

Installing marine composite components

Overview

This standard identifies the competences you need to install marine composite components and assemblies in the vessel, craft or marine structure, in accordance with approved procedures. You will be required to select the appropriate tools and equipment to use, based on the operations to be performed and the components or assemblies to be installed. The items to be installed will include bulkheads, superstructure, wheelhouse, cabins, masts, spars, fairings, air intakes, hatches, steering equipment, rudders, skegs, tanks, casings and coverings, radar/navigational domes, davits and internal fitments such as berths, vanity units, consoles, seating and shower units. The size, shape and complexity of the components and assemblies to be installed will vary, and it is anticipated that some parts will be trial-assembled prior to the installation taking place.

This standard does not involve maintenance/repair type activities, such as removal and replacement of existing equipment.

You will be required to select the appropriate or specified fixing methods and devices for the composite components and assemblies to be installed and the materials to which the structures are being fastened. 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. 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 responsibilities will require you to comply with organisational policy and procedures for the marine composite installation activities undertaken, and to report any problems with the activities, components or equipment that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to ensure that all tools, equipment and materials used in the installation activities are correctly accounted for on completion of the activities, and to complete all necessary job/task documentation accurately and legibly. 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.

Your underpinning knowledge will provide a good understanding of your work, and will provide an informed approach to applying installation techniques and procedures to marine composite components. You will understand the components and assemblies being installed, and will know about the relevant fastening and securing devices, in adequate depth to provide a sound basis for carrying out the activities, correcting faults and ensuring that the final installation is to the required specification.

You will understand the safety precautions required when carrying out the installation operations, especially when working in confined spaces, and when using adhesives and sealing materials. You will be required to demonstrate safe working practices

Installing marine composite components

throughout, and will understand the responsibility you owe to yourself and others in the workplace, both ashore and afloat.

Installing marine composite components

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 all relevant drawings and specifications for the installation being carried out
3. use the correct tools and equipment for the installation operations and check that they are in a safe and usable condition
4. install, position and secure the equipment and components in accordance with the specification
5. ensure that all necessary connections to the equipment are complete
6. deal promptly and effectively with problems within your control and report those that cannot be solved
7. check that the installation is complete and that all components are free from damage
8. complete relevant documentation in line with organisational procedures

Installing marine composite components

Knowledge and understanding

You need to know and understand:

1. the specific safety practices and procedures that you need to observe when installing marine composite components and assemblies (including any specific legislation, regulations/codes of practice for the activities, equipment or materials)
2. the health and safety requirements of the work area where you are carrying out the installation activities, and the responsibility they place on you
3. 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)
4. the hazards associated with installing marine composite components and assemblies, and with the tools and equipment used, and how they can be minimised.
5. the protective equipment that you need to use, for both personal protection (PPE) and protection of other people in the near vicinity
6. how to obtain the necessary job instructions, installation drawings or installation specifications required for the work being carried out
7. how to carry out currency/issue checks of the specifications you are working with
8. the terminology used for the sub-assemblies; how to recognise the sub-assemblies and components; and how to interpret the labelling
9. the tools and equipment used in the installation activities, and how to check that they are in a safe and usable condition
10. the need to check that all plugs, sockets and cables on extension leads are in a safe, tested and undamaged condition
11. how to prepare the vessel structure and sub-assemblies, and the levelling, setting out and marking techniques used for this
12. the methods and equipment to be used for lifting, handling, supporting and manoeuvring the sub-assemblies into their correct positions during the installation activities
13. the techniques used to position, align, adjust and secure the components to the required surfaces without causing damage to the vessel structure or surrounding areas
14. the importance of positional accuracy
15. the various types of fixing devices that are used to secure the structures to the required surfaces (including screws, cavity fixing devices, adhesives, threaded fasteners and rivets)
16. the importance of using the correct fasteners for the particular installation
17. procedures for obtaining the correct type of tools, equipment, components and fasteners for the activities

Installing marine composite components

18. the use of sealants and adhesives, and the precautions to be taken when using them
19. how to conduct any necessary checks to ensure the integrity, functionality, accuracy and quality of the installation
20. how to recognise installation defects (such as misalignment, ineffective fasteners and damage or contamination)
21. the problems that can occur with the installation operations, and how these can be overcome
22. the standards to be attained, and the company/customer quality control procedures
23. the extent of your own responsibility and whom you should report to if you have problems that you cannot resolve

Installing marine composite components

Scope/range related to performance criteria

1. Carry out all of the following during the installation of the marine composite components and assemblies:
 1. obtain and use appropriate installation drawings, instructions, sketches or specifications
 2. adhere to relevant COSHH requirements, risk assessments and other relevant safety standards
 3. check that all tools and equipment used during the installation are in a safe, tested and usable condition
 4. ensure that the work area is free from hazards, and that there is sufficient room to complete the installation
 5. return all tools and equipment to the correct location on completion of the activities
 6. leave the work area in a safe condition and to the prescribed category of cleanliness
2. Install five of the following types of composite components and assemblies in the vessel, craft or structure:
 1. bulkhead
 2. berths
 3. shower units
 4. superstructure
 5. consoles
 6. vanity units
 7. wheelhouse
 8. rudders
 9. steering equipment (such as wheel, tiller)
 10. cabins
 11. air intakes/vents
 12. skegs
 13. masts
 14. fairings
 15. tanks
 16. spars
 17. hatches
 18. radar/navigational domes
 19. davits
 20. casings and covers
 21. seats
 22. other specific marine components
3. Use a range of tools and equipment during the installation, to include five of the following:
 1. hand tools

Installing marine composite components

2. clamps/cramps
 3. power tools
 4. lifting and handling equipment
 5. measuring equipment
 6. temporary fixing/supporting equipment
 7. levelling and alignment equipment
4. Prepare the structure, vessel or craft to receive the sub-assemblies, to include carrying out both of the following:
 1. levelling
 2. determining sub-assembly datums
5. Apply installation methods and techniques, to include all of the following:
 1. positioning and aligning
 2. applying adhesives
 3. laminating
 4. levelling
 5. drilling and securing
 6. filleting and fairing
 7. applying sealants
6. Use three of the following types of securing methods:
 1. screws
 2. cavity fixing devices
 3. rivets
 4. adhesives
 5. threaded fasteners
 6. special purpose or quick-release fasteners
7. Produce installations which comply with one of the following standards:
 1. BS, ISO or BSEN standards and procedures
 2. customer (contractual) standards and requirements
 3. company standards and procedures
 4. recognised compliance agency/body's standards
8. Complete the relevant documentation in line with organisational procedures, to include one from the following and pass it to the appropriate people:
 1. installation records
 2. quality/acceptance documentation
 3. system log
 4. job cards
 5. work authorisation documents

6. other specific reporting method

Behaviours

Behaviours:

You will be able to apply the appropriate behaviours required in the workplace to meet the job profile and overall company objectives, such as:

- strong work ethic
- positive attitude
- team player
- dependability
- responsibility
- honesty
- integrity
- motivation
- commitment

Installing marine composite components

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