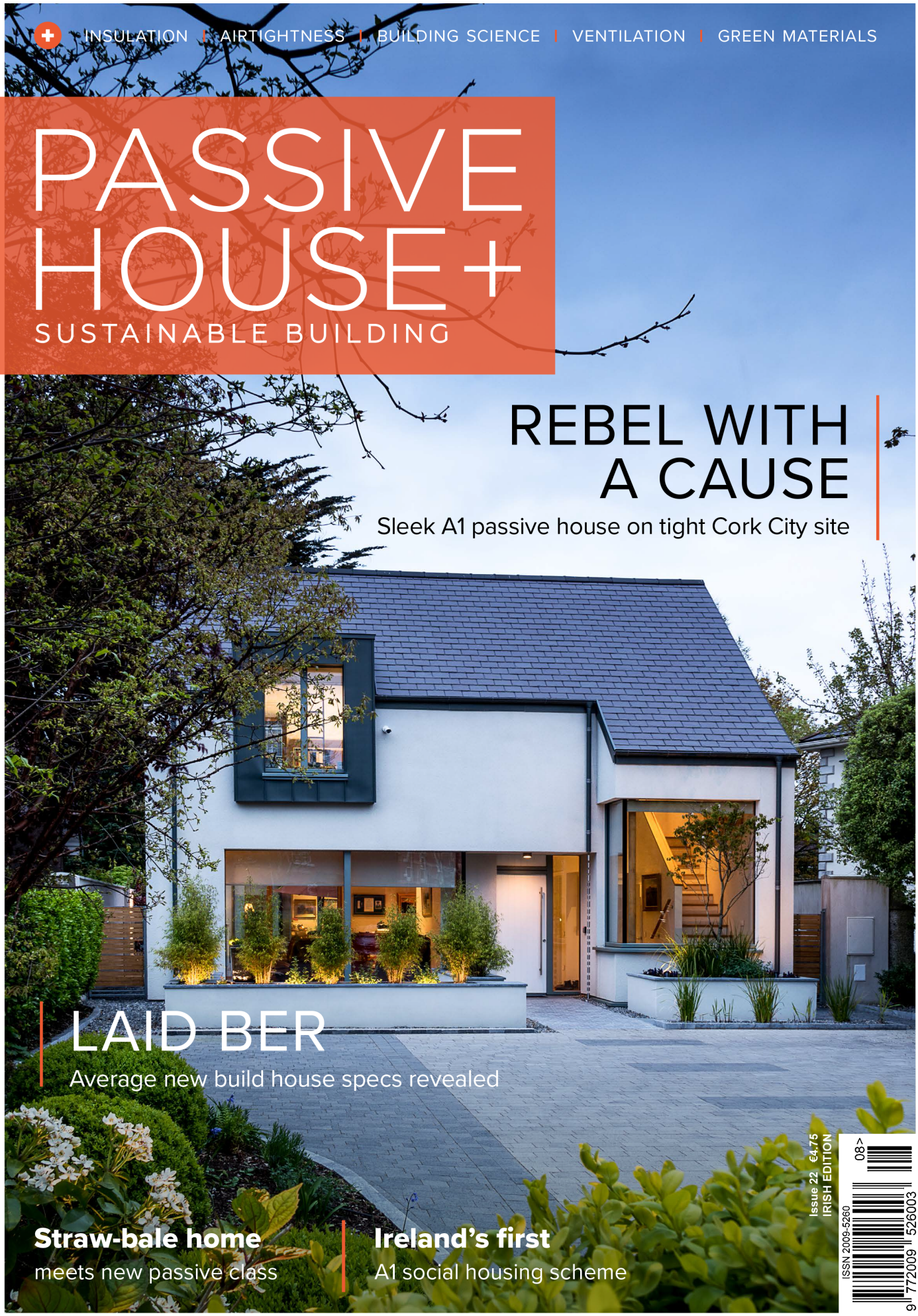
INSULATION | AIRTIGHTNESS | BUILDING SCIENCE | VENTILATION | GREEN MATERIALS

PASSIVE HOUSE+

SUSTAINABLE BUILDING



REBEL WITH A CAUSE

Sleek A1 passive house on tight Cork City site

LAID BER

Average new build house specs revealed

Straw-bale home
meets new passive class

Ireland's first
A1 social housing scheme

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ONE STEP FORWARD, TWO STEPS BACK:

Oil and architecture

While there has been significant progress in the transition to low energy building in Ireland in recent years, the progress has been subject to changing political priorities, and includes some large and obvious weaknesses, says Dr Marc Ó Riain.

Ireland only introduced mandatory building regulations in 1992, before advancing building energy regulations were informed by the Kyoto Protocol and EU Directives. New dwelling standards and retrofit incentives were set at a high policy intensity under Green Party Minister John Gormley (2007-2011). Since then collapsing energy prices, the recession, falling construction activity and a lack of credit shifted political policies to a low intensity and a low priority.

Ireland would be shamed into the introduction of mandatory building regulations after the tragic Stardust nightclub fire in 1981. Air pollution concerns from the Chernobyl accident in 1986 underpinned international agreements in 1992 and 1995 which led to the Kyoto Protocol in 1998. The EU adopted a directive on the energy performance of buildings in 2002, transposing emission reduction targets of 13% on 1990 levels, by 2020 for all member states, primarily for new building stock.

Ireland introduced building energy regulations in 2005 to coincide with the introduction of the Deap calculation tool, which was similar to the Sap method developed in 1992 in the UK to calculate the energy performance of dwellings on a unit area basis. This gave consumers clear and simple comparable guidance on a building's energy performance, improving awareness of energy consumption and emissions. Rising oil prices (Graph 1) helped underpin policy actions and market demand for low energy building.

With a new government including the Greens in the ministries of energy and environment, regulatory policies for building energy, renewable energy and emissions abatement measures ramped up significantly. The Sustainable Energy Authority of Ireland was funded to raise awareness, introduce building energy rating certificates, promote renewable energy and incentivise building energy retrofits. The Home Energy Saving Scheme – which was rebadged as the Better Energy Homes scheme by the Fine Gael / Labour government in 2011 – was particularly successful, hitting 90,000 funded retrofit measures in 2010. New dwelling building standards which came into effect in 2011, developed by the Greens in government and introduced in the wake of 2010's recast Energy Performance in Buildings Directive, brought new dwellings up to mid A3 standards for the average home.

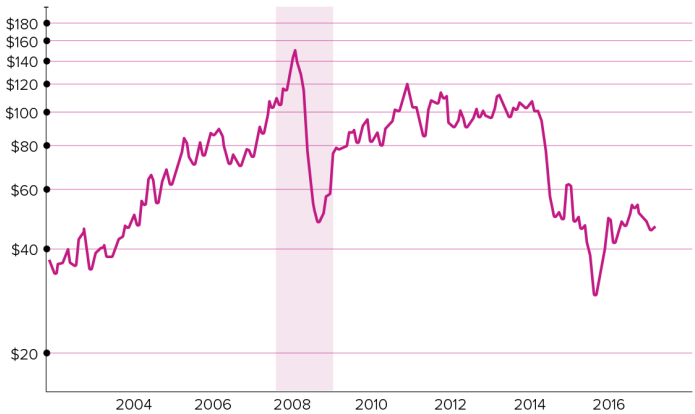
Just as Ireland was getting to grips with policies to meet Kyoto targets, effectively shifting market behaviours towards better energy performance in buildings, the country was hit by an international economic recession and a loss of economic sovereignty to the European Commission, European Central Bank and International Monetary Fund. The change in Government in 2011 would see a paradigm shift in environmental policies.

The recession would see a collapse in industrial activity in Ireland, reducing emissions significantly, allowing the government to cut energy efficiency incentives, resulting in a collapse in retrofit activities. The failure of ESCOs, Better Energy Finance Schemes and the absence of bank financing all undermined construction activity in both new build and retrofit sectors.

Policy changes to improve standards for non-dwellings and building retrofits were continuously delayed. Although Ireland met the recast directive's requirement to define nearly zero energy buildings (nZEB), the aspirations for cost optimal nZEB deviated significantly from the UK with regard to retrofit proposals for non-domestic buildings. Flawed cost optimal calculations in 2013 & 2015 selected un-representative building types, short payback periods and failed to allow for the replacement of mechanical equipment at the end of their lifespans. These calculations showed a 9% lifetime cost difference between a high policy intensity and a low policy intensity scenario. These low intensity recommendations have now been reflected in the draft Part L 2017, building energy regulations.

As Ireland rises from the recession with the fastest growing economy in the EU, our policies are 40-75% (EPA, 2013) off Kyoto and EU 2020 emissions reduction targets.

Ireland has an open economy, and our regulations and political policies are often impacted by geo-political events and international oil prices. In a time where the construction industry is clearly capable of building to A-rated and passive house standards, political priorities appear out of step with our published international commitments and professional capabilities. ■



(Graph 1) Inflation-adjusted crude oil prices 2002-2016 (Microtrends, 2017)

Building energy retrofit regulations (non-dwellings), Average U-Value W/m²K				
W/m²K	Ireland 1976 New Build	Ireland 2008 Retrofit	Ireland Retrofit Draft Part L 2017	UK Cost Optimal 2013
Roofs	0.4	0.35	0.35	0.24
Walls	0.6	0.6	0.6	0.3
Ground Floors	0.6	0.6	0.6	0.22
Windows	-	-	3	1.64

Dr Marc Ó Riain is the president emeritus of the Institute of Designers in Ireland, a founding editor of Iterations design research journal and practice review, a former director of Irish Design 2015, a board member of the new Design Enterprise Skillsnet and has completed a PhD in low energy building retrofit, realising Ireland's first commercial NZEB retrofit in 2013.