

## ACS1310 Fencing and barriers

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## ACS1310.1 Scope

This specification covers the construction and materials for fences and balustrades in private land, parks and reserves. It does not cover fences and barriers in road corridors which are covered by the Auckland Transport Code of Practice.

## ACS1310.2 Materials

### ACS1310.2.1 Timber

All timber used in fencing and barriers shall comply with NZS3602.

#### **ACS1310.2.1.1 Timber fence posts**

Fence posts shall be H4 in accordance with NZS3640 Clause 6.4.

#### **ACS1310.2.1.2 Timber railings**

Timber railings shall be H3.2 in accordance with NZS3604 Clause 6.3.

#### **ACS1310.2.1.3 Timber palings and infill panels**

Timber palings and infill panels shall be H3.2 in accordance with NZS3604 Clause 6.3.

### ACS1310.2.2 Steel

#### **ACS1310.2.2.1 Fence posts**

Steel posts shall be manufactured in accordance with AS/NZS1163, and hot dip galvanized in accordance with AS/NZS 4792 to a minimum thickness as described in Table 1: Minimum thickness of galvanizing.

#### **ACS1310.2.2.2 Railings**

Steel railings shall be manufactured in accordance with AS/NZS1163 and hot dip galvanized in accordance with AS/NZS4680, 4791 or 4792 to a minimum thickness as described in Table 1: Minimum thickness of galvanizing.

#### **ACS1310.2.2.3 Welded wire panels**

Welded wire panels shall comply with ATCOP Drawing RR010, have a minimum wire thickness of 7.5 mm (vertical) and 6 mm (horizontal) and shall be hot dip galvanized in accordance with AS/NZS4680, to a minimum thickness as described in Table 1: Minimum thickness of galvanizing.

Table 1: Minimum thickness of galvanizing

	Minimum average thickness
Coastal areas	150 µm
Other areas	85 µm

#### **ACS1310.2.2.4 Steel fixings for timber fences**

All bolts, nuts and washes shall be galvanized mild steel in accordance with either AS/NZS 1214, AS/NZS 1252, AS/NZS 1390 or AS/NZS 2451.

All nails and staples shall be galvanized mild steel complying with AS/NZS 4680.

Stainless steel shall be 316.

#### **ACS1310.2.2.5 Chain link panels**

Chainlink panels shall be hot dip galvanized in accordance with AS/NZS 4534, have a minimum wire diameter of 3.2 mm and a minimum aperture of 50 mm, unless otherwise specified.

#### **ACS1310.2.3 Insitu concrete for footings**

Concrete for fence post footings shall be 20 MPa mass concrete complying with Auckland Council Standard Specification *ACS610 Concrete Construction*. Unless otherwise specified in this specification, the Particular Specifications or the Drawings, post footings shall be 300 mm diameter, pads, shall be 300 x 300 mm and minimum depth of footings shall be 600 mm.

#### **ACS1310.2.4 Storage of materials**

Materials shall be stored strictly in accordance with the manufacturer's requirements.

### **ACS1310.3 Fencing general**

Refer to Table 2 Fence Types for a summary of fencing types referred to in this specification.

Table 2 Fence Types

Type A	Timber post and wire with chain link infill (highway)
Type B	Timber post and wire (highway)
Type C	Timber post and palings (highway)
Type D	Steel post and chain link infill

Type E	Steel balustrades
Type F	Steel balustrades (heavy duty)
Type G	Timber post and wire with chain link infill (residential boundaries)
Type H	Timber post and palings (residential boundaries)
Type I	Timber post and rail
Type J	Steel post and welded wire fence
Type K	Stock fences
Type L	Predator fences
Type X	Special security fencing
Type Y	Special acoustic fencing
Type Z	Special architectural fencing

## ACS1310.4 Post footings

Post holes shall be bored to the diameter and depth shown in the Drawings. The Contractor shall allow sufficient depth below the post to achieve the required post embedment depths and allow for any base pad required.

Mass concrete used in footings shall have a minimum compressive strength of 20 MPa.

## ACS1310.5 Tolerances

Posts shall be installed to the line and level required on the specific drawings. The position tolerance for posts shall be within  $\pm 50$  mm from the specified design. Notwithstanding this, the vertical centreline of any post, defined at the top of that post, shall remain within a tolerance of  $\pm 10$  mm from a straight line joining the vertical centrelines of the extreme poles in that row.

Where fences are required to be constructed on a curve, the vertical centreline of any post, defined at the top of that post, shall remain within a tolerance of  $\pm 10$  mm from radius or curve specified in the Drawings between the poles at either end of the curved section.

The height and position of horizontal rails and wires shall be within  $\pm 10$  mm of that indicated on the Drawings. Notwithstanding this, the rails and wires shall be parallel between posts and the vertical separation shall not vary by more than 5 mm.

## ACS1310.6 Minimum dimension requirements

Unless otherwise specified in this specification, the Particular Specifications or the Drawings, the minimum dimension requirements in Table 3: Minimum dimension requirements shall apply.

*Table 3: Minimum dimension requirements*

Minimum height for fences for public safety	1.2 m
Maximum height for bottom rail or fence panel above the ground	150 mm
Maximum gap between vertical railings	100 mm

## ACS1310.7 Fencing in coastal areas

Unless otherwise specified, fixings shall be 316 stainless steel in coastal areas. When attaching to galvanized components, they shall be insulated with nylon washers.

Unless otherwise specified, galvanized components for use in coastal areas shall have a minimum galvanizing thickness as described in Table 1: Minimum thickness of galvanizing.

## ACS1310.8 Type A: Timber post and wire with chain link infill (highway)

Type A Timber post and wire with chain link infill fencing shall be in accordance with ATCOP Drawing RR001 (Type A fence).

## ACS1310.9 Type B: Timber post and wire (highway)

Type B Timber post and wire fencing shall be in accordance with ATCOP Drawing RR001 (Type B fence).

## ACS1310.10 Type C: Timber post and palings (highway)

Type C Timber post and palings (highway) fencing shall be in accordance with ATCOP Drawing RR002 (Type C fence).

## ACS1310.11 Type D: Steel post and chain link infill

Type D Steel post and chain link infill fencing shall be in accordance with ATCOP Drawing RR003 (Type D fence).

All vertical posts shall be capped.

## ACS1310.12 Type E: Steel balustrades

Type E Steel balustrades shall be in accordance with ATCOP Drawing RR004 (Type E fence).

Components shall be manufactured in accordance with AS/NZS1163 and hot dip galvanized in accordance with AS/NZS4680, 4791 or 4792 to a minimum thickness of 55 µm.

## ACS1310.13 Type F: Steel balustrades (heavy duty)

Type F Steel balustrades shall be in accordance with ATCOP Drawing RR005-7 (Type F fence).

Components shall be manufactured in accordance with AS/NZS1163 and hot dip galvanized in accordance with AS/NZS4680, 4791 or 4792 to a minimum thickness of 55 µm.

## ACS1310.14 Type G: Timber post and wire with chain link infill (residential boundaries)

Type G: Timber post and wire with chain link infill (residential boundaries) fencing shall be in accordance with Housing New Zealand standard details Sheet 203  
<http://www.hnzc.co.nz/assets/Uploads/wire-mesh-timber-fence-details-standard-detail.pdf>.

## ACS1310.15 Type H: Timber post and palings (residential boundaries)

Type H: Timber post and palings (residential boundaries) fencing shall be in accordance with Housing New Zealand standard details Sheet 203  
<http://www.hnzc.co.nz/assets/Uploads/wire-mesh-timber-fence-details-standard-detail.pdf>.

## ACS1310.16 Type I: Timber post and rail

Timber post and rail fences shall have a minimum of three rails. Unless otherwise specified, the minimum dimensions indicated in Table 4: Minimum dimensions for timber post and rail fences shall be used. The gaps between rails shall be equal.

Table 4: Minimum dimensions for timber post and rail fences

Line posts	125 x 125 mm
End posts	125 x 125 mm
Rails	150 x 50 mm
Minimum height	1100 mm
Maximum gap below bottom rail	150 mm

## ACS1310.17 Type J: Steel post and welded wire fence

Type J Steel post and welded wire fencing shall be in accordance with ATCOP Drawing RR009 (typical wire fence).

Fence posts and panels shall be galvanized mild steel complying with AS/NZS 4680.

Fence posts and components panels shall be powder coat paint in “karakā green colour” applied over galvanizing. Refer to the Particular Specifications for the requirements of powder coatings.

## ACS1310.18 Type K: Stock fences

Material used in stock fencing shall comply with this specification. Refer to the Drawings and Particular Specifications for other stock fencing requirements.

## ACS1310.19 Type L: Predator fences

Materials used in predator fencing shall comply with this Specification. Refer to the Drawings and Particular Specifications for other predator fencing requirements.

## ACS1310.20 Type X Special security fencing

Type X Special security fencing includes fencing types not otherwise covered by this specification including where electric fencing, barbed or razor wire are used.

Materials used in special security fencing shall comply with this Specification. Refer to the Drawings and Particular Specifications for other Type X fencing requirements.

## ACS1310.21 Type Y Special acoustic fencing

Type Y Special acoustic fencing is fencing designed to attenuate noise. Materials used in Type Y fencing shall comply with this Specification. Refer to the Drawings and Particular Specifications for other Type Y fencing requirements.

## ACS1310.22 Type Z Special architectural fencing

Type Z Special architectural fencing includes specially designed fencing with additional aesthetic features not otherwise covered in the Specification. Materials used in Type Z fencing shall comply with this specification. Refer to the Drawings and Particular Specifications for other Type Z fencing requirements.