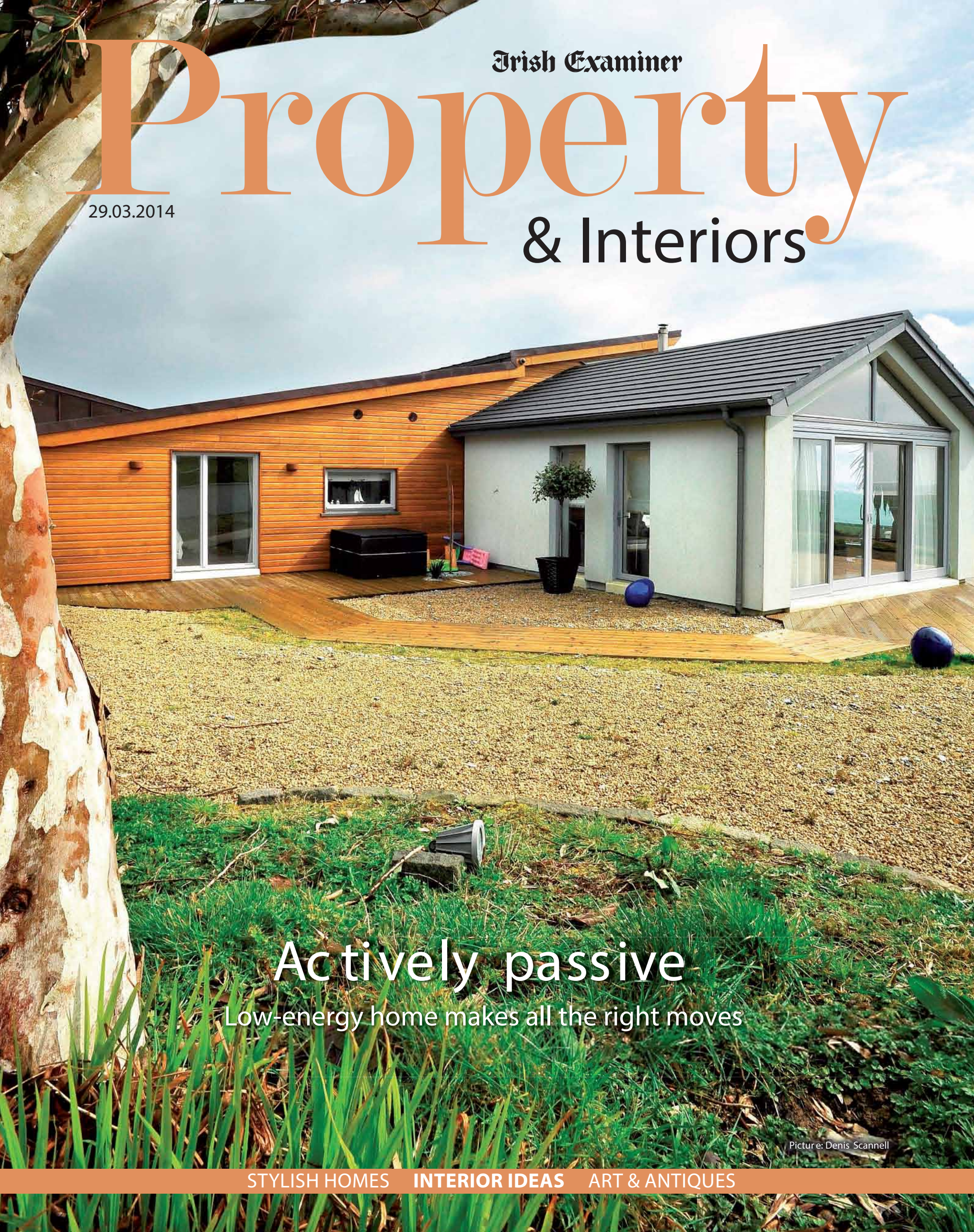


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Actively passive

Low-energy home makes all the right moves

Picture: Denis Scannell

STYLISH HOMES INTERIOR IDEAS ART & ANTIQUES

COVER STORY

Where comfort meets efficiency

Tommy Barker visits a 1970s bungalow near Clonakilty that has been given a tasteful rebuild, complete with high-spec insulation and cutting-edge green building techniques

Pictures: **Denis Scannell**

THERE'S great air tightness to this low-energy house, rebuilt around an original 1970s bungalow along a scenic stretch of West Cork. That's just as well, because on the day the *Irish Examiner* called to visit (it's not for sale, just worth admiring), there was a mini-gale blowing outside this house, sited high above the ocean and headlands, fully exposed to the elements and the Atlantic.

Inside though, all was calm. And warm. And quiet, a welcome remove from the flattening winds and the gulls whipping by as if on some invisible zip-wires.

The owners had family links to the location and already owned the existing/previous bungalow, before deciding to effectively do a total rebuild, keeping just a few walls of the original dwelling, wrapping around them, extending to the west, and going up a tad in front to a first floor viewing gallery projection above the main living/dining area.

With a mix of pale-blue coloured render, cedar cladding on the middle axis with its thrusting copper roof, as well as some zinc-roofed projections plus a few feature circular windows, it all looks contemporary and quite cool from the outside and is an enhancement on its site. The design detailing and crispness is warmly matched inside, and all in between there is plenty of bright, energy-saving ideas and features, unobtrusively so.

"The clients wished for a house with modern standards, plenty of natural light and a comfortable environment," according to Czech-born architect Eva Murphyova, who has worked with furniture designer husband Thomas Murphy in their company Imago Alternatives in Cork for about 20 years. Eva has quite a few Munster homes done to

passive and near-passive standards, having added to her qualifications in passive house design at UCD.

Here, the build was done by specialists the Green Build Centre in Middleton, Co Cork, run by timber frame builder Kevin Murphy. The firm manufactures house panels off-site in their factory for maximum quality and air-tightness controls.

The house (especially any remaining original walls) is

externally insulated, with particular attention paid to insulation in old and new alike, hitting very stringent air tightness levels — in this case 0.7 air changes per hour (ACH) @ 50 Pa. It's close to passive standards, and while it's formally rated at an A2 BER level, it is far more energy efficient than an A2/A3 equivalent house, says Green Build's Mr Murphy.

The completed house now has 1,850 sq ft, but thanks to its

design and build level has space and water heating costs of about €450 a year, reckons architect Eva Murphyova. Getting to this means initial upfront extra spending, but this is recouped after five to seven years, and over a 20-year span is a huge saving, stress Aidan Scally and Kevin Murphy of Green Build Centre who did this as main contractors, to a turn-key standard.

There's 4 sqm flat-plate solar panels for hot water, as well as a 9.5kw air-to water heat pump, supplying heat underfloor, and there's considerable solar gain (even in winter) from the expanse of south-facing glazing. Insulation is a mix of Eco-smart panes and quilting, with specific products for the mono-pitch roof sections which has to be treated differently to a conventional pitched roof with its depths of attic floor insulation.

In addition, there's a solid fuel stove in pride of place in the house's main living area for discretionary, impact-full heat with a flue following the internal roof/ceiling line to get clear of the roof apex externally with the least amount of protruding external flue. Kevin Murphy notes that when building to high air tightness levels special air-tight stoves are needed, which can have their own air feed.

The three-bed house is very airy and bright, yet cosy thanks to its aspect, solar gain and air-tightness, with fresh air heated by outgoing stale air in the ventilation system, an 88% efficient Sentinel Kinetic Plus HRV unit from Vent Axia.

Windows are triple glazed, with some very large panes — almost shop-front sized — from Vrogum-Svarre, and the work took about six months in all, with Mark Higgins of Green Build Centre on site most of the time overseeing the niggling details like getting the air tightness levels to a uniformly







GET THE LOOK

Some great ideas for you to use in your home and where to get them

1 Look Up: This bungalow created a ship's bridge-like mezzanine for ocean views in full domestic comfort.



2 Look at it in the round: Don't be square, think outside the box when it comes to window shapes. These half-circles are shared by adjoining bedrooms.

3 Look sharp: Be bold with window bays: this master bedroom's acute projecting bay invites you to stand out into the view.



4 Look to the environment: A wood-burning stove is a great way to top up any low-energy use home.

5 Look through: Open plan living connects all family activity, and helps solar-gained heat to circulate and penetrate deep.



6 Look back: Bathroom mirror reflects well on bold colour choices.

high standard. It's labour intensive, needing meticulous attention to detail and typically clients will keep a portion of the retention money, usually kept in a build contract until the air tightness tests show it performing as well as envisaged — so everyone's incentivised; a builder may well hold his breath (airtightness indeed!) pending results.

Green Build has half a dozen houses done to passive or near passive standards by now, and describe it as "a system, creating a machine to live in", to put an update on a Le Corbusier description.

"Before, there was a focus on simple building, now it's on efficiency and energy use," asserts Mr Murphy, quite pointedly in a month when Europe's gas supplies via Russia get caught up in political turmoil.

As this house visit was a private one arranged via a happy client, Mr Murphy doesn't give an idea of what the budget for this 1,850 sq ft total renewal and extension was. For new

builds, depending on spec, prices can come in below or over €100 per square foot, and getting renewables and good air tightness up the scale can add 10% to 15% to standard build costs, but there's a pay back in less than 10 years, and comfort from the get-go. Finishes such as those in this house with its cedar, copper and zinc add further, but other materials can be substituted when working to a budget, he advises, adding that Green Build Centre will have an open day in Midleton on April 12.

For all of its sophistication, it feels like an easy house to live in, with architect Eva Murphyova's plan very effective, maximising site, views, aspect (the entry hall, two bedrooms, a bathroom and the master bed's dressingroom are kept to the cooler, northern section), getting huge comfort factors, with a simple internal palette of oak flooring, walnut and painted MDF joinery, white walls, and comfy furniture.

VERDICT: A much-used holiday home that is earning its keep. **12**

ALL YOU NEED TO KNOW ABOUT BCAR

Airwave squawks and industry reservations have cast a pall over new building regulations. **Kya deLongchamps** reports

Last month I was driving along listening to Whine Line, I mean Live Line on RTE Radio 1. Anyway, a large party of members of the public, building contractors, architectural technicians, worriers and even a DIY retailer were storming across the airways deriding The Building Control (Amendment) Regulations 2013 (BCAR or SI.9) which were approaching at lightening speed the first Saturday of March. There were valid concerns expressed to Joe Duffy about the sheaf of certificates now mandatory for a standard build — these were joined by some oddly placed moaning about the raising of standards, and some completely inexplicable legend that members of the public would soon not be able to buy materials for a self-build. Confusion hung heavy over the legislation. By the programme's end I was confused too, having previously been relieved something had been done to stop the shanty-style efforts committed on hapless clients by rogue builders and legal, self-inflicted disasters committed by home-owners.

PAST PERFORMANCE

Let's go back through the mists of time to 2000 and imagine some brave pioneer family putting up a house with full planning permission in a County Cork field. Now, at that time, the Building Regulations would allow you to hire a team of individuals with qualifications of your choosing, to put up a quite complex house, (like mine), if you were working outside the mortgage system.

The only checks carried out beyond the blessed approval of planning would be a percolation test to ensure the septic system would work and the signing off on the foundation which in many instances amounted to a qualified engineer staring into the trenches and pressing a letter into the contractor's hand. The Fire Certificate had to be furnished to the local authority on completion by a RECI registered electrician. Quite honestly I was always baffled at how loopy-goopy the process was compared to the rigours of the UK system.

Where compliance certs are required when an extant building is put on the market, or when re-financing, the inspection is largely a visual one. Without a supervising builder/architect or seasoned project manager many self-builders were flying blind on trust in a shifting gang of strangers working contract-free.

WHAT'S CHANGED?

The recent amendments seek to tighten up this situation, demanding that developers and private home builders demonstrate compliance with the design and the building regulations



from the start to the end of the work. It starts with the commencement notice and reaches right through the build to a series of certificates that must be signed off on by an 'assigned certifier'.

Despite the increased costs that the BCAR will add more to a build or extension dependent on planning permission, these building controls are standard practice in most other developed countries.

You can't legislate for the nebulous area of 'quality' but the amendment will make a statutory stamp on the following adventures and this can only be a good thing in terms of technical excellence and fire safety.

- The design and construction process of a new building
- The design and construction process of an extension requiring planning permission (generally over 40 square metres or in the case of any protected structure)
- Any works where a Fire Safety Certificate is required

HOW DOES IT WORK?

Despite the March 1 start date, the new system is still in a frustrating state of development, but in short, a 'design certifier' for the plans and 'assigned certifier' for the build itself are elected from a small pool of qualified individuals. This individual must sign off on the building start to finish at pre-ordained stages on an inspection plan to ensure it complies with building regulations.

A competent builder must also be elected for the project and named on the paperwork. This does not mean that a suitable member of the public cannot act as their own contractor if they have the relevant experience. Individuals who can act as assigned certifiers include architects registered with the Royal Institute of Architects of Ireland (RIAI), a chartered building surveyor, or a chartered engineer.

Strangely, architectural technicians, a group who would seem most qualified for the job, are not currently included as potential certifiers.

The local Building Control Authority (BCA) must receive a pre-construction document outlining not just the commencement of the build or extension but a whole range of design and technical detail, including the name of the assigned certifier, and their undertaking to inspect the works and co-ordinate with others to do so in regular stages. The all important Certificate of Completion, signed off by the builder and assigned certifier must show that the work has been completed to regulation standards with 'reasonable skill and care'. Until the BCA office at the local authority receives this final document, the house or extension cannot be used or occupied.

WHAT'S IS BCAR 2014 GOING TO COST ME?

It has been claimed that the cost of the new building controls could add as much as 13%-15% to a typical 'self-build' budget. Paul McNally of the firm PMNA, on the RIAI website, concludes that 'the estimated additional workload to the architect acting as Assigned Certifier, for a 200 square metre dwelling is 100 additional hours approximately'. This will, in McNally's estimation, require a charge for this service in the region of €4,000 to €5,000 plus VAT. This takes the percentage to the less terrifying point of around 2.5% plus VAT of say a €200,000 budget. Where an architect or other qualified certifier was already to be on board, this figure mildly inflates the already expected fees due to a project manager, but remember the design itself that goes with the commencement notice must be certified too. The RIAI in their guidelines recommend that the role of assigned certifier is made separate from

that of architect. www.riai.ie.

Buried out of sight in a budget, these new building controls might be said to offer no benefit to the consumer whatsoever. However, this presumes the best case scenario in a self-build — one overseen by a skilled set of eyes monitoring every aspect of the works for build compliance, and safety. Surely, knowing that the house or extension is built to code, should be our first priority, and it's something you can stand over when selling your property in the future. Non-compliance to the BCAR could result in the pulling down of a building or at the very least, fines and a lengthy delay in a sale. We just don't know those details yet.

COWBOY TRAP OR JUST RED TAPE?

Where the legislation can be seen to really shake up the whole area of self-building, is in it's stipulation of a 'competent builder'.

This will influence the future of self-builders, a range of small firms, individuals and trades who had flown under the radar before March 1 2014, carrying out extensions, renovations and in some cases entire builds, without putting their name to paper with the Building Control Authority or any branch of the local authority.

The assigned certifier has to stand over this building, and he or she may only be willing to work with certain builders that they completely trust, (and that may not be you if you nominate yourself as contractor and/or want to go direct-labour).

The certifier is legally vulnerable in the case of a claim, (and it's why the RIAI are opposed at present).

Things are tightening up right down to root level, and the direction of flow is that of a registration process through the Contractors' Industry Federation of Ireland (www.cifi.ie) for contractors and trades in Ireland in 2015.

This would be the obvious stopping off point for those putting their name to paperwork for the BAC, and would over time bring everyone into the VAT net, something avoided in the past in the traditional 'direct labour' system that was often cash-in-hand. Obviously, genius tradesmen and idiot cowboys will suffer equally here.

Ultimately, depending on what you believe in the rumours raging through the industry, the BCAR will either decimate the number of self-builds or stand as a brave new era of standards and safety.

It's certainly a shrewd move in terms of generating government revenue. If you need finer detail of the BCAR 2014, www.localgov.ie lays out the groundwork clearly. The Irish Association of Self Builder's have some interesting features and feedback at www.iasb.com/buildingcontrol. **12**