

CAN/ASC-2.8 - Accessible Ready Housing

Public Review Draft





Contents

[1 Accessibility Standards Canada: About us 6](#_Toc184623758)

[2 ASC legal notice 11](#_Toc184623759)

[2.1 Legal notice for standards 11](#_Toc184623760)

[2.2 Disclaimer and exclusion of liability 11](#_Toc184623761)

[2.3 Intellectual property and ownership 13](#_Toc184623762)

[2.4 Patent rights 13](#_Toc184623763)

[2.5 Assignment of copyright 13](#_Toc184623764)

[2.6 Authorized uses of this document 14](#_Toc184623765)

[3 Introduction 15](#_Toc184623766)

[3.1 Background 15](#_Toc184623767)

[4 Scope 16](#_Toc184623768)

[4.1 Terminology 17](#_Toc184623769)

[5 Definitions, symbols, and abbreviations 18](#_Toc184623770)

[5.1 Definitions 18](#_Toc184623771)

[5.2 Abbreviations 19](#_Toc184623772)

[6 References 20](#_Toc184623773)

[7 Application of the Standard 21](#_Toc184623774)

[7.1 Dwelling units 21](#_Toc184623775)

[7.1.1 Design for accessible-ready 21](#_Toc184623776)

[7.1.2 Distribution of accessible-ready housing 21](#_Toc184623777)

[8 Design for accessible-ready 22](#_Toc184623778)

[8.1 Access within a house 22](#_Toc184623779)

[8.2 Layout design 23](#_Toc184623780)

[8.3 Air quality considerations 23](#_Toc184623781)

[9 Clearances and areas 25](#_Toc184623782)

[9.1 House exterior 25](#_Toc184623783)

[9.1.1 Access to the main entrance 25](#_Toc184623784)

[9.1.2 Access to balconies and exterior amenities 26](#_Toc184623785)

[9.1.3 Exterior paths of travel 27](#_Toc184623786)

[9.2 Parking and garages 29](#_Toc184623787)

[9.2.1 Access to the main entrance 29](#_Toc184623788)

[9.2.2 Shared parking amenities serving houses 29](#_Toc184623789)

[9.2.3 Parking spaces serving only an accessible-ready house 30](#_Toc184623790)

[9.2.4 Parking garages or carports only serving an accessible-ready house 30](#_Toc184623791)

[9.2.5 Deconstruction of garages or carports 31](#_Toc184623792)

[9.3 Interior 32](#_Toc184623793)

[9.3.1 Rooms and spaces 32](#_Toc184623794)

[9.3.2 Doors 33](#_Toc184623795)

[9.3.3 Area allowances for paths of travel 37](#_Toc184623796)

[9.3.4 Area allowances for clear floor spaces 38](#_Toc184623797)

[9.3.5 Area allowances for knee and toe clearances 40](#_Toc184623798)

[9.3.6 Headroom 41](#_Toc184623799)

[9.3.7 Protruding objects 41](#_Toc184623800)

[9.3.8 Floor and ground surfaces finishes 42](#_Toc184623801)

[9.3.9 Wall finishes 42](#_Toc184623802)

[9.3.10 Bathrooms 43](#_Toc184623803)

[9.3.11 Kitchens 50](#_Toc184623804)

[9.3.12 Bedrooms area requirements 51](#_Toc184623805)

[9.3.13 Laundry 52](#_Toc184623806)

[9.3.14 Closets 53](#_Toc184623807)

[9.3.15 Service rooms and spaces 54](#_Toc184623808)

[10 Operating controls 55](#_Toc184623809)

[10.1 Operating controls – general 55](#_Toc184623810)

[10.2 Operating controls floor area 55](#_Toc184623811)

[10.3 Operating controls height 55](#_Toc184623812)

[10.4 Operating controls reach ranges 56](#_Toc184623813)

[10.5 Operating control operation 56](#_Toc184623814)

[10.6 Operating controls devices 57](#_Toc184623815)

[10.7 Operating controls visual displays 57](#_Toc184623816)

[10.8 Operating controls illumination 57](#_Toc184623817)

[10.9 Operating controls luminance (colour) contrast 58](#_Toc184623818)

[10.10 Lighting - general (ambient) lights 58](#_Toc184623819)

[10.11 Task lighting 59](#_Toc184623820)

[11 Stairs 60](#_Toc184623821)

[11.1 Stairs treads and risers 60](#_Toc184623822)

[11.2 Stair nosing 60](#_Toc184623823)

[11.3 Stair handrails 61](#_Toc184623824)

[12 Interior vertical paths of travel 62](#_Toc184623825)

[12.1 Interior vertical path of travel 62](#_Toc184623826)

[12.1.1 Raised or sunken floor levels 62](#_Toc184623827)

[12.2 Elevating devices 62](#_Toc184623828)

[13 Structure 64](#_Toc184623829)

[13.1 Loadbearing walls 64](#_Toc184623830)

[13.2 Wall reinforcement 64](#_Toc184623831)

[13.3 Floor shafts for lifts and services 64](#_Toc184623832)

[14 Emergencies 66](#_Toc184623833)

[14.1 Emergency egress 66](#_Toc184623834)

[14.2 Alert and signal devices 66](#_Toc184623835)

[15 Annex A (normative) 67](#_Toc184623836)

[15.1 Sample accessible-ready housing form 67](#_Toc184623837)

[15.2 Accessibility drawings 73](#_Toc184623838)

[16 Annex B (normative) 74](#_Toc184623839)

[16.1.1 Exterior path ramps 74](#_Toc184623840)

[16.1.2 Exterior path ramps 74](#_Toc184623841)

[16.2 Dwelling access from garage – Ramp 74](#_Toc184623842)

[16.3 Parking space 75](#_Toc184623843)

[16.4 Site plan 75](#_Toc184623844)

[17 Annex C (normative) 76](#_Toc184623845)

[17.1 Accessible-ready features that require removing of components such as walls for clear floor space 76](#_Toc184623846)

[17.2 Maneuvering at doors with doors in series 77](#_Toc184623847)

[17.3 Accessible-ready features that require structural framing prerequisites 77](#_Toc184623848)

[17.4 Accessible-ready features that require structural framing prerequisites 77](#_Toc184623849)

[18 Annex D (normative) 79](#_Toc184623850)

[18.1 Structure 79](#_Toc184623851)

[18.2 Building envelope 79](#_Toc184623852)

[18.2.1 Building envelope around independent carports and garages 80](#_Toc184623853)

[18.3 Electrical systems 82](#_Toc184623854)

[18.4 Mechanical systems 82](#_Toc184623855)

[18.5 Plumbing systems 82](#_Toc184623856)

# Accessibility Standards Canada: About us

Accessibility Standards Canada, under whose auspices this Standard has been produced, is a Government of Canada departmental corporation mandated through the *Accessible Canada Act.* Accessibility Standards Canada’s Standards contribute to the purpose of the *Accessible Canada Act*, which is to benefit all persons, especially persons with disabilities, through the realization of a Canada without barriers through the identification, removal, and prevention of accessibility barriers.

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* all persons must have barrier-free access to full and equal participation in society, regardless of their disabilities;
* all persons must have meaningful options and be free to make their own choices, with support if they desire, regardless of their disabilities;
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* persons with disabilities must be involved in the development and design of laws, policies, programs, services, and structures; and
* the development and revision of accessibility standards and the making of regulations must be done with the objective of achieving the highest level of accessibility for persons with disabilities.

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To obtain additional information on Accessibility Standards Canada, its standards or publications, please contact:

Web site: <https://accessible.canada.ca/>

E-mail: ASC.Standards-Normes.ASC@asc-nac.gc.ca

Mail: Accessibility Standards Canada
320, Saint-Joseph Boulevard
Suite 246
Gatineau, QC K1A 0H3

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# Introduction

## Background

This Standard was developed to allow designers and builders to design and build a house or housing unit that is accessible-ready, allowing end users to select the features that they would need and use while not being required to adopt all features related to accessibility. This also permits this accessible-ready approach to benefit the users’ changing needs or allow new users to easily make changes to suit their needs. The features that this Standard is considering are mostly aligned with CSA/ASC B652 Accessible Dwellings standard with minor deviations. CSA/ASC B652-23 was our principal guiding standard to map the accessibility requirements to accessible-ready housing. This Standard shall be used in conjunction with local building regulations.

# Scope

This document is for residential dwelling units and focuses on areas or elements where people with disabilities might face barriers in accessible-ready housing. These include:

* Common areas of Multi-Unit Residential Buildings (MURB)s
* Exterior areas and clearances
* Parking structures and garages
* Interior areas, rooms, spaces (e.g., kitchens and bathrooms) and circulation
* Operating controls
* Stairs
* Vertical paths of travel
* Doors
* Structural systems
* Building envelopes of independent carports and garages
* Emergencies

## Terminology

In this Standard, three terms are defined as follows:

* Shall: Expresses a requirement, or a provision that the user is obliged to satisfy to comply with the Standard.
* Should: Expresses a recommendation, or that which is advised but not required.
* May: Expresses an option, or that which is permissible within the limits of the Standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

# Definitions, symbols, and abbreviations

## Definitions

The following definitions shall apply in this Standard:

Accessible housing – a house or dwelling that is designed and built in compliance with CSA/ASC B652.

Accessible-ready housing – housing that is designed in such a way that it can be readily adapted into an accessible house to meet CSA/ASC B652 with minimal effort and cost.

Note: Minimal effort and cost imply without requiring major or significant changes to the structural systems, electrical systems, or mechanical systems of the house.

Authority having jurisdiction – the governmental body responsible for the enforcement of building codes and bylaws or the official agency designated by that body to exercise such a function.

Design for accessible-ready (DAR) – a type of requirement that is included in the design and documented, but not constructed.

Note: The rules around these design requirements are provided in the body of this Standard. The documentation is provided as part of a separate drawing set and/or the form provided in Annex A. Design for accessible-ready is a specific case of design for adaptability defined as a type of design requirement to accommodate the installation of a future accessibility feature or requirement for the purpose of adapting the building to future accessibility needs, technologies, or functions.

Dwelling unit – means a suite operated as a housing unit, used or intended to be used by one or more persons and usually containing cooking, eating, living, sleeping and sanitary facilities. In this document, it is used interchangeably with housing unit, house, home, or dwelling.

Note: The adjective “significant” is frequently used in this Standard such as significant renovations, significant damage, etc. It is acknowledged that this descriptor is not quantitative and is perceived differently by different individuals. However, as a professional in the residential construction industry reads through this Standard, a feel for what is considered significant in this Standard will become obvious. In each clause and its commentary, some additional information is provided to give a better understanding of what significant entails. The philosophy adopted here is to qualitatively assess the design of a dwelling and the work required to replace/remove/retrofit a component (e.g., replacing a bathroom vanity) relative to the level of effort required to modify the hidden systems of the home, i.e., non-value-added modification (e.g., structural, building envelope, mechanical, and electrical systems).

## Abbreviations

The following abbreviations shall apply in this Standard:

DAR Design for Accessible-Ready

GFCI Ground-fault circuit interrupter

HVAC Heating, ventilation, and air conditioning

MURB Multi-unit residential building

MEP Mechanical, Electrical, and Plumbing

# References

This Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below:

CSA Group/ Accessibility Standards Canada

CSA/ASC B651-23
Accessible design for the built environment

CSA/ASC B652-23
Accessible dwellings

National Research Council Canada

National Building Code of Canada (NBC), 2020

Other Publications

*Accessible Canada Act, 2019.*

# Application of the Standard

## Dwelling units

This Standard is intended to be applied to all residential dwelling units. Where accessible-ready residential dwelling units form part of a multi-unit residential building (e.g., apartment or condominium), common exterior and interior spaces shall comply with the requirements of CSA/ASC B651.

**Note**: Because of the flexible nature of accessible-ready housing, it is recommended that all units within a multi-unit residential building be designed and constructed in this manner.

### Design for accessible-ready

Where a design for accessible-ready (DAR) is specified in this Standard, it refers to design and documentation that shall be submitted as part of the building permit application that can be made available to the original and subsequent owners, to show where and how the house can be adapted to provide a certain accessibility feature.

Note: It is anticipated that the building permit package will include a separate accessibility drawing/form to be completed outlining the design for accessible-ready as specified in this Standard (see Annex A).

### Distribution of accessible-ready housing

Within multi-unit residential buildings, all units that do not comply with CSA/ASC B652 shall meet the requirements of this Standard.

Note: This requirement may lead to the perception that accessible housing is more desirable than accessible-ready housing. That, however, may not be the case in all situations. The ability to modify and adjust a house for the differing and changing needs of the occupants may be a more viable solution. Ideally, all units will be accessible-ready, and some units will have pre-built conversions to accessible units to meet the requirements of CSA/ASC B652.

# Design for accessible-ready

## Access within a house

All rooms and spaces within an accessible-ready house shall:

1. Design for accessible-ready (DAR): have designed a path of travel complying with CSA/ASC B652 clause 4.4.1 or ramp complying with CSA/ASC B652 clause 5.5 that can be constructed to serve those areas without destructive modifications to the structural systems, electrical systems, plumbing systems, or HVAC systems;
2. have operating controls in accordance with clauses 10.1 to 10.9;
3. have flooring and ground surfaces that can be replaced with or modified to flooring in accordance with CSA/ASC B652 clause 4.6;
4. maintain headroom clearances in accordance with clause 9.3.6; and
5. Design for accessible-ready (DAR): be designed to accommodate illumination in accordance with CSA/ASC B652 clause 4.8.

Note: This clause is intended to allow all occupants to access every part of the house with minimal renovations. As with similar requirements in the Standard, it is preferable to construct the accessibility feature as specified by the relevant clause in CSA/ASC B652. However, since a path of travel complying with CSA/ASC B652 may not be required by all occupants and may lead to a loss of a room, bathroom, kitchen, etc., the Design for accessible-ready (DAR) outlined in sentence a) is provided. Furthermore, sentence c) grants occupants the freedom to select their preferred floor coverings for their home. Finally, sentence e) provides occupants the flexibility to choose lighting fixtures that work for them. In return for this flexibility, the requirement specifies that designers consider compatibility with the needs of future occupants or the changing needs of current occupants.

##  Layout design

Beyond adhering to architectural design principles, the design and layout of an accessible-ready unit must also comply with specific rules to accommodate the various configurations the unit may undergo throughout its lifespan. Some areas to consider are:

* the general layout is to be intuitive in various configurations;
* the kitchen is to function well in an open and closed layout;
* the circulation within various configurations (e.g. rest locations, protrusions, headroom); and
* various room layouts are to account for varying needs with respect to the number and sizes of rooms.

Adhering to these principles and other architectural guidelines, ensures a well-designed home. Such a home can adapt to the occupants' evolving needs, whether due to accidents, temporary circumstances, aging, or other factors. This design philosophy also aligns with priorities like maximizing natural light, utilizing passive cooling techniques, and more.

##  Air quality considerations

Air quality in residential buildings is important for creating healthy and comfortable living environments for all occupants. Poor indoor air quality can lead to a variety of health issues, particularly for individuals with environmental sensitivities, such as allergies, asthma, or chemical sensitivities. These conditions can be exacerbated by common indoor pollutants like dust, mold, volatile organic compounds (VOCs), and other airborne irritants. Some key considerations are:

1. Ventilation: Ventilation dilutes and removes indoor pollutants. Proper design considers both natural ventilation options, like operable windows, and mechanical ventilation systems for a consistent exchange of indoor and outdoor air.
2. Material selection: Building materials impact air quality. Low or zero VOC-emitting materials are preferred for reducing harmful chemicals in the air. It's also advisable to choose materials that resist mold growth and minimize dust accumulation.
3. Filtration systems: High-efficiency particulate air (HEPA) filters and other advanced filtration systems can be incorporated into HVAC systems to capture fine particles and allergens, thereby enhancing overall air quality.
4. Humidity control: Maintaining proper humidity levels prevents mold and dust mite growth, which can harm air quality. Integrating humidity control systems into the building's design can provide consistent moisture levels.
5. Maintenance and cleaning: Regular HVAC maintenance and proper cleaning protocols prevent pollutant buildup and extend the lifespan of air quality systems. This is especially recommended in homes with residents who have heightened environmental sensitivities.
6. Outdoor air considerations: Carefully planning the location of air intakes and window placement helps prevent outdoor pollutants, like vehicle exhaust or industrial emissions, from entering the home.

Prioritizing air quality in residential design benefits general health and comfort while safeguarding vulnerable populations with environmental sensitivities. Incorporating these considerations into building design facilitates a safe, healthy, and adaptable environment for all occupants.

# Clearances and areas

## House exterior

### Access to the main entrance

Up to the main entrance, be it from a sidewalk, driveway, or garage, it shall:

1. be served with:
	1. a path of travel in accordance with CSA/ASC B652 clause 4.3.2 and 5.2.1; or
	2. a lift in accordance with CSA/ASC B652 clause 5.8.2.2.(a) and (c); or
2. Design for accessible-ready: have designed exterior paths conforming to sentence a). The path shall require no destructive modifications to the structural, electrical, plumbing, or HVAC systems (see Annex B).

Note: Housing constructed at ground level with a low threshold is most desirable from an accessibility standpoint. However, this can present challenges in certain situations. Some situations are sloped lots, when an occupied basement is desired, when there are below-grade units, or when protection from the weather is not possible resulting in building envelope issues. Nevertheless, at-ground level construction should be considered, when possible, as it provides reasonable means to achieve multiple requirements within this Standard and CSA/ASC B652. Additionally, as with most designs for accessible-ready, it is preferrable to meet this requirement through a method other than the accessible-ready design approach, i.e., by constructing a path of travel that conforms to the requirements of CSA/ASC B652. However, even when a path of travel that conforms with CSA/ASC B652 is installed, considering potential future installation of a different path of travel is recommended to accommodate changing needs and requirements. When the design for accessible-ready is used, the intent is to allow homeowners to meet their current needs, while considering their future needs or the needs of future occupants. This can also be leveraged when the design for accessible-ready is not used.

####  Entrance doors

Doors serving accessible-ready houses shall comply with CSA/ASC B652 clause 5.7, and clauses 9.3.2.7 and 9.3.2.8 of this Standard.

Note: With the other accessible-ready features in this Standard, achieving the wider doorways in compliance with CSA/ASC B652 clause 5.7.1 is easier and more economical. With the complexity involved in enlarging doorways, even if framed in an accessible-ready manner (including dealing with light switches), it is most economical to achieve the doorway dimensions from the initial construction.

### Access to balconies and exterior amenities

#### Balconies

1. Where an accessible-ready house is provided with a balcony, backyard, or access to an outdoor amenity space on the ground level, such space shall:
	1. be served with a path of travel in accordance with CSA/ASC B652 clause 4.3.2 and 5.2.1;
	2. be served by a minimum clear floor space in accordance with CSA/ASC B652 clause 4.4.2 b); or
	3. Design for accessible-ready: have designed exterior paths conforming to sentence a). The path shall require no destructive modifications to the structural, electrical, plumbing, or HVAC systems (see Annex B).
2. Where interior and exterior access is available to a balcony, backyard, or access to an outdoor amenity space on the first storey, both interior and exterior access shall:
	1. be served by a path of travel in accordance with sentence a); or
	2. Design for accessible-ready: have designed interior and exterior paths conforming to sentence a). The path shall require no destructive modifications to the structural, electrical, plumbing, or HVAC systems (see Annex B).

#### Exterior amenities

Exterior amenities shall:

1. be served with a path of travel in accordance with CSA/ASC B652 clause 4.3.2 and 5.2.1;
2. be served with a ramp conforming to CSA/ASC B652 clause 5.5; or
3. Design for accessible-ready: have designed exterior paths conforming to clause 9.1.2.1 and 9.1.3. The path shall require no destructive modifications to the structural, electrical, plumbing, or HVAC systems (see Annex B).

Note: This clause is intended to ensure that large trees, retaining walls, and similar structures do not encroach into an area designated for a future feature (e.g., ramp), as this could make the future installation of the feature significantly more costly or challenging.

### Exterior paths of travel

#### Landscaping

Where design for accessible-ready indicates the presence of an exterior path of travel as per this Standard or CSA/ASC B652 (i.e., an accessible‑ready exterior path of travel), landscaping that may obstruct, overflow, or fall onto the accessible-ready feature shall:

1. form part of the future accessible feature; or
2. where the landscaping must be removed, it shall:
	1. be removable using standard hand tools (e.g. gardening tools, shovels, picks, crowbars, etc.); and
	2. not require a permit for removal or demolition of the landscaping (e.g. trees).

Note 1: For a discussion of landscaping for accessible houses, see CSA/ASC B652 clause 5.2.2.

Note 2: This clause is intended to ensure that large trees, retaining walls, and similar structures do not encroach into an area designated for a future feature (e.g., ramp), as this could make the future installation of the feature significantly more costly or challenging.

Note 3: The mature sizes of trees, plants, and shrubs, along with maintenance concerns for paths, are considered.

#### Exterior stairs

Exterior stairs shall be designed and constructed in compliance with clause 5.6 of CSA B652.

Note: This requirement is included in this Standard because exterior steps can significantly affect safety and functionality of the exterior space. The CSA/ASC B652 standard has special requirements for exterior stairs that should be considered during the design and construction. In particular, controlling surface water drainage on stair steps and landings. Practical considerations for the movement and constructability of stairs, particularly for concrete and lumber (wood) stairs is important. Addressing movement due to weather and settlement is important in achieving stairs that function as designed over their service life. Good design of the stair treads, handrails, risers, etc. can have a significant impact on the stairs and should be thoroughly considered in the design.

## Parking and garages

### Access to the main entrance

Where there is a driveway and garage, access shall be provided into the home from the main entrance and garage entrance (as per clause 9.1) by:

1. a path of travel in accordance with clause 9.3.3.(a);
2. Design for accessible-ready: have a ramp designed in accordance with CSA/ASC B652 clause 5.5. The construction of the ramp shall require no destructive modifications to the structural, electrical, plumbing, or HVAC systems (see Annex B); or
3. Design for accessible-ready: have provisions for a lift complying with CSA/ASC B652 clause 5.8.2.2 designed. The installation of the lift shall require no destructive modifications to the structural, electrical, plumbing, or HVAC systems.

Note: This clause is intended for private garages and driveways assigned to a single housing unit, whether it is a detached house, semi-detached house, or town house. The ideal situation would be to have the path of travel from the driveway or garage comply with sentence a). However, if complying with this statement eliminates the possibility of a garage or constrains a homeowner from better utilizing the space, then the design for accessible-ready in sentence b) or c) should be considered. It should be noted that this applies to both entrances.

### Shared parking amenities serving houses

For shared parking amenities serving houses, assigned accessible parking in accordance with CSA/ASC B652 clause 5.3.2, or garages designed in accordance with CSA/ASC B652 clause 5.3.3 must be provided.

Note: This clause is intended for parking spaces that are within a parking lot serving multiple housing units, even where individual parking spots are assigned to specific units. If the parking spots can be assigned to more than one unit, then this clause is applicable.

### Parking spaces serving only an accessible-ready house

Design for accessible-ready: parking spaces serving only an accessible-ready house shall be designed in accordance with CSA/ASC B652 clause 5.3.1 and clause 5.3.2. The design shall allow the area allowances to be achieved without destructive modifications to the structural, electrical, plumbing, or HVAC systems.

Note: This requirement is specifically for parking spaces, and not for parking garages, driveways, or carports. This only applies to a parking space that is assigned to be serving only an accessible-ready house. Since this parking space will only be serving that accessible-ready house, expanding that space to allow the required areas specified by CSA/ASC B652 needs to be relatively easy (i.e., no destructive modifications to the structural, electrical, plumbing, or HVAC systems). Note that in most cases, it would be more effective to build the space in accordance with CSA/ASC B652 from the onset.

### Parking garages or carports only serving an accessible-ready house

Where parking garages or carports serving only an accessible-ready house, the parking garage shall:

1. have a parking space (i.e., driveway) leading up to the parking garage or carport that is a minimum of 4600 mm wide by 8600 mm long;
2. be designed in accordance with CSA/ASC B652 clause 5.3.3 and clause 5.3.4; or
3. Design for accessible ready: be designed and constructed in a manner where its removal is practical as per clause 9.2.5 of this standard.

Note 1: This clause is intended for private garages assigned to a single housing unit, such as those driveways and garages for a single-family house, whether it is a detached house, semi-detached house, or town house. The ideal situation would be to have the parking garage comply with sentence a) and b). However, if complying with this statement eliminates the possibility of a garage or constrains a homeowner from utilizing the space in a manner that is most useful for them, then the design for accessible-ready in sentence c) should be considered. Sentence a) is another way to achieve the intent, since some people who would prefer to have the garage meeting the CSA/ASC B652 requirements, may also prefer an under-sized garage with an oversized driveway, over no garage at all.

Note 2: In garages and carports, it’s important to plan for convenient charging of mobility devices by considering the placement and number of electrical outlets. While current electrical and building codes ensure a basic number and distribution of receptacles, it’s advisable to thoughtfully assess whether additional outlets are necessary to meet those charging needs.

### Deconstruction of garages or carports

Where garages and carports are built as per clause 9.2.4 c), they shall be designed and constructed in a manner where:

1. Their removal can be carried out without affecting the structure of the main house as required in Annex D 18.1.
2. Their removal can be carried out without affecting the building envelope of the main house as required in Annex D 18.2.
3. Their removal can be carried out with minimal impact on the electrical systems of the main house as required in Annex D 18.3.
4. Their removal can be carried out with minimal impact on the mechanical systems of the main house as required in Annex D 18.4.
5. Their removal can be carried out with minimal impact on the plumbing systems of the main house as required in Annex D.18.5.

## Interior

### Rooms and spaces

Accessible-ready houses shall be designed such that they have at least:

1. one bathroom in accordance with clause 9.3.10; that bathroom is referred to as the “accessible-ready bathroom”;
2. one kitchen in accordance with clause 9.3.11;
3. one bedroom in accordance with clause 9.3.12;
4. one laundry room in accordance with clause 9.3.13; and
5. if present, one entryway, dining room, living room be served with a path of travel in accordance with clause 9.3.3.

Note 1: This clause acknowledges that bathrooms, kitchens, and laundry rooms, due to their mechanical and electrical systems, pose unique challenges. It also recognizes that many occupants may need or want a small powder room, kitchenette, or similar space to enhance their home's functionality. Therefore, despite the complexity of integrating MEP systems within walls, it is worth ensuring that at least one of each room type is accessible-ready. This approach increases the probability that the house can be readily adapted to meet the needs of various occupants over time. While it's preferred that all rooms be accessible-ready, only one of each is required.

Note 2: It is recommended to consult CSA B652 clause 4.9 for window design which requires operating controls to be at an accessible height if present, and the lower edge (sill) not be higher than 750 mm. It is recommended to comply wherever possible with that clause to improve accessibility.

### Doors

#### Doors and doorways openings

The clear opening width of a doorway shall be in compliance with CSA/ASC B652 clause 5.7.1.

Note: With the accessibility features outlined in this Standard, achieving wider doorways in compliance with CSA/ASC B652, clause 5.7.1 becomes more straightforward and cost-effective than retrofitting them. Given the complexities of enlarging doorways, even when framed in an accessibility-ready manner (such as accounting for light switches), it is most economical to ensure the correct doorway dimensions during the initial construction.

#### Maneuvering area at doors

Doorways shall:

1. have a level, clear, and unobstructed maneuvering area that extends for the full height of the door and is not less than:
	1. 600 mm beyond the latch-side on the pull side;
	2. 300 mm beyond the latch-side on the push side;
	3. 300 mm on each side of a sliding door;
	4. the width of the path of travel serving the door, but not less than 1200 mm for interior spaces and not less than 1500 mm for exterior spaces; and
	5. perpendicular to the door, a depth (or width) not less than the width of the path of travel.
2. Design for accessible-ready: the maneuvering area at doors shall be designed such that the maneuvering area can be constructed meeting the requirements of sentence a) without significant modifications to the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note 1: The option stated in sentence b) would only be used if the maneuvering area specified in sentence a) would lead to a loss of a living room, bedroom, or bathroom.

Note 2: This requirement may have space limitations and therefore an accessible-ready option is considered. However, since this option may only be preferred when it leads to a loss of other space, rooms, or functions, it is recommended that the maneuvering areas at the doors be attempted to be achieved as per sentence a). Therefore, the commentary follows the same logic as that given in clause 9.3.3.

#### Two doors in series

Where there are two doors in a series, they shall:

1. be designed and constructed as per CSA/ASC B652 clause 5.7.3;
2. Design for accessible-ready: be designed such that one of the doors can be removed without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C); or
3. Design for accessible-ready: they shall be designed such that the required distance as per CSA/ASC B652 clause 5.7.3 can be achieved without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note 1: The option stated in sentence b) would only be used if the maneuvering area specified in sentence a) would lead to a loss of a living room, bedroom, or bathroom.

Note 2: This requirement may have space limitations and therefore an accessible-ready option is considered. However, since this option may only be preferred when it leads to a loss of other space, rooms, or functions, it is recommended that the maneuvering areas at the doors be attempted to be achieved as per sentence a). Therefore, the commentary follows the same logic as that given in clause 9.3.3.

#### Doors and doorways thresholds

Thresholds shall be as required by CSA/ASC B652 clause 5.7.4.

#### Door hardware

Doors shall be designed and constructed to accept door hardware that complies with CSA/ASC B652 clause 5.7.5.

Note: Since door hardware is typically a matter of taste and is sometimes not regulated by authorities having jurisdiction for homes, the objective is to merely ensure that it can be easily replaced with compliant hardware.

#### Door-opening force

The design and the construction of door openings shall accept doors that comply with CSA/ASC B652 clause 5.7.6.

Note: Since door hardware is typically a matter of taste and is sometimes not regulated by authorities having jurisdiction for homes, the objective is to merely ensure that it can be easily replaced with compliant hardware.

#### Power-assisted doors

Roughed-in electrical shall be provided for the future installation of a power-assisted door at the accessible-ready bathroom referred to in clauses 9.3.1 and 9.3.10.1, main entrance, and garage entrance.

Note: See CSA/ASC B652 clause 5.7.7 for the requirements for power‑assisted doors, their operation, and their control.

Other than the cost of the power-assisted door motion unit, the highest cost is the cost of the electrical connection. The cost of the motion unit itself is not significantly affected if it is installed during original construction, or during a retrofit, if and when required. However, the cost of the electrical installation is lower during original construction than it is as part of a retrofit. As a result, the electrical rough-in is made as part of the wiring of the housing during original construction, thus providing maximum flexibility. Furthermore, this rough-in, while not in use for the motion unit, could be used as a receptacle on a dedicated circuit that could provide additional benefit to the occupant prior to the installation of the power-assisted doors.

#### Door viewers

Where the main entrance door is not served by a vision panel either in the door or off to the side, the main entrance door shall be equipped with:

1. Dual door viewers: the first installed at 1500 to 1700 mm and the second at 1000 to 1200 mm above the finished floor; or
2. Single door viewer installed at 1500 mm to 1700 mm above the finished floor with the door compatible to have installed a second door viewer at 1000 to 1200 mm above the finished floor.

Note: The cost of installing a door viewer is typically not considered prohibitive. However, if the door is not compatible with installing a door viewer at the required height, then the cost of installation of the viewer may be prohibitive. Therefore, this requirement is put in place to ensure that is not the case.

#### Door vision panel and side lights

Where provided, the door opening shall be compatible to receive a door where the vision panel in the door or the sidelight comply with CSA/ASC B652 clause 5.7.9.

Note: Since exterior doors are features that homeowners have specific preference for, it is important to provide flexibility while still allowing future users to efficiently modify them according to their own preferences. This clause aims at allowing users to choose their own door and set the vision panel as they desire, while still ensuring that the framing is built in a manner that can accept or receive a door complying with CSA/ASC B652.

### Area allowances for paths of travel

Paths of travel shall:

1. have a width of at least 1200 mm for interior environments, and 1500 mm for exterior environment, except
	1. for short indentations up to 600 mm in length, the width shall be at least 860 mm; and
	2. for doorways, the width shall be at least 860 mm with a maneuvering area in accordance with clause 9.3.2.2.
2. Design for accessible-ready: The path of travel shall be designed such that a path of travel can be constructed meeting the requirements of sentence a) without significant modifications to the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note 1: It is recommended that this option only be used if the clear floor space specified in sentence a) would lead to a loss of a living room, bedroom, or bathroom.

Note 2: The requirements for area allowances stipulated in CSA/ASC B652 provide a usable space for the highest possible percentage of people. Therefore, area allowances and space requirements are recommended to be achieved whenever possible. That being said, within the concept of accessible-ready housing, area allowances and space requirements can be the most challenging. This is because adapting space requirements may involve moving walls. At the same time, these space requirements, particularly for smaller houses, may affect the functionality and use of the space for various users, such as losing a bedroom, an office space, a closet, or a bathroom, all of which may benefit some occupants more than the space requirement. As a result, despite the apparent difficulty in relocating walls, this standard is aimed at providing provision to allow for the accessible-ready approach while easing the difficulty of removing walls. This is achieved by requiring walls that may need to be moved to achieve the space requirement to: 1) be non-loadbearing walls (i.e., non-structural walls), 2) have electrical systems that can be terminated at a nearby junction box as opposed to having to be removed from the panel completely, 3) have no plumbing in them, and 4) have no HVAC in them. It is also recommended that the ceiling on both sides of the wall be at the same height and have the ceiling finishes go above the top plate, so that when the wall is removed, only minor finishing is required (e.g., applying drywall compound and paint), and the floor finishing can be easily repaired.

Note 3: It is recommended to consider acoustic measures along paths of travel to improve accessibility for individuals with hearing impairments, cognitive disabilities, or sensory sensitivities. As an example, this can be achieved by installing acoustic tiling, sound baffles, and noise-reducing materials to reduce sound reverberation and minimize echo. If possible, these considerations should be made at the design stage.

### Area allowances for clear floor spaces

Clear floor or ground spaces to accommodate a person who uses a wheeled mobility device shall:

1. be constructed to:
	1. be at least 820 mm by 1390 mm for a stationary position;
	2. have a minimum 1800 mm turning diameter; and
	3. be at least 1800 mm by 1200 mm by 1200 mm for a T-turn; or
2. Design for accessible-ready: the clear floor space shall be designed such that the clear floor space can be constructed meeting the requirements of sentence a) without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C). This option shall only be used if the clear floor space specified in sentence a) would lead to a loss of a living room, bedroom, or bathroom.

Note 1: It is recommended that this option only be used if the clear floor space specified in sentence a) would lead to a loss of a living room, bedroom, or bathroom.

Note 2: The requirements for area allowances stipulated in CSA/ASC B652 provide a usable space for the highest possible percentage of people. Therefore, area allowances and space requirements are recommended to be achieved whenever possible. That being said, within the concept of accessible-ready housing, area allowances and space requirements can be the most challenging. This is because adapting space requirements may involve moving walls. At the same time, these space requirements, particularly for smaller houses, may affect the functionality and use of the space for various users, such as losing a bedroom, an office space, a closet, or a bathroom, all of which may benefit some occupants more than the space requirement. As a result, despite the apparent difficulty in relocating walls, this standard is aimed at providing provision to allow for the accessible-ready approach while easing the difficulty of removing walls. This is achieved by requiring walls that may need to be moved to achieve the space requirement to: 1) be non-loadbearing walls (i.e. non-structural walls), 2) have electrical systems that can be terminated at a nearby junction box as opposed to having to be removed from the panel completely, 3) have no plumbing in them, and 4) have no HVAC in them. It is also recommended that the ceiling on both sides of the wall be at the same height and have the ceiling finishes go above the top plate, so that when the wall is removed, only minor finishing is required (e.g., applying drywall compound and paint), and the floor finishing can be easily repaired.

Note 3: The turning diameter for various equipment may exceed the requirements stipulated in this standard and in CSA/ASC B652. Power assisted wheelchairs may have a minimum turning diameter of 2100 mm, and power assisted scooters may have a minimum turning diameter of 3150 mm.

### Area allowances for knee and toe clearances

Counters and work surfaces shall:

1. be installed in a manner that their removal and replacement with items meeting CSA/ASC B652 clause 4.3.3 can be conducted without any modifications to the structural, electrical, plumbing, or HVAC systems;
2. have the finished flooring extend to the wall behind the cabinets as to permit removal of the cabinet without having to do repairs to the finished flooring; and
3. where present, have the backsplash start from a height of 730 mm above the finished floor.

Note 1: For example, tile backsplash is installed such that the bottom edge is a full tile where new tiles can be added without having to replace all the backsplash. Flooring is to be installed in a manner where if the flooring is to be continued underneath the counter or work surface, a clean and smooth transition is possible.

Note 2: Cabinets, which are typically in kitchens, bathrooms, and laundry rooms have a significant impact on the functionality of the most important rooms in a house. Accessible-ready housing is intended to be more functional for more people and some effort is required to modify the features of the home. Therefore, cabinets are one area where investing design effort and foresight is worthwhile to achieve this goal. This is what this requirement is intended to achieve.

### Headroom

Headroom clearances along a path of travel shall be as per CSA/ASC B652 clause 4.7.1, except in basements. Basements shall have a headroom clearance along a path of travel at a minimum of 2030 mm.

Note: In new construction, which is the subject of this standard, it is desired that basement ceilings, including structural beams, HVAC ductwork, and plumbing systems are installed above the 2100 mm (and 2030 mm for doorways) level as required by the CSA/ASC B652 clause 4.7.1, and therefore complying with the requirement of this section. However, it is also understood that that is challenging for basements built with a typical 2440 mm height. [Removed sentence here]

### Protruding objects

All protrusions shall:

1. comply with the limitations and requirements of CSA/ASC B652 clause 4.7.2; or
2. be removable without affecting the integral buildings systems, i.e., structural, electrical, or mechanical systems. Minor cosmetic repairs are permitted to be required for the removal of protrusions.

Note: Protruding objects are typically either furniture, structural systems, or mechanical systems. Since furniture is already removable, this clause is to make sure no mechanical systems or structural members are placed in a manner to cause a protrusion. Non-loadbearing elements that can be removed while causing minor cosmetic damage may be allowed (e.g., partition walls). This is intended to make sure that an occupant who is tolerant of a protrusion may require such geometry to install a linen closet (for example).

### Floor and ground surfaces finishes

Floor and ground surfaces covering shall:

1. be installed in accordance with CSA/ASC B652 clause 4.6; or
2. be installed:
	1. in a manner that allows their replacement to flooring complying with CSA/ASC B652 clause 4.6 without the need to repair or replace any items other than baseboards, kick plates, and the flooring itself; and
	2. Design for accessible-ready: On the accessibility form or plans, the type of assumed floor replacement complying with CSA/ASC B652 clause 4.6 for sentence i) shall be identified.

Note: Floor and ground surface covering is typically not addressed by building codes, and their replacement typically does not require a permit from the authority having jurisdiction. These items are also a matter of taste and significantly impact the aesthetics of a home. As a result, this clause provides flexibility for the occupant to choose the floor coverings they need or desire, while providing some forethought to ensure that future occupants or their future selves, have the ability to replace the floor and ground surface coverings to comply with CSA/ASC B652 if the need arises.

### Wall finishes

Wall finishes, surfaces, and coverings shall:

1. be installed in accordance with CSA/ASC B652 clause 4.6; or
2. be installed:
	1. in a manner that allows their replacement to wall finishes complying with CSA/ASC B652 clause 4.6 without the need to repair or replace any items other than baseboards, kick plates, and the flooring itself; and
	2. Design for accessible-ready: On the accessibility form or plans, the type of assumed wall finishing replacement complying with CSA/ASC B652 4.6 for sentence i) shall be identified.

Note: Wall finishes are typically not addressed by building codes, and their replacement typically does not require a permit from the authority having jurisdiction. These items are also a matter of taste and significantly impact the aesthetics of a home. As a result, this clause provides flexibility for the occupant to choose the finishes they need or desire, while providing some forethought to ensure that future occupants or their future selves, have the ability to replace the finishes to comply with CSA/ASC B652 if the need arises.

### Bathrooms

#### Bathroom(s) – general

At least one bathroom in an accessible-ready house shall be designed as an accessible-ready bathroom.

Note: As a general principle, considering that bathrooms are on average retrofitted every 15 years in Canada, having bathrooms accessible-ready seems to be an efficient and productive plan. However, this standard suggests at least one bathroom be accessible-ready. The other bathrooms are also recommended to be accessible-ready where possible.

#### Bathroom turning space

The turning space within the accessible-ready bathroom in an accessible-ready house shall:

1. comply with the requirements of clause 9.3.4; or
2. Design for accessible-ready: The turning space shall be designed such that it can be constructed meeting the requirements of sentence a) without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note 1: It is recommended that this option only be used if the turning space specified in sentence a) would lead to a loss of a living room, bedroom, or bathroom.

Note 2: The requirements for area allowances stipulated in CSA/ASC B652 provide a usable space for the highest possible percentage of people. Therefore, area allowances and space requirements are recommended to be achieved whenever possible. Having said that, within the concept of accessible‑ready housing, area allowances and space requirements can be the most challenging. This is because adapting space requirements may involve moving walls. At the same time, these space requirements, particularly for smaller houses, may affect the functionality and use of the space for various users, such as losing a bedroom, an office space, a closet, or a bathroom, all of which may benefit some occupants more than the space requirement. As a result, despite the apparent difficulty in relocating walls, this standard is aimed at providing provision to allow for the accessible‑ready approach while easing the difficulty of removing walls. This is achieved by requiring walls that may need to be moved to achieve the space requirement to: 1) be non-loadbearing walls (i.e., non-structural walls), 2) have electrical systems that can be terminated at a nearby junction box as opposed to having to be removed from the panel completely, 3) have no plumbing in them, and 4) have no HVAC in them. It is also recommended that the ceiling on both sides of the wall be at the same height and have the ceiling finishes go above the top plate, so that when the wall is removed, only minor finishing is required (e.g., applying drywall compound and paint), and the floor finishing can be easily repaired.

#### Bathroom doors

The accessible-ready bathroom doors shall comply with clauses 9.3.2.1 to 9.3.2.7.

Note: Refer to the note under clauses 9.3.2.1 to 9.3.2.7.

#### Bathroom floors

The accessible-ready bathroom floors shall comply with clause 9.3.8.

Note: Floor and ground surface covering is typically not addressed by building codes, and their replacement typically does not require a permit from the authority having jurisdiction. These items are also a matter of taste and significantly impact the aesthetics of a home. As a result, this clause provides flexibility for the occupant to choose the floor coverings they need or desire, while providing some forethought to ensure that future occupants or their future selves, have the ability to replace the floor and ground surface coverings to comply with CSA/ASC B652 if the need arises.

#### Bathroom wall reinforcing

The accessible-ready bathroom walls shall comply with CSA/ASC B652 clause 5.9.5.

Note 1: Wall reinforcement is typically in the form of blocking, which allows for the easier installation of grab bars, and the ability to move vanities and other bathroom fixtures to other locations to help future users optimize their preferences.

Note 2: Additional reinforcement of structural members for the installation of lifts may be considered if the location and lift specifications are known.

#### Bathroom lighting

The accessible-ready bathroom lighting shall be compatible with lighting fixtures that comply with the requirements of CSA/ASC B652 clause 5.9.6.

Note: Lighting solutions are personal. While some need or prefer higher lighting levels, others need or prefer much lower levels. As a result, this clause is intended to ensure that whatever electrical lighting system is installed, it is compatible with any lighting level that the occupant desires. The lighting level required by CSA/ASC B652 clause 4.8.1 are much higher than those typically installed in homes.

#### Bathroom electrical

The accessible-ready bathroom electrical shall:

1. comply with the requirements of CSA/ASC B652 clause 5.9.8; or
2. have electrical conduits between a power source and the locations where GFCI receptacles need to be located to comply with sentence a) such that the installation of GFCI receptacles will not require repainting or removing of bathroom fixtures.

Note: CSA/ASC B652 clause 5.9.8 may not be compatible with some local electrical codes, and the requirements may not suit some occupants’ taste or needs. Sentence b) above is provided to ensure that future occupants who may need to make the change, can do so with minimal costs.

#### Bathroom luminance (colour) contrast

The accessible-ready bathroom fixtures shall be compatible to be replaced with fixtures complying with the CSA/ASC B652 clause 5.9.9.

Note: This requirement is intended to recognize that people may have individual preferences to the type of operating controls they install within their own home. These are typically easy to replace, and therefore can be replaced later.

#### Bathroom toilet and accessories

The accessible-ready bathroom toilet and accessories shall:

1. comply with the requirements of CSA/ASC B652 clause 5.9.10; or
2. Design for accessible-ready: The bathroom shall be designed such that it can be constructed meeting the requirements of sentence a) without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note: This note is the same for all aesthetic components that are typically selected by a homeowner to suit their needs and taste and are rarely regulated by the authorities having jurisdiction. Therefore, an accessible-ready option is considered appropriate with the caveat that they must not preclude a future occupant from retrofitting the item with a CSA/ASC B652-compliant clause, without significant renovation.

#### Bathroom grab bars

Where installed, bathroom grab bars shall meet the requirements of CSA/ASC B652 clause 5.9.11.

#### Bathroom sink and vanity

The accessible-ready bathroom sink and vanity shall:

1. comply with the requirements of CSA/ASC B652 clause 5.9.12; or
2. Design for accessible-ready: The bathroom, including the sink and vanity, shall be designed such that it can be constructed meeting the requirements of sentence a) without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note: This note is the same for all aesthetic components that are typically selected by a homeowner to suit their needs and taste and are rarely regulated by the authorities having jurisdiction. Therefore, an accessible-ready option is considered appropriate with the caveat that they must not preclude a future occupant from retrofitting the item with a CSA/ASC B652-compliant clause, without significant renovation.

#### Bathroom showers

The accessible-ready bathroom shower shall:

1. comply with the requirements of CSA/ASC B652 clause 5.9.13; or
2. Design for accessible-ready: The bathroom, including the shower, shall be designed such that it can be constructed meeting the requirements of sentence a) without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note: This note is a combination of the notes for clauses that significantly impact the space and area requirements (note under clause 9.3.3), and those for clauses that impact the occupants’ selections based on personal preference (note under clause 9.3.10.9). Accessible-ready is important in such situations, since without it, it may lead to a loss of a shower, loss of bathroom, or loss of another room which may not be universally preferred for various users. It should be noted that for some individuals, where space is limited, a shower may often be preferred over a bathtub.

#### Bathroom bathtubs

Where provided, the accessible-ready bathroom bathtub shall:

1. comply with the requirements of CSA/ASC B652 clause 5.9.14; or
2. Design for accessible-ready: The bathroom, including the bathtub, shall be designed such that it can be constructed meeting the requirements of sentence a) without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note 1: It should be noted that it is desirable to design and install a bathtub while keeping in mind a possible future conversion to a shower utilizing the same footprint and plumbing.

Note 2: This note is a combination of the notes for clauses that significantly impact the space and area requirements (note under clause 9.3.3), and those for clauses that impact the occupants’ selections based on personal preference (note under clause 9.3.10.9). Accessible-ready is important in such situations, since without it, it may lead to a loss of a shower, loss of bathroom, or loss of another room which may not be universally preferred for various users. It should be noted that for some individuals, where space is limited, a shower may often be preferred over a bathtub.

#### Bathroom medicine cabinets

Where provided, the accessible-ready bathroom medicine cabinets shall:

1. comply with the requirements of CSA/ASC B652 clause 5.9.15; or
2. Design for accessible-ready: The bathroom, including the medicine cabinet, shall be designed such that it can be constructed meeting the requirements of sentence a) without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note: This note is a combination of the notes for clauses that significantly impact the space and area requirements (note under clause 9.3.3), and those for clauses that impact the occupants’ selections based on personal preference (note under clause 9.3.10.9). Accessible-ready is important in such situations, since without it, it may lead to a loss of a shower, loss of bathroom, or loss of another room which may not be universally preferred for various users. It should be noted that for some individuals, where space is limited, a shower may often be preferred over a bathtub.

#### Bathroom storage

Where provided, bathroom storage shall:

1. comply with CSA/ASC B652 clauses 4.4 and 4.5; or
2. be removable without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note: This note is a combination of the notes for clauses that significantly impact the space and area requirements (note under clause 9.3.3), and those for clauses that impact the occupants’ selections based on personal preference (note under clause 9.3.10.9). Accessible-ready is important in such situations, since without it, it may lead to a loss of a shower, loss of bathroom, or loss of another room which may not be universally preferred for various users. It should be noted that for some individuals, where space is limited, a shower may often be preferred over a bathtub.

### Kitchens

Kitchens, including floor areas, doors, floors, walls, lighting, electrical, counters, sink, storage, and appliances, shall:

1. comply with CSA/ASC B652 clause 5.10; or
2. Design for accessible-ready: The kitchen shall be designed such that it can be constructed meeting the requirements of sentence (a) without significant modifications for the structural, plumbing, or HVAC systems (see Annex C).

Note 1: As part of the development of this Standard, it is deemed accessible-ready that kitchen cabinets, counters, and fixtures may have to be replaced to meet the various differing needs of the various occupants. The goal of this section is to have accessible-ready kitchens designed to be flexible to allow for more cost-effective renovations, to cater to more users than a standard kitchen or accessible kitchen (i.e., compliant with CSA/ASC B652 clause 5.10).

Note 2: Kitchens are arguably one of the most important rooms in homes. Homeowners typically place a very high importance on the functionality and aesthetics of a kitchen. To avoid the prescriptive requirements of CSA/ASC B652 for kitchens, which may not be universally desirable, it is essential to incorporate accessible-ready and flexibility into the design and construction, despite the high cost of kitchen renovations. The overarching principle is that a homeowner can have a kitchen as they prefer, however forethought must be given for future users or their own future needs. Specifically, counters, which are typically in kitchens, bathrooms, and laundry rooms have a significant impact on the functionality of the most important rooms in a house. Furthermore, different counter heights (even what may be considered small differences) have a noticeable impact for different users. As a result, in keeping with the concept that accessible‑ready housing is intended to be more functional for more people, where some effort is required to modify the features of the home, counters are one area where it is worth investing in design effort and foresight to achieve this goal. This is what this requirement is intended to achieve.

Note 3: The design of kitchens should consider safety and convenience. Some ideas include providing counters beside appliances, placing the microwave on the counter or at counter height, the refrigerator should open away from the counter, under counter lighting, electrical outlets that are reachable, dishwasher drawers and continuous flooring and ceiling treatments.

### Bedrooms area requirements

Bedroom floor area, floors, and lighting shall:

1. comply with CSA/ASC B652 clauses 5.11.1, 5.11.2 and 5.11.3; or
2. Design for accessible-ready: The bedroom shall be designed such that it can be constructed meeting the requirements of sentence a) without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note 1: Like the note under clause 9.3.10.12, this is a combination of the notes for clauses that significantly impact the space and area requirements (note under clause 9.3.3), and those for clauses that impact the occupants’ selections based on taste and personal preference (note under clause 9.3.10.9). Accessible-ready is important in such situations, since without it, it may lead to a loss of bedroom, loss of an office space, loss of bathroom, or loss of another room which may not be universally preferred for various users.

Note 2: Reinforcement of structural members for the installation of lifts may be considered in bedrooms if the location and lift specifications are known.

### Laundry

Laundry room area, features and appliances, doors, floor, lighting, sink, washer and dryer, folding surface, storage, and ironing board shall:

1. comply with CSA/ASC B652 clause 5.12; or
2. Design for accessible-ready: The laundry room shall be designed such that it can be constructed meeting the requirements of sentence a) without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note 1: Like the note under clause 9.3.10.12, this is a combination of the notes for clauses that significantly impact the space and area requirements (note under clause 9.3.3), and those for clauses that impact the occupants’ selections based on taste and personal preference (note under clause 9.3.10.9). Accessible-ready is important in such situations, since without it, it may lead to a loss of bedroom, loss of an office space, loss of bathroom, or loss of another room which may not be universally preferred for various users.

Note 2: Smart-home technology excels at helping all people live a more independent lifestyle. Automation, scheduling, and voice control enable users to easily control a host of devices—from lights and switches to climate-control systems to kitchen appliances, smart Wi-Fi video doorbell, two outdoor Wi-Fi security cameras, and a smart garage-door opener, even real-time viewing inside fridges. While it is not expected that accessible-ready housing will come with these devices, it is important to have the electrical capacity and Wi-Fi to support them.

### Closets

Where provided, closets (including within bedrooms), shall:

1. comply with CSA/ASC B652 clause 5.13;
2. be removable without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C); or
3. Design for accessible-ready: The closet shall be designed such that it can be constructed meeting the requirements of sentence a) without significant modifications for the structural, electrical, plumbing, or HVAC systems (see Annex C).

Note: Like the note under clause 9.3.10.12, this is a combination of the notes for clauses that significantly impact the space and area requirements (note under clause 9.3.3), and those for clauses that impact the occupants’ selections based on taste and personal preference (note under clause 9.3.10.9). Accessible-ready is important in such situations, since without it, it may lead to a loss of bedroom, loss of an office space, loss of bathroom, or loss of another room which may not be universally preferred for various users.

### Service rooms and spaces

Where provided, a service room (i.e., a room dedicated to garbage disposal, mailboxes, or mechanical or electrical equipment) shall:

1. be served by a path of travel in accordance with clause 9.3.3;
2. be served by a clear floor space in accordance with CSA/ASC B652 clause 4.4.2; and
3. have equipment controls located in accordance with section 10, except for items that require servicing by professionals.

Note: The requirements in CSA/ASC B652 refer to the need for a path of travel, clear floor space, and equipment control locations in accordance with the other sections of the Standard. However, since this Standard focuses on accessible-ready, all these requirements have an accessible‑ready equivalent, which are applicable to the service rooms and spaces. Having said that, complying with the requirements of CSA/ASC B652 for service rooms and spaces is much preferred not only from an accessibility point of view, but also to service equipment, upgrade to new technologies, or add additional technologies (e.g. solar panels inverters and batteries, backup emergency generator batteries and other equipment, etc.).

# Operating controls

## Operating controls – general

Operating controls shall include but are not limited to:

1. door handles and locks;
2. window and operators and locks;
3. faucets and adjustable shower heads;
4. thermostats;
5. appliances;
6. doorbells;
7. intercoms;
8. electrical receptacles;
9. electrical panels;
10. shutoff valves; and
11. activation devices (e.g., light switches).

Note: All operation controls within a home that might require operation by a resident or tenant living in the home need to be accessible.

## Operating controls floor area

Controls within living rooms, bedrooms, offices, and hallways shall be adjacent to and centered on either the length or the width of a clear floor space of 820 mm by 1390 mm.

## Operating controls height

The operating controls shall:

1. be installed between 400 mm and 1100 mm from the floor, and between 900 mm and 1100 mm from the floor in situations where reading a display is required (i.e. thermostat, intercom, etc.); or
2. be installed in a manner that allows the centerline of the operating controls to be relocated without rewiring to any height between 400 mm and 1500 mm from the floor.

Note: The wire that connects to the operating control, if any, will need to be of sufficient length to allow the relocation of the operating control without the need to rewire. Repairing wall finishes is expected to be required when relocating the operating controls.

## Operating controls reach ranges

The operating controls shall:

1. be installed with the clear forward space is provided for forward or side approach in compliance with CSA/ASC B652 clause 4.5.4; or
2. where the clear floor space is designed as per clause 9.3.4, be installed in a manner where the operable control can be relocated without the need to rewire. Repairing wall finishes is expected to be required when relocating the operating controls.

Note: When the clear floor space is designed as an accessible-ready space, i.e., if clear floor space in accordance with CSA/ASC B652 is not provided from the outset, forethought must be given to relocating operating controls as well as to modifying walls/furniture as stated in clause 9.3.4. Relocating an electrical control where no rewiring is required is much more cost effective and simple compared to having to rewire a circuit.

## Operating control operation

Controls shall be installed in a manner which allows their replacement with controls complying with CSA/ASC B652 clause 4.5.5 a) and b) without requiring any additional work or repairs.

Note: This requirement is intended to recognize that people may have individual preferences to the type of operating controls they install within their own home. These are typically easy to replace, and therefore can be replaced later.

## Operating controls devices

Controls shall be installed in a manner which allows their replacement with controls complying with CSA/ASC B652 clause 4.5.6 without requiring any additional work or repairs.

Note: This requirement is intended to recognize that people may have individual preferences to the type of operating controls they install within their own home. These are typically easy to replace, and therefore can be replaced later.

## Operating controls visual displays

Controls with visual display screens shall be installed in a manner which allows their replacement with controls complying with CSA/ASC B652 clause 4.5.7 without requiring any additional work or repairs.

Note: This requirement is intended to recognize that people may have individual preferences to the type of operating controls they install within their own home. These are typically easy to replace, and therefore can be replaced later.

## Operating controls illumination

For controls where reading is necessary, they shall be installed in a manner which allows their replacement with controls complying with CSA/ASC B652 clause 4.5.8 without requiring any additional work or repairs.

Note: This requirement is intended to recognize that people may have individual preferences to the type of operating controls they install within their own home. These are typically easy to replace, and therefore can be replaced later.

## Operating controls luminance (colour) contrast

Controls shall:

1. be installed in a manner which allows their replacement with controls complying with CSA/ASC B652 clause 4.5.9 without requiring any additional work or repairs; or
2. be installed in a manner where the background can be painted to allow for the combination of control and background complying with CSA/ASC B652 clause 4.5.9.

Note: This requirement is intended to recognize that people may have individual preferences to the type of operating controls they install within their own home. These are typically easy to replace, and therefore can be replaced later.

## Lighting - general (ambient) lights

General (ambient) lights shall be installed in a manner that allows for their replacement with built-in lighting fixtures in compliance with CSA/ASC B652 clause 4.8.1, without the need for any repairs or changes to the building systems.

Note: Lighting solutions are very personal. While some need or prefer higher lighting levels, others need or prefer much lower levels. As a result, this clause is intended to ensure that whatever electrical lighting system is installed, it is compatible with any lighting level that the occupant desires. The lighting level required by CSA/ASC B652 clause 4.8.1 are much higher than those typically installed in homes.

## Task lighting

Where provided, task lighting shall be installed in a manner that allows for their replacement and/or modification with task lighting fixtures in compliance with CSA/ASC B652 clause 4.8.2, without the need for any repairs or changes to the building systems.

Note: Lighting solutions are very personal. While some need or prefer higher lighting levels, others need or prefer much lower levels. As a result, this clause is intended to ensure that whatever electrical lighting system is installed, it is compatible with any lighting level that the occupant desires. The lighting level required by CSA/ASC B652 clause 4.8.1 are much higher than those typically installed in homes.

# Stairs

## Stairs treads and risers

A flight of stairs shall:

1. have uniform riser heights and tread depths;
2. have risers not more than 200 mm high;
3. have runs not less than 255 mm deep, measured from riser to riser;
4. have treads that are slip-resistant or are compatible with an acceptable slip-resistant strip or covering;
5. have no open risers or be installed in a manner to accept a riser cover without the need to modify the stair structure, stair treads, or stair covering; and
6. have a lighting fixture that is compatible to be replaced with a fixture that provides illumination of at least 50 lx at the tread.

Note: Building codes have additional requirements for stairs in various situations. This is meant to serve as a minimum requirement for stairs in accessible-ready houses.

## Stair nosing

The nosing shall:

1. project not more than 38 mm;
2. where projecting, be sloped to the bottom of the tread for open treads, or to the riser for closed threads, at an angle greater than 60° to the horizontal;
3. have a radius of curvature at the leading edge of the tread not more than 13 mm; and
4. be compatible, without the need to modify the stair structure, treads, risers, or coverings, to accept a horizontal strip 50 ± 10 mm deep that:
	1. is luminance (colour) contrasted with the tread and riser;
	2. is slip resistant; and
	3. extends the full width of the tread.

## Stair handrails

Stairs shall be designed and constructed to accept handrails in compliance with CSA/ASC B652 clause 5.6.3.

Note: The CSA/ASC B652 clause 5.6.3 specifies that the handrail is installed at a height between 860 mm and 1070 mm. One method to achieve a design and construction that can accept those handrails is to install 38 mm × 184 mm (2 in. × 8 in.) blocking in the walls adjacent to the stairs in addition to the stair handrails and guards required by the building codes.

# Interior vertical paths of travel

## Interior vertical path of travel

Design for accessible-ready: Where an accessible-ready house has more than one storey, or a mezzanine, the house shall be designed to allow for the installation of means of accessible access between the storeys and mezzanines without any modifications to the structural, electrical (except those required for the vertical transportation system), plumbing, and HVAC systems.

### Raised or sunken floor levels

Raised or sunken floor levels shall not be permitted within a single storey or mezzanine unless connected to that storey or mezzanine by an accessible path of travel as specified in CSA/ASC B652.

## Elevating devices

Where an elevating device is installed or is part of a design for accessible-ready, it shall comply with CSA/ASC B652 clause 5.8.2.2.

Note 1: Vertical paths of travel are one of the most significant challenges to make a multi-storey home accessible. Elevating devices are the most obvious solution. Having said that, the cost of the elevating device is typically the same regardless of whether it will be installed in a new construction or retrofitted. However, the structural, electrical and mechanical modifications to an existing structure is where a major portion of the cost lays. Therefore, where an elevating device is not required from the original construction, if forethought is given to designing the supports and openings, etc. for the device, and routing the electrical and mechanical systems away from those supports and openings, the cost of retrofitting an elevating device into an existing accessible-ready home can be almost as high as having it included in new construction. This is the aim of this requirement.

Note 2: Where feasible, stairs are recommended to be designed with straight runs to allow for easier future installation of lifts. This approach offers flexibility for future accessibility upgrades, making it feasible to install stairlifts or other elevating devices.

# Structure

## Loadbearing walls

Where interior loadbearing structure is required, columns and beams are to be used with a span of at least 3000 mm.

Note 1: The above requirement is based on a typical 3-ply 38 mm × 235 mm beam with a 2400 mm of supported length.

Note 2: Interior loadbearing walls should be avoided as much as possible.

## Wall reinforcement

Where the design for accessible-ready approach is used in the design, any walls that need to support future accessible features shall be reinforced to accommodate the relevant future modification. The structural or architectural drawings shall:

1. clearly show the reinforcement material, location, and intent;
2. identify the connection details of the reinforcement; and
3. identify the loads that the reinforcement is designed to withstand relative to its intended use.

Note: Wall reinforcement requirements will change depending on what their intended use is. For example, wall reinforcements to support grab bars have different loads (magnitude and direction) than those to support an elevator, handrail, stair lift, platform lift, etc. Therefore, this requirement highlights the need to have these reinforcements designed and labelled so that they can be properly leveraged in the future.

## Floor shafts for lifts and services

Where an accessible vertical path of travel is designed as per clause 12.1 and requires floor shafts or openings for their future installation, the structure shall be:

1. designed with a slab/floor opening to accommodate the possible installation of the service;
2. designed with a plug capable of supporting the full loads of the floor;
3. shown on the drawings with:
	1. the opening structural details;
	2. the plug structural details;
	3. the connection details;
	4. the loads that they are designed to withstand in all configurations, and
	5. the method to be used to remove the plug.

Note: This requirement highlights the need to design and label the floor plugs to facilitate and promote proper future use of this adaptability feature. Although in most cases this design may be currently trivial, with evolution of design of buildings and homes, it may not be trivial in the future.

# Emergencies

## Emergency egress

Design for accessible-ready, all emergency egress paths in compliance with CSA/ASC B652 clause 5.8.3 shall be shown on the accessible-ready design form and accessible-ready drawings.

Note: Emergency egress is achieved within CSA/ASC B652 by assigning “accessible paths of travel” from the ground floor through a door, and other floors to a balcony or deck. However, as discussed elsewhere in this Standard, paths of travel can be accessible-ready, and therefore the emergency egress is also accessible-ready in the same manner. This requirement, which is filled out in the accessible-ready design form (see Annex A), will ensure that the designer will check to ensure that the design would comply with the requirements in CSA/ASC B652. Furthermore, it is desirable to design for a secondary path of travel that is accessible-ready wherever possible. This secondary path of travel is intended to be used if the primary path of travel to the emergency egress becomes blocked.

## Alert and signal devices

Fire alarms, smoke detectors, and carbon monoxide detectors shall be equipped to provide both visual and audible signals.

# Annex A (normative)

Permit documentation for accessible-ready housing and DAR

## Sample accessible-ready housing form

| **Clause** | **Feature** | **Compliance method** | **Design** |
| --- | --- | --- | --- |
|  |  | (i.e. specify how and if a feature is achieved by a method other than design requirement, or if the design requirement approach is used. If so, specify whether the design requirement is provided in a drawing set or in text form in this table.) |  |
| 9.1a) iii) | Path of travel to the main entrance | Example: Design requirement – Drawing AC01 | Example: A 1200 mm path of travel having a slope less than 1:20 is shown on drawing AC01, and that area is free of any structural, electrical, or mechanical components that would need to be modified to construct this path of travel. |
| 9.1 b) iv) | Path of travel to a balcony, exterior amenity, backyard, or access to an outdoor amenity space on the first storey |  |  |
| 9.1 c) ii) | Path of travel for interior and exterior access to a balcony, backyard, or access to an outdoor amenity space on the first storey |  |  |
| 9.2 a) ii) | Parking and garage path of travel from main entrance and garage entrance |  |  |
| 9.2 c) | Parking and garages, parking spaces |  |  |
| 9.2 d) iii) | Parking and garages, parking garages serving a single-family house |  |  |
| 9.2 e) iii) | Parking and garages, carport serving a single-family house |  |  |
| 8.1 a) | Access within a house – Path of travel |  |  |
| 8.1 c) | Access within a house – Flooring and ground surfaces |  |  |
| 8.1 e) | Access within a house – Lighting |  |  |
| 9.3.1 | Access within a house – rooms and spaces (identify which bathroom, kitchen, bedroom, and laundry) are design and built as accessible-ready |  |  |
| 9.3.3 b) | Area allowances for paths of travel |  |  |
| 9.3.4 b) | Area allowances for clear floor spaces |  |  |
| 9.3.5 | Area allowances for knee and toe clearances |  |  |
| 10.1 – 10.9 | Operating controls compatibility with controls compliant with CSA/ASC B652 |  |  |
| 9.3.8 ii) | Floor and ground surfaces covering |  |  |
| 9.3.6 | Headroom clearance along path of travel |  |  |
| 9.3.7 | Protruding objects are removable without affecting building systems |  |  |
| 10.10 – 10.11 | Illumination lighting installed in a manner that allows for replacement |  |  |
| 9.1.2 c) | Exterior amenities path |  |  |
| 11.1 – 11.2  | Stair treads and risers, stair nosing |  |  |
| 11.3 | Stair handrails |  |  |
| 9.3.2.1 | Doors and doorway openings |  |  |
| 9.3.2.2 b) | Manoeuvring area at doors |  |  |
| 9.3.2.3 b) and c) | Two doors in series |  |  |
| 9.3.2.4 | Doors and doorway thresholds |  |  |
| 9.3.2.7 | Power-assisted doors – electrical rough-in |  |  |
| 12.2 | Elevating devices |  |  |
| 15.1 | Emergency egress |  |  |
| 9.3.10.1 | Bathroom – Identify designated accessible-ready bathroom |  |  |
| 9.3.10.2 b) | Bathroom turning space |  |  |
| 9.3.10.5 | Bathroom wall reinforcement |  |  |
| 9.3.10.6 | Bathroom lighting |  |  |
| 9.3.10.7 | Bathroom electrical |  |  |
| 9.3.10.9 b) | Bathroom toilet and accessories |  |  |
| 9.3.10.11 b) | Bathroom sink and vanity |  |  |
| 9.3.10.12 b) – 9.3.10.13 b) | Bathroom shower – Bathroom bathtub |  |  |
| 9.3.10.14 b) | Bathroom medicine cabinets |  |  |
| 9.3.11 b) | Kitchens |  |  |
| 9.3.12 b) | Bedroom area requirements  |  |  |
| 9.3.13 b) | Laundry room  |  |  |
| 9.3.14 c) | Closets |  |  |
| 9.3.15 | Service rooms and spaces |  |  |

## Accessibility drawings

It is recommended that this form be accompanied by a set of drawings, called Accessibility Drawings, which are based on the architectural drawing set submitted for permit, with the additional accessible-ready information noted. For example, walls that are accessible-ready shall be labeled as a separate wall type, along with wall and floor finishes, fixtures, etc.

# Annex B (normative)

Examples of DAR requirements

### Exterior path ramps

Clause 9.1 – DAR - Main entrances into a dwelling shall be provided a path of travel in accordance with CSA/ASC B652 clause 4.4.1, a ramp conforming to CSA/ASC B652 clause 5.5 or have sufficient designated area to be incorporated without the requirement of structural, electrical, plumbing, or HVAC system modifications.

Drawings to be developed and included.

### Exterior path ramps

Clause 9.1.2 – DAR - Where an outdoor amenity space, backyard, balcony, or deck are provided, both interior and exterior access shall be provided by a path of travel in accordance with CSA/ASC B652 clause 4.4.1, a ramp conforming to CAS/ASC B652 clause 5.5 or have sufficient designated area to be incorporated without the requirement of structural, electrical, plumbing, or HVAC system modifications.

Drawings to be developed and included.

## Dwelling access from garage – Ramp

Clause 9.2 – DAR - If a garage is provided, access into a dwelling from the garage shall be provided a path of travel in accordance with CSA/ASC B652 clause 4.4.1. or have sufficient designated area to be incorporated without the requirement of structural, electrical, plumbing, or HVAC system modifications.

Drawings to be developed and included.

## Parking space

Clause 9.1.3.1 – DAR - If the driveway is designated as the accessible-ready parking space, the area bordering the driveway is to be occupied by landscaping components that are easily removed without the requirement of a permit or demolition of landscaping such as trees.

Drawings to be developed and included.

## Site plan

Provide a clear overall site plan to show designated areas for future development that are to remain free from structural, mechanical, electrical, and plumbing features.

Drawings to be developed and included.

# Annex C (normative)

Examples of DAR Requirements

## Accessible-ready features that require removing of components such as walls for clear floor space

When the requirements for clear turning/floor spaces, reach ranges, and other space/area requirements are designated as a DAR requirement, designated modifications shall be indicated on a floor plan to show the intended alteration (examples: clause 9.3.10.2, Bathroom turning space, clause 9.3.10.9, Bathroom toilet and accessories, clause 9.3.10.11, Bathroom sink and vanity, clause 9.3.10.12, Bathroom shower, clause 9.3.10.13, Bathroom bathtubs, clause 9.3.10.14, Medicine cabinets, Clause 9.3.10.15, Bathroom storage, clause 9.3.12, Bedroom area requirements and clause 9.3.14, Closets).

Designated accessible-ready rooms or walls shall be identified on the construction floor plans. This can be achieved through a wall legend, notes on plans, or as an additional drawing if clarifications are required.

The following is an example of a modification to achieve all requirements for an accessible bedroom, closet, as well as bathroom. Image 1 shows the construction floor plan, image 2 shows the intended final layout for accessible use, while image 3 shows a simplified version of the modifications required.

For simple modifications such as deleting a closet to achieve a path of travel as required in clause 9.3.3 or clause 9.3.2.3, this alteration may be achieved through information shown in Image 1.

Drawings to be developed and included.

## Maneuvering at doors with doors in series

Where doors in series do not conform with clause 9.3.2.3 a), the area shall be designed and noted on the construction drawing to indicate planned compliance. Image 4 indicates a portion of the wall to be constructed as removable to resolve the restricting area.

Drawings to be developed and included.

## Accessible-ready features that require structural framing prerequisites

Where an accessible-ready dwelling has more than one storey, and an elevating device is not installed at time of construction, a designated area shall be identified on construction plans, as well as structural notes on framing for this area. This area shall remain clear of any electrical, mechanical, or plumbing systems. Image 5 shows designated area, wall assemblies required to fulfil the modifications, as well as a note for structural framing requirements.

Drawings to be developed and included.

## Accessible-ready features that require structural framing prerequisites

Cabinetry areas that require clear floor space, knee and toe clearance for stationary working areas to comply with clause 9.3.4, such as kitchens, bathrooms, laundry rooms, need not be indicated on the accessible-ready construction plan as long as cabinetry can be replaced with compliant items.

If there is a built-in feature, such as a kitchen island, that is to be installed in the designated clear floor space, there is to be no plumbing or mechanical included in the feature that would require modification.

Image 6 shows a kitchen layout that does not comply with the design requirements as the island has plumbing that would require to be relocated to give proper space for workspace at the cook top and sink location. Remove of the laundry wall to allow for clear floor space would also require plumbing, mechanical and electrical relocations.

Drawings to be developed and included.

# Annex D (normative)

Deconstruction of garages and carports

Where garages and carports are built as per clauses 9.2.4 c), they shall be designed and constructed as follows:

## Structure

The garage and the carport shall be built such that their removal can be carried out without affecting the structure of the main house by:

1. the roof structure being structurally independent of the main house structure where the removal of the roof structure (e.g. trusses, rafters, beams, joists) will not cause damage, excessive deflection, or result in unsupported elements in the main house structure;
2. the wall and columns structures being structurally independent of the main house where the removal of the walls and columns will not cause damage, excessive deflection, or result in unsupported elements in the main house structure; and
3. the floor structures being structurally independent of the main house where the removal of the floor structure, if required, will not cause damage, excessive deflection, or result in unsupported elements in the main house structure.

## Building envelope

The garage and the carport shall be built such that their removal can be carried out without affecting the building envelope of the main house by:

1. having the building envelope (such as cladding system or roofing system), including the precipitation control (e.g. cladding materials, first and second planes of protection, drainage and sealing, etc.), air leakage control (e.g. air barrier plane), vapour diffusion control (e.g. vapour barrier), heat transfer control (e.g., interior and exterior insulation), sound transmission control, fire protection control (e.g., fire rated assemblies) of the main house being independent of the garage or carport;
2. having the building envelope of the main house remain functionally and aesthetically unaffected by the removal of the garage or carport.

Note 1: Minor cosmetic repairs to the cladding system are expected, such as removing caulking residuals, blending in minor discoloration of the cladding due to weathering, etc.

Note 2: The interior wall of a garage does not need to be clad at the time of construction. However, the other control layers must be installed, and the future installation of cladding should be considered for practicality, functionality, and aesthetics in case the garage or carport is removed.

### Building envelope around independent carports and garages

Where carports or parking garages are constructed as per clause 9.2.5, the building envelope of the main structure shall:

1. ensure that the thermal resistance of the assembly, as defined by local building codes, is not affected upon the removal of the carport or parking garage;
2. ensure that the air barrier system, as defined by local building codes, is:
	1. independent of the carport or parking garage air barrier system, and
	2. its continuity is unaffected by the removal of the carport of parking garage;
3. ensure that the resistance to vapour diffusion materials, as defined by local building codes, is not affected upon the removal of the carport or parking garage;
4. except as provided in sentence f), ensure that the second plane of protection can be installed upon removal of the carport or parking garage;
5. except as provided in sentence f), ensure that the first plane of protection, typically the cladding system, can be installed upon removal of the carport or parking garage and matched to the existing cladding without the need to refinish to change the existing cladding system, and
6. for face seal systems as defined by the local building codes can be installed upon removal of the carport or parking garage and matched to the existing cladding without the need to
	1. refinish to change the existing cladding system, and
	2. having a weak joint in the face seal system that needs continuous maintenance different than the remainder of the structure.

Note 1: The thermal resistance of the assemblies is defined and specified by the building codes, such as the National Building Code of Canada, section 5.3, Heat transfer.

Note 2: The air barrier system is defined and specified by the building codes, such as the National Building Code of Canada, section 5.4, Air leakage.

Note 3: The resistance to vapour diffusion is defined and specified by the building codes, such as the National Building Code of Canada, section 5.5, Vapour diffusion.

Note 4: The first and second plane or protection, as well as face seal systems is defined and specified by the building codes, such as the National Building Code of Canada, section 5.6, Precipitation.

Note 5: The building envelope of any structure is required to provide heat transfer control, air infiltration control, vapour diffusion control, and moisture ingress control. Similar structure is used in codes to define the elements and functions of the building envelope.

The first key concept of this section is the need to ensure the continuity of the air barrier system which is challenging to achieve after the structure is built unless pre-planned for. This is what is specified in sentence b) of this clause. The second key concept is the need to use cladding systems that can be modified or seamlessly (aesthetically and structurally) integrated with a new cladding that may be installed after the carport or garage is removed. This is what is specified in sentences d) to f) of this clause.

The remaining sentences are equally important, however are easier to achieve, and in most cases require no deviation from traditional construction.

## Electrical systems

Their removal can be carried out with minimal impact on the electrical systems of the main house by ensuring any electrical circuits into the garage or carport can be terminated at an exterior rated junction box within the garage upon the removal of the garage or carport without having to modify or cause damages to the interior of the main house.

## Mechanical systems

Their removal can be carried out with minimal impact on the mechanical systems of the main house by ensuring that any mechanical equipment can be removed or modified without:

1. affecting the mechanical systems of the main house; and
2. requiring modifications to the mechanical systems from the house interior upon removal of the garage or carport.

## Plumbing systems

Their removal can be carried out with minimal impact on the plumbing systems of the main house by ensuring that any plumbing systems or components can be removed or modified without:

1. affecting the plumbing systems of the main house; and
2. requiring modifications to the plumbing systems from the house interior upon removal of the garage or carport.

Note: Garages and carports are versatile spaces that are used in different ways, even though their design assumes that they will only be used for parking. Some garages are used for parking, a hobby workshop, storage, art studio, recreational room, etc. This clause is written because individuals who need the additional space specified by CSA/ASC B652, may prefer in some situations to have an undersized garage or carport over no garage or carport.

Furthermore, garages and carports are usually heavily regulated by the authorities having jurisdiction and are sometimes regulated in opposing ways (e.g., one authority may ban them to encourage/force the use of public transport, while other authorities may have a minimum parking requirement). For these reasons and more, it was important to ensure garages would not simply be excluded or removed from the design if the space requirements, specified in CSA/ASC B652, could not be met. Clause 9.2 of this standard lists the options available.

The option of clauses 9.2 d) iii) and 9.2 e) iii) allow for garages to be constructed as per minimum local codes if they can be removed without impacting the main structure. This is done by design, considering the structural, building envelope, mechanical, and electrical systems of the house and garage or carport. Furthermore, such a design will have the additional benefit of improving air quality by reducing the leakage of contaminants from the garage into the main house, as well as improving sound isolation.