arcom
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ARCOM Chair's Report 1997

Paul Stephenson

The past year has seen a number of initiatives directed at revising internal systems within the Association in a bid to increase efficiency of operations and service to members. In particular, previously held membership lists from the Membership Secretary and the Publications Officer have been combined, and a single database of paid up members has been established.

Further work on the recording of information concerning the Association is also planned to continue. Our Website has been further developed and currently includes an introduction and joining instructions, in addition to the constitution, details of committee members and workshops. It is proposed that future research information will be made available on individual members in accordance with the Data Protection Act. It is therefore important that members who wish to have their information available at the Website pass their e-mail addresses to the Membership Secretary.

An information pack has also been established for potential members and for people enquiring about ARCOM. This contains similar information to that held at the Website, in addition to the Newsletter and flyers on future events.

Arrangements for our accounts are also being revised and it is planned for the Treasurer to transfer our accounts from Salford to Birmingham. Additionally, it is proposed to introduce a direct debit system for members wishing to pay subscriptions by this method, as an alternative to payment by cheque. New auditors for our accounts are also to be appointed, subject to approval.

In addition to internal issues, committee members have continued to be active in organising workshops during the year. Three have been held since our last annual conference and include the Human Resources Issues at the University of Glamorgan; a workshop for researchers at the University of Salford; and a one day seminar on the Changing Research Culture in the Construction Industry at the University of Strathclyde.

Contact has been made with professional bodies which includes, CIRIA, DOE and BRE for possible future joint initiatives and workshops. In addition, ARCOM representation has been established on the Construction Industry Council's Innovation and Research Committee.

The Newsletter continues to be published quarterly and it is encouraging to see several entries appearing from the membership in addition to those from committee members. Hopefully, this will continue in the future and help the Publications Officer to continue the publication of interesting issues on construction management research.

Finally, I must again thank the committee membership for their work over the past year. Busy academics have precious little time to spare, yet ideas and new initiatives continue to be raised at committee meetings. I hope to action as many of these as possible over the next year to the benefit of members, and the Association. ❑

Questionnaire

Enclosed you will find a questionnaire the purpose of which is to identify whether it is a good idea to keep the Newsletter and, if so, how it can be improved and what the strengths and weaknesses are.

Please fill and return using the enclosed address label.

CONTENTS

Construction Management and the EPSRC

Jacqui Williams, Associate Programme Manager, Construction.

As you will all know the EPSRC engineering programmes were revised in January 1997 and reduced to three: General Engineering; Engineering for Infrastructure, the Environment and Healthcare; and Engineering for Manufacturing. Each programme is developed by a programme manager.

I am one of 18 associate programme managers within the Engineering Programmes Delivery Team. My responsibility is for construction, including the Innovative Manufacturing Initiative's Construction as a Manufacturing Process (IMI CMP) sector and the associated LINK programmes in "Integration of Design and Construction "(IDAC) and "Meeting Clients Needs through Standardisation" (MCNS). IMI CMP, IDAC and MCNS are part of the Engineering for Manufacturing programme. I am also responsible for EPSRC support for construction management generally, across all 3 of the engineering programmes. I have met many of you at previous ARCOM conferences and workshops, and at other meetings.

There was a pleasing response to our recent calls for proposals in the construction area. The IMI CMP, IDAC and MCNS programmes all issued a call with a closing date of 31/12/97. 18 draft proposals were received in response to the IMI call, 10 full proposals in response to MCNS, but only one in response to IDAC. These proposals are currently being assessed. On the responsive mode side, where proposals are submitted in any area at any time and considered by the General Engineering programme, 21 proposals were received in the construction management area in the calendar year 1997, of which only 2 were funded. Although competition for funding was fierce, this success rate was considerably less than the average, and this adds to the concerns which EPSRC has been expressing about the quality of research in construction management since an evaluation exercise carried out last year. EPSRC will be looking into this issue in more detail in 1998, and has already had discussions with CIB and CRISP. I would welcome your comments on this point.

Response to the recent call for networks was encouraging, with 9 proposals received in the construction area, and currently under consideration. Networks are to become a standard mechanism in the engineering programmes, and will generally be included in future calls for proposals.

To give you advance warning we are intending to issue a further call for proposals in IMI CMP and LINK IDAC and MCNS in early March. Please watch our web site for these calls and other relevant calls and information.
Please feel free to contact me to discuss any of the above issues, or indeed anything else. I am also willing to visit groups and department and to make presentations where it would be useful

Phone: 01793 444068 Fax: 01793 444187 Email: jacqui.williams@epsrc.ac.uk, Web site: www.epsrc.ac.uk ❑

soap box

*T*his issue commences with Paul Stephenson's (ARCOM chair) annual review of ARCOM's activity during 1997.

*A*t the previous AGM, in Cambridge, I promised to prepare a questionnaire in order to establish whether the Newsletter provides value for money. The enclosed questionnaire is designed for this purpose.

*A*s soon as one ARCOM annual conference is over, the preparation for the next conference commences. It is March and we are already looking forward to an exhilarating conference at Reading as we are flooded with a large number of exciting abstracts. For more information do not hesitate to pester Will Hughes or see the back page for the web-site address.

*F*ollow on from the successful workshop at Wolverhampton, Jacqui Williams provides helpful information about the current structure and activities of EPSRC as well as areas in which call for proposals will be issued in the near future.

*I*n the research abstract section, Laptali reminds us that project time and cost optimisation remains a hot issue and Green adopts group decision support method to develop a framework for value management.

I, for one, enjoy the profile section very much because it reveals facts about colleagues who I meet at conferences and meetings and helps to remove the sometimes impersonal aspects of our job. Read about David Cheetham as an example.

*D*avid Boyd reports on ARCOM workshop at Strathclyde and summarises the outcome of the discussions.

*F*inally, in the first of two parts, Paul Bailey highlights the characteristics of a good project management system. ❑

Research Abstracts

Application of optimisation techniques to planning and estimating decisions in the building process.

Emel Laptali, University of Glamorgan in association with Wimpey Construction UK

An integrated computer model for time and cost optimisation has been developed for multi-storey reinforced concrete office buildings.
The development of the model has been based on interviews with planners, estimators and researchers within 2 of the top 20 (in terms of turnover) UK main contractors, and on published literature, bar charts and bills of quantities of concrete framed commercial buildings.
The duration and construction cost of a typical multi-storey reinforced concrete office building is calculated through the first part of the integrated model, i.e. the simulation model. The model provides a set of choices for the selection of materials and plant and possible methods of work. It also requires the user to input the quantities of work, gang sizes and the quantity of plant required, lag values between activities, output rates, unit costs of plant, labour costs and indirect costs. A linked bar chart is drawn automatically by using the data available from the simulation model.
The second part of the model (optimisation) uses the data provided by the simulation part and provides sets of solutions of time vs. cost from which the minimum project cost corresponding to the optimum project duration is calculated under the given schedule restrictions.
Linear programming is used for the optimisation problem. The objective function is set to be the minimisation of the project cost which is the total of the direct costs of all the activities creating the project and the indirect costs of the project. The constraints are formulated from the precedence relationship, lag values, and normal and crash values of time and cost for the activities supplied by the simulation model.

The simulation part has been validated by comparing and contrasting the results with those methods and practices adopted by commercial planners and estimators. The validation of the optimisation part has been undertaken by plotting time-direct cost curves from the results and checking the convexity of the curves. Additionally, the validation procedures included taking account of the opinions of practitioners in the industry on the practical and commercial viability of the model. ❑

SMART Value Management: A Group Decision Support Methodology for Building Design,

S. D. Green, University of Reading,

A revised theoretical framework for value management is developed based on the principles of group decision support (GDS). In contrast to the currently dominant paradigm of value management, the concept of GDS is based on an underlying ontological position of social constructivism.
The existing positivist paradigm is only applicable to well defined technical problems which can be specified in advance. GDS differs in that it recognises that the multi-perspective problems which often characterise the early stages of building design defy any attempt at pre-definition. The articulation of the GDS paradigm has important implications for building economics. It is asserted that building economists have traditionally failed to provide multi-faceted clients with effective decision support due to their reluctance to leave the sanctuary of the rational high ground.

SMART value management is proposed as a GDS methodology for rational intervention in building design. The methodology is primarily perceived as an aid to the briefing process rather than a technique of cost reduction. It is based on a series of decision conferences timed to coincide with the decision pinch-points which punctuate the building design process. SMART value management represents a decisive break with the American tradition of value engineering by rejecting both the optimising paradigm of operational research and the associated rhetoric of 'function analysis'.

The methodology is justified with reference to the established typology of social science. Its feasibility depends upon the extent to which it is commensurable with the implicit metaphors which the project stake holders use to understand the client organisation. The practical application of the methodology is evaluated by means of a case study approach conducted in accordance with the principles of naturalistic inquiry. Additional evidence is cited to support the claim that SMART value management is generalizable beyond the specific domain of the case study. ❑

Book Release

Dissertation Research and Writing for Construction Students

The book on Dissertation Research and Writing for Construction Students has been published by Butterworth Heineman, Oxford, in February 1998, Price £14.99. The Author is Dr. Shamil Naoum - School of Construction - South Bank University.

Further details are included with this issue of the Newsletter.

profile... you know who!

'a descendant of a 19th century builder'

David W Cheetham by John Lewis, the University of Liverpool

When David Cheetham took the opportunity of the "offer he couldn't refuse" in the Summer of 1996 and left the University of Liverpool after 22 years, he told his colleagues that his retirement would give him the chance to really get his teeth into some work he been meaning to do for some time. Those of us who knew David, knew also that these were not the empty words that accompany most retirees' receipt of the "golden handshake"! David is still active in research and teaching and his CV, which at that time ran to twenty pages and over eighty publications, continues to grow apace. My task of summarising his career is made difficult not simply by its length and breadth, but also by the fact that at any time he is likely to undertake some new activity or initiative which will require me to rewrite the story!

David was born in Manchester in 1942, and after secondary education at the famous Chethams School, he took the first steps along the road to a career in Building by joining the BSc in Building Technology at UMIST in 1960. When he graduated in 1964 with a 2(i) Honours he joined Bovis and spent the next three years working as Technical Assistant and later as Contracts Supervisor.

David's career in research made real headway with his appointment to the post of Junior Research Fellow at the Building Research Station in 1967. Here he undertook work including studies of labour employment practices and turnover which was considered as evidence by the Phelps Brown Committee, before which David appeared on a number of occasions. Further work, on trades operatives' skills, involved collaboration with the CITB, and involvement in the development of their "New Plan for Training".

In 1970 David left BRS to join the academic staff of the Department of Civil Engineering and Building at Lanchester Polytechnic. At Lanchester, David's teaching included Construction Technology and Land Surveying at degree level, and he was also able to develop research interests in materials and technology, topics which still feature in his interests. This work resulted in a number of publications on building defects and generated further studies which were to dominate David's research for the first few years of his tenure at the University of Liverpool which followed from Lanchester.

David's publications on studies of building defects have landed him in hot water on a number of occasions. The Principal Engineer of a city council recognised the cracks, alarming deflections and stalactites which were used (anonymously) to illustrate an article, as those which afflicted the buildings he controlled. The Engineer demanded that David be reprimanded, but thankfully, he was able to repulse this attack successfully, on grounds of academic freedom. The problems were not always of David's own making. On another occasion, a sub-editor's attempts to "spice up" a sober, considered piece on problems in timber-framed construction proved too successful. The pages of the journal were filled with correspondence and response for several weeks. David's ingenuity was taxed to the limit in justifying the reporting of poor site practices at a time when a major housebuilder was on the verge being destroyed by TV publicity on the problems of timber-framed housing.

David joined the then Department of Building Engineering at Liverpool in 1974 undertaking research and lecturing. The early 1980's were difficult times for the discipline of building at Liverpool and the survival of the faculty became the focusing point. Thus, when David was appointed to the role of acting Head of Department in 1983, he faced a daunting task. It says much for the determination and perseverance which the staff, under David's leadership, displayed that the Department survived this period, and indeed emerged from it stronger, albeit differently aligned.

The solution to these problems, which David was instrumental in devising, was to formalise the existing relationship with the University's School of Architecture to form the School of Architecture and Building Engineering, under the headship of Professor John Tarn. This change, which formally took effect in 1985, was more than a pragmatic survival measure, as one of its principal results was the establishment of a new degree programme - the BA in Building Management & Technology, which recruited its first students in 1986.

After the amalgamation, David remained the leader of the "Building" group in the combined School for a number of years. During this time his role was not limited to the development of the new course, he also managed the reorganisation of the Building Services Engineering degree in the three years following the merger. These efforts were acknowledged in a number of ways. Firstly, by the Chartered Institution of Building Services Engineers when they awarded David the status of Companion of the Institution in 1986. Secondly, (more importantly) from the point of view of his bank balance, by David's promotion to Senior Lecturer in 1987.

You might be excused for thinking that during this period of dramatic change and increasing administrative workload, that research output might have dried up – you are wrong! David's work over this time spanned from the study of problems in timber-framed houses, via investigations into rain penetration through external cladding and the effective use of hand held power tools on site, to the study of the information needs and flows in the contract administration process. The second of these topics generated much interest internationally, and has been developed further in Canada and New Zealand. The later two topics established themes which persisted in David's work well into the 1990's.

During the late 1980's and early 1990's, the major investigations into information flows in the contract administration process were extended from client organisations and in-house Architectural services divisions, through collaboration with a major contractor, into the production side of the industry. This work, in turn, identified Quality Assurance systems as being of particular relevance, and this topic continues as a theme in his present work. The work however, has left David sceptical of the benefits of ISO 9000 Quality Systems in construction. Having traced information through many layers of hierarchy, he found that too often it ended in the hands of workers who were only recruited last week, who had had no sight of the drawings or knowledge of the specifications for the work they were doing. David is convinced, and will attempt to convince anyone who will listen, that clients will regret the passing of the Clerk of Works. In our transient, mobile industry, the effective inspection of work in progress will yield better results than an audit of records completed by "D Duck" and "M Mouse"!!

In parallel with the above, David's earlier work on power tools was extended, through collaboration with a colleague in the University's Department of Electrical Engineering, to a more general study of power distribution on site. New research topics also emerged in his work during this period, most notable amongst these was an interest in "Design Against Vandalism" and David's appointment to the role of research manager for a major study of the topic funded by CIRIA.

In recent years David's productivity has not declined. As well as continuing and completing the work described above, he has studied the historical development of the organisation and management of construction. This work has centred on studies of the work of the pioneering management researcher and building contractor, Frank Bunker Gilbreth around the turn of this century. The fact that he has subsequently discovered that one of his own ancestors, James Drake Davidson, was a Builder and Architect who was active in housing and commercial development in Manchester and Salford in the 19th Century, gives him further stimulus to continue this strand of work. The fact that Davidson, most of whose work may still stands, originally hailed from Yorkshire has gone some way towards weakening David's chauvinism as a "Manchester Man", though he readily admits that he will never be a "Liverpool Gentleman". If all the above has given the impression that David must have spent most of the last thirty years locked away in some academic garret, let me correct that impression. He has also given unstintingly of his time to the CIOB, of which he has been a corporate member since 1969 and a Fellow since 1986. His roles have included Liverpool Centre Chairman, North West Regional Chairman and National Council member.

At the international level, David has been active in CIB for many years. He is a member of W65, was instrumental in organising the workshop which resulted in the formation of W92 and was joint coordinator of the latter Working Commission in the first two years of its life. In addition, he has been active on the organising committees of international conferences and symposia too numerous to list here.

As you might expect, all of the above activities have given David a taste for foreign travel. In recent years he and his wife Margaret have found that the move of their son and daughter away from home has been compensated for by the wherewithal to indulge that taste. I give fair warning to anybody who, relaxing in the bar after the conference session, asks David what his holiday plans are – you'll be there until closing time! In the last two years alone the venues have included Canada, Africa and Eastern Europe, and since a conventional package trip never quite meets their needs, the organisation of these expeditions has given David a new field in which to indulge his passion for organisation.

As I suggested earlier, retirement has not resulted in any noticeable reduction in David's activity. He retains a part-time teaching post at Liverpool, and, as if this wasn't enough, he has returned to his alma mater at UMIST to ensure their current crop don't escape without a thorough grounding in engineering economics and investment appraisal. Additionally, he has taken on the role of HEFCE Subject Specialist Assessor and retains his External Examiner posts in a number of institutions. David was never short of interests outside work and I suspect that the Liverpool Rotary Club and Skelmersdale Ecumenical Centre, to name but two, will be benefiting from more of his input.

I asked David if there were any issues or current interests that I might use to wind up this piece. True to form, his response was prompt and copious. So if anyone out there needs an article, lecture or just an informed, balanced opinion on: the joint education of the professions, the need for the QS profession, the abolition of payment by monthly valuation or the impact of the professional structures of the industry on its adoption of innovation, you know who to ask. ❑

dialogue box..

a- Hay, I liked your paper in ECAM vol 2, 96, but why by Bowen and Bowen, who is the other Bowen?
b- No one, its me.
a- What!? you mean it is by you and yourself?
b- Yes.
a- But, why?
b- Because, for the RAE, each half counts for 0.7 of a full paper and two 0.7s add-up to 1.4 points.
a- That is clever, I am going to do the same for the next round of RAE, thanks for the tip.
b- Sure. "fool, he doesn't know that we are changing the rules for the next RAE". ❑

The Changing Research Culture in the Construction industry

Report on ARCOM workshop on 28th May 1997 at Strathclyde University

David Boyd

The research environment in construction is undergoing profound changes. This seminar intended to update all those interested in construction research either as a researcher or as a user of research findings. It included four presentations by programme managers from construction research: John Findlay of CRISP/IMI, Anita Longley of Foresight Programme, Neil Jarratt of DoE/PiT and Jackie Williams of EPSRC. Each presenter laid out the strategies of their funding body and from this distilled the criteria used for assessing applications. These were official presentations therefore the discussions tended to focus on the operational details rather than on an evaluation of strategy or purposes. However, the seminar did raise a number of important issues.

The first of these issues was that there is a failure in the translation of research findings into practice. Thus, consideration of dissemination of information across the fragmented industry and particularly to small and medium enterprises was considered critical. The main approach to handling this at the moment is to draw the client into the research process alongside the Government as funder and the researchers as practitioners. It did appear however, that the clients were always the same companies, or at least with the same character; thus, a particular stakeholder influence was being promoted. In addition to this there has been a change of focus away from technology and issues such as procurement on to the wider performance issues surrounding the construction process. Indeed CRISP is searching for a generic project process model from which tool kits can be produced to enable technology transfer.

The second issue that was identified is that the industry is poor at long range planning. Thus, in the spirit of the 1990s, there is a desire to engender a culture of innovation. To this end the Government is setting up a Construction Futures Unit and is studying case studies in innovative organisations. Although there are also some conventional technological developments such as the creation of the Virtual Reality Centre at UCL more substantive issues such as social and environmental consequences, the creation of the built environment for an ageing population, and the development of indicators for sustainability, will also feature in the programme.

The DoE is promoting a move away from pure technological research to enable an expansion in work on motivation and the construction process. However, these softer less well defined areas, are placed within a 3rd generation R&D model which declares itself as 'market led' research and innovation.

The final issue considered was the re-organisation of the EPSRC and the position of construction in this endeavour. Of critical importance was the fact that there had been some criticism of the quality of construction management research. This criticism has been generated from the industry not finding the work of people appropriate and from academia itself in its critical stance on colleagues. This negative view is now more damaging as construction management research has lost its specific identity in the EPSRC being subsumed into general built environment research within the Engineering sector. There seems to be a need to promote research more within the industry

see ARCOM workshop.. on page 8 ➔

the light side.. please share yours with the rest of us

Some frightening thoughts. The 'forwarder', from USA, wishes to remain anonymous (Nahid Zahedani is a funny name is it not?)

1. If someone with multiple personalities threatens to kill himself, is it considered a hostage situation?
2. Instead of talking to your plants, if you yelled at them would they still grow, only to be troubled and insecure?
3. What's another word for synonym?
4. Isn't it a bit unnerving that doctors call what they do "practice"?
5. When sign makers go on strike, is anything written on their signs?
6. When you open a bag of cotton balls, is the top one meant to be thrown away?
7. Where do forest rangers go to "get away from it all"?
8. Why isn't there mouse-flavored cat food?
9. Why do they report power outages on TV?
10. What should you do when you see an endangered animal that is eating an endangered plant?
11. Is it possible to be totally partial?
12. If a parsley farmer is sued, can they garnish his wages?
13. Would a fly that loses its wings be called a walk?
14. Why do they lock gas station bathrooms? Are they afraid someone will clean them?
15. If the funeral procession is at night, do folks drive with their headlights off?
16. If a stealth bomber crashes in a forest, will it make a sound?
17. If a man speaks in the forest and there is no woman to hear him, is he still wrong?
18. If a turtle loses his shell, is it naked or homeless?
19. Why don't sheep shrink when it rains?
20. Should vegetarians eat animal crackers?
21. If the cops arrest a mime, do they tell him he has the right to remain silent?
22. Why do people who know the least know it the loudest?
23. If vegetarians eat vegetables, what do humanitarians eat? ❑

What IT developments can offer the Construction Project Manager

Paul Bailey, Micro Planning International Ltd

Communication is the key to it all

The importance of communication is something project managers have understood for a long time. After all, how can you expect to get something done, if the people doing the work do not know what to do or when to do it! Therefore, a key element in project management has always been talking to the people actually doing the work to discuss durations, resource requirements etc. Early and consistent involvement in the project ensures a greater commitment to deadlines from the foremen and workers.

The good news is that the current trend is towards greater integration between different systems - both hardware and software. Improvements in communications and network technology have seen the growth of network services (Internet etc.) and these have coincided with a period when companies are expanding outwards into the world making communications a key issue for successful businesses.

The current need for builders to control costs has led to even greater interaction between contractors, engineers, surveyors and architects. In the past, each went away to make their own calculations returning to fight over any discrepancies - now they produce joint surveys and one mutually accepted calculation upon which to base material, labour and plant requirements and their associated costs. This change in working practice coincides with a greater acceptance of computerised systems - largely thanks to the easier to use graphical interfaces - and the expansion of project management systems.

Having easy-to-use desktop systems and simple planning tools that enable all project participants to plan and monitor their separate sections of the project is undoubtedly useful in terms of saving time and ensuring greater accuracy, but each individual section must be incorporated into a single overall plan if everyone is to be kept focused on the single goal. Projects that involve many different organisations (or even many different departments within a single organisation) can become very large themselves - a way must be found to keep track of each section without losing sight of the complete picture.

Most project management systems offer a facility which allows large projects to be broken down into manageable portions - sub-projects. This is simply a means of dividing up your plan into more than one network diagram - all of which are then linked through the use of interface events to ensure that logic constraints are maintained.

Using sub-projects to incorporate subcontractors plans

Of course this system can be used to consolidate plans as well as divide them. The individual plans produced by subcontractors can be brought in as individual sub-projects within a single large program.

Let's consider a house builder with a small team of 'regular subbies' for a minute. Each house the company has under construction is a 'one off' in terms of design and/or location. They will be constructing several different houses at the same time and each house is required to be finished by a different completion date to meet contractual requirements. In effect, each house is a separate project but to complete the work there are only a limited number of people with the required skills (resources) and limited equipment (more resources), and to call in additional subcontractors is expensive (cost constraints) and requires coordination well in advance if they are to be effective. Allocating each house to its own sub-project keeps control of a complex situation such as this and makes the company's clients, other managers and supervisors aware of the overall consequences of any requests and actions concerning one particular house.

For a small house building company concerned with a single site development this arrangement will work well. For larger companies with many projects occurring simultaneously in many different locations, an organisational approach is the only effective way to manage all ongoing projects efficiently. Without a way to deal systematically with the plethora of projects undertaken and the limited resources available, problems may remain unnoticed until too late and more projects will continue to be commissioned, further exacerbating the problem.

Fortunately, the move towards Open Systems and improved methods of data transfer between different software packages and different hardware platforms are effectively removing the last barriers to communication within organisations.

Project information can be distributed more easily than ever before allowing all project participants to be aware of the role they have to play. In addition, information can be consolidated for a truly global view of an organisation's commitments - not only in terms of contractual deadlines, but also resource and cost constraints. This global approach allows an organisation to implement total solutions with departments sharing vital resources according to project requirements rather than management whims.

To ensure that all project participants know precisely what is expected of them detailed short term control information must be produced and distributed. This involves printing personalised short term schedules for each subcontractor and trade foreman detailing only their work. Good project management software offers extensive sorting and selection procedures to allow you to tailor information displayed in reports specifically to the recipient's needs.

Communications from dusty, far flung construction sites to the home office and to clients used to be confined to expensive long distance telephone calls or handwritten memos sent via equally expensive overnight mail. With portable computers at their disposal field supervisors can be more efficient in charting the flow of supplies and labour around their sites. Built-in fax/modem links and improved communication facilities allow information to be transferred between head office and project sites (no matter where in the world they might be) quickly and efficiently ensuring that everyone is kept up to date with anything that may affect the project.

Using communication links to stay in control

An extra bonus is good public relations! Clients or senior managers who drop by the temporary field offices often expect to find dusty digs lacking in amenities. Instead, field offices can offer state of the art construction technology with supervisors able to print out job cost estimates, progress reports and memos quickly and efficiently.

There is certainly plenty to think about and more than enough to choose from. Project managers are used to defining goals and working successfully towards them; when it comes to choosing which technological route to take, the same principles apply. ❑

ARCOM'98

9 - 11 SEPTEMBER 1998
University of Reading

The exploration of current advances in construction management research is a continues mission of ARCOM conferences

The call for papers for the 1998 ARCOM conference is still out. We are looking forward to welcoming you at Reading, UK, 9-11 September.

More details available on:
www.reading.ac.uk/AcaDepts/kc/ARCOM/conference.html
(case sensitive)

Also, you can contact Will Hughes.
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Reading, RG6 6AW, UK.
W.P.Hughes@reading.ac.uk

← ARCOM workshop.. continued from page 6

so that it is appreciated and that we are less critical with each other.

My thoughts on the day centre around the fact that these government organisations did not have co-ordinated nor deep understanding of the construction industry. They were relying heavily on a rather simplistic process model and a good degree of wishful thinking. The big clients for research had substantive influence on the direction but this may be creating a distorted picture where they are promoting their own advancement. In addition in this slightly hyped environment, there is very little critical comment. Thus, all research that is funded has to be successful therefore it is! Although there was only a small attendance for this workshop it was very successful. David Langford must be complemented on bringing together these disparate agencies which allowed us an overview of the research funding environment.

news & events — please send your news

- The CIBSE National Lighting Conf., 5-8 Apr 98, Lancaster, UK,Fax:44-181-675-6554
- Knowledge Transf. Through Multimedia & VR, 6-7 Apr 98, Cairo, Fax:44-171-700-7447
- BIS'98, Business Inf'n System, 22-24 Apr 98, Poznan, Poland, Fax:48-61-866-89-24
- European Cons. Inst.9th Annual Conf., 26-27 Mch 98, London, Fax:44-1323-644904
- Int. Rch Symp. Eng. & Const. in the 21st Century, 8 Jun 98, Sweden,Fax:31-10-433-4372
- Symp. Indoor Air Env.& Sustainable Cons., 9-11 Jun 98, Sweden, Fax:31-10-433-4372
- Symp. Managing for Sustainability Endurance 9-11 Jun 98, Sweden, Fax:31-10-433-4372
- Symp. Legal and Procurement Practices, 9-11 June 98, Sweden, Fax: +31-10-433-4372
- Symp. Materials & Tech. for Sust'ble Cons., 9-11 Jun 98, Sweden, Fax:31-10-433-4372
- Cons. Econ. in the 21st Century, 23-26 Jun 98, Queens Town, NZ, Fax:64-4-473-2918
- 5th Australian Masonry Conf., 1-3 Jul 98, Callaghan, Australia, Fax: +49-21-6991
- Int. Conf. BEAR '98 on Buld.Educ'n & Rch., 9-10 Jul 98, Brisbane, Fax:31-10-433-4372
- 5th ISPE Int. Conf. on Concurrent Eng., 15-17 Jul 98, Tokyo, Japan, Fax:81-425-83-5119
- Information Visualisation IV'98, Jun 98, London, Tel: +44 171 8157261
- Managing Knowledge Transfer, 21-22 Jul 98, London, UK, Fax: +44-171-700-7447
- IT for Design, Collab'n, Maint. & Monit, 26-31 Jul. 98, Switzerland, Fax:41-21-693-4748
- 15th Int. Congress on Cybernetics, 24-28 Aug, 98, Namur, Belgium, Fax:32-81-71-71-00
- 3rd Asian Real Estate Society Ann Conf., 26-29 Aug 98, Taiwan, Fax:886-2-363-8127
- Knowledge Transfer in Practice, 2-3 Sep 98, Hiroshima, Japan, Fax: +44-171-700-7447
- COBRA 1998, 2-3 Sep 1998, London, UK, Fax: +44-171-334-3795
- Int. Workshop on Architectural Magt. 17-19 Sep. 98, Brighton, Fax: +31-10-433-4372
- African Real Estate Society Conf., Sep 98, Midrand, South Africa, Fax: +27 12 429 4573
- Conf., IT for Decision Making in Civil Eng., 11-13 Oct 98, Montreal, Fax:514-396-8584
- Product & Process Modelling in Buld. Ind., 19-21 Oct 98, London, Fax:44-1923-664549
- 2nd Int. Conf. on Sustainable Construction Autumn 98, LA, USA, Fax: +31-10-433-4372
- Int. Cong. on Open Building Implementation, Autumn 98, Taiwan, Fax:31-10-433-4372
- Magt.maint.& moder'n of Buld. facilities, 11-13 Nov 98, Singapore, Fax:31-10-433-4372
- Int. Conf. The Theory and Practice of Gearing, 17-19 Nov 98, Russia, Fax:0115-9486506
- 2nd SA Cons. Health and Safety Conf., 22-25 Nov 98, Cape Town, Fax:27-11-315-2931
- 1st SA Int. Conf. on TQM in Cons., 22-25 Nov 98, Cape Town, Fax: +21-949-7329
- Int. Conf. on Shelter in Africa, 22-25 Nov 98, Cape Town, Fax: +21-949-7329
- Condition Monitoring & Diag. Eng. Man., 8-11 Dec 98, Tasmania, fax:61-3-9905-5726
- Int. Workshop on Arch. Magt, 20-22 Mar. 99, Venice, Italy, Fax: +31-10-433-4372
- 2nd Int. Conf. on Safety and Health on Sites, 24-27 Mar 99, Hawaii,Fax:31-10-433-4372
- Int. Conf., Durability of Build.Mat.& Comp. May 1999, Vancouver, Fax:31-10-433-4372
- Conf, High Performance Concrete, 1-4 Jun 99, Brazil, www.fagg.uni-lj.si/cgi-bin/newdate
- Conf, Concurrent Eng. in Const., 25-27 Aug 99, Espoo, Finland, Fax:358-9-456-6251
- Customer satisfaction a focus for rch & prac,5-10 Sep 99, CapeTown,Fax:27-21-448-6263
- Workshop on Procurement Systems, April 2000, Santiago, Chile, Fax: +31-10-433-4372

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