

EM169 Assist in the installation of instrumentation and control equipment used in food and drink operations

SQA Unit Code

HD6E 04

Level 3

SCQF Level 6

Credit value 53

Unit Summary

This standard identifies the competences you need to assist in the installation of instrumentation and control equipment used in food and drink operation, in accordance with approved procedures. You will be required to assist in the installation of a range of instrumentation and control equipment including pressure, flow, level, and temperature monitoring and control equipment, fiscal monitoring equipment, fire and gas detection and alarm equipment, industrial weighing equipment, speed measurement and control equipment, vibration monitoring equipment, analysers, recorders and indicators, telemetry equipment and emergency shutdown equipment. Food and drink operations is a term used in this standard to cover the following sub sectors of Meat, Drinks, Confectionery, Fresh Produce, Bakery, Seafood and Dairy.

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

You will be required to use the appropriate tools and equipment throughout the installation activities, and to apply a range of installation methods and techniques to position, level and align the equipment, and to make connections to the required services. The installation activities will include making checks and adjustments, in line with your permitted authority, and assisting others to ensure that the installed equipment functions to the required specification.

You will be expected to work to instructions, alone or in conjunction with others, taking personal responsibility for your own actions, and for the quality and accuracy of the work that you carry out.

The installation activity may be carried out as a team effort, but you must demonstrate a significant personal contribution to the installation activities, in order to satisfy the requirements of the standard, and you must demonstrate competence in all the areas required by the standard.

In order to be assessed as competent you must demonstrate to your assessor that you can consistently perform to the requirements set out below. Your performance evidence must include at least one observation by your assessor.

You must be able to:	You need to show:
1. Assist in the installation of instrumentation and control equipment used in food and	Evidence of assisting in the installation of instrumentation and control

<p>drink operations</p> <p>This means you:</p> <p>Work safely at all times, complying with health and safety and other relevant food and drink regulations, directives and guidelines</p> <p>Follow all relevant instructions/documentation for the installation being carried out</p> <p>Use the correct tools and equipment for the installation operations, and check that they are in a safe and usable condition</p> <p>Assist in the installation, positioning and securing of the equipment, using appropriate methods and techniques</p> <p>Check the installation, and make any adjustments in accordance with the specification</p> <p>Deal promptly and effectively with problems within your control and report those that cannot be solved</p> <p>Dispose of waste items in a safe and environmentally acceptable manner</p> <p>Assist in the completion of installation documentation</p>	<p>equipment used in food and drink operations as part of your role in accordance with workplace procedures and within the limits of your own responsibilities.</p>
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You need to know and understand:

Evidence of knowledge and understanding should be collected during observation of performance in the workplace. Where it cannot be collected by observing performance, other assessment methods should be used.

1. the health and safety requirements of the area in which the installation activity is to take place, and the responsibility these requirements place on you not to compromise food safety
2. the isolation and lock-off procedure or permit-to-work procedure that applies, including critical control points
3. the specific health and safety food and drink precautions to be applied during the installation procedure, and their effects on others

4. the requirements of the British Retail Consortium (BRC) guidelines and standards in relationship to the installation activities
5. the specific requirements of your customer/client specifications in relationship to the installation activities
6. your responsibilities in relationship to Hazard Analysis and Critical Control Points (HACCP, TACCP, VACCP) during the installation activities
7. the importance of wearing protective clothing and other appropriate safety equipment (PPE) during installation process
8. what constitutes a hazardous voltage and how to recognise victims of electric shock
9. how to reduce the risks of a phase to earth shock (including insulated tools, rubber mating and isolating transformers)
10. the hazards associated with installing equipment, and with the tools and equipment used, and how to minimise them and reduce any risks
11. how to obtain and interpret information from job instructions and other documents needed in the installation process (including drawings, specifications, manufacturers' manuals, regulations, symbols and terminology)
12. the basic principles of how the equipment functions, and its operating sequence
13. the principles of the equipment's design features for safe operation in a food or drink environment including minimising the chance of contaminates or foreign bodies in the final product
14. the reasons for making sure that control systems are isolated or put into manual control, and that appropriate trip locks or keys are inserted, before removing any sensors or instruments from the system
15. the identification of instrument sensors (including how to identify their markings, calibration information, component values, operating parameters and working range)
16. the correct way of fitting instruments to avoid faulty readings (caused by head correction, poor flow past the sensor, blockages, incorrect wiring, poor insulation, or incorrect materials)
17. how to carry out visual checks of the instruments (checking for leaks, security of joints and physical damage)
18. methods of attaching identification marks/labels to components or cables
19. methods of connecting equipment to service supplies (including electrical, fluid power, compressed air oil and fuel supplies)
20. why electrical bonding is critical, and why it must be both mechanically and electrically secure
21. the procedure for the safe disposal of waste materials and any spoilt food products
22. the processes in place to segregate the tools and equipment used into high or low risk areas
23. the checks required to ensure that all tools, materials and components are all accountable before operating the equipment
24. how to recognise installation defects (including leaks, poor seals, misalignment, ineffective fasteners, foreign object damage, or contamination)
25. the importance of ensuring that the completed installation is free from dirt, swarf and foreign object damage, and of ensuring that any exposed components or pipe ends are correctly covered/protected
26. the cleaning requirements/policies in place before returning the equipment into full operational production
27. the problems that can occur with the installation operations, and how these can be overcome
28. the fault finding techniques to be used if the equipment fails to operate correctly
29. the recording documentation to be completed for the activities undertaken

30. the extent of your own responsibility and to whom you should report if you have problems that you cannot resolve

Evidence of performance may employ examples of the following assessment:

- observation
- written and oral questioning;
- evidence from company systems (e.g. Food Safety Management System)
- reviewing the outcomes of work
- checking any records of documents completed
- checking accounts of work that the candidate or others have written