

Enemies of promise

THE WORKING GROUP

The Housing Forum

The purpose of the Housing Forum is to bring together parties in the housebuilding supply chain that are committed and ready to become part of a movement for change and innovation in construction, renovation and maintenance. The Housing Forum therefore includes leading suppliers, housebuilders, professional institutions, social landlords, local authorities, constructors, specialists and consultants seeking to enhance quality, efficiency, sustainability and value for money in the social, public and private sectors.

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Acknowledgements

This report was developed and compiled by the Housing Forum Barriers to Change Working Group. This working group was made up of individuals from a range of organisations actively involved in the housebuilding industry that are:

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The Report sets out the consensus of opinion of the group. However, the views summarised are the personal views of the individual members of the group and they are not to be construed as necessarily representing the views of those organisations to which the individuals belong.



Foreword

Some recommendations of the Rethinking Construction report have successfully made their way into mainstream housebuilding and refurbishment practice but many have not, with the inevitable consequence that, conflict, bad working practices and inefficiencies are still prevalent in our industry.

This working group was therefore established with an unusual mission: to take a look at the housebuilding process and understand the reasons why Egan's prescribed innovations have not been more extensively taken on board by much of the industry.

As a working group, we have examined how the industry really functions, and explored the barriers to innovation that clients, contractors, housebuilders and developers, consultants and suppliers are confronting on a daily basis in their organisations' working relationships and on site.

In its research and debate the working party has recognised that industry effort alone is not sufficient to produce the world-class performance envisaged by Egan. Some of the barriers to innovation are regulatory and can only be overcome with the help of action by government continuing to work with the industry.

This report therefore makes a series of recommendations to be considered by the whole housebuilding and refurbishment supply chain, government and government agencies in order to remove barriers to change identified by our working group. It should not be seen as a report documenting blame but as a report that encourages the industry to continue to improve.

I would like to thank all the members of the working group for their contributions and the time and effort that they have put into producing this report.

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EXECUTIVE SUMMARY

Barriers to innovation and continuous improvement continue to exist in the Culture of client and construction design and supply organisations, in the Process of design and construction and in the Regulatory environment. These include:

Culture

- Adversarial contractual relationships that favour blaming rather than learning.
- Using initial cost as the key driver, rather than long-term value and performance.
- A focus on the needs of the producer rather than the consumer.
- Hierarchical, sequential supply chains.
- Some professional skills lagging behind.
- Lack of common objectives between different departments of the same organisation.
- Lack of commitment to training by organisations involved in construction.

Design and Construction

- Housing design is mainly based on construction methods that are inflexible and unable to respond to changing lifestyles.
- Design methodologies that could deliver choice and flexibility in the end product, and improve the site process are not well developed.
- The design professions have been marginalised and de-skilled in the area of housing.
- The potential for repeatability and standardisation has not been fully addressed, nor have the opportunities for increased levels of off-site fabrication.
- Prescriptive specification is not conducive to better technical and design solutions.

The Regulatory Environment

- Planning delays, uncertainties and lack of consistency in approach to residential planning and building control.
- Over-ambitious requirements in Section 106 Agreements.
- The potential of Joint Commissioning to conflict with developers' strategic partnerships.
- Section 20 of the Landlord and Tenant Act 1985.

Working Group recommendations:

Culture

- Partnering and the development of fully-integrated supply chains.
- Mechanisms for knowledge capture and dissemination within and between organisations.

- Developing methods to eliminate waste (material and human resources) and to measure added value and customer satisfaction.
- Training and information to assist in re-focusing professional roles that add real value.
- Supporting the development of new skills in partnering and facilitation.
- A greater focus from all organisations to training and lifelong learning.

Design and Construction

- A greater focus on future housing needs offering choice, flexibility and adaptability.
- Develop design processes that specifically address buildability – in particular relating to issues of tolerance, dependencies and interfaces.
- Work with the supply chain to develop off-site fabrication and pre-assembly.
- Integrate the use of IT across design, project management and construction.
- The design professions to re-establish their role in housing by taking on these issues.
- Significant progress away from prescriptive towards performance-based specification.

The Regulatory Environment

- The need for funding mechanisms in the public sector to reflect whole-life performance.
- While recognising that Joint Commissioning plays a valuable role in respect of strategic partnerships between local authorities and housing associations, the working group feel strongly that the Housing Corporation should review joint commissioning with regards to development.
- Local authorities to adopt a cross-department development team approach and to improve the pre-application stage in planning.

During the preparation of this report, a number of actions are being taken by the Department of Transport, Local Government and the Regions and the Housing Corporation to address some of these issues, these include:

- The Green Paper on improving the operation of the planning system published in December 2001.
- A proposal to publish a consultation document on the use and operation of Section 106 Agreements.
- Proposals to meet the current difficulties caused by Section 20.

The Working Group welcomes these moves and urges government to take note of the responses to the consultation and proceed in their implementation.

INTRODUCTION

Three years ago, the Construction Task Force reported on the state of the building industry, identifying both its achievements and shortcomings. Building on the previous work of the Latham Report, the panel led by Sir John Egan proposed an agenda for innovation in the procurement and production of construction projects, under the heading Rethinking Construction.

This initiative led to the creation of a new forum for the housing sector, the Housing Forum. Since then, the work of the Housing Forum has focused largely on what could be achieved by committed partners through a wide range of site-based refurbishment, new-build and repair and maintenance demonstration projects.

But the Housing Forum recognised that there were many other issues relating to the industry, some of which clearly constitute barriers to long-term and consistent change and innovation.

For these reasons the Housing Forum has sought views from all sides of the industry as to where these barriers to innovation lie, and how they might be addressed. The contributors to this study, who have been drawn from every constituency of the industry – contractors, consultants, developers, housing associations, local authorities, manufacturers and suppliers, have examined and discussed what we have perceived to be the underlying barriers to innovation.

Unsurprisingly, some of them were originally identified in the Rethinking Construction report of Sir John Egan's Task Force. But in our view they bear repetition to emphasise the fact that three years on, although there are many examples of positive change within the industry, there is still much more to be done and perceived barriers can be as hard to overcome as actual barriers. All of us engaged in construction cannot continue to lay the blame for the problems that exist within housebuilding on regulation, legislation and the volatility of the industry, even though these cannot be ignored.

The result is not a research report, but rather a distillation of the experiences of some of the many players struggling to improve the process and the product. Its intention is to provoke and focus discussion, and also to help us to identify:

- Those barriers that we have some power to address within our own organisations.
- Other barriers that are perceived to exist through regulation, legislation or current practices of other stakeholders.
- Some ways in which solutions can start to be developed within and between organisations.

Improvement in those external factors alone will not change the industry, its performance or its relationship with its customers. The achievement of better value through partnership and innovation requires new values, new attitudes, new skills, new roles, and new forms of organisation of all of us.

The Housing Forum has some excellent examples of project teams who have successfully overcome many of the barriers highlighted in this report in its demonstration project portfolio. These can be viewed in more detail on the Housing Forum website: www.thehousingforum.org.uk

1 CONSTRUCTION CULTURE

The dominant culture of the traditional housing construction industry might be characterised as one of:

- Blaming, rather than learning.
- Dominated by individual, rather than common, objectives.
- Hierarchical/linear, rather than team-based.
- Adversarial, rather than co-operative.
- Focused on the needs of the producer, rather than the consumer.
- Driven by initial cost as opposed to long-term value.
- Short-term solutions.
- Sceptical and reluctant to change.

These characteristics, individually and collectively, describe attitudes, practices and relationships that, while they may not be universal, are prevalent throughout the industry. This is a culture which itself poses formidable barriers to change and innovation, and which permeates all aspects of the industry.

Mapping the Culture

What are the perceptions from which this culture arises? We tend to characterise the industry as being at the mercy of economic volatility, unhelpful and unwarranted regulation, low profit on construction activities, and constant vulnerability to everything from weather conditions to a depleted skills base. These perceptions distract us from examining our own organisational cultures, relationships and practices, which at least collude with, and often reinforce, the effect of these external factors.

The Construction Task Force in its report identified five key drivers of change required to 'set the agenda' for the improvement of the housebuilding process. These were **committed leadership, a focus on the customer, integrated processes and teams, a quality driven agenda, and a commitment to people**. These drivers do directly confront this dominant industry culture.

Blaming and Learning

The ability to learn from experience is definably the main pre-requisite of improvement. Yet the 'walk away' culture of the construction industry does not set a value on debriefing and learning from completed projects, even where this might help to identify strategies for improvement. Procurement practices, and the relative infrequency of repetitive work for contractual teams, do not favour the mutual evaluation of successes and failures in the process. In contrast, potential contractual liabilities may offer active disincentives to the sharing of experience with other parties to the project.

Blaming, on the other hand, is valued by the industry as a valuable mechanism for avoiding the responsibility and costs of failure, and for shifting these costs between client and contractor, or downstream to sub-contractors and suppliers. A blaming culture within an organisation or a contractual relationship is a barrier to learning from experience, and hence to change and improvement.

Developing Objectives

Within any organisation there are a raft of objectives, often these are not fully acknowledged or examined and in some cases are even incompatible. They are most likely to remain so where the setting of objectives is a 'top-down'

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rather than a 'bottom-up' process. These conflicts arise naturally from the multiplicity of different roles and functions within an organisation, and their emergence should be recognised as healthy. Most commonly, however, conflicts between objectives result in hidden agendas, or objectives that are stated, but in ways that defy measurement.

This happens both in private sector organisations, in housing associations and in local authorities. For example many departments in local authorities – housing, planning, valuation, highways etc - are involved in housing development, yet structures for resolving inconsistent and conflicting goals and policies are often undeveloped.

In a project situation the same problem exists between the client and supply chain. Here adversarial relationships and contractual liabilities may encourage the concealment of what are assumed to be incompatible or 'unacceptable' objectives. This tends to foster distrust and a hardening of attitudes.

The logic of partnering requires that the individual organisation's objectives are measurable and fully articulated, so that measurable common partnership and project objectives can be negotiated and established. Developing objectives openly in this way requires an understanding of the cost, the real value and the deliverability of every point of negotiation. This requires high levels of skill and leadership to achieve.

Hierarchies and Teams

Most manufacturing industries have, for reasons of motivation, productivity and quality control, already made their move towards supplier partnering and team-based activity both in design and manufacture.

In contrast, the parties to housing development tend still to have hierarchical, rather than team-based structures. Construction project organisation, not surprisingly, tends to follow the same model.

Problems of buildability are only one of the consequences of this mode of organisation.

Much sub-contracting is not supply and fix. Labour-only sub-contracting exacerbates the exclusion from participation of those employed to carry out the work. Whether or not the client benefits from the savings generated by the contractor's ability to purchase components in volume, the sub-contractor is reduced to the rank of day-labourer, and typically has no resources for skills, training or better tools and technology.

There is hence no identifiable capacity for improvement in performance or quality at this level. Research at the University of Westminster has identified stark contrasts between the UK, Germany and The Netherlands: in the UK, we (less successfully) attempt to compensate for the absence of their multiplicity of skilled and well-equipped sub-contractors by establishing hierarchies of site control and supervision.

No amount of supervision will improve work carried out with inadequate skills and equipment.

Nor is the subcontractor likely to be invited to contribute his vital experience to the design or organisation of the job that he will be doing. This may have some bearing on the poor organisation and programming of many projects, where resources are wasted, and programme pressures render improvements in quality hard to achieve.

Team-based processes and self-organisation are a feature of more developed sectors of the manufacturing industry, where their value in motivation, productivity and quality control are well established. As with partnership, successful team-based working requires both clear and communicated objectives, and specific leadership skills in both the managerial team and workforce.

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Co-operation and Confrontation

Construction's macho attitudes and confrontational modes of operation are notorious. A generalised pattern of discrimination and a lack of positive equal opportunities contribute to the lack of respect between organisation and individuals that permeates construction, and discourages recruitment and commitment to the industry.

Also common in the industry is an absence of respect between trades, and between those on different levels of the organisation or contractual hierarchy. Teams do not properly function without mutual respect. Clients and other players are often as much responsible for these modes of behaviour as those on the contracting side.

Producers and Consumers

The provision of housing has traditionally been focused around the needs of the provider rather than those of the customer. Technologies, materials, aesthetics and processes have all developed to suit the organisational and economic needs of the building industry, without significant input from clients and customers other than aesthetically.

Technologies that suit the housebuilder are commonly based on commodity materials, site manufacture, traditional skills (however depleted), and there has been little or no incentive to invest in innovation regardless of potential longer-term benefits.

The Housing Forum's National Customer Satisfaction Survey of the largest housebuilders is an important step towards empowerment of the private sector customer. Consideration should be given to a similar survey among tenants of newly built and refurbished properties in social housing.

Cost and Value

Housing construction is still driven by first cost, as opposed to long-term value. In the selection of partners, the demonstration of lowest cost remains critical. And why would it not be, since lowest first cost is still highly relevant to funding in the public sector for new-build and refurbishment, and higher profit margins in the private sector?

Innovation follows an agenda. As long as lowest cost is a dominant industry goal, the role of innovation will be predominantly to reduce costs. The industry tends to behave as though lower cost is de facto the same thing as better value, even though we know perfectly well that this is a delusion. Without actual innovation lower costs will tend to indicate cost cutting, and a loss of value. Whether this is achieved by lower specification, poorer quality components and materials, or less choice, this is unlikely to result in a better product, or better costs-in-use.

This does not mean that there is no scope for savings in the building process. Many of the actual costs of existing methods are hidden or unacknowledged. Design that has poor buildability, inefficient programming and site management, waste and rework are obvious examples. These need to be exposed; and innovation needs to be directed towards reducing them, in order deliver better value. Initiatives like the BRE's Calibre programme have shown how significant cost benefits in these areas are achievable.

Among the Housing Forum's own demonstration projects, there are numerous examples of improvements and savings made through focusing on these areas.

We recognise that innovation will not necessarily generate immediate savings, due to the additional costs of

product development and learning processes. These are likely to generate, in at least the short term, real costs in excess of those to be expected from basic design and build process. In the public sector, innovation that adds real value needs to be rewarded through the funding regime. In the private sector, improvements in quality and lifetime performance can be quantified and marketed to the house-buyer.

A Culture Challenged

The Rethinking Construction message, with its implicit challenge to the prevailing industry culture, has not yet permeated the industry – or its clients. Most officers and members of housing associations and local authorities are still unaware of its objectives, methods and benefits, and in particular are extremely wary of what they consider to be the ‘un-auditable’ achievement of value to the public purse once competitive tendering for lowest cost is abandoned.

There is an equal wide-ranging lack of awareness of related management and industry trends, including lean and agile construction, and value management.

Recommendations

For organisations, however they are involved in the housing development process, the key enablers for achieving the benefits of Rethinking Construction will be:

- The development of common objectives across departments and functions.
- Mechanisms for capturing experience and measuring added value.
- The involvement in the team of all and only those who have the potential to add value.
- Training and information to assist in re-focusing professional roles.
- The development of new leadership skills to support partnering.
- The re-structuring of funding mechanisms to reflect long-term value.
- The elimination of duplication and wasted process time and effort.

2 BUILDING VALUE

Many of the benefits of innovation derive from improving the certainty and quality of the development process, and from the life-cycle economics of the building, rather than simply from reducing first cost.

A primary pursuit of continuous initial cost reduction, without addressing the fundamental change necessary to achieve the Egan Task Force’s other recommendations will result in failure, since it does not require organisations to properly consider what they perceive to represent value including the whole costs of process delivery as well as the product.

Organisations must define their objectives in terms of the measurable value they expect to attain from their achievement, and each individual involved in a partnering team must be aware of them, and have a clear understanding of how and when they will be measured. They must be prepared to share them openly with the rest of the team.

Defining Value

The European Standard on Value Management (EN 12973:2000) can be paraphrased as:

$$\text{Value} = \frac{\text{Achievement of Objectives over Time}}{\text{Use of Resources}}$$

This base definition is significantly different to the equation on which ‘lowest price/first cost’ decisions are made. Current tendering and design and build may deliver lowest tender price, but at the fatal cost of reduced long-term value through failure to meet specification and quality requirements as a result of the suppliers’ concentration on regaining the margin/profit discounted in order to win tender.

In a value-managed context, all costs, direct and indirect, internal and external, short and long-term, are addressed and quantified.

Value and Cost

Previously promoted definitions of ‘value’ is already a barrier to change. What is recognised as ‘value for money’ or ‘best value’ is commonly ‘lowest price/first cost’, because that is what both private and state funding regimes traditionally reward. We should also understand that ‘lowest price’ (that paid by the customer) may well differ from ‘lowest cost’, (actual cost to produce, excluding profit) since without an ‘open book’ environment it is very difficult to determine what actual cost is or should be.

Historically, publicly funded bodies have required a procurement strategy based on lowest tender. This is easily audited, and overspend can usually be laid at the door of consultants or contractor. The simplicity and relative lack of individual risk of ‘lowest price/first cost’ judgements on a project-by-project basis is attractive. As a definition of real value, however, it falls far short, particularly when the quoted price cannot be sustained in contract. The identification of value requires thinking outside the ‘project box’ to consider the full project from business brief through to life-cycle performance in use.

The private developer, with a task and responsibility that ends with the sale may consider there to be no great incentive to define value except by customer appeal at the point of sale, rather than value in use. This is beginning to change as buyers become more expert and demanding.

Understanding Value

Value, like objectives, is not static. Few objectives are achieved once and for all: they require repetition and maintenance. Only some aspects of value are achieved at building handover; other (and in some cases much more significant) value targets concern the costs of running and maintaining the building, and ensuring that it continues to meet the potentially changing needs and expectations of its future occupiers.

There is undoubtedly a fear of letting go of the simplicity and protection of first cost decision-making; but there are many commonly agreed objectives of the housebuilding process, which are impossible to achieve without a significant shift towards value management rather than cost management. These include taking control of the certainty and quality of the building process, and optimising the flexibility and whole-life costs of the building. This will also generate greater satisfaction and reduce frustration amongst those involved.

We are familiar with some aspects of this, as, for example, when particular building details are shunned because of their maintenance requirements, or decisions are made in the area of energy performance. But decisions at this tactical level have only a relatively limited effect on the totality of the process and product: strategic value-based decisions on, for example, the need for flexibility to meet changing circumstances and client needs in the future, and on procurement strategies have a far wider potential for change and value-enhancement.

Developing a Value Process

Moving to a value-driven process is an enhancement of business planning. The objective is to create an environment in which all approaches, parties (external and internal) and technologies can be evaluated in terms of the added value they can bring to the project, both individually and collectively. From this process, a solution can be developed based not on lowest/first price, but on best long-term value.

Many organisations may not be able to champion and resource such changes from internal resources, and may need to employ external facilitators who specialise in Value Management and Partnering.

There does however need to be a review of the input of the construction professionals that focuses on added value. Consultants and inspectors should be engaging their skills positively and proactively and only be involved if they will add real benefit to the project.

Recommendations

The pre-requisites for establishing a value-driven process are:

- A comprehensive set of measurable objectives 'owned' across the organisation.
- An agreed definition of what represents value in the product and process.
- A methodology for value decision-making.
- Mechanisms for capturing and applying past experience.
- An open mind.

3 DESIGN AND CONSTRUCTION

Housing design is still largely based on traditional construction, which can create an inflexible product. Design methodologies that could deliver choice and flexibility in the end product, and improve the site process, are not well developed. The design professions have been marginalized and de-skilled in the field of housing.

Good building design is central to both the success of the construction project and the extent to which both the short and long-term objectives of the building owner and occupier are met. Good process design – a fundamental feature of any manufacturing environment – is equally important, particularly for the control of quality and the predictability of the project.

Process design in construction, and particularly in housebuilding, is relatively undeveloped, and therefore tends to be subverted by the conflicting objectives of the parties, with damaging consequences.

Construction has traditionally been – in marketing jargon – an 'over-the-wall' process. Key players have passed their requirements and their outputs to the next internal or external client without the opportunity for collaborative development of the product, and without the mechanisms for review and feedback. This tends to create a linear process, where assumptions remain un-shared and problems or errors are compounded.

The emphasis on partnering and co-development brings opportunities for initiating and developing collaborative and simultaneous design processes in order to optimise the product to meet the end client's requirements. The ability to share and negotiate objectives, and to use the mutual experience of the partners to repeat and improve on successes is an established process in other manufacturing industries. Procedures and products that add value and satisfy mutual objectives can be standardised within an ongoing partner context. These processes, however, require collaborative design as part of the partnering exercise.

Flexibility and Adaptability

Demography, technology and lifestyles are all likely to change dramatically over the life of a building. Today's housing product, with its ungenerous spaces and restrictive technology – roof truss systems are but one example – is inherently less able to adapt than the Georgian and Victorian terraces that are still with us.

Needs for flexibility and adaptability vary between sectors. Owner-occupiers can generally meet changing needs by moving. Social housing providers, however, require stock that will meet future needs, and the ability to change unit sizes and internal spaces, and to add facilities may become increasingly important. Flexibility and adaptability have a cost, and must therefore be targeted on clear requirements.

Maximising space standards also adds potential for flexibility. Clear span structures, and design methodologies tuned to the possibility of future change, will also add value in this area. However, it is important to recognise that solutions that do not embrace process as well as design may run the risk of traditional site practices negating their advantages.

Design Methodology

Housebuilding currently relies on sequential, multi-trade processes on site, which inevitably involve overlaps in programme and implementation, and thus create a network of mutual dependencies. Building design should seek to identify discrete packages and clear interfaces in such a way that dependencies between processes and systems are minimised. These may open up the advantages of multi-skilled tradesmen or specialists, or at least multi-disciplinary subcontractor team working, but this must be explicit from design stage so that, again, the benefits are not lost by traditional sub-contracting on site.

Separating the building shell from the fit out (the Open Building approach) may be the single most beneficial rationalisation of the process, enabling both the building envelope and the interior to be optimised and integrated. Designing for all services to be zoned in the fit out, rather than traditionally buried in the structure, opens the door to opportunities for pre-fabrication, an improved site process, and services accessible for adaptation and upgrading in the future.

At the present time much effort is devoted to variations in interior layout on larger developments. These often give little functional choice, and are not changeable thereafter. The starting point should be to design for variability within a standardised shell; the design of variations can then be carried out in a way that preserves future flexibility.

Standardisation and the Supply Chain

The housing product is relatively simple, and addresses a set of common requirements and expectations. The potential for repeatability and standardisation is therefore high, and many components are already standardised to some extent. There is still considerable further scope for standardisation, and for its extension to the off-site volume pre-fabrication of larger assemblies.

This is not new to housing production and renovation; packaged assemblies have a successful history in Europe, and also in the UK. The potential for clients (or consortia) with volume requirements to standardise on a range of assemblies is considerable, and must have positive implications for building costs.

There is already some experience of both social housing providers and private developers finding benefit in developing longer-term direct relationships with manufacturers and suppliers at a non-project-specific level. Commitment and volume increase the possibilities for developing a product specific to the client's needs, and at a controlled level of risk. The potential of bringing design and manufacturing into a partnership of mutual objectives and project feedback provides the best possibilities for controlled innovation and continuous improvement.

Where future maintenance is integrated within the partnership, the product supplier also has a direct stake in the long-term costs and performance of his product, as is now a feature of housing PFI approaches.

Standardisation may have an unjust reputation for restricting design choices; designed and used creatively, it has the ability to create a flexible vocabulary of solutions to an increased range of requirements.

The Design Professions

The design professions have suffered a degree of marginalisation due to changing funding and procurement strategies. Fifteen years of design and build have resulted in a de-skilling of many architectural practices. The increased separation of the 'concept' and 'working drawing' functions, and the control of the project by the contractor has not improved architects' grasp of buildability; and they have lost the overall responsibility for the quality and success of the finished building. The quantity surveyor has also traditionally been primarily concerned with client wishes for initial lowest cost.

This is likely to continue (and to the detriment of housing design) if the design professions do not continue to respond constructively (and even pre-emptively) to partnering, and to the changes and re-focusing of professional roles that partnering demands.

There is, however, still great scope for the professions to re-establish their centrality by developing client-focused design methodologies, by involving themselves in component and systems integration value management, and by addressing the control of quality and the predictability of the construction process. In the Housing Forum demonstration projects there are many examples of quantity surveyors and architects successfully taking on these challenges and being party to the rewards the whole project teams are reaping.

This has important implications for the professional training of designers, which has yet to respond significantly to the shifting of roles within the building process.

Real partnering will require all parties to the housebuilding process to embrace an IT environment with a higher level of functionality, enabling an integrated design and project control database with shared design and component performance data. Some of this may be able to be achieved by technology transfer from the commercial construction sector.

Recommendations

To improve the design of housing, it will be important to

- Develop scenarios for future needs, so as to assess requirements for choice, flexibility and adaptability in the design.

- Develop design and process methodologies that specifically address buildability, in particular issues of tolerances, dependencies and interfaces.
- Identify and develop appropriate levels of off-site pre-fabrication and pre-assembly.
- Look for opportunities to develop sector-specific products and assemblies in consortia.
- Integrate Information Technology across design and project development.
- The design professions must re-establish the centrality of design by taking on these issues.
- Training must be available for design professions to take on these issues.

4 PROCUREMENT

Methods of procurement affect the nature of the product and how it is produced, and hence have considerable, and in the past, unhelpful influence on the progress of change and innovation.

Far from encouraging change, traditional forms of procurement have helped to reflect and reinforce an adversarial industry culture.

Uniquely, partnering appears to offer a way forward by forging a commonality of interest on the basis of measured and shared risk and reward, and continuous improvement by collaboration. Far from being a simple 'feel good' solution, partnering challenges at the deepest level every pre-conception and attitude on which the industry is currently founded, and progress towards it is likely to require both commitment and determination.

If we can unite in agreeing that partnering, either as we recognise it now, or something akin to it, represents our best way forward, we should clearly recognise where the threats to its progress may lie. Some of these we have discussed in relation to other themes, but they can be briefly re-stated. Others relate specifically to partnering and its needs.

Rethinking Procurement

Traditional tendering on an architect's full design and a QS specification enables the competent client - with competent consultants - to get the building more-or-less as designed and at a specified level of quality. The client's control of out-turn costs and programme, however, may be less certain.

The contractual relationship is adversarial, with consultants employed on both sides to take advantage of any weakness exposed by the other party. The use of design and build among social housing providers effectively reverses the balance, and transfers the risks of the on-site process to the contractor, at the cost of a reduced control by the client over quality and detail.

Partnering proposes that if the parties to construction can be brought together in an open, collaborative and ongoing relationship, they can be motivated to perform better, to reduce and share risk, to maximise and share profitability or benefit, and to generate continuous improvement in the product. This, of course, implies a radical restructuring of the traditional relationships and roles of all parties to the construction process, and of a whole industry culture. It represents not merely a change in procurement strategy, but a fundamentally different industry, requiring people with very different mindsets and skills.

But these advantages are only going to derive from partnering if other issues are addressed. Innovation and process change have significant costs, and they compete for resources with, amongst other costs, those of the procurement process itself. Learning and preparing to partner has costs, perhaps greater even than those of competitive tendering. And the complexity and cost (as well as some of the criteria) of PFI preparation may leave few resources for progress towards innovation.

Risk

Risk has always been a fundamental driver of construction procurement practice. Some aspects of risk are particular to each player – their performance in the process, their own external environment. Others arise from an external environment common to all – industry and financial conditions, even the weather. We can see that many areas of risk – for example, those occasioned by incompetence, poor planning and control, or a lack of clarity about objectives - can be reduced by improvements in production and process, even if they cannot entirely be eliminated.

Controlling risk has its own costs. We may insure against it, we may over-specify or over-estimate, we may employ staff, consultants and time-consuming procedures to reduce it. If all else fails, we traditionally try to ensure that some other party bears the costs and consequences of risk.

In contrast, it is fundamental to partnering that risks and responsibilities should be shared, and it is therefore necessary that risks, like objectives, should be clearly mapped and allocated between partners. The new partnering based contracts anticipate this, through the early production of a project risk matrix.

Project and Strategic Partnering

It is important that the essential differences in scope and potential of project and strategic partnering are understood. It is equally important that funders and regulators do not either expect, or raise expectations in others, that the sort of gains that are achievable in strategic partnering over time can be delivered in the short term on a project-by-project basis.

While we are obviously going to test out both process and potential partners initially, the real gains will come from longer-term strategic partnering relationships with substantial investment in organisational change and re-focusing from the participants. This is because the gains identified are those that will arise from a process that meets the client's long-term objectives, that offers continuous improvement of the process and product, as well as the economic advantages of certainty and volume repeatability.

Gains and savings can be made from a successful project-based partnering relationship, but they may not be repeatable with another project or another set of participants. If the internal costs of setting up a project partnership are taken into account, they may result in a project budget well above those that might still be achieved by competitive tender and design and build contracting.

The real benefits of partnering attach to repeatability of the underlying design and specification, volume over time, and the continuity of the participants. These characteristics of strategic partnering alone have the capability of generating continuous refinement and improvement of the end product and its costs.

Repeatability

Repeatability, a critical driver of improvement in product and cost, also raises fears. We have a strong sense of our housing - even leaving aside the requirements of the planners and regulators - that we do not want housing that is 'the same'. The fears are expressed that any movement of housebuilding towards manufacture, or prefabrication, will reduce choice of functionality and appearance. However easily we can demonstrate that the true potential of manufacturing, as established in most other industries, is exactly the opposite, the concern remains.

It is not so simple as a requirement for a continuing volume of homes that are all the same, but rather for a standardisation of details, relationships and processes between the parts of the building, that work however they are configured. It is a common experience that the areas of the building over which we often seek to give choice –

kitchens, bathrooms, heating and doors – are those which seem to generate the greatest number of defects. These are also all assembled from mass-produced products that potentially install and perform in the same way, and the failure is often at the interface with the site-built structure.

Information and IT

Most industries have learned that the improvement of communication is another pre-requisite for progress and change. We have discussed previously what needs to be communicable: what remains is the mechanics of information management.

Innovation in procurement requires the development of common IT systems to communicate, store, develop and access information. IT will need to become a core skill for all those involved in the process, which implies increased emphasis on education and training. The focus on IT functions needs to be a key corporate priority.

Driving Forward Rethinking Construction

The enthusiasm of the Housing Corporation for the Egan agenda rightly reflects the general dissatisfaction of social housing developers with their current methods of procurement and the quality and uncertainty of its product.

Organisations funded by the Housing Corporation are required by the Corporation to commit to obtaining chartered client status and to this end are required to provide details of how they intend to move towards full Egan compliance.

There is also a move towards the measurement of outputs, though methodologies will take time to refine, and are likely to require significant increases in skills and resources. The Corporation will have to manage this strategy carefully so that it is firmly embedded within the sector – and its own policies – in order to achieve the long-term gains that are essential. A perceived over-emphasis on early achievement of capital cost reductions at the expense of other Egan objectives, for example, may undermine strategies based on whole-life value.

Any faltering of its commitment would send out a misleading signal to housing associations. Rethinking Construction must not be seen as just another passing initiative.

Currently the Corporation's funding regime is perceived as placing too much emphasis on initial capital cost. The issue of the relation between capital cost and revenue – the long-term running costs to both tenant and landlord – is an important one for the Corporation to address.

The principle has already been usefully exposed in PFI projects, where bidders have to look at everything from the cost of boiler and window replacement to day-to-day repair and maintenance costs.

Recommendations

Progress towards the implementation of partnering requires:

- Recognition that the real goal is continuous improvement and long-term added value from strategic relationships.
- Including the supply chain in the partnering process.
- An integrated and shared risk assessment across the project.
- Continuity of teams and repeatability of design methodology.
- Better integration of IT across the team.

- Combining capital and whole-life performance issues in initial funding to housing associations.
- A detailed understanding and review of process/management functions and cost.

5 PLANNING, BUILDING REGULATIONS AND LEGISLATION

This section considers the implications for Egan compliance and innovation, of:

- The planning guidance system.
- Section 106 Agreements.
- Joint Commissioning.
- Local Labour in Construction.
- Scheme Standards and Employers' Requirements.
- Other incompatible Legislation.

This section of the report should be read in the context of the government's commitment to review the planning system and Section 106 Agreements.

Planning Guidance

At a national level, progress on Regional Planning Guidance (RPGs) is unacceptably slow and uneven, and crucially continues to fail in delivering a clear message on housing numbers and on the release of Brownfield land. The hierarchy of planning guidance is also poorly co-ordinated, with Local Plans also being slow to emerge, a continued over-reliance on pre-PPG3 plans, and in many cases an absence of informed public debate.

In many areas there is an officer skills deficit, particularly in relation to Brownfield issues, and to the appropriate use of CPO powers.

Problems arising from Planning Guidance and the planning control system are mainly as a result of inconsistency, poor co-ordination and performance. These are undoubtedly a barrier to development, and therefore have a damaging and frustrating effect on the housebuilding industry as a whole.

These effects are widespread, and they can be said to have a direct effect on innovation insofar as they can be seen to undermine confidence and predictability in development; without which there will always be an excuse to fail to properly invest in change.

The detail of planning guidance can also frustrate innovation, where particular materials are unnecessarily prescribed in situations where the relationship to existing buildings is not a valid issue.

Section 106 Agreements

Local authority powers to enforce a Section 106 obligation on developers for the provision of an element of affordable housing on sites of a certain capacity is becoming widely heralded as a principal source of new social housing. While this power has the potential to increase land supply for housing in areas of high demand, its use needs to be tempered with the need to meet the commercial objectives of the land owners, and balanced with the expectation that social housing providers will adopt technical and process innovation.

Overloading a scheme with multiple S106 obligations can be a disincentive to developers to develop land for

housing use, and also for them to develop with RSLs. There is little incentive for developers working on their own to meet Egan requirements, since their individual clients buying homes are known to be uncertain of technical innovation.

The other effect of over-ambitious S106 expectations is that new schemes become overloaded with contributions to Council and other public services such as health, education, social services, transport, community facilities etc.

The effect of this, combined with the need to decontaminate Brownfield land, and to address poor soil conditions on landfill sites, produces poor cost/value ratios on all but the highest value inner city developments. Where schemes are able to sustain the impact of such high costs, the project is left with a zero-tolerance budget, with neither contingency provision nor the inclination to address the additional costs or risks of developing innovative technology or methods.

One frequently offered solution to this is to increase density, the idea being that developing a higher number of units on a site will produce lower costs per unit and carry the potential to increase cross-subsidy by having more units available to sell.

In practice the effect will be marginal, since building predominantly flatted schemes at height adds to development costs, and, with many S106 contributions expressed as a per capita payment, the amount of cross-subsidy released is not sufficient to warrant the detrimental effect on management costs and service charges that tend to accompany high density housing.

The whole issue of the relationship between the planning system, Section 106 agreements and the delivery of affordable housing needs resolving if the industry is to become more efficient and deliver improved services and products.

Joint Commissioning

The Housing Corporation, and many local authorities favour the Joint Commissioning principle, whereby they will support a selection of RSLs approved to work in a particular local authority area. Where the land to be developed belongs to the local authority there is no real conflict. However, where the land may be owned by a developer who has both a Section 106 Planning Condition to provide affordable housing, and an existing strategic partnering charter with an RSL who is not on the list, there is a clear conflict.

Planning Circular 6/98 states that the local authority should not prescribe the RSL partner to the developer. However, councils frequently do so, knowing that they hold the purse strings. This may create a clash of partnering teams – the set chosen by the local authority, which aims to build on relationship, and establish continuous improvement and the set chosen by the contractor/developer, which may already have the same objectives.

This may undermine existing strategic partnering arrangements of developers and runs the risk of forcing incompatible partners to work together, even though it does give a theoretical ability to oblige developers to adopt Egan recommendations.

We recognise that Joint Commissioning is a key policy for the Housing Corporation and local authorities in order to minimise the number of social landlords working in any particular area, competing for scarce resources. It is clear however, that it also has the potential for compromising other partnering arrangements established with equal best intentions between developers and other social housing providers. A possible solution that could be examined is that developers could develop with their strategic partner and the properties could be managed by one of the local authorities jointly commissioned partners.

It is vital that the matter be reviewed. Evidence should be gathered on both how it can work, and where it does not, in order to inform future discussions.

Local Labour Requirements

Some local authorities impose LLIC requirements in planning conditions or the contract, despite the lack of statutory authority or powers to do so. This may be seen as resulting in conflicts on price, quality and construction methods. In particular, it may directly conflict with Egan-inspired initiatives such as off-site prefabrication, and this has emerged in the opposition of local tenants' organisations to innovative technology.

It would be preferable to require developers to illustrate more broadly how their supply chain management and training proposals add value to the scheme.

Specification and Scheme Standards

The issue of technical requirements is of greater substance. The growth of Employers' Requirements arose in the context of attempts of clients and their funder to maintain some control of quality and specification in the era of design and build and lowest price. It would not seem that the control of quality has become any less of a critical issue at this stage of the industry's progress.

The goal of performance specification, with contractors and developers competing on the merits and value of their technical solutions - rather than solely their production capacity - is still distant. Quantity Surveyors generally write specifications in their role as employers' agents, and their professional skills do not always include the technical performance of the product. Unless the client has over-riding skills in this area, it may continue to be safer to specify prescriptively from their direct experience of the process and product.

Many RSLs have begun the process of rationalising and reducing the predominance of prescriptive specification. But unless they have increased confidence that the industry can directly address issues of quality and defects in the partnering context, clients will still cling to what little protection a prescriptive specification provides, even where this may frustrate longer-term innovation.

Other Legislative Barriers

In the complex area of housing and local authority legislation, there are always anomalies. In the case of partnering in renovation or regeneration, a significant barrier is raised by section 20 of the Landlord and Tenant Act 1985. This requires that if a landlord wants to carry out works on leaseholder properties and to recover the costs of those works from the leaseholders then it needs to obtain two estimates for the works, one of which must be submitted by someone "wholly unconnected" with the landlord. Some local authorities have taken the view that this makes partnering impossible. Others have sought solutions based on tendering sub-contracts within a partnering relationship, or running more than one partnering contract on a scheme. The DTLR have clearly signalled their intention to deal with this issue, and current draft guidance contained in material supporting the new commonhold and leasehold reform bill suggest that this can in future be removed as a potential barrier.

Recommendations

- Supportive of the government's objectives to improve the planning system.
- A review of the relationship between S106 and Joint Commissioning, particularly in areas where S106 dominates housing land supply.
- Significant progress away from prescription to performance-based specification.

- A resolution of the Section 20 issue of the Landlord and Tenant Act 1985.
- The re-structuring of funding mechanisms in the public sector to reflect whole-life performance.

6 SKILLS AND TRAINING

Just as the construction industry has had little interest in investing in innovation and technology, it has failed to invest properly or consistently in education and training. This lack of investment has had devastating effects on the adequacy of construction and trade skills. But its damage has been wider, further deepening the impression of an industry with little interest in investing in its people or its future.

The implications of Egan reach far beyond trade and building skills, requiring a radical re-focusing of roles in the consultancy sector. Many of the new consultancy skills on which it must rely either do not yet exist in the industry, or are in very short supply.

Recruiting to the Industry

We should remind ourselves of the widespread view of the construction industry to which we would seek to attract good-quality recruits. It is perceived as one where the work is long, hard, dirty, exposed to the elements, and unsafe. Methods are seen as crude and lacking in job satisfaction. The culture does not favour equal opportunities or advancement by merit.

When the construction industry is in recession, and others are not, the exodus from the industry also includes many who have valuable skills, which we cannot afford to lose. And a further warning note is sounded by the unusually high average age of skilled operatives in the industry.

Trade Skills

Shortages of trade skills have resulted from a variety of factors and has been exacerbated by the recession of the late 1980s and early 1990s. Competition and diminishing margins have weakened the long-established system of trade apprenticeships. Recent research from the University of Westminster¹ charts a direct relationship between the decline in direct employment and the volume of training carried out in the UK.

It is now estimated that construction, which employs one in fourteen of the UK workforce, needs to recruit and train a minimum of 370,000 skilled operatives to the industry, and to have an ongoing programme to produce 70,000 new recruits a year. Pressure is now on the budgets of local Learning and Skills Councils (LSCs) to ensure that local construction workforce needs are delivered.

Health and Safety is a key element of all trade and skills training, and must reinforce the need for site-based certification in safe process design and safe working practices. Equally important to the future of the industry is training in Equal Opportunities, which may help the industry to capture and reward a large potential pool of skills and professional knowledge, which is currently undervalued and rejected by the industry.

This emphasis on training is crucial to sustain the industry with its present methods and processes. But there are other, more long-term issues about skills and innovation. Some improvements to the industry will undoubtedly be delivered by prefabrication and pre-assembly, which will require different skills and approaches. It is a fundamental error to believe that prefabrication can compensate for the lack of skills. On the contrary, prefabricated assemblies, both in the factory and at the point of installation on site, are likely to require levels of technique and precision that will only derive from high-level training.

¹ *Standardisation and Skills: A Trans-national study of Skills, Education and Training for Prefabrication in Housing (University of Westminster, Late 2001)*

Enemies of promise

There is little doubt that narrowly-defined trade skills, on which our present multi-trade approach is based, is in itself a barrier to innovation, whose products and processes are likely to cross trades and to simplify installation processes. Some innovative products with reduced skills requirements for their installation have, at least initially, failed to make a market through trade opposition. In some cases, manufacturers have only succeeded by themselves creating a training focus that plays to the traditional trade's attitudes.

Some development of new products and methods will inevitably be directed towards the achievement of quality with reduced skills requirements and labour costs. Processes that reduce skill requirements can be seen on the one hand as de-skilling, but also as raising requirements for largely absent generic skills; for example, in IT, in the interpretation of drawings and instructions, and in team-based work planning and implementation.

There is much discussion of multi-skilling, and its role in addressing new simplified processes. But multi-skilling is far from being a panacea, and may only be applicable to relatively few activities, since multi-skill training cannot be designed to reach full skill levels in every discipline.

Above all, a requirement is raised by innovation and continuous improvement, for skills in the learning process itself. UK training approaches are largely based on short training periods leading to qualification. Those in continental Europe are far more attuned to continuous development and the technical upgrading required by an industry engaged in improving its products and processes.

Consultancy Skills

Consultancy presents different problems. Consultancy skills are quite naturally tailored towards the demands of the prevailing culture. A whole field of consultancy revolves about the expectation that client and contractor cannot speak honestly and directly to each other, and require an army of negotiators and inspectors to police the no-man's land between them.

Any careful assessment of the value added by the present multiplicity of consultancy roles, particularly in the context of movement in the direction of partnering – is likely to reveal a pattern of under-developed, inappropriate and even redundant consultancy skills.

We must learn to analyse the value added by existing consultancy roles and skills, and to define areas where value could be added, were certain other skills to be available. We have seen how value management, quality control and partnership facilitation may be among such areas, and there will undoubtedly be others. It will be important that the professional bodies themselves engage in the process of reviewing roles and functions, so that different emphases and new skills can be represented in professional training and development programmes.

Recommendations

Some areas where the problems of skills and training can be addressed will therefore include:

- A return to direct employment and long-term investment in the skills of the workforce.
- A willingness to address significant changes in skills requirements arising from innovation and new products and systems.
- An intensified focus on health and safety and equal opportunities.
- The need for product developers and manufacturers to engage with and resource skills training.
- An increased responsiveness from professional bodies to the changing consultancy and professional needs of the industry.

Enemies of promise



The main aim of the Construction Best Practice Programme is to help improve standards within the construction industry and increase profitability by

Raising awareness - encouraging people within the construction industry to rethink their approach to business and understand the benefits of best practice.

Gaining commitment - helping companies to understand their potential for improvement, helping them to identify relevant opportunities and to get buy-in from the right people.

Taking action - once convinced of the need for change, companies require assistance in choosing the right steps to take, and help in choosing and using the appropriate tools or techniques.

Facilitated sharing - sharing ideas and experience is essential if best practice is to be adopted widely and quickly within the industry.

The Programme delivers a strong portfolio of services including fact sheets and case studies, company visits, workshops and clubs. These services play specific roles in continuous improvement, providing opportunities for individuals, teams, whole companies and their supply teams to engage with best practice. To find out more visit www.cbpp.org.uk or contact the helpdesk on 0845 605 55 56