

Engineering Practice Report to Accompany ACIBSE Application

**Introduction**

I am a mechanically biased mechanical and electrical Building Services Consultant. I started working in 1989 after completing a HND in Mechanical Engineering from the Polytechnic of Central London. I initially worked for a consultancy where I carried out all basic design calculations, tracing and drawing.

I have since worked on a number of design projects over three further jobs until 1999, since which I have been working in Building Services Facilities Management serving primarily blue chip property managing agents in London and all over the UK.

Career Episode	ACIBSE Competence Objectives
<p><b>xxxxxx Place Southwark Bridge London. May 1990 - March 1993</b>                      xxxxxx Place was constructed as a speculative office block, with a retained Victorian façade. The layout consisted mainly of open plan office space with gymnasium, kitchen / restaurant areas and other specialist areas. The total area being 500,000Sq Ft.</p> <p>My company was required to carry out the full M &amp; E design process together with procurement of a contractor and project management. As a mechanical engineer I was responsible, initially for the cooling &amp; heating calculations using Hevacomp software, followed by fan and pump calculations together with plant layout. I had to check CIBSE criteria in order to input the correct information. This was followed by my being instrumental in the compilation of equipment schedules and co-ordination of tender documentation prior to issue. Completing these tasks meant visiting site and checking drawings.</p> <p>A central VAV system was designed with chillers located at basement level and rooftop cooling towers providing the heat rejection. Heat was provided by cast iron sectional boilers in the basement plant rooms and various air handling units serving the office areas in zones and specialist areas such as tea points toilet cores etc. All these services required some co-ordination from me as I got very familiar with the services design, working with teams of design engineers.</p> <p>A special feature of the gymnasium was a swimming pool which had a shallow undercroft. I was tasked with designing the ventilation ductwork such that it could be installed and maintained in the undercroft which involved my liaising closely with the architect and structural engineer</p> <p>The next phase of the project involved me answering all day to day correspondence on requests for information and ensuring all parties were aware of the changes being made. I also had to speak to the draughting team to see that the drawing were updated on a regular bas</p>	<p>B1, B3</p> <p>B1</p> <p>B2</p> <p>C2, D3</p>

**xxxxxxx Dogs Home London. June 1994 – May 1996**

A new build project took place at the site of the dogs home and consisted of two six storey kennel blocks connected by a large ascending ramp in the centre. The kennels consisted of individual spaces for the occupants with heated beds and flushing sluice units. Towards the front of the kennel blocks was a two storey visitor block with reception area at ground floor level and board room area on the first floor and meeting rooms and laundry, connecting back onto the kennel blocks. Another feature was the mini hospital / clinic area with preparation areas and an operation theatre which was fully equipped with medical gases.

When I joined this project it had been designed and tendered but due to various complicating factors at the practice, I was tasked with carrying out all the basic design calculations from scratch, followed by selection of equipment and redesign of plant rooms. This involved comprehensive liaison with the architect and structural engineer with continuous visits to site to check details and dimensions. Working alongside me were an electrical engineer and a public health engineer, all overseen by the managing partner.

Together with the liaison process with the architect and structural engineer I also worked closely with equipment manufacturers due to the presence of the specialist areas. There were a number of features such as a large curved diffuser in the reception and requirements of the veterinary staff in the clinic area that required the manufacturers to agree design changes to their equipment. One instance of this was a change to a preparation table / bed in the clinic to incorporate the medical gas lines. This was suggested by me, to overcome the demands of the surgeon.

Towards the end of this project my company were fully involved in the close out of the project and overseeing the commissioning of the plant. My role at this stage was to be on site continuously, project managing the co-ordination process with the main contractors, from a services point of view. In carrying out these duties I also watched over the commissioning of the BMS system and training of the on site engineer. Operating and maintenance manuals were also viewed and commented on by me. These started off being compiled by the mechanical and electrical installation contractors and then incorporated into the main contractors files.

**Neo Natal Unit xxxx xxxxxx Hospital London. May 1996 – May 1997**

Following a donation from a charity xxxx xxxxxx Hospital decided to extend their neo natal unit to add a further eight incubators to an additional ward, converted from previously unused research laboratories. My company was briefed with designing and procuring air conditioning for the unit without tapping into the hospitals overstretched system. On site project management was also carried out by me on this project.

My role was initially to speak to the hospital trusts property department to establish the boundaries of our role and formation of communication channels with various personnel in respect of permits to work and access. The forms of communication in the form of faxes, letters and standard proforma's were also defined.

The next stage was to develop a design for a dedicated air handling unit with integral direct expansion cooling to serve the unit. The design development involved looking at CIBSE criteria for neo natal applications and ensuring that other statutory standards were met. There was also a close working partnership with the hospital and mechanical contractors to co ordinate the ductwork from a flat roof outside, up and behind a cladded wall and into a congested ceiling zone. Medical gases were provided to the unit by the hospital with my role being to liaise with the medical gas trunking manufacturers and the architect to incorporate these into the design. The project was supervised to a successful conclusion with all operating and manufacturer's information handed over to the hospital.

C3, B1, B3

D1, B2, B3

C1, D3

D1, D3

A2, B1, B2, D1

**Various Retail Projects London Bristol and Edinburgh. May 1997 – May 1999**

During this period of my career I was involved in various retail projects for ‘retailer a’, ‘retailer b’ and ‘retailer c’ where my company’s role was to provide design, specification, procurement and project management of mechanical, electrical and public health services. The projects covered were an extension to ‘retailer a’ in Croydon, a ‘retailer b’ store within an out of town shopping centre close to Bristol and a ‘retailer c’ within a Georgian building in Edinburgh.

Both ‘retailer a’ and ‘retailer b’ had their own design guides, which outlined their requirements, design criteria and thereby determining the size of plant, with location generally being pre-determined, especially in the case of the out of town shopping centre. There were, however other design considerations, for example, in collaboration with the client we opted for our own smoke extract system at ‘retailer b’. This involved following calculations given in BS 7346 Part 2 and then carrying out design and specification of the bifurcated fans and associated fire rated ductwork in conjunction with the local Fire Officer. The final element was a demonstration of the system to him with the contractor providing simulation of smoke.

A2, B1, B3, C1, C2

On the ‘retailer c’ project a design was developed using dedicated plant on a flat roof area at the rear of the building. The unusual aspect of this project was the absence of a ceiling void due to a special layer of sound insulation below the soffit. I was instrumental in designing a ductwork system that introduced conditioned air through a series of bulkheads and a wall cavity that was lined to serve as a duct. This was done within a critical time frame due to the clients commercial considerations and I therefore, had to evaluate the programme at various stages in collaboration with the main contractor in order to achieve the given dates.

B3, C1

**Various Residential Projects London. May 1997 – May 1999**

My company were involved in a series of domestic developments with xxxxxx Homes and as part of our role with liaison with the architects and project team I was required to carry out SAP calculations and making recommendations to the project team if any elements were non compliant in any way or compromised the SAP rating. This process was part of the Building Regulations, Part L, at that time.

E3, C2

The residential projects were subject to various cost reviews which had an impact on design. There were times when value engineering exercises had to be carried out which may have involved reviewing heat load calculations and any resulting oversizing of heating plant. The information resulting from the value engineering then had to be relayed back to the clients. In order to be efficient the results of the SAP calculations and other information, including results of value engineering exercises were relayed in excel format

A2, B1

The meetings with Berkeley Homes were initiated by us and minutes produced by me they were then issued to the clients, contractors (where relevant) and to my directors. This process was enhanced by regular telephone contact with the clients as I consider this as a very effective way to back up formal communication.

D1

As part of one of these developments it was not practical to run the drainage through ground floor level and so I initiated a study into various methods of pumping the drainage water to the roof level, and discharging into stacks located at the rear of the building. Had this option been selected the grey water would have been re-used to flush toilets etc.

E3

**Facilities Management on Property Portfolio September 2000 – December 2006**

My company were engaged by a large property management agent to manage the mechanical and electrical facilities at properties throughout England and Scotland. The work commenced in 2000 with a chiller replacement at an office block adjacent to and part of The xxxxxxx Gallery, which was part of the portfolio. The number of properties steadily increased until in 2002 we were appointed as term consultants for xxxxxx.

In collaboration with my director a process of defining the project, scope, programming and resource, requirements envisaged, took place. We created zones throughout the country and split the properties into portfolio's to be tendered and managed with new contract documentation. Previously the sixty to seventy properties were under various contracts with inconsistent terms and very difficult to manage for our clients. The process commenced with an asset survey of each property, which I co-ordinated by utilising staff in both the London and Canterbury offices. A standard set of documents were then sent out to a list of contractors that were agreed with our clients. The result was a very large tender analysis process which continued on to interviews and finally appointment of contractors in each zone. The entire process was managed by me with a team of engineers, who had compiled the original surveys.

B1, B3, C2

The day to day management of the properties and contractors appointed was my responsibility, which involved utilisation of many interpersonal skills. Initially it was both interesting and challenging to provide the general engineering advice due to the varied and complex nature of property management. For example it is possible to ascertain whether an item of plant has reached / is nearing the end of it's useful life, both by reference to CIBSE data and by reference to contractors maintenance records but with these clients their service charges need to be considered over a period of years and their anticipated expenditure that has been accounted for. The precise skill is then to match the two together, which is often difficult and involves a certain amount of conflict and negotiation as the costs allowed for maybe unrealistic to keep the plant in working order over a given year. The information is then fed back to teams of facilities managers, management surveyors etc through presentations and round table discussions. A large part of this period involved this exercise.

C1, D3

Together with the management of the contract I was also responsible for managing the team of engineers which grew over the period. My role involved reviewing my peers as a group exercise, via regular meetings. This exercise also involved production of an annual planner which was instrumental in resource allocation of property surveys etc. which were spread geographically from Exeter to Dundee. The volume of work involved meant that team members became unenthusiastic and so team morale was raised by methods such as having regular meetings over breakfast. I was responsible for reporting progress on these matters back to directors

A1, B2, C1, C3

Throughout this period I became increasingly aware of issues that are engineering related but very important to the facilities management of buildings. A typical example of this is water hygiene and treatment. I kept in touch with this subject by speaking to water treatment companies and familiarisation with L8 Approved Code of Practice. I then requested and was sent on a residential course, recommended by City of London EHO, given by WTI titled 'Identification of Legionellosis and Risk Assessments of Systems in Buildings'

A1

As a leading member of the facilities management department I was involved in the administration of the department in line with other company departments. This involved my being subject to a random QA Audit of the department by the QA Manager. This made me aware of some of the issues involved. The company QA process was, however not correct, as the policy was written by a person who was not familiar with the design and management of engineering services, resulting in a significant number of the clauses not being relevant to my work I acted on this by making the Director I reported to, aware of my opinions in the form of a memo. In order to keep up to date with this subject I periodically visit the Legionella Control Journal Online.

C4, A1

As a one off exercise I initiated a waste paper recycling scheme in the office, having seen one in action in a client's office. This became fully operational and the company is now working towards ISO 14001 accreditation.

C4

**My Career as a Services Consultant. 1989 - 2006**

I am myself of Pakistani origin and so am fully aware of the cultural or commercial needs that a client may have. Although a 'reverse situation' my background makes me conscious of people's needs and ways of conducting business. I actually do not have an example of an incident where I would have put this awareness into practice.

D2

I believe that throughout my career I have adhered to the principles of the CIBSE Code of Conduct, in that I have behaved honourably and given advice which to the best of my knowledge is correct. When giving advice I have taken due care and researched subjects as far as possible prior to 'going to print'. In managing work in the last few years I have been quoting professional fees on numerous occasions, again, I would state categorically that I have adhered to the correct charging rates which fall in line with industry norms.

E1

Although I have attended limited specific courses on Health and Safety I am constantly aware of my responsibilities as a manager of personnel and a consultant who is asking contractors to carry out works, sometimes in hazardous conditions. I am therefore aware of lone working regulations and working at height restrictions with the necessity of access equipment to be fully tested. I am also aware of COSHH regulations and the European Directives on a range of Health and Safety matters.

E2

As part of my personal professional development I have attended courses at CIBSE. Most recently I have attended courses on Contract Law and this year on complying with the new Part L2 and F Regulations.

E4

I do like to keep up to date with developments by, borrowing from colleagues and reading The Building Services Journal'.

E4

Once I am a member of CIBSE I would very much like to get involved in the activities and groups which exist. With my work in facilities management in mind and considering that I wish to remain in this field I would like to join the FM group, to start with. I intend to use this as a basis for developing my career as I will come into contact with other professionals in this area of engineering. Having just attended a mid career college seminar on Part L of the building regulations I am also interested in the concepts behind saving energy. With my Managing Director being involved in various forums on this topic I am being encouraged to get involved in this subject.

E4

<p>In respect of developing my career I do have goals in the short, medium and long terms which I have laid out in my Development Action Plan. In general I would like to remain involved in CIBSE activities in order to remain a diligent engineer and to keep abreast of developments, Although, maybe not totally relevant to CIBSE, I have joined BIFM and am in the process of joining their Building Services Special Interest Group, by doing this I hope that I can enhance the awareness of services issues amongst the Facilities Management Professionals, having had experience of this aspect during my term of serving xxxxxx as a client.</p>	<p><u>Page 6 of 6</u></p> <p>E4</p>
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