

Section X – FENCING

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X.0 Compliance with Materials and Workmanship with the Building Regulations

In order to demonstrate conformity with the Building Regulations (Part D; Materials and Workmanship), and with the Construction Products Regulation (Regulation (EU) No.305/2011) as set out in national rules for Ireland (S.I. No.225 of 2013), the Contractor shall provide proof (a declaration of Performance (DoP)) and (where applicable) a CE marking for all building products to be placed in the works.

The Contractor shall ensure that the product to be incorporated in the works, while complying with CPR is fit for the use for which it is intended. The Contractor may be required to demonstrate this by means of manufacturer's confirmation, or independent testing certificate.

CHAIN LINK FENCING

X.1 Chain Link

Chain link mesh shall be 50mm x 3.0mm gauge galvanized mesh complying with IS 130:1980 and shall be in one width of roll to suit height of fence.

X.2 Concrete Posts

Intermediate posts, straining posts and struts shall be concrete complying with IS EN 12839:2012 and having the following minimum dimensions:-

FENCE HT	POST TYPE	LENGTH mm	SECTION at BASE mm	SECTION at TOP mm
1350	Intermediate	1990	125 x 115	95 x 60
	Strut	2140	100 x 100	--
	Straining	2270	130 x 125	100 x 100
1800	Intermediate	2400	140 x 135	80 x 70
	Strut	2600	100 x 100	--
	Straining	2780	160 x 140	110 x 100

X.3 Line Wire and Fixings

Line wire shall be 3.5mm gauge galvanised wire.

All other fittings and accessories shall be hot dip galvanised in accordance with Clause Q.16 after fabrication.

X.4
to
X.5

Nil

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X.6 Fence route

Clear vegetation (only where necessary and as agreed with the Architect on site) and other obstructions along the route of fences. Remove any humps and fill any hollows with compacted soil.

X.7 Fixing Posts

Posts shall be set a minimum 600mm below ground level in holes 500 x 500 mm square; ensure holes have vertical sides.

The holes to be filled to within 150mm of ground level with concrete grade F20 well rammed in. The post shall be well supported in a vertical position until the concrete has set.

Posts shall be placed at maximum 3000mm centres, truly vertical with the tops following the contour of the ground.

Struts and straining posts shall be used every 70 metres and at ends, changes in direction and acute changes in level.

X/CL/8 Fixing chain link mesh

Strain 3 rows of line wire at max 600mm centres (vertically) between straining posts for 1350mm high fences and 4 rows of line wire for 1800mm high fences.

Fix chain link mesh to line wires with fully pinched galvanized hog rings.

CONCRETE POST AND PANEL FENCING

X.8 Standards

The materials, design, construction and erection of Concrete post and panel fencing and gates shall, unless otherwise specified or shown on the drawings, comply with the requirements of BS 1722-11:2006 and IS EN 12839:2012.

X.9 Concrete Posts

Intermediate posts shall be reinforced concrete complying with IS EN 12839:2012 and having a minimum cross section of 130 x 105mm twice rebated, rebates to be minimum 25mm deep. Height of posts shall suit height of fence, but shall generally be 2400mm long for 1800mm high fences.

X.10 Concrete Panels

Concrete Panels shall be reinforced concrete complying with IS EN 12839:2012 and having a minimum cross section of 300 x 50mm. Length of panels to be maximum 1800mm.

X.11 Timber Panels

Timber infill panels shall be composed of square edged horizontal slats as specified in BS 1722-11:2006. Preservation shall be as Section N - Woodwork. Length of panels to be maximum 1800mm and for 1800mm high fences be a minimum 1500mm high.

X.12

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To
X.16

Nil

X.17 **Installation of Posts**

Posts to be set in ground to a minimum depth of 600mm. The panel height to be measured at its highest distance above ground level.

Holes for posts shall be at least 400 x 400 mm square; ensure holes have vertical sides.

The holes to be filled to within 150mm of ground level with concrete grade F20 well rammed in. The post shall be well supported in a vertical position until the concrete has set.

The spacing of the posts to suit the length of the panels. Care shall be taken to ensure that each panel is fully recessed into the posts rebates at each end.

X.18 **Installation of Panels**

Panels shall be installed so that the top of the fence is level.

The bottom of timber panels to be kept clear of the ground contact by use of concrete panel (gravel board) as Clause X/CP/3 at the base.

X.19 **Finish to Timber Panels**

Timber panels to receive 2 Coats of ('Ronseal Fencelife' or equivalent) preservative decorative coating of colour to Architect's selection.

STEEL PALISADE FENCING

X.20 **Standards**

The materials, design, construction and erection of steel palisade fencing and gates shall unless otherwise specified comply with the requirements of BS 1722-12:2006.

X.21 **Pales**

Pales shall be corrugated and the tops shall be "rounded and notched" and have a minimum thickness of 3mm and mass of 1.9 kg/m.

Heights shall be generally 1.8 metres where at ground level or 1.35 metres high where on top of dwarf walls unless otherwise shown on the drawings.

X.22 **Posts**

Posts shall be placed at not more than 2700mm centres and shall be as follows:-

- i. 1.8 metre high fencing in open ground - 102 x 44 x 7.44 kg/m R.S.J.'s
- ii. Other 1.8 metre high fences - 90 x 50 x 5mm R.H.S.
- iii. 1.35 metre high - 80 x 40 x 5mm R.H.S. fencing on dwarf with 150 x 150 x 6mm M.S walls plates, welded to bottom. The posts shall extend down to top of wall foundations and secured with 6mm dia. expanding bolts.

All hollow sections to have blank cap welded to top.

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X.23 Rails

Horizontal rails shall be 50 x 50 x 6mm M.S. angles bolted to connector plates of minimum 8mm thick with 12mm bolts.

The connector plate shall be welded along all edges to the uprights.

X.24 Fixing of Pales

The pales shall be welded to the rails by neatly welding along the entire edge of the pale which is in contact with the rail.

X.25 Protective Treatment

All steel components shall be hot dipped galvanised in accordance with Clause Q.16 carried out after fabrication of the fence and after all welding has been completed.

X.26 Gates

Gates shall be provided with all required locking devices, drop bolts and sleeves. Locks shall be of an approved pattern and where required key alike to existing Fingal County Council locks.

X.27

to Nil

X.29

X.30 Erection

Posts in open ground shall be set in grade HS3 concrete foundations formed in holes 300 x 300 x 900 mm deep. The hole shall unless otherwise specified shall be filled to ground level and there shall be at least 100mm of concrete below the bottom of the post.

Posts fixed to walls shall be secured with 3 No. 12mm dia. Stainless Steel expanding bolts per post or other approved fixing. Fixings shall be at 600mm centres and within 300mm of ends of posts. Intermediate posts to panels between walls shall be fixed as (i) above.

Posts in dwarf walls shall be located on top of foundations then surrounded in 450 x 450 mm concrete grade HS3 base cast to finish 150mm below ground level. The blockwork wall shall then be built between posts to leave 215 x 215 pockets and on completion the pockets shall be filled with grade HS3 concrete. Expanded metal ties shall be placed in each horizontal joint of wall to tie wall to concrete pockets.

X.31 Painting

All palisade fencing shall be painted in accordance with Clause V.71, ref.: 204 and 207.

DECORATIVE MILD STEEL RAILINGS

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X.32 Materials

Mild Steel railings consisting of decorative panels between support posts shall be to the height indicated on the drawing shall unless otherwise indicated be constructed as follows:

Decorative panels, shall consist of Verticals of 16mm round bar mild steel spaced at 115mm maximum centres and welded to 50mm x 12mm mild steel flat top and bottom rails.

Top of the panels to be finished as shown on the drawings ie. bowed, plain or pointed.

Support posts to be 50mm x 50mm x 3mm square mild steel hollow section capped at top and complete with decorative feature where indicated on the drawings. Posts to be, unless otherwise specified, be spaced at 1125mm centres and where indicated have 150mm x 150mm x 3mm base plates welded on.

The length of the posts to suit building in detail shown on the drawings.

The decorative panels, unless otherwise specified, shall be fixed to 12mm mild steel lugs, welded to the support posts, with M8 x 25mm long hexagon socket countersunk screws burred over on the underside.

X.33 Workmanship

Workmanship and materials shall generally be in accordance with Section Q 'Metalwork'

X.34 Shop Drawings

Where requested shop drawings to be provided by the manufacturer for all locations before fabrication.

X.35 Changes in Level and Direction

All dimensions of support posts and panels to take into account all steps, changes in level and direction.

X.36 Galvanizing

All mild steel components shall be hot dipped galvanized in accordance with Clause Q.16.

X.37 Painting

All finished railings to be painted in accordance with Clause V.32.

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APPENDIX A: List of References and standards

item No.	Clause	Reference	Comment
1.	X.1	IS 130:1980	Chain link Fencing
2.	X.2	IS EN 12839:2012	Precast concrete products – Elements for fences (to replace IS EN 12839:2001)
3.	X.8	BS 1722-11:2006	Fences – Specification for prefabricated wood panel fences.
4.	X.20	BS 1722-12:2006	Fences – Specification for steel fences.

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Appendix B: Amendments List	
Date of Amendments	Amendments
1/05/2014	This Section was amended by Barry Sheils and approved by David Byrne, Senior Architect, Fingal County Council.