

BUILDING SERVICES DESIGN ENGINEER (ST0372)

Building Services Design Engineers provide technical and management input to develop design solutions for complex building services engineering problems. They will work as part of a team of engineers and other construction professionals through all lifecycle stages of development, design, construction, commissioning, operation, maintenance, and decommissioning of the services found in buildings and infrastructure projects.

Core duties involve:

- **Building services engineering** – Understanding and applying complex engineering and mathematical principles and techniques to develop and deliver building service engineering solutions.
- **Design** – Define engineering and other constraints, identify risks and how these may be resolved through design. Develop safe and sustainable technical solutions and provide guidance to others by producing design models, calculations, reports and drawings, surveying a site, using applicable analysis and relevant codes.
- **Project delivery** – An awareness of business, client and end user needs throughout the project lifecycle. Plan and manage tasks, people and commercial budgets to deliver quality assured outputs on time and to client and industry specifications, standards and guidance.
- **Analysis** – Identify and use applicable digital solutions, other data gathering tools and tests to solve technical problems. Evaluate the effectiveness of the analysis, refine as required, and apply to an integrated solution.
- **Technology** – Employ current and emerging technology to produce innovative engineering design solutions for development, manufacture and construction.

Key elements include:

- Working independently, ensuring timekeeping and targets are met.
- Evaluating the impact of building services engineering on the environment taking account of business, client and end user needs in the development, manufacture and construction, and their management and use.
- Managing and applying safe systems of work including taking responsibility for own obligations for health, safety and welfare issues, assessing and controlling risk, working with health, safety and welfare legislation and best practice.
- Communicating effectively and provide guidance to others through design models, calculations, reports, drawings, specifications, presentations, digital media and discussions with those both inside and outside the industry.
- Managing the planning, budgeting and organisation of tasks, people and resources through the use of appropriate management systems, working to agreed quality standards, project programme and budget, within legal, contractual and statutory requirements.
- Demonstrating a personal commitment to professional and ethical standards, recognising one's obligations to society, the profession and the environment.
- Carrying out and maintaining competence in line with professional codes of conduct.

Approved training providers:



Professionally recognised by:



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Training programme:

- 60-month training plan.
- Entry with good A-levels (including Maths), BTEC in Engineering, or completion of the level 3 Building Services Engineering Design Technician apprenticeship typically sought.
- Minimum 20% off the job training including completion of:
 - An Engineering Council accredited building services engineering degree programme.
 - Development of IEng competence through CIBSE's professional development programme.
- Development of competence supported by a supervising engineer (SE) or on the job professional mentors.

Four to six month EPA:

- Four to six month End Point Assessment (EPA) to complete apprenticeship to complete apprenticeship
- EPA Gateway requires successful completion of training programme, degree, and IEng competence development.
- EPA includes:
 - Research assignment, with presentation and questioning.
 - Engineering practice report with structured interview.
 - Presentation and interview.
- Grades: pass/fail.
- Aligned to Incorporated Engineer (IEng) professional review process with CIBSE.
- Registered End Point Assessment organisation: CIBSE.

Funding band assigned: £27,000.

Additional costs:

- Providers may charge employers above the funding band.
- Professional membership and Engineering Council registration fees (optional).

Approved: October 2017.

- Three-yearly revision due early 2023.

Employers involved: Arup, Atkins, Balfour Beatty, BDP, Clancy, Crofton, Hoare Lee, Jacobs, Mott MacDonald, Troup Bywaters and Anders, Waterman, WSP, Ves.

Others involved: Chartered Institution of Building Services Engineers (CIBSE)*, BESA, College of North West London, Coventry University, Leeds Beckett University, Leeds College of Building, Liverpool John Moores University, London South Bank University, Pearson, Solihull College and University Centre, South Thames College, University of the West of England (UWE).

*advised EPA organisations