be provided to all columns to a minimum of 2.4m high, to fully enclose the steel column sections.

Other Provisions

- Backboards and goal posts are preferred to be independent structures, although they may be incorporated into the structural frame if designed from the outset with appropriate structural engineering input.
- Power may be provided for incidental use, if a supply is available nearby.
- Artificial lighting is not to be provided, except for security lighting where this is considered necessary due to the particular location on the site.

8.7 Shade Structures

The provision of shade structures in schools to reduce avoidable sun exposure for children can be achieved with a wide range of solutions such as fixed structures and the use of natural vegetation (refer to Section 4.4 Landscaping for natural vegetation).

An assessment of the risk and safety issues associated with the provision of shade structures shall be undertaken prior to any decision about the type of structure, its location and installation.

Siting and design shall consider:

- The range of required uses, from general shade provisions to covering playgrounds, sand pits and hard play areas.
- The sun path at various times of the year to ensure that the shade is provided where and when it is most required.
- Proximity to buildings and access to roofs or restricted areas.
- Locations of existing relocatable buildings that may be required to be removed in the future.
- Appropriateness of existing ground surfaces and disposal of stormwater from the new roof.
- Access around the site for emergency vehicles.
- Proximity to existing buildings and shading of windows.
- Avoiding opportunities for students to climb on the structure and to gain access to the roofs of adjoining buildings.
- Structures are preferred to be freestanding and not fixed to buildings or other structures (as they can exert stresses that the original building was not designed to take), unless a structural evaluation confirms their suitability.
- Location of underground services where posts may require to be sited.

ROOFED STRUCTURES

- The total structure shall be designed by a professional Structural Engineer considering the wind terrain category and design wind speed for the particular site. (These structures can be susceptible to damage from strong wind.)
- Posts are to be set in concrete footings specifically designed for the site conditions.
- Shall be installed permanently and not as removable structures.
- Shall be freestanding but can be designed to abut existing buildings.
- Clear or translucent sheeting shall be of polycarbonate material. Safety mesh shall be installed underneath all clear and translucent sheeting conforming to AS/NZS 4389 - Safety mesh.
- Fabric covering material should provide at least 90% shade and 95% UV-B block-out and shall comply with Australian Standard AS4174-1994.
- Fabric covering materials can be susceptible to damage if within easy reach or accessible from adjoining structures.
- If covering a playground, ensure adequate clearance above any play equipment (1.5metres), and posts at least 2.5metres away from play equipment.
- Roof is to be pitched to shed rain water.
- Roof water disposal is to be incorporated either as part of the roof structure or disposed of appropriately at ground level.
- CCA treated timber shall not be used for structural frames.

SAIL STRUCTURES

Shade sail structures comprising of fabric material supported by tension wires between structural members shall not be specified on DECD sites.

This is due to incidents of sail structures collapsing when children have climbed on top of the shade structure which has subsequently failed. There have been cases of sail shade structures collapsing on DECD sites after hours which have resulted in injury to children. An incident in 1999 on a local government reserve resulted in the death of a teenager who climbed on top of a shade sail structure which gave way.

It is DECD policy that shade sail structures shall be phased out from 1 February 2007. Existing sail structures that fall due for replacement for any reason (e.g. vandalism or age) shall be replaced by alternative shade structures which meet the above requirements.

APPROVAL PROCESS

Development approval is required for shade structures, and applications for approval shall be submitted to the Development Assessment Commission (DAC). A copy should also be sent to the local government authority for comment.

Some minor works are exempt from development approval and reference should be made to the Facilities Management Contractor for advice.

All building projects including pergolas, verandas and shade structures require Certification of Compliance with the Building Code of Australia, to ensure that all health and safety issues have been satisfactorily addressed.

Certification shall be undertaken by an independent registered private certifier, and a fee is charged for this work. A list of registered certifiers is available from the Department of Planning, Transport and Infrastructure (DPTI), Development Plans and Amendments division, telephone 8303 0673, or refer to the DPTI Planning website.

It should be noted that individual approval for each structure is necessary under the legislative requirements, since each site has a unique set of conditions applying to it, especially with regard to wind and soil. (A general engineering certification for a manufacturer's standard product is not sufficient.)

Approval is required from the site owner which in most instances is the Minister for Education and Child Development prior to the construction of any permanent structures on a DECD site. This approval is sought by completing a Project Commencement Form and faxing it to the Asset Support Centre on facsimile number 8226 0992. This procedure applies regardless of the source of the funds for the structure.

8.8 Stormwater and Sewerage

All work external to the boundary to be carried out in accordance with the requirements of the Local Council, SA Water, and other relevant authorities. Design of stormwater drainage system shall be based on design methods outlined in the current edition of 'Australian Rainfall and Runoff'.

All pavement and grassed stormwater runoff is to be picked up on the property prior to discharging on to Council or neighbouring properties. Check flows from adjacent properties.

All stormwater and sewer drains to be at least SN4 PVC.

- Stormwater minimum pipe diameter – 100mm for connection direct to downpipe
- Stormwater minimum pipe diameter – 150mm downstream from any grated pit
- Sewer minimum pipe diameter – 100mm

If there is a risk of vehicle traffic or insufficient pipe cover, RCP (reinforced concrete pipes) should be used for storm water.

The minimum pipe diameters are specified to reduce the risk of pipe blockage affecting operation of the pipe, and if a blockage does occur the minimum specified diameter allows for easier cleaning. Although the minimum pipe diameter specified may be larger than what is required following a detailed drainage design, it provides an improved service life.

Individual site specific designs should be undertaken for each site and needs to consider factors such as location, impervious area, gradient across the site and downstream infrastructure.

The document 'Australian Rainfall and runoff' is a design guide for storm water drainage design and considers these factors.

Other factors to consider as part of the design process is the depth of pipe cover and type of traffic over the pipe as this will influence the type of pipe specified, however the specified minimum pipe class and diameter should be maintained.

Services to be marked with the approved magnetic tape.

Consider the use of vegetated buffer strips to intercept and filter the run-off reducing the extent of piped stormwater collection.

Ensure external overland flow paths exist around buildings to minimise the possibility of flooding buildings due to blocked pipes and major storms. Ensure no local ponding adjacent to buildings or ponding that prevents access to buildings can occur.

The selection of suitable design Average Recurrence Intervals (ARI) for the surface water drainage system is to be made by the designer in accordance with local conditions and requirements, and the risks of injury or inconvenience to people and damage of property caused by stormwater.

For minor storm performance, the surface water drainage system shall be designed to dispose of stormwater flows from rainfall events having an Average Recurrence Interval (ARI) appropriate to the importance of the site, the level of nuisance and the severity of potential damage and injury that would be caused by overflows due to rainfall events of greater ARI or failure of the system. Typically, ARI for minor storms is 5 to 20 years. Design to ensure that there is no impeded access to the entrances to the school or school buildings for an ARI of 20 years.

For major storms the surface drainage system shall be designed so that overflows do not present excessive danger to people, cause significant damage to property, or enter the buildings. Typically ARI for major storms is 50 to 100 years.

The drainage system should be aesthetically pleasing, economical, safe, robust and durable, and designed to avoid blockages. For a project involving new work on an existing site, the existing surface drainage system for the whole new site shall be checked that it is sufficient for the addition of the drainage from the new work.

In fully enclosed courtyard areas (but not covered) allow for two independent outlets for water to escape to, to keep flooding potential to a minimum.

Allow for a minimum of 300mm freeboard in flood prone areas.

Consider the use of rainwater tanks however tanks shall not be placed adjacent to buildings without providing appropriate restrictions to ensure the roof cannot be accessed from the rainwater tank e.g. provide appropriate security fencing.

ON-SITE DETENTION

On-site detention is not desirable but if required shall be discussed and agreed to with DECD, and shall comply with AS/NZS 3500.3:2003, Plumbing and drainage - Stormwater drainage.

FUTURE EXPANSION

Ensure that stormwater and sewer pipe capacity and invert levels of the present system are adequate to cope with future development such as additional buildings and hard paved areas.

PIT COVERS

- Side entry pits shall not be used on school sites as balls and other such items are hard to retrieve.
- Wherever possible hard paving to abut pit frames.
- Cover infill to be in the same material as and match adjacent paving.
- Pit covers shall be a tight fitting bolted down design or have sufficient weight to prevent their easy removal.
- All covers shall be according to AS 3996:2006, Access covers and grates shall be Class "C" where vehicle access may occur. For areas not accessible by vehicle, Class "B" covers and grates are suitable. If a lesser class of cover is considered, note the requirement to prevent their easy removal.
- Grates shall be cast iron and in accordance with AS 1428, Design for access and mobility.
- SIO (inspection opening) and SIP (inspection point) covers to be screwed down type and supported on concrete rings.
- SIO and SIP in high profile areas shall be brass or chrome cover type.
- Checker plate covers should not be used. If checker plate covers are used, screw down the covers.

SWALES

- Swales are only to be used after careful consideration since they are high maintenance items.
- If not maintained, swales after several years become ineffective due to weed growth and silt built up.
- If ponding occurs in swales, they become occupational health safety and welfare problems.
- For slopes and depth of ponding as in AS/NZS 3500.3:2003 – Section 8.11.2 shall be taken as minimum and maximum values rather than desirable values.
- Swale side slopes shall be 1:6 to 1:4 maximum so that they can be maintained with a ride on mower.

NEIGHBOURING PROPERTIES

Designs shall prevent runoff from the school property, including the oval and grassed areas as well as paved and building areas that may potentially cause damage to neighbouring properties and facilities.

All storm water runoff shall be collected on the school property and discharged into council drains through an underground stormwater system.

SUB SURFACE DRAINAGE FOR SPORTS FOR SPORTS FIELDS

- Poor draining soil or excessive run off has the potential to create water logged soils.
- Sub surface drainage for grassed playing fields that are connected to council stormwater drains are to be considered depending on soil type.
- Drains shall run at a slight angle to the design contours.
- An assessment of the site is required in order to design the subsurface drainage system.
- It is considered preferable to have a separate design/documentation phase rather than a design and install contract.
- The consultant shall assess the survey of existing levels, conduct a geotechnical assessment of the soil type, soil profile and structure, permeability and its consistency across the playing fields by sampling, testing and analysis.
- Ensure using minimum grades as recommended by manufacturers of propriety items such a strip drain and agricultural pipe.
- Design spacing and depth of laterals using information on soil type, permeability, rainfall, surface grades and size and grade of strip drain or agricultural pipe.
- Under strip drain or slotted agricultural pipe for laterals.
- Minimum subsoil drainage pipe size for all mainlines and laterals to be 100mm diameter.
- Minimum cover of 500mm required over all subsoil drainage pipes, or 300mm cover minimum over strip drains.
- Consider providing a surface inspection point at the high point of the lateral or sweep up the end of the lateral. Cap on SIP or pipe at 200mm below surface.
- Generally, backfill laterals with imported coarse washed sand (refer to Nynex Strip drain Designer's Guide for sand grading envelope) to surface.
- Use PVC pipework over main collector lines.
- Cut existing turf and relay on main lines.
- Provide surface inspection points at the end of the mains line. Locate cap on vertical riser at 200mm below surface.
- During installation locate and dimension inspection points, laterals, main lines etc. from fixed points.
- Provide as constructed drawing to DPTI using DPTI title block and drawing number.
- Note the location of existing irrigation system and the constraints on the installation of the subsurface drainage system.

SEWER AND DOWNPIPE CONNECTIONS FROM BUILDING

Single story downpipes do not require cleaning eye as they can be cleaned from the gutter.

Double story downpipes require a cleaning eye and are to be made vandal proof with tack screws.

In reactive soils construct flexible joints and expansion joints for sewer and stormwater at the building line. Type of joint required will depend on soil conditions.

PITS (NEUTRALISERS, GREASE ARRESTERS)

Pits to be cast iron tight lids, which allows for top to be flush with pavement, tank will require separate vent and treated internally with epoxy coating.

STORMWATER POLLUTION PREVENTION

A person shall not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm.

There is a commitment to minimise pollution loads in stormwater as part of the 'general environmental duty' under the Environmental Protection Act. Ensure adherence to the requirements of the Code of Practice for Local, State and Federal Governments for Stormwater Pollution Prevention published by the Environmental Protection Authority dated 1997 and a similar Code of Practice for the Building and Construction Industry for Stormwater Pollution Prevention dated 1999. There are implications for both designers and contractors, particularly for large sites (greater than 0.5 ha or if there is a risk of significant sediment pollution).

Due to the risk of the potential petroleum hydrocarbon, heavy metal and other toxic constituent contamination associated with car park stormwater, run-off shall not be collected from driveways and car parks for irrigation purposes.

8.9 Waste Storage

- Waste disposal areas shall be located adjacent to an access road so that a front loading truck can easily access the waste collection bins and preferably be screened by brick, metal, timber fencing or plantings.
- The floor of the waste disposal area is to be of a heavy duty paving suitable for heavy vehicle loading and that can be easily cleaned. Access and manoeuvrability of industrial bin collection vehicles shall be considered.
- The access road shall be a heavy duty surface or pavement to withstand the high loads and turning movements of the truck. The access road shall be wide enough to manoeuvre to avoid damage to site fixtures.
- Wherever possible it is desirable to avoid the need to reverse.
- Avoid any overhead cables and tress where bins are to be collected.
- Waste disposal areas shall be separated from buildings due to the risk of fire. If it is necessary to locate these adjacent to a building, then the area shall be fire isolated.
- Consider sites for present and future recycled materials storage, collection and sorting bins (i.e. glass, paper, cardboard and plastic).
- This provision is subject to variation according to the needs of schools and can be arranged by contacting DECD.

8.10 Termite Prevention

- To assist in termite prevention and inspections, DECD prefers that building slabs are exposed to 75mm on all edges.
- Sites shall not undertake any work such as paving or installing garden beds that cover termite barriers, weep holes or inspection zones. This includes the installation of air-conditioners and hot water systems that may obstruct termite inspections.
- Termite management measures shall be in accordance with DPTI Termite Management Guidenote G38.

TERMITE RECTIFICATION

- Prior to undertaking any plague rectification measures, sites shall contact the Asset Support Centre to seek advice and record that their site is affected on 1800 810 076.
- The management of sites which been treated with termiticides shall refer to DPTI Guidenote G32 – Assessment and Management of DECD sites Treated with termiticides.

6. Roles and responsibilities

Table 2 - Roles and responsibilities

| Role | Authority/responsibility for |
|--|--|
| Site Leader, Architects, Designers, Builders, Maintenance Workers, Facilities Managers | The Design Standards is mandatory for all new buildings works and shall be checked and adhered to for all projects at DECD education facilities. |

6. Monitoring, evaluation and review

Due to the size and scope of the Design Standards, the policy will be reviewed in sections on an annual basis by the Asset Policy & Environmental Resources team.

- Detailed review: Section One - Building Design and Specifications: July 2016
- Detailed review: Section Two – Services: July 2017
- Overall review + Detailed review Section Three – Fixtures, Fittings and Furniture: July 2018
- Detailed review: Section Four – Site Works: July 2019

7. Definitions and abbreviations

Table 3 - Definitions and abbreviations

| Term | Meaning |
|------|------------------------------------|
| NCC | National Construction Code |
| BCA | Building Code of Australia |
| DDA | Disability Discrimination Act 1992 |
| AS | Australian Standard |

8. Supporting documents

National Construction Code – Building Code of Australia

Australian Standards as identified in the DECD Design Standards including but not limited to:

- AS 1428 (Set)-2010 - Design for access and mobility Set
- AS 2107:2000 – Acoustics – Recommended design sound levels and reverberation times for building interiors
- AS/NZS 4586:2013 - Slip resistance classification of new pedestrian surface materials
- AS2455 Textile Floor Coverings – Installation Practice – General
- AS/NZS 4858 Wet Area Membranes
- AS/NZS 4389 - Safety mesh
- AS 1859.2:2004 - Reconstituted wood-based panels – specifications
- AS 2441:2005 – Installation of Fire Hose Reels
- AS1680.2.2:2008 - Interior and workplace lighting
- AS1735.12 – Facilities for persons with disabilities
- AS 1743:2001, Road Signs – Specifications
- AS 1744:1975, Forms of letters and numerals for road signs
- AS 2890.1, Parking Facilities Part 1 - Off Street Car Parking
- AS 1742 Set-2010, Manual of uniform traffic control devices
- AS 1926.1:2007, Swimming Pool Safety Part 1 – Safety barriers for swimming pools
- AS/NZS 3500.3:2003, Plumbing and drainage - Stormwater drainage

Appendix

- Appendix A: DPTI Guidenotes and Drawings
- Appendix B: Major Review – Schedule of updated content

APPENDIX A – DPTI GUIDENOTES

The following DPTI Guidenotes and Drawings are relevant to DECD projects and should be referred to for all new projects and the redevelopment of existing buildings.

To search for Guidenotes and Drawings, please use the referenced identifier (e.g. G44) to search for the document/drawing. For a full list of DPTI Standard Drawings please search for D04 – DPTI Standard Drawing Index.

| Type | Name | Viewable By |
|---------|--|----------------|
| DRAWING | Access Hatch for Perforated Ceilings (DG34) | General Public |
| DRAWING | Accessible Handrail Details (DG45) | General Public |
| DRAWING | Art Sink (DD18) | General Public |
| DRAWING | Basic Cupboard Construction (DD03) | General Public |
| DRAWING | Basic Cupboard with Drawer (DD10) | General Public |
| DRAWING | Basic Laboratory Sink/Cupboard (DD16) | General Public |
| DRAWING | Basic Open Shelf Construction (DD04) | General Public |
| DRAWING | Basic Tray Storage Unit (DD06) | General Public |
| DRAWING | Benchtop Support Bracket (DG06) | General Public |
| DRAWING | Bottled Gas Cylinder Details (DG29) | General Public |
| DRAWING | Broom Rack (DG09) | General Public |
| DRAWING | CAD Drawing Titleblocks (D03) | General Public |
| DRAWING | Chemical Storage Open Shelf Unit (DG04) | General Public |
| DRAWING | Condensing Unit Roof Mounting Detail (DG41) | General Public |
| DRAWING | Cupboard for Drinks Boiler Unit (DD07) | General Public |
| DRAWING | Cupboard for Water Heater (DD08) | General Public |
| DRAWING | DPTI Standard Drawings (D01) | General Public |
| DRAWING | Door Bollard (DG02) | General Public |
| DRAWING | Downpipe Connection With Cleaning Eye (DG42) | General Public |
| DRAWING | Gas Bottle Enclosure (DG27) | General Public |
| DRAWING | Heavy Storage Shelving (DG13) | General Public |
| DRAWING | Inset Sink and Cupboard (DD14) | General Public |
| DRAWING | Internal Bag Storage (DG08) | General Public |
| DRAWING | Internal Bag Storage - Individual Compartments (DG08A) | General Public |
| DRAWING | Laboratory Sink Island Demonstration Model (DD17) | General Public |
| DRAWING | Ladder Frame Storage (DG14) | General Public |
| DRAWING | Mobile Drawer Unit (DG12) | General Public |
| DRAWING | Modular Pigeon Holes (DG16) | General Public |
| DRAWING | Multi Drawer Bench Unit (DD05) | General Public |
| DRAWING | Nappy Change Bench (DD13) | General Public |
| DRAWING | Octagonal Technology Bench (DG10) | General Public |
| DRAWING | Overhead Cupboard Construction (DD09) | General Public |
| DRAWING | Photographic Sink (DG17) | General Public |
| DRAWING | Pinboards and/or Wallstripping (DG01) | General Public |
| DRAWING | Plant Enclosure Details (Floor Mount) (DG24) | General Public |

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|-----------|---|----------------|
| DRAWING | Plant Enclosure Details (Wall Mount) (DG26) | General Public |
| DRAWING | Pool Fence Plinth Detail (DG37) | General Public |
| DRAWING | Pre-finished Fibre Cement Shower Partition (DD02) | General Public |
| DRAWING | Pre-finished Fibre Cement Toilet Partition (DD01) | General Public |
| DRAWING | Protected Hooks (DG07) | General Public |
| DRAWING | Reception Counter (DG11) | General Public |
| DRAWING | Sealed PVC Downpipe for Wet System with Inspection Point (DG44) | General Public |
| DRAWING | Services Trench Infill/Slab Repair (DG47) | General Public |
| DRAWING | Silk Screen Cleaning Trough (DG19) | General Public |
| DRAWING | Sluice Trough (DG18) | General Public |
| DRAWING | Soakage Pit for A/C Units (DG28) | General Public |
| DRAWING | Steel Bag Storage Unit (DG05) | General Public |
| DRAWING | Stormwater Wet System Details (DG46) | General Public |
| DRAWING | Structural Roof Penetration Flashing (DG36) | General Public |
| DRAWING | Tall Open Shelf Storage (DG15) | General Public |
| DRAWING | Tall Storage Cupboard (DD15) | General Public |
| DRAWING | Typical Ball Guard Detail (DG33) | General Public |
| DRAWING | Typical DECD Chem Store Layout (DD19) | General Public |
| DRAWING | Typical Mains Pressure Electric Water Heater for Under Bench Locations (DG40) | General Public |
| DRAWING | Typical Plant Enclosure (Floor Mount) (DG23) | General Public |
| DRAWING | Typical Plant Enclosure (Wall Mount) (DG25) | General Public |
| DRAWING | Typical Valve Box Detail (DG32) | General Public |
| DRAWING | Unit Paving Edge Restraint (DG38) | General Public |
| DRAWING | Urinal (Hinge Grille) Floor Mounted (DG30) | General Public |
| DRAWING | Urinal Floor Mounted (DG31) | General Public |
| DRAWING | Vented Corrosives Cupboard (DG03) | General Public |
| DRAWING | Worktop Construction (DD11) | General Public |
| DRAWING | Worktop Construction Freestanding (DD12) | General Public |
| GUIDENOTE | As Built Documentation and Maintenance Manuals (G54) | General Public |
| GUIDENOTE | Asbestos Management in Government Buildings (G143) | General Public |
| GUIDENOTE | Assessment and Management of DECD Sites Treated with Termiticides (G32) | General Public |
| GUIDENOTE | Building Code of Australia 2010 - Section J (G149) | General Public |
| GUIDENOTE | Building Defects Advice Guide (G58) | Project Team |
| GUIDENOTE | Construction Detailing and Site Inspection Guide (G16) | General Public |
| GUIDENOTE | Construction Site Visits (G18) | General Public |
| GUIDENOTE | Contract Documentation Technical Checklist (G19) | General Public |
| GUIDENOTE | DECD Design Standards and Guidelines (G136) | General Public |
| GUIDENOTE | DECD Policy for Air Conditioning in Schools (G83) | General Public |
| GUIDENOTE | DPTI Standard Drawing Index (D04) | General Public |
| GUIDENOTE | Development Approval (G31) | General Public |
| GUIDENOTE | Development Proposals for Heritage Assets (G103) | General Public |
| GUIDENOTE | Disability Access Checklist (G119) | General Public |
| GUIDENOTE | Drinking Water Regulations (G170) | BPIMS Login |

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|-----------|---|-------------------|
| GUIDENOTE | EPA Environmental Information (G96) | General Public |
| GUIDENOTE | Earthquake Hazard Risk Mitigation in Government Leasing (G137) | General Public |
| GUIDENOTE | Ecologically Sustainable Development Planning, Design and Delivery (G44) | General Public |
| GUIDENOTE | Ecologically Sustainable Development Sustainment of Existing Buildings (G45) | General Public |
| GUIDENOTE | Ecologically Sustainable Development in DECD Projects (G43) | General Public |
| GUIDENOTE | Energy Efficiency Action Plan Compliance (G46) | General Public |
| GUIDENOTE | Energy Efficiency Action Plan Lead Agency Compliance (G41) | General Public |
| GUIDENOTE | Environmentally Sustainable Building Materials - Selection (G164) | General Public |
| GUIDENOTE | Existing Trees (G33) | General Public |
| GUIDENOTE | Fire Services Guide for Lead PSC (G165) | Organisation Only |
| GUIDENOTE | Identification of PCB-Containing Capacitors (G134) | General Public |
| GUIDENOTE | In Floor Electrical Boxes (G167) | General Public |
| GUIDENOTE | Insulation to Air-conditioning Ductwork (G115) | General Public |
| GUIDENOTE | Legionella Control in Heated Water Systems (G106) | General Public |
| GUIDENOTE | National Australian Built Environment Rating System (G68) | General Public |
| GUIDENOTE | PCB Containing Capacitors in Fluorescent Light Fittings (G141) | Organisation Only |
| GUIDENOTE | Polychlorinated Biphenyls Management Plan (G133) | General Public |
| GUIDENOTE | Post Construction Review and Post Occupancy Evaluation (G79) | General Public |
| GUIDENOTE | Principles of Safe Design (G125) | General Public |
| GUIDENOTE | Recycled Pavement Materials (G36) | General Public |
| GUIDENOTE | Registered Private Certifiers Panel (G80) | General Public |
| GUIDENOTE | Selection of Site Contamination Consultant (G100) | Project Team |
| GUIDENOTE | Shop Drawings (G21) | General Public |
| GUIDENOTE | Site Contamination (G37) | General Public |
| GUIDENOTE | Solar Panels For Government Funded Building Projects (G140) | General Public |
| GUIDENOTE | Termite Management (G38) | General Public |
| GUIDENOTE | Using a Site Contamination Auditor (G101) | General Public |
| GUIDENOTE | Water Efficient Outlets in Government Buildings (G108) | General Public |
| POLICY | Building Information Modelling Implementation (PO42) | General Public |
| POLICY | Energy Efficiency Action Plan (G128) | General Public |
| POLICY | NEP (Movement of Controlled Waste between States and Territories) Measure 1998 (G135) | General Public |
| POLICY | Strengthening Existing Buildings For Earthquakes (PO45) | General Public |
| POLICY | Tackling Climate Change (G99) | General Public |

APPENDIX B – SCHEDULE OF UPDATES

The following schedule outlines the major changes and content updates undertaken as part of 2014 review of the Design Standards.

| Section | # | Component | Updates |
|--|------|-------------------------------|--|
| 4.0_Policy Information and Guidelines | | | |
| | | Title Page | |
| | 4.1 | Introduction | New introduction and contact details provided |
| | 4.2 | Document Guidelines | New section outlining DPTI Guidenotes and information on relevant Acts, Standards and Codes |
| | | | |
| 5.0_Building Design and Specification | | | |
| | 5.1 | Site Analysis | New section outlining basic information on site analysis, DPTI Guidenotes and Heritage Places |
| | 5.2 | Urban Design Charter | New section outlining the principles of the Urban Design Charter to be considered in all designs and projects that may affect urban design |
| | 5.3 | Design for Accessibility | New section incorporates the old D4 Disability Access Protocol - DECD disability requirements have been incorporated in to relevant sections in the Design Standards |
| | 5.4 | Roof and Roof Plumbing | Added insulation, light colour for roofing and requirements for gutter heights to reduce vandalism |
| | 5.5 | Acoustics | New acoustics section - Old acoustics protocol CP001 will be taken offline - New section outlines NRC and CAC requirements for ceilings and sound transmission requirements |
| | 5.6 | Ceiling | Added information about preferred options and referenced acoustic section |
| | 5.7 | Flooring | Section has been re-ordered however majority of information has not changed |
| | 5.8 | Walls | Added information about graffiti coatings and wall materials |
| | 5.9 | Doors | Section has been re-ordered for clarity - Added info for aluminium door requirements, external door weather requirements, info for D-handles, acoustic information for learning space doors, |
| | 5.10 | Windows | Added ESD info, updated info about glass requirements for AS1288 |
| | 5.11 | Stairs and Balustrades | New section to outline DECD requirements - No glass or wire balustrades and added info for landings in early year primary school environments |
| | 5.12 | Amenity Provisions and Design | New section - Toilet Amenity protocol to be taken offline - Added clarification about student vs. staff toilets and information about passive supervision |
| | 5.13 | Covered Ways | No changes |
| | 5.14 | Materials and Finishes | Added info about MDF requirements and paint selection as per APAS |
| | | | |
| 6.0_Services | | | |
| | 6.1 | Demand Management | New section - highlighting the need to consider demand during the design and specification of projects |
| | 6.2 | HVAC | New section incorporates Air conditioning protocol SV001 which will be taken offline - re-ordered and added info for demand management and security cages |
| | 6.3 | Exhaust Fans | New section - Added info for noise requirements and venting to the atmosphere |
| | 6.4 | Fire Protection | Re-arranged and clarified fire hydrant |
| | 6.5 | Plumbing | No changes |
| | 6.6 | Water Services | Minor changes and re-ordered - removed tap ware info and added to Amenity Fittings section. Includes updated information regarding instant hot water services (gas and electric). |

| | | |
|---|------------------------------|--|
| 6.7 | Power and Gas Supply | Added info about gas isolation switches - added more locations for power isolation switches |
| 6.8 | Internal Lighting | Updated with recommendations from DPTI and a mandatory requirement for LED lighting |
| 6.9 | External Lighting | Updated with recommendations from DPTI and a mandatory requirement for LED lighting |
| 6.10 | Lifts | Re-worded and added preferred option for passenger lifts |
| 7.0_Fixtures, Fittings and Furniture | | |
| 7.1 | Curtains and Blinds | Added one line about passive design |
| 7.2 | Sink and Troughs | Added info about DPTI Drawings |
| 7.3 | Tap Ware | Added info about WELS ratings and highlighted info about not providing refrigerated and filtered water |
| 7.4 | Amenity Fittings | Added info about WELS ratings, ambulant toilets, specific info about hand driers |
| 7.5 | Showers | Added WELS rating and DPTI drawing info - Added requirement for tech study workshops to have an emergency eye wash |
| 7.6 | Joinery | Added info about fixed joinery hinges and MDF requirements |
| 7.7 | Fixtures | Added info about lockers |
| 7.8 | Loose Furniture | No changes - minor re-wording |
| 8.0_Site Works | | |
| 8.1 | Site Access | Re-ordered and added specific information for ramps and step ramps |
| 8.2 | Parking | Re-ordered/worded and added info about disability parking |
| 8.3 | Paths and Paving | Re-ordered - no changes |
| 8.4 | Landscaping | Re-ordered entire section - removed large amounts of repeating info - added more info about turf selection |
| 8.5 | Site Fixtures | Re-ordered/worded - no major changes |
| 8.6 | Shade Structures | New section incorporating Shade Structure Protocol (to be taken offline) |
| 8.7 | Stormwater and Sewerage | Re-formatted but no changes |
| 8.8 | Waste Disposal | Re-worded - No changes |
| 8.9 | Termite Management | Added info about termite prevention - referred to DPTI Guidenotes |
| Appendix | | |
| A | DPTI Guidenotes and Drawings | New section with list from DPTI |

| Removed Sections | | |
|-------------------------|----------------------------|--|
| | Security | Content has been amalgamated in to a new Security Design Standards document currently under review - Please contact DECD Security, Bushfire and Emergency Management on 8226 3714 or DECD.SecurityIncident@sa.gov.au |
| | Class Bell System | |
| | Combined Fire and Security | |
| | Class Bell System | |
| | Water Supply | Content has been included in a new Water Supply Policy and Procedure currently under development. Please contact Asset a Policy and Environmental Resources on 8226 0091 or DECD.policyComms@sa.gov.au |
| | Irrigation | |
| | | |