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Title: The market impact of architectural design solutions for housing retrofit in the UK

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Example citation: Field, M. and Coady Schaebitz, S. (2014) The market impact of architectural design solutions for housing retrofit in the UK. Invited Presentation presented to: *Industries of Architecture, School of Architecture, Newcastle University, 14 November 2014.*

Version: Presented version

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THE MARKET IMPACT OF ARCHITECTURAL DESIGN SOLUTIONS FOR HOUSING RETROFIT IN THE UK

Paper presented at the 'Retrofit in Practice: What next?' Workshop held as part of Newcastle University's "Industries of Architecture Conference", University of Newcastle, 14 November 2014

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Definition

This presentation uses the following extended definition of ‘retrofitting’:

“Retrofitting is the refurbishment of buildings to improve their sustainability, in particular their energy efficiency and carbon dioxide emissions. Retrofitting takes place some time after original construction and incorporates or substitutes more up-to-date parts and new elements where appropriate. Retrofitting technologies include those that are ‘fit and forget’ and those that require attention to control systems, management and maintenance. Retrofitted elements may include those that contribute to wider networked decentralized energy systems such as PV panels (with or without the incentive of feed-in tariffs).”

(Gleeson, Yang & Lloyd-Jones, 2011)

Scene-Setting

Which aesthetic design and planning issues have a current relevance to UK housing retrofit works?

Which design approaches might offer the opportunity to maximise the quality of any positive change to local aesthetics?

A look at pointers towards encouraging more ambitious 'market activity' and more widespread take up of retrofit improvement.

Design and Planning Frameworks for UK Housing Retrofit (1)

Farrell Review 2014 p.24: *“Refurbishment and retrofitting had not been considered to be architectural issues, and these concerns still struggle to be accepted as legitimate by the architectural community”.*

- NPPF para.98 :”When determining planning applications, local planning authorities should recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions”
- Building Regulations : 2013 revised Part L no longer includes any requirement for consequential improvements on existing buildings (see paragraph 1.32).
- Carbon reduction targets : net UK carbon account for the year 2050 to be at least 80% lower than the 1990 baseline - mixed messages from current EU ‘Horizon 2020’
- Legislative imperatives : Energy Act 2011 : PRS standards by 2018

Design and Planning Frameworks for UK Housing Retrofit (2)

Farrell Review p.113: *“Architecture schools should include refurbishment and low-carbon retrofitting of old buildings in their curriculum and project work and conservation and heritage issues in course content.”*

- Most design approaches focused upon technical issues
- Limited assessment of embodied energy in design parameters
- Limited examples of local planning guidance : e.g. Bath & North East Somerset
- Challenges to architectural conservation and permitted development

Farrell Review p.62: *“An architect can add value to retrofitting by making efficient and holistic decisions on any scale of project, while understanding the broader conservation issues.”*

- Aesthetics not generally viewed as a route to foster wider innovation
- Opaque position of ‘housing’ in UK awards
- The gap between design and performance (ZCH, 2014)

Examples in the UK WALSALL



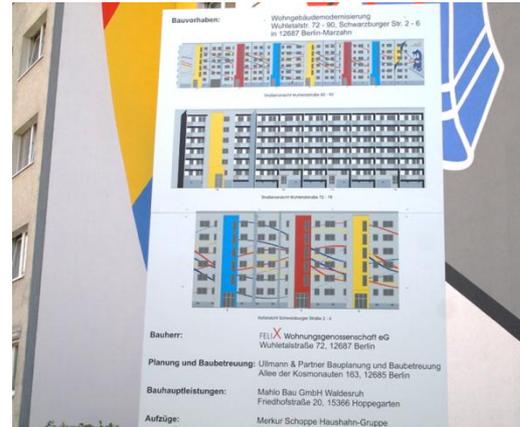
The vibrancy of planned intentions (below left) was not translated into the implementation of the scheme (left & below right).



Examples in Europe BERLIN



A deliberately dramatic palette for inner-city retrofits has highly visual impact.



Examples in the UK LONDON



Successful challenge to initially proposed external retrofit treatments resulted in internal treatment to front facades.



Implementation of retrofit treatments to rear of building subsequently allowed more innovative design approach.

Examples in Europe COPENHAGEN & MALMÖ



Copenhagen: Application of solar panels to inner-city building has been incorporated into new design for the facade.

Augustenborg area of Malmö: This is another attempt at aesthetic placement of solar panels.



Examples in the UK NORTH SOMERSET

The scheme won the Sustainable Social Housing Finance award in 2014. Clearly the aesthetics of the roof scape – a sub-urban plethora of roofing panels - were not an element of the ‘award’.



Examples in Europe MALMÖ

Green roofs in the Augustenborg area of Malmö form part of the low-budget approach to retrofit.



Examples in the UK LIVERPOOL



Original appearance of Liverpool flats.



Post-change appearance of Liverpool flats gained Sustainable Housing 'transformation award' in 2014.

Examples in Europe NETHERLANDS

Dutch 'Energiesprong' initiative: houses are super-insulated using panel-facades that adhere to or replace external walls.



Examples in the UK BIRMINGHAM



Birmingham Zero Carbon House
Substantial innovative change to built form to accentuate aesthetic fit with retrofit treatments



SALFORD



Wholesale change to built form to permit aesthetic retention with renewal and retrofit treatment



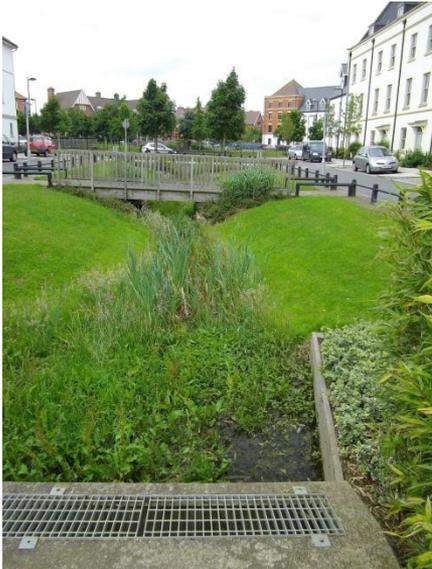
Final built form shows limited change of original character of streetscapes

REMODELLING AND REORGANISATION

Examples in the UK NORTHAMPTON-UPTON



Sustainable urban drainage system is well integrated into the landscape of the recent urban extension at Upton.



Examples in Europe MALMÖ



Sustainable urban drainage system in the Augustenborg area of Malmö also uses aesthetic approach which provides additional recreational and play areas.



Retrofitting the 'UK market' (1)

Farrell Review p.113: *“Many consider that we should put more emphasis on the tools available to repair and modify our current stock of buildings and make retrofitting desirable and fashionable as it is in countries like Germany.”*

- UK housing and VAT valuations have minimal relation to utility efficiency
- Loans and lending little aligned with property efficiencies
- Ideas for increased Council Tax or Stamp Duty are not market challenges
- Could market behaviours be 'capped' for low-SAP properties?

Retrofitting the 'UK market' (2)

- Connect 'feed-in' tariffs to design improvements
- Link property valuation to efficiencies and 'retrofit-led' design
- Promote community 'well-being' with large-scale innovations
- Link lending incentives to prior investment in design

Conclusions

Retrofit Revealed, TSB, p.28: *“Local planning was an obstacle for many projects ... lack of consistency in decision-making, uncertainty over what is permitted development, and the time and resources needed to secure planning permission presented challenges”.*

- UK history of constant property renewal and renovation does not show strong focus on aesthetics
- People in the UK perhaps *too* used to poorly performing properties - more high quality examples can help people become more discerning and demanding
- Innovative technological design does not go hand in hand with architectural aesthetics
- Undeveloped appreciation for modern aesthetics that retrofit could help to foster

Key Sources

- “Changes to Part L of the Building Regulations”, DCLG, 2013
- “Climate Change Act”, DCLG, 2008
- “Closing the gap between design & as-built performance : Evidence Review Report”, Zero Carbon Hub, 2014
- “Energy Act”, DCLG, 2011
- “European Retrofit Network: Retrofitting Evaluation Methodology Report”,
Colin Gleeson, Junli Yang and Tony Lloyd-Jones, University of Westminster , 2011
- “The Farrell Review of Architecture and the Built Environment : Our Future in Place”, The Farrell Review Team, 2014
- “National Planning Policy Framework”, DCLG, 2012
- “Retrofit Revealed : The Retrofit for the Future projects – data analysis report”, TSB, 2014
- “Sustainable Construction and Retrofitting – Supplementary Planning Document”, Bath & North East Somerset Council, 2013

Image Credits

- Images of properties in Liverpool, North Somerset, Walsall have been obtained from the following website last accessed on 27 November 2014 at: <http://www.insidehousing.co.uk/sustainable-housing-awards-2014-winners-revealed/7006337.article>
- Images of Upton are from: Martin Field
- Images from the SUDs in Augustenborg/ Malmo are from the following website last accessed on 27 November 2014 at: : <https://www.google.co.uk/search?q=Pictures+of+Energiesprong+retrofit&sa=X&espv=2&biw=1011&bih=479&tbm=isch&tbo=u&source=univ&ei=NFJ3VLWHKMqS7AbAvoGgAQ&ved=0CCAQsAQ#tbn=isch&q=Pictures+of+Augustenborg+in+malm0>
- Image of the green roof and the facade in Augustenborg/ Malmo are from: Sabine Coady Schaebitz
- Images from the Birmingham Zero-Carbon House have been obtained from the following website last accessed on 27 November 2014 at: <https://www.google.co.uk/search?q=birmingham+zero+carbon+house&espv=2&biw=1011&bih=479&tbm=isch&tbo=u&source=univ&sa=X&ei=5k13VPL1GaWa7gba1YDwDw&ved=0CDAQsAQ>
- Images from Salford have been obtained from the following website last accessed on 27 November 2014 at: <http://www.urbansplash.co.uk/residential/chimney-pot-park>
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- Images from London have been obtained from the following website last accessed on 27 November 2014 at: <http://www.bere.co.uk/blog/landmark-planning-appeal-success-external-insulation-conservation-area>
- Images from Copenhagen has been obtained from the following website last accessed on 27 November 2014 at: http://www.greensolarcities.com/fundanemt/files/Copenhagen_Concerto_project_Oct_2008_-_Kuben.pdf



*Thank you
for listening*

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