

---

## Overview

This standard identifies the competences you need to assist with the assembly of wooden structural components/timbers to produce yachts or boats, in accordance with approved procedures. You will be required to use the appropriate tools and equipment, based on the operations to be performed and the components or structural sub-assemblies to be installed. The size, shape and complexity of the parts to be assembled will vary and it is anticipated that some parts will be trial-assembled prior to the final assembly taking place. The components being assembled will include such items as hull frames, keel/backbone, stem, bulk heads, hull and deck planks, transom, cabin/coach roof, rudder, tiller and wheel, mast, windows/ports, hatch covers and other similar structural components.

You will be required to use the appropriate or specified fixing methods and devices, based on the size and weight of the components and structures being assembled. You will also be expected to create or follow all necessary datums that are required to locate the units correctly during the assembly activities. The assembly activities will include making all necessary checks and adjustments to ensure that the components and structures are correctly positioned and aligned and secured.

Your responsibilities will require you to comply with organisational policy and procedures for the assembly activities undertaken and to report any problems with the activities that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work with either a high level of supervision or as a member of a team. You will take personal responsibility for your own actions and for the quality and accuracy of the work that you carry out. Where team working is involved you must demonstrate a significant personal contribution during the team activities in order to satisfy the requirements of the standard and competency in all the areas required by the standard must be demonstrated.

Your underpinning knowledge will be sufficient to provide a sound basis for your work and will provide an informed approach to applying appropriate boat building techniques and procedures to wooden yachts or boats. You will have an understanding of the basic knowledge behind the items being assembled and will know about the assembly techniques, relevant fastening and securing devices, 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 assembly operations, especially when working in confined spaces and when using adhesives and sealing materials. You will be required to demonstrate safe working practices throughout and will understand the responsibility you owe to yourself and others in the workplace, both ashore and afloat.

---

## Performance criteria

### You must be able to:

1. work safely at all times, complying with health and safety legislation, regulations, directives and other relevant guidelines 2. follow the relevant instructions, assembly drawings and any other specifications 3. ensure that the specified components are available and that they are in a usable condition 4. assist in the assembly of the components in their correct positions using appropriate methods and techniques 5. assist in securing the components using the specified connectors and securing devices 6. check the completed assembly to ensure that all operations have been completed and the finished assembly meets the required specification 7. deal promptly and effectively with problems within your control and report those that cannot be solved

## Knowledge and understanding

### You need to know and understand:

1. the specific safety practices and procedures that you need to observe when assisting in the building of wooden yachts or boats (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 boat building activities and the responsibility they place on you
3. the hazards associated with building wooden yachts or boats and with the tools and equipment used and how they can be minimised
4. the protective equipment that you need to use for both personal protection (PPE) and protection of the structural units and craft
5. how to obtain the necessary job instructions required for the work being carried out
6. the terminology used for the structural components and sub-assemblies
7. how to recognise the sub-assemblies and components and how to interpret the labelling
8. the tools and equipment used in the assembly/installation activities and how to check that they are in a safe, tested and usable condition
9. the need to check that all plugs, sockets and cables on extension leads are in a safe, tested and undamaged condition
10. methods of erecting the yacht or boat backbone and aligning the keel and stem into the hull to ensure a straight line
11. methods of supporting and bracing the backbone and other assemblies as the build progresses
12. the types of joints and connections between frames, planks and keel or stem
13. the methods and equipment to be used for lifting, handling, supporting and manoeuvring the structural components/sub-assemblies into their correct positions during the building activities
14. methods and types of fastenings used to fix frames and other structural components, hull and deck planking, floors and cargo hold linings into the vessel (including wood screws, nails, threaded fasteners and adhesives)
15. the tools and equipment that can be used to set up and level the structural components and assemblies (such as spirit levels, plumb-bobs, water gauges and laser levelling devices)
16. 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
17. the importance of positional accuracy of all components
18. the use of sealants and adhesives and the precautions to be taken when using them what checks need to be carried out to ensure the

- 
- integrity, functionality, accuracy and quality of the build
19. why tool/equipment control is critical and what to do if a tool or piece of equipment is unaccounted for on completion of the activities
  20. how to recognise build defects (such as misalignment, inappropriate gaps in planking, ineffective fasteners, damage or contamination)
  21. 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

1. Carry out all of the following during the yacht or boat building activities:
  1. ensure you have the necessary information to assist with the assembly activities (such as job instructions or drawings)
  2. adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations
  3. maintain safe access and working arrangements for the work area
  4. use approved assembly techniques and procedures at all times
  5. produce assemblies which comply with the specification
  6. return all tools, and equipment to the correct location on completion of the activities
  7. leave the work area in a safe and tidy condition
2. Assist in the assembly/installation of six of the following yacht or boat wooden structural components:
  1. hull frames
  2. bulkhead
  3. windows/ports
  4. keel/backbone
  5. bulwarks
  6. rudder
  7. stem
  8. floors
  9. tiller
  10. moulds
  11. stringers
  12. wheel
  13. horn timber
  14. carlins
  15. mast
  16. hull planks/strakes
  17. cabin
  18. hatch/hatch covers
  19. deck beams
  20. coach roof
  21. engine/machinery bearers
  22. deck planks
  23. transom

3. Use a range of tools and equipment during the boat building activities, to include four of the following:
  1. hand tools
  2. clamps/cramps
  3. portable power tools
  4. lifting and handling equipment
  5. measuring equipment
  6. temporary fixing/supporting equipment
  7. levelling and alignment equipment
  8. jacks or wedges
  9. bracing equipment
  10. other specific equipment
4. Assist in carrying out three of the following wooden yacht or boat building activities:
  1. constructing and erecting backbone and moulds for planking
  2. assembling, fitting and fastening side frames
  3. assembling and fitting keel and stem
  4. assembling hull and deck structures
  5. timbering out
  6. setting out shift of butts for fitting of planking
  7. assembling and fitting planking with allowances for caulking seams
  8. assembling and fitting floors and cargo hold linings
5. Assist in applying six of the following boat building assembly/installation methods and techniques:
  1. determining sub-assembly datums
  2. ensuring that correct and undamaged components are used
  3. ensuring that the correct 'hand' of component is used at the appropriate position (left or right handed)
  4. ensuring the correct orientation, position and alignment of components
  5. ensuring assemblies are correctly horned and braced
  6. using cramps and clamps to hold the components during the assembly activities
  7. drilling holes
  8. securing components using correct/appropriate fastenings (such as screws, nails, nuts and bolts, pins/dowels)
  9. caulking all seams
  10. planning down and sanding/fairing all seams and butts
  11. applying appropriate compounds to seal all seams
6. Assist in using two of the following methods to check the level and

alignment of the components/structures:

1. spirit level
  2. water line
  3. laser level
  4. plumb line
7. Assist in carrying out checks on the build to include four of the following:
1. dimensional accuracy is within specification/job requirements
  2. installed structures are correctly aligned, level and secure
  3. shape of the frame/hull is to the templates
  4. all plank fastenings line up with frames or beams
  5. the specified type and quantity of fastenings are used and they are correctly spaced out,
  6. scarphs and joins are fitted with no gap in the interface
  7. seams and butts are evenly caulked, watertight with no internal splitting
  8. the overall cosmetic appearance is to specification
8. Assist in building wooden yachts or boats in compliance with one or more of the following:
1. BS, EN or ISO standards and procedures
  2. customer (contractual) standards and requirements
  3. company standards and procedures
  4. recognised compliance agency/body's standards (such as Lloyds, Boat Safety Scheme, BMEA Code)
  5. other accepted international standards

---

## 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



SEMME2120

Assisting in the assembly of wooden structural components to produce yachts and boats



|                          |  |
|--------------------------|--|
| Developed by             | Enginuity  |
| Version Number           | 2  |
| Date Approved            | 28 Feb 2018  |
| Indicative Review Date   | 01 Feb 2021  |
| Validity                 | Current  |
| Status                   | Original   |
| Originating Organisation | Semta  |
| Original URN             | SEMME2120  |
| Relevant Occupations     | Engineering, Engineering and Manufacturing Technologies                                  |
| Suite                    | Marine Engineering Suite 2   |
| Keywords                 | Yacht; boat; wooden; building; assembling; hand tools; servicing; maintaining; repairing |