education

design standard 02

for secondary schools

The Office of the Government Architect (OGA) has developed a suite of Design Standards for new public building projects to improve the performance and value of these facilities. The purpose of the OGA's Education Design Standard is to formalise a set of objective, minimum provisions for design quality to use in the delivery of all public education projects.

Government of **Western Australia**
Department of Finance
Office of the Government Architect

“We spend a large proportion of our daily lives engaging with the built environment. These places need to be safe, attractive, functional, productive, sustainable, efficient and inspiring”

HON Colin Barnett MEc MLA
Premier, Minister for State Development
February 2013

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The Design of Education Environments

The Western Australian Government, through the 'Better Places and Spaces' built environment policy, is committed to providing high quality education environments that support the learning needs of every student. Education facilities should be welcoming, safe and stimulating environments, that support the role of schools in nurturing students, supporting staff and developing communities.

To properly serve the community both now and into the future, schools need to be well-designed and well-built. This means ensuring that in design and construction, education facilities are robust, safe and secure as well as uplifting and engaging environments for staff and students.

There is growing appreciation of the significant role that good design can play in education environments, with increasing evidence that the learning outcomes of students are closely related to the quality of learning environments. Factors such as air quality, ventilation, natural lighting, thermal comfort and acoustic performance have each been shown to have a profound impact on student attentiveness, attendance and overall performance. These same factors affect teaching staff.

Education facilities are spaces for learning, discovery, sharing and interaction. It is within these spaces that important relationships between teachers and students are fostered. It is essential therefore, that education facilities enable the teaching and learning outcomes required of a modern curriculum and be flexible enough to support a range of pedagogical modes[1] and learning styles. This means creating a setting appropriate for individualised learning and innovative teaching.

Adelaide North Special School, South Australia - Walter Brooke and Associates

Well designed education environments can:

- ➔ Support effective learning
- ➔ Inspire innovation, participation and inquiry in students
- ➔ Support teachers in the delivery of quality education
- ➔ Enable flexibility to adapt to curriculum, pedagogical, technological and demographic changes
- ➔ Facilitate engagement with the local community
- ➔ Achieve a high level of sustainability performance[2]
- ➔ Deliver value for money over a facility's full life cycle

Teaching methods, curricula and the technology available to students and teachers are always changing. Equally, the local communities served by education facilities continually evolve. Education facilities should be capable of accommodating these changes to ensure that they remain fit for purpose and support the provision of education services over their life time.

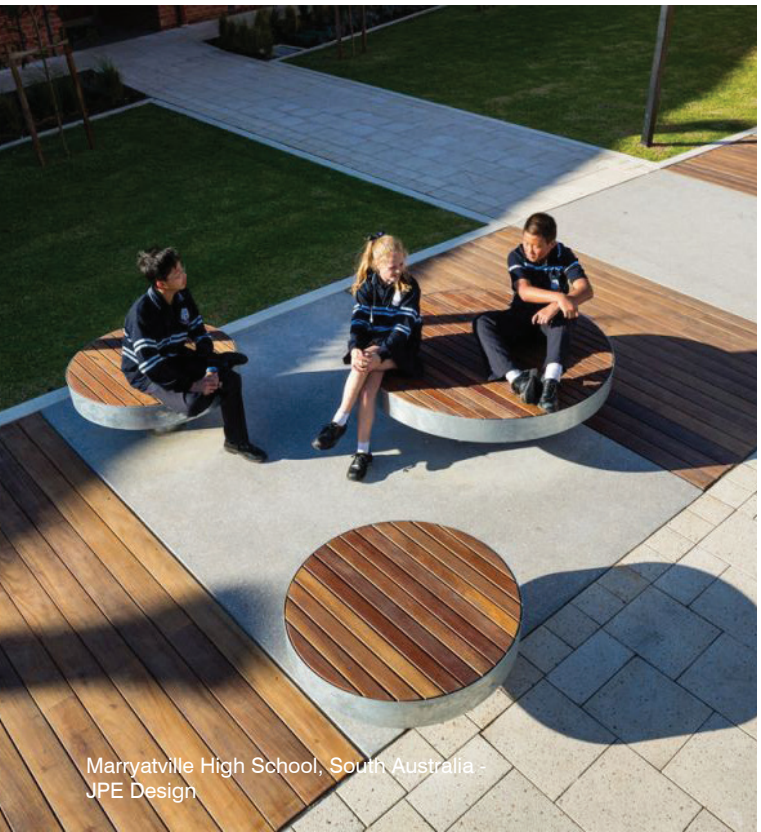
High quality education facilities are a vital part of a healthy and thriving community and can provide an important civic place for meeting and exchange. School facilities that are engaging, distinctive and contextually responsive can build a sense of pride and ownership among students, teachers, and the broader community.

Consistent with the State Government's commitment to good design in education facilities, design quality criteria are set out below under the three headings of Impact, Functionality and Build Quality

impact Creating a Sense of Place and Positive Impact on the Community

Character

- Create a distinctive, place-specific facility.
- Respond sensitively to the topography, climate, heritage and ecology of the site.
- Respond to the culture and aspirations of the neighbourhood or community, where possible.
- Convey the civic role of the facility through an appropriate architectural language.
- Demonstrate a clear design intent across all scales and elements (master planning, built form, internal environment, external environment, materials and furniture).
- Provide innovative design solutions that support the efficient delivery of education services.
- Provide well-integrated public art.
- Provide an inspirational and uplifting environment for students and staff.
- Provide an environment which supports a diversity of learning and teaching strategies for the varied needs of learners[3], consistent with Department of Education policy.
- Create an architectural character that fosters students sense of identity and community.
- Provide opportunities for the facility to be a teaching tool, through the integration of architecture, landscape architecture, sustainability and interpretive initiatives.



Marryatville High School, South Australia - JPE Design

Built Form

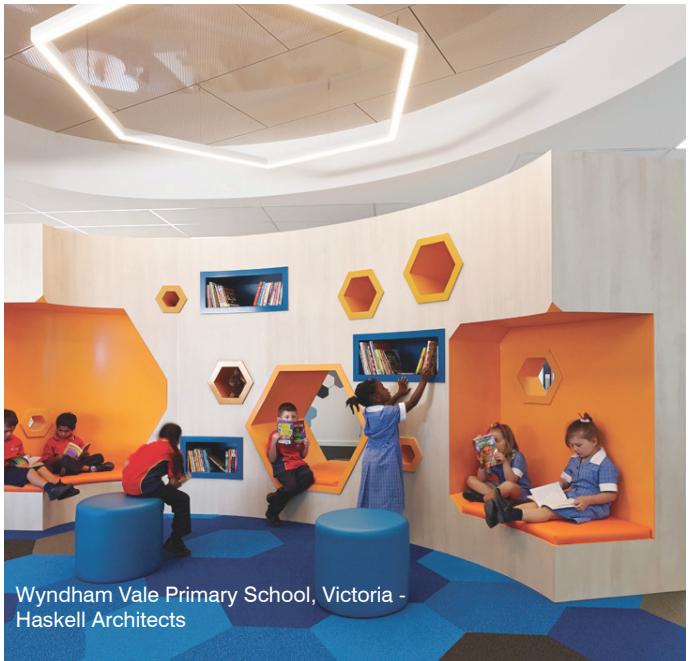
- Provide built form that engages positively with the site and surrounding buildings.
- Ensure built form consolidates and supports the master planning strategy.
- Ensure built form supports functional and operational intent.
- Provide built form elements that are well-coordinated and composed.
- Project a coherent built form that clearly communicates the facility's function and civic role.
- Provide entrances that are well-scaled, welcoming, clearly distinguished and with a clear sense of arrival.
- Integrate service elements seamlessly into the built form, wherever possible.
- Communicate the significance of, and relationships between spaces through scale, proportion, colour and material.
- Facilitate wayfinding and clear movement through the arrangement of form and massing.
- Integrate signage and wayfinding elements.
- Enable clear and effective interaction between classrooms and external areas.
- Provide a diversity of spaces, scales, proportions and surface conditions to offer students a variety of physical environments in which to learn, play and socialise.

Materials

- Ensure materials are used in a way that complements the intent of the built form.
- Ensure materials are used in a way that demonstrates their inherent qualities and characteristics.
- Utilise materials within the building fabric suitable to the role and setting of the facility.
- Utilise materials with integral or inherent finishes, wherever possible.
- Utilise materials and finishes that meet the expected standards for civic buildings ensuring:
  (i) consistency of finish
  (ii) well-considered use of colour and texture
  (iii) durability of surface finishes and fixtures
  (iv) resistance to damage and vandalism
  (v) minimal recurrent maintenance
  (vi) good amenity and a positive visual impact.

Internal Environment

- Create open, inviting and generously-scaled communal spaces.
- Provide welcoming entry spaces.
- Provide learning areas that are comfortable, stimulating and support learning, through the use of:
  (i) appropriate levels of natural lighting with treatments to manage glare where required
  (ii) generous volumes
  (iii) formal and informal furniture
  (iv) a diversity of materials and textures
  (v) appropriate colours.
- Provide circulation areas that:
  (i) are enjoyable to use and promote user interaction
  (ii) are legible and well organised
  (iii) offer spatial opportunities for formal and informal use
  (iv) offer clear views to strategic points including entries, exits and external areas.
- Enable wayfinding and a clear, intuitive understanding of the functions of the facility.
- Utilise furniture that is engaging, comfortable and adaptable to different pedagogical strategies and improvised uses.
- Provide appropriate acoustic treatments to:
  (i) enable speech clarity and facilitate student focus in learning areas
  (ii) minimise acoustic transfer between learning areas
  (iii) ensure privacy of offices, conference rooms and interview rooms.



Wyndham Vale Primary School, Victoria - Haskell Architects

External Environment

- Protect existing environmental features and ecosystems.
- Enhance or regenerate existing natural resources.
- Create a distinctive landscape design that responds sensitively to the site context.
- Provide a landscape environment that is attractive and comfortable for users.
- Ensure the landscape design consolidates and enhances the master planning strategy.
- Integrate the landscape design with the architectural design intent of the facility.
- Utilise robust materials, finishes and elements that are easy to maintain.
- Utilise climatically appropriate planting and soft landscaping.
- Demonstrate a clear design intent through well-considered use of materials, colour, textures and landscaping elements.
- Provide a landscape environment that is clearly legible and assists wayfinding.
- Integrate Water Sensitive Urban Design (WSUD) principles in the landscape.
- Provide spaces that support external learning with good connections to internal learning areas.
- Provide a diversity of outdoor spaces and conditions to facilitate informal and formal uses.
- Utilise high quality urban furniture in configurations that can facilitate outdoor teaching, socialisation and recreation.
- Integrate interpretive and educational opportunities within the landscape scheme.
- Provide covered areas for protection from sun and rain.
- Provide spatial configurations and relationships that mitigate bullying and antisocial behaviour.

Urban + Social Factors

- Respond to the anticipated demographic, cultural and socio-economic profile of the community and users within the design and planning of the facility.
- Integrate Crime Prevention Through Environmental Design (CPTED) principles in the design of facility.
- Provide opportunities for safe walking, cycling and public transport access to and from the facility.
- Ensure appropriate parking and vehicular access strategies that avoid adverse impacts on the amenity of users and the public realm.
- Provide clearly legible site entry points and access routes that are well-connected to surrounding infrastructure, land uses and activities.
- Plan the facility to respond to the location of nearby strategic centres, infrastructure and other public facilities.
- Enable opportunities for the facility to be shared by the community and cater for activities beyond traditional academic uses where appropriate.
- Ensure a positive impact and good integration with surrounding urban form, through:
  (i) appropriate building form and scale
  (ii) well-considered facade design and presentation to the public realm
  (iii) provision of a high quality streetscape environment
  (iv) an appropriate arrangement of functions.

functionality Meeting the Needs of Staff and Users

Use

- Minimise distances of travel between frequently used areas for staff and users.
- Ensure space planning supports appropriate and complementary functional adjacencies.
- Locate support zones so that they may be shared by adjacent functional areas.
- Ensure spaces have built-in flexibility to accommodate future changes to functional and operational requirements such as new administrative structures, syllabuses and pedagogies, consistent with Department of Education guidance.
- Allow teaching spaces to adapt easily on a day-to-day basis to facilitate various activities, group sizes and teaching methods.
- Provide controls for staff to locally regulate temperature, lighting, ventilation and acoustic comfort.
- Locate Information and Communication Technology services such that they support active use in teaching and can accommodate future technology upgrades.

Access

- Create clear hierarchies of movement and legible circulation networks within internal and external areas.
- Ensure universal access is provided without compromising legibility, connectivity and quality of experience.
- Ensure appropriate separation of user groups, where necessary.
- Ensure ready access to key building elements, systems and services for maintenance, replacement and cleaning.
- Separate service access from staff and student entry points.
- Provide easy access between internal teaching areas and outdoor areas.
- Provide clear community access to shared facilities where appropriate, while ensuring adequate surveillance, security and safety for staff and students.
- Ensure students have appropriate access to staff.
- Provide a comprehensive wayfinding system to ensure that students, visitors, and staff can easily navigate the facility.

Spaces

- Organise buildings, servicing and functions so that they relate well to each other.
- Ensure functional and operational needs are supported and enhanced by spaces that are the right size, shape, proportion and orientation.
- Ensure functional arrangements are integral to the master plan and contribute to the structural organisation of the site.
- Plan to achieve a coherent and well-considered arrangement of spaces.
- Ensure that key functional relationships are clearly legible and supported within site planning and floor layouts.
- Ensure spaces can accommodate future changes to functional and operational requirements where possible.
- Ensure flexibility and adaptability of the facility through appropriate floor layouts, functional planning and site arrangements.
- Ensure planning supports security and appropriate levels of surveillance.
- Provide planning that enables daylighting, ventilation and acoustic treatments to achieve comfortable and attractive spaces.
- Organise teaching spaces so that they have clear relationships to common areas, external areas and breakout spaces.
- Locate communal areas and toilets appropriately with good access and surveillance opportunities.
- Integrate support and storage spaces into the areas they serve.
- Provide opportunities to utilise circulation space for multiple uses, where appropriate.
- Provide support for emerging learning methods[4] with appropriate spatial configurations.

build quality Performance of the Built Fabric over the Full Life Cycle

Performance

- Incorporate initiatives for the improvement of energy and water conservation; and the reduction of waste, embodied energy and emissions.
- Ensure the appropriate level of acoustic comfort relative to the function and use of spaces.
- Utilise robust materials, elements and finishes that are durable and cost-effective to maintain.
- Specify materials, elements and finishes that avoid adverse impacts on health and the environment.
- Utilise materials, finishes, elements and systems that are appropriate for the function and quality requirements of adjacent areas.
- Engage passive environmental design measures that respond to local climate and site conditions including:
  (i) utilise built form and landscape to create micro-climates that improve comfort
  (ii) orientate built form to reduce solar gain
  (iii) organise interior spaces to reduce energy use
  (iv) exploit thermal mass internally and externally to aid heating and cooling
  (v) assemble building envelope (structure, facade, roof, windows) to ensure good thermal and moisture control
  (vi) provide controlled daylighting where appropriate, while mitigating glare and solar gain
  (vii) provide natural ventilation where possible and appropriate.
- Provide operation and maintenance manuals to enable users to optimise the building's environmental performance.
- Utilise available tools, such as Green Star, to plan and assess sustainability performance.

Dandenong State High School, Victoria - Hayball Architects

Construction

- Utilise construction systems that readily enable future horizontal and vertical expansion.
- Utilise construction systems that readily enable internal modification, service upgrades and replacement.
- Utilise adaptive re-use strategies and existing building fabric to avoid unnecessary demolition, where appropriate.
- Utilise construction systems that are readily available.
- Ensure staged facility planning and construction does not the adversely impact service delivery.
- Replace and maintain materials in a manner consistent with the original design intent.
- Consider the energy costs of construction and the embodied energy in the selection of building materials and elements.
- Organise structural systems within the built fabric so that they are clearly and logically organised for ease of use, maintenance and future expansion.
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Services Design

- Organise engineering systems clearly and logically for ease of use, maintenance and future expansion.
- Utilise innovative design, technologies and analytical tools to optimise energy performance and minimise resource consumption.
- Ensure engineering systems are flexible, efficient and economical to use.
- Integrate engineering systems with passive environmental design measures.
- Provide superior indoor air quality utilising both mechanical and passive ventilation systems, where appropriate.
- Provide engineering systems that operate without compromising acoustic comfort.
- Utilise standardised and prefabricated elements in the design of engineering systems, where possible.
- Select systems on the basis of service and local maintenance capacity.
- Ensure users and facility staff can easily operate thermal controls, where appropriate, without compromising overall system performance.
- Ensure appropriate allowance is made for future expansion of services.

References

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2. Adapted from the Victorian School Design Guide 2008
3. Mike Davies, *The Interplay of Design and Learning, the experience of BSF* in 'Take 8 – Learning Spaces', AIA, 2009
4. Dudek, M 2000. 'Architecture of Schools: The New Learning Environments', Architectural Press, Woburn, MA. pg xiii

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