

Code of practice for

Machine laid in situ edge details for paved areas

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The Road Engineering Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

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Asphalt and Coated Macadam Association*	Construction Equipment and Cranes
Association of Consulting Engineers	Greater London Council
British Quarrying and Slag Federation*	Institute of Petroleum
British Tar Industry Association	Institute of Quarrying
Cement and Concrete Association*	Institution of Civil Engineers*
Concrete Society Limited*	Institution of Highway Engineers*
Contractors' Plant Association	Institution of Municipal Engineers*
Convention of Scottish Local Authorities	Institution of Structural Engineers
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Department of the Environment (Property Services Agency)	Ministry of Defence
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Federation of Civil Engineering Contractors*	Road Surface Dressing Association
	Sand and Gravel Association
	Society of Chemical Industry
	Trades Union Congress

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Cement Admixtures Association	National Paving and Kerb Association
Cement Makers' Federation	Individual expert
Institute of Geological Sciences	

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Foreword

Extruded asphalt kerbing was introduced into the United Kingdom from the USA in 1961 and concrete some years later, since which time a substantial amount of experience has been obtained with their use. Some kerbs of this type have now been in service for over 15 years with satisfactory performance. These recommendations set out to give general information on such kerbs based on this experience.

This code recommends good practice for the production of both asphalt and concrete edge details. Specific reference to either material is made only where their individual characteristics warrant such reference.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

0 Introduction

0.1 Uses. Most forms of road-edge detail may be successfully extruded or, for concrete alone, slip formed. Raised kerbs may be formed on both rigid and flexible pavements during new construction projects.

The principle use of machine laid in situ sections in the United Kingdom has been at the back of hardshoulders on motorways as a drainage detail. However there are now many cases where these sections have been successfully adopted immediately adjoining carriageways on all-purpose roads and on housing estates. Other situations where this type of section may be used include surrounds to vehicle parking areas, as a means of channelling traffic (e.g. at toll booths) and for the delineation of individual parking bays.

Sections may be formed on existing pavements for surface water control, to facilitate provision of footways with minimum cost or for traffic management purposes.

Where an edge beam is specified as a buttress or datum for pavement construction, a machine laid in situ concrete section may be the preferred form of construction and this may include a raised kerb where required.

0.2 Advantages. Machine laid in situ sections can be laid at up to ten times the rate of laying for conventional forms of kerbs. The in situ type of kerb may be superimposed on existing kerbs thus avoiding taking up and relaying to new levels. It is particularly suitable where a simple addition to an existing pavement is required for surface water control or traffic segregation.

Even if the length to be constructed is small but speed is essential, machine laid in situ kerbs, channels or other features may be considered advantageous in spite of any possible additional cost.

0.3 Disadvantages. Line-guided machines are susceptible to inaccuracies or disturbances of line setting possibly leading to expensive remedial works on long lengths of in situ section. Conventional pre-cast kerbs are fairly easily adjusted for line and level, and conventional formwork can be checked before concrete is placed. Apart from the question of cross-sectional area, the main limitation on the use of an extrusion machine is the presence of obstacles adjacent to the line of the section. For example, the machines cannot normally be operated immediately against bridge parapets, walls, etc. although, to overcome this problem, hand placing of pre-extruded section may be practicable.

Machine laid in situ concrete is not readily adapted to allow for settlement or alteration to provide for accesses. Extruded asphalt is more readily adapted than concrete to provide entrances and replacement of damaged sections.

Aesthetically, asphalt sections are vulnerable to damage from heavy traffic particularly in the first few weeks of life and they may soften in extremely hot weather.

1 Scope

This code gives information and recommendations about the use of extruded-asphalt or extruded-concrete, and slip-formed concrete road-edge features such as kerbs or channels. Details of asphalt and concrete mixes that are suitable for the processes are given together with construction details.

This code does not provide recommendations for the forming of such edge features monolithically with paved areas nor on the forming of safety barriers.

2 References

The titles of the publications referred to in this code are listed on the inside back cover.

3 General considerations

In general, the case for or against the adoption of a machine laid in situ section is one of economics. Where a kerb is to be formed on the surface of a new pavement the cost of that portion of the pavement should be added to that of the kerb.

Because the mechanized construction of in situ edge details is a specialized process, it is recommended that experienced machine operators be employed. Continuity of experience is also desirable.

Construction should be a continuous process and it is recommended that the supply of materials should be co-ordinated with the output of the particular machine.

Where line-guided machines are used, care should be taken to ensure that the line is not displaced.

4 Machines for forming in situ edge details

4.1 General considerations. There are two basic types of machine commonly referred to as:

- a) extrusion machines;
- b) slip-form machines.

Further details of the characteristics of both types are given in Appendix A.