

9. HIGH FRICTION SURFACING

Background



9.1 Experience over the last 30 years in the UK has shown these surfacings to be highly effective in reducing traffic accidents on sites with high traffic density and skidding risk. Typical sites are the approaches to signal controlled junctions, to roundabouts and pedestrian crossings subject to a heavy flow of vehicles. For the length of high friction surfacing necessary, reference should be made to Table 3.1 HD 36 (DMRB 7.5.1) and accompanying notes.

Systems in use

9.2 High friction surface treatments are now available based on a variety of binders, both thermosetting and thermoplastic. Depending on the type of binder, high PSV aggregates - most commonly calcined bauxite - are either broadcast over a pre-applied binder film or pre-blended with binder and the mixture applied. The resin binders used at present for broadcast systems are epoxy, polyurethane and acrylic all of which are thermosetting. The binders used for screeded systems are rosin esters which are thermoplastic.

System classification

9.3 On heavily trafficked sites, the durability of different systems can vary greatly. To avoid discriminating against those products that are suitable only for moderately or lightly trafficked sites, and also to encourage innovation, the BBA HAPAS certification scheme to assess high friction surfacings has been introduced. High friction surfacing systems are classified during the assessment into three types, as shown in Notes for Guidance, (MCHW 2) Table NG 9/15.

Life expectancy

9.4 Each type classification has an expected service life of between 5 to 10 years at the maximum traffic levels shown in Notes for Guidance, (MCHW 2) Table NG 9/15. Types 1, 2 & 3 are suitable for very lightly trafficked sites, Types 1 & 2 for moderately trafficked sites and Type 1 for heavily trafficked sites. A Type 1 system used on a moderately or lightly trafficked site can offer a much extended life, twenty years is not unknown. Conversely a Type 3 system used on a heavily trafficked site will have a much reduced working life. Site constraints and the time of year can favour the use of less robust systems, generally thermoplastic hot applied materials, for convenience. Until thermoplastic Type 1 or 2 systems are available, this should not be permitted unless safety or other reasons mean there is no alternative. In such circumstances replacement may be necessary within two to three years.

Specification

9.5 High friction surfacing systems shall be specified in accordance with the Specification, (MCHW 1) Clause 924 and shall have a current BBA HAPAS Roads and Bridges Certificate. The minimum polished stone value of the aggregate, determined in accordance with BS 812: Part 114, to be used in high friction surfacing systems, shall be specified in accordance with HD 36 (DMRB 7.5.1).

Installation

9.6 A high friction surfacing system with a current British Board of Agrément (BBA HAPAS) Certificate shall only be installed by a Contractor approved by the BBA and the Certificate Holder as an Approved Installer for that system. The installation and quality control procedures shall be in accordance with the BBA HAPAS Certificate for each system and the current Method Statement agreed by the BBA.

9.7 Systems should only be installed on surfaces which are dry, hard and sound, and free from dust, oil, excess bitumen or other contaminants that may cause lack of adhesion. Surfaces not suitable for treatment include slurry surfacing, micro-surfacing, fatted and multilayer surface dressings and surface dressings over soft or unsound bases.

9.8 To reduce the risk of premature failure, high friction surfacing systems are best applied to wearing courses that have been trafficked for some weeks prior to installation of the surfacing. Nevertheless applications to newly laid untrafficked wearing courses of different types have been made without any apparent problems. For reasons that are not entirely understood, on occasion cracking which extends into the wearing course can be induced by the application of high friction surfacing. The risk of this occurring is much greater when the wearing course is newly applied and untrafficked, although opinions differ on this point. Provided the high friction surfacing is well bonded to the substrate and with the agreement of the Overseeing Organisation, such cracking if it occurs, may be sealed using a suitable epoxy or similar resin and the high friction surfacing made good. Any cracks in excess of 0.5mm are the liability of the Contractor under the terms of the guarantee required in the Specification, (MCHW 1) sub-Clause 924.7.