

19 June 2008 - Topic C - Airtightness; design & construction

Both sessions used a short presentation and video clip of a dwelling pressurisation test and leakage detection to lead into the main question: *Why does it appear to be so difficult to design and construct an airtight dwelling?*

- In session 1 participants used a range of sample products and design details to look at some of the technical difficulties of designing and constructing an airtight dwelling whilst still ensuring adequate ventilation.
- In session 2 the discussion moved to the wider implications of issues arising from session 1; including policy, inspection, communication and process issues.



Breakout Session 2 - Wider Implications

The implications of the issues discussed in breakout session 1 on the wider industry were considered in greater detail in this session. These fell loosely into 3 categories:

Implications for Designers & Manufacturers

Designers and manufacturers have a vested interest to their stakeholders and cannot be expected to act purely altruistically. Given this, what drivers exist for developers/manufacturers to provide incentives for higher performance?

- Virtually no prototyping of new designs exists, how does prototyping get included into pricing of developments?
- Designers are actively discouraged from attending some sites.
- Training is often done for commercial or CPD reasons and not necessarily in the areas where skills are lacking.
- Pattern Book design is seen as a quick and easy fix, but does not encourage innovation or continual improvement. Hence, much design basically becomes "detail shopping".
- Design roles are often segmented and lack continuity.
- Design changes can require huge amounts of time and money which nobody budgets for, with ownership of changes issues.
- If designers & manufacturers put their research data and knowledge bases into the public domain they may lose their competitive advantage - so what incentive is there for them to share their expertise?
- Design and build projects traditionally are specifically designed to a fixed price, not a fixed level of quality.
- Who shoulders the extra expense of increased quality and performance?
- Too often designers are directed to web-sites and literature and then make assumptions, rather than talk to the technical staff at manufacturers and suppliers.

Implications for Constructors

Developers pay for a professional service from contractors and subcontractors, are promised it and expect just that. Why is perfection not regularly achieved?

- Lack of continual training - once trades are qualified there is little facility for re-training or refreshment.
- Lack of understanding of 1st principles - especially in buying/procurement departments, which constructors work around it.
- Expense of "green" issues can be small compared to cost of planning, structural or fire compliance, but seen as an easy option for cost savings.
- Cost or Value engineering? Money is often saved but at what cost? Again, constructors work around it.
- Information from designers and manufacturers often doesn't filter down to operatives.
- Designers, specifiers, manufacturers need to spend more time on site - communication needs to improve, in both directions.

Implications for Policing Bodies / Regulators

What standards are people working to, Code for Sustainable Homes, Building Regulations? Who checks this, at what stage and at whose expense?

- In-house testing and inspection could be done; with independent inspectors regulating the in-house teams where necessary for regulatory compliance.
- BCOs can only see so much, and can only be expected to know so much. Are BCOs that specialise in a particular area required?
- Critical appraisals of designs need to be performed prior to any work starting on site.
- What are the consequences of failure? Are they stringent enough to have an impact? A greater cost for failure to comply may equate to a greater degree of compliance.
- Understanding of issues from 1st principles is often limited, many issues such as thermal bridges should be seen in the design process or picked up during the build, but are only detected after completion when problems start occurring.

Comments from other workshop participants

Draft versions of the posters resulting from the Airtightness breakout sessions were distributed to all workshop participants, the following comments were received:

- "Only thing I'd add is the general issue of airtightness being an indicator of good quality in construction, and the benefits of promoting this in order to get contractors to be proactive about achieving airtightness, demonstrating it by testing, and promoting it through marketing."
- "As with our sessions, it seems that better communication is the key to improvement."
- "Currently we only test on completion for compliance purposes. I will suggest additional testing to see more easily where improvements can be made."