
Overview

This standard identifies the competences you need to assist in the installation of waste/foul water distribution systems and equipment, in accordance with approved procedures. You will be required to assist in the installation of a range of water distribution equipment such as foul, storm and waste/effluent water systems. The installation will also include fitting and connecting the correct types of pipework and other ancillary equipment such as pumps, valves, motors and couplings.

This standard does not involve maintenance/repair type activities, such as 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 the necessary 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.

Your responsibilities will require you to comply with organisational policy and procedures for the installation activities undertaken, and to report any problems with the activities, tools or equipment used that you cannot personally resolve, or are outside your permitted authority, to the relevant people. You must check that all tools, equipment and materials used in the installation activities are removed from the work area on completion of the work, and that all necessary job/task documentation is completed accurately and legibly. 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.

Your underpinning knowledge will be sufficient to provide a sound basis for your work, and will enable you to adopt an informed approach to applying installation procedures for waste/foul water distribution equipment. You will have an understanding of the equipment being installed, and its installation requirements, in adequate depth to provide a sound basis for carrying out the installation process safely and effectively.

You will understand the safety precautions required when carrying out the installation activities, especially those for ensuring the safe isolation of services. You will be required to demonstrate safe working practices throughout, and will understand your

responsibility for taking the necessary safeguards to protect 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 all relevant instructions/documentation 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. assist in the installation, positioning and securing of the equipment, using appropriate methods and techniques
5. carry out and/or assist in checking the installation, and make any adjustments in accordance with the specification
6. assist in using fault location methods and techniques on the installed equipment
7. deal promptly and effectively with problems within your control and report those that cannot be solved
8. assist in the completion of installation documentation

Knowledge and understanding

You need to know and understand:

1. the specific health and safety precautions to be applied during the installation procedure, and their effects on others (to include the Water Regulations Advisory Scheme (WRAS), The Prevention and Control of Legionellosis, and Safe Working in Confined Spaces)
2. the isolation and lock-off procedure or permit-to-work procedure that applies
3. the specific health and safety precautions to be applied during the installation procedure, and their effects on others
4. the hazards associated with installing waste/foul water distribution equipment, and with the tools and equipment used, and how they can be minimised
5. the importance of wearing protective clothing and other appropriate safety equipment (PPE) during the installation
6. how to obtain and interpret information from job instructions and other documents needed in the installation process (such as drawings, specifications, manufacturers' manuals, symbols and terminology)
7. the basic principles of how the equipment functions, and its operating sequence
8. methods of marking out the site for positioning the equipment, and the tools and equipment used for this
9. methods of securing to masonry, and the use of mechanical fasteners, joint compounds and adhesives
10. the techniques used to position, align, level, adjust and secure the pipework and equipment
11. the importance of orientation and flow of certain components/equipment
12. methods of lifting, handling and supporting the equipment during the installation activities
13. the types and applications of the different types of pipework systems (such as copper, plastic, lead, iron, clay)
14. the applications of the different types of couplings, and how to make watertight connections between pipes and other components
15. the types of contaminants in water systems, and the associated problems they can cause
16. the applications of the different pipework and equipment cleaning procedures (such as rod, water jet, solvents)
17. how to make adjustments to components, to ensure that they function correctly
18. why electrical bonding is critical, and why it must be both mechanically and electrically secure
19. the procedure for the safe disposal of waste materials
20. how to recognise installation defects (such as leaks, poor seals, misalignment, ineffective fasteners, foreign object damage or

-
- contamination)
21. 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
 22. the problems that can occur with the installation operations, and how these can be overcome
 23. the fault finding techniques to be used if the equipment fails to operate correctly
 24. the recording documentation to be completed for the activities undertaken
 25. 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 of the waste/foul water distribution equipment:
 1. adhere to procedures or systems in place for risk assessment, COSHH, personal protective equipment and other relevant safety regulations
 2. confirm that authorisation to carry out the installation activities has been given
 3. check that safe access and working arrangements for the installation area have been provided
 4. confirm that services have been safely isolated, ready for the installation (such as mechanical, electricity, gas, air or fluids)
 5. confirm that all required installation consumables are available
 6. dispose of waste items in a safe and environmentally acceptable manner
 7. leave the work area in a safe condition and free from foreign object debris

2. Assist in the installation of equipment for **one** of the following types of waste water distribution system:
 1. waste/effluent
 2. foul water
 3. storm water

3. Install and connect **two** of the following types of pipe:
 1. plastic
 2. iron
 3. copper
 4. clay
 5. other specific type of pipe material

4. Assist in the fitting of **six** of the following components/equipment during installation:
 1. couplings/connectors
 2. traps and filters
 3. gates and valves
 4. tanks
 5. pumps
 6. dosing plant
 7. manifolds
 8. control devices

-
9. motors
 10. macerators
 11. gauges/indicators
 12. gaskets and seals
 13. sensors and switches
 14. interceptors
 15. faucets and outlets
 16. electrical wiring and connectors
 17. ancillary drainage equipment (such as from sinks, toilets, showers)
5. Apply installation methods and techniques, to include **five** of the following:
1. marking out of locating and securing positions
 2. levelling and securing equipment
 3. drilling and hole preparation
 4. securing by using mechanical fixings
 5. positioning of equipment
 6. securing by using masonry fixings
 7. connecting equipment to pipework
 8. securing by using adhesives (glues or cements)
 9. aligning and securing piping and flexible hoses
 10. using correct lifting and handling equipment
 11. making installation connections (such as mechanical, electrical, fluid power, utilities)
6. Use **two** of the following instruments during the installation activities:
1. alignment devices
 2. measuring devices
 3. levelling devices
 4. pressure testing devices
 5. multimeter
 6. flow testing devices
7. Carry out **three** the following checks and adjustments, as appropriate to the equipment being installed:
1. making visual checks for completeness and freedom from damage
 2. making sensory checks (sight, sound, smell, touch)
 3. ensuring that moving parts are clear of obstruction and are guarded
 4. checking level and alignment
 5. checking for leaks

Plus: Assist with **both** of the following:

6. flow check
7. functionally testing that the equipment operates correctly

8. Assist in dealing with **two** of the following conditions during the installation process:
 1. installations with no faults
 2. partial equipment malfunction
 3. complete malfunction of equipment

9. Assist in using fault location methods and techniques on the installed equipment, to include **one** of the following:
 1. diagnostic aids (such as company records/history, manufacturers' manuals, fault analysis charts, troubleshooting guides)
 2. fault finding techniques (such as half-split, input-to-output, unit substitution)
 3. function testing the installation/running equipment self-diagnostics

10. Produce installations which comply with **one** of the following:
 1. equipment manufacturer's operation range
 2. BS, ISO and/or BSEN standards
 3. company standards and procedures
 4. customer (contractual) standards and requirements

11. Assist in the completion of the relevant paperwork, to include **one** of the following:
 1. installation records
 2. company-specific documentation
 3. job card

SEMEMI259

Assisting in the installation of waste/foul water distribution equipment



Developed by	Enginuity
Version Number	2
Date Approved	28 Feb 2015
Indicative Review Date	30 Mar 2018
Validity	Current
Status	Original
Originating Organisation	Semta
Original URN	SEMEMI2-59
Relevant Occupations	Maintenance Fitter
Suite	Engineering Maintenance and Installation Suite 2
Keywords	Engineering; manufacturing; installation; water distribution; waste; foul; storm; pipework
