GOOD DESIGN+
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OFFICE OF
THE VICTORIAN
GOVERNMENT
ARCHITECT

GOOD DESIGN + EDUCATION

The Office of the Victorian Government Architect provides leadership and strategic advice to the government about architecture and urban design.

The Office of the Victorian Government Architect supports the Department of Education and Early Childhood Development with advisory initiatives, including the design review of all new schools, collaborative workshops, design quality teams, desk top reviews and input on briefs. Good design plays an essential role in enabling high-quality education environments that support the learning needs of every student. Our aim is to encourage awareness of the importance of good design to the quality of educational environments for students and staff. The primary audience includes those working on education projects in state government departments and in local government.

This publication is the sixth in a series that is helping to raise awareness of good design and promoting discussion supporting its benefits and value. The publication has been developed by the Office of the Victorian Government Architect together with the Department of Education and Early Childhood Development.It highlights key design principles and outlines some effective approaches to achieve good design.

Learning is determined by effective teachers and motivated students, but increasing evidence demonstrates that students' learning outcomes are related to the quality of learning spaces and building performance.

An enduring legacy of any government is the quality of school buildings that it delivers

Aspects of design and environmental conditions that impact on learning include noise, temperature, seasonal variation, humidity, air quality, ventilation, air flow, thermal comfort, building age, quality and aesthetics, natural and artificial lighting, school size and class size. There is strong evidence that the quality of a school building and the open space around it can have a profoundly positive impact on student concentration, attendance and educational outcomes.

Spaces that support students learning from each other and through their own self-directed activities are vital to contemporary learning. In addition, a well-designed school provides a better workplace environment for teachers by contributing to recruitment, staff productivity, retention, morale and reduced absenteeism (Zimring et al. 2008).

Schools should be designed as welcoming, safe and stimulating environments to complement their role to nurture students, support staff and foster local community identity. School environments include not only social, cultural and physical aspects, but also natural, built and virtual environments.

Cover
Camberwell High School
Enterprise Centre, Camberwell
Architect: Hayball
Photography: Dianna Snape

01
Birralee Primary School, Doncaster
Architect: Kerstin Thompson Architects
Landscape consultant: Simon Ellis
Photography: Derek Swalwell

02
Mac Roberston Girls School, Albert Park
Architect: Seabrook and Fildes
Photography: Peter Bennetts

BUILDING QUALITY AND LIFECYCLE

Over the life of a school, evidence shows that bad design ends up costing money, for example through higher maintenance costs, while good design is cheaper in the longer term and adds real value. Good design can increase the value for money that school buildings provide across their whole life. Well-designed school buildings are cost-effective and provide a long-term community asset.

PARTICIPATORY PEDAGOGY

Contemporary education is no longer based on a 'chalk and talk' teaching method that is carried out in a traditional classroom. Contemporary learning requires a variety of settings, technology and opportunities for interaction. New learning spaces need to be flexible, both pedagogically and physically, to ensure that teachers can refine their approach and use information and communication technologies (ICT). Successful collaboration relies on appropriately designed physical spaces and consideration of their interrelationship (DEECD 2011, p. 23).

Innovative approaches to pedagogy are successful when the school community, teachers and students prepare for them before new buildings and spaces are designed.

Input from students and educators is necessary to initiate innovative pedagogies and support contemporary student learning in the design of new buildings and spaces. Pedagogical change requires time and teachers need to be given the professional skills, resources and tools to benefit from good design and change their practices.

COMMUNITY VISION, INTEGRATION AND SCHOOL CULTURE

The link between the built environment and learning outcomes relies on teacher–student relationships, the quality of the built and natural spaces and the school culture (DEECD 2011, p. 4). If learning spaces are designed to support physical, intellectual and emotional wellbeing then there are benefits for students and teachers.

Schools at their best function as the centre of the community and offer the opportunity to share facilities. Many schools and communities work together to share library facilities, sporting facilities, meeting spaces, performance spaces, holiday programs, and co-location of early learning centres and before and after-school

03

Each school belongs to a unique place and community

programs on school grounds. Close links between a school and its community can enhance student learning, public safety, health and economic wellbeing. Interconnectivity between the school and community can assist in culturally diverse and disadvantaged areas.

Schools are one of the few types of public building still being built in new communities. They help set the urban structure, create legibility and provide a landmark in the landscape. Good urban design integrates schools with surrounding communities through careful consideration of building form and scale; the location of access routes and surrounding infrastructure; and by considering the co-location of related uses and activities.

MASTERPLAN

An important starting point for any school is the design of a masterplan. A masterplan provides the spatial framework for an educational environment fully aligned with a school's mission and opportunities and constraints arising from its site. It helps coordinate diverse considerations into a strategic long-term plan for facilities.

A masterplan helps provide for staged delivery that is reliant on future funding, helps integration with community facilities and helps deal with potential changes in student numbers. It informs the outdoor spaces between buildings and the linkages and opportunities beyond the school.

03
Dandenong High School, Dandenong
Architect: Hayball
Landscape Architect: Outlines Landscape Architect
Photography: Peter Clarke

A COLLABORATIVE BRIEF

A carefully conceived, documented and thoroughly reviewed project brief is the most critical driver leading to high-quality design. The brief must outline the objectives and needs of the project, setting the design ambitions without prescribing a solution.

Ideally the brief is developed collaboratively between the design team, education policy makers, educators and students so that underlying assumptions throughout the design and development process are challenged. Schools that are developed in a collaborative partnership create better communities and more engaged students.

PROCUREMENT OF DESIGN SERVICES AND BUILDINGS

The procurement of a well-designed school starts with the appointment of a quality design and project team. Design teams are generally selected through expressions of interest (EOI) and requests for proposal (RFP). The design team includes architects, landscape architects and specialist consultants, such as heritage architects.

Procurement methods have a significant impact on the quality of the final building and its operation. Education projects are more commonly procured using a traditional lump-sum contract. While good design can be achieved with all procurement methods, some make it seriously challenging unless potential threats to design quality are understood and managed.

'Where the physical environment is purposefully designed to support particular values and beliefs it can become a "teacher" in itself.'

Mary Featherston
Purposeful Design for Learning – the New Pedagogy

04

INTERNAL LEARNING SPACES

All learning spaces should inspire students and promote learning as an activity. They support both collaboration and personalised learning.

Studies have found that the quality of educational environments has a profound effect on the performance, health, safety, self-esteem and wellbeing of students (Kube 2006). Learning spaces and settings should be designed to cater for a range of learning styles and group sizes. They should include areas for: collaboration and incubating ideas, group learning, presentation, specialised focus labs, project space and wet areas, display areas, student breakout, teacher meetings, reflective and quiet spaces, individual student home bases.

A key challenge is to design with and integrate existing 19th and 20th century buildings and to ensure ageing school facilities remain viable. For example, a new design may need to alter existing structure to allow for new learning spaces and widening existing corridors spaces. Design opportunities can also arise in delivering new forms of schools such as 'vertical schools' that provide landmarks and offer legibility in the community, capture views, ensure cross-ventilation, increase activity levels with stairs, encourage interaction and protect ground-floor play areas.

It is important that learning environments are designed for all students and teachers using universal design principles. Universal design recognizes that there is a wide spectrum of human abilities, including physical, perceptual and cognitive abilities as well as there being different ages, body sizes and shapes.

The design, flexibility, function and quality of furniture is another crucial factor in achieving pedagogical aims. It is important the designer is involved in the selection of furniture to ensure the learning spaces achieve their intended purpose. Furniture can help transform open flexible learning spaces and should be able to be moved by staff and students to optimise learning opportunities.

The choice of colour in learning areas can help students and teachers to stay focused, and can affect students' attention spans, eyestrain, work productivity and accuracy. A school's overall colour scheme should:
— support the function of the building and the tasks that are carried out in it
— complement the display of student work
— create positive emotional and physiological effects.

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Camberwell High School
Enterprise Centre, Camberwell
Architect: Hayball
Photography: Dianna Snape

EXTERNAL LEARNING ENVIRONMENT

Good design in a school's outdoor areas can support pedagogy through providing an extension of the indoor learning environment. Play as pedagogy is important as it influences the child's social, physical and cognitive skills. In primary schools it is important that a variety of spaces and activities encourage creative play. While fixed modular equipment has its place, moveable elements and loose materials are more effective in encouraging creative play. In secondary schools it is important that there is sufficient space for both genders and that it is supported by teacher supervision, adequate seating, equipment and materials (DEECD 2011, p. 27).

Students learn best when they are immersed in their immediate environment and are using all five senses. The careful design of outdoor learning spaces can instill an appreciation of the natural environment and bring about sensory, health and aesthetic benefits.

Well-designed landscapes can improve the functionality, durability and flexibility of open spaces, the thermal performance of buildings and offer shade and shelter in playgrounds.

'Contact with nature is vitally important in children's physical and mental development, and integrated outdoor educational areas can measurably enhance learning opportunities.'

Australian Institute of Landscape Architects
School landscapes national policy statement

IMPORTANT CONSIDERATIONS INCLUDE:

— conserving and respecting the natural vegetation, topography, ecology and heritage of the site

— evaluating the main entry points, nodes, linkages and gateways for students and the local community

— integrating the expertise of a landscape architect in the masterplanning or site planning process as early as possible so the key assets of the site are celebrated; and a hierarchy of open space is established to provide functional, flexible and durable landscapes to support positive learning environments

— designing the spaces between buildings to foster various modes of recreation, gathering and socialising

— establishing a consistent design intent between the architecture and the landscape

— demonstrating sustainable land management practices and landscape design that reflects the indigenous history of an area

— providing high-quality furniture in configurations that can support outdoor teaching

— integrating interpretive and educational opportunities within the landscape to facilitate active and passive outdoor learning

— providing ongoing maintenance of outdoor areas.

05
Bentleigh Secondary College, Meditation and Indigenous Cultural Centre, Bentleigh
Architect: dwp|suters
Landscape Architect: Wallbrink Landscape Architecture
Photography: Emma Cross

06
Horsham Special School, Horsham
Architect: Kneeler Design Architects
Landscape Architect: Mary Jeavons Landscape Architects
Photography: Silvi Glattaue

07
Birralee Primary School, Doncaster
Architect: Kerstin Thompson Architects
Landscape consultant: Simon Ellis
Photography: Derek Swalwell

FUTURE INNOVATION

The design of inspiring buildings requires an ability to adapt to educational and technological change. ICT can give schools the option of teaching children as individuals, in small groups and in large groups, and offer electronic links to other schools and facilities. This relies upon designing spaces in schools that are flexible and will facilitate various patterns of group working. The inevitable evolution of ICT will require future-proofed spaces and flexibility in classroom design to support teaching.

ICT can help to engage students, enhance personalised learning, develop technological literacy and promote inclusivity. High-speed internet access helps students to test and share their learning on a global scale.

'Schools should be designed with the student at the centre of every decision. Spaces should enable teachers, communities, curriculum and technology to come together as an integrated whole to meet the needs of all students in a flexible and sustainable way.'

Chris Keating, Executive Director
Infrastructure and Sustainability Division,
Department of Education and Early Childhood Development.

It is where children learn that matters, as much as what they learn

RELOCATABLES

In education, the reliance on relocatables presents challenges and opportunities for innovation. Relocatables make up a significant component of school infrastructure and accommodate a quarter to a third of students in some Australian states.

While they allow for shifting demographics, changing school size, natural disasters, changing pedagogy and accommodation in remote locations, they also need to be carefully considered and designed. The 'Future-proofing schools design ideas competition' in 2011 highlighted innovative solutions in the prefabrication, design and use of relocatables.

The paradox is that while relocatables are intended to be temporary, they often come to be semi-permanent or permanent within school grounds. The immediate challenge for the placement of relocatables is to ensure they are integrated with the school's masterplan. A considered design response might envisage a range of possibilities – a relocatable may enclose a courtyard, act as an extension of the permanent buildings or assist to define the edges of play spaces. Good design and master planning ensure that such elements are considered part of the overall design proposition rather than as merely utilitarian and thus marginalised on site.

POST-OCCUPANCY EVALUATION

A post-occupancy evaluation is crucial to encouraging good educational outcomes. It can identify successes and weaknesses as well as providing benchmarks to inform future projects.

A post-occupancy evaluation is a formal evaluation process where information is accurately recorded to produce an objective impression of the project and its design outcomes.

The evaluation should have a clear and specific goal. This may include delivery outcomes, safety and comfort, and operational performance data, as well as informing future procurement methods for project delivery and their impact on design outcomes.

08
Dandenong High School, Dandenong
Architect: Hayball
Landscape Architect: Outlines Landscape Architect
Photography: Peter Clarke

'Perhaps the most influential settings in a child's development are the places where they learn – schools, outdoor spaces and places of informal learning. Creating healthy and vibrant learning environments can have both physical and psychological benefits and can also function as sources of learning themselves – architecture as pedagogy about living sustainably within our environment.'

Professor Laura Lee
An integrated design strategy for
South Australia: building the future

09
Dallas Brooks Community Primary School, Dallas
Architect: McBride Charles Ryan
Landscape Architect: Outlines Landscape Architect
Photography: John Gollings

KEY STEPS   WHAT TO DO

01   Establish the design vision with the community. Each school is unique in terms of place, people, climate and philosophy.

02   Support the school to agree to their pedagogical approach/ philosophy to inform the design and learn from other school models.

03   Prepare a strong brief with clear design objectives.

04   Have a good procurement process to appoint the best designers, not just the familiar. Provide opportunities for emerging practices. Be aware that the procurement strategy will affect the design and define processes to protect design intent and quality.

05   Allow time for design and for participation in site planning and masterplanning within a design-led process.

06   Engage students and educators to achieve design integration.

07   Allow for change in principal and staff, educational approach and information technology by embedding a design intent document.

08   Design to reduce long-term maintenance costs and environmental impacts.

09   Create a separate budget for the end of the project to allow adaptations as students and teachers start to use the building.

10   Support teachers to use the new spaces.

11   Always complete a post-occupancy evaluation and continue to adapt the environment – things will continue to change.

12   Protect the budget for implementing landscape works and an ongoing maintenance program.

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GOOD DESIGN PRINCIPLES / VALUE

— Identity and context   Designing a school of which the students, educators and community can be proud and which also enhances neighbourhood amenity and urban structure

— Site plan   Making the best use of the site's natural and physical features, views and edges

— Landscape   Making outdoor spaces assets for learning, diverse in use and function, age-appropriate and implementing a landscape strategy that allows for larger trees to be established early followed by input from the school community

— Masterplan   Creating a clear hierarchy for the buildings and spaces between and capturing opportunities beyond the site boundary

— Buildings   Making form, mass and appearance work together

— Interiors   Creating excellent spaces for learning and teaching

— Pedagogy   Engaging the school community, educators and students in the design process

— Inspiring spaces   Beyond function, architecture should excite the imagination and create spaces that are: engaging, diverse and inclusive; culturally rich and poetic; and a great place to be

— Feeling safe   Creating a secure and welcoming place

— Universal design   Designing an inclusive built environment

— Long life, loose fit   Designing for whole-of-life, creating a school that can adapt and evolve in the future, integrate community use and is flexible in structure and plan

— Ecological sustainability   Designing for environmental, social and economic sustainability, efficient lifecycle, maintenance cost and resource usage

— Successful whole   Making a design that works in the round and for interstitial spaces.

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North Melbourne Primary School, North Melbourne
Architect: Workshop Architecture
Photography: John Gollings

11
Birralee Primary School, Doncaster
Architect: Kerstin Thompson Architects
Photography: Derek Swalwell

State Government Victoria