



INCA Meeting for Members – 23 March 2017

# INCA Meeting for Members

23 March 2017



# Industry Update 2017

## Welcome & Introduction

**Katie Nurcombe**  
**INCA**



INCA Meeting for Members – 23 March 2017

# Market Intelligence

## Overview of Current Market Conditions

**Fiona Geskes**  
CBI

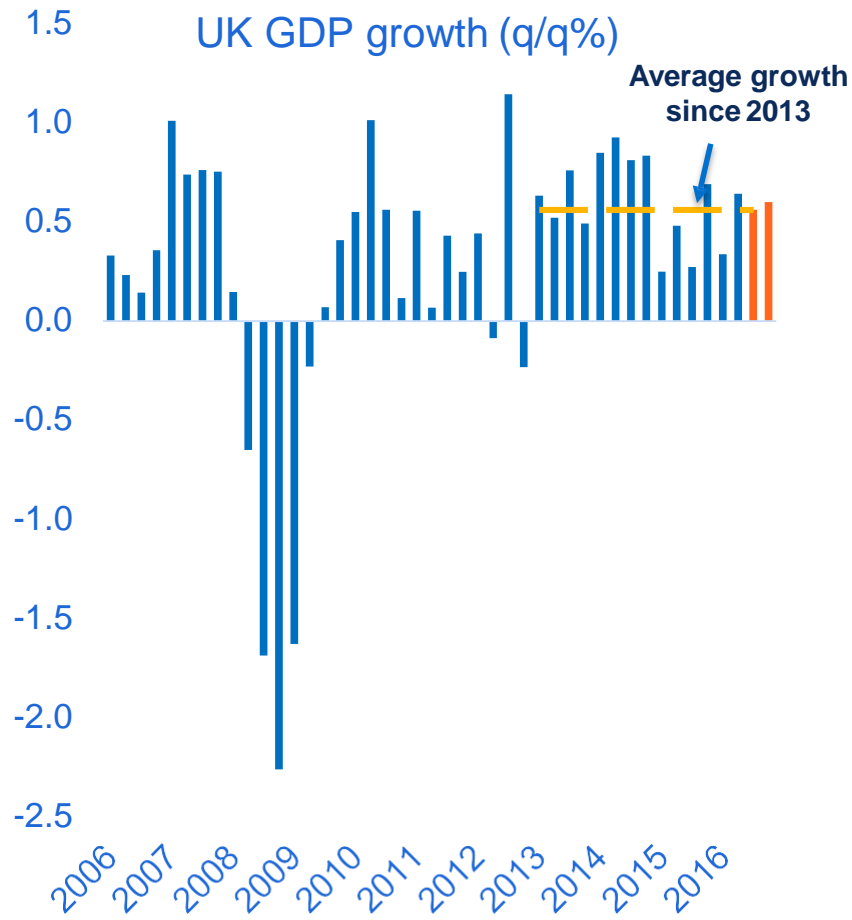
recognising EWI innovation and excellence

# OVERVIEW OF MARKET CONDITIONS

FIONA GESKES, CBI

THURSDAY 23 MARCH 2017

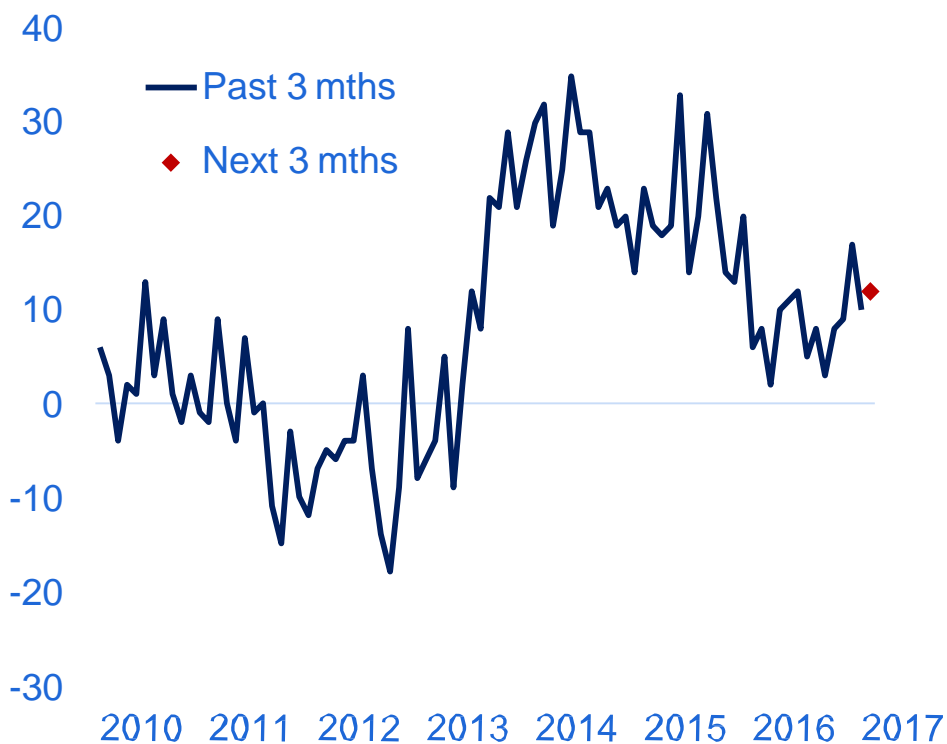
# The economy has been resilient, post-Brexit



Source: Haver Analytics

- Growth has held up well since the referendum: at 0.6% in both Q3 and Q4 it far outpaced expectations.
- Our growth indicator has softened a little since the end of last year and **we expect growth to slow further in the coming quarters.**
- **Domestic demand will be more subdued.** Investment intentions have cooled since mid-2016 and growth in real household income is showing signs of softening as employment flattens out and inflation creeps up.
- **But net trade should support growth:** the weaker pound already appears to be feeding through to stronger export orders.
- Overall, GDP growth is expected to slow from 2% in 2016 to **around 1½% in 2017 and around 1% in 2018.**

CBI surveys: output growth  
(composite indicator; % balance)



- Economic growth remained resilient in Q4, with GDP rising by 0.6% q/q, the same as Q3.
- Q4 growth was driven by services (0.8%), especially consumer-facing sectors such as distribution, hospitality & travel.
- Manufacturing returned to growth (0.7%), but output in construction was flat.
- CBI's growth indicator shows UK private sector activity eased at the start of 2017, but remained solid.
- Growth expectations for the next 3-months remained also held up, with a positive outlook for manufacturing in particular.
- This suggests the economy retains some momentum at the start of 2017, but we still expect growth to slow through the year.

# Uncertainty around the outlook has risen

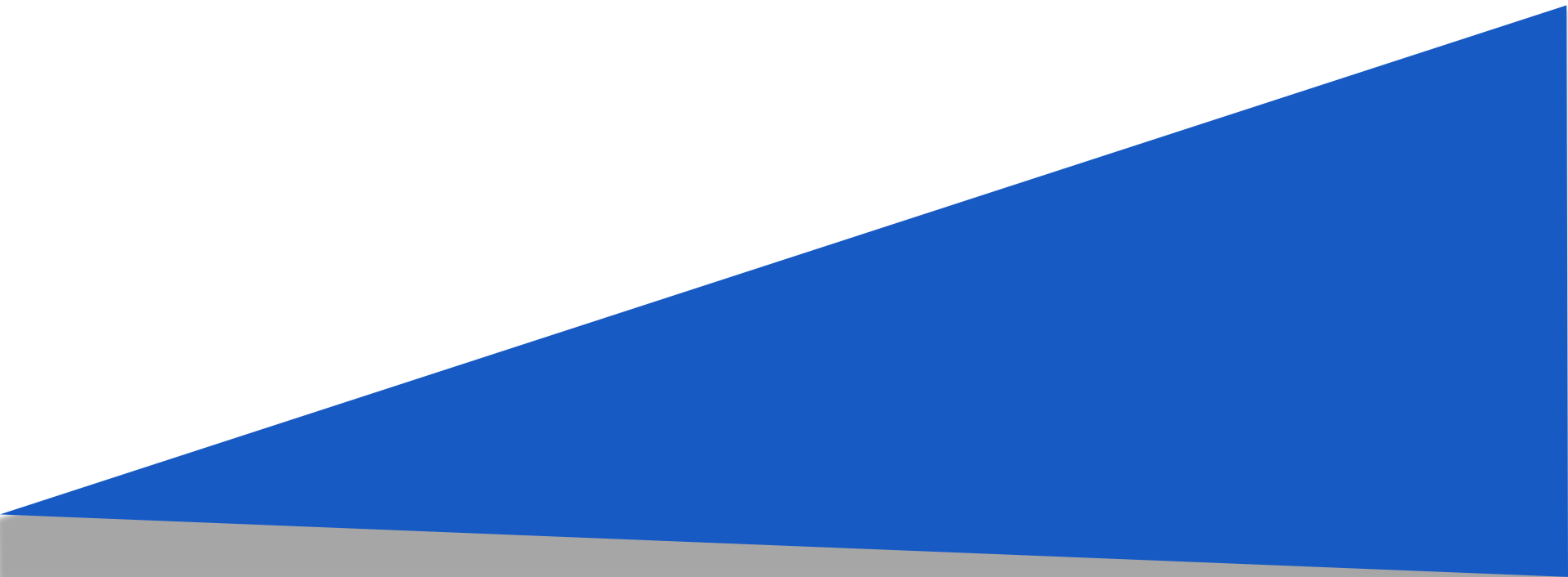


- **Private sector domestic demand stronger than expected:** renewed confidence in the UK spurs business investment, and near-term strength in household spending is maintained
- **Lower pound supports exports and FDI**
- **Slower pace of fiscal consolidation** lifts confidence and activity



- **Financial market volatility** weighs on credit availability and cost; hampers strategic decision-making; currency volatility limits scope for sustained exports boost
- **Financial strains in the Eurozone rear their heads:** sparked by renewed fears around Italy's banking system, and a number of upcoming elections over 2017
- **EU negotiations appear to go badly, increasing the risk of significant barriers to trade, capital and skills**
- **Global growth momentum disappoints/risks manifest** (eg, shift to more protectionist trade policies in the US)
- **Inflation rises more than expected**
- **Productivity** more sluggish than expected, particularly with uncertainty having risen and business investment set to weaken

# CONSTRUCTION PRIORITIES





The construction sector is closely linked to the overall health of the economy.



In Making a success of Brexit, the CBI took a cross sectoral view on the key priorities. For construction, these priorities are:

1. **EU Trade:** *A large percentage of construction materials are imported from the EU so a tariff-free relationship is important*
2. **Regulation:** *Opportunities for a more flexible regulation must be balanced against the benefits of harmonisation*
3. **Migration:** *Access to EU skills and labour is important to the construction sector, as is the domestic skills programme*
4. **Funding:** *Long-term funding for infrastructure must not be interrupted by leaving the EU*



Latest CBI EU report –  
“Making a success of Brexit”

# Fiona Geskes

Sector adviser – construction, CBI

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 @CBItweets



# Insulation Innovation

## Product Research & Development

**Daniel Mack**  
Kingspan

# High Performance Insulation

Daniel Mack

23/03/2017



# Agenda

- The status quo – lambda matters
- The science – thermal conductivities
- Path to the future – what's next?
- How to walk this path – new applications

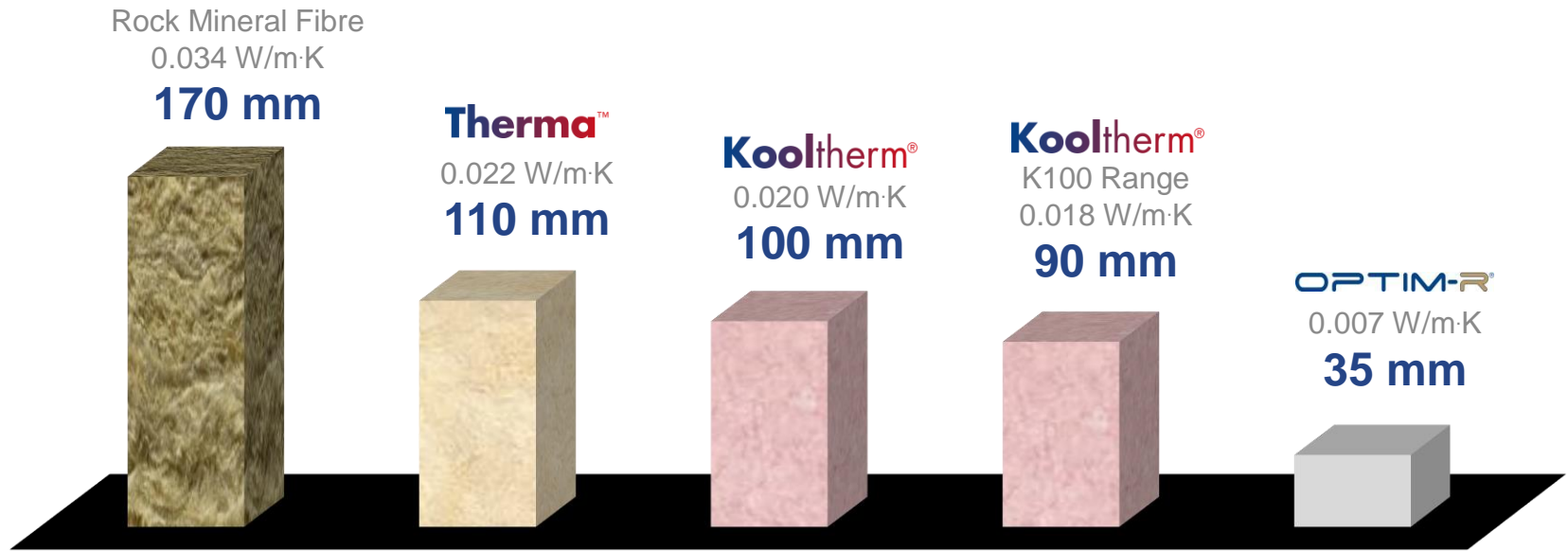
# Status Quo – Lambda Matters

Impacts of using or not using thin insulation:

- Fewer deliveries to site
- Useful building footprint improved with thin insulation
- Window reveals and roof overhang
- Cost impact on ancillary components / installation

# Thickness Comparison

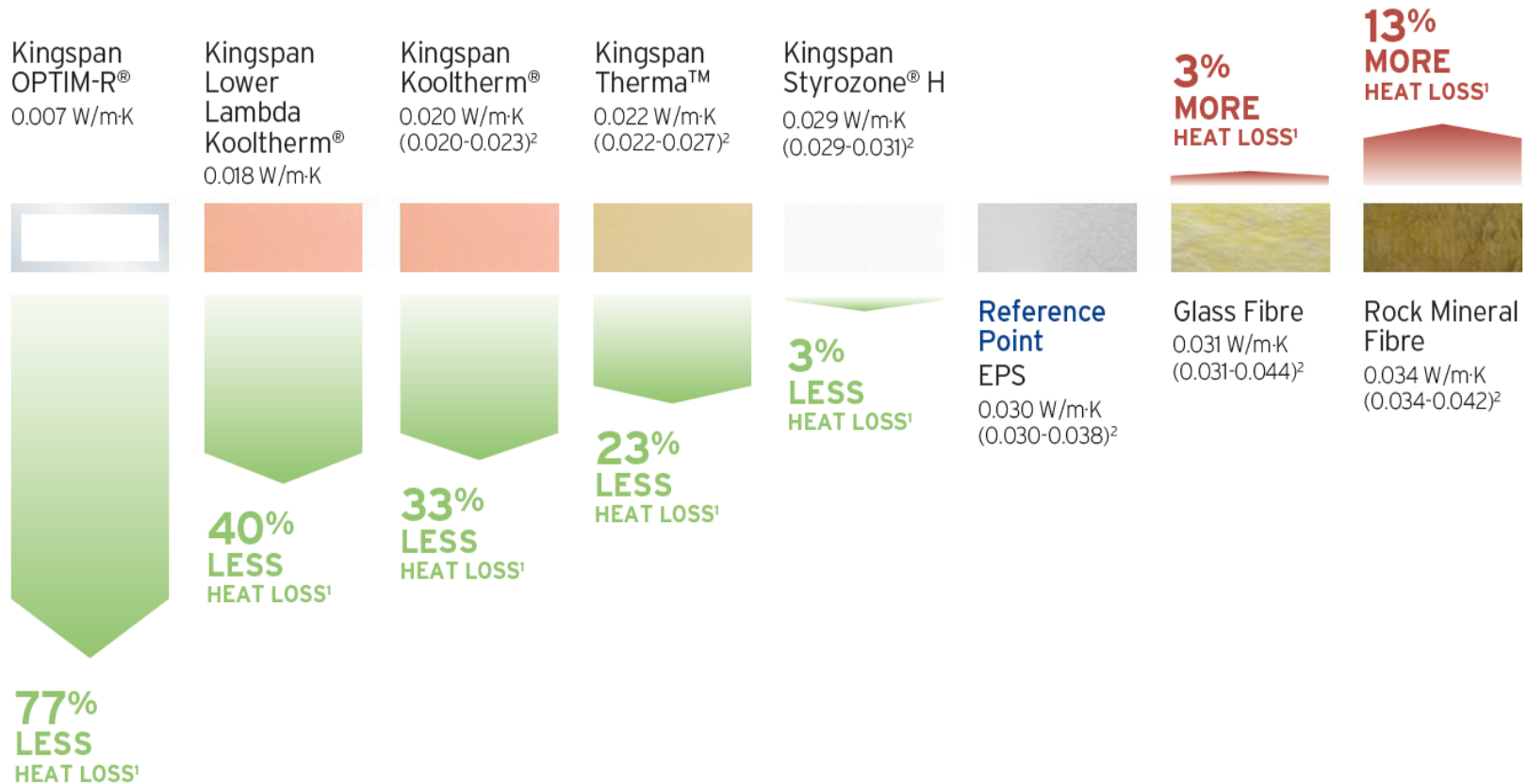
Thickness to achieve an R-value of 5.0 m<sup>2</sup>·K/W



Thicknesses are rounded up to the nearest 5 mm. These do not necessarily represent stocked thicknesses.

# Heat Loss Comparison

Assumes same thickness of insulation material

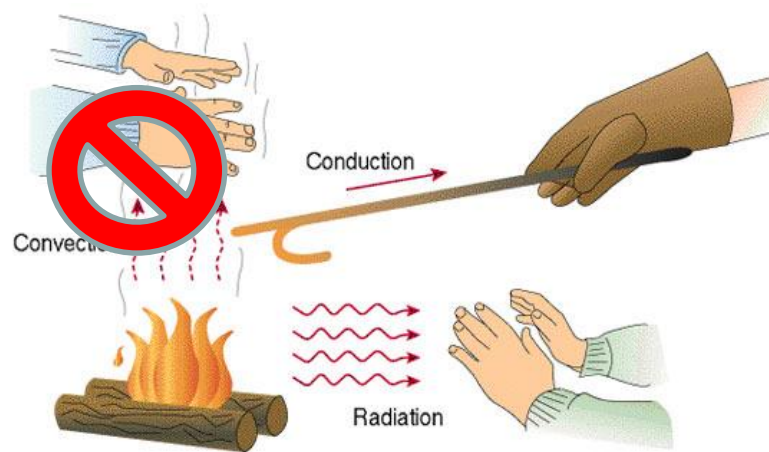
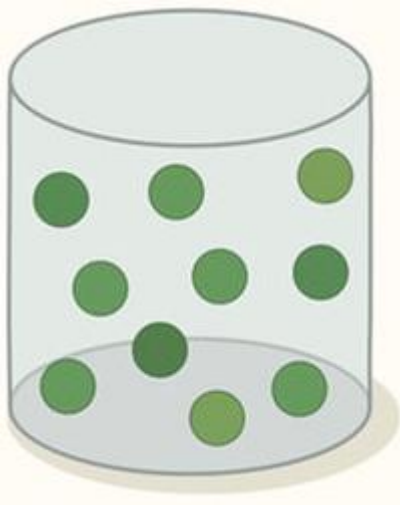




# Thermal Conductivity

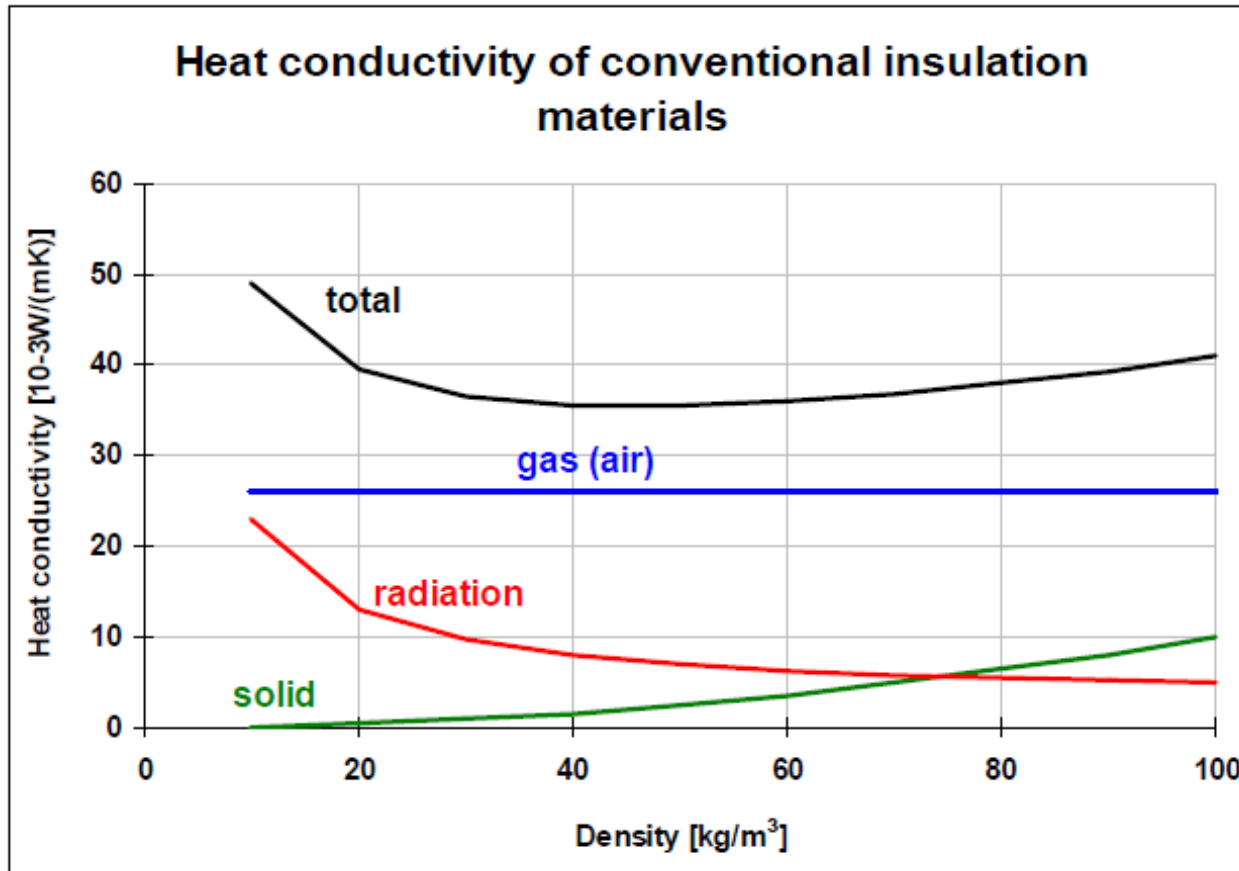
## Heat Transfer

$$\lambda_{\text{tot}} = \lambda_{\text{Gas}} + \lambda_{\text{Matrix}} + \lambda_{\text{Radiation}}$$



# 1<sup>st</sup> Generation Insulation

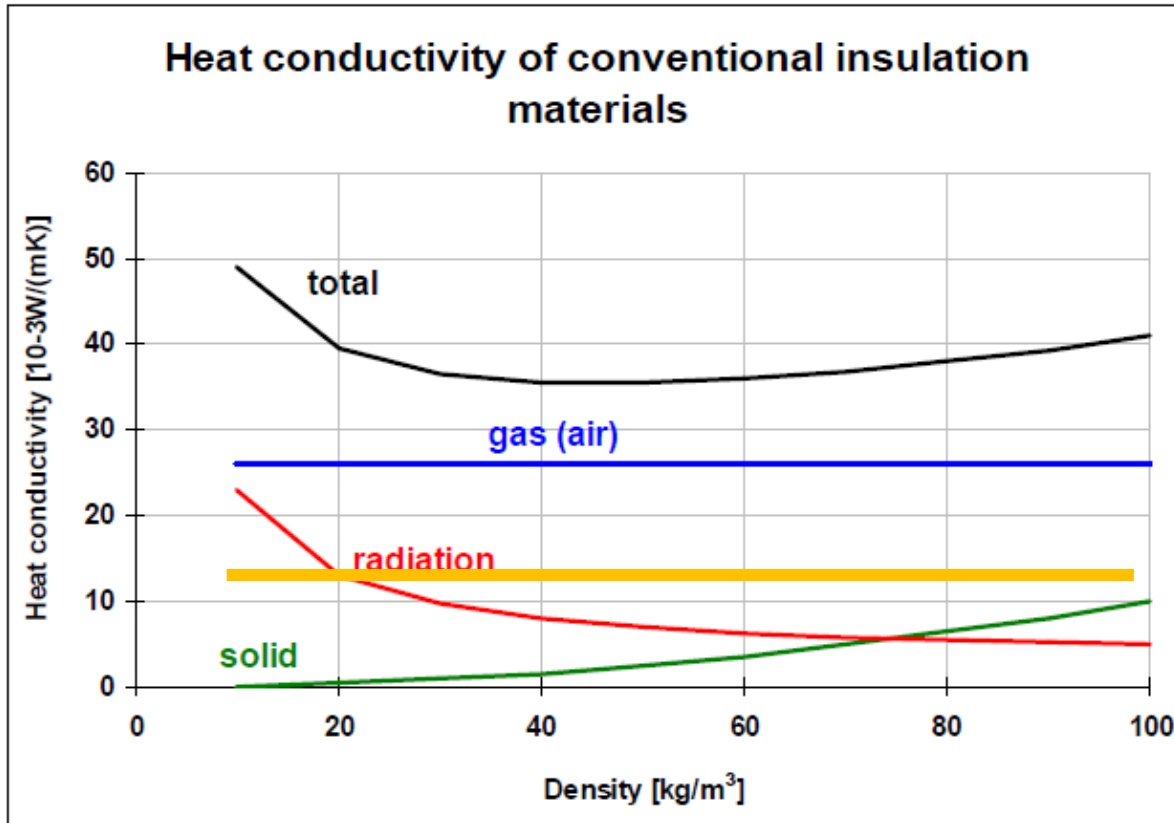
Mineral fibre, EPS, wood wool etc.



Limit: 25 W/m·K (air) + 3 mW/m·K (solid stage) + 2 mW/m·K (radiation)

# 2<sup>nd</sup> Generation Insulation

## PIR and phenolic



Changing gases:

n-pentane 13.5 mW/m·K

c-pentane 11.1 mW/m·K

Air 25.4 mW/m·K

CO<sub>2</sub> 15.0 mW/m·K

CFC (not in use) 7.4 mW/m·K

Limit: 12 mW/m·K (pentane) + 4 mW/m·K (solid stage) + 4 mW/m·K (radiation)

# 3<sup>rd</sup> Generation Insulation

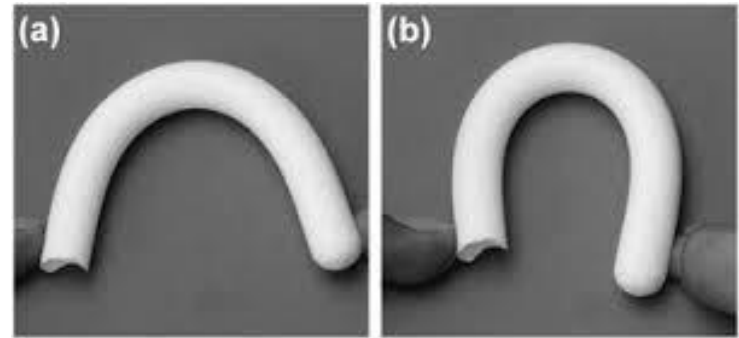
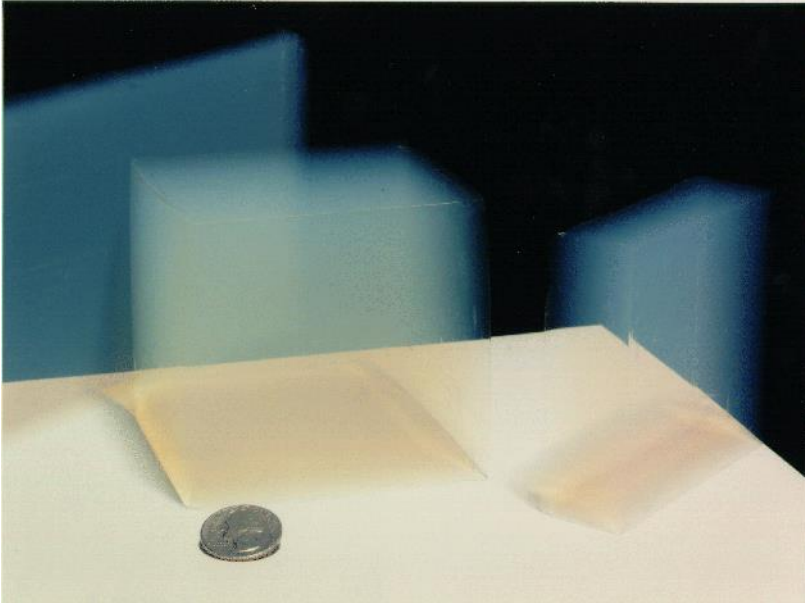
Vacuum insulation panels

$$\lambda_{\text{tot}} = \cancel{\lambda_{\text{Air}}} + \lambda_{\text{Matrix}} + \lambda_{\text{Radiation}}$$

Limit: 0 mW/m·K (air) + 3 mW/m·K (solid stage) + 1 mW/m·K (radiation)

# Another Way?

## Aerogel



Usually: 30-45 mW/m·K. Silica- based: 14-16 mW/m·K

Best known: 12 mW/m·K

# Comparison

Material	Pros	Cons
EPS & Mineral Wool	Cost, acoustics	Thickness
Foams	Thermal performance, usability	Acoustics
Aerogel	Thermal performance, moderate usability	Cost, lack of systems
VIPs	Excellent thermal performance	Cost, usability

# Path to The Future

- Lambda going down
- Foam and VIP will lead the drive
- Low lambda in more products & more application



# How to Innovate ?

Process:

- Stage gate process
- Innovation as part of strategy
- Joint development with key customers
- KPI: vitality index



# How to Innovate

## Drivers for next decade:

- Systems and simplification of installation

### SITework

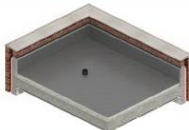
Although advice detailed in this guide relates to a concrete deck the installation guidance applies equally to installation over a timber deck. For guidance relating to installation over metal decks, existing flat roofs and existing composite roof panels please contact the Kingspan Insulation Technical Service Department (see rear cover).

Keep the Kingspan OPTIMA-FF Roofing System in its packaging until ready to install. The packaging should not be considered adequate for outdoor protection. The Kingspan OPTIMA-FF Roofing System should be stored inside a building and raised off the floor.

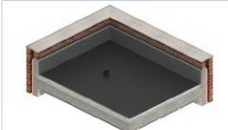
1 Prepare the concrete deck ensuring it is clean, dry, without projections including rising heads (e.g. strips or pipes), and is graded to allow correct falls to all rainwater outlets, unless using a tapered insulation overlay to create the fall. Prime the deck in accordance with the primer manufacturer's instructions, prior to the application of the adhesive system, used to bond the vapour control layer to the deck.



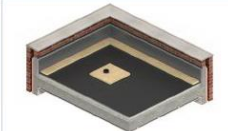
2 Lay the specified vapour control layer, ensuring that where one run of the specified vapour control layer laps another, there are minimum 150 mm side lap and overlap, which should be adequately sealed. Turn up the vapour control layer at the edge of the roof to a height appropriate to the specified waterproofing membrane.



3 A protection layer should be installed over the vapour control layer. For further information, including laying instructions please contact the Kingspan Insulation Technical Service Department (see rear cover).



4 At the perimeter of the roof and where upstands or any other penetrations (e.g. drainage outlets) are present, lay Kingspan OPTIMA-FF Jlx strips abutting these areas, no less than 200 mm wide, to take account of building tolerances and to provide a zone to allow for peel restraint mechanical fixing of the membrane, should it be required. Refer to the waterproofing manufacturer for guidance on appropriate peel restraint detailing.



Kingspan OPTIMA-FF panels should not be walked on. A protective foot or crawl board should be used during the installation process.

Kingspan OPTIMA-FF panels should not be cut or penetrated.

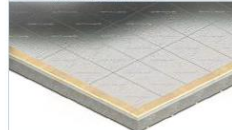
5 Lay the Kingspan OPTIMA-FF panels in a chessboard pattern where practical, with joints tightly butted. There should be no gaps at abutments. Panels should always be laid with firm flaps against the substrate.



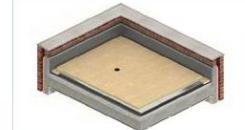
The Kingspan OPTIMA-FF Roofing system should not be used with solvent-based adhesive systems.

Cutting of the Kingspan OPTIMA-FF Jlx strips should be carried out either by using a fine toothed saw, or by scoring with a sharp knife, snapping the board over a straight edge and then cutting the facing on the other side.

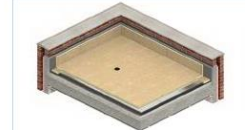
6 Where runs of Kingspan OPTIMA-FF panels do not accurately fit the foot, cut Kingspan OPTIMA-FF Jlx strips of the same thickness as the Kingspan OPTIMA-FF panels and lay them to make up the difference. Bond both the Kingspan OPTIMA-FF panels and the Kingspan OPTIMA-FF Jlx strips using an appropriate proprietary adhesive system.



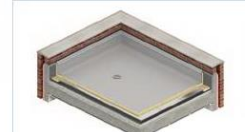
7 Lay an appropriate rigid transition overlay (either Kingspan Thermocool®, Kingspan Dryrock® or Kingspan Thermotop®) as soon as possible to avoid exposure of the Kingspan OPTIMA-FF panels to direct foot traffic. Bond the overlay to the upper surface of the Kingspan OPTIMA-FF panels and the Kingspan OPTIMA-FF Jlx strips using an appropriate proprietary adhesive system.



8 Subject to project requirements, fit a minimum 25 mm thick Kingspan Thermocool® T27 (PC/M) or Kingspan Dryrock® upstand around the perimeter of the roof on the internal façade of parapets. Ensure a minimum distance of 500 mm is maintained between the top of the insulation upstand and the bottom of the horizontal roof insulation.

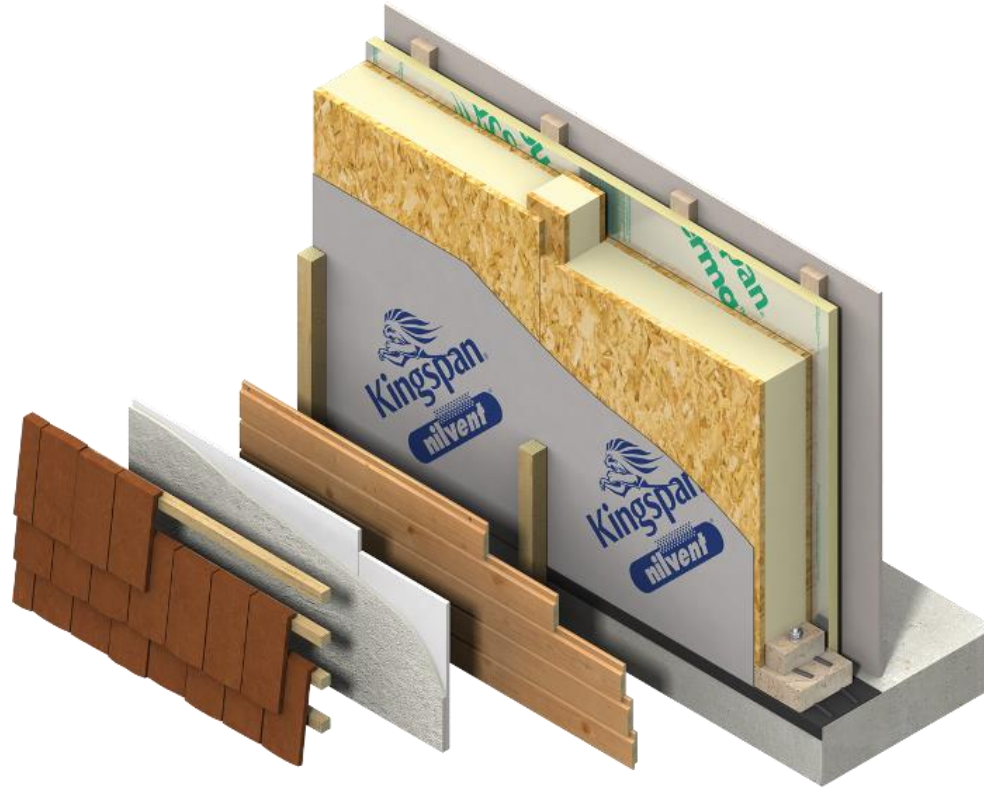


9 Install the waterproofing membrane in accordance with the membrane manufacturer's instructions, over the whole insulated area including any insulation upstands, as soon as possible after laying the insulation boards.



# Structural Insulated Panels

Engineered timber system



TEK Cladding Panel

# University of Bedfordshire, Luton



New build –  
rainscreen

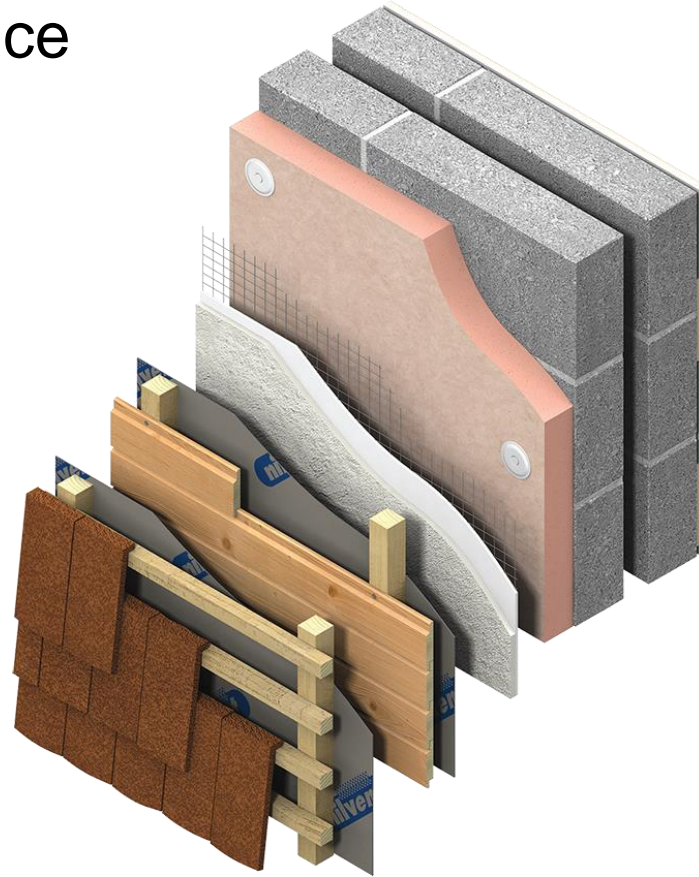
External wall:

Kingspan TEK  
Cladding Panel &  
Kingspan Thermawall  
TW55



# Phenolic Insulation

Premium Performance



Kooltherm K5 External Wall Board

# Totnes Passivhaus, Devon



Refurbishment - EWI

External wall:

Kingspan Kooltherm  
K5 External Wall  
Board

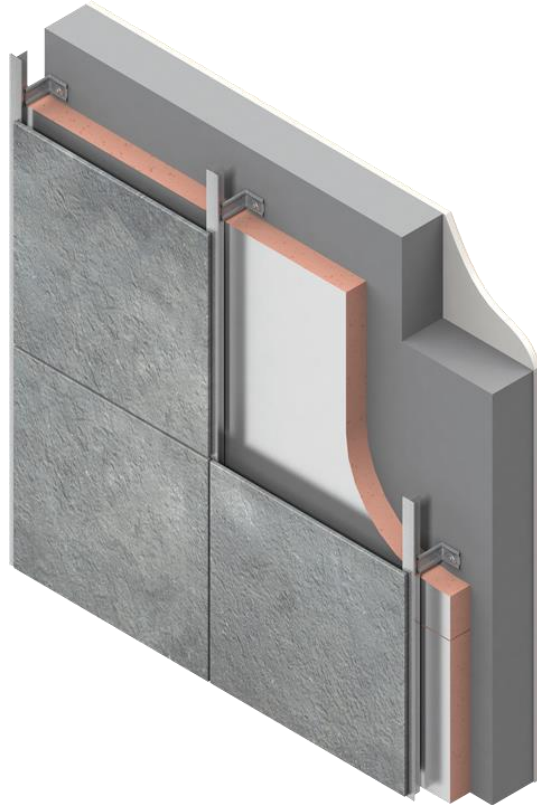
Floor:

Kingspan Kooltherm  
K3 Floorboard



# Phenolic Insulation

## Premium Performance



Kooltherm K15 Rainscreen Board

# Woodberry Down, Manchester



New build – Steel frame  
& Rainscreen

Steel frame:

Kingspan Kooltherm  
K12 Framing Board

Rainscreen:

Kingspan Kooltherm  
K15 Rainscreen Board

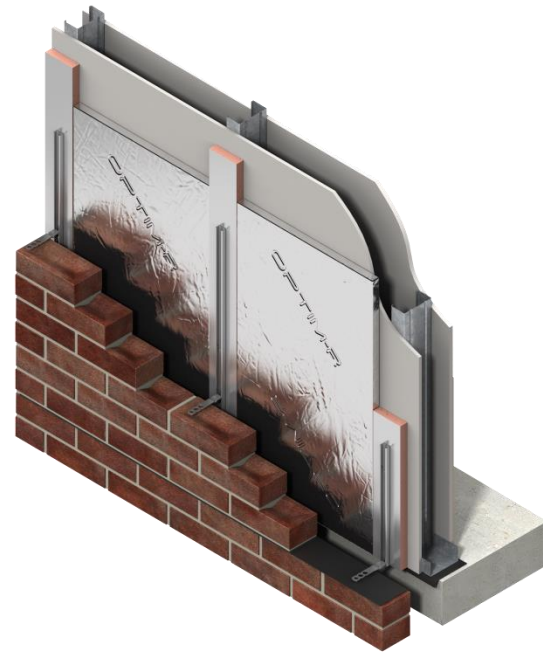


# Vacuum Insulation Panels

## Problem solvers



OPTIM-R Rainscreen Board



OPTIM-R External Wall System



# Pantile Avenue, Southend-on-Sea



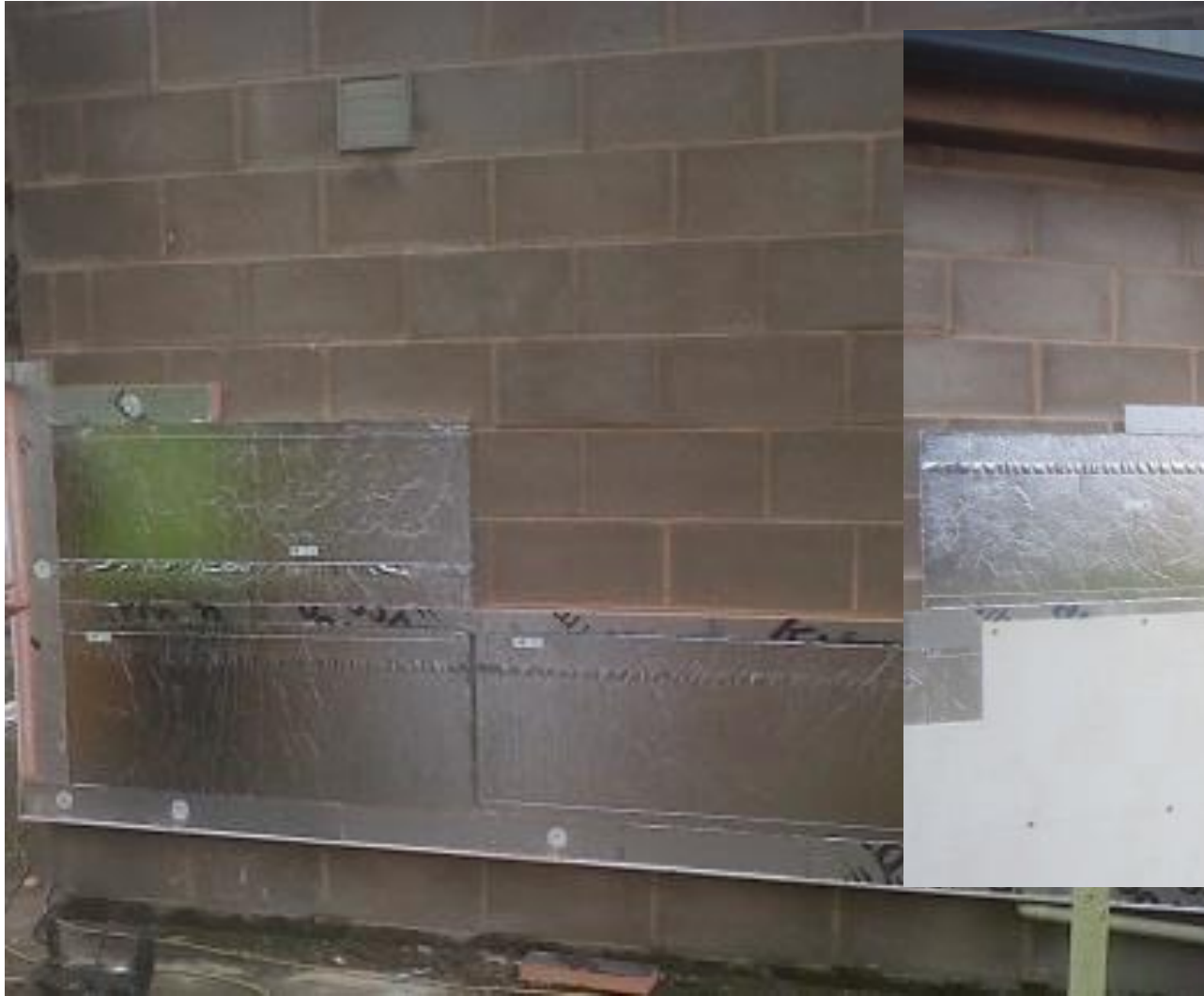
Refurbishment - EWI

External wall:

Kingspan OPTIM-R  
External Wall System



# Test system



# Test system



# Summary

*“Companies cannot grow through cost reduction and reengineering alone... Innovation is the key element in providing growth...”*

Tony Davila – Making Innovation Work



# Thank You





# Client Perspective - Landlords Opportunities & Challenges

**Matthew Oliver**  
NLA

# National Landlords Association

## ENERGY EFFICIENCY IN THE PRIVATE RENTED SECTOR

Matthew Oliver - *Policy & Public Affairs Executive*

[www.landlords.org.uk](http://www.landlords.org.uk)

*Insulated Render and Cladding Association  
March 2017*



**KNOW**  
your rights



**MEET**  
fellow landlords



**GAIN**  
a competitive edge



**SAVE**  
on services



**STRENGTHEN**  
our voice

# ■ Contents

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- Who are the NLA
- Background
- Obstacles to Improvements
- Regulating the PRS
- Financing Improvements
- Engaging with Landlords



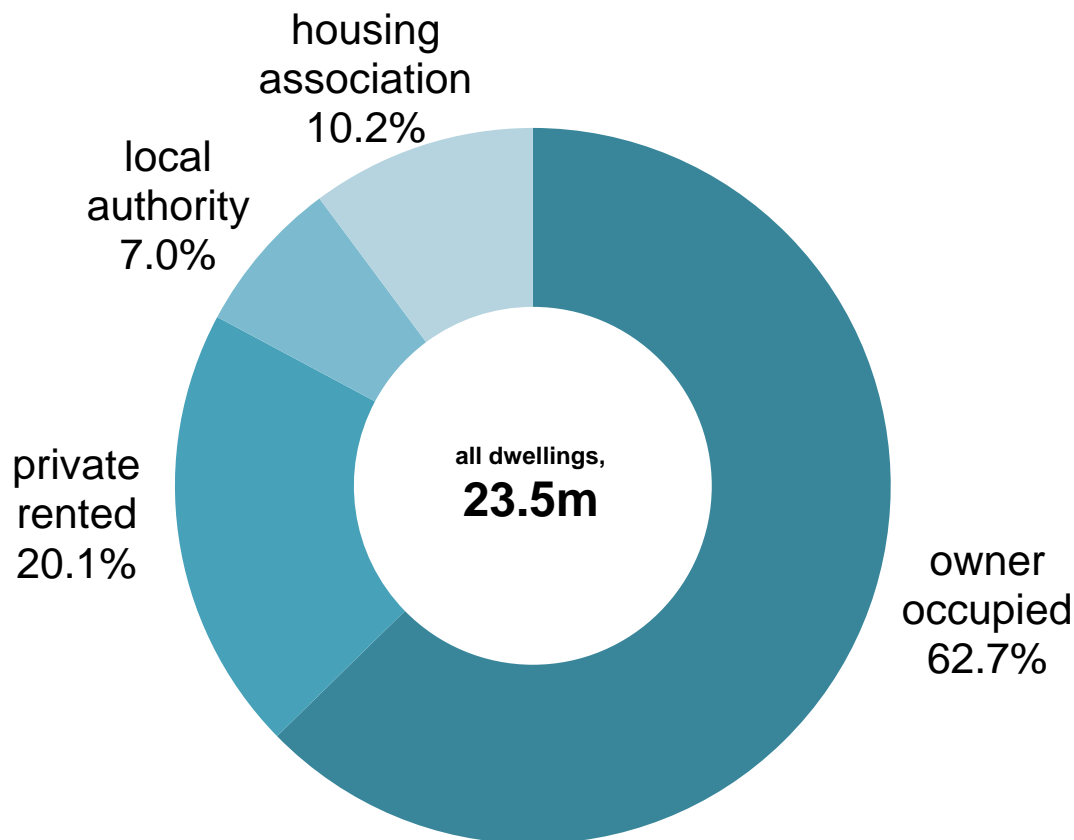
# ■ The National Landlords Association

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- **The UK's leading representative organisation for private residential landlords**
  - Working with 76,000 landlords, including 35,000 paying members
  - Providing information, advice and services to support their businesses
  - Campaigning to influence policy and to make the landlords' voice heard
  - Working to raise standards in the private rented sector and ensure landlords are aware of their rights and responsibilities

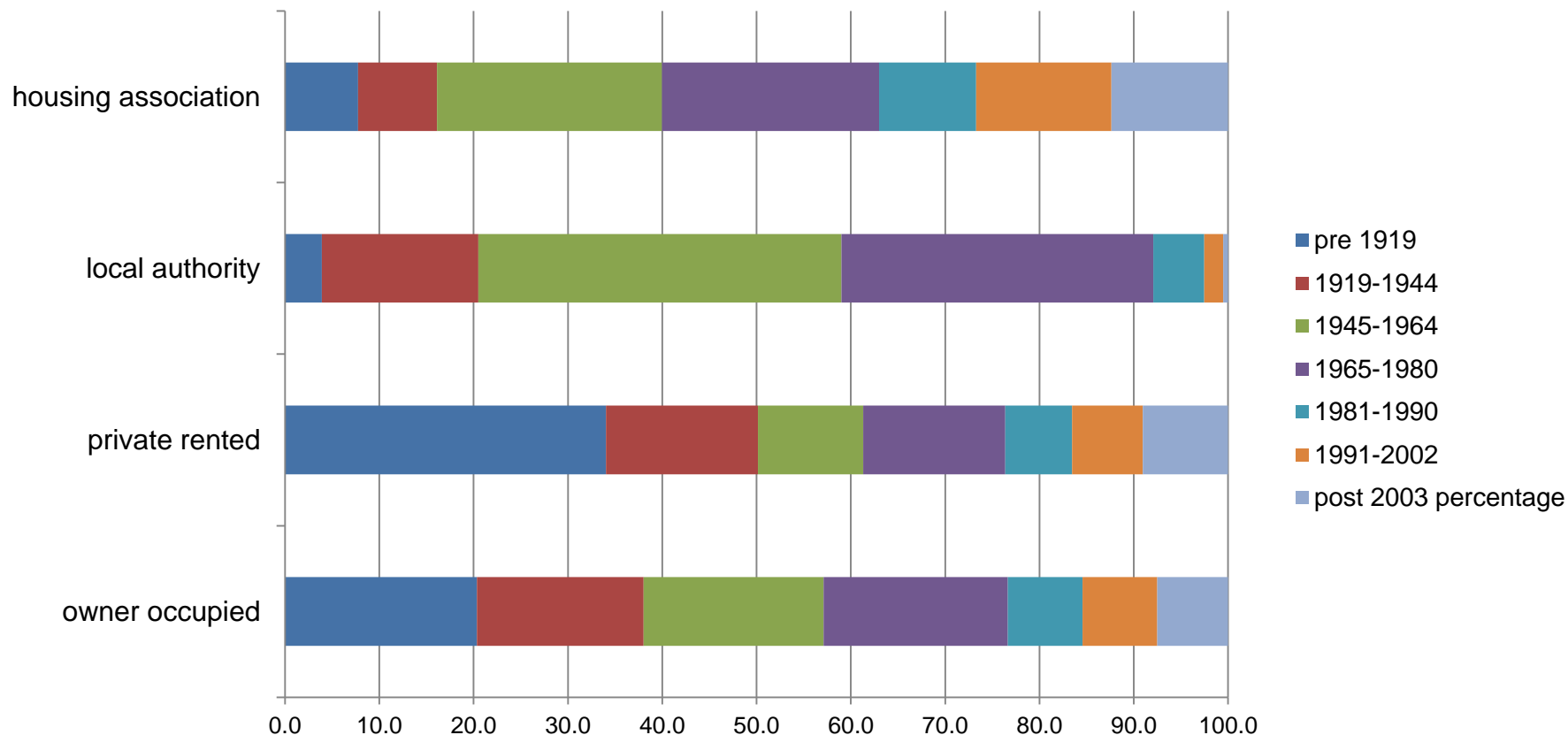
## ■ 20% of Dwellings...

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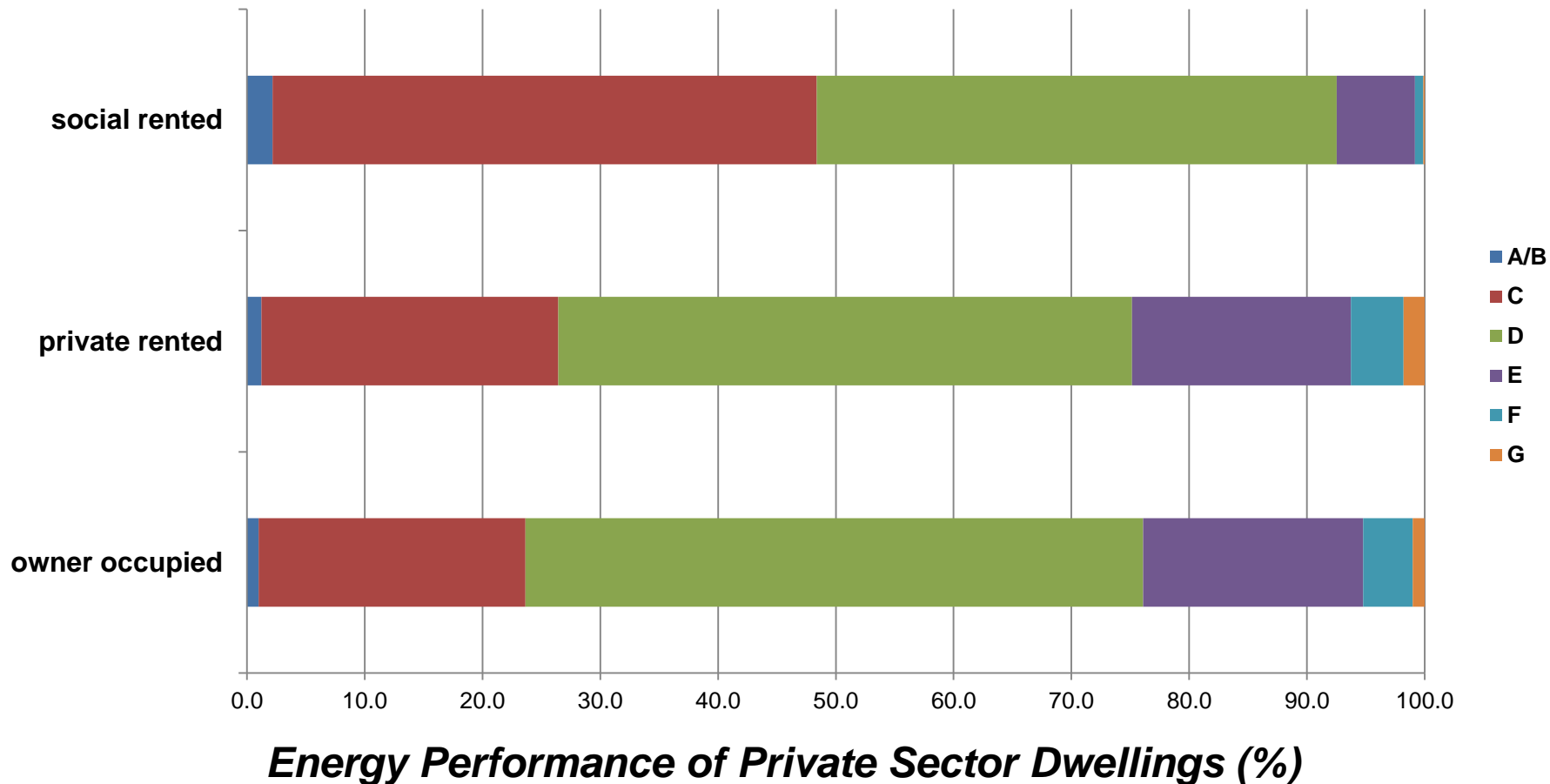
*English Housing Survey 2015-16*

## ■ PRS: More Older Stock ...



**Age of Housing Stock by Tenure**

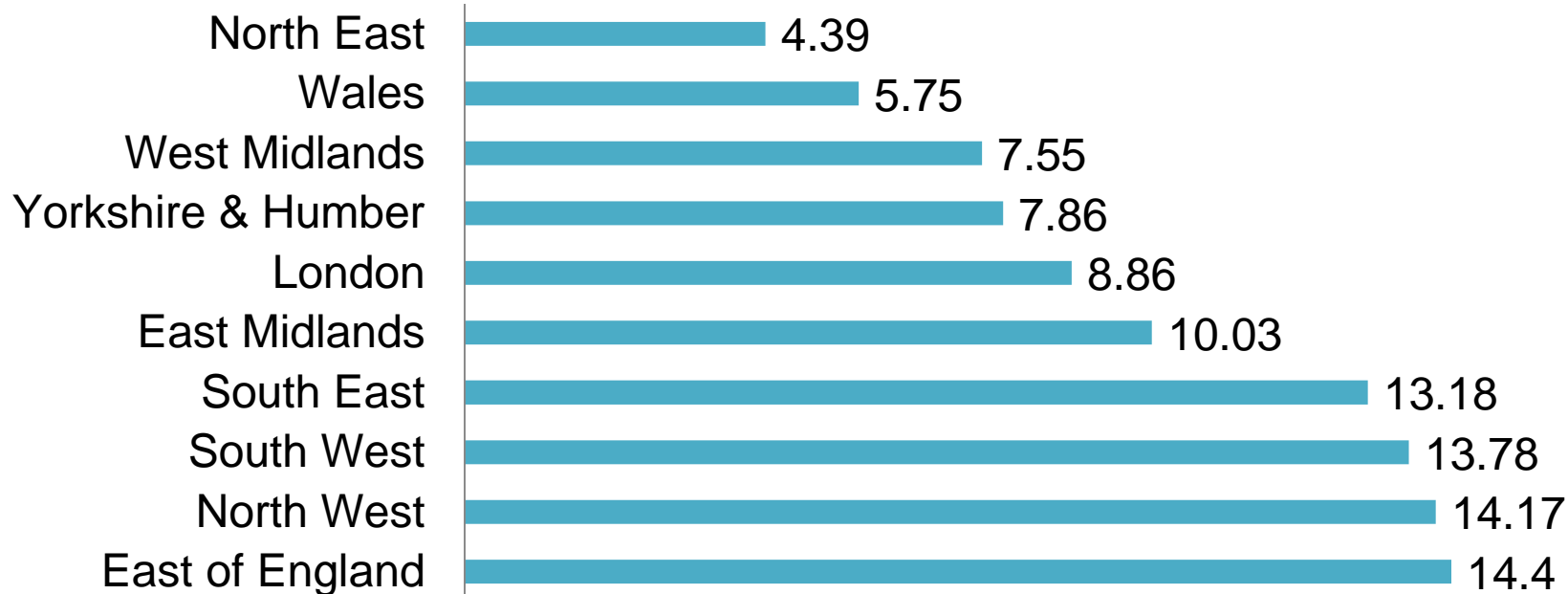
# ■ ... And Poorer Energy Performance ...



## ■ ...which varies across the country...

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### PRS F&G Rated Properties - Regional Breakdown (%)



Source: DBEIS

# Means More Opportunities to Upgrade



## ■ Obstacles to improvements

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- Lack of available funding
- Energy Efficiency Schemes not effective in multi-occupancy buildings
- Funding incorrectly targeted at occupiers rather than owners
- Locating eligible occupants was extremely difficult
- Failure of the Green Deal

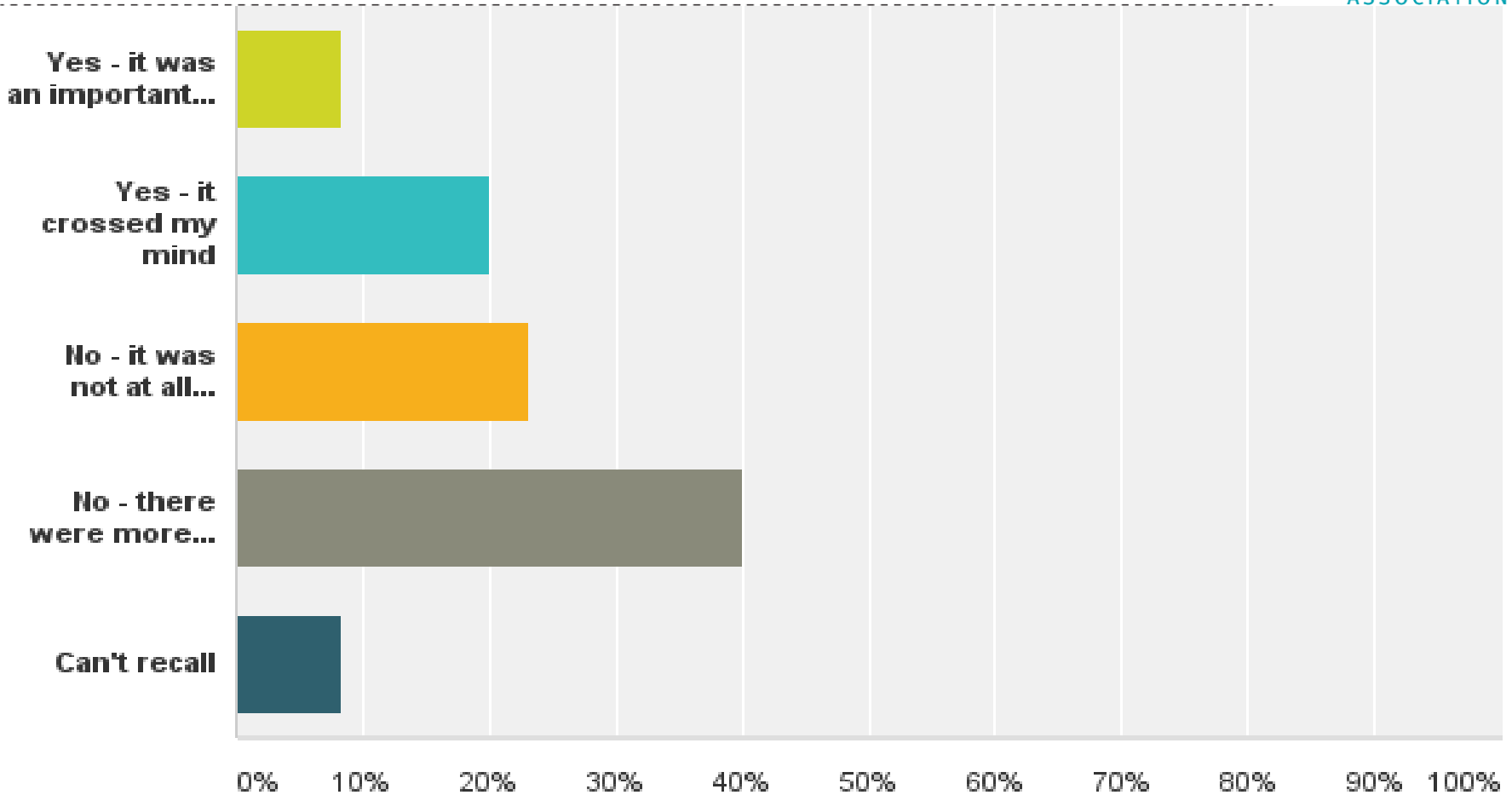
# ■ The ‘split incentive’ & No Imperative

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- Landlords pay for the improvements
- Tenants benefit from reduced fuel bills and warmer homes
- Landlords unlikely to recoup their costs
- The demand is there – no market necessity
- Tenants are seemingly not too fussed



■ Did you consider the energy efficiency of your home when deciding to live there?



## ■ Regulating the PRS

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- 3 stage implementation of standards
  1. **April 2016** – Tenants’ Right to Request
  2. **April 2018** – Ban on new tenancies (F&G)
  3. **April 2020** – Ban on all tenancies (F&G)

## ■ Toothless?

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- Regulations heavily tied to the Green Deal
- “No upfront costs” exemption wide-ranging



## ■ Putting the bite back into it

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- New Government – New Plan?
- Consulting sector on giving the regulations teeth
- Introduce financial imperative:
  - Ditch the “no upfront cost” exemption
  - Introduce a cap on the cost - £5000

## ■ Putting the bite back into it

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- NLA propose that the cost cap set at an initial level of £3,500 per property
- Estimated cost to improve
  - 75% of F and G-rated to EPC band E.
  - 74% of E, F & G rated properties reach a D rating.

Source Energy Saving Trust

## ■ Financing improvements

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- Changes to ECO
  - Expanding eligibility to E, F & G rated social rented properties could pull investment away
  - “Flexible eligibility” – local authorities given power to deem property eligible

## ■ Renewal of Green Deal Financing?

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- Green Deal loan company bought
- Looking to offer new loans in 2017
- Same Golden Deal basis

## ■ Engaging with the Sector

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- **Appropriate messaging**
  - Landlords and tenants need different messages
  - Landlords more likely to initiate works
  - Private Rented Sector (PRS) Regulations will play large part
- **Understanding tenancy lifecycles**
  - Landlords will be more receptive at certain times of the year
  - Targeting students during the summer will not work



## ■ Engaging with the sector

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- **Small scale delivery**

- Most landlords own small portfolios which are often in several different areas
- Area based approaches and large scale delivery models will not work

- **Understanding Landlord Finances**

- The £5k cap may cause funding issues to landlords
- Offer easy and innovative financing solutions
- Funding may become available\*\*

# National Landlords Association

Skyline House, 2<sup>nd</sup> Floor  
200 Union Street  
London SE1 0LX

Tel: 020 7840 8900

Email: [info@landlords.org.uk](mailto:info@landlords.org.uk)

Twitter: @nationallandlord

[www.landlords.org.uk](http://www.landlords.org.uk)

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**KNOW**  
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**GAIN**  
a competitive edge



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on services



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our voice



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# Coffee

recognising EWI innovation and excellence



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# **BBA Focus & Priorities**

## **Certification of EWI Systems**

**Brian Moore**  
**BBA**

recognising EWI innovation and excellence

INCA Members' Meeting

Brian Moore  
Operations Director

23 March 2017



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## Certification of EWI Systems - chronology

- ▶ A major EWI failure in early 2016
- ▶ Alerted BBA to a potential issue with windload calculations
- ▶ Requirement made of all EWI Certificate holders to provide an example in October 2016
- ▶ Peer review of BBA methodology in December 2016 and February 2017
- ▶ Individual Certificate holders written to 28th February/1st March 2017
- ▶ Summary of findings sent to Certificate holders 16th March 2017
- ▶ Report and recommendations to be finalised 31st March 2017
- ▶ Meeting with affected BBA Clients 25<sup>th</sup> April 2017

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## Summary of findings

- ▶ At first submission, only a small minority found satisfactory
- ▶ Wide variation in approaches
- ▶ Expertise and experience not consistently available
- ▶ Although accountability for design is vested in the Certificate holder, perceived lines of accountability not always felt to be clear between Certificate holder, external expert and installer
- ▶ More likely than not that some installations may be at risk of failing prematurely

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## The Future: what lessons can we learn?

- ▶ BBA is working now with each Certificate holder to help address individual issues identified in the review
- ▶ Windload calculations will need to be scrutinised as part of future surveillance
- ▶ The case for pre-installation independent checks to be considered again
- ▶ Stricter regime of notifying failures



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## The Past: what lessons can we learn?

- ▶ Where serious deficiencies have been identified in methodology, risk assessment should be undertaken
- ▶ In a way that commands confidence and is affordable
- ▶ Where issues are identified, proportionate steps taken to address them

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## Issues to be considered and addressed

- ▶ Undertaking risk assessments – Who should consider previous designs/installations where methodology flawed?
- ▶ Communications – who needs to know about this?
- ▶ Confidence – how will this best be achieved?
- ▶ Financial implications – of risk assessment and any remediation?
- ▶ Non-BBA certificated designers/installers – how to review their work?

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## Each Home Counts Review

- ▶ ‘Compliance and Enforcement’ strand:
  - ▶ Mapping the existing arrangements
  - ▶ Against what EHC proposes
  - ▶ Making the case for the difference
- ▶ ‘Whistleblowers’ – No prescribed body or person under the Public Interest Disclosure Act 1998

# BBA Focus and Priorities

## ▶ Local Authorities and Housing Associations – marketing campaign



### Damp and mould. What's causing the problem?

**You need professional advice from the experts**

With 50 years of unrivalled expertise in building and construction certification, the BBA is widely recognised as the best place to go for professional, expert-led investigations into all manner of problems associated with housing conditions.

The problems of damp and condensation are a serious cause for concern for Local Authorities and Housing Associations alike. The BBA will investigate the cause and identify the most effective and long-lasting solution to your problem. Our experts will identify the cause of the problem and advise on the most effective way to solve it. Our experts will also advise on the most effective way to prevent the problem from recurring.

**Our BBA experts can provide you with the support you need**

- BBA offers you the full range of services to help you solve your problem.
- For complete solutions, BBA offers you a full range of services to help you solve your problem.
- BBA can offer you a full range of services to help you solve your problem.

**Our BBA experts can provide you with the support you need**

Our BBA experts can provide you with the support you need. We have a team of experts who can help you solve your problem. We have a team of experts who can help you solve your problem. We have a team of experts who can help you solve your problem.

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### Getting Cavity Wall Insulation/ Cavity Cleaning right - ensuring your peace of mind

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### External and Hybrid wall insulation systems aren't always that hot

**That's why we recommend Independent Solid Wall Inspections by the experts**

Our BBA experts can provide you with the support you need. We have a team of experts who can help you solve your problem. We have a team of experts who can help you solve your problem. We have a team of experts who can help you solve your problem.

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### Get the best view of your housing stock...

**with an insulation focussed stock survey by the experts**

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## BBA Focus and Priorities

- ▶ New Company –  
BBA Consultancy, Investigations and Training Ltd (CIT)



- ▶ Office 4.1, Capital Tower Business Centre,  
Capital Tower, Greyfriars Road,  
Cardiff CF10 3AG



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## BBA Focus and Priorities

- ▶ New Company -  
BBA EU Certification Ltd based in Ireland



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## What are we doing for you in the year ahead?

- ▶ Upholding confidence in the Certification process through:
- ▶ Raising and challenging inadequate practice
- ▶ Marketing the good work of Certificate holders to a vast range of public and private sector bodies
- ▶ Ensuring that the UK remains attractive in Europe and beyond

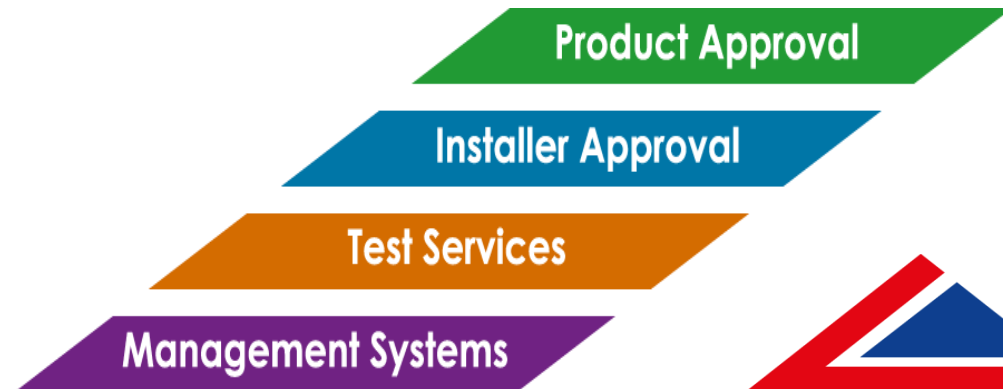
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# Any questions?



Thank you



## **PAS2030 Revision**

- **Changes to PAS2030 Overview**
  - **Thermal Bridging Detail**

**Andrew Champ – SWIGA**

**Ben Edmonson – INCA**



# INCA PAS 2030 /31 update

# Context



- PAS2030 focus on process
- Little detailed installation guidance
- Lack of design support
- Inappropriate applications
- Unintended consequences
- Insufficient audits
- Light touch accreditation
- Backdrop of “more consistent installations”

## PAS 2030:2017

Specification for the installation of energy efficiency measures (EEM) in existing buildings



  
Department for  
Business, Energy  
& Industrial Strategy

**bsi.**



# Main changes regarding solid wall

PAS 2030 Clause Reference		Nature of changes
2014	2017	
Foreword	Foreword	Includes information in respect of the expected implementation of this PAS. Removal of reference to BIS and Green Deal. Other minor editorial changes.
Introduction	Introduction	Removal of reference to BIS and Green Deal. Other minor editorial changes.
1. Scope	1. Scope	Modified to reflect changes to the detail and structure of the revised PAS 2030. Includes reference to the addition of EEM design/ specification, validation requirements and to the new annexes.
2. Normative references	2. Normative references	Use of the Green Deal Code of Practice no longer a requirement.
3. Terms and definitions	3. Terms and definitions	The term 'Green Deal Provider' and its related definition has been deleted. Terms relating to design and specification have been modified or added (see 3.6, 3.7, 3.9 and 3.15). The definition of '(installation) method statement' has been modified for clarification.
	4. Design and specification of EEM	New Clause setting out with increased specificity, the details of how installers shall undertake review and validation of the EEM design/ specification that they are required to have prior to commencement of the installation. Also provides direction on how this can be incorporated in the installation method statement that will define the installation to be undertaken, including: <ul style="list-style-type: none"> <li>• how the functionality and performance different EEM installed in the same building can be mutually assured.</li> <li>• the nature and extent of any ventilation restoration/ enhancement that could be required in installations where one or more measures with the potential to increase building air-tightness, have been installed.</li> </ul>
4. Installation process	5. Installation process	Clarification about the use of sub-contractors and some minor editorial changes (see 5.6).
5. Installation process management	6. Installation process management	Changes to requirements in relation to 'business and financial probity' (6.9), clarifying/enhancing requirements for product liability insurance, guarantees and warranties and for clarity of contractual liability where installers are contracted on a design and build basis.
6. Service provision	7. Service provision	Minor editorial changes for clarification/ ease of understanding
7. Claims of conformity	8. Claims of conformity	Specified claim enhanced to include/ clarify responsibility for design/ specification.



# Additional EEM design detail requirements

- In undertaking the installation, the installers responsibilities shall include:
  - a) **Before installation starts**, confirming that the EEM specification has made provision for ensuring that:
    - EWI system provided for installation is that recommended by the pre design building survey and specified by the EEM design source;
    - Essential ventilation openings that require sleeving or safeguarding before installation are located and identified;
    - Position of all flues -whether in service or not is determined and measures that must be taken to safeguard their proper functioning is determined;
    - Existing cables, pipe work, ducting etc that require it are removed or repositioned as/where necessary to accommodate the planned EWI system, with authorization from the relevant responsible body (where required – BT – Gas Safe – National grid) and undertaken by a person competent to undertake such work.



# Additional EEM design detail requirements

- Attention: Management /exclusion moisture risk surface/int condensation /damp.
- Mastic sealants shall **always** be supported by a secondary seal and all details shall be fully weatherproof
  - i. System base detail (including below dpc)
  - ii. Window/door reveals/heads
  - iii. System/cill interfaces (incl. overhang requirements/weepholes/thermal movement)
  - iv. Surface fixtures (structurally sound)
  - v. Penetrations through the system
  - vi. Interfaces with roof soffits, flat roofs, conservatory roofs etc
  - vii. Detailing and sealing around vents/flues, meters and other heating related structures/pipe work.
- Details installed to minimise risks of cold bridging, removing/relocating/extending to allow continuity of insulation **in all cases if feasible** e.g. rooflines, meter boxes, pipework, flues
- Photographic evidence of key stages of the installation is prepared and retained
- Close up photographs of representative examples of all moisture and thermally sensitive details.
- Installations in accordance with specification ensuring safety and operation of fuel burning app
- Ventilation of the building no worse following installation of measure than prior to installation measure This may require additional ventilation. (see also A.5)



# Changes to Ventilation requirement

**Table A.5 – Minimum levels of background and extract ventilation in conditions described in Table A.4**

Room type	Minimum background ventilation (mm <sup>2</sup> ) <sup>a</sup>	Intermittent extract fan rating (l/s)
Habitable room	6500	Not required
Kitchen <sup>b</sup>	6500	60 (reduced to 30 for suitably sited extracting cooker hood)
Utility room <sup>b</sup>	6500	30
Bath or shower room <sup>c</sup>	Not required	15
WC only <sup>d</sup>	Not required	6

*NOTE 1 to Table A.5: Where the room has no external wall, a floor area of less than 6,5 m<sup>2</sup> and background ventilation cannot be provided then an extraction fan operating with a minimum 15 minute overrun should be installed.*

*NOTE 2 to Table A.5: Where the room has no external wall and background and purge ventilation cannot be provided, then the extraction fan operating with a minimum 15 minute overrun should be installed.*

*NOTE 3 to Table A.5: Where a window opening for purge ventilation exists then the window alone may be relied upon to provide extract ventilation*

*NOTE 4 to Table A.5: The ventilation area identified above is 'free area'. Equivalent area should be measured in accordance with BS EN 13141-1. The above values should be multiplied by 0,8 to obtain equivalent areas.*

## A.5.3 Continuous Extract Ventilation

Evidence of condensation within the unimproved building, or the installation of measure(s) is intended to lower the air permeability of the building envelope below 5 m<sup>3</sup>/m<sup>2</sup>h @ 50 Pa (or is likely to do so) intermittent extract ventilation not sufficient.

Recommended that EEM include provision background ventilation as above combined with continuous extract ventilation from wet rooms (with intermittent boost). In these cases it is necessary that the provision of ventilation be consistent with the guidance and minimum levels of extract and supply ventilation specified in Table A.6.





# Changes to Ventilation requirement

**Table A.6 – Minimum levels of extract and supply ventilation when continuous extraction is used**

## Permitted Exclusions:

Room type	Continuous extraction rating (l/s)	Number of Bedrooms	Minimum whole house ventilation rate (l/s)
Kitchen	13	1	13
Living Room	8	2	17

## 5.4 Permitted exclusions

Where there is no evidence of condensation within the unimproved dwelling and it can be demonstrated by fan pressurisation testing in accordance with BS EN 13829:2000 'Thermal performance of buildings: determination of air permeability of buildings: fan pressurisation method' or APTMA Technical Standard 1 'Measuring air permeability of building envelopes' before and after the installation of measure(s), that the air permeability of the building envelope has not been lowered by the installation, then the existing ventilation need not be upgraded.

NOTE 1 to Table A.6: APTMA Table 10 should be provided with minimum background ventilation of 21.35 m<sup>3</sup>/m<sup>2</sup>h at 50 Pa.

NOTE 2 to Table A.6: Where the window opening size is 10% of the floor area of the WC and is relied upon to provide extract ventilation then this should not be included in the sum of total extraction rate calculation.

Similarly, if it can be demonstrated by one of the same methods, that the air permeability of the building envelope after the installation of measure(s) is not less than 5 m<sup>3</sup>/m<sup>2</sup>h @ 50 Pa then intermittent extract ventilation is acceptable and continuous extract ventilation need not be provided.

NOTE It is anticipated that during the lifetime of this edition of PAS 2030, new specifications and guidance on the provision and maintenance of appropriate ventilation in existing buildings, will be developed. Users of PAS 2030 are strongly encouraged to periodically check for updated information as to progress, with the BSI PAS 2030 web-pages.



# Carding and sub contract labour

- Increase in carding requirements for operatives
- From 1 per site to 1 in 4 minimum and all supervisors
- Use of unskilled non PAS complaint labour not acceptable

## •6 Engagement of subcontract installers

- “Where installer subcontracts any part of the installation to another installer by way of a subcontract, the installer shall include in the contractual requirement that the subcontractor complies with all requirements of this PAS that are relevant to the installation related tasks to be undertaken and ensure that the subcontractor has the necessary skills and competence for the installation tasks subcontracted.
- The subcontracting installer shall retain responsibility for compliance with this PAS for all work subcontracted.”

PAS 2030:2017

Specification for the installation of energy efficiency measures (EEM) in existing buildings



Department for  
Business, Energy  
& Industrial Strategy

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# New PAS2030 Documentation

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- PAS2030 Measure Expert Group Annex B
- Specification for the installation of external wall insulation ensuring the safety and operation of fuel burning appliances
- External wall insulation pre-installation building inspection check list
- Thermal Bridging Design Details



# EWI ensuring safety and operation of fuel burning appliances

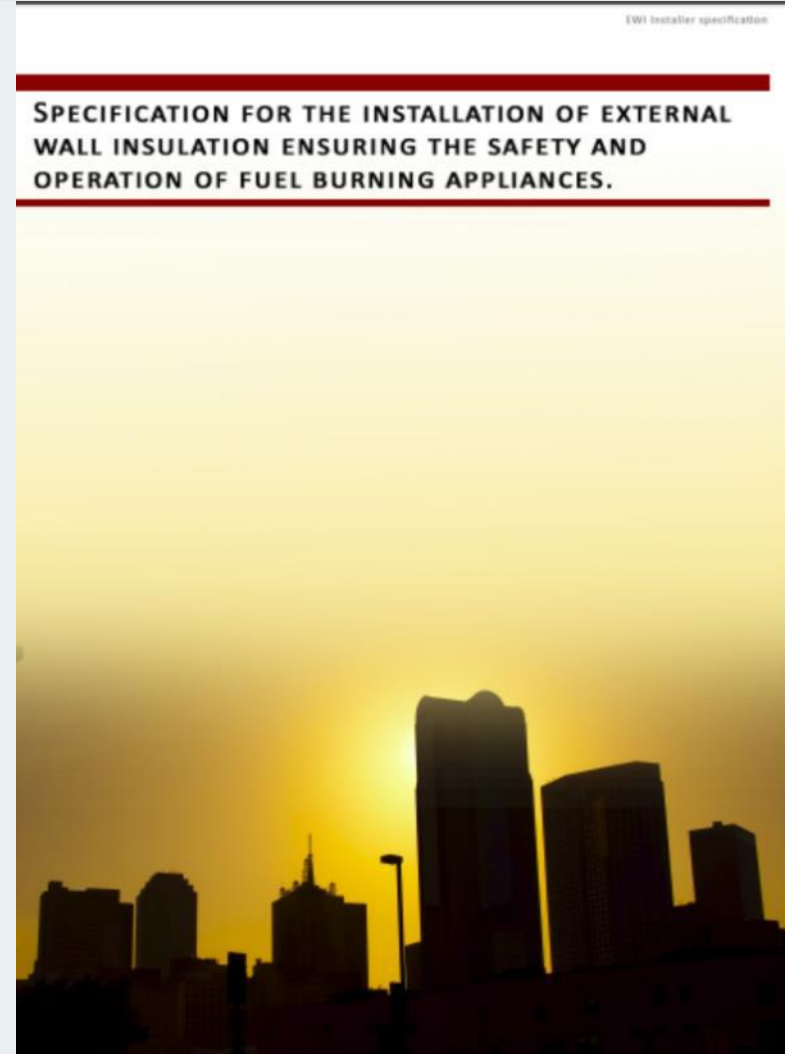
- Started 3 years ago as a safety document
  - Informs of risks, defines competency requirements, shows best/safe practice
  - Pipe runs, ventilation, combustion ventilation, Flues, meter boxes
- Debate on quality grew
  - Thermal bridging importance
- Avoidance of cold bridging
  - Conflicts with accepted practice
- Balance
  - Ideal solution, achievable, affordable





# EWI ensuring safety and operation of fuel burning appliances

- Pragmatic approach
  - Avoid cold bridges
  - Adopt recognised principles where practicable
- Onus of responsibility
  - Installer
  - Demonstrate all possibilities investigated and/or tried
- Outcome
  - Reduce risks to fuel burning installations as a result of EWI
  - Remove the unintended negative consequences of EWI installation





# Pre-Installation Check Sheet



- Industry standard
  - Maps questions that should have been answered in either
    - EEM design
    - Pre Building Survey
- Go / No Go
  - Checked at “first visit to site stage”
  - Contractor should not move to installation without confirming all docs in place
- Principle
  - Provide consistent structure/format to identify most important information needed for EWI installs
  - Reference back & check against the Building Survey
  - Reference back & check against the system design



# Pre-Installation Check Sheet

## NOTE:

This checklist should only be filled out if you are already in possession of:

### Example

1. The Building Survey for the property in question
2. The **DETAIL/CONDITION OF PROPERTY**

This check  
and the E

**PROPERTY TYPE:** House / Flat (what floor)/ Bungalow / Maisonette / Mid  
Terrace / End of Terrace / Semi / Detached

Agrees with Building Survey YES/NO

**PROPERTY CONSTRUCTION:** Cavity wall / Solid Brick / Pre-Fab / Non-  
Traditional/ Other

Agrees with Building Survey YES/NO

Survey



# Cold Bridging design detail guide

- Cold bridge areas do not “always” create issues
- A combination of poor ventilation, “wet homes” and cold bridges will
- SWIGA asked to look at damp issues through system regularly
- Most are localised cold bridging
- SWIGA supports the cold bridge detail overview in PAS2030 2017
- If you cannot find the detail you need – ask the system designer / system holder
- Check existing ventilation and talk through need to ventilate when handing over
- Always challenge the client on need to deal with cold bridging where possible
- SWIGA happy to support with meetings / provide content to be used with clients





# Thermal Bridging Design Details



The details that have a red traffic light attributed to them do not include insulation and thus can lead to a cold bridge, this does not however, automatically mean that condensation or damp will occur at this detail. Detail should be considered in the context of the property and current ventilation by the EEM designer.  
The installer must demonstrate that every possibility to improve the thermal performance of the detail has been considered/tried. Failure in the regard may result in Non-compliance with PAS 2030.



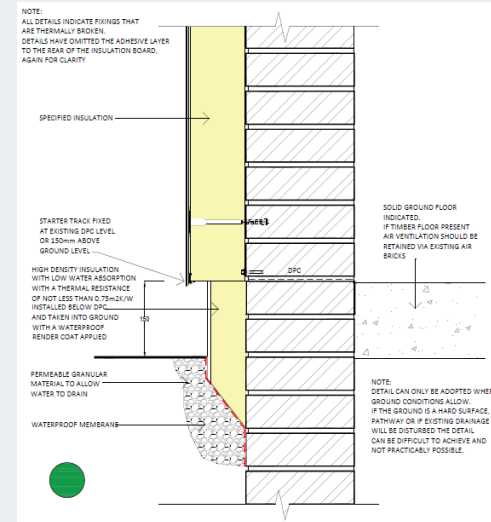
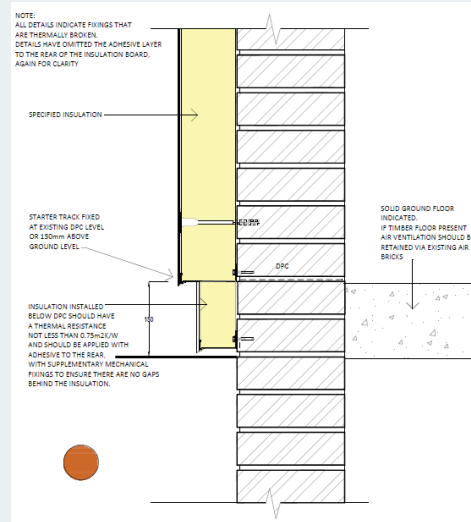
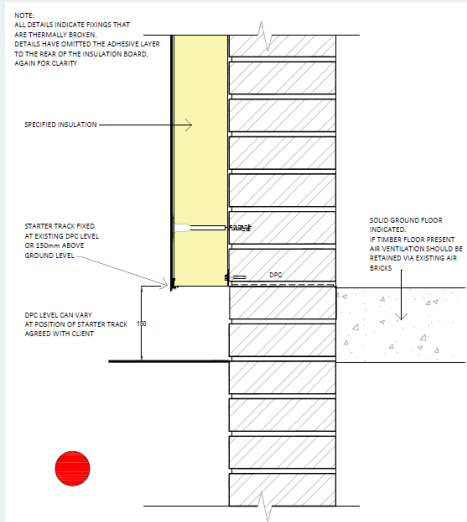
The details that have an amber traffic light attributed to them are partially insulated along the thermal path through the wall construction. It does not mean that condensation/damp will occur at this detail, nor does it rule out the risk of condensation/damp completely. Detail should be considered in the context of the property and current ventilation by the EEM designer.



The details that have a green traffic light attributed to them fully insulate the thermal path through the wall construction and provide a high level of confidence that condensation will not occur at this detail.

- A set of details to provide guidance for installers and designers
- Assessed against a 'Traffic Light' key system.
- The PAS asks for the best detail to be adopted 'where practicable' and a full assessment of all details undertaken to reduce the risk of cold bridging and possible condensation risk.
- Installer responsibility to demonstrate all possibilities investigated and/or tried.
- The details are not based on full assessment of building physics and all U-Values and Condensation risk assessment calculations should be carried out by the system designer to the guidance of BR443

# Thermal Bridging Design Details



- In the main Standard details are covered. Project specific details should be discussed with the system designer and a detail provided.
- The above details indicate typical examples showing 3 scenario's for the same situation.
- It is accepted that it is not always practicable to offer the 'Green' detail, but this should always be assess and if it is possible it should be discussed with the client.
- They may choose to use the red option, however the assessment has been carried out and the 'risks' discussed.
- The details are not mandatory however PAS 2030 puts more focus on improved standards and a greater level of assessment and control to ensure that Best Practice is provided.



# Pas2031 Inspection rates

- Current inspection rate for solid wall is 1%
- Current timing left up to CB to decide
- Government initially proposing move to 10% inspections for all solid wall measures
- INCA (others) successfully argued to reduce this based on PAS quality inclusions
- Reward good contractors by reducing inspection rate after 0 defect / 2 years

Insulation measure	Proposed Standard Tier	Industry Tier view	Proposed Standard Ins rate	Proposed Reduced Ins rate	Industry Standard Ins rate	Industry Reduced Ins rate	Pre Check %	Mid Check %	Post Check %	Floating %
External Wall insulation	3	3	10%	5%	7%	4%	25%	40%	20%	15% Pre/Mid only
Hybrid Wall Insulation	3	3	10%	5%	7%	4%	25%	40%	20%	15% Pre/Mid only
Internal Wall insulation	3	3	10%	5%	7%	4%	25%	40%	20%	15% Pre/Mid only



# PAS 2030 ANNEX B summary

- Measure specific considerations
  - Exposure of site, suitability of structure, suitability of system, suitability of design details
- Significant issues
  - Avoidance of cold bridging/condensation
  - Pre-installation survey check list go no go
  - Ensuring safe use of fuel burning appliances
  - Principles approach using industry standard details
- Avoidance of water entry
  - Principles approach using industry standard details
  - Double water barriers (non-reliance on just mastic sealant)
- Outcomes
  - Defined competencies
  - More detailed and robust detailing for all
  - Prevention of cutting corners
  - More robust survey & installation requirements – consistent to all
  - Cross-referenced to building survey and system design
  - Greater number of checks at key times – good contractors rewarded



# Questions

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# **INCA Awards 2017**

## **Thursday 5 October**

**Industry Flagship Event of the Year**

**Mitch Gee**  
**INCA Chairman**

recognising EWI innovation and excellence

## INCA Awards 2017 – Thursday 5 October

### Project categories:

- New Build
- Refurbishment

### Alternative categories:

- Architectural Design
- Innovation
- Environment
- Training
- Outstanding Achievement



recognising EWI innovation and excellence

INCA Meeting for Members – 23 March 2017

# INCA Awards 2017 – Thursday 5 October

## New categories!

- Small Installer of the Year
- Large Installer of the Year



recognising EWI innovation and excellence





INCA Meeting for Members – 23 March 2017

# INCA Awards 2017 – Thursday 5 October

**Deadline Extended!**

## Friday 7 April

**Enter, it could be you!**

recognising EWI innovation and excellence



# Lunch & Networking

## Blossoms Restaurant

recognising EWI innovation and excellence



# INCA Meeting for Members – 23 March 2017

# Ends