Overview

This unit applies to designers who are engaged in projects at site level at the handover stage and who are responsible for completing projects and formally handing them over to their clients.

It is about specifying what information and guidance the users will need; getting this material produced; and training the users accordingly. You will need to have a deep knowledge of the project, and also have access to the necessary detailed information. You will need drafting, editing and training skills. You may choose to delegate the detailed work to others, but then you will be responsible for their performance.

It is about completing the snagging activities, overseeing the commissioning, and managing the contractual documentation. You will need to have good organisational and interpersonal skills, as well as giving attention to technical detail.

It is about the final step in the learning cycle - systematically gathering the intelligence that the project has yielded, reviewing the information and deciding how future projects can benefit from this evaluation. You will need to have good analytical and planning skills, and the necessary leadership skills to carry your team with you.
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Manage project completion and handover in built environment design management

Performance criteria

Provide information and guidance on the operation and maintenance of works and installations

You must be able to:

P1 specify what information and guidance will be needed by users of the works and installations
P2 capture progressively and record the most recent information produced during design, production and installation, which could be used for guidance material about operation and maintenance
P3 produce guidance material on operation and maintenance which is logically structured, in a durable format and capable of interpretation by an informed lay user
P4 provide information in the guidance material which helps users to identify limitations and to operate and maintain equipment, systems and services efficiently and without risk to health and safety
P5 explain information in the guidance material, demonstrating to and training users to operate the installations efficiently and safely

Manage project handover

You must be able to:

P6 confirm project requirements, consult with stakeholders and develop and agree a commissioning programme
P7 check that project requirements have been met and record outstanding work and defects
P8 ensure that commissioning inspections and tests that require certification are carried out and ensure that they are witnessed by stakeholders as required
P9 identify and arrange for the satisfactory completion of any outstanding work
P10 arrange a handover inspection involving all relevant stakeholders, confirm their concerns that need to be addressed, and record and agree any required actions
P11 check that stakeholders’ respective responsibilities are adopted
P12 assemble and hand over works, installations and operational information and documentation in accordance with the contract
Obtain and evaluate project feedback information and make improvements

You must be able to:

P13 promote the value of making improvements from feedback and encourage all those involved in the project to cooperate and obtain feedback information

P14 identify and agree the areas to focus on for making improvements from feedback

P15 identify and agree valid and reliable methods and sources for obtaining feedback information throughout project stages and for assessing and recommending improvements from feedback

P16 obtain, investigate and assess feedback information from all relevant methods and sources

P17 review the feedback information, matching it against the original requirements and objectives and summarise both positive and negative factors

P18 recommend improvements from feedback received and justify the recommendations to decision makers

P19 classify improvements from feedback which have been agreed and incorporate the improvements accurately into updated procedures and databases

P20 summarise changes and improvements from feedback which have been agreed and promote them for adoption and use
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**Knowledge and understanding**

You need to know and understand:

<table>
<thead>
<tr>
<th></th>
<th>Provide information and guidance on the operation and maintenance of works and installations</th>
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<tbody>
<tr>
<td>K1</td>
<td>how and why to specify what information and guidance will be needed by users of the works and installations (evaluation)</td>
</tr>
<tr>
<td>K2</td>
<td>how to capture progressively and record the most recent information produced during design, production and installation, which could be used for guidance material about operation and maintenance (application)</td>
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<tr>
<td>K3</td>
<td>how to produce guidance material on operation and maintenance which is logically structured, in a durable format and capable of interpretation by an informed lay user (application)</td>
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<td>K4</td>
<td>how to provide information in the guidance material which helps users to identify limitations and to operate and maintain equipment, systems and services efficiently and without risk to health and safety (application)</td>
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<tr>
<td>K5</td>
<td>explain information in the guidance material, demonstrating to and training users to operate the installations efficiently and safely (application)</td>
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**Manage project handover**

You need to know and understand:

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<table>
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<tr>
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<tbody>
<tr>
<td>K6</td>
<td>how to confirm project requirements, consult with stakeholders and develop and agree a commissioning programme (application)</td>
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<tr>
<td>K7</td>
<td>how to check that project requirements have been met and record outstanding work and defects (application)</td>
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<tr>
<td>K8</td>
<td>how to ensure that commissioning inspections and tests that require certification are carried out and ensure that they are witnessed by stakeholders as required (application)</td>
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<tr>
<td>K9</td>
<td>what to identify as the satisfactory completion of any outstanding work (understanding)</td>
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<tr>
<td>K10</td>
<td>how to arrange a handover inspection involving all relevant stakeholders (application)</td>
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<tr>
<td>K11</td>
<td>how to confirm their concerns that need to be addressed, and record and agree any required actions</td>
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<tr>
<td>K12</td>
<td>how to check that stakeholders respective responsibilities are adopted (application)</td>
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You need to know and understand:

**K13** how to assemble and hand over works, installations and operational information and documentation in accordance with the contract (application)

**Obtain and evaluate project feedback information and make improvements**

**K14** how and why to promote the value of making improvements from feedback and encourage all those involved in the project to cooperate and obtain feedback information (synthesis)

**K15** what to identify as the areas to focus on for making improvements from feedback (understanding)

**K16** how and why to agree the areas to focus on for making improvements from feedback (evaluation)

**K17** what to identify as valid and reliable methods and sources for obtaining feedback information throughout project stages and for assessing and recommending improvements from feedback (understanding)

**K18** how and why to agree valid and reliable methods and sources for obtaining feedback information throughout project stages and for assessing and recommending improvements from feedback (evaluation)

**K19** how to obtain feedback information from all relevant methods and sources (application)

**K20** how and why to investigate and assess feedback information from all relevant methods and sources (analysis)

**K21** how and why to review the feedback information, matching it against the original requirements and objectives and summarise both positive and negative factors (analysis)

**K22** how and why to recommend improvements from feedback received and justify the recommendations to decision makers (synthesis)

**K23** how to classify improvements from feedback which have been agreed and incorporate the improvements accurately into updated procedures and databases (application)

**K24** how to summarise changes and improvements from feedback which have been agreed and promote them for adoption and use (application)
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Additional Information

**Scope/range**

Provide information and guidance on the operation and maintenance of works and installations

1. **Information and guidance:**
   - 1.1. as constructed information
   - 1.2. schedules
   - 1.3. specifications
   - 1.4. contract records
   - 1.5. photographs
   - 1.6. trade literature
   - 1.7. statutory consents
   - 1.8. commissioning and test certificates
   - 1.9. operating instructions and performance ratings
   - 1.10. guarantees
   - 1.11. warranties
   - 1.12. Health and Safety File
   - 1.13. energy
   - 1.14. certificates

2. **Guidance - about:**
   - 2.1. the design approach
   - 2.2. construction and installation details
   - 2.3. key references
   - 2.4. statutory and other limitations on use
   - 2.5. health and safety aspects
   - 2.6. operating installations
   - 2.7. maintenance guidance
   - 2.8. sources of replacement materials, components and equipment
   - 2.9. spare parts
   - 2.10. performance ratings
   - 2.11. energy usage
   - 2.12. environmental and sustainability aspects
   - 2.13. future demolition and decommissioning
3. Users:
   3.1. client
   3.2. facilities/asset managers
   3.3. maintenance managers
   3.4. operators
   3.5. occupiers

4. Works and installations - features:
   4.1. structure
   4.2. materials
   4.3. finishes
   4.4. furnishings
   4.5. fittings
   4.6. power and light
   4.7. heating and ventilating
   4.8. telecommunications
   4.9. movement of goods and people
   4.10. special services and equipment
   4.11. external works
   4.12. landscaping

5. Information - produced by:
   5.1. consultants
   5.2. contractors
   5.3. sub-contractors
   5.4. suppliers and manufacturers

6. Guidance material:
   6.1. users manuals
   6.2. log books
   6.3. maintenance schedules
   6.4. as constructed information
Manage project handover

7. Project requirements:
   7.1. time
   7.2. quality
   7.3. cost
   7.4. health and safety
   7.5. regulations
   7.6. sustainability
   7.7. defects liability period

8. Stakeholders:
   8.1. clients
   8.2. users
   8.3. consultants
   8.4. contractors
   8.5. regulatory authorities
   8.6. facility/asset managers

9. Responsibilities:
   9.1. insurances
   9.2. security
   9.3. operations
   9.4. health and safety
   9.5. utility supply
   9.6. environmental sustainability

10. Works, installations and operational information and documentation:
    10.1. manuals and guidance materials
    10.2. plans
    10.3. as constructed information
    10.4. Health and safety file
    10.5. operating equipment
    10.6. security information and equipment
    10.7. certificates and warranties
    10.8. services
Obtain and evaluate project feedback information and make improvements

11. Improvements from feedback:
   11.1. management procedures
   11.2. client, design and construction team performance
   11.3. working arrangements
   11.4. formal and informal communications
   11.5. quality assurance and control
   11.6. design and technical appraisal
   11.7. operational appraisal
   11.8. performance in use
   11.9. benchmarking
   11.10. post project review
   11.11. Building Information Modelling

12. Those involved with the project:
   12.1. the design team
   12.2. CDM Co-ordinator
   12.3. specialist consultants
   12.4. the client
   12.5. contractors
   12.6. site inspectorate
   12.7. users
   12.8. managing agents
   12.9. facilities/asset managers

13. Feedback information:
   13.1. approved providers
   13.2. contract documentation
   13.3. design documentation
   13.4. as constructed information
   13.5. organisational documentation
   13.6. standard details
   13.7. specifications
   13.8. product information
   13.9. government and statutory publications
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13.10. research and advisory data
13.11. periodicals and abstracts

14. Project stages:
14.1. Stage 0 (Strategy)
14.2. Stage 1 (Brief)
14.3. Stage 2 (Concept)
14.4. Stage 3 (Definition)
14.5. Stage 4 (Design)
14.6. Stage 5 (Build and Commission)
14.7. Stage 6 (Handover and Closeout)
14.8. Stage 7 (Operations and End of Life)

15. Methods and sources:
15.1. project records and documentation
15.2. site inspections
15.3. scientific research and data
15.4. studies of performance in use
15.5. meetings
15.6. questionnaires
15.7. reports
15.8. Building Information Modelling
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