
Overview

This national occupational standard is about considering a range of utility network design options which will be used at a later stage to make a decision as to which will be used. The requirement may be for a design which is straightforward and follows exactly the client's brief. Other options may be for designs which require compromises to be made in order to meet the design brief or, alternatively, designs created where a modification is not appropriate. The client can be either a 'developer-client' or an 'adopting utility-client/asset owner'. The process requires technical understanding of the characteristics of the materials and components which are used in the design and an ability to make accurate and complex calculations. Adoption of utility requirements is needed and underpinned by strict adherence to UK standards and legislation.

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Assess design options for utility networks

Performance criteria

You must be able to:

Interpret design requirements to inform the design process

- P1 use documentation and discussions with relevant colleagues to check understanding of the design requirements
- P2 agree the design requirements with the person requesting the work
- P3 take into account the implications of technological, operational, legal, environmental, and safety factors which need to be incorporated in the design options
- P4 assess which design options will meet requirements and the design specification
- P5 deal with problems relating to the design requirements and agree solutions with technical experts

You must be able to:

Assess a range of network design options

- P6 develop and test out different design options and make sure they will work
- P7 check and confirm the design options are practical, fit-for-purpose, and comply with all safety and ethical requirements
- P8 assess design options which meet different types of purpose
- P9 take into account varying cost implications depending on the design option
- P10 estimate timescales – which would be incurred during the development and production processes – to accompany the different design options

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Knowledge and understanding

You need to know and understand:

General

- K1 UK legislative requirements for health and safety and the environment, standards, directives and guidelines, and working practices
- K2 UK standards, procedure manuals, and operating parameters
- K3 principles of design, including design data from the latest versions of uk standards
- K4 utility industry accepted working practices and industry guidelines
- K5 utility network engineering principles and processes
- K6 structure and content of client specifications
- K7 structure and content of manufacturing specifications

You need to know and understand:

Specific

- K8 company lines of communication and reporting procedures
- K9 design calculations for materials, tolerances, physical dimensions, and safety
- K10 design methods and techniques - including software and documentation - used commonly in the utility industry
- K11 how to access and use databases, software packages, the internet, libraries of standards, and relevant information sources and document systems
- K12 how to estimate cost and time to produce
- K13 how to extract information from method statements, work programmes, risk and operational maintenance cycles, and operating procedures
- K14 how to use data and information from feasibility studies, design reports, appraisals, tenders, cost control and quality assurance documents, risk reviews and hazard reports
- K15 how to use evaluation criteria which include space, safety, cost, materials, operability, and time to produce
- K16 impact of services and mains on the site
- K17 working and operational characteristics of materials, components, tolerances, and physical dimensions to be specified

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Behaviours

You work in a manner which:

1. responds positively and creatively to setbacks
2. takes pride in delivering high quality work

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