

So what does this have to do with achieving the low opening forces of AS1428.1 and the safe motion of the door when doorway contains a person with a disability. A lot.

The amount of force applied to open the door converts through the efficiency of the oil flow through the various porting chambers to power to not only the closing of the door but control the speed of the door during the various parts of the closing cycle. The efficiency of the oil flow from one side of the piston to the other will, depending on the make and material of the door closer, operate at somewhere between 50% and 80% efficiency. At 80% efficiency, 20N of opening force will convert to approximately 16N of closing power. At 50%, you are looking at about 10N ie., the door most likely will reopen during the closing cycle by a gust of wind, it certainly will not close.

The modern door closer usually comes with an adjustable spring ie., you can wind the spring up to make the door harder to open thus increasing

the power available to close the door. This means that one door closer can be used throughout the building with the springs adjusted to suit the width of the door. Also, some door closer manufacturers require the spring to be wound up higher where increased stack or wind pressures are experienced. Of course, winding the spring up means that the 20N opening forces required by AS1428.1:2009 most likely won't be achieved, if this is being done purely to control the door due to wind or stack pressures. The hinges act as a fulcrum, of course, so the further out from the fulcrum that the opening force can be applied, the less opening force is required to open the door. AS1428.1:2009 requires the 20N to be applied at the door handle, so the further away from the hinge the door handle can be located the less force is required to open the door. If a door closer is wound to size 4 and the door handle is 800mm from the hinge, more force will be required to open the door than would be required where the door handle is 1000mm from the hinge stile or fulcrum.



*Dorma TS83 Door Closer –
Aluminium Alloy*

Most aluminum alloy door closers operate at around 50 to 60% efficiency. They cannot achieve the higher efficiencies because the outer case material of the main chamber lacks the inherent strength to contain the pressure of the oil as it flows from one side to the other ie., without some relief mechanism the door closer would just explode on the door. These relief mechanisms are

known as pressure relief valves sometimes also called back check relief valves. When activated these valves open the porting chamber so that the oil flows from one side to the other without any control or restriction. This would occur, for example, when the door panel experiences massive differences in stack pressures from one side of the door to the other. The intention is to

Overcoming a Heritage Door



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BACKGROUND

Often a door in a heritage listed place can provide a challenge to an accessible solution. As a main entry it is required to be accessible. Despite potential difficulties, there are usually solutions. This article outlines responsibilities under both heritage and access legislation and provides some solutions which could be applied to solve a particular issue.

INTRODUCTION

Dignified access for people with disabilities should be provided to, and within heritage places. However, many heritage buildings offer specific challenges that need to be overcome when providing access for all. Any proposal for change to a heritage place should be informed by, and tested against, a thorough understanding of the impact on significance. In many cases heritage, planning and building permits will be required

when undertaking changes to a heritage place to provide access for all.

All buildings, including heritage places, are subject to the requirements of the Federal *Disability Discrimination Act 1992* (DDA) and complementary state-based legislation such as the *NSW Anti-Discrimination Act 1977*. The DDA applies whether buildings are in public or private ownership (excluding private residences). This Act requires that people with disabilities be given an equal opportunity to access premises without discrimination unless a case of unjustifiable hardship exists.

Should heritage buildings undergo change, then the requirements of the National Construction Code (NCC) Volumes 1 and 2 Building Code of Australia (BCA) (herein referred to as the BCA), will apply to the new work and this includes a number of specific provisions for people with disabilities. There is also a requirement under the Premises Standards (see below) for the affected part (the access way from the new work to and including the main pedestrian entry) to also comply with the BCA requirements for access for people with a disability. Any change to a heritage building needs to consider the impact on the heritage values.

LEGISLATION

Disability Discrimination Act 1992 (DDA)

Under Section 23 of the DDA it is unlawful to discriminate against a person on the basis of a disability.

The DDA is a complaint based Act. It requires people who consider themselves discriminated against to lodge a complaint with the Australian Human Rights Commission (AHRC). The right to access is not absolute in law and the DDA

includes provision in Section 11 whereby a person can argue that to implement the provisions of the DDA would cause them unjustifiable hardship. The grounds for unjustifiable hardship can include impacts on heritage buildings. The Federal Courts would decide on whether a defendant would suffer unjustifiable hardship if required to provide access.

Premises Standards

The Disability (Access to Premises – Buildings) Standard 2010 (referred to on the Premises Standards) provides details of the design and construction required for building work to meet the obligations of the DDA and parallels the BCA for the areas covered by the BCA.

The Premises Standards also includes details of what could constitute unjustifiable hardship and Clause 4.1 I includes as one of the possible reasons for unjustifiable hardship as “if detriment involves loss of heritage significance – the extent to which the heritage features of the building are essential, or merely incidental, to the heritage significance of the building.”

Building Code of Australia (BCA)

Whenever new work is undertaken it must meet the requirements of the BCA and this includes several specific provisions for people with disabilities. In particular, the following clauses relate to disabled access to main entrances.

D3 - General Requirements and Access

As the BCA is not applied retrospectively, there is no requirement to upgrade a building to current BCA with regard to access for people with disabilities if no new work is proposed. In NSW the BCA is applied through the *Environmental Planning and Assessment Act 1979*.



Another process is that any applicant for construction certificate can make an application to the Principal Certifying Authority (PCA) to consider an alternative that may be addressed by any other means, such as an Performance Solution under the BCA.

Application of the Premises Standards/BCA to heritage buildings

Both the Premises Standards and the BCA are applicable to any new building work in heritage and other existing buildings. In addition, the Premises Standards also include requirements for the 'affected part' of existing buildings, as mentioned above.

Application of the 'affected part' requirements often form the basis of consideration of the unjustifiable hardship provisions of the Premises Standards.

There is currently no process to determine unjustifiable hardship other than a court decision arising from a complaint. The basis of a decision is the need to demonstrate why it would impose unjustifiable hardship to comply with the NCC.

Heritage Council of NSW

The Heritage Council of NSW has a Technical Conservation Committee that can provide free technical advice to decision makers and building owners on situations that include provisions for fire protection, access for people with disabilities or the integration of building services into heritage buildings. Similar advisory committees may exist in other states/territories.

Heritage

Heritage legislation at Commonwealth, State and Territory or local level seeks to conserve and protect the heritage significance or heritage values of a place. Significance is expressed in a Statement of Significance which describes the value of the place to the community and includes a range of criteria embodying aesthetic, historic, scientific and social values.

The guiding document for conservation practice is the Australia ICOMOS *Charter for Places of Cultural Significance* (The Burra Charter). The Burra Charter defines conservation as including all the

processes of looking after a place: maintenance, preservation, restoration, reconstruction and adaptation. One of the guiding principles of the Burra Charter is a cautious approach of changing as much as necessary but as little as possible (Article 3). This approach should guide any works to provide access for people with disabilities.

The heritage values can be found in a range of possible documents such as:

- a Conservation (or Heritage) management plan
- a heritage assessment report
- a State or Federal Heritage inventory sheet
- a Local Government Heritage report or register
- a non-government heritage inventory such as those with the National Trust or Australian Institute of Architects.

GUIDING PRINCIPLES

The objective is to achieve maximum access with minimal impact on the heritage values while complying with relevant heritage, planning and building legislation and adopting the sound conservation philosophy contained in the Burra Charter.

PROCESS

The recommended process for resolving and implementing improvements for access to a heritage place is to:

- a. Determine the significance of the heritage building or place and identify the elements of significance.
- b. Undertake an access audit, using an access consultant if necessary, to determine the place's existing and required level of accessibility to: the principal public entry, all doors of the building.
- c. Develop accessibility options that maximises access but has the minimum impact on heritage significance.
- d. Establish a preferred solution and prepare an action or implementation plan.
- e. Obtain appropriate heritage, planning and building permits prior to implementing the action required.

SOLUTIONS

There is no one solution to a problem. Different heritage buildings will have varying levels of significance, and elements within a building differ in significance. There may be a range of possible solutions to optimising access for all. Each case needs to be assessed on its own merits and the best set of solutions found.

Narrow Doors

Automate both doors by adding a door closer to each leaf and an adjacent push button control that opens both doors together and therefore provided a wider clear passage.

Joining both door leaves together to form one larger door. This will require some adjustment to hardware and usually repositioning it but with care and selection it can be made to work and respect the heritage values.

Removal of original doors and adding a new door to the overall opening is sometimes possible. The original door will normally be required to be stored for future reinstallation.

Small Differences

A door that is just less than the required clear width can gain up to 30mm with an offset hinge. Parliament hinges can also increase an opening but usually rely on the door opening 180° for maximum benefit.

A new door within an existing reveal after removing the original door can open up the full width of the original door opening which may gain valuable millimetres for compliance.

Tight Circulation / Deep Recesses

This is usually best overcome by automation of doors which can be by a range of activation methods including space sensor, push button, motion sensor button, pressure mats and the like.

A door that opens away from the user can be solved by several methods some of which may require performance solutions. One benefit if the door opens away from the user is that if it can be pushed to open then the circulation requirements

of engaging with a latch are overcome. Methods to achieve this include:

- Roller catch
- Panic Bar
- Closer with no hardware other than a push plate.

It is interesting to note that on the approach side of a door that opens away from the user USA, NZ, UK all have space requirements to access doors less than Australia. There is evidence available that reduced dimensions still provide acceptable access.

A variation of this is a double swing door (or pivot hinge) or a retractable door stop as this means that whatever side a user approaches then the door swings away from the user.

Door Replacement

This can be possible but may involve removal of the door and leave just an opening. Usually the door will be required to be stored and reinstated if/when required.

Door Hardware

Historically knobs were more widely used than levers but often levers can be fitted to existing hardware (knob is then retained for future reinstallation)

There is a range of “heritage” door hardware and something sympathetic to the original can be selected.

There are possibilities of special hardware that can clamp a lever over a knob to make it comply. Flush bolts, barrel and the like that go into heads and sills are best avoided as they are normally difficult to reach. However they can be made redundant by some methods mentioned above (eg. Automation) or can be extended to make them reachable.

Shift Entry

This is always possible so original doors are preserved and a new accessible entry provided.

Significance Of Doors And Hardware

Most main entrances, if original, are significant elements of a building and therefore heritage values need to be considered.

Within a building most doors are less significant unless they are to key rooms/spaces therefore the impact of change is likely to be less.

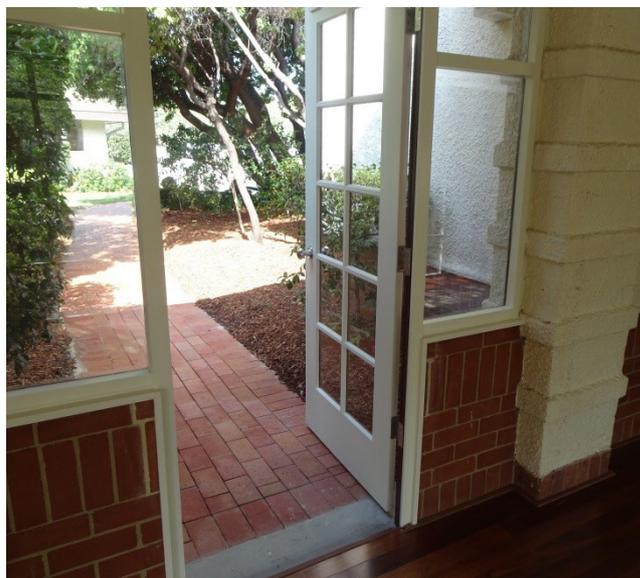
Door hardware is usually less significant unless specially designed.

CONCLUSION

The challenge is always there to solve access to heritage places including doors but with care and consideration of issues and options they can be overcome and successful outcomes can be achieved.



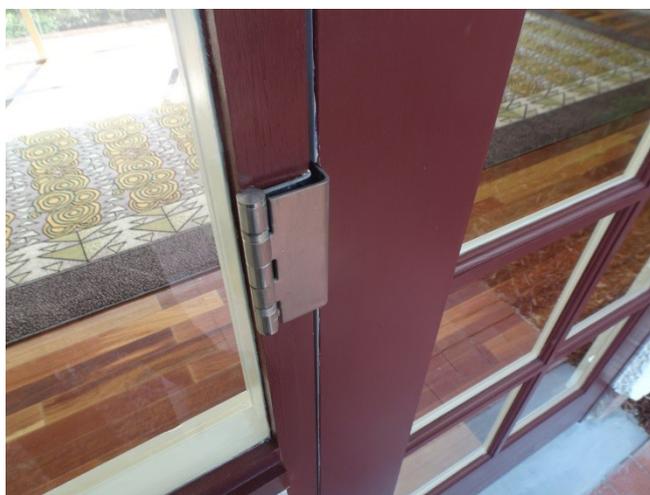
Offset hinges, Hyatt Hotel, Canberra



Offset hinges, Hyatt Hotel, Canberra



Closer on both narrow double doors with push button operation, Ainslie Public School, Canberra



Offset hinges Hyatt Hotel, Canberra



'Wave to Open' motion sensor button - Port Authority Bus Terminal, on 8th Ave at 42nd Street, Midtown Manhattan

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