

ACCESSIBLE HOUSING

FOR PEOPLE WITH SIGNIFICANT DISABILITIES

THE NEED FOR A MORE CONTEMPORARY DESIGN FRAMEWORK
A DISCUSSION PAPER



A COLLABORATION BETWEEN



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WRITTEN BY:

Justin Nix
Equitable Access Solutions
justin@equitableaccess.com.au

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Summer Foundation Ltd
ABN 90 117 719 516
PO Box 208
Blackburn 3180
VIC Australia

Telephone: +613 9894 7006
info@summerfoundation.org.au
www.summerfoundation.org.au

Transport Accident Commission
GPO Box 2751
Melbourne 3001
VIC Australia

Telephone: +61 3 5225 2676
info@tac.vic.gov.au
www.tac.vic.gov.au



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Email: info@summerfoundation.org.au



Email: info@tac.vic.gov.au



Email: mcobelens@msmarchitects.com.au

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1. EXECUTIVE SUMMARY

PURPOSE OF THIS DISCUSSION DOCUMENT

This report is the result of a collaboration between the Summer Foundation and the Transport Accident Commission (TAC), with support from MSM Architects. Equitable Access Solutions has also assisted with preparation of this report. This discussion document has been developed to share their collective insights arising from practical experience in exploring how to design more innovative housing options for people with significant disabilities that support people to live with as much independence as possible.

THE NEED AND IMPETUS FOR CHANGE

People with significant disabilities have limited suitable housing options. The introduction of the National Disability Insurance Scheme (NDIS) provides impetus to rethink past approaches and to examine new options to support people with significant disabilities to live with greater independence and to have more choice and control over their lives.

It is the intention that this document acts as a catalyst for stimulating wider discussion about the need for development of a more contemporary design framework for housing for people with significant disabilities.

NEW MODELS AND DESIGN APPROACHES

The Summer Foundation and the TAC via its wholly owned subsidiary Residential Independence Pty Ltd (RIPL) have been developing new innovative housing and support models to demonstrate new living options for people with significant disabilities. One joint project was established over 2 years ago (Abbotsford) and the buildings for two newer projects are now complete (i.e. Summer Foundation's project in the Hunter region and RIPL's project in Frankston (it's fourth project completed). These projects deliver new models where accessible and adaptable design in conjunction with innovative approaches to support, and the use of assistive technology support people with significant disabilities to live with greater independence.

The underpinning design objectives of these projects are as follows:

- Design is driven by Universal Design Principles and Livable Housing Design Guidelines (Platinum level) to ensure the housing is appropriate for a diverse range of people as they move through various life stages
- Supporting people to live with the greatest level of independence possible
- Creation of home environments, rather than institutional environments, using mainstream rather than disability-specific design, features and products wherever possible
- Provision of housing that supports people to stay connected with family and friends (i.e enough space and a place that is private and comfortable for family and friends to visit)
- The housing is designed to be functional, durable, flexible and cost effective
- It will be possible to sell a property on the open market, if ever required

The design briefs for these projects have been evolving, based on research findings, tenant feedback and practical insights, and have been driven by the project objectives, rather than just compliance with specific design standards. The Summer Foundation has a design resource document that can be downloaded from (<https://www.summerfoundation.org.au/resources/design-report/>). The TAC design brief is available on request from the TAC.

ASSESSMENT OF DESIGN APPROACH AGAINST COMMONLY USED DESIGN STANDARDS

This document reports on an exercise that systematically assessed the design specifications for Hunter and Frankston demonstration projects against two commonly used 'standards' for access provision.

- AS 1428.1 General requirements for access – New building work
- Livable Housing Design Guidelines (LHDG)

The reason for undertaking this exercise was to be able to better understand the convergence and divergence of the design briefs driven by tenant and project outcomes, against commonly used design standards for housing for people with disabilities. A more general analysis also considered the applicability of AS 4299 Adaptable Housing and it was determined that this standard has little relevance to the designs, and the term ‘adaptability’ is used in a different context.

The key conclusions arising from this analysis are:

- AS1428.1 (2009)
 - AS1428.1 has an overwhelming negative impact on an accessible residential home for a person with significant disability, as it has little relevance to residential housing. Specifically, compliance with AS 1428.1 in a private residential home results in:
 - a significant overall increased cost impact
 - larger than needed net floor footprint
 - inflexible fixtures and fittings in bathrooms that are not adaptable and often do not meet the needs of the individual occupants
 - institutional/commercial public type features, rather than private residential features
- Platinum level of LHDG
 - Is a positive platform for design, however Platinum level still does not provide all the necessary design requirements for good accessible housing for people with significant disability. Furthermore, Silver or Gold levels of compliance are simply not sufficient.
 - Has some cost impacts from spatial requirements
- Housing for people with disability needs to be adaptable, but not in the traditional method of compliance with AS 4299 1995 (Adaptable Housing)
- There are many key design features required to achieve accessibility and adaptability that are not addressed in any existing national standard or guideline

THE NEED FOR A COMPREHENSIVE DESIGN FRAMEWORK

In order to achieve design approaches that support people with significant disabilities to be able to live with greater independence there is a need to develop a new design framework to guide development of housing design. This framework should include the following:

- Incorporation of Universal Design Principles
- Compliance to Platinum level of Livable Housing Design Guidelines (however this is not enough as a singular compliance standard)
- Creation of home like, rather than institutional environments
- Flexibility and adaptability to suit the different needs of various individual tenants of a property across time
- Provision for integration of assistive technology, where it will assist immediate or future installation of smart home technology
- Durability and low maintenance and
- Ability to sell property as an attractive asset on the open market

The development for example of a new Australian Standard for accessible housing is an option that could streamline the design process and result in much improved outcomes (and housing options) for people with significant disabilities. The objective of such a standard would be to provide a mixture of design compliance and design guidance leading to highly accessible home environments which are also adaptable in terms of meeting the changing needs of various occupants with significant disability.

Development of such a standard would require significant input and review from all stakeholders including insights from people with disabilities who are dependent on effective accessible and adaptable design in order to live with as much independence as they can. This is a particularly important and relevant issue considering the current implementation of the NDIS, discussion regarding proposed review and changes to AS 4299, and the further development of the AS 1428 series of standards relating to access.

2. INTRODUCTION

2.1 HOUSING AND PEOPLE WITH SIGNIFICANT DISABILITIES

People with significant disabilities (including physical, sensory, intellectual and cognitive) have limited suitable housing options. Many people with significant disabilities live constrained lives due to these limited options, including living in aged care and group homes when this is not their preference. The introduction of the NDIS will expand the support options available to people who have not had access to state-based injury and accident insurance schemes. However, unless there is a significant increase in the supply of appropriate, accessible and affordable housing, people with significant disabilities will continue to have limited housing options.

Much work is needed to identify effective strategies for increasing the supply of affordable housing. Work is also required to identify appropriate housing design approaches that enable more people with significant disabilities to live in housing that supports their independence as well as their choice and control over how they live and with whom they live.

The vision outlined in Australia's National Disability Strategy is of an inclusive Australian society that enables people with disability to fulfil their potential as equal citizens. Furthermore, Article 19 of the United Nations Convention on the Rights of Persons with Disabilities states "Living independently and being included in the community: Requires that people with a disability have access to specialist and generic services that are necessary to support independent living and inclusion in the community".

Truly inclusive and equitable independent living can only be delivered through both an increase in the amount of affordable housing as well as appropriate accessible and adaptable housing design.

The focus of this document is on housing design.

2.2 BACKGROUND TO DEVELOPMENT OF THIS DISCUSSION DOCUMENT

Summer Foundation and the TAC have both delivered demonstration projects (collaboratively and individually) whilst MSM Architects have been the principal project architect in a variety of different projects for both organisations.

One of the cornerstones of supporting people with significant disabilities to live with greater independence and control is the physical design of the built environment. Appropriate design works in conjunction with innovative approaches to support, the use of assistive technology and tenant selection to deliver new models for supporting people with significant disabilities.

Summer Foundation and the TAC have both developed design briefs to guide the development of their accessible housing projects. These design briefs have been informed by lessons learned as a result of an evidence based clinical and academic post-occupancy evaluation, and most importantly, significant input and feedback from the people who live in these environments.

The design briefs for these innovative projects have been driven by the project objectives, rather than specific Australian design standards. These objectives are underpinned by universal design principles and a focus on supporting people to live their daily life with as much independence and autonomy as possible in their own home. The only formal requirement for full compliance with design 'standards' in the design briefs has been the requirement to achieve certification under Liveable Housing Design Guidelines Platinum level. This has been used, as it is considered the best option currently available to deliver reasonable levels of accessibility.

The design insights developed by Summer Foundation and the TAC have largely resulted from the following demonstration projects:

- Abbotsford Project: a collaboration between Summer Foundation, the TAC and Common Equity Housing Limited, which consists of six project units located in a fifty-nine unit apartment development, incorporating a mix of social housing and private investment housing
- Hunter Project: a collaboration between the Summer Foundation and a private developer, which consists of ten project units for people with significant disabilities in a new development of one hundred and ten apartments and a mix of commercial tenancies
- Frankston Project: a TAC project, which consists of nine independent living units, eight of which are for tenants and one is for the delivery of shared support.

2.3 THE CONTENT OF THE DISCUSSION DOCUMENT

This document reports on an exercise undertaken to systematically assess the design specifications for the Hunter and Frankston demonstration projects against two commonly used 'standards' for designing housing for people with disabilities.

- AS 1428.1 General requirements for access – new building work
- Livable Housing Design Guidelines

The reason for doing this was to better understand the convergence and divergence of the design briefs driven by tenant and project outcomes, against commonly used design standards for housing for people with disabilities.

This report evaluates the consequence of utilising various existing design standards / guidelines alone and also highlights the gap in existing building codes for delivering flexible, innovative and sustainable independent living options for people with significant disabilities.

The three projects provide a context for establishing an evidence-based evaluation of existing design requirements and their practical application.

2.4 THE INTENTION OF THIS DOCUMENT

The intention of this document is to act as a catalyst for stimulating wider discussion about development of a more appropriate design framework for housing for people with significant disabilities. Such a framework would focus on flexible and adaptable design approaches that supports people to live with more independence, while also paying attention to affordability and sustainability.

The NDIS provides opportunities to rethink past approaches and to examine new options to support people with significant disabilities to live with greater independence and to have more choice and control over their lives.

As we embrace this new paradigm of empowering people with disability, the housing and disability sectors face a significant challenge of delivering 'suitable' housing. The National Disability Insurance Agency (NDIA) has the potential to play a pivotal role in facilitating innovative sector partnerships, guidelines and policy to deliver the most appropriate housing options for people with disabilities. However, appropriately addressing the housing needs of people with disabilities is also the responsibility of the whole community.

The introduction of the NDIS, with its focus on participant independence, inclusion, control and insurance framework, which gives consideration to life time care costs, rather than short term care costs, provides a new environment within which to test and refine these innovative housing and support approaches. Our experience indicates that good design which is well located close to shops and services, supports people to live with greater independence. Technology and support services focused on building tenant capability have the potential to contribute to long term cost savings.

The reality is however, that there is currently no single design standard or design framework that the housing sector can use to deliver such outcomes. This assessment undertaken as part of this project demonstrates that existing accessible design guidelines can result in housing which does not meet the needs of people with significant disabilities thus, highlighting an urgent need for a new design framework.

3. DESIGN OBJECTIVES OF THE INNOVATIVE HOUSING PROJECTS

THERE IS CONSIDERABLE CONSISTENCY BETWEEN THE TAC AND SUMMER FOUNDATION IN THE KEY HIGH-LEVEL OBJECTIVES FOR OUR APPROACH TO DESIGN FOR NEW INNOVATIVE HOUSING FOR PEOPLE WITH SIGNIFICANT DISABILITIES. IN SUMMARY:

- Design is driven by Universal Design Principles and Livable Housing Design Guidelines (Platinum level) to ensure the housing is appropriate for a diverse range of people as they move through various life stages
- Supporting people to live with the greatest level of independence
- Creation of home environments, rather than institutional environments, using mainstream rather than disability-specific design, features and products wherever possible
- Provision of housing that supports people to stay connected with family and friends, i.e enough space that is private and comfortable for family and friends to visit and the privacy to do this
- The housing is designed to be functional, durable, flexible and cost effective
- It will be possible to sell a property on the open market, if ever required.

Both organisations have a strong focus on ensuring housing is well-located close to shops, services and accessible transport in order to access local resources more independently (i.e without support staff) and have good access to amenities central to daily living.

The demonstration housing projects that have been delivered by the Summer Foundation and the TAC have highlighted the need to continue to test and refine new innovative housing and support options. Developing the design specifications for these projects has been a journey of continuous learning.

A key learning from the first demonstration project (Abbotsford) was how the design detail and design customisation in response to a tenant's specific abilities can have a very significant impact on what tenants can do for themselves. Thus the apartments in the next demonstration projects have been designed to have a number of features that can be easily adaptable in a cost-effective manner to meet the needs of individual tenants.

The work on these innovative housing projects continues to contribute to an understanding of the key design frameworks required to deliver sustainable housing options for people with significant disabilities.

Two resources are available that demonstrate the design approach and design learnings from the innovative projects.

- The TAC has developed its own design specification which can be made available by contacting the TAC directly.
- The Summer Foundation has published a 'Design Insights' report which outlines design learnings and design options for achieving cost effective adaptability. This document has been developed as a resource for the housing and disability sectors (<https://www.summerfoundation.org.au/resources/design-report/>)

4. CURRENT DESIGN GUIDELINES AND AUSTRALIAN STANDARDS

THERE IS VERY LITTLE IN THE WAY OF REQUIRED LEGISLATIVE COMPLIANCE IN ACCESS PROVISIONS FOR RESIDENTIAL HOUSING. SPECIFICALLY, IN RELATION TO THE BUILDING CODE AUSTRALIA (BCA):

- **Class 1 dwellings** (residential houses) have no legislative compliance for access.
- **Class 2 dwellings** (apartment buildings) have some compliance provision in accordance with the Access to Premises Standards, however this is limited to accessible paths of travel from street boundaries to individual floor levels and apartment doors, and the provision of access to common areas such as swimming pools, gyms, laundries etc. within developments.
- **Class 3 dwellings** (a group home or joined cluster of units) require significant legislative compliance. A particularly apt example is the requirement to comply with the requirements of AS 1428.1 for an accessible bathroom. This legislative compliance for a Class 3 building results in an institutional space (requiring grab rails, shower seat, disabled toilet and back rest, which will often not suit the functional needs of the occupant with a severe disability) rather than a space that is home-like and easily adapted to meet the specific needs of the current occupant. It is therefore important to understand the design impact that a BCA Class 3 building will deliver versus a residential type housing option that is classified as a BCA Class 1 or 2 dwelling.

The **Livable Housing Design Guidelines (LHDG)** have not been legislated in Australia (under the National Construction Code), and are therefore optional to adopt during a design process. Even if they did become legislatively adopted in future, these requirements in isolation will not ensure an adequate level of access provision to accommodate the needs of people with severe disability. This applies to even the highest 'Platinum' level of LHDG. This is because there are many design features that are not addressed in the LHDG, such as access to external entertainment areas and only very limited access provision within the kitchen.

The government and the housing and disability sectors often choose to use parts of **AS 1428.1 or AS 1428.2**, however it must be noted that these standards largely relate to access provision to public buildings, and these standards only accommodate approximately 80% of disability users. The majority of references relate to wheelchair access provision only.

Finally, **AS 4299** (Adaptable Housing) is effectively aimed at supporting future adaption of an existing dwelling to accommodate ageing occupants or occupants who acquire a disability at some stage in life whilst living in that particular adaptable house. One of the findings of this evaluation is that the term 'adaptable' is quite different in the context of designing for people with significant disability in the early stage of a new building project.

In order to achieve a truly inclusive design for people with significant disability, design features that in some cases exceed Australian Standards and LHDG are necessary to achieve a successful Universal Design. On the other hand, complying with the requirements of some aspects of Australian Standards results in unnecessary cost and a feel of institutional type design, rather than home-like environment.

The following is an outline and summary of each design guideline considered in this project's assessment of design specification and existing standards/guidelines used for housing for people with disabilities.

4.1 AUSTRALIAN STANDARDS FOR ACCESS

While Universal Design outlines the design principles aimed at achieving functional environments for people of all abilities, it is the accessible and adaptable Australian Standards that attempt to capture and codify these principles into specific elements in the AS 1428 suite and AS 4299.

AS 1428.1 (2009) DESIGN FOR ACCESS AND MOBILITY. PART 1: GENERAL REQUIREMENTS FOR ACCESS – NEW BUILDING WORK

is Part 1 of the AS 1428 suite of Australian Standards – Design for access and mobility.

The objective of AS 1428.1 (2009) is to *“provide building designers and users ... with the **minimum design requirements for new building work to enable access for people with disabilities**”* (AS 1428.1: 2009 p.2). When referring to accessible design, it is commonly understood that the design complies with AS 1428.1. Some issues to note with AS 1428.1 (2009), include:

- The standard is applicable to public buildings, workplaces, commercial and multi-unit residential developments, rather than buildings for individual users, such as homes. However, it is often prescribed as a compliance standard for use for individual housing for people with disabilities.
- This standard is largely focused on design for wheelchair users, with some design requirements for people with ambulant disabilities and people with vision impairments. This standard may not fully address the specific needs of other people with disabilities, such as people with acquired brain injuries, hearing impairments, learning difficulties or mental illness.
- The intention of the standard is to accommodate 80% of people with disability. Not all people with disability will be accommodated.
- The standard outlines minimum design requirements only. Because this standard refers to minimum requirements only, many people using a mobility aid still find environments designed in accordance with AS 1428.1 difficult to navigate or not suited to their specific needs.

AS 1428.2 (1992) DESIGN FOR ACCESS AND MOBILITY. PART 2: ENHANCED AND ADDITIONAL REQUIREMENTS – BUILDINGS AND FACILITIES

is Part 2 of the AS 1428 suite of Australian Standards – Design for access and mobility.

This standard provides enhanced requirements for access beyond the requirements outlined in AS 1428.1 (2001). In this respect, it is largely superseded by AS 1428.1 (2009). However, AS1428.2 (1992) also covers items (such as fit out and furnishings) which are outside of the scope of AS 1428.1 (2009). AS1428.1 (2001) also provides requirements for items within public buildings or areas such as sound levels, reach ranges, height of controls, viewing ranges, vending machines, street furniture and post boxes.

There is an informative appendix (A) of AS1428.2 (1992) which provides general recommendations for kitchen and laundries to ensure these areas are accessible for a range of people with disabilities. It should be noted that even many of these informative requirements will not suit all people with significant disability.

AS 4299 (1995) ADAPTABLE HOUSING

The intention of the adaptable housing standard is to provide information and guidelines specifically for the design of accessible residential buildings. The standard provides information and guidance on the detailed design of housing including joinery, fixtures and fittings. AS 4299 recognises that in designing only in accordance with AS 1428.1, a home may be built for a ‘generic’ person, while not being well-suited for any particular individual.

By definition an adaptable house is one that, while it may not be initially accessible for all individuals, it has the ability - with relatively minor adaptation - to be suitable for a variety of people with varying abilities and disabilities. The requirements of this standard will not typically provide an environment which is **immediately accessible for a person with a significant disability to live in** and perform daily living tasks to the greatest extent possible.

Adaptable housing is designed with consideration of features that are difficult to change later, such as:

- Locations of structural walls
- Door widths, and
- Locations of some services.

For example, an adaptable house may have a non-structural partition wall between a bathroom and a toilet that may enable the provision of a larger accessible bathroom in the future, or, a bathroom may have the toilet pan suitably located to avoid the need for alterations to the sewer.

4.2 LIVABLE HOUSING DESIGN GUIDELINES (LHDG)

The Livable Housing Design Guidelines, developed by Livable Housing Australia, describe 16 livable housing design elements. Each element provides guidance on what performance is expected to achieve either silver, gold or platinum level accreditation. It must be noted that the three levels of performance are voluntary only, and 'compliance' with even the highest platinum level alone will not satisfy the complete design solution for people with significant disability.

The 16 design elements of the LHDG are:

1. Dwelling Access
2. Dwelling Entrance
3. Car Parking
4. Internal Doors and Corridors
5. Toilet
6. Shower
7. Reinforcement of Bathroom and Toilet Walls
8. Internal Stairways
9. Kitchen Space
10. Laundry Space
11. Ground (or entry level) Bedroom
12. Switches and Power points
13. Door and Tap Hardware
14. Family/Living Room Space
15. Window Sills
16. Flooring

4.3 UNIVERSAL DESIGN PRINCIPLES

Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design. The seven Principles of Universal Design were developed in 1997 by a working group of architects, product designers, engineers and environmental design researchers, led by the late Ronald Mace at the North Carolina State University (NCSU). The purpose of the principles is to guide the design of environments, products and communications. According to the Center for Universal Design at NCSU, the principles “may be applied to evaluate existing designs, guide the design process and educate both designers and consumers about the characteristics of more usable products and environments.”

Application of universal design principals are internationally accepted as supporting more equitable environments that support greater inclusiveness of people with a range of abilities and disabilities.

PRINCIPLE ONE: EQUITABLE USE

The design is useful and marketable to people with diverse abilities.

PRINCIPLE TWO: FLEXIBILITY IN USE

The design accommodates a wide range of individual preferences and abilities.

PRINCIPLE THREE: SIMPLE AND INTUITIVE USE

Use of design is easy to understand, regardless of the user's experience, knowledge, language skills or current concentration levels.

PRINCIPLE FOUR: PERCEPTIBLE INFORMATION

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

PRINCIPLE FIVE: TOLERANCE FOR ERROR

The design minimises hazards and the adverse consequences of accidental or unintended actions.

PRINCIPLE SIX: LOW PHYSICAL EFFORT

A design that can be used efficiently and comfortably with a minimum of fatigue.

PRINCIPLE SEVEN: SIZE AND SPACE FOR APPROACH AND USE

Appropriate size and space is provided for approach, reach, manipulation and use regardless of user's body size, posture or mobility.

5. SUMMARY OF KEY DESIGN ASPECTS

A DETAILED ANALYSIS OF THE DESIGN SPECIFICATIONS FOR THE HUNTER AND FRANKSTON PROJECTS WAS CONDUCTED AGAINST THE ELEMENTS OF AS 1428.1, AND LHDG PLATINUM LEVEL.

Appendix A details these assessments. This design analysis has informed the development of the following table which considers each aspect or element of the home. By analysing the specific design outcomes established for the Hunter and Frankston projects, we were then able to translate these design outcomes and compare them to single compliance to either of these two standards, or what the impact would have been compared with a standard dwelling. The analysis of the Hunter and Frankston designs also highlighted that there are many aspects of the designs that are not covered at all by either of these two standards. The Adaptable Housing Standard AS 4299 was not used in this evaluation as it was determined that this standard has little relevance to the designs, and the term 'adaptability' is used in a different context.

A reasonable and pragmatic approach was taken when considering the necessary extent of accessibility in the homes, during the design phase. An assumption was made that only one bathroom and bedroom should be fully accessible, however it should also be reasonable to assume that an occupant with a severe disability should have access to other areas within their home such as external balconies/decking, external entertaining areas, clothes lines, other external entrances etc. There are in fact many areas of a residential environment where there are currently no access guidelines.

The table below provides a high level overview summary of the insights gained through this assessment. This summary table has been developed as a tool to identify:

- Important elements of design which these 'standards' do not cover.
- How adequately a prescribed element meets the Summer Foundation and the TAC design outcome requirement, against a set of criteria and impacts.

ASPECT	ASSESSMENT CRITERIA	AS 1428.1	LIVABLE HOUSING DESIGN GUIDELINES 'PLATINUM'
CAR PARKING	Does this design requirement suit the needs of people with significant disability?	No compliance requirements	Yes Provides good design framework
	Is there a spatial impact compared with standard residential construction?	No compliance requirements	No Reasonable to expect that the majority of new residential homes have provision for 2 standard car parking spaces (1 accessible car parking space)
	Is there an increased financial impact compared with standard residential construction?	No compliance requirements	No Reasonable to expect that the majority of new residential homes have provision for 2 standard car parking spaces (1 accessible car parking space)
	Does this design requirement result in an environment which is less home-like?	No compliance requirements	No
	Does this design requirement result in a lack of design flexibility?	No compliance requirements	No
	OVERALL CONCLUSION:	NEGATIVE No compliance requirement for any accessible car parking provision	POSITIVE Suitable car parking provision

ASPECT	ASSESSMENT CRITERIA	AS 1428.1	LIVABLE HOUSING DESIGN GUIDELINES 'PLATINUM'
EXTERNAL PATHS OF TRAVEL AND DWELLING ACCESS	Does this design requirement suit the needs of people with significant disability?	Yes	Yes Provides good design framework
	Is there a spatial impact compared with standard residential construction?	No	No
	Is there an increased financial impact compared with standard residential construction?	Yes Additional cost to provide handrails and kerbrails to external ramped surfaces	No
	Does this design requirement result in an environment which is less home-like?	Yes Delivers a commercial type public ramped surface requiring compliant handrails and kerbrails	No
	Does this design requirement result in a lack of design flexibility?	Yes Allows no flexibility for requirement of grabrails and kerbrails for ramped paths	No
	OVERALL CONCLUSION:	NEGATIVE Compliance requirements are not appropriate for residential home like property	POSITIVE Compliance requirements are appropriate for residential home like property
DWELLING ENTRANCE	Does this design requirement suit the needs of people with significant disability?	Yes – To a limited extent Door minimum clear opening width of 850mm is slightly restrictive for some large wheelchairs	Yes– To a limited extent Door minimum clear opening width of 900mm is reasonable however 950mm is better suited for large wheelchairs
	Is there a spatial impact compared with standard residential construction?	Yes Additional floor circulation on both sides of the door	Yes – Slight Additional floor circulation space on the external landing only
	Is there an increased financial impact compared with standard residential construction?	No	Yes - Slight
	Does this design requirement result in an environment which is less home-like?	No	No
	Does this design requirement result in a lack of design flexibility?	Yes The required circulation space on the internal side of the door is significant	No
	OVERALL CONCLUSION:	POSITIVE Compliance requirements are reasonable however door clear opening width should be minimum 950mm	POSITIVE Compliance requirements are reasonable however door clear opening width should be minimum 950mm

ASPECT	ASSESSMENT CRITERIA	AS 1428.1	LIVABLE HOUSING DESIGN GUIDELINES 'PLATINUM'
INTERNAL DOORS AND CORRIDORS	Does this design requirement suit the needs of people with significant disability?	Yes, however not for a residential home Having to comply with circulation space requirements for all internal doors within a home is not reasonable due to excessive spatial requirements. This can be mitigated by installing auto door openers for individuals that need them.	Yes – To a limited extent Door minimum clear opening width of 900mm is reasonable however 950mm is better suited for large wheelchairs.
	Is there a spatial impact compared with standard residential construction?	Yes – Significant Additional floor circulation on both sides of internal doors	Yes - Slight Slightly wider internal corridor widths
	Is there an increased financial impact compared with standard residential construction?	Yes Additional cost for floor area and wider doors	Yes – Slight Additional slight cost for floor area and wider doors
	Does this design requirement result in an environment which is less home-like ?	No	No
	Does this design requirement result in a lack of design flexibility?	Yes – Significant The required circulation space on both sides of internal doors is significant	No 1200mm wide corridors are reasonable
	OVERALL CONCLUSION:	NEGATIVE Compliance requirements are too restrictive in terms of circulation space at internal doors	POSITIVE Compliance requirements are reasonable however door clear opening width should be minimum 950mm
ACCESSIBLE BATHROOM, TOILET AND SHOWER	Does this design requirement suit the needs of people with significant disability?	Yes – To a limited extent Grabrail provision doesn't always suit the individual Many occasions the individual won't require them	Yes – To a limited extent Doesn't deliver complete requirements for an accessible bathroom
	Is there a spatial impact compared with standard residential construction?	Yes – Significant Additional floor circulation space that is not always required	Yes – Slight Additional floor circulation space for toilet and shower. More flexibility in application than AS 1428.1
	Is there an increased financial impact compared with standard residential construction?	Yes – Significant Additional cost for floor area, fixtures and fittings	Yes – Slight Additional slight cost for floor area and reinforcement of walls. Allows less expensive fixtures and fittings than 1428.1
	Does this design requirement result in an environment which is less home-like ?	Yes Delivers a commercial type public accessible bathroom with grabrails that may not be required	No Delivers home-like bathroom environment
	Does this design requirement result in a lack of design flexibility?	Yes – Significant Allows almost no design flexibility	No Allows good design flexibility particularly for grabrail provision
	OVERALL CONCLUSION:	NEGATIVE Compliance requirements are not appropriate for residential home-like property	POSITIVE Compliance requirements are appropriate however do not deliver complete design framework. Require 'Platinum Plus' design requirements

ASPECT	ASSESSMENT CRITERIA	AS 1428.1	LIVABLE HOUSING DESIGN GUIDELINES 'PLATINUM'
KITCHEN AND LAUNDRY	Does this design requirement suit the needs of people with significant disability?	No compliance requirements	No Doesn't deliver complete requirements for an accessible kitchen
	Is there a spatial impact compared with standard residential construction?	No compliance requirements	Yes – Slight Additional floor circulation space for clearance between benches
	Is there an increased financial impact compared with standard residential construction?	No compliance requirements	Yes – Slight Additional slight cost for floor area
	Does this design requirement result in an environment which is less home-like ?	No compliance requirements	No Delivers home like kitchen and laundry environment
	Does this design requirement result in a lack of design flexibility ?	No compliance requirements	Yes - Slight Additional floor circulation space for clearance between benches
	OVERALL CONCLUSION:	NEGATIVE No compliance requirement for any accessible kitchen or laundry provision	NEGATIVE Compliance requirements deliver reasonably accessible circulation space however do not deliver a fully accessible and functional kitchen
LIVING ROOM	Does this design requirement suit the needs of people with significant disability?	No compliance requirements	Yes
	Is there a spatial impact compared with standard residential construction?	No compliance requirements	Yes – Slight Floor circulation space requirement is reasonable
	Is there an increased financial impact compared with standard residential construction?	No compliance requirements	Yes – Slight Additional slight cost for floor area
	Does this design requirement result in an environment which is less home-like ?	No compliance requirements	No
	Does this design requirement result in a lack of design flexibility ?	No compliance requirements	No
	OVERALL CONCLUSION:	NEGATIVE No compliance requirement for any accessible living room provision	POSITIVE Compliance requirements are appropriate

ASPECT	ASSESSMENT CRITERIA	AS 1428.1	LIVABLE HOUSING DESIGN GUIDELINES 'PLATINUM'
FLOORING (TYPE AND TRANSITION BETWEEN SURFACES)	Does this design requirement suit the needs of people with significant disability?	Yes	Yes
	Is there a spatial impact compared with standard residential construction?	No	No
	Is there an increased financial impact compared with standard residential construction?	No	No
	Does this design requirement result in an environment which is less home-like?	No	No
	Does this design requirement result in a lack of design flexibility?	No	No
	OVERALL CONCLUSION:	POSITIVE Compliance requirements are appropriate	POSITIVE Compliance requirements are appropriate
HANDLES, SWITCHES, TAPS AND GPOS	Does this design requirement suit the needs of people with significant disability?	Yes	Yes – To a limited extent Doesn't deliver complete requirements for an accessible bathroom
	Is there a spatial impact compared with standard residential construction?	No	Yes – Slight Additional floor circulation space for toilet and shower. Not as onerous as AS 1428.1
	Is there an increased financial impact compared with standard residential construction?	Yes – Slight Additional cost for 'specialised' fixtures & fittings such as extended lever taps and large rocker switches	Yes – Slight Additional cost for 'specialised' fixtures and fittings such as extended lever taps and large rocker switches
	Does this design requirement result in an environment which is less home-like?	Yes Specialised fixtures and fittings such as extended lever taps are not always required	No Greater flexibility to use more home like fixtures and fittings
	Does this design requirement result in a lack of design flexibility?	Yes Allows little design flexibility when selecting fixtures and fittings	No
	OVERALL CONCLUSION:	NEGATIVE Compliance requirements are not appropriate for residential home like property	POSITIVE Compliance requirements are appropriate

ASPECT	ASSESSMENT CRITERIA	AS 1428.1	LIVABLE HOUSING DESIGN GUIDELINES 'PLATINUM'
HOME AUTOMATION AND FUTURE PROVISIONS	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
BALCONY OR EXT. DECKING	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
EXT. DOORS (OTHER THAN MAIN ENTRANCE)	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
CLOTHES LINE	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
STUDY AREA	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
COMMON AREAS AND AMENITIES (EXT. BBQ, ENTERTAINING AREAS ETC.)	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
LETTERBOX	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
HEATING AND AIR CONDITIONING	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
STRUCTURAL PROVISION FOR CEILING HOIST	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
ADDITIONAL GPO'S FOR EQUIPMENT	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
ACCESSIBLE APPLIANCES	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
EMERGENCY COMMUNICATION	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
FIRE DETECTION AND SUPPRESSION	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
OCCUPATIONAL HEALTH AND SAFETY	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
COMMUNICATION TECHNOLOGY TO CARE PROVIDERS	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.
STORAGE	Does this design requirement suit the needs of people with significant disability?	No compliance requirement or design guideline.	No – No compliance requirement or design guideline.

6. INSIGHTS, ISSUES AND IMPLICATIONS

THE DESIGN ANALYSIS OF THE DEMONSTRATION PROJECTS (CONTAINED IN APPENDIX) HAS PROVIDED A NUMBER OF IMPORTANT INSIGHTS. THE TABLE IN SECTION 5 PROVIDES A SUMMARY OF THE ANALYSIS AND REFLECTION ON THE INSIGHTS FROM THE MORE DETAILED ASSESSMENT.

THIS SECTION OF THE REPORT PROVIDES A SYNTHESIS OF THE OVERALL INSIGHTS AND ISSUES IDENTIFIED FROM THE MORE DETAILED ANALYSIS.

6.1 OVERALL CONTRIBUTION OF AS1428.1 AND LHDG PLATINUM LEVEL

Access guidelines/standards need to be relevant and support specific outcome objectives for the people who will live in the properties to which the guidelines/standards apply.

A key outcome of this project is development of a better insight into the overall level of relevance and impact of both AS 1428.1 and the Livable Housing Design Guidelines on design of housing for people with significant disabilities.

Section 5, Summary of Design Assessment, clearly demonstrates that **AS 1428.1** has an overwhelming negative impact on an accessible residential home for a person with significant disability. **It has very little or no relevance to residential housing.**

The design assessment also demonstrates that Platinum level of LHDG is a positive platform from which to start, however platinum level still does not provide all the necessary design requirements for good accessible housing for people with significant disability. Furthermore, silver or gold levels of compliance are simply not sufficient.

For example, LHDG platinum compliance does not specify any requirement for access provision for:

- External doors other than the main entrance
- External entertaining areas, balconies, backyards and clothes line
- Kitchen fixtures such as sink, hot plate, oven, benchtops and accessible storage
- Bathroom fixtures such as vanity and accessible storage
- Environmental control of air conditioning and heating
- Assistive technology and communication

It also needs to be noted that a BCA Class 3 type development (eg. a group home) introduces significant legislative compliance requirements, in particular AS 1428.1 compliance for bathrooms. The consequence is an institutional type bathroom, which may not meet the needs of the user. For example there is great individual variance with some people not needing grab rails, while others might need them on a specific side or need them at a different height and location.

The process of this project whereby specific project designs have been carefully evaluated in detail, has led to these conclusions and themes. Of particular interest is the impact of AS 1428.1 and platinum level of LHDG in appendix A.

6.2 COST EFFECTIVENESS

Housing for people with significant disabilities needs to be affordable in terms of initial construction and tenancy (through outright purchase, mixed equity ownership or affordable rent). Housing also needs to support greater independence which will ultimately have significant potential to reduce long-term care and support costs.

AS 1428 COMPLIANCE

Compliance with AS 1428.1 in a private residential home results in a significant overall cost impact and may not be sustainable in the disability and housing sector or for the consumer. The main areas that impact on cost effectiveness when complying with this standard are:

- Required circulation space to bathroom and doors
- Cost of 'compliant' fixtures and fittings (many of which will be redundant for an individual occupant and not suit their individual needs). As an example, the cost of many reputable brands of AS 1428 compliant toilet suites are approximately \$3,000, versus a functional domestic toilet pan at a cost of approximately \$500.

LHDG PLATINUM COMPLIANCE

Complete compliance with LHDG Platinum level results in only a marginal overall cost impact which can be reasonably absorbed by the disability and housing sector and some consumers. Industry impact cost analysis have been conducted by various peak bodies and developers in support of the Livable Housing Australia's objectives and aspirational targets for compliance to various levels.

The Australian Housing and Urban Research Institute (AHURI) has estimated that if 20% of new homes incorporated LHDG compliance, then cost savings to the Australian health system would range from \$37 million to \$54.5 million per annum. Assuming 100% compliance for all new homes the cost savings ranged from \$187 million to \$273 million per annum.

6.3 SPATIAL CONSIDERATIONS

Housing for people with significant disabilities needs to be large enough to accommodate reasonable circulation space and function, however not too large that the cost becomes a prohibitive factor.

AS 1428 COMPLIANCE

Complete compliance with AS 1428.1 results in a marginally increased net floor footprint area due to the increased requirement for circulation space within:

- Accessible bathroom (vanity, shower and toilet pan)
- Internal and external door approaches (latch side and hinge side)
- Corridor widths

LHDG PLATINUM COMPLIANCE

Complete compliance with LHA Platinum level results in an increased net floor footprint area due to the increased requirement for circulation space within:

- Accessible bathroom (shower and toilet pan)
- External main door entrance (external under cover landing)
- Corridor widths
- Main bedroom
- Living room

6.4 CONSUMER NEED (INDIVIDUAL FACILITATION)

Housing for people with significant disabilities needs to be universally designed to suit as wide a range of people as possible and to be adaptable in a cost-effective manner to facilitate the specific needs of the individual tenant.

AS 1428 COMPLIANCE

Complete compliance with AS 1428.1 in an individual residential property results in the provision of specific fixtures and fittings, which in many cases are not functional, are not adaptable and are often even redundant. This is particularly evident in the case of 'AS 1428 compliant':

- Shower grabrails
- Toilet grabrails
- Shower seat
- Toilet back rest

In many cases, people with significant disability are unable to use grabrails for the purpose of individual transfer and balance.

Also AS 1428 compliant heights and knee/foot clearance under vanity basins, benchtops etc. in many cases do not suit the individual needs of the user, as many people with significant disability use a larger wheelchair, sometimes in a reclined position and some need much lower heights. Greater flexibility with bench heights and vanity basins is required (eg. adjustable height vanity basins).

LHDG PLATINUM COMPLIANCE

Complete compliance with LHA Platinum level results in a layout and provision of fixtures and fittings that are more universally designed and more likely to be adapted to suit the needs of the individual. A good example is the requirement for reinforced bathroom and toilet walls, which allows grabrails (if required) to be fixed in any position to suit the individual needs of the user.

6.5 HOME-LIKE, SUPPORTING DAILY LIVING

Housing for people with significant disabilities needs to be home-like and not institutional or commercial in appearance, layout and feel.

AS 1428 COMPLIANCE

Complete compliance with AS 1428.1 results in the provision of an institutional or commercial public type facility. This is particularly evident in the provision of a compliant AS 1428 bathroom/toilet/shower and compliant AS 1428 circulation space at internal doors. The excessive circulation space resulting in very wide corridors and spaces at internal doors can be mitigated by the use of auto opening doors to suit the individual needs of the user. However, it should also be noted that providing scope for manual control was also important when developing the design brief for Summer Foundation and the TAC. This provides opportunities for as physical a lifestyle as possible, without automation, unless absolutely needed.

LHDG PLATINUM COMPLIANCE

Complete compliance with LHDG Platinum level results in the provision of a more home-like design, which does not stipulate requirements that contribute to institutional or commercial public type facilities within the home.

It should be noted however that delivering a personalised home-like environment is very much in the hands of the designer following consultation with key stakeholders such as people with disabilities.

6.6 MAINTENANCE AND DURABILITY

Housing for people with significant disabilities needs to be durable due to the increased wear and tear created by mobility devices, equipment and the lack of mobility control experienced by some people.

Accessible housing needs to be designed in a manner that will reduce long-term lifetime maintenance costs. The selection of materials, products and fixtures are extremely important to ensure that they are robust and hard wearing, whilst maintaining mainstream home-like appearances. Disability access standards do not take this issue into consideration; however, a good design framework will incorporate this requirement.

6.7 INDUSTRY AND COMMUNITY EXPECTATIONS

Housing for people with significant disabilities requires an awareness within the industry and community that it can be delivered and integrated into mainstream residential housing.

AS 1428 COMPLIANCE

There is still an assumption within the housing sector that any housing for people with significant disability, including a BCA Class 1 dwelling, must comply with the requirements of AS 1428.1. This is not true; however, it is often specified as a requirement by government and organisations.

LHDG PLATINUM COMPLIANCE

There is no legislative requirement to comply with the requirements of any level of the Livable Housing Design Guidelines (LHDG), except through targets set by some state governments. Also in some cases, government conditions attached to funding require compliance to platinum level of the LHDG.

Compliance with silver or gold level of LHDG does not meet the access needs of people with significant disability. Whilst compliance to Platinum level of LHDG is a good foundation for producing home-like accessible properties, it does not solely deliver the required design outcomes that people with significant disabilities require.

6.8 RE-DEFINING ADAPTABILITY

Housing for people with significant disabilities needs to be adaptable in a cost effective way; however, not in the traditional method of compliance to AS 4299.

The housing sector generally assumes that adaptable housing means compliance to AS 4299 Adaptable Housing. The term adaptability needs to be re-considered in terms of flexibility for housing people with significant disability who have a range of different needs. Much has been learned from the housing demonstration projects and various cost effective concepts around adaptability as illustrated in the Summer Foundation publication, *New Housing Options for People with Significant Disability – Design Insights* (<https://www.summerfoundation.org.au/resources/design-report/>).



• An example of an 'institutionalised' bathroom compliant to AS 1428.1 within a BCA Class 3 development. Note the requirement for grabrails, shower seat, shower curtain and backrest behind the toilet.



• Example of a home like bathroom compliant to Platinum Standard in a BCA Class 2 dwelling.

7. WHAT IS A REASONABLE DESIGN FRAMEWORK AND WHERE TO FROM HERE?

IN CONCLUSION, MUCH HAS BEEN LEARNT FROM THE HOUSING DEMONSTRATION PROJECTS DEVELOPED BY SUMMER FOUNDATION AND THE TAC. THESE LEARNINGS, SUPPORTED BY THIS ASSESSMENT OF VARIOUS DESIGN REQUIREMENTS AND THEIR PRACTICAL APPLICATIONS, VERIFY THAT THERE IS CURRENTLY NO ONE PARTICULAR DESIGN STANDARD WHICH WILL DELIVER THE DESIGN OUTCOMES THAT ARE REQUIRED FOR PEOPLE WITH SIGNIFICANT DISABILITY.

This analysis has highlighted a significant gap in the availability of accessible residential design requirements. It supports the need to consider development in Australia of an appropriate design framework to assist the housing sector in delivering suitable housing for people with significant disability. This is particularly important to support people to exercise choices for more independent living.

The development of a new Australian Standard specifically for accessible residential housing would help to fill this gap and provide industry with greater guidance. This new Standard would articulate the requirements of a good design framework and document design features that will support people with significant disability to live more independently in home-like environments.

Development of an appropriate design framework is critical for people with significant disability as the design of their home, along with appropriate supports, has a major impact on their ability to live as independently as possible. Some people with significant disability spend a large portion of their time in their home. Therefore, the ability to access all areas of an individual's home environment such as the garden or the balcony, not just their bedroom, bathroom and the front door, is critical to the wellbeing of the occupant.

Above all, an appropriate design standard that delivers well-designed and accessible home-like environments that are well-located has significant potential to reduce long-term care costs and improve people's wellbeing. The potential savings associated with long-term care costs need to be taken into consideration when evaluating any initial increases in the construction cost associated with more accessible and adaptable design. A design framework that is appropriate for people with significant disability living more independently in their home will also support 'ageing in place'.

The integration of assistive technology or home automation is another critical design element not referenced in any existing design guideline. Assistive technology can greatly enhance independence and safety. There are also people with a significant disability who are not able to live independently without the use of assistive technology, no matter how accessible the home environment is. There is growing recognition (including by the NDIA) that assistive technology, including home automation, can change life opportunities for people with significant disability. In the development of any new design framework, guidance should be included about key considerations for future cost-effective installation of home automation and other technologies.

It is proposed that an appropriate design framework for people with significant disabilities addresses all of the following:

- Incorporation of Universal Design Principles
- Compliance to Platinum level of Livable Housing Design Guidelines (however this is not enough as a singular compliance standard)
- Creation of home-like, rather than institutional environment
- Flexibility and adaptability to suit the different needs of various individual tenants of a property across time
- Provision for integration of assistive technology, where it will assist the occupant's independence
- Durability and low maintenance
- Ability to sell property as an attractive asset on the open market

All of the above components need to be articulated in a carefully considered design brief in order to achieve the desired design objectives. A successful design brief should be created in collaboration with an access consultant, clinical therapists, an architect and project manager with experience in innovative housing models. Above all, it should take into account feedback from people with disabilities about what design features support them to live with greater independence.

Ultimately, this project has highlighted that there is currently no one particular design standard that can be applied to deliver well-designed, highly accessible home environments for people with significant disabilities. A new Australian Standard could provide the solution.

APPENDIX A – DESIGN ASSESSMENTS

HUNTER PROJECT (NSW) AND FRANKSTON RIPL PROJECT UNITS (VIC)

AS1428.1-2009 DESIGN FOR ACCESS AND MOBILITY REVIEW

DOCUMENT PURPOSE

The purpose of this document is to review the design specifications developed and applied in the Hunter Housing Project and the Frankston Project (for the Summer Foundation and the TAC, respectively) and to assess how these conform to the Australian Standard – Design for Access and Mobility 1428.9-2009 Part 1. A varied selection (4 from a total of 10) of accessible Summer Foundation apartments and 1 (of a total of 9) TAC units have been reviewed. Common areas in these projects have not been reviewed.

Note: Due to the nature of these building projects, as-built outcomes may vary from initial design specifications.

COMPLIANCE REQUIREMENTS – EXPLANATORY NOTE

Compliance with the standard is not mandatory under the BCA within the residential units of these projects.

The TAC Frankston Project is a Class 1 development ('a single dwelling separated by fire-rated walls') and as such, the standard does not apply.

The Hunter Housing Project is a Class 2 development ('a building containing 2 or more sole-occupancy units, each being a separate dwelling') and as such the Standard does apply to some common areas (in accordance with the BCA and the Premises Standard), but not within apartments themselves.

Note: All principles within the standard have been applied to components within the unit, regardless of the intent of the requirement of the standard (e.g. whether it is intended to apply to common areas or areas within the unit).

LEGEND

If standard is applied: **NO** (haven't complied) TYPICALLY INDICATES AN ISSUE WITH STANDARD
YES (met the min. compliance)
EXCEEDED (above and beyond min. compliance)
 N/A = not applicable to the subject reviewed documents AFFL = above finished floor level
 LH / RH = left hand / right hand (referring to transfer) CAPT = continuous accessible path of travel

AS1428.1-2009 - PART 1: GENERAL REQUIREMENTS FOR ACCESS - NEW BUILDING WORK - TABLE ONE.

6.0 CONTINUOUS ACCESSIBLE PATHS OF TRAVEL (APPLIED WITHIN THE UNIT)

AS1428.1-2009 CLAUSE NUMBER	STANDARD MET HUNTER UNITS	STANDARD MET TAC UNITS	HUNTER UNITS - DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	COMMENTS
06.1 GENERAL shall not include any impediment (e.g. step, stair, turnstile, revolving door, escalator, moving walkway)	YES	YES				
06.2 HEIGHTS ON A CONTINUOUS PATH OF TRAVEL min. height of 2m & 1.98m at doors, unobstructed	EXCEEDED	EXCEEDED	Min. ceiling height of 2.4m Min clear door height of 2m specified	As per Hunter Project.	Less institutional (more spacious) Increased design flexibility (e.g. space for equipment such as mobile hoists)	

AS1428.1-2009 CLAUSE NUMBER	STANDARD MET HUNTER UNITS	STANDARD MET TAC UNITS	HUNTER UNITS – DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	COMMENTS
06.3 WIDTH OF A CAPT min. 1m wide unobstructed path	⬆️ EXCEEDED (increased width)	⬆️ EXCEEDED (increased width)	Minimum passage width increased from 1m to 1.2m unit	As per Hunter Project	Increased design flexibility (e.g. improved access) Less institutional (more space for furnishing / personalisation)	Enhancements cater for large motorised wheelchair users
06.4 PASSING SPACE FOR WHEELCHAIRS zone 1.8m W x 2m L (for two wheelchair users to pass)	✅ YES (within Living)	✅ YES (within Living)	Some corridors narrower than 1.8m wide, however turning circle with 2.25m DIA provided within Living	As per Hunter Project	Reduced spatial impact (e.g. demand for wider corridors)	Open plan design and furniture layout impact on this element
06.5 CIRCULATION SPACE FOR WHEELCHAIR TURN space to turn 90-180°: provide min. 2070 x 1540mm	✅ YES	✅ YES	Space allocated in accessible bedroom. Turning circle of 2250 DIA. in living and bedrooms Open plan design, to reduced amount of corners	As per Hunter Project		Furniture layout important to maintain this element
06.6 VISUAL INDICATORS ON GLAZING to be within 900-1000mm AFFL, with min 30% luminance contrast	❌ NO	❌ NO	Decals installed to satisfy general glazing requirements under BCA only; no visual indicators as per Clause	As per Hunter Project	Less institutional (general glazing decals are less visually prominent) Reduced cost (item can be retrofitted if needed)	Majority of individuals in project units do not have visual impairment

7.0 FLOOR OR GROUND SURFACES





AS1428.1-2009 CLAUSE NUMBER	STANDARD MET HUNTER UNITS	STANDARD MET TAC UNITS	HUNTER UNITS - DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	COMMENTS
07.1 GENERAL Slip resistant surface and traversable texture, suitable for those who use a wheelchair, or have an ambulant or sensory disability	✓ YES	✓ YES	3 selected finishes Direct stuck (non-standard install method to provide harder surface) Thicknesses of adjacent flooring matched for more seamless transition Low maintenance, robust products selected (timber- look vinyl & carpet-look vinyl; 'Bolon') Marmoleum specified for one unit (material which is easy to repair) Residential-look products selected, patterns/colours not visually confusing	As per Hunter Project	Less institutional Increased design flexibility (e.g. harder surface = improved access for those with reduced arm strength) Reduced cost (long-term; via robust, easy-care, repairable materials)	
07.2 CONSTRUCTION TOLERANCES FOR ABUTMENT OF SURFACES Shall have a smooth transition	✓ YES	✓ YES	Specification required upgrade of developer's standard external surface material to include level threshold between indoors and out, gaps between 1-12mm	Level threshold between indoors and out, gaps between 1-12mm		
07.3 CHANGES IN LEVEL No more than 5mm vertical between abutment of 2 surfaces	✓ YES	✓ YES				
07.4.1 CARPETS & OTHER SOFT FLEXIBLE MATERIALS Max. pile height 6mm, continuous fastening of exposed edges, <i>leading edge</i> max height 3mm	✓ YES	✓ YES	Floor covering thickness matched; transition strips at edges not needed Carpet tile & vinyl direct stuck to slab, with combined tolerance (<i>leading edge</i>) of 3mm	As per Hunter Project, except marmoleum in lieu of vinyl, and combined tolerance (<i>leading edge</i>) of 2.5mm	Less institutional (no transition strips)	Product thicknesses: Bolon : 4mm Vinyl : 2mm Carpet Tile: 5mm Marmoleum: 2.5mm

The following extracts from specified flooring suppliers outline product data, including thicknesses.

Bolon - 2.9mm

Standard tile size is 500 x 500mm at 2.9mm thick. Weight of tiles 3.8kg/m².
Also available in a variety of pre-cut shapes – ask TAGf:I for more information.
Roll size is 25mm x 2m at 2.4mm thick. Weight of rolls: 2.8kg/ m².

Vinyl - 2.0mm

SPECIFICATION			
			
2.0mm	0.70mm	2m x 20m = 40m ²	3000g/m ²

Carpet Tiles - 6.5mm

product	friendly tiles, kinetic
construction	tufted high & low loop
yarn/fibre	Antron Lumena®
pile weight	640g/m ²
pile height	5.0mm to 3.0mm
gauge	1/10
tile size	500mm x 500mm
total thickness	6.5mm
total weight	4.8kg/m ²
carton size	5sqm
co-ordinates	all friendly carpet tiles

Marmoleum - 2.0mm

Thickness	2.5 mm
Length Width	32 mm x 200 cm
NCS	S 2010-G90Y
LRV	49%

13.0 DOORWAYS, DOORS AND CIRCULATION SPACE AT DOORS

AS1428.1-2009 CLAUSE NUMBER	STANDARD MET HUNTER UNITS	STANDARD MET TAC UNITS	HUNTER UNITS - DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	COMMENTS
13.1 LUMINANCE CONTRAST Min. 30% contrast between door/jamb, door leaf and wall	⊗ NO (preference for developer's standard instead)	⊙ YES	All internal door finishes as per developer's standard (doors and walls one colour) so project and non- project units look the same	Concealed door jambs; luminance contrast achieved between door panel and wall surface	Hunter Project: Less institutional ('specialist' aesthetic not applied unless needed) Hunter Project: Suits the needs of those with significant disability (de-identified units provide privacy for potentially more vulnerable individuals)	Hunter unit doors could be repainted if required by an occupier
13.2 CLEAR DOOR OPENINGS Min. 850mm clear width	⬆ EXCEEDED (increased door leaf width)	⬆ EXCEEDED (increased door leaf width)	Clearance widths: 950 min. specified to all doors Doors located for straight access paths where possible Capacity for automation provided	As per Hunter Project	Increased design flexibility (e.g. improved access and manoeuvrability) Suit the needs of those with significant disability (esp. those who may use larger motorised wheelchairs) Increased build cost (larger floor area, prewiring) Spatial impact (larger floor area) Reduced cost (longterm; reduced damage / maintenance requirements)	Actual as-built clear openings larger than specified due to door construction: Swing doors 953mm Sliding Doors 953mm

AS1428.1-2009 CLAUSE NUMBER	STANDARD MET HUNTER UNITS	STANDARD MET TAC UNITS	HUNTER UNITS – DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO THE CLAUSE	COMMENTS
<p>13.3 CIRCULATION SPACES AT DOORWAYS ON CAPT</p> <p>No cross fall steeper than 1:40, if door is power-operated the dimension adjacent to the door does not apply for a front of approach</p>	<p>⊗ NO</p> <p>(HOWEVER automation can achieve element)</p>	<p>⊗ NO</p> <p>(HOWEVER automation can achieve element)</p>	<p>Clearance zones forward of doors are met; latch side clearances met except for E006 bath, bed 1 external door, bed 1 and 2 and M400 second Bath</p> <p>Pre-wiring to all doors provided to allow automation if needed</p>	<p>Clearance zones forward of doors are met; latch side clearances met except for bathrooms and entry doors</p> <p>Pre-wiring to all doors provided to allow automation if needed</p>	<p>Latch side clearance would increase (greater floor area)</p> <p>Some increase in build cost (pre-wiring)</p> <p>Design flexibility preferred to increased cost = retrofit of door motorisation hardware possible</p>	
<p>13.4 DISTANCE BETWEEN PASSAGES DOORS ON CAPT</p> <p>Max. length 1450mm</p>	<p>✓ YES</p>	<p>✓ YES</p>				
<p>13.5 DOOR CONTROLS</p> <p>Lock controllable with one hand</p>	<p>✓ YES</p>	<p>✓ YES</p>	<p>Door hardware requested to comply with standard, mounted at 1000mm AFFL</p>	<p>As per Hunter Project</p>	<p>Pre-wiring provisions increase building cost</p> <p>Suit the needs of those with significant disability (esp. those who have significantly reduced arm / hand strength)</p>	
<p>Distance between handle and back plate/door (in the centre) between 35 - 45mm</p>	<p>✓ YES</p>	<p>✓ YES</p>				
<p>D pull handle, requiring less than 20N of force to operate door</p>	<p>✓ YES</p> <p>(no door closers to manual doors)</p>	<p>✓ YES</p> <p>(no door closers to manual doors)</p>	<p>Door closers omitted on manual doors (typical) to keep force to operate less than 20N</p>			
<p>Min. 25mm DIA push button (powered doors) proud of the surface; shall activate door before button fully pressed</p>	<p>⬆ EXCEEDED</p> <p>(sensitive touch alternative provided)</p>	<p>⬆ EXCEEDED</p> <p>(sensitive touch alternative provided)</p>	<p>All internal and external door heads pre-wired for future door opening devices</p> <p>Pre-wiring to external doors provides capacity for control via tablet or wall button</p>			

The following table is an extract from the Hunter Project Technology Specification, which outlines options for automation of doors/gates, depending on the occupier's needs.

ELECTRICAL / TECHNOLOGY WORK IN BASE CONTRACT – SUMMARY

Page 3

6/06/16

Note: Shading indicates Essential Service	Hardware/Software/ Work in Contract (INSERT PRODUCTS HERE)	Level of Integration / type of control in Contract	E.001	E.005	E.006 (Display Unit)	E.107	E.111	E.112	M.112	E.207 (Display Unit)	M.212	E.307	M.400
2. DOORS & ACCESS													
Unit Entry Door, External Doors & Gate (if provided)		Electric strike	X Main unit (entry only)	X	X	X	X	X	X	X	X	X	X
Unit Entry door & main Living Room door	• RF fob for unlocking	• Manual opening power & data pre-wiring	X (quantity TBC)	X	X	X	X	X	X	X	X	X	X
	• RF fob for unlocking + Automation hardware (with battery backup & free-release) (Dorma ED100 Swing Door Operator / Dorma HD200 Single Slide Operator or similar product.)	• Automatic opener • Wall switch control (internally) + tablet control (via Home Automation)			X					X			
Private entry gates	• RF fob for unlocking	• Manual opening power & data pre-wiring		X		X	X	X					
	• RF fob for unlocking + Automation hardware (with battery backup & free-release)	• Automatic opener • RF control + tablet control (via Home Automation)			X								
All Internal Doors		power & data pre-wiring		X	X	X	X	X	X	X	X	X	X

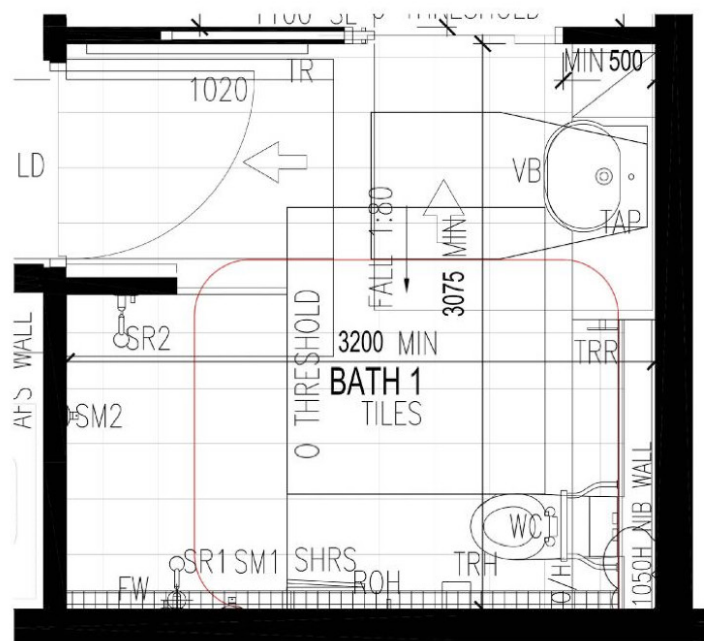
14.0 SWITCHES AND GENERAL PURPOSE OUTLETS (POWER POINTS)

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14.1 LIGHTSWITCHES & GPO'S Generally located between 900-1100 AFFL on the path of travel, not less than 500mm from internal corner	⬆️ EXCEEDED (corner offset increased from 500 to 600mm)	✅ YES	GPO's / switches at least 600mm from corners, at 1000 mm AFFL Pre-wiring provides capacity for lighting control via tablet / smartphone Range of optional automation programming features e.g. "arrive-home-everything-on" command	As per Hunter Project, except corner offset is 500mm as per standard	Suits the needs of those with significant disability (e.g. increased options for control, requiring less strength) Pre-wiring provisions increase building costs but anticipated independence reduces long-term support costs Hunter Project: Suit the needs of those with significant disability (esp. those who use a larger motorised wheelchair; as corner is more difficult to access)	
14.2 ACCESSIBLE SOLE-OCCUPANCY UNITS & ACCESSIBLE SANITARY FACILITIES						
Light switches & GPO's to be rocker and toggle action, min. 30 x 30 or push pad with min. 25mm DIA.	✅ YES	✅ YES	All light & power switches rocker type, with GPO's between 600-1100 AFFL Appliance GPO's located to enable maximum control	As per Hunter Project, except for 500mm min corner offset of GPO's	Less institutional (individuals have more opportunity to independently control appliances) Hunter Project: Suit the needs of those with significant disability (esp. those who use a larger motorised wheelchair; as corner is more difficult to access)	
Installed between 600mm and 1100mm AFFL	✅ YES	✅ YES				
Not less than 500mm from an internal corner	⬆️ EXCEEDED (600mm corner offset)	✅ YES				

15.0 SANITARY FACILITIES

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15.1 GENERAL Combination of facilities required; those that support LH transfer to WC, and those that support RH transfer to WC; may be achieved by mirroring facility layout	⬆️ EXCEEDED (outcome achieved within the one facility)	✓ YES (mirrored layouts)	Low height mid-wall “nib wall” allows for toilet relocation, to suit either preferred transfer side		Hunter Project: Increased design flexibility Suits needs of those with significant disability (allows for modifications in dwelling over time, to suit individual’s changing needs) Increased capital cost but reduced long-term support costs (potential increase in independence, when toilet suitably located)	
15.2 ACCESSIBLE UNISEX SANITARY FACILITIES						Frankston TAC Project: due to builder’s selected HWS
15.21 TAPS Tempered mixer required with lever	✓ YES	✓ YES	Standard applies	As per Hunter Project		(gas boosted with push-pad control, max. hot water temperatures can more easily be lowered for individuals if needed)

Below are plans of typical bathrooms from the Hunter and Frankston Projects, indicating circulation spaces around the WC.



Disabled toilet clearance - Hunter Project typical bathroom configuration



Disabled toilet clearance – Frankston Project typical bathroom configuration

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15.2.2 WC PAN CLEARANCES	⊗ NO (can be achieved if needed)	✓ YES	Typical WC install is non-compliant model; flexible toilet nib wall allows for easy replacement with compliant WC model if needed	Compliant WC specified	Hunter Project: Design flexibility (for most usable toilet type & location) Nib wall = increase in capital cost Standard WC in lieu of disability compliant WC = capital cost saving Reduced future costs (for support) due to anticipated increase in independence	High proportion of population in project units do not require a compliant toilet- model
Top of pan 440-460mm, top of seat 460-480mm AFFL						
Front of pan offset 800mm from wall	⊗ NO can be achieved if needed)	✓ YES	Location also alterable, to suit individual's preferred transfer side			
Front of pan 600mm from front of cistern	⊗ NO can be achieved if needed)	✓ YES				
Centre of pan offset from side wall by 450 to 460mm	✓ YES	✓ YES				
15.2.3 WC SEAT	⊗ NO (can be achieved if needed)	⊗ NO (can be achieved if needed)	Developer's standard used typically – no contrasting seat colour Flexibility to replace toilet seat if needed	As per Hunter Project	Less institutional (one colour for all components looks more mainstream)	
Full round type, securely fixed, with lateral stability, load-rated to 150kg, min. luminance contrast of 30% between background, pan, wall or floor						

The extract below from the Summer Foundation's Design Insights Report (pg. 48) demonstrates various options for altering the toilet type and location, to increase opportunities for independent use.

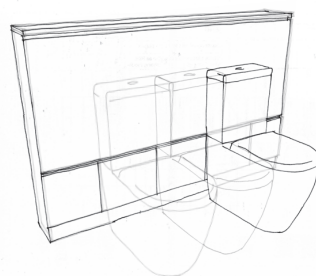
ACCESSIBLE BATHROOMS | D. KEY SPACES | DESIGN AND ADAPTABILITY FEATURES

FLEXIBLE TOILET

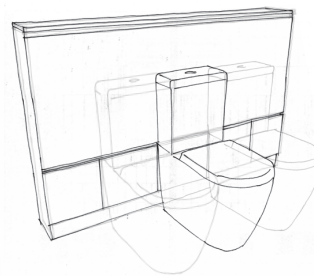
FLEXIBLE LOCATION

Toilets in Accessible Bathrooms can be located in 3 different positions, to suit an individual user's preferred side of transfer.

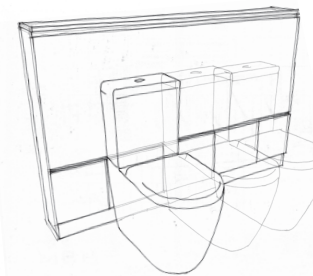
This feature is designed to maximise the opportunity for independent self-transfer, reducing the potential need for installation of grabrails and support staff assistance.



Position 1 - standard location as per LHD Platinum requirements (left-sided transfer)



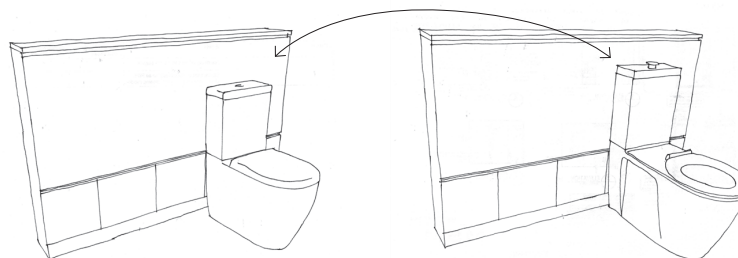
Position 2 - alternative central location



Position 3 - alternative location for right-sided transfer

FLEXIBLE TOILET TYPE

Any toilet with a P-trap (rear waste point) with a similar setout point may be installed, including either a standard toilet (approx. RRP of \$300) or a DDA-compliant toilet (approx. RRP of \$2400). Hence this design feature can save the cost of purchasing a DDA-compliant toilet, if it is not needed.



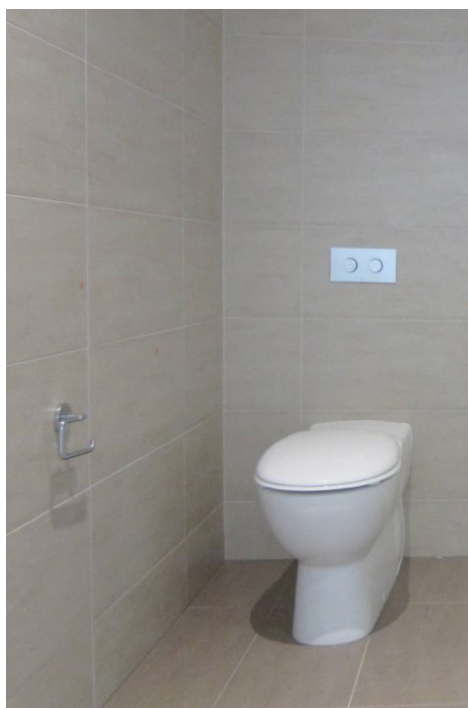
A standard toilet and DDA-compliant toilet can be easily and cost-effectively swapped in future if necessary.

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15.2.4 WC BACKREST Located & with loading as outlined	⊗ NO (can be achieved if needed)	⊗ NO (can be achieved if needed)	Typical install – none provided Optional install depending on individual's requirements	As per Hunter Project	Less institutional Reduced capital cost if element not needed	Backrests likely to impede use of WC for individuals in larger, reclining, shower commode chairs
15.2.5 FLUSHING CONTROLS Installed in zone as outlined in standard	⬆ EXCEEDED (enhanced access option)	⬆ YES	Flush controls centrally located as per code GPO provided for addition of sensor-activated flush if individual cannot reach controls (no pushing / twisting needed)	As per Hunter Project, except no GPO for sensor was installed.	Improved design flexibility Suits needs of those with significant disability (e.g. with limited strength, mobility)	
15.2.6 TOILET PAPER DISPENSER Installed in zone as outlined in standard	⊗ NO (can be achieved if needed)	⬆ YES	Element to be installed once individual occupier identified Non-tiled wall surfaces provided to enable easy relocation in future if needed	Installed as per code	Hunter Project: Improved design flexibility (tailored location maximises capacity for independent use)	Element installed to code may not be reachable if WC located in alternative position
15.2.7 GRABRAILS Installed as per Standard	⊗ NO (can be achieved if needed)	⊗ NO (can be achieved if needed)	Grabrails only installed if required by individual occupier Provision of AFS concrete walls, ply sheeting and steel- framed toilet nib wall allow for install of fixed wall- grabrails or drop-down grabrails as required	As per Hunter Project, except WC position fixed	Improved design flexibility (to install most usable type of rail for individual) Less institutional Reduced upfront cost (omit grabrails if not needed)	Grabrails may not always be useful (particularly for occupiers who do not use toilet)
15.2.8 CIRCULATION SPACE Unobstructed circulation space between 0 & 2m AFFL, except for fittings as outlined in clause	⊗ NO (due to circulation space & baby change – can be achieved if needed)	⊗ NO (due to baby change – can be achieved if needed)	As noted in 15.1 WC clearances cause the vanity unit to protrude 320mm into the zone, however generally all other areas are met Flexible toilet pan location enables space clearances outlined in Standard if needed however vanity will still encroach into clearances to varying degrees, depending on toilet pan locations	No encroachment into the circulation zone beyond the allowed items	Less institutional	A baby change table is required for a commercial or institutional project; not a home
15.2.8.2 BABY CHANGE TABLES			No baby change facilities	No baby change facilities		

Below is an example of a compliant bathroom with WC grab rails, along with a non-compliant WC that meets an individual's needs, relative to section 15.

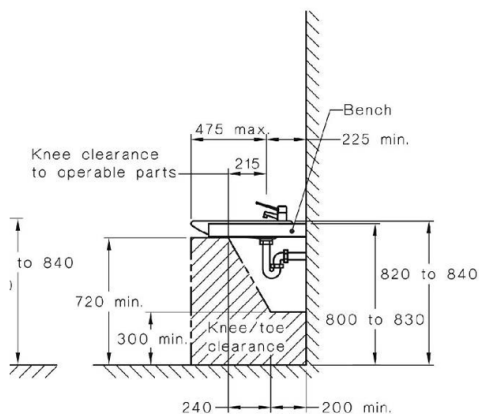


Compliant WC setup, with grabrails



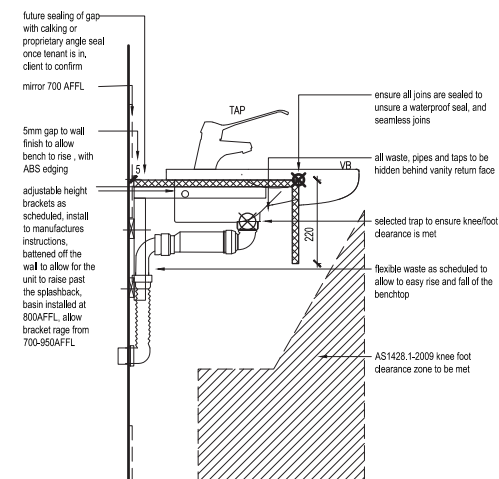
Non-compliant WC setup, without grabrails; suitable for an individual who does not toilet or who does not need assistance to toilet

Below is an extract from AS1428.1-2009 showing the sole-occupancy basin unit (pg. 79), along with a sketch of the height-adjustable basin developed in the Hunter and TAC Projects.



ELEVATION B

Compliant design for Sole-Occupancy Unit



1 DETAIL 1:10
TYPICAL BATH VANITY UNIT

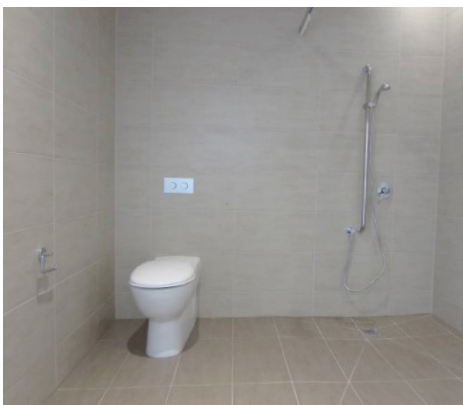
Design for the Hunter & TAC Projects

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15.2.9 WC DOORS Doors to have in-use indicators, force and handles as per clause 13.5	⊗ NO (HOWEVER the outcome is met)	⊗ NO (HOWEVER the outcome is met)	Door snibs, without indicators (not a public facility), door handles are compliant	As per Hunter Project	Less institutional aesthetic (indicators not suitable for home)	
15.2.10 WASHBASINS FOR UNISEX ACCESSIBLE SANITARY FACILITY	⬆ EXCEEDED (height-adjustability)	⬆ EXCEEDED (height-adjustability)	Selected washbasin compliant with diagram below Washbasin incorporated into height-adjustable vanity to cater for larger motorised wheelchair users / person of smaller stature	As per Hunter Project	Improved design flexibility Increased capital cost (once-off) but lower modification costs (potentially multiple times)	Height adjustment achieved through inclusion of height-adjustable brackets and sink plumbing
15.3 WASHBASINS						
15.3.1 GENERAL Installation of washbasin						
15.3.2 ACCESSIBLE SOLE OCCUPANCY UNITS For vanity installation and height						

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15.4 FIXTURES AND FITTINGS WITHIN A SANITARY FACILITY	↑ EXCEEDED (longer mirror)	↑ EXCEEDED (longer mirror)	Lengthened mirror included to match height-adjustment range of basin (caters for persons of smaller stature and simplifies wall linings)	As per Hunter Project, except storage unit is deeper to cater for storage of larger bulk items (may impact on usability of shelving for those with limited reach)	Increased design flexibility Less institutional	Location of fixtures outlined in Standard suits access from a shower seat; Use of mobile shower commode more common than seat, hence fixture location need review
15.4.1 MIRRORS						
15.4.2 SHELVES	↑ EXCEEDED (increased height range available)	↑ EXCEEDED (increased height range available)	Tower shelving unit offers options for access at range of heights; removable panel offers choice for easy access or privacy to items			
15.4.3 – SOAP DISPENSERS, TOWEL DISPENSERS, ETC	× NO (can be achieved if needed)	× NO (can be achieved if needed)	Sanity disposal unit, soap and towel dispensers omitted (domestic context)			
15.4.4 CLOTHES HANGING DEVICES			Clothes hooks not installed until individual identified to ensure access			
15.4.5 SANITARY DISPOSAL UNITS						
15.4.6 –SWITCHES & GPO's	↑ EXCEEDED (side-fixing)	↑ EXCEEDED (side-fixing)	GPO located at height as per Standard; side-fixed to cater for those with minimum reach capacity (i.e. rather than on rear wall)			



AS 1428.1 Compliant WC Facility



Non-compliant WC, however occupier needs are met.

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15.5 SHOWERS	⊗ NO	⊗ NO	1:80 floor fall provided	The shower waste is centrally located within the shower zone, at a grade of 1:60 and 1:80 outside the shower	Improved design flexibility	Omission of grabrails and seat makes design non-compliant, although these items may be easy retrofitted if needed
15.5.1 GENERAL, SHOWER RECESSES, GRABRAILS, FITTINGS & TAPS	(However the outcome is met)	(HOWEVER the outcome is met)	Strip drain provided in lieu of centrally-located shower floor waste (simplifies self-propelled manoeuvring, enables seamless removal of fixed end panel if needed & looks less institutional)	Required circulation space of 1400x1600 has been allowed for on the shower chair side, as per clause	Less institutional Reduced unnecessary capital costs	
15.5.2 floor waste outlet centrally located with even falls 1:60 - 1:80			No grabrails or seat installed unless needed; fittings installed once occupier is identified	Clothes hooks aren't located as per the clause (would suit access from seated position, seat unlikely to be needed by project population)		
15.5.3 OPENING SHOWER SCREENS	⬆ EXCEEDED	⬆ EXCEEDED	(removable) folding glass panel specified; maintains the shower zone and doesn't impede the use of the circulation space, with optional (removable) glass fixed end panel to enclose the space	Screening curtain provided	Glass provides less institutional aesthetic than curtains, is easy to control independently (won't stick to body) Optional fixed end panel increases capital costs but considerably improves circulation options (provides design flexibility)	
Shower screening shall be either a curtain or door system that maintains the required circulation space	(screening enables greater circulation space than required in standard)	(shower curtain enables greater circulation space than required in standard)				

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15.5.8 SHOWER TAPS Taps as specified in Clause 15.2.1 and located in the zone in Figure 48	↑ EXCEEDED (two sets provided)	✓ YES	Two mixers/shower heads provided First set as per standard Second set located for use by support provider (less reaching and less splash) Two sets enable one for washing use and one for keeping the body warm (relevant issue for individuals with ABI)		Increased design flexibility (provides greater options for occupiers who either shower independently or with assistance) Suits people with significant disability (i.e. improved safety, health and wellness) Increased capital cost and associated with 2 sets Less institutional (maximises individual comfort and control)	
15.5.9 FOLDING SEAT Installed as shown in Figures 47 and 48	⊗ NO (HOWEVER can be retrofitted)	⊗ NO (HOWEVER can be retrofitted)	None provided. Wall linings and space clearances enable retrofit Configuration of shower slightly different to code – no reduction in access	As per Hunter Project but configuration as per standard	Reduced unnecessary capital cost Increased design flexibility (increased circulation space available)	Project group largely use shower commodes; hence seat not needed. Seat reduces space available

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15.5.4 GRABRAILS As specified in Clause 17 fixed in position (figures 47 & 48)	⊗ NO (can retrofit)	⊗ NO (can retrofit)	Horizontal rail is omitted hence design is non complaint Reinforcement to all walls to enable grabrail install where needed	As per Hunter Project	Reduced unnecessary capital cost Greater customisation to individual need	Consideration needed around appropriate wall lining material where items may need to be altered several times
15.5.5 SHOWER HEAD VERTICAL SUPPORT RAIL As specified in clause 17 shall be fixed in position shown in Figure 48	✔ YES	✔ YES	Compliant product with non-institutional aesthetic selected	As per Hunter Project		Vertical rail allows for height adjustment of shower head; this must be grabrail strength in case individual relies upon it for stability
15.5.6 SHOWER HEAD A flexible hose of 1500mm long min. installed onto grab rail, able to be grasped at various positions, allow to be located with 1000-1800mm above FFL	⬆ EXCEEDED 2m hose installed	⬆ EXCEEDED 2m hose installed	Compliant product with non-institutional aesthetic selected (brushed steel finish), however the water outlet is located different to the code so that the hose does not hang in water (improved product longevity)	As per Hunter Project	Less institutional aesthetic Improved product lifespan (reduced long-term costs)	

The images below show a compliant shower (horizontal grabrail provided) and a partially compliant shower (no horizontal grabrail provided).



Compliant shower, in corner position with offsets from wall and integrated horizontal grab rail; shower mixer in corner



Partially compliant shower – not in corner position, without offsets from wall, shower mixer in corner, or horizontal grab rail

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15.5.7 SOAP HOLDER Provided in zone as outlined	⊗ NO (HOWEVER location can be achieved)	⊗ NO (HOWEVER location can be achieved)	Suction cap-backed product selected, for installation in most accessible position	Soap holder and shower recess installed on opposite side to what is outlined in standard So as to aid with flexibility for assistance and larger space on opposite side allowing for more storage/shelf space	Increased design flexibility (suction cap product offers small-scale customisation to suit individual) Less institutional (inclusion of shower recess)	Code location suits seated access from folding seat position. Project population unlikely to use seat, hence soap holder location required review in project.
15.6 CIRCULATION SPACE IN ACCESSIBLE SANITARY FACILITIES Circulation spaces in accordance to Clause 15.2.8 and Figures 43 to 47 and 50. Circulation spaces, including doors can overlap; fixtures must not encroach space, except those items noted in clause.	⊗ NO (DUE to the minor basin encroachment)	⬆ EXCEEDED (increased spatial provisions)	As noted in 15.1 this is not met due to the vanity unit encroaching into the WC circulation zone	Space provided for bathroom is more than required due to layout No encroachment on the WC circulation zone	Increased spatial dimensions improve access options; particularly suit those with significant disability, and those using tilting long-backed shower commodes	

Below is an extract from AS1428.1-2009 outlining shower requirements, alongside shower drawings for the Hunter and Frankston Projects.

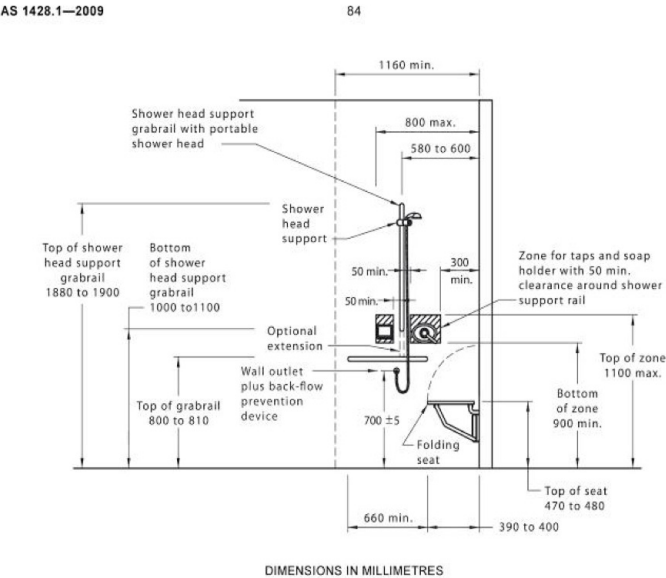
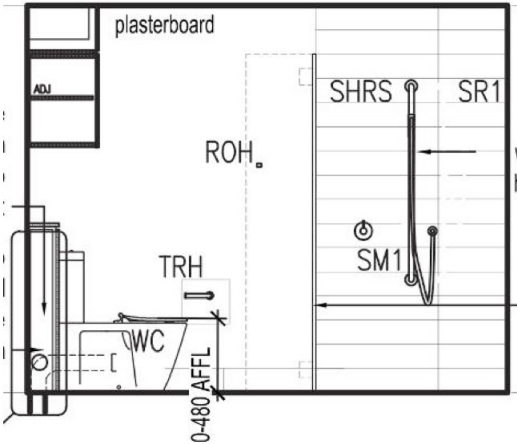
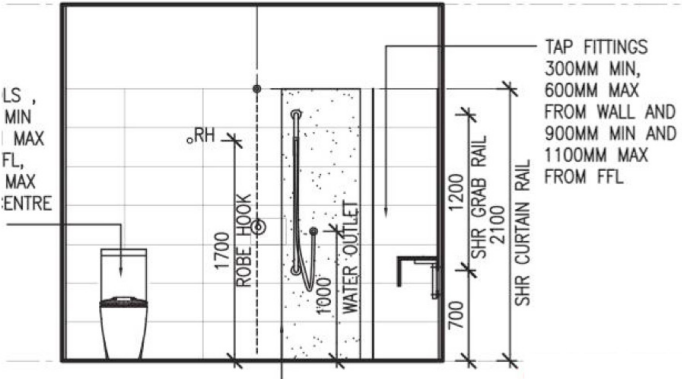


FIGURE 48 SHOWER RECESS FITTINGS—ELEVATION

Australian Standard excerpt (pg. 84)



Hunter Project shower drawing



Frankston Project shower drawing

17.0 GRAB RAILS

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17.0 GRABRAILS	✓ YES	✓ YES	Size, clearances and force for grabrail applied as per code.	As per Hunter Project	Grabrails installed do not cater for individuals with bariatric requirements - such an occupant would require an upgrade of grabrails above 1100N force	Wall construction will impact which units can cater for bariatric requirements e.g. those with more concrete walls will be more suitable
Must be between 30-40mm DIA	(HOWEVER only where grabrails installed)	(HOWEVER only where grabrails installed)	Future modifications will need to ensure compliant models are selected			
Exposed edges to be a radius no less than 5mm						
Fastenings to withstand 1100N of force applied in any direction			x1 no. grabrail provided as towel rail			
Clearance between wall surface to be between 50-60mm						
Grabrails to external corner must be fixed so there is no obstruction to passage of the hand						

HUNTER PROJECT (NSW) AND FRANKSTON PROJECT UNITS (VIC) LIVABLE HOUSING DESIGN GUIDELINE REVIEW (GOLD AND PLATINUM RATINGS)

DOCUMENT PURPOSE

The purpose of this document is to review a varied selection (4 from a total of 10) of accessible units within the Hunter Project for the Summer Foundation, and to review one 2-bedroom dwelling for the TAC. This analysis is based on minimum compliance (or exceeding compliance) with the Livable Housing Design Guidelines - Platinum.




Note: Some strictly non-complying elements within this report have obtained approval for use within the specific project, where these elements meet the design objectives of the guidelines via alternative means (e.g. via a Livable Housing Australia 'Ruling' application).

There are 16 Livable Housing Design Elements that are assessed under the Design Guidelines, with Silver, Gold and Platinum certified levels. Each element outlines specific provisions and dimensions, and are as follows:

- | | |
|---|---|
| 1. Dwelling access | 9. Kitchen space |
| 2. Dwelling entrance | 10. Laundry space |
| 3. Car parking | 11. Ground (or entry level) bedroom space |
| 4. Internal doors and corridors | 12. Switches and power points |
| 5. Toilet | 13. Doors and tap hardware |
| 6. Shower | 14. Family/living room space |
| 7. Reinforcement of bathroom and toilet walls | 15. Window sills |
| 8. Internal stairways | 16. Flooring |

LEGEND

If standard is applied:

-  **NO** (haven't complied)
TYPICALLY INDICATES AN ISSUE WITH STANDARD
-  **YES** (met the min. compliance)
-  **EXCEEDED** (above and beyond min. compliance)
TYPICALLY FOR ENHANCED FUTUREPROOFING

N/A = not applicable to the subject reviewed documents

AFFL = above finished floor level

LH / RH = left hand / right hand (referring to transfer)

CAPT = continuous accessible path of travel

LIVABLE HOUSING AUSTRALIA - DESIGN GUIDELINES, THIRD EDITION

TABLE ONE - WHERE THE REVIEWED DESIGN MET OR EXCEEDED PLATINUM LEVEL REQUIREMENTS
EXTERNAL ELEMENTS

LHA REQUIREMENT (PLATINUM)	REQUIREMENT MET OR EXCEEDED HUNTER UNITS	REQUIREMENT MET OR EXCEEDED TAC UNITS	HUNTER UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	COMMENTS
<p>Element 1</p> <p>External access paths of travel to the main entry door from the front allotment</p> <p>(Class 1 or 2) - to apartment door (Class 2) min 1200mm wide, and from any car parking space</p> <p>Step free entry</p>	N/A	<p>☑ YES</p>	<p>Developer's core design provided min 1280mm - 1915mm wide path to dwelling entries, in lieu of 1200mm wide, from the parking space or building entry and a building lift</p> <p>(Two items enabled compliance without additional necessary specification)</p> <p>Step free access along accessible path of travel specified</p> <p>Battery backup specified for lift</p>	<p>1200mm wide pedestrian paths from the front boundary of the allotment to all dwelling entrances</p>	<p>Hunter Project:</p> <p>Increased design flexibility (e.g. battery back-up to lift allows occupants to live on higher floor levels, as fire escape options are improved)</p> <p>Increased capital cost due to battery backup</p> <p>Increased design flexibility</p> <p>(e.g. improved access in corridors for larger wheelchairs)</p>	<p>Hunter Project: The developer's specification has provided better outcomes for additional access to the subject apartment doors (?)</p>

LHA REQUIREMENT (PLATINUM)	REQUIREMENT MET OR EXCEEDED HUNTER UNITS	REQUIREMENT MET OR EXCEEDED TAC UNITS	HUNTER UNITS – DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	COMMENTS
Element 2 Dwelling Entry Minimum clear door opening 900mm with a level landing of 1500 x1500, with a level transition of max 5mm between abutting surfaces	⬆️ EXCEEDED (due to door size)	⬆️ EXCEEDED (due to door size)	953mm clear opening width door with 1500 x1500 level landing	As per Hunter Project	Improved design flexibility (e.g. manoeuvrability for larger motorised wheelchairs) Anticipated reduced cost (e.g. less damage and maintenance)	
Element 3 Car parking space Class 1a 3800mm wide x 6000mm long	✓ YES (with the car park dimensions)	N/A	Class 2 Car spaces are min. 2400mm wide x 5400mm long with shared spaces in- between as per AS2890.6	Class 1a The parking space allocated is 3705mm x 6000mm long however not part of the dwelling access, hence exempt from assessment	Improved design flexibility (e.g. greater head height for alternative roof-mounted equipment)	Car parking and dwelling entry separate in TAC Project; consultant ruled carparking to be exempt from assessment
Class 2 car parking to comply with AS2890.6 (2009)	⬆️ EXCEEDED (head height)					

The following example is a copy of the report for the As Built Check for TAC Project, used in the successful application for a ruling.

Creating environments, transforming lives.



LHDG Design Advice - Car Parking

RIPL 13 .

Attention Justin Nix	
Company Transport Accident Commission	
CC	
Email Justin_Nix@	Phone
Date 07/07/2015	Our Ref 3816 - 2
Livable Housing Assessor Grant Wooller	
Project Manager Andrew Sanderson	

Subject: Car Parking Width
Action Required: For your information

Hi Justin

Following a site inspection conducted by Architecture & Access on 2/07/2015, the width of car parking for the units was queried in relation to the current width and impact on compliance with Livable Housing Design Guidelines (LHDG).

The width of the carports for each of the units measured at 3.6 to 3.7m (see photo below). A separate path of at least 1200mm is located adjacent to the car park, providing direct access to the main entry door of each unit and not included within the car parking space.



Under the LHDG, Section 3 Car parking requirements are only called up where the car park is part of the dwelling access. In this case, as there is a 1200mm wide path providing access to the front door of each unit (without going through the car park), the car park width being less than 3.8m will not effect compliance with Platinum Level of the LHDG.

Architecture & Access (Aust) Pty Ltd
ABN 45 159 663 582

P +61 1300 715 866
F +61 3 9347 5982

E info@architectureandaccess.com.au
W architectureandaccess.com.au

Level 5, 369 Royal Parade
Parkville Vic 3052 Australia

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This interpretation is consistent with advice issued by Livable Housing Australia (LHA), and as per instruction during training for LHA registered assessors.

If there are any further questions, please do not hesitate to contact.

Should you require further information or clarification please do not hesitate to contact me at your convenience.

Yours sincerely,



Grant Wooller
Access Consultant / Livable Housing Assessor

Architecture & Access (Aust) Pty Ltd
ABN 45 159 663 582

P +61 1300 715 866
F +61 3 9347 5982

E info@architectureandaccess.com.au
W architectureandaccess.com.au

Level 5, 369 Royal Parade
Parkville Vic 3052 Australia

INTERNAL ELEMENTS (WITHIN THE RESIDENTIAL DWELLING)

LHA REQUIREMENT (PLATINUM)	REQUIREMENT MET OR EXCEEDED HUNTER UNITS	REQUIREMENT MET OR EXCEEDED TAC UNITS	HUNTER UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	COMMENTS
Element 4 Internal paths of travel (corridors within the dwelling) Doors min 900mm clear opening width Corridors min 1200mm wide	⬆️ EXCEEDED (due to door size)	⬆️ EXCEEDED (due to door size)	Internal doors are 1020 leaf (953mm clear opening) to all rooms (where accessible) Corridors min 1450mm.	1020 leaf (min 953mm clear opening) to all internal doors Corridors min 1510 wide	Improved design flexibility (e.g. wider doors and corridors allow greater access and manoeuvrability for larger sized wheelchairs) Minimal spatial impact resulting from wider doors, given wider corridors	
Element 5 Toilets: To be positioned between 450-460mm from the nearest wall, 600mm clear forward of the cistern to the front of the WC pan, a pan height of 460-480mm AFFL	⬆️ EXCEEDED Inbuilt flexibility exceeds the intended level of access provisions	✅ YES	A ruling was issued and approved for attached toilet design (flexible nib wall), which doesn't meet the 450-460mm location or the 600mm clearance to the front of the pan, and a height of 460- 480 however; it meets the intent of the guidelines	As per element; disabled compliant WC installed	Increased design flexibility (e.g. capacity to alter toilet location and type to suit individual need) Reduced cost through providing standard WC if disabled WC is not needed	

The successful application for LHA to consider an alternative toilet configuration in the Hunter Project is provided below.



RULING APPLICATION

This form is used by project applicants that wish to obtain a Ruling from Livable Housing Australia's (LHA's) Technical Advisory Panel (TAP). The fee for consideration of a Ruling is \$500 + GST. Payment of the application fee must be received by LHA before the TAP is convened to consider the application. Should insufficient information be provided in this application, the TAP may respond that a Ruling cannot be made. Any re-application with additional information or more clear instructions or discussion will attract an additional \$500 + GST fee.

The individual TAP members will not contact the applicant to discuss this application. The identity of the TAP members considering this Ruling is confidential and will not be disclosed to the applicant.

Applicants should expect a response to their Ruling application within three weeks of submitting this form and payment of the Ruling fee.

This form can be saved as a Word document or as a PDF document before being emailed to info@lha.org.au.

Project:	551 Pacific Highway Belmont NSW 2280
Applicant:	Summer Foundation
Contact Person:	Sophie Ryan
Contact Email:	sophie.ryan@summerfoundation.org.au
Contact Phone:	
Issue:	Flexibility of toilet type and toilet positioning, via use of flexible nib wall
Discussion:	<p>BACKGROUND</p> <p>Our platinum-rated approved drawings indicated that DDA-compliant toilets would be located in all Type 1 (fully accessible) Bathrooms, in the traditional DDA-compliant position (i.e. centred 450mm away from a corner).</p> <p>Some of our Tenants (currently unidentified) may require the toilet to be located in a different position to this.</p> <p>Some of our Tenants may not need a DDA-compliant toilet at all, in which case it would be preferable to instead install a standard toilet.</p> <p>Current documentation indicates all toilets in Type 1 Bathrooms be located in the traditional position, however only Apartment E.207 has a DDA-compliant toilet (one of two apartments, which will be used as a display to showcase flexible design features).</p> <p>If a Tenant is identified for a unit during construction, who requires their toilet to be located in a non-traditional position, we anticipate requesting a variation to the current documentation.</p> <p>We are undertaking this ruling to support our altered documentation, and to support any altered locations of toilets, which may be raised as an issue during the As-Built Inspection.</p>



RULING APPLICATION

LEARNINGS & PREMISE FOR FLEXIBILITY

1. Toilet location needs to be flexible

Different individuals need toilets to be located in different positions. Particularly the corner location is not suitable for everyone. (Please see Occupational Therapist's letter, attached, which outlines the reasons for this.)

The proposed flexible nib wall allows for a toilet to be easily positioned and re-positioned in 3 different positions to suit the particular individual (450 mm centre offset from either end of the nib wall, or in the centre of the nib wall).

Having the flexibility to position a toilet where it is most usable by an individual supports independent use, through reducing reliance on support staff and assistive devices, such as drop-down grabrails.

Design Features for flexible location:

- Toilet sits on tiling allowing it to be easily moved without damaging floor surfaces
- Modular panel fronts are easily removed for access to PVC piping, via lift-off batten fixings
- P-Trap cutout in one nib wall panel is easily swapped to a different location via use of modular panel sizes
- Rear waste in nib wall cavity leads to floor slab waste point, allowing alterations to the PVC piping to be concealed within the nib wall
- PVC piping is cost effective to replace & refit to suit new toilet position

2. Toilet type needs to be flexible

People's needs change across time and an individual may not always need a DDA-compliant toilet, or a toilet at all for toileting. In this case, the cost of installing a DDA-compliant toilet can be saved by installing a standard toilet. More of a mainstream aesthetic can also be achieved. A standard toilet can easily be replaced in the future with a DDA-compliant toilet if needed.


Design features for flexible toilet type:

- Waste point cutout has enough tolerance in size to accommodate a waste required at height of either 180 or 185mm H (to suit either the base build toilet used typically in the development, or the specified DDA-compliant toilet).

3. Adaptability needs to be cost-effective and attractive


Without a flexible nib wall, re-positioning a toilet would involve the addition of unsightly additional waste pipes, which to box in would incur additional cost. Standard laminate is used to keep this feature as cost-effective as possible.

The nib wall allows for a toilet to be repositioned in a way that is seamless with a bathroom's



RULING APPLICATION

	<p>aesthetic, which helps to create a more attractive environment for an individual, as well as to retain a property's value.</p> <p>4. Grabrails need to be retrofittable</p> <p>Not all individuals will require grabrails. It is preferred to avoid installation of grabrails if these are not required, to reduce unnecessary cost and to avoid an institutional feel. Structural provisions in the nib wall allow for retrofitting of grab rails, if an individual does need these.</p> <p>Structural features:</p> <ul style="list-style-type: none"> • 12mm ply backing to the potential grabrail 'fixing zone' • 20 x 20 steel framing to the potential grabrail 'fixing zone', to accommodate grabrails with at least 112kg loading capacity (1100 N of force in any direction) • 'fixing zone' allows for grabrails to be installed at a height between 700 and 900 mm high (top of grabrail)
Proposed Ruling:	<p>pWhere a flexible nib wall behind a toilet is provided, a toilet must not necessarily be located 450mm offset from a corner, it must not necessarily be a DDA-compliant toilet, and a 1400x1600 clearance zone does not need to be directly adjacent to the shower.</p> <p>The flexible nib wall must allow for the toilet to be easily re-positioned/replaced to achieve the above.</p> <p>Structural provisions are required to enable retrofit of grabrails.</p> <p>This ruling specifically relating to Guidelines: 5b & 5biii - toilet needs to be in a corner 5b iv & v - toilet needs to be a DDA-compliant toilet model 6 cii - 1400x1600 clearance required forward of shower</p>
Notes:	<p>Please see attached: ITEM 1: platinum-rated approved interior drawings (Rev A) from LHA Desktop assessment - sheets A13 and A14 for nib wall details ITEM 2: updated interior drawings (Rev C) incorporating new panel layout & structural provisions for addition of drop-down grab rails. ITEM 3: sketch indicating where 1400x1600 clearance zone would be located if toilet located in alternative position ITEM 4: letter from Neuroskills Occupational Therapist</p>



3

NEUROSKILLS PTY LTD

ABN 84 088 729 625
 PO Box 310, BENDRINGHAM 3191
 VICTORIA AUSTRALIA

Libby Callaway
 MOT, BAPPO(OT); AGST
 0598 5122
 0421 358 359
 libbycallaway@neuroskills.com.au

NEUROSKILLS SOUTHERN PTY LTD

ABN 62 135 499 786
 PO Box 3048 MENTONE EAST 3194
 VICTORIA AUSTRALIA

Sheridan Vines
 BAPPO(OT)
 0598 5122
 0407 400 882
 sheridanvines@neuroskills.com.au

Astrid Reynolds and Sophie Ryan
 Summer Foundation Ltd
 PO Box 208, Blackburn 3130
 16 March 2015

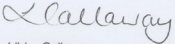
Dear Astrid and Sophie,

**Re: Nib wall and toilet location
 Summer Foundation Belmont Project**

Thank you for the opportunity to review and discuss the Summer Foundation's design plans for ten apartments within a large-scale residential development in New South Wales. I understand that a majority of people who will take up tenancy in these apartments will have experienced acquired neurological disabilities. Such disabilities may result in physical impairments, which may include upper limb hemiplegia and reduced mobility, requiring the need for use of a mobility device, such as a wheelchair.

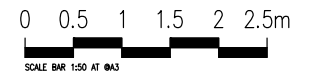
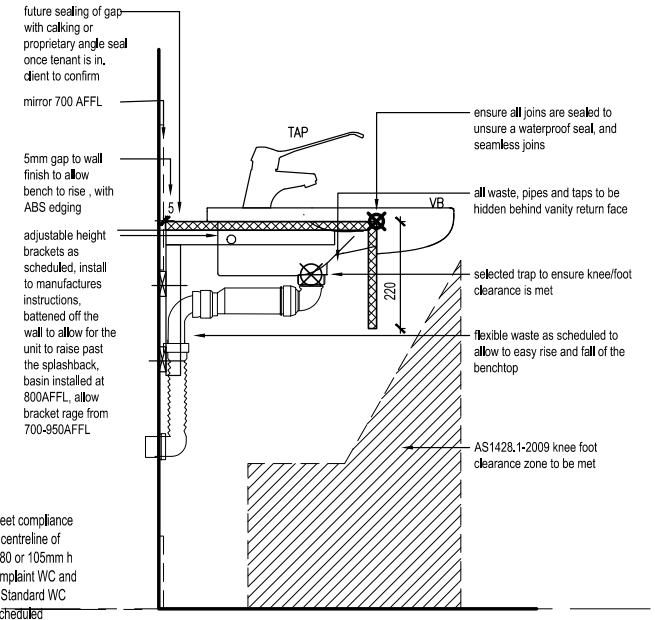
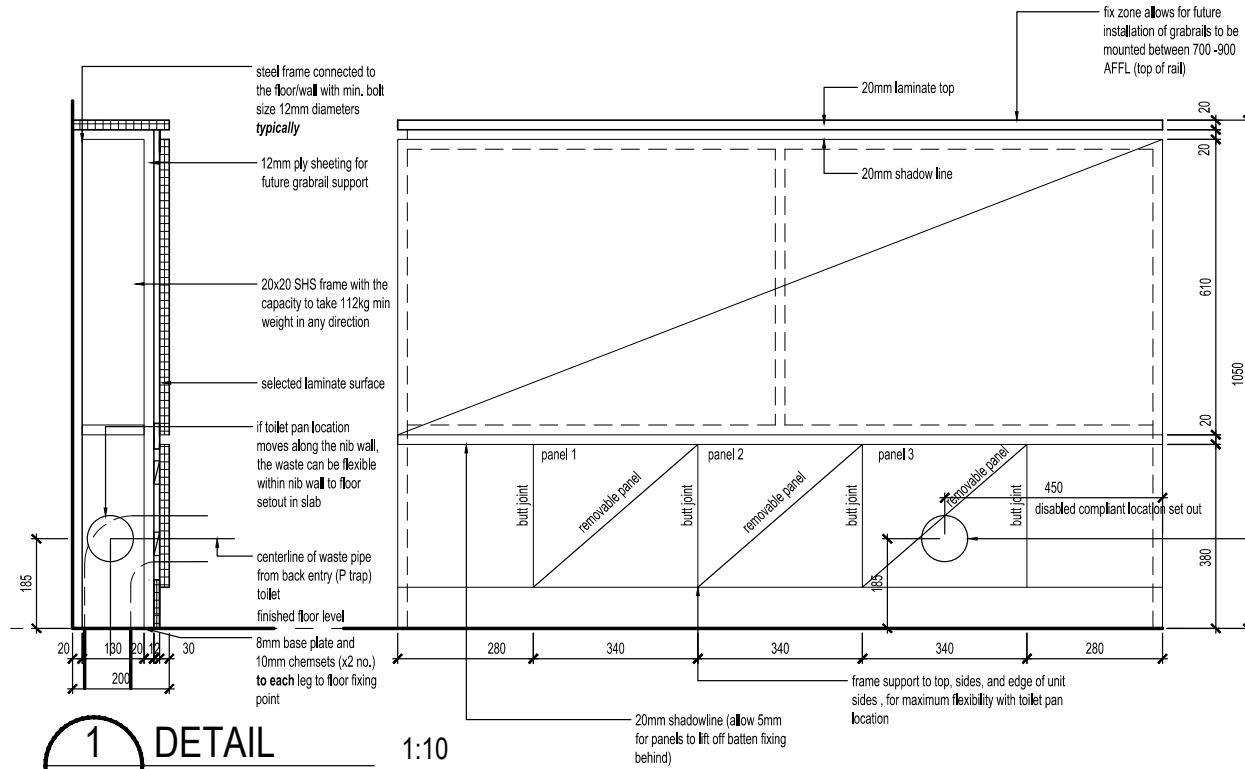
For these specific reasons, the innovative bathroom nib wall design, with capacity to move the toilet location into one of three positions, offers flexible and adaptable design for future tenants. For example, if someone is experiencing hemiplegia, depending upon the location of the affected side, this flexible location of the toilet offers an excellent design response. The ability to move the toilet into one of three positions allows approach to it from either side, as well as capacity to locate either wall mounted or alternatively drop down grab rails in position once the toilet is located. Following this, for those people who may use a self-propelled mobile shower commode wheeled over a toilet bowl, flexible design and location of the toilet is necessary to plan path of travel from external to the bathroom, into the bathroom area and over the toilet pan.

Finally, reviewing your interior drawings I cannot envisage any practical design or mobility impact of the 1400x1600 clearance zone opposite the shower being closer to the door, if the toilet were located closet to the basin. Please do not hesitate to contact me if you would like to discuss this further.

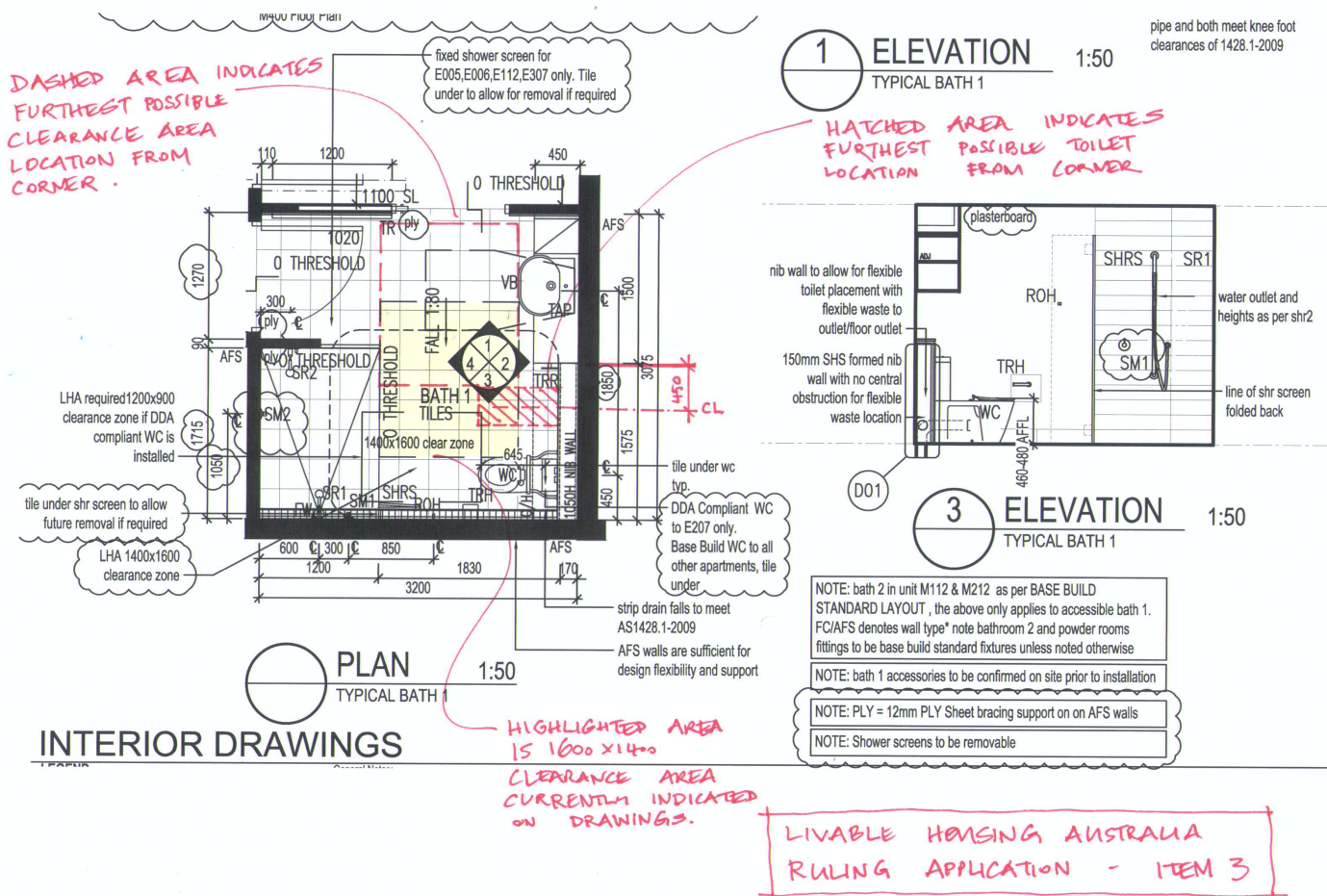
Kind Regards,

 Libby Callaway
 BAppSci(OT); MOT; Registered Occupational Therapist.

SPECIALIST OCCUPATIONAL THERAPY & CASE MANAGEMENT SERVICES





INTERIOR DRAWINGS



Below is an example of ply-sheeted walls, installed in the Frankston Project.



Example of the bathroom plywood-sheeted walls.

LHA REQUIREMENT (PLATINUM)	REQUIREMENT MET OR EXCEEDED HUNTER UNITS	REQUIREMENT MET OR EXCEEDED TAC UNITS	HUNTER UNITS – DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	COMMENTS
Element 6 Showers: To be hobless and min 1160 mm x 1100 mm and provide a clear space 1600x1400mm forward of the shower recess for entry	✓ YES EXCEEDED (due to increased dimensions)	✓ YES EXCEEDED (due to increased dimensions)	Step free Min shower dimensions increased to 1675mm long x 1180mm wide A ruling was sought as the clear space 1600mm wide x 1400mm long isn't directly in front of the shower on one side	Step free Min shower dimensions increased to 1500mm long x 1200mm wide Clear space forward of the shower is met, with no protrusion into this space Shower enclosed by a curtain	Increased design flexibility (e.g. larger shower and flexible screening allows more space for support workers to manoeuvre a commode chair if needed)	As per the above report example, the reviewed position on the clearance was slightly shifted, but meets the guidelines outcomes
Element 7 Reinforcement to bathroom and WC locations	⬆ EXCEEDED (due to additional bracing)	⬆ EXCEEDED (due to additional bracing)	Reinforcement to all walls of the bathroom, floor to ceiling, with either FC sheet or concrete walls	Structural ply reinforcement to all walls, floor to ceiling of the bathroom	Increased design flexibility (e.g. capacity to install grabrails where needed) Increased capital cost associated with ply sheeting	

LHA REQUIREMENT (PLATINUM)	REQUIREMENT MET OR EXCEEDED HUNTER UNITS	REQUIREMENT MET OR EXCEEDED TAC UNITS	HUNTER UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	COMMENTS
Element 8 Internal stairways	N/A (single-level)	N/A (single-level)				
Element 9 Kitchen space At least 1550mm clearance in front of fixed benches and appliances Slip resistant flooring extending under removable cabinetry and Task lighting to benches	✓ YES	✓ YES	1550mm clear space between fixed benches mobile island (if needed) allows for increased circulation as needed R10 slip-resistant flooring LED task lighting under the overhead units directly onto the benches, detailed to work in with heigh-adjustable overhead shelving units.	As per Hunter Project	Increased design flexibility (e.g. via improved access options with mobile island bench) Increased design flexibility (e.g. options to alter layout of kitchen to suit occupant's needs) Minimal cost incurred for handy man to refit lighting (needed when overhead units raised or lowered)	
Element 10 Laundry space At least 1550mm clear in front on the unit, Slip resistant flooring extending under cabinetry Task lighting to benches	✓ YES	✓ YES	1550 clear space R10 slip rated Gimbal downlight installed for task lighting, tilted to appropriate angle	As per Hunter Project.	Reduced costs: 'Rather than specify strip lighting to WM, developer's standard ceiling light was upgraded to gimbal type to achieve outcome. Impact: reduced use of additional features (and hence cost) through altered product specification	

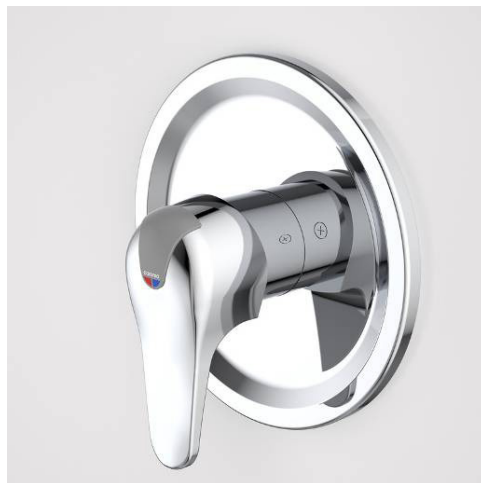
LHA REQUIREMENT (PLATINUM)	REQUIREMENT MET OR EXCEEDED HUNTER UNITS	REQUIREMENT MET OR EXCEEDED TAC UNITS	HUNTER UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	COMMENTS
Element 11 Ground floor bedroom is at least 10 square meters with at least one wall 4040mm Provides a space 1540x2070 in the direction of travel on one side of the bed that is closest to the door approach Provide a min 1000mm travel path to the remaining sides of the bed	✓ YES	✓ YES	Minimum standard dimensions met	Minimum standard dimensions met The length of the room is 4040mm		If a queen bed is required, the bed size increases therefore the floor area increases. LHA dimensions are based on a 1500mm wide bed
Element 12 Switches and power points should be positioned in consistent locations between 900-1100 AFFL - horizontally aligned with door handle - power points min 300AFFL Rocker toggle or push pad type	✓ YES If no minimal distance form corner specified, would say EXCEEDED	✓ YES If no minimal distance form corner specified, would say EXCEEDED	Rocker type paddle switches at 1000mm AFFL i and power points 600mm AFFL and not within 500mm of an internal corner for access Wiring provisions made to lighting to enable future automation via tablet, if wall switches not usable for occupant	As per Hunter Project.	Increased design flexibility (e.g. minimum corner offsets increase usability by occupants in larger motorised wheelchairs)	

LHA REQUIREMENT (PLATINUM)	REQUIREMENT MET OR EXCEEDED HUNTER UNITS	REQUIREMENT MET OR EXCEEDED TAC UNITS	HUNTER UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	COMMENTS
<p>Element 13</p> <p>Door and tap hardware</p> <p>Door hardware to be installed between 900-1100mm AFFL</p> <p>Doors to feature lever handles or D-pull style</p> <p>Basins sinks and taps should feature leaver, or capsan style tap hardware within a central spout</p>	<p>✓ YES</p>	<p>✓ YES</p>	<p>Door handles lever or D-pull type, installed at 1000mm AFFL.</p> <p>Wiring provisions made to doors to enable future automation, with control via wall switches or tablet, if handles not usable by occupant</p> <p>Standard-length lever-type tap mixers; model selected which enables replacement of lever with longer lever handle if needed in future</p>	<p>As per Hunter Project</p> <p>With exception of long levers in bathrooms installed as part of the build.</p>	<p>Less institutional (e.g. standard length lever tap installed for mainstream aesthetic, with flexibility to upgrade where needed)</p> <p>Reduced capital costs associated with less disability specific product, unless needed</p> <p>Increased design flexibility (e.g. increased options for control of door)</p>	
<p>Element 14</p> <p>The family and living space to accommodate a free space 2250mm in diameter to enable ease of movement</p>	<p>✓ YES</p>	<p>✓ YES</p>	<p>2250 DIA turning space allocated; zone is dependant on occupant's furnishing of space</p>	<p>As per Hunter Project</p>		

The following is an example of the tapware selected for both projects.



Basin mixer without care handle added



Shower mixer without care handle added



Basin mixer with care handle added



Shower mixer with care handle added

LHA REQUIREMENT (PLATINUM)	REQUIREMENT MET OR EXCEEDED HUNTER UNITS	REQUIREMENT MET OR EXCEEDED TAC UNITS	HUNTER UNITS – DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	TAC UNITS - DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	OVERALL IMPACT OF DIFFERENCES / ENHANCEMENTS TO REQUIREMENT	COMMENTS
<p>Element 15</p> <p>Window sills</p> <p>Sills on ground (entry level) in living and bedrooms to be no higher than 1000mm AFFL</p> <p>Window controls to be able to be operated with one hand, and easy to reach</p>	<p>✓ YES</p>	<p>✓ YES</p>	<p>Living and bedroom window sills at floor level in developer's core design, hence element required no additional specification</p> <p>Manual window winders installed no higher than 1100mm AFFL</p>	<p>Window sills are at floor level or 300mm above FFL which allow views out to the private garden areas</p> <p>Manual window winders are installed at no higher than 1100mm AFFL, if above 1100mm AFFL they are motorised</p>		<p>Hunter Project: element satisfied by default due to developer's standard full height glazing (local town planning requirement)</p>
<p>Element 16</p> <p>Flooring</p> <p>Floor coverings to be firm and even</p> <p>Feature level transitions between abutting surfaces (a max vertical tolerance of 5mm, if rounded or bevelled)</p>	<p>✓ YES</p>	<p>✓ YES</p>	<p>Easy to clean finishes: vinyl, tiles, and carpet tiles</p> <p>Minimal tolerances specified</p> <p>direct stuck install and dense weave (carpets) for firmer surface (trafficability and reduced tracking of carpet)</p> <p>Carpet tiles specified to enable replacement if needed</p> <p>Any transition strips required will meet 1428.1-2009</p>	<p>Easy to clean finishes: vinyl, marmoleum and bolon (carpet-look-vinyl) tiles.</p> <p>Minimal tolerances specified</p> <p>Direct stuck install for firmer surface (trafficability)</p> <p>Bolon flooring in bedrooms</p>	<p>Increased design flexibility (e.g. firmness for improve trafficability for those with limited strength)</p> <p>Less institutional (e.g. Bolon selected to provide properties of vinyl but homely aesthetic of carpet)</p> <p>Increased capital cost (of Bolon in comparison to commercial carpet or vinyl)</p>	



We appreciate your feedback on this report.

Please click on the link for this short survey:

<https://www.surveymonkey.com/r/KPHXRVG>

