



## **Design for access and mobility**

### **Part 4.2: Means to assist the orientation of people with vision impairment— Wayfinding signs**



AS 1428.4.2:2018

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- Association of Consultants in Access Australia
- Australian Association of Occupational Therapists
- Australian Blindness Forum
- Australian Building Codes Board
- Australian Industry Group
- Australian Institute of Architects
- Australian Institute of Building Surveyors
- AUSTROADS
- Blind Citizens Australia
- Consumers Federation of Australia
- Deafness Forum of Australia
- Housing Industry Association
- Master Builders Australia
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## Preface

This Standard was prepared by the Standards Australia Committee ME-064, *Access for People with Disabilities*.

The objective of this Standard is to assist in the provision of a built environment that is legible to all people with particular attention to people who are blind or have low vision, through the provision of tactile signs. Other forms of complementary wayfinding including new technologies are not addressed by this Standard.

This Standard provides minimum design requirements and additional design guidance for other types of tactile signs, not required by this Standard but which may be provided as part of a wayfinding system.

This Standard is part of a series that comprises the following:

- (a) AS 1428.1, *Design for access and mobility, Part 1: General requirements for access — New building work*
- (b) AS 1428.2, *Design for access and mobility, Part 2: Enhanced and additional requirements — Buildings and facilities*
- (c) AS/NZS 1428.4.1, *Design for access and mobility, Part 4.1: Means to assist the orientation of people with vision impairment — Tactile ground surface indicators*
- (d) AS 1428.4.2, *Design for access and mobility, Part 4.2: Means to assist the orientation of people with vision impairment — Wayfinding signs*
- (e) AS 1428.5, *Design for access and mobility, Part 5: Communication for people who are deaf or hearing impaired*

The term 'shall' has been used in this Standard for mandatory requirements and the term 'should' has been used for desirable (best practice) and/or other measures which, while recommended, are not considered to be mandatory.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendices to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

The use of notes in this Standard are of an advisory nature only to give explanation and guidance to the user on recommended design considerations or technical procedures, or to provide an informative cross-reference to other documents or publications.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard.

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## Foreword

All people in a community use wayfinding processes to navigate within the built environment. Use is made of visual cues, familiar building elements and formal visual information to understand location in an environment and determine an appropriate path to the desired destination.

Wayfinding is of particular importance to people who are blind or have low vision as they cannot utilize many of the visual cues available to people who are sighted. The ease and accuracy with which a person who is blind or who has low vision can find their way through a specific environment is dependent upon many factors including the complexity of the physical environment and the number of wayfinding decisions required to reach their destination.

Wayfinding systems serve various purposes, such as enabling users to —

- (a) identify a building or place and the range of facilities and points of interest present within a place or building;
- (b) understand the physical relationship between these points; and
- (c) determine an appropriate path of travel to reach a required destination or point of interest for their individual needs.

A developed wayfinding system for a building or place can enable continuous pathways that are legible to people with disabilities and should provide information for users to—

- (i) confirm they are at the correct start or finish point of an individual journey;
- (ii) identify their location within a building or an external space;
- (iii) reinforce they are travelling in the right direction;
- (iv) orient themselves within a building or an external space;
- (v) understand the location and any potential hazards; and
- (vi) identify their destination on arrival.

While this Standard will benefit many people in the community, it has been developed to specifically provide static wayfinding sign information for people who are blind or who have low vision.

As wayfinding decisions are generally based on more than just signs, the incorporation of other elements such as dynamic signs, architectural features, audible communication and tactile features should be considered as part of a wayfinding system.

Where static signs are used, people who are blind or have low vision need information that is provided in raised tactile text, symbols and braille formats that are consistently applied. Information that is visually clear and has a contrast with its background can also be used by people with low vision.

The development of this Standard has been informed by input from a wide range of community stakeholders including people who are blind or have low vision.

# Australian Standard®

## Design for access and mobility

### Part 4.2: Means to assist the orientation of people with vision impairment— Wayfinding signs

#### Section 1 Scope and general

##### 1.1 Scope

This Standard specifies the minimum requirements for tactile signs to enable adult pedestrians, particularly those who are blind or have low vision, to locate and enter buildings and/or sites in an independent manner.

Additionally, this Standard specifies the minimum design requirements for tactile signs provided for the purpose of identifying rooms or facilities, and provides guidance on the design of tactile maps.

**NOTE 1** The Disability (Access to Premises—Buildings) Standards (Premises Standards) and National Construction Code (NCC) set out requirements for signs and other features of the accessible built environment not covered in this Standard, such as lifts, hearing augmentation, tactile ground surface indicators, regulatory and safety signs, glazing, lighting, car parking and toilet numbers, and distribution.

**NOTE 2** For more information about designing a wayfinding system see [Appendix A](#).

**NOTE 3** For more information about the orientation and mobility needs of people who are blind or have low vision see [Appendix B](#).

**NOTE 4** The requirements for assisting people to exit a building in an emergency are considered outside the scope of this Standard and are outlined in the general egress provisions of the NCC.

**NOTE 5** Technology has been excluded due to its rapidly expanding nature.

##### 1.2 Application

This Standard can be used by designers, wayfinding and sign designers, access professionals, facility managers, specifiers, developers and regulators.

##### 1.3 Normative references

The following are the normative documents referenced in this Standard:

AS 1428.1 *Design for access and mobility, Part 1: General requirements for access — New building work*

AS 1428.4.1 *Design for access and mobility, Part 4.1 Means to assist the orientation of people with vision impairment — Tactile ground surface indicators*

**NOTE** Documents referenced for informative purposes are listed in the Bibliography.

##### 1.4 Definitions

For the purpose of this Standard, the definitions below apply.

###### 1.4.1

###### **accessible**

having features to enable use by people with a disability

**1.4.2****braille**

a system of touch reading for the blind, which employs raised dots that are evenly arranged in quadrangular letter spaces or cells

**1.4.3****colour contrast**

when the difference between colours enables elements to be distinguished

**1.4.4****luminance contrast**

the light reflected from one surface or component compared to the light reflected from another surface or component

**1.4.5****Luminance Reflectance Value (LRV)**

the photometric measurement of visible light reflected by a surface when illuminated by a light source

**1.4.6****mapping symbols**

a graphical symbol or shape providing unique visual and/or tactile information on raised tactile maps that represents an activity, facility or instruction

**1.4.7****path of travel**

route taken by a pedestrian to access sites and buildings. This may include continuous accessible paths of travel (as defined by AS 1428.1)

**1.4.8****pictogram**

a graphical symbol providing unique visual and/or tactile information that represents an activity, facility or instruction

**1.4.9****tactile sign**

a sign which incorporates raised/embossed text and/or symbols and braille to enable touch and sight reading by people who are blind or who have low vision

**1.4.10****trafficable surface**

a finished floor or pathway surface for pedestrians

**1.4.11****stroke**

letters and numbers are each composed of a unique combination of horizontal, vertical, or diagonal lines and/or open or closed curves. Each linear element of a letter whether a line or curve is a stroke

## **Section 2 Tactile signs — Identification signs at building and site entry points**

### **2.1 Scope**

This section sets out the requirements for tactile signs to identify buildings and sites.

### **2.2 General**

A tactile identification sign shall be provided at each of the site and common building entrances used by pedestrians to access the building and/or site.

Where a building entrance doorway or external facade wall is within 3000 mm of the allotment boundary, a sign shall be provided at the building entry.

Where a building entrance doorway or external facade wall is greater than 3000 mm from the allotment boundary, a sign shall be provided at the building entry, and a second sign shall be provided near the site entry, within 3000 mm of the allotment boundary.

NOTE [Appendix C](#) provides guidance on principal entry points for different building classes.

Signs shall be:

- (a) Located in accordance with [Clause 2.3](#).
- (b) Installed in accordance with [Section 4](#).
- (c) Designed in accordance with [Section 5](#).

## 2.3 Placement

Signs required by [Clause 2.2](#) shall be located on or adjacent to the path of travel and installed as follows:

- (a) Where the entry is a single swing entry door/gate, the sign shall be —
  - (i) installed on the left side of the entry door/gate on the external wall of the building with the leading edge of the sign between 50 mm and 150 mm from the architrave and/or door frame; or
  - (ii) where space is not available on the left side of the entry door/gate, installed on the right side with the leading edge of the sign between 50 mm and 150 mm from the architrave and/or door frame; or
  - (iii) where space is not available on the left or right side of the entry door/gate, installed on a return wall with the leading edge of the sign between 50 mm and 150 mm from the edge of the door when open.
- (b) Where the entry is a double doorway that swings away from the user, sliding door or vertically opening door, the sign shall be —
  - (i) installed on the left side of the doorway on an external wall or on a freestanding sign facing the person as they approach the entrance; and
  - (ii) installed with the leading edge of the sign between 50 mm and 150 mm from the architrave and/or door frame.
- (c) Where the entry is a double doorway that swings towards the user, the sign shall be —
  - (i) installed on the left side of the doorway on an external wall or on a freestanding sign facing the person as they approach the entrance; and
  - (ii) installed with the leading edge of the sign set back from the doorway by between 1500 mm and 2000 mm.
- (d) Where the entry is not a door, or the sign is a sign required near the site entry, the sign shall be —
  - (i) located on the left side (relative to the approach to the building or site) of the pedestrian site entry path(s); or
  - (ii) where space is not available on the left side, located on the right side of the pedestrian site entry path(s).
- (e) Where there is insufficient wall space to fit the required sign content in a horizontal (left to right) format, then the required sign content may be oriented in a vertical format (top to bottom).

NOTE 1 [Appendix D](#) provides illustrations for sign placement.

NOTE 2 Plants should be maintained so as not to obscure signs.

## 2.4 Sign content requirements

All signs required by [Clause 2.2](#) shall include:

- (a) the building name and/or street name and number; and
- (b) where a single occupant exists, the name of the principal building occupant.

## Section 3 Tactile signs — Identification signs for rooms and facilities

### 3.1 Scope

Tactile signs to identify rooms and facilities may be provided as part of a wayfinding system.

Where provided, these signs shall conform with the requirements of this section.

NOTE [Appendix C](#) provides guidance on rooms and facilities which should be considered for identification with tactile signs as part of a wayfinding system.

### 3.2 General

Where a tactile identification sign is provided at the entry point(s) to rooms and facilities a sign shall be:

- (a) Located in accordance with [Clause 3.3](#).
- (b) Installed in accordance with [Section 4](#).
- (c) Designed in accordance with [Section 5](#).

### 3.3 Placement of identification signs

Where tactile identification signs are provided for the purpose of identifying rooms or facilities within a building or site, they shall be installed as follows:

- (a) Where the door is a single swing entry door or a double door with an inactive leaf, the sign shall be —
  - (i) installed on the wall on the left side of the entry door with the leading edge of the sign between 50 mm and 150 mm from the architrave and/or door frame; or
  - (ii) where space is not available on the left side of the entry door, installed on the right side of the entry door with the leading edge of the sign between 50 mm and 150 mm from the architrave and/or door frame; or
  - (iii) where space is not available on the left *or* right side of the entry door, installed *on* a return wall with the leading edge of the sign between 50 mm and 150 mm from the edge of the door when open.
- (b) Where the door is a doorway that swings away from the user or sliding door or vertically opening door, the sign shall be —
  - (i) installed on the left side of the entry door relative to approaching the room, with the leading edge of the sign between 50 mm and 150 mm from the architrave and/or door frame or wall adjacent to the door; or
  - (iii) where space is not available on the left side of the door, installed on the right side of the entry door relative to approaching the room, with the leading edge of the sign between 50 mm and 150 mm from the architrave and/or door frame or wall adjacent to the door; or

- (iii) where space is not available on the left or right side of the entry door, installed on a return wall with the leading edge of the sign between 50 mm and 150 mm from the edge of the door when open.
- (c) Where the room has doors that are doorways that swing towards the user, the sign shall be —
  - (i) installed on the left side of the entry door relative to approaching the room, and set back from the doorway by between 1500 mm and 2000 mm; or
  - (ii) where space is not available on the left side of the entry door, installed on the right side of the entry door relative to approaching the room, and set back from the doorway by between 1500 mm and 2000 mm; or
  - (iii) where space is not available on the left or right side of the entry door, installed on a return wall with the leading edge of the sign between 50 mm and 150 mm from the edge of the door when open.
- (d) Where open plan areas within buildings are not defined by doors and gates, then the identification sign shall be installed on a wall or sign post between 1500 mm and 2000 mm of the pedestrian entrance(s) to the open plan area.

**C3.3** *Signs may not be installed on doors because of the potential of injury to the person reading the sign if the door is opened.*

NOTE 1 [Appendix D](#) provides illustrations for sign placement.

NOTE 2 Vertical (top to bottom) orientation of sign content is only suitable for simple messages (e.g. street names, room numbers).

### 3.4 Sign content requirements

Where tactile signs to identify rooms or facilities are provided they shall include —

- (a) the room or facility name and/or use; and/or
- (b) room number; and/or
- (c) pictogram that illustrates the use or service within a room or facility.

NOTE Non-tactile visual sign elements may also be provided in addition to the tactile elements.

## Section 4 Tactile signs — Installation requirements

### 4.1 Scope

This section sets out requirements for the installation of tactile identification signs. Signs can be mounted either flat on a wall (or equivalent vertical plane), or at an angle.

### 4.2 Sign installation

#### 4.2.1 Requirements for vertically mounted signs

Vertically mounted signs shall be installed as follows:

- (a) Braille and tactile components of a sign shall be positioned in a zone 750 mm wide and not higher than 1600 mm and not less than 1200 mm above the trafficable surface.

- (b) Signs with a single line of characters shall have the top of the upper case of tactile characters at the highest level possible within 1200 mm to 1600 mm above the trafficable surface. See [Figures 4.2.1\(A\)](#) and [4.2.1\(B\)](#).
- (c) Immediately in front of a tactile sign, a standing area shall be provided, with a minimum depth of 500 mm, and a minimum width of 750 mm or the width of the sign whichever is larger. See [Figure 4.2.1\(C\)](#).
- (d) An encroachment of a maximum of 100 mm width x 1000 mm high is allowable in accordance with Item (a)s and (c).
- (e) Signs shall not be mounted on mirrored surfaces.

NOTE A border required by [Clause 5.1\(d\)](#) is permitted to be positioned higher than 1600 mm and lower than 1200 mm above the trafficable surface.

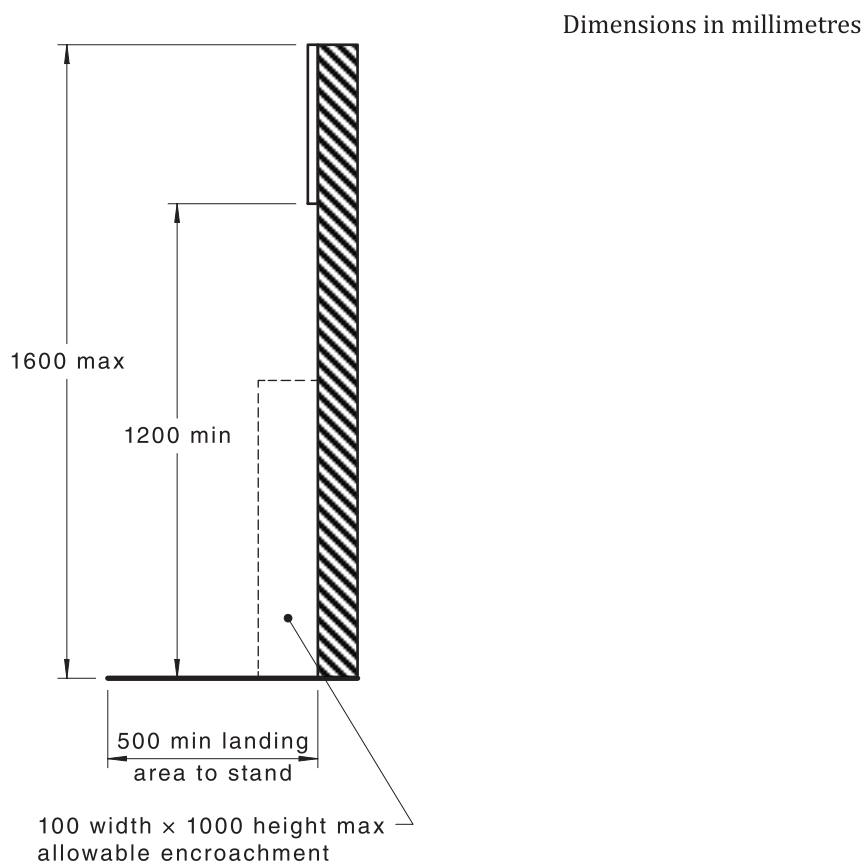


**Figure 4.2.1(A) — Installation requirements for static vertically mounted tactile and braille sign elements — Section**

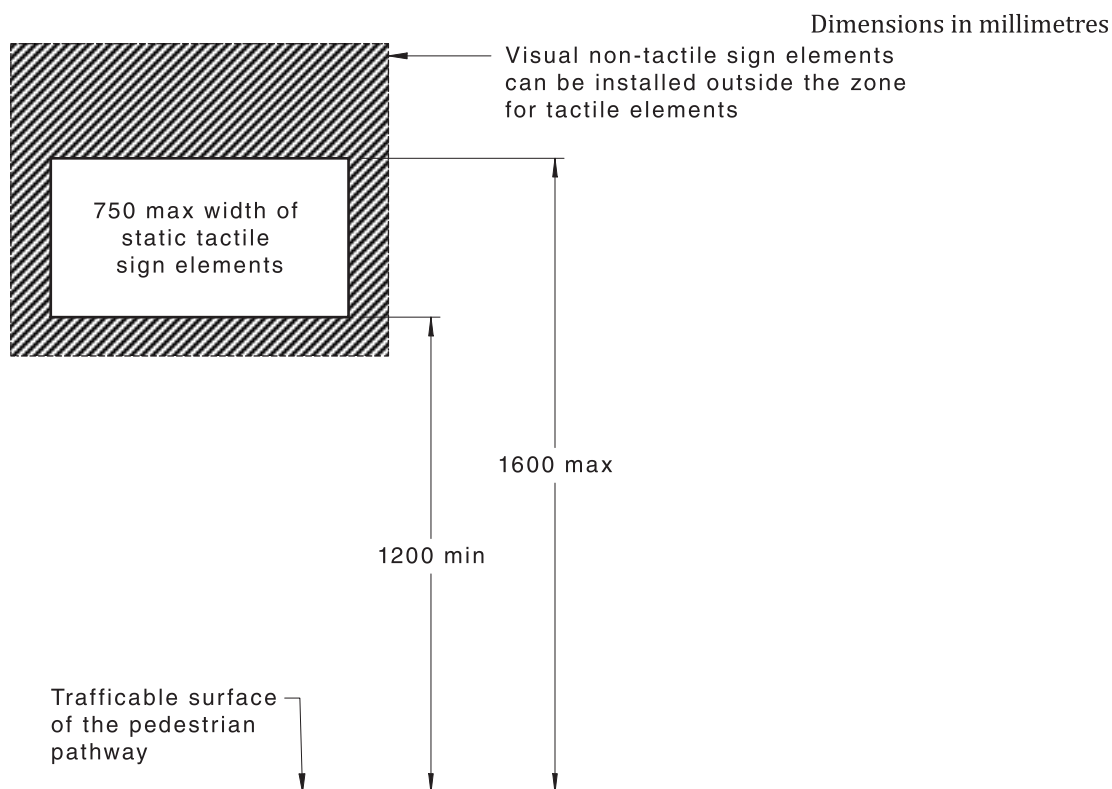


**Figure 4.2.1(B) — Installation requirements for static vertically mounted tactile and braille sign elements — Elevation**

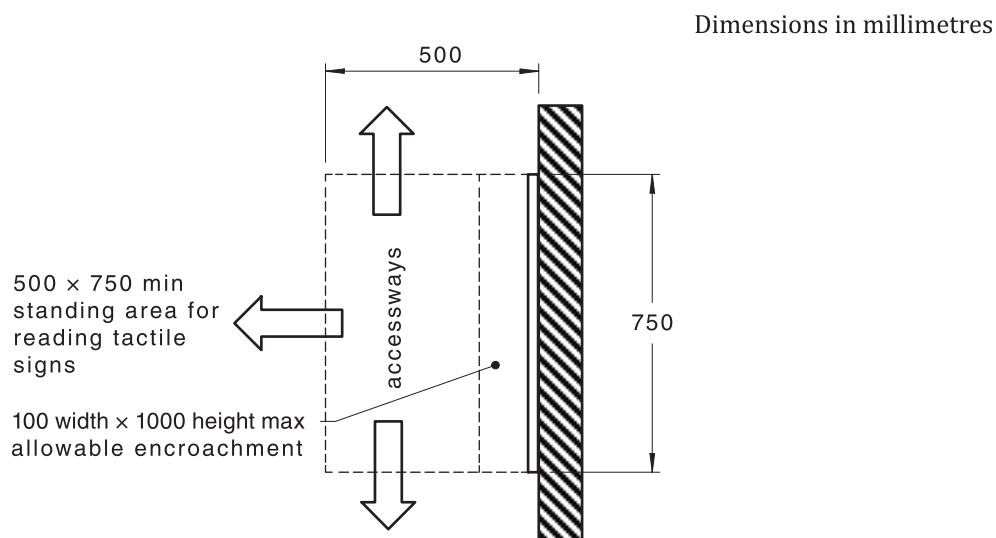


**Figure 4.2.1(C) — Installation requirements for static vertically mounted tactile and braille sign elements — Plan**

#### 4.2.2 Height for signs mounted on an angle

Signs mounted at an angle shall be installed as follows:

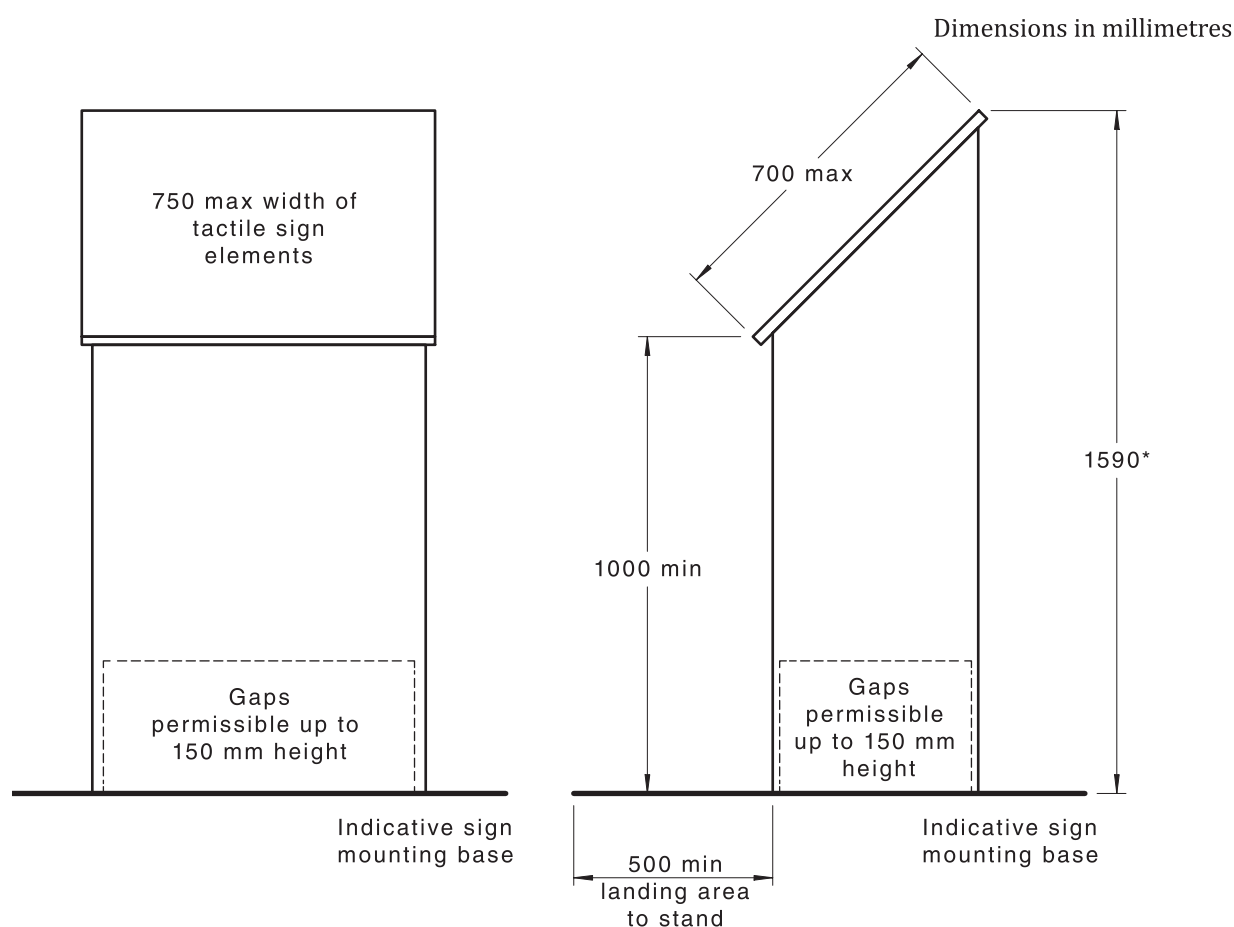
- (a) The lowest part of the angled face of a tactile sign shall be installed no less than 1000 mm above the trafficable surface. See [Figure 4.2.2\(A\)](#).

- (b) The braille and tactile component shall be positioned between 1000 mm and 1590 mm  $\pm$  above the trafficable surface. See [Figures 4.2.2\(A\)](#) and [4.2.2\(C\)](#).
- (c) Clear space shall be provided in front of the sign as per [Figure 4.2.2\(B\)](#).
- (d) The angle of the face of a tactile sign shall be between 15 degrees and 75 degrees from horizontal. See [Figure 4.2.2\(C\)](#) and [Table 4.2.2](#).
- (e) A gap of 150 mm above the finished floor in accordance with [Figures 4.2.2\(A\)](#) and [4.2.2\(C\)](#) is permissible.
- (f) Signs shall not be mounted on mirrored surfaces.

**Table 4.2.2 — Sign installation**

| Angle | Sign face height | Sign installation height |
|-------|------------------|--------------------------|
| 15°   | 550 mm           | 1150 mm                  |
| 30°   | 600 mm           | 1300 mm                  |
| 45°   | 700 mm           | 1500 mm                  |
| 60°   | 650 mm           | 1570 mm                  |
| 75°   | 600 mm           | 1590 mm                  |

NOTE Intermediate angles between 15 degrees and 75 degrees and associated sign areas can be incorporated.

**Figure 4.2.2(A) — Sign installation heights for angled mounted static tactile and braille sign elements — Elevation and Section**

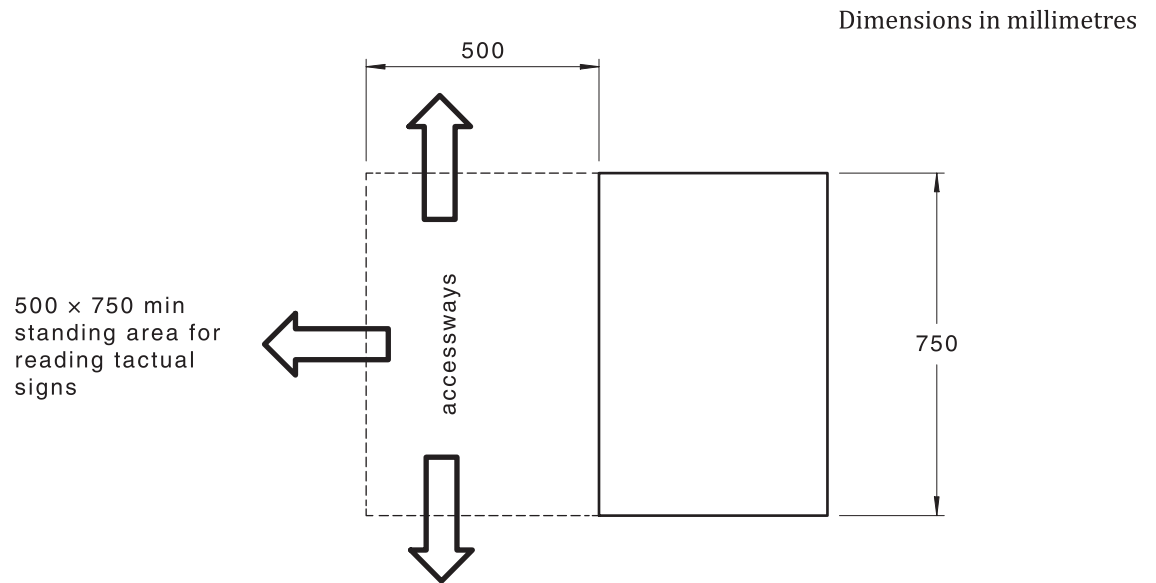


**Figure 4.2.2(B) — Standing area for angled mounted static tactile and braille sign elements — Plan**

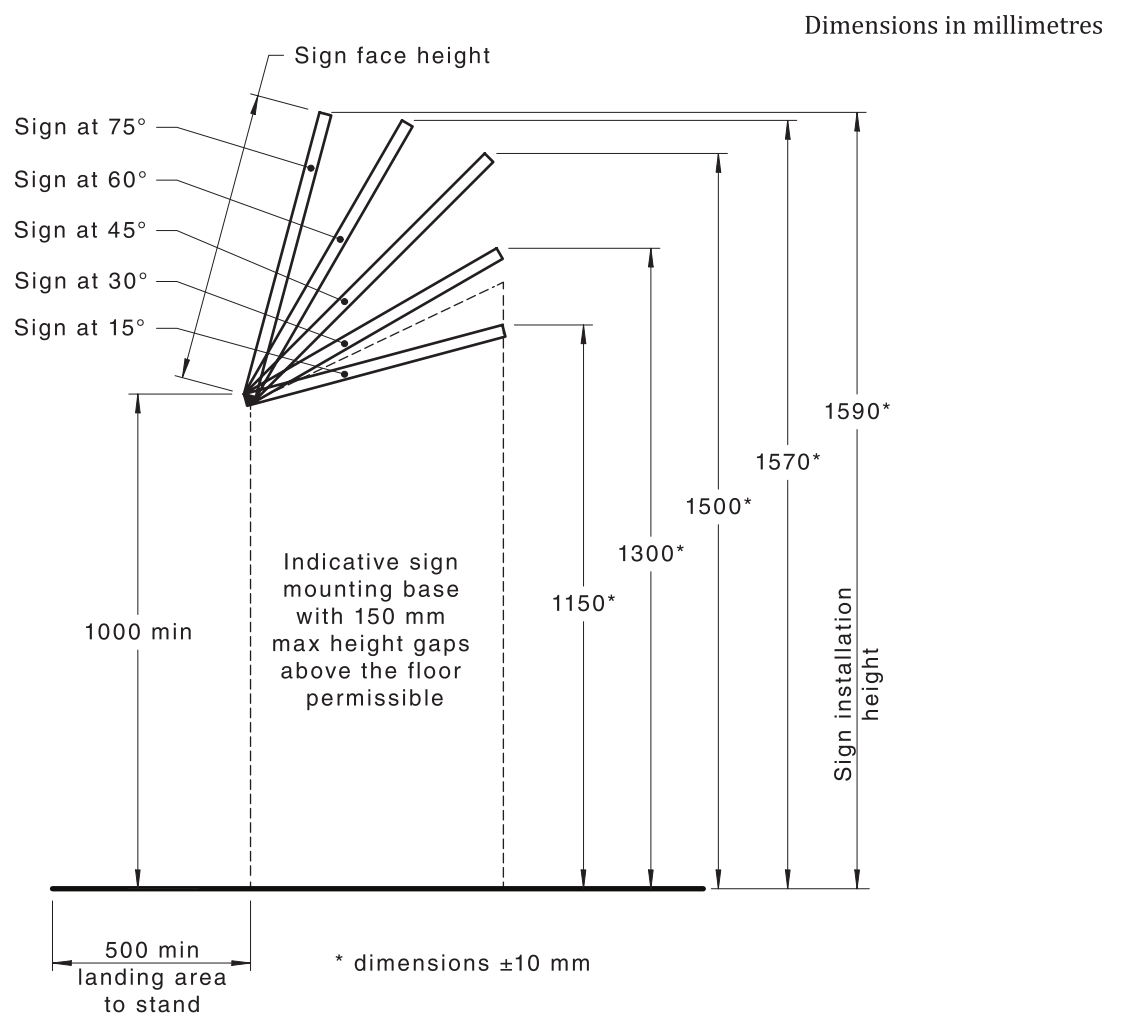


**Figure 4.2.2(C) — Sign installation heights for angled mounted static tactile and braille sign elements — Angle and sign face variations**

### 4.2.3 Combined vertically mounted and angled signs

Combined tactile signs shall be as follows:

- (a) Braille and tactile components of a sign shall be positioned no higher than 1600 mm above the trafficable surface.
- (b) Braille content on the angled section shall be positioned not less than 1000 mm and not higher than 1200 mm above the trafficable surface.
- (c) The angled component shall be between 60 degrees and 70 degrees from horizontal. See [Figures 4.2.3\(A\)](#) and [4.2.3\(B\)](#).
- (d) Signs shall not be mounted on mirrored surfaces.

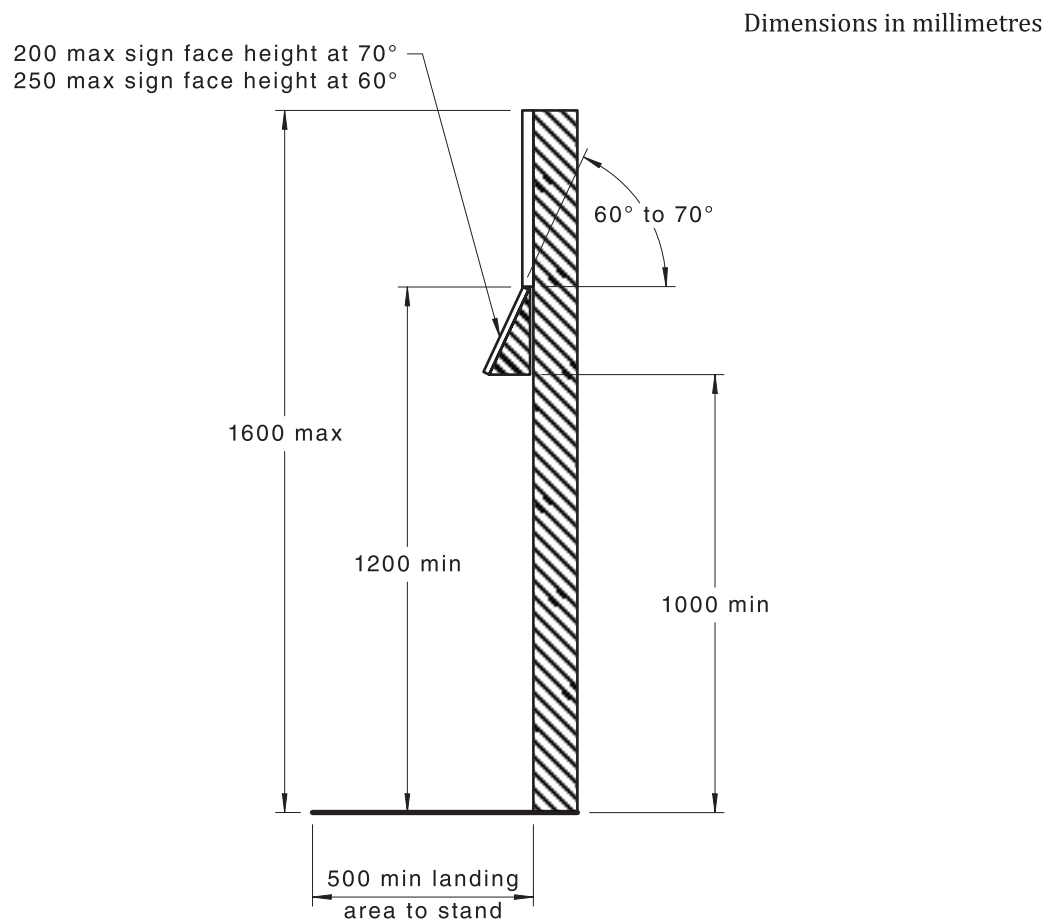


**Figure 4.2.3(A) — Sign installation for combined vertically mounted and angled sign elements — Section**

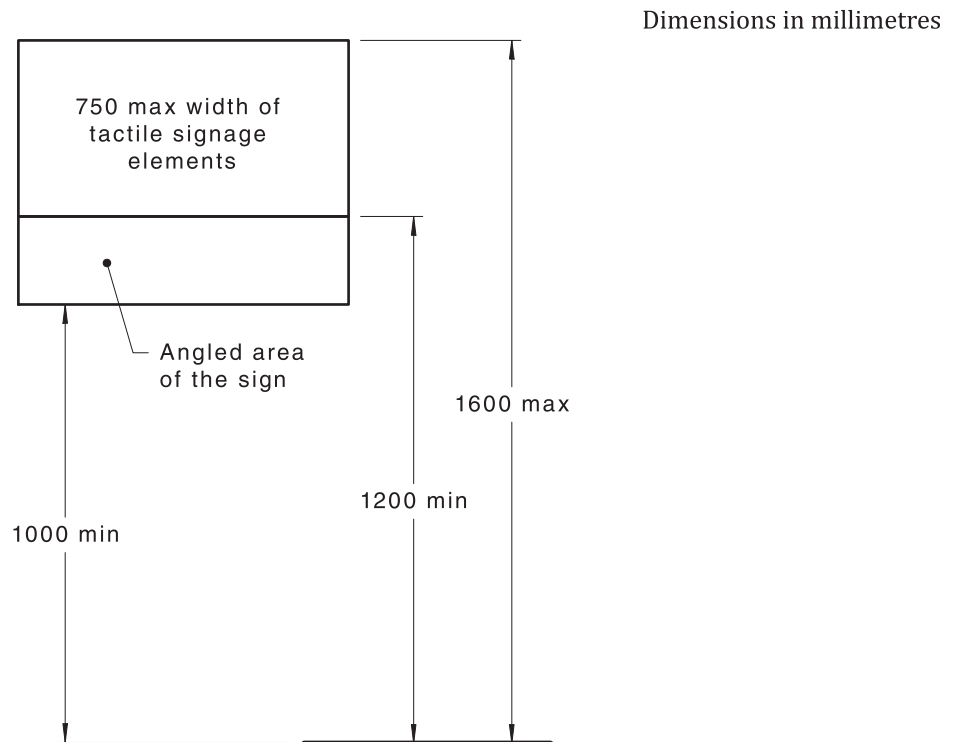


**Figure 4.2.3(B) — Sign installation for combined vertically mounted and angled sign elements — Elevation**

#### 4.2.4 Sign content width

Raised tactile and braille content on signs shall be not wider than 750 mm. This requirement does not apply to raised tactile and braille maps or non-tactile visual sign elements.

## Section 5 Tactile signs — Design requirements

### 5.1 General design requirements

All signs detailed in [Clauses 2](#) and [3](#) shall be as follows:

- (a) Lettering on signs shall be title case.

**NOTE** That is, upper case for the first letter of each main word and lower case for all other letters. Short articles, prepositions and conjunctions are not capitalized.

- (b) Font shall be a Sans Serif type with lettering regularly spaced and aligned.

**NOTE** See [Appendix E](#) for examples of Sans Serif fonts.

- (c) A minimum luminance contrast of 30 % shall be provided between the sign background and all content elements such as text and graphics.
- (d) To provide sufficient luminance contrast of the sign to the background surface:
- (i) Where the wall surface colour is constant, the sign shall provide a 30 % luminance contrast to the wall.
  - (ii) Where the wall surface is not consistent in colour or is patterned, a border around the sign a minimum of 10 mm in width shall be provided to achieve a 30 % luminance contrast with the sign background.

- (iii) Where the sign is mounted on a transparent surface then the sign shall provide a 10 mm border which shall provide a 60 % luminance contrast to the sign background.
- (e) Luminance contrast shall be calculated using the formula contained in AS 1428.4.1—2009, Appendix E, Clause E.3.4.
- (f) Pictograms and/or words shall be consistently used.
- (g) The entire sign, including any frame or content, shall be of matte or low sheen finish.

NOTE This requirement means that a raised tactile and braille sign should not be manufactured on a mirrored background.

## 5.2 Requirements for tactile and braille components of signs

### 5.2.1 General

Tactile signs shall be designed, manufactured and installed in accordance with [Section 4](#) and [5](#).

All braille information on a sign shall be grouped together and positioned below the raised tactile characters and elements.

Spacing between tactile components shall be measured from the nearest edge of an adjacent raised surface.

NOTE [Appendix G](#) provides guidance on the design, manufacture and installation of raised tactile and braille maps.

### 5.2.2 Raised content

Raised tactile elements shall —

- (a) be raised to a uniform surface height of not less than 1 mm and not more than 1.5 mm above the background surface;
- (b) have rounded edges; and
- (c) be positioned no closer than 10 mm to the raised tactile edge of the sign.

NOTE 1 Over time, the legibility, cleanliness, hygiene and luminance contrast of a sign may deteriorate if the sign surface is not regularly maintained.

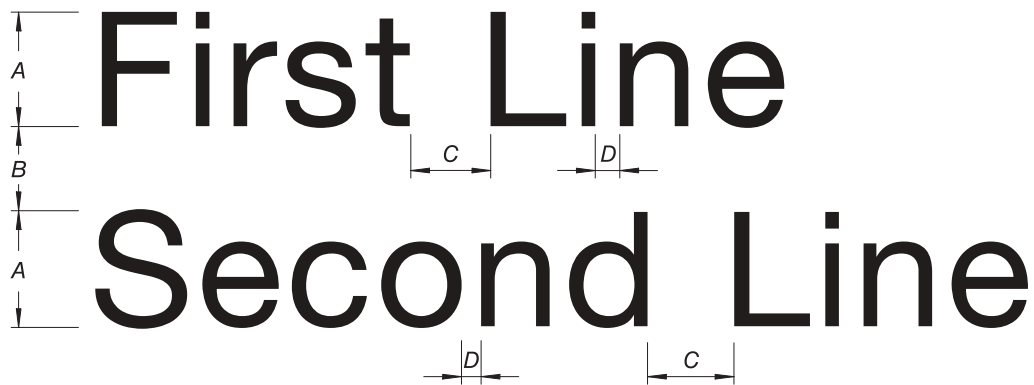
NOTE 2 Some manufacturing processes may not be suitable in certain circumstances.

### 5.2.3 Raised tactile text

Raised tactile text shall be as follows:

- (a) The minimum letter spacing of raised tactile text characters shall be 2 mm.
- (b) Minimum horizontal and vertical spacing of raised tactile words shall be 10 mm. See [Figure 5.2.3](#).
- (c) The thickness of letter strokes shall be not less than 2 mm and not more than 7 mm.
- (d) Upper case tactile letters shall have a minimum capital letter height of 15 mm.
- (e) Tactile text shall be left justified, except that single words may be centre justified.

NOTE Selection of font is critical to ensure the complete legibility by touch of each letter. The width of the stroke within a letter needs to allow the finger to touch both sides of the embossed letter or numeral with a single pass. Raised tactile letter dimensions included in this Standard allow a person who is blind or has low vision to touch both sides of the embossed letter or numeral with a single pass of one finger.



## KEY:

- A: Height of upper case letter
- B: Vertical spacing of raised tactile words
- C: Horizontal spacing of raised tactile words
- D: Letter spacing

**Figure 5.2.3 — Spacing of raised tactile text**

#### 5.2.4 Braille

Braille content shall be designed and manufactured in accordance with the following:

- (a) Braille shall be uncontracted or Grade 1 braille in accordance with Unified English Braille (see [Figure 5.2.4\(A\)](#) and [Table 5.2.4](#)).
- (b) Braille shall provide an equivalent message to that provided by text or written information as well as pictograms.
- (c) Braille shall be in sentence case.
- (d) Where a sign includes punctuation, the equivalent in braille shall be provided.
- (e) Braille shall be left justified.
- (f) Where arrows are used, braille shall include a small solid tactile arrow which shall be:
  - (i) Uniform in surface height.
  - (ii) Overall in size, when measured horizontally, not exceeding 12 mm in length from the point of the arrow to the end of the stroke, and 6 mm in width (see [Figures 5.2.4\(B\)](#) to [5.2.4\(I\)](#)).
  - (iii) Consistently located either one cell width prior to the commencement of the braille text or one braille cell width after the last braille cell where used within a single line of braille text.
  - (iv) Where a single arrow is grouped with more than one destination, each destination within that group shall end with a braille semi colon. The last destination in a group shall have no ending punctuation.
- (g) Braille shall be provided in the same orientation as the visual elements of the sign.

NOTE: Refer to AS 1428.1 for information about braille indicators (semi circle).

Table 5.2.4 — Braille specification

Millimetres

| Horizontal | Vertical   | Cell to cell | Line to line | Min. dot      | Max. dot      | Dot height | Dot radius  |
|------------|------------|--------------|--------------|---------------|---------------|------------|-------------|
| Dot to dot | Dot to dot |              |              | Base diameter | Base diameter |            | Spherical   |
| 2.3 — 2.5  | 2.3 — 2.5  | 6.0 — 7.0    | 10.0 — 11.0  | 1.5           | 1.6           | 0.6 — 0.9  | 0.76 — 0.81 |

Grade 1 braille symbols

|   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
|   |   |   |   |   |   |   |   |   |   |
| a | b | c | d | e | f | g | h | i | j |
|   |   |   |   |   |   |   |   |   |   |
| k | l | m | n | o | p | q | r | s | t |
|   |   |   |   |   |   |   |   |   |   |
| u | v | w | x | y | z |   |   |   |   |

Punctuation

|               |            |             |        |                  |              |               |      |
|---------------|------------|-------------|--------|------------------|--------------|---------------|------|
|               |            |             |        |                  |              |               |      |
| Comma         | Semi colon | colon       | Period | Exclamation mark | Open bracket | Close bracket | Dash |
|               |            |             |        |                  |              |               |      |
| Question mark | Quote open | Quote close | Slash  | Dollar symbol    | Apostrophe   | Hyphen        |      |

Numbers

All numbers need to be preceded by the numeric indicator

For example, 19 is represented as

|   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
|   |   |   |   |   |   |   |   |   |   |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

The grade 1 symbol indicator is required for letters a to j when placed immediately after a number

For example, 8am is represented as

NOTE Examples are shown in shadow braille which adds small dots in the unfilled braille cell positions for accuracy and understanding. During braille production only the large dots are used.

Figure 5.2.4(A) — Grade 1 braille in accordance with Unified English Braille