

Overview

This standard is about completing utility network designs. These can be based on designs or parts of designs which already exist but which require different degrees of completion. Designs may be straightforward and follow exactly the design brief, they may require compromises to be made to meet the design brief or, alternatively, designs may need to be created where a modification to an existing design is not appropriate. This involves evaluating all relevant data about previous design options and requirements, resolving issues and producing completed designs that meet all requirements.

This standard is for utility network designers.

Performance criteria

You must be able to:

1. evaluate all data which is essential to producing and making decisions about network designs before commencing work
2. use professional design methods, techniques and software to produce completed designs in line with organisational procedures
3. discuss designs with project stakeholders at key stages of the process
4. consult with experts about any parts of the design which are outside own area of competence
5. confirm all design calculations are accurate at each stage of the design process
6. produce completed designs which comply with design brief while meeting technological, operational, industry, legal, environmental, and safety requirements and requirements from other stakeholders
7. make compromises where there are conflicts in the design brief and confirm any variations with the person who prepared the design brief
8. keep a record of issues addressed in the development of designs in line with organisational procedures
9. produce designs that comply with any variations that have been identified by stakeholders
10. produce completed designs which address future demand on networks where future development phases are known
11. produce designs which consist of completed drawings, specifications and all necessary supporting documentation
12. complete designs within agreed timescales
13. ensure designs and intellectual property rights are protected in line with organisational procedures
14. register, file and archive designs in accordance with organisational procedures

Knowledge and understanding

You need to know and understand:

1. legislative requirements for health and safety, the environment and the network being designed
2. standards, directives, industry guidelines, organisational procedures, systems and manuals, operating parameters and working practices appropriate to the network being designed
3. principles of design, including design data from the latest versions of standards
4. utility network engineering principles and processes that apply to the network being designed
5. the effects that emerging technology and environmental considerations have on network design and how to keep abreast of those changes
6. structure and content of design specifications
7. how to use data and information from feasibility studies, design reports, appraisals, tenders, cost control and quality assurance documents, risk reviews and hazard reports and evaluation criteria relating to space, safety, cost, materials, operability, and production time
8. how to access and use databases, software packages, the internet, libraries of standards, and relevant information sources and document systems
9. how to interpret the implications of variations on designs
10. organisational reporting procedures and lines of communication including stakeholders, colleagues who have been or are involved in designs, experts to resolve issues or problems
11. limits of own area of competence
12. design calculations for materials, tolerances, physical dimensions, and safety
13. commonly used utility design methods, techniques, software and documentation
14. the characteristics of materials, components, dimensions, tolerances, operational characteristics, and physical dimensions to be specified
15. patents, copyright, and intellectual property issues relevant to the work
16. company procedures and practices for registering, recording, storing and archiving documentation and records

Complete designs for utility networks

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