



2019 ACAA Access Conference

14th – 16th August 2019

NCC Performance Verification Method

By Mark Relf

Preparing a Professional Report

By Anita Harrop and Jen Barling

Considerations for Robust Housing

By Anna Fleming and Bruce Bromley

Food for thought

By Howard Moutrie



by Mark Relf AM

President of the Association of Consultants in Access Australia

On the eve of the Access 2019 conference the management committee and event organisers are working hard putting the final touches to the program, exhibition, conference dinner and a 100 other tasks to bring together a memorable event.

Registrations are very strong and we should record the highest attendance figures ever for an ACAA event. The Wednesday workshop on Cockatoo Island is sold out and will provide a unique experience for delegates.

The program has something for everyone so if you have not booked, go to: accessconference.com.au

This edition of Access Insight marks the 2nd anniversary of the new format and the editor and authors hope you enjoy this edition as well, which is collection of topics covering a wide range of issues from; what makes a robust house to report writing, changing places and more.

NCC 2019 VERIFICATION METHODS

Since the last edition of Access Insight the Australian Building Codes Board (ABCB) has held a webinar hosting various representatives across a wide range of consulting professionals to continue discussing the development of "suitable metrics" to quantifying and support the Verification Methods in NCC 2019.

While some professions who rely on mathematical equations of one sort or another to justify a design are relatively comfortable with developing suitable metrics it is equally obvious that professions that work with principles of equity, amenity and what if scenarios and less comfortable devising suitable metrics and this includes ACAA.

Nonetheless, we are committed to developing workable solutions that will enable appropriate outcomes in the pursuit of an accessible built environment that embraces inclusive access.

The ACAA conference will provide members with a direct opportunity to exchange ideas and views on areas where verification methods could be suitable.

ACCESSIBLE HOUSING

As you may recall the ABCB published a report in April this year following the initial public consultation in 2018. 179 submissions were received, many with supporting evidence attached concerning the need for better access within housing. The ABCB is currently preparing several detailed options that will be fully costed and factored into the regulatory impact statement to be released in early 2020 for another round of public consultation.

ACAA MEMBERSHIP RENEWALS

Annual membership renewal invoices have been sent

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June / July 2019 Issue Cover photo credit: Farah Madon

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and while the majority have paid there are still many outstanding so reminder notices will be sent shortly.

ACAA AGM AND ELECTIONS

That time of the year is fast approaching and the committee has set the date for the AGM to be 21 November 2019 to be held in Sydney. Venue and program will confirmed shortly.

As usual there will be vacancies and retiring members so we encourage interested members to nominate. Formal notices will be sent shortly.

If you would like to discuss the role and activities of the management committee do not hesitate to call or email me.

Mark Relf AM

ACAA COMMITTEE OF MANAGEMENT CONTACT DETAILS

- PRESIDENT:** Mr Mark Relf AM
- VICE PRESIDENT:** Mrs Farah Madon
- SECRETARY:** Mrs Anita Harrop
- TREASURER:** Mr Howard Moutrie
- ORDINARY MEMBERS:** Ms Jennifer Barling
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International Changing Places Awareness Day



by Changing Places Australia

Changing Places Awareness Day was celebrated on July 19 with the opening of four new Changing Places facilities around the country: Preston Central Victoria, Portland Foreshore Victoria, Chadstone Shopping Centre Victoria and Gladstone Queensland.

Standard accessible toilets are not suitable for people with complex disabilities who require a carer to assist them to go to the toilet. Changing Places are fully accessible toilets with a tracking hoist, adult sized change table and a peninsula toilet with extra space either side for two carers.

'I am thrilled to be celebrating the opening of the first Changing Places Facility in Darebin today' said Vince Pirrotina, a member of the Darebin Disability Advisory Committee at the official opening of the Preston Central Changing Place. "Having access to good changing facilities will open-up opportunities to many families and individuals who usually can't venture far from home due to a lack of suitable toilets in public places".

Inspired by the UK initiative, the first Australian Changing Places toilet was launched in Victoria by Maroondah City Council in 2014. There are now 104 Changing Places in Australia with many more planned to open over the next few months.

STATE	NUMBER OF CHANGING PLACES
New South Wales	13
Queensland	10
South Australia	2
Tasmania	1
Victoria	47
Western Australia	31

Australia is the first country in the world to regulate for public toilets based on the Changing Places design. The National Construction Code (NCC) 2019 released by the Australian Building Code Board requires a new class of toilet called accessible adult change facilities based on the Changing Places design to be included in certain



Vince with City of Darebin Mayor Councillor Susan Rennie and Deanne Leaver, Director Asset Strategy Victoria Health and Human Services Building Authority

classes of public buildings. From 1 May 2019 one unisex accessible adult change facility must be provided in:

- a shopping centre (class 6 building) with an occupancy of not less than 3,500 people.
- sports venue (Class 9b building) that has an occupancy of not less than 35,000 spectators OR contains a swimming pool that has a perimeter of not less than 70m
- Museum, art gallery or the like with an occupancy of not less than 1,500 patrons
- Theatre or the like having an occupancy of not less than 1,500 patrons
- Domestic and international passenger airports

Toilets built the Changing Places design will meet the requirements of the NCC.

CHANGING PLACES MEANS WE CAN ALL GO PLACES

Changing Places has made a very real difference for one young Melbourne family who attended the recent opening of Australia’s 100th Changing Places facility at Bicentennial Park in Chelsea, in Melbourne’s south-east. Rebecca, the mother of Amos says “We’re just at a point where he’s too tall for the baby change tables. I’ve had to change him on the floor in bathrooms and it’s unsanitary, I don’t want to do that. Usually the option is to change him in the car, but it’s really uncomfortable for him.”

For more information and a list of all 104 Changing Places locations please see the Changing Places website: <https://changingplaces.org.au/> 



Rebecca, Amos, Joseph and Noah attending the Changing Places opening ceremony at Bicentennial Park, Chelsea



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Food For Thought



by Howard Moutrie

Howard is an architect and access consultant with 40 years experience and is a member of the working group of the ME64 committee.

AS 1428.1 has requirements for the use of power door openers but does not adequately consider the different types of operator and their differing impact in relation to accessibility. The following provides a brief outline of the differing types of operator and their use.

There are a number of areas in the BCA and AS1428.1 which are open to interpretation and the requirements are not clear and subject to differing interpretations. The design of the handrail in fire stairs is one of these, and this has been discussed at length, but I will give my thoughts on some other issues. I may not provide an answer but will provide a discussion on the points.

STAIRS LEADING TO/FROM AREAS NOT REQUIRED TO BE ACCESSIBLE

Situations where this may occur are:

- a. in a residential building without a lift, access is required to one level only, with an open stair providing access to the other levels
- b. similar, but not exactly the same, a commercial building where the upper 2 floors are under 200sqm.
- c. A stair provided for egress from a basement carpark which is open to the air externally

The BCA requires a stair, which is not fire isolated, to comply with AS 1428.1 Clause 11. This means it has 2 handrails, contrast nosings

and tactiles. This applies to a building required to be accessible. Clause A1.7 of the BCA defines building as meaning a whole building or part of a building. So is a part of a building just any random part or does it refer to a part of a building which has a different classification to another part of the building? If you refer to Clause A3.4, this clause says that a part of a building can have different classifications, so I would take the term “part of a building” to be any part.

So, using this definition, in the residential building in “a” above, there is one level required to be accessible and the other level(s) are not required to be accessible so the stair is not required to comply. That seems rather straightforward, but, let’s say the ground floor is the accessible level: Is the stair leading to the first floor within the ground floor and thus required to be AS 1428.1 compliant or is it leading to an area not required to be accessible and thus need not comply? If you take the latter view, then tactiles and contrast nosings are not required to the stair but would this create a safety hazard? At least the stair is rising so the risk of injury is reduced. But what if the entry and accessible level was the top level and the stair was going down? I think, as a minimum, tactiles should be provided on the accessible level and contrast nosings be provided just as a safety issue. I don’t have a definitive answer and I would err on the side of caution when it comes to safety.

One further point: The DDA does not apply to residential flat buildings so it is only the BCA which makes provision for access for people with a disability to a residential building.

Let’s now look at item “b”. Similar but not the same. In a Class 2 building, under table D3.1, access is required only to the one level, however, for the Class 5,6,7b & 8 building table D3.1 requires access to all areas normally used

by the occupants. It is Clause D3.3(f) that says that a lift or ramp need not be provided to the other levels. So does this mean that the other levels are not required to be accessible? The BCA doesn't say this but it could be inferred from Clause D3.3(f). Perhaps what it is saying is that access for people with ambulant disabilities is required but not for people using a wheelchair or other mobility aid. So on this basis, it would be reasonable to expect that the stair does still comply with AS 1428.1.

Item "c" can be a tricky one and there are a number of variables which may impact on your decision. Firstly, let's look at the situation where the stair is an emergency exit from a basement carpark. If there are no accessible parking spaces then the carpark isn't required to be accessible so the answer would seem to be straightforward. Similarly, if the stair is only providing egress from a plant room or the like, the answer would seem straightforward. However, if the stair is serving a carpark with an accessible space then you could argue that the stair must comply. If the stair is open to the carpark, then I would agree, without question. If the stair is external and is accessed through a door, the stair could be deemed to be fire-isolated or at the very least separated from the accessible building in the same way as a fire-isolated stair would be. The BCA Clause D1.8 also says that an external stair can be used in lieu of a fire-isolated stair. This would seem to give the open stair the same weight or characteristics as a fire-isolated stair.

This issue gets complicated when you look at it from the outside. Okay, the stair may be treated as a fire-isolated stair and only require nosings and a single handrail but where does it discharge? Is it in an accessible area in which case perhaps tactiles should be provided for safety.

The scenarios presented above are very similar but also have different criteria. In order to get some clarity it is necessary to visit the performance requirements and determine what design outcome satisfies these requirements. For this reason the outcome may be a performance solution, just for the peace of mind of the certifier.

SANITARY FACILITIES ON FLOORS IN A CLASS 5,6 ETC WHICH ARE UNDER 200SQM

Leading on from situation "b" regarding the stairs, a further implication from Clause D3.3(f) is whether accessible toilet facilities are required. If a wheelchair cannot access the floor then it would not be logical to provide a toilet which is designed for wheelchair use, but a person with an ambulant disability can access the floor, so should an ambulant cubicle be provided even though it is not required under Clause F2.4 because there is no accessible toilet? I think you need to refer to the performance requirements and on that basis an ambulant cubicle should be provided.

THRESHOLD RAMPS

AS 1428.1 Clause 10.5 provides details for a threshold ramp for use at "doorways on a continuous path of travel." There is no qualification or restriction on the use of the threshold ramp. However, if you go to Clause D2.15 it quite clearly says that a threshold ramp can only be used at a door leading to the outside. So what to do if a threshold ramp is needed internally? The only option is to provide a performance solution.

UPPER FLOORS IN CLASS 7B OR 8 BUILDINGS UNDER 200SQM

BCA Clause D3.3(f) provides a concession to providing access to a floor under 200sqm in area. But when is the floor under 200sqm? Take a group of 10 industrial units, each with a mezzanine area of 100sqm – do you take the total of the mezzanines and say access is required because the total area is more than 200sqm or say that access is not required because each individual unit is less than 200sqm. I would say the latter because industrial units are generally designed as individual fire separated compartments, similar to a group of townhouses, so each would be a separate Class 7b or 8 building. You could similarly have a group of shops, but in this case they may not be fully fire separated as separate buildings. The intent of this concession is to not burden an owner of a small business premises

with the need to provide a lift and the circulation space for a wheelchair. On this basis, it would still seem reasonable to apply the concession to each shop. Because this is not clear cut, my approach is always to seek the advice of the Certifier to avoid any issues down the track.

WHEN DOES THE 200SQM CONCESSION APPLY?

Following on from the topic above, in an industrial unit is the upper floor a storey or mezzanine? Many people use the term mezzanine loosely and under the BCA many areas called a mezzanine are not a mezzanine. The BCA defines both – a mezzanine is a floor within a room. Thus, it must be open to the main floor, i.e. it cannot take up the whole footprint and must not have a wall separating it. A storey is also defined but a mezzanine is not a storey. This means that under this clause, if the area is truly a mezzanine then it doesn't count as part of the rise in storeys and the mezzanine is in fact part of the storey. However, this doesn't necessarily affect the application of the concession because the concession applies to a "storey or other level". However, if the mezzanine is part of the entry storey, which is commonly the case, this is not so clear cut. From my experience, access is generally not required to a small mezzanine within the entry storey, but I am not convinced this is the correct interpretation. Again, I would suggest seeking the opinion of the Certifier.

GLASS CAPABLE OF BEING MISTAKEN FOR A DOOR OR OPENING

BCA Clause D3.12 and AS 1428.1 require the installation of a horizontal strip on glazed doors and side panels, but what constitutes being capable of being mistaken for a door or opening? Fortunately, this is defined in AS 1288, the Standard for Glass Installation. The following are not considered as being capable of being mistaken as a door or opening:

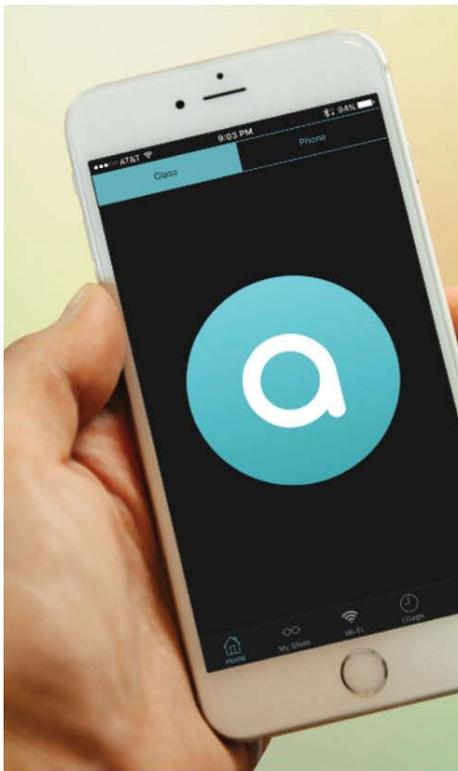
- Where the width of the glass is 500mm or less
- Where the height of the glass is 1m or less
- Where the bottom of the glass is 500mm or more above the floor
- Where the glazing is opaque, patterned or a leadlight
- Where the glass consists of louvre blades not wider than 230mm
- Where a transom or midrail is provided between the height of 700mm to 1m above the floor
- Where there is a drop of 1m or more on the other side of the glass.

In Court, I would think a strong argument could be mounted to use this definition but there are some short comings for people with vision impairment. With respect to the height difference, I can understand this from a sighted persons viewpoint, but a person with vision impairment may not be able to determine the level difference. With respect to mirrored or highly tinted glass, I would think that it is covered by opaque or patterned glass requirement. The question you need to grapple with is, can you rely on this definition or should further consideration be given to its application for people with vision impairment. My thought would be to recommend going the extra mile for safety, but be prepared to give in if pushed.

THE ROLE OF THE ACCESS CONSULTANT

The last point raises an important question as to the role of the access consultant. We are a consultant, not an advocate, and should not require a client to do more than is required by law. By all means, recommend best practice, but you would be treading on thin ice to insist on something which is more than the minimum requirement by law. You should clearly provide advice on the basis of what is the minimum requirement and what would be good practice. From my experience, this is well understood from our members who come from an architecture or similar background but I am not so sure all members realise their obligations. If you prefer to advise on best practice only, I suggest you keep your PI Insurance paid up.

Some food for thought. 



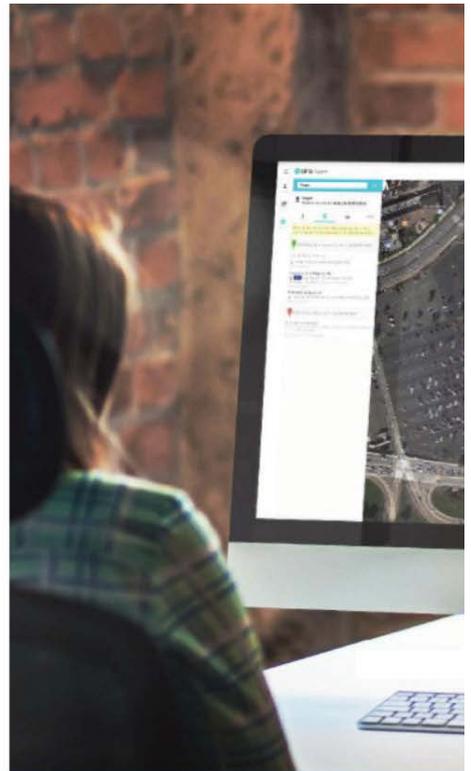
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Verification Methods: where to from here?



by Mark Relf

As I complete another performance solution report I ponder what form and content will be required when “quantification” of verification methods is introduced into NCC 2022.

The ABCB advised the audience at the ACAA seminar in November 2018 that the draft DV2, DV3 and FV2.1 Verification Methods would be finalised by the Board and introduced into NCC 2019 and that the next phase of the increased use of performance project (lcUP) would be to develop suitable metrics that would quantify DV2, DV3 and FV2.1.

The ABCB reconfirmed that the development of verification methods was being implemented for all parts of the NCC to encourage performance-based design to enable innovation, flexibility and productivity gains within the construction sector.

However, one can only imagine how a ramp could be redesigned to make it more economic to build, unless it is shorter, steeper, less width, handrails

removed or other aspect that would depart from deemed-to-satisfy (DtS) requirements that reference AS1428.1.

As it happened NCC 2019 did introduce DV2, DV3 and FV2.1 including an Access Verification Handbook which incorporates formulae for calculating when a ramp is suitable for use by people who use a wheelchair, which I will return to.

To aid these objectives of enabling innovation, flexibility and productivity gains the ABCB has, firstly, changed the language from alternative solutions to performance solutions in an effort to change the thinking that where a design failed DtS that an alternative means must be used to demonstrate compliance with the performance requirements. Secondly, the pyramid model has been replaced by the NCC compliance option structure and deletion of Objectives and Functional Statements to reinforce the focus on Performance Requirements.

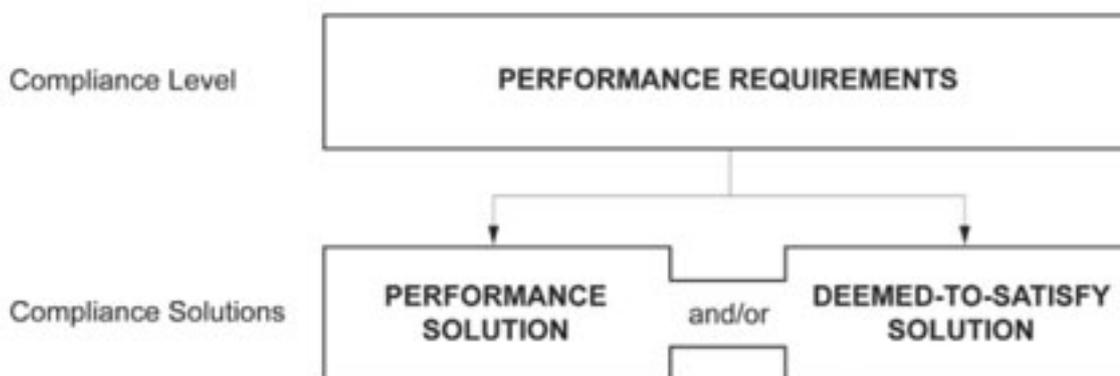


Figure 1: NCC compliance option structure

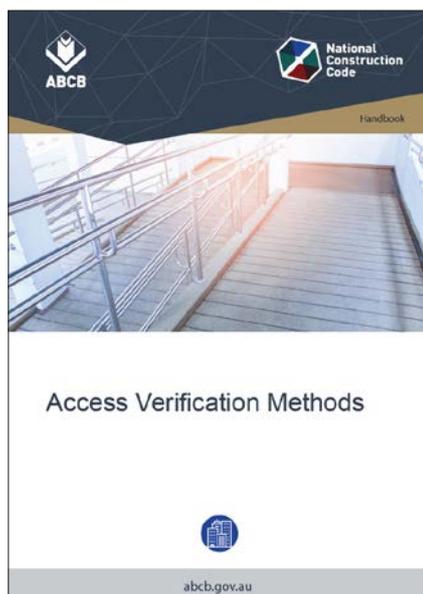
While the genesis of performance requirements commenced with fire safety there are performance requirements covering all aspects of the NCC including accessibility, although some may argue DP1 needs an overhaul and there never has had specific performance requirements

regarding wayfinding and hazard warnings for people with vision impairment or Part H2.

This change in structure and re-focus on performance solutions has been accompanied by the development of additional verification methods in fire safety, bushfire, structural,

weatherproofing, sanitary facilities, air quality, lighting, sound insulation, energy efficiency and now accessibility through DV2, DV3 and FV2.1.

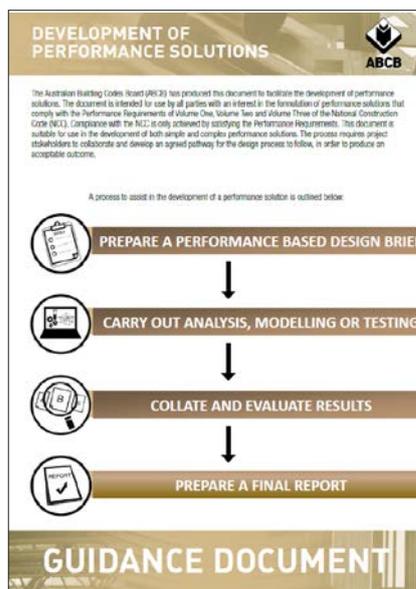
The ABCB has also developed non-regulatory handbooks in many of the abovementioned elements of a building, including the Access Verification Methods handbook covering DV2 and DV3, although it mentions lifts and sanitary facilities as well.



It is difficult to see how these changes will provide increased productivity in the accessibility sphere unless the performance based design can miraculously make people spaces smaller or use more technology and moving parts to enable access to and within a building such as lifts to replace ramps, rooms with no doors wherever possible or auto doors, greater reliance on unisex sanitary facilities, audible hazard warnings instead of TGSIs, car lifts with specific transfer zones for all motorists, etc, etc.

So, what does all this mean for access and Access Consultants who are at the front line of providing expert advice and will verification methods be consistent with the DDA objectives and the DDA Premises Standards.

Well, today it means very little as achieving compliance with the performance requirements does not, well not yet, mandate the use of DV2, DV3 and FV2.1, rather they are an option to the usual *expert judgement* provisions.



Nonetheless, it is fair to say that performance based design is far more rigorous compared to tick box DtS assessment and requires greater competence developing performance solutions, especially when suitable quantification metrics of verification methods are developed.

In examination of the Access VM handbook we are introduced to terms important when using verification methods in the form of;

- Performance-based design brief/report
- Peer review process
- Measurable acceptance criteria
- Reference building (or building elements), type, class, various occupant usage
- Modelling and testing
- Location and orientation of the building
- Locations of entrances, exits, lifts, stairs and facilities
- Occupant profile(s) and characteristics

Oddly, the Access VM handbook indicates that memory/cognitive impairment and activities of daily living are “disability groupings” that require consideration in the building design. However, there are no such requirements in the NCC or referenced Standards and it is difficult to fathom the authors intention.

Now, already I can hear the cries,

- Why bother deviating from DtS designs as this looks like overkill in the name of reform.

- Are we re-inventing the wheel?
- Why is there such scant reference to equity and dignity which form the cornerstone of access principles.
- How many metrics will be needed to cover all of the building elements and design issues that impact on access for people with disabilities.

Regardless of what we think now about verification methods, let us consider some examples used by Access Consultants now when justifying a performance solution that could be developed into suitable metrics that are quantifiable, either by numerical means or equity of access.

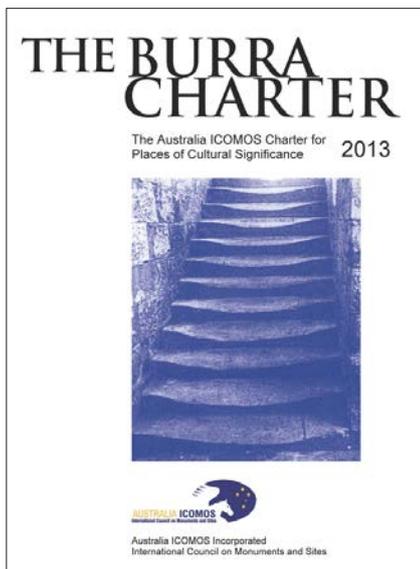
With respect to many aspects of performance solutions in the Access sphere there are numerous publications, research reports, international standards and Australian Standards, guides and handbooks that can be utilised to assess the accessibility of building elements. The written text can also be supplemented by emerging technology of phone apps, GPS based wayfinding, vibration sensor apps, biometrics to name a few.

The following list provides a range of building elements, occupant profiles and related guidance advice that could be embraced in a handbook.

- There are guidance notes throughout the Supplement to AS 1428.1 (1993) that explain how people with various types of disability use building elements exemplified by wheelchair circulation space at manual doors, inside sanitary facilities and transfer techniques, ambulant people using stairway and ramp handrails, reach ranges for wheelchair users, auditoria seating spaces and the all important A80 occupied wheelchair envelope. While the Supplement is an excellent guidance document it is now 26 years since a revision and an update to reflect A90 occupied wheelchair envelope dimensions, revised commentary concerning assistive listening systems and matters that impact on people with vision impairment are needed.
- Functional assessment of people who use a wheelchair accessing a motor vehicle with or without modifications and accessory equipment of ramps, hoists and other devices.
- Age and disability demographics can be harnessed to consider the adequacy or otherwise where proportional requirements exist in the NCC such as the quantity of accessible accommodation, accessible sanitary facilities, accessible parking and wheelchair seating spaces in various types of auditoria when overlaid on specific building uses.
- Modelling movement of people using a wheelchair through doorways, corridors, lifts, auditoria seating spaces and sanitary facilities.
- Automation of doors activated either by infrared, web-based phone apps, proximity devices, keypads or biometric systems. In the case of boom gates in carparks licence plate recognition now negates the need to reach the controls to open a boom gate.
- Body anthropometrics and ergonomics of how people who are ambulant use stairways, ramps, ambulant accessible toilets and along accessways.
- Computer programs and body worn apps to track movement of people who use a wheelchair including number of push strokes to ascend a ramp, or using payment systems.
- Orientation and navigation techniques used by pedestrian accessways by people with vision impairment contained in AS1428.4.1, AS1428.4.2, other publications and research reports or using technology such as BlindSquare or other wifi/Bluetooth based communication and identification tools.
- Various research reports and publications that provide guidance on aspects of visual detectability by people with low vision and understanding a threshold for luminance contrasting elements to determine when luminance contrast must be supplemented by tactile or audible instruction.
- Phone apps for vision simulation that mimic impairment type (glaucoma, macular degeneration, etc) and severity. Magnifiers could also be considered with regard to signage.

- AS 1428.5 – Communication for people who are deaf or hearing impaired (2010) contains measurable items relating to speech intelligibility, reverberation, background noise, volume, signal to noise ratios, heights at which measurements should be recorded, magnetic field strength, sources of interference, threshold categories of hearing loss and test methods.
- Heritage buildings and places that are the subject of new building works may consider all of the above pending the building type and usage with the additional consideration of heritage significance and striking the right balance between conserving heritage and enabling equitable access. The Burra Charter and other publications produced by various states and territories explain the process of “Conservation and Assessing Significance” which can be adapted to include accessibility.

Obviously, the above list is not exhaustive and does not cover the fundamental issue of equity and dignity of how access is provided for people with a disability. More work is needed as to whether risk based scoring models can be suitably applied to matters of equity and dignity in a manner consistent with the objectives of the DDA and performance requirements of the NCC.



There are already several items already contained in DtS requirements that incorporate aspects of equity and dignity combined with numerical requirements such as;

- 50 metres maximum distance between accessible pedestrian entrances to buildings of more than 500sqm.

- Minimum number of accessible SOUs in class 1b, 3 and 9c buildings and the provision of choice.
- Minimum number of wheelchair seating spaces in auditoria combined with location, quality and grouping arrangements.
- A minimum of 50% of groups of toilets on anyone floor of a building shall include a unisex accessible toilet.

The challenge will be ensuring the performance solution will provide equitable and dignified access that is equal to or better than the minimum DtS requirements of the NCC.

The second part of the handbook deals with DV3 ramp gradient, crossfall surface profile and slip resistance for ramps used by [people] who use a wheelchair.

This section repeats the array of calculus from DV3 with defined quantifiers for:

- F - force to push a wheelchair when ascending a ramp shall not exceed 40 Newtons and braking force on descent not exceeding 9 Newtons.
- T - time to traverse a ramp shall be a maximum of 17 seconds.
- L - length of ramp.
- m - mass of occupied [manual] wheelchair 127kg.
- g - gravitational constant 9.8m/sec.
- C_{r1} C_{r2} - rolling resistances of wheels on various surfaces.
- a - angle of the ramp incline.

While all the base equation maybe correct in terms of research outcomes by Cappozzo et al the injection of the quantifiers is merely an arbitrary academic frolick that does nothing to validate a ramp design for the broad spectrum of wheelchair users, wheelchair types and configurations, which overly complicates a more practical application of interpolation principles of gradient and ramp length between rest landings that already exist within AS1428.1.

In fact, applying some of these quantifiers actually increases the requirements contained in AS1428.1 and would mean a DtS design would no longer comply. For example, a person pushing a

manual wheelchair up a carpeted 1:14 ramp would be required to exert considerably more force than 40 Newtons (approximately 4kg).

The Access VM handbook also covers the use of powered wheelchairs on ramps in section 5.3.7. However, it only considers one type that has four wheels and rear wheel drive and makes no mention of mid-wheel drive and six wheels or front wheel drive. Unfortunately, the guidance provides a single model that focuses on tipping on an uphill incline and incorrectly attempts to address issues on downhill slopes.

One useful aspect of the Access VM handbook is an extensive list of research resources, albeit it fails to mention the work of John Bails and more recently Prof David Capel funded by the ABCB.

In summary, it is evident from this first version of the Access VM handbook that this is a starting point at the beginning of the journey and hopefully, with the assistance of the ACAA membership a 2022 version will provide useful quantification metrics and guidance references in a practical easy to use handbook. 

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Preparing a professional report



by Anita Harrop and Jen Barling

Principal disability access consultant for O'Brien Harrop Access, Anita Harrop, is an Occupational Therapist with over 20 years of experience working in acute, community and rehabilitation settings within the health context. Anita has gained experience both locally and in the UK and in 2000 commenced working as a Disability Access Consultant at the Independent Living Centre of WA (Inc). Since 2004 Anita has worked as a private Disability Access Consultant and in 2010.

Jen Barling is co-founder and Accredited Access Consultant at Funktion with a background in occupational therapy. **Funktion** is an access and inclusive design consultancy that provides advice to organisations, project teams and designers in the planning, design and delivery of accessible and inclusive environments and services. Our unique focus is on improving the fit between people and their environment through delivering people-centred solutions.

In our recent experience on the ACAA membership committee we have had the privilege to reflect on “what makes a great, professional report?”. Access consultants come from a variety of professional backgrounds, from architects, orientation and mobility instructors, building certifiers and occupational therapists. Each profession brings with it differing perspectives, and we can all learn from each other.

In reflecting on some of the standout features of a professional report, below are some pointers for your consideration, particularly when selecting reports to submit when making your application for associate and accredited membership.

Before commencing, ensure you understand the report style that is expected by the client and you have developed a clear outline of the report content prior to commencement. Understanding this prior to commencing your report may prevent a restart partway through! Think about how to present the information in a way that will meet the reader's expectations and requirements.

THE REPORT PRESENTS INFORMATION IN A CLEAR AND LOGICAL MANNER

- Provide background information to the project, for context
- Summarise the purpose/objective(s) of the report
- Document the phase (e.g. concept)
- Clearly identify the scope of the review or report and any exclusions
- Reference the drawings reviewed
- Consider including visual snippets
- Ensure you have the appropriate license for stock images and standards documentation
- List the referenced legislation, Australian Standards and other technical guides etc
- Describe the proposed work (onsite disability access audit /plan review etc.) and include the date and attendees of any onsite inspection/audit
- Clearly delineate the identified issues and assessment outcomes from the recommendations made
- Avoid generic statements (eg “ensure grab rails are installed to AS1428.1”), or proforma recommendations, rather, make them specific to the issue or site context
- Clearly present information and resources to support advice or opinions for strategic

solutions or merit-based performance solutions

SPELLING AND GRAMMAR CHECKS ARE DONE

- Avoid the use of jargon and explain any assumptions made
- Acronyms are expanded when first documented in the report
- Any necessary definitions are presented
- The report is free of spelling and punctuation errors
- Text is grammatically correct

PEOPLE ARE RESPECTFULLY REPRESENTED

As access consultants we are leaders both in the field of access and inclusion and the representation of the rights of inclusion for people with disability. Thus, it is expected that people with disability are respectfully represented in reporting. This is evident through our language choices, and resources such as *A Way with Words*, produced by the Department of Communities, Child Safety and Disability Services (www.communities.qld.gov.au) may be a helpful resource, particularly for those commencing down the report writing path in the field of accessibility.

Ensure when presenting information that is of a personal nature or based on an individual's personal experiences, that you have permission to use the information and any photos.

Where necessary, maintain confidentiality of individuals in reporting and images. Pixelate any private information if need be and avoid photographing individuals up close in public spaces, such that their identity is identifiable in images you may use.

INFORMATION IS PRESENTED OBJECTIVELY AND IN AN EASY TO READ STYLE

In reading a report, it should be clear what are the objective findings and what is opinion or subjective information. Where the consultant's opinion is called upon in a report, this should be identified, with the individual taking responsibility for their professional opinion, for example *"in my opinion the 25mm dimensional discrepancy in toilet circulation space..."*.

Also ensure:

- A consistent formatting style is adopted throughout the report
- The report is dated and signed
- You document your qualification(s) and level of ACAA membership
- The report is peer reviewed

In some instances, you may be required to present information in an accessible format. This will, primarily, be dependent on the intended audience. There are a range of organisations that offer training in preparing accessible documents and these can be sourced to aid your learning and also to attain some CPD points! 



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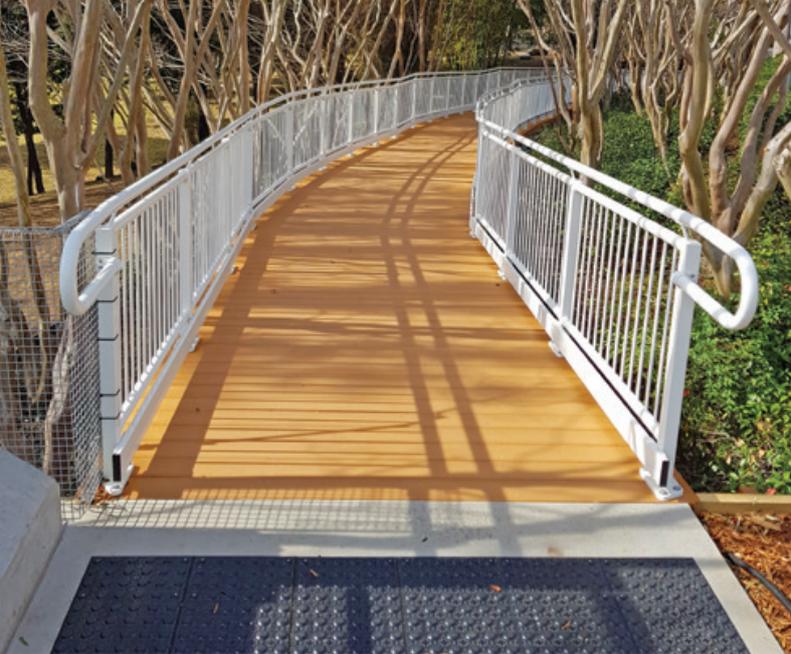
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Considerations for Robust Housing

by **Anna Fleming** from **OnCall Group** and **Bruce Bromley**

When planning Robust Category Specialist Disability Accommodation (SDA) suitable for participants who may require positive behaviour support, there are many designs and operational factors that must be closely considered. From selecting the site itself to planning the environment on both the inside and out, designing and developing a space that meets the needs of the individual is key.

To do this, it's important to create a dwelling that not only meets industry best practice standards but also suits each of the participant's needs, including any highlighted in a positive behavioural support plan (BSP). For some individuals, this will mean adopting all of the following guidelines, while for others who have appropriate support in place, only some of the recommendations will be necessary. With this in mind, each robust setting should be designed, developed and operated in partnership with people who know the proposed participants and their individual needs and understand the requirements of any applicable BSPs. This will ensure the best outcome for participants in an environment that minimises the need for restrictive interventions.

So, if you're looking for guidance to assist in the planning and implementation of accommodation suited to individuals in need of positive behavioural support, in this article, we'll discuss in a high level of detail the best practice recommendations for Robust Category SDA design.

SOME NOTES ON RESTRICTIVE PRACTICES

There may be times when individuals (for example, some people with disabilities such as autism, severe mental health conditions and other psychosocial disorders) display behaviours that put themselves or those around them at risk. These behaviours are often due to a lack of ability to communicate and understand the world around them. It's useful to remember that all behaviour is communication and a Functional Behaviour Assessment and associated BSP will help to identify the function and precursors to the behaviour. Importantly, this will also provide proactive and reactive strategies as well as cues for escalation and appropriate responses that are in line with a current and authorised BSP.

If your dwelling requires environmental restraint, be aware that from July 1, 2019, the NDIS Disability Restrictive Practices and



Behaviour Support Rules 2018 includes this as a reportable item. This is an important consideration for new builds and further details can be found on the [NDIS Quality and Safeguards Commission website](#).

IDENTIFYING AND MINIMISING TRIGGERS

In some cases, behaviours may be triggered by objects or sounds in the built environment. These will vary from person to person and could occur in one or more of the five senses (sight, smell, sound, taste and touch). The individual may be hypersensitive (where the sense is intensified) or hypo-sensitive (under-sensitive). It is important to be mindful of possible triggers when planning a robust design category space and where possible minimise or avoid them.

Some examples of potential triggers for hypersensitive and hypo-sensitive individuals include:

- **Hypersensitive** – a person with autism who is hypersensitive to sound may find some background noises unbearably loud or distracting. These sounds would largely go unnoticed by others; however, in those who are hypersensitive to sound, it can cause anxiety or even physical pain.
- **Hypo-sensitive** – those who are hypo-sensitive may not feel pain or extreme temperatures and they can also display a

reduced awareness of their body. This makes it harder to navigate around rooms and avoid furniture and other obstructions, so including adequate space within the building is a must.

CHALLENGING BEHAVIOURS

Environmental aspects can also trigger challenging behaviour, so it's vital to look closely at the design to ensure the risk of this is minimised. Behaviours can include aggression (hitting, slamming doors, etc.), property damage (breaking furniture, doors and windows, etc.), self-injury (slapping, headbanging, punching, etc.) and other behaviours (switching on dials, eating inedible objects, running away). The built environment plays a big part in reducing the frequency and impact of these behaviours. When the layout is well-designed and the materials chosen with care, it promotes a feeling of calm, security and wellbeing, which reduces the risk of harm to the person, support workers and the property.

When designing a robust environment, it's important to look closely at factors (both internal and external) that could be potential triggers. These include:

- noise
- location
- temperature
- overcrowding



- enclosed spaces
- dark or bright rooms
- materials or objects in the environment.

A key objective of this article is to assist those involved in the design of a robust dwelling project to greatly reduce (or where possible eliminate) the need for restrictive and/or positive behaviour support interventions. This requires a high level of interaction between the designer, carers and support providers and the proposed participant.

DESIGN ELEMENTS

When planning and implementing robust category dwellings, there are some key design elements that must be closely considered. These include:

- Type of building
- Site selection
- Site access and safety
- Outdoor spaces
- Colours and furnishings
- Living areas
- Kitchen and meals
- Bedrooms
- Bathrooms and laundry
- Walls, ceilings and windows

- Doors, gates and locks
- Corridors and flooring
- Lighting and electrical equipment.

Below we share the key points to factor in when planning and designing each of these elements.

Type of building: It's important to highlight that apartment buildings and double-storey properties are not suitable for robust design category dwellings due to the risks associated to participants and staff, i.e. falling or being pushed downstairs. However, single-level buildings that fall within the duplex, house and group home categories can be designed or adapted to meet the best practice recommendations.

Site selection: When choosing a site, look for accommodation that is well-placed within the building and also within the wider community as well. Consider the proximity to neighbours, roads and other environmental noise sources. Be aware of nearby schools, kindergartens, childcare centres, etc. and check the appropriateness against any restrictive requirements of the tenants. For example, some individuals may be on Community Based Orders or Supervised Treatment Orders and all conditions must be strictly adhered to.

Look at the location within the development and the ease of access to community facilities. Plan for adequate parking on site for both staff and



visitors to ensure a shortage does not discourage family and friends from visiting. Keep in mind that there can be two or three staff on duty at any time, plus additional visits from allied and professional health services.

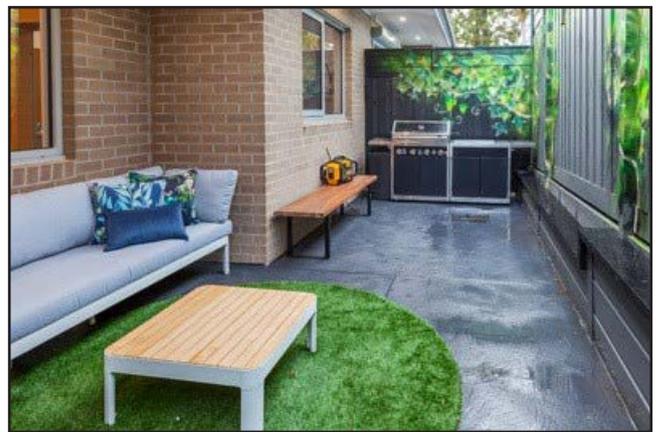
Site access and safety: Inside, each room should have a clear exit to allow participants and staff to remove themselves easily if required. It is recommended that the design allows for observation of the participants without creating a sense that they are under surveillance. For new builds, the inclusion of sound dampening materials is recommended and the layout and room proportions designed to assist with good acoustics.

All windows and doors leading outside are to be fitted with security locks and secure boundaries must be maintained in the outside areas and garden. External doors should include peepholes, and the exit should never lead directly to an outside public space or road. Sensor lights installed near external doors will enhance security, as will a video intercom with an electronic doorbell that can be heard throughout the dwelling. Avoid pathways that are obscured by plants or corners and ensure there is a clear and obvious pathway from the car park into the dwelling. As an additional safety measure, automated gates on the boundary may be considered for vehicle access.

Keeping safety and security provisions subtle creates a more relaxed environment that allows participants to move around freely. Access cards can be an effective way to achieve this, however, approval may be required. Locks may also be fitted to cupboard doors and drawers to minimise the risk of damage or injury from electrical cords, connections and other loose and potentially dangerous items (when approved in an individual's BSP for safety). However, be aware that the installation of locks is classified as an environmental restriction so always seek advice or approval before installing.

Outdoor space: When designing outdoor areas, promoting a sense of space and calm is key. Offer a range of outdoor zones if possible (including some covered space), utilising the front, back and side areas of the property to achieve this. Keep any landscaping layouts simple and open, with minimal obstructions. This will

avoid a feeling of restriction or containment, allowing participants to relax and enjoy the space. Some ideas include a simple, circular pathway (with no odd corners), clearly delineated with textured hard landscaping. Avoid the use of pavers (due to the potential for removal and patterns), and loose stones and rocks (including pebble rocks in garden beds). The inclusion of sensory and interactive outdoor features such as a basketball ring, soccer net, nest swing, sculptures, sensory garden, herbs, vegetables and water features can further enhance the use and enjoyment of the space.

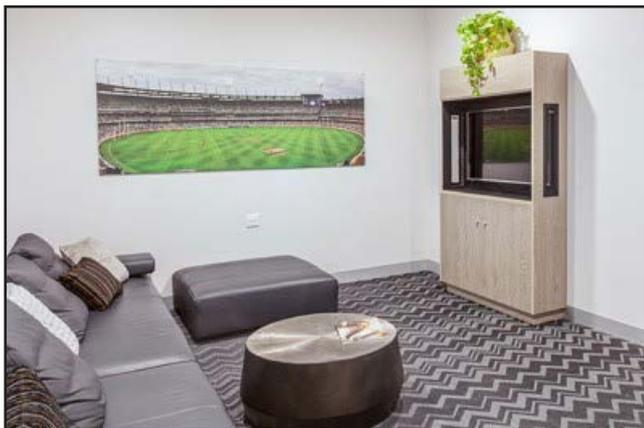


All outdoor areas should be enclosed by unscalable fences with a minimum 1800mm height (or 2100mm if local council regulations allow). They may be complemented with on-ground low shrub borders to discourage exit over the fence, increase privacy and create a feeling of calm. The addition of plant life should always be discussed with carers first as some participants may have a tendency to remove vegetation. If possible, the outdoor space should include areas where tenants can celebrate special occasions with family and friends. This is especially important as some participants cannot tolerate public spaces and it is often easier for everyone to get together in the tenant's own home.

Colours and furnishings: In any robust design category dwelling, furnishings should be minimal and non-complex to reduce sensory stimulation. Getting the balance right is key to avoid creating an institutionalised feel. Keep it simple, using a limited palette of colours, patterns and materials with subtle visual details such as contrasting coloured walls. Opt for a 'less is more' approach

leaving plenty of space for movement, as people with positive behavioural support can be more guarded about personal space and any encroachment can trigger unrest.

Living area: When planning the living space, select minimal appropriate furniture to ensure safety and comfort. Choose built-in TV cabinets and provide bolted down furniture where possible. Surfaces of tables should be scratch-resistant and heat-resistant and not made from glass or thin timber panels. Leather couches with a steel frame are preferred as they are quite durable and can be easily cleaned and bolted to floors. Vinyl is not recommended as it can be easily ruined (especially when participants exhibit obsessive behaviours such as ‘picking’ at details such as stitching, joints or sealant). All pictures displayed should be bolted to walls with no glass in the frame.



Kitchen and meals: In the meals area, bolted-down tables and bench seating are best as chairs may not be suitable for some participants. Ideally, the kitchen should be located in a separate room that can be locked and may also include a servery shutter if required. In some cases, lockable cupboards and drawers will also be needed, check the tenants’ BSP for further guidance. All benches, cabinets and cupboards should have round corners and edges and a heat-resistant work surface, and electronic equipment should ideally have a master switch.

Bedrooms: When designing the bedrooms, include built-in cupboards, storage and secured TV cabinet. All furnishings will generally be provided by the family of the participant, however, the SIL provider will need to furnish if hardship is claimed. If requested, some bedrooms may include a mini kitchenette with a sink, bar fridge and tea and coffee making facilities.



No glass is allowed on wall art and all pictures must be securely bolted to the wall. In addition, some tenants may also require the bed to be

bolted to the floor. When selecting the flooring, carpet is best avoided if the tenant has continence issues. It is also essential to provide a private outdoor courtyard which may be enhanced by the inclusion of painted murals on the fence.



Bathrooms and laundry: Creating a safe environment in the bathroom is paramount, so choose taps and showerheads that are simple, rigidly controlled and free from sharp corners. In the shower, a ceiling shower rose and a detachable hose hand shower is recommended. Ensure the basin is fully recessed within the vanity and includes integrated overflow protection if possible. Set soap trays and toilet roll holders into the wall and ensure mirrors are made from non-glass materials and are firmly fixed to the wall. A bath should be included where a participant has requested for use as part of their relaxation or de-escalation therapy and commercial grade vinyl flooring and vinyl wall coverings are recommended (for durability, hygiene and cleanliness).



In the laundry, there needs to be enough space for a commercial washing machine and dryer as well as a lockable storage space to hold cleaning chemicals and toiletries. Outside, hot and cold water supply and drain must be available to clean mops and items contaminated with faeces, vomit, etc.



Walls, ceilings and windows: For robust design category dwellings, it's recommended that internal walls be constructed using 600mm studs, covered by yellow tongue flooring and then Villaboard. Wallpaper is best avoided however painted murals and pictures (that are screwed to the wall) are a good idea. For ceilings, high-impact plasterboard is preferred with a ceiling height of three metres.



All windows should be laminated glass-enclosed in aluminium frames and be set at a minimum of 1000mm above floor level. For each opening window, restrictors are to be fitted to sashes to allow a maximum 100mm opening and locks should also be provided for each sash (key alike where possible). Curtains are not recommended, however, external aluminium automatic shutters to all windows are advised to control light and enhance security.



Ensure any electronic access controls and keypads are recessed and emergency exit doors are provided at either end of the residence, as well as the laundry, kitchen and staff room. In addition, fire and emergency exits should also include electronic strikes to all external gates. For each door provide wraparound structural escutcheon plates to reinforce the latch set and lock, as well as three-door stops adjacent to the door to stop the door banging and breaching.

Corridors and flooring: During design allow for straight corridors, avoiding recesses and corners where possible as this will allow for improved circulation and supervision. Choose durable, non-slip flooring with 100mm brushed aluminium strip skirtings that can withstand constant mopping and cleaning. Suitable options include polished concrete or woven vinyl flooring such as Bolon. Carpets and carpet tiles are not recommended due to incontinence issues and domestic vinyl flooring should also be avoided as it is easily damaged, and the joints may be picked at by some participants.



Doors, gates and locks: For security purposes, steel door frames built into walls should be used, in combination with doors that have four heavy-duty butt hinges. Solid core doors (minimum 39mm) are to be used throughout, with some participants also requiring the use of tamper-proof screws. Select door handles that are minimalist in style with no sharp corners, and a key alike system is preferred.



Lights and electrical equipment: Throughout the dwelling, soft/warm LED lighting is to be provided. Room lighting should be recessed into the ceiling, while wall sconces are suitable for use as bedside lighting in bedrooms. Dimmers are recommended for lighting in bedrooms and common areas and timers may be required for the night-time routine. It is highly recommended that night lighting or sensor lights be used in hallways to assist participants who need to leave their room in the night.

All lights and power points are to use 30mm x 30mm rocker action switches, and electrical switches (especially those on the cookers, timers and consumer units) should be boxed in and lockable or enclosed inside lockable cupboards. TVs situated in both the bedrooms and common areas can be placed in a built-in TV unit that includes a break-proof polycarbonate cover. To maintain a comfortable temperature throughout the home, a reverse cycle cooling and heating unit are recommended, preferably ducted with ceiling mounted outlets, however, in-slab heating

should also be considered. Position any control panels within lockable cupboards.

CREATE A ROBUST SDA WITH RESILIENCE, SAFETY AND COMFORT IN MIND

When planning your robust specialist accommodation, there are many design elements to consider. Each of these elements plays a significant role in the safety and comfort of participants. Striking the right balance between resilience and a relaxed environment is key and this can be achieved through careful planning, smart design and appropriate choices.

Use these best practice recommendations as a guideline, and if you have any questions about planning and implementing specialist disability accommodation, our team are always happy to help. 

Photography: Bruce Bromley



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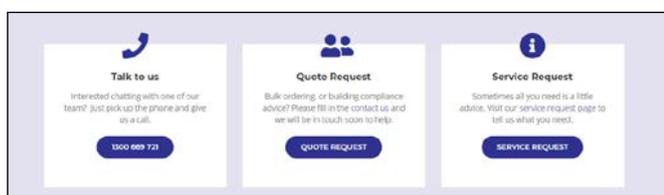
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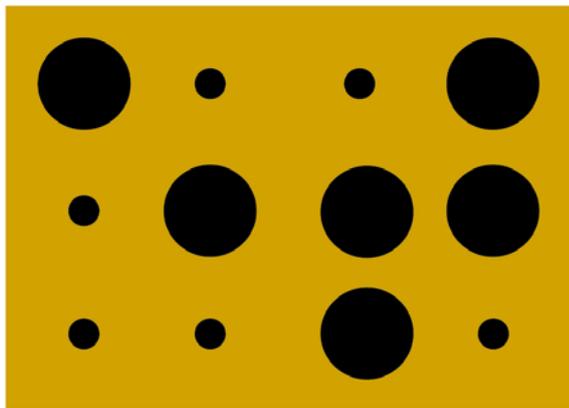
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