SEMCOMP318

Installing composite mouldings

Overview

This standard identifies the competences you need to install composite mouldings and assemblies in accordance with approved procedures. You will be required to use appropriate drawings, specifications and documentation to install composite mouldings and assemblies. You will be required to select the appropriate materials, tools and equipment to and use the correct techniques to complete the installation. You will also be expected to create or follow all necessary datums that are required to locate the components and assemblies correctly during the installation activities. You will complete a range of installations for composite mouldings and assemblies, using a range of techniques and processes. Your responsibilities will require you to comply with organisational policy and procedures for the installation activities undertaken, and to report any problems with the assembly activities, equipment or components 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 personal responsibility for your own actions and for the quality and accuracy of the work that you carry out. The installation activities will include making all necessary checks and adjustments to ensure that composite components and assemblies are correctly positioned and aligned and, where appropriate, that they function correctly. Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to applying installation techniques and procedures to composite mouldings. You will understand the installation requirements, techniques, fastening methods and their application, in adequate depth to provide a sound basis for carrying out the activities, correcting faults, and ensuring the finished installation is to the required specification. You will understand the safety precautions required when carrying out the installation activities with composite mouldings, especially when working in confined spaces, and when using the associated materials, tools and equipment. 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. follow the relevant instructions, installation drawings and any other specifications 3. ensure that the specified components are available and that they are in a usable condition 4. use the correct tools and equipment for the installation operations and check that they are in a safe and usable condition 5. use the appropriate methods and techniques to install, position and secure the components and mouldings in their correct positions 6. check the completed installation to ensure that all operations have been completed and the installed mouldings meet the required features and specification 7. complete and store all relevant documentation in accordance with organisational procedures 8. deal promptly and effectively with problems within your control and report those that cannot be solved 9. leave the work area in a safe and appropriate condition on completion of the activities

Knowledge and understanding

You need to know and understand:

1. the health and safety precautions to be taken and procedures used when working with composite materials, consumables, tools and equipment in the specific work area 2. the hazards associated with carrying out installation activities, and with the composite materials, consumables, tools and equipment used, and how to minimise these and reduce any risks 3. the protective equipment (PPE) that is needed for personal protection and, where required, the protection of others 4. the specific environmental conditions the must be observed when producing composite mouldings (such as temperature, humidity, fume/dust extraction systems and equipment) 5. the safe working practices that are required when working in confined spaces (such as ventilation, use of flammable materials) and emergency procedures that may need to be followed 6. how to extract and use information from engineering drawings and related specifications (to include symbols and conventions to appropriate standards) in relation to work undertaken 7. how to interpret drawings, imperial and metric systems of measurement, workpiece reference points and system of tolerancing 8. the quality procedures used in the workplace to ensure production control (in relation to currency, issue, meeting specification) and the completion of such documents 9. conventions and terminology used for installations activities (such as metric and imperial threads, rivet specifications, bonded join types, clearances, types of fittings) 10. the types of component fettling/trimming/cutting methods and preparation methods available 11. the visual identification of cured composite materials and how to recognise the sub-assemblies and components and interpret labelling systems used 12. the need to check that all services are available and associated hoses and cables are in a safe and undamaged condition 13. how to prepare the installation area and sub-assemblies and use datums to level, set out and mark out assemblies prior to the installation 14. installation operations and their sequence 15. the methods and equipment to be used for lifting, handling, supporting and manoeuvring the sub-assemblies into their correct positions during throughout the installation activities 16. the techniques used to position, align, adjust and secure the components to the required surfaces without causing damage to the components or surrounding areas 17. the various types of fixing devices that are used to secure the structures to the required surfaces (such as screws, cavity fixing devices, adhesives, nuts and bolts, rivets and blind fasteners) 18. the importance of using the correct fasteners for the particular installation 19. the use of sealants and adhesives, and the precautions to be taken when using them 20. how to conduct any necessary checks to ensure the integrity, functionality, accuracy and quality of the installation 21. how to recognise installation defects (such as misalignment, ineffective fasteners and damage or contamination) 22. the problems that can occur with the installation operations, and how these can be overcome 23. tools and equipment used in assembly activities, and their care, preparation and control procedures 24. the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve

Scope/range related to performance criteria

1. Carry out all of the following during the installation activities: 1. obtain and use the appropriate documentation (such as job instructions, drawings, material data sheets, specifications, planning and quality control documentation) 2. adhere to procedures or systems in place for risk assessment, personal protective equipment and other relevant safety regulations and procedures to realise a safe system of work 3. obtain and check that all tools and equipment to be used are correct for the operation to be carried out and are in a safe and usable condition 4. ensure where applicable, that service supplies required are available 5. ensure there is sufficient room to complete the installation 6. follow additional safe working practices when working in confined spaces, where applicable 7. provide and maintain a safe working environment for the composite installation activities 8. follow safe practice/approved composite installation techniques at all times 9. return all tools and equipment to the correct location on completion of the installation activities 10. segregate and dispose of waste materials using the correct procedure 11. leave the work area in a safe and appropriate condition on completion of the activities 2. Carry out all of the following activities when preparing for the installation activity: 1. check that composite mouldings/assemblies are correct and complete 2. check for any defects in the composite mouldings/ assemblies 3. check that additional components are correct and complete 4. select correct equipment for the activity 5. check that equipment is suitable for use 6. check availability of ancillary materials required 7. identify and protect mouldings and components in the work area 8. determine datum points for the installation and composite mouldings/assemblies 3. Complete two of the following types of installation activity: 1. trial installations 2. one-off installations 3. batch installations 4. production line installations 5. confined installations 6. off-site installations 4. Use a range of measuring equipment and methods during the installation, to include three of the following: 1. moulded datums 2. tapes and rules 3. laser trackers 4. spirit levels 5. laser levels 6. alignment jigs/fixtures 7. other specific method 5. Use a range of tools and equipment during the installation, to include three of the following: 1. hand tools 2. power tools 3. clamps/cramps 4. lifting and handling equipment 5. temporary fixing/supporting equipment 6. other specific equipment 6. Complete installations that require using four of the following features: 1. loose fit tolerances 2. close fit tolerances 3. non-permanent fixing 4. permanent fixing 5. shape location 6. joggle joins 7. return joins 8. overlap joins 9. strap joins 10. other specific feature 7. Install mouldings using four of the following joining methods: 1. pinning 2. screws 3. nuts and bolts 4. rivets 5. threaded inserts 6. cavity fixing devices 7. anchor nuts 8. quick-release fasteners 9. special purpose fasteners 10. blind fasteners 11. trimming/fettling 12. adhesive bonding 13. thermo welding 14. laminating 15. other (to be specified) 8. Produce composite mouldings in compliance with all of the following quality and accuracy standards: 1. company standards and procedures 2. dimensionally accurate within specification tolerances 3. has an appropriate surface finish and is free from defects or surface blemishes

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