
Overview

This standard identifies the competencies you need to assist in the trial assembly of pre-fabricated structural steelwork, prior to its assembly and erection on site, to specification and in accordance with approved procedures. Steelwork can include any structural framing material, and will include such items as support structures, building frames and roofs, mezzanine platforms, rigs, access staging and platforms.

Your responsibilities will require you to comply with organisational policy and procedures for the safe assembly of the structure and the associated assembly activities to be undertaken, and to report any problems with the component parts, equipment or construction activities that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You will be expected to work to instructions, 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 be sufficient to provide a good understanding of your work, and will provide an informed approach to applying structural steel assembly procedures. You will have an understanding of the principles and processes associated with the assembly of the structures, and their application. You will know about the ways of handling structural steelwork and the means of fixing them in position, as well as the care and use of the tools and equipment, 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 assembling the structural components and when using the associated 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.

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Assembling structural steelwork

Performance criteria

- You must be able to:*
- P1 work safely at all times, complying with health and safety and other relevant regulations and guidelines
 - P2 determine what has to be done and how this will be achieved
 - P3 select the appropriate construction elements and check that they are in a usable condition
 - P4 position and secure the construction elements in line with the specification
 - P5 securely fix any necessary temporary support facilities
 - P6 take appropriate measures to protect the finished construction
 - P7 deal promptly and effectively with problems within your control and report those that cannot be solved

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Assembling structural steelwork

Knowledge and understanding

You need to know and understand:

- K1 the specific safety precautions to be taken when working in a steel construction environment and when assembling structural components (general site safety, appropriate personal protective equipment (PPE), accident procedure; working at height and statutory regulations relating to it, risk assessment procedures and relevant requirements of HASAWA, COSHH and Work Equipment Regulations; safe disposal of waste materials)
- K2 the personal protective clothing and equipment to be worn when carrying out the assembly activities (such as leather gloves, eye protection, safety helmets, ear protection, safety harness)
- K3 safe working practices and procedures for assembling structural components
- K4 the correct methods of moving or lifting heavy structural sections
- K5 the hazards associated with assembling structural components (such as using dangerous or badly maintained tools and equipment, lifting and handling long and heavy components, working at height, slips trips and falls), and how they can be minimised
- K6 how to obtain the necessary construction and site drawings and joining specifications
- K7 how to extract information from engineering drawings and related specifications (to include symbols and conventions to appropriate BS or ISO standards in relation to work undertaken)
- K8 the preparations to be carried out on the components prior to assembling them
- K9 equipment and temporary installations that may be required to support the structure during the assembly activities
- K10 the various methods of securing the assembled components (the range of nuts and bolts used, including close-tolerance location bolts; temporary tack welding methods and techniques)
- K11 how to set up and align the various components, and the tools and equipment that is used for this
- K12 the use and care of tools and equipment, and their control procedures
- K13 the importance of using tools or equipment only for the purpose intended; the care that is required when using the tools or equipment; the proper way of preserving tools or equipment between operations
- K14 the problems that can occur when producing structural components/assemblies, and how these can be avoided
- K15 inspection techniques that can be applied to check that the construction is to specification and within acceptable limits
- K16 the extent of your own authority and whom you should report to if you have problems that you cannot solve

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K17 reporting lines and procedures, line supervision and technical experts

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Additional Information

Scope/range related to performance criteria

You must be able to:

1. carry out **all** of the following during the structural assembly operations:
 - 1.1 comply with health and safety and site regulations at all times
 - 1.2 use safety and personal equipment (such as hard hat, footwear and gloves)
 - 1.3 use the correct construction drawings and interpret them correctly
 - 1.4 correctly prepare the components and faces to be erected and assembled
 - 1.5 use the correct datum faces
 - 1.6 assemble the structural components in the correct order and manner
 - 1.7 correctly align the components and faces to be joined
 - 1.8 use the specified or appropriate fixing method, and ensure all bolts are tightened to the required torque
 - 1.9 produce an assembly which meets the required specification
2. assemble structural steelwork for **one** of the following:
 - 2.1 building frames and roofs
 - 2.2 mezzanine platforms
 - 2.3 access staging and platforms
 - 2.4 support structures
 - 2.5 rigs
3. use **four** of the following types of components in the assemblies produced:
 - 3.1 columns
 - 3.2 bed plates
 - 3.3 fishplates
 - 3.4 beams
 - 3.5 staircases
 - 3.6 brackets
 - 3.7 roof trusses
 - 3.8 bulkheads
 - 3.9 support plates
 - 3.10 frames
 - 3.11 roof sheeting/cladding
 - 3.12 guards and hand rails
 - 3.13 safety cages
 - 3.14 platforms and ladders
4. use **all** of the following during the assembly activities:
 - 4.1 hand tools and equipment (podger, crow bar, spanners, torque wrenches)

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- 4.2 assembly and alignment techniques and procedures (levels, plumb lines, laser equipment)
- 4.3 mechanical fastening techniques and procedures (bolted, riveted)
- 4.4 slinging and lifting techniques (ropes, chains, cranes)
- 4.5 temporary staging or mobile platforms
- 5. produce assemblies which meet **all** of the following quality and accuracy standards:
 - 5.1 all components are correctly assembled and aligned, in accordance with the specification
 - 5.2 overall dimensions are within specification tolerances
 - 5.3 assemblies meet appropriate geometric tolerances (square, straight, angles, free from twists)
 - 5.4 completed assemblies meet specification

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Assembling structural steelwork

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