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Gaps, gates and stiles – Specification

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 26, an inside back cover and a back cover.

Foreword

This British Standard was published by BSI and came into effect on 28 April 2006. It was prepared by Technical Committee B/201, *Fences and gates*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 5709:2001, which is withdrawn.

Information about this document

Country walking, cycling and riding have continued to increase since the first edition of this standard was published in 1979. For path users, recent thinking and legislation has focused on the need for less able bodied and disabled people to be able to access the countryside. The proportion of walkers of advancing years, with decreased mobility associated with arthritis of the knee and hip and other age related disabilities, has also increased.

This revision continues to place emphasis on the needs and safety of all path users in the context of the actual agricultural needs of the landowners. In addition recognizing that the standard applies to many field gates on paths.

The United Kingdom is noted for the variety of structures which enable crossings to be made of boundaries where animals need to be contained. Whilst local traditional forms of structures should not be lightly discarded for a standard design, it should be borne in mind that the main objective is for structures to be adequately stockproof (and sometimes motor vehicle proof) while providing good access for all legitimate users. Accordingly this edition continues to specify structures by their functional performance, thus allowing many designs of structure to conform to the requirements. However, it also tries to meet the need for actual buildable designs by means of examples that meet the functional performance criteria.

This standard is intended to be used by:

- a) those planning, specifying, or approving new structures on paths (e.g. highway authorities, district councils, landowners, tenants, user groups, and others handling diversions, creations or dedications of paths subject to gaps, gates and stiles);
- b) those making and buying path structures or kits;
- c) those installing path structures (e.g. landowners, contractors, volunteers);
- d) those replacing, maintaining and inspecting path structures (e.g. farmers, highway authority officers and volunteers).

Most of the functional performance criteria are field measurable but this standard also gives guidance on design where field-measurement is physically difficult or subjective.

NOTE This standard confines itself to the main structure across boundaries (e.g. hedge, fence, wall). Where the path is wider than this structure an additional structure needs to fill the rest of the width. This may be the original hedge or fence or a new one.

On public paths, gates and stiles, and also gaps where the side structure or growth restrict the full width of the way, are legally obstructions unless the path has been dedicated subject to those limitations, or unless they have been authorized by the Highway Authority, or by a public path order or creation agreement (see Highways Act 1980 [1]). Gates, stiles and the side structures or growth alongside gaps are required to be maintained by the landowner to a standard of repair required to prevent unreasonable interference with the rights of persons using the footpath or bridleway (see Highways Act 1980, S146 [1]).

This British Standard provides specifications for gaps, gates and stiles to ensure that they cause the minimum of inconvenience to users whilst fulfilling the requirement for gates and stiles of substantially preventing the passage of animals and, for all structures, where appropriate and lawful, preventing access to some of those not entitled to use the path.

In considering if and what type of structure is necessary the needs of those with disabilities should be taken into account (see Disability Discrimination Act 1995 [2] and the Disability Discrimination Act 2005 [3]). The Countryside and Rights of Way Act 2000 [4] requires local authorities authorizing the installation of gates, stiles and other works on footpaths and bridleways to have regard to the needs of people with mobility problems.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard specifies field-measurable performance requirements for gaps, gates and stiles for footpaths and bridleways and other routes used by the public. It can also be used on wholly private ways. It provides a hierarchy of performance requirements to enable choices to be made as to which type of structure is most appropriate in given circumstances. In regard to stiles, this standard is aimed at the repair and refurbishment of existing ones.

This British Standard does not apply to stiles with moving parts.

2 Terms and definitions

For the purposes of this British Standard, the following terms and definitions apply.

2.1 **bridle gate**

device hinged at one side installed in a boundary such as a fence, hedge or wall which acts as a barrier to livestock and motor vehicles, but which allows the passage of horse-riders, cyclists, pedestrians and their dogs, and mobility vehicles

2.2 **bridleway**

where the context allows, bridleway includes any route where horses are allowed

2.3 **cycle**

wheeled, non-motorized, pedal or hand powered vehicle

2.4 **cyclist**

user of wheeled, non-motorized, pedal or hand powered vehicle

2.5 **dog gate**

device allowing the passage of a dog, whilst preventing the passage of livestock

2.6 **enclosure [see 'refuge' (2.17)]**

2.7 **footpath**

where the context allows, footpath includes any route where walkers are allowed, e.g. access land

2.8 **gap**

unimpeded way through a boundary together with any structure defining its width

2.9 **horse stile**

non-moving structure designed to allow horses to pass whilst forming a deterrent to motorcycles

2.10 **kissing gate**

device consisting of a hinged gate that is constrained to swing between two posts at the opening of an enclosure forming part of the structure, and which allows the passage of legitimate users, whilst preventing the passage of livestock etc.

2.11 livestock

animals such as cattle, sheep (including lambs) and horses, but not including dogs and deer

2.12 manoeuvring space

space needed by persons, horses, cycles, mobility vehicles to traverse the gap or structure conveniently and safely

2.13 mobility vehicle

wheeled vehicle such as a wheelchair, invalid carriage or children's pushchair or pram

NOTE This term includes invalid carriages of Classes 1, 2, and 3 as defined in S.I. 1988 No. 2268 Road traffic – The Use of Invalid Carriages on Highways Regulations 1988 [5].

2.14 path

including public and private routes as well as ways through fences onto and from land such as commons and access land where no specific paths exist

2.15 pedestrian gate

device hinged at one side, installed in a boundary such as a fence, hedge or wall which acts as a barrier to livestock etc., but which allows the passage of pedestrians and their dogs, and mobility vehicles

2.16 RADAR lock

lock operated by a key (RADAR key), normally only available to disabled people

NOTE The key is the design of the Royal Association for Disability and Rehabilitation (RADAR), 250 City Road, London EC1V 8AF.

2.17 refuge or enclosure

area within which the gate of a kissing gate swings or the area between a pair of gates comprising one structure

2.18 self-closing gate

gate which always returns to a position touching, or in line with, the closing post

2.19 stile

fixed device allowing the passage of pedestrians over or through a fence, wall or hedge, while forming a barrier to livestock or other animals, cycles and vehicles

NOTE 1 Stile does not include horse stile.

NOTE 2 Stiles with moving parts are not covered by this standard because they are prone to failure or vandalism and can cause a safety hazard.

2.20 stockproof

structure that is intended to prevent the passage of livestock and/or the passage by other animals or things, for example rabbits or motorcycles

NOTE Animals other than livestock, including wild animals, might require specially designed structures (e.g. tall kissing gates to prevent the passage of deer).

3 Selection of gap, gate or stile – order of preference

3.1 General

The selection of a gap, gate or stile, which permits people to use a path crossing a field boundary such as a hedge, fence or stone wall, shall result in as little restriction as possible for potential users, including users of mobility vehicles, while meeting the actual agricultural needs of the landowners (principle of least restrictive option see **3.1.3**).

3.1.1 Rights of Way users

Structures shall be assessed to ensure that they are suitable, as a minimum, for the following legitimate path users with respect to categories of rights of way (see Highways Act 1980 as amended [1] and Countryside Act 1968 [6]):

- a) footpaths:
 - 1) walkers (pedestrians);
 - 2) wheelchair users;
 - 3) walkers with dogs under control;
 - 4) walkers with prams/pushchairs.
- b) bridleways:
 - 1) all footpath users;
 - 2) horse riders;
 - 3) cyclists;
 - 4) persons leading horses.
- c) restricted byways:
 - 1) all bridleway users;
 - 2) horse drawn vehicles.

NOTE 1 Where a landowner grants access by concession there is scope to define the range of users differently from those in right of way legislation for public paths. For example, a permissive path could allow walkers and horse riders but preclude cyclists.

NOTE 2 Care is required in planning and installing gaps, gates and stiles on all routes where restrictions to mobility vehicle users might be created (see Foreword).

3.1.2 Reasonableness

If a gate, kissing gate or stile is to be provided on a path an assessment shall be made of whether such action is reasonable. The assessment shall as a minimum include the following:

- a) what alternative measures might be taken to avoid the need for a structure or a particular type of structure;

NOTE 1 For example a swathe of land including the path might be fenced-in so as to keep stock completely off the path's surface.

- b) the likelihood of the structure, taken in the context of its environment, causing some restriction to users (e.g. a gate will be difficult for some people with reach or dexterity difficulties);
- c) the extent of any restriction which will be created (e.g. a stile will create an absolute barrier to wheelchair users and many walkers with pushchairs as well as those with limited agility).

3.1.3 Least restrictive

In general terms the principle of applying the least restrictive option means that a path crossing a field boundary shall in the first instance be through a gap (see 4.1 and 4.2). If a gap is inappropriate, for example because of the need to control livestock, the second choice shall be a gate (see 4.1 and 4.4), which is easy to operate in both directions of travel by all people entitled to use the path. If a gate is inappropriate, a kissing gate (see 4.1 and 4.5) shall be chosen.

New structures shall not be stiles unless exceptional circumstances require them.

NOTE 1 As no single structure provides access across field boundaries that is satisfactory in all situations, this standard provides a hierarchy of performance requirements to enable choices to be made as to which structure is most appropriate.

NOTE 2 This standard does not specify performance requirements for chicanes, hoops and similar structures because of the difficulty in designing such structures to allow most legitimate users whilst forming barriers for most non-legitimate ones. But it should be noted that Class III mobility vehicles are normally a maximum of 830 mm and typically 710 mm wide. Whilst there is no actual length restriction, in practice they may be 1.5 m long and manoeuvring space should be planned accordingly.

3.2 Choice of structure on footpaths

Where there are no explicitly identified counter reasons, the type of structure chosen shall be the least restrictive option in accordance with the following list (displayed in least restrictive option order):

- a) gap;
- b) gate;
- c) kissing gate;
- d) stile.

NOTE 1 The fact that there might be a more restrictive structure or ground condition further along the path is not to be taken as a reason for not choosing a less restrictive structure.

NOTE 2 Table 1 shows the performance normally to be expected from the structures listed in their order of preference.

Table 1 Accessibility of structures conforming to BS 5709 on footpaths

Structure (in order of preference)	Type of structure	Performance
Gap	Defined gap	Allows all users
Gate	Pedestrian gate or bridle gate without latch	Allows most users
	Pedestrian gate or bridle gate with latch	Inhibits some users (e.g. those with dexterity and reach, slight difficulties)
Kissing gate	Kissing gate, without latch	Inhibits some users (e.g. wheelchair users) depending on layout and size
	Kissing gate, with latch	Inhibits some users (e.g. disabled users) and is generally more difficult to use than latchless gates
Stile	Wide post and rail stile	Prevents most pushchairs, and all wheelchair users; inhibits the less agile and some walkers with dogs
	Narrow post and rail stile	

4 Performance requirements for structures

4.1 General requirements applicable to all structures

4.1.1 There shall be no barbed wire, or electric fencing capable of giving a shock, inside the structure or within 1 m of the gap or structure or of the manoeuvring space. Similarly there shall be no scratching, stinging, or common rash making plant within 1 m of the structure.

NOTE Annex A gives guidance on the use of barbed wire.

4.1.2 The structure shall contain no projections such as bolts likely to catch on the clothing of path users or to injure people or animals. All edges likely to come into contact with the user shall be rounded to a radius no sharper than 2 mm or chamfered with at least a 2 mm flat. Protrusions integral to the design (e.g. latches) shall be rounded, e.g. using 'D' loops.

4.1.3 Where moving parts of the structure could trap fingers, for instance at the gate closure line, the area shall be maximized to reduce the point pressure.

NOTE This trapping can be avoided by preventing the gate closing completely, for example by installing a block of resilient material on a part of the closing line.

4.1.4 Any finger or direction post carrying a protruding direction sign shall not form part of the structure, but shall be mounted separately so

that the direction arm cannot overhang the structure or intrude into the manoeuvring space.

4.1.5 The ground within 2 m of the structure and the ground through the structure shall be kept free of surface water (except immediately after rain) and provide a firm surface.

4.1.6 Where the structure abuts a vehicular road the structure shall be set back at least 4 m from the carriageway for bridleways and at least 2 m for footpaths to allow users to access and traverse the structure without risk of being struck by vehicles. For footpaths likely to be used by groups of walkers and in all cases where a footpath directly crosses a road (i.e. to another path), the structure shall be set back 4 m.

4.1.7 The assessment of the design of a structure shall include consideration of the needs of users with visual impairment.

NOTE This might involve highlighting structures with contrasting colours.

4.1.8 When the structure fails to conform to any one or more of the requirements of this standard it shall be repaired, replaced, or removed.

4.1.9 The specified requirements shall be checked by visual inspection and measurements which can be carried out on the installed structure. These do not require the use of specialized equipment.

NOTE 1 Where a public path is wider than an authorized structure then some form of cross fencing or hedging will need to be authorized.

NOTE 2 The structure should be built and maintained with adequate strength and rigidity and quality of material and design to meet the requirements in this standard and to ensure the safe and convenient passage of users, as well as providing a reliable barrier to stock if required to do so.

NOTE 3 It is recommended that in selecting materials for the structures an assessment be made of that material for toxicity and sustainability. With regard to toxicity the assessment might include as a minimum toxicity to humans, crops and all other flora and fauna likely to come into contact with it.

NOTE 4 Where a public path is wider than an authorized structure then some form of cross fencing or hedging will need to be authorized.

NOTE 5 The arrangement of a lockable field gate on the path line with a public gate offset from the path line is deprecated even if the extra land is dedicated.

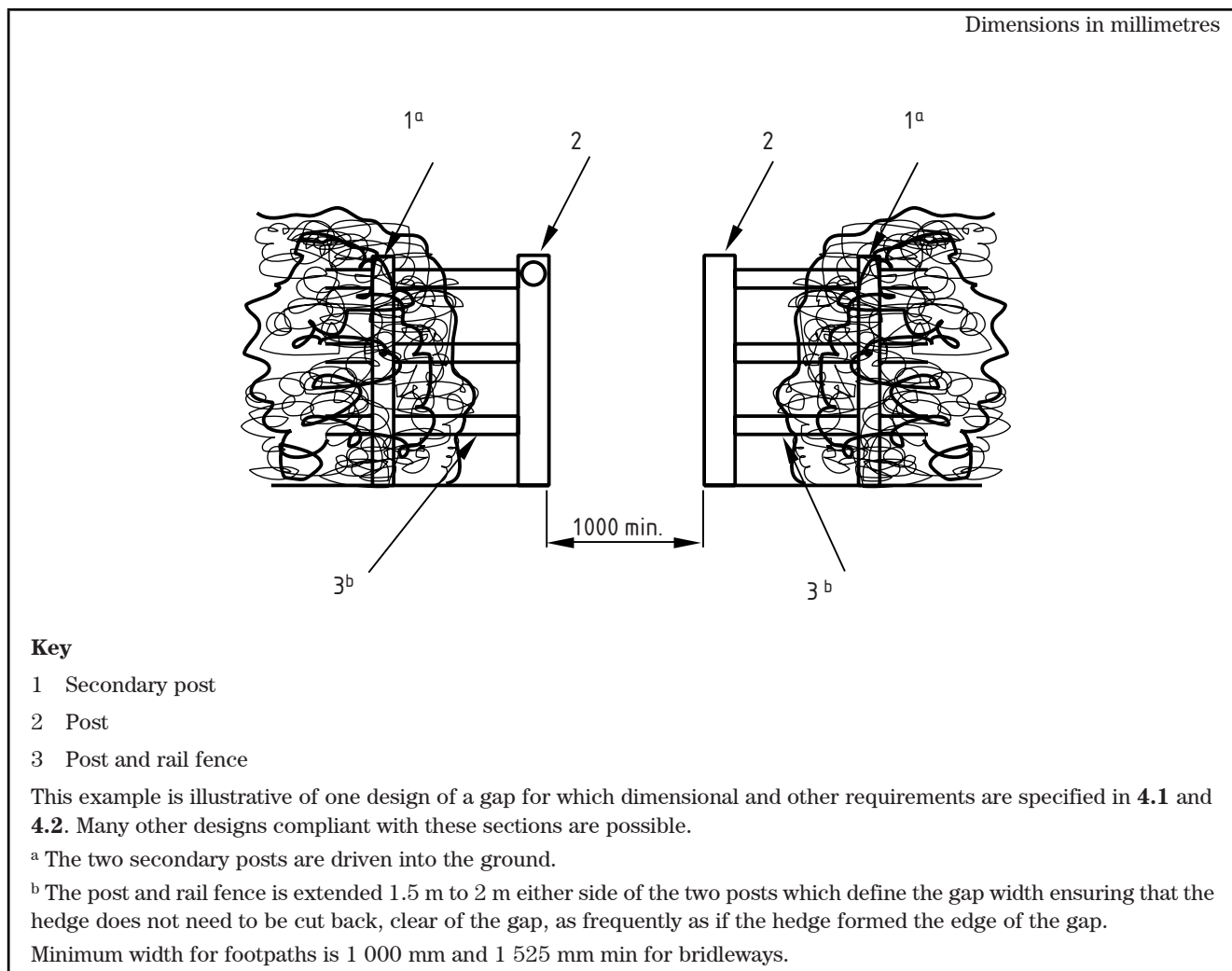
4.2 Gaps

Gaps shall conform to the following requirements in addition to those of 4.1 (see example in Figure 1):

- a) for footpaths the minimum width of gaps shall be 1 000 mm;
- b) for bridleways the minimum width of gaps shall be 1 525 mm.

NOTE Many path maintenance vehicles can gain access to paths through a 1 525 mm gap.

Figure 1 Example of a gap constructed in a hedge



4.3 Kent Carriage Gap

The Kent Carriage Gap (KCG), for horse-drawn carriages, shall conform to the following requirements in addition to those of 4.1 (see example in Figure 2):

NOTE The Kent Carriage Gap can legally be used to enforce a Traffic Regulation Order made under the Road Traffic Regulation Act 1984 [7] to prevent the use of a route by cars, vans and lorries. It might also be used on a bridleway if the landowner has given permission for carriages, but was concerned that the path might be used by unauthorized motor vehicles. This layout does not stop motorcycles, and very small cars might be able to pass through. There are some horse carriages that might find the system obstructive, e.g. those based on car wheels and axles; those with a low fixed backstep, those with a pair or team of horses to a big carriage.

- a) The basic structure shall consist of a pair of posts.
- b) One of the posts (the first post) shall be between 330 mm and 380 mm high and shall be between 1 525 mm and 1 600 mm from the second post, measured at the shortest distance, above ground, between the posts. The second post shall be at least 330 mm high.
- c) No other structure, man-made or natural, shall come within 600 mm of the first post, but further posts, structures, banks or

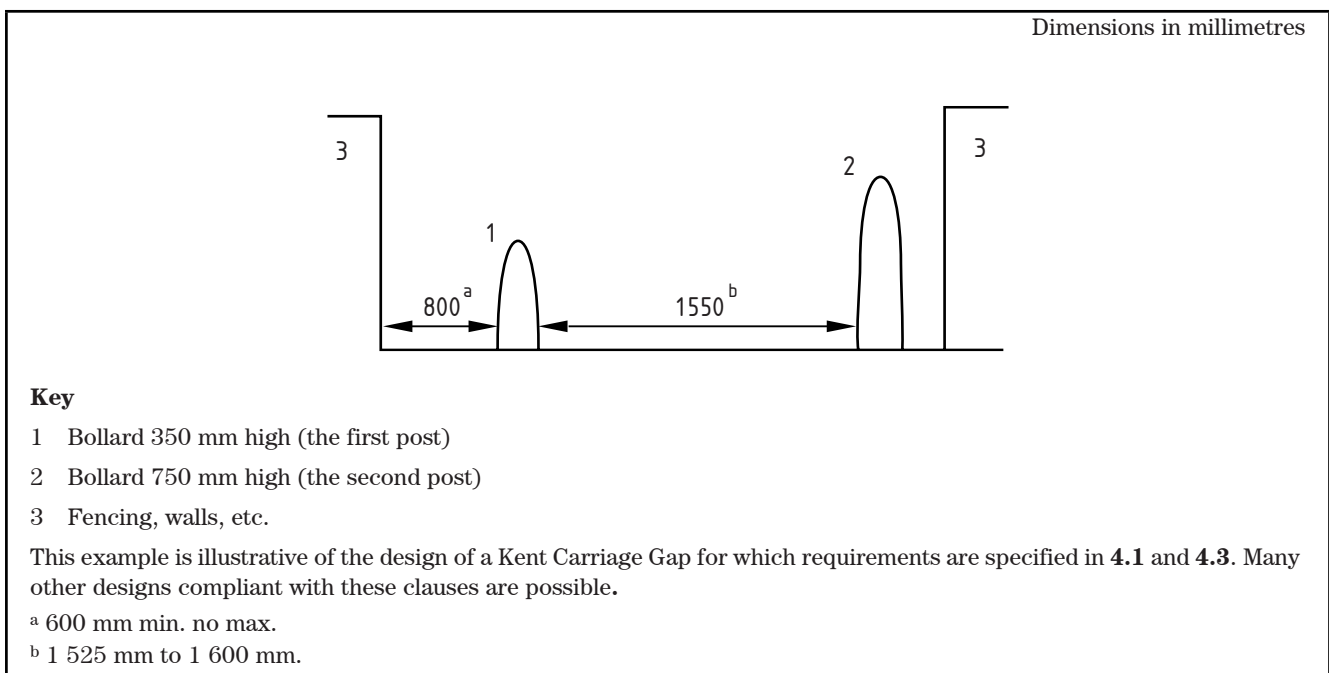
fences could be used beyond this to prevent other vehicles bypassing the KCG.

NOTE 1 Up to three pairs of posts, satisfying the above dimensions, can be used together.

NOTE 2 This might help prevent forced access by large vehicles.

- d) In order to ensure the minimum restriction to carriages where more than one pair of posts is used, the first post [see b)] in each pair shall be on the same side of each of the pairs when viewed by someone about to enter the structure along the direction intended. The line joining the posts in each pair shall be perpendicular to the line joining the first posts.
 - e) Manoeuvring space shall be provided before and after the pairs of posts to allow the carriage to be driven straight through the structure.
 - f) The posts shall be furnished with a reflective strip or strips all round and with a total height of not less than 25 mm and/or shall be finished at least 50% by area in a light colour or 100% of the area equally yellow and black, in all cases with the top 200 mm having at least 50% light reflectance when viewed from any direction.
 - g) The posts shall be rounded to not less than 10 mm radius.
- NOTE Domed tops and round posts are recommended so as to cause minimum damage to carriage wheels and minimum risk of injury to people.*
- h) The bollards shall be solidly planted and shall withstand a 5 000 N force (approx ½ tonne spring balance) applied at the top in any direction, including upwards.
 - i) The surface on the line of the path through the structure shall be hard and with a slope of less than 1 in 6.

Figure 2 Example of a Kent Carriage Gap



4.4 Pedestrian gates and bridle gates

NOTE 1 Pedestrian and bridle gates are the preferred option if a gap can not reasonably be used.

NOTE 2 Where stock are not present for a significant time, then in line with the least restrictive option the gate may be tied open or temporarily removed.

NOTE 3 A field gate (farm gate) may be used as pedestrian or bridle gate, if compliant with this standard.

Pedestrian gates and bridle gates shall conform to the following requirements in addition to those of 4.1 (see examples in Figure 3 and Figure 4).

- a) The minimum clear width of pedestrian gates shall be 1 000 mm and the clear width of bridle gates between posts shall be 1 525 mm.

NOTE Many path maintenance vehicles can gain access to paths through a 1 525 mm spacing between posts.

- b) Latches, if fitted, shall be visible, accessible and smoothly and easily operable from both sides of the gate by all path users. Shutting the gate should automatically fasten the latch.
- c) Gates shall swing freely and a force no greater than 50 N shall be needed to open them fully.

NOTE 50 N is approximately represented by 5 kg on a spring balance scale.

- d) Self-closing pedestrian gates and bridle gates which do not adjoin roads shall be two-way.

NOTE 1 Gates are normally easier to use for all users if they open in the direction of travel, i.e. they are two-way. This avoids back-tracking to open the gate. It also avoids the risk with self-closing gates of the horse or mobility vehicle being jammed by the closing gate.

NOTE 2 The recommended method of self-closing is by means of purpose made offset hinges.

- e) A manoeuvring space shall be provided either side of pedestrian gates and bridle or field gates to allow path users to operate the latch (if fitted) as well as to pass through the gateway.

NOTE The opening side of one-way gates normally need substantially more manoeuvring space than two-way gates owing to the need for the user to keep out of the way of the gate as it opens. Some horses and mobility vehicles need at least 3 m diameter to turn around in.

- f) Gateposts shall not be used as straining posts for a fence.
- g) In order to reduce shearing action on fingers etc. where two-way gates swing past a post, gates shall be at least 30 mm from the post they swing past (except for any latch area).
- h) For gates on public paths, a notice saying 'Public Footpath' or 'Public Bridleway' shall be made clearly visible to all users approaching from either side of the gate. The notice shall be on the structure or within 2 m of it.

NOTE 1 Waymarks, required on paths under the Countryside Act 1968, section 27 [6], might fulfil this requirement so long as they carry the words 'Public Footpath' or 'Public Bridleway'.

NOTE 2 Without notices these gates could be perceived as private, further inhibiting use of the public way.

- i) For one-way opening gates, the overlap at the closing line on the closing post shall be at least 30 mm.

Figure 3 Example of a one-way opening timber, unlatched, pedestrian gate

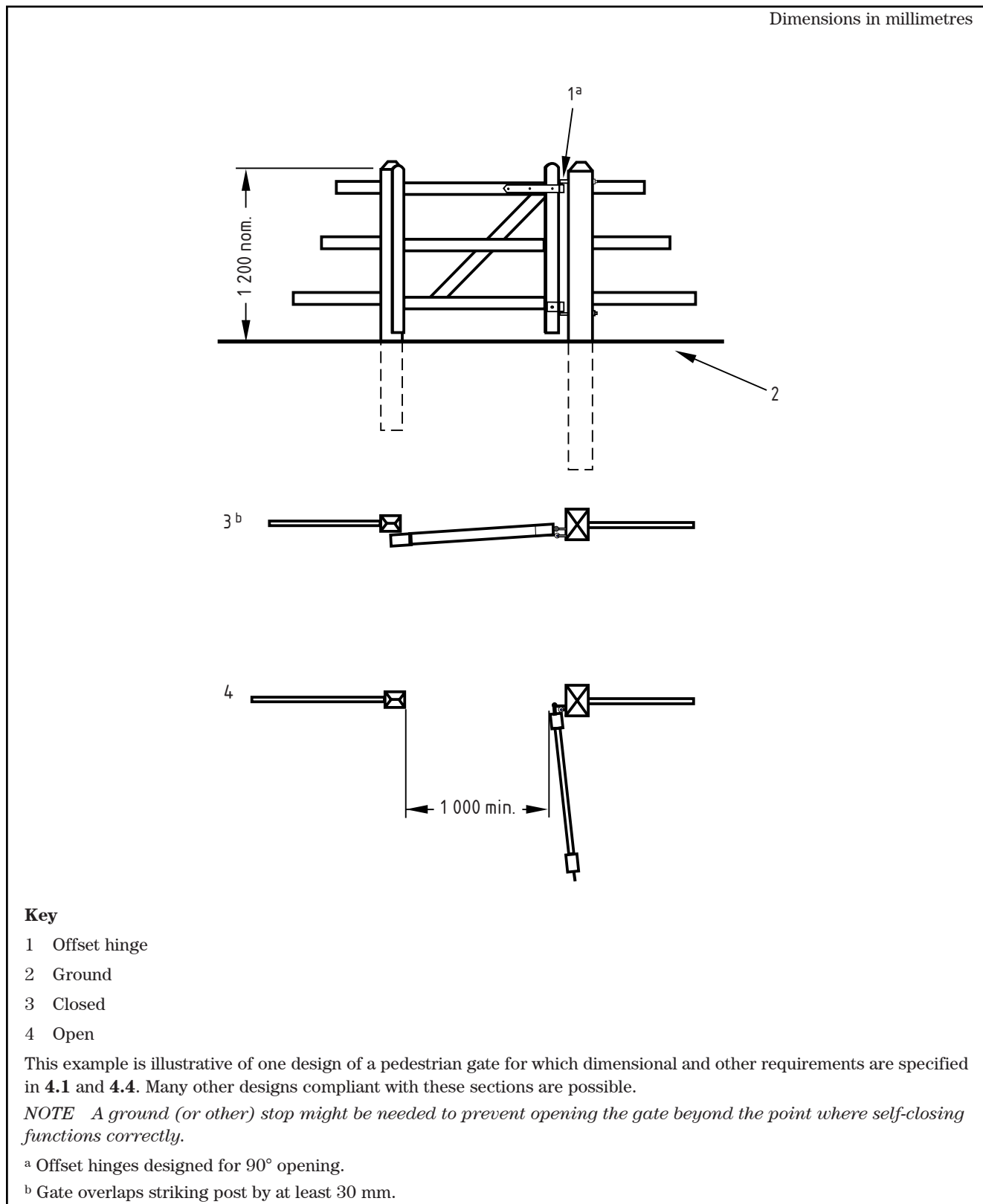
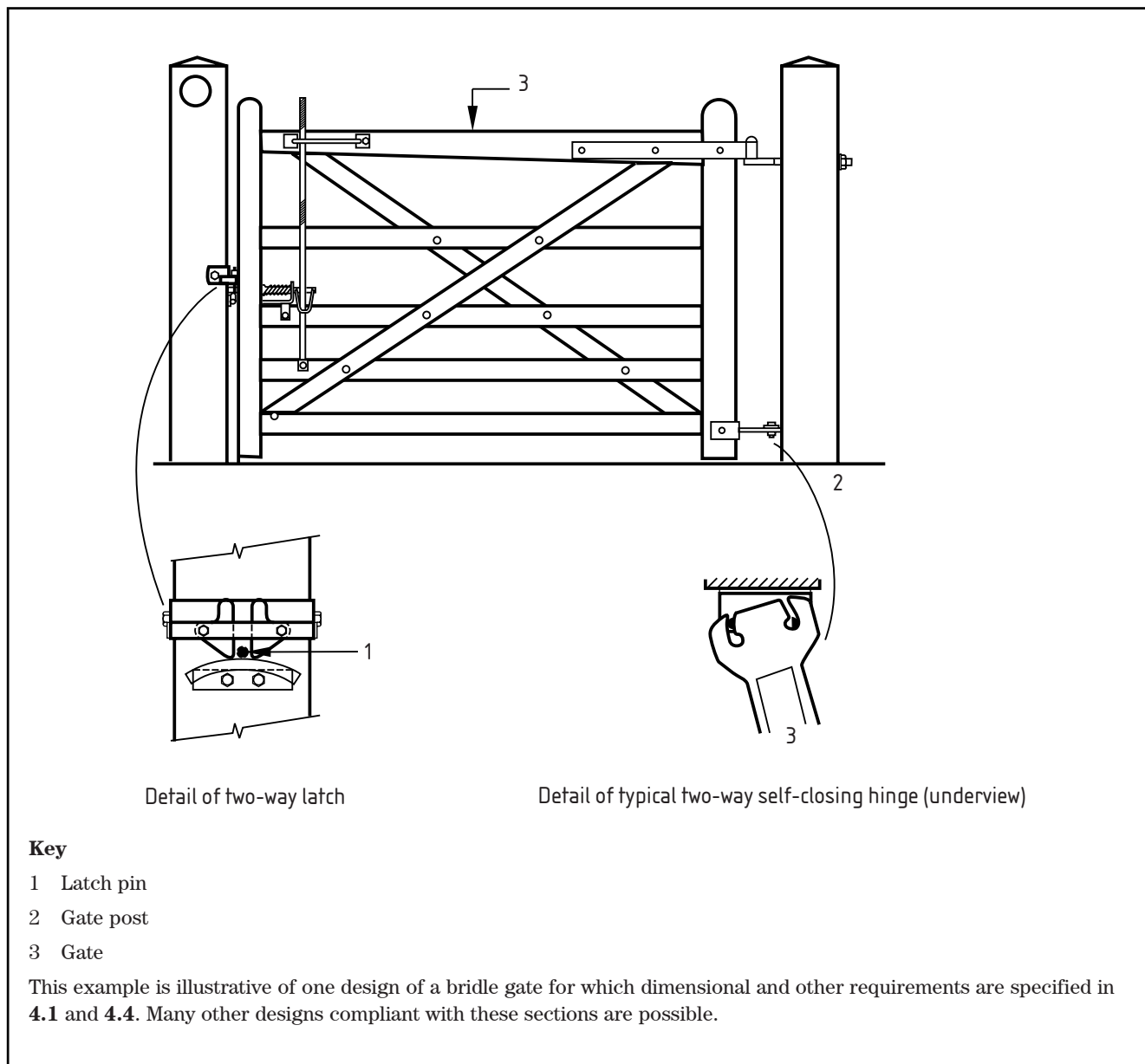


Figure 4 Example of a self-closing two-way opening timber bridle gate using a slotted plate self-closing mechanism



4.5 Kissing gates

NOTE 1 Kissing gates are by their inherent design more restrictive for many users than pedestrian gates and should only be used when there are specific requirements.

NOTE 2 If the gate is constructed so the gatepost, gate, and closing post are in line with the fence, then that might allow the refuge/enclosure to be removed when local conditions allow.

NOTE 3 Where stock are not present for a significant time, then in line with the least restrictive option requirement the gate may be temporarily removed.

NOTE 4 Where the length from the gate to the end of the refuge/enclosure is less than 1 600 mm, provision of a RADAR bypass or an adjacent RADAR lock operated gate (which could be an existing field gate) is strongly recommended to ensure access for users of Class III mobility vehicles. The requirements arising from the DDA should be borne in mind.

Kissing gates shall conform to the following requirements in addition to those of 4.1 (see examples in Figure 5, Figure 6 and Figure 7).

- a) A minimum internal manoeuvring space shall be provided so as to allow a 1 m diameter cylinder to pass through the kissing gate with its flat end on the ground.

NOTE 1 This minimum requirement allows many mobility vehicles, including most pushchairs and some wheelchairs, to pass through the gate but deters motorcycles [a trapezium shape (see example in Figure 4) allows this requirement to be met whilst keeping the size of the structure to a minimum].

NOTE 2 A self-closing feature is desirable on all kissing gates where there is animal stock in adjacent fields. Lambs, calves etc. might be able to get through when a non self-closing gate is provided.

NOTE 3 Provision should always be allowed for a locked gate. Such a gate may be a separate structure, or it may be part of the kissing gate, allowing full opening when unlocked. The lock fitted should have a key available to disabled people and occasional other users, e.g. mothers with large double baby buggies who might require access. A small notice on the gate about the RADAR lock is desirable. The lock will usually conform to the RADAR standard.

- b) Latches, if fitted, shall be visible, accessible, and easily operable from both sides of the kissing gate by all path users. Shutting the gate should automatically fasten the latch.
- c) Gates shall swing freely and a force no greater than 50 N shall be needed to open them fully.
- d) A manoeuvring space shall be provided on either side of the gate to allow path users to operate the latch (if fitted) as well as to pass through the gateway.

NOTE Some mobility vehicles need at least 3 m diameter to turn around in.

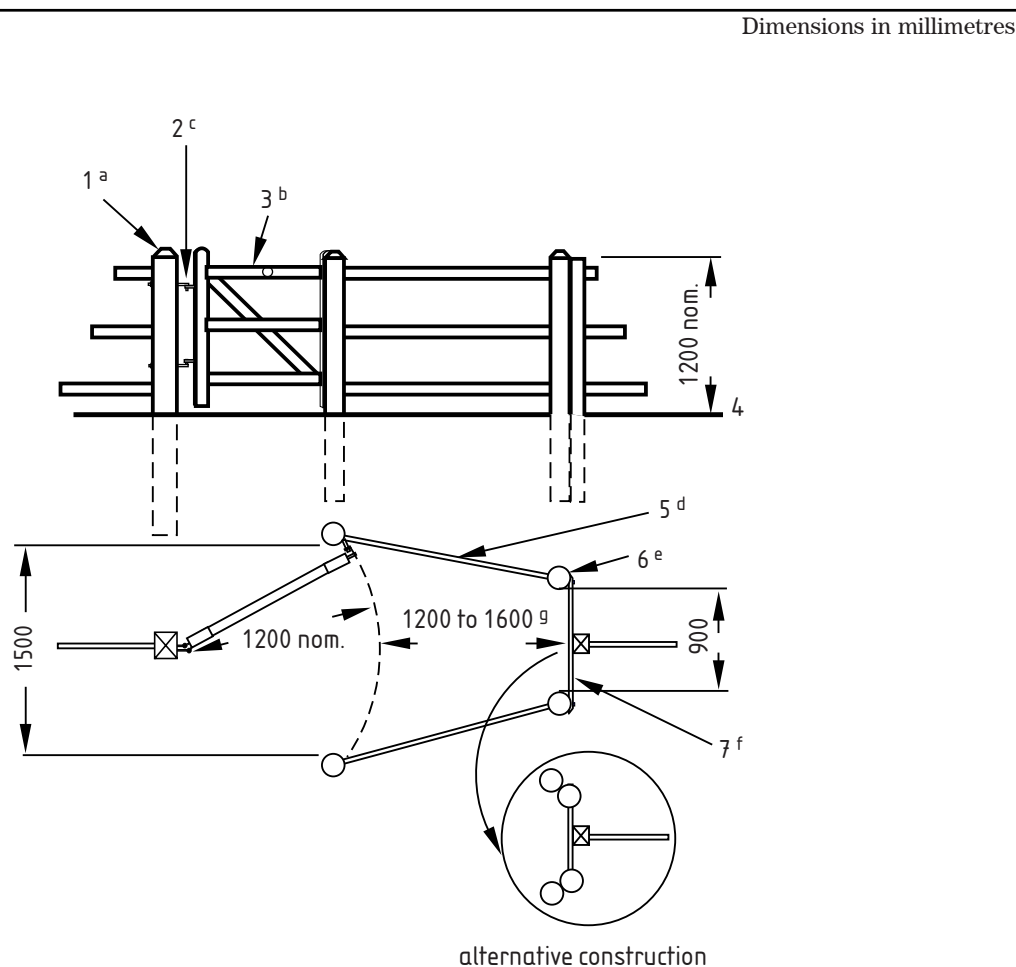
- e) The gate overlap at the closing line on the closing post (whether the whole gate or just the locking tongue) shall be at least 30 mm.
- f) For gates on public paths, a notice saying 'Public Footpath' shall be made clearly visible to users approaching from either side. The notice shall be on the structure or within 2 m of it.

NOTE Waymarks, required on paths under the Countryside Act 1968, section 27 [6], might fulfil this requirement so long as they carry the words 'Public Footpath' or 'Public Bridleway'. Without notices these gates could be perceived as private, further inhibiting use of the public way.

- g) Where use of a mobility vehicle is practicable, the ground within the gate, and the manoeuvring space shall either be level or shall be on a slope all in one plane and less than 1 in 10 gradient.

NOTE In order to be stockproof, kissing gates should normally close away from the side of the boundary used predominantly by livestock and upright wickets, sheep netting or other means of stockproofing should be used according to agricultural requirements.

Figure 5 Example of a trapezoidal timber kissing gate

**Key**

- | | |
|----------------|---------------|
| 1 Gatepost | 5 Guard fence |
| 2 Offset hinge | 6 Posts |
| 3 Gate | 7 Rails |
| 4 Ground | |

This example is illustrative of one design of a kissing gate for which dimensional and other requirements are specified in 4.1 and 4.4. Other designs compliant with these sections are possible.

This is an efficient structure that can be used by certain mobility vehicles.

^a Gatepost: 125 mm × 125 mm × 1 950 mm, four ways weathered, embedded 750 mm into the ground, and concreted in.

^b Gate: post and rail or wicket type, diagonally braced, 1 000 mm high and set 50 mm above ground level (see 4.5, Note 3).

^c Offset hinges to provide automatic closing.

^d Guard fence: three sections.

^e Posts 100 mm round or square × 1 850 mm long, embedded 600 mm in ground.

^f Rails 75 mm × 50 mm morticed into posts or (for centre section) nailed into recesses in posts.

^g See 4.5, Note 4.

Figure 6 Example of a rectangular timber kissing gate

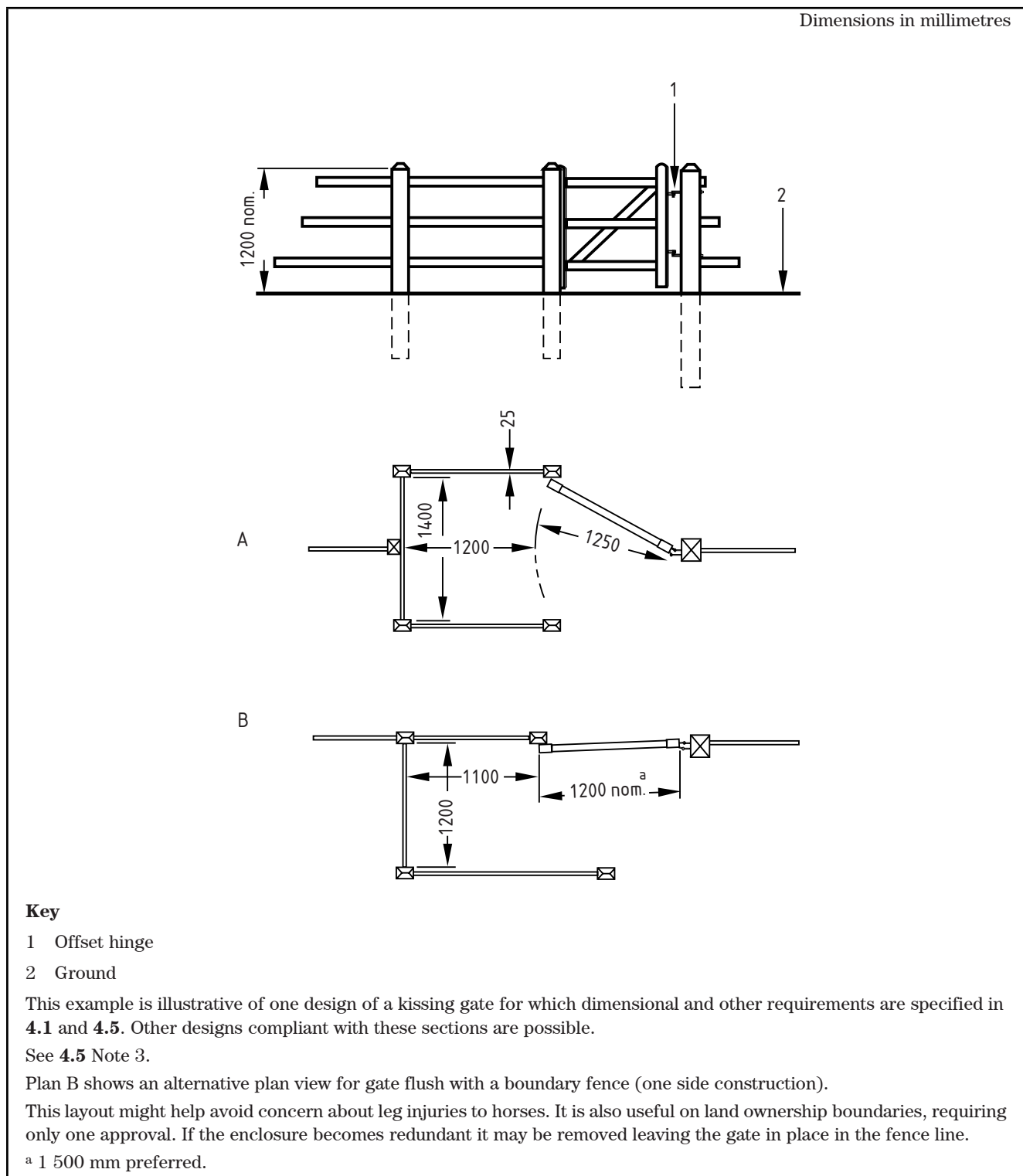
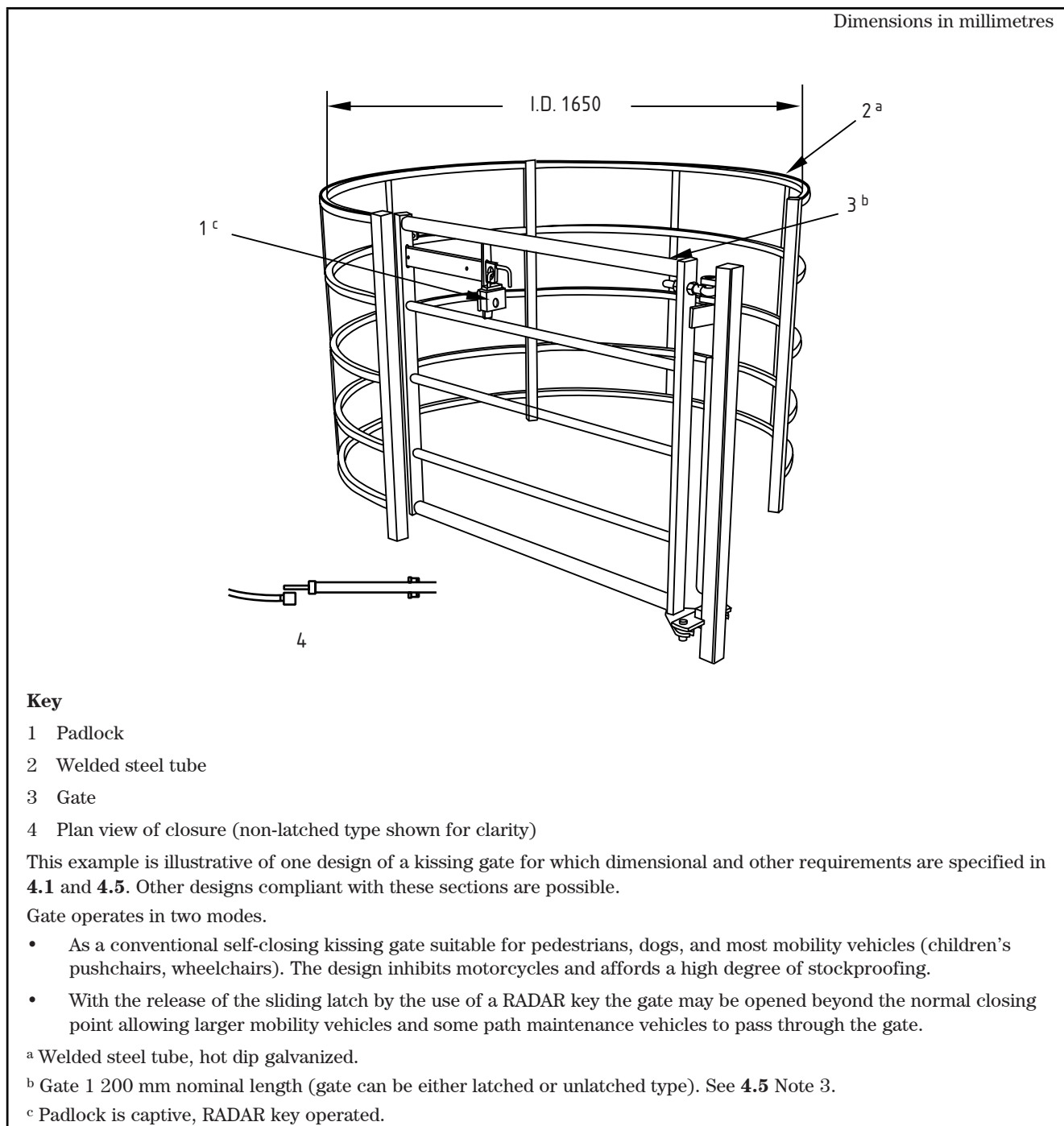


Figure 7 Example of a curved metal kissing gate with RADAR bypass



4.6 Stiles (not including horse stiles)

4.6.1 General

Stiles shall only be used for new structures when exceptional circumstances require them.

All stiles, except horse stiles, shall conform to the following requirements in addition to those of 4.1.

- a) Stiles shall have a maximum of two steps, of minimum width 200 mm, except on sloping ground when a third step, forming a stepping platform, of double step-width on one side of the stile only, is permitted if it is needed in order to conform with the step height requirements specified.
- b) The maximum distance between the ground and the top of the bottom step shall be 300 mm. The distance between the tops of the steps shall be a maximum of 300 mm.
- c) When a mass of 75 kg is placed anywhere on a step or top rail a maximum deflection of 15 mm shall occur. When a mass of 150 kg is placed anywhere on a step or top rail acting through an area of no greater than 0.01 m² (approx. 100 mm² or 80 mm diameter circle) no visible permanent deformation or cracking shall take place.
- d) One, or two, hand posts shall be provided [see 4.6.2d) and 4.6.3d) respectively] unless the construction material is not appropriate [e.g. stone stiles, see e)]. The section of the hand post shall be between 70 mm and 100 mm diameter or across faces, a round cross-section is preferred.
- e) All edges of the structure likely to come into contact with the user shall be rounded to a radius no sharper than 2 mm or chamfered with at least a 2 mm flat.
- f) For structures where hand posts are considered inappropriate (for example stone stiles), handholds shall be provided to help steady users of the structure.
- g) Neither the hand posts nor any other posts of the main structure shall be used as straining posts for the adjoining fence.
- h) Where steps are likely to become slippery due to mud, organic growth, or other reason, action shall be taken to reduce the risk of users slipping.

NOTE Chicken wire can deteriorate, cause trip hazards and pierce dogs' paws.

- i) Steps shall not have a slope in any direction greater than 1 in 30 (i.e. over any 300 mm of the step surface it shall not be more than 10 mm out of level). Posts shall also be vertical to 1 in 30 (i.e. over 1 m a post shall be not more than 33 mm away from the vertical).

4.6.2 Wide post and rail stiles

NOTE This type of stile is normally used by swinging each leg sideways over the stile in turn.

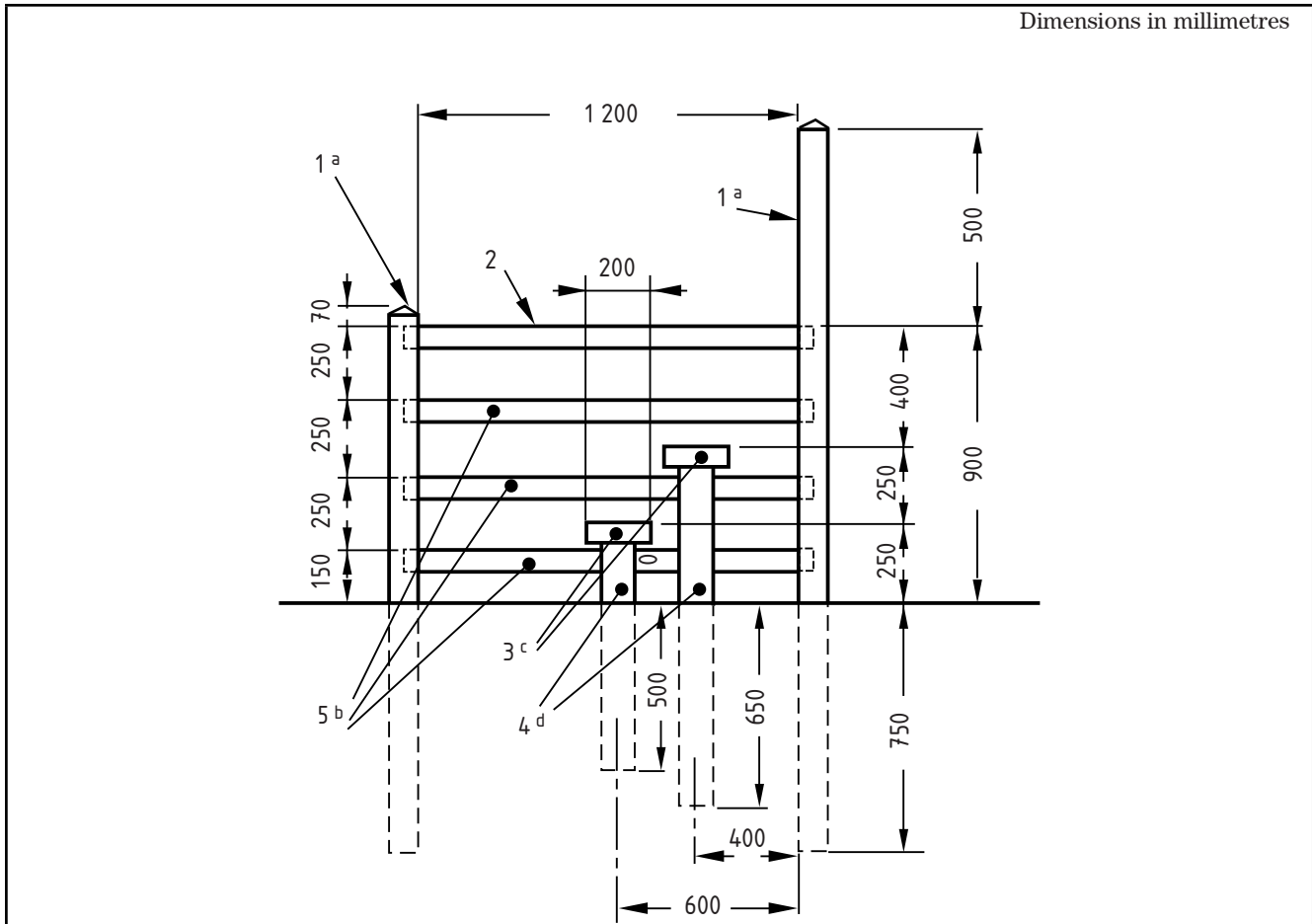
In addition to the requirements of 4.1 and 4.6.1, wide post and rail stiles shall conform to the following requirements (see example in Figure 8).

- a) The distance between the top of the top step and the top of the top rail shall be a maximum of 450 mm.
- b) The minimum width of the stile measured along the top rail shall be 1 200 mm between stile posts.
- c) Where the stile is required to be stockproof the height of the top rail from the ground (measured beside the top step) shall be a maximum of 1 050 mm and a minimum of 900 mm.

NOTE For the stile to be stockproof some infilling might be required, for example 300 mm gaps between rails can be used for cattle, 150 mm for sheep, or sheep netting can be installed.

- d) Either one stile post shall be provided, forming a handpost, extending 500 mm to 700 mm above the top rail or a handhold pole shall be attached to a stile post, extending the same distance. The other stile post shall extend a maximum of 75 mm above the rail.
- e) Steps shall either be at $90^\circ \pm 10^\circ$ to the fence line (or stile rails) or crossed over at $45^\circ \pm 10^\circ$ to it.
- f) The horizontal distance between the centre of the top step and the near side of the extended post shall be between 350 mm and 450 mm for parallel (90°) steps and between 500 mm and 600 mm for crossed (45°) steps.
- g) The length of step shall be a minimum of 900 mm.

Figure 8 Example of a wide post and rail stile



Key

- | | |
|------------|-----------------|
| 1 Post | 4 Step supports |
| 2 Top rail | 5 Rails |
| 3 Steps | |

This example is illustrative of one design of a wide stile for which dimensional and other requirements are specified in 4.1, 4.6.1 and 4.6.2. Many other designs compliant with these sections are possible.

Possible variations:

- Maximum height top rail 1 050 mm with rails at 150, 250, 300 and 350 mm intervals and step heights of 300 mm and 600 mm (giving stepover height of 450 mm). Step supports 1 200 mm and 750 mm long.
- The tall post, instead of being extended, can have handhold pole, rounded to a minimum of 50 mm diameter, securely bolted to the stile post.
- Steps can be crossover at 45° to stile but this can be awkward going one-way if holding onto the post or handpole.

^a Posts: 100 mm × 100 mm, 4 ways weathered and embedded to a minimum of 750 mm in the ground.

^b Rails: 75 mm (vertical) × 50 mm (horizontal), stub morticed into posts.

^c Steps: 900 mm × 200 mm × 50 mm, drilled and skew-nailed with 125 mm nails.

^d Step supports: 150 mm × 75 mm × 1 100 mm (top step) or 700 mm (bottom step) (for minimum height stile).

4.6.3 Narrow post and rail stiles

NOTE This type of stile is normally used by stepping over without swinging a leg sideways.

In addition to the requirements of 4.1 and 4.6.1, narrow two post and rail stiles shall conform to the following requirements (see example in Figure 9).

- a) The distance between the top of the top step and the top of the top rail shall be a maximum of 300 mm.
- b) The width of the stile measured along the top rail shall be between 600 mm and 700 mm between the stile posts.
- c) Where the stile is required to be stockproof the height of the top rail from the ground (measured at the side of the steps) shall be between 800 mm and 900 mm.

NOTE 1 For the stile to be stockproof some infilling might be required, for example 300 mm gaps between rails can be used for cattle, 150 mm for sheep, or sheep netting could be installed.

NOTE 2 Where the stile is not required to be stockproof the narrow post and rail specification allows the use of only one step so long as it is not more than 300 mm from the ground.

- d) Either two stile posts shall be provided extending above the top rail by between 500 mm and 700 mm or hand hold poles shall be attached securely to the stile posts, extending the same distance. For stone stiles and stiles in which the top rail is a flat surface at least 300 mm wide, two stile posts shall be provided extending above the top rail by between 800 mm and 1 000 mm.
- e) For all stiles, except for stiles of cantilevered stone and similar material [see f)], the length of step shall be 1 000 mm min. Steps shall be crossed over at $45^\circ \pm 10^\circ$ to the fence line (or stile rails). Steps shall be centred between the posts within 30 mm.
- f) For stiles of cantilevered stone and similar material (see Figure 10) the length of each step shall be at least 300 mm from the cantilever face. At least 200 mm of each step viewed in plan shall be visible and within the width of the top rail (or equivalent structure).

Figure 9 Example of a narrow post and rail stile

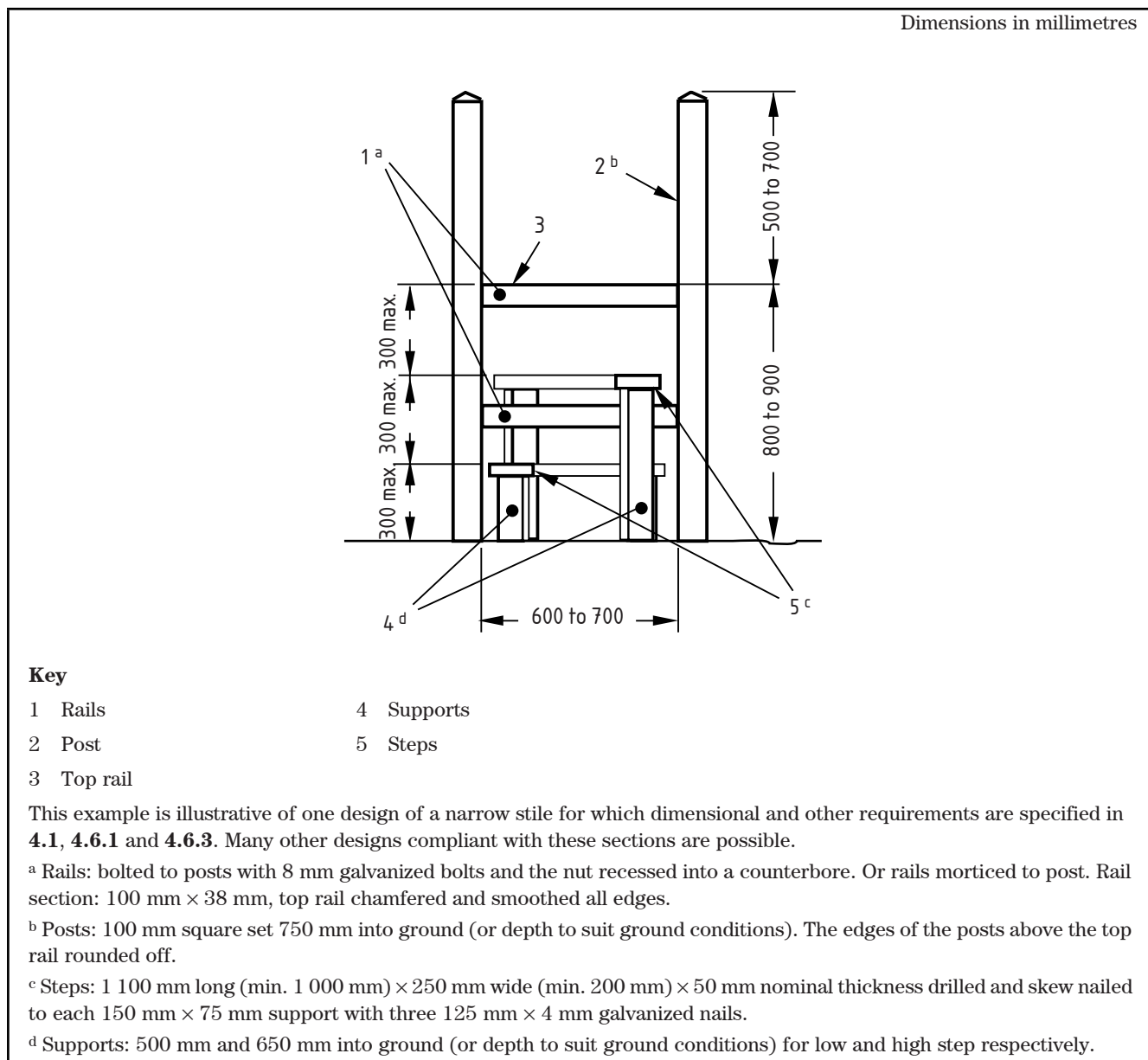
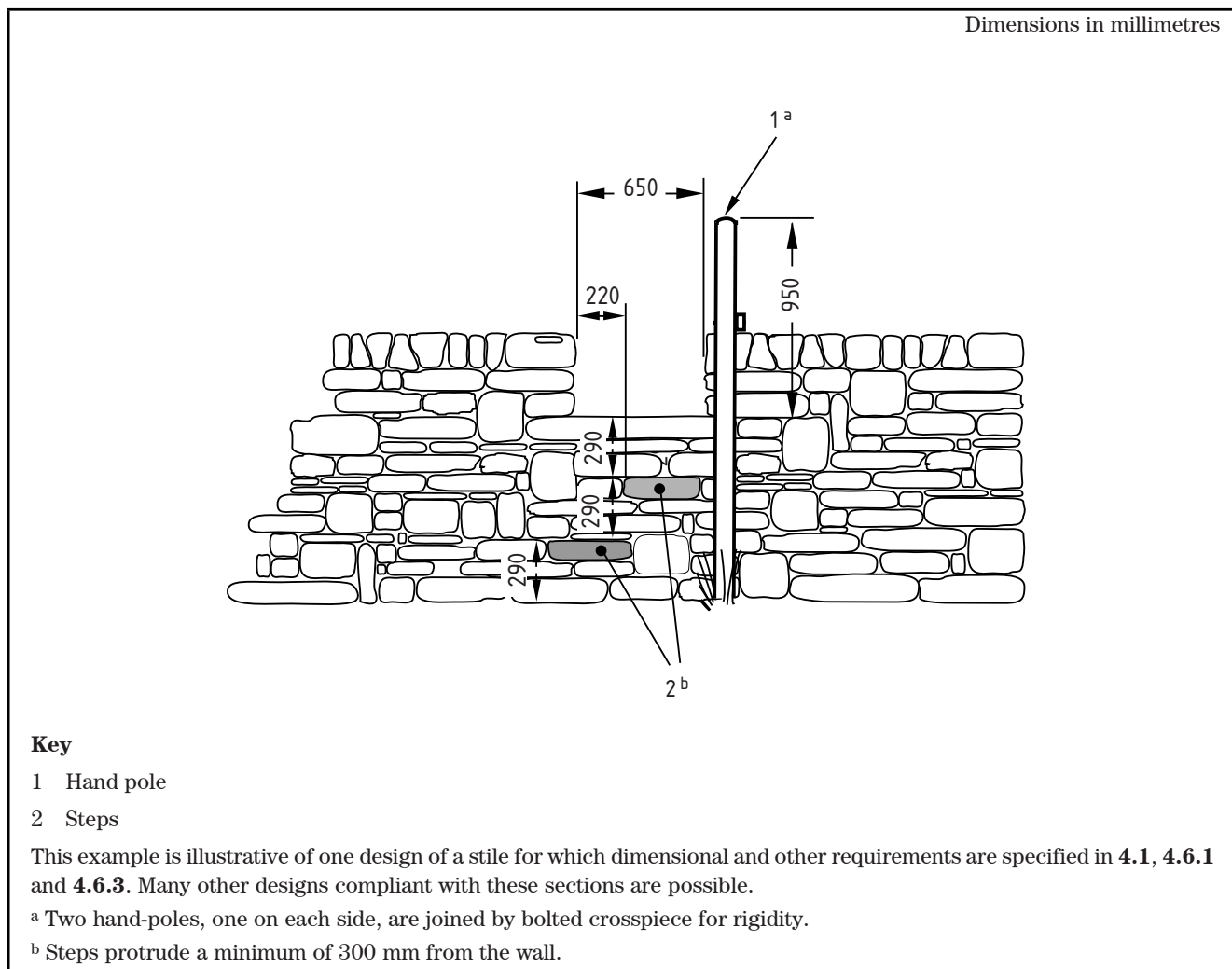


Figure 10 Example of a stone stile



4.7 Horse stiles

NOTE 1 A horse stile can be used on paths where there is a proven need to deter use by motorcycles.

NOTE 2 A horse stile does not prevent the passage of livestock.

In addition to the requirements of 4.1, two or three bar horse stiles shall conform to the following requirements (see example in Figure 11).

- a) Two or three bars shall be installed on the ground across the path with a space between them and with no gap between the ground and the bars. The height of the top of the bars above ground shall be 190 ± 60 mm.

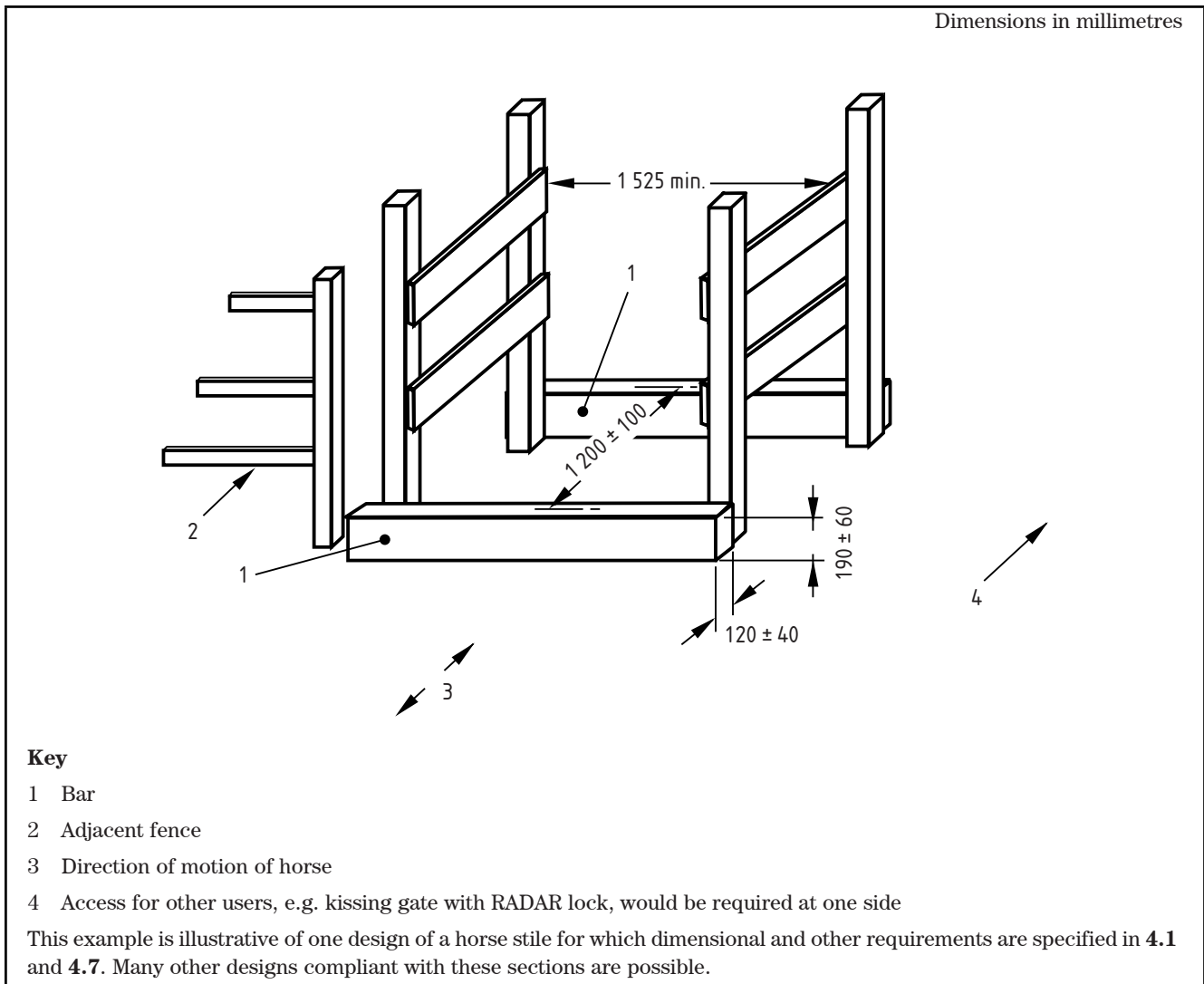
NOTE Some users have found the third bar improves the ability to deter motorcycles.

- b) The thickness of the bars on the ground shall be between 80 mm and 160 mm.
- c) The minimum clear width of the bars across the path shall be 1 525 mm.
- d) The distance between the centre lines of the bars on the ground shall be $1\ 200 \pm 100$ mm.

- e) A side fence or rail shall also be provided to prevent bypassing the structure. This fence or rail shall be within the uprights to protect from impact with the uprights.
- f) A clear manoeuvring space 4 m high, 3 m long and at least 2 m wide shall be provided immediately before and after the horse stile.
- g) The space between the bars shall be free draining.
- h) Access for other users shall be provided to the side of the horse stile, for example a kissing gate with RADAR lock facility.
- i) Manoeuvring space shall be provided to allow the horse to walk straight through the structure. No gates shall need to be opened whilst walking through.

NOTE In order not to startle horses, the bars should be constructed of a material that does not make a sudden ring or noise when struck by horses' hooves.

Figure 11 Example of a horse stile

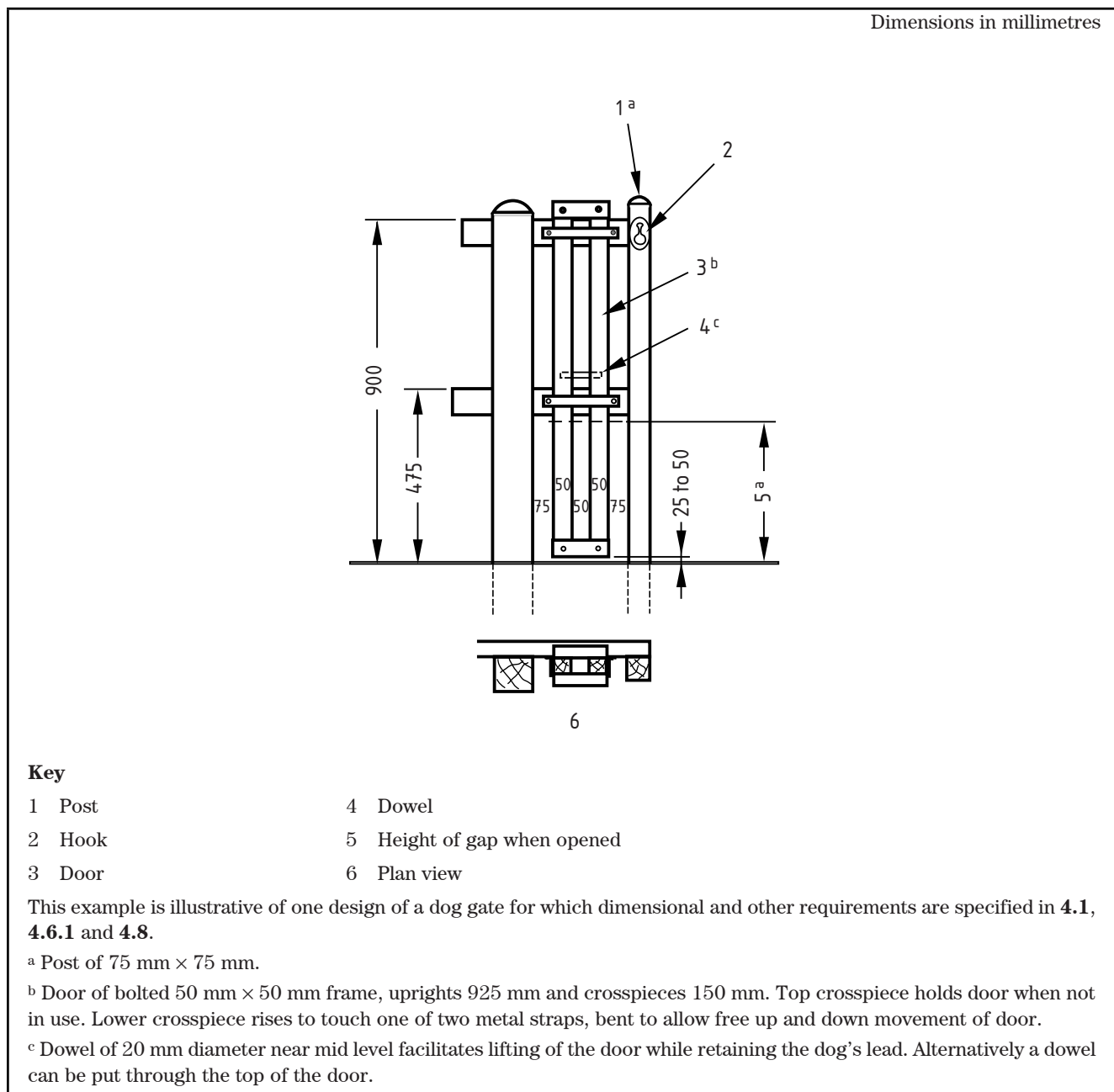


4.8 Dog gates

Dog gates shall conform to the following requirements in addition to those of 4.1 (see example in Figure 12).

- a) Dog gate doors shall be of the vertical lift-up door type. Dog gate doors shall not be capable of being lifted out of the structure and shall automatically close after use.
- b) The gap when the door is fully open shall be a minimum of 300 mm in width and a minimum of 375 mm in height.
- c) When the door is in the closed position, a gap no greater than 75 mm shall exist between the gate and the side posts.
- d) The door shall have a lower edge of at least 50 mm thick by 100 mm wide.
- e) The mass of the door shall be a maximum of 3.5 kg.
- f) A handle shall be attached to the door. It shall be visible and not obstruct the use of any adjacent stile or gate and shall allow easy operation from both sides of the structure.
- g) When shut, the door shall be not less than 25 mm or more than 50 mm from the ground.

Figure 12 Example of a dog gate attached to a timber post and rail stile



Annex A (informative)

Barbed wire, razor wire, farm type electrical fences

Barbed wire, razor wire, farm type electric fences and suchlike should not normally be used in the vicinity of structures covered by this standard, but where these wires are necessary then assessment should be made of the effect they have on the safety and convenience of people in their vicinity.

For example where they follow the line of a public highway (e.g. footpath, cycleway, bridleway) or abut areas to which the public has access, then generally such wire should not be used, but if it is necessary then the wire should either only be installed on any non-public-access side of the fence or structure, or fixed above the fence line. For example:

- a) Any barbed wire on a post and rail fence abutting a public path should be on the far side and if wrapped round straining posts should be debarbed on the public side.
- b) Razor wire might be expected normally to be used only at a height out of reach of ordinary lawful activity.
- c) Farm electric fences might be expected to be 1 000 mm from any narrow path so that the whole path can be used, and say 500 mm from wider paths. Where electric wire in conjunction with fences or structures encloses areas rather than routes, warning signs should be erected.

Barbed wire, razor wire, farm type electric fences and suchlike should not cross or occupy any part of a public path except where a legally valid limitation on the path allows.

NOTE Certain barbed wire on land adjoining a highway may be removed under Highways Act 1980, Section 164, and might be prohibited in some circumstances under Section 147.

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For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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