

Environmental Scan | Disability Access Standards

For review of: NZS 4121:2001 Design for
Access and Mobility | Buildings and
Associated Facilities

Report prepared by Global Research Ltd for:
Standards New Zealand

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1. Executive summary

Standards New Zealand commissioned this environmental scan to inform the review of NZS 4121:2001 Design for Access and Mobility–Buildings and Associated Facilities, a standard now over 20 years old. The purpose is to ensure New Zealand’s approach to accessibility remains aligned with international good practice, reflects advances in technology, and recognises evolving conceptions of disability.

NZS 4121:2001 has provided the foundational guidance for accessibility in New Zealand’s built environment. However, since its publication, global standards have advanced considerably, adopting broader definitions of disability, integrating Universal Design principles, and embedding provisions for emerging needs such as emergency evacuation, sensory accessibility, and cultural considerations.

1.1. Scope of the Scan

This review benchmarked NZS 4121:2001 Design for Access and Mobility – Buildings and Associated Facilities against leading standards from:

- Canada (CSA/ASC B651:23)
- European Union (EN 17210:2021)
- United States (ADA Standards 2010)
- United Kingdom (BS 8300-2:2018 and Document M)
- Australia (AS 1428 series and Disability Access to Premises Standard 2010).

The International Standard (ISO 21542:2021 (E)) was also considered. However, as the European Union (EU) standard mirrors the International Standard, a detailed analysis of ISO 21542:2001 (E) was deemed unnecessary.

Collectively, these represent global good practice and highlight where New Zealand's standard is strong and where it is outdated or incomplete.

1.2. Overall findings

The standards were assessed by their format, scope, comprehensiveness, level of specific detail, and age of the standard, with each standard given a score out of five for each criterion. Based on this scoring system, the Canadian and EU standards were overall assessed to be of the highest quality. Further analysis of the strengths and weaknesses of the Canadian and EU standards can be found in 6.5.

Topic analysis was carried out on individual aspects contained in NZS 4121:2001, to allow for easy comparison. Canada and the EU both scored the highest in this analysis as well. Topic analysis can be found in 6.3.

Additionally, unlike New Zealand, Australia, and the United Kingdom (UK), both Canada and the EU have all their accessibility information covered in one standard, making them easier to follow and find relevant information.

Overall, the Canadian standard is easier to follow due to its coverage of technical details, however the EU standard covers a wider range of topics.

1.3. Strengths and limitations of NZS

4121:2001

1.3.1. Strengths

- The standard utilises clear formatting and imposes requirements which are measurable and actionable.
- Includes unique coverage of topics such as design and access, shelters within carparks, the location of toilet and shower facilities, and access to accommodation.

1.3.2. Limitations

- Often lacks rationale or detail for its provisions.
- Uses a narrow definition of disability, primarily focusing on mobility related disabilities.
- Lacks coverage in areas such as emergency alerts and building evacuation, air quality, and acoustic design in built environments.
- Lacks cultural considerations for accessibility in buildings such as marae.
- Occasionally uses outdated language, for example when explaining accessibility, NZS 4121:2001 refers to it as “not an emotional issue” which minimises the personal and social impact of inaccessibility.

Another example is the use of the word “embarrassing” when describing the situation of a disabled person calling for assistance when staying in public accommodation, this suggests disability-related assistances is shameful. The use of this terminology may not be considered as inclusive.

- Topics not currently covered by NZS 4121:2001 at all include acoustics, children and adolescents, air quality, functional and cognitive barriers, and security access. More information can be found in 6.4.1.
- Issues around the implementation of the standard are covered in 6.6.2. The inclusion of NZS 4121:2001 in the Building Act creates conflicts with the Building Code, which leads to loopholes in the regulatory framework for accessibility requirements and makes updating NZS 4121:2001 more difficult.

1.4. Recommendations for updating the New Zealand Standard

A simple amendment to NZS 4121:2001 is not going to be sufficient.

Internationally, accessibility standards are broader, more detailed, and better aligned with a modern definition of disability.

A revision of NZS 4121:2001 should:

- Incorporate inclusive language and rationale for provisions.
- Extend coverage to emergency evacuation, sensory environments, cultural considerations, and accessibility for a wider range of disabilities.
- Draw on the Canadian and the EU standards as primary benchmarks, while also integrating selected provisions from the UK, United States (US), and Australia.
- Reference complementary standards such as AS/NZS 1428.4.1:2009 (tactile indicators).

If New Zealand is going to adopt an overseas standard, the Canadian CSA/ASC B651:2023 is recommended as it is comprehensive and well detailed. Unique aspects of the EU standard (EN 17210:2021) should also be incorporated into this new standard. Additionally, selected provisions from the existing New Zealand and Australian standards which are not covered in the Canadian and EU standards should also be integrated.

The following list covers key aspects of NZS 4121:2001 and highest rated aspects from international standards. This information is also shown in table form in 6.4.

1.4.1. Topics not currently covered in NZS 4121:2001

- Canada: Is the only standard to cover ways to reduce functional and cognitive barriers. Provides additional information for acoustics, air quality and security access.
- EU: Provides detailed coverage of acoustics and air quality. Provides additional information for security access.
- Australia includes additional requirements for children and adolescents.

1.4.2. Definitions, Design and Access

- Canada: Highest rated definitions.
- EU: Includes people with allergies
- New Zealand: Ranked best for Access and Design.

1.4.3. Accessible Routes

- Canada: Detailed analysis on hazards and obstructions, direction indicators, signs, controls and fittings, and emergency provisions. Supplementary information on surface finishes and audible and visual cues.
- EU: Detailed analysis on surface finishes, emergency provisions and audible and visual cues. Provides supplementary information on direction indicators and signs.
- UK: Only standard to include Site and Building Layout.
- Australia: Includes supplementary information for emergency provisions and audible and visual cues.

1.4.4. Car Parks

- Canada: Detailed information on signs, required number of parking spaces, carpark dimensions and surface finishes. Lacks detailed information on access from carparks/pick up areas.
- EU: Best overall requirements for signs, number required, dimensions, surfaces, and facilities.
- New Zealand: The only standard to include shelter. Provides detailed analysis for facilities, and number required.

1.4.5. Footpaths, Ramps, and Landings

- Canada: Favoured standard for moving walkways and escalators and ramps/ramp landings.

- EU: Detailed requirements for footpaths and fairing of surfaces. Supplementary information for moving walkways.
- New Zealand: Provides good information regarding ramps/ramp landings and fairing of surfaces. Supplementary information on moving walkways.

1.4.6. Entrances, Corridors, Doorways, and Doors

- EU: Favoured standard for corridors. Provides supplementary information for entrances and doorways.
- New Zealand: Ranked highest for entrances and doorways.
- UK: Provides supplementary information on corridors.
- Australia: Provides supplementary information on doorways.

1.4.7. Stairs and Lifts

- Canada: Supplementary information on stair design and construction.
- EU: This standard was ranked highest for auditory, tactile and visual cues, and design of lifts. Provides supplementary information on stair handrails.
- New Zealand: Ranked highest for stair design and construction, and handrails. Provides supplementary information on auditory, tactile, and visual cues.
- UK: provides supplementary information on design of lifts.

1.4.8. Toilet and Shower

- Canada: Highest ranked for signs and design.
- EU: Highest ranked for design and the inclusion of baby facilities such as breast-feeding rooms and non-gendered baby changing rooms.
- New Zealand: Ranked the highest for location and number of toilets and showers. Provides supplementary information regarding design.

1.4.9. Public Facilities

- Canada: Highest ranked for dressing/fitting rooms; and drinking fountains. Provides additional criteria for telephones.
- EU: Highest ranked for public counters and desks, ATMs and vending machines. Provides unique requirements for assistant dog facilities, rubbish bins, seating and waiting and storage spaces.
- New Zealand: Provides supplementary information about telephones and ATMs and vending machines.
- The US: Provides additional information about drinking fountains.

1.4.10. Places of Assembly, Entertainment, and Recreation

- Canada: Highest ranked for places of recreation.
- EU: Highest ranked for places of assembly and entertainment.
- UK: Has additional requirements for places of assembly and entertainment.
- The US and Australia have supplementary coverage of places of recreation.

1.4.11. Accessible Outdoor Public Areas

- Canada: Provides additional coverage of outdoor hazards, kerb ramps, street furniture and facilities, pedestrian crossings, and transit facilities.
- EU: Has the highest rated requirements for outdoor hazards, street furniture and facilities, landscaping, pedestrian crossings, and transit facilities.
- New Zealand: Provides the best coverage of kerb design and kerb ramps.

1.4.12. Accommodation

- EU: In-depth requirements for accommodation arrival and departure. Provides additional recommendations for accessible accommodation.
- New Zealand: Has the best coverage of the application of the standard, access, and accessible accommodation. Supplementary information regarding arrival and departure.
- UK: Provides additional coverage of accessible accommodation.

1.5. Next Steps

This scan is the first stage in the review process. The next phases will include:

- Consultation with disability communities, design professionals, and other stakeholders.
- Identification of priority areas for revision of NZS 4121:2001.
- Development of a structured process for updating NZS 4121:2001 to ensure it is future-proofed, internationally aligned, and culturally appropriate for Aotearoa New Zealand.

2. Introduction

2.1. Project background

NZS 4121:2001 Design for Access and Mobility—Buildings and Associated Facilities provides guidance for those responsible for making buildings and facilities accessible and useable for disabled people. Standards New Zealand is reviewing the 25-year old standard to ensure that it is aligned with international good practice and remains fit for purpose. Additionally, this review will consider technological developments that have occurred since the standard was published and seeks to broaden understandings of ‘disability’ in line with current conceptions and international standards.

2.2. Project overview

The purpose of this environmental scan is to assess NZS 4121:2001 in comparison to overseas standards in building accessibility. By analysing international regulations, this report aims to identify gaps in NZS 4121:2001 and find useful regulations from overseas that could help to fill these gaps. Comparisons were made with accessibility standards in Australia, the United States, Canada, the European Union, and the United Kingdom. Note that some areas had multiple relevant standards which were assessed in conjunction with each other.

The following standards were analysed:

- New Zealand
 - NZS 4121:2001 Design for Access and Mobility – Buildings and Associated Facilities
- European Union (EU)
 - EN 17210:2021 Accessibility and usability of the built environment – Functional requirements
- Canada
 - CSA/ASC B651:23 Accessible design for the built environment
- United States
 - 2010 ADA Standards for Accessible Design
- United Kingdom
 - BS 8300-2:2018 Design of an accessible and inclusive built environment
 - Access to and use of buildings 2015 Approved Document M
- Australia
 - AS 1428.1:2021 Design for access and mobility Part 1: General requirements for access – New building work
 - AS 1428.2:1992 Design for access and mobility Part 2: Enhanced and additional requirements
 - AS 1428.3:1992 Design for access and mobility Part 3: Requirements for children and adolescents with physical disabilities
 - AS 1428.5:2021 Design for access and mobility Part 5: Communication for people who are deaf or hearing impaired
 - Disability (Access to Premises – Buildings) Standard 2010
 - AS/NZS1428.4.1:2009 Design for access and mobility (Australian and New Zealand standard)

Consideration was also given to the International Standard – ISO 21542:2021 (E). However, the EU standard mirrors this standard. Consequently, detailed analysis was not carried out on ISO 21542:2021 (E).

This environmental scan is the first stage in a multi-stage process which will include consultation with stakeholders, including disability groups in New Zealand, as well as the development of a process to revise or replace NZS 4121:2001.

3. Analysis and reporting methodology

3.1. Overview

Stage 1: Assessment of NZS 4121:2001

Includes analysis of strengths and weaknesses.

Stage 2: Overall analysis of the standards

An analysis of all the selected standards was conducted to determine the best overall standard based on format, scope, comprehensiveness, level of specific detail, and age.

Stage 3: Topic analysis

Each standard was then assessed based on their coverage of each topic.

Stage 4: Comparison of the Canadian and the European Union standards

Canada and the EU were identified as areas with the most comprehensive standards. These two standards were compared for strengths and weaknesses.

Stage 5: Other considerations

Topics unique to NZS 4121:2001 were analysed for their current relevance as accessibility requirements. The implementation of the standard was also analysed in comparison to international practices. Subsequent recommendations were provided to improve enforceability of NZS 4121:2001.

3.2. Detailed Methodology

3.2.1. Stage 1 – Assessment of NZS 4121:2001

An initial assessment of the existing New Zealand standard was conducted, which determined the gaps and overall weaknesses of the standard. This guided the direction and structure of the environmental scan.

3.2.2. Stage 2 – Overall analysis of the standards

An analysis of the selected standards was conducted to compare and contrast each, and determine the best overall standard based on the following criteria:

- Format
- Scope
- Comprehensiveness
- Level of specific detail
- Date standard was published.

Four analysts independently assigned a score out of five for each criterion, the mean of which determined a final score. The sum of these scores was then used to determine the best overall standard. Detailed reasoning for these scores is outlined in this section.

3.2.3. Stage 3 – Topic analysis

Each standard was then assessed on how well it addressed and provided guidance on each topic. The best coverage of each topic based on level of detail, useful supplementary information, and rationale behind regulations was analysed in this stage. For easy comparison, the structure of this section was based on the structure of NZS 4121:2001, with the exemption of 6.4.1 where topics not covered in NZS 4121:2001 are identified. Key requirements and recommendations set out by the selected standard were also outlined in this section. It is important to note that this is a high-level analysis of each

standard, dimensions and specific exemptions found in each standard were not included due to the varying nature of these.

3.2.4. Stage 4 – Comparison of the Canadian and the European Union standards

Based on the analysis, the Canadian and European standards were found to be the most comprehensive, offering broad coverage and detailed guidance on accessibility requirements. In the interest of potentially basing the New Zealand standard on the contents of one or both standards, a comparison was conducted to determine the strengths and weaknesses of these two standards.

3.2.5. Stage 5 – Other considerations

In this stage, an assessment of the continued relevance of NZS 4121:2001 was conducted, focusing on its unique accessibility provisions, including minimum design requirements, sheltered car parks for easier vehicle transfers, accessible toilets, and routes for people with disabilities.

The legal implementation of the standard was advised on via a short interview with Manager Building Performance Ministry of Business, Innovation and Employment (MBIE), Richard London. It was noted that while it is cited in the Building Act, conflicts with the Building Code have led to ambiguity in its application.

A proposed solution is to remove NZS 4121:2001 from the Building Act and adopt it as an MBIE-approved solution, enabling regular updates and better alignment with current building standards.

An international comparison was made, highlighting how countries like Australia, the UK, and Canada have implemented more integrated and enforceable accessibility frameworks, which could provide valuable insights for improving New Zealand's accessibility standards.

4. Summary of findings

4.1. New Zealand - NZS 4121:2001

- Overall, the standard uses clear formatting, but does not include some key topics, such as emergency evacuation provisions. It includes a moderate level of detail and has a narrow definition of disability.
- Design and access provides extra notes on certain buildings to allow for greater flexibility.
- Provides the best analysis of viewing ranges.
- Provides comprehensive coverage on carpark dimensions, signs, and pick-up and drop-off areas.
- Coverage of footpaths, ramps, and landings includes an in-depth overview of auditory cues, ramp types and moving walkways.
- Entrances and doorways are comprehensively covered.
- Provides a broader range of criteria for stair design and construction than standards from other jurisdictions reviewed.
- Provides the best description of the number and location of toilets and showers and includes gender accessibility, entry, and distribution.
- Provides concise assessment of ATMs and vending machines.
- Both kerb design and kerb ramps are comprehensive.
- Provides a wide range of relevant criteria for accommodation such as ratios, car parks and units required.

Note: New Zealand does have an additional standard (AS/NZS 1428.4.1:2009). AS/NZS 1428.4.1:2009 is not referenced in NZS 4121:2001 which is a change suggested. Within this report AS/NZS 1428.4.1:2009 is referenced under Australia as it is a part of the 1428 series.

4.2. European Union - EN 17210:2021

- Provides the widest scope of topics and considerations of all standards reviewed. Overall, a highly comprehensive standard.
- Utilises Universal Design principles and takes allergies into consideration.
- Comprehensively covers accessible routes and scored highly on surface finishes, emergency provisions, and requirements related to audible and visual design and needs.
- Requires wayfinding information for accessing car parks and pick-up areas, as well as in-depth information about car park dimensions and multipurpose vehicles.
- Highest ranking for moving walkways and ramps, e.g. via provision of visual and tactile warnings for children and people with mobility difficulties.
- Provides a comprehensive overview of hazard and width of corridors and provides supplementary information on lobbies, gates and gradings.
- Contains the most comprehensive design criteria for lifts and widest scope of recommendations for auditory, tactile and visual cues.
- Integrates emergency provisions into toilet and shower design and layout.
- Highest rated for public facilities and makes provisions for a wide range of components within each topic.
- Contains comprehensive coverage of wide range of places of assembly and entertainment.
- It was highest rated for accessible outdoor public areas, addressing each topic in-depth.
- Provides supplementary information for accessible accommodation such as requirements for furniture and bed height.

4.3. Canada - CSA/ASC B651:23

- The Canadian standard was the highest rated for overall formatting and comprehensiveness.
- Provides the most inclusive definition of disability.
- Provides in-depth analysis of accessible routes, including hazards, obstacles and emergency provisions. Provides comprehensive overview and functional specifications for wayfinding.
- Provides comprehensive overview for car parks, including signs, ratio/ dimensions of car parks and facilities.
- Offers comprehensive insight into footpaths and surfaces, including specifics for the safety implications of drainage.
- Comprehensively covers requirements for toilet and shower, including for sign placement and safety features.
- Presents additional requirements for public facilities such as fitting rooms and drinking fountains which are not covered in the New Zealand standard.
- Additional requirements for public facilities such as fitting rooms and drinking fountains.
- Requirements for accessible outdoor public areas, pedestrian crossings and transit facilities.
- Distinct requirements related to acoustics, environmental intolerances/air quality, functional and cognitive barriers, and security access.

4.4. United States - 2010 ADA Standards for Accessible Design

- Overall, the standard is relatively comprehensive, however it lacks scope, is dated, and formatting is not accessible.
- Provides ratios regarding the number of drinking fountains provided in a location, which is not included in NZS 4121:2001.
- Includes recommendations for specific places of recreation not included in NZS 4121:2001.

4.5. United Kingdom - BS 8300-2:2018; Approved Document M

- Overall, the standards have clear formatting, and comprehensive and actionable coverage.
- Includes the initial site and building layout in the planning stages.
- Expands on areas such as baby changing facilities and alternative bathroom layouts which are not addressed in the New Zealand standard.
- Includes distinct requirements for places of assembly, entertainment, and recreation, such as audible cues for hearing-impaired performers. Also outlines specific requirements and recommendations for building types not addressed in the New Zealand standard.
- Offers unique accommodation guidance on bedrooms, kitchens and accommodation types beyond the scope of the New Zealand standard.

4.6. Australia - AS 1428.1:2021; AS 1428.2:1992; AS 1428.3:1992; AS 1428.5:2021; Disability (Access to Premises – Buildings) Standard 2010; AS/NZS 1428.4.1

- Overall, has relatively clear formatting and coverage. The standard was updated in 2021.
- Provides specific ratios for inbuilt amplification systems.
- Provides specific requirements for the percentage of accessible doorways provided.
- Includes the provision and coverage of hoists for toilets, accessibility of bathroom accessories, and the provision of sanitary disposal bins.
- Includes multi-sensory warning systems as part of the Emergency provisions.
- Includes provisions about mobility and access for children and adolescents.
- Offers comprehensive insight in places of recreation such as swimming pools and their accessibility.

5. Findings

5.1. Stage 1 – Assessment of NZS 4121:2001

NZS 4121:2001 provides a sufficient understanding for the accessibility requirements for public spaces. However, this standard:

- Is often lacking in the provision of rationale and detail.
- Has a limited scope regarding types of disabilities and/or conditions.
- Lacks coverage of key areas such as emergency provisions, emergency alerts and building evacuation (Note: for a detailed discussion of topics in other standards which are not currently in NZS 4121:2001, see 6.4.1).
- Lacks cultural considerations, for example accessibility in built environments such as marae.
- Uses language which, while well-intentioned, may be interpreted as subjective, harsh or non-inclusive. Examples include: the use of the word “embarrassing” when referring to a disabled individual needing assistance in public accommodation, and stating that accessibility is “not an emotional issue” which dismisses advocacy or lived experience.

Some immediate changes which could benefit NZS 4121:2001 include:

- Utilise more detailed pictograms/diagrams like those found in the Canadian standard.
- More comprehensive requirements and the inclusion of rationale for them
- Include clearer exemptions for certain situations such as historic buildings or buildings that are not for public use.
- Greater consideration of Te Ao Māori and other cultures in New Zealand and
- The use of more inclusive language while maintaining the sentiment expressed in the existing standard.

A revision of NZS 4121:2001 should include or reference the AS/NZS 1428.4.1:2009 (visual impairments) standard. This additional standard provides valuable information regarding Tactile Ground Surface Indicators (TGSIs), their dimensions, placement, as well as detail regarding how TGSIs can impact the accessibility of individuals in wheelchairs.

Note: In the EU and Canadian standards TGSIs are referred to as TWSI (tactile warning surface indicators). For consistency this report uses the acronym TGSIs.

5.2. Stage 2 – Overall Analysis of the Standards

5.2.1. Overall Analysis of the Standards

The following table provides an overall assessment of the relevant standard for each jurisdiction. These standards were assessed by their format, scope, comprehensiveness, level of specific detail, and age of the standard, with each standard given a score out of five for each criterion. These scores were calculated by four analysts independently ranking each standard and calculating the mean. The sum of these scores therefore determined the best overall standard based on clarity and level of coverage.

	New Zealand NZS 4121:2001	European Union EN 17210:2021	Canada CSA/ASC B651:23	United States ADA Standards for Accessible Design 2010	United Kingdom BS 8300-2:2018; Approved Document M	Australia AS 1428 series; Disability (Access to Premises – Buildings) Standard 2010
Format	4	4	5	2	3	3
Scope	3	5	4	2	3	3
Comprehensiveness	3	4	4	3	3	2
Level of specific detail	4	3	5	3	3	3
Date published	1	4	5	2	3	3
Total	14	21	23	12	15	14

Note. See Appendix for the scoring criteria. It is also important to note 1 means lowest quality and 5 means highest quality.

5.2.1.1. Canada – CSA/ASC B651:23

- **Format:** Very clear, concise formatting with large text size and clear headings. Accessible for a wide audience.
- **Scope:** Covers a wide range of topics and criteria relevant to access in built environments.
- **Comprehensiveness:** Contains commentary boxes throughout which offer further explanations and rationale for recommendations.
- **Level of specific detail:** Addresses a wide range of individuals including those with physical, sensory, communication, or cognitive disabilities. Provides in-depth measurements, ratios, and materials as well as clear pictograms and diagrams.
- **Date:** Published in 2023, commits to 5 yearly reviews.

5.2.1.2. European Union – EN 17210:2021

- **Format:** The formatting is clear and concise, but text size could be slightly bigger. Colours used in diagrams and figures also aid in the readability of the standard.
- **Scope:** The “Design for all / Universal Design” principles, which align with Social Model of Health and Disability, are central to this standard; they aim to make public spaces and buildings accessible and useable for all people.
- **Comprehensiveness:** Provides rationale for recommendations and requirements throughout the standard. Each section is detailed and thorough. Covers fire safety, emergency exits as well as environmental conditions in buildings.
- **Level of specific detail:** Recommendations are generalised and not measurable. While the diagrams are helpful visually, they rarely mention specifications, dimensions, or application.
- **Date:** Published 2021.

5.2.1.3. United Kingdom

Two UK documents were reviewed in conjunction with each other:

5.2.1.4. (A) BS 8300-2:2018 – Design of an accessible and inclusive built environment; and

5.2.1.5. (B) Approved document M ‘*Access to and use of buildings*’ (2015 edition incorporating 2016 amendments)

- **Format:** Clear formatting with content delineated by subheadings.
- **Scope:** States that recommendations are designed to “accommodate users with the widest range of characteristics and capabilities”, and that the recommendations in *Access to and use of buildings 2015* apply to external and internal features of buildings.
- **Comprehensiveness:** Includes commentary, explanation and generally informative material.
- **Level of specific detail:** Recommendations are measurable and actionable. Also includes information about inclusive design strategies for each stage of a project.
- **Date:** Published 2018.

5.2.1.6. Australia

Five documents were considered, four of which were in one standard series. AS 1428.1:2021 is general requirements, while AS 1428.2:1992, AS 1428.3:1992, and AS 1428.5:2021 provide requirements for their specific topics covered. For the purpose of this analysis, it was decided to assess all five standards in conjunction as they cover different aspects of building accessibility.

(A) AS 1428.1:2021; AS 1428.2:1992; AS 1428.3:1992; AS 1428.5:2021;

(B) Disability (Access to Premises – Buildings) Standard 2010

- **Format:** Contains clear formatting with simple diagrams. Uses a font size which is small and may be difficult to read.
- **Scope:** Includes accessibility regulations for new construction work. Refers to other standards to provide information on the building classes to be made accessible and prescribes specific areas within those buildings where access must be provided.
- **Comprehensiveness:** Does not include additional commentary or rationale for recommendations.
- **Level of specific detail:** Recommendations are measurable and actionable.
- **Date:** AS 1428.1:2021 and AS 1428.5:2021 were published in 2021; there is no specific timeframe for review, but all Australian Standards are reviewed continuously and are updated regularly to take changing technology into account. Disability (Access to Premises – Buildings) Standard 2010 has not been updated since 2010, while AS 1428.2:1992 and AS 1428.3:1992 have not been updated since 1992.

5.2.1.7. New Zealand – NZS 4121:2001

- **Format:** Contains clear formatting with variation in subheading sizes. Provides break out boxes for additional information. Font size and spacing is small and would not be considered inclusive under the 'Accessible Design for Print' from the Ministry of Social Development.
- **Scope:** Covers a wide range of topics such as approachability, accessibility, and usability. Does not include key components such as fire/emergency safety, acoustics, site building layouts, etc. Primarily

focuses on individuals with physical disabilities, with some consideration for people with audible and/or visual impairments.

- **Comprehensiveness:** Provides a moderate level of comprehension but lacks explanation of the decision-making process.
- **Level of specific detail:** Has actionable, measurable recommendations and requirements.
- **Date:** Published 2001.

5.2.1.8. United States – ADA Standards for Accessible Design 2010

- **Format:** Does not meet requirements for accessible report design; font is small and closely spaced. Readability is difficult due to headings being same font and size as substantive content.
- **Scope:** Does not cover a wide range of topics. Includes additional requirements regarding places of recreation and path of travel.
- **Comprehensiveness:** Provides comprehensive explanations for the decision-making process. Includes exemptions.
- **Level of specific detail:** Provides in-depth measurements, ratios, and materials. Lacking in images or pictograms, providing detailed pictograms only for places of recreation.
- **Date:** This standard was published in 2010, with no indication of when it is going to be revised.

5.3. Stage 3 – Topic analysis

5.3.1. Reading this section

5.3.1.1. Example table

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Definitions		Extra info	Best option			
Design	Best option					
Minimum dimensions	Best option		Extra info			

5.3.1.2. Key

The best option for the specified category.	Supplementary information not included elsewhere.
Best option	Extra info

Notes

- The above table is an example of the table layout used in this report, which compares different standards' coverage of topics. In this example, the Canadian standard was assessed to have the best use of definitions, while the EU standard includes supplementary information either not covered in the New Zealand standard or provides a better explanation, which could be useful to consider in a potential revision of NZS 4121:2001.

- The green box with a double tick means the standard has been deemed to have the best approach or coverage for that topic.
- The orange box with one tick indicates important additional, or supplementary information which may inform a potential revision of NZS 4121:2001.
- There are situations where multiple countries within the same topic were rated similarly and so both received a green or orange box.
- We analysed all six standards to select which country had the best option for each topic. Readability, useability, and accessibility were assessed. Additionally, we considered the rationale provided by each country for their regulations.
- The key points from these selected standards have been discussed further under each table.
- Topics in this analysis have been organised by the headings found in NZS 4121:2001 to allow for easy comparison with the existing New Zealand standard. With the exception of the first table being unique topics not covered in NZS 4121:2001.

5.4. Summary of comparisons

The Canadian and EU standards were the highest rated (as noted in 6.2).

Below is a summary of the Canadian, EU and New Zealand standards across each category. Additional information unique to other countries' standards is also included.

5.4.1.1. Definitions, Design and Access

5.4.1.1.1. Canada

- Highest rated definitions.

5.4.1.1.2. European Union

- Includes people with allergies.

5.4.1.1.3. New Zealand

- Ranked best for Access and Design.

5.4.1.2. Accessible Routes

5.4.1.2.1. Canada

- Detailed analysis on hazards and obstructions, direction indicators, signs, controls and fittings, and emergency provisions.
- Supplementary information on surfaces finishes and audible and visual.

5.4.1.2.2. European Union

- Detailed analysis on surface finishes, emergency provisions and audible and visual.
- Provides supplementary information on direction indicators and signs.

5.4.1.2.3. New Zealand

- N/A

5.4.1.2.4. Additional information

- The UK is the only standard to include Site and Building Layout.
- Australia includes supplementary information for emergency provisions and audible and visual.

5.4.1.3. Car Parks

5.4.1.3.1. Canada

- Detailed information on only access from carparks/pick up areas.
- Supplementary information on dimensions.

5.4.1.3.2. European Union

- Best overall requirements for signs, number required, dimensions, surfaces, and facilities.

5.4.1.3.3. New Zealand

- The only standard to include shelter.
- Provides detailed analysis for facilities, and number required.

5.4.1.4. Footpaths, Ramps, and Landings

5.4.1.4.1. Canada

- Favoured standard for moving walkways and escalators and ramps/ramp landings.

5.4.1.4.2. European Union

- Detailed requirements for footpaths and fairing of surfaces.
- Supplementary information for moving walkways.

5.4.1.4.3. New Zealand

- Provides good information regarding ramps/ ramp landings and fairing of surfaces.
- Supplementary information on moving walkways.

5.4.1.5. Entrances, Corridors, Doorways, and Doors

5.4.1.5.1. Canada

- N/A

5.4.1.5.2. European Union

- Favoured standard for corridors.
- Provides supplementary information for entrances and doorways.

5.4.1.5.3. New Zealand

- Ranked highest for entrances and doorways.

5.4.1.5.4. Additional information

- The UK provides supplementary information on corridors.
- Australia provides supplementary information on doorways.

5.4.1.6. Stairs and Lifts

5.4.1.6.1. Canada

- Supplementary information on stair design and construction.

5.4.1.6.2. European Union

- This standard was ranked highest for auditory, tactile and visual cues, and design of lifts.
- Provides supplementary information on stair handrails.

5.4.1.6.3. New Zealand

- Ranked highest for stair design and construction, and handrails.
- Provides supplementary information on auditory, tactile, and visual cues.

5.4.1.6.4. Additional information

- The UK provides supplementary information on design of lifts.

5.4.1.7. Toilet and Shower

5.4.1.7.1. Canada

- Highest ranked for signs and design.

5.4.1.7.2. European Union

- Highest ranked for design.

5.4.1.7.3. New Zealand

- Ranked the highest for location and number of toilets and showers.
- Provides supplementary information regarding design.

5.4.1.8. Public Facilities

5.4.1.8.1. Canada

- Highest ranked for dressing/fitting rooms; and drinking fountains.
- Provides additional criteria for telephones.

5.4.1.8.2. European Union

- Highest ranked for public counters and desks; ATMs and vending machines; assistant dog facilities; rubbish bins; seating and waiting; and storage spaces.

5.4.1.8.3. New Zealand

- Provides supplementary information about telephones and ATMs and vending machines.

5.4.1.8.4. Additional information

- The US provides additional information about drinking fountains.

5.4.1.9. Places of Assembly, Entertainment, and Recreation

5.4.1.9.1. Canada

- Highest ranked for places of recreation.

5.4.1.9.2. European Union

- Highest ranked for places of assembly and entertainment.

5.4.1.9.3. New Zealand

- N/A

5.4.1.9.4. Additional information

- The UK has additional requirements for places of assembly and entertainment.
- The US and Australia have supplementary coverage of places of recreation.

5.4.1.10. Accessible Outdoor Public Areas

5.4.1.10.1. Canada

- Provides additional coverage of outdoor hazards; kerb ramps; street furniture and facilities; pedestrian crossings; and transit facilities.

5.4.1.10.2. European Union

- Has the highest rated requirements for outdoor hazards; street furniture and facilities; landscaping; pedestrian crossings; and transit facilities.

5.4.1.10.3. New Zealand

- Provides the best coverage of kerb design and kerb ramps.

5.4.1.11. Accommodation

5.4.1.11.1. Canada

- N/A

5.4.1.11.2. European Union

- In-depth requirements for accommodation arrival and departure.
- Provides additional recommendations for accessible accommodation.

5.4.1.11.3. New Zealand

- Has the best coverage of the application of the standard; access; and accessible accommodation.
- Supplementary information regarding arrival and departure.

5.4.1.11.4. Additional information

- The UK also provides additional coverage of accessible accommodation.

5.4.1.12. Topics not currently covered in NZS 4121:2001

5.4.1.12.1. Canada

- Is the only standard to cover ways to reduce functional and cognitive barriers.
- Provides additional information for acoustics; air quality; and security access.

5.4.1.12.2. European Union

- Provides detailed coverage of acoustics and air quality.
- Provides additional information for security access.

5.4.1.12.3. Additional information

- Australia includes additional requirements for children and adolescents.

5.4.2. Topics Not Covered In NZS 4121:2001

The below topics did not align with sections in NZS 4121:2001 and are listed here for analysis. If a topic in another country was broader in scope than New Zealand (i.e. not covered in New Zealand), those aspects are covered in that respective topic. For example, 6.4.8 Toilets and Showers notes that the EU Standard also covers baby changing facilities which is not covered in New Zealand.

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Acoustics		Best option	Extra info			
Children and adolescents						Best option
Air quality		Best option	Extra info			
Functional and cognitive barriers			Best option			
Security access		Extra info	Extra info			

5.4.2.1. Acoustics

5.4.2.1.1. European Union - EN 17210:2021

- The standard is cognisant of people with hearing and cognitive impairments, as well as of people with vision impairments who may rely on acoustic information for orientation.
- Covers factors which may impact the acoustic properties of a room.
- Requires the acoustic and electromagnetic environment to support the use of assistive devices such as hearing aids or cochlear implants.
- Specifies that the built environment should allow for distinguishing essential sounds from background noise.
- Includes recommendations for acoustics in libraries.

5.4.2.1.2. Canada - CSA/ASC B651:23

- Requires built environments to be able to provide auditory cues for orientation while minimising distracting or disorienting sounds.

5.4.2.2. Children and adolescents

5.4.2.2.1. Australia - AS 1428.3-1992

- Covers access for children with physical disabilities including requirements for:
 - Walkways
 - Ramps and landings
 - Stairways
 - Handrails
 - Sanitary facilities
 - Reach ranges
 - Controls
 - Furniture and fitments
 - Drinking fountains
 - Vending machines
- Regulations to support children in wheelchairs.

5.4.2.3. Air quality

5.4.2.3.1. European Union - EN 17210:2021

- Covers how poor indoor air quality can result in ill health and there should be requirements for humidity and temperature.
- Recommends ventilation and the minimisation of pollution related to use of materials, as well as adjustable heat and ventilation control.
- Addresses how air quality impacts people with allergies and recommends avoiding materials which cause health problems and appropriate materials in anti-allergic rooms.

5.4.2.3.2. Canada - CSA/ASC B651:23

- States that construction and furnishing materials should not give off gasses that affect air quality. Contaminants should be minimised through adequate ventilation.

5.4.2.4. Functional and cognitive barriers

5.4.2.4.1. Canada - CSA/ASC B651:23

- Recommends that to reduce functional and cognitive barriers, simple layouts, consistent features throughout a built environment, good acoustic design, improved lighting, air circulation and zoned thermostats, and accessible information should be used.
- Refers to Universal Design Principles.

5.4.2.5. Security access

5.4.2.5.1. Canada - CSA/ASC B651:23

- States that security access systems should be accessible to everyone, and located along the accessible route, as well as be clearly visible. Recommends proximity or contactless scanners. Biometric systems cannot accommodate all users.
- Provides requirements to ensure that security access systems such as card readers, proximity card readers, and keypads are accessible, such as through being at an appropriate height, using tactile indicators, having

a visual contrast with the surrounding surface, and having audible and visual signals for when access has been granted.

5.4.2.5.2. European Union - EN 17210:2021

- Covers accessible doorbell and intercom systems, to ensure that they are easy to locate, understand, and use, such as by avoiding touch screens, using intercom systems with good sound quality and legible text, and well illuminated doorbell and intercom systems.
- Also addresses accessible manually activated systems for powered entrance doors, as well as hazard protections related to doors.

5.4.3. Definitions, Design and Access

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Definitions		Extra info	Best option			
Design	Best option					
Minimum dimensions	Best option		Extra info			

5.4.3.1. Definitions

5.4.3.1.1. Canada - CSA/ASC B651:23

- Includes "people with a range of physical, sensory, or cognitive disabilities or a combination thereof, including but not limited to those that involve mobility, reaching, manipulation, hearing, and vision."

5.4.3.1.2. European Union - EN 17210:2021

- Includes addition of individuals with allergies to the definition of who is covered under the standard.

5.4.3.2. Design

5.4.3.2.1. New Zealand - NZS 4121:2001

- Includes additional notes for extra provisions in certain types of buildings, including:
 - transport terminals
 - educational institutes
 - libraries
 - labs and resource rooms

- showers
- toilets in schools
- factories.
- Recommends bilateral provision (right- and left-handed arrangements) for fixtures and fittings.

5.4.3.3. Minimum dimensions

5.4.3.3.1. New Zealand - NZS 4121:2001

- Provides specific dimensions for ambulant disabled people, including people who use mobility aids. Also provides average wheelchair/scooter sizes and minimum turning spaces.
- Minimum dimensions are provided, however the standard notes that greater flexibility would be achieved by using increased dimensions.

5.4.3.3.2. Canada - CSA/ASC B651:23

- Minimum requirements are based on area allowance for wheeled mobility devices. Where possible, it should be larger.

5.4.4. Accessible Routes

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Hazards and obstructions			Best option	Extra info		
Surface finishes		Best option	Extra info			
Direction indicators		Extra info	Best option			
Signs		Extra info	Best option			
Viewing ranges	Extra info		Best option			
Controls and fittings	Extra info		Best option			
Emergency provisions		Best option	Best option			Extra info
Audible and visual		Best option	Extra info			Extra info
Site and building layout					Extra info	

5.4.4.1. Hazards and obstructions

5.4.4.1.1. Canada - CSA/ASC B651:23

- Covers protruding objects in pedestrian areas. Includes examples of possible protruding objects. Explains risks comprehensively.

5.4.4.1.2. United States - 2010 ADA Standards for Accessible Design

- Requires an alternative path of travel for places where alterations may be made which affects the useability of an area.
- Requires that the path of travel must be continuous and unobstructed passage to enter and exit the altered area.

5.4.4.2. Surface finishes

5.4.4.2.1. European Union - EN 17210:2021

- Accounts for multiple types of disabilities, including different mobility disabilities, vision impairments, cognitive disabilities, and allergies.
- Provides detailed explanations with cross-references to other sections of the standard, as well as functional explanations. Covers areas such as mobility, visual contrast, auditory cues, glare, off-gassing, fire safety, acoustic resonance, cleaning, and tactile information.

5.4.4.2.2. Canada - CSA/ASC B651:23

- Includes requirements for slip resistances, glare, and patterns. Also covers off-gassing and installation.
- Although not as expansive as the standard from the EU, it provides a more user-focused outlook.

5.4.4.3. Direction indicators

5.4.4.3.1. Canada - CSA/ASC B651:23

- Comprehensive coverage of TWSI (Tactile Walking Surface Indicators). Provides rationale for their use and how to use them.
- Provides measurements, ratios, and placement for TWSIs to ensure they may be detectable and distinguished, while ensuring optimal safety of all individuals.

5.4.4.3.2. European Union - EN 17210:2021

- Provides a comprehensive review of TWSIs and describes when and why they are needed.

5.4.4.4. Signs

5.4.4.4.1. Canada - CSA/ASC B651:23

- Provides comprehensive requirements and recommendations to ensure sign visibility and tactile function.
- Provides colour recommendations and combinations that should be avoided when making signs, as well as best font to use for text legibility (sans serif fonts and Arabic numbers). The standard also sets requirements for the location of braille on signage.
- Encompasses people with limited range of movement of their neck and head in the regulations.

5.4.4.4.2. European Union - EN 17210:2021

- Makes provisions for physical sign placement as well as ideal materials to be used.
- Explains in detail why certain colours should be used or avoided.

5.4.4.5. Viewing ranges

5.4.4.5.1. Canada – CSA/ASC B651:23

- Outlines specific measurements for the floor area surrounding the viewing space, the location, and required sight lines from a seated position. It states that sight lines for a person in a wheeled mobility device need to be comparable to those of all viewing positions; and are not reduced or obstructed by standing members of an audience. Additionally, this standard provides a ratio at which viewing spaces for wheeled mobility devices are required.

5.4.4.5.2. New Zealand - NZS 4121:2001

- Sets out height zone for comfortable viewing for a person in a standing position, as well as for wheelchair users.

Note: The New Zealand standard refers to the viewing range as if the seated person and standing person are side by side looking forward, whereas the Canadian standard refers to the seated person being on a mezzanine floor.

5.4.4.6. Controls and fittings

5.4.4.6.1. Canada - CSA/ASC B651:23

- Provides detailed functional specifications of controls and fittings, e.g. knee and toe space, the height of controls, and the functionality of controls for individuals with one hand or closed fist positions.

5.4.4.6.2. New Zealand - NZS 4121:2001

- Covers a wide range of components such as door operation, window controls, switches and socket outlets, electronic access, and alerting devices, but lacks overall comprehensiveness.
- Includes provisions to address hazards for people with visual impairments.

5.4.4.7. Emergency provisions

5.4.4.7.1. Canada - CSA/ASC B651:23

- Specifies the alert flash rate frequency which should be used to minimize the risk of epilepsy while providing optimal visual aid.
- Includes a comprehensive description of places of refuge and requirements needed to ensure that they are accessible.

5.4.4.7.2. European Union - EN 17210:2021

- Accessibility of a building includes safe evacuation routes during an emergency to a 'place of relative safety', such as another horizontally located safe fire compartment of the building, and further on to a 'place of safety', which is remote from the building.
- The standard focuses on evacuation needs, such as the inclusion of evacuation chairs and their placement within a building, and the supply and use of rescue sheets.

- Emergency warning systems should include clear visible and tactile signage, and utilise visual, audible, and tactile alarms.

5.4.4.7.3. Australia – AS 1428.5:2021

- Specifies that sound proofing must not interfere with warning systems.
- Requires audible warning systems to be transmitted through the hearing augmentation system, and visual warning devices to be located adjacent to all exit signs and in toilets.
- Includes regulation that in hotels, motels, guesthouses and similar establishments, a pulsing vibration alert for the purpose of waking people in the event of an emergency should be made available on request.

5.4.4.7.4. Australia – AS/NZS 1428.4.1:2009

- Includes requirements for warning tactiles and their luminance contrast.

5.4.4.8. Audible and visual

5.4.4.8.1. European Union - EN 17210:2021

- Requires that information is consistent and easy to understand, and provided through alternative audible, visual, or tactile formats.
- Specifies that glazed surfaces must be easily identified with a visual contrast.
- States that audible information must be used to enhance wayfinding in public environment and should be used in conjunction with tactical information.
- Requires that acoustic design criteria are applied to reduce intruding noise.
- Regulates that visual markings must be made on accessible routes for specific facilities. There should be appropriate contrast and lighting to ensure visibility.
- Describes ramps and stairs as the most hazardous places for falls, and necessitates that lighting does not cause glare and avoids abrupt changes in lighting levels.
- Includes in-depth coverage on outdoor lighting and artificial lighting.

5.4.4.8.2. Canada - CSA/ASC B651:23

- Addresses luminance (colour) contrast in multiple situations, including the minimum light reflective values required to achieve compliance status.

5.4.4.8.3. Australia (Disability Access to Premises — Buildings Standards 2010)

- Provides specific ratios for inbuilt amplification systems.

5.4.4.8.4. Australia – AS/NZS 1428.4.1:2009

- In-depth dimension for the physical tactiles and includes detailed pictograms and diagrams.

5.4.4.9. Site and building layout

5.4.4.9.1. United Kingdom - BS 8300-2:2018

- Covers the initial planning stage, including the position of buildings, integration of wayfinding and signage, legible entrances and reception points, anticipated level of use, means of horizontal and vertical movement, key facilities, and inclusive buildings.

5.4.5. Car Parks

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Signs	Extra info		Best option			
Number required	Best option		Best option			
Car park dimensions	Extra info	Extra info	Best option			
Surface			Best option		Extra info	
Access from carpark, pick up areas	Extra info	Best option				
Shelter	Best option					
Facilities	Best option		Best option			

5.4.5.1. Signs

5.4.5.1.1. Canada - CSA/ASC B651:23

- Outlines requirements for signage identification. Details additional regulations on the location and visibility of the sign.
- Specific requirements for vertical signs and pavement signs are included in the standard.

5.4.5.1.2. New Zealand - NZS 4121:2001

- Requires a sign incorporating the international symbol of access to identify accessible car park spaces and gives requirements about signage visibility.
- Includes requirements for directory boards.

5.4.5.2. Number required

5.4.5.2.1. New Zealand - NZS 4121:2001

- Includes guidelines for how many disabled parking spaces should be provided.
- For specific building types, such as medical centres, entertainment centres, and large retail facilities, the standard recommends that more than the minimum number of carpark spaces should be provided.

5.4.5.2.2. Canada - CSA/ASC B651:23

- Includes guidelines for how many disabled parking spaces should be provided, with reference to local regulations.
- Provides the minimum requirements for the recommended space for on-street accessible parking, as well as requirements for space for unobstructed side embarking area.

5.4.5.3. Car park dimensions

5.4.5.3.1. Canada – CSA/ASC B651:23

- Includes detailed requirements regarding height clearance, designated accessible parking, area allowances, height allowances, and designated accessible parking spaces.

5.4.5.3.2. New Zealand- NZS 4121:2001

- Provides measurable requirements for car park dimensions including width allowances, angle parking, parallel parking, parking space length, and headroom in parking buildings.

5.4.5.3.3. European Union - EN 17210:2021

- Outlines the rationale for ensuring adequate designated accessible parking space and covers requirements for indoor parking. Does not include measurable requirements or recommendations.

5.4.5.4. Surface

5.4.5.4.1. Canada - CSA/ASC B651:23

- Details requirements for the surface of the parking space, including requirements for a level, stable, slip-resistant surface, as well as information regarding surface markings and bollards or curbs.

5.4.5.4.2. United Kingdom – Approved Document M

- Notes that loose sand or gravel are inappropriate materials.

5.4.5.5. Access from carpark, pick-up areas

5.4.5.5.1. European Union - EN 17210:2021

- Requirements and recommendations for boarding points/set down points include:
 - Signage
 - Kerb ramps
 - Manoeuvring space for passengers using wheeled mobility devices
 - Taxis
 - Public transport and other large vehicles
 - Seating near boarding point and
 - TWSI.
- Requirements and recommendations regarding location of designated accessible parking spaces include their proximity to the main entrances of buildings and to local services.
- Includes regulations for parking and drop-off points where larger vehicles are required. For example, there are recommendations that accessible car parking at sports facilities is designed for larger vehicles such as rear-lift or ramp equipped vans, minibuses and coaches.

5.4.5.5.2. New Zealand- NZS 4121:2001

- Requires building owners and councils to have accessible car parks, these car parks must be in the vicinity of the site or building and be connected through an accessible route.

5.4.5.6. Shelter

5.4.5.6.1. New Zealand - NZS 4121:2001

- Requires that carparks, drop-off points and accessible routes have adequate shelter whenever practicable.

5.4.5.7. Facilities

5.4.5.7.1. New Zealand - NZS 4121:2001

- The standard outlines that facilities such as post boxes, ticket dispensers and other kerbside machines or facilities intended to be used by people who drive should be accessible. Provides specifications for the siting and elevation of these facilities.

5.4.5.7.2. Canada - CSA/ASC B651:23

- Requires that ticketing dispensers and payment machines that are street side or in a parking facility must be in an accessible location.

5.4.5.7.3. European Union - EN 17210:2021

- Includes requirements for where an accessible parking space has a charging station for electric cars.

5.4.6. Footpaths, Ramps, and Landings

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Footpaths			Best option			
Moving walkways and escalators	Extra info	Best option	Extra info			Extra info
Ramps, ramp landings	Best option	Best option				Extra info
Fairing of surfaces	Best option		Best option			

5.4.6.1. Footpaths

5.4.6.1.1. Canada - CSA/ASC B651:23

- Requires that footpaths are well drained to prevent the accumulation of water and ice. Outlines that downspouts from buildings or other drainage systems should be taken into account.
- Suggests the use of edge protection along footpaths, such as a concrete lip, raised landscape edging or similar feature.
- Sets requirements for route illumination and minimum dimensions to ensure that there is accessible interior and exterior circulation.

5.4.6.2. Moving walkways and escalators

5.4.6.2.1. European Union - EN 17210:2021

- Requires visual and tactile warnings when stepping on and off escalators for those who are less agile or may have visual impairments.

- Outlines location and design requirements to minimise hazards on and around moving walkways and escalators.

5.4.6.2.2. New Zealand - NZS 4121:2001

- Provides well summarised design factors which cover gradient, speed, handrails, encroachment, and rest areas and landings.

5.4.6.2.3. Canada - CSA/ASC B651:23

- Includes a requirement for audible indication to alert users that the end of an escalator or moving walkway is approaching.

5.4.6.2.4. Australia – AS/NZS 1428.4.1:2009

- In-depth pictograms and requirements for warning tactile indicators at both the top, landing, or bottom of escalators and moving walkways.

5.4.6.3. Ramps and ramp landings

5.4.6.3.1. New Zealand - NZS 4121:2001

- Provides concise descriptions and design requirements for various types of ramps, including using a minimal gradient wherever achievable, minimum widths, and the provision of handrails.
- Suggests the use of auditory cues when materials change, such as suspended timber to concrete.
- Requires that ramp surfaces must be firm, smooth and slip-resistant in both wet and dry conditions.

5.4.6.3.2. European Union - EN 17210:2021

- Regulations ensure access for a range of people who may need to use ramps. This includes those who use wheelchairs, walking aids such as walking frames, and people with pushchairs or people using wheeled luggage.
- Specifies that all lower handrails should be designed for ease of use for children and people with shorter stature. Requires guarding on ramps to be designed to discourage users - particularly children - from climbing on it.

5.4.6.3.3. Australia – AS/NZS 1428.4.1:2009

- In-depth pictograms and requirements for warning tactile indicators at both the top, landing, or bottom of ramps.

5.4.6.4. Fairing of surfaces

5.4.6.4.1. New Zealand - NZS 4121:2001

- Standard requires that when footpaths, parking areas, landings and driveways join with ramps, an abrupt change in gradient must be avoided.
- Provides specific dimensions for step ramps between two horizontal surfaces.

5.4.6.4.2. Canada - CSA/ASC B651:23

- Specifies that changes in level (with the exception of elevators, elevating devices, and curb ramps) must have a specific slope profile, depending on its vertical rise.

5.4.7. Stairs and Lifts

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Stair design and construction	Best option		Extra info			
Auditory, tactile, and visual cues	Extra info	Best option				Extra info
Handrails	Best option	Extra info				
Design (Lifts)		Best option			Extra info	

5.4.7.1. Stair design and construction

5.4.7.1.1. New Zealand - NZS 4121:2001

Covers:

- 'Good stair design'
- Pitch
- Height
- Encroachment into corridors
- Opening of doors
- Landings for stairs
- Stair construction
- Risers and treads

- Nosings
- Prohibits single steps.

5.4.7.1.2. Canada - CSA/ASC B651:23

- Includes measurable requirements for treads and risers. These requirements cover dimensions and lighting, nosing dimensions, and tactile attention indicators.

5.4.7.2. Auditory, tactile, and visual cues

5.4.7.2.1. European Union - EN 17210:2021

- Outlines clear requirements for visual contrast and TWSI. Also includes lighting regulation for stairs and guarding along stairs where there is a significant difference in height between stairs and adjacent ground.
- The standard requires outdoor steps to have proper drainage.
- Specifies that landings on indoor staircases should be wide enough to carry someone on a stretcher.

5.4.7.2.2. New Zealand - NZS 4121:2001

- Requires there to be a strong colour contrast at the head and foot of internal flights of stairs.
- Requires strategic changes in the auditory environment at the head of the stairs to help identify the presence of a stairwell.

5.4.7.2.3. Australia – AS/NZS 1428.4.1:2009

- In-depth pictograms and requirements for warning tactile indicators at both the top, landing, or bottom of stairways.

5.4.7.3. Handrails

5.4.7.3.1. New Zealand - NZS 4121:2001

- Covers design requirements for handrails, including their size and shape, visual contrast with the background, criteria for projecting ends, and position.
- Installation requirements include position, clear space, the height, and security of handrails.

- Extension recommendations include components such as position and size and encroachment.

5.4.7.3.2. European Union - EN 17210:2021

- Require handrails to be continuous and extend horizontally.
- General requirements for handrails include placement on both sides of a set of stairs or ramps. The standard outlines that a central handrail should be provided.
- Other requirements include that handrails should be continuous and extend beyond the first and last step of a ramp; specifications for handrail height; profile of handrails; and required visual contrast.

5.4.7.4. Lift design

5.4.7.4.1. European Union - EN 17210:2021

- Provides the most comprehensive design requirements for lifts, including requirements for:
- Entry/exit into lifts
- Handrails
- Flooring in lift and landing to be similar
- Nonslip, non-reflective flooring
- Two-way communication and alarm system
- Visual information also conveyed audibly
- Accessible controls and
- Braille.
- The standard also outlines that a tip up seat must be built into hospital lifts, and there must be a mirror to aid manoeuvring for wheelchair users.

5.4.7.4.2. United Kingdom – Approved Document M

- Requires some form of tactile indicator to be present adjacent to the lift call button on each storey.
- Also requires tactile indication inside the lift to confirm the selected floor. This can be adjacent to the lift buttons.

5.4.8. Entrances, Corridors, Doorways, and Doors

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Entrances	Best option	Extra info				
Corridors		Best option			Extra info	
Doorways	Best option	Extra info				Extra info

5.4.8.1. Entrances

5.4.8.1.1. New Zealand - NZS 4121:2001

- Clear requirements for entrances, including appropriate signage, requirements for threshold designs, adequate illumination, and detailed measurements for the approach space to the door.

5.4.8.1.2. European Union - EN 17210:2021

- Provides detailed requirements for lobbies, gates and gratings. Specifies that the slots in the grating must run across in the direction of travel and must be flush and well drained.
- Requires that turnstiles and grates must plan for the safety of people of all statures, and an alternative accessible entrance must be provided and clearly marked.
- Regulation for tactile indication such as TWSI or a change in the surface texture to be used at the main entrances of buildings.
- Requires lobbies to include adequate lighting to enable easy and safe transitions between outdoor and inside environments.

5.4.8.1.3. United Kingdom – Approved Document M

- Recommends activating lighting using a dusk to dawn timer or by motion detection in principle private entrances.

5.4.8.2. Corridors

5.4.8.2.1. European Union - EN 17210:2021

- Comprehensively covers potential hazards, wayfinding requirements, and requirements for the width and height of public corridors.
- Requires transparent obstacles such as glass panels to have contrasting visual indicators to highlight their presence.
- States that projecting objects should be avoided wherever possible but, where unavoidable, they should be recessed, to ensure they do not project into the clear width of the corridor.

5.4.8.2.2. United Kingdom - BS 8300-2:2018

- Provides specific requirements for minimum widths of corridors for a range of doorway widths and localised obstructions.

5.4.8.3. Doorways

5.4.8.3.1. New Zealand - NZS 4121:2001

- Outlines clear and detailed requirements for types of doors, formulas to determine the ideal weight of doors, requirements for fire resisting doors, door hardware for optimal grip, and requirements for door glazing.

5.4.8.3.2. European Union - EN 17210:2021

- Detailed coverage, with requirements for the weight of doors for both fire safety and for use by disabled people.

5.4.8.3.3. Australia - Disability (Access to Premises — Buildings) Standards 2010

- Specifies requirements for when to include an accessible doorway. Requires that no less than 50% of all pedestrian entrances must be accessible including the principal pedestrian entrance.

5.4.9. Toilet and Showers

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Location	Best option					
Signs			Best option			
Number of toilets and showers	Best option					
Design	Extra info	Best option	Best option		Extra info	Extra info
Baby facilities		Best option				

5.4.9.1. Location

5.4.9.1.1. New Zealand - NZS 4121:2001

- Outlines that accessible toilet facilities must be on the main entry level to all buildings. Requires accessible toilets to be distributed evenly in multi-storey buildings and that people should not need to traverse different tenancies within buildings.

5.4.9.2. Signs

5.4.9.2.1. Canada - CSA/ASC B651:23

- Covers how and where to mount signage and requires signage to clearly indicate the location of nearest accessible washroom (toilet).

5.4.9.3. Number of toilets and showers

5.4.9.3.1. New Zealand - NZS 4121:2001

- The only standard to cover the number of accessible toilets and showers. Requires there to be at least one all-gender accessible toilet unit which allows accompaniment by a support person of the opposite gender.

5.4.9.4. Design

5.4.9.4.1. European Union - EN 17210:2021

- Comprehensive requirements for accessible public bathrooms, including:
- Door types and dimensions
- Accessible washbasins with appropriate water pressure
- Accessible toilets with correctly placed handrails
- Easily identifiable and operable pushbuttons and handles
- Shelves for colostomy bag use
- Coat hooks at appropriate heights
- Adequate visual contrast between floors, walls, and fixtures
- Non-slip floor surfaces
- Audible and visual emergency alarm systems
- Sanitary bins that are large and easy to use.
- Outlines inclusive features accommodating a wide range of needs, such as:
- Height of urinals suitable for accessibility
- Baby changing facilities
- Universal design, including sufficient space for children, larger wheelchair users, and hoists
- Height-adjustable changing benches
- Toilets designed to allow for both right- and left-handed transfers.

5.4.9.4.2. Canada - CSA/ASC B651:23

- Specifies accessibility and safety-focused provisions, such as:

- Entrances without doors preferred, if doors are necessary, a single door is preferred over double doors
- Dimensions provided for knee and toe clearance
- Hot water pipes must be heat-protected
- Water temperature should not exceed 49°C
- Grab bars included for slip resistance
- Flush buttons positioned beside the toilet
- Lever handles with the 'off' position angled toward the front
- Use of "D" type door handles
- Emergency call system for safety.
- Specifies user friendly and inclusive bathroom elements, including:
 - Centreline indicator for urinals
 - Universal washroom design to accommodate a range of users
 - Adequate transfer space for different transfer needs
 - Shower seats that contrast with wall and floor surfaces
 - Avoidance of certain mirror types, including tilted and full-length mirrors
 - Towel dispensers positioned to avoid obstructing the route of travel
 - Clear dimensions for proper mounting of coat hooks.

5.4.9.4.3. New Zealand - NZS 4121:2001

- Establishes minimum required dimensions for toilet design, including:
 - Floor plans that allow wheelchairs to complete a full 360° turn
 - All-gender accessible toilet units
 - Sufficient dimensions to enable transfer from a wheelchair to the toilet pan
 - Doors that are easily opened from the outside in an emergency, with pull trails and kick plates
 - Preference for outward-opening doors.
- Additional specifications to support accessibility and safety include side-trunked toilet pans should be avoided to allow for commode use and hot water temperature must not exceed 55°C.

5.4.9.4.4. United Kingdom - BS 8300-2:2018

- Specifies the following inclusive washroom and changing area features:
 - Washrooms must offer both right- and left-handed transfer layouts
 - Self-contained changing areas to ensure privacy
 - Drop-down support rails and grab rails
 - Accessible baby changing facilities
 - Lockers in both self-contained and communal areas should be at a suitable height for wheelchair users and operable by individuals with one limb or limited dexterity.
- Safety and usability specifications:
 - Water temperature and heated towel rails must not exceed 43°C
 - Shower seats should include folding arms or safety rails for added support
 - Additional structural loading must be considered for ceiling-mounted tracked hoists
 - Emergency alarm systems should be voice-activated and include a pull cord or similar mechanism
 - Clear guidance on suitable door types for accessible toilets.

5.4.9.4.5. Australia Disability (Access to Premises — Buildings) Standards 2010

- Requires that hoists must provide coverage over the entire room.
- Specifies that towel dispensers, hand dryers, soap dispensers and the like must be operable using one hand. Their output or operative components must be installed at an appropriate height.
- Requires that a sanitary disposal bin must be provided in the corner adjacent to the toilet pan.

5.4.9.5. Baby facilities

5.4.9.5.1. European Union - EN 17210:2021

- Outlines that breast-feeding rooms are required to be placed on an accessible route, with clear signage, illumination and visual contrast

between elements. They must have sufficient space for manoeuvring for a person using a wheeled mobility device and should provide a seat with armrests to allow the safe support of the arm while breast-feeding.

- Additionally, when accessories such as microwaves are included, they must be placed at a height where someone seated or of a short stature can use it.
- Changing facilities should be provided in large transport facilities, large roadside petrol and service facilities, retail, and leisure complexes. Clear signage should be provided to help locate these facilities.

5.4.10. Public Facilities

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Public counters and desks		Best option				
Telephones	Extra info		Extra info			
ATMs, vending machines	Extra info	Best option				
Assistant dog facilities		Best option				
Dressing/ fitting rooms			Best option			
Drinking fountains			Best option	Extra info		
Rubbish bins		Best option				
Seating and waiting		Best option				

Storage spaces		Best option				
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5.4.10.1. Public counters and desks

5.4.10.1.1. European Union - EN 17210:2021

- Comprehensively covers requirements and recommendations for the location, height, and space below public counters.
- Requires the design and location of service counters to support ease of communication, including locating counters away from noise, and providing hearing enhancement systems.
- Specifies that signage should be easy to read from a distance, and at a height convenient for users of wheeled mobility devices. Lighting must also be adequate to facilitate text and lip reading.

5.4.10.2. Telephones

5.4.10.2.1. New Zealand - NZS 4121:2001

- Includes clear dimensions for accessible use of telephones.
- Standard accommodates people with visual impairments, including colour contrasts and ensuring that the structure is detectable by cane users.

5.4.10.2.2. Canada - CSA/ASC B651:23

- Provides more in-depth specifications of dimensions of the phone box and the sound quality within the unit.

5.4.10.3. ATMs, vending machines

5.4.10.3.1. European Union - EN 17210:2021

- Outlines requirements for public information screens, vending machines, ticket machines, Automated Teller Machines (ATMs), intercom systems, as well as switches and controls and letter boxes.
- Requires the presence of different interaction modes, such as tactile, audible, visual interactions, as well as physical access to the machines.

5.4.10.3.2. New Zealand - NZS 4121:2001

- Includes requirements for keypads such as having privacy when using the keypads, key surface is raised from the base and separate from each other, logical layout with colour contrast, and have braille.

5.4.10.4. Assistant dog facilities

5.4.10.4.1. European Union - EN 17210:2021

- Addresses when and where assistant dogs are used.
- Includes information on the following points:
 - Physical access to relief and drinking facilities for dog
 - Clear access to these facilities
 - Environmental factors that may affect assistant dogs' health
 - Doorway access, specifically addressing challenges of revolving doors
 - Situations where assisted dogs need to be accommodated for, such as waiting rooms and in recreation facilities.

5.4.10.5. Dressing/fitting rooms

5.4.10.5.1. Canada - CSA/ASC B651:23

- Includes requirements for changing benches, suggests power door operators for heavier doors, and emergency call systems within the dressing room.
- Provides in-depth minimum dimensions for dressing rooms.

5.4.10.6. Drinking fountains

5.4.10.6.1. Canada - CSA/ASC B651:23

- Covers different types of drinking fountains with in-depth diagrams and measurements.
- Addresses the floor area surrounding drinking foundations and their placement to ensure they are not hazards.

5.4.10.6.2. United States - 2010 ADA Standards for Accessible Design

- Specifies a minimum required number of drinking fountains, as well as the required location for these fountains.

5.4.10.7. Rubbish bins

5.4.10.7.1. European Union - EN 17210:2021

- Recommends accessible rubbish bin designs, including the ability to open it with one hand, with a low operating force, and for it to be accessible to an individual in a wheeled mobility device.

5.4.10.8. Seating and waiting

5.4.10.8.1. European Union - EN 17210:2021

- Provides comprehensive coverage on the location and provision of seating in waiting and queuing areas. Includes requirements for:
 - Provision of accessible seats
 - Design and placement of barriers for queuing lines
 - Clear and easily located signage, including audible, tactile, and visual information
 - Easy to use queuing/ticketing systems.
- Additional specifications include:
 - Seating and resting areas must provide an adequate number and range of seats
 - Seats must be provided in long corridors
 - These seats should be easily identifiable, should not disturb the general circulation, and should be situated on the same level as accessible routes
 - Provides recommendations for accessible seating design
 - Seating in waiting areas must have adequate space for persons with mobility aids
 - A mixture of fixed and removable seats should be provided for different seating layouts
 - Space should also be provided for assistance dogs

- Surface of seating areas should be even, firm, and well drained with weather protection when outdoors
- There should be a flat surface area for wheeled mobility devices.
- Provides further recommendations for seating at desks and service counters, as well as specific requirements for healthcare building and banks, post office waiting areas and service areas.

5.4.10.9. Storage spaces

5.4.10.9.1. European Union - EN 17210:2021

- Storage areas and public or private storage lockers and baggage storage are often provided in transit facilities, recreational facilities, in schools and in residential buildings. They may be difficult for use by persons using wheeled mobility devices, persons of shorter stature, and children. As such, the standard suggests adequate lighting and colour contrast, as well as adequate height and manoeuvring spaces around storage spaces.

5.4.11. Places Of Assembly, Entertainment and Recreation

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Places of assembly and entertainment		Best option			Extra info	
Places of recreation		Best option		Extra info		Extra info

5.4.11.1. Places of assembly and entertainment

5.4.11.1.1. European Union - EN 17210:2021

- This standard has the broadest scope regarding both general and specific recommendations for places of assembly and entertainment. Places of assembly and entertainment with specific recommendations include:
 - Auditoriums
 - Concert halls and similar
 - Libraries
 - Museums
 - Heritage buildings and sites
 - Retail and shopping buildings
 - Restaurants, bars and cafes.
- This standard also includes both general and specific recommendations for administrative, service and employment places. These places include:
 - Conference venues

- Offices
- Healthcare buildings
- Educational buildings
- Laboratories
- Banks, post offices
- Industrial buildings
- Courts, police stations and detention facilities
- Religious buildings.

5.4.11.1.2. United Kingdom - BS 8300-2:2018

- Includes specific recommendations for audience and spectator facilities and other listed building types. The building types include:
 - Transport-related buildings
 - Industrial buildings
 - Administrative and commercial buildings
 - Health and welfare buildings
 - Refreshment buildings, including public houses, restaurants and cafes
 - Entertainment-related buildings
 - Religious buildings and crematoria; educational, cultural and scientific buildings
 - Historic buildings
 - Venues
 - Shops, supermarkets and shopping malls.
- Also provides recommendations for several types of places (including zoos) which are not mentioned in other standards.

5.4.11.2. Places of recreation

5.4.11.2.1. European Union - EN 17210:2021

- General recommendations for sports facilities are supplemented with specific requirements for team player seating areas, spectators seating

areas, standing accommodation, athletes' changing rooms, and exercise/gymnasium areas.

- Swimming pools and saunas have specific recommendations regarding parking, signage, changing rooms, gyms and swimming pools.

5.4.11.2.2. United States - 2010 ADA Standards for Accessible Design

- Includes recommendations regarding accessible routes for specific sites that are not covered in other standards. These include:
 - Amusement rides
 - Recreational boating facilities
 - Bowling lanes
 - Court sports
 - Exercise machines and equipment
 - Fishing piers and platforms
 - Golf facilities
 - Miniature golf facilities
 - Play areas and shooting facilities with firing positions.
- Requirements for saunas and steam rooms are more detailed than those in other standards. These are split into those relating to swimming pools, wading pools and spas. Recommendations include diagrams with dimensions for pool lifts, sloped entries, transfer walls, transfer systems and pool stairs.
- The US standard also includes recommendations for platform lifts in specific spaces including performance areas and speakers' platforms, wheelchair spaces, incidental spaces, and judicial spaces.

5.4.11.2.3. Australia Disability (Access to Premises — Buildings) Standards 2010

- Provides in-depth requirements regarding swimming pools. These include fixed/moveable ramps, aquatic wheelchairs, sling style swimming pool lift.

- Includes requirements for accessible water/exit for swimming pools, including ramp dimensions, surface finishes, handrails, platform swimming pool lift, and depth of pool areas.

5.4.12. Accessible Outdoor Public Areas

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Outdoor hazards		Best option	Extra info			
Kerb design	Best option					
Kerb ramps	Best option		Extra info			
Street furniture and facilities		Best option	Extra info			
Landscaping		Best option				
Pedestrian crossings		Best option	Extra info			Extra info
Transit facilities		Best option	Extra info			Extra info

5.4.12.1. Outdoor hazards

5.4.12.1.1. European Union - EN 17210:2021

- Provides the most comprehensive outline of outdoor hazards, focusing on:

- Accessible routes to have visually contrasting surfaces when there is a change in route, as well as changes in level visually indicated
- Uniform lighting across accessible routes which do not reflect or glare
- Routes to be clear of potential obstacles
- Adequate headroom under branches
- Where possible, nature trails should be accessible to a wide range of users. These should have clear signage about the width, linear and cross slope of trails.

5.4.12.1.2. Canada - CSA/ASC B651:23

- Includes requirements for dimensions and directions of gratings and prohibits gratings from being located on accessible routes.
- Specifies that guy wires on accessible routes should not obstruct travel and must be visually contrasting.
- Requires a safe, secure and usable alternative route is provided if a route is impacted by temporary construction, as well as scaffolding clearance.

5.4.12.2. Kerb design

5.4.12.2.1. New Zealand - NZS 4121:2001

- The only standard which covers the design of kerbs, channels and gutters to allow a wheelchair or person with a mobility aid to transition with ease between different surfaces.
- Requires landscape lighting within bollards as they can become hazardous at twilight.

5.4.12.3. Kerb ramps

5.4.12.3.1. New Zealand - NZS 4121:2001

- Comprehensively covers kerb ramp dimensions, in addition to surface finish; alignment cues; tactile surface indicators; and audible traffic signal system.

5.4.12.3.2. Canada - CSA/ASC B651:23

- Outlines required dimensions for kerb ramps and blended transitions.

5.4.12.4. Street furniture and facilities

5.4.12.4.1. European Union - EN 17210:2021

- Comprehensively details various design requirements for street furniture and facilities, including:
 - Signposts
 - Litter bins
 - Seats
 - Bollards
 - Streetlamps
 - Public transport stops
 - Planters and hanging baskets
 - Public art
 - Universally and holistically designed playgrounds
 - Water fountains.
- Requires accessible routes to be wide enough so that two users of mobility devices can pass each other. Street furniture should not obstruct routes.
- Specifies that there should be an adequate number of benches, streetlamps or bins. These should be highly reflective with visual and tactile contrast, rest areas should be shaded, and bus stops should be located at suitable places.
- Requires areas that blend bicycle traffic with pedestrian traffic are carefully accounted for.

5.4.12.4.2. Canada - CSA/ASC B651:23

- Supplementary points include:
 - Picnic tables should be on a level and firm surface
 - Requirement for water bottle filling spout on drinking fountains
 - Required dimensions for parking meters and mailboxes.

5.4.12.5. Landscaping

5.4.12.5.1. European Union - EN 17210:2021

- Makes provisions for various aspects of landscaping, such as the importance of planting trees.
- Also describes potential landscaping hazards including:
 - Tree roots on footpaths
 - Obstructions from low lying tree limbs and overhanging flower baskets
 - Plants with thorns
 - Plants which may be poisonous or cause allergies.
- Recommends that there are accessible viewing platforms at heritage sites and accessible beach points and access into water.

5.4.12.6. Pedestrian crossing

5.4.12.6.1. European Union - EN 17210:2021

- Provides in-depth requirements and recommendations for the following:
 - Design and location of three types of pedestrian crossings (traffic lights, zebra crossings, and uncontrolled crossings)
 - Audible, visual and tactile walking surface indicators
 - Sufficient time to allow people to pass
 - Suitable refuge islands at uncontrolled crossings
 - Tactile markings at perpendicular crossings to show the direction of travel
 - Unobstructed guard railings
 - Adequate drainage around pedestrian crossings
 - Requirement to account for multiple factors before implementing a 'shared space' (where pedestrians, cyclists and vehicles use same area)
 - Arrival and departure areas.

5.4.12.6.2. Canada - CSA/ASC B651:23

- Recommends a clear, levelled space between speed bumps and the roadway.

5.4.12.6.3. Australia – AS/NZS 1428.4.1:2009

- In-depth coverage of warning tactiles where a pedestrian area joins a carriageway this includes medians and crossings.

5.4.12.7. Transit facilities

5.4.12.7.1. European Union - EN 17210:2021

- Provides comprehensive detail for accessible transport facilities, which include:
 - Taxi stands
 - Airports
 - Bus and coach facilities
 - Metro / underground, tram and light rail facilities
 - Airport facilities
 - Ports facilities
 - Cable car facilities
 - Service stations.
- Within these transit facilities, the standard emphasises the following:
 - Signage to be clearly visible
 - Waiting areas to be protected from elements
 - Accessible lifts, seating and toilets at terminals and waiting areas
 - Directional signage
 - Information to be provided in accessible formats
 - Boarding aids
 - Controlled acoustics at coach facilities.
- Includes suggestions for future recommendations to meet changing accessibility requirements that may emerge from the integration of new technologies, e.g. autonomous vehicles.

5.4.12.7.2. Canada - CSA/ASC B651:23

- Supplementary information includes raised bicycle lanes to adjacent pathway and tactile indicators at top of bicycle ramps that connect bicycle lane across from boarding area, and tactile attention indicators delineating the line between pedestrian pathway and bicycle lane.

5.4.12.7.3. Australia – AS/NZS 1428.4.1:2009

- In-depth coverage of warning tactiles at transit locations such as bus, tramp and rail stops.

5.4.13. Accommodation

	New Zealand	European Union	Canada	United States	United Kingdom	Australia
Access	Best option					
Arrival and departure	Extra info	Best option				
Accessible accommodation	Best option	Extra info			Extra info	

5.4.13.1. Access

5.4.13.1.1. New Zealand - NZS 4121:2001

- Requires accessible accommodation to be located on an accessible route. Lifts are not required in two and three storey hotels and motels provided that the accessible accommodation units, reception office, restaurant, bars and other communal facilities are on the ground floor.

5.4.13.2. Arrival and departure

5.4.13.2.1. European Union - EN 17210:2021

- Provides detailed reasoning for accessibility of accommodation due to hotels and motels often being a stopover for tired individuals.
- Requires that accessible seating is provided near the reception area for users to rest and wait for check-in and check-out procedures.
- Specifies that hearing enhancement systems should be provided at front desks/reception.
- Requirements for wayfinding, parking, lobbies are covered in detail.

5.4.13.2.2. New Zealand - NZS 4121:2001

- Requires clearly marked reserved parking, and includes additional requirements for guest areas, toilets, and reception.

5.4.13.3. Accessible accommodation

5.4.13.3.1. New Zealand - NZS 4121:2001

- The types of accommodation required to provide accessibility are:
 - Communal accommodation
 - Motor camps
 - Camping grounds
 - Holiday parks
 - Resorts
 - Backpackers
 - Lodges and hostels etc.
- The types of accessibility requirements within accommodations are:
 - Carparks
 - Doorbells
 - Doors
 - Work surfaces
 - Sinks
 - Kitchen
 - Benches
 - Laundry
 - Shelving
 - Power outlets
 - Lighting
 - Access to room facilities
 - Bathrooms.
- Provides ratio examples of number of accessible accommodation units minimally needed.

- Includes in-depth layout requirements of accessible room, such as the placement of telephones, chairs, kitchen items, light switches and outlets.

5.4.13.3.2. European Union - EN 17210:2021

- Detailed coverage of the following accessories found within accommodation:
 - Kitchens
 - Movable furniture
 - Switches and controls
 - Bed height (adjustable)
 - Heat and ventilation
 - Ensuite bathrooms assistive devices for hearing impediments for fire safety and telephone
 - Lighting
 - Adaptable housing
 - Internal doors
 - Intercom systems.
- Includes the features of windows, patios, balconies and terraces and their safety requirements. These include:
 - Visually contrasting window/door hardware
 - Height/placement of windows
 - Walking surface of balcony being slip resistant
 - Railings and guards being at an adequate height for optimal safety.
- Explains how remote controls are of benefit to all users, especially to persons with reduced mobility, as they can be used from any point in the room.
- Require that when entrance doors of accessible guest rooms are equipped with wide-angle viewing peepholes, these should be provided at two levels to accommodate standing and seated persons or persons of shorter stature.

5.4.13.3.3. United Kingdom - BS 8300-2:2018

- Includes comprehensive coverage of kitchens, bedrooms, living spaces, student accommodation, storage, alarm systems.
- Recommendations for kitchens apply to self-catering kitchen facilities in non-residential buildings. These include:
 - Shared refreshment facilities in commercial buildings or offices
 - Community buildings and community centres
 - Self-catering accommodation or hospital accommodation for relatives of in-patients
 - Premises for hire and day centres
 - Catering facilities in buildings such as university and college halls of residence
 - Nursing, residential and care homes.
- The recommendations also apply to existing buildings where practicable. The recommendations do not apply to commercial kitchens.
- Requires that in a kitchen where water can be emitted at a temperature greater than 43°C, a warning notice should be clearly displayed.
- Outlines either the number or percentage of rooms that require things such as hoist systems and accessibility for independent wheelchair users.

5.4.13.3.4. United Kingdom – Approved Document M

- Includes requirements for dimensions, usability, and manoeuvrability of accommodations with multiple bedrooms that are both double and single sized rooms.
- Requires kitchen and dining areas to be convenient and step free.

Note: Applications of accommodation requirements vary across standards. For example, NZS 4121:2001 covers hotels, motels, hostels, halls of residence, holiday cabins, groups of pensioner flats, boarding houses, and guest houses. In comparison, the US also includes prison cells, halfway houses and shelters, and the Australian Disability (Access to Premises — Buildings) Standards

2010 classes all building types into ten categories and has different requirements for each class.

5.5. Stage 4 – Comparison of Canadian and European Union standards

Based on the analysis, the Canadian and European standards were found to be the most comprehensive, offering broad coverage and detailed guidance on accessibility requirements. In the interest of potentially basing the New Zealand standard on the contents of one or both standards, a comparison was conducted to determine the strengths and weaknesses of these two standards.

5.5.1. Strengths

5.5.1.1. Canada - CSA/ASC B651:23

- Uses clear and accessible formatting, including comprehensive and clearly labelled diagrams.
- Has significant coverage of specific technical requirements such as minimum dimensions in a space, as well as illumination contrast.
- Clear technical information allows for easy application.
- While this standards' coverage has not been selected as frequently as the best option when compared to the EU standard, it has been selected for its supplementary information more than any other standard.

5.5.1.2. European Union - EN 17210:2021

- Provides clear rationale for accessibility requirements, demonstrating why these requirements are necessary.
- Heavily mirrors the International Standard, ISO 21542:2021 (E), demonstrating alignment with international good practice.
- Coverage of topics in the standard has been selected most frequently as the best option when compared to other standards.

5.5.2. Weaknesses

5.5.2.1. Canada - CSA/ASC B651:23

- Lacks reasoning for requirements.
- The high level of specificity may result in too many requirements for practical implementation or may over-explain simple points.

5.5.2.2. European Union - EN 17210:2021

- Diagrams often lack specificity so recommendations may be more difficult to implement.
- The standard makes vague recommendations (e.g. stating that there should be “adequate” manoeuvring space without further specification).

5.5.3. Additional Points

- Unlike New Zealand, Australia, and the UK, both Canada and the EU have all their accessibility information covered in one standard, making them easier to follow and find relevant information.
- Overall, the Canadian standard is easier to follow due to its coverage of technical details, however the EU standard covers a wider range of topics.
- Based on these assessments, in the potential case where a preexisting standard is adopted and adapted for a revision of NZS 4121:2001, we would recommend adopting the Canadian standard due to its ease of use. An adapted standard should also include previously discussed aspects of the EU standard which are unique to the standard, as well as the rationale provided, due to the standard’s comprehensiveness. Additionally, unique points covered in the New Zealand and Australian standards should also be considered.

5.6. Stage 5 – Other considerations

5.6.1. Topics unique to NZS 4121:2001

Based on the Stage 3 analysis, NZS 4121:2001 was found to have covered several topics not included in other standards. These include the following:

- **Design and access** components describing the minimum provisions necessary for certain types of buildings.
- **Shelters within Car Parks**; the New Zealand standard takes into account individuals with disabilities who may take longer to transfer from a vehicle, meaning providing a covered area for disability designated car parks provide a more accessible route to the building or facility.
- **Location of Toilet and Shower facilities**; specifies that accessible toilets must be located on an accessible route and distributed evenly in multi storey buildings.
- **Access to Accommodation** shall be on an accessible route. Requirements for blind, partially sighted, deaf, hearing impaired and wheelchair users.

These recommendations and requirements remain relevant factors for ensuring accessibility within a built environment, and as such should be taken into account in during the revision of NZS 4121:2001.

5.6.2. Implementation of the standard

To inform this area, an interview was held with Manager Building Performance MBIE, Richard London, who advised on the legal status and implications of the standard.

5.6.2.1. Application and Legal Status

- NZS 4121:2001 is a legally acceptable solution for meeting accessibility requirements under section 119 of the Building Act. However, it is not an

acceptable solution issued by MBIE under section 22 of the Building Act.

This had led to two main issues:

- a) the standard's inclusion in the Building Act creates conflicts with the Building Code, particularly regarding lift requirements and access route definitions which causes ambiguity and legal loopholes. For example, the Building Code uses occupancy numbers as the threshold for when lifts must be installed, while NZS 4121:2001 uses floor area. This discrepancy allows developers to choose whichever requirement avoids the cost of lift installation which leads to accessibility issues.
- b) inclusion in the Building Act makes NZS 4121:2001 difficult to update due to its separation from the mechanisms used to update other acceptable solutions and verification methods maintained by MBIE.

5.6.2.2. Proposed Solution

- Removing NZS 4121:2001 from the Building Act and instead incorporating it as a MBIE-controlled acceptable solution would allow for regular review, consultation, and updates. This approach would enable better alignment with the Building Code and help close current gaps in accessibility regulation.

5.6.2.3. International Comparisons

- Similarly to New Zealand, the Australian accessibility standards are embedded directly within the National Construction Code, providing a more unified and enforceable framework. However, the Australian standard has been updated more frequently than New Zealand. The AS 1428 standard series was produced to satisfy the Australian Disability Discrimination Act 1992.
- The United Kingdom enforces accessibility compliance through the Equality Act 2010 (the EA) which brings together existing equalities legislation, including the Disability Discrimination Act 1995, which ensures that relevant building codes are adhered to and protects the rights of individuals with disabilities. The UK standards therefore

provide guidance for compliance with the EA. However, because the EA requires service providers and employers to make reasonable adjustment to physical features which may put a disabled person at a substantial disadvantage compared to a non-disabled person, there may be further adjustments required outside the scope of these standards.

- Note that aside from the Human Rights Act (1993), and the New Zealand Bill of Rights Act (1990), New Zealand does not currently have an act that specifically protects individuals with disabilities.
- In the European Union standard, a principle-based design approach is often adopted alongside prescriptive requirements. This dual approach enhances both clarity and flexibility, enabling more inclusive design outcomes without compromising technical compliance.
- The Canadian standard is developed using a consensus-based approach, using technical committees composed of experts, including people with disabilities, consumers, government, labour and unions, academic and research bodies, and non-governmental organisations.

6. Appendix

6.1.1. Scoring criteria for overall analysis

For the overall analysis, four analysts independently assessed each criterion and scored them using the following:

Format: Considered the font size, readability, clarity, and the overall the accessibility of the standard for readers.

Scope: Looked at how encompassing each standard is of wide variety of public spaces/ buildings discussed, and how representative is the standard regarding a wide array of diversity needs.

Comprehensiveness: Assessed the level/depth of detail discussed broadly speaking to each section, the rationale for each recommendation/suggestion

Level of specific detail: Looked at whether the standards provide actionable, measurable recommendations, as well as the level of detail for requirements given, and inclusion of diagrams, etc.

Date published: Assessed based on when each standard written and whether the timeframe for review is mentioned.

6.1.2. Calculation of standard appearance in topic analysis

	United States	United Kingdom	Australia	New Zealand	Canada	European Union
Rank	1.5/61	3.5/61	6/61	22.5/61	26/61	31.5/61

This table shows how often each standard was decided to be best options or had supplementary information. Best options (green box) scored 1 point, while supplementary information (red box) scored 0.5. There was a total of 61 topics covered.

7. Glossary

Accessible: Having features that permit use by people with disabilities.

Accessible Route: Continuous, unobstructed pathways that connect key areas of a building and can be safely navigated by people with disabilities.

Accommodation Accessibility: Design features in hotels, motels and other lodging that ensure usability by people with disabilities.

Biometric Systems: Security access technologies that verify identity based on physical characteristics. These are not always considered fully accessible as they may exclude some users with disabilities.

Built Environment: All made-man surroundings including buildings, public spaces, infrastructure, and facilities.

Emergency Provisions: Design features that ensure safe evacuation and alerting systems for people with disabilities during emergencies.

Environmental Scan (in the context of this project): Systematic review and comparative analysis of national and international accessibility standards undertaken to identify strengths, gaps, and emerging norms. Conducted to inform updates to NZS 4121:2001 Design for Access and Mobility – Buildings and Associated Facilities and ensure alignment with contemporary international approaches to disability access.

Inclusive Language: Language that avoids marginalisation or exclusion of people based on disability, gender, culture, or other characteristics.

Luminance Contrast: Measurable difference in light reflectance between two adjacent surfaces (e.g. floors and walls). Adequate contrast helps people with low vision to distinguish elements of the built environment.

Places of Assembly: In addition to theatre, cinema, or public hall, a building or part thereof used or intended to be used as a place of assembly for 250 or more people, seated or unseated.

Public Facilities: Amenities such as toilets, ATMs, vending machines, and counters that must be accessible to all users.

Tactile Ground Surface Indicator (TGSi): Raised surface features on the ground that provide tactile feedback to assist with wayfinding for people who are blind or have low vision.

Tactile Walking Surface Indicator (TWSi): Another term for TGSi, used particularly in Canadian and EU standards.

Universal Design: Design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design. “Universal design” shall not exclude assistive devices for particular groups of persons with disabilities where this is needed. (Source: United Nations Convention on the Rights of Persons with Disabilities, Art.2)

Functional and Cognitive Barriers: Obstacles that affect individuals with cognitive disabilities or impairments in processing, memory, or understanding.

Wayfinding: The process of navigating through the built environment using visual, tactile, and auditory cues.

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