

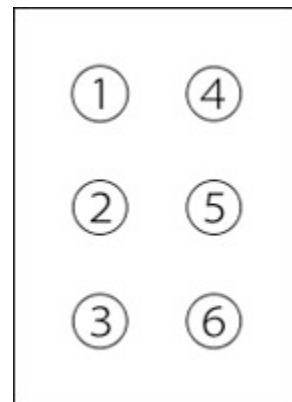


Braille Cell Dimensions

Braille generally consists of cells of six raised dots arranged in a grid of two dots horizontally by three dots vertically. The dots are conventionally numbered 1, 2, and 3 from the top of the left column and 4, 5, and 6 from the top of the right column.

The presence or absence of dots gives the coding for each symbol.

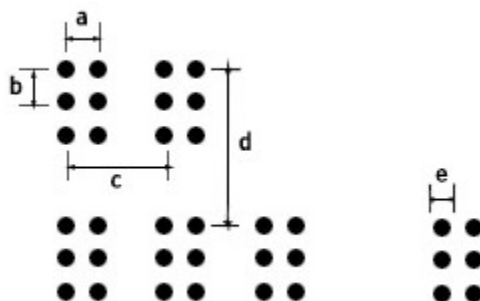
[Different Braille codes](#) are used to map character sets of different languages as well as for some special uses, such as mathematics and music, but essentially the structure of the braille cell remains the same.



Every major braille producing country has standards for braille character spacing and minimum height of the dots in each braille cell. The majority of countries have adopted the braille character standard produced by the Perkins mechanical braille writer. When this standard was first established decades ago, extensive testing was done with a large number of braille readers to determine the optimum characteristics for good quality braille. This is the standard used today by the United States Library of Congress and several other international agencies that oversee the production of books, magazines and other materials in braille.

There are other standards that have been created for specific applications. The European Union has recently adopted a standard known as Marburg Medium braille that has been specifically designed for use on pharmaceutical labels.

The table below contains a summary of the different braille dimensions used in the major braille producing countries and for specific applications.



	Horiz dot to dot mm	Vertical dot to dot mm	Cell to cell mm	Line to line mm	Dot base diam mm	Dot height mm
	a	b	c	d	e	
American Library of Congress [1]	2.5	2.5	3.75	5.0		0.5
American National Library for the Blind [2]	2.28	2.28	6.09	10.16		0.5
American Standard Sign [3]	2.3 - 2.5	2.3 - 2.5	6.1 - 7.6	10.0 - 10.1	1.5 - 1.6	0.6 - 0.9
Australia Sign [4]	2.29 - 2.50	2.29 - 2.54	6.00 - 6.10	10.16 - 10.41	1.40 - 1.50	0.46 - 0.53
Californian Sign [5]	2.54	2.54	5.08			0.64
ECMA Euro Braille [6]	2.5	2.5	6.0	10.0	1.3	0.5
Electronic Braille [7]	2.4	2.4	6.4			0.8
English Interline (alternate print and braille lines) [8]	2.29	2.54	6.00	12.70	1.4 - 1.5	0.46
English Interpoint (braille on both sides of the paper) [9]	2.29	2.54	6.00	10.41	1.4 - 1.5	0.46
English Giant Dot [10]	3.25	3.25	9.78	17.02	1.9	0.81
Enlarged American [11]	2.54	2.54	7.24	12.70		
Enhanced Line Spacing [12]	2.29	2.29	6.1	15.24		
French [13]	2.5 - 2.6	2.5 - 2.6		>10	1.2	0.8 - 1.0
German [14]	2.5	2.5	6.0	10.0	1.3 - 1.6	≥0.5
International Building Standard [15]	2.5	2.5	6.1 - 7.6	10.0 - 10.1	1.5 - 1.6	0.6 - 0.9
Italian [16]	2.2 - 2.5	2.2 - 2.5			1.0	0.5
Japanese [17]	2.13	2.37	5.4	13.91	1.43	0.5
Jumbo American [18]	2.92	2.92	8.76	12.70	1.7	0.53
Korean [19]	2.0	2.0	5.0	6.0	1.5	0.6
Latvian [20]	2.5	2.5	5	10.0	1.6	0.45
Marburg Medium	2.5	2.5	6.0	10.0	1.3 - 1.6	
Marburg Large	2.7	2.7	6.6	10.8	1.5 - 1.8	
Portuguese [21]	2.29	2.54	6.0	10.41	1.4	
Small English [22]	2.03	2.03	5.38	8.46	1.4 - 1.5	0.33
Spanish [23]	2.5	2.5	6.0	10.0	1.2	
Standard American [24]	2.34	2.34	6.22	10.16	1.45	0.48
Swedish [25]	2.5	2.5	6.0	10	1	0.25

Legislation

- ANSI A117.1 (1998) [Accessible and usable buildings and facilities](#)
- Australian Building Codes Board (2007) Building Code of Australia - Section D3.6

Braille and tactile signs

- California Building Standard Code (Title 24) (2007) - Section 1117B.5.6 - Braille
- DIN 32976 (2007) Braille - Requirements and dimensions
- Directive 2001/83/EC Article 56a - Guidance concerning the Braille requirements for labelling and the package leaflet

Sources

- [1] Library of Congress
- [2] Braille Plus, Inc. (n.d.) [American braille technical specifications](#). [accessed 22/09/08].
- [3] ANSI A117.1 (1998) [Accessible and usable buildings and facilities](#) - Chapter 7. Communication Elements and Features: Section 703 Signs
- [4] Australian Building Codes Board (2007) Building Code of Australia - Section D3.6 Braille and tactile signs
- [5] California Building Standard Code (Title 24) (2007) - Section 1117B.5.6 - Braille
- [6] Directive 2001/83/EC Article 56a - Guidance concerning the Braille requirements for labelling and the package leaflet
- [7] Personal correspondence
- [8] Personal correspondence
- [9] Personal correspondence
- [10] Personal correspondence
- [11] Personal correspondence
- [12] Personal correspondence
- [13] Personal correspondence
- [14] German Braille Authority (n.d.) [Braille-dimensions](#). [accessed 23/09/08].
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- [16] Stamperia Braille (n.d.) [The Braille system: precedents, history and characteristics](#). [accessed 24/09/08].
- [17] Watanabee, T. & Oouchi, S. (2003) [A study of legible braille patterns on capsule paper: diameters of braille dots and their interspaces on original ink-printed paper](#). [accessed 24/09/08]; Personal correspondence
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Acknowledgements

- Enabling Technologies (2008) [Frequently asked questions about braille embossers.](#) [accessed 22/09/08].
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