

**DONALD
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**Accessible Housing:
Estimated Cost Impact of Proposed
Changes to NCC**

AUSTRALIAN BUILDING CODES BOARD

Report Revision V2.2 – 23 December 2020

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1. INTRODUCTION

1.1. Purpose and Background of Report

This updated report presents an order of cost estimate for the proposed changes to the National Construction Code of Australia (NCC) to include mandatory minimum accessible housing provisions for new Class 1a (single residential) and Class 2 (apartments) dwellings.¹

This report is based on 'Accessible Housing: Drafting of proposed NCC changes, February 2020', together with as yet unpublished amendments advised by the Australian Building Codes Board (ABCB). We understand that amendments reflect the outcome of consultations between ABCB, industry and other stakeholders on the previous Estimated Cost Impact of Proposed Changes to NCC, dated 22 June 2020.

The Australian Building Codes Board (ABCB) is undertaking an assessment of a minimum accessibility standard for housing in the NCC.² In October 2019, they developed a formal proposal³ to include minimum accessibility standards in the NCC that broadly correspond with the Livable Housing Design Guidelines (LHDG) produced by Livable Housing Australia (LHA), summarised as follows against individual design elements⁴:

¹ This report specifically excludes any cost estimates for retrofitting existing dwellings to meet the proposed minimum accessible standards.

² Council of Australian governments (COAG), *Best Practice Regulation: A Guide for Ministerial Councils and National Standard Setting Bodies*, October 2007.

³ Australian Building Codes Board, *Accessible Housing – Drafting of Proposed NCC Changes*, October 2019

⁴ *Ibid*, p.13.

Table 1 – Summary Table

ELEMENT	Option 1 (Based on LHDG Silver)	Option 2 (Based on LHDG Gold)	Option 3 (Based on LHDG Gold + part of Platinum)
At least one step-free entrance door	✓	✓	✓
Wider internal doors and corridors	✓	✓	✓
Toilet on ground level (or entry level)	✓	✓	✓
Bathroom and shower design for easy access	✓	✓	✓
Bathroom and toilet walls able to support grab rails	✓	✓	✓
Step-free path from street / garage to dwelling entry	✓	✓	✓
Stairways designed to reduce likelihood of injury	✓	✓	✓
Kitchen space to support ease of movement / adaptation		✓	✓
Laundry space to support ease of movement / adaptation		✓	✓
Space on ground / entry level suitable for a bedroom		✓	✓
Light switches at easy to reach heights		✓	✓
Door hardware at easy to reach heights			✓
Minimum circulation spaces for kitchen, laundry, bathroom			✓
Maximum sill heights for windows			✓
Access to paved external space where attached to dwelling			✓

The intent of these design elements is to provide ‘easier and safer ... use [of their homes for]... all occupants, including people with disability... [and]... the aged’⁵.

In order to estimate the effect of these proposed minimum design requirements on the construction cost for new Class 1a and Class 2 dwellings it is useful to establish their pattern of influence on those homes. Accordingly, the report identifies two patterns, namely:

1. Movement into and inside the dwelling, comprising:
 - a. A safe continuous path of travel from the street entrance and/or parking area to a dwelling entrance.
 - b. At least one step-free entrance door.

⁵ Livable Housing Australia, *Livable Housing Design Guidelines*, 4th edition, 2017, p.2.

- c. Wider internal doors and corridors.
 - d. Stairways designed to reduce likelihood of injury.
 - e. Space on ground/entry level suitable for a bedroom.
 - f. Toilet on entry or ground level.
2. Ease of use of amenities and services, comprising:
- a. Bathroom and shower designed for easy access.
 - b. Bathroom and toilet walls to support grab rails.
 - c. Kitchen space to support ease of movement/adaptation.
 - d. Laundry space to support ease of movement/adaptation.
 - e. Light switches and power outlets at easy to reach heights.
 - f. Door hardware at easy to reach heights.
 - g. Maximum sill heights for windows.

If the patterns of influence are clear, what is left is to estimate the impact of these patterns on the construction cost for model homes that typically represent the Class 1a and Class 2 dwelling classes.

1.2. Costing Models

In order to establish an order of cost for the proposed accessibility provisions in the NCC, a range of Class 1a and Class 2 dwelling models were put forward for discussion with stakeholders.

The choice of those representative model homes is the most critical factor in the financial modelling provided in this report. In any residential market, irrespective of the location within Australia, there is significant variation in dwellings across the spectrum of residential accommodation. This variance is driven by many factors, including demand and demographics, affordability, site topography and the environmental plans of individual states and territories.

Irrespective of the cause of the housing variance, it is possible to focus on a small number of typical dwellings that will reflect the construction costs of meeting the proposed minimum accessibility requirements in the majority of instances.

In our view, for Class 1a dwellings those typical homes may be represented by the following archetypes, with typical (most often used) design specifications noted for each. Note that within each archetype, there remains a wide range of variance of design and specification.

Table 2 Class 1a Architypes

	Volume or Production Home	Custom Home	Townhouse on Narrow Lot
Storeys	Single	Single	Double
Garage	Single 3000x5500mm	Double 6000x5500mm	Single 3000x5500mm
Living area	120m ²	200m ²	105m ²
Family/Kitchen combo	Yes	Yes	Yes on ground floor
Other Living areas	1	2	1 on ground floor
Ceiling heights	2.4m	2.4m	2.4m
Bathroom ⁶	1800x1800mm	1800x1800mm	1800x1800mm
En-suite	Not part of analysis		
Laundry ⁶	1500x1800mm	1500x1800mm	1500x1800mm
Kitchen arrangement	Galley kitchen, 3.6m long, benches 900mm apart		
Corridors	6m long 900mm wide	10m long 900mm wide	5m long 900mm wide
Siting arrangements	Setback 6m from front boundary and minimal side boundaries. Home fits on a 12.5m lot or wider	Setback 6m from front boundary and comfortable side boundaries. Home fits on 15m lot or wider	Setback 3m from front boundary and zero setback side boundaries. Home fits on 6.5m lot or wider
Outdoor paved area	40% of Volume homes provided with no outdoor paved area connected to the dwelling. 55% have an uncovered outdoor area, and 5% have a covered outdoor area 3.2 x 2.4m	10% of Custom homes provided with no outdoor paved area connected to the dwelling. 5% have an uncovered outdoor area, 75% have a covered outdoor area 3.2 x 2.4m and 10% already meet the requirements of the proposed regulations.	10% of Townhouses provided with no outdoor paved area connected to the dwelling. 5% have an uncovered outdoor area, 75% have a covered outdoor area 3.2 x 2.4m and 10% already meet the requirements of the proposed regulations.

For Class 2 dwellings (typically apartments), significant floor plan variances exist. It is not necessary to highlight those variances individually, because the drivers of cost change have been captured, and are broadly applicable irrespective of the layout of the design elements. For this class of dwellings, the critical variable is the height of an apartment complex – those three storeys or below, and those taller than four storeys – because that is the point at which vertical transportation becomes normal practice, and which changes the proposed accessibility requirements in the NCC.

⁶ As is normal practice in the industry, room sizes are given here as nominal sizes, measured as the gross dimension between internal faces of structural elements. The proposed code, by contrast, specifies minimum dimension for circulation measured as the net clear internal space between finished wall faces. The difference in room sizes caused by this difference in measurement approach is accounted within our estimate of the cost impact of the proposed change to the NCC.

The typical apartments the report proposes are:

Table 3 Class 2 Architypes

	Two Bedroom Apartment Three-Storey Walk-up	Three Bedroom Apartment Complex 4 Storeys and above
Storeys	Single	Single
Parking Space	On-grade Stair Circulation	In Basement Serviced by Lift
Living area	90m ²	120m ²
Balcony	Direct access off living area	
Family/Kitchen combo	Yes	Yes
Other Living areas	No	2
Ceiling heights	2.4m	2.4m
Bathroom ⁶	1800x1800mm	1800x1800mm
En-suite	Not part of analysis	
Laundry ⁶	1500x1800mm	1500x1800mm
Kitchen arrangement	Galley kitchen, 3.6m long, benches 900mm apart	
Corridors ⁶	6m long 900mm wide	6m long 900mm wide
Balcony	Balcony connected to dwelling, typically 3.2 x 2.4m wide	Balcony connected to dwelling, typically 3.2 x 2.4m wide
Structural Framing	Assumed lightweight structure	Assumed suspended concrete slabs

These representative models were discussed at the workshop on 29 November 2019, where there was broad agreement that these models were an acceptable representation of residential dwellings in the market.

1.3. Construction Costs and Frequency Weightings

Having defined the architypes, we recognise variation between individual dwellings within each architype. For instance, Class 1a volume dwellings include homes with various door sizes, corridor widths, different size bathrooms, etc.

In preparing our assessment of the weighted cost of complying with the proposed NCC changes, we have therefore adopted a two-stage process:

- 1) We have estimated the cost of construction of the various items that may be required to achieve compliance, dependant on the specific design and specification.

We have considered that in the status quo, dwellings may already achieve different levels of partial compliance with the proposed changes to the NCC. We have therefore considered the cost of raising to the level of minimal compliance from several baseline scenarios, within each archetype. In some cases we have also considered alternative methods of achieving compliance, and have therefore estimated each of these home builder choices. The itemised cost estimates are summarised in Appendix F – Cost Estimate.

These item cost estimates are then assembled to reflect a range of scenarios for achieving compliance (which reflect both different baseline levels of compliance, and the alternatives available for achieving compliance). The scenarios relevant for achieving compliance differs from one dwelling archetype to another. The scenarios that make up each archetype estimate are summarised by archetype in Appendices A to E.

- 2) To combine the cost of each of the scenarios relevant to a given archetype into an integrated weighted estimate for the cost of compliance, we have applied weightings to each scenario to reflect our estimate of the relative frequency of each scenario, within the given archetype. These are combined at the level of the Design Element within the dwelling archetype.

The application of weightings is admittedly challenged by the scarcity of large scale data available in relation to the frequency of each level of partial compliance with the proposed NCC changes for each design element within each dwelling archetype. We have therefore drawn on our professional experience in the construction market and provided our opinion of the relative frequency of each level of partial compliance considered.

Where alternative methods of achieving compliance are available, we have similarly referenced analogous information to estimate the likely preference of developers and dwelling owners, and the resulting weighting of future consumer choice between alternatives, after any future implementation of the regulations now under analysis.

The assessment of these weightings is unavoidably subjective, given the sparsity of large scale summary data. However, we note that the Summer Foundation Audit (provided as a Stakeholder Submission to the ABCB in an earlier phase of public consultation) has provided some useful information to validate our professional opinion (Refer Section 1.5 - Response to Stakeholder Submissions).

The Table 4 summarises the specific factors that we have considered in developing our professional opinions of weightings for scenarios.

Table 4 Determinants of Weightings

Design Element		Alternatives available for compliance	Determinants of Weightings	
			Class 1A	Class 2
Design Element 1	Dwelling Access (front door and path of access)	Access via step-free path or via garage (choice relevant to Class 1A dwellings only)	<p>Baseline level of compliance, relative cost of alternatives, potential additional benefits of larger garage, differential cost vs outcome choice in different portions of the market, spatial constraints (block width), height constraints (Options 2 and 3 only), relative influence of developer vs owner occupier, cost of additional excavation to permit achievable path gradients (which may be so significant in some cases such that access via the garage becomes the only feasible option).</p> <p>We have recognised that correlations exist between the proportion of home builders choosing wider doors, larger entry areas and also electing to construct wider garages (rather than achieving compliance through path alterations).</p>	<p>Baseline level of compliance, relative cost of alternatives, potential additional benefits of larger car park, differential cost vs outcome choice in different portions of the market, spatial constraints (block width / available site area without adding basement level), height constraints (Options 2 and 3 only), relative ability to influence design of developer vs owner occupier.</p>
	Access to paved external area / balcony (Option 3 only)		<p>Baseline level of compliance (including dwellings with a bi-fold hung door with compliant threshold track), number of dwellings delivered with no outdoor paved area connected to dwelling (and which therefore do not trigger requirement), number of dwellings in baseline with covered vs uncovered paved areas</p>	<p>Baseline level of compliance (including dwellings with a bi-fold hung door with compliant threshold track), number of dwellings delivered with no attached balcony (and which therefore do not trigger requirement)</p>

Design Element		Alternatives available for compliance	Determinants of Weightings	
			Class 1A	Class 2
Design Element 2	Dwelling Entrance		Baseline level of compliance (with both door size and arrival space).	
Design Element 3	Internal Door and Corridor widths		Baseline level of compliance (with both door size and corridor width).	
	Maximum 5mm threshold steps		Baseline level of compliance (<5mm step at change of floor finish), number of hard / soft floor transitions.	
Design Element 4	Toilets (Accessible ground level)	Increase available circulation by making bathroom larger, or changing from swing door to cavity slider or a combination of both.	<p>Baseline level of compliance (toilet / bathroom large enough to provide circulation space), relative cost of alternatives, market acceptance of cavity slider doors in bathroom at ground floor / entry level, differential cost vs outcome choice in different portions of the market, proportion of dwellings with toilet within bathroom vs separate.</p> <p>We have recognised that correlations exist between the proportion of home builders choosing wider doors, larger bathrooms and toilets, and also electing to increase the size of bathrooms (rather than achieving compliance through reverting to a cavity slider door).</p>	<p>Baseline level of compliance (toilet / bathroom large enough to provide circulation space), spatial constraints that limit ability to increase area of toilet / bathroom, relative cost of alternatives, market acceptance of cavity slider doors in bathroom at ground floor / entry level, differential cost vs outcome choice in different portions of the market, proportion of dwellings with toilet within bathroom vs separate.</p> <p>We have recognised that correlations exist between the proportion of home builders choosing wider doors, larger bathrooms and toilets, and also electing to increase the size of bathrooms (rather than achieving compliance through reverting to a cavity slider door).</p>

Design Element		Alternatives available for compliance	Determinants of Weightings	
			Class 1A	Class 2
Design Element 5	Shower (Accessible ground level)	Increase available circulation by making bathroom larger, or changing from swing door to cavity slider or a combination of both.	Baseline level of compliance (bathroom large enough to provide circulation space), relative cost of alternatives, market acceptance of cavity slider doors in bathroom at ground floor / entry level, differential cost vs outcome choice in different portions of the market, proportion of dwellings with toilet in bathroom where increasing size of bathroom for toilet also provides circulation sufficient for shower, proportion of bathrooms that already achieve 5mm max threshold at shower set-down.	Baseline level of compliance (bathroom large enough to provide circulation space), spatial constraints that limit ability to increase area of toilet / bathroom, relative cost of alternatives, market acceptance of cavity slider doors in bathroom at ground floor / entry level, differential cost vs outcome choice in different portions of the market, proportion of dwellings with toilet in bathroom where increasing size of bathroom for toilet also provides circulation sufficient for shower, proportion of bathrooms that already achieve 5mm max threshold at shower set-down.
Design Element 6	Reinforcement of Bathroom and Toilet walls	Timber noggins (least cost) vs structural ply lining (greatest long-term flexibility)	Baseline level of compliance, relative cost of alternatives, differential cost vs outcome choice in different portions of the market.	
Design Element 7	Internal Stairways		Baseline level of compliance.	
Design Element 8	Kitchen Space		Baseline level of compliance, differential levels of baseline compliance in different market segments.	
Design Element 9	Laundry Space		Baseline level of compliance, differential levels of baseline compliance in different market segments.	
Design Element 10	Ground (or Entry Level) Bedroom Space		Baseline level of compliance.	
Design Element 11	Switches and Power-points		Baseline level of compliance, negligible cost of achieving compliance.	

Design Element		Alternatives available for compliance	Determinants of Weightings	
			Class 1A	Class 2
Design Element 12	Door and Tap Hardware		Baseline level of compliance, negligible cost of achieving compliance.	
Design Element 13	Window Sills		Baseline level of compliance.	

1.4. Baseline Design and Impact Assumptions

Showers and Baths

Where shower recesses are required to achieve a maximum 5mm threshold step, we have assumed that the entire bathroom will be recessed and treated as a single zone with tiling laid to falls and cross-falls as necessary to achieve the required levels.

We have assumed that where the baseline bathroom layouts do not achieve the required circulation space, compliance with the proposed changes would be achieved either by introducing a cavity sliding door (in lieu of a hinged door) where this is capable of providing additional circulation, or by providing increased internal area within the bathroom. The frequency of each solution reflects the opinion of DCWC professionals, based on our general experience in the building and construction industry with consideration to the market acceptability of each choice.

While the baseline scenarios represented in our estimate are by no means an exhaustive reflection of designs currently present in the market, we consider that we have captured a sufficient range of variance in our modelling to permit estimation of the mean cost impact of the proposed regulatory change to be calculated.

The proposed changes to the NCC are silent with respect to provision of a bath within dwellings. Our report therefore assumes no impact on the status quo with respect to frequency of bath provision in the population of new dwelling constructions.

Basement Car Parks

Our estimate of the cost of providing larger car parks for 4+ Storey Apartments assumes that car parks are constructed at a basement level, but that the compliant path of travel is likely to be from the kerb to the dwelling, rather than from the basement car park to the dwelling. This assumes that the regulatory amendments are not drafted in such a way as to require that basement car parks are captured.

We have provided estimates which indicate the cost of compliance in the minority of cases where car parks are provided on the path of travel. The following comments clarify these estimates.

In Options 2 and 3, where car parks are required to achieve a minimum height over the parked car central zone (in accordance with AS2890.6), we have assumed that structural elements and services can be designed to avoid these zones within basement car parks, in order to minimise the impact on basement excavation depth. We have therefore assumed that clear heights can be achieved by increasing the total floor to floor height of basement car parks by 100mm to 150mm in most instances.

We have considered in our cost rate that the proposed change to car park size will change the typical column layout in basement car parks. The status quo regulatory environment often currently translates into an optimised design involving load bearing walls at 5.0m centres, or columns at 7.5m centres. This is a result of the currently prescribed widths of car parks, together with many other design, functionality and efficiency considerations.

The currently proposed NCC changes involves car park widths being prescribed at 3.2m (where a dwelling is provided with a single carpark on the path of travel) or maintained at 2.4m (where a dwelling has two side-by-side car parks on the path of travel). Under the proposed change to the NCC we anticipate the following scenarios of compliance:

- Where apartments are provided with tandem carparks (one behind the other, serving the same unit), we anticipate columns are likely to be optimised at approximately 6.4m centres. We note that this is an unusual base-case scenario.
- Where apartments are provided with two side-by-side car parks (which is more common), car parks are likely to maintain columns or loadbearing walls at approximately 5.0m centres.
- Where dwelling units are provided with only a single carpark 3.2m wide, lateral column spacing will be optimised at around 6.4m centres (approximately mid-way between the two currently most prevalent carpark structural grid spacing solutions).
- Finally, where a carpark comprises a mix of 2+ bedroom dwellings with 2 side-by-side car parks and single bedroom dwellings with single carparks, a layout which alternates between double carpark and single carpark, with columns at 7.5m centres is likely to be adopted.

In all of these scenarios, we have assumed that design of footings, suspended slab beams and transfer structures will be redesigned to achieve their respective optimum under any new design constraints (including column spacings), and have included an average cost of impact, given the various car parking options captured within the scenarios applicable.

We note that the total extent of a basement level carpark serving a commercial apartment development is typically not determined exclusively by maximising the number of car parks that can be accommodated at a single basement floor level. It is determined instead by the number of carparks required to meet market demands for the number of dwellings permissible on the allotment, which is governed in turn by applicable planning regulations.

As a result, basement car parks rarely fully and completely occupy precisely the size of the allotment. It is more common that the lowest level of basement (which may be the first basement level) only partially fills the boundaries of the allotment. Where the proposed changes to the NCC trigger an increase in the basement carpark area, the additional area may therefore be available without increasing the number of basement floor levels. There will be, however, some instances where the increase in aggregate carpark area would also trigger the requirement to extend the basement to an additional basement floor level. In this case, it is likely that a developer would elect to provide a path of travel that does not place the car parks on the path of travel. As a result, the proposed regulations are unlikely to trigger an increase in the number of basement levels.

Class 1A Dwelling Floor Levels and External Paving Levels

The design floor level for Class 1A dwellings is determined by a range of factors (such as flood level and finished allotment RL) which are not impacted by the proposed changes to the NCC. We have assumed that, for Class 1A dwellings, the finished floor level of any dwelling remains unaltered by the proposed changes to the NCC, and step-free access to the dwelling entrance and any paved outdoor areas would be achieved through raising the external paved areas from the status quo level to match the finished floor level. In the vast majority of cases this provides the most cost effective method of achieving compliance with the proposed NCC changes.

The status quo in Class 1A dwellings entails dwelling entrance landings and other paved areas abutting dwellings at a relative height that ranges from 150mm below, to equal with, the dwelling floor level. This step-down from internal floor area to external paving plays a role in water proofing at doorways. As a result, when paving levels are adjusted to provide step-free access, supplementary waterproofing will be required. We have therefore included in our estimates for additional water proofing treatments at dwelling entrances in connection with provision of step-free

access. The type of supplementary waterproofing included in our estimate varies in each scenario considered.

For instance, in the case of provision of access to balconies we have distinguished between low-rise buildings and high-rise buildings. For low-rise buildings, balcony roofs contribute to the weatherproofing of openings such that only a minor upgrade to door seals is required. This is not the case for uncovered outdoor areas in low-rise construction, nor for high-rise construction (where higher negative air pressures exacerbate waterproofing challenges). In these cases more elaborate ‘semi-commercial’ door seals are included in our estimate.

We note that some stakeholders have raised the concern that substantial additional excavation work may be required to reduce the floor level of a dwelling, sufficient that compliance can be achieved with the proposed maximum path length and slope requirements. This assumes that a compliant access path is required to be provided from the kerb into the dwelling. We have assumed that where provision of a compliant access path from the kerb would be onerous, a home builder would elect to provide a compliant access way from the garage into the dwelling instead of from the kerb to the dwelling. This option typically does not require additional excavation as it is usual practice to locate the garage close to the same level as at least one floor of the dwelling. As a result, the proposed changes to the NCC do not trigger a requirement for substantial additional excavation.

1.5. Dwelling Access Exemptions

ABCB ‘Accessible Housing: Drafting of proposed NCC changes 2020’ clause 3.9.3.2 (e) proposed several exemptions to the requirement to provide accessible access (via path or garage) to a dwelling, which we have assumed will be retained in any proposed regulatory changes.

We have therefore excluded from our consideration and estimates, the costs of provision of a step-free access path to dwellings that would be exempt, as summarised in Table 5.

Table 5 Design Element 1 - Assumed Exemptions

Basis of Exemption	DCWC Interpretation
If compliance would necessitate a ramp longer than 9m at 1:14 slope	This may occur where the natural ground is steeply sloping in the direction of travel, or where the proposed dwelling is not constructed with an entry at ground level (such as ‘High-set Queenslanders or ‘Garage Top Dwellings’). We have assumed that such properties will be exempt. Specifically, we have assumed that where it is neither possible to locate an entry door within 642mm vertical separation of a car park space nor of the kerb height, then we have excluded those homes from the population of homes captured by our estimates for step-free path access.

<p>If there is insufficient space on the allotment to accommodate a path or ramp entry.</p>	<p>This might occur in the case of a terrace house – where the constraint that prevents a ramped access path is not vertical separation, but available plan area to accommodate a ramp. We have excluded such homes from the population of homes captured by our estimates for step-free path access.</p>
<p>If the slope on the ground on which a ramp or path would be constructed exceeds 1:14.</p>	<p>This exemption is relevant where, for instance, an allotment is steeply sloping across the required path of travel (not in the direction of travel). Compliance in such circumstances may demand that a home builder constructs a highly engineered solution (such as a suspended bridge), which might be vastly more expensive than a ramp or path on ground. We have excluded such solutions from the population of homes captured by our estimates for step-free path access.</p>

From the perspective of estimating the weighted cost of achieving compliance with the Design Element 1 proposed changes to the NCC, the above exemptions apply in the vast majority of instances where the cost of compliance with access requirements would be prohibitively expensive. This has guided our assessment of the cost items and scenarios relevant to our modelling, and has meant that it is not necessary to model prohibitively expensive solutions.

1.6. Purpose of Estimate

Our purpose in preparing this report is not to estimate the ‘worst case scenario’, nor even to provide an indication of the range of possible cost impacts potentially flowing from the proposed changes to the NCC. Our purpose is to estimate a weighted cost that provides an indication of the likely average cost impact on each archetype, averaged across the population of non-exempt dwellings constructed.

While it is always possible that a unique project with highly unusual site or design constraints may demand a uniquely expensive solution outside the range of that contemplated by our modelling (while failing to fit the exemptions considered) such instances are likely to be extremely rare.

1.7. Response to Stakeholder Submissions

The Australian Building Codes Board invited public submissions to a Consultation RIS in August 2020, to which 179 responses were published.

Our assessment of estimate scope and scenario weightings has been informed by a review of submissions, and specific stakeholder submissions have been discussed by exception. We provide the following comments on selected stakeholder submissions:

Property Council of Australia

We have updated our report to more explicitly show the impact of the proposed Accessible Housing requirements on cost of providing basement carpark to Apartments. This includes applying a different cost rate to the construction of compliant basement carpark from that rate used in relation to status quo carpark.

We also note the specific clarifications provided in Section 1.4 of this report.

Melbourne Disability Institute / Summer Foundation

The submission provided by the Melbourne Disability Institute and Summer Foundation to the Consultation RIS process includes an 'Audit of Accessible Features' in a sample of display homes available for inspection in Melbourne (the Audit).

While this Audit provides useful additional information to inform the assessment of the status quo (or baseline) prevalence of accessible features, the following cautionary notes should be observed in relation to the Audit:

- The sample of homes selected for audit was chosen from display homes, rather than private dwellings. It is likely that these display homes, being constructed as publically accessible buildings for the purpose of sales and marketing, have disproportionately incorporated entrance and access features that are capable of fulfilling their function as publically accessible display homes⁷. We therefore consider that the sample selected is likely to not be representative of the population of private dwellings constructed, at least in respect of the baseline level of compliance with the proposed Design Elements 1 and 2.
- The sample of homes selected for audit was selected from the 'most popular house designs' of the 'ten largest residential developers'⁸. As the housing market is highly fragmented with a vast number of smaller builders, it is possible that this selection process has also introduced a bias into the study, such that the sample of designs audited is not representative of the broader population of dwellings constructed in Australia.
- The sample of homes chosen for review includes only designs from the archetypes "Volume Home" and "Townhouse" used in our analysis. The audit therefore omits the archetypes identified in our analysis as "Custom Home", "Three-Storey Walk-up" and "Complex 4 Storeys and above".
- Of the sample homes selected, 45% are two storey. This percentage of two storey homes may also differ from the broader population of homes (and apartments) constructed in Australia, further introducing a bias into the study.

The Audit report suggests that the cost of incorporating Accessible Features may be lower than may be assumed because many of the features are already included in baseline home designs, albeit not in a systematic way – "All 20 of the houses audited included at least 6 of LHA's 15 Design Elements at Silver level, with two houses complying with 10 of the elements. However, no house in the study featured all of the elements, and none met the full criteria of either Option 1, 2 or 3 as proposed in the ABCB Options Paper."

⁷ The Premises Standards in the Commonwealth Disability Discrimination Act (1992) stipulate specific requirements in relation to a principal pedestrian entrance of a building, compliance with which may be considered obligatory for such commercial premises.

⁸ 'Audit of Accessible Features in New Build House Plans', The Summer Foundation, p.6

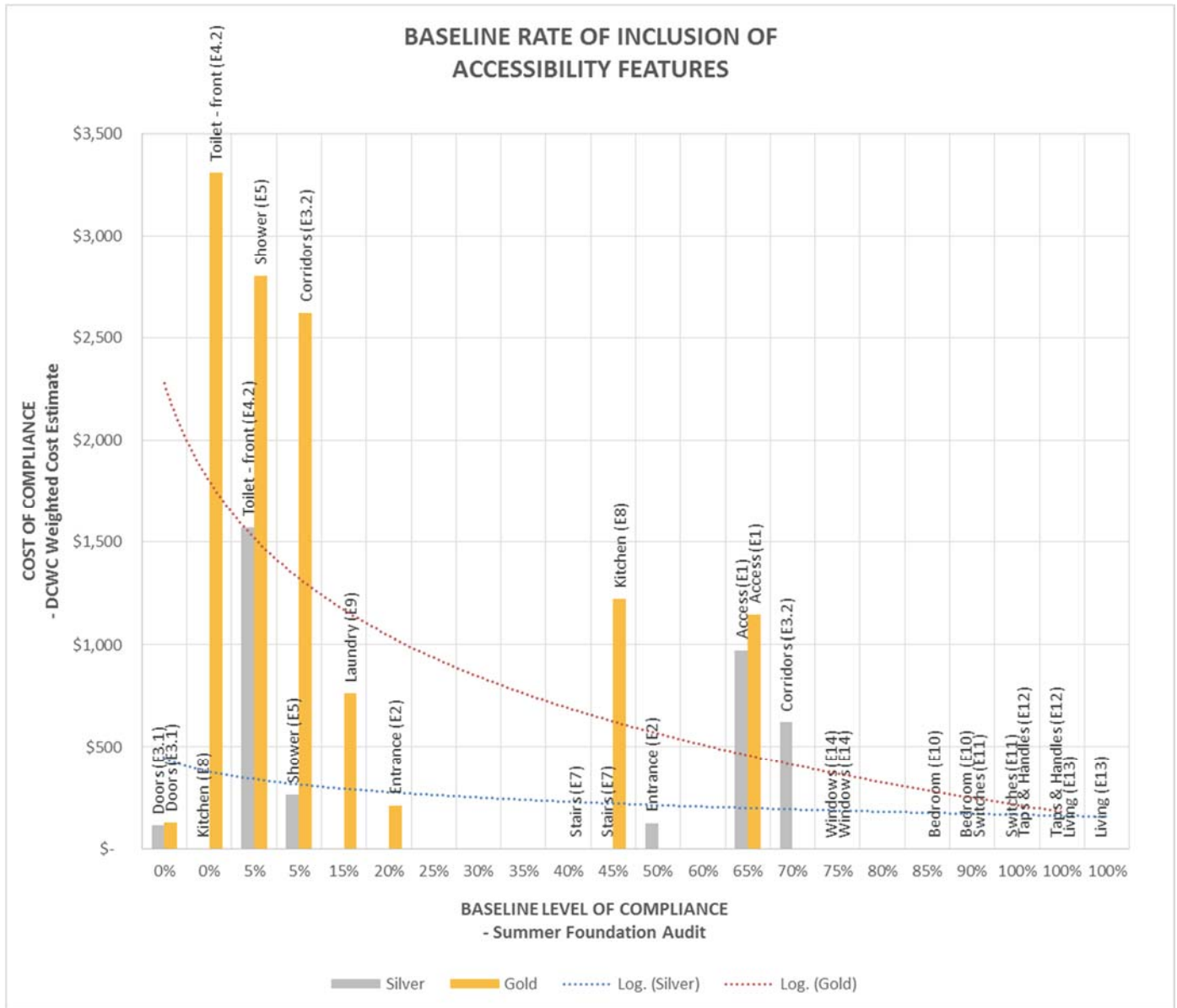
While this data is certainly useful, it should be noted (refer Figure 1):

- the features that are the most expensive to implement have the lowest levels of baseline compliance. For instance features E3.1, E4.2 and E5 are identified in our estimates as the three most expensive items to implement, and are identified in the Audit as having an uptake rate between 0% and 5%.
- the features that have a high uptake rate in the status quo / baseline designs audited are disproportionately either noted within our analysis as involving little or no cost to implement. For instance, features E3.2, E14, E10, E11, E12 and E13 are all identified in the Audit as having an uptake rate between 70% and 100%, and are estimated at zero cost in the DCWC Weighted Cost Estimate.

A notable exception is for the case of provision of access (Design Elements 1 and 2), where the compliance level is high compared to what may be expected based on estimated cost. This confirms our earlier noted concern that the selection of display homes for analysis may have introduced a bias toward more accessible homes, due to their need to function as publically accessible buildings.

This suggests that, although 'all 20 of the houses audited' have at least 6 of the 15 Design Elements at Silver level, this does not indicate that costs of compliance are over-estimated. The level of baseline compliance revealed by the Summer Foundation Audit is compatible with our estimates of cost of compliance.

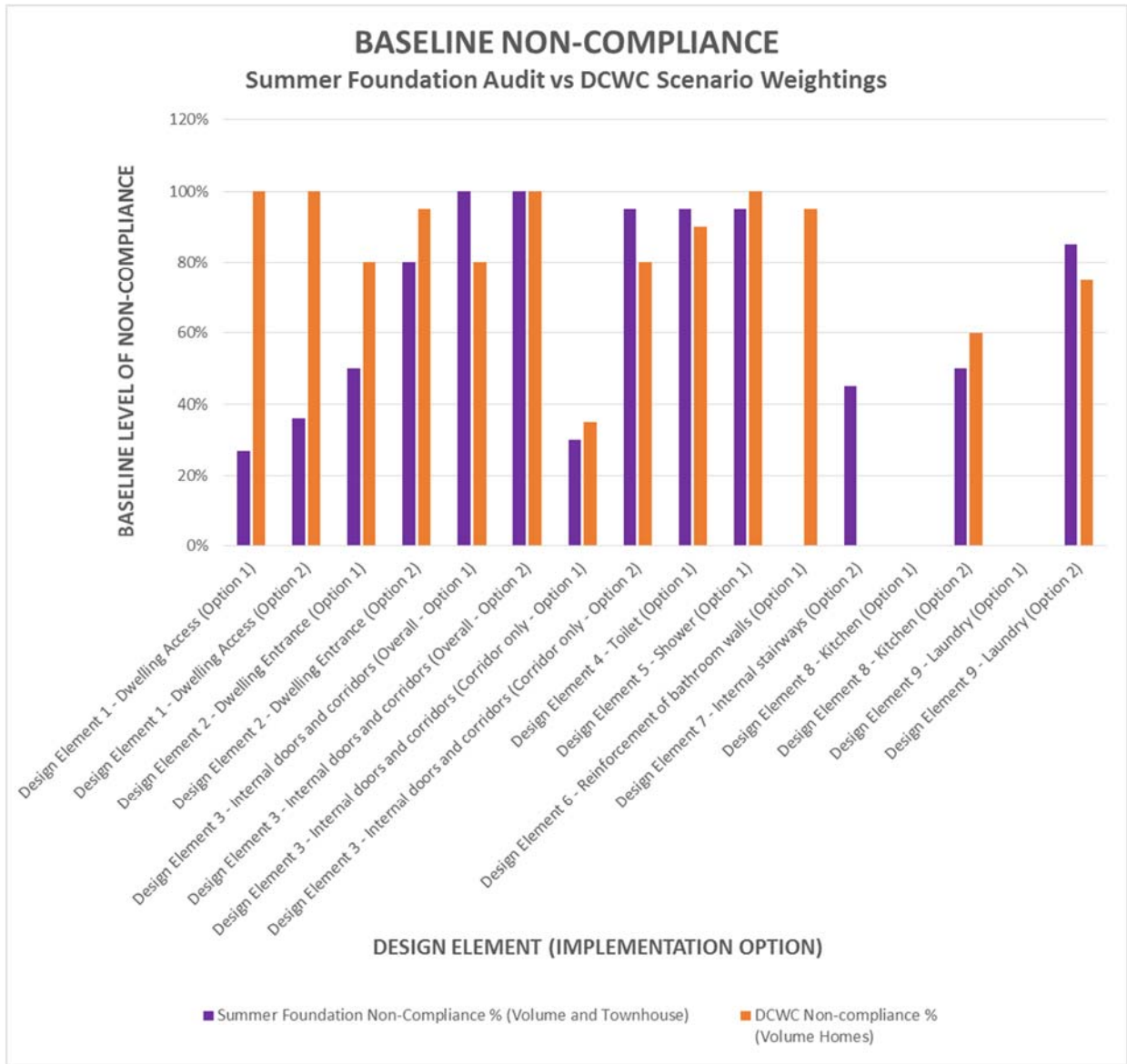
Figure 1 Rate of Inclusion of Accessibility Features



Further, we have benchmarked our assessment of the level of uptake of accessibility features (expressed as scenario weightings) against the data reported in the Summer Foundation Audit of display homes.

This comparison is provided in Figure 2. This indicates that the weightings adopted within our modelling of scenarios accords closely with the data presented in the Summer Foundation Audit, with the exception of Design Elements 1 and 2. This departure has been previously explained as likely resulting from a sampling bias introduced by the selection of display homes rather than private dwellings in the Summer Foundation Audit.

Figure 2 Benchmarking of Scenario Weightings



1.8. Clarifications

The following clarifications are noted:

- The base date for these estimates is 31 January 2020 and utilises Canberra, ACT as the baseline location.

Building and construction costs do vary both between States, and between metropolitan and regional areas. We have not attempted to reflect the complete spectrum of regional variation in pricing in our estimates. We note that several widely available sources are available that report State and Regional construction cost indices, and which permit our estimate to be adjusted to reflect costs in other areas.

- We have assumed labour is readily available.
- We have based our assessment on the forecast long term sustained cost impact, following industry adaptation to the proposed standards. Thus the estimated costs include all labour and materials, builder's preliminaries, margins and overheads, design fees, a design and construction contingency and GST. The estimate therefore represents the total anticipated construction cost.
- Each of the Silver, Gold and Gold Plus options introduce additional space requirements to meet the minimum accessibility standards (which differ for each option). We have allowed for each of the Class 1a model homes to increase in size, and the applicable additional construction cost is included in our estimates (unless specifically noted otherwise).

On the other hand we have assumed that in Class 2 homes, the space will be absorbed within the current footprint of any apartments.

- For Class 2 buildings we note that not all apartments in any given development will be impacted by the requirements of Design Elements 1 and 2, as some Class 2 dwellings already have equivalent requirements per Table D3.1 'REQUIREMENTS FOR ACCESS FOR PEOPLE WITH A DISABILITY' under the NCC. The NCC therefore already stipulates equivalent access requirements for apartments on floors served by a lift or which are accessible via a common area on the ground floor.
- We have assumed that for detached homes (Class 1a) the split in the market is 57% volume construction and 43% custom construction.
- In the case of Class 1a dwellings, we have assumed that the site is not eligible for any of the proposed exemptions set out in the draft NCC changes. This may be equivalent to the assumption that the block is relatively flat, and has sufficient space to accommodate a step free path to the entry door. The weighted average cost calculated in our report should therefore be interpreted as an estimate of the average cost impact of the proposed NCC changes on an affected home, not the average cost impact on homes per se.

1.9. Exclusions

All estimates contained in this report exclude:

- Additional costs applicable to retro-fit existing dwellings.
- Authority fees and cost.
- Industry adaptation, mobilisation, re-tooling and the like.

1.10. Documentation

Cost estimates have been prepared with reference to the following documentation:

- Australian Building Codes Board, Accessible Housing – Drafting of Proposed NCC Changes, October 2019, and current revisions of that document dated 2020.
- Livable Housing Design Guidelines, Fourth Edition, 2017 published by Livable Housing Australia, Forest Lodge, NSW.
- NCC 2019 Volume 1 and Volume 2.
- ABCB, Accessible Housing Options Paper, September 2018.
- Workshops and comments from ABCB and The Centre for International Economics in relation to draft versions this report.
- Australian Building Codes Board, Accessible Housing – ‘Detailed brief for updated Accessible Housing Quantity Survey Report’ dated 2 November, 2020.

2. WEIGHTED ESTIMATED CONSTRUCTION COSTS

2.1. Summary of Estimate

We attach five cost matrixes that capture the design elements being proposed for inclusion in the NCC for each of the representative model homes. Those spreadsheets also capture the scenario weightings:

Table 6

Weighted Construction Costs			
Cost Element Design Element 1B reflected in Table	Option 1 LHDG Silver \$	Option 2 LHDG Gold \$	Option 3 LHDG Gold Plus \$
Class 1a – Volume Product	4,123	12,662	16,912
Class 1a – Custom Home	3,965	11,635	14,583
Class 1a - Townhouse	4,385	17,036	21,500
Class 2 – Three-storey Walk-ups	4,013	12,491	17,844
Class 2 – Plus Four Storeys	2,914	11,792	16,456

2.2. Summary of Area Impacts

Our estimates of the effect of proposed NCC changes on the areas of dwellings is summarised as follows:

Table 7

Weighted Area Changes			
Housing Architype	Option 1 LHDG Silver m2	Option 2 LHDG Gold m2	Option 3 LHDG Gold Plus m2
Class 1a – Volume Product	1.52	4.10	5.53
Class 1a – Custom Home	1.44	3.19	4.17
Class 1a - Townhouse	1.43	6.09	7.78
Class 2 – Three-storey Walk-ups	1.21	5.06	6.38
Class 2 – Plus Four Storeys	0.72	4.70	5.69

Note that this table reflects the change in area of the dwelling, which for Class 1A dwellings includes any increase in the size of a garage under the main roof change, but for Class 2 excludes any change in the car park area.

RECOMMENDATION

This report is presented for further discussion as part of the Final Regulation Impact Statement in relation to the proposed inclusion of minimum accessibility standards for housing in the National Construction Code.

APPENDIX A – COST MODEL OF VOLUME HOME

**Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings**

CLASS 1A - VOLUME OR PRODUCTION HOME											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 1 - Dwelling Access											
There will be instances where access through the front door will not be feasible, and accessible access will be through the garage. "Step-free" access refers to access via a path of travel that may include a threshold of upto 56mm in a doorway, suitable for addition of a threshold ramp at a later date if required.											
Carpark space increase to 3200x5400mm	1) Wider entry path and drainage for step-free access path	999	60%	Carpark space increase to 3200x5400mm and to 2500mm vertical clearance	1) Wider entry path and drainage for step-free access path	1,118	80%	Carpark space increase to 3200x5400mm and to 2500mm vertical clearance	1) Wider entry path and drainage for step-free access path	1,118	80%
	2) Larger car space	931	40%		2) Larger car space	931	10%		2) Larger car space	931	10%
					3) Larger space and height	1,571	10%		3) Larger space and height	1,571	10%
No requirements for access to outdoor paved area	1) Negligible Impact	-	100%	No requirements for access to outdoor paved area	1) Negligible Impact	-	100%	Step-free access to outdoor paved area	1) Negligible Impact	-	40%
									2) Step-free access to uncovered outdoor area	2,319	55%
									3) Step-free access to covered outdoor area	837	5%
Weighted Cost			972	Weighted Cost			1,144	Weighted Cost			2,462
Design Element 2 - Dwelling Entrance											
870mm door (820mm clear opening) with 5mm threshold and 1200x1200 arrival space	1) Negligible Impact	-	20%	Min 920mm door (850 clear opening) with 5mm threshold and 1350x1350 arrival space	1) Negligible Impact	-	5%	Min 920mm door (850 clear opening) with 5mm threshold and 1350x1350 arrival space	1) Negligible Impact	-	5%
	2) Larger door	80	45%		2) Larger door	100	45%		2) Larger door	100	45%
	3) Larger landing only from 0.9x0.9m to 1.2x1.2m	196	10%		3) Larger landing only from 0.9x0.9m to 1.35x1.35m	279	5%		3) Larger landing only from 0.9x0.9m to 1.35x1.35m	279	5%
	4) Larger door if required and landing increased from 0.9x0.9m to 1.2x1.2m	276	25%		4) Larger door and landing increased from 0.9x0.9m to 1.35x1.35m	379	35%		4) Larger door and landing increased from 0.9x0.9m to 1.35x1.35m	379	35%
					5) Larger door and landing from 1.2x1.2m to 1.35x1.35m	183	10%		5) Larger door and landing from 1.2x1.2m to 1.35x1.35m	183	10%
Weighted Cost			125	Weighted Cost			210	Weighted Cost			210

**Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings**

CLASS 1A - VOLUME OR PRODUCTION HOME											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 3 - Internal doors and corridors											
870mm door (820mm clear opening) and 1000mm wide internal corridors	1) Negligible Impact		20%	Min 920mm door (850 clear opening) and 1200mm wide internal corridors	1) Negligible Impact		5%	Min 920mm door (850 clear opening) and 1200mm wide internal corridors	1) Negligible Impact		5%
	2) Wider doors only	377	15%		2) Wider doors only	509	15%		2) Wider doors only	509	15%
	3) Wider corridor only	754	15%		3) Wider corridor only	3,014	10%		3) Wider corridor only	3,014	10%
	4) Wider doors and wider corridor 0.9 to 1.0m	1,130	50%		4) Wider doors and wider corridor 0.9 to 1.2m	3,523	60%		4) Wider doors and wider corridor 0.9 to 1.2m	3,523	60%
					5) Wider doors and wider corridor 1 to 1.2m	2,581	10%		5) Wider doors and wider corridor 1 to 1.2m	2,581	10%
Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	75%	Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	75%	Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	75%
	2) 2 Locations per dwelling	180	25%		2) 2 Locations per dwelling	180	25%		2) 2 Locations per dwelling	180	25%
	3) 4 Locations per dwelling	360	0%		3) 4 Locations per dwelling	360	0%		3) 4 Locations per dwelling	360	0%
Weighted Cost			780	Weighted Cost			2,795	Weighted Cost			2,795
Design Element 4 - Toilet											
Construct with sufficient circulation space	1) Negligible Impact	-	10%	Construct with sufficient circulation space	1) Negligible Impact	-	0%	Construct with sufficient circulation space	1) Negligible Impact	-	0%
	2) Achieve clearance by replacing swing door with cavity slider door	80	40%		2) Achieve clearance by replacing swing door with cavity slider door, and additional width	1,515	41%		2) Achieve clearance by replacing swing door with cavity slider door, and additional width	1,515	41%
	3) Retain swing door, and introduce additional width to bathroom	3,078	50%		3) Retain swing door, and introduce additional width and length	4,562	59%		3) Retain swing door, and introduce additional width and length	4,562	59%
Weighted Cost			1,571	Weighted Cost			3,313	Weighted Cost			3,313

Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings

CLASS 1A - VOLUME OR PRODUCTION HOME											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 5 - Shower											
Removable shower screen, no size requirement	1) Negligible Impact	-	0%	As for Silver, but with 900x900 shower and 1200x1200 circulation space	1) Negligible Impact	-	0%	As for Silver, but with 900x900 shower and 1200x1200 circulation space	1) Negligible Impact	-	0%
	2) Change shower to hobless and step-free	265	100%		2) Change shower to hobless and step-free, and utilise additional circulation space provided for toilet to achieve circulation required for shower	265	30%		2) Change shower to hobless and step-free, and utilise additional circulation space provided for toilet to achieve circulation required for shower	265	30%
					3) Change shower to hobless and step-free, and with additional bathroom circulation through slider door providing access to bathroom	3,363	28.7%		3) Change shower to hobless and step-free, and with additional bathroom circulation through slider door providing access to bathroom	3,363	28.7%
					4) Change shower to hobless and step-free, and with additional bathroom circulation space through larger bathroom with swing door providing access to bathroom	4,263	41.3%		4) Change shower to hobless and step-free, and with additional bathroom circulation space through larger bathroom with swing door providing access to bathroom	4,263	41.3%
Weighted Cost			265	Weighted Cost			2,805	Weighted Cost			2,805
Design Element 6 - Reinforcement of Bathroom and Toilet Walls											
Reinforce walls for future adaptation	1) Negligible Impact	-	5%	Reinforce walls for future adaptation	1) Negligible Impact	-	5%	Reinforce walls for future adaptation	1) Negligible Impact	-	5%
	2) Addition of compliant noggings	350	85%		2) Addition of compliant noggings	350	85%		2) Addition of compliant noggings	350	85%
	3) Structural ply to wet area walls	1,130	10%		3) Structural ply to wet area walls	1,130	10%		3) Structural ply to wet area walls	1,130	10%
Weighted Cost			411	Weighted Cost			411	Weighted Cost			411

Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings

CLASS 1A - VOLUME OR PRODUCTION HOME											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 7 - Internal Stairways											
No requirements			0%	No impact - single level home			0%	No impact - single level home			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 8 - Kitchen Space											
No requirements				1200mm min clearance in front of benches and appliances	1) Negligible Impact	-	40%	1500mm min clearance in front of benches and appliances	1) Negligible Impact	-	20%
					2) Increase circulation space	2,035	60%		2) Increase circulation space	4,069	60%
										3) Increase space from Gold level	2,035
Weighted Cost			-	Weighted Cost			1,221	Weighted Cost			2,849
Design Element 9 - Laundry space											
No requirements				1200mm min clearance in front of benches and appliances	1) Negligible Impact	-	25%	1550mm min clearance in front of benches and appliances	1) Negligible Impact	-	10%
					2) increase circulation space	1,017	75%		2) increase circulation space	2,204	75%
										3) Increase space from Gold level	1,187
Weighted Cost			-	Weighted Cost			763	Weighted Cost			1,831
Design Element 10 - Space on ground/entry level suitable for a bedroom											
No requirements				No impact - single level home			0%	No impact - single level home			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 11 - Light switches and power outlets at easy to reach heights											
No requirements				Light switches to be 900mm to 1100mm above floor level			0%	Light switches to be 900mm to 1100mm above floor level			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-

Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings

CLASS 1A - VOLUME OR PRODUCTION HOME											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 12 - Door hardware at easy to reach heights											
No requirements				Door handles to be 900mm to 1100mm above floor level			0%	Door handles to be 900mm to 1100mm above floor level			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 13 - Window Sills											
No requirements			0%	No requirements		-	0%	Sill height at 1m controls allow one handed operation	1) Negligible Impact		5%
									2) Upgrade window hardware to allow single handed operations	250	95%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			238
TOTALS - Design Element 1A			4,123	TOTALS - Design Element 1A			12,662	TOTALS - Design Element 1A			16,912

APPENDIX B – COST MODEL OF CUSTOM HOME

**Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings**

CLASS 1A - CUSTOM HOME											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 1 - Dwelling Access											
There will be instances where access through the front door will not be feasible, and accessible access will be through the garage. "Step-free" access refers to access via a path of travel that may include a threshold of upto 56mm in a doorway, suitable for addition of a threshold ramp at a later date if required.											
Carpark space increase to 3200x5400mm (width increase achievable by sharing adjacent parking space)	1) Wider entry path	999	20%	Carpark space increase to 3200x5400mm and to 2500mm vertical clearance (width increase achievable by sharing adjacent parking space)	1) Wider entry path	1,118	20%	Carpark space increase to 3200x5400mm and to 2500mm vertical clearance (width increase achievable by sharing adjacent parking space)	1) Wider entry path	1,118	20%
	2) Larger car space	-	80%		2) Increased height of double car space (doesn't require widening)	640	70%		2) Increased height of double car space (doesn't require widening)	640	70%
			0%		3) Negligible impact (height already compliant and double garage provides sufficient space)	-	10%		3) Negligible impact (height already compliant and double garage provides sufficient space)	-	10%
No requirements for access to outdoor paved area	1) Negligible Impact	-	100%	No requirements for access to outdoor paved area	1) Negligible Impact	-	100%	Step-free access to outdoor paved area	1) Negligible Impact	-	20%
									2) Step-free access to uncovered outdoor area	2,319	5%
									3) Step-free access to covered outdoor area	837	75%
Weighted Cost			200	Weighted Cost			672	Weighted Cost			1,415
Design Element 2 - Dwelling Entrance											
870mm door (820mm clear opening) with 5mm threshold and 1200x1200 arrival space	1) Negligible Impact	-	40%	Min 920mm door (850 clear opening) with 5mm threshold and 1350x1350arrival space	1) Negligible Impact	-	10%	Min 920mm door (850 clear opening) with 5mm threshold and 1350x1350arrival space	1) Negligible Impact	-	10%
	2) Larger door	80	25%		2) Larger door	100	30%		2) Larger door	100	30%
	3) Larger landing only from 0.9x0.9m to 1.2x1.2m	196	20%		3) Larger landing only from 0.9x0.9m to 1.35x1.35m	279	25%		3) Larger landing only from 0.9x0.9m to 1.35x1.35m	279	25%
	4) Larger door if required and landing increased from 0.9x0.9m to 1.2x1.2m	276	15%		4) Larger door and landing increased from 0.9x0.9m to 1.35x1.35m	379	25%		4) Larger door and landing increased from 0.9x0.9m to 1.35x1.35m	379	25%
					5) Larger door and landing from 1.2x1.2m to 1.35x1.35m	183	10%		5) Larger door and landing from 1.2x1.2m to 1.35x1.35m	183	10%
Weighted Cost			101	Weighted Cost			213	Weighted Cost			213

**Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings**

CLASS 1A - CUSTOM HOME											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 3 - Internal doors and corridors											
870mm door (820mm clear opening) and 1000mm wide internal corridors	1) Negligible Impact		20%	Min 920mm door (850 clear opening) and 1200mm wide internal corridors	1) Negligible Impact		5%	Min 920mm door (850 clear opening) and 1200mm wide internal corridors	1) Negligible Impact		5%
	2) Wider doors only	377	30%		2) Wider doors only	509	30%		2) Wider doors only	509	30%
	3) Wider corridor only	754	20%		3) Wider corridor only	3,014	20%		3) Wider corridor only	3,014	20%
	4) Wider doors and wider corridor 0.9 to 1.0m	1,130	30%		4) Wider doors and wider corridor 0.9 to 1.2m	3,523	40%		4) Wider doors and wider corridor 0.9 to 1.2m	3,523	40%
					5) Wider doors and wider corridor 1 to 1.2m	2,581	5%		5) Wider doors and wider corridor 1 to 1.2m	2,581	5%
Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	20%	Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	20%	Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	20%
	2) 2 Locations per dwelling	180	50%		2) 2 Locations per dwelling	180	50%		2) 2 Locations per dwelling	180	50%
	3) 4 Locations per dwelling	360	30%		3) 4 Locations per dwelling	360	30%		3) 4 Locations per dwelling	360	30%
Weighted Cost			801	Weighted Cost			2,492	Weighted Cost			2,492
Design Element 4 - Toilet											
Construct with sufficient circulation space	1) Negligible Impact	-	20%	Construct with sufficient circulation space	1) Negligible Impact	-	5%	Construct with sufficient circulation space	1) Negligible Impact	-	5%
	2) Achieve clearance by replacing swing door with cavity slider door	80	10%		2) Achieve clearance by replacing swing door with cavity slider door, and additional width	1,515	10%		2) Achieve clearance by replacing swing door with cavity slider door, and additional width	1,515	10%
	3) Retain swing door, and introduce additional width to bathroom	3,078	70%		3) Retain swing door, and introduce additional width and length	4,562	70%		3) Retain swing door, and introduce additional width and length	4,562	70%
					4) Silver compliant toilet to Gold/Gold+ compliant with cavity slider door design	1,515	1.0%		4) Silver compliant toilet to Gold/Gold+ compliant with cavity slider door design	1,515	1.0%
					5) Silver compliant toilet to Gold/Gold+ compliant with swing door design	1,484	14.0%		5) Silver compliant toilet to Gold/Gold+ compliant with swing door design	1,484	14.0%
Weighted Cost			2,163	Weighted Cost			3,568	Weighted Cost			3,568

**Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings**

CLASS 1A - CUSTOM HOME														
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum						
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting			
Design Element 5 - Shower														
Removable shower screen, no size requirement	1) Negligible Impact	-	20%	As for Silver, but with 900x900 shower and 1200x1200 circulation space	1) Negligible Impact	-	5%	As for Silver, but with 900x900 shower and 1200x1200 circulation space	1) Negligible Impact	-	5%			
	2) Change shower to hobless and step-free	265	80%		2) Change shower to hobless and step-free, and utilise additional circulation space provided for toilet to achieve circulation required for shower	265	30%		2) Change shower to hobless and step-free, and utilise additional circulation space provided for toilet to achieve circulation required for shower	265	30%			
					3) Change shower to hobless and step-free, and with additional bathroom circulation through slider door providing access to bathroom	3,363	8.1%		3) Change shower to hobless and step-free, and with additional bathroom circulation through slider door providing access to bathroom	3,363	8.1%			
					4) Change shower to hobless and step-free, and with additional bathroom circulation space through larger bathroom with swing door providing access to bathroom	4,263	56.9%		4) Change shower to hobless and step-free, and with additional bathroom circulation space through larger bathroom with swing door providing access to bathroom	4,263	56.9%			
Weighted Cost				212	Weighted Cost				2,777	Weighted Cost				2,777
Design Element 6 - Reinforcement of Bathroom and Toilet Walls														
Reinforce walls for future adaptation	1) Negligible Impact	-	5%	Reinforce walls for future adaptation	1) Negligible Impact	-	5%	Reinforce walls for future adaptation	1) Negligible Impact	-	5%			
	2) Addition of compliant noggings	350	75%		2) Addition of compliant noggings	350	75%		2) Addition of compliant noggings	350	75%			
	3) Structural ply to wet area walls	1,130	20%		3) Structural ply to wet area walls	1,130	20%		3) Structural ply to wet area walls	1,130	20%			
Weighted Cost				489	Weighted Cost				489	Weighted Cost				489
Design Element 7 - Internal Stairways														
No requirements			0%	No impact - single level home			0%	No impact - single level home			0%			
Weighted Cost				-	Weighted Cost				-	Weighted Cost				-

**Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings**

CLASS 1A - CUSTOM HOME											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 8 - Kitchen Space											
No requirements				1200mm min clearance in front of benches and appliances	1) Negligible Impact	-	60%	1500mm min clearance in front of benches and appliances	1) Negligible Impact	-	50%
					2) Increase circulation space	2,035	40%		2) Increase circulation space	4,069	40%
										3) Increase space from Gold level	2,035
Weighted Cost			-	Weighted Cost			814	Weighted Cost			1,831
Design Element 9 - Laundry space											
No requirements				1200mm min clearance in front of benches and appliances	1) Negligible Impact	-	40%	1550mm min clearance in front of benches and appliances	1) Negligible Impact	-	30%
					2) increase circulation space	1,017	60%		2) increase circulation space	2,204	60%
										3) Increase space from Gold level	1,187
Weighted Cost			-	Weighted Cost			610	Weighted Cost			1,441
Design Element 10 - Space on ground/entry level suitable for a bedroom											
No requirements			0%	No impact - single level home			0%	No impact - single level home			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 11 - Light switches and power outlets at easy to reach heights											
No requirements			0%	Light switches to be 900mm to 1100mm above floor level			0%	Light switches to be 900mm to 1100mm above floor level			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 12 - Door hardware at easy to reach heights											
No requirements			0%	Door handles to be 900mm to 1100mm above floor level			0%	Door handles to be 900mm to 1100mm above floor level			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 13 - Window Sills											
No requirements				No requirements				Sill height at 1m controls allow one handed operation	1) Negligible Impact		5%
									2) Upgrade window hardware to allow single handed operations	375	95%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			356
TOTALS - Design Element 1A			3,965	TOTALS - Design Element 1A			11,635	TOTALS - Design Element 1A			14,583

APPENDIX C – COST MODEL OF TOWNHOUSE

**Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings**

CLASS 1A - TOWNHOUSE ON NARROW LOT												
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum				
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	
Design Element 1 - Dwelling Access												
There will be instances where access through the front door will not be feasible, and accessible access will be through the garage. "Step-free" access refers to access via a path of travel that may include a threshold of up to 56mm in a doorway, suitable for addition of a threshold ramp at a later date if required.												
Carpark space increase to 3200x5400mm	1) Wider entry ramp	999	85%	Carpark space increase to 3200x5400mm and to 2500mm vertical clearance	1) Wider entry ramp	1,118	90%	Carpark space increase to 3200x5400mm and to 2500mm vertical clearance	1) Wider entry ramp	1,118	90%	
	2) Larger car space	931	15%		2) Larger car space	931	2%		2) Larger car space	931	2%	
			0%		3) Larger space and height	1,571	8%		3) Larger space and height	1,571	8%	
No requirements for access to outdoor paved area	1) Negligible Impact	-	100%	No requirements for access to outdoor paved area	1) Negligible Impact	-	100%	Step-free access to outdoor paved area	1) Negligible Impact	-	5%	
										2) Step-free access to uncovered outdoor area	2,319	25%
											3) Step-free access to covered outdoor area	837
Weighted Cost			989	Weighted Cost			1,150	Weighted Cost			2,316	
Design Element 2 - Dwelling Entrance												
870mm door (820mm clear opening) with 5mm threshold and 1200x1200 arrival space	1) Negligible Impact	-	30%	Min 920mm door (850 clear opening) with 5mm threshold and 1350x1350arrival space	1) Negligible Impact	-	5%	Min 920mm door (850 clear opening) with 5mm threshold and 1350x1350arrival space	1) Negligible Impact	-	5%	
	2) Larger door	80	25%		2) Larger door	100	30%		2) Larger door	100	30%	
	3) Larger landing only from 0.9x0.9m to 1.2x1.2m	196	20%		3) Larger landing only from 0.9x0.9m to 1.35x1.35m	279	20%		3) Larger landing only from 0.9x0.9m to 1.35x1.35m	279	20%	
	4) Larger door if required and landing increased from 0.9x0.9m to 1.2x1.2m	276	25%		4) Larger door and landing increased from 0.9x0.9m to 1.35x1.35m	379	35%		4) Larger door and landing increased from 0.9x0.9m to 1.35x1.35m	379	35%	
					5) Larger door and landing from 1.2x1.2m to 1.35x1.35m	183	10%		5) Larger door and landing from 1.2x1.2m to 1.35x1.35m	183	10%	
Weighted Cost			128	Weighted Cost			237	Weighted Cost			237	

**Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings**

CLASS 1A - TOWNHOUSE ON NARROW LOT											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 3 - Internal doors and corridors											
870mm door (820mm clear opening) and 1000mm wide internal corridors	1) Negligible Impact		20%	Min 920mm door (850 clear opening) and 1200mm wide internal corridors	1) Negligible Impact		0%	Min 920mm door (850 clear opening) and 1200mm wide internal corridors	1) Negligible Impact		0%
	2) Wider doors only	377	15%		2) Wider doors only	509	15%		2) Wider doors only	509	15%
	3) Wider corridor only	754	15%		3) Wider corridor only	3,014	10%		3) Wider corridor only	3,617	10%
	4) Wider doors and wider corridor 0.9 to 1.0m	1,130	50%		4) Wider doors and wider corridor 0.9 to 1.2m	3,523	60%		4) Wider doors and wider corridor 0.9 to 1.2m	4,126	60%
					5) Wider doors and wider corridor 1 to 1.2m	2,581	15%		5) Wider doors and wider corridor 1 to 1.2m	2,996	15%
Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	70%	Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	70%	Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	70%
	2) 2 Locations per dwelling	180	30%		2) 2 Locations per dwelling	180	30%		2) 2 Locations per dwelling	180	30%
	3) 4 Locations per dwelling	360	0%		3) 4 Locations per dwelling	360	0%		3) 4 Locations per dwelling	360	0%
Weighted Cost			789	Weighted Cost			2,933	Weighted Cost			3,417
Design Element 4 - Toilet											
Construct with sufficient circulation space	1) Negligible Impact	-	10%	Construct with sufficient circulation space	1) Negligible Impact	-	0%	Construct with sufficient circulation space	1) Negligible Impact	-	0%
	2) Achieve clearance by replacing swing door with cavity slider door	80	35%		2) Achieve clearance by replacing swing door with cavity slider door, and additional width	1,515	37%		2) Achieve clearance by replacing swing door with cavity slider door, and additional width	1,515	37%
	3) Retain swing door, and introduce additional width to bathroom	3,078	45%		3) Retain swing door, and introduce additional width and length	4,562	53%		3) Retain swing door, and introduce additional width and length	4,562	53%
Provide WC at Ground level	4) Additional WC where not currently provided at entry level (with slider door design)	3,869	8%	Provide WC at Ground level	4) Additional WC where not currently provided at entry level (with sliding door)	5,059	8%	Provide WC at Ground level	4) Additional WC where not currently provided at entry level	5,059	8%
	5) Additional WC where not currently provided at entry level (with swing door design)	4,730	2%		5) Additional WC where not currently provided at entry level (with swing door design)	7,239	2%		5) Additional WC where not currently provided at entry level (with swing door design)	7,239	2%
Weighted Cost			1,817	Weighted Cost			3,528	Weighted Cost			3,528

**Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings**

CLASS 1A - TOWNHOUSE ON NARROW LOT													
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum					
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting		
Design Element 5 - Shower													
Removable shower screen, no size requirement	1) Negligible Impact		5%	As for Silver, but with 900x900 shower and 1200x1200 circulation space	1) Negligible Impact	-	0%	As for Silver, but with 900x900 shower and 1200x1200 circulation space	1) Negligible Impact	-	0%		
	2) Change shower to hobless and step-free	265	95%		2) Change shower to hobless and step-free, and utilise additional circulation space provided for toilet to achieve circulation required for shower	265	20%		2) Change shower to hobless and step-free, and utilise additional circulation space provided for toilet to achieve circulation required for shower	265	20%		
					3) Change shower to hobless and step-free, and with additional bathroom circulation through slider door providing access to bathroom	3,363	22.2%		3) Change shower to hobless and step-free, and with additional bathroom circulation through slider door providing access to bathroom	3,363	22.2%		
					4) Change shower to hobless and step-free, and with additional bathroom circulation space through larger bathroom with swing door providing access to bathroom	4,263	31.8%		4) Change shower to hobless and step-free, and with additional bathroom circulation space through larger bathroom with swing door providing access to bathroom	4,263	31.8%		
					Provide Shower at Ground Level	4) Additional shower in bathroom with cavity door design	7,166		20.0%	Provide Shower at Ground Level	4) Additional shower in bathroom with cavity door design	7,166	20.0%
						5) Additional shower in bathroom with swing door design	9,655		6.0%		5) Additional shower in bathroom with swing door design	9,655	6.0%
Weighted Cost			252	Weighted Cost			4,168	Weighted Cost			4,168		
Design Element 6 - Reinforcement of walls to one bathroom and one toilet per dwelling													
Reinforce walls for future adaptation	1) Negligible Impact	-	5%	Reinforce walls for future adaptation	1) Negligible Impact	-	5%	Reinforce walls for future adaptation	1) Negligible Impact	-	5%		
	2) Addition of compliant noggings	350	85%		2) Addition of compliant noggings	350	85%		2) Addition of compliant noggings	350	85%		
	3) Structural ply to wet area walls	1,130	10%		3) Structural ply to wet area walls	1,130	10%		3) Structural ply to wet area walls	1,130	10%		
Weighted Cost			411	Weighted Cost			411	Weighted Cost			411		

**Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings**

CLASS 1A - TOWNHOUSE ON NARROW LOT												
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum				
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	
Design Element 7 - Internal Stairways												
No requirements			0%	Stair redesigned to preclude use of winders, with landings introduced and stair located adjacent a wall to support a handrail	1) Negligible Impact (existing practice meets standard)		10%	Stair redesigned to preclude use of winders, with landings introduced and stair located adjacent a wall to support a handrail	1) Negligible Impact (existing practice meets standard)		10%	
			0		3) Stair results in less efficient layout requiring additional internal area	2,974	90%		3) Stair results in less efficient layout requiring additional internal area	2,974	90%	
Weighted Cost			-	Weighted Cost			2,677	Weighted Cost			2,677	
Design Element 8 - Kitchen Space												
No requirements				1200mm min clearance in front of benches and appliances	1) Negligible Impact	-	40%	1500mm min clearance in front of benches and appliances	1) Negligible Impact	-	20%	
					2) Increase circulation space	2,035	60%		2) Increase circulation space	4,069	60%	
										3) Increase space from Gold level	2,035	20%
Weighted Cost			-	Weighted Cost			1,221	Weighted Cost			2,849	
Design Element 9 - Laundry space												
No requirements			0%	1200mm min clearance in front of benches and appliances	1) Negligible Impact	-	30%	1550mm min clearance in front of benches and appliances	1) Negligible Impact	-	10%	
			0%		2) increase circulation space	1,017	70%		2) increase circulation space	2,204	70%	
										3) Increase space from Gold level	1,187	20%
Weighted Cost			-	Weighted Cost			712	Weighted Cost			1,780	
Design Element 10 - Space on ground/entry level suitable for a bedroom												
No requirements		-	0%	Negligible Impact - existing living spaces can be converted			-	0%	Negligible Impact - existing living spaces can be converted			-
Weighted Cost			-	Weighted Cost			-	0%	Weighted Cost			-

Costings for Proposed Accessible Housing Standard in the NCC
Class 1a Dwellings

CLASS 1A - TOWNHOUSE ON NARROW LOT											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 11 - Light switches and power outlets at easy to reach heights											
No requirements				Light switches to be 900mm to 1100mm above floor level				Light switches to be 900mm to 1100mm above floor level			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 12 - Door hardware at easy to reach heights											
No requirements				Door handles to be 900mm to 1100mm above floor level				Door handles to be 900mm to 1100mm above floor level			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 13 - Window Sills											
No requirements				No requirements				Sill height at 1m controls allow one handed operation	1) Negligible Impact		5%
									2) Upgrade window hardware to allow single handed operations	125	95%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			119
TOTALS - Design Element 1A			4,385	TOTALS - Design Element 1A			17,036	TOTALS - Design Element 1A			21,500

APPENDIX D – COST MODEL OF CLASS 2 THREE-STOREY WALKUP APARTMENT

**Costing for Proposed Accessible Housing Standard in the NCC
Class 2 Dwellings**

CLASS 2 - WALKUPS												
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum				
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	
Design Element 1 - Dwelling Access												
No cost impact associated with accessible path to ground floor units - already part of NCC requirements				No cost impact associated with accessible path to ground floor units - already part of NCC requirements				No cost impact associated with accessible path to ground floor units - already part of NCC requirements				
No requirements for balcony access	1) Negligible Impact	\$ -	100%	No requirements for balcony access	1) Negligible Impact	\$ -	100%	Step-free access to balcony	1) Negligible Impact	\$ -	0%	
										2) Step-free access to uncovered outdoor area	\$ 2,225	10%
										3) Step-free access to covered outdoor area	\$ 2,225	90%
Weighted Cost				Weighted Cost				Weighted Cost				
			-				-				2,225	
Design Element 2 - Dwelling Entrance												
870mm door (820mm clear opening) with 5mm threshold and 1200x1200mm arrival space	1) Negligible Impact		10%	Min 920mm door (850 clear opening) with 5mm threshold and 1350x1350mm arrival space. Apartment assumed compliant with arrival side space requirements	1) Negligible Impact	-	5%	Min 920mm door (850 clear opening) with 5mm threshold and 1350x1350mm arrival space. Apartment assumed compliant with arrival side space requirements	1) Negligible Impact	-	5%	
	2) Larger door	\$ 130	90%		2) Larger door	57	95%		2) Larger door	57	95%	
Weighted Cost				Weighted Cost				Weighted Cost				
			117				54				54	
Design Element 3 - Internal doors and corridors												
870mm door (820mm clear opening) and 1000mm wide internal corridors	1) Negligible Impact		20%	Min 920mm door (850 clear opening) and 1200mm wide internal corridors	1) Negligible Impact		0%	Min 920mm door (850 clear opening) and 1200mm wide internal corridors	1) Negligible Impact		0%	
	2) Wider doors only	377	15%		2) Wider doors only	509	15%		2) Wider doors only	509	15%	
	3) Wider corridor only	1,130	15%		3) Wider corridor only	3,617	15%		3) Wider corridor only	3,617	15%	
	4) Wider doors and wider corridor 0.9 to 1.0m	1,507	50%		4) Wider doors and wider corridor 0.9 to 1.2m	4,126	60%		4) Wider doors and wider corridor 0.9 to 1.2m	4,126	60%	
					5) Wider doors and wider corridor 1 to 1.2m	2,996	10%		5) Wider doors and wider corridor 1 to 1.2m	2,996	10%	
Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	75%	Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	75%	Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	75%	
	2) 2 Locations per dwelling	180	25%		2) 2 Locations per dwelling	180	25%		2) 2 Locations per dwelling	180	25%	
	3) 4 Locations per dwelling	360	0%		3) 4 Locations per dwelling	360	0%		3) 4 Locations per dwelling	360	0%	
Weighted Cost				Weighted Cost				Weighted Cost				
			1,025				3,439				3,439	

**Costing for Proposed Accessible Housing Standard in the NCC
Class 2 Dwellings**

CLASS 2 - WALKUPS											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 4 - Toilet											
Construct with sufficient circulation space	1) Negligible Impact	-	10%	Construct with sufficient circulation space	1) Negligible Impact	-	0%	Construct with sufficient circulation space	1) Negligible Impact	-	0%
	2) Achieve clearance by replacing swing door with cavity slider door	80	40%		2) Achieve clearance by replacing swing door with cavity slider door, and additional width	1,846	43%		2) Achieve clearance by replacing swing door with cavity slider door, and additional width	1,846	43%
	3) Retain swing door, and introduce additional width to bathroom	3,717	50%		3) Retain swing door, and introduce additional width and length	5,509	57%		3) Retain swing door, and introduce additional width and length	5,509	57%
Weighted Cost			1,891	Weighted Cost			3,934	Weighted Cost			3,934
Design Element 5 - Shower											
Removable shower screen, no size requirement	1) Negligible Impact		10%	As for Silver, but with 900x900 shower and 1200x1200 circulation space	1) Negligible Impact	-	5%	As for Silver, but with 900x900 shower and 1200x1200 circulation space	1) Negligible Impact	-	5%
	2) Change shower to hobless and step-free with additional waterproofing to accommodate future removal of shower screen	650	90%		2) Change shower to hobless and step-free, and utilise additional circulation space provided for toilet to achieve circulation required for shower	650	50%		2) Change shower to hobless and step-free, and utilise additional circulation space provided for toilet to achieve circulation required for shower	650	50%
					3) Change shower to hobless and step-free, and with additional bathroom circulation through slider door providing access to bathroom	4,392	19.4%		3) Change shower to hobless and step-free, and with additional bathroom circulation through slider door providing access to bathroom	4,392	19.4%
					4) Change shower to hobless and step-free, and with additional bathroom circulation space through larger bathroom with swing door providing access to bathroom	5,477	25.7%		4) Change shower to hobless and step-free, and with additional bathroom circulation space through larger bathroom with swing door providing access to bathroom	5,477	25.7%
Weighted Cost			585	Weighted Cost			2,580	Weighted Cost			2,580

Costing for Proposed Accessible Housing Standard in the NCC
Class 2 Dwellings

CLASS 2 - WALKUPS											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 6 - Reinforcement of Bathroom and Toilet Walls											
Reinforce walls for future adaptation	1) Negligible Impact	-	5%	Reinforce walls for future adaptation	1) Negligible Impact	-	5%	Reinforce walls for future adaptation	1) Negligible Impact	-	5%
	2) Addition of compliant noggings	350	85%		2) Addition of compliant noggings	350	85%		2) Addition of compliant noggings	350	85%
	3) Structural ply to wet area walls	980	10%		3) Structural ply to wet area walls	980	10%		3) Structural ply to wet area walls	980	10%
Weighted Cost			396	Weighted Cost			396	Weighted Cost			396
Design Element 7 - Internal Stairways											
No requirements			0%	No impact - single level home			0%	No impact - single level home			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 8 - Kitchen Space											
No requirements				1200mm min clearance in front of benches and appliances	1) Negligible Impact	-	50%	1500mm min clearance in front of benches and appliances	1) Negligible Impact	-	30%
					2) Increase circulation space	2,457	50%		2) Increase circulation space	4,914	50%
									3) Increase space from Gold level	2,457	20%
Weighted Cost			-	Weighted Cost			1,229	Weighted Cost			2,948
Design Element 9 - Laundry space											
No requirements				1200mm min clearance in front of benches and appliances	1) Negligible Impact	-	30%	1550mm min clearance in front of benches and appliances	1) Negligible Impact	-	10%
					2) increase circulation space	1,229	70%		2) increase circulation space	2,662	70%
									3) Increase space from Gold level	1,433	20%
Weighted Cost			-	Weighted Cost			860	Weighted Cost			2,150

Costing for Proposed Accessible Housing Standard in the NCC
Class 2 Dwellings

CLASS 2 - WALKUPS											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 10 - Space on ground/entry level suitable for a bedroom											
No requirements			0%	No impact - single level home			0%	No impact - single level home			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 11 - Light switches and power outlets at easy to reach heights											
No requirements			0%	Light switches to be 900mm to 1100mm above floor level	Standard practice - no financial impact		0%	Light switches to be 900mm to 1100mm above floor level	Standard practice - no financial impact		0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 12 - Door hardware at easy to reach heights											
No requirements			0%	Door handles to be 900mm to 1100mm above floor level	Standard practice - no financial impact		0%	Door handles to be 900mm to 1100mm above floor level	Standard practice - no financial impact		0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 13 - Window Sills											
No requirements				No requirements				Sill height at 1m controls allow one handed operation	1) Negligible Impact		5%
									2) Upgrade window hardware to allow single handed operations	125	95%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			119
TOTALS - Design Element 1A			4,013	TOTALS - Design Element 1A			12,491	TOTALS - Design Element 1A			17,844

APPENDIX E – COST MODEL OF CLASS 2 FOUR STOREYS PLUS APARTMENT

**Costings for Proposed Accessible Housing Standard in the NCC
Class 2 Dwellings**

CLASS 2 - FOUR STOREYS PLUS											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 1 - Dwelling Access											
Carparking provision is driven by market forces and state planning regulations, this allowance is based the marginal cost to adjust a single associated car space, however, it is noted that the trigger for car park compliance is where a car park is part of the path of travel. We consider that in most instances, for a 4+ storey Class 2 development, a developer is likely to provide a path of travel from the kerb to the dwellings (via a lift), and car parks are unlikely to be on this path of travel. This has informed our assessment of weightings for 'negligible impact'.											
Dedicated carpark space increases to 3.2x5.4m from 2.5x5.4m, including proportional allowance for impact on the aisle. Units with 2 adjacent car parks achieve width by straddling both car spaces.	1) Negligible Impact (car park complies, or car park is not on the path of travel)	-	97%	As for Silver but height increases from 2.2m minimum to 2.2 minimum with 2.5m clearance over central portion of car parking zone	1) Negligible Impact (car park complies, or car park is not on the path of travel)	-	97%	As for Silver but height increases from 2.2m minimum to 2.2 minimum with 2.5m clearance over central portion of car parking zone	1) Negligible Impact (car park complies, or car park is not on the path of travel)	-	97%
	2) Larger car space	8,323	3%		2) Larger car space	8,323	1%		2) Larger car space	8,323	1%
					3) Larger space and height	9,351	2%		3) Larger space and height	9,351	2%
					4) Higher height only	1,028	0%		4) Higher height only	1,028	0%
The baseline option assumes that the apartment is serviced by a lift, therefore no further access provisions have to be made.				The baseline option assumes that the apartment is serviced by a lift, therefore no further access provisions have to be made.				The baseline option assumes that the apartment is serviced by a lift, therefore no further access provisions have to be made.			
No requirements for balcony access	1) Negligible Impact	0	100%	No requirements for balcony access	1) Negligible Impact	0	100%	Step-free access to balcony	1) Negligible Impact	0	0%
									2) Step-free access to uncovered outdoor area	2,225	10%
									3) Step-free access to covered outdoor area	2,225	90%
Weighted Cost			250	Weighted Cost			270	Weighted Cost			2,495
Design Element 2 - Dwelling Entrance											
870mm door (820mm clear opening) with 5mm threshold and 1200x1200mm arrival space	1) Negligible Impact		20%	Min 920mm door (850 clear opening) with 5mm threshold and 1350x1350mm arrival space. Apartment assumed compliant with arrival side space requirements	1) Negligible Impact	-	5%	Min 920mm door (850 clear opening) with 5mm threshold and 1350x1350mm arrival space. Apartment assumed compliant with arrival side space requirements	1) Negligible Impact	-	5%
	2) Larger door	130	80%		2) Larger door	57	95%		2) Larger door	57	95%
Weighted Cost			104	Weighted Cost			54	Weighted Cost			54

**Costings for Proposed Accessible Housing Standard in the NCC
Class 2 Dwellings**

CLASS 2 - FOUR STOREYS PLUS											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 3 - Internal doors and corridors											
870mm door (820mm clear opening) and 1000mm wide internal corridors	1) Negligible Impact		20%	Min 920mm door (850 clear opening) and 1200mm wide internal corridors	1) Negligible Impact		0%	Min 920mm door (850 clear opening) and 1200mm wide internal corridors	1) Negligible Impact		0%
	2) Wider doors only	377	15%		2) Wider doors only	509	15%		2) Wider doors only	509	15%
	3) Wider corridor only	1,130	15%		3) Wider corridor only	3,617	15%		3) Wider corridor only	3,617	15%
	4) Wider doors and wider corridor 0.9 to 1.0m	1,507	50%		4) Wider doors and wider corridor 0.9 to 1.2m	4,126	60%		4) Wider doors and wider corridor 0.9 to 1.2m	4,126	60%
					5) Wider doors and wider corridor 1 to 1.2m	2,996	10%		5) Wider doors and wider corridor 1 to 1.2m	2,996	10%
Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	50%	Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	50%	Levelling screed to reduce steps in differing floor finishes to less than 5mm	1) Negligible Impact	0	50%
	2) 2 Locations per dwelling	180	30%		2) 2 Locations per dwelling	180	30%		2) 2 Locations per dwelling	180	30%
	3) 4 Locations per dwelling	360	20%		3) 4 Locations per dwelling	360	20%		3) 4 Locations per dwelling	360	20%
Weighted Cost			1,106	Weighted Cost			3,520	Weighted Cost			3,520
Design Element 4 - Toilet											
Construct with sufficient circulation space	1) Negligible Impact	-	0%	Construct with sufficient circulation space	1) Negligible Impact	-	0%	Construct with sufficient circulation space	1) Negligible Impact	-	0%
	2) Achieve clearance by replacing swing door with cavity slider door	80	80%		2) Achieve clearance by replacing swing door with cavity slider door, and provide additional width	1,846	70%		2) Achieve clearance by replacing swing door with cavity slider door, and provide additional width	1,846	70%
	3) Retain swing door, and introduce additional width to bathroom	3,717	20%		3) Retain swing door, and introduce additional width and length	5,509	30%		3) Retain swing door, and introduce additional width and length	5,509	30%
Weighted Cost			807	Weighted Cost			2,945	Weighted Cost			2,945

**Costings for Proposed Accessible Housing Standard in the NCC
Class 2 Dwellings**

CLASS 2 - FOUR STOREYS PLUS											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 5 - Shower											
Removable shower screen, no size requirement	1) Negligible Impact		10%	As for Silver, but with 900x900 shower and 1200x1200 circulation space	1) Negligible Impact	-	5%	As for Silver, but with 900x900 shower and 1200x1200 circulation space	1) Negligible Impact	-	5%
	2) Change shower to hobless and step-free with additional waterproofing to accommodate future removal of shower screen	265	95%		2) Change shower to hobless and step-free, and utilise additional circulation space provided for toilet to achieve circulation required for shower	650	30%		2) Change shower to hobless and step-free, and utilise additional circulation space provided for toilet to achieve circulation required for shower	650	30%
					3) Change shower to hobless and step-free, and with additional bathroom circulation through slider door providing access to bathroom	4,006	46%		3) Change shower to hobless and step-free, and with additional bathroom circulation through slider door providing access to bathroom	4,006	46%
					4) Change shower to hobless and step-free, and with additional bathroom circulation space through larger bathroom with swing door providing access to bathroom	5,092	20%		4) Change shower to hobless and step-free, and with additional bathroom circulation space through larger bathroom with swing door providing access to bathroom	5,092	20%
Weighted Cost			252	Weighted Cost			3,011	Weighted Cost			3,011
Design Element 6 - Reinforcement of Bathroom and Toilet Walls											
Reinforce walls for future adaptation	1) Negligible Impact	-	5%	Reinforce walls for future adaptation	1) Negligible Impact	-	5%	Reinforce walls for future adaptation	1) Negligible Impact	-	5%
	2) Addition of compliant noggings	350	85%		2) Addition of compliant noggings	350	85%		2) Addition of compliant noggings	350	85%
	3) Structural ply to wet area walls	980	10%		3) Structural ply to wet area walls	980	10%		3) Structural ply to wet area walls	980	10%
Weighted Cost			396	Weighted Cost			396	Weighted Cost			396

Costings for Proposed Accessible Housing Standard in the NCC
Class 2 Dwellings

CLASS 2 - FOUR STOREYS PLUS											
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum			
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting
Design Element 7 - Internal Stairways											
No requirements			0%	No impact - single level home			0%	No impact - single level home			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 8 - Kitchen Space											
No requirements			0%	1200mm min clearance in front of benches and appliances	1) Negligible Impact	-	70%	1500mm min clearance in front of benches and appliances	1) Negligible Impact	-	60%
			0%		2) Increase circulation space	2,457	30%		2) Increase circulation space	4,914	30%
									3) Increase space from Gold level	2,457	10%
Weighted Cost			-	Weighted Cost			737	Weighted Cost			1,720
Design Element 9 - Laundry space											
No requirements			0%	1200mm min clearance in front of benches and appliances	1) Negligible Impact	-	30%	1550mm min clearance in front of benches and appliances	1) Negligible Impact	-	10%
			0%		2) increase circulation space	1,229	70%		2) increase circulation space	2,662	70%
									3) Increase space from Gold level	1,433	20%
Weighted Cost			-	Weighted Cost			860	Weighted Cost			2,150
Design Element 10 - Space on ground/entry level suitable for a bedroom											
No requirements			0%	No impact - single level home			0%	No impact - single level home			0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-
Design Element 11 - Light switches and power outlets at easy to reach heights											
No requirements			0%	Light switches to be 900mm to 1100mm above floor level	Standard practice - no financial impact		0%	Light switches to be 900mm to 1100mm above floor level	Standard practice - no financial impact		0%
Weighted Cost			-	Weighted Cost			-	Weighted Cost			-

Costings for Proposed Accessible Housing Standard in the NCC
Class 2 Dwellings

CLASS 2 - FOUR STOREYS PLUS														
Option 1 - Based on LHDG Silver				Option 2 - Based on LHDG Gold				Option 3 - Based on LHDG Gold + part of Platinum						
NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting	NCC Element and Requirements	Scenario of Possible Impact on Dwelling (Low/Medium/High)	Straight Cost	Scenario Weighting			
Design Element 12 - Door hardware at easy to reach heights														
No requirements			0%	Door handles to be 900mm to 1100mm above floor level	Standard practice - no financial impact		0%	Door handles to be 900mm to 1100mm above floor level	Standard practice - no financial impact		0%			
Weighted Cost				-	Weighted Cost				-	Weighted Cost				-
Design Element 13 - Window Sills														
No requirements				No requirements				Sill height at 1m controls allow one handed operation	1) Negligible Impact		5%			
									2) Upgrade window hardware to allow single handed operations	175	95%			
Weighted Cost				-	Weighted Cost				-	Weighted Cost				166
TOTALS - Design Element 1A				2,914	TOTALS - Design Element 1A				11,792	TOTALS - Design Element 1A				16,456

APPENDIX F – COST ESTIMATE

COST ESTIMATE
Class 1A Dwellings

	Silver			Gold			Gold+			
	Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$	
Design Element 1 - Dwelling Access										
Front entrance - stepless				999			1,118			1,118
It is assumed that a step free path and entrance landing is achieved by raising the level of the entry landing and path marginally, such that it matches the internal floor level, and enhancing the water proofing around the entrance. This obviates the requirement for construction of a step, which in the status quo is typically constructed primarily for waterproofing and termite control.										
Wider path (1.0m in lieu of 0.9m) - 6m path assumed	m2	0.60	195.00	117						
Wider path (1.1m in lieu of 0.9m) - 6m path assumed					1.20	195.00	234	1.20	195.00	234
LESS: 50mm excavation for entry pavement landing area	m2	(1.08)	2.25	(2)	(1.08)	2.25	(2)	(1.08)	2.25	(2)
ADD: 50mm fill under landing area pavement	m2	1.08	2.25	2	1.82	2.25	4	1.82	2.25	4
ADD: Extend termite treatment around paved entry area - included with Design Element 2 - Entry Paving	Note									
ADD: PVC strip drain at junction with doorway, and including connection to stormwater within 5.0m	Item	1.00	882.00	882	1.00	882.00	882	1.00	882.00	882
Larger car space, no extra height				931			931			931
ADD: 3200 x 5400mm Garage including slab on ground, some walls, metal roof on purlins with timber truss roof, gutters and downpipe, and allowance for electrical lighting	m2	17.28	1,193.20	20,618	17.28	1,193.20	20,618	17.28	1,193.20	20,618
LESS: standard single garage	m2	(16.50)	1,193.20	(19,688)	(16.50)	1,193.20	(19,688)	(16.50)	1,193.20	(19,688)
No allowance for threshold ramp to junction between garage and house floor - up to 56mm. Allow a further \$250 for supply and installation if required post-construction (\$180 supply and \$70 installation).	Note									
Larger car space, plus height from 2.4 to 2.5m high				-			1,571			1,571
ADD: 3200 x 5400mm Garage including slab on ground, some walls, metal roof on purlins with timber truss roof, gutters and downpipe, and allowance for electrical lighting	m2				17.28	1,230.26	21,259	17.28	1,230.26	21,259
LESS: standard single garage	m2				(16.50)	1,193.20	(19,688)	(16.50)	1,193.20	(19,688)
No allowance for threshold ramp to junction between garage and house floor - up to 56mm. Allow a further \$250 for supply and installation if required post-construction (\$180 supply and \$70 installation).	Note									

COST ESTIMATE
Class 1A Dwellings

		Silver			Gold			Gold+		
		Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$
No need for larger car space, increase height from 2.4 to 2.5m high only				-			640			640
ADD: 3200 x 5400mm Garage including slab on ground, some walls, metal roof on purlins with timber truss roof, gutters and downpipe, and allowance for electrical lighting	m2				17.28	1,230.26	21,259	17.28	1,230.26	21,259
LESS: the garage provided for Silver	m2				(17.28)	1,193.20	(20,618)	(17.28)	1,193.20	(20,618)
No allowance for threshold ramp to junction between garage and house floor - up to 56mm. Allow a further \$250 for supply and installation if required post-construction (\$180 supply and \$70 installation).	Note									
Provide step-free access to uncovered outdoor paved area				-			-			2,319
ADD: 3200 x 2400 x 150mm buildup under outdoor paved area	m2							7.68	9.75	75
ADD: Thickened edge beam to 3200 x 2400 paved area	m							11.20	17.33	194
ADD: Extent termite treatment to larger landing slab	m							4.80	35.00	168
ADD: PVC strip drain at junction with doorway, and including connection to stormwater within 5.0m	Item							1.00	882.00	882
ADD: 2400 x 2100H sliding glazed door with step-free recessed track and weather seals	No							1.00	2,100.00	2,100
LESS: 2400 x 2100H domestic grade aluminium sliding glazed door	No							(1.00)	1,100.00	(1,100)
Provide step-free access to covered outdoor paved area				-			-			837
ADD: 3200 x 2400 x 150mm buildup under outdoor paved area	m2							7.68	9.75	75
ADD: Thickened edge beam to 3200 x 2400 paved area	m2							11.20	17.33	194
ADD: Extent termite treatment to larger landing slab	m							4.80	35.00	168
ADD: 2400 x 2100H domestic glazed door suitable for recessed track or 'hung' bifolds	m2							1.00	1,500.00	1,500
LESS: 2400 x 2100H domestic grade aluminium sliding glazed door	No							(1.00)	1,100.00	(1,100)

COST ESTIMATE
Class 1A Dwellings

Silver			Gold			Gold+		
Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$

Design Element 2 - Dwelling Entrance

Larger door		80			100			100		
ADD: Min 870mm door (820 clear opening) including frame and solid core door with max 5mm threshold step	no	1.00	570.00	570						
ADD: Min 920mm door (850 clear opening) including frame and solid core door with max 5mm threshold step	no				1.00	590.32	590	1.00	590.32	590
LESS: 820mm solid core door including with frame and door with 25mm threshold	no	(1.00)	489.84	(490)	(1.00)	489.84	(490)	(1.00)	489.84	(490)

Larger door if required and larger landing from 0.9x0.9m to 1.2x1.2m (Silver) or 1.35x1.35m (Gold, Gold+)		276			379			379		
Doors from above	item			80			100			100
ADD: Landing slab minimum 1200 x 1200mm integral with house raft slab including concrete, mesh reinforcement, subgrade preparation, formwork and labour, and broom finish to concrete	m2	1.44	188.40	271						
ADD: Extent termite treatment to larger landing slab	m	0.60	35.00	21						
LESS: 1000 x 900mm paved landing including mesh reinforcement, subgrade preparation, formwork and labour, and broom finish to concrete	m2	(0.90)	106.76	(96)						
ADD: Landing slab minimum 1350 x 1350mm integral with house raft slab including concrete, mesh reinforcement, subgrade preparation, formwork and labour, and broom finish to concrete	m2				1.82	188.40	343	1.82	188.40	343
ADD: Extent termite treatment to larger landing slab					0.90	35.00	32	0.90	35.00	32
LESS: 1000 x 900mm paved landing including mesh reinforcement, subgrade preparation, formwork and labour, and broom finish to concrete	m2				(0.90)	106.76	(96)	(0.90)	106.76	(96)

COST ESTIMATE
Class 1A Dwellings

		Silver			Gold			Gold+		
		Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$
Low-step threshold, larger door and landing from 1.2x1.2m to 1.35x1.35m				-			183			183
Doors from above	item						100			100
ADD: Landing slab minimum 1350 x 1350mm integral with house raft slab including concrete, mesh reinforcement, subgrade preparation, formwork and labour, and broom finish to concrete	m2				1.82	188.40	343	1.82	188.40	343
ADD: Extent termite treatment to larger landing slab					0.30	35.00	11	0.30	35.00	11
LESS: Landing slab minimum 1200 x 1200mm integral with house raft slab including concrete, mesh reinforcement, subgrade preparation, formwork and labour, and broom finish to concrete	m2				(1.44)	188.40	(271)	(1.44)	188.40	(271)
Design Element 3 - Wider internal doors and corridors										
Wider doors to three bedrooms, one bathroom, one laundry				377			509			509
ADD: Min 870mm door (820 clear opening) internal door including timber frame and hollow core door	no	5.00	520.00	2,600						
ADD: Min 920mm door (850 clear opening) internal door including timber frame and hollow core door	no				5.00	546.36	2,732	5.00	546.36	2,732
LESS: 820mm wide internal door including timber frame and hollow core door (bedrooms)	no	(3.00)	452.16	(1,356)	(3.00)	452.16	(1,356)	(3.00)	452.16	(1,356)
LESS: 720mm wide internal door including timber frame and hollow core door (bathroom)	no	(2.00)	433.32	(867)	(2.00)	433.32	(867)	(2.00)	433.32	(867)
Wider corridor from 900mm gross to 1000mm clear				1,130						
Doors from above				377						
Additional corridor width comprising slabs with steel float finish, wall framing and linings, ceiling linings, finishes on walls, floors and ceilings, proportional adjustments to services (assumes 5m corridor, increased in width from 900mm nominal width (measured between faces of structural substrate) to 1000mm clear opening (measured to internal faces of walls) - an increase of 120mm).	m2	0.60	1,884.00	1,130						

COST ESTIMATE
Class 1A Dwellings

Silver			Gold		
Qty	Rate	\$	Qty	Rate	\$

Doors from above	item									
Additional corridor width comprising slabs with steel float finish, wall framing and linings, ceiling linings, finishes on walls, floors and ceilings, proportional adjustments to services (5m corridor, 320mm wider).	m2									

Doors from above	item					509				509
Additional corridor width comprising slabs with steel float finish, wall framing and linings, ceiling linings, finishes on walls, floors and ceilings, proportional adjustments to services (5m corridor, 220mm wider) from the silver compliant corridor	m2				1.10	1,884.00	2,072	1.10	1,884.00	2,072

Level junctions between different floor finishes to less than 5mm **360** **360** **360**

Levelling screed at junction of differing floor finishes (tile/carpet or timber/carpet) to reduce threshold to less than 5mm - assumed up to 4 locations in dwelling applied locally where necessary up to 1.0m x 2.0m wide	m2	8.00	45.00	360	8.00	45.00	360	8.00	45.00	360

COST ESTIMATE
Class 1A Dwellings

Silver			Gold			Gold+		
Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$

Design Element 4 - Toilet (Assumed to be located in a bathroom)

Using an existing toilet in a bathroom

Required space between door arc and WC can be achieved by replacing a swing door with a cavity slider door	item									
A cavity slider door cannot be used, therefore additional width needs to be added to the bathroom	m2									
Additional side space only required due to cavity slider door being introduced (rate includes the cost of the cavity slider)	m2									
Using swing door	m2									
Silver compliant toilet to Gold/Gold+ compliant with cavity slider door design	m2									
Silver compliant toilet to Gold/Gold+ compliant with swing door design	m2									

A cavity slider door can be used	m2	1.73	2,194.86	3,869	2.27	2,194.86	5,058.67	2.27	2,194.86	5,058.67
A cavity slider door cannot be used, therefore additional width is needed in each direction of the bathroom	m2	2.51	1,884.00	4,730						
Ground floor toilet including additional bathroom area comprising slabs with steel float finish, wall framing and linings, ceiling linings, finishes on walls, floors and ceilings, proportional adjustments to services and allowance for WC fixtures and associated plumbing. 2600x1200mm footprint assumed	m2				3.30	2,194.86	7,239	3.30	2,194.86	7,239

Design Element 5 - Shower (shower assumed 900x900mm)

Provide 1200 square circulation space for shower (Assuming in the existing bathroom with toilet)

A sliding door can be used for the combined bathroom design	m2				1.64	1,884.00	3,099	1.64	1,884.00	3,099
A swing door is used for the combined bathroom design	m2				2.12	1,884.00	3,998	2.12	1,884.00	3,998

Shower on entry or ground level (Assuming new)

A sliding door can be used for the combined bathroom design	m2				3.26	2,194.86	7,166	3.26	2,194.86	7,166
A swing door is used for the combined bathroom design	m2				4.40	2,194.86	9,655	4.40	2,194.86	9,655

COST ESTIMATE
Class 1A Dwellings

	Qty	Silver			Gold			Gold+		
		Rate	\$		Qty	Rate	\$	Qty	Rate	\$
Change shower to hobless, step-free shower (max 5mm threshold)										
				265			265			265
Redesign bathroom and shower floor design to suit step-free bathroom and shower set downs, including grading floor within shower to 1:80. (Assumed ground floor level, concrete floor slab.)	Note									
LESS: Two tier set down - 25mm to bathroom and 25mm further set down in shower	no									
ADD: Form 35mm set down throughout bathroom and shower area for tile screed	no									
ADD: Extra cost for forming appropriate falls and cross falls in bathroom / shower floor to achieve 'step-free' design										
ADD: Waterproofing to shower to extent 1500 x 1500mm in lieu of 900 x 900mm, to account for future removal of shower screen door	m2									
Addition of compliant noggings										
				350			350			350
Allow 3.5 hours of carpentry time and 6.3m2 of structural ply nogging installation irrespective of the wet area layout of any of the homes.	no	1.00	350.00	350	1.00	350.00	350	1.00	350.00	350
Structural ply full-height throughout all wet areas										
				1,130			1,130			1,130
12mm structural plywood to one bathroom (2.1 x 2.57m) and one WC (1.2 x 1.75)	m2	36.58	26.80	1,130	36.58	26.80	1,130	36.58	26.80	1,130
Design Element 7 - Internal Stairways										
Straight stair flight										
				-			2,974			2,974
ADD: Stair with continuous compliant handrail to one side comprising straight flights and landings	m/rise				2.70	2,580.00	6,966	2.70	2,580.00	6,966
LESS: Ditto, but with winders, not landings	m/rise				(2.70)	2,420.42	(6,535)	(2.70)	2,420.42	(6,535)
Additional circulation space to accommodate landings in lieu of winders	m2				1.35	1,884.00	2,543	1.35	1,884.00	2,543

COST ESTIMATE
Class 1A Dwellings

		Silver			Gold			Gold+		
		Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$
Design Element 8 - Kitchen Space										
Increase circulation space in kitchen				-			2,035			4,069
Additional circulation space in kitchen to provide 1200mm clearance in front of fixed benches and appliances	m2				1.08	1,884.00	2,035			
Additional circulation space in kitchen to provide 1500mm clearance in front of fixed benches and appliances	m2							2.16	1,884.00	4,069
Increase circulation space in kitchen from higher base				-			-			2,035
Additional circulation space in kitchen to provide 1500mm clearance in front of fixed benches and appliances from the Gold compliant case	m2							1.08	1,884.00	2,035
Design Element 9 - Laundry Space										
Increase circulation space in laundry				-			1,017			2,204
Additional circulation space to provide 1200mm clearance in front of fixed benches and appliances	m2				0.54	1,884.00	1,017			
Additional circulation space to provide 1550mm clearance in front of fixed benches and appliances	m2							1.17	1,884.00	2,204
Increase circulation space in laundry from higher base				-			-			1,187
Additional circulation space to provide 1550mm clearance in front of fixed benches and appliances from Gold compliant case	m2							0.63	1,884.00	1,187
Design Element 13 - Maximum sill heights for windows										
Window specific design, with bulk of windows probably requiring upgrading of hardware to allow single handed operations										-
Winders - Townhouse	no							5.00	25.00	125
Winders - Volume house	no							10.00	25.00	250
Winders - Custom House	no							15.00	25.00	375
no cost involved to manipulate height of window cill	note									

COST ESTIMATE
Class 2 Dwellings

		Silver			Gold			Gold+		
		Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$
Design Element 1 - Larger Basement Car spaces										
Larger car space, no extra height		8,323			8,323			8,323		
Carpark space increases to 3.2x5.4m from 2.5x5.4m, net extra space including ground slab, suspended transfer slab, drainage under slabs, retaining walls and drainage, and proportional adjustment to services and finishes, and proportional adjustment to aisle width	Note									
3.2 x 5.4m car park including circulation space	m2	27.04	1,050.00	28,392	27.04	1,050.00	28,392	27.04	1,050.00	28,392
Less 2.5 x 5.4m car park including circulation space	m2	(21.13)	950.00	(20,069)	(21.13)	950.00	(20,069)	(21.13)	950.00	(20,069)
Larger car space, plus height from 2.2 (Clear) throughout basement to 2.5m (Clear) over parking spaces only (ref AS2890.6, Section 2.4)		-			9,351			9,351		
Carpark space increases to 3.2x5.4m from 2.5x5.4m net extra space including ground slab, suspended transfer slab, columns, drainage under slabs, retaining walls and drainage, and adjustment to services and finishes, including proportional adjustment to aisle width, and additional height	Note									
3.2 x 5.4m car park including circulation space	m2				27.04	1,050.00	28,392	27.04	1,050.00	28,392
Less 2.5 x 5.4m car park including circulation space	m2				(21.13)	950.00	(20,069)	(21.13)	950.00	(20,069)
150mm extra floor to floor height in larger car park, including additional excavation, columns, external walls, vertical services risers and other sundry vertical elements	m2				27.04	38.00	1,028	27.04	38.00	1,028
Increase height from 2.2 (Clear) throughout basement to 2.5m (Clear) over parking spaces only (ref AS2890.6, Section 2.4)		-			1,028			1,028		
Raising the height over car spaces - generally accommodated through design of beam layout, plus 100mm to 150mm additional floor to floor height in basement car park.	Note				27.04	38.00	1,028	27.04	38.00	1,028

COST ESTIMATE
Class 2 Dwellings

		Silver			Gold			Gold+		
		Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$
Provide step-free access to uncovered outdoor paved area		-			-			2,225		
REDESIGN: Suspended balcony slab designed to be level with internal floor level	Note									
ADD: Strip drain with stainless steel cover at junction with doorway, and including connection to stormwater drainage within 5.0m	Item							1.00	1,225.00	1,225
ADD: 2400 x 2100H sliding glazed door with step-free recessed track and weather seals	No							1.00	2,100.00	2,100
LESS: 2400 x 2100H domestic grade aluminium sliding glazed door	No							(1.00)	1,100.00	(1,100)
Provide step-free access to covered outdoor paved area		-			-			2,225		
REDESIGN: Suspended balcony slab designed to be level with internal floor level										
ADD: Strip drain with stainless steel cover at junction with doorway, and including connection to stormwater drainage within 5.0m	Item							1.00	1,225.00	1,225
ADD: 2400 x 2100H sliding glazed door with step-free recessed track and weather seals (includes semi-commercial weather proof unit due to potential for high negative wind pressure in multi-storey applications)	No							1.00	2,100.00	2,100
LESS: 2400 x 2100H domestic grade aluminium sliding glazed door	No							(1.00)	1,100.00	(1,100)
Design Element 2 - Dwelling Entrance										
Larger door. Apartments assumed compliant with arrival side space requirements		130			57			57		
ADD: Min 870mm door (820 clear opening) including frame and solid core door with max 5mm threshold step	no	1.00	520.00	620						
ADD: Min 920mm door (850 clear opening) including frame and solid core door with max 5mm threshold step	no				1.00	546.36	546	1.00	546.36	546
LESS: 820mm solid core door including with frame and door with 25mm threshold	no	(1.00)	489.84	(490)	(1.00)	489.84	(490)	(1.00)	489.84	(490)

COST ESTIMATE
Class 2 Dwellings

	Silver			Gold			Gold+			
	Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$	
Design Element 3 - Wider internal doors and corridors										
Wider doors to three bedrooms and one bathroom, one laundry			377		509		509			
ADD: Min 870mm door (820 clear opening) internal door including timber frame and hollow core door	no	5.00	520.00	2,600						
ADD: Min 920mm door (850 clear opening) internal door including timber frame and hollow core door	no				5.00	546.36	2,732	5.00	546.36	2,732
LESS: 820mm wide internal door including timber frame and hollow core door (bedrooms)	no	(3.00)	452.16	(1,356)	(3.00)	452.16	(1,356)	(3.00)	452.16	(1,356)
LESS: 720mm wide internal door including timber frame and hollow core door (bathroom)	no	(2.00)	433.32	(867)	(2.00)	433.32	(867)	(2.00)	433.32	(867)
Wider corridor from 900mm gross to 1000mm clear			1,507		-		-		-	
Doors from above				377						
Additional corridor width comprising slabs with steel float finish, wall framing and linings, ceiling linings, finishes on walls, floors and ceilings, proportional adjustments to services (assumes 5m corridor, increased in width from 900mm nominal width (measured between faces of structural substrate) to 1000mm clear opening (measured to internal faces of walls) - an increase of 120mm)	m2	0.60	1,884.00	1,130						
Wider doors and corridor from 900mm gross to 1200mm clear			-		4,126		4,126		4,126	
Doors from above							509		509	
Additional corridor width comprising slabs with steel float finish, wall framing and linings, ceiling linings, finishes on walls, floors and ceilings, proportional adjustments to services. Assumed multiple corridors/spaces totalling 6m long, 320mm wider)	m2				1.92	1,884.00	3,617	1.92	1,884.00	3,617
Wider doors and corridor from 1000mm gross to 1200mm clear			-		2,996		2,996		2,996	
Doors from above							509		509	
6 metre long corridor, 220mm wider than the Silver compliant corridor (1000mm)	m2				1.32	1,884.00	2,487	1.32	1,884.00	2,487

COST ESTIMATE
Class 2 Dwellings

		Silver			Gold			Gold+		
		Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$
Level junctions between different floor finishes to less than 5mm		360			360			360		
Levelling screed at junction of differing floor finishes (tile/carpet or timber/carpet) to reduce threshold to less than 5mm - assumed up to 4 locations in dwelling applied locally where necessary up to 1.0m x 2.0m wide	m2	8.00	45.00	360	8.00	45.00	360	8.00	45.00	360
Design Element 4 - Toilet										
Required space between door arc and WC can be achieved by replacing a swing door with a cavity slider door	no	1.00	80.00	80						
A cavity slider door cannot be used, therefore additional width needs to be added to the bathroom	m2	1.63	2,275.00	3,717						
Additional side space only required due to cavity slider door being introduced (rate includes cost of cavity slider)	m2				0.76	2,424.07	1,846	0.76	2,424.07	1,846
A cavity slider door cannot be used, therefore additional width is needed in each direction of the bathroom	m2				2.42	2,275.00	5,509	2.42	2,275.00	5,509
Design Element 5 - Shower (shower assumed 900x900mm)										
Provide 1200 square circulation space for shower										
A sliding door can be used for the combined bathroom design	m2				1.64	2,275.00	3,742	1.64	2,275.00	3,742
A swing door is used for the combined bathroom design	m2				2.12	2,275.00	4,827	2.12	2,275.00	4,827
Hobless, step free shower on lightweight upper floor (Walk-up Apartments)										
		650			650			650		
Redesign bathroom and shower floor design to suit step-free bathroom and shower set downs, including grading floor within shower to 1:80. (Assumed suspended lightweight timber floor structure.)	Note									
LESS: Pre-formed shower hob / shower base	no	(1.00)	250.00	(250)	(1.00)	250.00	(250)	(1.00)	250.00	(250)
ADD: Frame-out for and form 35mm set down throughout bathroom and shower area including 15mm FC sheet in lieu of 18mm Yellow Tounge structural flooring	no	1.00	650.00	650	1.00	650.00	650	1.00	650.00	650
ADD: Extra cost for forming appropriate falls and cross falls in bathroom / shower floor to achieve 'step-free' design, including tile screed		1.00	250.00	250	1.00	250.00	250	1.00	250.00	250
Waterproofing to shower (1500 x 1500mm) provided in base-case due to requirement to waterproof lightweight upper floor bathroom construction	m2	1.44	-	-	1.44	-	-	1.44	-	-

COST ESTIMATE
Class 2 Dwellings

	Silver			Gold			Gold+		
	Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$
Hobless, step free shower on concrete upper floor (4+ Storey Apartments)			265			265			265
Redesign bathroom and shower floor design to suit step-free bathroom and shower set downs, including grading floor within shower to 1:80. (Assumed suspended upper floor slab.)	Note								
LESS: Two tier set down - 25mm to bathroom and 25mm further set down in shower	no								
ADD: Form 35mm set down throughout bathroom and shower area for tile screed	no								
ADD: Extra cost for forming appropriate falls and cross falls in bathroom / shower floor to achieve 'step-free' design									
ADD: Waterproofing to shower to extent 1500 x 1500mm in lieu of 900 x 900mm, to account for future removal of shower screen door	m2								
Addition of compliant noggings			350			350			350
Allow 3.5 hours of carpentry time and 6.3m2 of structural ply nogging installation irrespective of the wet area layout of any of the homes	no	1.00	350.00	350	1.00	350.00	350	1.00	350.00
Structural ply full-height throughout all wet areas			980			980			980
12mm structural plywood to one bathroom (2.1 x 2.57m) and one WC (1.2 x 1.75)	m2	36.58	26.80	980	36.58	26.80	980	36.58	26.80
Design Element 8 - Kitchen Space									
Increase circulation space in kitchen			-			2,457			4,914
Additional circulation space in kitchen to provide 1200mm clearance in front of fixed benches and appliances	m2				1.08	2,275.00	2,457		
Additional circulation space in kitchen to provide 1500mm clearance in front of fixed benches and appliances	m2						2.16	2,275.00	4,914
Increase circulation space in kitchen from higher base			-			-			2,457
Additional circulation space in kitchen to provide 1500mm clearance in front of fixed benches and appliances from the Gold compliant case	m2						1.08	2,275.00	2,457

COST ESTIMATE
Class 2 Dwellings

DONALD
 CANT
 WATTS
 CORKE

		Silver			Gold			Gold+		
		Qty	Rate	\$	Qty	Rate	\$	Qty	Rate	\$
Design Element 9 - Laundry Space										
Increase circulation space in laundry				-			1,229			2,662
Additional circulation space to provide 1200mm clearance in front of fixed benches and appliances	m2				0.54	2,275.00	1,229			
Additional circulation space to provide 1550mm clearance in front of fixed benches and appliances	m2							1.17	2,275.00	2,662
Increase circulation space in laundry from higher base				-			-			1,433
Additional circulation space to provide 1550mm clearance in front of fixed benches and appliances from Gold compliant level	m2							0.63	2,275.00	1,433
Design Element 13 - Maximum sill heights for windows										
Upgrade hardware for single handed operations (apartments)				-			-			175
Winders for four plus apartments	no							7.00	25.00	175
Upgrade hardware for single handed operations (walk ups)				-			-			125
Winders for walk-up apartments	no							5.00	25.00	125