

Sustainability & Environment
Contract preparation

LP 127 Instructions for specifiers for LC 127 Fencing

(formerly)

Version LIVE_2025-01-31

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Latest release notes

Document Code	Version number	Date of publication of relevant change	Changes made to	Type of change
LP 127	LIVE_2025-01-31	Not available	Core document	Change to policy, major revision, new document development
This document replaces Series NG 300 Fencing				

Previous versions

Document Code	Version number	Date of publication of relevant change	Changes made to	Type of change
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Foreword

This document provides specifier instructions for the production of the works specific requirements for LC 127 Fencing.

This document does not form part of the works specification.

The works specification is made up of both the Specification for Highway Works and the works specific requirements completed by the Specifier.

This document is applicable for contracts throughout the UK, complemented by the additional specification requirements and contractual changes of each Overseeing Organisation.

Users are responsible for applying all appropriate documents applicable to their contract.

Users are responsible for archiving contract documentation in accordance with the user's quality management system.

1. General requirements for fencing works

1.1 Design and/or supply, installation and repair of fences shall be undertaken by organisations registered to and operating in compliance with a quality management scheme in accordance with "Quality management schemes" in Section 7 of GC 101 [Ref 13.N].

1.2 All fencing works shall comply with GC 103 [Ref 3.N].

1.3 Galvanised steel wire and wire products for fencing shall comply with BS 1722-2 [Ref 28.N], BS EN 10223-1 [Ref 32.N] and BS EN 10244-2 [Ref 33.N].

1.4 Concrete footings and/or foundations for fencing works shall be GEN 2 concrete and comply with "Concrete for Ancillary Purposes" in Section 2 of CC 495 [Ref 20.N].

1.5 Fencing works forming a boundary between the highway and neighbouring property shall ensure all fixed elements [wire, mesh, panels, and rails] are fixed on the highway side of the permanent or temporary fencing.

1.6 Fencing works forming a boundary between the highway and neighbouring property, with the purpose of retaining stock shall ensure all fixed elements [wire, mesh, panels, and rails] are fixed on the non-highway side of the permanent or temporary fencing.

1.7 Fencing works shall be as specified in LC 127/WSR/001.

Fencing works						
Length of fence reference	Drawing / model reference	Contract or design items included	Permanent or temporary fencing	Permanent fencing type	Temporary fencing type	Additional fencing component
(a)	(b)	(c)	(d)	(e)	(f)	(g)

- a) Enter a unique reference, to identify the individual length of fence.
- b) Enter text, to identify the drawing and / or model referenced.
- c) Enter a value, from options Yes, No, to identify if the length of fence is a contractor design item.
- d) Enter a value, from options Permanent, Temporary, to identify whether the fencing to be installed is permanent or temporary.

- e) Enter one or more values, from options N/A, wire mesh netting, welded wire mesh netting, high tensile wire fencing, steel wire woven hinged joint fencing, chain link fencing, hexagonal steel mesh fencing, timber post and rail fencing, close-boarded fencing, wooden palisade fencing and steel palisade fencing, to identify the type of permanent fencing to be used.
- f) Enter one or more values, from options N/A, post and wire fencing, post and wire fencing, cleft chestnut pale fencing, reptile and amphibian fencing, to identify type of temporary fencing to be used.
- g) Enter a value, from options N/A, chestnut pale, wire mesh netting, welded wire mesh netting, high tensile wire fencing, steel wire woven hinged joint fencing, chain link fencing, hexagonal steel mesh fencing, timber post and rail fencing, tree guard, close-boarded fencing, wooden palisade fencing and steel palisade fencing, to meet the requirements for the category the fencing.

Fencing works (continued)							
Length of fence reference	Ecological fencing variations	New/existing	Fence length	Fence height	Posts and struts	Fittings	Backfill type
(a)	(h)	(i)	(j)	(k)	(l)	(m)	(n)

- h) Enter one or more values, from options N/A, Rabbits and hares, Badger - type 1, Badger - type 2, Badger and rabbits & hares - type 1, Badger and rabbits & hares - type 2, Badger and rabbits & hares - type 3, Deer and badger - type 1, Deer and badger - type 2, Deer and rabbits & hares, Deer and rabbits & hares and otter, Deer and rabbit & hare and badger and otter, Livestock - Horse/Cattle, Livestock - Sheep, Livestock - Pig, to allow the contractor to design.
- i) Enter a value, from options New, Existing, to identify if the fence to be installed is a new fence or an existing fence to be re-installed.
- j) Enter a number in units of m, to identify length of fence required.
- k) Enter a number in units of mm, to provide the fence heights from ground level to the top of post for the specific fence type required.
- l) Enter one or more values, from options N/A, concrete, mild steel, timber, to identify the different types required for the particular fence type.
- m) Enter text, to identify the type of fittings.

- n) Enter a value, from options concrete, concrete/soil, concrete/aggregate, to identify backfill type.

Fencing works (continued)	
Length of fence reference	Gates and stiles
(a)	(o)

- o) Enter a value, from options Timber field gate, Timber field gate with uni-gate, Timber kissing gate, Timber kissing gate (aerial), Timber uni-gate, Timber palisade gate, Mild steel field gate with side hinge arrangement, Mild steel field gate with welded mesh - side hinge arrangement, Mild steel double field gate with side hinge arrangement, Mild steel field gate with central hinge arrangement, Mild steel field gate with welded mesh - central hinge arrangement, Mild steel double field gate with central hinge arrangement, Timber post and stile, to identify type of gate or stile.

1.8 The ecological fencing variations for specification of mesh, height, and length as shown in Table 1.8 shall be as stated in LC 127/WSR/001.

Table 1.8 Ecological fencing variations for the exclusion of animals			
Species	Specification of mesh	Height of material above ground	Length of material below ground
Rabbits & hares	Hexagonal steel wire netting (31x1050x18)	800	100
Badger - type 1	Steel wire woven hinged joint fencing (classification heavy 2H 1600/15/8)	1000	300
Badger - type 2	Steel wire chain link fencing Zinc/zinc alloy 50 mesh x2.5/3.55 1800 height	950	250
Badger and rabbits & hares - type 1	Hexagonal steel wire netting 31x1200x18	950	250
Badger and rabbits & hares - type 2	Steel wire woven hinged joint fencing type 4 - classification H2 160/15/08	1000	300
Badger and rabbits & hares - type 3	Hexagonal steel wire netting (31x1200x18)	950	250
Deer and badger - type	Steel wire woven hinged joint fencing (classification heavy	975	300

1	2H 160/15/8)		
Deer and badger - type 2	Steel wire chain link fencing zinc/zinc alloy 50 meshx2.5/3.55 1800 height	1150	300
Deer and rabbits & hares	Hexagonal steel wire netting (31x1200x18)	975	75
Deer, rabbits & hares and otter	Steel wire chain link fencing zinc/zinc alloy 50 meshx2.5/3.55 2150 height	1950	200
Deer, rabbits & hares, badger and otter	Steel wire chain link fencing zinc/zinc alloy 50 meshx2.5/3.55 1400 height x2n0	1950	300

Contractor design requirements for fencing works

1.9 Fencing works shall be as specified in LC 127/WSR/001.

1.10 The design of fencing works shall be in accordance with LD 117 [Ref 18.N].

1.11 The requirements for "Contractor design" in Section 17 of GC 101 [Ref 13.N] shall apply to the design of fencing works.

1.12 The design of fencing works shall be as stated in LC 127/WSR/001.

Verification requirements for fencing

1.13 Verification shall be undertaken for the quality of wire products for post and wire fencing, by inspection in accordance with BS EN 10223-1 [Ref 32.N] & BS EN 10223-2 [Ref 31.N].

1.14 The frequency of inspection shall be undertaken once per product type on delivery of products, prior to installation.

1.15 The requirements for "Verification" in Section 14 of GC 101 [Ref 13.N] shall apply to the inspection of quality of wire products for post and wire fencing.

Documentation requirements for fencing

1.16 The following Documentation shall be submitted for all wire products prior to the commencement of installation: Certificate of conformity with BS EN 10223-2 [Ref 31.N] and BS EN 10223-1 [Ref 32.N].

1.17 The requirements for "Documentation" in Section 2 of GC 101 [Ref 13.N] shall apply to the certificate of conformity for all wire products.

1.18 The following Documentation shall be submitted for all products with galvanised coatings prior to the commencement of fencing works:
Declaration of compliance, in accordance with BS EN ISO 1461 [Ref 17.N].

1.19 The requirements for "Documentation" in Section 2 of GC 101 [Ref 13.N] shall apply to the Inspection documentation for galvanised products.

1.20 The following Documentation shall be submitted for mild steel fencing works prior to the commencement of permanent fencing works:
Statement of conformity, confirming the materials conform to BS 1722-8 [Ref 8.N] BS 1722-9 [Ref 9.N] and BS 1722-12 [Ref 11.N].

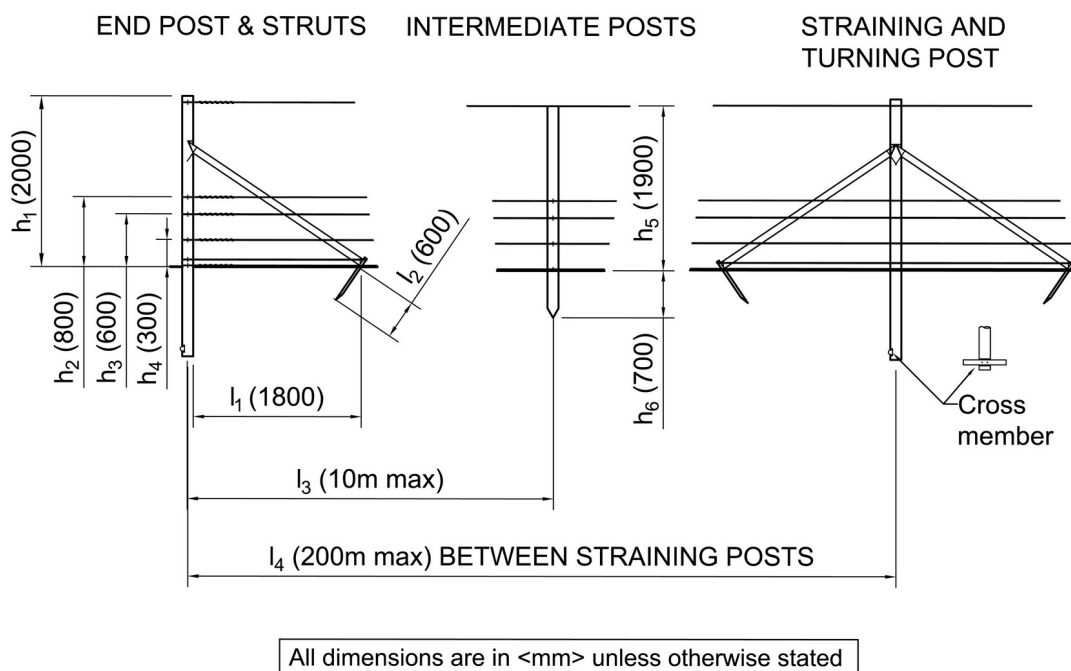
1.21 The requirements for "Documentation" in Section 2 of GC 101 [Ref 13.N] shall apply to the statement of conformity for materials for mild steel fencing works.

2. Temporary fencing works

Installation of temporary fencing

- 2.1 The installation of temporary post and wire and cleft chestnut pale fencing shall comply with the requirements of " Site security, site extent and limitations on use" in Section 2 of GC 102 [Ref 25.N].
- 2.2 The installation of post and wire fencing for temporary fencing shall be compliant with BS 1722-2 [Ref 28.N].
- 2.3 The installation of cleft chestnut pale temporary fencing shall be compliant with BS 1722-4 [Ref 26.N].
- 2.4 Cleft chestnut pale temporary fencing shall be type CW 135, in accordance with BS 1722-4 [Ref 26.N].
- 2.5 All strained wires finishing at a post for post and wire fencing for temporary fencing shall be terminated by looping back on itself and joined with a preformed joint connector.
- 2.6 All joints in the strained wire for post and wire fencing for temporary fencing shall be made with a preformed joint connector or wire connector as illustrated in Figure 2.6.

Figure 2.6 Post and wire fencing arrangement



Requirements for reptile and amphibian fencing

2.7 Reptile and amphibian fencing for temporary fencing works shall meet the requirements of the licence issued by the statutory nature conservation body.

3. Permanent fencing works

General installation requirements for permanent fencing

3.1 The line of permanent fencing shall present a flowing alignment both in plan and in elevation, following the level of the ground in accordance with BS 1722-7 [Ref 10.N].

3.2 A gap arising between the bottom line wire or the bottom of the permanent fence and the ground, shall not exceed 50 mm above ground level, for all fencing types with the exception of timber post and rail fencing.

3.3 Permanent fencing works abutting existing fencing, hedges, and other structure(s) shall be neatly and effectively joined with no visible vertical gaps.

3.4 The repair of existing fencing shall comply with "Removal, repair and re-erection of existing fences and gates" in Section 7 of this document.

3.5 The concrete foundations for mild steel gates, gateposts, posts and stiles shall be filled to within 75 mm of ground level.

General documentation requirements for permanent fencing

3.6 The following Documentation shall be submitted for all permanent fencing prior to the commencement of handover into maintenance: statement of conformity completion certificate with BS 1722-12 [Ref 11.N], BS 1722-10 [Ref 6.N], BS 1722-9 [Ref 9.N], BS 1722-8 [Ref 8.N], BS 1722-7 [Ref 10.N], BS 1722-5 [Ref 27.N], BS 1722-2 [Ref 28.N] or BS 1722-1 [Ref 7.N].

3.7 The requirements for "Documentation" in Section 2 of GC 101 [Ref 13.N] shall apply to the statement of conformity completion certificate for all permanent fencing works.

Product requirements for wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing

Supply

3.8 Wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing for permanent fencing shall be compliant with BS EN 10223-1 [Ref 32.N] and BS EN 10223-2 [Ref 31.N].

3.9 Wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing for permanent fencing shall be compliant with BS 1722-2 [Ref 28.N].

3.10 Wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing fittings to fence posts for permanent fencing shall be compliant with BS 1722-2 [Ref 28.N], BS EN ISO 1461 [Ref 17.N] and BS ISO 10474 [Ref 30.N].

Installation

3.11 The installation of wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing for permanent fencing shall be compliant with BS 1722-2 [Ref 28.N] and BS EN 10223-2 [Ref 31.N].

3.12 All strained wires finishing at a post shall be terminated by looping back on itself and joined with a preformed joint connector.

3.13 All joints in the strained wire shall be made with a preformed joint connector or wire connector.

3.14 Attachment of wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing to permanent fencing to prevent animals from accessing the highway corridor shall comply with Table 1.8 mesh sizes and dimensions as attachments to fencing types for exclusion of animals within "General requirements for fencing works" in Section 1 of this document.

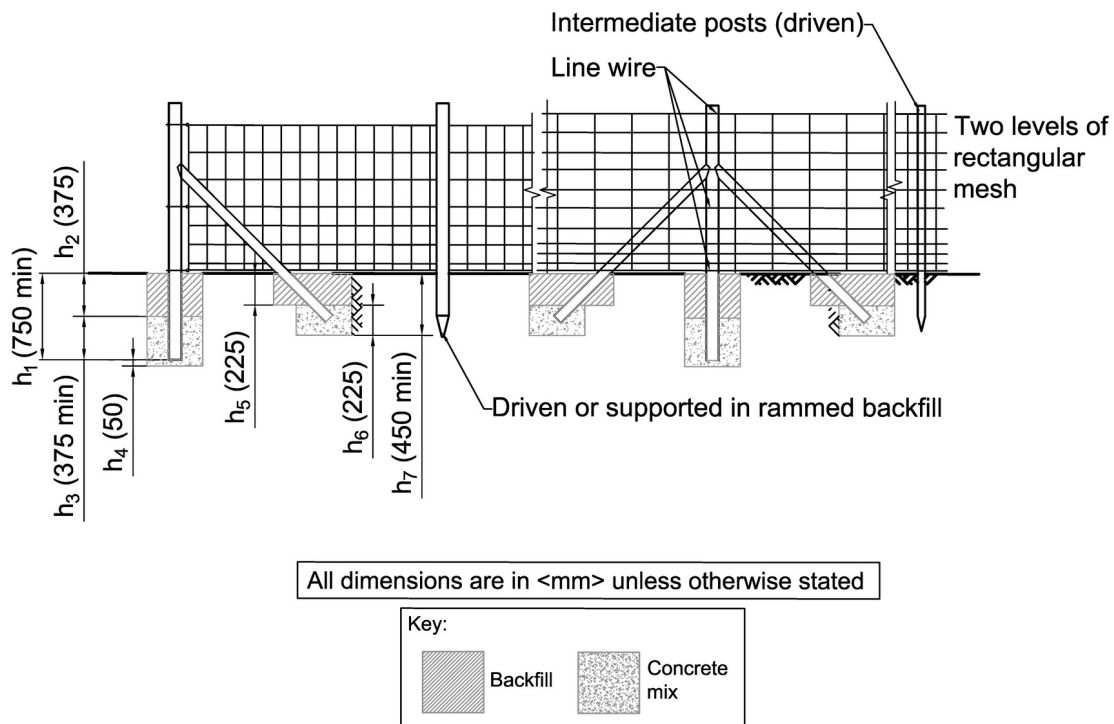
3.15 Wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing straining post distances shall not exceed 150m between post centres.

3.16 Wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing intermediate posts shall not exceed 10m between post centres.

3.17 Wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing straining posts shall be used at all changes in direction.

3.18 Wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing shall be installed in accordance with Figure 3.18.

Figure 3.18 Installation arrangement for wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing



Product requirements for welded wire mesh netting

Supply

3.19 Welded wire mesh netting for permanent fencing shall be compliant with BS 1722-10 [Ref 6.N].

3.20 Welded wire mesh netting for permanent fencing shall be compliant with BS EN 10223-1 [Ref 32.N] and BS EN 10223-2 [Ref 31.N].

Installation

3.21 The installation of welded wire mesh netting for permanent fencing shall be compliant with BS 1722-10 [Ref 6.N].

Product supply and installation requirements for high tensile wire fencing

Supply

3.22 High tensile wire fences for permanent fencing shall be compliant with BS 1722-2 [Ref 28.N].

3.23 Steel droppers shall be compliant with BS 1722-2 [Ref 28.N].

Installation

3.24 High tensile wire fencing shall be installed as specified in LC 127/WSR/003.

High tensile wire fencing		
Length of fence reference	Droppers	Variation to the fixing of high tensile wires and droppers
(a)	(b)	(c)

- a) Enter a unique reference, to identify the length to be installed.
- b) Enter a value, from options yes, no, to identify if droppers are required.
- c) Enter text, to identify where high tensile wire and droppers are to be fixed.

3.25 The interval between a dropper and a post or between adjacent droppers shall be as set out in Table 3.25.

Table 3.25 Dropper intervals for high tensile wire fencing			
Fence height mm	Interval between dropper and straining post mm	Interval between dropper and intermediate post mm	Interval between droppers mm
1350	1500	1500	1875
1800	938	938	1875
2100	938	938	1875

3.26 The spacing of horizontal wires for high tensile wire fencing shall be as stated in Table 3.26.

Table 3.26 Spacing of horizontal wires for high tensile wire fencing		
Height of top wire mm	No of wires	Typical spacings between horizontal wires [from the top wire] mm
1350	9	250, 225, 225,150,125,125,100,75
1800	11	225, 225, 200, 175, 175, 175, 150, 150, 125,100
2000	15	250, 225, 225, 175, 125, 100, 100, 100, 100, 100, 100, 100, 100, 100

3.27 Thrust plates and steel turning posts dimensions for high tensile wire fencing shall comply with Table 3.27.

Table 3.27 Steel turning post dimension		
Post length mm	Cross section mm	Thrust plate
2250	76.1 x 4 steel tube	225x150x3
2700	88.9 x 4 steel tube	225x150x3
2900	88.9 x 4 steel tube	225x150x3

3.28 All joints in the strained wire shall be made with a preformed joint connector or wire connector.

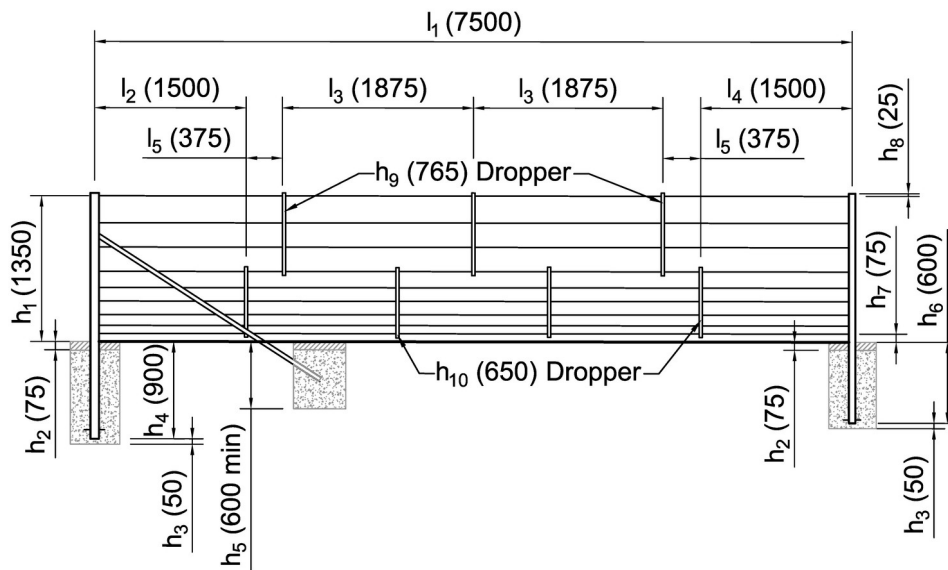
3.29 All strained wires finishing at a post shall be terminated by looping back on itself and jointed with a preformed joint connector.

3.30 High tensile wire fencing straining posts shall not exceed 100m between post centres.

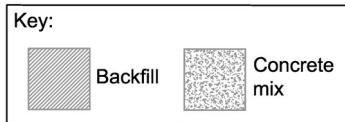
3.31 High tensile wire fencing straining posts shall be used at all changes of direction.

3.32 High tensile wire fencing wire and dropper arrangements (as presented in tables 3.25, 3.26 and 3.27) shall be installed, using the variations in combinations, presented in Figure 3.32a, Figure 3.32b and 3.32c.

Figure 3.32a High Tensile Wire Fencing 1350

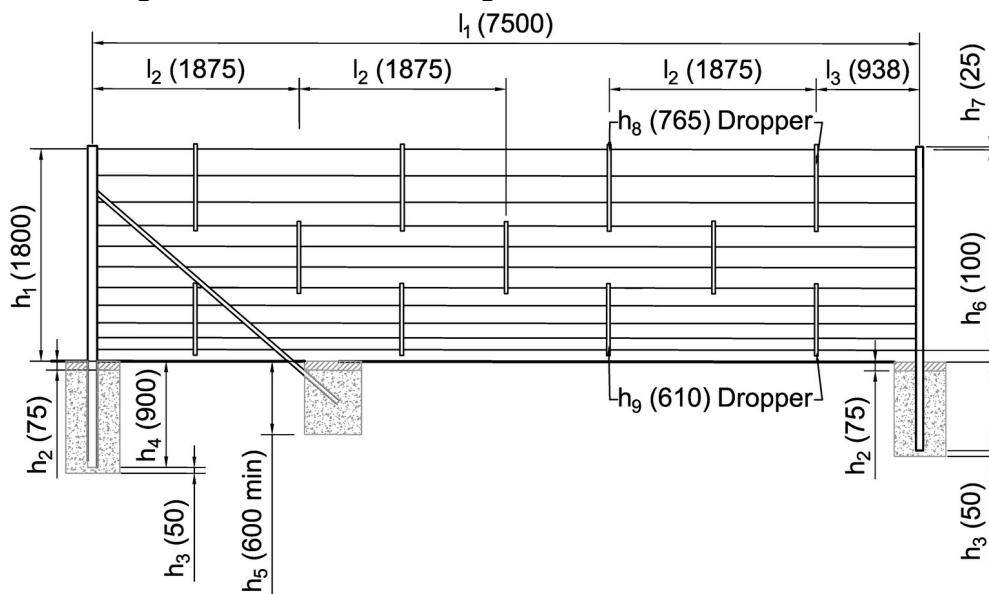


All dimensions are in <mm> unless otherwise stated

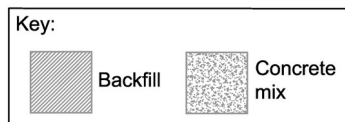


Fig

Figure 3.32b High tensile wire fencing 1800

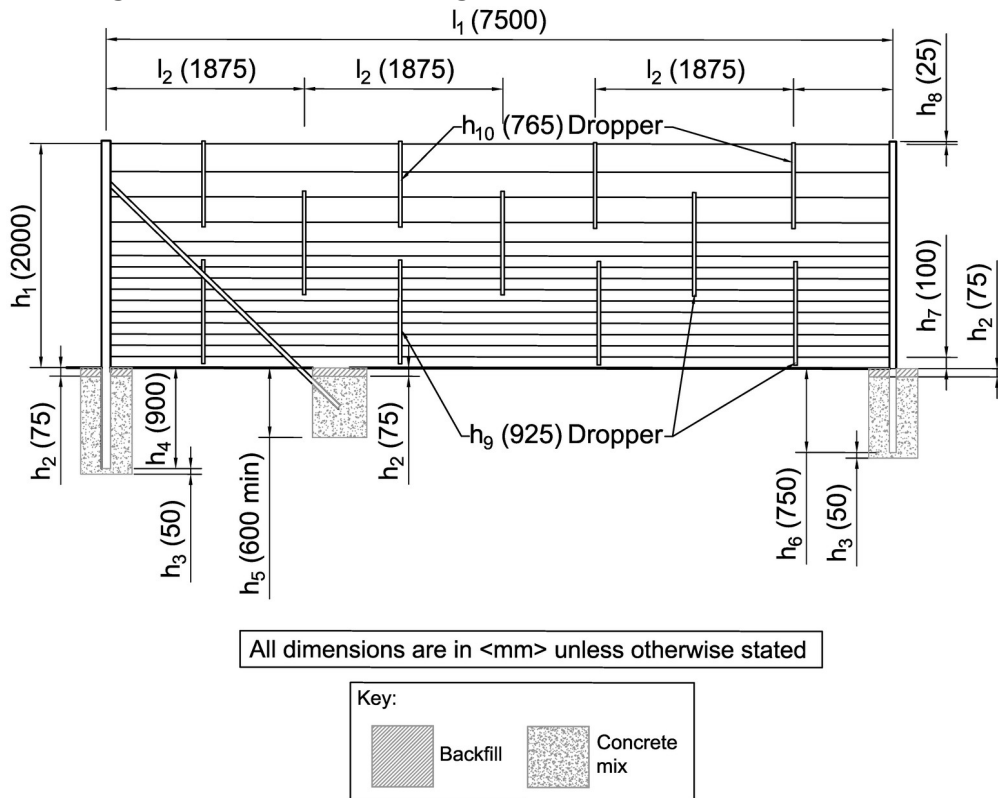


All dimensions are in <mm> unless otherwise stated



Fig

re 3.32c High tensile wire fencing 2000



Product supply and installation requirements for chain link fencing

Supply

3.33 Chain link fences for permanent fencing shall include gates, gateposts, posts, steel chain link mesh, line wire and struts.

3.34 Permanent chain link fencing shall be compliant with BS 1722-1 [Ref 7.N] and BS 1722-10 [Ref 6.N].

3.35 Steel chain link mesh for chain link fencing works shall be compliant with BS EN 10223-2 [Ref 31.N].

Installation

3.36 The installation of chain link fencing shall be compliant with BS 1722-1 [Ref 7.N] and BS 1722-10 [Ref 6.N].

3.37 Chain link fencing shall be installed in accordance with BS 1722-1 [Ref 7.N] and in LC 127/WSR/003.

Chain link fencing		
Length of fence reference	Installation of chain link fencing	Chain link mesh dimensions and general characteristics BS 1722-1 [Ref 7.N]
(a)	(b)	(c)

- a) Enter a unique reference, to identify the length to be installed.
- b) Enter text, to identify specific requirements for the installation of chain link fencing.
- c) Enter a value, from options Table1, Table 2, to identify application and dimensions of steel chain link mesh.

Product supply and installation requirements for timber post and rail fencing

Supply

3.38 Permanent timber post and rail fences for 3 rail, 4 rail and 5 rail fences shall be compliant with BS 1722-7 [Ref 10.N].

3.39 Permanent timber post and rail fencing for 3 rail, 4 rail and 5 rail shall be type SPR 13/4 as defined in BS 1722-7 [Ref 10.N].

3.40 The use of timber post and rail fences shall be as described and specified in LC 127/WSR/003.

The use of timber post and rail fences			
Length of fence reference	Number of rails	Rails with barbed wire	End treatment
(a)	(b)	(c)	(d)

- a) Enter a unique reference, to identify the individual length of fence.
- b) Enter a value, from options 3 rail, 4 rail, 5 rail, to identify the number of rails required.
- c) Enter one or more values, from options rail 1, rail 2, rail 3, rail 4, rail 5, with barbed wire, to establish the rails with barbed wire.
- d) Enter text, to identify the required treatment to the ends of the timber posts and rails.

Installation

3.41 Timber post and rail fencing shall be constructed to the dimensions found in Table 3.41 for 3 rail, 4 rail and 5 rail.

Element	Dimension mm
Main post height (3 rail)	1200 above ground, 600 below ground, 75 x 150 x 1800 [height]
Main post height (4 rail & 5 rail)	1400 above ground, 700 below ground, 75 x 150 x 2100 [height]
Rail size	38 x 87 [cross section]
Main post foundation support (3 rail)	300 diameter [hole], 650 depth from ground level.
Main post foundation support (4 rail & 5 rail)	300 diameter [hole], 750 depth from ground level.
3 Rail [spacing between rails]	100 [from top of post to 1st rail], 325 [gap between rails 1 and 2], 275 [gap between rails 2 and 3], and 240 [gap to ground]
4 Rail [spacing between rails]	100 [from top of post to 1st rail], 250 [gap between rails 1 and 2], 250 [gap between rails 2 and 3], 225 [gap between rails 3 and 4], and 225 [gap to ground]
5 Rail [spacing between rails]	100 [from top of post to 1st rail], 250 [gap between rails 1 and 2], 250 [gap between rails 2 and 3], 140 [gap between rails 3 and 4], 125 [gap between rails 4 and 5 from the top], and 100 [gap to ground]

3.42 Post spacing/locations for timber post and rail fencing shall be 1800 mm.

3.43 The ends of posts and rails for timber post and rail fencing for permanent fencing works shall be cut square across the base at right angles to the length of the piece, unless otherwise stated in LC 127/WSR/003.

Product supply and installation requirements for close boarded fencing and wooden palisade fencing

Supply

3.44 Permanent close boarded fencing and wooden palisade fencing shall be compliant with BS 1722-5 [Ref 27.N].

3.45 Post intervals for wooden palisade fencing shall not exceed 3m between post centres.

3.46 Post intervals for close boarded fencing shall not exceed 2.4 between post centres.

3.47 Close boarded fencing and / or wooden palisade fencing shall be as described and specified in LC 127/WSR/003.

Close boarded fencing and / or wooden palisade fencing			
Length of fence reference	Timber close-boarded or wooden palisade fencing	Gravel boards	Rail type for wooden palisade fencing
(a)	(b)	(c)	(d)

- a) Enter a unique reference, to identify the individual length of fence.
- b) Enter a value, from options timber close-boarded fencing, wooden palisade fencing, to identify type of fencing.
- c) Enter a value, from options Yes, No, to identify if gravel boards are required.
- d) Enter a value, from options rectangular, arris rail, N/A, to identify the required rail type for wooden palisade fencing..

Installation

3.48 Permanent close boarded fencing and wooden palisade fencing shall be installed as illustrated in Figures 3.48a and 3.48b

Figure 3.48a Close boarded fence

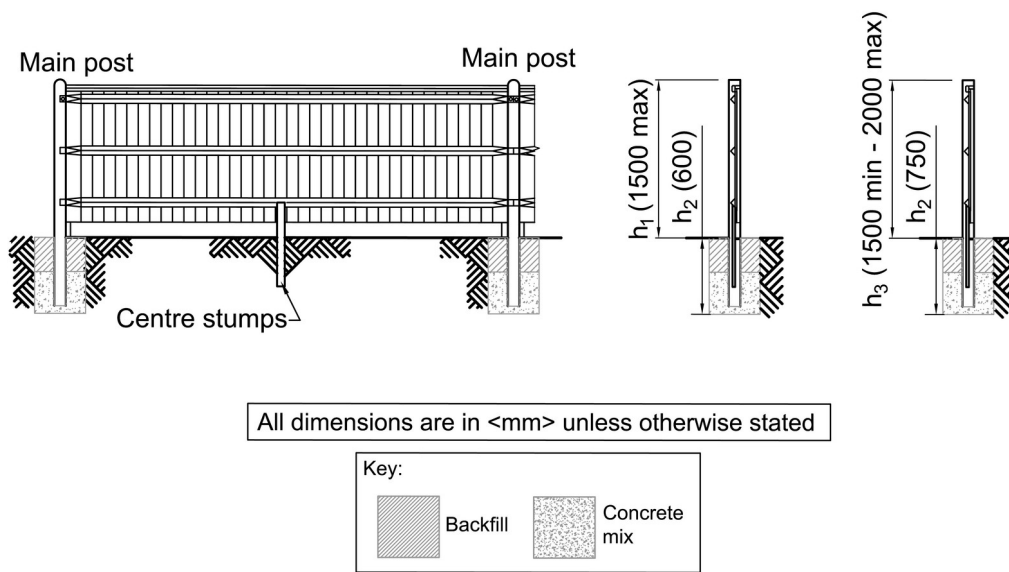
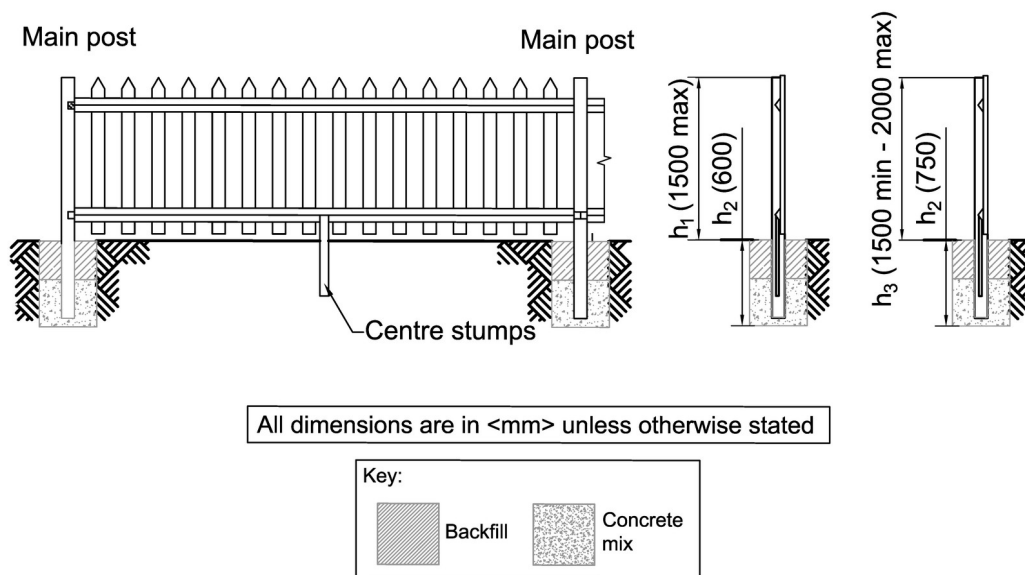


Figure 3.48b Wooden palisade fencing



Figur

Product supply and installation requirements for steel palisade fencing

Supply

3.49 Steel palisade fences shall be compliant with BS 1722-12 [Ref 11.N].

Installation

3.50 The installation of steel palisade fences shall be compliant with BS 1722-12 [Ref 11.N].

4. Timber quality for fencing works

Product requirements for timber for fencing works

4.1 All timber for fencing works shall be compliant with BS 1722-7 [Ref 10.N] and BS 1722-5 [Ref 27.N].

4.2 All timber for fencing works shall be either of natural durability (untreated) or treated with wood preservatives in accordance with BS EN 350 [Ref 2.N].

Treated timber

4.3 Prior to preservation treatment, the moisture content of timber shall be compliant with BS EN 13183-1 [Ref 21.N] and BS EN 13183-2 [Ref 22.N].

4.4 The moisture content of timber for fencing works shall meet the following performance characteristics: prior to preservation treatment the timber is to have a moisture content of 28% or below.

4.5 The preservation of timber for fencing works shall comply with BS EN 351-1 [Ref 1.N] and BS 8417 [Ref 24.N].

4.6 All timber surfaces shall have timber preservation applied following cutting.

4.7 All preservative for timber for fencing works shall comply with BS 8417 [Ref 24.N].

Service life requirements - temporary fencing works

4.8 Timber of natural durability (untreated) to be used for temporary fencing works, shall remain in position either until it is replaced by permanent fencing or until its removal on completion of the works.

Service life requirements - permanent fencing works

4.9 The preservative treatment of permanent fencing works shall give a desired service life of treated timber as defined by BS 8417 [Ref 24.N] of 30 years.

4.10 The preservative treatment of permanent fencing works, for out of ground contact, for permanent fencing works shall meet the retention and penetration requirements within BS 8417 [Ref 24.N] Table 4 - use class 4 and a service factor for 'D' for a minimum 30 year specification.

4.11 Timber for permanent fencing works in ground contact, the penetration requirements for all timber species shall be in accordance

with BS 8417 [Ref 24.N]Table 6- use class 4 and a service factor 'D' for a minimum 30 year specification.

Penetration requirements for fencing works

4.12 The following Documentation shall be submitted for treated timber to demonstrate that the required penetration has been achieved prior to the commencement of timber fencing installation: certification or written confirmation that the preservative penetration required conforms with BS 8417 [Ref 24.N].

4.13 The requirements for "Documentation" in Section 2 of GC 101 [Ref 13.N] shall apply to demonstrate that the required penetration has been achieved.

Product requirements for timber of natural durability (untreated)

4.14 Timber for fencing works of natural durability (untreated) shall be compliant with BS EN 350 [Ref 2.N].

4.15 Timber for fencing works of natural durability (untreated) used in contact with the ground (e.g. fence posts) shall be compliant with BS EN 350 [Ref 2.N]Class evidence 1.

4.16 Timber for fencing works of natural durability (untreated) not in contact with the ground (e.g. fence rails) shall be compliant with BS EN 350 [Ref 2.N]Class 2 or better.

4.17 If any sapwood is present in the timber, irrespective of the natural durability of the heartwood, the timber shall be treated with preservative.

4.18 The following Documentation shall be submitted for timber and wood derived products for fencing confirming the materials to be used prior to the commencement of fencing works: Certificate of conformity in accordance with BS EN 350 [Ref 2.N].

4.19 The requirements for "Documentation" in Section 2 of GC 101 [Ref 13.N] shall apply to the certificate of conformity for timber and wood derived products for fencing.

5. Fittings for fencing works

Bolts, nuts and screws for fencing works

5.1 Bolts, nuts and screws for fencing works shall be compliant with BS EN ISO 4034 [Ref 16.N], BS EN ISO 4018 [Ref 15.N], BS EN ISO 4016 [Ref 14.N] and BS EN ISO 898-1 [Ref 19.N] property class 4.6 or 4.8.

5.2 Washers for fencing works shall be compliant with BS EN ISO 898-3 [Ref 5.N] and BS EN ISO 7091 [Ref 23.N].

5.3 Galvanised bolts, nuts and screws for fencing works shall be compliant with BS EN ISO 1461 [Ref 17.N].

Gate stops, hinges and latches for fencing works

5.4 All gate stops, hinges and latches used for fencing works shall be compliant with BS 5709 [Ref 12.N].

Nails and staples for fencing works

5.5 Nails shall be compliant with BS 1202-1 [Ref 29.N].

5.6 Galvanised nails used for fencing works shall be compliant with BS EN ISO 1461 [Ref 17.N].

5.7 Staples used for timber fencing posts shall be compliant with BS 1722-2 [Ref 28.N].

Netting rings for fencing works

5.8 Netting rings for fencing works shall be compliant with BS 1722-2 [Ref 28.N].

6. Gates, gateposts, posts and stiles for fencing works

6.1 All gates, gateposts, posts and stiles for fencing works shall be compliant with BS 5709 [Ref 12.N].

Supply of gates, gateposts, posts and stiles for fencing works

6.2 Timber to be used for gates, gateposts, posts and stiles shall comply with "Timber quality for fencing works" in Section 4 of this document.

6.3 Mild steel gates, gateposts, posts and stiles shall be compliant with , BS 1722-8 [Ref 8.N], BS 1722-9 [Ref 9.N]and BS 1722-12 [Ref 11.N].

6.4 Mild steel gates, gateposts, posts and stiles for permanent fencing shall be hot dipped galvanised.

6.5 Hot dipped galvanised mild steel gates, gateposts, posts and stiles shall be compliant with BS EN ISO 1461 [Ref 17.N].

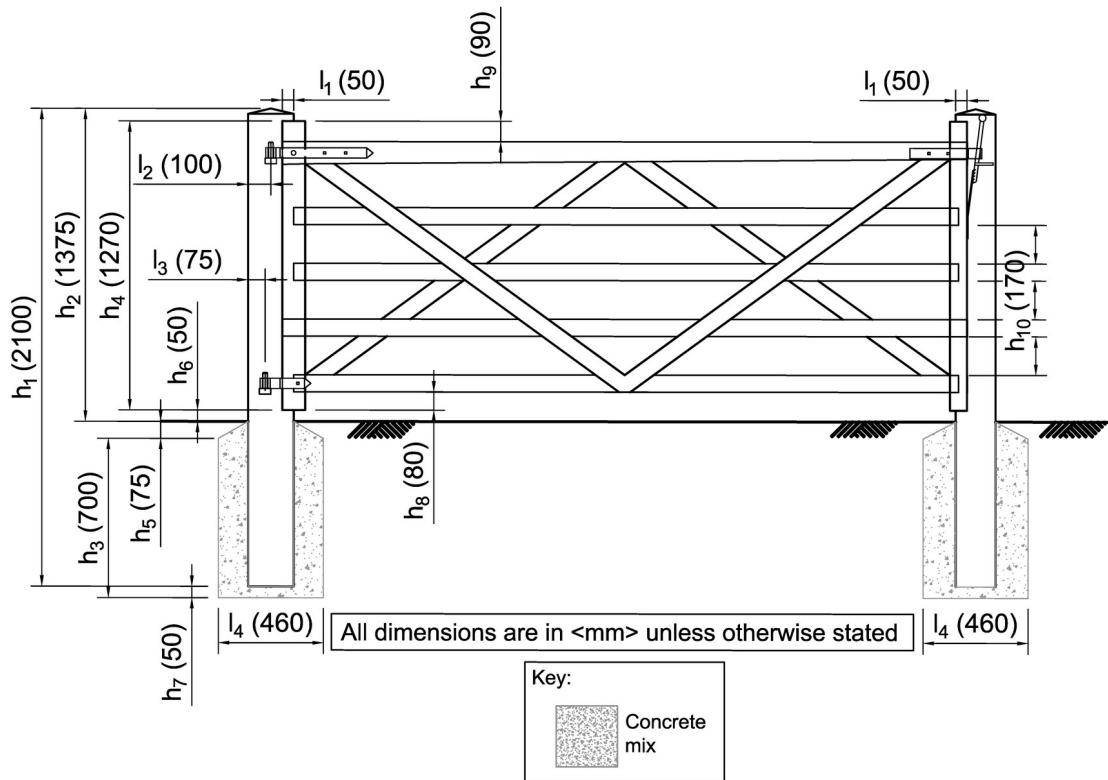
6.6 Wire mesh netting, hexagonal steel mesh and steel wire woven hinged joint fencing attachment to gates and gateposts shall be compliant with BS 1722-2 [Ref 28.N] and BS EN 10223-2 [Ref 31.N].

6.7 Mild steel gates and gateposts shall have a required service life of 30 years.

Installation

6.8 Timber gates and posts measurements shall be in accordance with Figure 6.8a, Figure 6.8b, Figure 6.8c, Figure 6.8d, Figure 6.8e, and Figure 6.8f.

Figure 6.8a Timber field gate



Fig

re 6.8b Timber field gate with uni - gate

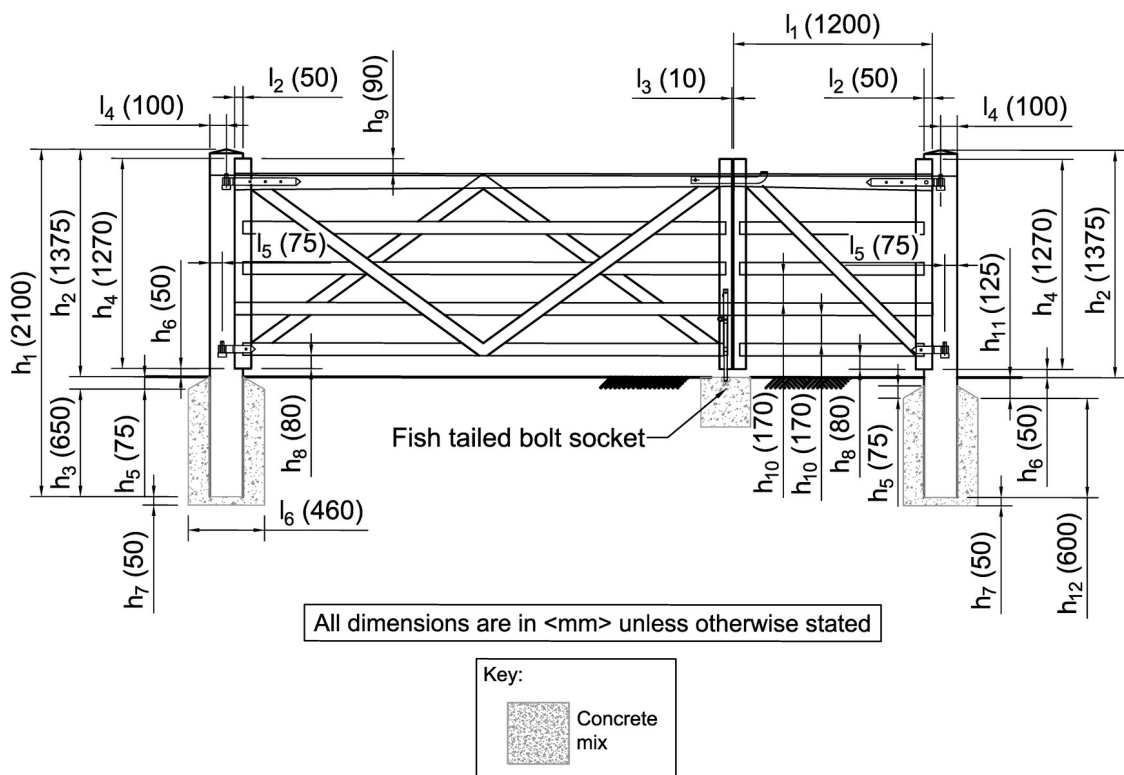


Figure 6.8c Timber kissing gate

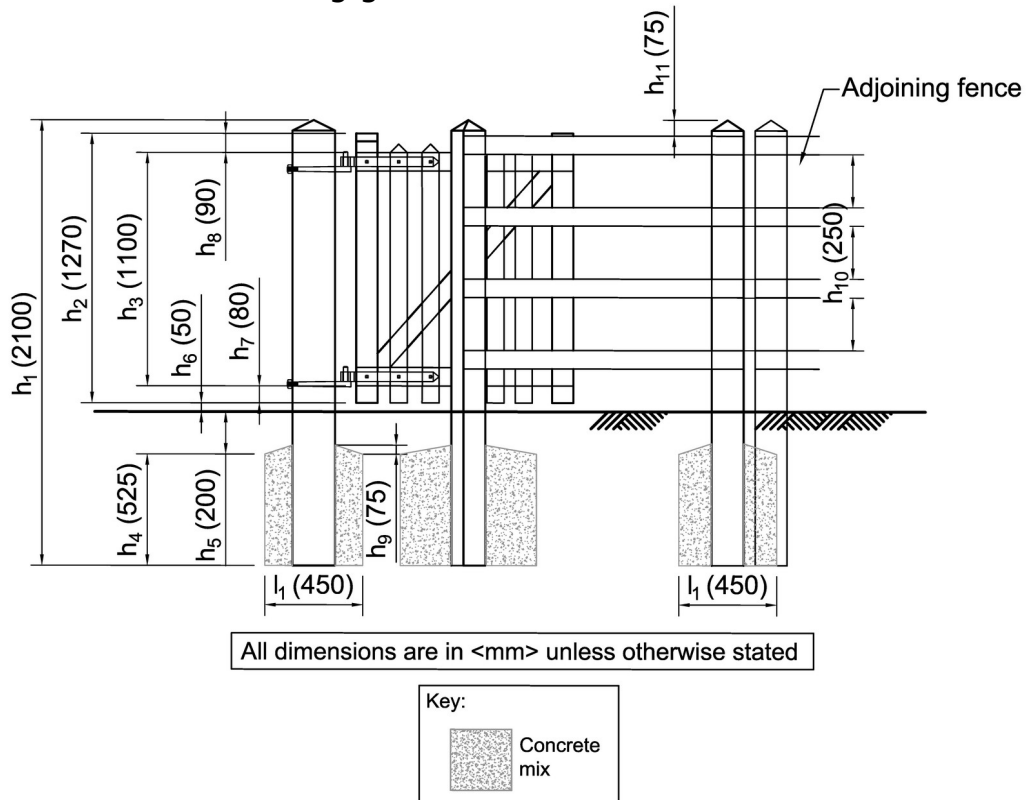
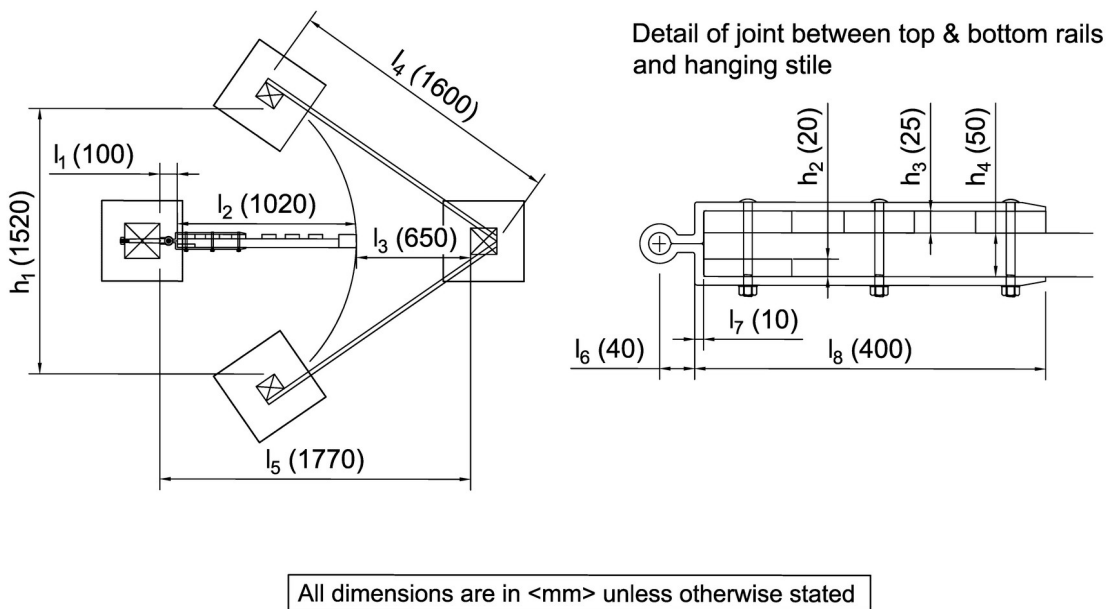
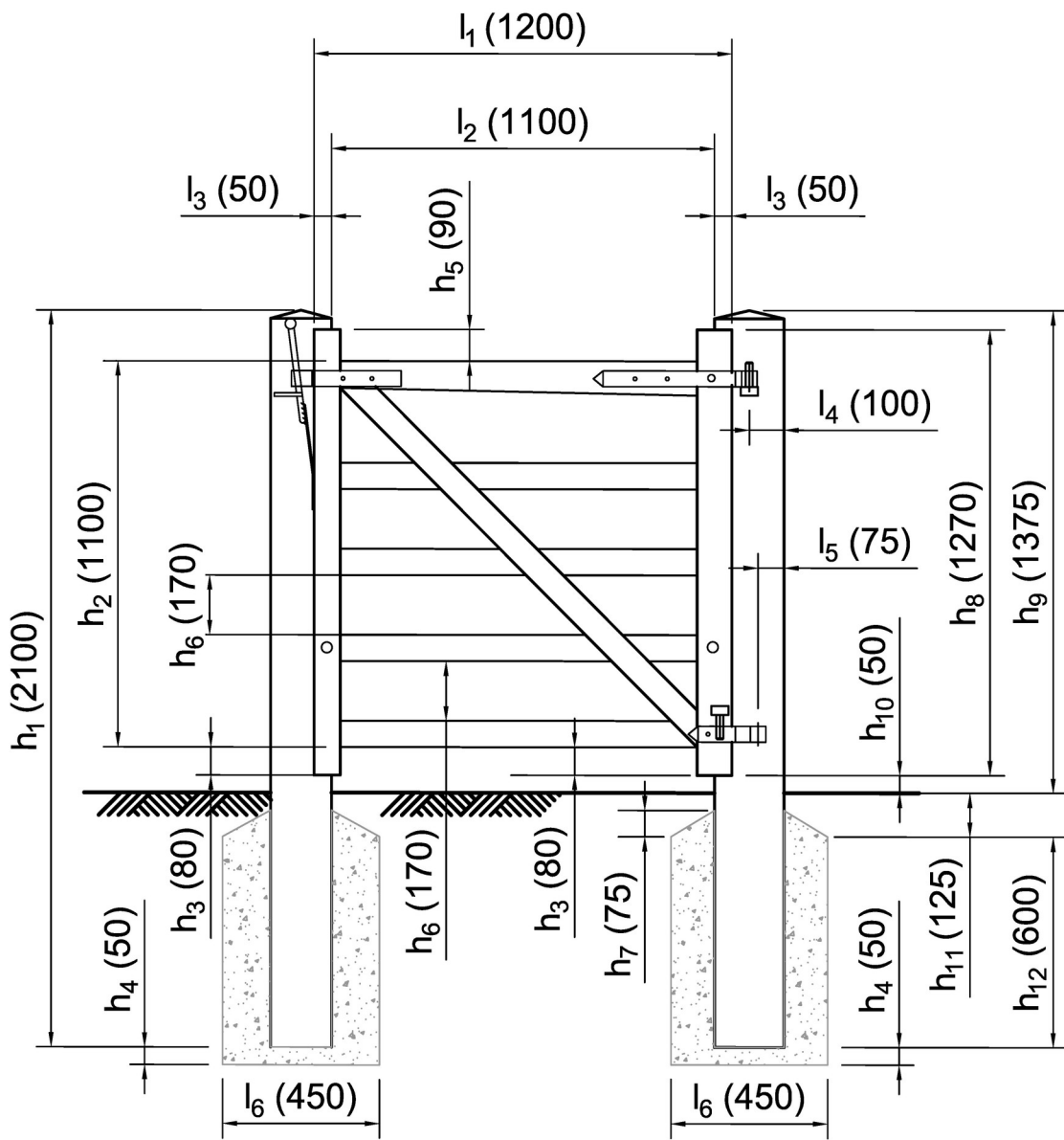


Figure 6.8d Timber kissing gate (aerial)



Figu

re 6.8e Timber uni - gate

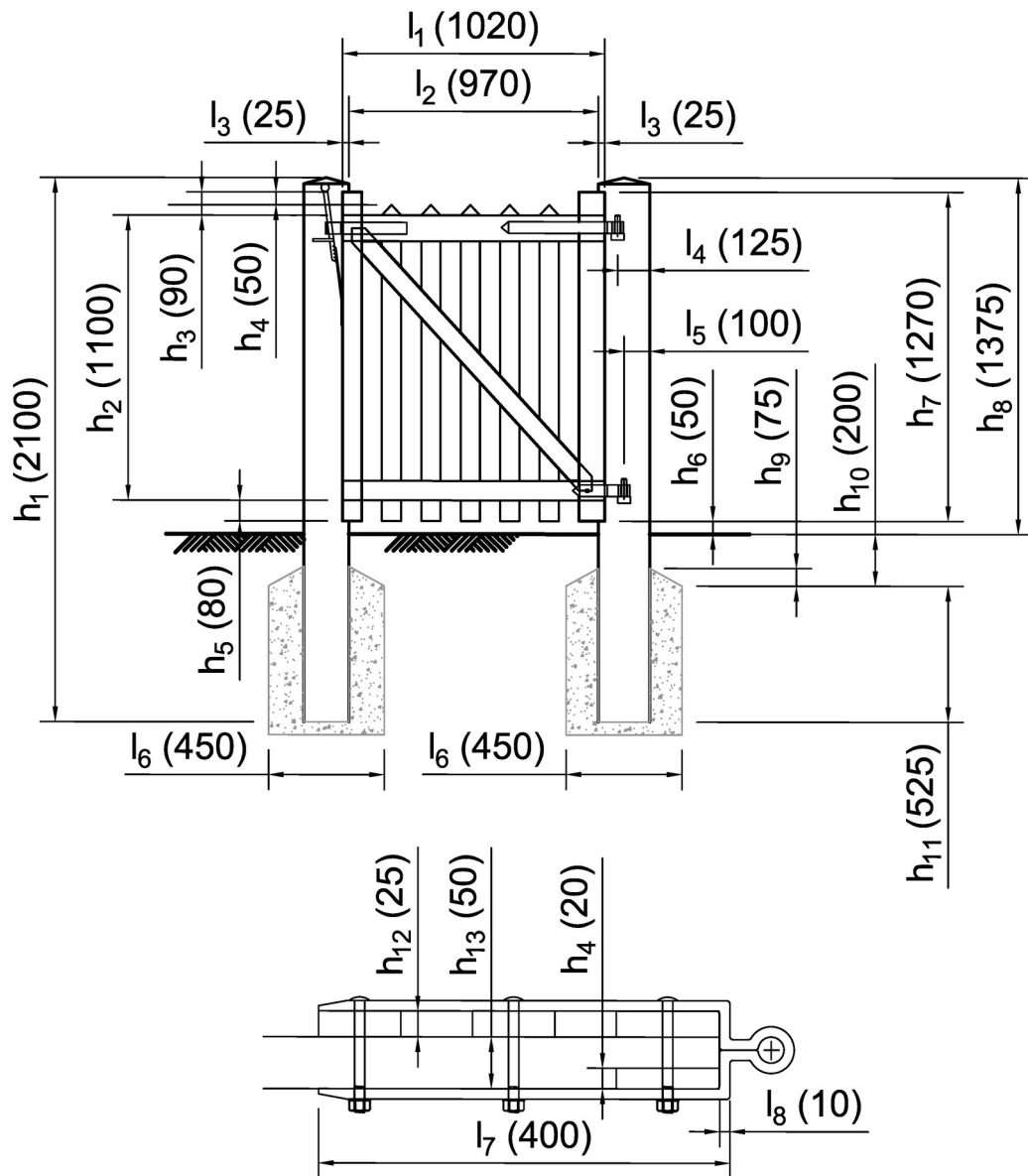


All dimensions are in <mm> unless otherwise stated

Key:

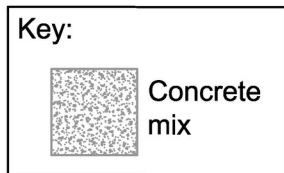
Concrete mix

Figure 6.8f Timber palisade gate



Detail of joint between top & bottom rails and hanging stiles.

All dimensions are in <mm> unless otherwise stated



6.9 Figure 6.8b shall be installed with a fish tailed bolt socket.

6.10 Mild Steel Gates and Gateposts shall be installed in accordance with:

1. Figures 6.10a - 6.10c for side hinge arrangements; and

2. Figures 6.10d - 6.10f for central hinge arrangements.

Figure 6.10a Mild steel field gate with side hinge arrangement

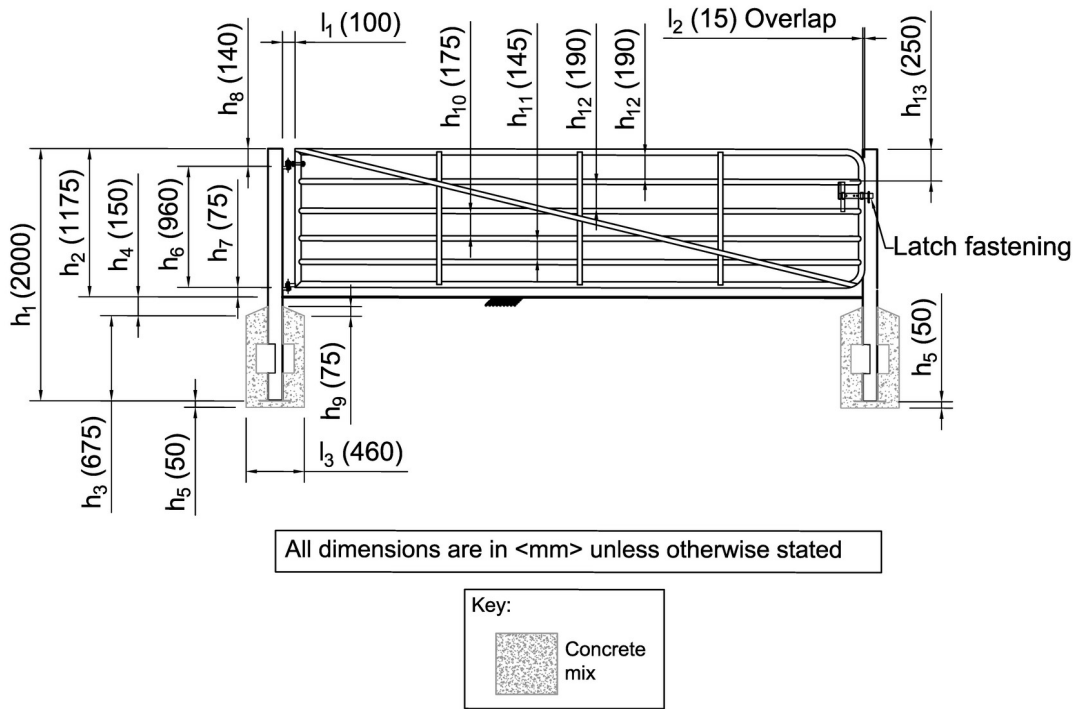


Figure 6.10b Mild steel field gate with welded mesh - side hinge arrangement

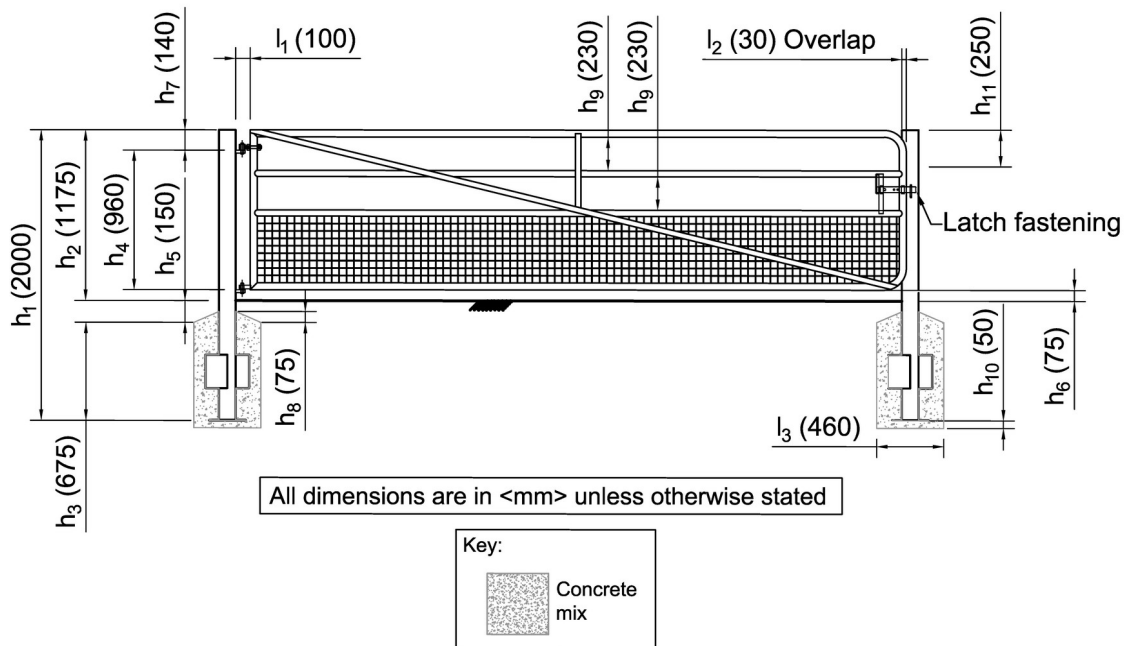


Figure 6.10c Mild steel double field gate with side hinge arrangement

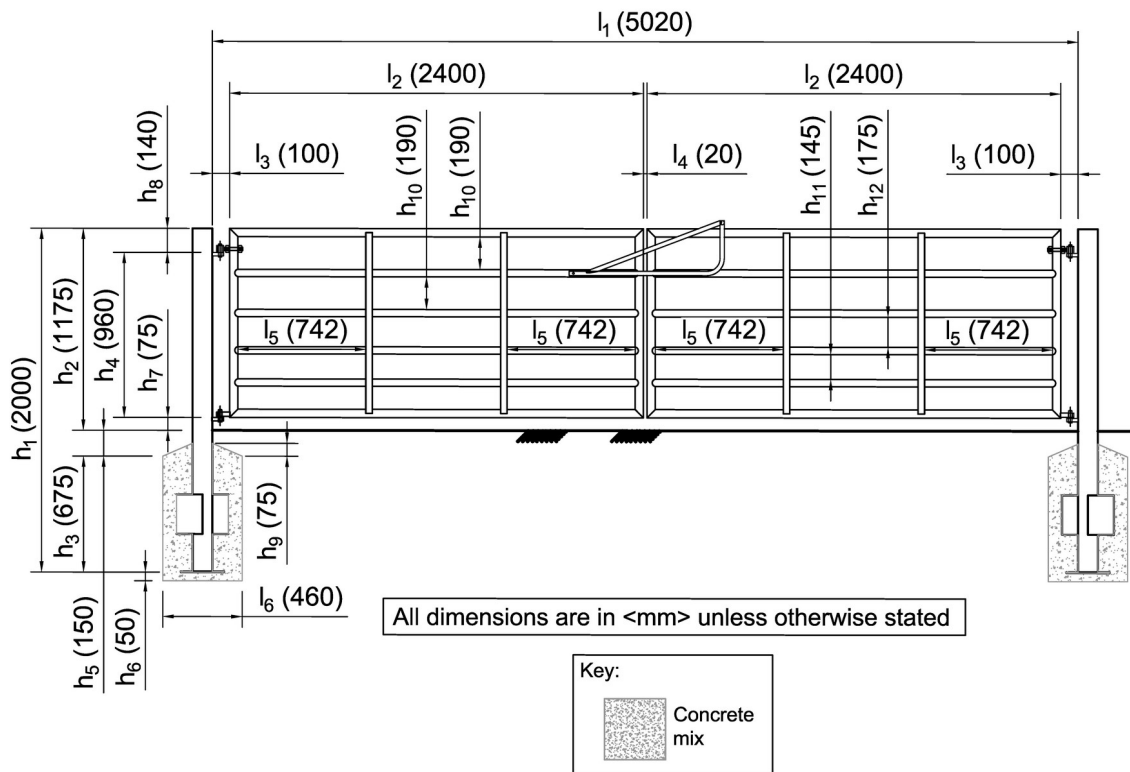


Figure 6.10d Mild steel field gate with central hinge arrangement

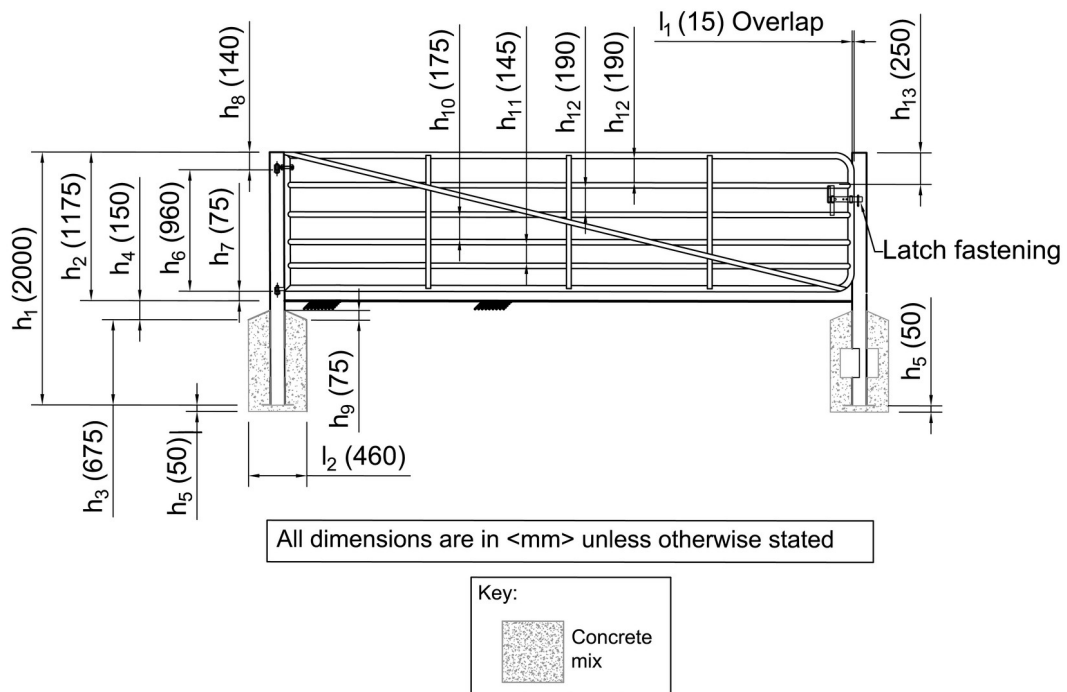


Figure 6.10e Mild steel field gate with welded mesh - central hinge arrangement

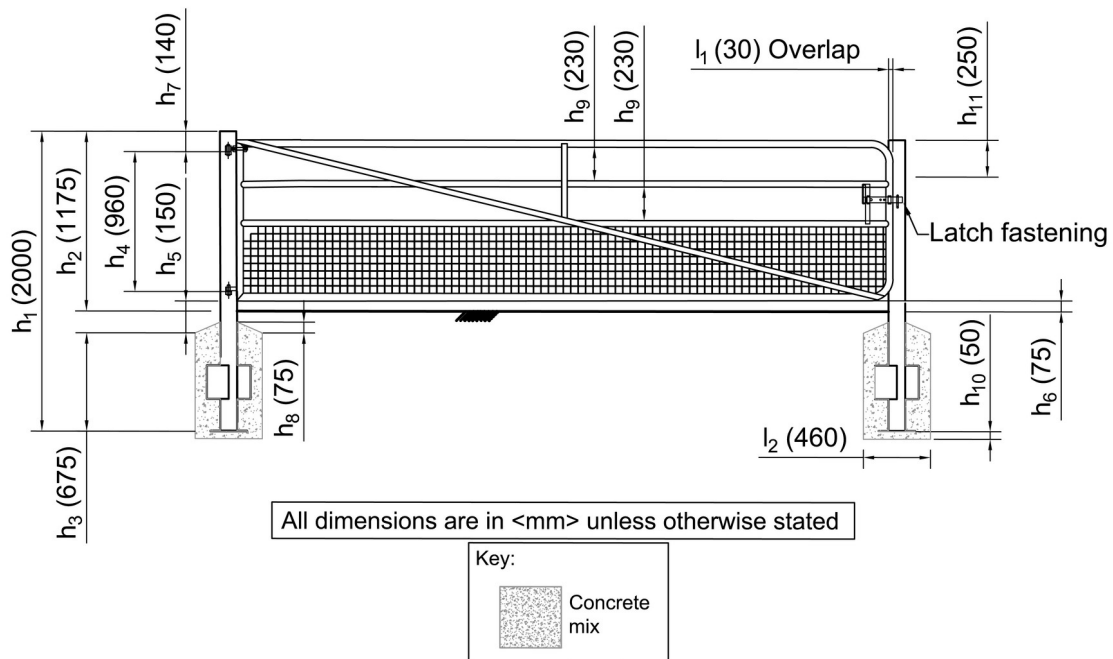
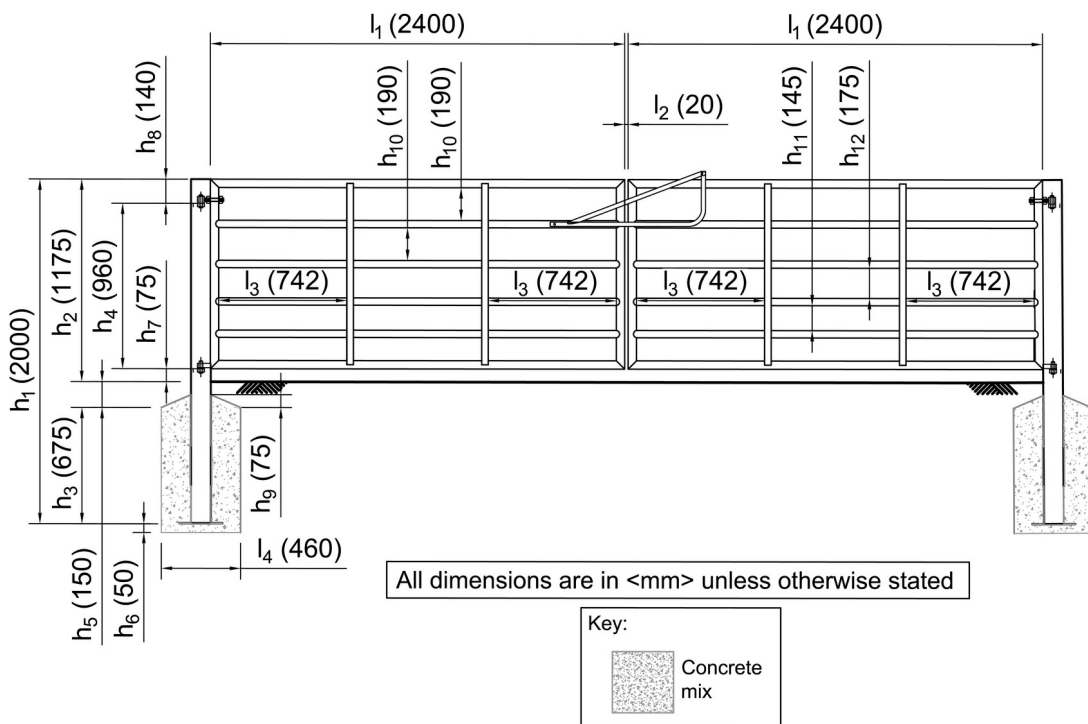


Figure 6.10f Mild steel double field gate with central hinge arrangement

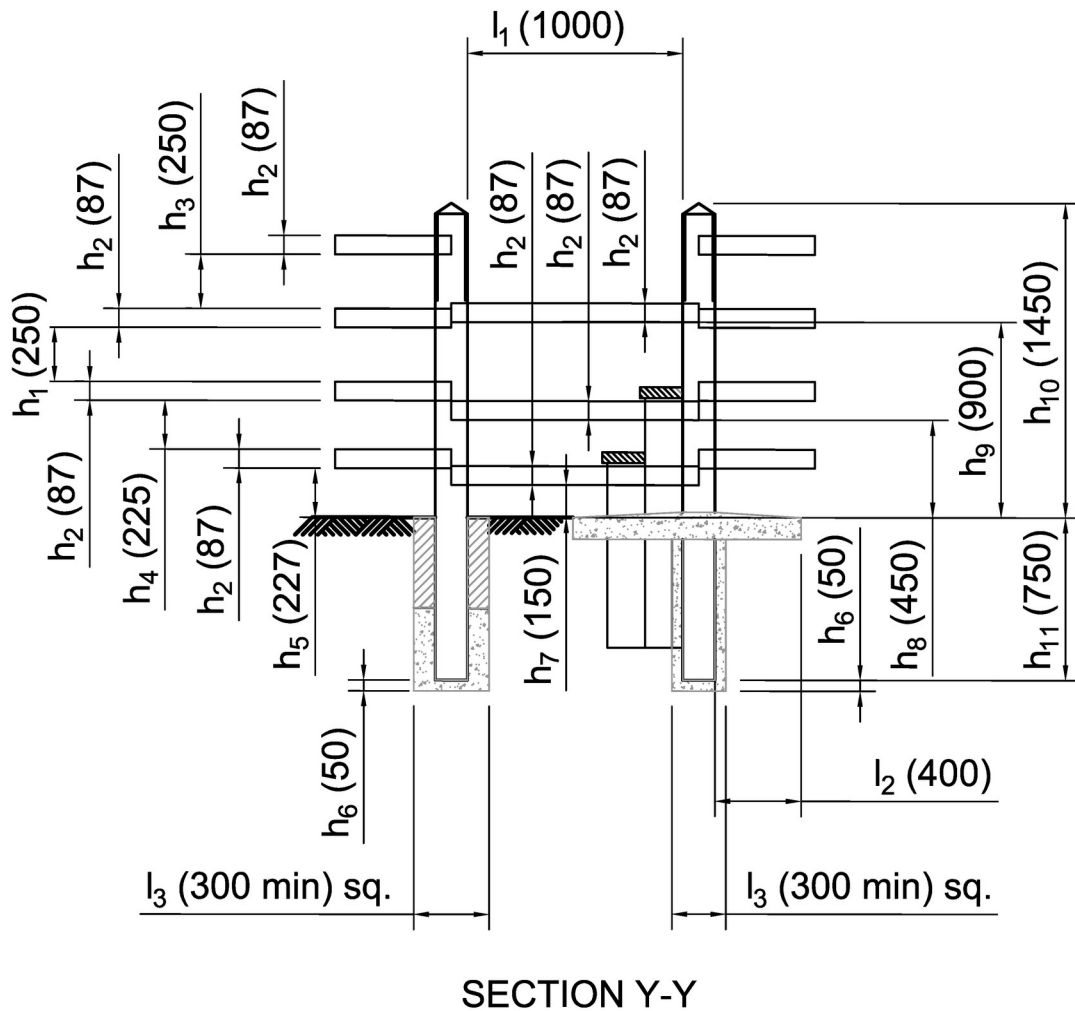


6.11 Concrete footings and foundations specified for permanent fencing works for gates, gateposts, posts and stiles shall comply with the requirements in "Permanent fencing works" in Section 3 of this document.

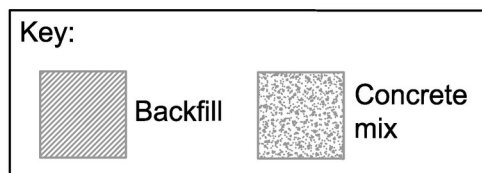
6.12 Fittings for gates, gateposts, posts and stiles shall comply with the requirements of "Fittings for fencing works" in Section 5 of this document.

6.13 Posts and stiles shall be installed in accordance with Figure 6.13.

Figure 6.13 Timber post and stile



All dimensions are in <mm> unless otherwise stated



6.14 Gates shall open away from the primary road.

6.15 All gates shall be hung for self closing.

6.16 All latches and hinges shall be installed as per the manufactures instructions.

6.17 The location and types of gates, gateposts, posts, and stiles for the fencing works shall be as specified in LC 127/WSR/006.

The location and types of gates, gateposts, posts, and stiles for the fencing works						
Length of fence reference	Access type	Timber gate or stile	Mild steel gate type	Hinge orientation for mild steel gates (Figures 6.10a - 6.10f)	Additional fencing component	Fittings
(a)	(b)	(c)	(d)	(e)	(f)	(g)

- a) Enter text, to identify the individual length of fence.
- b) Enter one or more values, from options timber gate, mild steel gate, stile, to accommodate access over the fencing works.
- c) Enter one or more values, from options Timber field gate, Timber field gate with uni - gate, Timber Kissing Gate, Timber uni - gate, Timber palisade gate, Timber stile, N/A, to accommodate access over the fencing works.
- d) Enter one or more values, from options Mild steel field gate, Mild steel field gate with welded mesh, Mild steel double field gate, not applicable, to accommodate access through the fencing works.
- e) Enter a value, from options n/a, side, central, to identify the hinge orientation for mild steel gates.
- f) Enter a value, from options wire mesh netting, welded wire mesh netting, high tensile wire fencing, steel wire woven hinged joint fencing, chain link fencing, hexagonal steel mesh fencing, timber post and rail fencing, tree guard, close-boarded fencing, wooden palisade fencing and steel palisade fencing, not applicable, to meet the requirements for the category the fencing.
- g) Enter a unique reference, to identify the type of fittings.

The location and types of gates, gateposts, posts, and stiles for the fencing works (continued)				
Length of fence reference	Gatepost	Posts	Length of mild steel field gate (with or without mesh)	Length of timber field gate (with or without uni-gate)
(a)	(h)	(i)	(j)	(k)

h) Enter a unique reference, to identify the type of gatepost.

i) Enter a unique reference, to identify the type of post..

j) Enter one or more values, from options 3600 mm, 4500 mm, N/A, to specify the gate length.

k) Enter one or more values, from options 3000 mm, 3600 mm, N/A, to specify the gate length.

7. Removal, repair and re-erection of existing fences and gates

General requirements for removal, repair and re-erection of existing fences and gates

7.1 All fence, gates, gateposts, posts, stiles, and struts to be removed and re-erected incorporating any new materials shall comply with "General requirements for fencing works" in Section 1 of this document.

7.2 Fences removed to be reused and later re-erected as permanent fencing works shall be installed in accordance with "Permanent fencing works" in Section 3 of this document.

7.3 Where existing fences are removed, reused, repaired (where damaged), and re-erected they shall be treated in accordance with the principles of the waste hierarchy 2008/98/EC [Ref 34.N].

7.4 Existing gates, gateposts, posts and stiles to be reused and re-erected as permanent fencing works shall be constructed in compliance with "Gates, gateposts, posts and stiles for fencing works" in Section 6 of this document.

Scope of works for removing and re-erecting existing fences and gates

7.5 The removal and re-erection of existing fences, gates, gateposts, posts and stiles shall be as set out in LC 127/WSR/007.

The removal and re-erection of existing fences, gates, gateposts, posts and stiles			
Length of fence	Fence type to be removed and re-erected	Gates, gateposts, posts and stiles to be removed and re-erected	Removal or re-erection works type
(a)	(b)	(c)	(d)

- a) Enter a unique reference, to identify the existing length of fence.
- b) Enter a value, from options wire mesh netting, welded wire mesh netting, high tensile wire fencing, steel wire woven hinged joint fencing, chain link fencing, hexagonal steel mesh fencing, timber post and rail fencing, close-boarded fencing, wooden palisade fencing and steel palisade fencing, to identify the existing fence to be removed or re-erected.

- c) Enter a value, from options Timber field gate, Timber field gate with uni - gate, Timber Kissing Gate, Timber uni - gate, Timber palisade gate, Mild steel field gate, Mild steel field gate with welded mesh, Mild steel double field gate, and Timber post and stile, to identify the existing gate, gatepost, post or stile to be removed or re-erected.
- d) Enter one or more values, from options removal, re-use, repair, re-erection, to identify the action to be taken to remove and/or re-erect the existing fences, gates, gateposts, posts and stiles.

8. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref.	Document
Ref 1.N	BSI. BS EN 351-1, 'Durability of wood and wood-based products. Preservation treated solid wood - Classification of preservative penetration and retention'
Ref 2.N	BSI. BS EN 350, 'Durability of wood and wood-based products. Use classes: definitions, application to solid wood and wood-based products'
Ref 3.N	National Highways. GC 103, 'Environment, Sustainability and Carbon'
Ref 4.N	National Highways. LA 104, 'Environmental assessment and monitoring'
Ref 5.N	BSI. BS EN ISO 898-3, 'Fasteners. Mechanical properties of fasteners made of carbon steel and alloy steel. Flat washers with specified property classes'
Ref 6.N	BSI. BS 1722-10, 'Fences. Specification for anti-intruder fences in chain link and welded mesh '
Ref 7.N	BSI. BS 1722-1, 'Fences. Specification for chain link fences'
Ref 8.N	BSI. BS 1722-8, 'Fences. Specification for mild steel (low carbon steel) continuous bar fences and hurdles'
Ref 9.N	BSI. BS 1722-9, 'Fences. Specification for mild steel (low carbon steel) fences with round or square verticals and flat horizontals'
Ref 10.N	BSI. BS 1722-7, 'Fences. Specification for wooden post and rail fences'
Ref 11.N	BSI. BS 1722-12, 'Fences. Steel palisade fences. Manufacturing and installation. Specification'
Ref 12.N	BSI. BS 5709, 'Gaps, gates and stiles'
Ref 13.N	National Highways. GC 101 'General requirements for the Specification for Highway Works'
Ref 14.N	BSI. BS EN ISO 4016, 'Hexagon head bolts. Product grade C '
Ref 15.N	BSI. BS EN ISO 4018, 'Hexagon head screws. Product grade

	C'
Ref 16.N	BSI. BS EN ISO 4034, 'Hexagon regular nuts (style 1). Product grade C'
Ref 17.N	BSI. BS EN ISO 1461, 'Hot dip galvanized coatings on fabricated iron and steel articles. Specifications and test methods'
Ref 18.N	National Highways. LD 117, 'Landscape design'
Ref 19.N	BSI. BS EN ISO 898-1, 'Mechanical properties of fasteners made of carbon steel and alloy steel. Bolts, screws and studs with specified property classes. Coarse thread and fine pitch thread '
Ref 20.N	National Highways. CC 495 'Miscellaneous'
Ref 21.N	BSI. BS EN 13183-1, 'Moisture content of a piece of sawn timber. Determination by oven dry method'
Ref 22.N	BSI. BS EN 13183-2, 'Moisture content of a piece of sawn timber. Estimation by electrical resistance method'
Ref 23.N	BSI. BS EN ISO 7091, 'Plain washers. Normal series. Product grade C'
Ref 24.N	BSI. BS 8417, 'Preservation of Wood. Code of Practice'
Ref 25.N	National Highways. GC 102 'Site and work constraints'
Ref 26.N	BSI. BS 1722-4, 'Specification for cleft chestnut pale fences '
Ref 27.N	BSI. BS 1722-5, 'Specification for close boarded and wooden palisade fences'
Ref 28.N	BSI. BS 1722-2, 'Specification for restrained wire and wire mesh netting '
Ref 29.N	BSI. BS 1202-1, 'Specifications for nails. Steel nails'
Ref 30.N	BSI. BS ISO 10474, 'Steel and steel products. Inspection documents'
Ref 31.N	BSI. BS EN 10223-2, 'Steel wire and wire products for fencing and netting. Hexagonal steel wire netting for agricultural, insulation and fencing purposes'
Ref 32.N	BSI. BS EN 10223-1, 'Steel wire and wire products for fencing and netting. Zinc and zinc-alloy coated steel barbed wire'
Ref 33.N	BSI. BS EN 10244-2, 'Steel wire and wire products. Non-ferrous metallic coatings on steel wire. Zinc or zinc alloy coatings'

Ref 34.N	Europa.eu. 2008/98/EC, 'Waste Directives'
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