

Unit 10: Asset Management in Construction and the Built Environment

Unit code:	T/504/4354
QCF level:	6
Credit value:	15

Aim

The aim of this unit is to give learners an understanding of the importance of adopting sound management principles to ensure performance criteria can be met. Learners will gain skills in the use of benchmarking and impact analysis for building asset management and devise strategies to achieve asset management targets.

Unit abstract

This unit introduces the learner to the principles of strategic asset management, condition surveys, impact analysis and the benchmarking of assets against known data to determine the cost effectiveness of maintenance or the remedial works necessary for continued use.

The need to ensure the best use of assets is a focus for facilities managers and those responsible for the maintenance of property. Without an effective and appropriate level of asset management to prioritise and focus resources that are considered critical to service delivery outcomes, it would be very difficult to optimise the essential contribution that buildings make towards corporate objectives.

Relevant management processes need to be asset-specific in order to recognise that each individual building is unique in terms of its overall performance in use, its location, maintenance profile and fitness for purpose.

Learning outcomes

On successful completion of this unit a learner will:

- 1 Understand different asset management approaches
- 2 Be able to formulate sustainable strategies to prevent deterioration in asset condition
- 3 Be able to apply impact assessment and analysis to building asset management
- 4 Be able to achieve asset management targets.

Unit content

1 Understand different asset management approaches

Asset management approaches: categories, e.g. defined levels of service, condition and performance tracking, ownership costs, whole-life, cost-based prioritisation, informed decision-making policies; investment strategies; financial risk strategies; operational risk strategies; legal risk strategies; cost control; benchmarking; potential efficiency gains

Asset management techniques: portfolio reviews, e.g. legal compliance, safety and security, fitness for purpose, cost effectiveness, operational continuity; categories, e.g. operational estate, non-operational estate, building fixed assets, natural fixed assets, *de minimis* assets, residential, industrial, commercial, community land and facilities, investment commercial, freehold and leasehold status; asset value, e.g. estate valuation, annual rental income (income from rents and wayleaves); revenue budget; capital investment; annual maintenance budget; statutory and legislative compliance relevant to the home country, e.g. Control of Asbestos Regulations (2012), HSE Approved Codes of Practice and Guidance, the Regulatory Reform (Fire Safety) Order (2005), Equality Act (2010), the Care Standards Act (2000)

2 Be able to formulate sustainable strategies to prevent deterioration in asset condition

Sustainable strategies: principles, e.g. building performance, building defects, damage and decay; processes and practice, survey, assessment, hazard identification checklist, diagnosis, prognosis and remediation; building management (implementation, monitoring and control, aftercare); technical criteria, e.g. type of construction, type and intensity of use, occupancy, maintenance profile; adverse impact potential, e.g. on structure, building fabric and environmental performance; heritage impact assessments

Physical stock condition survey: condition or status criteria, e.g. new, sound, operable, inoperable, unsafe; use of asset condition survey data; relationship to asset management plan; relationship to capital investment strategy; relationship to corporate building maintenance strategy

Sustainable remedial solutions: technical opportunities, e.g. carbon footprint reduction, new and improved technologies, energy use and efficiency, alternative energy resources, materials recycling; 'Green Guide' specification

3 Be able to apply impact assessment and analysis to building asset management

Impact assessment and analysis: risk analysis; sensitivity analysis; economic evaluation and cost-benefit analysis; performance review issues; future service delivery needs; building asset performance; building audit inputs, e.g. building condition assessment, asbestos surveys, asbestos audits to identify actual location, type; building asset register data collection; building reviews and audits, e.g. building code, fire safety, environmental, town planning code, health and amenity, functionality, utilisation, risk management, energy management, water management; data collection for lifecycle planning; investigations, geotechnical, structural integrity, electrical/mechanical

Property performance review: philosophy and framework, e.g. investment and renewal, operation and maintenance, materials and resources; optimum combination theory, e.g. maximum reliability versus minimum maintenance costs, performance shortfall versus costs/risks/minimum total impact; coordinated objectives, e.g. image quality, regulatory compliance, environmental compliance, efficiency, capital value, risk exposure delivery methods; processes, e.g. resource control, work control, change control, operating and maintenance strategies; condition assessment and monitoring; performance and maintenance history data; systematic investigative techniques, e.g. failure modes and effects, root cause analysis; 'toolkit' strategies, e.g. 'what-if' analysis, system performance simulators, cost/risk trade-off calculators, project lifecycle costing, investment prioritisation tools; asset liability management; inspections for asset integrity; asset reliability management; asset management 'under pressure of change', e.g. climate change, urbanisation, changes in building use

4 **Be able to achieve asset management targets**

Building management issues: major elements, e.g. inventory and evaluation, condition assessment, performance objectives, asset valuation, alternative strategies, resource allocation, implementation, performance measurement, feedback and adjustment; long-term approach; risk based approaches, e.g. financial, economic, legal, performance; continuous system performance assessment

Asset register considerations: essential asset data, e.g. asset number, equipment number, department, asset name, model, serial number, drawing numbers, purchase price, location, supplier, equipment history, associated spares; asset register software, e.g. Computerised Maintenance Management Software (CMMS)

Performance indicators: property performance indicators, e.g. National Property Performance Management Initiative (NaPPMI), condition categories, term maintenance plan, maintenance spend on planned and reactive works; condition indicators, e.g. gross internal floor area (GIA), overall Internal Rate of Return (IRR) for each property portfolio, primary, secondary and local indicators of value for money, sufficiency and utilisation of operational asset; net operational space (NOS); net internal area (NIA); annual property cost per workstation; commissioner and user satisfaction indices; management system quality indicators

Learning outcomes and assessment criteria

Learning outcomes On successful completion of this unit a learner will:	Assessment criteria for pass The learner can:
LO1 Understand different asset management approaches	1.1 Critically evaluate approaches used in asset management 1.2 Analyse the effectiveness of asset management techniques
LO2 Be able to formulate sustainable strategies to prevent deterioration in asset condition	2.1 Critically evaluate sustainable strategies to prevent deterioration in asset condition 2.2 Conduct a physical stock condition survey of a specified commercial property 2.3 Design a sustainable remedial solution based on a building condition report
LO3 Be able to apply impact assessment and analysis to building asset management	3.1 Conduct an impact assessment and analysis of a specific building 3.2 Conduct a property performance review of a specific building
LO4 Be able to achieve asset management targets	4.1 Devise an asset management strategy for a specified property 4.2 Critically evaluate an asset register for a specific property 4.3 Compare asset management outcomes against property performance indicators

Guidance

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

The learning outcomes associated with this unit are closely linked with:

Level 4	Level 5	Level 6
Unit 2: Science and Materials for Construction and the Built Environment (H/601/1246) Unit 7: Construction and Maintenance of Building (F/601/1254) Unit 13: Environmental Impact of Construction (A/601/1270)	Unit 4: Management Principles and Application for Construction and the Built Environment (T/601/1249) Unit 26: Properties and Performance of Construction Materials (L/601/1287)	Unit 3: Managing in the Natural and Built Environment (T/504/4337) Unit 9: Construction Regulations for a Sustainable Society (M/504/4353)

Essential requirements

There are no special resources needed for this unit.

Delivery

All the learning outcomes can be delivered flexibly. Formal teaching sessions need input from the tutor on identifying and emphasising essential theoretical information. The learner is encouraged to research individually or, where appropriate, as part of a team. Comprehensive and up-to-date case study material is an essential component for this unit.

Using the skills, expertise and experience of professional practitioners as guest speakers is essential for learners who might otherwise feel remote from the day-to-day impact of the regulatory framework.

Assessment

Assessment could take the form of the following exercises.

- Learners to conduct an investigation into asset management principles and techniques and produce a written report of their findings.
- Learners to complete a survey of a property of considerable size and complexity and compile a report that identifies its condition, along with remedial solutions to rectify and resolve matters of decay and deterioration.
- Having completed the condition report, learners could then go on to prepare a broadsheet to interpret the outputs from a property performance review in the form of a comprehensive asset management, decision-making matrix. Learners can develop this further by using case study material to prepare a comparative review of the data provided, the performance standards achieved in relation to national benchmarks, and identify areas for improvements with suggestions as to how these can be achieved using specific asset management strategies.

Resources

Books

Mitchell J S – *Physical Asset Management Handbook* (Clarion Technical Publishers, 2006) ISBN 978-0971794542

Nicholas A and Hastings J – *Physical Asset Management* (Springer, 2009) ISBN 978-1848827509

Journal

BS 8572:2011 Procurement of facility-related services. (British Standards Institution)

Websites

www.publicsectorassetmanagement.com Seven leaflets available to download free of charge

www.rics.org RICS Public Sector Asset Management Guidelines 1