PUBLIC PROCUREMENT LIMITATIONS TO INTEGRATED DESIGN APPROACHES IN SOCIAL HOUSING RENOVATION PROJECTS

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Integrated design models are starting to be used in the renovation of social housing. The public procurement rules and the specific characteristics of social housing renovation limit the use of integrated models known from other sectors. Research was done to identify the key limitations and possible disadvantages of integrated models applied to the renovation of social housing. Research methods comprised a literature review on European public procurement legislation and integrated design models, complemented by expert interviews and participation in discussions. The findings show that only the competitive dialogue can be used as tendering procedure to apply integrated models, creating a bilateral relation between client and consortium. General contractors can take a dominant position in this type of consortiums, limiting the independent advice for the client by architects and pushing SMEs to participate only as subcontractors. The configuration of consortiums applying for this type of contracts require further research to avoid the possible dangers highlighted.

Keywords: competitive dialogue, design and build, energy performance contracting, public procurement

INTRODUCTION

The building sector accounts for 40% of EU energy use and 36% of EU CO2 emissions (European Parliament 2010). Therefore, European authorities have addressed good part of their efforts in energy savings and CO2 emissions reduction in this sector. Raising the energy efficiency standards of new construction has been the approach applied during the last ten years. Nevertheless, as the yearly new constructed buildings represent only 1% of the building stock (E2ATP 2010) it will take several years to achieve the energy savings targeted by the European authorities (Commission of the European Communities 2008). Therefore, the current focus on energy savings in the building sector is switching to the existing building stock and renovation and maintenance.

Social Housing Organisations (SHOs) have a privileged position to implement changes in the quality of the housing stock, as they are the owners of a large quantity of dwellings that are mainly operated by professional management. Unfortunately, the financial capacity of these entities is rather small limiting considerably their opportunities to improve the quality of their existing dwellings. Moreover, as they offer a public service, the majority of SHOs must follow public procurement regulations (Tackobst 2009). Being unfamiliar with the new possibilities of the public procurement rules and new construction processes, SHOs keep on applying traditional construction processes and awarding the lowest bid of contractors: Design-Bid-Construct, for their new building construction and renovation projects.

The inconvenient of applying traditional construction models has been extensively covered in the existing literature; alternatives forDesign-Bid-Construct have been already being used since the 60's (Bennet and Jayes 1995; Hellard 1995; Ronco and Ronco 1996; Stephenson 1996;), when the American construction sector adapted the LEAN methodology. From applying this approach new construction models were created, as LEAN Design and Construct or Integrated Project Delivery (Jackson 2011). These new models have in common that the client, the designer and the constructor work together during the design phase; therefore they are known as integrated models. Integrated models claim to be able to reduce conflicts, to reduce costs, to shorten delivery times and to improve performance. These claims has been already demonstrated in large projects (Bennet 2006). Nevertheless, the suitability in smaller and/or housing renovation projects is still uncertain.

Previous research done in the framework of the European SHELTER project, promoting collaboration in European social housing energy renovations, has highlighted the problem areas of the current renovation models used by SHOs when aiming for high energy savings (Salcedo et al. 2011). The research consisted of a deep analysis of the current renovation processes applied by six SHOs from five different European countries. The study concludes that one of the possible improvements is early involvement of responsible

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actors for construction, maintenance and e.g. energy advice during the design phase. However, public procurement legislation limits the possibilities to involve these parties during the design phase. In what extent these limitations exist, is generally unknown.

The aim of the research is to analyse the legal limitations and possibilities in the current public procurement framework to apply integrated models for the renovation of social housing and highlight possible unwanted consequences. Specially attention is being addressed to Energy Performance Contracting (EPC), promoted by the European authorities to improve the energy performance of their building stock, that currently facilitates the application of integrated models in the renovation of social housing. Section 2 presents the research methodology. Section 3, draws the main characteristics of renovation in social housing and section 4 gives a brief description of the delivery methods used by integrated models. Section 5 digs into the public procurement European directive and highlights the articles referred to the application of integrated models. Section 6 gives some examples of public projects that have made use of competitive dialogue. Section 7 gives first impressions about the use of Energy Performance Contract by SHOs and section 8 concludes appointing key limitations of integrated models applied to renovations in social housing.

RESEARCH METHODOLOGY

In order to fill the identified gap a literature review has been done about European public procurement legislation applied to social housing organisations, integrated construction models and energy performance contracting. Moreover, two interviews were carried out with construction law experts involved in competitive dialogue procedures for infrastructure projects in the Netherlands.

Also information has been gathered through the participation in two discussions about the limitations of public procurement legislation applied in the construction sector. One discussion was held with the SHELTER members: six housing associations from Belgium, Bulgaria, France, Italy and UK and three European federations; the Architects Council of Europe (ACE), the European Builders Confederation (EBC), and the federation of SHOs (CECODHAS). The other discussion session was focusing on the position of architects, hosted by the G30 association of architects, with the participation of members of the European parliament involved in the redaction of the "Green Paper on the modernisation of the EU public procurement".

CHARACTERISTICS OF RENOVATIONS IN SHOS

The main aim of SHOs is to offer affordable housing to people who cannot get access to the open housing market (Czischke and Pittini 2007). SHOs own and manage a large rented dwelling stock and are responsible for its maintenance. However, SHOs' own financial capacities limit their possibilities for renovation and they are quite dependent on subsidies and other financial mechanisms offered by public authorities.

The refurbishment of a dwelling is considered to be a renovation when there is an extension of the service life of the building. In previous research done in the framework of the European SHELTER project two types of renovation strategies applied by SHOs were identified: major renovations and planned maintenance. Planned maintenance can be considered to be a major renovation when after execution of the works listed in a long-term maintenance plan the condition status of the effected building components are the same than after a major renovation. However, in planned maintenance the different interventions are done independently in different moments of time, standard technical solutions are applied and commonly designers are not involved in the process (Salcedo et al. 2011).

SHOs using planned maintenance as the only renovation strategy can thus not apply integrated models and limit their refurbishments to different standardised measures without taking into account the benefits of possible interactions to improve the energy efficiency of the dwellings.

National and European authorities have related their subsidies for renovation in social housing to energy efficiency measures applied. These measures in addition to the already needed renovation measures will raise the needed investment. Therefore, the benefit of interactions between renovation measures and the benefit of applying specific solutions adapted to the specificities of the building is especially important. The decisions taken in the design phase arise as a key matter to achieve the desired energetic performance without compromising the investment cost.

INTEGRATED CONSTRUCTION DELIVERY METHODS

In order to improve coordination, cooperation, and sharing of responsibilities and risk, several alternative construction models have been implemented in different countries since the 60's. The main characteristics of these models is that the client, the designer and the constructor(s) participate in the design phase, commonly known as 'integrated'. There are different types of integrated construction models, as it could be: LEAN construction and design, NEC or Integrated project delivery among others (Jackson 2011). Every one of these models can apply one or more different types of delivery methods:

- Design-Build;
- Design-Build-Maintain;
- Design-Build-Maintain-Operate;
- Design-Build-Maintain- Finance;
- and Design-Build-Maintain-Operate-Finance.

In the case of the renovation of social housing a whole life cycle approach is especially interesting to achieve high-energy savings (Straub 2009). Therefore, Design-Build-Maintain and Design-Build-Maintain-Finance are the most suitable types of delivery methods.

PUBLIC PROCUREMENT REGULATIONS APPLIED TO DESIGN-BUILD DELIVERY METHODS

European Social Housing Organisations are public, private or semi-private entities (Czischke and Pittini 2007). However, as the majority are partially or totally funded by public funds, or are partially or totally managed by public authorities most part of them are considered as 'body governed by public law' (CECODHAS 2011) and public procurement regulations apply to them (Directive 2004/18/EC A.1 p.9).

The main legislative document in European public procurement is the European Directive 2004/18/EC. The directive is applicable to all public contracts over a certain threshold, see Table 1. Every state member transposes this directive into their own public procurement law, therefore, there are variations among them and there is a considerable delay in some countries in implementing some of the new tendering procedures as for example the competitive dialogue (Mars 2011).

Under the specified thresholds the state members are not forced to apply the directive, however, public procurement regulations of the different states apply in most part of the cases similar procedures as the ones proposed in the directive under the specified threshold (Global Legal Group 2011).

Table 1: European	thresholds for	r work, supplies	and services	contracts
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Works	€ 4,845,000	Threshold applies to Government departments and offices, local and regional authorities and other public bodies.
Supplies and Services	€ 193,000	Threshold applies to local and regional authorities and public bodies outside the utilities sector.
	€ 125,000	Threshold applies to Government departments and offices.

The directive covers the award of public works, public supply and public services contracts defining as its principles (Directive 2004/18/EC p.2): "(...) the principle of equal treatment, the principle of non discrimination, the principle of mutual recognition, the principle of proportionality and the principle of transparency"(...).

Currently the directive is under revision. A commission of the European parliament is in charge of a consultation process to propose changes to it, the so-called "Green Paper on the modernisation of EU public procurement policy". However, changes are related to the main lines of the directive are not expected:

"The green paper propose an evolution not a revolution"

Heide Rühle European Parliament's rapporteur on the Green Paper. Brussels, 18th October 2011.

TYPES OF AWARDING PROCEDURE

Three different types of public contracts are thus defined. Design of construction works is considered a service contract and execution of construction works is considered a works contract. In case that the contract contains design and execution it is considered a works contract (Directive 2004/18/EC A.1 p.2 b,d).

Contracts can be awarded by the contracting authorities by five different procedures:

- Open procedure
- Restricted procedure
- Competitive dialogue
- Negotiated procedure
- and Design contest

The common award procedures are the open procedure, in which all interested companies can submit a tender, and the restricted procedure, in which all the invited companies can submit a tender (Directive 2004/18/EC A.2 p.11 a,b). In both cases the companies submitting a tender answer to the technical specifications defined by the contracting authority (Directive 2004/18/EC A.23 p.1).

The technical specifications can be descriptive, performance based or a mix of both (Directive 2004/18/EC A.23 p.1). Commonly the contracting authorities contract the design and the execution of construction works separately. First they award the design as a service contract in order to obtain the technical specifications needed to award the execution of the works as a works contract. This procedure is not suitable for integrated models as the constructor is not involved in the design phase.

However, it is possible to award design and works in a single contract. The contractors applying for this tender will reply with a design proposal for a defined price. In this case constructor and designer work together on the design, but the client is not involved. Therefore, it is not suitable for integrated models.

The design contest is not useful neither for awarding design and execution works together as it can be only used to award service contracts (Directive 2004/18/EC A.2 p.11 e). The negotiated procedure, where the contracting authorities negotiate directly with companies of their choice can only be used in exceptional cases (Directive 2004/18/EC A.2 p.11 d); as for example for works performed only with a research purpose and not with the aim of being economically profitable (Directive 2004/18/EC A.30 p.1 d). Therefore, it is not a viable standard option to award integrated contracts.

The competitive dialogue is reserved for 'particularly complex' projects, defining as 'particularly complex' when the contracting authority can not define in advance the technical specifications (Directive 2004/18/EC A.2 p.11 c). Therefore, it is the only type of procedure available that allows client, designer and constructor to participate in the design phase. The definition of 'particularly complex' projects, used in the directive can bring some doubts about the suitability of this procedure for construction projects in social housing. However, article 34 "Public works contracts: particular rules on subsidised housing schemes" makes clear that in the particular case of social housing applying design and construct processes a "special" award procedure may be adopted (Directive 2004/18/EC A.34).

COMPETITIVE DIALOGUE

The competitive dialogue procedure involves several steps. The first one, the selection of candidates to be invited to the dialogue phase, is similar to the restricted procedure. The contracting authority publishes a contract notice, containing the selection instructions, objectives and scope of the project (Directive 2004/18/EC A.29 p.2) and selects a minimum of three candidates (Directive 2004/18/EC A.44 p.3) making use of selection criteria (Directive 2004/18/EC A.29 p.3).

The aim of the dialogue phase is to identify the solutions that best suit to the needs of the contracting authority. Moreover, in this phase all the aspects of the contract can be discussed. The contracting authority must assure equality of treatment during the whole procedure. Therefore, must provide the same information to all candidates but can not share solutions proposed, or other confidential information, communicated by one of the candidates with the other participants (Directive 2004/18/EC A.29 p.3).

The dialogue must take place with a defined strategy to target all the issues of the project; nevertheless, as many meetings as needed can be arranged with the candidates (Directive 2004/18/EC A.29 P.4, p.5). At the end of the dialogue phase the candidates submit the definitive tender that will be assessed by pre-defined award criteria (Directive 2004/18/EC A.29 P.6, p.7). As the dialogue phase supposes a considerable workload for the candidates the contracting authority may specify payments to the candidates of their participation in the dialogue phase (Directive 2004/18/EC A.29 P.8).

PREVIOUS EXPERIENCES WITH INTEGRATED MODELS IN THE PUBLIC SECTOR

Integrated models have been already successfully implemented in the public sector for office buildings and for infrastructure projects (Blanken and Dewulf 2009). In the Netherlands, three of the ministries have published a co-joint guide about competitive dialogue used in awarding Design-Build-Maintain-Finance-(Operate) DBMF(O) contracts (Nagelkerke et al. 2009). From the analysis of this document and an interview with one of the authors, a list of key elements in this type of contracts has been identified: the consortium, the dialogue phase and the time span of the contract.

THE CONSORTIUM

A single company can act as tenderer in a competitive dialogue procedure. However, as the tasks within the DBMF(O) contract are from a different nature and the risks are often too big for a single company, in the vast majority of the projects a consortium acts as the tenderer. The design and construction tasks are commonly performed by a group of companies. The design group would commonly be composed by an architecture office, engineering offices and other types of consultancy companies. The architecture office acts as the coordinator and the others companies can be subcontracted by the architecture office or can be independent actors.

The construction group is commonly composed by a general construction contractor and specialized construction companies. The general construction contractor acts as the coordinator, the specialized construction companies can be independent actors, however, in most part of the cases they are subcontracted by the general construction contractor. In traditional approaches, in large construction projects, the general contractor already has a leading role, as is the one assuming the largest risk. In integrated processes with a general contractor acting as coordinator of the consortium the leading role is even stronger and can damage the independent advisor qualities of the architect, being in DBMF(O) contracts part of the same team. Obviously, the configuration of the consortium is a key element for assuring balanced relations among the companies participating in DBMF(O) contracts.

DIALOGUE PHASE

The main characteristic of integrated processes is that client, designer and constructor(s) participate in the design phase. This is achieved in the public sector in the dialogue phase. The biggest part of the success about finishing in time and in budget can be computed to the successful definition of needs that take place in the discussions between tenderers and contracting authority during the dialogue phase. The better the tenderer knows about the needs of the client, the better the solutions he proposes. However, the level of collaboration achieved during the dialogue phase is finished at the moment the contract is awarded. From that moment on, the relations between client, designer and contractor go back to business as usual.

LONG TIME INVOLVEMENT

Apart from the better design achieved by the collaboration of designer and constructor with the client during the dialogue phase, DBMF(O) contracts have another important advantage for the contracting authority. The risks are fully taken by the contractor. As the contractual relation is over a large time span, the contractor must assure that services agreed are offered during the period the contract has validity. The risks are high and commonly can only be taken by large companies. Moreover, often it is needed to have the collaboration of a financial company on the side of the contractor.

INTEGRATED MODELS IN THE RENOVATION OF SOCIAL HOUSING

Integrated design models have been recently implemented in the renovation of social housing with pilot experiences in Austria (Bleyl et al. 2007) and France (Bullier et al. 2011). However, its implementation has been motivated for the need of a financing scheme to cover part of the costs by the energy savings expected and not for the need of a better collaboration among the actors involved in the renovation (Singh 2010). The financing scheme is implemented by the use of Energy Performance Contracting (EPC). This type of contract was created in the 90's and has been successfully implemented in government buildings in Canada, USA and Germany among other countries (Schonder et al. 2010). EPC uses cost savings from reduced energy consumption to repay the costs of energy saving measures applied. In order to assure the results, it encompasses a long-term involvement of the contractor; performance parameters are used as conditions for success achievement.

EPC requires energy performance specifications and long-time involvement, as in DBMF(O) contracts. Nevertheless, the use of EPC does not imply the implementation of an integrated model because it can be used without the participation of the client too. EPC can be awarded with an open or restricted procedure.

Nowadays only a few social housing renovation projects have applied an integrated model, thus is too early to have a general perception of the success rate of this type of approach. However, it is possible to foresee the probable risks of this type of processes for renovation of social housing.

SME AND CONSORTIUMS

Using the traditional model some SHOs contract the works in a single contract to a general contractor who subcontracts part of the works to SMEs, but some of them divide the contract in lots and contract different SMEs. In Design-Build-Maintain it is not possible to divide the contract in lots. Therefore, if SMEs still would like to act as a contractor in place of being subcontracted, it is needed that they participate in the consortium. Thus in order to maintain the amount of SMEs directly involved in renovation of social housing when using Design- Build-Maintain, it will be necessary to facilitate the creation of consortiums among this type of companies. And it will be necessary to develop a methodology to facilitate the management of this type of entities formed by several companies sharing risks and profits without a clear leader.

FOCUS ON THE FINANCE AND NOT IN THE COOPERATION

Energy Performing Contracting brings the possibility to use a finance scheme to cover part of the cost of the renovation. That is an attractive characteristic; however, it is not the principal benefit. The main benefit of Energy Performing Contracting is the guarantee that the energy performance parameters defined as project requirements are accomplished. To achieve this objective an active collaboration among the actors involved is necessary.

Real collaboration among the different actors involved in a renovation process: design companies, construction companies and maintenance companies it is not an easy achievable goal. Therefore, special efforts to facilitate the collaboration will be needed and the experience from DBMF(O) contracts applied in other sectors can be a useful guide.

CONCLUSIONS

There is room for an integrated construction model under public procurement regulations. However, the only procedure available to achieve this, the competitive dialogue, is rigid and define a series of constrains. The delivery methods awarded by a competitive dialogue procedure go from a Design-Build to Design-Build-Maintain-Finance-Operate and all the other options in between. It is only awarded in a single contract between the contracting authority and the contractor; being the contractor in most part of the cases a construction consortium. Therefore, the consortium becomes the main element of this type of model. Consortiums can be created grouping all types of companies that share risks and benefits. However, consortiums favour the participation and leading role of general construction contractors, for this causing two main possible unwanted consequences:

- SMEs can only play a role as subcontracted companies
- the architect loses its role as an independent advisor of the client

This type of consortium organisation could be necessary for big construction projects. Nevertheless, in the case of renovation of social housing the participation of a consortium led by a general contractor must be a choice and not an imposition for the contracting authority.

Further research needs to address the insights of construction consortiums to facilitate the balanced participation and cooperation among different actors involved in renovation projects of social housing.

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