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Simple sound solutions for Building Regulations

**robust**details

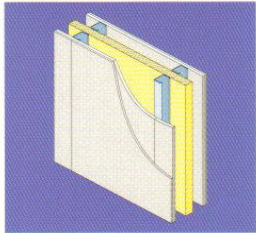
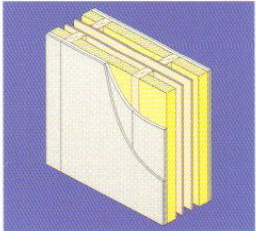
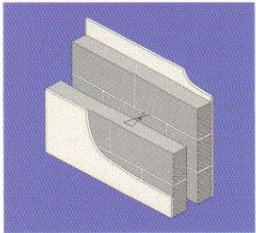
# Today's Agenda

- The Theory Gap
- Part E
  - What can go wrong
  - Thermal by-pass
  - Floating floors
- Linear Thermal Bridging (ACDs)
- Conclusions



# The Theory Gap

## Design v As-Built Performance:



- A matter of particular interest to Andrew Stunell MP (the Minister responsible for B Regs)
- A matter for consideration by Part L Industry Working Groups (2010 and 2013)
- Subject to recommendations by the Zero Carbon Hub on the matter of 'carbon compliance'

# The Theory Gap



It's a great concept...



# The Theory Gap

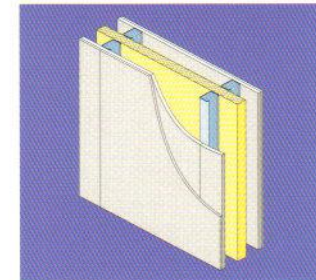
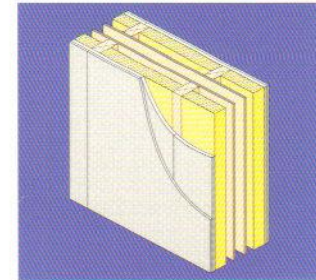
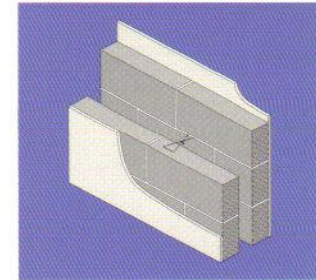
...but does the 'as-built' performance measure up?



# Closing The Theory Gap

Design v As-Built performance:

- ‘Robust Details’ for Part E held up as a model of how the industry can meet high levels of compliance (in ‘The Future of Building Control’ review, etc.).
- The outline provisions in Part L 2010 pave the way for a ‘Robust Details’-type scheme for linear thermal bridging.



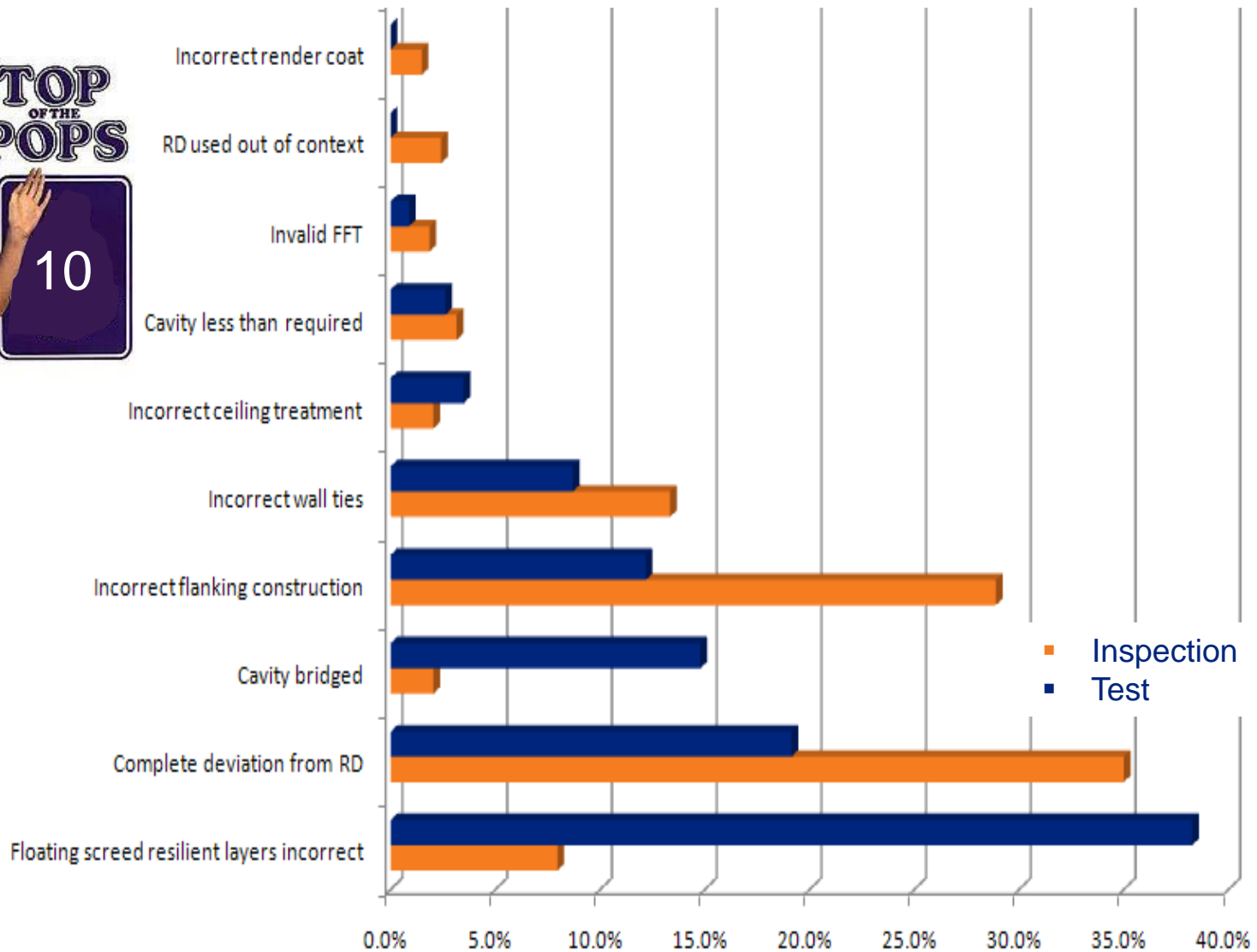


# 'Top Ten' Problems

Part E:  
What could possibly  
go wrong?



# 'Top Ten' Problems





# 'Top Test' Problems

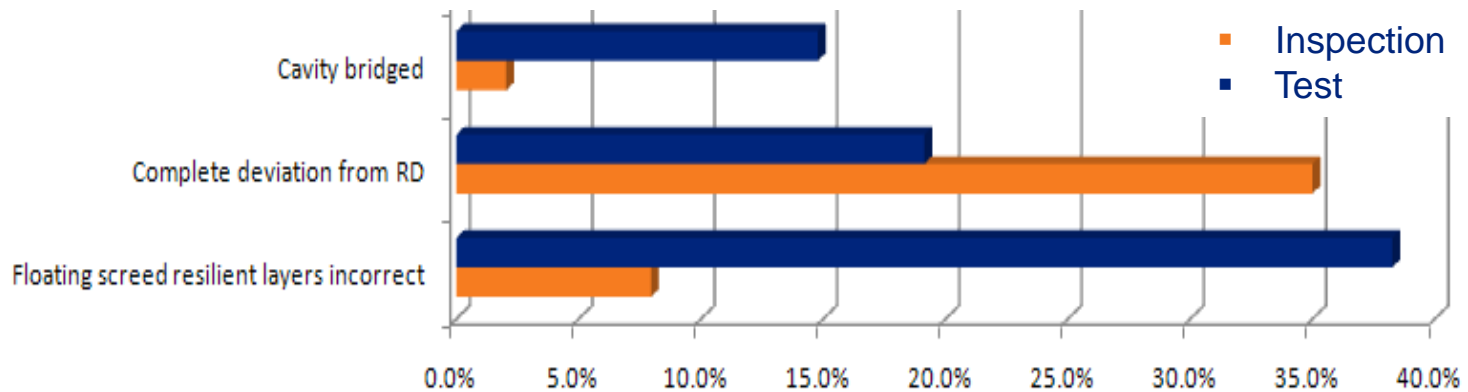
TOP  
OF THE  
POPS

3

## By test fail:

1. Isolation of Floating Screeds\*
2. Complete Deviation
3. Cavity Bridged\*

*\*greater fail rate by test than by inspection*

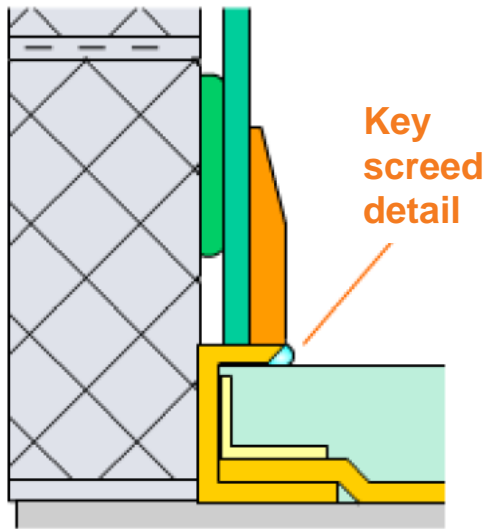


# 'Top Test' Problems



## By test fail:

1. Isolation of Floating Screeds\*
2. Complete Deviation
3. Cavity Bridged\*



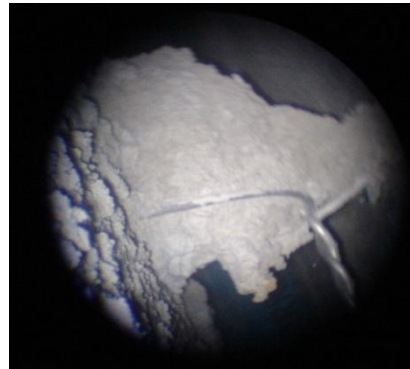
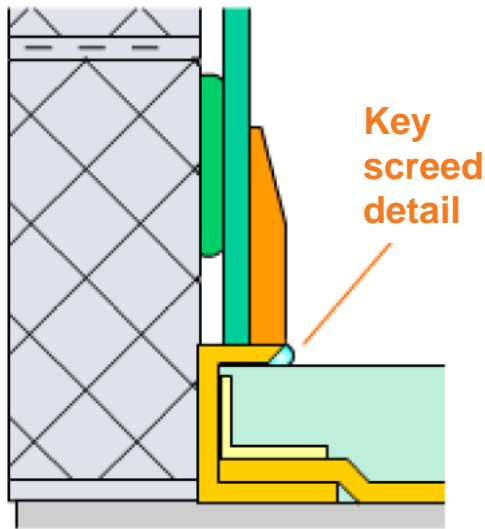
# 'Top Test' Problems



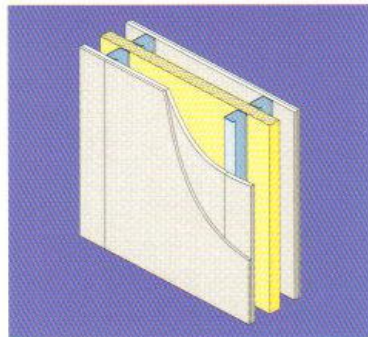
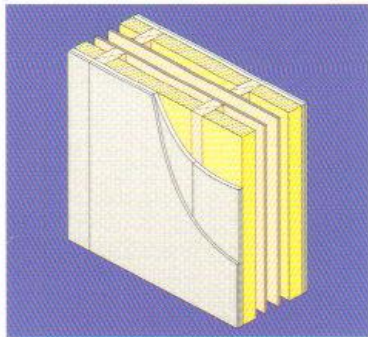
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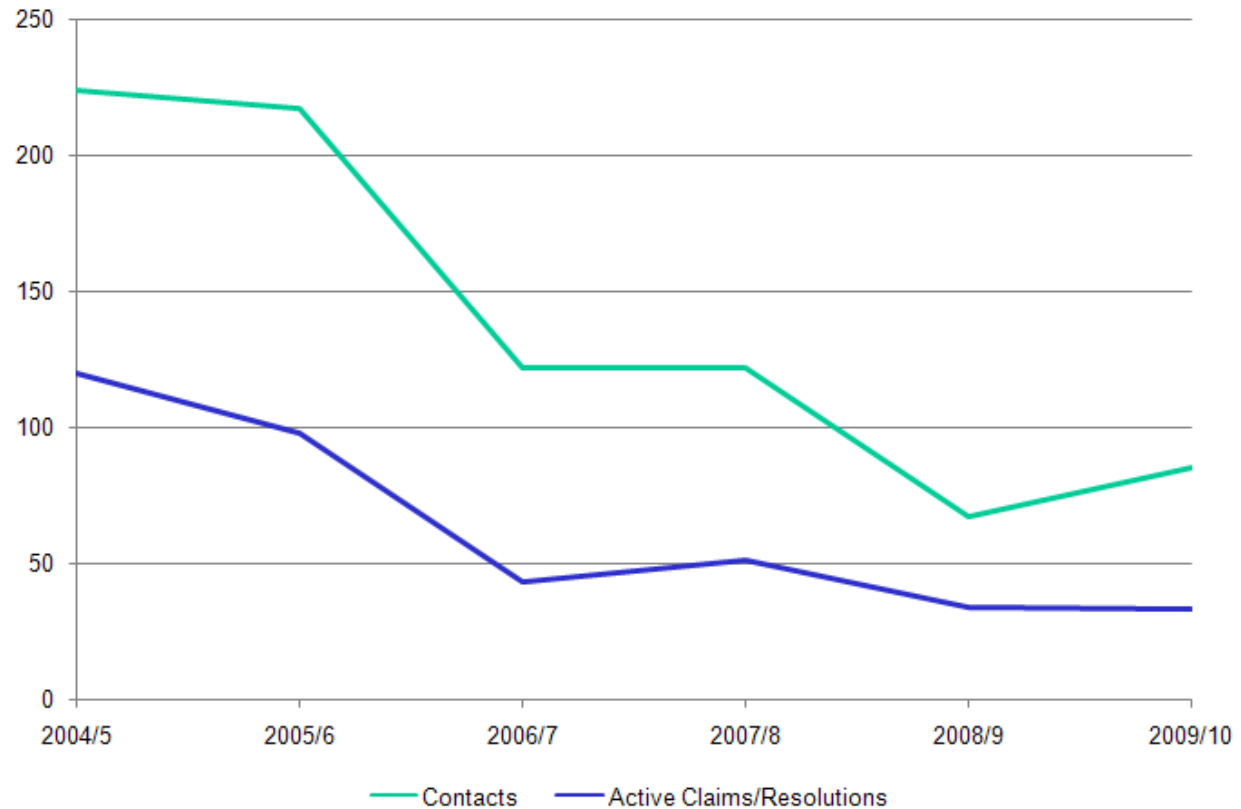
*Examples of cavity bridging:*



# Overall Trends



## Sound transmission contacts and claims/resolutions (NHBC)



# The Scheme



## Post-2010 Cavity Separating Walls



# Acoustic Principles

Part E:

Clear Cavity =  
Good Acoustics



Part L 2010:

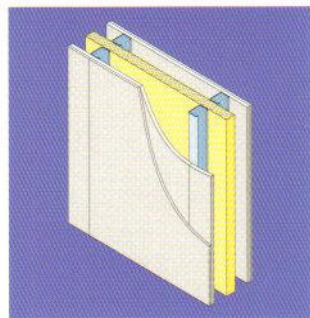
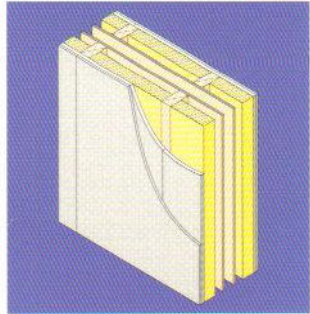
Clear Cavity =  
Thermal By-pass



How can we resolve this?



# Cavity Wall By-pass



- RDL has published an update containing a number of new and ‘upgraded’ details (i.e. RDs amended to include full-fill options)
- The RD handbook can be ordered at [www.robustdetails.com](http://www.robustdetails.com) – either in hard copy or on-line form
- *For Part L purposes, the Building Control Alliance (BCA) have published a definition of ‘full fill’*

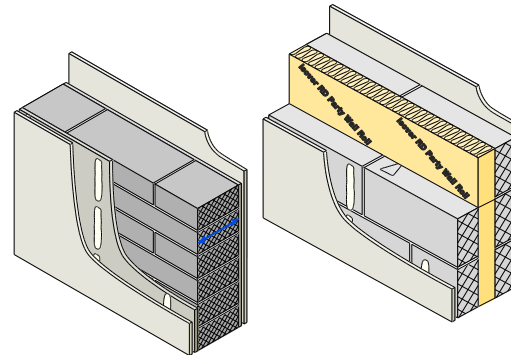
RD Type	Zero U-value
E-WM-1	✓
E-WM-2	✓
E-WM-3	✓
E-WM-4	✓
E-WM-5	✓
E-WM-6	✓
E-WM-9	✓
E-WM-10	✓
E-WM-11	✓
E-WM-13	✓
E-WM-16	✓
E-WM-17	✓
E-WM-18	✓
E-WM-19	✓
E-WM-20	✓
E-WM-21	✓
E-WT-2	✓

### Cavity insulation (optional)

Only Saint Gobain-Isover RD Party Wall Roll should be used. Ensure RD Party Wall Roll is correctly installed and fitted in accordance with the manufacturer's recommendations.

### Separating wall cavity insulation (optional)

The cavity may be insulated with mineral wool with a maximum density of 40 kg/m<sup>3</sup>.

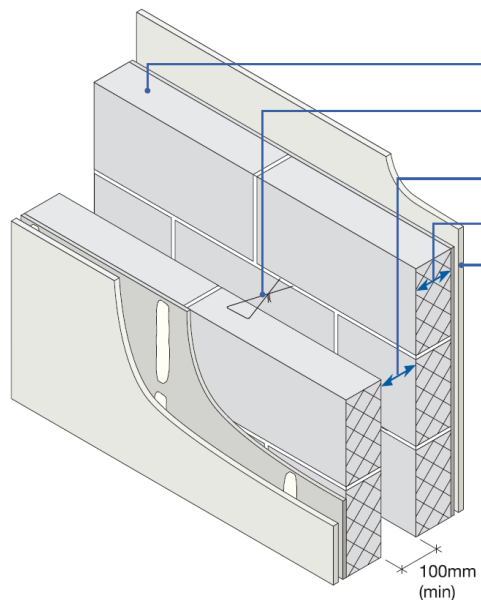


**NB:** Robust Details address Part E ONLY. Many of these details have been changed/upgraded for Part L 2010 and 'Zero U-Value' reasons, but RDL cannot confirm that these will meet Part L requirements.

## Separating Wall – Cavity Masonry

E-WM-11

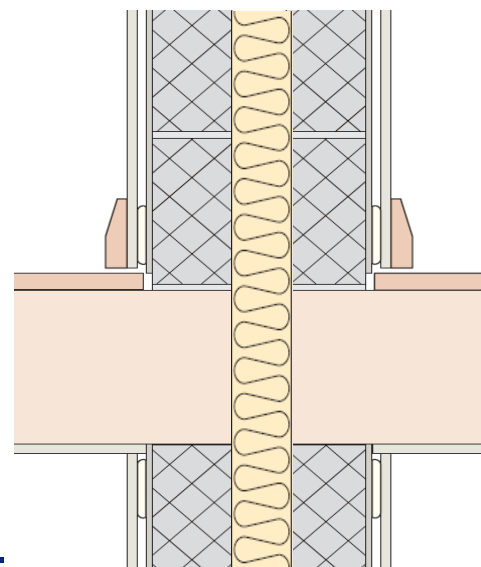
- Lightweight aggregate, or nominated hollow or cellular blocks
- Render and gypsum-based board on dabs
- Minimum 100mm cavity



Block density	1350 to 1600 kg/m <sup>3</sup>
Wall ties	Approved Document E 'Tie type A' (see Appendix A)
Cavity width	100mm (min)
Block thickness	100mm (min), each leaf
Wall finish	Gypsum-based board (nominal 8 kg/m <sup>2</sup> ) mounted on dabs on cement:sand render (nominal 8mm) with scratch finish Typical render mix 1:1:6 to 1:1/2:4. Render mix must not be stronger than background (see Appendix A)
External (flanking) wall	Masonry (both leaves) with 50mm (min) cavity – clear, fully filled or partially filled with insulation

### Separating wall cavity insulation (optional)

The cavity may be insulated with mineral wool with a maximum density of 40 kg/m<sup>3</sup>.



**NB:** Robust Details address Part E ONLY.

# Floors: Impact and Airborne Sound *(two things to worry about?)*



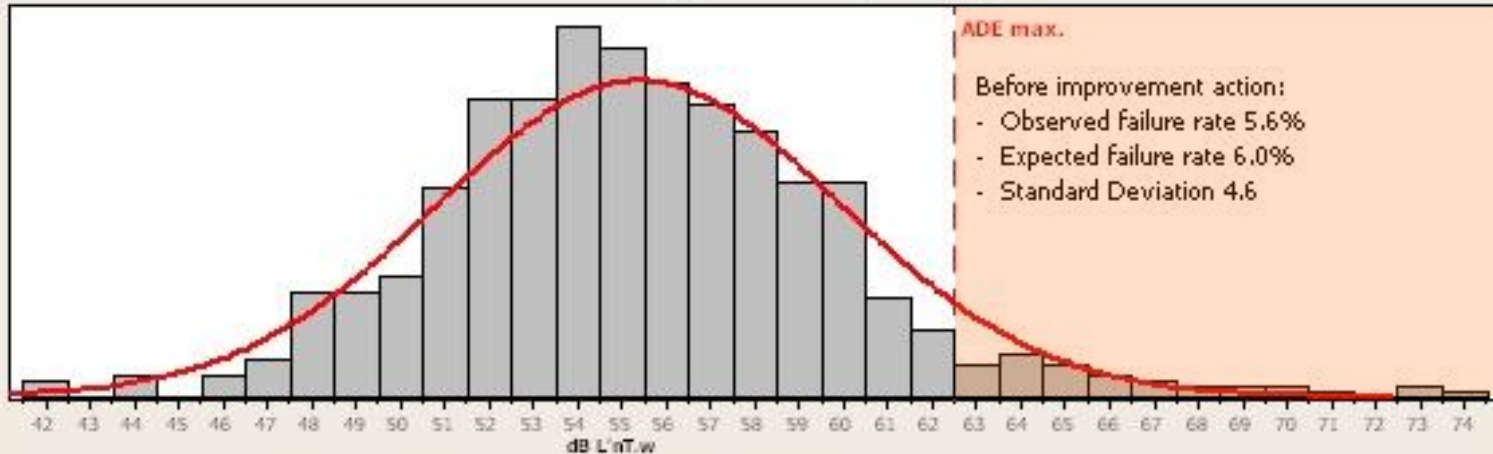
# RD on-site floor training programme :

- Supplier-led initiative
- On-Site training
- Edge detailing to avoid flanking sound problems
- Early results suggest that it is making a difference...

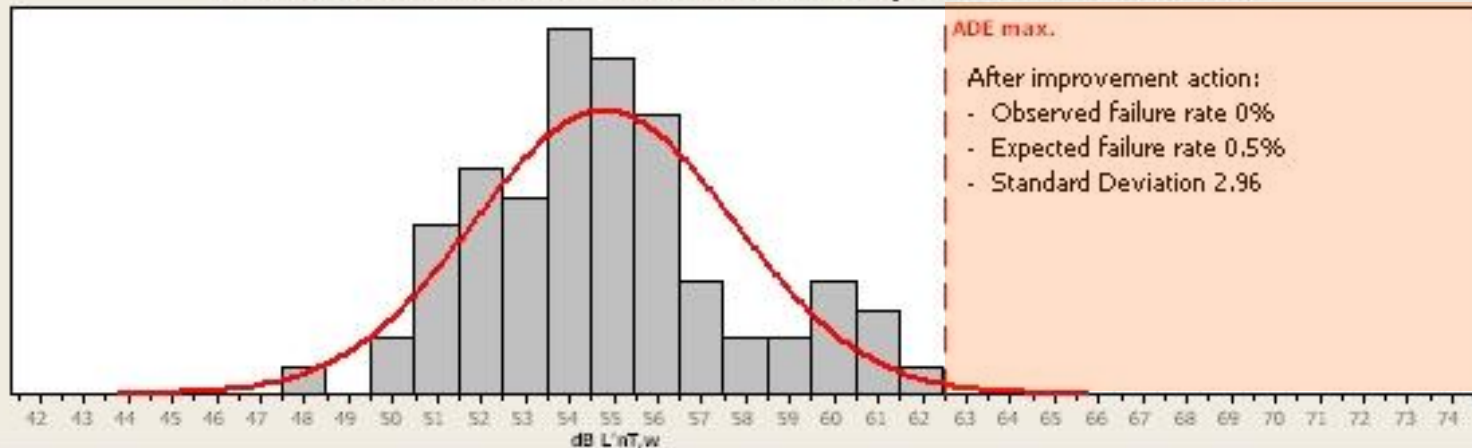


# Sound Tests

RD Floor X - June 2005 to Sept 2008 - impact sound transmission



RD Floor X - 12 months to end June 2010 - impact sound transmission



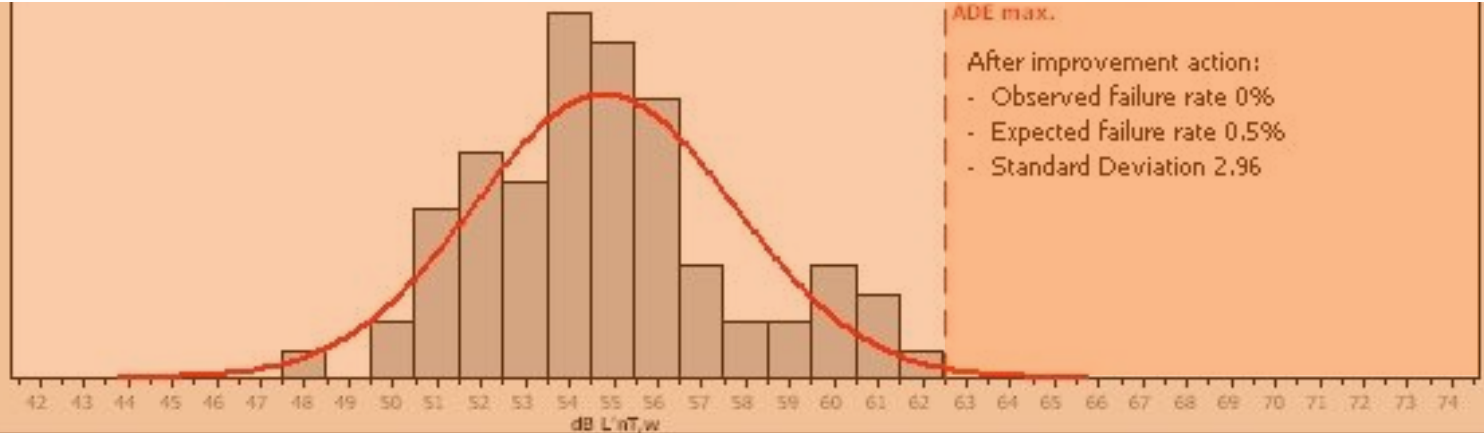


# Part L

RD Floor X - June 2005 to Sept 2008 - impact sound transmission



Could we do the same with Part L?





# What's happening about ACDs and ACD Schemes?

# Part L 2010

## Circular Letter from CLG

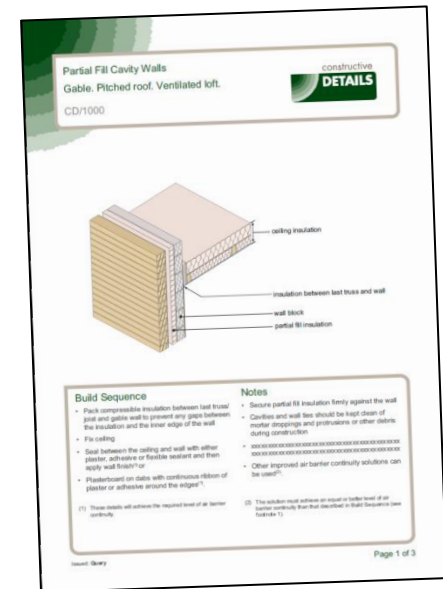
(28 Sept 2010):

- *Until ACD schemes have been approved...*

...the calculated value of linear transmittance may be used in SAP without any penalty where:

- calculated by a suitably experienced and qualified person; and

- information about the way the detail is to be constructed is given to the Building Control Body



# ACD Schemes: Timeline

April 2010: Part L published

Late 2010: DCLG sets up a forum of potential scheme operators to draft scheme document

Jan 2011: Draft scheme operating document submitted to DCLG

May, July and September 2011: Government organised workshops on thermal bridging schemes

# ACD Schemes: Timeline

September 2011: Government workshop:

Sequential changes in approach following feedback from industry at each meeting, culminating in (last month)...

... 'Single Scheme, Multiple Provider' approach...







# ACD Schemes: Timeline

**“Next steps: Following the workshop, we are considering a range of options in advance of full public consultation in December of this year. We will keep you informed as to how our thinking develops over this period.”**



**(DCLG Oct 2011)**

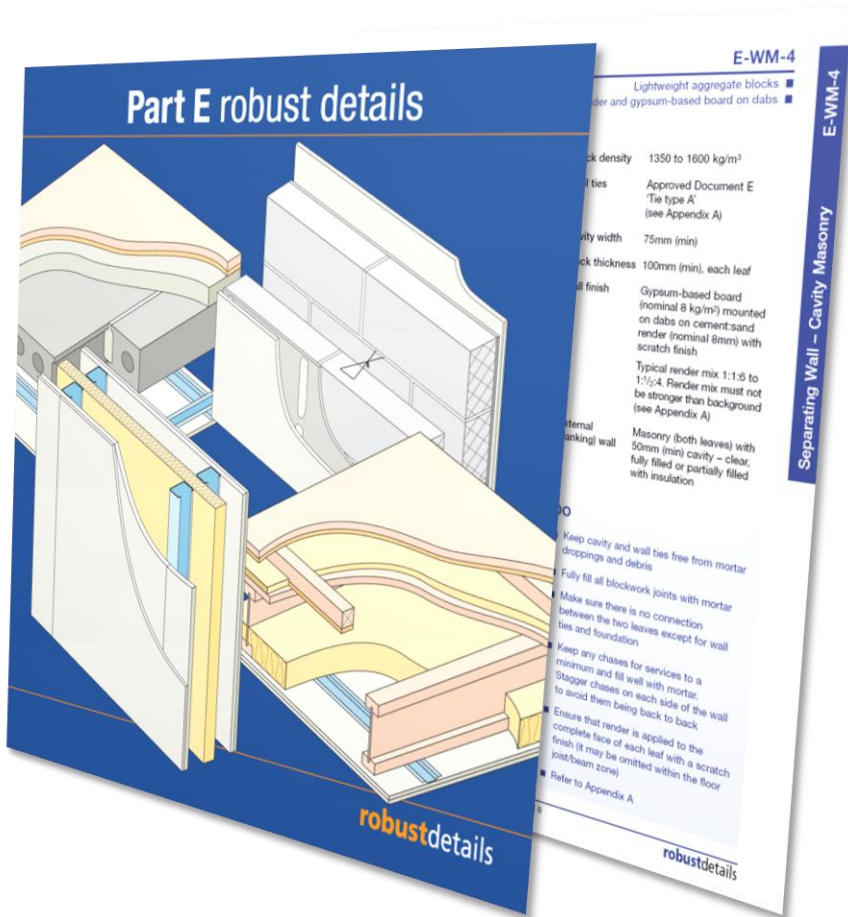
# The Scheme



## Conclusions

# Conclusions

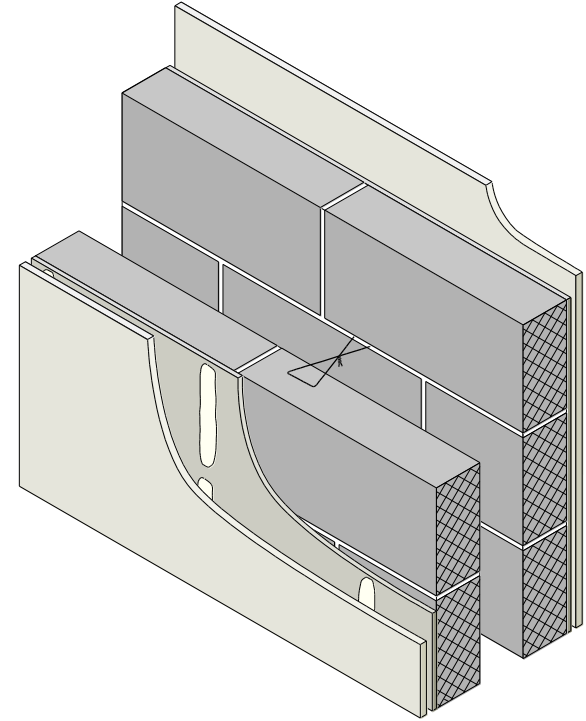
Robust Details can provide...



- High levels of compliance with technical standards
- A set of details with which the industry is familiar
- Cost certainty for the housebuilder
- An additional layer of expert scrutiny and monitoring

# The Scheme

A last word about  
'pattern books'...





# Even with a good pattern book....



Even with a good pattern book....



... performance monitoring is required

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