SEMME3181

Preparing marine material surfaces using hand and mechanical tools

Overview

This standard identifies the competences you need to prepare a range of substrates (such as wood, metals, ceramic, concrete, compliant rubber/polymer, plastics and composites) to enable coating systems to be applied, in accordance with approved procedures. You will be required to carry out preparation on a variety of substrates, using both hand and mechanical tools, including the use of chemical paint strippers where required. The process will also include degreasing using solvents and cleaning the surface prior to the application of marine coatings.

Your responsibilities will require you to comply with organisation policy and procedures for the preparation activities undertaken and to report any problems with the preparation activities that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work with a minimum of supervision, taking full responsibility for your own actions and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide a good understanding of your work and will provide an informed approach to applying preparation procedures to marine component surfaces. You will understand the preparation procedures, their application and relevant standards, in adequate depth to provide a sound basis for carrying out the activities to the required specification.

You will understand the safety precautions required when carrying out the preparatory operations. You will be required to demonstrate safe working practices throughout and will understand the responsibility you owe to yourself and others in the workplace.

Performance criteria

You must be able to:

1. work safely at all times, complying with health and safety and other relevant regulations, directives and guidelines
2. obtain and follow relevant instructions, standards and other specifications
3. identify the conditions of the surface to be prepared
4. select the appropriate tools and equipment and check that they are in a safe and usable condition
5. carry out the preparation activities using appropriate tools and techniques
6. check the prepared surface to ensure that it meets the required specification
7. deal promptly and effectively with problems within your control and report those that cannot be resolved
8. shut down and secure the preparation equipment to a safe condition on completion of the activities
9. reinstate the work area on completion of the activities, in line with agreed organisational procedures
10. complete relevant documentation in line with organisational procedures

Knowledge and understanding

You need to know and understand:

1. the safe working practices and procedures to be observed when working with hand and mechanical surface preparation tools (such as general workshop and site safety, protecting other workers from the effects of the work, safety in enclosed/confined spaces, working at height, use of mobile elevated work platforms (MEWPs), atmospheric controls)
2. statutory requirements, risk assessment procedures and relevant requirements of HASAWA and COSHH (such as The Management of Health and Safety at Work Regulations, The Provision of and Use of Work Equipment Regulations, The Noise at Work Regulations, Control of Vibration at Work Regulations, The Confined Spaces Regulations, The Special Waste Regulations, The Pollution Prevention and Control Regulations, the Water Resources Act)
3. the environmental impact of the operations you are carrying out and with the materials that are used and how the impact can be minimised
4. the health and safety requirements of the work area in which you are carrying out your surface preparation activities and the responsibility they place upon you
5. how to recognise and deal with emergencies and the procedures to be followed (such as methods of safely evacuating and closing down of compartments in the case of fire or other major incident, first aid, fire fighting and resuscitation of personnel)
6. the hazards associated with carrying out surface preparation activities and with the materials and equipment used, (such as sparks, dust/debris, hearing damage, hand/arm vibration, working at heights) and how they can be minimised
7. the requirements for working in confined spaces and the importance of emergency procedures and safe systems of work (including permits to work, required air quantities (RAQs) and local exhaust ventilation (LEV)) to maintain safe conditions; the provision of adequate and safe lighting, and avoidance of sources of ignition
8. how particular procedures, cleaning materials and arisings can result in a compartment or space (such as an accommodation space or tented enclosure) becoming a confined space
9. the importance of having regular medical examinations when using vibrating

tools, solvent based materials, or when exposed to hazardous arisings
10. the personal protective equipment (PPE) to be worn during the surface preparation activity and its care and correct use
11. how to obtain the required work procedures, specifications and instructions and how to interpret their requirements
12. the reasons for carrying out surface preparation and the effects on the final finishing activities if preparations are not carried out correctly
13. the various types of substrate that may require preparing and the types of tools and preparation methods that may be used on them
14. the damage that may result from using inappropriate tools and techniques
15. why different types of substrate require different preparation techniques to be used
16. the types of defects and contamination to be found on unpainted and painted surfaces and their causes
17. how to identify defects in deck screeds and deck coverings and the methods used to remove them
18. types of tools and equipment used for the surface preparation activities (to include setting up and safe operation, compatibility of the power tools and wheels, checking air supplies and hoses for leaks and for contamination, safety arrangements and guards, manufacturers' operating instructions and techniques for using them)
19. the importance of the maintenance of a register of power tools and the need to check tools against certification
20. quality control techniques and procedures used during the preparation activities and how the environmental conditions may have an effect on work output and on its quality
21. the various types of tests that are carried out on the prepared surfaces to check their compliance with the specification
22. how to dispose of waste materials safely, including the environmental impact of the materials you are using and the minimisation of this impact
23. the extent of your own responsibility and whom you should report to if you have problems that you cannot resolve

Scope/range related to performance criteria