

A COORDINATOR'S VISION

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George Ang and Leo Hendriks have taken over the leadership of W60 and were introduced to readers earlier. Here they set out their vision of the Performance Concept in the short term.

Performance Concept in Buildings

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1. INTRODUCTION

The Performance Concept provides a flexible and technically non-prescriptive framework for building design and construction. Application and implementation of the Performance Concept throughout the building process is of growing interest all over the world.

The performance approach, because it focuses directly and intelligently on the qualities desired of constructed facilities and enables innovation, is essential for the quality and economy of constructed facilities and for the competitiveness of the construction industries.

Nevertheless, in spite of these driving (potential) forces, the implementation of the performance concept in building encounters a certain reluctance, caused among other reasons by the present lack of insight into the risks in building procurement that may go with performance contracting and the large diversity of conflicting interests between the parties involved in the design - construction process.

As the application of the performance concept does bring about a new mix of opportunities and threats for all parties in the design and construction branch, more research should be devoted to the establishment of a common transparent framework for performance-based codes, standards, contracting procedures and evaluation tools. In addition, the registration and evaluation of best practices built under the performance concept are essential in order to tackle the barriers and enhance professional development and, complementary to that, to stimulate a corresponding impact of national policy on standards and building procurement.

2. BACKGROUND

The Performance Concept is widely acclaimed and is applicable to both building procurement (design and construction) and to regulation (control), but has not yet been extensively applied worldwide.

Significant barriers to application have arisen through knowledge deficiencies, lack of experience and tools, lack of education, absence of corresponding codes and standards, inadequacies in the procedural infrastructure and last but not least by a diversity of more or less conflicting interests between the parties involved in the design and construction process.

Principals/investors aim at sound leases and at certainty in terms of return on investments.

Principals/corporate clients aim at corporate real estate management, which means regarding real estate as one of the resources with which to do good business, with less costs over time. Application of the performance concept does not yet provide an evident advantage for them.

Design and Construction Process

The consequences of performance tendering on the opportunities and risks for the supplying parties in the design and construction process are quite different and depend on the professional attitudes and working culture of these parties. Generally building contractors in the West European countries are used to deliver efforts rather than perform in terms of output. They historically focus on pricing as a main competitive aspect and they are used to perform on the basis of the principal's design and technical specifications. Moreover, contractors generally expect their construction efforts to be monitored by the principal.

General contractors are usually larger firms whose practice is to invest in developing projects and expertise in order to gain more initiative in the early stages of the process of design and construction. They are therefore improving their human resources and equipment for performance tendering, but as long as principals cannot properly evaluate bids on the basis of acceptable quality competition, there will be no chance for any performance method to succeed.

Generally architects tend to design and put great effort into the pursuit of architectural quality as an autonomous performance. On the other hand, the quality of the architectural design is a strategic factor in project initiation, because the roots of integral quality originate from a properly controlled and highly stimulated architectural concept.

Consultants for the most part tend to follow after architectural design and to strive towards adapting their ideas in order to have installation systems fit into the building design.

On the other hand the expertise of consultants in, for instance, the pursuit of comfort satisfaction, flexibility in building utility and energy-saving concepts can actively influence the architectural design to perform better, but are consultants able to influence the architectural concept?

Management consultants have taken over a large part of the market of principal-consultancies that was formerly the domain of architects, but actually their role is limited in terms of proper total quality management.

Moreover, performance tendering in the initial or design stage of a project obliges the general contractor or developer to invest relatively large efforts (in order to cover the risks of commitment on fixed budget in such an early stage of the process) without any accompanying certainty of "getting the job".

Application of the performance concept, therefore, does not yet make it definitely advantageous:

- for (general) contractors to respond on performance tendering in project initiation
- for architects to show a receptive attitude towards the application of performance tendering or performance concept
- for consultants to influence the conceptual design effectively.

As a means for having the performance concept succeed, the integration of design and construction is a critical factor that demands urgent improvement in the interaction between parties in the design-construction process as well as the facilitation in terms of standards, codes and procedural infrastructure.

In view of the existing fragmentation and segmentation in the design, consultancy and construction branch, it is a matter of urgency to stimulate this interaction which is vital for a better performance in the quest for the best total result over time.

In addition to this, lack of acceptance of the performance concept by the world's building regulatory interests has been a severe constraint to those wishing to apply the concept to the design and construction of buildings.

But today we are witnessing a rapid change in this situation.

Development of Performance Standards

The emphasis on the development of performance standards in national and international standards organisations also facilitates the application of the concept in both building production and regulation.

In January 1982 Working Commission W60, that had been set up back in 1970, published CIB Report 64 "Working with the Performance Approach in Building". The contents provide a further statement of its views on the development and application of the performance concept as a practical tool for the building industry, especially in terms of terminology and definitions.

Recently, as a continuation of the two earlier Symposia (1972 in Philadelphia and 1982 in Lisbon) the Third International Symposium on Applications of the Performance Concept in Building (Dec. 1996 Tel Aviv, Israel) was given over to actual implementation and case studies, among others on the application of the Concept in building contracts and procurement.

The contractual application of the Performance Concept allows suppliers freedom to organise and manage the design and construction process according to their views on how to match commercial targets with quality, price and process effectiveness. At the same time, however, these opportunities entail the risks of unexpected blows during the process. Taking advantage of these opportunities requires a larger effort than in traditional building contracts where the development and design process is completed prior to the final price-setting on the basis of traditional construction documents. But the significant barriers to application that were mentioned earlier discourages those who wish to apply the concept when the opportunities are not recognised.

For the client-principal, the performance concept offers the opportunity to focus entirely on "fit-for-use" requirements related to the client's business process rather than being committed to specific standard documents including detailed technical information, that are alien to him.

At the same time, however, these opportunities include the risks of obtaining a final result that does not correspond in an appropriate way to the expected performances despite prior agreement on these.

This is particularly the case when it comes to performances affecting:

- the atmosphere of a stimulating workplace
- the corporate real estate aspects, architectural quality etc.
- the organisational fit
- the responsibility for claims, the liabilities, the lack of guarantees.

In brief the application of the performance concept in building procurement comes down to:

- agreement on the performances of the building rather than on technical details and construction documents;
- agreement in an early stage of the developing process, preferably prior to the architects' assignment for the projects' design;
- leaving design and construction in one coordinating hand;
- eventual extension towards financing and property management, maintenance included.

These principles were applied in the development of a performance contract for building procurement that was implemented in a USD 1 billion design-build programme in the Netherlands during 1992 - 1997.

3. TRENDS AND FUTURE PERSPECTIVES

Actual trends i.e. the globalisation in the economic market, the increasing focus on sustainable

development and the growing need to respond to user requirements rather than to technical prescriptions urge the building branch to develop from a capacity (input) - orientated market towards a product (output)-orientated market.

An increasing inter-dependency between countries represents the general trend towards an economy on the global scale. This globalisation will lead to a growing importance of international regulations and to moving production-activities to other "easier" countries.

Trends in society, for instance the increasing trend towards individualism will contribute to a more dynamic society. The supply of residential facilities will in consequence be led by a focus on individuality, flexibility and differentiation. The supply of office facilities and other working places will adapt to more complex and ever changing organisational housing needs.

Decentralisation, deregulation and a changing role of governmental authorities will lead to:

- Increasing preferences for lease-rent contracts on the basis of use-requirements and integral performances;
- Private investors and developers taking over the initial role towards investments for public purposes;
- A focus on output (total quality) rather than input (technical specifications).

As society is confronted by the tendency towards decentralisation and deregulation the public sector will increasingly show receptiveness towards the idea of taking advantage of the private sector's effort and creativity in attaining public policy goals. Within this context the application of the performance concept affects the development, construction and, if desired, even the exploitation of public infrastructure and housing with the client/principal sticking to output-criteria (in terms of total performance, budget and time) and relying on the developer's effort and creativity in having the projects designed and constructed in a proper manner.

The progress of information technology is having a major impact on the development of construction technology and innovation.

The increasing compatibility of information systems allows proper interaction between parties in the design-construction process.

Access to new fields of knowledge will be stimulated; the expertise to build under extreme conditions, off-shore, on the bottom of the sea, underground and maybe even in outer space.

Trends in both society and economy are exerting pressure for sustainable development and a sustainable society. All industrial branches will therefore tend to:

- develop sustainable processes for production and construction
- develop new concepts of residential housing and production/transportation facilities
- adapt to the increasing importance of environmental costs.

Expectations Exceed Applications

Within the context of the trends it can be considered somewhat anomalous that the expectations of the application of the Performance Concept - to perform better at lower costs and to enhance innovation and international competition - are widely embraced both philosophically and intellectually, while nevertheless the concept is still not universally applied. Therefore an unambiguous future perspective for W60 should be recognised in effectively analysing the gaps in procedural knowledge and procedural infrastructure and in tackling the barriers as well as taking better advantage of the attendant opportunities. In order to achieve a "make it happen" effect, the results of these efforts should impact on the professional and managerial development on both the supply - and demand side and - complementary

to this - the development of national policy on regulations and building procurement.

In the short term, therefore, consideration must be given to establishing urgent transparency in definitions and standards related to the Performance Concept in Building so as to achieve compatibility in "language" as the means better to tackle the differences in working culture. In continuation of this the mechanism of matching supply and demand can be improved by working it out properly in accordance with the specific characteristics of each phase in the design - build process. In addition the cooperation between the parties during the process, especially in project initiation and design, calls for special attention.

This requires the development of professional skills as to allow feedback from expertise in construction and installations to integrate in the conceptual design, which determines the link to professional and managerial development.

On a longer term, conforming to the actual trends, the growing demand for and supply of integrated total-solutions/products (incidentally even including financing and property management), the swift progress of Information Technology and the growing interest and development of Corporate Real Estate Management, a shift in focus can be expected for W60 activities towards more user-orientated and process related research, preferably connected to pilot-practice, evaluation and feedback.

4. INTERNATIONAL RESEARCH

Based on the trends and future perspectives that have been indicated the research priorities concerning the application of the Performance Concept in Building should concentrate on establishing the following:

Transparency in definitions and procedures as they relate to the application of the Performance Concept. In fact the utility and value (value-analysis involves analysing the cost of providing different levels of quality or amenity) of a particular form, lay out, space, product or material have to be considered. In view of this, it is vital for any study, documentation, or specification based on performance that there is absolute and internationally accepted clarity concerning the precise level and scope of the problem addressed.

The necessary knowledge base.

Whatever the range of performance attributes involved in a particular application, the effective use of the performance approach depends on a knowledge of:

- o - the requirements of building users and occupants, owners, builders and the public at large;
- o - the context in which buildings or their component parts have to meet those requirements (i.e., all the agents influencing performance, whatever their origin or nature) and
- o - predictive methods for the evaluation of behaviour in use (i.e. for modelling the performance of buildings and their parts);
- o - post occupancy evaluation.

A common (inter)national framework for performance-based building codes and specifications.

The process conditions and procedural infrastructure.

As the application of the Performance Concept in Building can bring in its wake substantial financial risks and uncertainties in building procurement, there is a pressing need for proper communication during the design-build process by all parties involved, especially when legal aspects will increasingly show up as the performance approach leads to other than traditional responsibilities and commitments between principal and supplying parties.

The process conditions therefore should cover agreements about communication during the process

concerning performances, basis of documents and in which process stage.

International Best Practice Evaluation

An international evaluation of best practices of interaction and dynamics between parties committed in a design-build process would provide valuable feedback for identifying suitable process conditions for the application of the Performance Concept in building procurement.

