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Fences —

Part 4: Specification for cleft chestnut pale fences

UDC 692.88 + 674.26 + 677.533

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Road Engineering Standards Committee (RDB/-) to Technical Committee RDB/34, upon which the following bodies were represented:

British Independent Steel Producers Association
British Precast Concrete Federation Ltd
British Steel Industry
British Steel Industry (Wire Section)
British Timber Merchants Association
British Wire Netting Association
British Wood Preserving Association
Cement and Concrete Association
Concrete Society
Country Landowners' Association
Department of Agriculture and Fisheries for Scotland
Department of the Environment (Building Research Establishment, Princes Risborough Laboratory)
Department of the Environment (Property Services Agency)
Department of Transport (Highways)
Fencing Contractors Association
Forestry Commission
Home Timber Merchants' Association of Scotland
Institute of Clerks of Works of Great Britain Inc.
Institute of Leisure and Amenity Management
Landscape Institute
Ministry of Agriculture, Fisheries and Food
National Council of Building Materials Producers
National Farmers' Union
Royal Institution of Chartered Surveyors
Society of Chain Link Fencing Manufacturers
Society of Chestnut Fencing Manufacturers
Timber Growers United Kingdom
Timber Research and Development Association
Timber Trade Federation
Wire Products Association

The following bodies were also represented in the drafting of the standard, through sub-committees and panels:

Cold Rolled Sections Association
Consumer Standards Advisory Committee of BSI
County Surveyor's Society
Fencing Industry Association

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Contents

Foreword

This British Standard has been prepared under the direction of the Road Engineering Standards Committee. It is a revision of BS 1722-4:1972, which is withdrawn.

BS 1722 is published in separate Parts as follows:

— *Part 1: Specification for chain link fences;*

— *Part 2: Specification for rectangular wire mesh and hexagonal wire netting fences;*

— *Part 3: Specification for strained wire fences;*

— *Part 4: Specification for cleft chestnut pale fences;*

— *Part 5: Specification for close boarded fences;*

— *Part 6: Specification for wooden palisade fences;*

— *Part 7: Specification for wooden post and rail fences;*

— *Part 8: Specification for mild steel (low carbon steel) continuous bar fences;*

— *Part 9: Specification for mild steel (low carbon steel) fences with round or square verticals and flat posts and horizontals;*

— *Part 10: Specification for anti-intruder fences in chain link and welded mesh;*

— *Part 11: Specification for woven wood and lap boarded panel fences;*

— *Part 12: Specification for steel palisade fences;*

— *Part 13: Specification for chain link fencing for tennis court surrounds.*

The various Parts specify requirements for the types of fence that are considered suitable for standardization. It should be noted that no attempt has been made to standardize fences or gates of a purely decorative nature, to suit special requirements, or to specify requirements for "patent" proprietory fencing systems. It is recommended that the structure of such fences or gates should comply with those parts of this Part of BS 1722 that are applicable.

It has been assumed in the drafting of this British Standard that the execution of its provisions is entrusted to appropriately qualified and experienced people.

The purpose of this standard is to establish minimum requirements for materials and workmanship for the more common types of fence in order to ensure satisfactory service for the purchaser, and to assist manufacturers and erecting contractors by eliminating unnecessary minor variations in the demands of purchasers. It specifies requirements for the components that make up a fence and the way in which the fence needs to be constructed. Throughout this standard there are requirements for sizes of components, together with the permissible tolerances on size. These are minimum requirements and it will normally be acceptable to use larger sizes, except where it would otherwise adversely affect the fit of components or where replacement parts need to match up with those already present.

The choice of a fence is affected by factors such as the intended purpose of the fence, the desired service life, aesthetic considerations and the availability of components. The specifier of the fence will know its intended purpose and by reference to Table 1 a suitable choice can be made. This then gives those erecting the fence the basic characteristics that need to be provided. This standard does not specify any protective treatments. Premature failure can be avoided by taking care not to damage protective treatments during installation.

Ground conditions may indicate that a variation in the length of a post or strut, or of the depth to which it should be set, is desirable. The posts and struts and setting depths specified in this standard are intended for use in normal ground but if special conditions exist that warrant a change in the specification, e.g. ground that is softer or firmer than usual, such a change needs to be agreed with the specifier, as for other variations.

To assist those specifying and/or providing a fence, Appendix B provides guidance on the more important details, which often take the form of selected options, that need to be specified at the time of ordering a fence. This is a new feature of the standard.

This revision has retained the method of allocating a reference code to each type of fence, indicating its height and the material used for the posts. These type references are given in full in Table 1. The first two letters indicate the material of the post, and the numbers give an indication of the height of the fence. The third letter, where present, indicates a particular spacing of the pales, e.g. CW 105B indicates a 1.05 m high fence on timber posts with a pale spacing of 100 mm. For the sake of uniformity the quoted heights are those of the main infill material and exclude any ground clearance at the base.

Designations of bolt size are in accordance with BS 4190.

The proof test of concrete strength has been deleted as experience has shown that there are technical problems associated with the application and interpretation of the test. Cube tests of concrete strength are now required and the frequency of testing is specified to ensure that regular quality checks are made.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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Section 1. General

1.1 Scope

This Part of BS 1722 specifies requirements for cleft chestnut pale fences.

This standard specifies lengths of posts and struts, and foundation details for use in normal ground and does not cover the situations where special conditions exist, e.g. ground that is softer or firmer than usual, which warrant a change in normal lengths (see foreword).

This standard is divided into sections that specify separate requirements for the material components for fences (see section 2) and the erection of the fences (see section 3).

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

1.2 Definitions

For the purposes of this Part of BS 1722 the timber definitions in BS 6100-4.1 apply together with the following.

sectored

a section formed by longitudinal sawing of a natural round so that one part of the original perimeter is present on the final section

1.3 Dimensions and general characteristics

The dimensions of cleft chestnut pale fences, except for the spacing between lines of wiring, shall be as given in Table 1.

NOTE It is recommended that the spacing between lines of wiring is as given in Table 1.

Table 1 — General characteristics of cleft chestnut pale fences

Fence types[a]		Length of pales	Applicability	Number of lines of wiring	Approximate spacing between lines of wiring[b]	Spacing between pales	Maximum distance between intermediate concrete posts	Maximum distance between intermediate wooden posts
With concrete posts	With wooden posts	m			mm	mm	m	m
CC 90	CW 90	0.90	Housing	2	600	75	3.0	2.50
CC 105A	CW 105A	1.05	Housing and inner fences of parks etc.			75		
CC 105B	CC 105B		Miscellaneous		750	100		
CC 120	CW 120	1.20	General purposes	3	450	75	2.75	2.25
CC 135	CW 135	1.35	Road boundaries		525			
CC 150	CW 150	1.50	Outer fences of parks and other boundaries		600	50	2.25	2.0
CC 180	CW 180	1.80	Factories and security		750			

[a] These reference codes are included as a guide for use when specifying a fence (see foreword).
[b] Top and bottom wires approximately 150 mm from the end of the pales.

Section 2. Materials

2.1 Wire

2.1.1 General

All wire shall comply with BS 4102.

2.1.2 Wiring

The wire for securing pales shall be zinc coated low carbon steel wire with a nominal diameter of not less than 1.9 mm. Each line of wiring shall consist of four wires twisted together between the pales. (See also **2.3.3**.)

2.1.3 Stirrup wire

Stirrup wire shall be zinc coated low carbon steel and shall have a nominal wire diameter of 2.5 mm.

2.1.4 Barbed wire

Barbed wire shall be zinc coated low carbon steel or high tensile steel wire.

2.2 Concrete components

2.2.1 General

2.2.1.1 *Material.* Concrete posts and struts shall be of steel reinforced concrete in accordance with Appendix A.

2.2.1.2 *Tolerances on size.* The following permissible deviations shall apply to the specified size of concrete components when determining the actual sizes.

a) A demoulding draw allowance of up to 4 mm on each of two opposing sides.

b) An allowance on the base dimensions of intermediate posts resulting from the use of a mould having the base dimensions given in Table 2 that has been shortened by means of a stopping-off plate located not more than 300 mm from the base of the mould.

c) Additional deviations on size of:

1) length: $^{+50}_{-25}$ mm;

2) cross section: $^{+6}_{-4}$ mm.

NOTE The cross secton is measured about the centre lines.

2.2.1.3 *General constructional details.* The long arrises formed in the mould shall either be rounded or have all sharp edges removed. The heads of posts shall be weathered or half rounded so as to prevent lodgement of water.

Holes for bolts shall allow the bolt to be freely inserted. Holes for wire shall allow an M6 bolt to be freely inserted. All holes shall be free from obstructions and shall be accurately positioned.

2.2.2 Posts and struts

2.2.2.1 *Fence posts and struts.* The dimensions of concrete fence posts and struts shall be as given in Table 2, except that if barbed wire is to be fixed above the fencing, the length of the posts shall be increased by 150 mm for each line of barbed wire. Fence posts and struts shall be reinforced with four steel reinforcing bars of the size given in Table 2 except that if steel having a characteristic strength greater than 250 N/mm^2 is used, the cross section of the reinforcing bars shall be either as given in Table 2 or proportionately reduced.

Straining posts and struts shall not be tapered. Straining posts shall be provided with a firm bearing for struts at a point within the top third of the length of the straining post measured above the ground level. Straining posts shall be holed for the attachment of eye bolt strainers.

Table 2 — Concrete fence posts and struts

<table>
<tr><th rowspan="2">Fence height</th><th colspan="3">Intermediate posts</th><th colspan="3">Straining posts</th><th colspan="3">Struts</th></tr>
<tr><th>Length[ab]</th><th>Base dimension[c]</th><th>Reinforcement diameter (all lengths)</th><th>Length[ab]</th><th>Section</th><th>Reinforcement diameter</th><th>Length[d]</th><th>Section</th><th>Reinforcement diameter (all lengths)</th></tr>
<tr><td>m</td><td>m</td><td>mm</td><td>mm</td><td>m</td><td>mm</td><td>mm</td><td>m</td><td>mm</td><td>mm</td></tr>
<tr><td>0.90</td><td>1.57</td><td rowspan="2">100 × 100</td><td rowspan="6">6</td><td>1.57</td><td rowspan="2">100 ×100</td><td rowspan="2">6</td><td>1.50</td><td rowspan="2">75 × 75</td><td rowspan="6">6</td></tr>
<tr><td>1.05</td><td>1.72</td><td>1.72</td><td>1.65</td></tr>
<tr><td>1.20</td><td>1.87</td><td rowspan="3">125 × 125</td><td>1.87</td><td rowspan="3">125 × 125</td><td rowspan="3">8</td><td>1.83</td><td rowspan="2">100 × 75</td></tr>
<tr><td>1.35</td><td>2.02</td><td>2.02</td><td>1.98</td></tr>
<tr><td>1.50</td><td>2.32</td><td>2.32</td><td>2.29</td><td rowspan="2">100 × 85</td></tr>
<tr><td>1.80</td><td>2.62</td><td>2.62</td><td>2.59</td></tr>
</table>

[a] The lengths of posts specified in this table are for normal ground and are appropriate when the top line of wiring is 225 mm from the top of the post. It is essential that this distance is not less than 75 mm. The length of post should be adjusted to maintain the embedded length (see **1.1**).
[b] If barbed wire is to be fixed above the fencing, the length of the post is increased by 150 mm for each line of barbed wire.
[c] Reducing to 75 mm × 75 mm at the top.
[d] These lengths are suitable for struts fixed at an angle of 45° on level ground. If site conditions make the use of struts of these lengths unsuitable, a different length may need to be specified (see **1.1**).

Intermediate posts shall be tapered to 75 mm × 75 mm at the top and shall be holed to allow the attachment of wires.

2.3 Timber components

2.3.1 General

2.3.1.1 *Material.* Timber shall be of round, cleft or sectored sweet chestnut, shall be entirely free from active insect attack and all forms of rot, dote and deadwood, and shall be shaved clear of bark and underrind. For posts, a straight line from the centre of the butt to the centre of the top shall pass within the circumference of the component for the full length. Any bow shall be in not more than one plane and one direction.

2.3.1.2 *Tolerances on size.* The following permissible deviations shall apply to the specified sizes of timber components when determining the actual size.

a) Length of posts: ± 50 mm.

b) Length of pales: ± 15 mm.

c) Spacing of pales: ± 15 mm.

2.3.2 Posts and struts

2.3.2.1 *Fence posts and struts.* The dimensions of timber fence posts and struts shall be as given in Table 3, except that if barbed wire is to be fixed above the fencing, the length of the posts shall be increased by 150 mm for each line of barbed wire. Posts and struts shall provide a vertical line on one face for the attachment of the fencing.

Straining posts shall be natural round, not cleft or sectored, and shall either be cut square across, or be pointed for 225 mm at the thicker (butt) ends for driving. Straining posts shall be notched to receive struts at a point withint the top third of the length of the straining post measured above the ground level. Struts shall be natural round, cleft or sectored and shall be splay cut at the top ends for nailing to the straining posts. The base shall be cut square across.

Intermediate posts shall be natural round, cleft or sectored.

NOTE A consignment may contain any two of these sections.

Intermediate posts shall be pointed at the thicker (butt) ends for driving.

2.3.3 Pales

The length of the pales shall be as given in Table 1.

Pales shall be riven and shall be approximately straight with a girth at any part of not less than 100 mm, and stub pointed at the top. The section shall be approximately triangular or half round.

NOTE A consignment may contain either or both of these sections.

The spacing of the pales, that is the distance between the pales and not the distance between centres, measured at the bottom wire, shall be as given in Table 1.

One line of wiring shall be fixed not more than 150 mm from the top of the pales and one not more than 150 mm from the bottom. Where a third line is specified (see Table 1) it shall be fixed approximately midway between the top and bottom lines.

One line of wiring shall be secured to every pale by a single zinc coated staple.

2.4 Fittings

2.4.1 Eye bolt strainers

Eye bolt strainers shall consist of bolts of 250 mm overall length and 9.5 mm diameter with an eye at one end. They shall be threaded and fitted with nuts and washers. Two-way eye bolt strainers shall be fitted with ring nuts.

Eye bolt strainers shall be galvanized in accordance with BS 729.

2.4.2 Staples

Staples for timber posts shall be 30 mm × 3.55 mm round or sectional wire complying with BS 1494 and zinc coated in accordance with BS 443.

2.4.3 Nails

Nails shall be round plain head nails complying with BS 1202-1 and galvanized in accordance with BS 729.

2.5 Concrete surrounding bases of posts and struts

Concrete for surrounding the bases of posts and struts shall not be leaner by mass than one part of cement to ten parts of graded aggregate of 40 mm nominal maximum size, mixed with the minimum requisite quantity of clean water and shall be placed in position before the commencement of the initial set.

Table 3 — Timber fence posts and struts

Fence height	Intermediate posts (round, cleft or sectored)		Straining posts (round)		Struts (round, cleft or sectored)	
	Length[a]	Girth at mid-length[b]	Length[a]	Girth at top	Length[c]	Girth at top[b]
m	m	mm	m	mm	m	mm
0.90	1.50		1.50		1.50	
1.05	1.65	190 to 230	1.65	230 to 250	1.65	190 to 230
1.20	1.80		1.80		1.80	
1.35	1.95		1.95	250 to 290	1.95	230 to 250
1.50	2.25	230 to 250	2.25		2.25	
1.80	2.55		2.55	280 to 350	2.55	250 to 290

[a] If barbed wire is to be fixed above the fencing, the length of the timber of the post is increased by 150 mm for each line of barbed wire.

[b] When sectored or cleft timber is used, to replace girths up to 250 mm (columns 2 and 3), this requirement is satisfied for the following:

a) for three sided sections, if no face measures less than 80 mm;

b) for "half round" sections, if the flat face measures no less than 90 mm and the maximum distance, measured at right angles to the flat face, to the curved face exceeds 35 mm;

When sectored or cleft timber is used to replace girths greater than 250 mm (columns 6 and 7), this requirement is satisfied for the following:

a) for three sided sections, if no face measures less than 100 mm;

b) for "half round" sections of the flat face measure no less than 110 mm and the maximum distance, measured at right angles to the flat face, to the curved face exceeds 45 mm.

[c] These lengths are suitable for struts fixed at angle of 45° on level ground. If site conditions make the use of struts of these lengths unsuitable, a different length may need to be specified (see **1.1**).

Section 3. Erection

3.1 Level

The top of the fence shall follow approximately the level of the ground along the line of the fence.

NOTE Unless specified (see Appendix B) the erection of the fence does not include cutting or filling of the ground to vary the levels.

3.2 Posts and struts

3.2.1 General

Holes for posts and struts shall have vertical sides except that it shall be permissible for the side of a strut hole adjacent to the post to be sloped.

NOTE It is realized that the ground at the top of a hole is damaged during digging and this is acceptable provided it is limited to the top of the hole and does not extend down such that the hole itself is tapered out towards the top.

When erecting concrete posts, after insertion of the post the hole shall be filled for not less than half its depth with concrete which shall be well rammed as the filling proceeds. The remainder of the hole shall be filled with backfill, which shall be well rammed, before the commencement of the initial set of the concrete.

If timber posts cut square across the base are used, they shall be set in concrete, as specified for concrete posts, or directly in the ground and surrounded by rammed backfill. The backfill shall be well rammed as the filling proceeds.

Holes for fence posts and struts to be set only in rammed backfill shall be as small as is practical to allow for refilling and ramming.

Timber posts with pointed ends shall be driven into the ground.

3.2.2 Straining posts

Straining posts shall be provided at all ends and corners, at changes in direction or acute variations in level and at intervals not exceeding 70 m in straight lengths of fence.

Straining posts shall be set in the ground to a depth of 0.6 m for fences up to and including 1.35 m high and 0.75 m for fences over 1.35 m high. The holes for straining posts set in concrete shall be not less than 0.3 m × 0.3 m in plan or if round, as may be produced by an auger, not less than 0.3 m in diameter.

3.2.3 Struts

Struts shall be fitted to all straining posts and gate posts acting as straining posts in the direction of each line of fencing. Concrete struts and posts shall be securely located together. Timber struts shall be securely nailed into the notch in the straining posts with 125 mm × 5 mm nails.

The bottom end of all struts shall be not less than 0.45 m below ground level measured to the centre of the strut or base plate. The holes for struts set in concrete shall be not less than 0.30 m wide × 0.45 m long in plan.

3.2.4 Intermediate posts

Intermediate posts shall be provided at intervals, measured between posts, not exceeding those given in Table 1.

Intermediate posts shall be set or driven into the ground to a depth of 0.6 m for fences up to and including 1.35 m high and of 0.75 m for fences over 1.35 m high.

Square holes for intermediate posts to be set in concrete shall allow a minimum thickness of 75 mm of concrete on each side of the post. Round holes shall have a minimum diameter of 0.3 m.

3.3 Infill

3.3.1 Fixing fencing to concrete posts

The fencing shall be strained tightly between each pair of straining posts and secured thereto with one eye bolt strainer to each line of wiring. Ring nut fittings for the threaded ends of the eye bolt strainers, or double sets of eye bolt strainers, shall be used at each intermediate straining post. The straining shall be carried out so that the pales are truly vertical when in position. Each line of wiring shall be secured to each intermediate post by means of a wire stirrup passed through a hole in the post and secured to the wiring with three complete turns on each side of the posts.

3.3.2 Fixing fencing to timber posts

The fencing shall be strained tight, by hand, between each pair of straining posts, with the pales truly vertical. Each line of wiring shall be secured to each straining post with two staples and to each intermediate post with one staple.

3.3.3 Barbed wire

Barbed wire, if used, shall be fixed to the posts, by the means specified for the lines of wiring, to the face of the post nearest to the property being served and not more than 150 mm above the top of the pales.

Appendix A Concrete components

A.1 Materials

A.1.1 *Cement*

The cement shall be Portland cement (ordinary or rapid hardening) complying with BS 12, Portland blastfurnace cement complying with BS 146, or sulphate-resisting Portland cement complying with BS 4027.

A.1.2 *Aggregate*

The aggregate shall comply with BS 882. The aggregate shall not exceed 10 mm nominal maximum size.

A.1.3 *Admixtures*

The following shall apply.

a) Pigments shall comply with BS 1014.

b) Concrete admixtures shall comply with BS 5075.

c) Pulverized-fuel ash shall comply with BS 3892.

d) Other admixtures shall be used in accordance with the manufacturer's instructions.

When admixtures are used they shall be such as to have no harmful effect on the reinforcement and the setting, hardening and durability of the concrete.

A.1.4 *Reinforcement*

The reinforcement shall comply with the requirements for size and tensile strength of BS 4449, BS 4461, BS 4482 or BS 4483.

A.2 Moulds

Moulds shall be so constructed that they remain rigid during the placing and compaction of the concrete and prevent the loss of water, grout or mortar. They shall be such that the finished components are accurate within the specified limits. Timber moulds shall be of closely jointed planned timber.

A.3 Manufacture

A.3.1 *Concrete strength*

The strength of the concrete mix in use at the manufacturer's works shall be demonstrated by regular testing to be not less than the following when tested in accordance with **A.5.1**:

a) 17 N/mm^2 when tested after 7 days; or

b) 25 N/mm^2 when tested after 28 days.

The cement content shall be not less than 350 kg/m^3 of concrete.

NOTE The above strengths may be expected from a mix composed of one part by mass of cement and not more than five parts by mass of graded aggregate. It is desirable that the water/ cement ratio should not exceed 0.55 by mass.

A.3.2 *Mixing*

The concrete shall be mixed in a mechanical mixer until there is a uniform distribution of the materials and the mass is uniform in colour and consistency.

A.3.3 *Placing and compacting*

The concrete shall be used as soon as possible after being mixed and shall be thoroughly compacted by vibration, tamping or other effective methods such that the surface achieved on demoulding is free from honey-combing or other large blemishes.

NOTE Small surface voids caused by entrapped air or water are permissible.

A.3.4 *Location of reinforcement*

The reinforcement shall be prefabricated and located during the placing and compacting of the concrete in such a manner that the actual cover of concrete measured from main external faces and from the top of a post or strut is not less than 15 mm. The length of the assembled reinforcement shall be not less than the minimum length of the component, less an allowance not exceeding 100 mm to allow for the minimum cover and an allowance not exceeding 75 mm in total for cutting, prefabrication and location. The reinforcement shall extend beyond the centre line of the hole for the uppermost line of wire.

NOTE Where the ends of components are splayed each bar may be of equal length.

A.3.5 *Protection from freezing*

No material that has been exposed to a temperature below freezing point shall be used until it has been completely thawed, nor shall components be moulded when the temperature of the moulds is below freezing point. The components shall not be subjected to the effects of frost until one of the following conditions has been met:

a) the concrete has attained a strength of 5 N/mm^2 as shown by testing in accordance with **A.5.2**; or

b) the components have been stored in such a way that they are not subjected to freezing for at least 48 h after casting.

A.3.6 *Maturing*

No components shall be supplied until one of the following conditions has been met:

a) the concrete has attained a strength of 25 N/mm^2 as shown by testing in accordance with **A.5.2**; or

b) the components have been allowed to mature under suitable conditions for not less than 28 days at normal temperatures.

A.4 Finish

The finish shall be that obtained by thoroughly compacting the concrete in the moulds (see **A.3.3**).

NOTE Some manufacturing methods may produce a slightly textured finish or the imprint of the slight grain of wrought timber and its joints.

A.5 Tests

A.5.1 *Cube tests for concrete proportioning*

Cubes shall be made and tested in accordance with BS 1881-116. The frequency of testing shall be not less than weekly. Each test result shall be not less than the strength specified in **A.3.1**. The record of results shall be available for inspection. Where the concrete mix is not in regular use, at least three satisfactory test results shall be required to establish compliance.

A.5.2 *Cube tests for concrete strength development*

Cubes shall be made and tested in accordance with BS 1881-116, except that they shall be stored under similar conditions to products after casting. The frequency of testing shall be not less than weekly. Each test result shall be not less than the strength specified in **A.3.5** or the mean of three consecutive results shall be not less than the strength specified in **A.3.6**, as applicable. The record of results shall be available for inspection.

Where the concrete mix is not in regular use, at least three satisfactory test results shall be required to establish compliance.

A.5.3 *Examination of location of reinforcement*

If the purchaser wishes to verify the location of reinforcement, he shall select at random one product from the batch at the manufacturer's works, subject to a maximum of one in every 100 components, which shall be tested to ascertain if the location of the reinforcement complies with **A.3.4**. If the reinforcement is found to be incorrectly located, it shall be permissible for a second product to be selected from the same batch, and if this also fails the batch shall be deemed not to comply with this standard.

NOTE If additional tests on hardened concrete are required, reference may be made to BS 1881 or BS 4408.

Appendix B Specifying a cleft chestnut pale fence

B.1 General

This standard specifies requirements for materials and how they are combined and erected to provide a serviceable fence. Because a fence is made up of a number of separate components whose particular features may vary, there will be a number of permissible combinations available to the user. When preparing a specification for a fence it is therefore important to give precise details of the requirements of the fence and of the erection site. This appendix lists those items that typically need to be specified. However, as conditions will vary from site to site it should not be assumed to be exhaustive in its listings.

B.2 Site conditions

The following items will typically need to be specified.

a) Line and length of fence (see **3.1**).

b) Profile of fence and ground clearance (see **3.1**).

c) Site preparation (see **3.1**).

1) site clearance;

2) cutting or filling of ground level [see b)].

d) Ground conditions (see **1.1**).

NOTE The requirements for lengths of posts and struts specified in this standard (see Table 2 and Table 3) have been related to "normal" ground conditions. This standard does not cover situations where the ground is particularly firm or soft when it may be necessary to modify the specified lengths or foundation sizes. The base detail of timber posts and the method used to set them in the ground are also determined by the local ground conditions.

e) Numbers, position and specification of any gates.

B.3 Construction of fence

The following items will typically need to be specified.

a) Fence type code (see Table 1).

b) Special requirements (see **3.3.3**), e.g. barbed wire.

c) Type of post and strut:

1) concrete (see **2.2**);

2) timber (see **2.3**).

d) Special requirements due to particular ground conditions [see **B.2** d)].

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Publications referred to

BS 12, *Specification for ordinary and rapid-hardening Portland cement.*
BS 146, *Portland-blastfurnace cement.*
BS 146-2, *Metric units.*
BS 443, *Specification for testing zinc coatings on steel wire and for quality requirements.*
BS 729, *Hot dip galvanized coatings on iron and steel articles.*
BS 882, *Specification for aggregates from natural sources for concrete.*
BS 1014, *Pigments for Portland cement and Portland cement products.*
BS 1202, *Nails.*
BS 1202-1, *Steel nails.*
BS 1494, *Fixing accessories for building purposes.*
BS 1881, *Methods of testing concrete.*
BS 1881-116, *Method for determination of compressive strength of concrete cubes.*
BS 3470, *Field gates and posts.*
BS 3892, *Pulverized-fuel ash.*
BS 3892-1, *Specification for pulverized-fuel ash for use as a cementitious component in structural concrete.*
BS 3892-2, *Specification for pulverized-fuel ash for use in grouts and for miscellaneous uses in concrete.*
BS 4027, *Specification for sulphate-resisting Portland cement.*
BS 4092, *Domestic front entrance gates.*
BS 4102, *Steel wire for fences.*
BS 4190, *ISO metric black hexagon bolts, screws and nuts.*
BS 4408, *Recommendations for non-destructive method of test for concrete.*
BS 4449, *Specification for hot rolled steel bars for the reinforcement of concrete.*
BS 4461, *Specification for cold worked steel bars for the reinforcement of concrete.*
BS 4482, *Hard drawn mild steel wire for the reinforcement of concrete.*
BS 4483, *Steel fabric for the reinforcement of concrete.*
BS 5075, *Concrete admixtures.*

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