

The New Zealand Association of Occupational Therapists (Inc)

Submission on

Building for the 21st Century - Review of the Building Code

Preamble

This submission is sent on behalf of the New Zealand Association of Occupational Therapists (NZAOT) - the representative professional body for occupational therapists in New Zealand.

Occupational therapists enable people to lead meaningful and satisfying lives through participation in occupation. The term 'occupation' is used in the widest sense - "...occupation is everything people do to occupy themselves, including looking after themselves (self-care), enjoying life (leisure), and contributing to the social and economic fabric of their community (productivity)"¹. Part of enabling people to participate in meaningful occupations may include making changes to the living or working environment.

Introduction

While NZAOT welcomes moves to promote health, safety and sustainable development in the Building Code, we have chosen to focus our submission on the wellbeing aspects of the Review. Themes of accessibility and universality have emerged and are underscored by the frustrations of many therapists who struggle to find solutions for individuals in their communities. Increasingly, the concept of universality is becoming more commonplace². Adoption of this model in the New Zealand Building Code would reduce future housing modification/equipment costs to the state and private citizens, allow people to remain in their own homes through changing circumstance and ensure that future innovations in design for the elderly or those with disabilities are not precluded by lack of foresight in the short term.

¹ Townsend, E. (Ed) (1997) Enabling occupation: An occupational therapy perspective. Ottawa: CAOT Publications ACE.

² For further information on universality, please refer to booklet in Appendix 1: Habinteg Housing Association (no date) *lifetime homes 21st Century Living* Retrieved 14th August 2006 from the World Wide Web: http://www.lifetimehomes.org.uk/pages/16_lth_standards.html More specific standards are available from the same webpage. Social implications for New Zealanders are included in the "*Housing Needs for People with Disabilities in the Bay of Plenty & Lakes Region*" yet to be published report June 2006, commissioned by Housing New Zealand corporation (Bay of Plenty) and the Lakes & Bay of Plenty District Health Boards (Further information available from the HNZN Regional Manager, Bay of Plenty)

WELLBEING IN THE BUILDING CODE

Occupational therapists often work in the areas of assisting people to access their home, school or work. This may include use of modified equipment or housing modifications. This is an area of the Building Code that has caused particular concern to therapists who struggle to balance the needs of the person requiring modifications to access their environment and the limitations of the environment itself. Poorly designed buildings, or those which do not take into account the changing needs of occupants, can mean the unnecessary expenditure of thousands of dollars or at worst, prevent the person from accessing the building at all.

The New Zealand Standards 4121:2001 Design for Access and Mobility, Buildings and Associated Facilities provides guidelines for design but currently there is nothing in law that prescribes design to meet such criteria. Unfortunately, this means that buildings are completed with scant regard for such guidelines and/or designers have little understanding of what the needs of people with disabilities are. For example where the designer has included a wet area shower in a bathroom it may be inaccessible to the user unless this meets particular criteria:

I've visited homes where people have proudly shown me their 'wet area shower'. One had 3 and a half full walls, all beautifully tiled in slippery tiles which left only a tiny gap to get in/out of it, and a high fixed head shower and no provision for handrails. Another had very expensive tiles, but they were high gloss not non-slip, so were absolutely lethal. In both cases the architects had designed these so that 'mum' could be cared for and the owners were devastated to discover that the only permanent solution was to tear it apart and that 'mum' couldn't use it at all. I've had one developer argue with me and try to tell me that a level access shower was not the same thing a wheelchair accessible shower and therefore he didn't have to fix the floor which had no drainage shaping at all but a tiled threshold step - this in a brand new home when the owner had specifically asked for an accessible shower. She meant wheelchair access of course. Clearly the building inspector also didn't know what he should have been doing, but if the code could cover this, there would not be room for the debate. In all three cases quoted, the houses were so new that the smells of wet paint and construction glues were still evident.

Christine Higgins

Registered occupational therapist (NZROT)

'Licence to occupy' [a kind of living arrangement that is not classed as a tenancy] applies to most retirement villages. We have several in this area. The management builds the complex and maintains the property- except the first time when the first residents have a choice over finishes, I believe. Legislation [regarding eligibility for state-funded housing modifications] excludes this kind of dwelling from any modification grant - for the very good reason that homes specifically designed and built for the elderly should need none! However we frequently come across badly designed toilets and bathrooms and sometimes a main access. Trower walls - walls

with no framing - are not excluded from the regulations and turn up even in these houses. It really beggars belief. Residents end up paying extra to have basic rails fitted - the excuse is the villages are targeted at the fit over 55s even if the average age is in the 70s. This is an anomaly that has to be dealt with rapidly as the number of retirement villages is burgeoning. If Trower walls were not permitted in any toilet or bathroom wall we would be ahead; if the dwelling is in a retirement village it should be equipped with rails from the start. As you may know, the provision of rails extends an individual's independence of any state funded intervention by at least two years. ... The 'licence to occupy' specs are a huge drain on the equipment budget quite unnecessarily.
Janet Freeman
NZROT

Providing legislation to meet such criteria would reduce the greater cost of significant modification at a later date. It is the contention of the NZAOT that a review of the NZS 4121:2001 be completed and the results of this included in the Code itself. Implications and recommendations for access and the indoor environment are discussed below.

WO1 Proposed objectives for accessibility

An objective of this building code is to limit the probability, that as a result of the design or construction of the building, a person in or adjacent to the building will be exposed to an unacceptable loss of amenity due to a lack of access. The unacceptable level of amenity due to inappropriate provisions for access addressed in the code is that caused by:

WO1.1 Lack of access to, within and from the building

External access

Occupational therapists are often called upon to assess and organise safe access into a building. Often steps are neither uniform nor railed. Risk of falls in such cases is high for those who mobilise with difficulty. Slopes that are uneven or particularly steep may bar access to a building to wheelchair users and those who find it difficult to mobilise on uneven terrain.

All external steps should have at least one handrail, no matter how few there are and this rail must provide a safe support for the whole length of the flight of the steps up to the door that they lead to.

The doorway into a house which could most easily be accessed by a wheelchair in the future (if a ramp/ lift was installed), must have an minimum clear opening width of 800mm.
Christine Higgins
NZROT

Internal access

The NZAOT supports the guidelines of NZS 4121:2001 insofar as specifications for internal access, e.g. corridor widths of 1200mm to allow space for a wheelchair and an ambulant person to pass and doorway placement to allow wheelchairs users to manoeuvre easily. Where corridors cannot feasibly be 1200mm, NZAOT would recommend that a minimum width be 1000mm. Turning spaces at bends should again be at a minimum of 1000mm. Internal stairs may not allow access between levels for those who are unsteady or uncertain on their feet.

One aspect that comes to mind is the number of homes, particularly new ones, that have internal stairs with no banister – they are hazardous. Also some staircases are narrow and steep, others circular with only ½ a step the suitable width to stand on safely.

Anne Molloy
NZROT

Thresholds

Currently the NZS 4121:2001 guidelines state that a stepped threshold of over 20mm be ramped as it is deemed to be possible for people in wheelchairs to manage this small protuberance and those with visual difficulties to see this if it is marked with a contrasting colour. However, experienced occupational therapists report that many cannot manage even a small threshold and that ramping anything over 20mm can be difficult if there is not enough space to allow a safe ramp gradient. This can mean the difference between a person being able to access an area of their home and being barred from it: in some cases removing people's independence in daily living tasks.

[In license to occupy buildings] Ranch sliders and other metal doorframes must be recessed into the timber surround, not fitted in a way that raises the threshold height. One access in every licence to occupy dwelling must be level/threshold free.

Janet Freeman, NZROT

Aluminium joinery external door frames frequently mean that there is quite a high threshold step which is a major cause of trips and falls. Either the design of these external doors must provide a trip free access or the building design must incorporate a built in mini ramp to eliminate it. Or the door frame must be positioned in relation to the inside floor so as to eliminate this threshold (in the same way that a traditional wooden doorstep did).

Christine Higgins, NZROT

All doorways into all classrooms should automatically have an aluminium threshold ramp installed, to enable a wheelchair to mount the 20 to 30mm doorsills which seem to be part of all the new school construction work I have seen lately. Many children who are able to self propel in a wheelchair cannot manage the doorsills.

Jenny Bos, NZROT

Door Widths

Door widths in the NZS 4121:2001 are recommended to be at least 760mm wide. This would not allow access to many in wheelchairs. As the rate of obesity increases in New Zealand, so does the number of people whose weight creates health issues which in turn reduces their ability to access the built environment. The average width of wheelchairs is also increasing. A more appropriate minimum door width would be 800mm.

To widen a doorway usually works out about \$500 per door, but the difference in cost between a 710 and an 800 door initially is probably only a tenth of that, not to mention the issues of patching floor coverings etc once the job is done.

Christine Higgins, NZROT

Doors/doorways

Heavy doors that can help reduce the spread of fire in institutional buildings can also deny access to some. NZAOT recommends use of self-opening doors, whether for everyone or by use of a push-button.

Many children who are able to self propel in a wheelchair ...have extreme difficulty managing the self closing doors which seem to be set so that they need a substantial force to open and hold them open.

Doorways into the office blocks/main entrance are often wide, but consist of two narrow doors, one of which is always locked. These should be self opening, or at least have one wide and one narrow door, with the wide door being bolted open. This would mean thinking about not facing the school office into the oncoming wind so that the doors are always needing to be kept shut.

Jenny Bos, NZROT

Multi-level buildings

Many multi-level buildings are built without a through-floor lift. Where this is the case, space should be allocated so that a through-floor lift could be installed at a later date. Specifications could be legislated for in the Code.

WO2 Proposed objectives for protection from noise

An objective of this building code is to limit the probability, that as a result of the design or construction of the building, a person in or adjacent to the building will be exposed to an unacceptable loss of amenity due to noise. The unacceptable loss of amenity due to high levels of noise addressed in the code is that caused by:

WO2.1 Exposure to noise originating from a source within the building

Concern has been raised about the lack of sound surveys in both new buildings after completion and in existing buildings. Provision could be made for new buildings to have regular checks to ensure that the standards are still being met after ten or fifteen years. As many people build a home to grow old in, this could go some distance to ensuring that sound from within a building is not a barrier to accessing amenities. There is no way to ensure compliance without attenuation details being specified on the plan and the building products being of an approved design, perhaps with standards enforced by the Code.

Many council and budget flats have common walls between them. Often this is a hollow concrete block wall painted on both sides. Sound transmission rates between these uncoupled walls is quite poor, that is, flanking sound from one side is easily conducted through the other without any impedance. They often carry utility services in common/electrical/plumbing, which also carry incident sound into the cavity and through fittings such as electrical sockets/aerial panels etc. Moreover, the nature of the limited power points often mean that floor plans mirror each unit and consequentially TVs and other appliances sit either side of the wall in common. This necessitates the turning up of the volume of corresponding appliances. The low frequency sounds transmit constant booming reverberating noise which affects the listener's ability to hear speech or dialogue at any frequency, because of spectral masking. Most elderly folk have pre-existing hearing loss, particularly evident in the higher frequencies, leaving more mid and lower frequency acuity. In an environment over-represented with low frequency incident sound older people are struggling.

Folk tend to compensate for background noise, so that if they can hear the phone ring at all, they certainly cannot discriminate the speech of the caller on the telephone. The nature of the narrow band of frequencies available to the human ear over the phone is such that it all ready places older folk at a disadvantage.

Decoupled partition wall design is poorly understood and the addition of some pink bats into the wall on construction does little to alleviate the problem as the wall has its own resonate frequency to generate standing waves across into the adjoining room. Common framing don't help nor do additional sheets of gib board.

Additional electronic devices facilities should be included into the design stage as these are more difficult to retro fit later and often results in cables on the floor and tripping hazards. Hearing aid compatible technology and future proofing will assist in making the most of wireless technology: fm loop in lounges and bed rooms for communication between hearing aid wearers, the use of phones etc/ emergency transponders to signalling devices to outside help agencies and appropriate EMI shielding to reduce radio interference from outside and other dwelling users.

Many modern insulation materials have multipurpose functions and can decouple sound and vibration, absorb and block sound, diffuse and reduce reflections, and can be faced with metal surfaces to cut EMI and act as thermal insulation. These are expensive but are a one off cost for the life of the dwelling.

Kelven Gaskill, Hearing therapist

Noise plays a very important part for someone who has suffered from a traumatic brain injury and how they react to noise. This can have a severe impact on their ability to function, causing fatigue, vision problems, headaches, irritability, poor concentration etc. Poor noise insulation can also affect someone who is mainly housebound since they are unable to escape from constant noise of neighbours etc. They can experience low mood and become irritable.

Christine Pacey, NZROT

WO3 Proposed objectives for the indoor environment

An objective of this building code is to limit the probability, that as a result of the design or construction of the building, a person in or adjacent to the building will be exposed to an unacceptable loss of amenity due to an inappropriate indoor environment. The unacceptable loss of amenity due to an inappropriate indoor environment addressed in the code is that caused by:

WO3.1 Poor structural performance

Basic needs in dwellings

It recommended that a minimum of one accessible bedroom and accessible toilet/bathroom be available on entry level of every dwelling. This would allow those who become temporarily or permanently unable to manage stairs to have their most basic needs met.

In a city like Wellington, where many homes are on two (or more) levels, dwellings often become inaccessible to people with mobility issues purely because living areas are on one level and bedroom/bathroom facilities are on another. In one case recently a council flat would have had an accessible entry with provision of a short ramp but there was only a kitchen and lounge on entry level. Space, design and cultural considerations did not allow use of the lounge as a bedroom with commode equipment. The young man (who will only need to be in a wheelchair for six months or so) was then unable to stay with his parents and alternative accommodation had to be found. Apart from the difficulty of finding appropriate accommodation, it removed him from his support base.

Louise Wood, NZROT

Accessible bathrooms/toilets

Providing solutions to allow people to access bathrooms and/or toilets is a challenge many occupational therapists face regularly. Current bathroom/toilet design does not allow for ease of access for many with temporary or permanent illness or injury. Issues such as narrow doorways, tiny spaces and walls without framing at appropriate heights for rails mean that equipment alone may not make the room(s) accessible. Housing

modifications are costly and any that are state-funded must necessarily follow a process that can take many months. Creating bathrooms/toilets that were accessible would allow people to continue to use them whatever their circumstance, or creating them to be easily adapted later if needed would mitigate some of the future cost. Not all people with accident or injury are eligible for state-funded modifications, and those who chose to begin alterations before funding has been approved cannot recover those costs. Aspects of design important to therapists include:

- *extra framing in place for rail placements in showers/ by toilets.*
- *easily removable wall between toilet / bathroom if these are going to be separate to allow big bathroom*
- *bathroom large enough to create wet area shower if needed without removing much structurally (i.e. at most, removing a wall between bathroom and toilet).*
- *windows away from shower rose so if expanded to wet area, don't need to be covering windows*
- *rails by toilets far enough forward to allow client's to pull themselves up. We have the rails in some of the hospital toilets installed 'as per building code' and they are suitable for wheelchair to toilet transfer, but NOT for clients to be able to pull themselves up from the toilet, as the rail is back from knee level as seated, hence no leverage. This has been a BIG deal in the hospital!*

Kim Fergusson, NZROT

All bathrooms and toilets to have framing at 900 on all sides...Bathrooms and toilets in 'licence to occupy' dwellings must have rails and handheld showers fitted, and have higher 'elderly spec' toilets as standard. Showers should be level access with 1000 x 1000 shower base... 'trombone' shower doors, while appearing to give lots of width, in fact usually reduce access to a very small useable space. Use of plastic shell ready-made shower boxes that cannot have rails fitted should not be allowed in these dwellings.

Janet Freeman, NZROT

- *At least one bathroom in each dwelling must have sufficient space to allow for the future installation of a wet area shower (1.2 x1.2 m) (this could include a bath or shower which isn't currently accessible but could be removed easily to make the [wet area shower] possible) and sufficient clear space to manoeuvre a wheelchair within the room if there was a wet area shower*
- *Every shower must be of a surface finishing that will allow the installation of handrails*
- *Every shower and bath must have additional supports in the wall framing that would provide for the support of handrails in the future. (150 - 300 mm above the long wall of a bath and approx. 850 - 950 above the floor of a shower and on any wall alongside a toilet pan.*
- *If the client, architect etc. plans any shower which is effectively a wet area one (e.g. uses any other names such as wheelchair shower, wet room, accessible) then the space allocation, layout etc. must comply with accepted disabled access specifications.*

Christine Higgins, NZROT

- Walls around showers or toilets be lined with plywood so rails can be placed where needed.
- Showers over baths to be exceptions rather than placed to save space.
- Toilets should be banned from being placed in the middle of a bathroom wall so no rails can be placed close by.
- Non-slip vinyl on bathroom floors rather than tiles for safety. All showers be level access of course.
- Slide rails in showers be lowered so they can accommodate a person who has to sit to shower.

Viv Mills, NZROT

When the framing is material other than wood (steel, solid concrete, or composite honeycomb material that has battens rather than framing) a further problem arises! As building materials are changing, new problems/challenges do come up!

Jackie Napier, NZROT

The combined shower rose/mixer as in the Feltonmix style should be banned. It is far better to have a separate mixer control which can be positioned within a safe reach from outside the area of the water flow.

Jo Muckle, NZROT

Accessible bathrooms in schools

Schools have particular needs regarding accessible bathrooms. Those working in the area often find that the specs for these are too small for their intended use. Again, this can prove costly to alter. NZAOT would recommend that to avoid this problem, regulations are legislated for in the Code. It is worth noting however, that individual students will have different needs and that some flexibility needs to be maintained. Primary schools will have different framing height needs. The Ministry of Education have put together a document which details not only the process but also provides design solutions for schools to be used in conjunction with the student and their family, school staff, designers, Group Special Education staff and therapists³. Discussion between the groups involved could contribute to appropriate regulations being set for the Code.

Working in Education we have a lot of input into bathroom modifications at schools as the current building code for schools to have a wheelchair accessible bathroom is for a very small room that an adult who is independent in a wheelchair can use and does not allow for a dependent child in a wheelchair that may have a hoist and/or commode chair etc.

Dianne Fair, NZROT

The problem is that none of these bathrooms are big enough to use a hoist, or a shower trolley, or a changing bench for a child who is able to change themselves.

³ Please see Appendix 2: Ministry of Education (2005) *Property modification guidelines for students with special needs*.

The school principals are then disappointed (and rightly so) when a child who needs this type of equipment starts school, and the disability bathroom needs to be pulled apart or replaced entirely.

Every school will eventually need to accommodate a child in a large wheelchair who needs to be hoisted and needs a shower/change trolley. With this in mind, all new bathroom facilities in schools should be enlarged and designed to meet the needs of the child with the most extensive needs.

The shower/change trolleys that work best are 2250mms long and 760mms wide. This means that the bathroom needs to be substantially bigger and also that the standard "wet area" on the floor needs to be more like 1200 by 2250 to direct the over splashing from the hand held shower into the drain.

These moveable trolleys are best, because if a child with different needs (e.g. children with paraplegia who can shower themselves) starts at the school, the trolley can be removed. There is also less chance of water penetrating the shower wall when a fold down bench is screwed to the wall.

All bathrooms in schools should be fitted with ceiling track hoist systems so that a large floor hoist is not required. These tracking systems require some minor changes to the ceiling/roof structure, which are essential but not expensive when installed at the time of construction.

Consideration needs to be given in primary schools to installing handrails 50 mm lower than the 900 mm recommended for adults. Therefore framing need to be at 850 mm and also at 900 mm.

Jenny Bos, NZROT

Looking towards the future

Incorporating design aspects into houses and other buildings that will continue to make life easier for the occupants as the years unfold is worth thinking about at the time a house is built. Involvement of experienced occupational therapists in the planning stages could make the difference between people being able to age in place or being forced to leave their preferred environment. The cost to the state and to confidence and general well-being of individuals is immense.

Where a house is being built or altered, and any of the intended occupants are known to have a disability (or are aged 50+), the plans must be approved by an NZ Registered Occ Therapist who is experienced in home alterations, to ensure that the plans are 'essentially accessible' (as in the Enable definition of same) for the expected life span of that occupant.

Christine Higgins, NZROT

I am currently building a house for my retirement and the following specifications should be included in all houses being built especially for the older generation.

- 1. Lever door handles rather than ones that have to be turned.*
- 2. Sensor lights in entrance ways - saves fumbling for keys.*
- 3. Placement of appliances e.g. microwaves at a safe height for placing or removing dishes.*
- 4. Drawers in kitchens rather than cupboards to reduce the reaching and bending.*
- 5. Adequate heating as a necessity rather than an added extravagance.*
- 6. Ramps placed at the correct 1:12 slope.*
- 7. Large low steps rather than concrete short ones.*

Viv Mills, NZROT

I had a wet area shower put in my own home when renovating it, and the builder was able to use short ends off rafters to create the extra support in the walls of the shower for any rails that might later be used - the only cost was the extra 1/2 hour in labour it took for him to install them. The space in the showers and passages will add cost, but may reduce the number of people who have to relocate because the property is too compact to alter.

Christine Higgins, NZROT

Summary

The review of the Building Code is timely, given the Government's moves to allow people to age in place. With minimum standards of universality set in legislation, not only will the social benefits of being able to remain in one's home through accident, illness or old age become apparent but this is likely to reduce future time and money spent on preparing these homes for use after change of circumstance. Even where a new home cannot have an easily accessible entry by dint of geography, designing it with these minimum standards does not preclude the later inclusion of new products on the market. Homes that are accessible will allow some people the chance to visit others socially, where perhaps before they would have been unable due to poor design. NZAOT would recommend and like to contribute to the formation of minimum standards for access and mobility (as are currently seen in NZS 4121:2001) to be set into legislation. We would like to continue to be involved in the process of the Building Code review and await the second discussion document with the proposed performance criteria with interest.

Prepared by Louise Wood on behalf of the New Zealand Association of Occupational Therapists

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A handwritten signature in black ink, appearing to read 'Siobhan Molloy', positioned to the left of a vertical red line.

Siobhan Molloy
Executive Director NZAOT