

The Building Services Brief of the Future

At the Institute of Administrative Management's Facilities Management Group's conference in London in March 1989, building performance specialist Bill Bordass presented a paper entitled The Building Services Brief for the Future. Looking ahead, the brief predicted the likelihood of increasingly flexible office spaces, a spotlight on energy consumption and the need for facility managers to become better informed as their responsibilities became more critical.

This year, FMA Online's Melanie Drummond caught up with Bill to review how his predictions have fared twenty years on, and to discuss how well the industry listened to the warnings which were already sounding some two decades ago.

Bill Bordass

Dr Bill Bordass first moved from science research into the building services industry in the 1970s when the multi-skilled firm of designers – RMJM London – wanted someone with a scientific background to help with the briefing and client requirements for laboratory buildings. He soon found himself involved in planning, technical support, environmental assessment and integrating building services engineers into architectural projects.

For the past 25 years Bill has run William Bordass Associates - offering strategy, monitoring, troubleshooting, research and technical writing for the building services industry. He is also the research and policy adviser for The Usable Buildings Trust (UBT), a UK charity which promotes better buildings through the more effective use of feedback on how they actually perform. Results are used to influence those who can make a difference to the shape of the built environment: particularly clients, designers, builders, managers, suppliers, government and education.

FMA Online: You've written and co-written a number of publications Bill, what would you say is your key area of expertise?

BB: In two words, building performance.

FMA Online: It's been 20 years since your paper The Building Services brief for the future was released, what do you remember as being the key areas of concern back then?

BB: Offices were struggling to come to terms with information technology and there were big problems with building-related ill-health. Other concerns were adaptability, energy efficiency, new ways of working and a feeling that offices were becoming over-specified, especially for heat gains from office equipment.

FMA Online: Did you foresee the impact climate change would have on the building industry?

BB: In 1989 it was predominantly energy. Climate change and sustainability came to the fore a few years later, in particular during the Rio Conference in 1992. The problem for the building industry is that the realisation has come far too slowly, and has still not sunk in fully. So over the past 20 years, we have failed to develop nearly enough of the experience and expertise we really need and as a result we have constructed wasteful buildings and infrastructure that will not serve us at all well in the future.

FMA Online: In The Building services brief for the future you predict that an increasing proportion of office work would happen outside of the office, did you imagine it happening to the degree that it is today?

BB: The build up has been much slower than I had thought, so really we have been constructing more commercial and public buildings than I think we will need in the future, and in the wrong places too.

FMA Online: How do you think that has impacted on building design?

BB: Office workers – or at least some of them - now work in a wider range of settings. This tends to be good for occupant satisfaction, as the less tied down you are to one place, the less important the conditions in that particular place become.

FMA Online: You stated in The Building Services brief that managers and users would become better informed and more critical, demanding better performing buildings and building services. Do you think that has happened?

BB: Up to a point, but less than I had expected. At the time of writing, we were entering a buyer's market. From the mid-90s until very recently, it has been mostly a seller's market. Occupiers are now becoming more powerful and some are requiring landlords to meet sustainability criteria before they will sign or renew a lease.

FMA Online: What do you think facility managers still need to improve on?

BB: 20 years ago, facilities management was a very new profession in the UK. Now it is more established, but it still has a long way to go with a lot of scope for doing things differently and better. There is an urgent need for FMs to work more closely with designers to get more robust and user-friendly solutions for buildings, refurbishments and fit outs. There is also still an awful lot of energy wastage – often exacerbated by outsourcing which is (perhaps inevitably) more about providing standard services than responding insightfully to the real needs of a particular occupier.

FMA Online: In what areas do you think the most progress has been made in the building industry?

BB: In the 1980s “sick buildings” were becoming a big problem. This has received attention from both designers and facilities managers and the situation has improved, at least in the larger, more complex buildings, which were the most susceptible – particularly in the public sector, owing to its constrained budgets for maintenance and management.

In the 1980s, the “sick building” problem was mostly associated with air conditioning. However, a more fundamental reason was that buildings were poorly designed and insufficiently managed. This caused us to advocate Design for Manageability, which is just as important for “green” buildings, where the recent tendency has been to make them too complicated.

FMA Online: What developments haven't occurred in the past 20 years that you would have liked to see happen?

BB: I had hoped to see new models emerging for commercial buildings which were more robust, more adaptable, more sustainable, using much lower energy, which could use natural light and ventilation when, and with “plug and play” additional services, where appropriate. Instead we have far too many energy-dependent over-glazed sealed boxes.

FMA Online: In your paper you mention that technology may possibly move faster than our ability to handle it or manage it. Do you think that has occurred with the development of new smart buildings?

BB: Yes, people are still talking about “intelligent” buildings, but still haven't really delivered them. Technology always seems to be running ahead of usability. The ergonomics of control systems is a particular problem: the industry continues to “sell dreams and install nightmares”.

FMA Online: Do you think buildings today are flexible enough today to cope with the changing demands of tenants?

BB: Not really. They tend to be too energy and services intensive and often lack true adaptability. Some of the “green” concepts that can work well with a known client have fared less well in the rented market, where the occupier is unknown and may have very different attitudes and requirements from those anticipated.

FMA Online: What issues do you think are facing facility managers today?

BB: Probably retaining enough of a presence in the face of recession. They are always getting downsized and outsourced and organisations really shouldn't outsource their feedback loops! One of our energy-efficient case study buildings had a superb in-house manager, who really understood the building and its occupants. In 2000, the occupier organisation decided to outsource the management of all its extensive property portfolio to a FM company. The manager left; and in the hands of the “experts”, the energy consumption doubled.

FMA Online: What are your thoughts on mixed mode buildings and more user control?

BB: In the right climates and contexts, well-considered, mixed mode buildings look very promising. They can respond to user needs (which often makes occupiers happier than in more closely-controlled buildings), make good use of natural light, ventilation and cooling and avoid running energy-consuming systems unless it is absolutely necessary. Research in several countries (including the UK, Australia and the USA) shows that appropriate solutions can deliver

higher levels of occupant satisfaction at lower energy costs. But if you don't think things through clearly, you can get them horribly wrong and produce a mixed-up building instead. We need to develop more robust solutions.

Our occupant surveys reveal strong correlations between perceived control, comfort and productivity. However, high perceived control is most easily achieved in relatively simple, shallow-plan buildings. In deeper plan buildings, it becomes more difficult, though good perceptions can also be obtained where a building is appropriately designed and the management is responsive to the needs of individual users. Occupant satisfaction is also higher if people have the opportunity to move about between different environments.

FMA Online: Do you think tenants are changing the way they view the internal environment of a building?

BB: There is definitely a greater awareness of the role of a good environment in attracting and retaining staff.

FMA Online: What projects are you currently involved in?

BB: I am now less directly involved in individual projects and more – through the Usable Buildings Trust charity - in encouraging people to tune in better to building performance in use, and in initiating, assisting or undertaking research. Recent work has included user interfaces for controls; encouraging building energy certificates in Europe that take account of actual (not just calculated) energy use and greenhouse gas emissions, and making feedback and post-occupancy evaluation routine for clients and the building industry. We are currently working on a process called Soft Landings which will help designers and builders to do this.

FMA Online: What have been your findings from recent research?

BB: There are massive credibility gaps between anticipated and actual performance for too many allegedly low-energy and low-carbon buildings. We must manage expectations effectively through the briefing, design and construction process and on into use. You need to tune into outcomes to get control systems to work much better.

The general rule is to keep things simple, do them well, and follow them through. Only after you have done that should you start to think about adding complications in the quest for better performance.

FMA Online: Any there any emerging trends that you see in building design?

BB: Unfortunately people are being encouraged to make buildings too complicated through a tick-box approach to sustainability. Extra features do not necessarily map onto better outcomes. We need to pay more attention to getting the simple things right and making robust solutions. Prevention is better than cure!

FMA Online: What industry trends can you see emerging?

BB: Given the constraints the world is now facing, we are going to have to find ways of making much better use of what we have got. This will mean innovative adaptations to the existing stock and to the ways in which we use it, together with strategic interventions with new construction, to create much more sustainable outcomes.

FMA Online: What impact do you think the introduction of a low-carbon economy will have on the building industry?

BB: Buildings have been far too wasteful for too long and so have the practices of many of their occupiers. Both now need to get a lot better, very quickly. Society is expecting it. The industry will have to become much more skilled at delivering the anticipated levels of performance. This will mean doing things very differently.

FMA Online: What areas do you think Australia needs to focus on in terms of industry?

BB: A big problem seems to be how Australia generates electricity, from coal, at low efficiency, seldom using the waste heat.

FMA Online: What is the current situation of the building industry in the UK?

BB: Dire. The recession is affecting it very badly. The government has set exacting targets for zero carbon buildings which would be difficult enough to deliver in some European countries which are well ahead in the game, let alone with our own industry which tends to work to lower standards. Meeting these will be an enormous challenge, requiring a radical transformation in the way we do things.

FMA Online: What role do you see facility managers playing in the future of the building industry?

BB: Well-informed facilities managers are vital to close the feedback loop from performance in use, back into briefing and design, and then to help manage design intent through the specification, construction and commissioning process and on into use. Sadly, though, we have been saying this for two decades and it is taking a long time to build the skills in understanding and communication.

FMA Online: Any other predictions?

BB: The main objective of the new building services brief for the future will be to deliver buildings and refurbishments which are robust and stand up against a range of scenarios, allowing occupiers to do useful things in tolerable conditions, whilst also minimising the demands made on the external environment and infrastructure.

In 20 years' time, the world is going to be very different and many of our preconceptions will have been challenged. As my colleague Roderic Bunn puts it: "*What we have got used to, we are not entitled to*". It will be tough, but some of the innovations will surprise us; and these will be as much social and cultural as technical. It will not only be about buying greener things and improving efficiencies: we will need to question everything we do and the standards we apply, and probably in-source some of those outsourced services.