

## PROFILE

# House Values To of Poor Building

**Gerry McCaughey, chief executive of Century Kingspan, has never been shy about expressing his views on what he regards as the major issues facing the Irish construction industry. In recent times, his sharpest criticism has been reserved for the country's poor environmental record and for what he regards as badly constructed, energy inefficient housing. Maev Martin reports.**

'There are two major issues facing the residential sector of Irish construction - firstly, the houses under construction today are not all built to the same standard because of the two methods of U value calculation that are allowed under Part L of the Building Regulations,' says Gerry. 'Secondly, if owners of the 250,000 houses built between 1998 and 2003 decide to sell those properties and they go to get their Building Energy Rating (BER) Certificate they will take a massive hit on the value of those properties. This is because the houses built up to 2003 are 35% less energy efficient than the houses under construction today despite the fact that it was technologically feasible to build houses to the proper insulation standards in 1998. The 250,000 figure is a conservative estimate. If we go back to 2000, the then Environment Minister Noel Dempsey said that he would be introducing an increase in thermal performance standards for buildings in 2002/2003. However, he then passed an amendment to Part L of the Building Regulations in 2002 saying that any builder who had applied for permission before December 2002 could build those houses out to 2005 so there could be more than 250,000 in the net.'

Both the Irish Concrete Federation and the Irish Timber Frame Manufacturers Association say that their methods of construction can meet all of the required thermal performance standards. 'So why isn't the Department of the Environment taking the lead, setting the standards and making the construction industry comply with those standards?' he asks. 'The concrete industry says it can meet thermal performance standards yet the Department is reluctant to introduce them because it might affect the concrete industry. This doesn't make sense. The Department of the Environment should be called the Department against the Environment.'

Gerry is keen to point out that he is not just criticising the concrete sector of Irish construction but the entire construction industry, which, he believes, is building to sub-standard levels of energy efficiency. 'There is a lot of sound bite stuff about sustainability but nothing practical is being done about it,' he says. 'The CO2 emissions targets set in the Kyoto Protocol are coming down the tracks like a train at full speed and our entire economy is facing a massive fine of €5bn by 2012 for our non-compliance. The EU Commission recently said that climate change was the single greatest global threat, greater than terrorism, and Ireland was cited as a major offender. Our bad record in complying with Kyoto means that we will be penalised under the next Protocol because of the amount of CO2 that we are currently generating. The EU Commission also recently said that if all houses in

Europe were built to Swedish energy efficiency standards, CO2 emissions could be cut by 40% across Europe.'

The Environmental Protection Agency has confirmed that 25% of our entire CO2 emissions is from heating houses and 50% of our CO2 emissions is from the heating and construction of all buildings. 'You never hear the Government, the Department of the Environment or the construction industry mention those statistics,' he says. 'Instead, the Government focuses on the level of CO2 emissions generated by cars or by the farming sector, which isn't as influential as the construction industry. To meet our Kyoto obligations we need to tackle the level of CO2 that is being generated by the construction industry and that involves more than just removing skips from a site and recycling C&D waste.'

## OVERALL HEAT LOSS V ELEMENTAL METHOD

If Irish housing is producing 25% of our CO2 emissions, then improving the thermal performance of a house reduces CO2 emissions and the amount of money that a person spends on their house. 'Yet, in Ireland, we have blatant manipulation of Part L to facilitate outmoded methods of construction,' says Gerry. 'Environment Minister Dick Roche says that our building standards are among the highest in

Europe but he is referring to the U values required under the Elemental Method of calculation. What he doesn't say is how the vast majority of houses in the east of the country are complying with Part L. Those houses are using the old Overall Heat Loss Method which is outmoded and is really nothing more than a back door approach to compliance. Those houses install 40mm of polyurethane insulation on a hollow block wall. Under the Elemental Method, 80mm of polyurethane insulation is required for a wall.

Nine inch hollow block is being employed in houses from Dundalk to Wexford and that is why this is happening. The Overall Heat Loss Method facilitates the use of nine inch hollow block. No matter how good the builder is, he is not going to achieve the levels of insulation required under legislation with cavity wall construction because the insulation is never 100% bonded to the wall. Cavity wall construction was never designed to carry the amount of insulation that is now in the cavity.'

Part L allows builders to use either the Overall Heat Loss method or the Elemental method to calculate U values. 'But there is a massive difference between them,' says Gerry. 'For example, with the Overall Heat Loss Method, 0.37 is the maximum wall U value allowed but that figure is 0.27 with the Ele-

mental Method so the Elemental Method is 30% more energy efficient than the Overall Heat Loss Method. The Overall Heat Loss Method should be banned because it flies in the face of the standards required using the Elemental Method.' Gerry estimates that it would cost the builder around €2,000 to €3,000 to bring detached houses to the level of insulation required using the Elemental Method of calculation and about €1,500 for semi-detached houses. 'House builders could easily factor that in, given the massive prices that they are charging for houses,' he says.

## EU DIRECTIVE

Gerry believes that the two U value calculation methods are going to create major problems when it comes to giving energy ratings to houses or apartments. 'Will a distinction be made between houses built using the different U value calculation methods?' he asks. 'It is unlikely and that amounts to pulling the wool over consumers eyes. We will end up giving the same ratings to houses with a 30% difference in energy efficiency.'

The Energy Rating Label will be introduced by way of an asset test. Essentially, the builder will inform the competent authority about the level of insulation that he is putting into the building and a certain rating will be given to the house based on that information. This Energy Rating Label is valid for 10 years after which time a new label, which is an 'in use,' not an asset label, based on fuel consumption etc, must be acquired. 'That is where the difference in U value calculation will become apparent,' says Gerry. 'In 10 years time, when the housing market has slowed down, the economy has slowed down and immigrant workers have departed, leaving a lot of empty houses behind them, we are going to see a significant drop in the value of a lot of houses following 'in use' assessments for energy rating purposes.'

The application date for Building Energy Rating (BER) certificates for new build housing is 2007. The rating won't apply to existing houses until 2009. Gerry believes that the reason for the separate dates for new and existing housing is purely political. 'There is a General Election looming and if the requirement for BER certificates for both new and existing build was brought in at the same time the difference in the energy efficiency standards between those 250,000 houses built between 1998 and 2003 and those currently under construction would be obvious to homeowners and homebuyers,' he says. 'The separate implementation dates has nothing to do with having an insufficient number of inspectors to implement the new regime. It is because the owners of those 250,000 houses will take a hit on the value of their properties for no good reason. This is a national scandal and is up there with PPARs but The Energy Performance of Building Directive is not a priority for the Irish construction industry. The Construction Industry Federation and the Department of the Environment's efforts to promote it are pitiful.'

## BUILDING WITHOUT BLOCKS

Turnover at Kingspan topped €1bn for the first time in 2005, increasing by 30% to €1.24bn while pre-tax profits rose by 40% to €135m. The structural and off site business posted a 75% rise in sales to

## PROFILE

# Drop Because Standards



Gerry McCaughey launches Kingspan Century's 'Future-Proofed' campaign.

€204m, boosted by the acquisition of Century Homes, which is now known as Kingspan Century. Gerry McCaughey's role in the company is to grow the off site construction business in Ireland and the UK. Kingspan Century offers two timber frame brands in the Irish market - Century, the new name for the existing Century Homes brand and TEK, an advanced method of timber frame construction based on Structural Insulated Panels (SIPs).

The off site division promotes Century, Kingspan's light gauge steel system and their TEK (Structural Insulated Panels) system. Lovell Construction in Manchester is using the TEK system on its 500 unit

**'We will soon be able to offer builders a system that doesn't require blocks. The TEK (SIPS) system is more expensive than timber frame but it is particularly suited to minimising blockwork on projects.'**

offer builders a system that doesn't require blocks. The TEK (SIPS) system is more expensive than timber frame but it is particularly suited to minimising blockwork on projects.'

development of two, three and four storey houses. 'This is the largest scheme in the UK to have used the TEK system and, in addition, it is providing these houses without using any blocklayers,' says Gerry. 'Blocks are only being used to install the foundations of the houses. The first one hundred houses have been built and we are taking over a number of Irish builders to show them what is happening on the site. We will soon be able to

## AIRTIGHTNESS & HRVS

Kingspan Century is currently looking at the most cost effective way for builders to improve the energy efficiency of buildings. 'It isn't just about insulation,' says Gerry. 'Thirty per cent of the energy loss in buildings can be through air leakage. Irish house builders need to think of the house as a system. An airtight house is healthy once you put in a mechanical ventilation system.' Kingspan Century are about to close a deal with Mitsubishi Europe to develop a Heat Recovery Ventilation unit specifically for the Irish market which will be available before the end of this year. 'A lot of HRV units in the world are designed for dry climates so they are not capable of handling the humidity levels here,' he claims. 'Our relative humidity levels in the summer are similar to those in winter so we are devising a system with special filters to handle humidity levels in Ireland.' Geda Construction are building 120 airtight houses with solar panels in Castleblayney using Century timber kits while a Leahy Brothers' development of approximately 100 houses in Cork, which is also employing Century kits, will have heat pumps installed in every house in the scheme. Kingspan Century recently completed two houses in Monaghan which they describe as 'Formula One' houses. 'These two zero CO<sub>2</sub>, passive houses follow the same principles as the concrete passive houses but they can be built much more quickly and they are more lightweight,' says Gerry. 'In order to be classified as a passive house, the energy use of a house has to hit 15Kw hours per metre square. These two houses comply with this. Kingspan Century erected the timber frame structure and we carried out airtightness tests.'

Kingspan Century's recently launched 'future proofing' campaign is encouraging builders who build with Century's timber frame kits to promote energy efficient buildings. 'We are asking them to try and build above the standards required in the current building regulations,' says Gerry. 'We are providing free R&D and free assistance to these builders. We will be visiting sites and supporting builders who are part of the Future Proofing campaign.'

## RESEARCH & DEVELOPMENT

Kingspan Century are involved in a number of research projects in the UK in conjunction with TRADA and the British Department of the Environment which seek to improve the performance standards of buildings. 'The UK's Part E regulations on acoustics were introduced recently and Arups are doing research for us on the acoustic performance of light gauge steel and timber frame at eight storeys plus,' says Gerry. 'The thermal performance standards are currently being changed in the UK. Our R&D manager Jonathan Jennings is on a special UK committee which is addressing this issue. Century is advising the UK Government on this because we are recognised as world leaders in timber frame construction. I'm on the UK Timber Frame Association's commercial development committee. In the UK, the Government is actively promoting the use of timber frame. In Ireland, the Building Regulations Advisory Board doesn't have any timber frame representatives. I fail to see the logic in that, given that timber frame has about 28% of the Irish housing market.'