



In partnership with the Commissioning Specialists' Association we regularly promote the importance of commissioning and its vital contribution to the effective and energy-efficient operation of buildings.

This feature reflects on the benefits of experience and looks forward to the wider adoption of seasonal commissioning.

Commissioning as the key to successful buildings

Based on his long experience, **Ian Hollingsworth** is certain that the key to the successful outcome of building projects is detailed attention to commissioning from design to completion.

On far too regular a basis do we hear that the building services and, more often, the air conditioning in a building is not working correctly in new or relatively new buildings. This problem of not handing over the services at practical completion (PC) in good working order, suitably documented and with well trained maintenance staff is still not being addressed in many cases.

The same old questions are then asked. Was it commissioned correctly? Is there the documentation to show that correct commissioning process was implemented? Have the services been well maintained since PC? Have the defects at PC been completed satisfactorily? Has the sub-letting of floors and redesign within the original concept caused the problem? These questions, and many others, all have a bearing on the eventual satisfactory operation of the services and, therefore, the building.

Additionally there now are green Issues such as Building Regulations, Part L legislation and BREEAM to contend with — all adding to the commissioning process.

Way back in the early 1980s I was associated with British Telecom and British Gas (North Western) which, with their common services consultant, came to the conclusion, when building new prestigious computer

centres and operational control centres, respectively, that correct commissioning and testing of the building services was paramount to the operation of their businesses from these centres. We, as their current commissioning company, helped them formulate a commissioning structure and specification for their services projects. The structure developed then is very similar to the basis of services commissioning today.

For British Gas, this structure also included regular monthly 'fine tuning and defects' meetings, so building services were still complete and working well at the end of their 12 month defects liability.

At this time there were commissioning companies growing in size from their embryonic stage. They were being developed in the main by senior commissioning personnel from the larger mechanical contracting companies which recognised the necessity and opportunity for good commissioning. These companies at this juncture mainly dealt with air and water balancing.

In 1990, the directors of some of these companies formed the Commissioning Specialists Association (CSA), as this part of the industry was getting a poor name, partly because there was no basic training in this area. The association's aim was to develop and improve the commissioning function to provide building users, consulting engineers, main



Commitment to commissioning — Ian Hollingsworth.

“The main problem is still a lack of understanding and commitment to the correct commissioning process by some parties”

contractors and installation companies with a professional and quality service carried out by trained and experienced staff. It is still the only commissioning body within the UK.

At the same time CIBSE and BSRIA were revising the commissioning codes and application guides, respectively, to maintain up-to-date commissioning guidelines for this industry. However, it was not until 2003 that there was a definitive document on commissioning management, although commissioning companies had been practising their own procedures from the 1980s.

Having recently fully retired and thought about this problem and the projects where I have either carried out commissioning management or validation over the last 20 years or so. I have come to the conclusion that probably the most successful, interesting and pressurised project I worked on was the International Convention Centre (ICC), Birmingham, where I worked as commissioning manager for the main contractor.

Why was this complex project costing £155 million in 1991, of which almost 25% was attributed to services, so successful and handed over on time and with very few defects? I suggest the following had a significant bearing on the project's success.

1. The working relationship and commitment of the whole team, including the M&E consultant,

main contractor and their subcontractors, including two mechanical and two electrical contractors, were excellent.

2. The consulting and construction team retained a high proportion of their staff throughout the project.

3. The commissioning manager was responsible to the main contractor. He was appointed in good time to be effective and was responsible for all M&E commissioning. The commissioning-management team was increased to five for a short period at the height of the commissioning process.

4. Adequate time and budget was allowed for commissioning, which ranged over two years from 1989 to 1991), with a gap between the commissioning of the energy centre and the main building.

5. The M&E consultant was the final commissioning witness for the client. The commissioning manager was responsible for ensuring the systems were ready for the final witness.

The project was not plain sailing by any means. There was micro-bubbling in the large chilled-water system, partial occupation of offices and other areas, continuous re-chlorinating of



Birmingham's International Convention Centre benefited hugely from the commissioning manager being responsible to the main contractor and adequate time and budget allowed for the commissioning.

DWS, re-commissioning then witnessing 25% of the BMS because of third-party alteration of software — to name but a few problems. Additionally, heat-load and air-profile testing of the Symphony Hall both took time within the commissioning period.

So why are there now so many problems with completing the commissioning correctly, as it cannot be said that there is not the methodology or the trained personnel to carry this out?

I do not believe this current down-turn in construction or eroded profit margins are the real problems. They may be a

contributing factor, but the main problem is still a lack of understanding and commitment to the correct commissioning process by some parties. If a project's commissioning is not planned and manned correctly in the first place, there is a strong likelihood of failure at the end.

In conclusion, to have a successfully commissioned building we must have:

- The consultant's specification for commissioning well defined;
- The budget and time to commission correctly;
- Appointment of the

“If a project's commissioning is not planned and manned correctly in the first place, there is a strong likelihood of failure at the end”

commissioning team early to help with the commissioning aspects of design and construction;

- Trained commissioning personnel;
- Full design information for commissioning from the consultant early;
- A defined witness and handover strategy and last, but not least,
- A fully committed consulting and construction team to support the commissioning process.

Ian Hollingsworth is an honorary member of the Commissioning Specialists' Association.