

## INTELLIGENT ENERGY and RETROFITTING OF SOCIAL HOUSING

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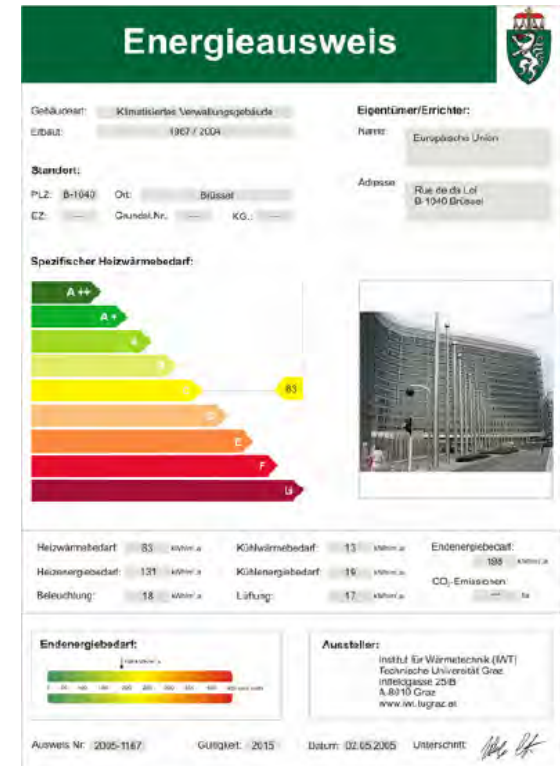
# POLICY CONTEXT IN THE BUILDINGS SECTOR

- Buildings account for 40% of final EU energy use
- The residential sector constitutes the largest component of energy consumption in buildings:
  - ▶ **EU households: 68%**
- Aprox. 2% of the building stock is replaced on annual basis (new constructions), whilst an aprox. further 2% is renovated.
- Renovation of buildings offer the singular largest potential for energy savings and CO2 emission reduction in the EU



# ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE

- Calculation of the integrated energy performance with a methodology at national or regional level under a common framework
- Minimum requirements on the energy performance of new buildings and large refurbishments
- Energy certification of buildings making energy consumption visible to owners, tenants and users
- Inspection of boilers and air-conditioning systems
- Independent experts for assessment and inspection



Example:  
Certificate of the main Commission  
Building "BERLAYMONT"

# EPBD's state of implementation

- Many countries already enacted legislation and regulations before the end of 2006, but not all...
- Most countries have requested an extension of 3 years due to a lack of accredited experts and inspectors – training them takes a long time.
- We shall start to see certificates popping up for NEW buildings, PUBLIC buildings and, to a lesser extent, EXISTING buildings over the period 2007-2008.
- The complete EPBD shall not be fully in force in the whole of Europe before 2009. No change really feasible before then.
- The Commission will propose expanding the scope of the EPBD substantially in 2009, after its complete implementation.



# POLICY CONTEXT IN THE BUILDINGS SECTOR: social housing

- The European Regional Development Fund (ERDF) allows for structural aid for housing in (re-)development projects, in areas of the new MS that are threatened by physical deterioration or social exclusion.
- In May 2007 the EP adopted a non-legislative resolution on the right to adequate & good-quality housing as a fundamental right & the provision of EU guidance to enlarge capacity to solve housing problems (principle of subsidiarity).
- Revision of the regulations on social cohesion policy for 2009, re-opens the debate on extending access to EU funds for renovation of SH to all MS to save energy and protect the environment, given that housing needs are critical throughout Europe.



# Converting policy into action

## The Intelligent Energy Europe Programme

IEE is an EU support programme promoting increased **energy efficiency** and the use of **renewable energy sources** by overcoming the non-technological barriers (legal, financial, institutional, cultural, social barriers)



# 400 EUROPEAN PROJECTS



**Energy efficiency and rational energy use**  
**SAVE**



**New and renewable energy sources**  
**ALTENER**



**Energy in transport**  
**STEER**



# 60 NEW LOCAL OR REGIONAL ENERGY AGENCIES



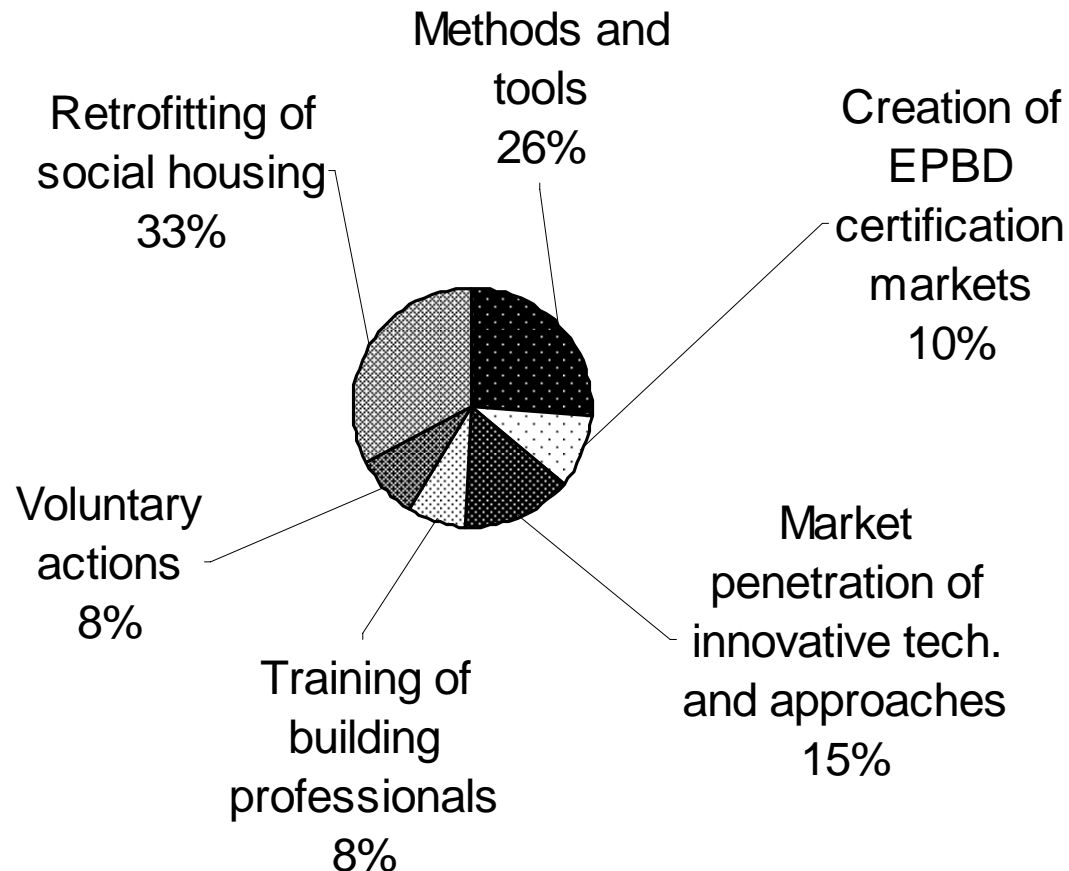


# OVERVIEW OF ONGOING ACTIONS

■ 61 on-going or recently completed projects

~ EUR 34 million support

(+ EUR 4.8 million for Concerted Action, CEN and EPBD Platform)



# RETROFITTING OF SOCIAL HOUSING

## 20 ongoing projects

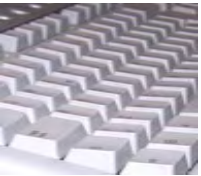


- ▶ Education, training and local forums for social housing stakeholder  
(NIRSEPES, EI-Education, ROSH)



- ▶ Awareness raising mainly towards tenants

(ISEES, SHARE, Save@Work4Homes)



- ▶ Improvement of asset management tools  
(Epi-SoHo, RESHAPE, ESAM, Factor 4)



- ▶ Retrofitting solutions  
(E-Retrofit- KIT, TREES, AVASH, SurRE-FIT, SQUARE)



- ▶ Legal and Institutional Changes  
(TACKOBST, EPEE)



- ▶ Tailored financing schemes  
(InoFin, ECOLISH, FinSH)

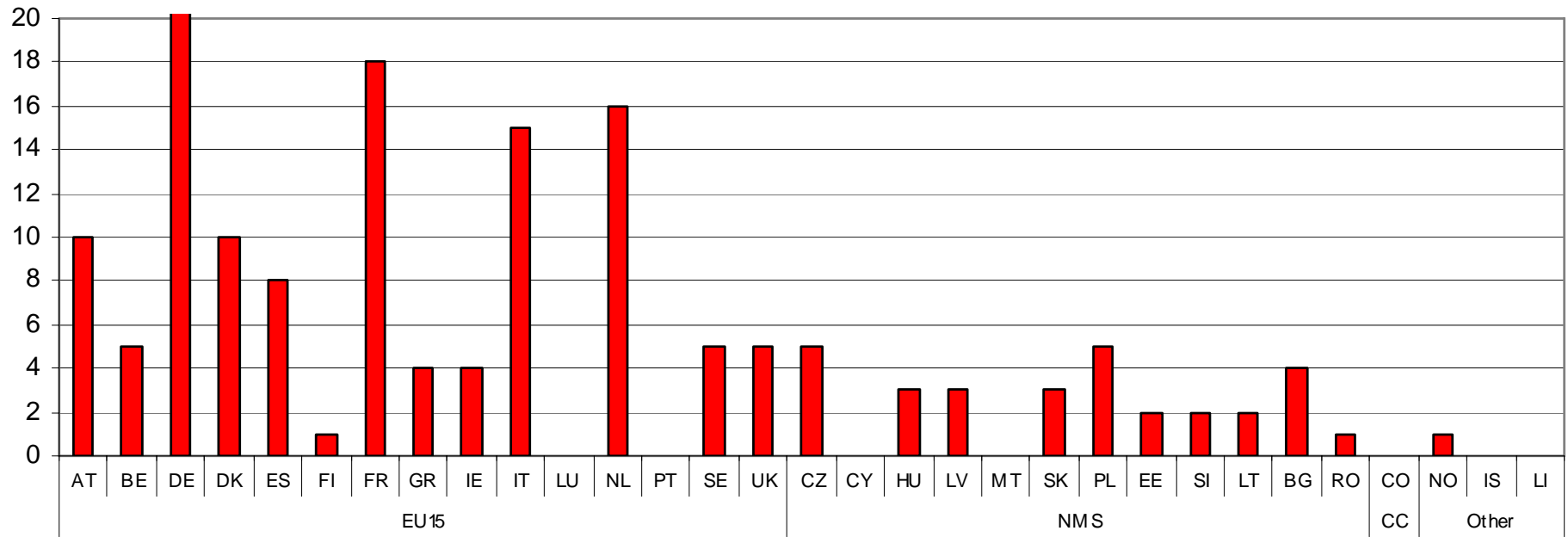
## Main characteristics of the 20 ongoing projects on RETROFITTING OF SOCIAL HOUSING

- 153 Partners involved, from which the highest interest from social housing sector (social housing associations or companies) and SME's.
- Overall broad country coverage:  
24 countries involved – sometimes only with city or region
- Consortia contain on average 9 partners (min 5; max 16)
- Budget: normally around 1 mio € (min 0,3 mio €, max 2 mio €)
- Total EU contribution: 10.352.292,00 €
- About 20% of the partners are from New Member States



# RETROFITTING OF SOCIAL HOUSING

## Country overview



# RETROFITTING OF SOCIAL HOUSING

## Geographical coverage of participants by type of partner

	EU15															NMS										CC	Other					
	AT	BE	DE	DK	ES	FI	FR	GR	IE	IT	LU	NL	PT	SE	UK	CZ	CY	HU	LV	MT	SK	PL	EE	SI	LT	BG	RO	CO	NO		IS	LI
SHO	2	2	6	3	1	1	7	1	1	5	0	5	0	0	1	1	0	0	0	0	1	0	1	1	0	1	0	0	0	0	0	40
GOV	0	0	2	0	1	0	0	0	0	1	0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	8
A	4	0	0	0	1	0	2	1	2	4	0	0	0	1	2	1	0	0	0	0	1	H	1	0	0	3	0	0	0	0	0	26
E	2	1	4	2	2	0	2	2	0	0	0	1	0	1	1	0	0	2	1	0	1	R	0	1	2	0	0	0	1	0	0	26
SME	2	1	7	5	2	0	5	0	1	4	0	9	0	2	1	3	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	45
OTH	0	1	2	0	1	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	8
	10	5	21	10	8	1	18	4	4	15	0	16	0	5	5	5	0	3	3	0	3	5	2	2	2	4	1	0	1	0	0	153

### Key:

SHO – Housing associations or companies

GOV – Municipalities or local/regional authorities

A – Energy or housing agencies

E - Educational institutions or research centres

SME – Small/medium enterprises

OTH – Professional unions/associations or NGO's

# OTHER EU funded related to RESIDENTIAL BUILDINGS

- ▶ Low cost low energy Social housing for enlarged Europe (SAVE, completed)  
**LOCOSOC**
- ▶ Sustainable Housing in Europe (FP5, 2003-2008)  
**SHE**
- ▶ Sustainable Refurbishment Europe (FP5, completed)  
**SUREURO**
- ▶ Methodology Development towards a Label for Environmental, Social and Economic Buildings (FP6, almost finishing)  
**LEnSE**
- ▶ **Eco-BUILDINGS** projects
- ▶ **CONCERTO** projects



# RETROFITTING OF SOCIAL HOUSING projects presented during this conference

## FACTOR 4

Programme of Actions towards Factor 4 in existing social housing in Europe

## InoFin

Innovative Financing of Social Housing Refurbishment in Enlarged Europe

## Epi-SoHo

Energy Performance Integration in Social Housing

## EPEE

European Fuel Poverty and Energy Performance Efficiency

## ROSH

Developement & Marketing of Integrated Concepts for Energy Efficient and sustainable retrofitting of Social Housing

## E-Retrofit-Kit

Tool-Kit for « *Passivhaus* » Retrofit

# TREES

## Training for Renovated Energy Efficient Social Housing

### Objectives :

**Development and dissemination of educational material on techniques, tools and case studies, to be integrated in courses for architects and social housing managers**

- **To organise a collaboration between researchers - or professionals dealing with innovation – and teachers, in order to integrate new knowledge in training: architecture courses and continuing education of social housing managers.**
- **Text and overheads on a website accessible by teachers**
  - ▶ **Advanced technologies described by specialists**
  - ▶ **Tools, allowing to assess the energy performance and environmental quality of a renovation project**
  - ▶ **Case studies illustrating good practice**

### Partners :

France (Armines/ ENSMP – CEP), Hungary, Budapest (University of Technology and Economics), Sweden (EnerMa), The Netherlands (DHV), Norway (SINTEF), Germany (University of Kassel, CESR) Duration : 24 months

# NIRSEPES

## New Integrated Renovation Strategy to improve Energy Performance of Social housing

**Main objective:** to develop an integrated strategy for renovating social housing in the EU, at local/regional level in order to increase its energy efficiency.

**Specific objectives:**

- To elaborate a series of situation maps for social housing in 4 regions/municipalities representative of the diversity of the EU.
- To study the cost/benefit of different technological solutions for both construction and equipment.
- To involve local/regional actors engaged with the retrofitting of social housing in 4 innovative local forums to discuss their specific needs, requirements and future activities.
- To support the development of a series of financing schemes, tailored to each region and situation.
- To elaborate a series of actions: awareness raising, education and training measures for energy savings and efficiency in social housing. **Duration: 24 months**

**Involved municipalities/regions:**

Spain (DV-NAVARRA, CRAN), Greece, Pefki (OEK, CRES) and Germany, North Rhine – Westphalia (OZ-NRW)





# Social Housing Action to Reduce Energy consumption **SHARE**

**Raising awareness and stimulating increased activity in sustainable energy retrofitting of social housing through:**

- **multi-sectoral social housing energy forums**
- **training**
- **awareness and advice**

## **SHARE objectives:**

- raising awareness of benefits of RES & RUE
- increasing level of RES & RUE in retrofit
- achieving behavioural change
- maximising financial & technical resources available
- promoting good practice
- enabling exchange of knowledge & experience

## **SHARE partners:**

Severn Wye Energy Agency, UK  
Tipperary Energy Agency, Ireland  
Energikontor Sydost, Sweden  
Sofia Energy Centre, Bulgaria  
B&SU, Germany  
BCEI ZRMK, Slovenia  
EE74, France  
Regional Energy Centres, Estonia

# Improving the Social Dialogue for Energy Efficient Social Housing – ISEES

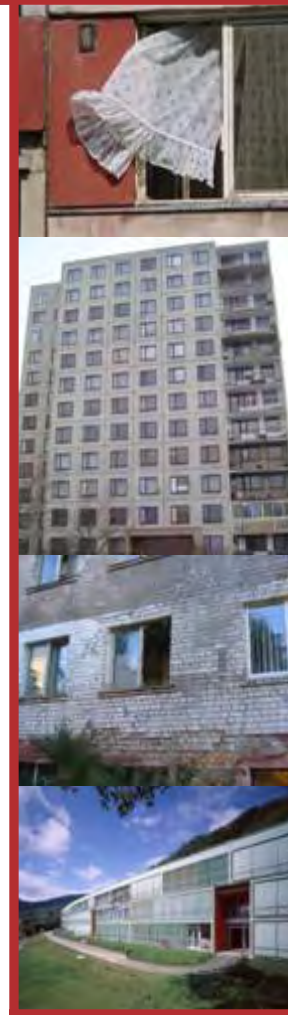
Project duration: Jan 2006 – Dec 2007

## Objectives:

- assess the „human factor“ in regard to energy consumption in social housing across 5 countries in Europe
- investigate possibilities to optimise energy consumption in buildings through „social dialogue“
- assess the magnitude of the disconnection process in regard to DH systems in social housing and their reasons
- evaluate the socio-economic benefits of optimising energy consumption in social housing
- increase awareness of tenants/owners, municipal reps., housing associations and energy utilities and involve them in a broad communication process

Project co-ordinated by KWI Management Consultants GmbH (AT)

Co-beneficiaries: ACE Group, IFZ (AT), Cityplan (CZ), ESD (UK), ECB (SK), LEI (LT), SEC (BG)





## RETROFITTING SOCIAL HOUSING AND ACTIVE PREPARATION FOR EPBD (2006 - 2008)



### Project Summary ▼

#### About ▶

[Objectives](#)[Description of the work](#)[Expected results](#)[Partners](#)[Targeted groups and key actors](#)

### About RESHAPE Project

The project "Retrofitting Social Housing and Active Preparation for EPBD" (RESHAPE) is supported by the European Union under the Intelligent Energy-Europe programme.

RESHAPE intends to contribute to the implementation of the EU Directive on the Energy Performance of Buildings (EPBD).

The project covers six pilot countries: The Netherlands, Belgium, Spain, Estonia, Czech Republic and Bulgaria. Through dissemination activities the target area will be enlarged with Romania and Greece.

RESHAPE is a common action of ten partners united in a consortium which is co-ordinated by Ecofys (The Netherlands). It started in January 2006, with a duration of 30 months.











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## ■ Objectives:

- ▶ Development of methods for the definition and implementation of long-term energy-retrofitting strategies for SHO's
- ▶ Development of information systems supporting the methods



- Coordinator: DELPHIS (France)
- 14 partners: 6 social housing operators (SHO's), 3 associations or federations of SHO's, 5 scientific or consulting companies
- 6 countries: Italy, Germany, Czech Republic, Estonia, Austria, France

1 January 2006 – 31 December 2008 21

## TACKLING OBSTACLES IN SOCIAL HOUSING

- **Methodologies & concrete tools** for **Professional Unions** of social housing operators to be used and valorised with the stakeholders to **remove the different obstacles** still met by their members in their **energy efficiency strategy**

### Obstacles:

1. **Institutional and legal obstacles** (especially: those attached with the regulation of the rent)
2. **Technical and economical obstacles**  
→ How to initiate an economic framework which will allow innovative technical solutions?
3. **Cultural and social obstacles**  
How to implement an efficient co-operation (win-win agreements) with occupiers and the main stakeholders (social institutions and public authorities)?

8 partners from **France, Italy, Germany** and **Bulgaria**, mostly **Professional Unions** and coordinated by DELPHIS

# A System for Quality Assurance when Retrofitting Existing Buildings to Energy Efficient Buildings



- A quality assurance system for energy use and indoor environment will be adopted to suit the process of retrofitting social housing and used in pilot projects in Sweden, Spain, Finland and Austria.
- Project coordinated by SP Technical Research Institute of Sweden

## OBJECTIVES AND MAIN STEPS:

1. To contribute to improved energy performance and indoor environment of social housing
2. To adopt an existing quality assurance system for indoor environment and energy use to suit the process of retrofitting and operation of social housing in different European conditions
3. To apply the quality assurance system in retrofitting projects in different European countries
4. To provide up to date knowledge and good examples of successful energy-intelligent solutions tailored to the social housing sector
5. To prepare rules for a future European standard on quality assurance system for energy use and indoor environment

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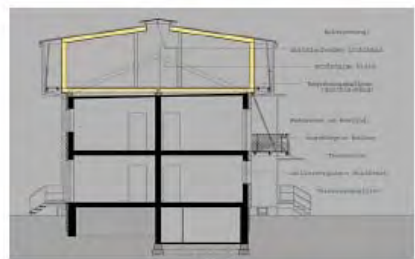
## Energy Intelligent Education for Retrofitting of Social Houses

### Objectives:

- Development of El-Education programme for social housing companies and guidebook for social housing companies
  - Awareness raising seminar - for information on and preparation of the execution of the El-Education programme under the auspices of CECODHAS, the European Liaison Committee for Social Housing and in cooperation with ECTP, the European Construction Technology Platform
  - Executing the El-Education programme by organizing national training courses for social housing companies in 6-10 countries
  - Establishing the El-Education programme as part of existing training activities for social housing companies
- **Participating countries: AT, BG, DK NL, SI, coordinated by Aarhus School of Architecture (DK)**







[Source: [www.baufroesche.de/umbau](http://www.baufroesche.de/umbau)]

# SuRE-FIT

Sustainable Roof Extension Retrofit for High-Rise Social Housing in Europe

## — / — — —

■ **Improvement of existing buildings by better energy performance and new financial resources through roof-top extension.**

### ■ Objectives

■ **The main aims of SuRE-Fit are to synthesize cutting edge technologies of roof top extension retrofit for high-rise social housing and develop process models and implementation guidelines**

### ■ Main steps

■ **Work package 1: survey of best practices and project gallery**

■ **Work package 2: knowledge exchange and consolidation through case studies and design projects**

■ **Work package 3: dissemination and implementation.**

### ■ Participant countries:

■ **NL, DK, DE, IT, SE, FR, CZ, PL and SK.**



## Energy Exploitation and Performance Contracting for Low Income and Social Housing



<b>Objective:</b>	Achieving energy efficiency and solving fuel poverty for low income and social housing
<b>Benefits:</b>	Increased affordable energy efficiency, improved comfort and indoor air quality for low income and social housing

Promotion of energy efficiency in the existing low income and social housing faces a large number of barriers. At the same time this stock is characterised by high energy use, due to poor energy efficiency of heating installations and poor thermal insulation, poor thermal comfort and indoor air quality. Major barrier is the lack of financial means as well as with owners as housing corporations. Energy Performance Contracting (EPC) and Energy Exploitation, organised by the parties involved, is a potential solution for this problem. In ECOLISH a European pilot for Energy Performance Contracting and privately organised Energy Exploitation is organised, elaborated and evaluated on 4 locations:

Heerlen - the Netherlands, Ogre – Latvia, Pieria – Greece & Pécsvárad - Hungary



# SAVE@WORK4HOMES



## Supporting European Housing Tenants in Optimising Resource Consumption

### Objective:

The SAVE@Work4Homes project aims to achieve a very significant reduction in energy consumption in social housing by providing information and support to tenants.

### Benefits:

Demonstration of Energy awareness services feasibility and effectiveness validating the conditions to be fulfilled for EU-wide adoption of best practice.

### Approach:

The approach will develop and test a complementary set of viable and effective Energy Awareness Services, based on a "toolbox" of components to be developed in the project (automatic monitoring of consumption, self-assessment scheme to assess the success of residents, improvement of heating controls and Internet tenant portals).

12 Partners from BE, DE, FR, PL and UK and Coordinated by EMPIRICA from DE

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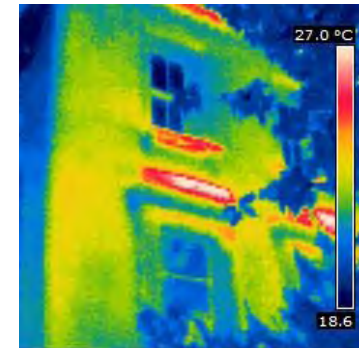
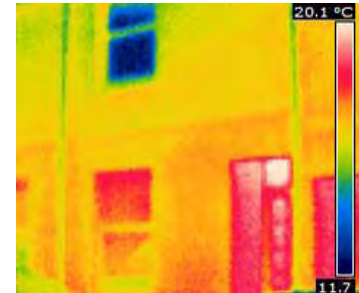


## Advanced Ventilation Approaches for Social Housing

This project is concerned with the thermographic and pressure test analysis of representative social housing in Denmark, Ireland and the UK to determine their current state of thermal and air leakage performance. This data will then be incorporated in to the whole house energy modelling tool ESP-r and a number of different ventilation upgrade scenarios will be modelled to ascertain the best approach for ventilation system upgrade from the point of view of health and energy efficiency.

This will provide a valuable resource to social (and other) housing providers throughout Europe due to the representative nature of the housing stock tested, and will provide information on the relative cost/benefits of ventilation upgrade for their housing stock.

The project will be widely disseminated via the project website, flyers, posters, trade shows, media and educational packs dissemination will also be carried out in Eastern Europe by a Polish Sub-contractor.



**Partners from United Kingdom, Ireland and Denmark, coordinated by Univ. of Brighton, UK**



# FinSH

**FinSH main objective** is to promote use of energy efficient equipment and retrofit by developing financial tools and on-going support for fuel poor households and social housing staff



## Partners of the project :

- ✓ GERES (France) : co-ordinator
- ✓ Severn Wye Energy Agency Limited (United Kingdom)
- ✓ Ecuba S.r.l. (Italy)
- ✓ Otto-von-Guericke-Universität (Germany)
- ✓ Krajowa Agencja Poszanowania Energii S.A. (Poland)
- ✓ SCIC Habitats Solidaires (France)

## Expected results

- ✓ Financial products and related necessary social schemes to increase energy efficient retrofit
- ✓ Enhanced communication and networking between actors from various expertise: finance, social, energy.

## Thank you for your attention

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More Information on

[http://ec.europa.eu/energy/intelligent/projects/socialh\\_en.htm](http://ec.europa.eu/energy/intelligent/projects/socialh_en.htm)