Feilden Clegg Bradley

- Hindsight review
- Yellow Pages
- Wiki Knowledge Base

Founded in Bath nearly 30 years ago, Feilden Clegg Bradley Architects (FCBa) have always had innovation, learning and sharing knowledge at the heart of their practice philosophy. With their special interest in environmentally-conscious architecture they had to: few people knew anything about it in the late 1970s. Since then, they have continued to develop their expertise both through practice and through ongoing involvement in research on energy, materials and the performance of buildings in use. In the past few years they have become recognised as one of the country's leading exponents of sustainable design, and their boundary-pushing architecture has won a string of awards culminating in BD Architect of the Year 2004 - with awards for arts/culture buildings, public housing and private housing - the Queen's Award for Sustainable Development 2003, the Civic Trust Sustainability Award 2003, Architectural Practice of the Year 2003, and numerous accolades for individual schemes from the Civic Trust, RIBA, Housing Design, HomeBuilder and others. Being a learning organisation has paid off handsomely.

With recognition has come expansion. The size of FCBa's largest projects has grown from around £10 million to over £70 million in the past 4 years, and staff numbers have more than doubled to a total of 20 partners and around 95 staff. Having more staff working on more and bigger projects has meant more opportunities to learn, but at the same time it has made it increasingly difficult to be confident that lessons are still being learned and new knowledge is still being widely shared. After the opening of a second office in London it became clear that relying on personal initiative was no longer good enough and a more systematic approach was needed.

Since then, partner and practice manager Chris Askew and partner Ian Taylor have taken a series of knowledge management initiatives using ideas from the Spreading the Word and Learning from Experience projects. These include:

- **Hindsight Reviews**, to improve learning from projects and the sharing of lessons learned within design teams

- developing an embryonic skills database into fully-fledged **Yellow Pages** to help to connect people and facilitate the first recourse of every professional who needs to know something — ask a colleague

- setting up a new **wiki Knowledge Base** to make it easy for everyone to record new knowledge as it arises, and find it quickly when they need it.

"We identified knowledge management as a key issue for the future of the practice"

FCBa Practice Manager

Practice Profile
Staff: 20 partners, 95 staff

Offices: Bath and London

Projects: Higher education, schools, housing, workplaces, cultural, sports & leisure, urban design & masterplanning, public & community

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Starting points

It took some time to translate into action the management team's recognition that knowledge management had become a key issue for the practice.

In late 2003, when FCBa started to become actively involved in Spreading the Word, learning and knowledge sharing depended on:

■ individual learning and informal person-to-person contact, with implicit encouragement from the flat staff structure and the culture of involvement

■ several special-purpose groups — Research & Innovation, Team Leaders, Design and Practice — charged (amongst other things) with disseminating knowledge within the practice. Most but not all of the group members were partners.

■ annual practice Awaydays for all staff, well away from office distractions in venues such as Barcelona and Amsterdam, which included 60 second presentations on all the past year's projects

■ a basic knowledge portal, maintained by just one person

■ an embryonic skills database.

Knowledge management was seen as largely synonymous with IT systems, but a review of available 'knowledge management' software had suggested that costs would be high and led only to a decision to keep a watching brief.

Contact with Spreading the Word convinced FCBa that they needed to take a more holistic approach to knowledge management, that it is *not* only — or even largely — a matter of IT, that the software need *not* be expensive, and that all staff need to 'own' the system and be actively involved in developing as well as using it.

Hindsight reviews

FCBa decided that Hindsight reviews offered the most promising way to learn more from their projects, and tried out the approach on one of their largest and most prestigious recent projects, the £30 million Westfield Student Village at Queen Mary, University of London (QMUL)[1]. The largest student campus in London, this will eventually provide over 2000 bedrooms on a site bounded on one side by the Regents Canal and on another by the main railway line to Liverpool Street. FCBa became involved in 2001, construction started in late 2002, and the first two phases were occupied by the beginning of the 2004/5 academic year.

With the client's enthusiastic support, FCBa organised the first of two Hindsight workshops immediately after the first two buildings had been handed over to Queen Mary in January 2004. Two more buildings were close to completion, and work on a further two had started. The aims were to 'learn what has gone well and identify where we should improve for phase 3' and so 'to improve design quality through positive and creative feedback.'

The workshop was attended by 7 FCBa staff — including the whole design team and senior partner Richard Feilden — and 7 other key people from the QMUL projects and accommodation management teams, the structural and building services engineers, and the quantity surveyors. The contractors were not represented because the contract was in process of being re-tendered for phase 3. FCBa partner Ian Taylor facilitated.

Participants were first asked to spend 20 minutes reflecting individually on their experience in the project and making notes of the lessons and problems that seemed most important to them on Post-Its. These were then discussed by the whole group for a further 2-3 hours.

[1] See *Building Design* 5 November 2004 for more photographs and a review of the project by Patrick Hodginson.

After the workshop Helen Roberts, the project architect, reviewed the Post-Its and her own notes of the discussion and distilled the lessons and issues on to two A3 pages under 13 headings: Brief/ERs, Fees/Scope of services, Quality and value, Cost, M&E, Procurement, Contractor/programme, Quality control on site, Team, Landscape, Handover day, The result — positive feedback, and The result — negative feedback. Finally, she extracted a short list of key actions for each party. The collated notes and key actions were sent to all participants.

Everyone was convinced that the event had been valuable, both personally and as a contribution to the success of phase 3. It gave all the participants an opportunity they would not otherwise have had to:

- think through their own experience and understand more clearly what lessons they had learned personally in the project so far

- benefit from lessons learned by all the other members of the design and construction team

- understand each other's perspectives and problems

- raise potentially contentious issues in a safe environment where they could be discussed frankly and without risk of damaging working relationships

- test ideas for improvement in debate, and gain confidence in them.

As a direct result, several aspects of the contract framework, programming and design for phase 3 were changed.

Queen Mary's project manager was so pleased with the workshop that he organised a second review in January 2005, after tendering for phase 3 was complete, so that the phase 1/2 contractor could be brought into the process.

Learning lessons from the first workshop, QMUL commissioned David Bartholomew to act as an independent facilitator and leave the whole project team free to engage in the discussion. Post-Its were abandoned as too difficult to see and replaced by slides of key issues prepared by the facilitator from preliminary one-to-one conversations with the participants.

20 people took part, including most of the participants in the first workshop and key staff from the main contractor, the M&E contractor, and the building control consultancy. Even though it was held in the evening — and despite there having been very real strains at times during the project — discussion was friendly and constructive, and carried on for over three hours, beyond the planned finishing time. The whole event was recorded on mini-disc, though in the event the recording was not used and the lessons summary was based simply on the facilitator's notes.

Participants were as pleased with the experience as they had been with the first workshop. Bringing the contractors into the review process introduced a new dimension, and led to new insights for many — particularly members of the design team.

And lessons were learned about the review process, too. It helped to have an independent facilitator, and to structure discussion around a timeline and key issues identified beforehand. As well as unburdening a key participant, this made for a more considered list of issues, and thinking about them beforehand made the participants more prepared. Audio recording was also a good idea, though unfortunately not followed through. On the other hand, 20 participants was too many, particularly with seating around a long table which made it difficult for everyone to see everyone else. With so many, the conversation became noticeably more formal; selecting participants to balance inclusiveness against conversational dynamics is often difficult.

"I'm completely sold on Hindsight reviews — I'll be using them in all my big projects now"

Queen Mary Project Director

Yellow Pages

When a dozen or two people work in one office it is possible for everyone to know everybody else and what their skills and experience are. Everyone knows who to ask when they need information or advice. But when organisations grow much beyond this size — and particularly when they grow fast, workloads are demanding and people are split between two or more offices, as at FCBa — it becomes increasingly difficult to know everyone, and the flow of mutual knowledge through ad hoc, person-to-person contact can dry to a trickle. FCBa were keen to keep it going, using IT to compensate for the inevitable decline in personal contact.

Like many organisations, their first thought was to develop a straightforward skills database. Participation in Spreading the Word persuaded them think more deeply. Experience elsewhere with skills databases has often been discouraging: the information is usually too dry and stereotyped to he helpful, it can be difficult to relate to other sources such as project records, self-assesssment of skills can be erratic, and entries are rarely kept up to date.

To avoid these problems, FCBa re-designed their embryonic database to:

- be accessible through a web browser (instead of MS Access) and at the hub of their intranet

- link dynamically to their existing personnel, project and slide databases. At a stroke, this made it a much richer source of information, less reliant on people's personal input, and avoided the problem of keeping data in separate databases in synchrony

- emphasise actual experience and willingness to help colleagues rather than potentially contentious judgements like 'expert' or 'novice'

- give it a human face, both literally with a home page made up of staff portraits, each a clickable link (alongside a conventional drop-down list of names and a search box), and figuratively by encouraging people to include personal as well as professional information.

They also gave the system a key role in personnel management, using it to target CPD and select 'topic champions' — people nominated as prime sources of technical advice — and plan to make it a key reference in annual reviews.

The result looks set to be a Yellow Pages system which works: user-friendly, information-rich and up-to-date. It is helping to restore the informal knowledge exchange which used to be routine when the practice was smaller, and it is proving unexpectedly valuable for management as well.

Wiki Knowledge Base

When practice manager Chris Askew first met the concept of wikis — web sites built by their users — at a Spreading the Word workshop he seized on it as an ideal software framework for the practice's intranet. Three months later, FCBa's new system went live.

For FCBa, the key attraction of wiki software is its match to the practice's traditionally collaborative, inclusive approach to knowledge: wikis provide all the functionality needed to make information quick and easy to find *and* allow anyone to contribute new material, at any time, using a standard web browser and simple syntax which can be learned in minutes. This is crucially different from conventional web sites, which can only be extended or updated by staff skilled in HTML or specialist web design software. FCBa had found it impossible to keep a knowledge portal dependent on special skills and software up to date, and the need for new content to pass through one person distanced the system from users and seriously inhibited contributions.
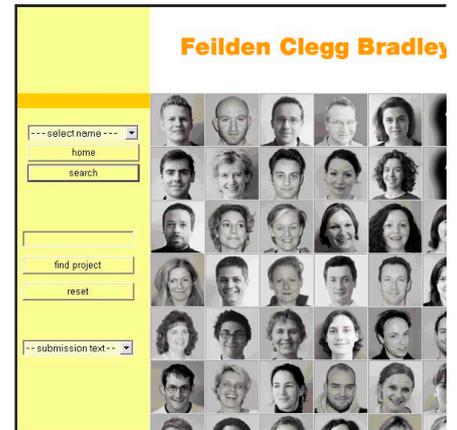
It was also important that wiki software is well proven, open source (and hence free), straightforward to set up, flexible, easy to integrate with other knowledge resources such as the practice's existing databases, and maintains a full audit trail of changes.

Once the decision had been taken to create a wiki-based intranet and Knowledge Base and the broad architecture agreed, the foundations were laid very quickly. The basic wiki software was set up in a few days (by a junior architect with an interest in IT) using TWiki[2], one of the more widely-used of several comparable wiki packages. The intranet home page, with a skeleton framework for the main content of the Knowledge Base and links to the practice's pre-existing databases and other resources, followed in about another fortnight. Since then, fine details such as the design of the home page (first impressions matter!) have been gradually refined, and steady progress has been made to add knowledge content and link it extensively to additional internal and external resources.

Wiki software allows users to create web pages on new topics at will. These are automatically linked into the rest of the site, entered into the site map and full-text indexed, but nevertheless unrestrained proliferation of topics can make a knowledge base unnecessarily difficult to use. To avoid this, FCBa planned a basic topic structure with care, initially with empty pages where no content was immediately available. To maintain control of the basic structure write permission to the six top-level topic contents pages is restricted to the management team. Lower down in the topic hierarchy, all users are free to add new sub-topic pages as they wish.

Users are all also free to amend or add to existing sub-topic pages, under the editorial control of the relevant Topic Champions. So far, about 40% of staff have made contributions — a typical rate for wiki knowledge bases.

After several months evolution and refinement, the basic structure of the Knowledge Base has settled down. The home page now has direct links to:

- the knowledge base proper, divided into 6 main topics: Buildings, Materials, Environment, Practice, IT Technical and FCBa Community, which contains an events calendar and news

- 4 databases: Skills (the Yellow Pages), Projects, Images and Certificates

- administrative tools such as Practice Procedures and Timesheets

- key external web sites, including Ribanet, Technical Indexes and FCBa's public site

- site and web search engines.

The home page also carries the latest items of practice and personal news, and links to a 'sandbox' where new users can learn safely how to add material to the knowledge base, and to a range of technical management tools including a site change log and usage statistics.

So far, the wiki software has been trouble-free and FCBa are convinced that it was the right choice for their intranet and Knowledge Base. Some human problems remain: interest in contributing or accessing knowledge is less widespread than they hoped, and even the simplicity of wiki technology defeats some users. But difficulties like these are universal among corporate knowledge bases. No one knowledge management tool suits everyone and meets all needs: the trick is to choose a selection which complement each other and suit the organisation's culture and needs, implement them thoughtfully, reward usage, and persevere — exactly what FCBa have done. ■

2   TWiki information and multi-platform software is available from http://twiki.org. The Wikipedia — a public wiki encyclopedia — at http://en.wikipedia.org is an impressive illustration of what wiki software can do.

Knowledge Base structure
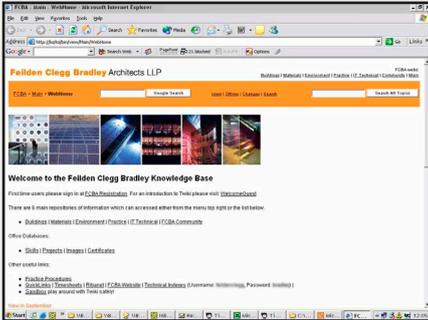
Home Page

Direct links to main Knowledge Base topic directories, databases and other key resources

Buildings
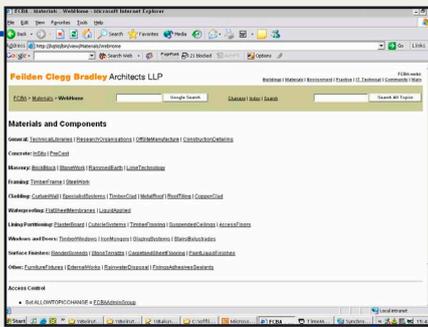
Materials

Materials topic directory, linked to sub-topics

Knowledge Base

- Environment
- Practice
- IT Technical
- FCBa Community

General: TechnicalLibraries …

Concrete: InSitu, PreCast …
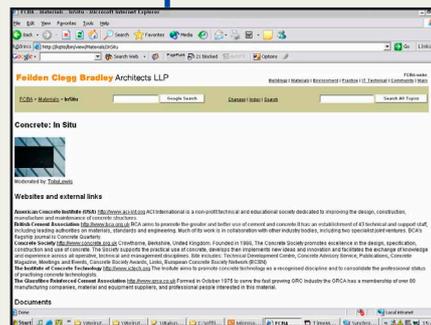
Information on in-situ concrete, including text (such as lessons learned), illustrations, and links to related Knowedge Base pages and other internal documents, project pages and external web resources

Databases

- Skills (Yellow Pages)
- Projects
- Images
- Certificates

Materials sub-topics

- Masonry: BrickBlock …
- Framing: TimberFrame …
- Cladding: CurtainWall …
- Waterproofing: FlatSheetMembrance …
- Lining Partitioning: PlasterBoard …
- Windows and Doors: TimberWindows …
- Surface Finishes: RenderScreed …
- Other: FurnitureFixtures …

Other resources and tools

- Practice Procedures
- Timesheets
- Ribanet
- Technical Indexes
- FCBa website
- Sandbox
- Site management tools