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## Overview

This standard is one of six which covers installation of the various forms of hard-standing surfaces that are used within the landscaping industries.

This standard is targeted at operatives working under limited supervision and focuses on the skills required to both understand the structure and to undertake the installation of hard surfaces while working to specifications.

This standard covers the installation of rigid flag surfaces. You will be expected to understand the impact of the installation on the immediate environment, and the impact of the environment on the structure.

## Performance criteria

### You must be able to:

- P1 assess the risks associated with the site and the proposed work
- P2 select, prepare, use and maintain tools and equipment that are appropriate for the work safely and effectively
- P3 keep damage, unnecessary waste, unwanted impact on the environment and pollution to a minimum
- P4 set out for line and level
- P5 lay flags to a suitable pattern using manual and/or mechanically-aided techniques as appropriate
- P6 check laid surface for alignment
- P7 cut-in to required standard at edges and around obstructions such as access covers
- P8 compact surface
- P9 check completed surface for compliance and rectify any problems
- P10 fill joints and finish appropriately
- P11 maintain a clean and stain-free surface
- P12 keep the site in a clean and tidy condition
- P13 clean and store tools and equipment promptly and securely
- P14 protect working areas effectively against weather and use until they are in a suitable condition
- P15 leave the site safe, tidy and suitable for intended use
- P16 maintain effective working relations with relevant people throughout
- P17 carry out all work in accordance with relevant environmental and health and safety legislation, risk assessment requirements, codes of practice and company policies

### Knowledge and understanding

You need to know and understand:

- K1 the weather conditions that are appropriate for installation
- K2 how to carry out a risk assessment for installation and decide on safe working methods
- K3 how to interpret specifications
- K4 how to measure to ensure work is within tolerances
- K5 how falls, lines and levels are determined and set out
- K6 how to select and prepare the correct tools and equipment for the task, including PPE and RPE
- K7 how to use, maintain, clean and store the required tools and equipment correctly
- K8 use of cutting tools including splitter, saw and trimming tools
- K9 the importance of dust-suppression and RPE when using a cut-off saw
- K10 the importance of edge restraints
- K11 how to calculate the quantity of paving materials required
- K12 how paving materials should be stored on site, how they are delivered to the laying face and how they are positioned for the laying operative
- K13 the range of flags available and their suitable applications
- K14 how a rigid laying course is prepared, the working life of the bed material and the importance of not preparing too large an area in advance of the laying face
- K15 the range of flag patterns commonly used on site, their relative strengths and weaknesses, and how they are established
- K16 how buttering of receiving edges can improve the competence of hand-pointed mortar joints
- K17 how flags are laid to radii and corners
- K18 how flags are laid to ramped and dropped crossings, and at changes in gradient or direction of fall
- K19 the importance of mixing and randomising flags from three or more packs prior to laying
- K20 how flagged surfaces are continuously checked for compliance to line, level, joint width and flag competence during the laying process
- K21 how cutting-in is achieved following the principles of minimum flag size, notched cuts, and inboard cutting techniques
- K22 the use of concrete fillets around obstructions such as access covers
- K23 the importance of using the correct jointing material and its role in the performance of the completed surface
- K24 techniques used for dry and wet (slurry) grouting, gun injection and hand pointing

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**Knowledge and understanding**

- K25 how mauls, mallets and other compaction equipment is used and the use of any required attachments
- K26 removal and replacement of defective flags
- K27 how surfaces are continuously checked for compliance to line, level, joint width and material competence during the laying process
- K28 the importance of final compliance checks
- K29 your responsibilities under current environmental and health and safety legislation, codes of practice and company policies

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## Glossary

Instructions: verbal or written.

Specifications: drawings, schedules, method statements, Standard Operating Procedures (SOPs), manufacturers' guidelines.

PPE: Personal Protective Equipment.

RPE: Respiratory Protective Equipment.

Tools and equipment:

- hand tools including floats and trowels, brick/scutch hammers, paving hammer/ maul/mallet, alignment bar, string lines, line pins, cold chisels, punches, bolsters and pitching chisels
- vibrating plate compactors
- guillotine splitters
- cut-off saws
- maul and mallet
- mechanical laying aids
- vacuum laying aids
- appropriate PPE and RPE

Installation tasks:

- laying to straight lines and slow curves
- flag laying to fast radii and corners using fan radius pattern
- flag laying to fast radii and corners using ring radius pattern
- flag laying to fast radii and corners using run-out pattern
- flag laying to fast radii and corners using new town corner pattern
- cutting-in to edges and obstructions
- pointing by hand
- jointing with a mortar or polymeric slurry
- compaction
- lift and replace

Materials:

- concrete flags
- natural stone flags

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