

Living in a new materials world



THE DEBATE OVER WHICH BUILDING MATERIALS ARE BEST HAS RAGED FOR YEARS AND WILL CONTINUE TO DO SO. DAVID PROSSER, MANAGING DIRECTOR OF MCK (UK) LTD, BUILDING CONTRACTOR FOR THE QUAD-LOCK SYSTEM OF INSULATED CONCRETE FORMS, CONSIDERS COST-EFFECTIVE BUILDING TECHNIQUES AND SAFETY AS TWO OF THE MOST IMPORTANT FACTORS TO A CONTRACTOR. HERE HE EXPLAINS THE PROGRESS THAT MCK HAVE MADE TO PROVIDE THE INDUSTRY WITH THE PRODUCTS IT NEEDS TO GET THE JOB DONE.

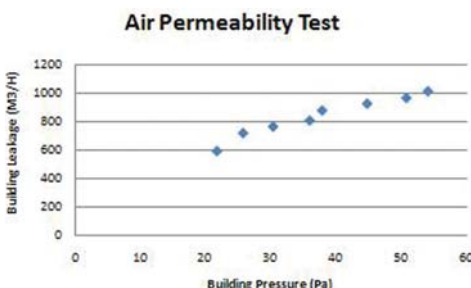
“ I think we all recognise that the construction industry in the UK has to reconsider its current building techniques given the political pressures and ever-tightening regulations to reduce carbon emissions, and provide better quality, cheaper and safer homes.

Having recognised the need for change, over the last six years at MCK we've carried out our own research into which materials provide the best solution for building, basing our research on the following criteria: -

- Cost-effective building (minimum waste and greatest flexibility)
- Ease of build and a pleasant building environment (health and safety)
- Energy efficiency through good insulation & natural airtight integrity (high thermal mass)
- Soundproof integrity and high fire retardancy (good fire protection)
- Ease of installation for first and second fit.

Historic evidence has shown us that Insulated Concrete Forms (ICFs) provided the best fit for us, and over the past five years we've been steadily building a reputation for providing better energy-efficient housing using a system called Quad-Lock.

Air tightness tests carried out from 2006 – 2008 have proved an increase in performance or air permeability from 4.01m³/hr/m² in 2006



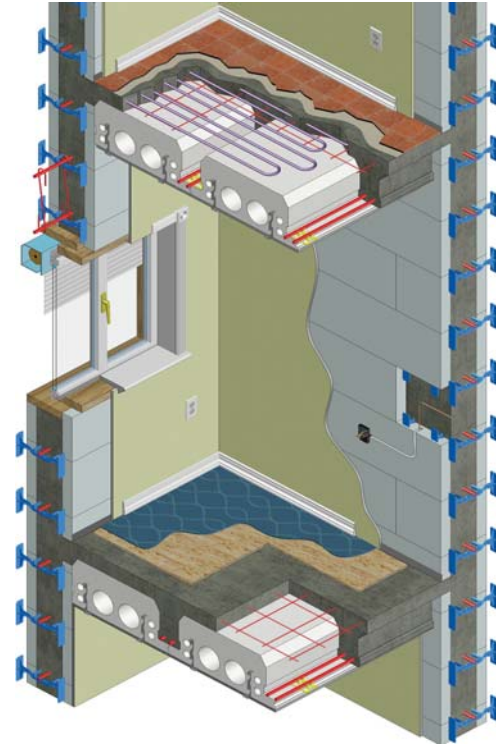
As of 2008, the ICF Quad-Lock system is now five times more thermally efficient in terms of air tightness than is demanded by Building Regulations

to 2m³/hr/m² in 2008 where building regulations require 10m³/hr/m². The results show that the improvement over two years in our techniques has allowed us to increase the air-tightness integrity by a further 20 per cent. We can also claim higher levels of thermal insulation against timber-framed builds. An independent report by Jonathon Heller and Bob Davis of civil engineering group Ecotope, based in Madison, Seattle, shows that in typical construction, Quad-Lock above grade walls perform much better than typical R-19 (U-0.3 and R-21 (U-0.27) timber frame walls. The Quad-Lock performance is equivalent to a 2 x 6 frame wall insulated with 5 1/2" of Dow Blueboard (R-5 per inch). In below grade applications, Quad-Lock significantly outperforms standard construction (8" concrete wall with R-10 exterior rigid insulation).

The Quad-Lock wall system should outperform timber frame walls in ways that cannot be quantified by a steady-state heat loss analysis. Standard parallel heat flow calculations assume that the fibreglass insulation is uniformly installed with no voids or compressed batts, however this is not what is usually found in the field. If installed correctly, concrete walls do not settle, bend, sag or crack as timber-framed walls will do in time. The Quad-Lock system should also create a wall which is significantly more airtight than a standard timber-framed wall. (Below left is an example Air Permeability Chart showing air leakage of 2M³/h in 2008)

Proving that the ICF Quad-Lock system is now five times more thermally efficient in terms of air tightness than is demanded by the Building Regulations.

As you would expect, we have found ourselves on sites where conventional blockwork builds were also being constructed. In all cases, the MCK build was at roof construction before the block builds were finishing the ground floor.



Our record for construction was 19 working days to roof fit from clearance of site.

I've listened to hundreds of arguments for and against brick and block, timber frame and ICF construction, and I'm sure all have their various valid positions. However, my position is clear – it's down to the criteria I set out above, and the method of construction used in conjunction with the techniques employed born out of experience and experimentation.

Our ICF builds prove to be better constructed, more energy efficient and better value for money than any timber frame or brick and block build we have experienced so far.

Responsible house building is not just about the choice of the building material but the way the building is constructed as well as the energy management that is employed within. It is imperative that doors and windows are selected and fitted for best thermal efficiency as well as providing suitable lighting and access. Another aspect for consideration is the distribution of heat and the energy used to provide this heat, but there's a whole new can of worms.

David Prosser, Managing Director MCK (UK) Limited. E:david@mck-limited.co.uk Tel: 0845 652 7777 www.mck-limited.co.uk

MCK (UK) Ltd

Enquiry ??