



D 3.1

Energy renovation process

Overview of SHELTER Social Housing Organisations

Coordination of professionals

SHELTER

Social Housing organisation and European professionals Linked and acting together for Testing and promoting professionals coordination in Energy Renovation

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1. Introduction

This report aims to propose possible alternatives to avoid existing problem in the energy renovation processes of social housing. This report is part of the Shelter European project that aims to look for new procedures to improve coordination and cooperation in energy renovation processes for social housing. Six social housing organizations of five different countries, three professional federations and one research centre participate in this project.

Social Housing Organisations

ARTE Genoa, Italy
Black Country Housing Group (BCHG), United Kingdom
Bulgarian Housing Association (BHA), Bulgaria
Dynacité, France
Logirep, France
Walloon Housing Association (SWL), Belgium

EU Professional Federations

Architect's Council of Europe (ACE)
CECODHAS, The federation of public, cooperative and social housing
European Builders Confederation (EBC)

Research Centre

OTB Research Institute for the Built Environment, Delft University of Technology, the Netherlands

In the Shelter project energy renovation is considered as major renovation works resulting in a significant improvement of the energy performance of the building and an extension of the service life. A large number of social housing organisations are nowadays commonly developing this kind of renovations.

In order to draw a picture that facilitates a comparison of renovation processes in different social housing organizations, the process is described in a systematic order. In the first place the general characteristics of the social housing organisation and the regulations that apply to their renovation processes are presented. Further, the different elements of the renovation process are described in depth:

- the energy renovation process: actors and duties along the different phases;
- relational characteristics among actors.

Next, problems areas are described and possible alternatives to the current process are presented.

The information presented in this report has been gathered through the use of an extensive questionnaire and interviews among employees of the different SHOs and other actors involved in their renovation processes.

2. General characteristics of Shelter SHOs and their energy renovation processes

2.1. General characteristics of social housing in Shelter countries

Five countries are represented among the six Shelter SHOs: Belgium (Walloon region), Bulgaria, Italy, France and United Kingdom. The characteristics of social housing in the five countries differ considerably. In United Kingdom and France around 1/5 of housing is social rental, in Italy and Belgium around 1/20 and in Bulgaria only a 1/50. See Table 1.

	Home ownership	Private rental	Social rental	Other
Belgium	68%	23%	7%	2%
Bulgaria	95%	3%	2%	
France	56%	25%	19%	
Italy	73%	14%	5%	8%
United Kingdom	69%	10%	21%	

Table 1. Housing tenure in Shelter countries (Source CECODHAS. Housing Europe 2007)

In the case of Bulgaria, however, the housing stock constructed by the government during the totalitarian period, until 1989, can be considered social housing, as it was constructed with similar standards and sold at low prices. The vast majority of them are multifamily apartment blocks built by industrialised technologies, condominiums, and they represent the 32% of the Bulgarian housing stock.

2.2. General characteristics of Shelter SHOs

The six SHOs analysed in this report are from a different nature. See Table 2. Four of them are entities that own dwellings and manage them: ARTE Genoa, Dynacité, Logirep and BCHG. The first two are public entities, the other two are private non-profit entities. SWL is the umbrella organisation of all SHOs in the Walloon region. SWL is in charge of funding, guiding and supervising them in name of the Walloon government, thus is a public entity. BHA is an independent, private, non-profit organisation that looks to facilitate an overall housing reform in Bulgaria. BHA acts as promoter and/or advisor of various projects looking for this goal.

	Country	Type of SHO	Number of dwellings
ARTE	Italy	Public SHO	12,100
BHA	Bulgaria	Private non-profit	0
BCHG	United Kingdom	Private non-profit	1,800
Dynacité	France	Public SHO	23,39
Logirep	France	Private SHO	32,200
SWL	Belgium (Walloon region)	Public SHO, (Umbrella organization for Walloon SHOs)	104,000 Owned by Walloon SHOs

Table 2. General characteristics of Shelter SHOs, country, type and number of dwellings

The SHOs participating in the Shelter project play different roles in energy renovation processes depending on their nature. The SHOs owning dwellings acts as the main stakeholder, while SWL acts as funder, guider and supervisor and BHA acts as promoter/advisor.

Therefore, the analysis differs depending if the SHO owns dwellings or not. The analysis of SHOs owning dwellings is been focused only on the operation of their organisation. While in the other two cases the analysis covers the situation of energy renovation of social housing in the Walloon region (SWL) and Bulgaria (BHA).

3. Regulations applied to energy renovation for social housing in Shelter countries

Dwelling renovation in social housing is shaped by national social housing policies, energy regulations and market regulations. The characteristics of these three elements per country are presented in this chapter.

3.1 Social housing renovation policies

Among the five analysed countries, different national social housing renovation policies are applied. Four different main goals have been identified. France is focusing on reducing CO₂ emissions. Belgium (Walloon Region) and United Kingdom are focusing on improving health and safety in social housing. Italy is focusing on urban renewal and Bulgaria on promoting renovation investments. In all cases the renovation policy is being promoted with a different type of funding programs. See Table 3.

Country	Main goal of national social housing renovation policy	Implementation
Belgium (Walloon Region)	Improve health and safety	Exceptional Investment Program
Bulgaria	Promote renovation investments	Condominium Law
France	Reduce CO ₂ emissions	Law Grenelle
Italy	Urban renewal	Municipal urban renewal plans
United Kingdom	Improve health and safety	Decent Homes Standard

Table 3. Main national social housing renovation policies and implementation tools

In Belgium (Walloon Region) there is an Exceptional Investment Program for renovation purposes that is managed by the Walloon Social Housing Society, umbrella organization for the Walloon SHOs and depending on the Walloon government. The program is subsidizing the renovation of 33% of the social housing stock of Wallonia.

In Bulgaria, EU structural funds will be available from June 2011 for the condominium owners organized in associations as established in the Condominium Law. The Condominium Law was approved in 2009 creating opportunities for easier renovation and better maintenance and management of condominium buildings.

In France the generalist environmental Law Grenelle to reduce CO2 emissions is being implemented by different plans. In the Building Plan the social housing sector has funding incentives through eco-loans. The Caisses de Dépôts offers them at low interest rates for renovation projects aiming to improve energy efficiency of dwelling rated D or lower by French energy certification standards.

In Italy housing policies depend on the region and the municipality. These entities define the city areas where new urban renewal plans will take place. Every urban renewal plan has some funds associated that can be requested by the building owners of the defined area in order to implement their renovation.

In 2000 the UK government defined the Decent Home Standard and a Decent Home Program to achieve this standard in all UK social housing stock by 2010. In 2010 10% of the stock was not yet at the standard level. Nevertheless, there has been a large improvement in the health and safety parameters. The program had a Housing Revenue Account managed by the local authorities that offered subsidies for this purpose. At present UK is defining the goals of the new social housing renovation policy.

3.2 Energy efficiency regulations

The Energy Performance of Buildings Directive, EPBD, has been introduced in all European countries (EPBD CA, 2011). In the five analysed countries it is now mandatory to obtain an energy certificate for the dwelling in case it is being sold or rented. Therefore, it is not necessary for SHOs to obtain the energy certificate of all their properties. However, as the national policy of certain countries has related the available funding to achieving a certain energy label, the SHOs of these countries have certified their whole stock in order to make energy performance one of the decision fields within their strategic asset management. See Table 4. Among the analysed countries this approach is applied in France. Belgium (Walloon Region) is in the process of applying a similar approach.

Belgium (Walloon Region)	France	Italy	UK
Planned to start general implementation next year	Generally implemented	Not implemented	Not implemented

Table 4. Introduction of EPBD score of dwellings in SHOs property register

In the case of Bulgaria, for private owners energy certificates are not mandatory. However, an owner can request a tax release in case an energy certificate has been delivered and the house is rated a certain score.

Energy regulations are in some cases in conflict with urban planning regulations. By historical or aesthetical reasons it is not possible in some places to modify the external façade forbidding the use of external insulation.

3.3 Market regulations

SHOs have a different entity status in the European Union that can be categorized mainly in two types: public entities or private non-profit entities. In France, Italy and the UK both types of entity exist, but in Wallonia all SHOs are public. See Table 5.

	Belgium (Walloon Region)	France	Italy	United Kingdom
Types of SHOs	Public	Public Private (Non -profit)	Public Private (Non -profit)	Public Private (Non -profit)
Public Procurement Regulation	EU PPR + Belgium PPR for all SHOs	EU PPR + French PPR for public SHOs	EU PPR + Italian PPR for public SHOs	EU PPR

Table 5. Types of SHOs and Public Procurement Rules applied to SHOs

European public tendering rules for services (including design) and works apply to public and private SHOs that use public funds. Moreover, national public procurement rules apply under the European thresholds for public entities in Belgium, Italy and France. The differences in implementation of public procurement rules and the limitation that they cause to the entities subject to them are currently under discussion at the European Commission. In Bulgaria "social housing" is private own. Therefore, public procurement rules are not applied.

The fundamental principle of public procurement rules is that the contracts with a budget higher than a defined threshold must be opened up to a nation-wide or EU-wide tender. The conditions of the tender must be published in official EU or national media, depending on national or EU tendering rules. The process must assure the equality of treatment among all the candidates.

SHOs can organize an open or restricted procedure. In an open procedure the candidates apply directly with an offer. In restricted procedures the candidates are pre-selected by certain selection criteria related to economic and financial standing and technical or professional certificates. Public procurement rules offer other kinds of procedures, but this are not applied in renovation projects in social housing.

In the case of restricted procedures it is possible to define a framework agreement that allow using the same pre-selection of companies for certain type of contracts for a maximum of four years. In all restricted procedure a minimum number of companies must be pre-selected (Office of Government Commerce, 2008).

The contract can be awarded to the "lowest price" or to the "most economically advantageous offer". In order to define the "most economically advantageous offer" a set of criteria need to be defined beforehand by the SHOs. These award criteria can take into account among others parameters like total cost of ownership, delivery date, running costs, cost effectiveness, technical merit, sustainable solutions and after sales-services.

4. Current energy renovation processes

In order to extend the life span of the building when performing a renovation several elements of the dwelling are renovated; e.g. kitchen, bathroom or the electrical installation. Among the works performed a few have an effect on the energy consumption; e.g. insulation of walls and roof, double glazing windows, introduction of assisted ventilation, change of heating system and in some cases installation of renewable energy systems.

Taking this consideration into account among the five countries two main types of renovation processes have been identified: major renovations and planned maintenance.

4.1 Major renovation

Considering the renovation process from inception until exploitation it can be divided in four phases: planning, design, construction and maintenance. See Figure 1. During this process seven main types of actors are present:

- Tenants
- Social Housing Organisation
- Investors: Bank, Municipality, Regional Government, National Government, Energy Companies.
- Designers: Architects, Engineers, Consultants.
- Construction companies (including installation companies)
- Maintenance companies
- Manufacturers

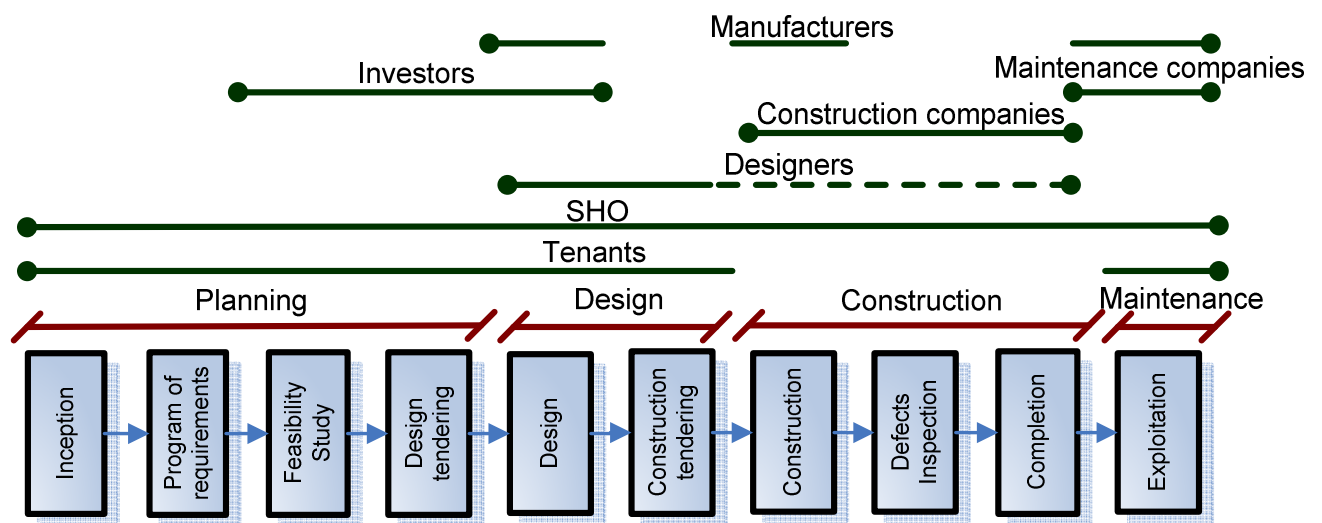


Figure 1. Major renovation process. Phases and actors present in every phase

Major renovation occurs mainly in empty properties, and the tenants have commonly a minor possibility to participate in the design decisions. In effect, only the SHOs and the designers participate in the design decisions. Construction companies and maintenance companies get involved into the project once the design is completely defined. The communication between designers, construction companies and maintenance companies is mainly by technical reports and specifications.

4.2 Planned maintenance

Planned maintenance can be considered being a renovation strategy in the case that after execution of a long-term maintenance plan the condition status of the elements affected are the same than after a major renovation.

In planned maintenance the different interventions, e.g. renovation of the kitchen, renovation of the heating system, insulation of walls and roofs are done independently in different moments of time. See Figure 2. Thus every action takes only a few days and commonly the dwellings stay occupied while the intervention takes place. Moreover, as standard technical solutions are applied commonly there are no designers and there is no design phase.

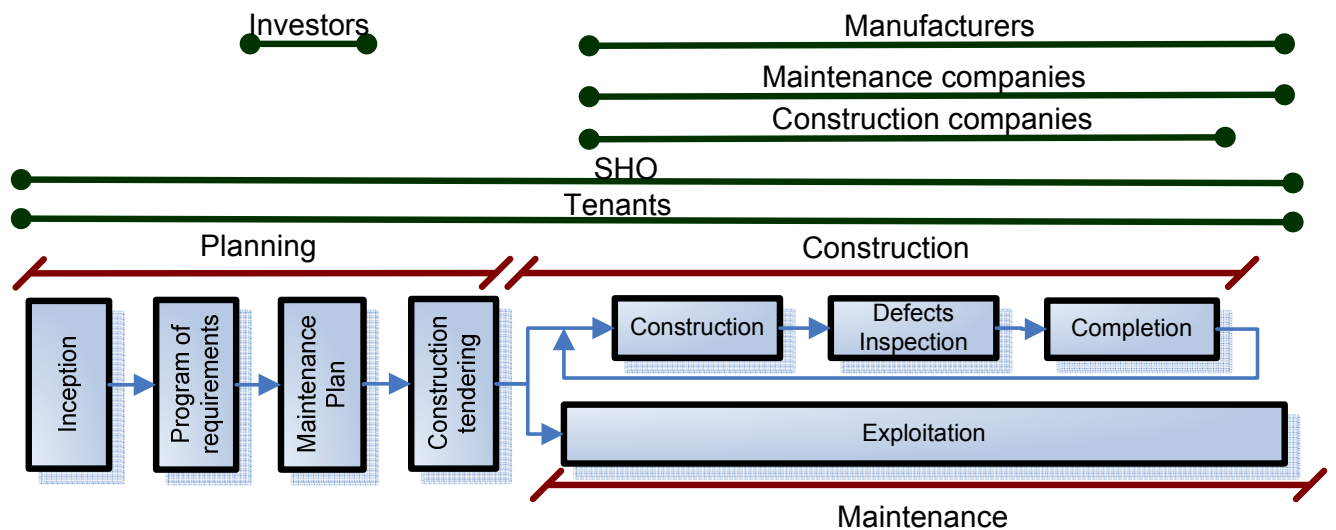


Figure 2. Planned maintenance. Phases and actors present in every phase

The report 'WP3.2 Models of coordination' gives more information about the models per SHO.

5. Identification of problem areas in Shelter SHOs energy renovation processes

Seven main problem areas have been identified during the analysis of the Shelter SHOs. See Table 6. Four of them are shared by the majority of SHOs: 'Design decisions', 'Tendering and contracting', 'Knowledge and Influence on tenants behaviour'. Moreover, for three SHOs 'Strategy' has been highlighted too as a problem area. In addition, two problem areas have been identified because of individual specificities of BHA and BCHG.

	ARTE Genoa	BCHG	BHA	Dynacité	Logirep	SWL
Strategy	■	■				■
Project Organization			■			
Work Organization		■				
Design decisions	■	■	■	■	■	■
Tendering and contracting	■	■	■	■	■	■
Knowledge			■	■	■	■
Influence on tenants behaviour	■	■	■	■	■	■

Table 6. Problem areas by Shelter SHOs

Strategy

In Belgium (Walloon region), Italy and United Kingdom the energy performance is not one of the main goals of national policies on social housing renovation. Energy performance is not a main strategy goal for the dwelling stock renovation for ARTE Genoa, BCHG and SWL, too.

Project Organization

In Bulgaria "social housing " is privately owned. Thus, home owners associations are in charge of the renovation process. Generally this kind of organizations don not have the professional knowledge to manage the different tasks associated to a renovation process.

Work organization

In the cases that SHOs use planned maintenance methods for energy renovations, as BCHG does, commonly there is no design phase. Therefore standard solutions for the replacement of specific elements are applied. Moreover, as the different actions (e.g. replacement of heating system, insulation of the walls or replacement of windows) are performed in different periods in time they can not be part of an integrated solution. Therefore, while using planned maintenance methods there is less room for innovative energy saving solutions.

Design decisions

Commonly only the designers (architects, engineers and consultants) and the SHOs are active during the design phase in major renovations, see Figure 1. This means that the practical knowledge gathered by construction companies and maintenance companies is not effectively used, affecting sometimes in higher final costs then necessary, as the cost of modifications in a construction project increases in time, see Figure 3.

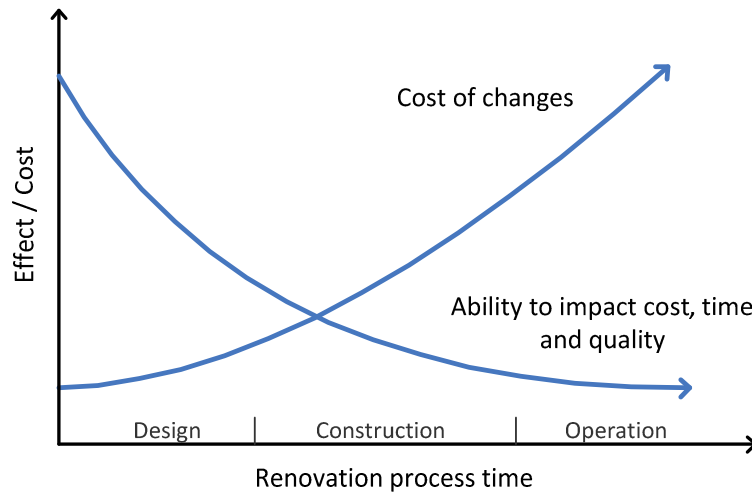


Figure 3. Major renovation process. The impact of decisions in design stage on project outcomes (Adapted from (Uher and Loosemore, 2004))

Tendering and contracting

The selection and award criteria used in tendering and contracting, the type of specifications (descriptive or performance-based) and the contract's volume can change the relation among actors involved in the renovation process and can even change the structure of the process.

Even though European public tendering rules promote the use of award criteria, currently numerous SHOs are still awarding the contracts by selecting the lowest bid. This type of selection procedure doesn't allow testing of the quality of the services offered. Moreover, the tenders and contracts mainly use descriptive specifications. This reduces the opportunities for innovation by the construction companies and makes it difficult to define responsibilities in case of mistakes.

There is a trend for contracting all renovation works in one single contract. Therefore, only general contractors can apply to them. This method reduces administrative and supervision tasks for the SHOs. However, there is less control by the SHOs of specialist works that will be subcontracted to other companies and it is more difficult to facilitate the participation of small and medium enterprises.

Knowledge

Construction projects require the participation of professionals with the necessary knowledge. In the case of energy renovations specific knowledge is needed for the designers, constructors and maintenance companies. Unfortunately, this is not always the case as the energy renovation sector is confronted with a constant evolution of building and system products. Moreover, public procurement rules, over a certain threshold, force SHOs to contract for every project by public tendering procedures. Therefore, SHOs cannot contract directly a company with who they had a previous satisfactory experience.

In the cases that works are contracted to a general contractor, commonly some specific works are subcontracted. The subcontracting will be done by the general contractor. In this case, the SHOs must rely on the selection by the general contractor as it does not have the possibility to identify if the subcontracted companies have the required competences and knowledge.

Influence on tenants behaviour

The potential energy savings of energy renovations in social housing can be jeopardized by the inappropriate behaviour of the tenants - for example by opening windows at winter time to ventilate in renovated buildings equipped with mechanical ventilation with heat recovery systems -, or by the increase of tenants comfort standards, for example by heating all the rooms of the apartment. SHOs commonly inform about the appropriate use of the dwelling installations after renovation to their tenants. Nevertheless, the influence on their behaviour still seems to be rather small.

6. Alternatives for Shelter SHOs current energy renovation processes

Different alternatives to the previous appointed problem areas are presented in this chapter. The alternatives are summarized by problem area in Table 7, and addressed to each SHO.

	ARTE Genoa	BCHG	BHA	Dynacité	Logirep	SWL
Strategy						
- Define an energy efficiency goal in housing stock policies in terms of energy certification score						
- Define systems to evaluate the energy saving improvements						
Project Organization						
- Request the government to amend the Condominium Law by decreasing the level of necessary majority for voting of conversion of GA to AO – from 100% to 67%						
- Request the government to create project management units at central and local level						
Work Organization						
- Group properties by typology and geography						
Design decisions						
- Invite the maintenance companies to participate during the design phase						
- Tender design-construction-maintain together						
- Design models of integrated energy saving measures by typologies of dwellings						

- Promote the involvement of design professional in renovation projects						
- Promote the cooperation between designers and constructors during the design phase						
Tendering and contracting						
- Use award criteria in tendering procedures						
- Use performance-based criteria in tendering and contracting						
- Create a tool-kit to guide home owners in renovation projects						
Knowledge						
- Request the government to create an official register of certified companies.						
- Organize a meeting with all the contractors involved in the process by the start of the construction phase						
- Define a larger transfer time period between construction companies and maintenance companies						
- Tender critical task as a separate lot						
Influence on tenants behaviour						
- Give notice to tenants with higher consumption than average and offer them energetic behaviour advise						
- Monitor the energy consumption						
- Create opportunities to share the benefits of a reduction in the energy consumption						
- Create a guide of methods to reduce energy consumption.						

Strategy

SHOs can define an energy efficiency goal in their housing stock policies, as it could be the energy certification scores. This solution has already been implemented in France and has allowed taking into account energy performance while prioritizing the renovation of the housing stock. Nevertheless, currently there is discussion about the accuracy of energy performance certificates as reliable energy consumption indicators. In four of the analysed countries the energy certificate score is obtained by simulation. Therefore it is an estimation that does not take into account the tenants behaviour. The exception is the Bulgarian case, where simulation and real consumption data is used to issue the energy certificate.

Project organization

In order to facilitate the home owners associations to organize and manage their renovation project some professional assistance is needed. It is advisable for BHA to request the Bulgarian government

to facilitate the implementation of the organizational possibilities defined in the Condominium Law and to offer guidance and supervision to the home owners by creating management units at central and local level.

Work organization

Planned maintenance is defined by different independent elements to be renovated. A possible alternative is to integrate them by defining a design by typology of dwellings. Thus, there will not be a design phase for every dwelling, but it will be a design phase for all the dwellings of a certain typology. Therefore, it is possible to foresee positive and negative interactions of the different elements to be renovated.

Design decisions

The alternative is to involve constructors and maintenance companies in the design phase. Nevertheless, this simple solution is not easy to implement as the majority of SHOs are under restrictions imposed by the public procurement rules. Moreover, the level of these restrictions is quite different among the different analysed countries, as shown in chapter 3.3. Thus, two different options for this collaboration during the design phase are possible:

- the use of a design-renovate-maintain contract;
- or to invite maintenance companies as consultants during the design phase.

The most complete, is to tender design-renovate-maintain in one single contract. Therefore, the consortium awarded with the contract will be working together from the beginning of the project. The consortium is formed by a group of companies like an architecture office, technical consultants, a construction company and a maintenance company. Moreover, as the operation phase is part of the contract, the responsibility in case of a mistake can not be avoided. Even more, this kind of contract can take the maximum profit of performance-based specifications (see Tendering and contracting).

Design-renovate-maintain contracts are nowadays not possible for institutions under public procurements rules in some European countries, like Belgium (Walloon region) and Italy. The first experiences for design-renovate-maintain contracts in the social housing sector are currently being implemented in France and some have already been implemented in United Kingdom. These experiences have highlighted two main possible dangers of this kind of contracts: rarely small and medium enterprises, SME, can apply for this type of contract as the financial requirements are too big for the size of their company; and the architect can lose his role of independent advisor for the SHOs as he has a contractual link with the construction company.

The second option is to involve the maintenance companies as consultants during the design phase. Commonly SHOs have 3 to 10 years contracts with maintenance companies that are in charge of responsive maintenance of their dwelling stock. Therefore, these companies have a good practical knowledge of their properties and could participate as consultants during the design phase.

Tendering and contracting

In order to take into account other parameters rather than price while awarding the contracts there is a need to implement award criteria in all tendering procedures organized by SHOs. To facilitate the implementation of this procedure it is advisable that national and European institutions define a list of legal and recommended award criteria for the selection of the most suitable contractors.

The use of performance-based specifications in place of descriptive specifications allow the contractor to get involved in proposing possible alternatives. Moreover, performance-based specifications allow to define clearly the responsibilities if the requested performance is not being achieved. However, the utilization of performance-based specifications requires that designers and contractors get used to these types of criteria. Moreover, it is needed to define evaluation methods to check the performance-based criteria after construction.

In the case that SHOs make single contracts for renovation works it is possible to increase the control capacity over specific works maintaining low profile of administrative and supervision tasks if SHOs divide the contracts in two lots. The first lot includes most part of the works to perform addressed to general contractors, and the second is for specific works, as it could be the heating installation.

Knowledge

In order to assure that all actors participating in the renovation process have the required knowledge it is possible to use selection and award criteria in the tendering procedures. Selection criteria are used in the pre-selection of candidates in restricted procedures. Currently they are mainly used to test the economic and financial standing of the companies, but it could be used also to require certain official certificates about technical and professional ability. The implementation of certificates at European level that assure the professional quality can facilitate the selection of professionals with the required knowledge for the task to perform. Moreover, as mentioned in the previous sub-chapter while awarding the contract among the pre-selected candidates a set of awarding criteria can be used to ensure the quality of the offer.

In case of works awarded to general contractors, SHOs can require to have a meeting with the designers and all the participating subcontractors in order to identify possible technical knowledge gaps among the participants and look for solutions to solve them.

Influence on tenants behaviour

In order to influence tenants behaviour is it possible to implement actions that make a direct link between their actions and the cost of the energy bill. These can be implemented by the use of smart meters and individualized energy advice to reduce the costs. Depending on the set up of the energy services, individual or common, different strategies can be implemented to use the savings obtained by the reduction of the energy costs to pay for the meters and the advice offered.

7. Conclusions

Shelter SHOs have an enormous potential for energy saving through the renovation of their dwelling stock. Unfortunately, they are limited by the availability of funds and by the rigidity of the public procurement rules.

In this report an overview of the alternatives existing in the current system for energy renovations in social housing has been presented covering seven identified problem areas: strategy, project organization, work organization, design decision, tendering and contracting, knowledge and tenants behaviour. The most important recommendations are:

- Introduce energy efficiency as one of the main parameters in the energy renovation strategy of SHOs.
- Define standard design by dwelling typology for SHOS that use planned maintenance as renovation strategy.
- Involve construction and maintenance companies during the design phase in energy renovation projects.
- Define lists of legal and recommended award criteria for energy renovation projects.
- Make use of performance-based specifications.
- Define separate contracts for specific works in energy renovation projects.
- Implement professional certificates at European level.
- Implement actions that make a direct link for the tenants between their behaviour and the energy bill.

Part of the proposed alternatives will be implemented and tested in posterior phases of the Shelter project.

References

Interviews

In order to gather the information presented in this report several semi-structured interviews have been done with members of the different SHO and with other actors involved in their renovation processes. Moreover at least two past renovations and one future renovation case have been visited for every one of them. In this references chapter the people which participated in the interviews and workgroup meetings in the different visits are listed.

An individual report was made for every one of the SHOs participating in the Shelter project. In these reports their renovation processes are described and analysed in depth. They are available under request at www.shelterproject-iee.eu .

* Interviews (I), Workshops (W) and case study visits (v)

ARTE Genoa – 15-16th February 2011

- Giordano Bertelà, Project manager. (I) (v)
- Tulliola Guglielmi, Officer. (I) (v)
- Giovanni Paolo Spanu, Technical and maintenance director. (W)
- Dario Rinotti, Officer. (I) (v)
- Sergio Torre, Investments department director. (W)

- Claudio Montagni (Architecture office)
Claudio Montagni, Architect. (I)

- Cofely GDFSuez (ESCO, Energy Service Company)
Massimiliano Centanaro, Manager. (I)

Marco Mantovani, Engineer. (I)

- Marcolini & Barsoti (Architecture office)
Giampolo Marcolini, Architect. (I)

- Villa & Cevasco (Engineering office)
Franco Cevasco, Engineer. (I)

BHA – 7-10th February 2011

- Eleonora Gaydarova, Manager international projects (I) (W)(v)
- George Georgiev, Manager (I) (W) (v)

- Avança, Maintenance company
Bojidar Pampulov, General Manager (I)

- Black Sea Regional Energy Centre

Angel Nikolaev, Director (I)

- Bies, Consulting company for energy efficiency
Rosen Malchev, Manager (I)
- EnEffect, Center for Energy efficiency
Zoya Giurova, Chief Secretary, Project coordinator (I)
- Home Owners Association block 25 Zaharna Fabrika housing estate.
Maria Miletieva, Chairwoman (I)
- Konkurent - 90, Architecture office
Bisser Hantov, Manager (I)
- SFO, Construction Company
Orlin Nojarov, Manager (I)

BCHG – 6-8th December 2010

- Richard Baines, Director of Sustainable Development (I) (v)
- Mark Humphries, Project Manager (I)
- Jackie O'Callahan, Asset Manager (I)
- Tony Portman, Maintenance Surveys Manager (I)

- Birmingham City Council
Bill Goodfellow, Project Manager (I)

Neil Morton, Business Manager(I)

- Bourneville Village Trust Green Team
Participation in one of their meetings.
- Dudley Metropolitan Borough Council
Paul Griffiths, Head of Investment (I)
- Gruhe (Architects practice)
Pearl Cooray, Architect (I)
- Kaushal Builders (Construction company)
Josh Kaushal, Director(I)

Dynacité – 8-10th November 2010

- Bénédicte Chaillot, Head assistant for the Rehabilitation Sector. (W)
- Yves Galiègue, Project manager (Real estate management department) (I)(W)(v)
- Bernard Guthmann, Responsible of the contract Unit (W)
- Patricia Houdril, Head of the Property Construction and Rehabilitation Sector (W)
- Jaques Laffont, Responsible of the Contracts Managing Department (I)(W)(v)
- Véronique Leteneur, Head of Real-estate Management Department (W)
- Didier Michon, Project manager (Rehabilitation sector) (I)
- Bernard Mouton, In charge of dwellings' monitoring in the area of Jassans-Riottier (v)

- Climsanit (Construction company)
M. Pujol Director of the company (I)
- Dalkia (ESCO, Energy Service Company)
Laurent Champenois, Technical assistant at DALKIA (I) (v)

Christian Darne, Technical Responsible, monitoring the area of Jassans-Riottier (I) (v)

Patrick Legay, Technical Responsible, monitoring the area of Bourg en Bresse (I) (v)
- Dupaquier (Energy consultancy)
M. Mansot, Technical advisor (I)
- Isobase (Engineering company)
M. Veyre, Technical advisor (I)

Logirep – 24-26th November 2010

- Mathieu Boiron (W)(I)(v)
- Gilles Colpart, Finance Director (I)
- Christian Maillet, Urban Renovation (I)
- Angela Ruiz (W)(v)
- Pierre Touya (W)
- AB Consultants (Engineering consultancy)
Patrick Delinger (I)

A. Paoli (i)(V)
- BASF (Chemical company)
Nathalie Jordy, Project management & support energy efficiency and construction (I)
- G. Roux architecte (architect)
G. Roux
- Placo (Plasterboard manufacturer)
Céline Guéret, Responsible Service Marketing (I)
- SEC (Energy Services Company)
Alain Puybureau, Exploitation Director (I)

SWL – 24-26th January 2011

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D 3.1

Energy renovation process

Overview of SHELTER Social Housing Organisations

Coordination of professionals

SHELTER

Social Housing organisation and European professionals Linked and acting together for Testing and promoting professionals coordination in Energy Renovation

www.shelterproject-iee.eu

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1. Introduction

This report aims to propose possible alternatives to avoid existing problem in the energy renovation processes of social housing. This report is part of the Shelter European project that aims to look for new procedures to improve coordination and cooperation in energy renovation processes for social housing. Six social housing organizations of five different countries, three professional federations and one research centre participate in this project.

Social Housing Organisations

ARTE Genoa, Italy
Black Country Housing Group (BCHG), United Kingdom
Bulgarian Housing Association (BHA), Bulgaria
Dynacité, France
Logirep, France
Walloon Housing Association (SWL), Belgium

EU Professional Federations

Architect's Council of Europe (ACE)
CECODHAS, The federation of public, cooperative and social housing
European Builders Confederation (EBC)

Research Centre

OTB Research Institute for the Built Environment, Delft University of Technology, the Netherlands

In the Shelter project energy renovation is considered as major renovation works resulting in a significant improvement of the energy performance of the building and an extension of the service life. A large number of social housing organisations are nowadays commonly developing this kind of renovations.

In order to draw a picture that facilitates a comparison of renovation processes in different social housing organizations, the process is described in a systematic order. In the first place the general characteristics of the social housing organisation and the regulations that apply to their renovation processes are presented. Further, the different elements of the renovation process are described in depth:

- the energy renovation process: actors and duties along the different phases;
- relational characteristics among actors.

Next, problems areas are described and possible alternatives to the current process are presented.

The information presented in this report has been gathered through the use of an extensive questionnaire and interviews among employees of the different SHOs and other actors involved in their renovation processes.

2. General characteristics of Shelter SHOs and their energy renovation processes

2.1. General characteristics of social housing in Shelter countries

Five countries are represented among the six Shelter SHOs: Belgium (Walloon region), Bulgaria, Italy, France and United Kingdom. The characteristics of social housing in the five countries differ considerably. In United Kingdom and France around 1/5 of housing is social rental, in Italy and Belgium around 1/20 and in Bulgaria only a 1/50. See Table 1.

	Home ownership	Private rental	Social rental	Other
Belgium	68%	23%	7%	2%
Bulgaria	95%	3%	2%	
France	56%	25%	19%	
Italy	73%	14%	5%	8%
United Kingdom	69%	10%	21%	

Table 1. Housing tenure in Shelter countries (Source CECODHAS. Housing Europe 2007)

In the case of Bulgaria, however, the housing stock constructed by the government during the totalitarian period, until 1989, can be considered social housing, as it was constructed with similar standards and sold at low prices. The vast majority of them are multifamily apartment blocks built by industrialised technologies, condominiums, and they represent the 32% of the Bulgarian housing stock.

2.2. General characteristics of Shelter SHOs

The six SHOs analysed in this report are from a different nature. See Table 2. Four of them are entities that own dwellings and manage them: ARTE Genoa, Dynacité, Logirep and BCHG. The first two are public entities, the other two are private non-profit entities. SWL is the umbrella organisation of all SHOs in the Walloon region. SWL is in charge of funding, guiding and supervising them in name of the Walloon government, thus is a public entity. BHA is an independent, private, non-profit organisation that looks to facilitate an overall housing reform in Bulgaria. BHA acts as promoter and/or advisor of various projects looking for this goal.

	Country	Type of SHO	Number of dwellings
ARTE	Italy	Public SHO	12,100
BHA	Bulgaria	Private non-profit	0
BCHG	United Kingdom	Private non-profit	1,800
Dynacité	France	Public SHO	23,39
Logirep	France	Private SHO	32,200
SWL	Belgium (Walloon region)	Public SHO, (Umbrella organization for Walloon SHOs)	104,000 Owned by Walloon SHOs

Table 2. General characteristics of Shelter SHOs, country, type and number of dwellings

The SHOs participating in the Shelter project play different roles in energy renovation processes depending on their nature. The SHOs owning dwellings acts as the main stakeholder, while SWL acts as funder, guider and supervisor and BHA acts as promoter/advisor.

Therefore, the analysis differs depending if the SHO owns dwellings or not. The analysis of SHOs owning dwellings is been focused only on the operation of their organisation. While in the other two cases the analysis covers the situation of energy renovation of social housing in the Walloon region (SWL) and Bulgaria (BHA).

3. Regulations applied to energy renovation for social housing in Shelter countries

Dwelling renovation in social housing is shaped by national social housing policies, energy regulations and market regulations. The characteristics of these three elements per country are presented in this chapter.

3.1 Social housing renovation policies

Among the five analysed countries, different national social housing renovation policies are applied. Four different main goals have been identified. France is focusing on reducing CO₂ emissions. Belgium (Walloon Region) and United Kingdom are focusing on improving health and safety in social housing. Italy is focusing on urban renewal and Bulgaria on promoting renovation investments. In all cases the renovation policy is being promoted with a different type of funding programs. See Table 3.

Country	Main goal of national social housing renovation policy	Implementation
Belgium (Walloon Region)	Improve health and safety	Exceptional Investment Program
Bulgaria	Promote renovation investments	Condominium Law
France	Reduce CO ₂ emissions	Law Grenelle
Italy	Urban renewal	Municipal urban renewal plans
United Kingdom	Improve health and safety	Decent Homes Standard

Table 3. Main national social housing renovation policies and implementation tools

In Belgium (Walloon Region) there is an Exceptional Investment Program for renovation purposes that is managed by the Walloon Social Housing Society, umbrella organization for the Walloon SHOs and depending on the Walloon government. The program is subsidizing the renovation of 33% of the social housing stock of Wallonia.

In Bulgaria, EU structural funds will be available from June 2011 for the condominium owners organized in associations as established in the Condominium Law. The Condominium Law was approved in 2009 creating opportunities for easier renovation and better maintenance and management of condominium buildings.

In France the generalist environmental Law Grenelle to reduce CO2 emissions is being implemented by different plans. In the Building Plan the social housing sector has funding incentives through eco-loans. The Caisses de Dépôts offers them at low interest rates for renovation projects aiming to improve energy efficiency of dwelling rated D or lower by French energy certification standards.

In Italy housing policies depend on the region and the municipality. These entities define the city areas where new urban renewal plans will take place. Every urban renewal plan has some funds associated that can be requested by the building owners of the defined area in order to implement their renovation.

In 2000 the UK government defined the Decent Home Standard and a Decent Home Program to achieve this standard in all UK social housing stock by 2010. In 2010 10% of the stock was not yet at the standard level. Nevertheless, there has been a large improvement in the health and safety parameters. The program had a Housing Revenue Account managed by the local authorities that offered subsidies for this purpose. At present UK is defining the goals of the new social housing renovation policy.

3.2 Energy efficiency regulations

The Energy Performance of Buildings Directive, EPBD, has been introduced in all European countries (EPBD CA, 2011). In the five analysed countries it is now mandatory to obtain an energy certificate for the dwelling in case it is being sold or rented. Therefore, it is not necessary for SHOs to obtain the energy certificate of all their properties. However, as the national policy of certain countries has related the available funding to achieving a certain energy label, the SHOs of these countries have certified their whole stock in order to make energy performance one of the decision fields within their strategic asset management. See Table 4. Among the analysed countries this approach is applied in France. Belgium (Walloon Region) is in the process of applying a similar approach.

Belgium (Walloon Region)	France	Italy	UK
Planned to start general implementation next year	Generally implemented	Not implemented	Not implemented

Table 4. Introduction of EPBD score of dwellings in SHOs property register

In the case of Bulgaria, for private owners energy certificates are not mandatory. However, an owner can request a tax release in case an energy certificate has been delivered and the house is rated a certain score.

Energy regulations are in some cases in conflict with urban planning regulations. By historical or aesthetical reasons it is not possible in some places to modify the external façade forbidding the use of external insulation.

3.3 Market regulations

SHOs have a different entity status in the European Union that can be categorized mainly in two types: public entities or private non-profit entities. In France, Italy and the UK both types of entity exist, but in Wallonia all SHOs are public. See Table 5.

	Belgium (Walloon Region)	France	Italy	United Kingdom
Types of SHOs	Public	Public Private (Non -profit)	Public Private (Non -profit)	Public Private (Non -profit)
Public Procurement Regulation	EU PPR + Belgium PPR for all SHOs	EU PPR + French PPR for public SHOs	EU PPR + Italian PPR for public SHOs	EU PPR

Table 5. Types of SHOs and Public Procurement Rules applied to SHOs

European public tendering rules for services (including design) and works apply to public and private SHOs that use public funds. Moreover, national public procurement rules apply under the European thresholds for public entities in Belgium, Italy and France. The differences in implementation of public procurement rules and the limitation that they cause to the entities subject to them are currently under discussion at the European Commission. In Bulgaria "social housing" is private own. Therefore, public procurement rules are not applied.

The fundamental principle of public procurement rules is that the contracts with a budget higher than a defined threshold must be opened up to a nation-wide or EU-wide tender. The conditions of the tender must be published in official EU or national media, depending on national or EU tendering rules. The process must assure the equality of treatment among all the candidates.

SHOs can organize an open or restricted procedure. In an open procedure the candidates apply directly with an offer. In restricted procedures the candidates are pre-selected by certain selection criteria related to economic and financial standing and technical or professional certificates. Public procurement rules offer other kinds of procedures, but this are not applied in renovation projects in social housing.

In the case of restricted procedures it is possible to define a framework agreement that allow using the same pre-selection of companies for certain type of contracts for a maximum of four years. In all restricted procedure a minimum number of companies must be pre-selected (Office of Government Commerce, 2008).

The contract can be awarded to the "lowest price" or to the "most economically advantageous offer". In order to define the "most economically advantageous offer" a set of criteria need to be defined beforehand by the SHOs. These award criteria can take into account among others parameters like total cost of ownership, delivery date, running costs, cost effectiveness, technical merit, sustainable solutions and after sales-services.

4. Current energy renovation processes

In order to extend the life span of the building when performing a renovation several elements of the dwelling are renovated; e.g. kitchen, bathroom or the electrical installation. Among the works performed a few have an effect on the energy consumption; e.g. insulation of walls and roof, double glazing windows, introduction of assisted ventilation, change of heating system and in some cases installation of renewable energy systems.

Taking this consideration into account among the five countries two main types of renovation processes have been identified: major renovations and planned maintenance.

4.1 Major renovation

Considering the renovation process from inception until exploitation it can be divided in four phases: planning, design, construction and maintenance. See Figure 1. During this process seven main types of actors are present:

- Tenants
- Social Housing Organisation
- Investors: Bank, Municipality, Regional Government, National Government, Energy Companies.
- Designers: Architects, Engineers, Consultants.
- Construction companies (including installation companies)
- Maintenance companies
- Manufacturers

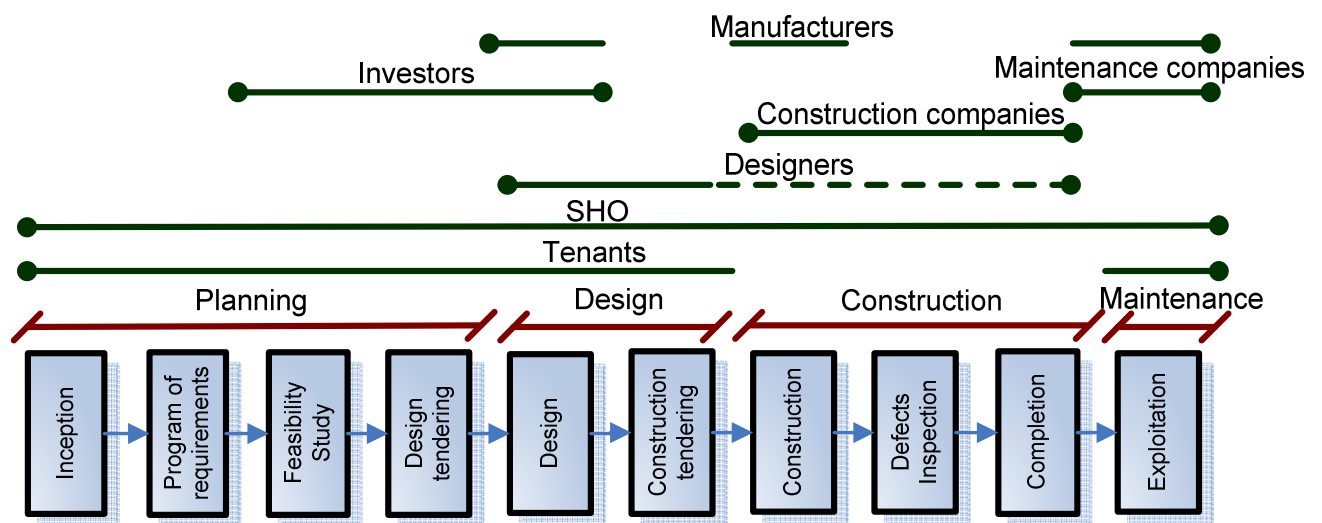


Figure 1. Major renovation process. Phases and actors present in every phase

Major renovation occurs mainly in empty properties, and the tenants have commonly a minor possibility to participate in the design decisions. In effect, only the SHOs and the designers participate in the design decisions. Construction companies and maintenance companies get involved into the project once the design is completely defined. The communication between designers, construction companies and maintenance companies is mainly by technical reports and specifications.

4.2 Planned maintenance

Planned maintenance can be considered being a renovation strategy in the case that after execution of a long-term maintenance plan the condition status of the elements affected are the same than after a major renovation.

In planned maintenance the different interventions, e.g. renovation of the kitchen, renovation of the heating system, insulation of walls and roofs are done independently in different moments of time. See Figure 2. Thus every action takes only a few days and commonly the dwellings stay occupied while the intervention takes place. Moreover, as standard technical solutions are applied commonly there are no designers and there is no design phase.

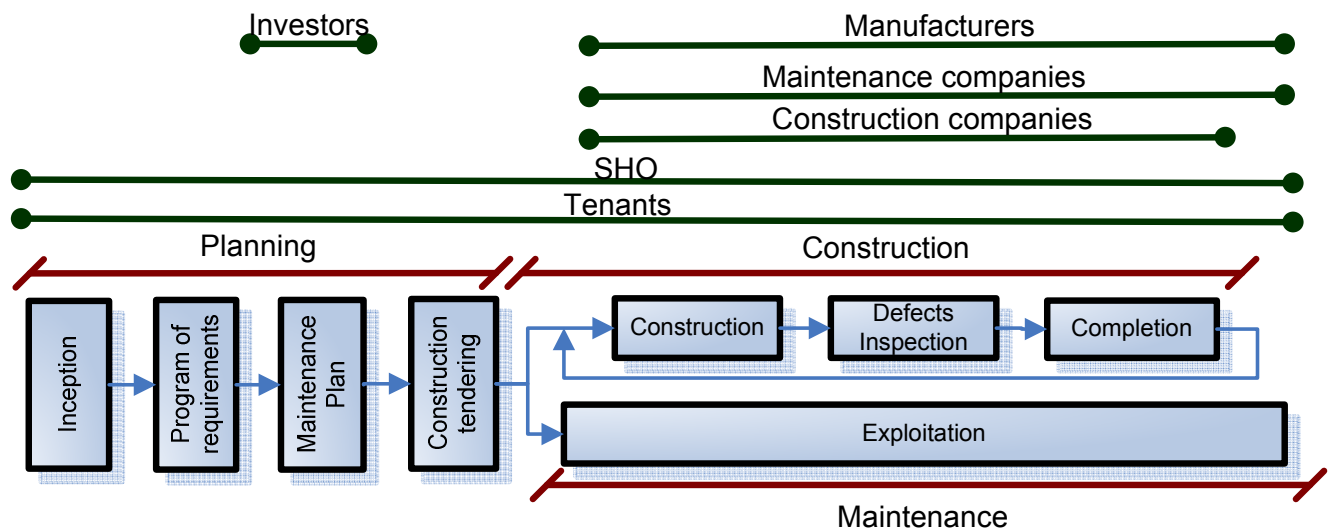


Figure 2. Planned maintenance. Phases and actors present in every phase

The report 'WP3.2 Models of coordination' gives more information about the models per SHO.

5. Identification of problem areas in Shelter SHOs energy renovation processes

Seven main problem areas have been identified during the analysis of the Shelter SHOs. See Table 6. Four of them are shared by the majority of SHOs: 'Design decisions', 'Tendering and contracting', 'Knowledge and Influence on tenants behaviour'. Moreover, for three SHOs 'Strategy' has been highlighted too as a problem area. In addition, two problem areas have been identified because of individual specificities of BHA and BCHG.

	ARTE Genoa	BCHG	BHA	Dynacité	Logirep	SWL
Strategy						
Project Organization						
Work Organization						
Design decisions						
Tendering and contracting						
Knowledge						
Influence on tenants behaviour						

Table 6. Problem areas by Shelter SHOs

Strategy

In Belgium (Walloon region), Italy and United Kingdom the energy performance is not one of the main goals of national policies on social housing renovation. Energy performance is not a main strategy goal for the dwelling stock renovation for ARTE Genoa, BCHG and SWL, too.

Project Organization

In Bulgaria "social housing " is privately owned. Thus, home owners associations are in charge of the renovation process. Generally this kind of organizations don not have the professional knowledge to manage the different tasks associated to a renovation process.

Work organization

In the cases that SHOs use planned maintenance methods for energy renovations, as BCHG does, commonly there is no design phase. Therefore standard solutions for the replacement of specific elements are applied. Moreover, as the different actions (e.g. replacement of heating system, insulation of the walls or replacement of windows) are performed in different periods in time they can not be part of an integrated solution. Therefore, while using planned maintenance methods there is less room for innovative energy saving solutions.

Design decisions

Commonly only the designers (architects, engineers and consultants) and the SHOs are active during the design phase in major renovations, see Figure 1. This means that the practical knowledge gathered by construction companies and maintenance companies is not effectively used, affecting sometimes in higher final costs then necessary, as the cost of modifications in a construction project increases in time, see Figure 3.

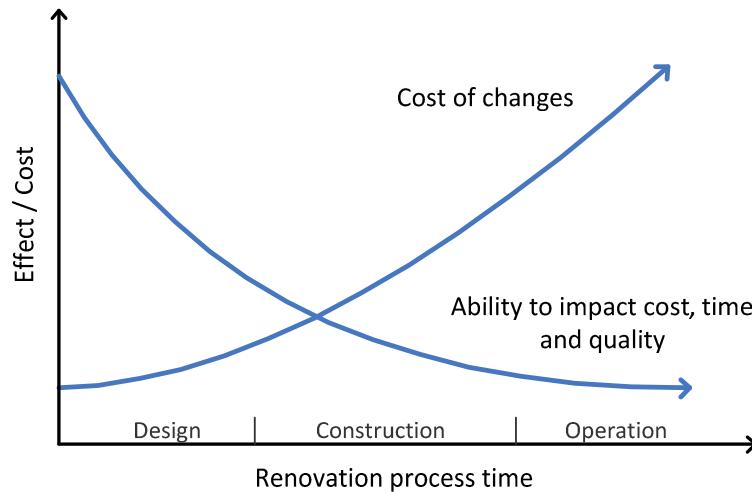


Figure 3. Major renovation process. The impact of decisions in design stage on project outcomes (Adapted from (Uher and Loosemore, 2004))

Tendering and contracting

The selection and award criteria used in tendering and contracting, the type of specifications (descriptive or performance-based) and the contract's volume can change the relation among actors involved in the renovation process and can even change the structure of the process.

Even though European public tendering rules promote the use of award criteria, currently numerous SHOs are still awarding the contracts by selecting the lowest bid. This type of selection procedure doesn't allow testing of the quality of the services offered. Moreover, the tenders and contracts mainly use descriptive specifications. This reduces the opportunities for innovation by the construction companies and makes it difficult to define responsibilities in case of mistakes.

There is a trend for contracting all renovation works in one single contract. Therefore, only general contractors can apply to them. This method reduces administrative and supervision tasks for the SHOs. However, there is less control by the SHOs of specialist works that will be subcontracted to other companies and it is more difficult to facilitate the participation of small and medium enterprises.

Knowledge

Construction projects require the participation of professionals with the necessary knowledge. In the case of energy renovations specific knowledge is needed for the designers, constructors and maintenance companies. Unfortunately, this is not always the case as the energy renovation sector is confronted with a constant evolution of building and system products. Moreover, public procurement rules, over a certain threshold, force SHOs to contract for every project by public tendering procedures. Therefore, SHOs cannot contract directly a company with who they had a previous satisfactory experience.

In the cases that works are contracted to a general contractor, commonly some specific works are subcontracted. The subcontracting will be done by the general contractor. In this case, the SHOs must rely on the selection by the general contractor as it does not have the possibility to identify if the subcontracted companies have the required competences and knowledge.

Influence on tenants behaviour

The potential energy savings of energy renovations in social housing can be jeopardized by the inappropriate behaviour of the tenants - for example by opening windows at winter time to ventilate in renovated buildings equipped with mechanical ventilation with heat recovery systems -, or by the increase of tenants comfort standards, for example by heating all the rooms of the apartment. SHOs commonly inform about the appropriate use of the dwelling installations after renovation to their tenants. Nevertheless, the influence on their behaviour still seems to be rather small.

6. Alternatives for Shelter SHOs current energy renovation processes

Different alternatives to the previous appointed problem areas are presented in this chapter. The alternatives are summarized by problem area in Table 7, and addressed to each SHO.

	ARTE Genoa	BCHG	BHA	Dynacité	Logirep	SWL
Strategy						
- Define an energy efficiency goal in housing stock policies in terms of energy certification score						
- Define systems to evaluate the energy saving improvements						
Project Organization						
- Request the government to amend the Condominium Law by decreasing the level of necessary majority for voting of conversion of GA to AO – from 100% to 67%						
- Request the government to create project management units at central and local level						
Work Organization						
- Group properties by typology and geography						
Design decisions						
- Invite the maintenance companies to participate during the design phase						
- Tender design-construction-maintain together						
- Design models of integrated energy saving measures by typologies of dwellings						

- Promote the involvement of design professional in renovation projects						
- Promote the cooperation between designers and constructors during the design phase						
Tendering and contracting						
- Use award criteria in tendering procedures						
- Use performance-based criteria in tendering and contracting						
- Create a tool-kit to guide home owners in renovation projects						
Knowledge						
- Request the government to create an official register of certified companies.						
- Organize a meeting with all the contractors involved in the process by the start of the construction phase						
- Define a larger transfer time period between construction companies and maintenance companies						
- Tender critical task as a separate lot						
Influence on tenants behaviour						
- Give notice to tenants with higher consumption than average and offer them energetic behaviour advise						
- Monitor the energy consumption						
- Create opportunities to share the benefits of a reduction in the energy consumption						
- Create a guide of methods to reduce energy consumption.						

Strategy

SHOs can define an energy efficiency goal in their housing stock policies, as it could be the energy certification scores. This solution has already been implemented in France and has allowed taking into account energy performance while prioritizing the renovation of the housing stock. Nevertheless, currently there is discussion about the accuracy of energy performance certificates as reliable energy consumption indicators. In four of the analysed countries the energy certificate score is obtained by simulation. Therefore it is an estimation that does not take into account the tenants behaviour. The exception is the Bulgarian case, where simulation and real consumption data is used to issue the energy certificate.

Project organization

In order to facilitate the home owners associations to organize and manage their renovation project some professional assistance is needed. It is advisable for BHA to request the Bulgarian government

to facilitate the implementation of the organizational possibilities defined in the Condominium Law and to offer guidance and supervision to the home owners by creating management units at central and local level.

Work organization

Planned maintenance is defined by different independent elements to be renovated. A possible alternative is to integrate them by defining a design by typology of dwellings. Thus, there will not be a design phase for every dwelling, but it will be a design phase for all the dwellings of a certain typology. Therefore, it is possible to foresee positive and negative interactions of the different elements to be renovated.

Design decisions

The alternative is to involve constructors and maintenance companies in the design phase. Nevertheless, this simple solution is not easy to implement as the majority of SHOs are under restrictions imposed by the public procurement rules. Moreover, the level of these restrictions is quite different among the different analysed countries, as shown in chapter 3.3. Thus, two different options for this collaboration during the design phase are possible:

- the use of a design-renovate-maintain contract;
- or to invite maintenance companies as consultants during the design phase.

The most complete, is to tender design-renovate-maintain in one single contract. Therefore, the consortium awarded with the contract will be working together from the beginning of the project. The consortium is formed by a group of companies like an architecture office, technical consultants, a construction company and a maintenance company. Moreover, as the operation phase is part of the contract, the responsibility in case of a mistake can not be avoided. Even more, this kind of contract can take the maximum profit of performance-based specifications (see Tendering and contracting).

Design-renovate-maintain contracts are nowadays not possible for institutions under public procurements rules in some European countries, like Belgium (Walloon region) and Italy. The first experiences for design-renovate-maintain contracts in the social housing sector are currently being implemented in France and some have already been implemented in United Kingdom. These experiences have highlighted two main possible dangers of this kind of contracts: rarely small and medium enterprises, SME, can apply for this type of contract as the financial requirements are too big for the size of their company; and the architect can lose his role of independent advisor for the SHOs as he has a contractual link with the construction company.

The second option is to involve the maintenance companies as consultants during the design phase. Commonly SHOs have 3 to 10 years contracts with maintenance companies that are in charge of responsive maintenance of their dwelling stock. Therefore, these companies have a good practical knowledge of their properties and could participate as consultants during the design phase.

Tendering and contracting

In order to take into account other parameters rather than price while awarding the contracts there is a need to implement award criteria in all tendering procedures organized by SHOs. To facilitate the implementation of this procedure it is advisable that national and European institutions define a list of legal and recommended award criteria for the selection of the most suitable contractors.

The use of performance-based specifications in place of descriptive specifications allow the contractor to get involved in proposing possible alternatives. Moreover, performance-based specifications allow to define clearly the responsibilities if the requested performance is not being achieved. However, the utilization of performance-based specifications requires that designers and contractors get used to these types of criteria. Moreover, it is needed to define evaluation methods to check the performance-based criteria after construction.

In the case that SHOs make single contracts for renovation works it is possible to increase the control capacity over specific works maintaining low profile of administrative and supervision tasks if SHOs divide the contracts in two lots. The first lot includes most part of the works to perform addressed to general contractors, and the second is for specific works, as it could be the heating installation.

Knowledge

In order to assure that all actors participating in the renovation process have the required knowledge it is possible to use selection and award criteria in the tendering procedures. Selection criteria are used in the pre-selection of candidates in restricted procedures. Currently they are mainly used to test the economic and financial standing of the companies, but it could be used also to require certain official certificates about technical and professional ability. The implementation of certificates at European level that assure the professional quality can facilitate the selection of professionals with the required knowledge for the task to perform. Moreover, as mentioned in the previous sub-chapter while awarding the contract among the pre-selected candidates a set of awarding criteria can be used to ensure the quality of the offer.

In case of works awarded to general contractors, SHOs can require to have a meeting with the designers and all the participating subcontractors in order to identify possible technical knowledge gaps among the participants and look for solutions to solve them.

Influence on tenants behaviour

In order to influence tenants behaviour is it possible to implement actions that make a direct link between their actions and the cost of the energy bill. These can be implemented by the use of smart meters and individualized energy advice to reduce the costs. Depending on the set up of the energy services, individual or common, different strategies can be implemented to use the savings obtained by the reduction of the energy costs to pay for the meters and the advice offered.

7. Conclusions

Shelter SHOs have an enormous potential for energy saving through the renovation of their dwelling stock. Unfortunately, they are limited by the availability of funds and by the rigidity of the public procurement rules.

In this report an overview of the alternatives existing in the current system for energy renovations in social housing has been presented covering seven identified problem areas: strategy, project organization, work organization, design decision, tendering and contracting, knowledge and tenants behaviour. The most important recommendations are:

- Introduce energy efficiency as one of the main parameters in the energy renovation strategy of SHOs.
- Define standard design by dwelling typology for SHOS that use planned maintenance as renovation strategy.
- Involve construction and maintenance companies during the design phase in energy renovation projects.
- Define lists of legal and recommended award criteria for energy renovation projects.
- Make use of performance-based specifications.
- Define separate contracts for specific works in energy renovation projects.
- Implement professional certificates at European level.
- Implement actions that make a direct link for the tenants between their behaviour and the energy bill.

Part of the proposed alternatives will be implemented and tested in posterior phases of the Shelter project.

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Interviews

In order to gather the information presented in this report several semi-structured interviews have been done with members of the different SHO and with other actors involved in their renovation processes. Moreover at least two past renovations and one future renovation case have been visited for every one of them. In this references chapter the people which participated in the interviews and workgroup meetings in the different visits are listed.

An individual report was made for every one of the SHOs participating in the Shelter project. In these reports their renovation processes are described and analysed in depth. They are available under request at www.shelterproject-iee.eu .

* Interviews (I), Workshops (W) and case study visits (v)

ARTE Genoa – 15-16th February 2011

- Giordano Bertelà, Project manager. (I) (v)
- Tulliola Guglielmi, Officer. (I) (v)
- Giovanni Paolo Spanu, Technical and maintenance director. (W)
- Dario Rinotti, Officer. (I) (v)
- Sergio Torre, Investments department director. (W)

- Claudio Montagni (Architecture office)
Claudio Montagni, Architect. (I)

- Cofely GDFSuez (ESCO, Energy Service Company)
Massimiliano Centanaro, Manager. (I)

Marco Mantovani, Engineer. (I)

- Marcolini & Barsoti (Architecture office)
Giampolo Marcolini, Architect. (I)

- Villa & Cevasco (Engineering office)
Franco Cevasco, Engineer. (I)

BHA – 7-10th February 2011

- Eleonora Gaydarova, Manager international projects (I) (W)(v)
- George Georgiev, Manager (I) (W) (v)

- Avança, Maintenance company
Bojidar Pampulov, General Manager (I)

- Black Sea Regional Energy Centre

Angel Nikolaev, Director (I)

- Bies, Consulting company for energy efficiency
Rosen Malchev, Manager (I)
- EnEffect, Center for Energy efficiency
Zoya Giurova, Chief Secretary, Project coordinator (I)
- Home Owners Association block 25 Zaharna Fabrika housing estate.
Maria Miletieva, Chairwoman (I)
- Konkurent - 90, Architecture office
Bisser Hantov, Manager (I)
- SFO, Construction Company
Orlin Nojarov, Manager (I)

BCHG – 6-8th December 2010

- Richard Baines, Director of Sustainable Development (I) (v)
- Mark Humphries, Project Manager (I)
- Jackie O'Callahan, Asset Manager (I)
- Tony Portman, Maintenance Surveys Manager (I)

- Birmingham City Council
Bill Goodfellow, Project Manager (I)

Neil Morton, Business Manager(I)

- Bourneville Village Trust Green Team
Participation in one of their meetings.
- Dudley Metropolitan Borough Council
Paul Griffiths, Head of Investment (I)
- Gruhe (Architects practice)
Pearl Cooray, Architect (I)
- Kaushal Builders (Construction company)
Josh Kaushal, Director(I)

Dynacité – 8-10th November 2010

- Bénédicte Chaillot, Head assistant for the Rehabilitation Sector. (W)
- Yves Galiègue, Project manager (Real estate management department) (I)(W)(v)
- Bernard Guthmann, Responsible of the contract Unit (W)
- Patricia Houdril, Head of the Property Construction and Rehabilitation Sector (W)
- Jaques Laffont, Responsible of the Contracts Managing Department (I)(W)(v)
- Véronique Leteneur, Head of Real-estate Management Department (W)
- Didier Michon, Project manager (Rehabilitation sector) (I)
- Bernard Mouton, In charge of dwellings' monitoring in the area of Jassans-Riottier (v)

- Climsanit (Construction company)
M. Pujol Director of the company (I)
- Dalkia (ESCO, Energy Service Company)
Laurent Champenois, Technical assistant at DALKIA (I) (v)

Christian Darne, Technical Responsible, monitoring the area of Jassans-Riottier (I) (v)

Patrick Legay, Technical Responsible, monitoring the area of Bourg en Bresse (I) (v)
- Dupaquier (Energy consultancy)
M. Mansot, Technical advisor (I)
- Isobase (Engineering company)
M. Veyre, Technical advisor (I)

Logirep – 24-26th November 2010

- Mathieu Boiron (W)(I)(v)
- Gilles Colpart, Finance Director (I)
- Christian Maillet, Urban Renovation (I)
- Angela Ruiz (W)(v)
- Pierre Touya (W)
- AB Consultants (Engineering consultancy)
Patrick Delinger (I)

A. Paoli (i)(V)
- BASF (Chemical company)
Nathalie Jordy, Project management & support energy efficiency and construction (I)
- G. Roux architecte (architect)
G. Roux
- Placo (Plasterboard manufacturer)
Céline Guéret, Responsible Service Marketing (I)
- SEC (Energy Services Company)
Alain Puybureau, Exploitation Director (I)

SWL – 24-26th January 2011

- Renaud Batta, Controller - monitoring sites - project management and support (I) (v)
- Jean François Letor, Coordinator of the Real Estate Department (I)
- Didier van der Haar, Inspector general of Real Estate Department (I)
- Ingrid Marteleur, Architect, Technical Coordination (I) (v)
- Manuel de la Orden, Legal assistant – DG – Research, Development & Strategy Service (W)
- Frédéric Sevrin, Legal adviser – DG – Research, Development & Strategy Service (W)
- Anne Spilliaert, Architect, Chief supervisor, monitoring site – project management and support (I)

- AIB Vinçotte (Engineering office)
Christophe Mulier, Engineer (I)
- Bureau Vanhaeren (Architect's office)
Mr. Vanhaeren, Architect (I)
- Société du Roman País (Housing Society of Public Service)
Julie Bourlard, Social team for Tubize (I)

Marie-José Martín García, Social team for Tubize (I)

Pol Rochefort, Director (I)
- S.A. Galère (Construction company)
Emmanuel Franc, Project Manager (I)

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Dynacité www.dynacite.fr

Logirep www.logirep.fr

Power House project www.powerhouseeurope.eu CECODHAS

Shelter project www.shelterproject-iee.eu

Walloon Housing Association, SWL www.swl.be



D 3.1

Energy renovation process

Overview of SHELTER Social Housing Organisations

Coordination of professionals

SHELTER

Social Housing organisation and European professionals Linked and acting together for Testing and promoting professionals coordination in Energy Renovation

www.shelterproject-iee.eu

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1. Introduction

This report aims to propose possible alternatives to avoid existing problem in the energy renovation processes of social housing. This report is part of the Shelter European project that aims to look for new procedures to improve coordination and cooperation in energy renovation processes for social housing. Six social housing organizations of five different countries, three professional federations and one research centre participate in this project.

Social Housing Organisations

ARTE Genoa, Italy
Black Country Housing Group (BCHG), United Kingdom
Bulgarian Housing Association (BHA), Bulgaria
Dynacité, France
Logirep, France
Walloon Housing Association (SWL), Belgium

EU Professional Federations

Architect's Council of Europe (ACE)
CECODHAS, The federation of public, cooperative and social housing
European Builders Confederation (EBC)

Research Centre

OTB Research Institute for the Built Environment, Delft University of Technology, the Netherlands

In the Shelter project energy renovation is considered as major renovation works resulting in a significant improvement of the energy performance of the building and an extension of the service life. A large number of social housing organisations are nowadays commonly developing this kind of renovations.

In order to draw a picture that facilitates a comparison of renovation processes in different social housing organizations, the process is described in a systematic order. In the first place the general characteristics of the social housing organisation and the regulations that apply to their renovation processes are presented. Further, the different elements of the renovation process are described in depth:

- the energy renovation process: actors and duties along the different phases;
- relational characteristics among actors.

Next, problems areas are described and possible alternatives to the current process are presented.

The information presented in this report has been gathered through the use of an extensive questionnaire and interviews among employees of the different SHOs and other actors involved in their renovation processes.

2. General characteristics of Shelter SHOs and their energy renovation processes

2.1. General characteristics of social housing in Shelter countries

Five countries are represented among the six Shelter SHOs: Belgium (Walloon region), Bulgaria, Italy, France and United Kingdom. The characteristics of social housing in the five countries differ considerably. In United Kingdom and France around 1/5 of housing is social rental, in Italy and Belgium around 1/20 and in Bulgaria only a 1/50. See Table 1.

	Home ownership	Private rental	Social rental	Other
Belgium	68%	23%	7%	2%
Bulgaria	95%	3%	2%	
France	56%	25%	19%	
Italy	73%	14%	5%	8%
United Kingdom	69%	10%	21%	

Table 1. Housing tenure in Shelter countries (Source CECODHAS. Housing Europe 2007)

In the case of Bulgaria, however, the housing stock constructed by the government during the totalitarian period, until 1989, can be considered social housing, as it was constructed with similar standards and sold at low prices. The vast majority of them are multifamily apartment blocks built by industrialised technologies, condominiums, and they represent the 32% of the Bulgarian housing stock.

2.2. General characteristics of Shelter SHOs

The six SHOs analysed in this report are from a different nature. See Table 2. Four of them are entities that own dwellings and manage them: ARTE Genoa, Dynacité, Logirep and BCHG. The first two are public entities, the other two are private non-profit entities. SWL is the umbrella organisation of all SHOs in the Walloon region. SWL is in charge of funding, guiding and supervising them in name of the Walloon government, thus is a public entity. BHA is an independent, private, non-profit organisation that looks to facilitate an overall housing reform in Bulgaria. BHA acts as promoter and/or advisor of various projects looking for this goal.

	Country	Type of SHO	Number of dwellings
ARTE	Italy	Public SHO	12,100
BHA	Bulgaria	Private non-profit	0
BCHG	United Kingdom	Private non-profit	1,800
Dynacité	France	Public SHO	23,39
Logirep	France	Private SHO	32,200
SWL	Belgium (Walloon region)	Public SHO, (Umbrella organization for Walloon SHOs)	104,000 Owned by Walloon SHOs

Table 2. General characteristics of Shelter SHOs, country, type and number of dwellings

The SHOs participating in the Shelter project play different roles in energy renovation processes depending on their nature. The SHOs owning dwellings acts as the main stakeholder, while SWL acts as funder, guider and supervisor and BHA acts as promoter/advisor.

Therefore, the analysis differs depending if the SHO owns dwellings or not. The analysis of SHOs owning dwellings is been focused only on the operation of their organisation. While in the other two cases the analysis covers the situation of energy renovation of social housing in the Walloon region (SWL) and Bulgaria (BHA).

3. Regulations applied to energy renovation for social housing in Shelter countries

Dwelling renovation in social housing is shaped by national social housing policies, energy regulations and market regulations. The characteristics of these three elements per country are presented in this chapter.

3.1 Social housing renovation policies

Among the five analysed countries, different national social housing renovation policies are applied. Four different main goals have been identified. France is focusing on reducing CO₂ emissions. Belgium (Walloon Region) and United Kingdom are focusing on improving health and safety in social housing. Italy is focusing on urban renewal and Bulgaria on promoting renovation investments. In all cases the renovation policy is being promoted with a different type of funding programs. See Table 3.

Country	Main goal of national social housing renovation policy	Implementation
Belgium (Walloon Region)	Improve health and safety	Exceptional Investment Program
Bulgaria	Promote renovation investments	Condominium Law
France	Reduce CO ₂ emissions	Law Grenelle
Italy	Urban renewal	Municipal urban renewal plans
United Kingdom	Improve health and safety	Decent Homes Standard

Table 3. Main national social housing renovation policies and implementation tools

In Belgium (Walloon Region) there is an Exceptional Investment Program for renovation purposes that is managed by the Walloon Social Housing Society, umbrella organization for the Walloon SHOs and depending on the Walloon government. The program is subsidizing the renovation of 33% of the social housing stock of Wallonia.

In Bulgaria, EU structural funds will be available from June 2011 for the condominium owners organized in associations as established in the Condominium Law. The Condominium Law was approved in 2009 creating opportunities for easier renovation and better maintenance and management of condominium buildings.

In France the generalist environmental Law Grenelle to reduce CO2 emissions is being implemented by different plans. In the Building Plan the social housing sector has funding incentives through eco-loans. The Caisses de Dépôts offers them at low interest rates for renovation projects aiming to improve energy efficiency of dwelling rated D or lower by French energy certification standards.

In Italy housing policies depend on the region and the municipality. These entities define the city areas where new urban renewal plans will take place. Every urban renewal plan has some funds associated that can be requested by the building owners of the defined area in order to implement their renovation.

In 2000 the UK government defined the Decent Home Standard and a Decent Home Program to achieve this standard in all UK social housing stock by 2010. In 2010 10% of the stock was not yet at the standard level. Nevertheless, there has been a large improvement in the health and safety parameters. The program had a Housing Revenue Account managed by the local authorities that offered subsidies for this purpose. At present UK is defining the goals of the new social housing renovation policy.

3.2 Energy efficiency regulations

The Energy Performance of Buildings Directive, EPBD, has been introduced in all European countries (EPBD CA, 2011). In the five analysed countries it is now mandatory to obtain an energy certificate for the dwelling in case it is being sold or rented. Therefore, it is not necessary for SHOs to obtain the energy certificate of all their properties. However, as the national policy of certain countries has related the available funding to achieving a certain energy label, the SHOs of these countries have certified their whole stock in order to make energy performance one of the decision fields within their strategic asset management. See Table 4. Among the analysed countries this approach is applied in France. Belgium (Walloon Region) is in the process of applying a similar approach.

Belgium (Walloon Region)	France	Italy	UK
Planned to start general implementation next year	Generally implemented	Not implemented	Not implemented

Table 4. Introduction of EPBD score of dwellings in SHOs property register

In the case of Bulgaria, for private owners energy certificates are not mandatory. However, an owner can request a tax release in case an energy certificate has been delivered and the house is rated a certain score.

Energy regulations are in some cases in conflict with urban planning regulations. By historical or aesthetical reasons it is not possible in some places to modify the external façade forbidding the use of external insulation.

3.3 Market regulations

SHOs have a different entity status in the European Union that can be categorized mainly in two types: public entities or private non-profit entities. In France, Italy and the UK both types of entity exist, but in Wallonia all SHOs are public. See Table 5.

	Belgium (Walloon Region)	France	Italy	United Kingdom
Types of SHOs	Public	Public Private (Non -profit)	Public Private (Non -profit)	Public Private (Non -profit)
Public Procurement Regulation	EU PPR + Belgium PPR for all SHOs	EU PPR + French PPR for public SHOs	EU PPR + Italian PPR for public SHOs	EU PPR

Table 5. Types of SHOs and Public Procurement Rules applied to SHOs

European public tendering rules for services (including design) and works apply to public and private SHOs that use public funds. Moreover, national public procurement rules apply under the European thresholds for public entities in Belgium, Italy and France. The differences in implementation of public procurement rules and the limitation that they cause to the entities subject to them are currently under discussion at the European Commission. In Bulgaria "social housing" is private own. Therefore, public procurement rules are not applied.

The fundamental principle of public procurement rules is that the contracts with a budget higher than a defined threshold must be opened up to a nation-wide or EU-wide tender. The conditions of the tender must be published in official EU or national media, depending on national or EU tendering rules. The process must assure the equality of treatment among all the candidates.

SHOs can organize an open or restricted procedure. In an open procedure the candidates apply directly with an offer. In restricted procedures the candidates are pre-selected by certain selection criteria related to economic and financial standing and technical or professional certificates. Public procurement rules offer other kinds of procedures, but this are not applied in renovation projects in social housing.

In the case of restricted procedures it is possible to define a framework agreement that allow using the same pre-selection of companies for certain type of contracts for a maximum of four years. In all restricted procedure a minimum number of companies must be pre-selected (Office of Government Commerce, 2008).

The contract can be awarded to the "lowest price" or to the "most economically advantageous offer". In order to define the "most economically advantageous offer" a set of criteria need to be defined beforehand by the SHOs. These award criteria can take into account among others parameters like total cost of ownership, delivery date, running costs, cost effectiveness, technical merit, sustainable solutions and after sales-services.

4. Current energy renovation processes

In order to extend the life span of the building when performing a renovation several elements of the dwelling are renovated; e.g. kitchen, bathroom or the electrical installation. Among the works performed a few have an effect on the energy consumption; e.g. insulation of walls and roof, double glazing windows, introduction of assisted ventilation, change of heating system and in some cases installation of renewable energy systems.

Taking this consideration into account among the five countries two main types of renovation processes have been identified: major renovations and planned maintenance.

4.1 Major renovation

Considering the renovation process from inception until exploitation it can be divided in four phases: planning, design, construction and maintenance. See Figure 1. During this process seven main types of actors are present:

- Tenants
- Social Housing Organisation
- Investors: Bank, Municipality, Regional Government, National Government, Energy Companies.
- Designers: Architects, Engineers, Consultants.
- Construction companies (including installation companies)
- Maintenance companies
- Manufacturers

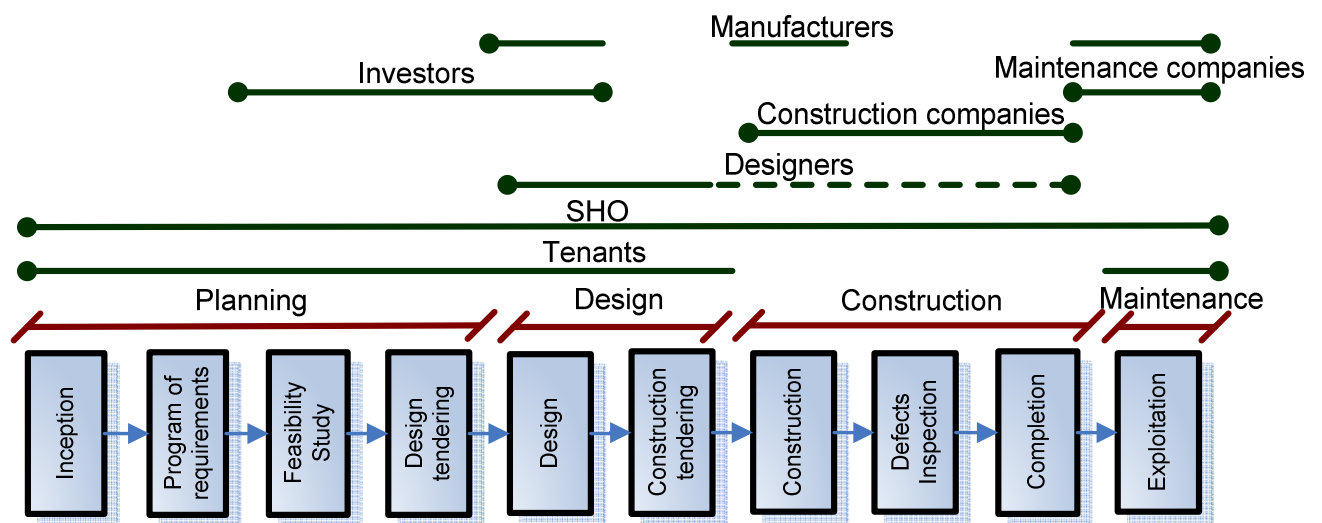


Figure 1. Major renovation process. Phases and actors present in every phase

Major renovation occurs mainly in empty properties, and the tenants have commonly a minor possibility to participate in the design decisions. In effect, only the SHOs and the designers participate in the design decisions. Construction companies and maintenance companies get involved into the project once the design is completely defined. The communication between designers, construction companies and maintenance companies is mainly by technical reports and specifications.

4.2 Planned maintenance

Planned maintenance can be considered being a renovation strategy in the case that after execution of a long-term maintenance plan the condition status of the elements affected are the same than after a major renovation.

In planned maintenance the different interventions, e.g. renovation of the kitchen, renovation of the heating system, insulation of walls and roofs are done independently in different moments of time. See Figure 2. Thus every action takes only a few days and commonly the dwellings stay occupied while the intervention takes place. Moreover, as standard technical solutions are applied commonly there are no designers and there is no design phase.

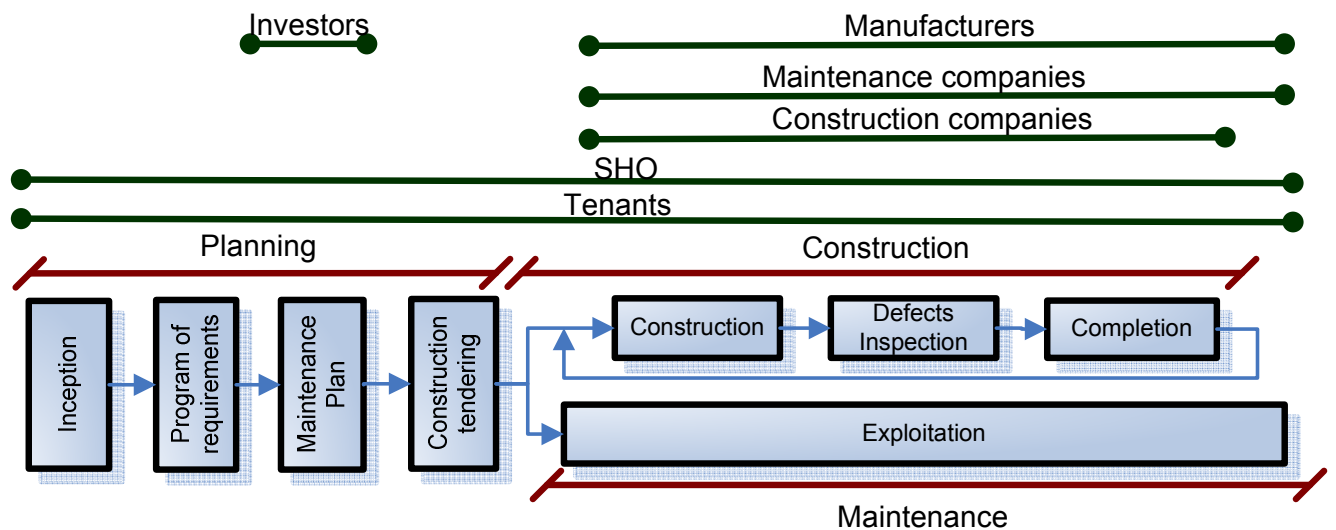


Figure 2. Planned maintenance. Phases and actors present in every phase

The report 'WP3.2 Models of coordination' gives more information about the models per SHO.

5. Identification of problem areas in Shelter SHOs energy renovation processes

Seven main problem areas have been identified during the analysis of the Shelter SHOs. See Table 6. Four of them are shared by the majority of SHOs: 'Design decisions', 'Tendering and contracting', 'Knowledge and Influence on tenants behaviour'. Moreover, for three SHOs 'Strategy' has been highlighted too as a problem area. In addition, two problem areas have been identified because of individual specificities of BHA and BCHG.

	ARTE Genoa	BCHG	BHA	Dynacité	Logirep	SWL
Strategy	■	■				■
Project Organization			■			
Work Organization		■				
Design decisions	■	■	■	■	■	■
Tendering and contracting	■	■	■	■	■	■
Knowledge			■	■	■	■
Influence on tenants behaviour	■	■	■	■	■	■

Table 6. Problem areas by Shelter SHOs

Strategy

In Belgium (Walloon region), Italy and United Kingdom the energy performance is not one of the main goals of national policies on social housing renovation. Energy performance is not a main strategy goal for the dwelling stock renovation for ARTE Genoa, BCHG and SWL, too.

Project Organization

In Bulgaria "social housing " is privately owned. Thus, home owners associations are in charge of the renovation process. Generally this kind of organizations don not have the professional knowledge to manage the different tasks associated to a renovation process.

Work organization

In the cases that SHOs use planned maintenance methods for energy renovations, as BCHG does, commonly there is no design phase. Therefore standard solutions for the replacement of specific elements are applied. Moreover, as the different actions (e.g. replacement of heating system, insulation of the walls or replacement of windows) are performed in different periods in time they can not be part of an integrated solution. Therefore, while using planned maintenance methods there is less room for innovative energy saving solutions.

Design decisions

Commonly only the designers (architects, engineers and consultants) and the SHOs are active during the design phase in major renovations, see Figure 1. This means that the practical knowledge gathered by construction companies and maintenance companies is not effectively used, affecting sometimes in higher final costs then necessary, as the cost of modifications in a construction project increases in time, see Figure 3.

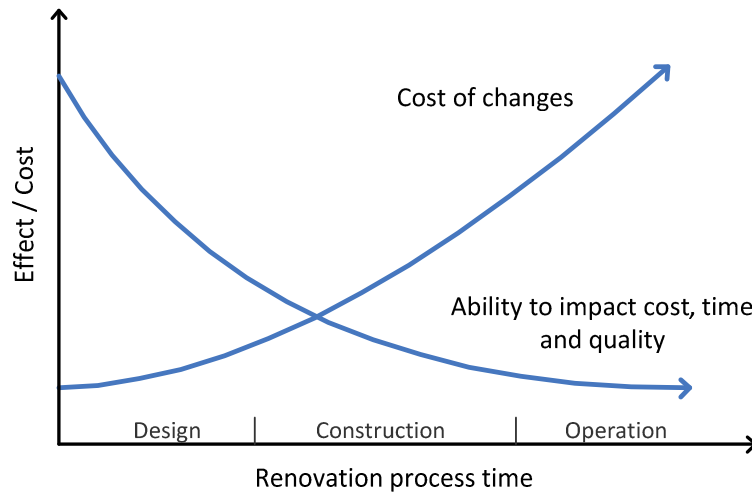


Figure 3. Major renovation process. The impact of decisions in design stage on project outcomes (Adapted from (Uher and Loosemore, 2004))

Tendering and contracting

The selection and award criteria used in tendering and contracting, the type of specifications (descriptive or performance-based) and the contract's volume can change the relation among actors involved in the renovation process and can even change the structure of the process.

Even though European public tendering rules promote the use of award criteria, currently numerous SHOs are still awarding the contracts by selecting the lowest bid. This type of selection procedure doesn't allow testing of the quality of the services offered. Moreover, the tenders and contracts mainly use descriptive specifications. This reduces the opportunities for innovation by the construction companies and makes it difficult to define responsibilities in case of mistakes.

There is a trend for contracting all renovation works in one single contract. Therefore, only general contractors can apply to them. This method reduces administrative and supervision tasks for the SHOs. However, there is less control by the SHOs of specialist works that will be subcontracted to other companies and it is more difficult to facilitate the participation of small and medium enterprises.

Knowledge

Construction projects require the participation of professionals with the necessary knowledge. In the case of energy renovations specific knowledge is needed for the designers, constructors and maintenance companies. Unfortunately, this is not always the case as the energy renovation sector is confronted with a constant evolution of building and system products. Moreover, public procurement rules, over a certain threshold, force SHOs to contract for every project by public tendering procedures. Therefore, SHOs cannot contract directly a company with who they had a previous satisfactory experience.

In the cases that works are contracted to a general contractor, commonly some specific works are subcontracted. The subcontracting will be done by the general contractor. In this case, the SHOs must rely on the selection by the general contractor as it does not have the possibility to identify if the subcontracted companies have the required competences and knowledge.

Influence on tenants behaviour

The potential energy savings of energy renovations in social housing can be jeopardized by the inappropriate behaviour of the tenants - for example by opening windows at winter time to ventilate in renovated buildings equipped with mechanical ventilation with heat recovery systems -, or by the increase of tenants comfort standards, for example by heating all the rooms of the apartment. SHOs commonly inform about the appropriate use of the dwelling installations after renovation to their tenants. Nevertheless, the influence on their behaviour still seems to be rather small.

6. Alternatives for Shelter SHOs current energy renovation processes

Different alternatives to the previous appointed problem areas are presented in this chapter. The alternatives are summarized by problem area in Table 7, and addressed to each SHO.

	ARTE Genoa	BCHG	BHA	Dynacité	Logirep	SWL
Strategy						
- Define an energy efficiency goal in housing stock policies in terms of energy certification score						
- Define systems to evaluate the energy saving improvements						
Project Organization						
- Request the government to amend the Condominium Law by decreasing the level of necessary majority for voting of conversion of GA to AO – from 100% to 67%						
- Request the government to create project management units at central and local level						
Work Organization						
- Group properties by typology and geography						
Design decisions						
- Invite the maintenance companies to participate during the design phase						
- Tender design-construction-maintain together						
- Design models of integrated energy saving measures by typologies of dwellings						

- Promote the involvement of design professional in renovation projects						
- Promote the cooperation between designers and constructors during the design phase						
Tendering and contracting						
- Use award criteria in tendering procedures						
- Use performance-based criteria in tendering and contracting						
- Create a tool-kit to guide home owners in renovation projects						
Knowledge						
- Request the government to create an official register of certified companies.						
- Organize a meeting with all the contractors involved in the process by the start of the construction phase						
- Define a larger transfer time period between construction companies and maintenance companies						
- Tender critical task as a separate lot						
Influence on tenants behaviour						
- Give notice to tenants with higher consumption than average and offer them energetic behaviour advise						
- Monitor the energy consumption						
- Create opportunities to share the benefits of a reduction in the energy consumption						
- Create a guide of methods to reduce energy consumption.						

Strategy

SHOs can define an energy efficiency goal in their housing stock policies, as it could be the energy certification scores. This solution has already been implemented in France and has allowed taking into account energy performance while prioritizing the renovation of the housing stock. Nevertheless, currently there is discussion about the accuracy of energy performance certificates as reliable energy consumption indicators. In four of the analysed countries the energy certificate score is obtained by simulation. Therefore it is an estimation that does not take into account the tenants behaviour. The exception is the Bulgarian case, where simulation and real consumption data is used to issue the energy certificate.

Project organization

In order to facilitate the home owners associations to organize and manage their renovation project some professional assistance is needed. It is advisable for BHA to request the Bulgarian government

to facilitate the implementation of the organizational possibilities defined in the Condominium Law and to offer guidance and supervision to the home owners by creating management units at central and local level.

Work organization

Planned maintenance is defined by different independent elements to be renovated. A possible alternative is to integrate them by defining a design by typology of dwellings. Thus, there will not be a design phase for every dwelling, but it will be a design phase for all the dwellings of a certain typology. Therefore, it is possible to foresee positive and negative interactions of the different elements to be renovated.

Design decisions

The alternative is to involve constructors and maintenance companies in the design phase. Nevertheless, this simple solution is not easy to implement as the majority of SHOs are under restrictions imposed by the public procurement rules. Moreover, the level of these restrictions is quite different among the different analysed countries, as shown in chapter 3.3. Thus, two different options for this collaboration during the design phase are possible:

- the use of a design-renovate-maintain contract;
- or to invite maintenance companies as consultants during the design phase.

The most complete, is to tender design-renovate-maintain in one single contract. Therefore, the consortium awarded with the contract will be working together from the beginning of the project. The consortium is formed by a group of companies like an architecture office, technical consultants, a construction company and a maintenance company. Moreover, as the operation phase is part of the contract, the responsibility in case of a mistake can not be avoided. Even more, this kind of contract can take the maximum profit of performance-based specifications (see Tendering and contracting).

Design-renovate-maintain contracts are nowadays not possible for institutions under public procurements rules in some European countries, like Belgium (Walloon region) and Italy. The first experiences for design-renovate-maintain contracts in the social housing sector are currently being implemented in France and some have already been implemented in United Kingdom. These experiences have highlighted two main possible dangers of this kind of contracts: rarely small and medium enterprises, SME, can apply for this type of contract as the financial requirements are too big for the size of their company; and the architect can lose his role of independent advisor for the SHOs as he has a contractual link with the construction company.

The second option is to involve the maintenance companies as consultants during the design phase. Commonly SHOs have 3 to 10 years contracts with maintenance companies that are in charge of responsive maintenance of their dwelling stock. Therefore, these companies have a good practical knowledge of their properties and could participate as consultants during the design phase.

Tendering and contracting

In order to take into account other parameters rather than price while awarding the contracts there is a need to implement award criteria in all tendering procedures organized by SHOs. To facilitate the implementation of this procedure it is advisable that national and European institutions define a list of legal and recommended award criteria for the selection of the most suitable contractors.

The use of performance-based specifications in place of descriptive specifications allow the contractor to get involved in proposing possible alternatives. Moreover, performance-based specifications allow to define clearly the responsibilities if the requested performance is not being achieved. However, the utilization of performance-based specifications requires that designers and contractors get used to these types of criteria. Moreover, it is needed to define evaluation methods to check the performance-based criteria after construction.

In the case that SHOs make single contracts for renovation works it is possible to increase the control capacity over specific works maintaining low profile of administrative and supervision tasks if SHOs divide the contracts in two lots. The first lot includes most part of the works to perform addressed to general contractors, and the second is for specific works, as it could be the heating installation.

Knowledge

In order to assure that all actors participating in the renovation process have the required knowledge it is possible to use selection and award criteria in the tendering procedures. Selection criteria are used in the pre-selection of candidates in restricted procedures. Currently they are mainly used to test the economic and financial standing of the companies, but it could be used also to require certain official certificates about technical and professional ability. The implementation of certificates at European level that assure the professional quality can facilitate the selection of professionals with the required knowledge for the task to perform. Moreover, as mentioned in the previous sub-chapter while awarding the contract among the pre-selected candidates a set of awarding criteria can be used to ensure the quality of the offer.

In case of works awarded to general contractors, SHOs can require to have a meeting with the designers and all the participating subcontractors in order to identify possible technical knowledge gaps among the participants and look for solutions to solve them.

Influence on tenants behaviour

In order to influence tenants behaviour is it possible to implement actions that make a direct link between their actions and the cost of the energy bill. These can be implemented by the use of smart meters and individualized energy advice to reduce the costs. Depending on the set up of the energy services, individual or common, different strategies can be implemented to use the savings obtained by the reduction of the energy costs to pay for the meters and the advice offered.

7. Conclusions

Shelter SHOs have an enormous potential for energy saving through the renovation of their dwelling stock. Unfortunately, they are limited by the availability of funds and by the rigidity of the public procurement rules.

In this report an overview of the alternatives existing in the current system for energy renovations in social housing has been presented covering seven identified problem areas: strategy, project organization, work organization, design decision, tendering and contracting, knowledge and tenants behaviour. The most important recommendations are:

- Introduce energy efficiency as one of the main parameters in the energy renovation strategy of SHOs.
- Define standard design by dwelling typology for SHOS that use planned maintenance as renovation strategy.
- Involve construction and maintenance companies during the design phase in energy renovation projects.
- Define lists of legal and recommended award criteria for energy renovation projects.
- Make use of performance-based specifications.
- Define separate contracts for specific works in energy renovation projects.
- Implement professional certificates at European level.
- Implement actions that make a direct link for the tenants between their behaviour and the energy bill.

Part of the proposed alternatives will be implemented and tested in posterior phases of the Shelter project.

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Interviews

In order to gather the information presented in this report several semi-structured interviews have been done with members of the different SHO and with other actors involved in their renovation processes. Moreover at least two past renovations and one future renovation case have been visited for every one of them. In this references chapter the people which participated in the interviews and workgroup meetings in the different visits are listed.

An individual report was made for every one of the SHOs participating in the Shelter project. In these reports their renovation processes are described and analysed in depth. They are available under request at www.shelterproject-iee.eu .

* Interviews (I), Workshops (W) and case study visits (v)

ARTE Genoa – 15-16th February 2011

- Giordano Bertelà, Project manager. (I) (v)
- Tulliola Guglielmi, Officer. (I) (v)
- Giovanni Paolo Spanu, Technical and maintenance director. (W)
- Dario Rinotti, Officer. (I) (v)
- Sergio Torre, Investments department director. (W)

- Claudio Montagni (Architecture office)
Claudio Montagni, Architect. (I)

- Cofely GDFSuez (ESCO, Energy Service Company)
Massimiliano Centanaro, Manager. (I)

Marco Mantovani, Engineer. (I)

- Marcolini & Barsoti (Architecture office)
Giampolo Marcolini, Architect. (I)

- Villa & Cevasco (Engineering office)
Franco Cevasco, Engineer. (I)

BHA – 7-10th February 2011

- Eleonora Gaydarova, Manager international projects (I) (W)(v)
- George Georgiev, Manager (I) (W) (v)

- Avança, Maintenance company
Bojidar Pampulov, General Manager (I)

- Black Sea Regional Energy Centre

Angel Nikolaev, Director (I)

- Bies, Consulting company for energy efficiency
Rosen Malchev, Manager (I)
- EnEffect, Center for Energy efficiency
Zoya Giurova, Chief Secretary, Project coordinator (I)
- Home Owners Association block 25 Zaharna Fabrika housing estate.
Maria Miletieva, Chairwoman (I)
- Konkurent - 90, Architecture office
Bisser Hantov, Manager (I)
- SFO, Construction Company
Orlin Nojarov, Manager (I)

BCHG – 6-8th December 2010

- Richard Baines, Director of Sustainable Development (I) (v)
- Mark Humphries, Project Manager (I)
- Jackie O'Callahan, Asset Manager (I)
- Tony Portman, Maintenance Surveys Manager (I)

- Birmingham City Council
Bill Goodfellow, Project Manager (I)

Neil Morton, Business Manager(I)

- Bourneville Village Trust Green Team
Participation in one of their meetings.
- Dudley Metropolitan Borough Council
Paul Griffiths, Head of Investment (I)
- Gruhe (Architects practice)
Pearl Cooray, Architect (I)
- Kaushal Builders (Construction company)
Josh Kaushal, Director(I)

Dynacité – 8-10th November 2010

- Bénédicte Chaillot, Head assistant for the Rehabilitation Sector. (W)
- Yves Galiègue, Project manager (Real estate management department) (I)(W)(v)
- Bernard Guthmann, Responsible of the contract Unit (W)
- Patricia Houdril, Head of the Property Construction and Rehabilitation Sector (W)
- Jaques Laffont, Responsible of the Contracts Managing Department (I)(W)(v)
- Véronique Leteneur, Head of Real-estate Management Department (W)
- Didier Michon, Project manager (Rehabilitation sector) (I)
- Bernard Mouton, In charge of dwellings' monitoring in the area of Jassans-Riottier (v)

- Climsanit (Construction company)
M. Pujol Director of the company (I)
- Dalkia (ESCO, Energy Service Company)
Laurent Champenois, Technical assistant at DALKIA (I) (v)

Christian Darne, Technical Responsible, monitoring the area of Jassans-Riottier (I) (v)

Patrick Legay, Technical Responsible, monitoring the area of Bourg en Bresse (I) (v)
- Dupaquier (Energy consultancy)
M. Mansot, Technical advisor (I)
- Isobase (Engineering company)
M. Veyre, Technical advisor (I)

Logirep – 24-26th November 2010

- Mathieu Boiron (W)(I)(v)
- Gilles Colpart, Finance Director (I)
- Christian Maillet, Urban Renovation (I)
- Angela Ruiz (W)(v)
- Pierre Touya (W)
- AB Consultants (Engineering consultancy)
Patrick Delinger (I)

A. Paoli (i)(V)
- BASF (Chemical company)
Nathalie Jordy, Project management & support energy efficiency and construction (I)
- G. Roux architecte (architect)
G. Roux
- Placo (Plasterboard manufacturer)
Céline Guéret, Responsible Service Marketing (I)
- SEC (Energy Services Company)
Alain Puybureau, Exploitation Director (I)

SWL – 24-26th January 2011

- Renaud Batta, Controller - monitoring sites - project management and support (I) (v)
- Jean François Letor, Coordinator of the Real Estate Department (I)
- Didier van der Haar, Inspector general of Real Estate Department (I)
- Ingrid Marteleur, Architect, Technical Coordination (I) (v)
- Manuel de la Orden, Legal assistant – DG – Research, Development & Strategy Service (W)
- Frédéric Sevrin, Legal adviser – DG – Research, Development & Strategy Service (W)
- Anne Spilliaert, Architect, Chief supervisor, monitoring site – project management and support (I)

- AIB Vinçotte (Engineering office)
Christophe Mulier, Engineer (I)
- Bureau Vanhaeren (Architect's office)
Mr. Vanhaeren, Architect (I)
- Société du Roman País (Housing Society of Public Service)
Julie Bourlard, Social team for Tubize (I)

Marie-José Martín García, Social team for Tubize (I)

Pol Rochefort, Director (I)
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