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First choice

The 2013 guide to PVC-U windows specification

No hard sell...



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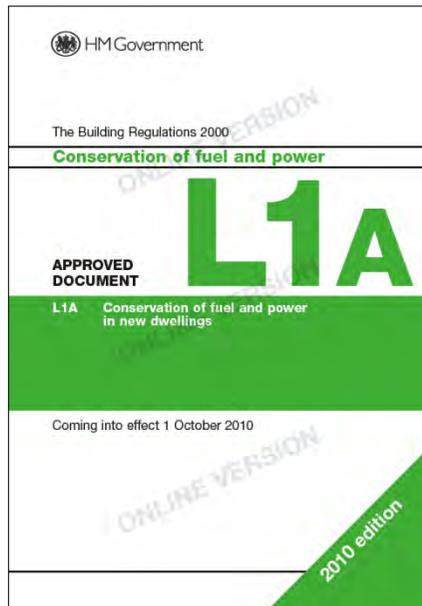
What we'll cover



- Building Regulations
- U-values & Window Energy Ratings (WERs)
- Beyond Building Regulations
- Future window systems
- Sustainability
- Case studies
- Q & A

Building Regulations

Part L – Conservation of fuel and power



- **Part L (2010) explained**

- Replacement windows – **WER C or 1.6 U value** or lower
- New Build windows – Dictated by SAP calculations - **U value of 2.0W/m²K** or lower

- **Doors**

- Replacement – **1.8 U value** or lower
- New Build – Dictated by SAP calculations - **U value of 2.0W/m²K** or lower

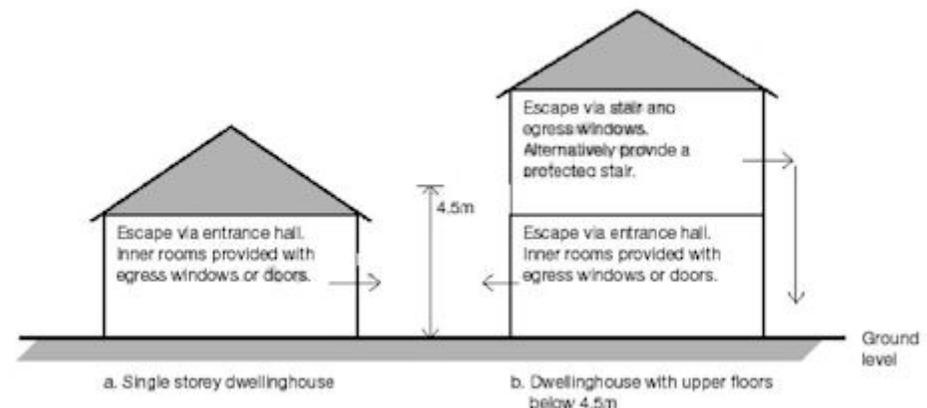
- Building Standards Section 6 Domestic - Energy in Scotland

Building Regulations

Part B – Fire safety

- **Part B (2006) explained - Fire escape windows**

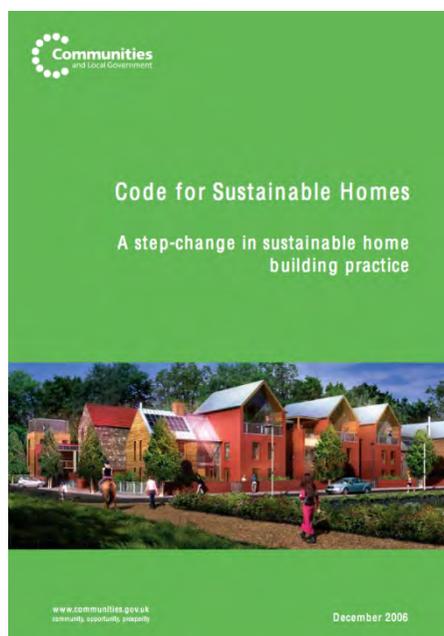
- Unobstructed opening area 0.33m²
- Min height and width of 450mm
- Opening may be angled
- Bottom of window must not be more than 1100mm above ground level
- Non-lockable green button handle
- Flats & apartments - Volume 2



Building Regulations

Code for Sustainable Homes

Code Levels 4-6 additional to Building Regulations



- Window U-values around 1.2 to meet Level 4
- Window U-values around 0.8 to meet Level 6 (2016)
- PVC-U window solutions already meet Level 6
- Reducing cost of high specification windows a driver
- PVC-U windows offer the most cost-effective route to compliance



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Window Energy Ratings



U-values v WERs?

- Both methods of compliance with Building Regulations
- U-values appropriate for New Build – consistent unit of measurement
- WERs better for replacement – easier for consumers to understand
- 2010 Part L regs – No centre pane U-value compliance allowed (except for conservation areas etc, case by case basis)

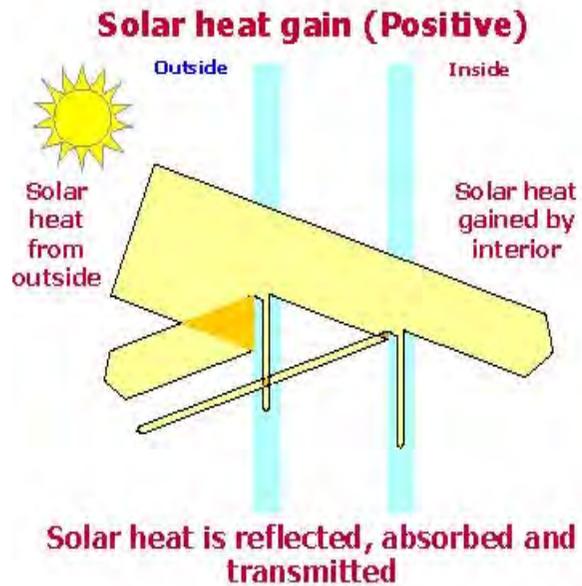
Window Energy Ratings

U-values v WERs?

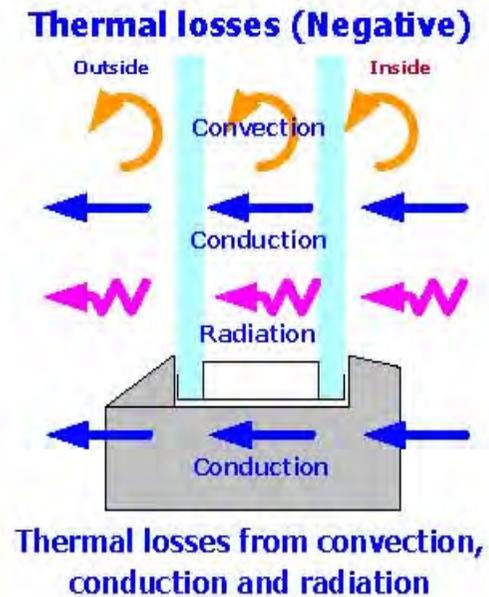
- Overall U-value - Several methods of determination (simulation, hot box testing etc.)
- BFRC WER scheme the original – now CERTASS TRR and BSI backed schemes
- Eurocell in-house BFRC-accredited simulators



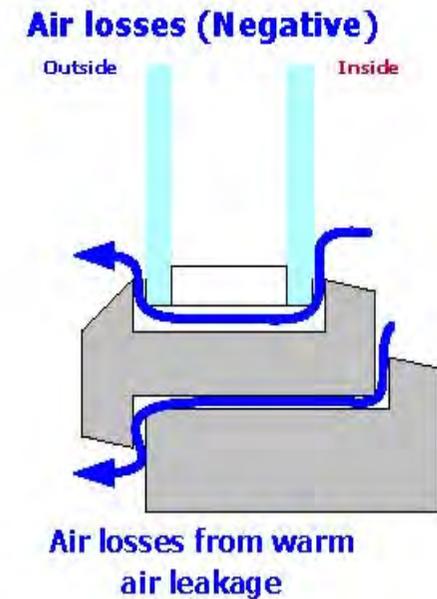
Window Energy Ratings



g value



U value



L50 value
(air leakage)



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Window Energy Ratings

Certification process



Step 1
Choose window specification

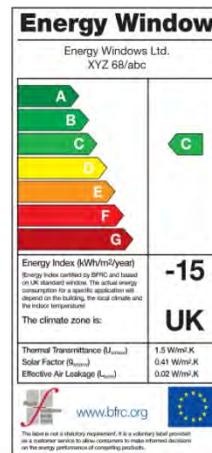
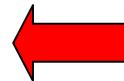


Step 2
Obtain BFRC
Approved Simulation
and Air Leakage Report

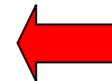


www.est.org.uk

Step 5
Apply for an Energy Saving
Recommended label from
the Energy Savings Trust



Step 4
BFRC issues Window
Energy Rating label

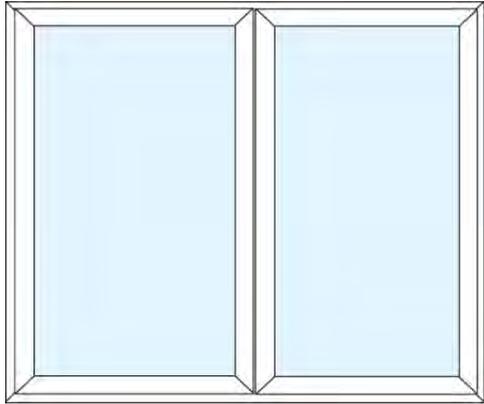


Step 3
Contact an Independent
Agent to check quality
management system
and submit application
to the BFRC



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Beyond Building Regulations...



UK & EU standard windows

UK – 1230 x 1480mm - BRE BR443 standard

EU – 1230 x 1480mm (+/- 25%) – EN14351 standard



CE Marking

- Preferred method of compliance – Construction Products Directive
- Based on EN14351 – Compliance a legal requirement in Europe
- Expected to be mandatory for UK exports in 2013

Beyond Building Regulations...

APCO Secured By Design



Windows

- Certified for production to BS7950 enhanced security standard
- Accrediting bodies – BSI Kite-mark, BBA cert, BM Trada Q-Mark
- Testing at a UKAS accredited test house

Doors

- Must pass PAS23 General Performance Requirements & PAS24 Enhanced Security Requirements
- Pass shoot-bolt test – simulated attack on the bolt – specific to SBD
- Testing at a UKAS accredited test house

Beyond Building Regulations...

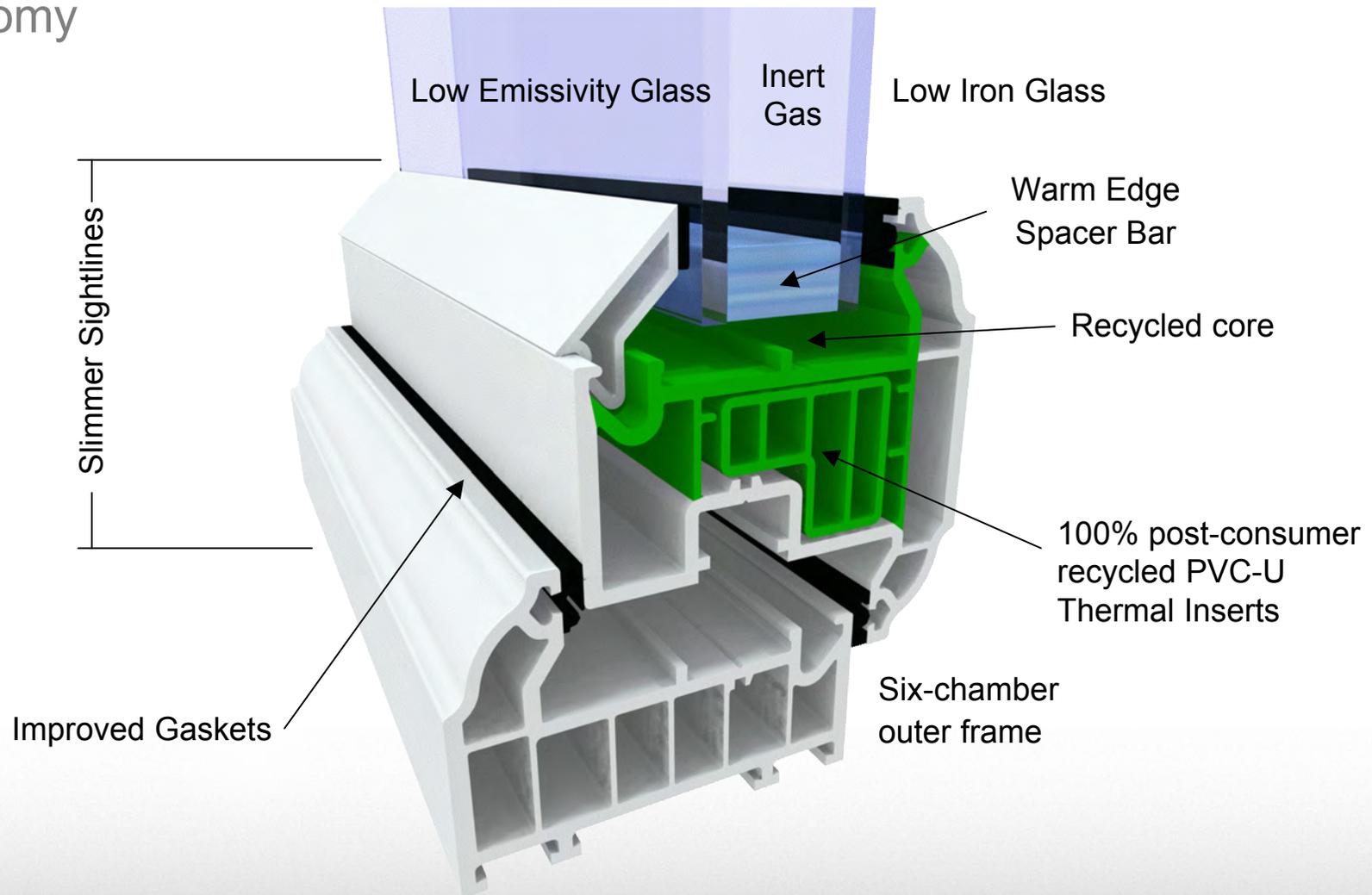
BRE Rethinking Housing Refurbishment

bre

- New Build accounts for less than 1% of the UK's housing stock
- Green Deal an unknown quantity
- BRE Rethinking Housing Refurbishment – first time practical direction given for the bulk of UK homes:
 - “Cost effective thermally efficient solutions”
 - Low manufacturing cost
 - Locally manufactured
 - Short lead times

Contemporary PVC-U windows

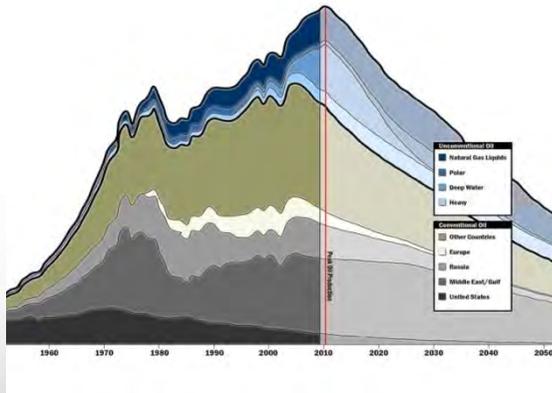
Anatomy



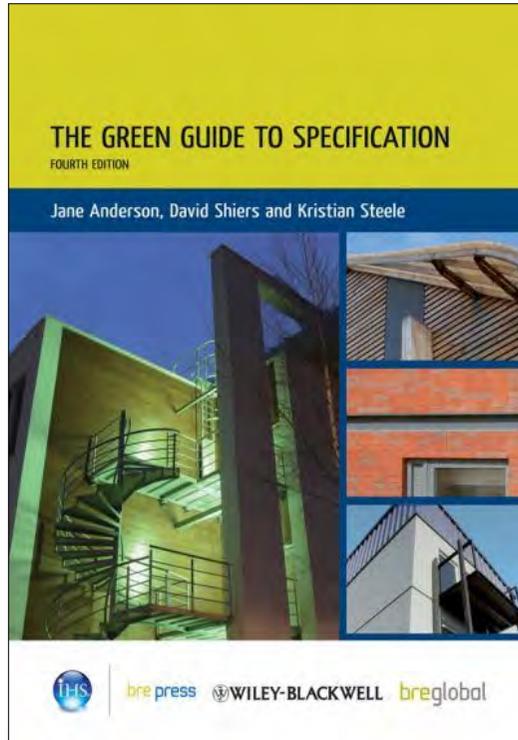
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Future window systems

- Widespread use of recycled materials
- Continued thermal efficiency innovations to reduce costs
- Intelligent system design – multi-window type capability
- Structural capabilities – cavity closers
- More choice – aesthetic options



BRE Green Guide to Specification



- PVC-U windows = A rated domestic
A+ rated commercial
- PVC-U cladding = A+ rated domestic
A+ rated commercial
- Additional points available for responsible sourcing of materials e.g. using recycled materials
- PVC-U windows offer the most cost-effective route to compliance

Sustainability

PVC-U credentials

- Recyclability – minimum 350 years without degradation
- UK-based PVC-U recycling plant – 20,000 frames per week
- 12,000 tonnes recycled PVC-U per annum
- Zero Eurocell production waste to landfill
- Closed-loop recycling process
- ISO 14001 Environmental Quality Management Systems



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Sustainability

Recycling - types of PVC-U Waste

1. Post-consumer waste

- First generation PVC-U windows
- Installed into social or private housing in the early years of the industry
- Being replaced by more thermally efficient products



Sustainability

Recycling – types of PVC-U waste



2. Assembled window waste

- Mis-measures
- Produced by human or mechanical error
- Products not installed into properties

Sustainability

Recycling – types of PVC-U waste



3. Manufactured PVC-U off-cuts

- Calculated waste
- Produced within the manufacturing process
- Collected at source for return to re-cycling plant

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Sustainability – closed-loop recycling

Process



Sustainability – Post-consumer PVC-U recycling

Our 9-step process



1 Materials

Waste is taken from 3 sources:

- Post-consumer windows
- Fabricator off-cuts
- Bar length



2 Shredding

The waste is shredded into processable pieces.



3 Segregation

Using a magnetic process, metal is separated from the rest of the waste and recycled separately.



4 Granulation

The waste is granulated into a uniform size. At this stage rubber from gaskets is still present.



5 Washing

Using a series of water tanks, contaminants are 'floated' out.



6 Colour Sorting

An advanced process utilizing high speed cameras, ultra-violet light and jets of air - filters out the granules of rubber leaving only clean, colour sorted PVC-u.



7 Micronization

The PVC-u granules are now 'micronized' into a fine powder ready for extrusion.



8 Extrusion

The process begins again as recycled PVC-u is manufactured into new products

9 Finished Products



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Case study 1 – BRE Rethinking Housing Refurbishment

Exemplar Project: St. Ives, Huntingdonshire



- 1960s four bedroom detached property
- 'Green' show home – encourage energy efficiency
- Eurologik triple-glazed windows
- 0.9 U-value
- 100% recycled PVC-U Thermal Inserts

Case study 1 – BRE Rethinking Housing Refurbishment

Exemplar Project: St. Neots, Huntingdonshire



- 1970s three bedroom semi-detached house
- Affordable improvements initiative
- Eurologik double-glazed windows
- 1.2 U-value
- 100% recycled PVC-U Thermal Inserts

Case study 1 – BRE Rethinking Housing Refurbishment

Exemplar Project: The Victorian Stable Block – Garston, Watford



- Disused building on BRE site
- Showcase for refurb technologies
- Eurocell vertical sliding sash windows
- 1.4 U-value
- Eurocell composite doors

www.rethinkinghousingrefurbishment.co.uk

Case study 2 – Gentoo Homes

CSH Code Level 6 project



- Eurologik triple-glazed windows
- 0.8 U-value, BBA approved
- 100% recycled PVC-U Thermal Inserts
- Secured by Design accredited
- Windows 60kg each
- Structural 300mm cavity closers
- Level 6/BREEAM Outstanding rating (tbc)

Case study 3 – Nottingham City Homes

Closed-loop recycling project



- Cost-effective 'A'-rated windows
- Old windows removed and recycled at Eurocell plant
- Made into PVC-U Thermal Inserts used in 'A'-rated windows
- Re-fitted in Nottingham properties
- Whole process 50-mile radius
- G10 Public Sector Project of the Year



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