

CRACKING THE CODE



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Welsh Assembly Government

KEY FEATURES OF THE PILOT PROGRAMME

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Zero Carbon Hub Event

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Summary:



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- **Code Pilot Programme**
- **Methodology**
- **Data Collection**
- **Lessons Learnt to Date**
- **Way Forward**

Code Pilot Programme



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- Pilot project - 15% of the Social Housing Grant Programme, 400 homes in 22 schemes from all across Wales.
- Code 3 now Code level 4 and 5 as soon as possible.

The Code 4/5 RSL Pilot Programme- Objectives



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- Implications of building to Code 4 and 5 for various scale, construction and location scenarios in Wales.
- To provide feedback on design implications e.g. ventilation and air tightness.
- To evaluate the comparative costs of a range of technologies and design solutions.
- To help develop skills and confidence
- To help develop supply chains, particularly in renewable technology
- To develop and disseminate good practice

The Code 4/5 RSL Pilot Programme- Objectives



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- To provide Cost information
- To look at the impacts on fuel costs and emissions.
- To assess the impact on lifestyles and behavior
- To increase the confidence of developers and lenders.
- To provide feedback on construction issues and compliance with standards and post occupancy evaluation.

The Code 4/5 RSL Pilot Methodology



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- Design Stage data collected on –
 - ★ U – values
 - ★ Air Tightness
 - ★ HLP
 - ★ Construction form
 - ★ Energy Strategy
 - ★ Water Strategy
 - ★ SWRO
 - ★ All other credits aimed for and achieved
 - ★ Framework Contractors
 - ★ Whole Life Costs

The Code 4/5 RSL Pilot Methodology



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- Smart meters installed in a minimum of 100 properties
- Post occupancy impact evaluation
- Air tightness checks to be initiated on completion and re-tests one year on to check on fabric performance

The Code 4/5 RSL Pilot Methodology



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- On collation of Energy Usage data, a modelling study using BREDEM 8 and 12 will be undertaken to verify actual carbon savings on each project, it will use actual consumption rather than normalised assumptions.
- A range of other measurement being considered, in situ u – values, thermography imaging, efficiency of MVHR and renewables

The Code 4/5 RSL Pilot Lessons Learnt



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- **Starting Point**
- Very little hard cost information available
- English costs may not reflect welsh scale

- **Lessons from Welsh Pilots**
- Variation in Approach--Lot of adoption of Passivhaus approach i.e. sort the fabric first.
- Costs - Code 4 minimal, Code 5 significant

The Code 4/5 RSL Pilot Lessons Learnt



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- **How Far with the Fabric ?**
- **0.21 walls**
- **0.13 floors and roof**
- **1.2 windows**
- **Air tightness of 3**

- **Indications showing after this - little gain in CO2 reduction through fabric for uplift in cost**

The Code 4/5 RSL Pilot Lessons Learnt



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Lessons (continued)

- Costs in line with WAG predictions of between 3 – 5% to achieve Code 4.
- Costs vary with design approach and when code requirements considered—earlier the better
- Planning resistance
- Steep learning curve for all involved—clients, consultants, contractors and code assessors.

The Code 4/5 RSL Pilot Lessons Learnt



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Headline message

- Use of enhanced and accredited details widespread, little evidence that the required calculations are being adopted. Changes to Part L will require the production of bridging detail calculations.

The Code 4/5 RSL Pilot Lessons Learnt



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Headline message

- Fabric first –fit and forget
- Early consideration of the requirements needed.
- Small sites and typical sites available to RSL's do not always allow for good use of orientation and solar gains to minimise primary energy demand – Implications for land acquisition ?

The Code 4/5 RSL Pilot Lessons Learnt



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- KISS – use the principles set out in the new MIPPS Planning for Sustainable Buildings
- Avoid using renewables until all the other principles of the energy hierarchy have been exhausted.

The Code 4/5 RSL Pilot Lessons Learnt



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Headline message

- Surface Water Run Off requirement can be costly- some sites with more than one means of dealing with SWRO – Code requirements / Sewerage Undertaker Requirements Not always compatible !

Impact on development of WAG zero carbon standards



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- WAG Aspiration - Code level 5 by 2011 ?
Devolvement of Building Regs will only just be in place. No welsh changes until 2012 at the earliest- Code 5 as soon as practicable
- Definition of Zero Carbon will impact on code levels
- Further reviews of SAP likely post SAP 2009

Impact on development of WAG zero carbon standards



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- Industry focus on low energy homes -govt on greening grid – Is Code 4 enough ?
- Devolvement of the Building Regulations – implications as any changes proposed will have to use the methodology in SAP 2009 – this will need to be considered.

Impact on development of WAG zero carbon standards



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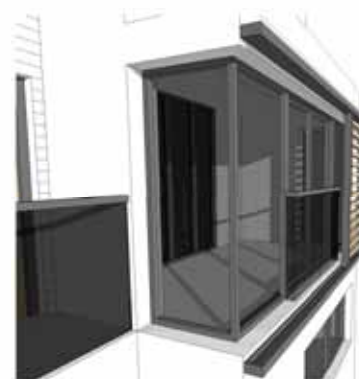
We will have to consider:

- Any changes to Code 5 (70%)
- A range of improvements between the current code 4 and 5 (44-100%)
- Expectations of on site generation
- How Allowable solutions would work in Wales

The Code 4/5 RSL Pilot Welsh Code schemes



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LIGHT WEIGHT METAL
FRAME SYSTEM

BASIC FOOTPRINT FOR
ALL UNITS

GROUND & FIRST FLOOR
THE SAME FOR 2, 3 & 4
BED UNIT

ADDITIONAL FLOORS
ADD ACCOMMODATION

DQR & LIFETIME HOMES
COMPLIANT

2 OPTIONS FOR SUN-
SPACE LOCATION

A-RATED MATERIALS IN
THE GREEN GUIDE TO
SPECIFICATION

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The Code 4/5 RSL Pilot Programme



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- Use of MMC
- High thermal performance of walls, windows and other key elements
- Bore Holes to meet SWRO
- Properties with increased space standards – 25% larger than standard house types meeting DQR
- Many other features



The Code 4/5 RSL Pilot Welsh Schemes



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In Summary – cost predictions for Code 3 to 4 as predicted.

- Code 5 very expensive.
- Waiting for direction on Zero carbon
- A good start made – has to be delivered on site
- Concerns over higher bridging detailing, but will have to be in place for new part L and SAP 2009.

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The Code 4/5 RSL Pilot



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Thank you for listening – Any
questions