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**ASSESSMENT AND SURVEILLANCE SCHEME
FOR INSTALLERS OF HIGH-FRICTION SURFACING
FOR HIGHWAYS**

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Note: This document may be revised to take account of improvements and amendments to test and assessment methods and material innovations. Readers are advised to contact the British Board of Agrément to check the latest edition.

HAPAS GUIDELINES

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REPRESENTATION ON SPECIALIST GROUP 1 – HIGH-FRICTION SURFACING

British Board of Agrément (BBA)

Highways England (HE) – also representing other overseeing organisations

Association of Directors of Environmental Planning and Transportation (ADEPT)

Transport Research Laboratory (TRL)

Road Surface Treatments Association (RSTA)

Road Safety Markings Association (RSMA)

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1 INTRODUCTION

- 1.1 This scheme document specifies the quality assurance framework for the assessment and surveillance of installers of a High-Friction Surfacing System which is the subject of a current BBA HAPAS Certificate. Using Approved Installers accredited to this scheme provides the customer with a sound basis for discharging their obligations under the Construction Design and Management Regulations 2015, and in Northern Ireland 2007.
- 1.2 It is a requirement of BBA HAPAS Certificates for High-Friction Surfacing Systems that they be installed by installers approved by the BBA. The method of installation of High-Friction Surfacing is important to the performance of the product and poor installation practice can be safety critical.
- 1.3 The Certificate holder is responsible for defining an installation method statement, training and auditing their appointed Installers to ensure that the requirements of this scheme are met.
- 1.4 Once competent, the installer applies to the BBA for independent assessment and if successful, is approved and permitted to use the BBA logo and can advertise as a BBA Approved Installer
- 1.5 The BBA scheme is based on a three-party arrangement between the BBA, the Certificate holder and the Approved Installer. The responsibilities of each are contained within this document.
- 1.6 The method by which the BBA assess, test and inspect the work carried out by installers is defined in Section 7 - *Assessment and Surveillance* by the BBA.
- 1.7 The Specification for Highway Works (Clause 924) requires that the system/product is to have a current BBA HAPAS Certificate and the Certificate requires the installer is approved by the BBA.

2 DEFINITIONS

For the purpose of this scheme the following definitions apply:

Certificate	The current BBA HAPAS Certificate relating to the High-Friction Surfacing System for which the Installer is applying for approval or is approved.
Certificate holder	The product manufacturer/supplier stated on the front page of the Certificate.
Customer	The person, company or organisation, on whose behalf the work is being undertaken.
BBA Approved Installer	An installer approved and registered with the BBA in accordance with this scheme to install BBA HAPAS Certificated high-friction surfacings.
Installer	The company or organisation applying for assessment and approval
Office/Depot	The administrative centre in which all relevant documentation is kept and from which staff are supervised or managed.
Guidelines Document	Guidelines Document for the Assessment and Certification of High-Friction Surfacing for highways.
Generic systems	Systems which are based on the same binder technology and application methods and listed in Appendix D of this document.
Agreed Installation Method Statement	A description of the installation process is agreed between the Certificate holder and the BBA as part of the product approval process.

3 HEALTH AND SAFETY, TRAINING AND COMPETENCE

Auditors

3.1 In addition to having a general appreciation of the requirements and processes required by BS EN 9001 : 2015, auditors should be qualified to a minimum of HNC (NVQ Level 4) in Civil Engineering or similar discipline and have at least five years experience within the highways materials sector.

Approved installers

3.2 Installers are required to have achieved a minimum level of Health and Safety qualification appropriate to the work being undertaken:

- All operatives – CSCS Green Card
- Foreman/Lead Chargehands – CSCS Blue Card/ Skilled worker card
- Supervisor – CSCS Gold Card
- Technical manager – CSCS Gold Card.

The installers shall have, or have access to, an individual with extensive health and safety qualifications (at least equivalent to a CSCS Gold) who can advise on their legal requirements and current best practice.

3.3 All installers must have been assessed by the Certificate holder in accordance with section 4 Requirements of the Certificate holder to confirm their ability to install the product in accordance with the agreed method statement for the product.

Training and development shall be maintained on a log similar to the sample shown (derivatives that perform the same purpose are permissible).

Table 1 – Example of Operative training log

Operatives name:

CSCS registration number

	Date	Completion verified by: (trainer)	Completion accepted by: (Operative)	Comments / recommended further action
Mandatory – in-house				
Company induction				
Company Health and safety				
System/Certificate Specific Training				
Mandatory – external				
CSCS Touch screen test				
Mandatory – external¹				
Industry training				
NVQ qualifications in relevant				
HFS system process(es)				
(i.e. Hot, Cold and/or Machine Applied)				

1. Qualifications and competency of all individuals shall be suitable to enable them to perform tasks that are there direct responsibility. For information on appropriate training and NVQ options please contact either the BBA or the appropriate Overseeing Organisation (Highways Agency or Local Authority).

4 REQUIREMENTS OF THE CERTIFICATE HOLDER

The Certificate holder has responsibility for:

- 4.1 Assessing the ability of an Installer to meet the requirements of this scheme document prior to application to the BBA to become an Approved Installer. The Installer must be able to demonstrate that they are fully conversant with the contents and requirements detailed in the Certificate holder's Agreed Installation Method Statement including:
- storage and handling of materials
 - suitability and preparation of the substrate
 - installation techniques
 - repair and maintenance
 - sampling and testing
 - project record keeping
 - ensure the equipment used is suitable for the nature of the installation process
 - all other factors which could affect the success of an installation.

This method statement forms a major part of the quality assurance framework for the installation process.

- 4.2 A detailed method statement for each product approved and agreed with the BBA. The method statement shall define acceptable conditions for road surfacing including:
- maximum macrotexture
 - age of surface
 - surface condition (e.g. cracking)
 - minimum calibration frequencies for test equipment
 - the appropriate requirements defined within the BBA Guidelines Document for the Assessment and Certification of High-Friction Surfacing for Highways
- 4.3 Monitoring and inspecting the Approved Installer to ensure that they continue to comply with the requirements of the scheme document and the agreed method statement. The minimum number of site inspections shall be two per year to each Approved Installer. The Certificate holder shall make available to the BBA, documentation which demonstrates that the inspections have been carried out.
- 4.4 Maintaining their Certificate(s) and Agreed Installation Method Statement
- 4.5 Maintaining technical support to the installer.

In addition:

- 4.6 The Certificate holder must confirm in writing their agreement to the installer's application to become an Approved Installer, by countersigning the installer's application for assessment. This signed application will legally bind the Approved Installer to install the product/system and will form the basis of a contract between the Certificate holder and the installer to install the product/system in accordance with the Agreed Installation Method Statement.
- 4.7 The Certificate holder may withdraw their agreement of an Installer/Approved Installer at any time by notice in writing to the BBA. In such circumstances the BBA will withdraw the Installer's Approval.

- 4.8 The Certificate holder must ensure where the installation process requires sprayers and chipping machines the process is controlled by test methods based upon BS EN 12272, together with quality control tests to check the blend ratio.
- 4.9 On request from the BBA, the Certificate holder must provide details of certified material sold to Installers.
- 4.10 The Certificate holders' BBA HAPAS HFS Certificate shall remain valid provided there is a BBA HAPAS approved HFS installer as described in this scheme document. If subsequent to issue it is identified that a Certificate holder does not have an approved installer then the following action will be taken:
- 4.11 Notice period. The manufacturer will be informed that they have one season¹ to obtain an approved installer. During this time the BBA will continue to audit the manufacturer to ensure the capability to produce remains as described in the Agreed Quality Plan. If the manufacturer obtains an approved installer then the notice period will cease from the date the approved installer application is complete.
- 4.12 Suspension. If following the notice period no approved installer is identified then the manufacturers BBA HAPAS Certificate will be suspended for a period of one season. During this time the BBA will continue to audit the manufacturer to ensure the capability to manufacture remains as described in the Agreed Quality Plan. If during this period an installer application is received then the suspension will be lifted when the approved installer application is completed.
- 4.13 Withdrawal. If an approved installer application is not completed during the suspension period then the BBA will withdraw the Certificate. An alternative approval may be offered. The alternative approval will not include use as a high friction, anti-skid surfacing and will be issued under a new Certificate number.

If post-withdrawal an approved installer is identified then the BBA will determine the work required. Depending on the conclusions from the re-Certification assessment and of any changes to the material a new Certificate will be issued which will have a different number to the original issued.

1. One season is a time period which includes or is equal to 1 April to 31 March.

5 REQUIREMENTS OF THE APPROVED INSTALLER

- 5.1 The Installer is subject to the BBA Quality Control Specification assessment (see Appendix A), before approval, and regular surveillance whilst approved. Assessment and surveillance of Approved Installers shall be undertaken by the BBA to ensure that the systems are being installed in accordance with the Agreed Installation Method Statement, the BBA Quality Control Specification and the Certificate. Approved Installers that have adopted ISO 9001 Certification by a UKAS accredited body should not need to add to their quality system.
- 5.2 The Approved Installer shall employ only operatives who satisfy the minimum training and qualifications of this document with a minimum of 60% of the installation team (per installation) holding the relevant HFS NVQ.
- 5.3 Equipment used throughout the installation process shall be suitable for the nature of the of the installation process and in good working order not to affect the success of an installation.
- 5.4 The Approved Installer shall install and test the High-Friction Surfacing System in compliance with the Certificate and the Agreed Installation Method Statement.

- 5.5 Where work is proposed or undertaken which is not in compliance with the Certificate, the Customer shall be advised in writing and records maintained on file.
- 5.6 In addition to the minimum routine installation quality control tests required by the Certificate holder, the tests detailed in section 8 shall be carried out when required by the BBA.
- 5.7 The visual check for uniform surface texture and any discernable faults shall be carried out for each installation.
- 5.8 Approved Installers should use best practice when implementing Traffic Management in the execution of a contract (see Appendix C).
- 5.9 The Approved Installer shall make available to the BBA during the office surveillance visit, the records of all the work carried out under the BBA approval. The following information shall be provided:
- the customer's details
 - a brief specification for the works
 - a written form of contract agreement
 - the site address
 - the commencement date
 - written instructions to the Foreman and staff
 - the BBA Certificate number relating to the system installed
 - the results of the routine site quality control checks as required in the Agreed Installation Method Statement
 - records of training, the required qualifications and experience of all operatives, which will include details of the manner in which the individual has obtained practical experience
 - calibration and verification records
 - procedures for installing and removing Traffic Management (TM) (see Appendix C for guidance)
 - completed pre-site assessment forms detailing TM requirements
 - daily work sheets detailing who carried out the TM. If this is the Approved installer then details of equipment used and layout shall be available, if this is completed by an external company details of their SS12D certificate shall be available.
 - area of material installed and quantities of the material purchased.

This information shall be maintained by the Approved Installer for a minimum of six years.

- 5.10 The Approved Installer shall maintain a register of all complaints received concerning work carried out under the approval issued by the BBA. The register shall identify the address, the work/job number, brief description of complaint, action taken and resolution dates.
- 5.11 The Approved Installer shall provide the BBA, when requested, a list of sites in progress. The following information shall be supplied:
- the customer's details
 - the site address
 - the area of the works

- the commencement date
- the name(s) of key personnel
- the BBA Certificate number relating to the system to be installed
- the expected duration of the work
- any special instructions regarding site security, TM requirements, contacts or protocols.

6 PUBLICATION AND PROMOTION

- 6.1 The Approved Installer may use the BBA logo as explained in *Use of BBA logos* sheet.
- 6.2 Any person may enquire of the current status of an Approved Installer by reference to the BBA website at: www.bbacerts.co.uk

7 ASSESSMENT AND SURVEILLANCE BY THE BBA

- 7.1 To obtain approval the proposed installer must complete a satisfactory office and site assessment and comply with the requirements detailed in section 5 & 8 Table 4 of this document.
- 7.2 Approval of subsequent systems under the same generic approval in section 7.1 will require an application form signed by the system supplier and the approved installer (following the certificate holder meeting the requirement of 4.1) and submitted to the BBA. There is no requirement for pre-approval of second systems of the same generic type.
- 7.3 The BBA assesses the installer's processes, material controls and records as described in the BBA Quality Control Specification (Appendix A) to ensure the product is being installed in accordance with the current Certificate and the Agreed Installation Method Statement. Where the installer is already approved for a similar system and/or holds registration to ISO 9001, this may reduce the scope of the assessment required.
- 7.4 To assist with transparency of the BBA HAPAS HFS scheme a summary of the test and inspection results from surveillance visits will be collated and may be submitted to HiTAC annually for comment before being issued to all Certificate holders and Approved Installers, confidentiality will be maintained.
- 7.5 After approval the BBA shall carry out routine surveillance of the Approved Installer in accordance with the following points and Table 3,

Approved Installer

- routine surveillance will include site inspection at the frequencies described in Table 3 and a minimum of one office inspection per annum.
- where the Approved Installer operates from more than one office, each office shall be treated as a separate Approved Installer for the purposes of inspections and invoicing
- the BBA invoice all Approved Installers for surveillance visits annually in advance. Non-payment of fees will result in the withdrawal of BBA approval
- the BBA reserves the right to carry out extra visits and/or testing when serious discrepancies or concerns are encountered. These extra visits will be charged to the installer.

Manufacturer

- The frequency of Manufacturer led testing as described in Table 5. Materials to be tested will be randomly selected by the BBA Assessor from material held in stock or from witnessed material manufactured upon request. Preparation of the test samples for scuffing will be witnessed by the Assessor. Test results shall be reported to the BBA and the Certificate holder and checked for compliance with Table 6.

Table 3 – Frequency of routine surveillance visits

Areas of each system/certificate Installed (m ² per year in 1000's)	Surveillance visits per year per predominantly laid generic system	Surveillance visits per year per additional system approved under the same generic type
0 – 5	1	1
5 – 40	2	1
40 – 80	3	1
80 – 120	4	1
120 – 160	5	1
160 – 240	6	1
240 – 320	7	1
320 – 400	8	1
> 400	9	1

8 SAMPLING AND TESTING

Approved Installer

8.1 The minimum requirements for pre-approval testing are given in Table 4.

Table 4 Site requirements for pre-approval

Requirement	Type 1	Type 2	Type 3
Skid resistance value (SRV) (site measurement)	≥65	≥65	≥65
Texture depth (mm) (site measurement)	≥1.4	≥1.2	≥1.0

Manufacturer

8.2 Frequency of the Manufacturer led testing is as described in Table 5. Materials to be tested will be randomly selected by the BBA Assessor from material held in stock or from witnessed manufacturer upon request. Preparation of the test samples for scuffing will be witnessed by the Assessor. Test results shall be reported to the BBA and the Certificate holder and checked for compliance with Table 6.

Table 5 – Frequency of Manufacturer led sampling

Areas ⁽¹⁾ of each system/certificate Installed (m ² per year in 1000's)	Sample frequency per year per predominantly laid generic system
0 – 40	1
40 – 120	2
120 –240	3
> 240	4

The areas of each material installed is based on the total amount installed by each of the Approved Installers combined

Table 6 - Slab sample requirements for Manufacturer led testing

Requirement	Type 1	Type 2	Type 3
Initial texture depth (mm)	Record		
Final texture depth (mm)			
Scuffing test ⁽¹⁾ Erosion index ⁽²⁾	≤10	≤15	≤15

(1) The Scuffing test for Type 1 and 2 is carried out at 45°C and for Type 3 at 35°C.

(2) The Erosion index is used to determine the consistency of material as manufactured accordance with pre-agreed quality control documentation.

- 8.3 Samples shall be prepared on SMA slabs manufactured in accordance with Appendix E of the Guidelines Document for the Assessment and Certification of High-Friction Surfacing for Highways.
- 8.4 The samples shall be submitted to a laboratory approved by the BBA for testing within two weeks of the preparation installation date. Alternatively, the tests may be carried out on cores taken in accordance with Appendix C of the Guidelines Document. The BBA shall inform the Certificate Holder of the number of samples required, and prior to the visit details of when samples are to be prepared.
- 8.5 In the event that the test results do not comply with the performance requirements of the Type classification for the system then the test(s) may be repeated on a further set of samples.

The BBA shall investigate further test failures and may, at its discretion, request additional tests to be carried out to verify the performance of the system.

- Appendix B & B.1 gives guidance on the preparation of test samples.

APPENDIX A BBA QUALITY CONTROL SPECIFICATION

1 Introduction

- 1.1 The BBA requires all products or systems considered for approval be manufactured or installed in an environment which delivers products to a pre-defined standard and at a consistent level. This will require a management system based upon the International Standard ISO 9000. A manufacturer/ Approved Installer who holds ISO 9000 certification by a UKAS accredited body should not need to add to their quality system.
- 1.2 For other companies, the BBA require conformance with a set of criteria, defined in this Appendix A which focus on the key elements that are essential for assuring quality.
- 1.3 All aspects of business activities can be included within the scope of the Quality Management System. The BBA assessment will only deal with the elements of the Quality Management System relating to the installation of the product/system(s) which are the subject of the assessment and/or certification process.

2 Criteria

- 2.1 Competence — approved installers must maintain a register of persons competent to undertake defined tasks.
- 2.2 Complaints — approved installers must record all customer complaints (commercial, technical, those received in writing and verbal statements of dissatisfaction from customers and enquirers), and take appropriate corrective and preventative actions to address, and retain records, of such.
- 2.3 Purchasing — approved installers must only purchase goods in line with their approved status.
- 2.4 Installation controls — approved installers must formulate and issue suitable instructions and training to staff to ensure that product/system(s) installed meet a consistent and defined standard. Documentation shall also detail the levels of process control as per the agreed installation method statement.
- 2.5 Identification and traceability — approved installers must identify the product by name and batch number. The finished product/system shall be traceable to the date, or batch, of production and unique number.
- 2.6 Testing and inspection — approved installers must carry out testing in accordance with the agreed method statement for the approved system.
- 2.7 Calibration — measuring and test equipment shall be of sufficient accuracy and clearly identified, calibrated and traceable to national standards.
- 2.8 Internal auditing —management shall periodically, assess the appropriateness of procedures to ensure that they are being followed and achieving their objectives.
- 2.9 Records — approved installers must retain records of:
 - competence and training
 - complaints and resulting action(s)
 - installation
 - test and inspection (including non compliance where applicable)
 - calibration
 - internal audits.

3 Additional considerations

- 3.1 Many companies achieve great value by extending their management system to achieve compliance with ISO 9000; the BBA recommend that these important elements are considered.
- 3.2 Management review — management should carry out a regular critical review of the processes and procedures of the company, including analysis of customer complaints, internal audits, nonconformities, and take action for the future.
- 3.3 Corrective action — at its simplest level, management should make an appraisal of how problems occur and what can be done proactively to prevent them recurring.

APPENDIX B GUIDANCE NOTES FOR PREPARATION OF THERMOPLASTIC SAMPLES

These are the recommendations for the application of Thermoplastic High-Friction Surfacing Systems to test slabs for routine surveillance.

1 Introduction

This guidance document will assist the Approved Installer to prepare a test sample which is representative of the site installation and reduce the potential for failures due to sample preparation.

2 Procedure for site application of thermoplastic high-friction system onto SMA slabs

- 2.1 The thermoplastic high-friction surfacing system must be prepared in accordance with the Certificate holder's Agreed Installation Method Statement.
- 2.2 During the installation process, the Approved Installer should be applying a controlled volume of the system onto the SMA slabs as directed by the Certificate holder. The Certificate Holder should be responsible for calculating the volume of material used and advising the Approved Installer when offering sample preparation training.

Note 1: Systems with a specific gravity of 2.0 ± 0.1 will require approximately 3.5 to 4 kg of material to cover a boxed set of SMA slabs.

Note 2: To determine the volume of material used to coat the SMA slabs either weigh the material in the transfer bucket or fill to a predetermined mark on the transfer bucket.

- 2.3 If at all possible the material used for application onto the SMA slabs should not be sampled from the initial or final material discharged, but preferably from the mid point of the application process.
- 2.4 A visual assessment should be carried out on the coated SMA slabs by the Approved Installer/Certificate holder to confirm they are representative of the HFS site installation. Where samples of the applied system are considered to be outside the minimum requirements then additional panels may be required.
- 2.5 The boxed samples of the applied system shall be returned to the BBA approved laboratory as soon as possible after the installation or within three weeks.

APPENDIX B.1 GUIDANCE NOTES FOR PREPARATION OF COLD-APPLIED SAMPLES

These are the recommendations for the application of epoxy resin, methyl methacrylate and polyurethane systems to test slabs for routine surveillance.

1 Introduction

This guidance document will assist the Approved Installer to prepare a test sample which is representative of the site installation and reduce the potential for failures due to sample preparation.

2 Procedure for site application of cold-applied systems onto SMA slabs.

- 2.1 The cold applied surfacing system must be applied in accordance with the Certificate holder's agreed Installation Method Statement.
- 2.2 The Certificate Holder is responsible for ensuring that the Approved Installer is able to calculate the volume of material required for the preparation of the slabs.
- 2.3 Before application of the resin, the installer must check that the SMA slabs are level to avoid uneven binder coverage.
- 2.4 During a BBA witnessed routine surveillance visit, the Approved Installer should apply the correct amount of material onto the SMA slabs as previously identified in clause 2.2 of this Guidance Note.
- 2.5 The material should be sampled from the mid point of the application process.
- 2.6 After applying the resin the bauxite must be applied from directly above the slab in accordance with the curing characteristics of the product and the Certificate holder's agreed Installation Method Statement.
- 2.7 The sample must be stored level until fully cured and then excess bauxite removed.
- 2.8 A visual assessment should be carried out on the test slab by the Approved Installer/Certificate holder to confirm they are representative of the HFS installation. Where samples are considered to be outside the minimum requirements then additional panels may be required.
- 2.9 The boxed samples of the applied systems shall be returned to the BBA approved laboratory as soon as possible after the installation and within three weeks.

APPENDIX C GUIDANCE ON TRAFFIC MANAGEMENT FOR APPROVED INSTALLERS

- 1 It is necessary for the Approved Installers to ensure that all those involved in temporary traffic management operations are appropriately trained and skilled, whether or not they are directly employed. The modular training scheme described in the SS12D document is designed to cater for the various options available, ranging from the employment of a lone worker to a traffic management contractor for a major highway contract.
- 2 For many operations it may be necessary for the Approved Installer to ensure that a member of the team is registered appropriately as a Registered Traffic Management Operative (RTMO) who has successfully undergone the relevant training (i.e. M1 and M2 minimum) and competency assessment requirements for the type of Temporary Traffic Management (TTM) to be implemented. In other instances it may be appropriate for the whole team to have gained qualifications as RTMOs in their own right. Only those members of a gang who are responsible for installing, maintaining and removing TTM will need to be registered for 12D training and assessment. The Approved Installer shall include such information in their quality plan.
- 3 Approved Installers should carry out their own risk assessments; these should be done using the appropriate Forms included in Annex A of the NHSS12D document. The person carrying out the assessment and who has the managerial responsibility for the temporary traffic management measures should be named and should be trained to the appropriate level (i.e. be M7 qualified). This plan will then provide the basis for agreement of the TTM need between the customer and installer for each site. Site details should be recorded in the contract file where applicable.
- 4 Where the works are operationally extensive, or are to be carried out on roads other than rural and urban roads. The employment of a specialist TTM contractor to set up and remove TTM measures will need to be considered. This will form part of the Approved Installers and client's risk assessments and be incorporated into the Approved Installers quality plan for carrying out the works.
- 5 For work on motorways and dual carriageways operated by the Highway Agency, it is mandatory for the TTM measures to be installed, maintained and removed by TTM contractors registered to sector schemes 12A and 12B. Other highway authorities operating similar roads in the UK may have similar requirements.

APPENDIX D CURRENT APPROVED GENERIC TYPES

1. Thermoplastic:
 - Type 1. Type 1 approval would be extended to include 2 and 3 without additional trials
 - Type 3. Type 3 cannot be extended to include Type 1 and 2 due to the difference in application techniques required for Type 1 and 2 materials.
2. Epoxy Type 1-3
3. Polyurethane Type 1-3
4. MMA Type 1-3

Note: An assessment of both spray and hand applied versions of generic types 2-4 including installation evaluation will be completed by the BBA under the scheme.