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Building log books and online building information

Industry perceptions

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Abstract

Purpose – This paper seeks to establish the level of usage and how building log books are perceived within the UK non-domestic buildings sector, and to identify potential benefits resulting from the use of building log books and internet-based building information systems.

Design/methodology/approach – The method employed was the distribution and analysis of market survey questionnaires, distributed primarily via a professional body.

Findings – There is limited use of building log books, plus varying degrees of perceived usefulness, especially between the designer/contractor sector and the facilities management sector. Internet-based information management systems appear to be largely acceptable. The quality of building information is likely to depend on who provides it. There is a significant perception within the designer/contractor sector that building regulations are not enforcing the availability of building log books in relevant buildings.

Research limitations/implications – Only a limited literature review was undertaken, and there may be limitations due to the nature of the distribution of the surveys and sample sizes. More research into the effective provision, management and utilisation of useful building information is required.

Practical implications – The paper demonstrates that regulations may not necessarily lead to practical implementation and that there is significant room for improvement in the provision and maintenance of building information which is useful to those operating buildings.

Originality/value – The paper expands understanding of the need for useful building information and proper management of that information, both for the facilities manager and as a means of feeding forward into new building designs.

Keywords Technical regulations, Buildings, Information systems, Facilities, Design

Paper type Research paper

Introduction

For many years, companies and institutions have been addressing the financial efficiency of their operations. As simpler/cheaper operational efficiencies have been achieved, so attention has turned to the operation of buildings (Campbell, 2002). This paper investigates the importance of the provision of, and access to, up-to-date and relevant building information to facilities managers, designers and contractors – specifically in the form of building log books for non-domestic buildings in the UK.

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The software used to design buildings has become increasingly sophisticated, and this in turn has enabled the construction of increasingly sophisticated buildings. However, the management of the operational information required to ensure a building functions according to the design has not been addressed to the same extent (Ozel, 2005). McAndrew *et al.* (2004) indicate that information management systems for construction processes are more advanced and integrated than those for information required to operate buildings effectively. Mao *et al.* (2007) have approached the problem of heterogeneity of sources and formats hindering the smooth flow of information between designers, contractors and suppliers *within* construction projects, perhaps implying that the building is a finished project at the point of handover. In reality, handover is only the beginning of a building's productive life, and the quality/accessibility of useful information about a building and its operation becomes more important than that available *during* construction. Combining the work of Mao *et al.* (2007), which indicates that there are problems of information flow within construction projects, with the earlier work of McAndrew *et al.* (2004), which states that construction information systems are more advanced than building operational information systems, then perhaps it is not surprising that building operational information systems may not be as useful as they should be. The importance of accurate information, after the completion of the construction phase of a building, is also highlighted when BSRIA indicates that "over 50% of building defects and failures are attributable to design"; thus any useful form of feedback should enhance design knowledge (Pearson, 2003).

While construction design software has increased and developed there have also been advances in electronic management systems for building information (Chartered Institution of Building Services Engineers, 2000). As well as systems for use on individual computers, there are also products available for intranets and, more recently, internet worldwide web access. The development and use of web-enabled systems has the potential to increase the productivity of facilities maintenance processes, as described by McAndrew *et al.* (2005). Earlier work by Finch (1998) indicates that the increasing complexity of building design and operation leads to the need for greater degrees of expertise in individual control systems – expertise that may not be available on site, thus leading to greater remote control of buildings. With remote control, there is also a need for remote access to accurate building information – frequently across multiple plant systems (Finch, 1998). In view of this increased interconnectedness of systems, building information and remote access, the perception of the potential of web-enabled building information management systems forms part of the investigations of this paper.

Building log books

The Building Regulations (England & Wales) 2000, Approved Document Part L2A [new build] Conservation of Fuel and Power (2006 Edition), Section 3 requires the provision of information, to the building owner, "so that the building can be operated in such a manner as to use no more fuel and power than is reasonable in the circumstances". Section 3 also says that "A way of showing compliance would be to produce information following the guidance in CIBSE TM31 Building Log Book Toolkit" (Chartered Institution of Building Services Engineers, 2006). Section 4 of Approved Document Part L2B (2006 Edition) [works in existing buildings], repeats the

above requirements. There are some exceptions, but on the whole new builds and major refurbishments of non-dwelling buildings require the provision of building log books.

Although building log books are required in the 2006 edition of the UK Building Regulations, it should be noted that they have, in fact, been required for new buildings and major refurbishments/plant replacement since 2002 (Building (Amendment) Regulations, 2001). This longer time frame has enabled the survey on which this paper is based to draw upon larger samples than would have been the case if log books had only been required since April 2006.

The building log book is not meant to replace the detail of the operations and maintenance manuals, or the health and safety file. The objective of building log books is to provide building operators with a concise manual on how to "drive" the building efficiently. To this end, the main section headings of the CIBSE TM31 Building Log Book Toolkit template are:

- Building history;
- Purpose and responsibilities;
- Links to other key documents;
- Main contacts;
- Commissioning, handover and compliance;
- Overall building design;
- Summary of areas and occupancy;
- Summary of main building services plant;
- Overview of controls/BMS;
- Occupant information;
- Metering, monitoring and targeting strategy;
- Building performance records;
- Maintenance review;
- Results of in-use investigations; and
- Appendix: relevant compliance and tests certificates.

The sum of the information in the above sections should enable the facilities manager (FM) to operate a building effectively, according to the design concept of the building and its fixed services. The log book is also used to record overall energy use in the building together with alterations to the building fabric, services and maintenance regime. In overall terms the aim of building log books is to reduce energy consumption thus reducing costs and emissions of greenhouse gases, but the proper operation of the building should also maximise occupant comfort and therefore productivity.

To help ensure clarity and relative standardisation of content, the TM31 Building Log Book Toolkit contains a number of sample log books; these samples indicate the nature of the information which the author of a log book should include and how it should be presented to the reader. For example, abbreviations and acronyms should be avoided, thus making the document more accessible to non-technical readers.

Purpose of the survey

To ascertain the UK building services industry's perception of building log books and online building information systems, it was decided to carry out a survey of relevant professionals. The results of the survey were used to generate a market research report for Zutec (UK) Ltd entitled *Online Building Log Books and Operation & Maintenance Manuals: a Market Survey* (Liddiard, 2007). Ultimately, the market report was used to inform the development of an internet-based system for building log books, establishing the requirements of, and the drivers for, the adoption of such a system. Additionally, the level of knowledge of the statutory requirement for log books and the enforcement of this requirement were investigated, as further indication of the market potential for building log book systems.

Methodology

The survey took the form of two questionnaires: one aimed at the design and contractor section of the market, and a second aimed at facilities management and building owners. The two surveys were titled: "Building log book survey for Designers and Contractors (D&Cs)" and "Building log book survey for Facilities Managers & Building Owners (FM&Os)", respectively.

The fundamental aims of the survey questionnaires were to determine:

- the knowledge of and degree of uptake of building log books;
- the benefits and usefulness of building log books;
- problems with building log books;
- potential improvements to and added value of building log books; and
- the industry's perception of online information systems.

The surveys were not identical, as it was necessary to gather information relevant to each sample/sector. However, some questions were essentially the same or identical and, where possible, an analytical comparison has been made of these to identify similarities and differences in the professionals' perceptions.

Each survey response was entered into a spreadsheet in such a way that the identities of respondents were not recorded with each response, thus helping preserve anonymity and reducing bias. The results of one question from the building log book survey for facilities managers and building owners has been omitted from this paper due to potential commercial sensitivity.

The various anecdotal comments made by respondents to the surveys were also compiled into appendices for the original report. Some of the most pertinent comments are also used in the analysis of the relevant question and elsewhere in the text. Some anecdotal evidence gathered during telephone conversations has also been included.

Initially, distribution of the surveys was targeted at specific individuals within relevant organisations, but this proved extremely problematic in terms of the time consumed trying to find who to send the surveys to. It was particularly difficult to locate facilities managers and others responsible for the operation of buildings, especially where these activities were contracted out. Contacting designers and contractors was less problematic. Approximately 10 per cent of questionnaires sent out by this method were returned completed.

A second, much larger batch of survey questionnaires was sent out via the Chartered Institution of Building Services Engineers (CIBSE). Two mailing lists were used for the Energy Performance Group and for the Facilities Management Group.

The resulting overall sample sizes (the number of responses) for each questionnaire were:

- Designers and contractors: 81; and
- Facilities managers and building owners: 61.

The typologies of the samples are given in Tables I and II.

Not all respondents answered all parts of the questionnaires, but on the whole questionnaires appear to have been answered as completely as possible by each respondent.

Note also that the nature of the CIBSE group mailing lists may have a bearing on the results – i.e. people on these mailing lists may be more likely to be aware of developments within the industry, thus influencing results.

Table I.
Typology of designers and contractors

Category	Count
Building owners (general)	7
Communications and ICT	5
Energy manager	1
Facilities management, contractors/consultants	23
Financial	5
Higher education	9
Manufacturer	4
NHS Trust	3
Retail	1
Unknown	3
Total	61

Table II.
Typology of facilities managers and building owners

Category	Count
Architect	5
Consultant: building services/FM	14
Consultant: multidisciplinary	7
Consultant: planning/property/construction	3
Contractor: building services	2
Contractor: construction	2
Contractor: multidisciplinary	4
Designer/consultant designer: building services	16
Engineer: building services	4
Engineer: consultant and others	12
Facilities managers and facilities contractors	7
Other	3
Unknown	2
Total	81

Results and discussion

Knowledge, provision and use of building log books

Knowledge of building log books within the designer/contractor (D&C) sector stands at 96 per cent for new build (Part L2A) and 90 per cent for works in existing buildings (Part L2B). Clearly, this is not a perfect level of knowledge, but compares well to knowledge of the requirement under Part L2B amongst facilities managers and building owners (FM&Os); this stands at only 82 per cent.

These results indicate that more needs to be done to educate both the D&C and FM&O sectors about the requirement for building log books, especially for works in existing buildings. Anecdotal evidence, from comments collected by the survey questionnaires, suggests that consultants/contractors sometimes have to push their clients into specifying the provision of building log books. The survey indicates that only 52 per cent of FM&Os are actually using building log books; whether this is a direct result of lack of knowledge or some other factor is not clear. However, Figure 1 shows that the majority of designers and contractors say that less than 25 per cent of their clients are stipulating the provision of building log books for their projects, while only 11 of 76 say that 75-100 per cent of clients demand log books. This latter figure is much lower than should be the case, as 82 per cent of FMs and building owners profess to know of the need for log books under Part L2B.

Some of this discrepancy might be explained by some of the comments made by designers and contractors attached to the data for Figure 1; for example:

> There seems to be very little awareness of the need.
>
> They [the clients] either are not aware or prefer to remain oblivious to the requirement.
>
> End user clients are totally unaware of the requirement – only projects with a "professional team" stipulate log books unless advised accordingly.

As the building log book is meant to be a tool for conveying the design concept to the building operator, its initiation should always be towards the front end of the project. Figure 2 shows that log books are likely to be initiated at, or after, the detailed design phase of building projects.

Part of this tendency for log books to be written towards the end of projects could be the result of who is contracted to deliver the log book, which may be affected by the

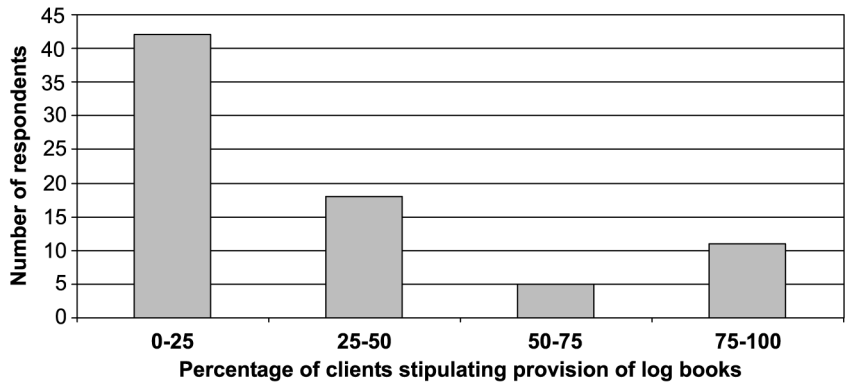

Figure 1.
Percentage of clients stipulating the provision of building log books (sample size = 76)

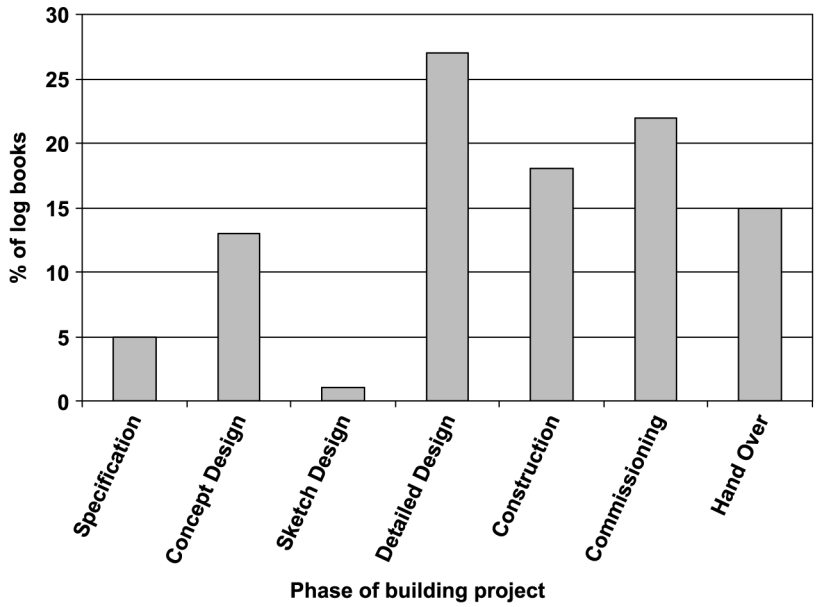

Figure 2.
Designers' and contractors' experience of when building log books are initiated (sample size = 81). NB: Some respondents indicated more than one phase

small number of clients who stipulate their provision in project contracts (see Figure 1). As more than 50 per cent of log books are initiated after the design phases of the project, it is likely that designers have insufficient input to log books. Figure 3 shows that very few log books are compiled by specialists. Anecdotal evidence from D&C survey comments suggests that contractors rather than designers may be entrusted with this activity, perhaps due to many log books being initiated at, or after, the construction phase.

When facilities managers were asked who develops their building log books, the results (see Figure 4) show that a large proportion is developed in-house. The in-house production of log books may have advantages over production by some designers/contractors, as only 72 per cent of this latter group understands that the

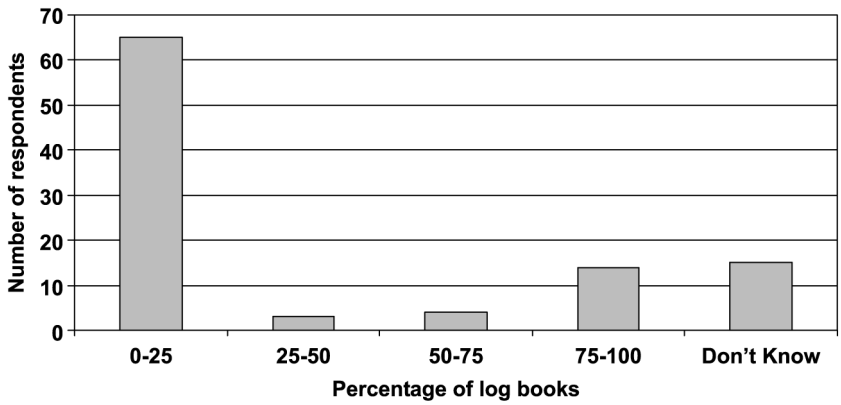

Figure 3.
Percentage of building log books compiled by specialist authors, according to designers and contractors (sample size = 69)

log book is supposed to be an accessible manual on how to operate the building to its design intent. A total of 17 per cent believe that log books are an over-simplification of the design and interaction of the building's systems, while 11 per cent feel that log books are merely a repetition of the operation and maintenance manuals. However, in-house production of log books may miss some of the design principles and encompass too much tacit knowledge, thus building operational errors into the formalised information. This is discussed further below.

Although 95 per cent of organisations have initiatives to reduce energy/utility costs and 92 per cent of FM&Os feel that building log books could form part of these initiatives, only 57 per cent have a budget available for such initiatives. A total of 58 per cent of FM&O respondents thought that the provision of building log books could be included in their initiatives budget. This low percentage may be due to a conflict between budgets for buildings and ongoing operation and maintenance costs. Anecdotal evidence from the survey indicates that because log books are a "living document", some project budget holders seem to feel that they should be paid for out of maintenance costs, while FMs believe that they should not incur the costs of developing log books because they are (or should be) a requirement of the project specification.

The effect of payback periods on the use of building log books, is not clear, but Figure 5 has been included to show the payback periods which are typical for energy/utility cost reduction initiatives, according to FM&Os.

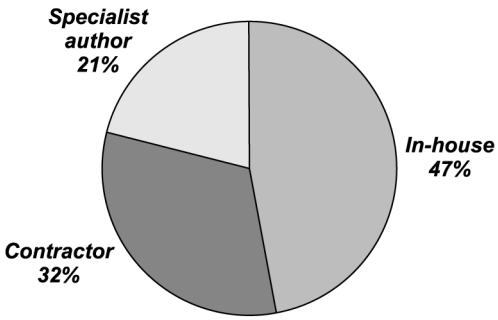

Figure 4.
Authoring of building log books according tro facilities managesr and owners (sample size = 38)

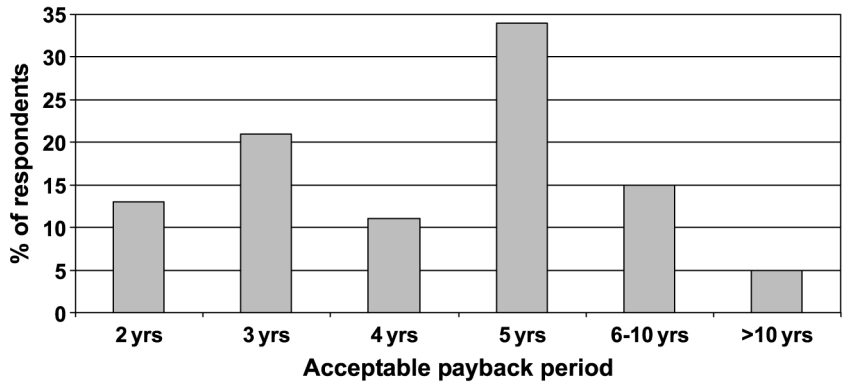

Figure 5.
Payback periods for energy/utility cost-reduction initiatives (sample size = 61)

The payback period for a building log book will probably vary according to how effectively a building is being operated before and after the utilisation of the log book and how effectively the log book is used. Until log books have been in use to for some while longer, their payback periods will remain uncertain. This brings us to the survey respondents' perceptions of how useful building log books are, or should/could be, to facilities managers.

Perception of the usefulness of building log books

The questionnaires asked both samples to assess how useful building log books are, or should be, to facilities managers for the following functions:

- understanding how a building is meant to work;
- maintaining building occupant comfort;
- accessing building information (e.g. manuals and drawings);
- monitoring building energy performance (e.g. kWh/m^2/year);
- educating staff and contractors about the building;
- managing health and safety (H&S) risk; and
- managing environmental risk.

Each function was rated on a scale from 1 to 5, with 1 denoting "no use" and 5 denoting "very useful". A "don't know" was scored as 0. Figure 6 shows a comparison of D&Cs' and FM&Os' averaged perceptions of usefulness for the functions listed above.

It can be seen that, for the most part, designers and contractors have a higher opinion of the potential usefulness of building log books than do FMs and building owners. However, it can also be seen that FMs are using building log books as a means of managing both health and safety (H&S) and environmental risk. These are not functions for which the building log book concept was developed. The functions which are rated the most highly by designers and contractors are those functions for which log books were designed, namely:

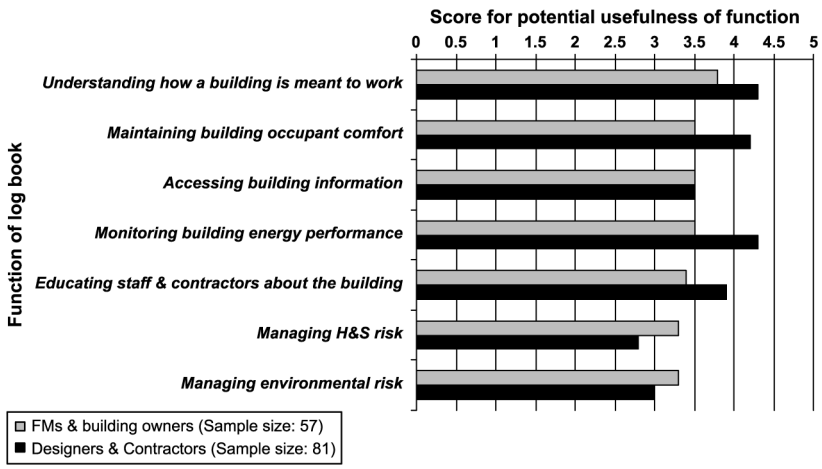

Figure 6.
Comparison of perceived usefulness of building log books, by function

- understanding how a building is meant to work;
- maintaining building occupant comfort;
- monitoring building energy performance; and
- educating staff and contractors about the building.

The function of "accessing building information" is partially an aim of the log book concept, but only to a certain level of information; the log book is not designed for detailed information which should be held in the operation and maintenance manuals and the health and safety file.

Further analysis of the survey results reveals that the FM&Os who say they are using building log books have a generally lower opinion of their usefulness than either designers and contractors or the FM&Os who are not using log books. This can be observed in Figure 7.

Although not addressed by the survey, it would be instructive to determine the reason for the usefulness of log books falling short of expectations. It may be the case that because building log books are being used for functions outside their original purpose, and that this is detracting from their usefulness for the functions for which they were intended.

Table III shows an analysis of the usefulness scores given to each of the log book functions by the FM&Os who use them. The data for each function are differentiated by whether the scores attributed by the respondents fall above or below the average scores given by log book users. The scores are also subdivided by the method of log book compilation, i.e. whether this was done in-house, by a contractor, or by a specialist author. The data indicates that overall, and for each function (apart from "understanding how a building is meant to work"), specialist authors develop the most useful log books, while contractors write the least successful log books.

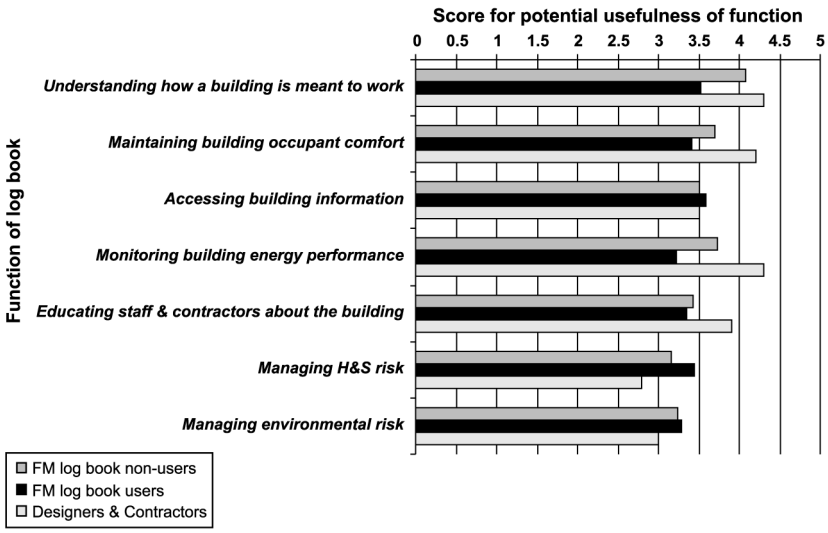

Figure 7.
Comparison of usefulness of log books according to users and non-users

Function of building log book	Method of log book development In-house	By contractor	By specialist author
	Number of scores above/below average for function		
Understanding how a building is meant to work			
Above average	11	6	5
Below average	4	5	3
Maintaining building occupant comfort			
Above average	8	4	5
Below average	7	7	3
Accessing building information			
Above average	8	3	5
Below average	7	8	3
Monitoring building energy performance			
Above average	8	3	4
Below average	7	8	4
Educating staff and contractors about the building			
Above average	9	1	6
Below average	6	10	2
Managing health and safety risk			
Above average	8	4	5
Below average	7	7	3
Managing environmental risk			
Above average	6	3	5
Below average	9	8	3
Overall usefulness			
Above average	7	4	6
Below average	8	7	2

Note: The total number of results equals 34 due to multiple methods of development for three log books

Table III.
The usefulness of building log book functions analysed by method of development

Access to building information

The second major theme of the survey concerned access to building information, together with the relevance and potential benefits of internet-based information management systems.

When asked if their staff or contractors experienced problems accessing relevant and up-to-date building information, 74 per cent of FM&Os indicated that their staff experienced problems, but only 62 per cent of FM&Os said that contractors experienced similar problems. Anecdotal evidence, gathered from the comments of survey respondents, indicates that a possible reason for a lower percentage of contractors having problems with information is that they simply do not bother looking for it. This position is reinforced by other comments which indicate that

information is frequently missing or so out of date as to be of limited use, in which case contractors may not "waste" time looking for information which may not exist.

When users and non-users of building log books are compared, the staff and contractors of those FM&Os with log books are less likely to experience problems accessing relevant and up-to-date information, as shown in Table IV.

This result is reinforced by log book users' average score of 3.6 for a log book's usefulness as a tool for "accessing building information" (see Figure 7). However, this increased accessibility may be due to a "culture" of making information accessible – which includes the actual *use* of building log books – within some organisations, rather than increased accessibility resulting from log books themselves. More research may be needed here.

Figure 8 shows what proportion of building information is held electronically by facilities managers and building owners. It can be seen that 21 of 61 FM&Os indicated that less than 25 per cent of their information is held electronically, while only 13 indicated that more than 75 per cent of information is held electronically. Overall, it can be seen that 37 of 61 FM&Os have less than half of their building information held electronically.

There appears to be some degree of correlation between the percentage of information held in an electronic format and problems accessing building information.

	Staff with access problems (per cent)	Contractors with access problems (per cent)	Sample size
FM&Os with log books	63	47	32
FM&Os without log books	87	80	30

Note: One respondent indicated that they "do" and "don't" use log books; hence a total sample size of 62

Table IV.
Information access problems experienced by staff and contractors of FM&Os with and without building log books

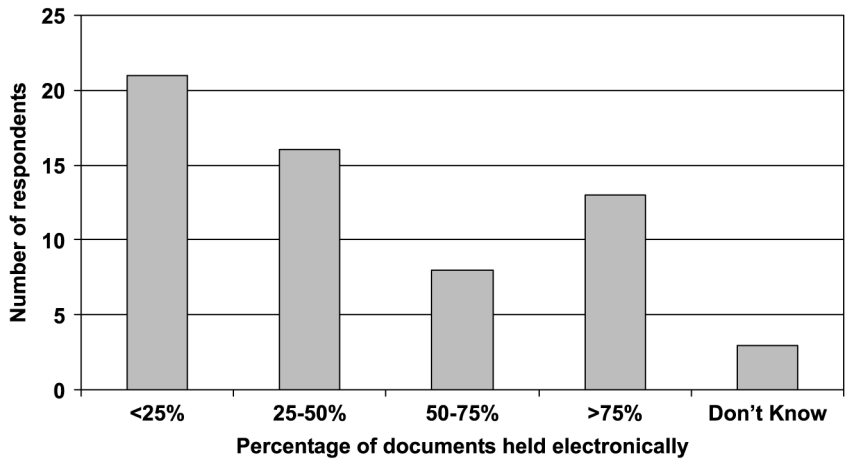

Figure 8.
Percentage of building information held electronically (sample size = 61)

Again, this might be connected to a culture of information accessibility within organisations, but the indications are that as the proportion of electronic documents increases, problems with accessing building information decrease (see Figure 9). For this chart, the problems of access include either, or both, problems for staff and contractors.

The perceptions of the survey samples regarding potential benefits of online storage of building information are shown in Figure 10. It can be seen that the ability to access information from a remote location is the most popular benefit. It should also be noted that although most of the other benefits show no significant differences between the views of the designers and contractors and the FMs and building owners, the benefit that "information does not get lost" is of noticeably more interest to FMs and building owners.

A small number of designers and contractors expressed the opinion that their clients were concerned about the security of their building information, but the above

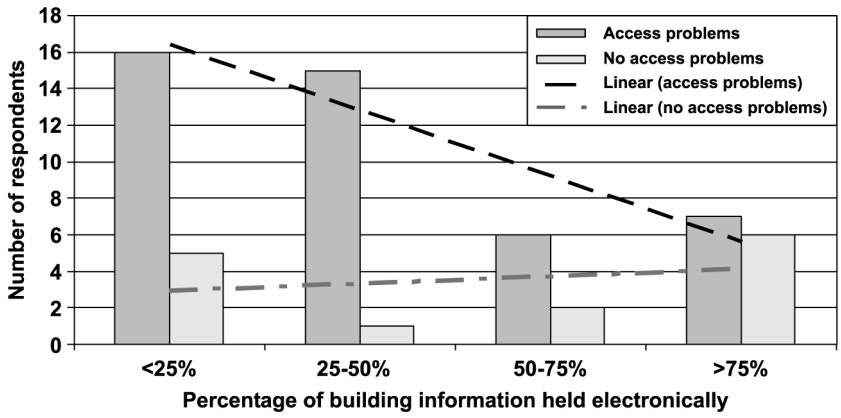

Figure 9.
Relationship of electronic building information to problems of access (sample size = 59)

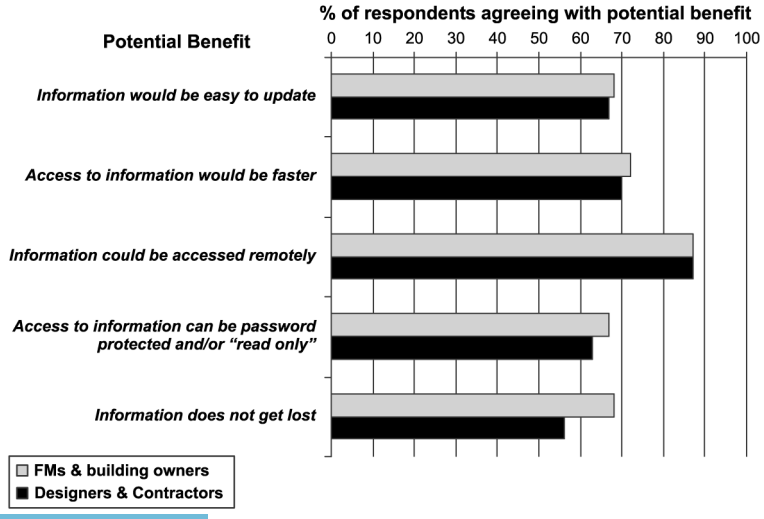

Figure 10.
Perception of potential benefits resulting from building information (including log books) being available online, via the internet (sample sizes: D&Cs = 79; FM&Os = 60)

results demonstrate that FMs are far more concerned with being able to access their information and ensuring that it does not get lost. It may also be noticed that, overall, FM&Os have a higher opinion of the benefits of internet-accessible information than do designers and contractors.

Facilities managers and building owners were also asked, "Is electronic internet-accessible storage potentially the most useful way of storing building log books and O&M manuals?". The results (Figure 11) indicate that a majority of FM&Os agree that internet-accessible building information is potentially the most useful storage method.

The building log book as a focus for concepts and design feedback

The significance of remote access to information is increased when 78 per cent of designers and contractors believe that the building log book could act as a focus for information that conveys the design concept of a building project. Online access could be used to coordinate and integrate the work of the various building system designers in one readily accessible place – i.e. the internet. Such internet-based coordination could also increase the amount and quality of information which is finally made available to building owners and their facilities managers. This, in turn, should reduce the number of people who have difficulty in accessing relevant and up-to-date building information (see Figure 9).

The designers and contractors were also asked whether they could see building log books as an opportunity to gain valuable feedback on how well buildings and systems live up to their design objectives. All 81 D&C respondents answered this question, and the result is shown in Figure 12.

A design feedback mechanism, based on building log books, would probably be of use to designers for determining how well their designs live up to expectations once in operation. Additionally, the feedback could be used when establishing benchmarks and feed-forward for design best practice. To these ends, one respondent commented:

> Also they should be used [as] a reference for future design – hence a central regulated database via [the] internet would come into play.

This latter point could enable government to develop a better understanding of the operation of non-domestic buildings, especially in terms of energy end use, thus improving the quality of information upon which government bases its

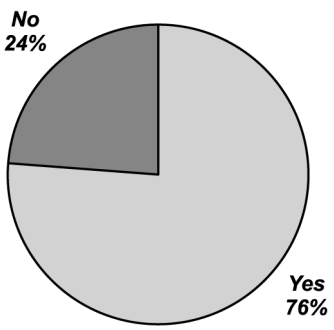

Figure 11.
Is internet-accessible information potentially the most useful storage method? (sample size = 58)

policies/legislation. However, it should also be noted that a number of respondents believed that the idea had little merit due to a perceived lack of maintenance of log book content.

Building log books and regulatory enforcement

The concept of building log books being used as a source of information for government brings us to the topic of government's implementation of the UK Building Regulations. When asked, "Do you feel that existing regulatory mechanisms are sufficient to ensure that building log books are available in all relevant buildings?", 70 per cent of designers and contractors answered "no". Indeed, some of the comments were quite scathing of the enforcement of Building Regulations with regard to log books, for example:

> [No] Insufficient "policing".
>
> [No] Logbooks are not checked properly by the building control body as with the new regulations they are too stretched.
>
> [No] In my experience Building Regulations (even of drainage and structure) have not been seriously or uniformly enforced in the UK throughout my 40 years in the Industry. I see no prospect of this changing in the foreseeable future and log books will be low priority on the list of matters falling into the laps of hard pressed BCOs!
>
> [No] Because building control had the powers but not the will.
>
> [No] The content isn't mandatory from an FM perspective. To comply with Part L it needs to be provided but who is mandated to keep it up to date?
>
> [No] Non-compliance should be penalised.
>
> [No] Local building controls are not up to speed re what they should be expecting/demanding from consultants and contractors.
>
> [Yes] The client still needs to be educated regarding the need for a log book.
>
> [Yes] The regulations are there but who will police them. Most owners will see them as another cost and try to ignore the requirements. We need a mind set by owners to see the benefits and robust enforcement of the regulations by Building Control.

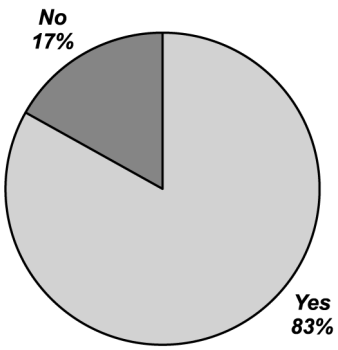

Figure 12.
Could building blocks be used as a design feedback mechanism? (sample size = 81)

From the above comments, and the overall flavour of the opinions of the 70 per cent of respondents who say that existing mechanisms are insufficient to enforce the provision of building log books, one has to question the effectiveness of building control in this matter. Indeed more than one respondent raised concerns over the proper enforcement of regulations other than those purely connected to log books. From the above (which is just a selection of the comments), it may be presumed that unless government ensures that the capacity, knowledge and will to enforce the regulations are in place, the stipulation of building log books in the Building Regulations is most unlikely to achieve its objectives. For government and the regulatory authorities, the responses to this question may prove to be the most significant of the survey.

Conclusions

The UK's uptake of building log books is relatively poor, and this may be partly due to a lack of knowledge of their requirement under UK Building Regulations – particularly Part L2. However, on a positive note, a small majority of facilities managers and building owners (FM&Os) think that the development of building log books could be included in their budgets for energy/utility cost reduction initiatives.

Designers and contractors (D&Cs) generally have a higher opinion of the usefulness of building log books than facilities managers and building owners, with the FM&O users of log books having a slightly lower opinion of their usefulness compared to those who have yet to introduce them. Part of this view may be due to the standard of the authoring and/or the content of the log books, together with how effectively they are used.

Internet-based building information is seen as potentially the most useful method of storing building information by the majority of FMs and building owners. There also appears to be some correlation between the percentage of information held electronically and the difficulties encountered by the staff and contractors of FM&Os in accessing building information, i.e. the higher the percentage of electronic documents, the lower the number of people experiencing access difficulties.

With regard to the potential benefits of online building information, both FM&Os and D&Cs feel that the ability to access information from a remote location is the greatest potential benefit. In relation to these online benefits, some D&Cs were of the opinion that their clients were concerned about the security of their building information. However, FMs seem to be particularly interested in the ability of internet-based systems to not lose their building information.

A clear majority of designers and contractors feel that building log books could act as a focus point for conveying the design concept of a building project. Additionally, 83 per cent of designers and contractors believe that log books could provide valuable feedback on their designs, including data for feed-forward systems affecting best practice and benchmarking standards.

Apart from the low numbers of facilities managers using building log books, perhaps the most worrying aspect of this paper is that 70 per cent of designers and contractors expressed the opinion that existing regulatory mechanisms are insufficient to ensure that building log books are available in all relevant buildings. Some also believe that shortcomings in building control are not limited to a failure to ensure the provision of building log books to building owners and operators.

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Further reading

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