

Re-using existing buildings for new functions has many sustainable, cultural, economic and place-making advantages.

The process and decisions involved in creating good adaptive re-use projects need to be carefully considered and managed, with an engaged and creative consultant design team needed to ensure the potential of re-purposing buildings, structures, and spaces is achieved.

Purpose of this document

This guidance note provides background to adaptive re-use and advice for agencies, clients and consultant groups looking to embark on adaptive re-use projects, with reference to the Burra Charter and Practise Documents published by ICOMOS Australia. It has been written to explain the benefits of adaptive re-use in the contemporary built environment and aims to assist in establishing clear processes and principles to deliver a successful project. The guidance note seeks to:

- define adaptive re-use
- describe the principles of adaptive re-use
- outline how to deliver a successful project
- discuss project implementation
- identify key watch points
- present successful examples of adaptive re-use projects

The concept of adaptive re-use is simple – to re-use a building or structure for the purpose of giving it new life through a new function. In instances where the building or structure carries a heritage encumbrance, an understanding of the level of significance is required prior to any material impact commences.

This process often involves retro-fitting an existing facility to meet current building codes and legislation or modification of a building so it can accommodate the new uses. Adaptive re-use plays an important role in making good urban environments with the revitalisation of familiar built fabric and less energy consumed during construction than that of a new building.

South Australia has a rich variety of historic buildings, reflecting broad changes in culture and construction over the state's history. Nineteenth century stone and masonry buildings that survived into the twentieth century have proved to be well suited for re-use. Buildings of the interwar period were transitional in style and often employed new construction technology. This became more prevalent following the Second World War as a trend towards Modernism influenced a column and slab structural approach with non-structural facades. South Australia has a large quantity of quality buildings from this period, and many of these are prime for re-use.

What is adaptive

re-use?

The renewed interest in conservation and the heritage of our built environment today can be linked to a general public concern that post-war urban thinking and construction often resulted in the demolition of fine grain neighbourhoods and the loss of local character. Becoming a wider cultural concern in the 1970s and 80s, a new approach to conservation led to many significant public buildings being listed on a heritage register of places of interest. Today, thousands of heritage places are on many registers protecting much of the historic building stock in Australia.

Adaptive re-use gives new life to a site, rather than seeking to freeze it at a particular moment in time, it explores the options that lie between the extremes of demolition or turning a site into a museum. Adding a new layer without erasing earlier layers, an adaptive reuse project becomes part of the long history of the site. It is another stage, not the final outcome.

The growth in adaptive re-use is more likely to occur in buildings and structures that are not heritage-listed, those facilities that are marginal in straight heritage value, or are not yet of an age to be recognised as of heritage interest. For example factories, industrial buildings or large manufacturing plants, such as Tonsley Park in South Australia, would not typically be considered as having architectural merit. However, in such building stock the advantages of adaptive re-use can be linked to memory and cultural value rather than built heritage. These buildings have typically helped to form the identity of a place – often acting as a landmark or a way to describe, or to know that place. The Burra Charter is a document that has much relevance to structures of cultural significance as well as places of intangible community value, irrespective of their recognition in legislation. The Burra Charter Process Steps in planning for and managing a place of cultural significance is a useful tool in determining the level of material impact a structure may sustain before losing its inherent cultural significance through partial demolition or adaptation.

Significant advantages also exist for adaptive re-use projects in terms of the planning environment. Any retained urban fabric can assist in dealing with change and impacts in both an immediate and wider context – with most planning controls seeking change in a manner consistent with existing character. Adaptive re-use projects, even those where buildings and fabric is considerably altered, offer an anchor in the planning process that deals with change, while still allow for modification, extension and change of use.

During the 1980s and 90s many nineteenth century warehouses were converted into residential dwellings, creating a dominate type of adaptive re-use that remodelled robust building fabric into individual dwellings. There have been, however, many public adaptive re-use projects particularly in the last ten years that have created public buildings and spaces from older, sometimes heritage-protected buildings. These have often been industrial in their former use, such as a railway workshop becoming a performance facility. In this way, adaptive re-use projects speak to a wider cultural shift – from an industrial and manufacturing based economy to one centred around services, education and cultural life. There has been a shift in the type of heritage being considered for adaptive re-use projects. The closure of large, generally industrial areas, has created opportunities for retro-fitting buildings with uses very different to their initial purpose.

Principles of adaptive

re-use

Memory and place

A building, structure or landscape is more than the physical fabric – even if that fabric is ornate, of aesthetic value or highly crafted. The years of use any aged building has had represents a set of cultural and personal memories of its life and that, which happen in and around it. Cultural heritage is different to architectural heritage, and both are important. An older building can be an unremarkable building for its time, but the cultural value can sit in its original use, its history and changes of use. By retaining, rethinking and reworking an existing building this history can continue in physical form, and be added to. The value of memory serves to create a sense of place. The character of a place is hard to create, and so to draw from the past, even the relatively recent past, can help form identity and belonging for a community

Planning controls

Planning systems control both physical form and use of spaces and building stock. Many statutory planning regimes aim to protect heritage fabric through the identification of particular buildings as significant and or contributory to identified precincts. They typically seek to direct new building works to relate to, or conform to ideas of character that have been established through older (typically pre-war) building stock. This can range from housing types, such as weatherboard cottages, or larger types such as brick factories. Outcomes where both the new and old fabric are synthesised tend to be considered favourably by the different assessment arms of planning – built form, urban design and heritage. Issues around change of use, at the heart of adaptive re-use, are also controlled by planning schemes. Zoning typically controls use, through broad classifications of industrial, commercial/business or residential.

Environmental Sustainability

In terms of environmental sustainability, the simple act of re-using buildings significantly reduces the energy consumed during construction compared with demolition and then the creation of a new building. The embodied energy in the existing building (the energy taken to make the building and all materials used) is not lost. While most adaptive re-use projects involve some new building work, the amount of energy consumed and building material used is significantly less than

that of a new building. The cost of energy in the future will only continue to escalate, making adaptive re-use a more attractive financial proposition in an addition to its well-established heritage, authenticity and place-making benefits.

The Green Building Council of Australia's Green Star rating tool has an Innovation Challenge that aims to encourage the re-use and uptake of heritage listed buildings and rewards those that celebrate the heritage value of the asset.

Social Sustainability

Maintaining heritage and contributory building stock and familiar environments helps to maintain evident links to the past. The broad aims of social sustainability can be enhanced through adaptive re-use projects. By not breaking evident links to the past, the former lives of buildings and places, cohesive social bridges can be maintained and enhanced. Entirely new built environments can appear alien to those who have been involved in some way with the former life of a place. Maintaining these links while encouraging diversity is achieved through adaptive re-use projects that layer new and old meanings onto each other. The past should be embraced while addressing current and future needs through design and integration of contemporary social standards, particularly those around equity. Core social values such as pride, memory and participation can all be enhanced by careful consideration of adaptive re-use strategies.

Efficiency

The business case for an adaptive re-use project, over a demolition and new build process, can be considerably in favour of the adaptive re-use approach. While a high degree of complexity exists in both new and re-use projects, understanding the existing condition and proposed design solutions, the net overall construction cost for an adaptive re-use project can be considerably less. It should be noted that initial design and consultant costs may be higher for adaptive re-use projects to account for this high degree of complexity and research often required in innovative solutions to constraint and compliance issues.

The major cost saving in an adaptive re-use project is formed through value being placed in the existing fabric, rather than just in land alone. This value is both in floor space that can

**Conceiving, designing and
delivering a sustainable
built environment
represents a significant
responsibility for all of us.
Our decisions today will
define the 'heritage of the
future.'**

— *Professor Laura Lee, former Adelaide Thinker in Residence.*

used without new construction, and also the value that lies in existing fabric itself – the character and narrative embedded within can be borrowed from, and associated with, new use. This can in return increase real end value of the project.

Authenticity

A major strength of an adaptive re-use approach is the benefit brought by the idea and consideration of authenticity. Many entirely new environments, where exterior spaces, streets and buildings are made new – lack a narrative and identity. In almost all sites, some form of prior occupation has occurred – either indigenous, rural, urban, industrial or all of these – there is often a history that can be drawn from in making a place real and authentic. Those that might seem inauthentic are where ideas of place, names, narratives are imported without a link to the former uses and spaces. The Burra Charter discusses the retention and introduction of new uses to existing significant environments. In doing so, there is an implied expectation of authenticity in the renewed space to continue to convey the original narrative of the site.

Whatever existing fabric remains, it is often prudent to draw from it, express it, and if possible occupy - as is the case with retained buildings. Where all existing fabric, including vegetation, has been removed, a kind of crisis of authenticity is created, one that can only be re-created with the passage of time, often decades. In such instances where irreversible significant fabric has been lost, the Burra Charter directs the consultant team to historical research and documentation to inform new ways of continuing the site's interpretation through future generations.

Re-purposed and re-occupied older buildings typically offer a greater sense of authenticity than new ones. This is not always critical, for example in creation of car park or perhaps contemporary workspaces, but in many uses the sense of a place having a history and memory gives it a head start in cultural and economic value.

The many heritage places will continue to contribute to the character and vitality of our cities and towns by being well used, well maintained, conserved or adaptively reused, and complemented by contemporary architecture that will form the heritage of tomorrow.

Delivering a successful project

In forming an adaptive re-use project, there are several key ways to help ensure a successful project that meets and exceeds the expectations of client, owner, users and the wider public.

Create a collaborative and multi-disciplinary design team

A project design team needs to be put together at the earliest stage in the life of a project, and not after key decisions have been made, such as defining program, location, economic strategies and spatial planning. These early stages need creative design thinking as much as the design of eventual buildings and spaces.

A design team should consist of not just as architects and landscape architects, but should include other consultants such as Heritage Consultants, building surveyors, structural engineers, builders, environmental scientists, quantity surveyors, economists, planning consultants, cost consultants, artists, and others.

Project formation workshops offer a creative environment in which to garner knowledge and develop a strategy for the project. These are typically held with all key people involved, design team, consultants, and private and public stakeholders. The design team can also undertake its own multi-disciplinary workshops to test lateral ideas in an environment where broad range thinking is welcomed.

Engage with key stakeholders

Both well-loved heritage buildings and former industrial buildings tend to create strong views from the communities that surrounds them. The community, including those who were involved in the building's former life and those who live and work around it, will bring a greater sense of involvement and ownership in the project.

This process needs to be in addition to development application processes that give third party rights to have a say in the planning process. As a general rule, communities

engaged early and authentically in a project are more likely to support the required process later on.

Engagement is a process that has to be both genuine and well-managed, and consultants who understand this area should be involved.

Learn from other projects

Any good project should involve a process of looking both locally and further afield to precedents, to learn from others. Often those involved, either at a consultant or client level are keen to share learnings either directly or through publication or documentation of the project. Visits to similar projects are a good way of obtaining direct feedback from users of a facility and establish successful benchmarking.

Seek creative solutions to constraints that form the boundaries of any project. While budget is often a key constraint, the uses of the term constraint here applies more to the regulatory requirements that all projects operate within. The strategy used should seek to work creatively within these – this can only come from a detailed understanding of associated codes, standards, heritage listing and regulations.

Make the most of existing conditions

Understanding and then harnessing the latent quality of an existing structure, space or building is at the core of successful adaptive re-use projects. Successful adaptive re-use projects have intelligently sought, often through very careful study of the existing fabric, an approach that makes the most of the existing building. This approach can directly feed into a design methodology but can also inform how spaces are used.

The use of original drawings, and then those made for subsequent alterations and additions should be obtained in detail and to the fullest extent possible (including primary sources). These documents are essential in understanding the existing condition, and these along with multiple site visits and extensive new photographic records will assist in forming a comprehensive three-dimensional understanding of what the current condition actually is. Buildings often reveal themselves during modifications and new

works, and limiting the amount of surprise in the latent conditions will increase the design understanding of the project and reduce cost risk during construction. Problems will arise during the modification process, so the more knowledge acquired early on, the better.

A comprehensive set of digital existing conditions drawings should be generated following the detailed research into the existing fabric. These should be shared and ideally be contributed to by the whole design team. At the end of the works, 'As-built' drawings, where all changes made including those during construction are shown, should be archived with both users, owners and relevant authorities who will act as future sources for the new existing conditions documents.

Good design does not just happen: it is purposefully and carefully undertaken by skilled practitioners, valued by the client, and needs to be protected through delivery of the project.

— *Government as Smart Client, Office of the Victorian Government Architect, 2013.*

Time-based thinking

All projects take place over time, and ones for the built environment over a considerable period - in design, construction and occupation. A large project is likely to have some element of staging, in both decanting of buildings still occupied and in terms of staged completion and re-occupation. There are strategies that allow a time based program to create opportunities for occupation early and possibly temporarily during the life of the project. One example might be a limited time use that occurs for one or two years during the formation and design of the project, such as temporary exhibition space. This opportunity in both staging and temporary uses allow for less 'downtime' of a building and also greater potential for financial return. Together, good cost and planning consultants will be able to advise on the economic benefit in real terms of such alternative uses.

Maintain quality throughout the project

Quality is central to the process, in the design of the works and in the construction of the built outcome. Consistency of endeavour is needed to ensure quality, and this can be aided by maintaining key people on the project throughout its duration. Quality of process comes through the design of the strategy used in the project, which for an adaptive re-use project focuses around the qualities of the existing fabric and the potential of the site and the regulatory constraints offer in terms of design.

Life-cycle costing

Understanding the financial conditions in which a project is created is essential in order to realise its full potential. Costing of projects is the traditional model of either forming a budget, or testing against one. But financial and economic design is more than costing – it should be the subject of creative thinking. This can take the form of research into different funding models and partnerships and into how a project becomes viable. It can also take the form of costing alternative strategies dynamically in terms of direct construction cost but also in terms of life cycle costing.

Project Implementation

Standards and legislation

The core economic advantage of re-use is not having to fund the construction of a new building. There can however be considerable costs in upgrading an existing building to meet current structural and other building codes. Compliance is a key area and this has seen considerable growth in recent years in terms of awareness and implementation. This covers everything from the height of balustrading to level access to all areas, as is the case in all buildings now except inside private dwellings. The extent to which an existing building needs to be upgraded to meet requirements as-new depends on the extent of works being performed and uses involved. This is typically resolved as a percentage of the modified or new area. Operating intelligently within these parameters, as well as others, can control cost involved in upgrades while still providing excellent outcomes. Such examples include the fire-rating of existing structure and the upgrading of an existing structure to meet current earthquake codes.

The growth in recent years toward broader economic analysis of projects helps the economic model for adaptive reuse. The concept of Life Cycle Costing (LCC) is now often used in significant projects, seeking to outline all the costs a project would face over an agreed life span. This considers maintenance, modification and energy used in running buildings. In adaptive re-use projects, by limiting the capital cost of the initial construction, project budgets can more freely accommodate more efficient, lower maintenance and lower energy systems that ultimately bring the total life cost down.

Contamination and demolition

Faced by all solutions to a site, either retention or demolition, it is important when considering the full economic case that the cost of doing nothing, or demolition is considered. There are different strategies for dealing with both in-ground and in-building contamination, with optimised treatment and enclosure being potential available. These more efficient models of addressing hazardous material issues are the result of strong engagement with specialist environmental engineers. Creative solutions can be found through comprehensive study and testing of existing locations to determine the extent of the affected area three-dimensionally. New technologies in scanning, mapping and

surveying assist this process but quality and comprehensive advice needs to drive this. In doing so, potentially prohibitive costs can be extensively reduced to increase viability.

Budgeting and cost control

When budgeting for an adaptive re-use project, the cost consultant or project manager should be aware of the different nature a re-use project has over a new build project. This takes the form of higher consultant costs for an equivalent budget. In addition the allowance for contingencies, particularly during construction should be higher. While every effort should be made to understand the existing conditions, existing buildings offer a higher degree of complexity throughout, particularly through informal modifications made over many years. Allowances for construction contingencies should be appropriately set at a significantly higher rate than for a new build project where unexpected elements are only revealed during construction.

Procurement methods

Procurement methods for adaptive re-use projects face the same challenges as other types of projects. The process of procurement of a well-designed building starts with the appointment of a quality design team. From there, procurement refers to the management of the construction of a building to its completion. It involves not just the contractual method used, but also the execution of a built project from idea to delivery and on to operation.

The method by which a building project is procured has a significant impact on the quality of the final building. While good design can be achieved with all procurement methods, some make it challenging if the potential threats to design quality are not understood or well managed.

For public work, traditional forms of procurement such as lump sum contract, with direct appointment of consultants by the client, is often seen as the best way of maintaining design quality throughout construction. Lump sum arrangements require ample contingencies to accommodate unpredictable or unknown issues; otherwise likely variations to the contract price will result in an increase to the lump sum as the project is under construction.

Alternative forms of procurement such as design and construct, with the design team novated to the contractor, offer time advantages for clients and opportunities for innovation, but present potential risks in term of design and build quality. These risks require careful management with agreed performance requirements around design quality. Adaptive re-use projects are often complex and subject to potential cost overruns when dealing with existing fabric, so these should be considered when choosing a procurement method.

All types of procurement have benefits and risks so the appropriate route must be given careful consideration at the beginning of any project and management systems put in place from the outset to ensure the best possible outcome.

For further reference, the ODASA guidance note on Project Formation has been written to help clients to successfully complete their construction projects. It explains how clients from the public, private and voluntary sectors along with their design and construction teams can:

- set up the correct process and procedures for the project structure
- choose the most suitable people to work with
- identify the most suitable procurement route
- manage the budget to achieve a quality solution
- achieve excellence in design
- identify and avoid potential pitfalls
- locate relevant sources of information and support.

**The adaptive re-use of the
former Mitsubishi's eight
hectare Main Assembly
Building respects the
historical character of
Tonsley and a commitment
to energy efficiency.
The building will become
a thriving innovation
precinct meeting the
broad range of needs
of workers, students,
residents and visitors to
the site.**

— *tonsley.com Main Assembly Building, Renewal SA, Government of South Australia, 2013.*

Watchpoints

Blend of skills

Not all design consultants seek to pursue adaptive re-use as a viable option for a project. The degree of complexity is significantly higher than a new build project, and the technical difficulty around compliance can create large amounts of potential unpaid work for consultants and others involved. It should therefore be understood that consultants working on adaptive re-use projects should be paid at a rate appropriate to the complexity of a project, and that clients and project managers understand that services for an adaptive reuse project and new build project of the same value are vastly different in terms of amount of work needed. It is not recommended that clients and project managers select design team consultants through a lowest fee method, but rather a selection based on proposed methodology and design of the project team and their ability to form relationships with stakeholders and develop a deep understanding of the project and client. The use of cross-generational teams can encourage a strong combination of experience and innovation, both of which can assist project success.

Extent of adaptation

One particular approach to the use of existing buildings can be noted for its inherent problems – the method of retention of facades only. This is when an entirely new building, with floor levels typically different to those of the original, is located behind the original facades, which are the only retained fabric. It has been the case where entirely removing the building and replacing with a well designed new building is preferable to this approach of retaining facades only. In reality, this approach can take far longer, have large detrimental effect to the surrounding streets and context during construction and involve large amounts of additional energy, material, labour and cost than an adaptive re-use project.

Servicing

Building Services, predominately heating and cooling, need to be carefully considered when undertaking an adaptive re-use project. The implications around re-servicing the building should be carefully considered and questioned. If handled poorly, considerable cost implications and poor design outcomes may occur. Consideration around comfort,

use and energy compliance should be factors. Thinking of an existing building as an empty shell version of a new building awaiting fit-out is not the advised approach. As more generally is the case, the existing building can suggest solutions - a smart servicing strategy could seek to heat and cool not all spaces; some areas may be better to be technically 'outside' from both compliance and comfort points of view. This can also have benefits in terms of exposing original building elements in transitional areas. New standards around energy modelling (BCA/NCC Section J) are best met with modelled solutions that can trade-off requirements across a project.

Governance

Adaptive re-use can also exist at the large scale; in Adelaide projects such as the revitalisation of the East End have sought to bring urban renewal through the use of existing infrastructure and buildings. Adelaide's East End precinct's current success is strongly linked to its long-term asset management process, which began over 20 years ago. A strong identity has been developed around trade and activity distinct to other parts of the centre of Adelaide. Playing host to the Adelaide Fringe Festival has been part of this place-making, and the role temporary events play in shaping identity should be considered in all larger scale projects. The inner suburb of Bowden has been the subject of a major large-scale urban re-use project, both precincts demonstrate the importance of a clear long term vision championed by a single private developer and government agency respectively.

Examples of adaptive re-use projects

Several projects in recent years have demonstrated intelligent and considered approaches to adaptive re-use.

St Peters Precinct Redevelopment, Adelaide

This former town hall was expertly converted into a library and heritage centre, using the existing building with added new elements clearly defined. The project was designed by Phillips and Pilkington architects in association with Flightpath Architects and included a new mezzanine space that allowed greater appreciation of fine original features on ceilings. A new lift resolves access requirements as do new carefully considered landscape elements designed by Oxigen.



Adelaide's East End

Driven by the departure of the East End's produce market, this mainly private sector revitalisation of the East End brought new life and living to this part of Adelaide. Led by developers such as the Marus Group and architects Tectvs, a process of incremental renewal of existing buildings commenced for mainly restaurant tenants initially. Existing structures were revealed and streetscapes largely retained. New residential developments were typically set back and new street buildings such as the Cinema Nova were both contextual and contemporary and scaled to the street.

Bowden, Adelaide

Using former industrial sites particularly the Clipsal factory, this project seeks to retain two key original manufacturing buildings along with the original street network. New residential buildings from different developers and architects are proposed with this street network, aimed at preventing a homogenous condition. Original factory buildings are proposed to be re-used for retail. The development of this large site is guided by a good master planning approach and robust design guidelines.



Paddington Reservoir Gardens, Sydney

This project by Tonkin Zulaikha Greer is a new urban park that makes a ruined former reservoir accessible for the public to enjoy and explore. Developed by the City of Sydney, the park reveals and interprets part of Sydney's nineteenth-century water infrastructure in new, unexpected and engaging ways. It plays an important urban role, providing open space adjacent to Paddington's civic precinct and contributing to the City of Sydney's Paddington Conservation Area.



Carriageworks Arts Centre, Sydney

Undertaken by a team lead by Tonkin Zulaikha Greer, this project converted a very large former train carriage workshop into a contemporary performing arts centre. The project delivered a complex set of new uses, centred around acoustically separated performance halls. Central to the scheme, as with many good adaptive re-use projects, was a deep understanding of the existing structure, which with creative input from fire engineers was able to continue to be expressed and revealed. The result is central to good adaptive projects – both the former space and its uses are remembered, but new layer of insertions is evident. Large flexible use circulation spaces sit between new insertions, making the most of the original condition, with top light halls showing original fabric including original rail tracks embed into the concrete slab floor. Structural elements removed in the area were redeployed in the scheme, such as some large trusses now forming part of an entrance canopy.

Fennell Street, Port Melbourne

The former Red Tulip Easter Egg factory is a conversion project that created nine mixed use tenancies. This importantly including continuing industrial use in the form of brewery, and included other workplaces such as office space for clothing manufacturing Globe and film production studios. The converted spaces, which feature extensive expression of the original roof, have also spilled onto the street with several small tenancies includes cafes and hairdressers improving the street condition while maintaining the low level brick building onto the street. The project is of particular note as it is a private sector enterprise and made possible only due to the low cost base of following an adaptive re-use strategy. The project sits within an area of radical proposed change in Fishermans Bend in Melbourne, where adaptive re-use solutions can provide strong alternates to new residential towers.

River Studios, Melbourne

This project by Breathe Architecture is a warehouse now converted into artist studios

for the City of Melbourne and the group Creative Spaces. The project was based on a ten year lease arrangement with the owner. The open space warehouse was dividing into individual and group artist studio spaces using a combination of plywood and cyclone fencing, allowing for customisation by users.

The project providing much needed subsidised artist studio space with the local government area of the City of Melbourne, space which has was formerly available in the central city but has now become too expensive. Compliance upgrades were made cost efficiently; with a new lift providing equal access. The spaces are intensely used and the project has reenergised a declining area with productive activity.

Tonsley Park, Adelaide

The adaptive re-use of the former Mitsubishi's eight hectare Main Assembly Building (MAB) is a key feature of the Tonsley redevelopment being undertaken by Renewal SA. The vision for Tonsley is to achieve a distinctive built form, unlike any other, through design excellence. The incorporation of the MAB reflects the historical character of Tonsley and a commitment to energy efficiency. It will link indoor and outdoor open spaces and feature internal forests, exhibition and meeting spaces together with eating, lounge areas and Wi-Fi hotspots. Currently under development, the MAB will provide flexible, modular and pod tenancies for a wide variety of commercial, retail and recreational uses. The adaptive re-use of existing built fabric within Tonsley is guided by a comprehensive set of Urban Design Protocols and Guidelines which have been developed by a team of design consultants with a broad range of professional skills.



**Published in 2014 by
the Office for Design
and Architecture SA
(ODASA)**

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