

TS4

**GUIDELINES, CERTIFICATION SCHEME,
AND SPECIFICATION**

FOR

THE CONSTRUCTION OF TRAFFIC SIGNS



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**Department of Transport,
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CONTENTS

GUIDELINES	1
G1 General	1
G2 Traffic Signs Manual and Road Traffic Regulation	1
G3 Contracts for the Supply and Erection of Signs	2
G4 Temporary Signs	2
G5 Purchaser Requirements	3
PART I CERTIFICATION SCHEME	5
1 General	5
2 Certification of Manufacturers - Procedures	6
3 Certification Categories	7
4 Certification and Temporary Signs	8
PART II SPECIFICATION	9
5 General	9
6 Permanent Traffic Signs	10
7 Temporary Traffic Signs	11
8 Traffic Warden and STOP/GO Traffic Signs	11
9 Quality Control	11
10 Certification Requirements	12

GUIDELINES

G1 General

G1.1 TS4 – January 2012 supersedes TS-4 January 2006. The revised document is required in order to take account of EN 12899-1:2007 (the European Standard for Fixed, vertical road traffic signs). TS4 caters for a “supply only” situation where signs are purchased from a certified manufacturer. On its own, it does not cater for the contractual situation where traffic signs must also be erected. To cater for the latter situation, TS4 must be combined with Series 1200 of the National Roads Authority (NRA) Specification for Road Works.

TS4 is divided into three parts:

Guidelines

Certification Scheme (Part I)

Specification (Part II)

G1.2 Part I of TS4 outlines the scope and general requirements of the scheme for the Certification of Traffic Signs as operated by the National Standards Authority of Ireland (NSAI). It refers to particular certification requirements (PRs) which are issued by the NSAI and which set out in a detailed way the conditions of the Certification Scheme. Part I of TS4 also provides information on Temporary Signs and sets out the minimum requirements for the two types (A & B) of Temporary Signs.

G1.3 Part II of TS4 sets out the performance requirements for materials which are used for sign faces, sign plates and posts. It also outlines the requirements for the testing, marking and labelling of signs.

G1.4 Where the retro-reflective sign face material which is specified is other than Class RA 2 or Class RA 1 then the purchase order which is supplied to the sign manufacturer shall be accompanied by the appropriate written approval from the Department Transport, Tourism and Sport in the case of non-national roads or the National Roads Authority in the case of national roads.

G2 Traffic Signs Manual and Road Traffic Regulations

- G2.1 This manual gives guidelines on the provision of all signs including carriageway markings, traffic signals, road studs and delineator posts. It sets out technical standards to be followed in the provision of various types of signs and road markings including temporary signs for use in connection with road works.
- G2.2 The Traffic Signs Manual also sets out information on colour, size, type, layout, and symbols for all signs.
- G2.3 The Traffic Signs Manual contains information on the three basic categories of signs; Regulatory, Warning and Information signs. Regulatory signs (including Regulatory markings) must be in accordance with Road Traffic Regulations and with any subsequent amendments to these regulations. All other signs and road markings must be in accordance with the latest version of the Traffic Signs Manual.

G3 Contracts for the Supply and Erection of Signs

- G3.1 Where it is intended to let a contract for the supply and erection of road traffic signs, then the contract documentation should refer to TS4. It should also include a reference to Series 1200 of the NRA Specification for Road Works which is the appropriate Specification for the civil works associated with the supply and erection of signs.
- G3.2 In such contracts the purchaser/client specifies the size and type of posts and foundations together with the location of the signs on site and all details necessary for the construction of the signs. Temporary covering of signs may also be necessary e.g. where signs have been erected at each end of a new road which has not yet been opened to traffic.
- G3.3 In the letting of a contract for the supply and erection of signs, consideration should be given to other items such as traffic safety and control, quality control, bond, insurances, etc. or any other special requirements that the Client might have. It is appropriate therefore, that due cognisance is taken of all of the relevant requirements of the NRA Specification for Road Works. Consideration should also be given to the use of the associated method of measurement for road works which sets out a structure for the bill of quantities for these works.

G4 Temporary Signs

- G4.1 Regulatory temporary traffic signs must be in accordance with the Traffic Signs Regulations and all non regulatory temporary traffic signs must be in accordance with the Traffic Signs Manual.

- G4.2 Temporary traffic signs are intended for short term use. Typical uses can be at road works, at temporary traffic diversions, mobile road closures and for emergency signposting. They are sub-divided into Type A and Type B depending on the sign plate material and the method of mounting:
- (i) Type A temporary signs shall conform fully with the requirements for permanent traffic signs and with Table 4 of EN 12899-1:2007.
 - (ii) Type B temporary signs shall comply with Table 1, and with Table 4 of EN 12899-1:2007. The sign support and framing systems must be appropriate for their intended use.
- G4.3 Type A temporary signs should be used in situations where traffic volumes, environmental conditions or anticipated duration of usage so warrant. Generally, if it is anticipated that a traffic sign will be required for in excess of three months, then a Type A sign should be specified.
- G4.4 Guidance on the siting of temporary traffic signs is given in Chapter 8 of the Traffic Signs Manual. Particular attention should be paid to setback of signs and positioning them so that sight distance is not obstructed for road users.
- G4.5 Measures shall be taken to ensure that temporary traffic signs are regularly cleaned and inspected for damage. Signs shall be replaced if damaged or if the sign face material has deteriorated. Temporary signs shall be removed promptly following completion of the associated works.

G5 Purchaser Requirements

- G5.1 The purchaser may be aware that signs which are being ordered will be situated in locations where they will be subject to a high risk of vandalism. In such cases it would be prudent to consider specifying the provision of a protective overlay film. This would facilitate the removal of graffiti and would protect against the removal of vinyl lettering
- G5.2 The purchaser should check the following before submitting drawings to a manufacturer:
- (a) That the colour, size, type, layout, and symbols of all signs are in accordance with the Traffic Signs Manual and with the Signs Regulations where appropriate.
 - (b) That the appropriate grade of sign face sheet material is specified.
 - (c) That the correct posts have been specified.

G5.3 Following delivery of signs and posts, it is good practice for the purchaser to have the following items checked:

- (a) That the signs comply with the drawings in terms of colour, layout and size etc.
- (b) That the correct grade of Sign Face Sheet Material has been used. (Check for appropriate watermark/cell pattern)
- (c) That the posts are galvanized and the sizes are correct
- (d) That any channel stiffening system is an approved system
- (e) That the signs and assembly are not damaged

PART I CERTIFICATION SCHEME

1 General

- 1.1 The Department of Transport, Tourism and Sport provides a scheme for the Certification of Manufacturers of Traffic Signs (for use on public roads).
- 1.2 The National Standards Authority of Ireland (NSAI) is nominated by the Department to operate this Certification scheme.
- 1.3 The scheme is known as the “Department of Transport, Tourism and Sport Certification Scheme for Traffic Signs”.
- 1.4 The purposes of the scheme are:
 - (a) to ensure that manufacturers have the capacity to comply with the requirements set out in the scheme.
 - (b) to provide an approved panel from which road authorities and other agencies may purchase signs
- 1.5 Permanent traffic signs and Type A temporary traffic signs and posts shall only be purchased from manufacturers who are certified under this scheme.
- 1.6 All permanent traffic signs and Type A temporary traffic signs and posts shall comply with Part II of TS4.
- 1.7 In order to qualify for certification a manufacturer shall meet the requirements of Part II of TS4. Under the certification scheme the manufacturer shall continue to construct all permanent and Type A temporary traffic signs to this specification.
- 1.8 The certification scheme as operated by NSAI entails periodic inspections to check compliance with the scheme.
- 1.9 The NSAI certification mark on a product is a claim by the manufacturer that the product has been manufactured to comply with Part II of TS4. The accuracy of such a claim is therefore solely the manufacturer’s responsibility.

2 Certification of Manufacturers - Procedures

- 2.1 Application for certification shall be made on the appropriate form which with other relevant documents may be obtained from:-

The Head of Certification,
National Standards Authority of Ireland,
1 Swift Square,
Northwood,
Santry,
Dublin 9.

- 2.2 The costs associated with such certification shall be met by the applicant company.
- 2.3 Signage contracts will only be awarded to manufacturers certified for the products supplied.
- 2.4 Particular certification requirements (PRs) are issued by NSAI in respect of permanent traffic signs and Type A temporary traffic signs. These PRs adapt the General Requirements governing NSAI Certification services to the specific requirements of the Specification for which Certification is sought. The PRs contain the detailed conditions which must be met by an applicant before Certification may be granted, or in order to maintain existing Certification.

3 Certification Categories

3.1 To be certified a manufacturer must have Certification for category III and for at least one other category given in Table 3.1.

Table 3.1

Category	Process	Background	Legend
IA/ha	Heat activated	Paint	non reflective or reflective sheet
IA / ps	Pressure sensitive	Paint	non reflective or reflective sheet
IB	Stove enamel	Paint	screen printed
IIA / ha	Heat activated	Non reflective or reflective sheet material	non reflective or reflective sheet
IIA / ps	Pressure sensitive	Non reflective or reflective sheet material	non reflective or reflective sheet
IIB / ha	Heat activated	Non reflective or reflective sheet material	screen printed
IIB / ps	Pressure sensitive	Non reflective or reflective sheet material	screen printed
IIC / ha	Heat activated	Non reflective or reflective sheet material	Overlay Film (ECOF)
IIC / ps	Pressure sensitive	Non reflective or reflective sheet material	Overlay Film (ECOF)
III	Galvanised Posts		

3.2 The NSAI maintains a register of approved sign manufacturers which lists the manufacturer's name and certification category.

4 Certification and Temporary Signs

- 4.1 Temporary traffic signs shall be designated by the purchaser as Type A or Type B:
- Type A signs are part of the Certification Scheme and shall conform fully with the requirements for permanent traffic signs and with Table 4 of EN 12899-1:2007 as set out in Part II of TS4.
 - Type B signs shall comply with Table 1 and with Table 4 of EN 12899-1:2007 and with any other requirements stipulated by the purchaser.

PART II SPECIFICATION

5 General

- 5.1 This specification applies to the manufacture of road traffic signs. The Department reserves the right to modify and/or amend this Specification. All certified manufacturers will be notified of such changes and of date of implementation.
- 5.2 Regulatory signs must comply with Road Traffic Regulations and any subsequent amendments of these regulations and any subsequent legislation and regulations.
- 5.3 Non regulatory signs shall be in accordance with the Traffic Signs Manual.
- 5.4 In cases where logos or symbols form part of a sign, their shape, scale, outline and relative position shall depict the images shown in the Road Traffic (Signs) Regulations and the Traffic Signs Manual for regulatory and non-regulatory signs respectively. Borders, radii and the dimensions specified therein must be adhered to.
- 5.5 All materials used in the manufacture of signs must meet the requirements of this Specification.
- 5.6 The use of any retro-reflective sign face material other than Class RA 1 or Class RA 2 materials shall be subject to the prior written approval of the Department of the Transport, Tourism and Sport in the case of non-national roads or the National Roads Authority in the case of national roads.
- 5.7 Microprismatic sign face material shall comply with the relevant European Technical Approval.

6 Permanent Traffic Signs

- 6.1 All permanent traffic signs using sign face materials based on glass bead technology must be in accordance with EN 12899-1:2007. Where differing performance levels are provided for in that Standard, this specification sets out the relevant performance levels which are required in respect of traffic signs on public roads. The table numbers referred to in this section are tables which are contained in EN 12899 Part 1:2007.

	Class	Requirement
Table 13	P3	The sign face shall not be pierced for any reason
Table 14	E1	Edges of sign face – non-protective, the substrate being a flat sheet of material

- 6.2 The chromaticity coordinates and luminance factors of non-retroreflective signs (Class NR1) shall comply with **Table 16**.
- 6.3 The chromaticity coordinates and luminance factors of retroreflective signs (Class CR1) shall comply with **Table 1**.
- 6.4 The retro-reflectivity of Class RA 1 material shall comply with **Table 3**.
- 6.5 The retro-reflectivity of Class RA 2 material shall comply with **Table 4**.

	Class	Requirement
Table 8	WL8	Wind load of 1.5 kN/m ²
Table 10	PL3	Point load of 0.5 kN
Table 9	DSL0	No performance determined for dynamic snow loads
Table 11	TDB4	Maximum temporary deflection in bending of 25mm/m for sign plate
	TDB4	Maximum temporary deflection in bending of 25mm/m for support which is not passively safe (Class 0 in EN 12767)
	TDB5	Maximum temporary deflection in bending of 50mm/m for support which is passively safe (complies to a performance class in EN 12767)
Table 12	N/A	Not applicable for sign plate
	TDT4	Maximum temporary deflection in torsion of 0.29 degree.m for support
Table 15	SP1 or SP2	Protective coating provided or Inherent surface protection provided

7 Temporary Traffic Signs

- 7.1 Temporary traffic signs are intended for short term use. Typical uses can be at road works, at temporary traffic diversions, mobile road closures and for emergency signposting. They are sub-divided into Type A and Type B depending on the sign plate material and the method of mounting:
- (i) Type A temporary signs shall conform fully with the requirements for permanent traffic signs and with Table 4 of EN 12899-1:2007.
 - (ii) Type B temporary signs shall comply with Table 1, and with Table 4 of EN 12899-1:2007. The sign support and framing systems must be appropriate for their intended use

8 Traffic Warden and STOP/GO Traffic Signs

- 8.1 Where sign plates for Traffic Warden Signs and STOP/GO signs are constructed from sheet aluminium alloy EN AW – 5251 H14 or EN AW -1200 H18 (as designated in EN 573) the minimum plate thickness shall be 1.9mm.
- 8.2 Traffic Warden Signs and STOP/GO signs shall comply with Table 1 and Table 4 of EN 12899-1:2007. The sign support and framing systems must be appropriate for their intended use.

9 Quality Control

- 9.1 Signs and poles may be inspected at any time, by or on behalf of, the purchaser, either at a manufacturer's workshop or following delivery. The purchaser may reject any sign or part thereof or any pole, found on inspection or testing to be defective or inferior in quality to, or differing in form or material from the requirements of this Specification.
- 9.2 In the event that the manufacturer disputes the finding of non-compliance with the Specification, the manufacturer may submit the sign and/or pole in question for testing under the auspices of the NSAI. Any such testing shall be final and binding.
- 9.3 The Sign Manufacturer shall replace as required by the purchaser, without extra cost, all signs and poles which fail to meet the requirements of this Specification.
- 9.4 Sign materials (including substrate and sign face), fixings and supports shall meet the performance requirements of Section 5 of EN 12899-1:2007. The methods of test shall be in accordance with Section 6 of EN 12899-1:2007. Marking, labeling and product information shall be in accordance with Section 7 of EN 12899-1:2007

10 Certification Requirements

- 10.1 Inclusion on the Department of Transport, Tourism and Sport list of approved sign manufacturers (as operated by the National Standards Authority of Ireland).

Or

Manufacturer must provide certification from an accredited organisation that they can manufacture signs in accordance with EN 12899-1:2007 (Fixed, vertical road traffic signs) and EN 12899-4:2007 (Factory Production Control). Certification that a manufacturer has a Factory Production Control system conforming to the requirements of EN ISO 9001 and made specific to the standards of EN 12899- 4:2007 can satisfy this requirement.