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IRISH STANDARD SPECIFICATION

CONCRETE FENCE POSTS

I.S. 136 : 1982

Price Code C

INSTITUTE FOR INDUSTRIAL RESEARCH AND STANDARDS
Ballymun Road, Dublin 9.
Telegrams: Research, Dublin Telex 25449 Telephone: (01) 370101

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DECLARATION

OF

SPECIFICATION

ENTITLED

CONCRETE FENCE POSTS

AS

THE IRISH STANDARD SPECIFICATION FOR

CONCRETE FENCE POSTS

The Institute for Industrial Research and Standards in exercise of the power conferred by section 20 of the Industrial Research and Standards Act, 1961 (No. 20 of 1961), and with the consent of the Minister for Industry and Energy hereby declares as follows:

1. This instrument may be cited as the Standard Specification (Concrete Fence Posts) Declaration, 1982.

2. (1) The Specification set forth in the Schedule to this declaration is hereby declared to be the standard specification for Concrete Fence Posts.

(2) The said standard specification may be cited as Irish Standard 136 : 1982 or as I.S. 136 : 1982.

3. (1) The Standard Specification (Concrete Fence Posts) Declaration, 1965, is hereby revoked.

(2) Reference in any other standard specification to the Instrument hereby revoked and to Irish Standard 136 : 1965 thereby prescribed shall be construed, respectively, as references to this Instrument and to Irish Standard 136 : 1982.

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SCHEDULE

Concrete Fence Posts

1. SCOPE

This specification applies to reinforced concrete posts and struts for use in fencing.

Two types of posts are covered (1) intermediate posts and (2) straining posts. Struts for use with straining posts are also covered.

2. MATERIALS

2.1 Cement. The cement used in the manufacturing process shall be Portland cement complying with Irish Standard 1 : 1963 " Portland Cement ". Where a cement other than Portland cement is required for a special end purpose the purchaser shall specify the standard of compliance.

2.2 Aggregate. The aggregates shall comply with Irish Standard 5 : 1974 " Aggregates for Concrete ", and shall not exceed 14 mm nominal size.

2.3 Additives. Additives used in manufacture may be:

(i) Pigments complying with *British Standard 1014 : 1975 " Pigments for Portland cement and Portland cement products ", to colour the finished product;

or

(ii) Substances to improve the workability and impermeability of the concrete;

or

both, provided no incompatibility exists.

Where additives are employed, they shall be used in such proportions as to have no harmful effects on the setting, hardening and durability of the concrete.

2.4 Reinforcing steel. The reinforcement used in the manufacture of posts shall comply with B.S. 4449 : 1978 " Hot rolled steel bars for the reinforcement of concrete.

3. FORM

3.1 All long arrises of units which are not rounded, shall be smoothed off. The heads of posts shall be rounded, pyramidal or weathered, or shall be of such shape as will provide no horizontal area for lodgement of water. Where posts are tapered, the taper shall be uniform throughout the length of the post.

3.2 Straining posts shall be provided with suitably designed chamfered slots on three faces to provide a firm bearing for struts. The struts shall be designed to meet the post at an angle of 45° on level ground and at a point within the top third of the length of the straining post which is above the ground. The upper end of the strut shall be provided with a tenon having the following approximate dimensions: depth 16 mm, width at base 32 mm tapering to 22 mm, length 135 mm at base tapering to 110 mm. The design of the slot shall be such that the tenon fits comfortably into it.

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* Published by the British Standards Institution, 2 Park Street, London W1A 2BS.

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4. HOLES

4.1 All holes shall be 10 to 12 mm in diameter and shall be free from obstruction. The holes shall be accurately positioned commencing 75 mm from the top of the post with succeeding holes spaced at distances of 250 mm, 250 mm, 225 mm, 175 mm, 150 mm and 150 mm centre to centre. Intermediate posts shall be provided with suitable single-way holes. Straining posts shall be provided with suitable double-way holes (i.e. through holes at right angles) for the attachment of straining fittings or of line wires.

4.2 Struts shall be provided with slots or holes to match those in the posts.

5. DIMENSIONS

5.1 The dimensions of the units shall be as set out below.

TYPE OF UNITS	LENGTH m	CROSS-SECTION	
		At Base mm	At Top mm
Intermediate post ..	≮ 1.65	100 × 100	100 × 75
Straining post .	≮ 1.65	125 × 125	125 × 125 or 100 × 100
Strut	2.15	125 × 100	125 × 100

5.2 The following tolerances shall apply:

for base and top cross-sections	—3 +6 mm
for length	—12 +40 mm

A demoulding draw allowance of 3 mm on each of two sides is permissible in addition to the above tolerances for cross-section.

6. REINFORCEMENT

6.1 The reinforcement to each unit shall consist of a cage of four 6 mm diameter mild steel bars, secured in position by mild steel links 2.5 mm in diameter, or alternatively by plastics spacers of a type approved by the purchaser.

NOTE: It is desirable that spacers should be positioned in the length of the post as remotely as possible from the ground level of the post in service.

6.1.1 The cover to the main reinforcement shall be not less than 20 mm measured from the side of the unit or 30 mm measured from the end of the unit.

6.1.2 The use of high yield steel reinforcement shall be subject to approval by the purchaser.

7. MOULDS AND FINISH

7.1 Moulds. Moulds shall be so constructed that they remain rigid during the placing and compaction of the concrete and prevent the loss of water or grout from the concrete. They shall be such that the finished product is accurate within the limits specified for dimensional tolerance.

7.2 Finish. The finish shall be free from honey-combing, roughness, or other large blemishes.

NOTE: It is desirable to establish compliance on the basis of an agreed sample.

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8. COMPOSITION AND MANUFACTURE

8.1 Concrete grade. The characteristic cube strength of the concrete shall be not less than 30 MPa when tested 28 days after manufacture.

8.2 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.

8.3 Placing. The concrete shall be used as soon as possible after being mixed and no material shall be used if it cannot be compacted fully. An effective external mechanical vibration process shall be used to compact the concrete.

8.4 Protection from frost. Material which has been exposed to temperature below freezing point shall not be used until it has been completely thawed, neither shall units be cast when the temperature of the moulds themselves is below freezing point.

Units already cast shall be protected from the action of frost for at least 48 hours immediately after casting.

8.5 Maturing. Units shall not be delivered from the works until the concrete test cubes representing the units in question have reached their 28 days characteristic strength.

9. TESTS

9.1 Works cube crushing tests. Cube tests where required shall be carried out on cubes taken from the concrete at the time and place of casting. The tests shall be made in accordance with British Standard 1881 " Methods of testing concrete ".

9.2 Proof test. The purchaser may select from the consignment of units three units upon which the manufacturer shall have tests carried out in the manner described below.

9.2.1 The post or strut shall be supported and clamped in a jig as shown in Fig. 1. The appropriate test load shall be applied without shock not more than 150 mm from the end of the unit and shall be maintained for at least one minute. In the case of struts the test load shall be applied 150 mm from the end with the 125 mm side vertical.

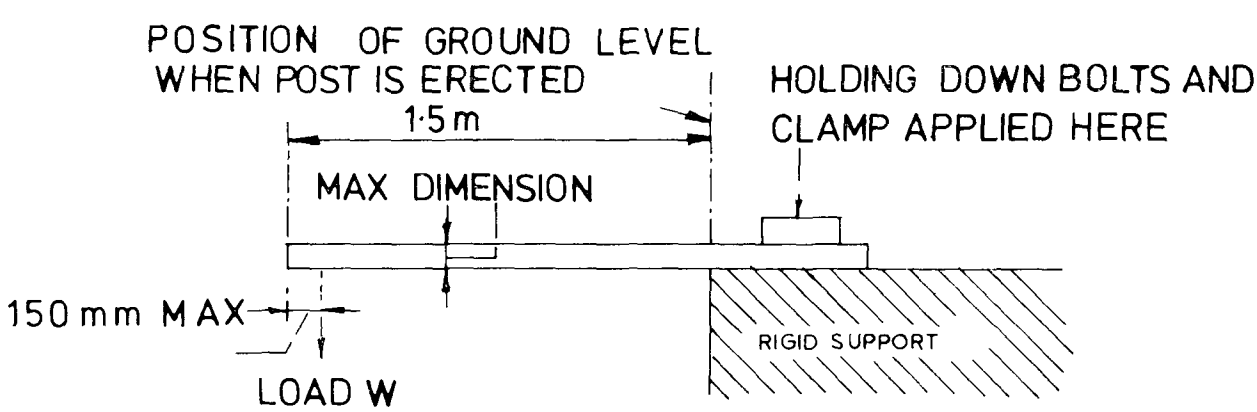

Figure 1. Proof test for concrete members.

	Straining post	Intermediate post	Strut
Load W (kg)	38	36	27

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9.2.2 Units which show cracks greater than 0.2 mm in width using a feeler gauge as shown in Fig. 2 shall be deemed to have failed the test. The crack will be considered to be 0.2 mm in width when the feeler gauge will, without forcing, penetrate the crack to a depth of at least 2 mm. If one of the selected units fails, three further units may be selected. If one of the latter fails the consignment represented by the units tested shall be deemed to have failed the test.

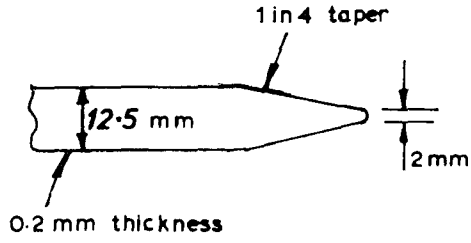

Figure 2. Detail of feeler gauge for measuring crack widths.

9.3 Examination for reinforcement cover. In addition to either of the above tests the purchaser may select one unit in every consignment (with a maximum of 1 in 100), which unit shall be broken to ascertain if the position of the reinforcement complies with Clause 6.

If the reinforcement is found to be incorrectly positioned a second unit shall be selected and, if this also fails, the consignment represented by the units tested shall be deemed to have failed.

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