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Hard to treat homes in England

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The English housing stock comprises about 21 million dwellings. Improving the energy efficiency in the domestic housing stock is a key priority to the success of several of the Government's current strategies including climate change, fuel poverty and the Decent Homes Standard. In the context of improving energy efficiency, one sector of this stock has proved to be particularly problematic. Known either as 'Hard to Treat' or 'Hard to Heat', these homes have been defined as: 'homes that cannot accommodate 'staple' or cost-effective energy efficiency measures such as loft insulation and cavity wall insulation and improvements to a heating system such as installing gas central heating'. They may include homes that are off the gas network; homes with solid walls; homes with no loft space and high-rise blocks. In England, 9.2 million dwellings can be considered Hard to Treat, accounting for 43% of the total stock. Solid wall and off gas network dwellings make up the largest component. In this paper we present the results of our investigation into the types of Hard to Treat homes in England using data from the English House Condition Survey (EHCS) which is an annual national survey of dwellings and their occupants. We also discuss the technical solutions for improving the energy efficiency of this stock and the drivers and mechanisms available for funding such improvements in England.

Environmental assessment method for the maintenance of existing residential buildings

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The building sector is responsible for a relatively large contribution to environmental problems. This contribution is not only due to building and demolition processes, but it is also the result of activities in the operational phase of a building. In fact, the annual environmental effects of the use and maintenance of buildings might be bigger than the annual effects of building and demolition. At the current renewal rate, the existing residential stock in the Netherlands will very likely be in use for another 350 years. Therefore, the existing building stock is an important factor to look at in an attempt to reduce the environmental impact associated with buildings.

Since there is no environmental assessment method readily available to assess scenarios for the operational phase of a building an assessment method is developed based on existing methods, such as life cycle assessment (LCA). This paper deals with one aspect in the operational phase of residential buildings that causes environmental burden: the maintenance of buildings. The objectives of the environmental assessment of maintenance scenarios are to gain insight in the environmental effects related to maintenance, to determine the factors with the highest potential for reducing the negative environmental effects of maintenance, and to determine how maintenance influences other operational phase aspects, such as reduced energy use as a result of replacing building parts.

The environmental assessment method development consists of determining which maintenance activities should be taken into account. The method is developed by creating and calculating 'worst case' and 'best case' maintenance scenarios in an iterative way. The scenarios are initially based on assumptions, such as 'replacement of a building part is worse than repairing and maintaining an existing building part'. As the assumptions are tested, the best and worst case scenarios will be adjusted.

Demolition of private housing stock in the Netherlands: Volume and motives

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Our paper contains the results of a first explorative search into the demolition and demolition motives of the privately owned housing stock in the Netherlands, particularly the owner-occupied sector.

Compared with the rented mass housing stock, the ageing privately owned stock is often neglected. The absence of obvious large scale social and structural problems does not attract the attention of policy makers and researchers. As a result little is known about management and maintenance motives and even less about demolition motives of the owners.

Following our survey of the demolition of social housing stock, we tried to get a comprehensive view on the demolition of owner-occupied dwellings.

Our paper gives a concise overview of the available demolition statistics and the existing knowledge about demolition motives by owner-occupiers. Based on some case studies we develop an explaining model to be used as conceptual framework for further research and analyses.

Housing stock in the Czech Republic - Maintenance and modernization

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Since 1959 there has been more than 1.165.000 dwelling units built by the panel technology in the Czech Republic. Nowadays these units constitute the greatest part of housing constructions; it is around 31% of the whole housing stock in the Czech Republic.

In some regions more than 75% of dwelling units were built by the panel technology, particularly in the Ostrava-Karvina region. The demand for new flats has been still growing since 1989. Together with the demand for new flats the demand for new flats built by panel technology that underwent the process of modernization has been growing as well. Market prices of such modernized flats vary from 800.000 to 2.000.000 CZK (about 29.000 ' 72.000 €) for a three-room flat with a kitchen. The prices vary from region to region. The lower prices relate to for ex Ostrava, whilst in Prague the prices go very high.

Existing dwelling units in the panel houses, which were criticised a lot after the political changes in 1989, are being very well modernized. The standard of living is increased and the aspects of energetic qualities are maintained. The state programme called Panel supports the decrease of the building energy demand of panel houses. The Czech Republic has pledged to decrease the energy consumption in the Kyoto protocol.

Management of privatised housing: Policies and practice in East and West

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Sale of public and social housing has been a major aspect of housing policies in the past decades. Privatisation has occurred most radically in within Eastern European countries and China, but has also taken place within some Western European countries and Australia. In all countries, privatisation has lead to new problems for housing management. As a result of the privatisation, many estates are now in a state of mixed (public and private) ownership, which raises questions about the division of responsibilities between public and private owners. Adequate legislation to deal with this situation is lacking. The public managers are sometimes hampered by the (still) bureaucratic mechanisms within their organisations, while the new

owners are not used to being responsible for the maintenance of their dwellings. Furthermore, there are limited financial resources for maintenance and renewal among public and private owners. At the same time the need for investments is pressing, particularly within the massive housing estates dating from the communist era. Thus, the management of privatised housing is an important topic of international concern, which could benefit from an international exchange of knowledge. In our paper we present the preliminary conclusions of a large international cooperative research project that focused on the sale policies pursued by governments and landlords, the management problems in (partly) privatised estates and approaches that have been developed to deal with management in such estates.

Contractual welfare ideology and housing management practice: The deployment of 'Tenant Incentive Schemes' in Australia

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In recent years there has been a growing interest in the development of housing management schemes that reward social housing tenants who meet their tenancy obligations by offering an additional tier of benefits to those normally supplied by the landlord. The generic term to describe these schemes is 'Tenant Incentive Schemes' (TIS). Examples of TIS benefits include: rent subsidies, accelerated repair and maintenance services, shopping and insurance discounts. TIS have been proclaimed by its advocates as a major factor in the improvements achieved by housing organisations in the area of rent collection, anti-social behaviour, tenant satisfaction and void turnover. This paper presents the findings of a recent research study that examined the deployment of TIS in both the UK and Australia. It is argued that TIS, along with other similar housing management practices, is underpinned by a set of neo-liberal ideological discourses and that its promotion by policy makers is symptomatic of the move towards contractual forms of welfare delivery (the idea that entitlement is dependent on certain conditions relating to behaviour). The paper's conclusion is that whilst TIS and other similar schemes can lead to some incremental improvements they over emphasise the transformative potential of housing management practices to assuage the negative impact of residualisation and neighbourhood decline. TIS are an insufficient policy instrument to meet the contemporary challenges that confront the agencies managing social housing.

The role of routine maintenance in improving the sustainability of existing social housing

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The current UK social housing stock accounts for approximately 20% of total UK housing. Maintaining this stock costs approximately £3.7 billion per annum (excludes improvement grant). However the effectiveness of this expenditure against the sustainability agenda is questionable. The theoretical models used for determining maintenance need (primarily the stock condition survey) and prioritising maintenance works (funding availability) are primarily economic based and do not generally address the wider sustainability issues associated with environmental and social impact. Also, they have proved largely ineffective in addressing changing demands placed on social housing and have resulted in a significant quality backlog. Further, although the Decent Homes Standard has attempted to address this quality backlog, its reliance upon existing theories has resulted in very little improvement to the environmental performance of existing homes. Thus, a new theoretical approach to built asset maintenance that considers the sustainability agenda is urgently required.

The extent to which routine maintenance (both planned and responsive) can be used as a vehicle to improve the quality of social housing in a way that addresses the sustainability agenda (environmental, social and economic impacts) is one focus of a 5 year research

programme (EPSRC - IDCOP) underway in the UK. This paper will present a critical review of the theory underpinning built asset maintenance (based on a desk study and interviews with key industry figures) and identify the weaknesses in the theory as the basis for addressing the sustainability agenda. In particular the paper will: consider how the sustainability agenda impacts built asset maintenance strategies; identify the limitation of the current strategies; and outline a new theoretical basis for built asset management that integrates the sustainability principles into maintenance strategies (both responsive and planned). The paper will also consider the practical implications of implementing the new asset management model.

Towards a theory for sustainable housing refurbishment

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Improving the sustainable performance of existing social housing is a key challenge facing many public housing organisations. Because of the environmental and social investment in existing housing, refurbishment and regeneration should provide a vehicle by which sustainable performance can be achieved within given economic bounds. However, evidence from the UK suggests that this is not always the case. The majority of refurbishment projects that do take place tend to address only the minimum requirements laid down by legislation, whilst the minority that claim to be 'sustainable' are in fact achieving very little beyond the minimum standards. Why is this?

This paper will present the initial findings from a 5 year research programme (EPSRC - IDCOP) underway in the UK to investigate the potential of social housing refurbishment strategies to deliver improvements in sustainability of the existing UK stock. Based on the findings from a series of in-depth case studies the paper will: discuss the scope of the problem; identify sustainable refurbishment best practice to date; consider the implications on the environment, quality of life of tenants, and the economic viability of social housing organisations of full adoption of best practice across the UK social housing sector; and present for discussion a series of killer variables (level of deprivation, confidence in solution, support from legislators, buy-in by tenants, organisation focus and return on investment/social capital) that appear to be critical to successful sustainable refurbishment projects. The paper will also integrate these variables into an initial explanatory model of the sustainable housing refurbishment process.

Sustainable housing transformation: Quality and improvement strategies of the ageing private housing stock in the Netherlands

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Compared with the rented mass housing stock, the ageing privately owned stock is often neglected. This political and social lack of attention is partly due to the absence of obvious large scale social problems, partly to the owners attitude of government shunning self support and supposed harmless state of physical quality. In reality the physical quality of the pre-war private stock, particularly the older owner-occupied stock, is far from satisfying and partly seriously substandard.

A broad coalition of home owners, commercial landlords, apartment boards, building contractors and related national organisations took the initiative to put the improvement of the private owned stock on the political agenda. Pleading for fiscal compensation of renovation investments, their main arguments are a supposed fruitful economic multiplier effect and a relevant effect on the quality of the private owned stock.

We were charged with the assessment of the latter. Based on the recent outcomes of the Dutch Housing Demand and Quality Survey our paper describes the quality state of the private owned housing stock and the relevancy of related improvement strategies.

Investigating the need for customizing maintenance services

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Market segmentation theory is based on the notion that although customers are unique they may be grouped into relatively homogeneous categories which respond in a certain manner to the supplier's marketing efforts. Despite the lack of commercial necessity for the Dutch social rented sector in meeting the demands of tenants, the public objectives do compel them to be efficient and effective in maintenance spending. Market segmentation may be useful to achieve maximum customer satisfaction, while preventing that too much effort is given to less important maintenance services or determinants of maintenance service quality for the specific target groups.

Based on a literature study in both the fields of study of housing preferences and service marketing, hypotheses are set up. These hypotheses enable us to test the significance of existence of distinctive customer segments with distinctive maintenance delivery preferences. A large-scale survey is conducted amongst tenants of large housing associations based in the Netherlands. By means of regression analyses, customer segments that were theoretically expected may be confirmed.

The paper finishes with recommendations about the implications for implementation of market segmentation in maintenance service delivery in the Dutch social rented sector.

How does portfolio management structure investments of social landlords in reality?

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The position of the social rented housing sector in the Netherlands has undergone considerable changes due to deregulation and reduction of subsidies. Social landlords have to stand on their own two feet more than they were used to in the past. It can be assumed that these developments lead to a more professionalised management of the housing stock, including the formulation of portfolio strategies and the use of methods to relate these strategies to investment decisions. Derived from strategic planning theory, planning models have been developed to facilitate this process. However, earlier research indicates that the translation of portfolio strategies into concrete investments is either absent or is weakly embedded in the organisation. The models based on strategic planning theory are either not applied or, if they are, do not reflect the way in which investment decisions about the housing stock are made. In this paper, we concentrate on the relationship between the portfolio management and actual investments of individual landlords. The main questions are, how social landlords structure their decisions about investments in the housing stock, and to which extent actual investments of social landlords can be derived from their formal policies. Preliminary results are presented from four social landlords, which belong to a selection for a case study that is currently carried out. Based on these results, we outline a planning model that may better describe the reality of investment planning by Dutch social landlords.

Building regeneration from acoustic points of view

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The growing standard of living is evident in many countries all over the world. This trend brings some positives for our society but also can cause difficulties for individuals. It is beyond doubt that one of the darker sides is a threatening danger of destroyed environment.

An unprecedented expansion of traffic causes an enormous increase of acoustic burden.

This conference paper deals with the possibilities of decreasing harmful effects of noise in the interior building environment. The latest surveys indicate that people spend 90% of time inside of buildings.

Managing privatized housing: Will homeowners associations succeed In Russia?

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The issue of managing privatized housing in mixed municipal and private ownership, creation of the *associations of dwelling owners* or condominiums has been put forth a policy imperative (facilitated by the 1997 Law on *associations of dwelling owners* that has been subsequently amended). However only a limited number of these associations has been formed and as a consequence a small percentage of (multi-family) housing is managed through these associations. The majority of the housing in mixed ownership continues to be managed by the municipal structures effectively carried over from the pre-reform period. The analysis in this study will contribute to the current policy debate on whether these condominium associations are indeed conduits for owner-management and what needs to be done to facilitate their effective functioning.

Methods of intervention for social housing estates in Rome. Building façades as a solution for renovation

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In the previous papers we already discussed problems concerning the social housing in Italy with a specific focus on deteriorated estates of the city of Rome dating from the 1970s. The institute that owns the stock is inefficiently managing the whole renewal process and methods and tools to successfully intervene are required.

The aim of the research is provide the housing organization ATER in Rome with a toolkit of physical measures to intervene on the building level. Objective to be satisfied through facades adaptation-substitution are: better energy building consumption, increase housing differentiation and improve building recognizability by the residents.

What methods can be adapted and applied by the ATER of Rome? What physical solutions can meet the listed objectives?

In the present paper the framework and the working progress of this study are presented. In particular, methods chosen to satisfy the three objectives and their respectively tools of intervention are described. First conclusions and further research developments are then discussed.

Strategies for housing regeneration in city centres. An opportunity to incorporate bioclimatic criteria in Lavapies, Madrid (Spain)

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In Spain, distressed urban areas within old neighbourhoods or cities centres are considerable. This paper explores the different proposals and interventions to improve housing conditions in Lavapies (Madrid). It also compares actual strategies with those of other historic centres where URBAN programs are developed.

From its very beginning Lavapies was a slum quarter, where dangerous and insane activities could be developed. Plots were progressively densified, with new constructions over what previously were house gardens (vegetables); and also by increasing the height of the buildings.

Tenement houses (corralas) were originally the lowest level for accommodation in Spain. Still now housing conditions are usually insalubrious and it is almost impossible for the sun and fresh air to reach inside the inner houses.

Nowadays the quarter is targeted for low classes and immigrants, but also for bohemian people. Property is very fragmented and changes a lot. It is not easy to find ways of improving conditions without expelling traditional residents. The area has been declared of special interest for rehabilitation (with incentives and subsidies). The office in charge of rehabilitation has made studies to incorporate sustainable criteria in the process. But public intervention to rehabilitate residence buildings is really difficult to go ahead, so they concentrate on improving streets and public spaces trying to make the neighbourhood more appealing. Also some important public buildings have been renovated aimed to be paradigmatic.

Finally the paper focuses on the scale of the intervention, showing how habitability can be improved without changing morphology, by studying local conditions and by adapting the limits of each individual intervention to reach interaction between different plots.

Rigoreus: Combining renovation and energy reduction of the Dutch housing stock, an innovative approach

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To meet the Kyoto goals, reduction of the housing related energy and CO₂-reduction is essential. As the production of new dwellings has dropped below 1% annually of the existing stock, improving the energy efficiency of the existing housing stock has to be considered the only feasible way to bring a substantial energy reduction in a limited time period within sight.

To achieve the needed massive improvement, several constraints have to be conquered:

- a) the availability of appropriate insulation and energy reduction technologies
- b) the application of these technologies in adequate housing improvement concepts
- c) ways to convince and/or push home owners to apply these concepts and
- d) strategies to realise energy efficient dwelling improvement on an appropriate scale.

The first constraint a) is at present not much of a problem as state of the art technology enables a 75% reduction in general practice.

The second constraint has already been subject of numerous design and development projects; as non of them having resulted in common practice yet, b) is a more serious constraint. But the most serious constraints are c) and d).

The project RIGOUREUS aims at further development of constraint a) and b) and finding practical and feasible solutions for c) and d).

As energy use is not solely a matter of physical improvement of dwellings, the project aims at combining building related and users related reduction strategies.

To induce home owners ' especially owner occupiers ' to improve their homes, the project aims at smart combinations of renovation and energy reduction concepts, enabling a sufficient positive balance between added dwelling quality and reduced energy costs, using the principle of value creation.

Our paper gives a concise overview of the RIGOUREUS project, outlines the general setup and the principles used and describes the first results.

Homeowners' association as a common pool resource regime – An empirical study in St. Petersburg

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Homeowners' associations are a new and constantly increasing form of private sector housing management and maintenance in Russia. This is due to the Housing Code that in 2005 made it obligatory for the apartment owners to self-organize the management and maintenance of a

multi-family building. Turning to private management and maintenance makes a great change to the Soviet era, when the whole housing sector was monopolized by the state. In this paper I examine how this reform, imposed from above, has been greeted and taken into practice by the homeowners. My analysis is based on interviews of the associations' members and experts in the housing field in St. Petersburg. The analysis of the data is yet unfinished, but some preliminary conclusions can be made. The associations focus on taking care of the common property of the house: the staircases, cellars, attics, technical facilities, courtyards etc, which is why I use the common pool resource approach on interpreting the data. The data shows that the common property is often subject to disputes between the members of the association or the association and other actors, such as the local housing authorities or private companies who are trying to take over the property. Problems concerning property rights of attics and cellars, transferring land from the city to the property of the association as well as conflicts between the association's chairperson and residents have turned up.

ABC Research Matrix used in urban residential areas

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It is necessary to analyse the existing before changing it. That is the only way to regenerate buildings, parts of cities and urban landscapes with conscience. New applied research methods are needed to develop a sustainable environment including our heritage. Past, present and future are all relevant to the buildings. Three levels of analysis have been used to cover these phases. The objective of my research was to identify the qualities of buildings which are relevant when trying to shift from decay to preservation. The influence of construction engineering, the way we can learn from it now, and the way in which a building is able to accommodate change determine the chances of a building's long term survival ' the outcome of the interaction of continuity and change.

My research method starts with the contextual aspects: commission; location; architect; typology and design process. The information obtained in the observation stage is reduced to the contextual information which affected the design, creation, existence and preservation/decay of the building. The later sections, which consider the building(s) itself in greater detail, are initially ordered by time: creation, existence, and preservation/decay. Within these, the elements of the building(s) are analysed at three levels: space (interior and exterior); structure (load-bearing elements and elements which determine the structure); matter (shaping the space through materials which affect light, colour, texture, surface, sound, impression, smell, size and weight); building services (climate control, comfort, maintenance and communications). In this way the ABC Research Matrix was created.

An application of the ABC research method has been used at the residential district of Jeruzalem, Frankendaal, Amsterdam. ABC research created new opportunities for Frankendaal.