

# Impact on Standards for laying asphalt

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The process of implementation of European Standard Specifications (EN's) for asphalt in the UK, as outlined in other Bulletins in this series will impact not only on specifiers and producers of asphalt materials, but also on those that lay them.

In addition to the National Guidance Documents on implementation, the BSI Committee and Working Party have also prepared a new Standard in relation to laying of asphalt materials in support of the European Standards EN 13108. This new standard, BS 594987 for asphalt laying will be implemented on **1 January 2008**, at the same time as the material specifications.

The new Specification for transport, laying and compaction of asphalt for roads and other paved areas has been denoted as **BS 594987**, reflecting its origins from Parts 2 of the superseded material Standards, BS 594 for Hot Rolled Asphalt and BS 4987 for Coated Macadam.

In practical terms, BS 594987 applies principally to Parts 1, 4 and 5 of EN 13108 relating to Asphalt Concrete, Hot Rolled Asphalt (including application of coated chippings to provide texture for skid resistance) and Stone Mastic Asphalt from the point of collection from the production plant until the materials are insitu and ready to receive a further superimposed layer or traffic.

BS 594987 also includes requirements for preliminary work at the laying site needed to ensure that the substrate is fit to receive asphalt and for the use of tack coats and bond coats.

The Standard does not include explicit installation requirements for asphalt materials covered in all parts of BS EN 13108 - or other proprietary asphalt mixtures - but the general requirements

of the standard may be applicable to those mixtures. Special requirements for particular mixtures and applications can be laid down in individual proprietors' Quality Plans and/or Method Statements in order to achieve specific product characteristics or client requirements. The Standard does not apply to asphalt mixtures employing bitumen emulsion binders.

BS 594987 also includes, within the series of Appendices, a range of protocols to be employed when carrying out Initial Type Testing of asphalt materials in accordance with EN 13108-20.

## Development of the Standard

The starting point for development of BS 594987 was to unify the requirements of the previous Standards for asphalt laying - Parts 2 of BS 594 and 4987 for Hot Rolled Asphalt and Asphalt Concrete, respectively. The aim was to create a Standard with generic applicability to laying of all asphalt materials, but addressing exclusions and/or specific considerations for individual asphalt types as necessary - for example addition of coated chippings to hot rolled asphalt to



provide texture for skid resistance for high speed roads.

In carrying out this unification process it was quickly identified that there was a considerable amount of common text across the two Part 2 Standards which could be rationalized into one single document, as well as a number of product specific considerations which would need to be retained. For example: requirements for transport, delivery, preparatory works and level tolerances will apply to all materials, but compaction and air voids requirements will be material type dependent (as specified from the appropriate part of BS EN 13108).

As with the material specifications, the ultimate aim during the production of the new laying Standard was - where possible - to retain current practice. However, it was also an opportunity to update guidance and requirements to reflect advances in laying techniques, plant and equipment etc. Nevertheless, it should also be borne in mind that the Standard will apply to the laying of asphalt materials across a wide scope of paving applications from motorways and major trunk roads to unadopted estate roads and footways, as well as car parks, playgrounds and other hard-

standing areas.

### Contents

Past users of BS 594 and 4987 Parts 2 are likely to recognise the vast majority of the content of BS 594987 and be familiar with the structure of the document. Retained elements from the old Standards include:

- Transport and delivery;
- Preparatory works, including substrate level tolerances and requirements when overlaying other pavement materials;
- Tack coat and bond coat requirements;
- Laying in adverse conditions;
- Material laid thicknesses and tolerances for regularity;
- Forming joints and laying to street furniture;
- Application of coated chippings in HRA;
- Compaction.

In addition to this 'retained' text, BS 594987 also includes new guidance on assessment and control requirements for compaction of asphalt. These requirements are necessary as part of the process of Attestation of

Conformity of materials. That process begins with Type Testing of materials to determine the declared performance categories, many of which are laying and compaction dependent. A number of Appendices to BS 594987 contain the protocols to be employed during that Type Testing process.

The protocols included are:

- Determination of void content of dense base and binder Asphalt Concrete mixtures (SHW Clause 929);
- Determination of resistance to permanent deformation of dense base and binder Asphalt Concrete mixtures (SHW Clause 952);
- Determination of void content and stiffness of EME 2 base and binder AC mixtures (new, derived from TRL Report 636);
- Determination of void content, binder volume and resistance to permanent deformation of performance related surface course hot rolled asphalt mixtures (SHW Clause 943);
- Determination of void content and resistance to permanent deformation of Stone Mastic Asphalt (SMA) binder course and regulating courses (SHW

Clause 937);

- Determination of the Design Binder Content of designed Hot Rolled Asphalt surface course mixtures (BS 598-107);
- Calibration and operation of indirect density gauges (general guidance).

These Annexes are generally based as far as possible on the standard procedures operating in the UK in the period running up to the introduction of the European Standards. Other Appendices are also included for guidance on:

- Recommended delivery and rolling temperatures for recipe asphalt concrete, HRA and SMA materials; and
- Approximate rates of spread of Asphalt.

This Bulletin provides a brief guide and familiarisation with the content of the new British Standard BS 594987 for transport, laying and compaction of asphalt. It is required as a result of implementation in the UK of European Standards for asphalt on 1 January 2008. For the full detail of specification requirements, readers should consult the Standard directly and in conjunction with the guidance found in PD 6691. Further Bulletins in this series cover other aspects of the implementation process and are available in the Asphalt and Surfacing section of the QPA website ([www.qpa.org](http://www.qpa.org)).

The UK asphalt industry and highway authority organisations will be working hard to ensure that during 2007 all in the UK having dealings with asphalt are brought fully up to speed with the new standards and that all documents that call up asphalt specifications and test methods are amended, as necessary, to ensure the smoothest possible implementation.

## References

- BS 594987 - Asphalt for roads and other paved areas - Specification for transport, laying and compaction and design protocols
- BS EN 13108 Parts 1-8, 20 & 21: Bituminous Mixtures - Material specifications
- PD 6691: Asphalt. Guidance on the use of BS EN 13108 "Bituminous Mixtures - Material specifications".
- PD 6692: Asphalt. Guidance on the use of BS EN 12697 "Bituminous mixtures. Test methods for hot mix asphalt".
- QPA Information Sheets - Developments on European Standards for Asphalt Bulletins 1 - 3

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