

IO.II.II

Grand designs

Kevin McCloud and Glenn Howells' eco-homes
in Swindon for under £1,000 per square metre

AJ



£4.95 / THE ARCHITECTS' JOURNAL / THEAJ.CO.UK





Common place

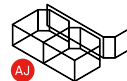
Glenn Howells Architects' eco-housing in Swindon for Kevin McCloud is remarkably ordinary, but that's no bad thing, writes *Hattie Hartman*. Photography by *Paul Raftery*

Swindon is known primarily for its railway past, as the site of the repair works for Isambard Kingdom Brunel's Great Western Railway. Today, the Wiltshire town is more notable for its unavoidable one-way traffic system, which at one junction circumnavigates a five-point roundabout, known locally as the 'magic roundabout'. It is also the setting of Mark Haddon's eccentric suburban mystery *The Curious Incident of the Dog in the Night-Time*. Because it connotes/represents/is middle

England, Kevin McCloud selected Swindon as the ideal location for his first venture into affordable eco-housing – the Triangle, designed by Glenn Howells Architects.

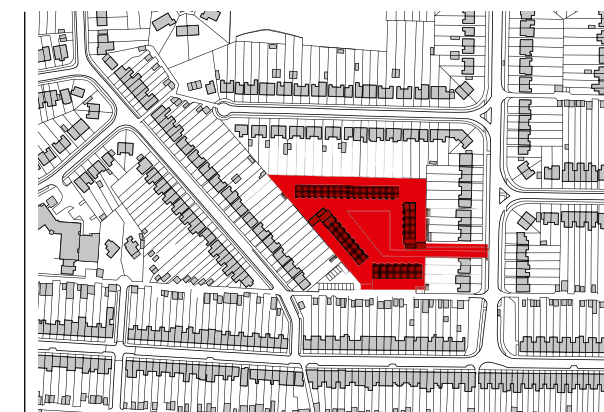
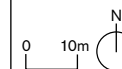
Much of the best housing is background architecture. It doesn't proclaim, 'look at me', nor does it aspire to be ground-breaking. The basics – a welcoming entrance, good daylight through windows with pleasing views, comfortably proportioned rooms – are well considered. Proximity to outdoor >>

Now part of your
AJ subscription

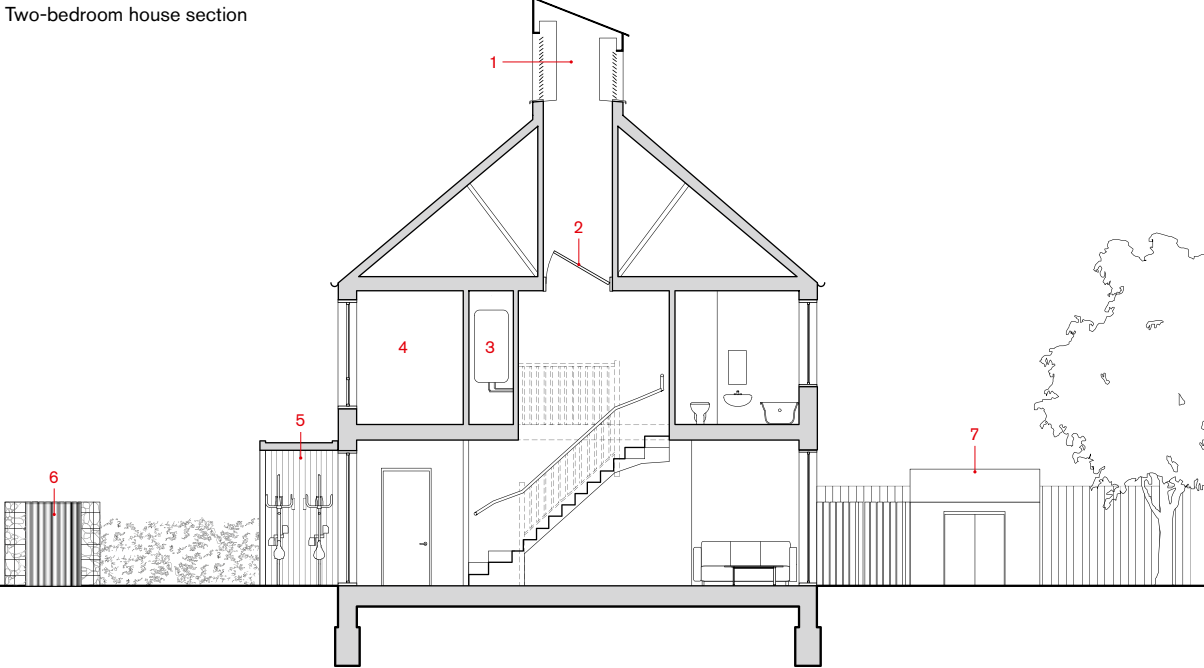
 **Buildings Library**

Images. Drawings. Data.
Search for 'Triangle' on
AJBuildingsLibrary.co.uk

Location plan



Two-bedroom house section

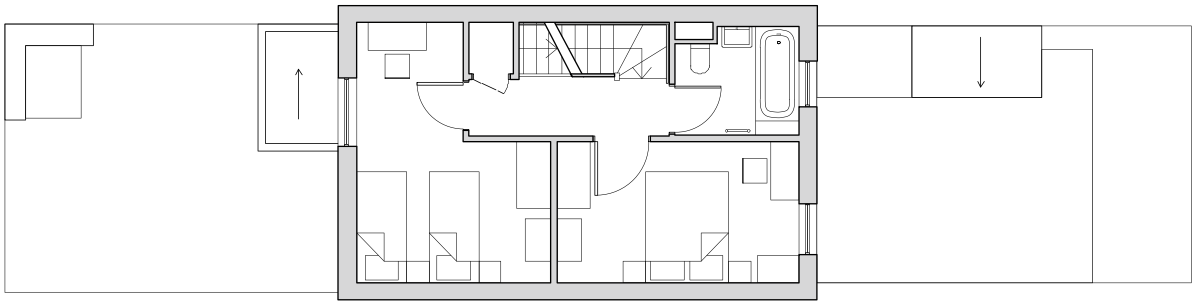


Previous spread

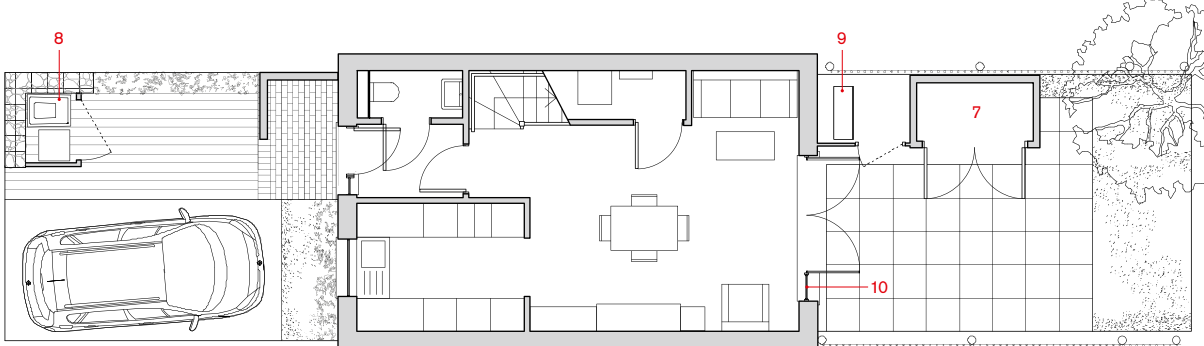
The 42-unit development is built around a central landscaped area shared by all residents

Opposite Every front door has a covered porch with storage for two bicycles

Two-bedroom house – first floor plan



Two-bedroom house – ground floor plan



1. Thermal chimney
2. Insulated ventilation hatch (motorised)
3. Hot-water cylinder
4. Bedroom
5. Cycle store
6. Gabion wall bin store
7. Garden shed
8. Bin store with recycling provision
9. Air-source heat pump
10. Secure louvred panel which can be left open when house unoccupied to promote stack ventilation

0 1m

space is a plus. Add to that superior environmental performance, and you start to have something exceptional.

The recently completed Triangle project is very good background architecture in a deliberately background location, amid a swathe of 1930s houses just north of Swindon station. Client Hab Oakus, a joint venture between Kevin McCloud's development company Hab and West Country housing agency GreenSquare, set out to prove that eco-housing can be both attractive and affordable: in short, a desirable place to live. 'We simply didn't believe it when we were told that you can't build beautiful, environmentally friendly housing at a price that most people can afford,' it says on the Hab website. 'We' includes designer and ex-AJ editor Isabel Allen.

The most successful projects result from demanding clients. Many hours have gone into working out both the

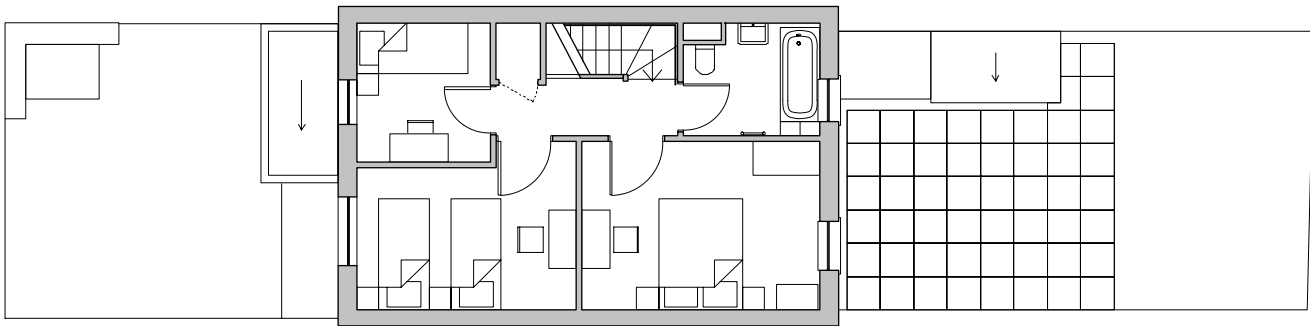


PAUL MILLER

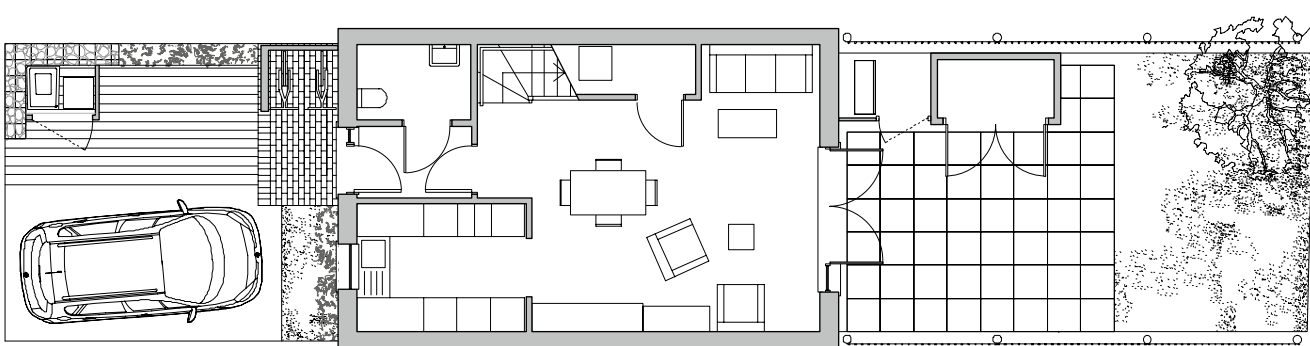
overall strategy and the subtle details, which differentiate the Triangle from innumerable town and village extensions in the West Country plagued with a pseudo-Cotswold vernacular. There is nothing pseudo here. Galvanised steel porticoes shelter two vertical bike racks next to every front door, and gabion wall bin surrounds (the crevices enhance biodiversity and encourage climbing plants) may not be to everyone's liking, but they screen cars parked in the front gardens and invite personalisation of one's front door. The residents – all relocated from an average distance of two miles away – moved in less than six months ago, and many front stoops are already crowded with pots of annuals. I even spotted a flamingo perched on a gabion wall.

Other details of note: robust rainwater pipes delineate the party walls, stock clay tiles in three >>

Three-bedroom house – first floor plan

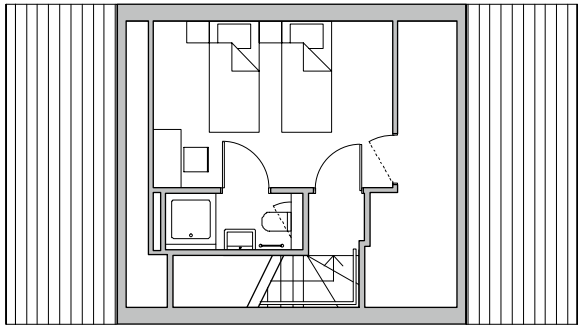


Three-bedroom house – ground floor plan

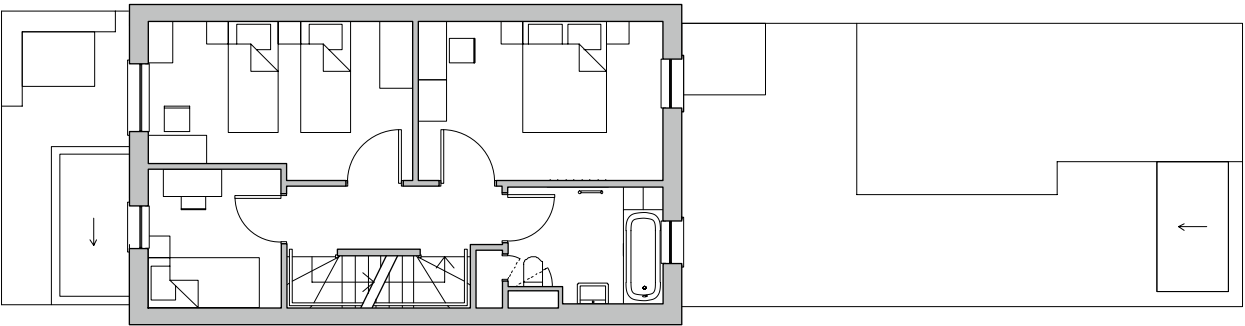


different finishes randomly add texture to what would have otherwise been a monolithic roof, granite kerbs frame permeable paving in front gardens, and one of four paint colours – inspired by the palette of neighbouring houses – differentiates one house from the next. Espaliered fruit trees, some grown to maturity on McCloud’s own property, separate front gardens. A bed below each kitchen window has been left for residents to plant themselves, although there is a lack of planting space adjacent to the imposing gabion bin stores. The central landscaped area, like the whole site, is planned to absorb rainwater run-off at source, and a casual array of logs straddling a swale doubles as a children’s playground. >>

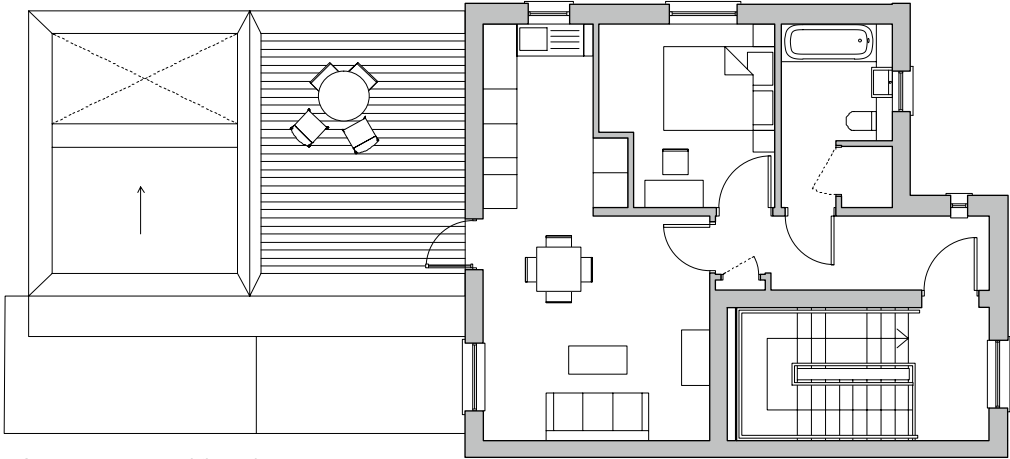
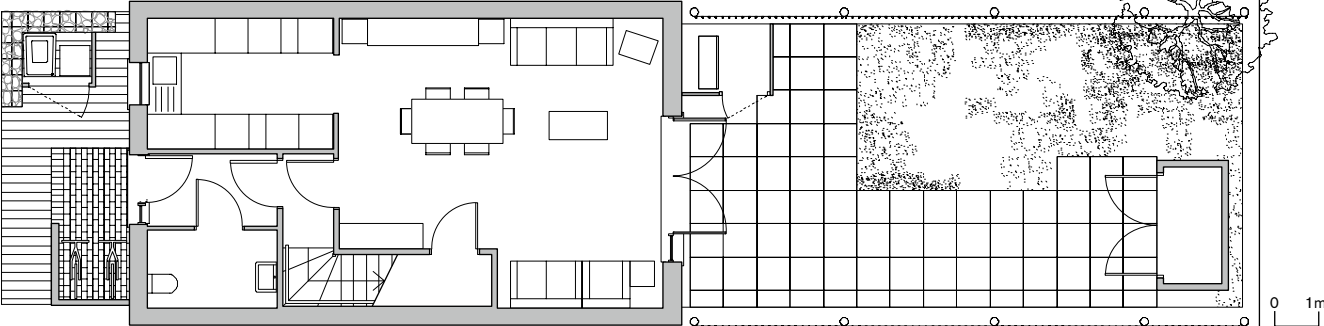
Four-bedroom house – second floor plan



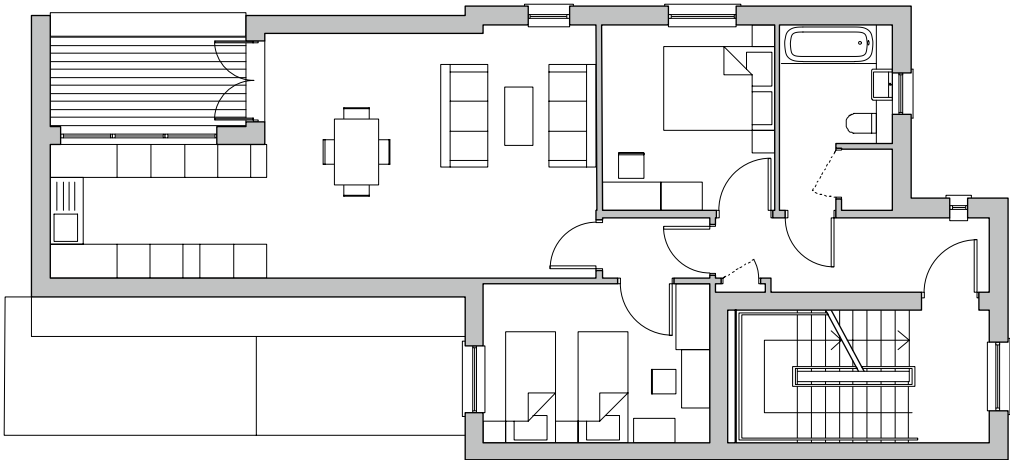
Four-bedroom house – first floor plan



Four-bedroom house – ground floor plan

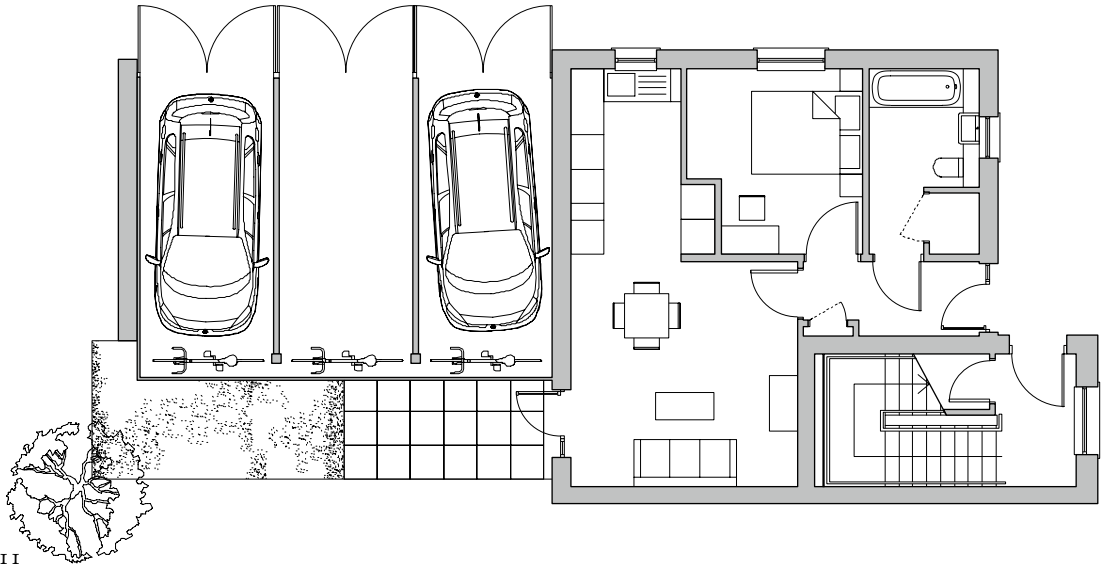


Apartment – second floor plan



Apartment – first floor plan

Apartment – ground floor plan



The public realm promotes social cohesion and healthier living

But the project's real creativity is its approach to landscape. Talk at the Triangle is as much about building a community as it is about building housing. The project takes its name from a triangular open space at the heart of the site which is overlooked by the kitchen windows of surrounding homes. Rather than packing every possible unit onto the site, landscape architect Studio Engleback preserved open spaces at each 'corner' of the triangle as collective outdoor space: two community gardens and a car park. The difficulty is how to make residents care about and look after this space. To this end, Hab Oakus has devised a community trust which gives every resident an ownership stake in the public realm. This not only promotes neighbourliness and social cohesion, but healthier living too. It also makes property more valuable. A recent assessment using the new green infrastructure valuation toolkit developed by CABE, Design for London and others determined that the landscaped space at the Triangle adds nearly half a million pounds to the value of the project.

As for the houses, a 2.6-metre ground-floor ceiling height, above-standard door heads and larger than usual windows all contribute to a sense of spaciousness within the tight floor plans. Natural materials and neutral finishes are used throughout, including 350mm-thick hemcrete walls, wool carpets and cork floors. To minimise overheating, the architects devised a clever way to enhance the stack effect: at the back of the houses, a full-height, lockable louvred panel enables natural ventilation even when no one is home,

and a motorised loft hatch opens into a ventilation cowl disguised as a chimney. The houses achieve Code for Sustainable Homes Level 4, and could meet Level 5 with the introduction of photovoltaic panels, which were narrowly missed due to the timing of the introduction of the feed-in tariff.

The houses are not burdened with an unreasonable amount of kit. Well insulated with double-glazed windows and relatively airtight, this is a fabric-first approach to environmental responsibility. The architect worked with three window manufacturers before settling on double-glazed composite units from Intercombi which combine a thin frame profile with a recycled rubber extrusion, making its environmental performance almost equal to triple glazing. One gadget the units do sport is a community-wide intranet, a small touch-screen at eye level which serves as a virtual notice-board near the kitchen. Here, you can check exactly when the local bus will be arriving, or ask a neighbour for Calpol at midnight.

This is a far cry from Bill Dunster Architects' BedZed development, where orientation drove the urban design to ensure that each flat would have south-facing PVs and a roof garden to grow your own. The thrust here is place-making and community. In car-dominated Swindon, the planners agreed to a reduction in average parking provision from 2 to 1.5 per unit, because the project has a car club, good cycle storage and a bus stop at the entrance.

If you're tempted to dismiss the Triangle as a one-off, think again. The Hab Oakus team is convinced it's a model they can roll out. Five similar projects are in the pipeline: another by Howells in Swindon, two in Stroud with DSDHA, and two in Oxford with Allford Hall Monaghan Morris. Three different practices, but the fact that Studio Engleback has been retained for landscape throughout is revealing. Green infrastructure,

Previous page

The corners of the triangular site are reserved for two kitchen gardens and a small car park

Right Gabion walls, intended for planting, enclose the bin stores and shield parked cars

Far right A 2.6m ceiling height, high window and door heads, and an open plan lend spaciousness to the ground floors of the units



PAUL MILLER

thought through even before site acquisition, is key to getting it right.

There is no doubt that much of the success of the Triangle is down to celebrity power. The entire project team, from designers to suppliers, has put in countless hours to get the details right, and to deliver the project within the tight budget. It's a sorry reflection on the state of British house building that with all the talk of eco-housing since BedZed (completed in 2003 and shortlisted for the Stirling Prize), and initiatives like the Code for Sustainable Homes, we have to rely on celebrity to deliver decent green housing.

Swindon is home to some surprising architecture: Norman Foster's yellow Renault Distribution Centre dates from 1982, and more than a decade later Feilden Clegg Bradley Studios completed the Heelis Building for the National Trust. The Triangle, like BedZed, sets a new standard for affordable, environmentally responsible housing in Britain, in good company with Gokay Deveci's Dunoon housing on the Scottish coast (AJ 28.10.10) and Riches Hawley Mikhail's Clay Field in Suffolk (AJ 08.11.07). I predict that eco-housing buffs will soon be wandering the back streets of Swindon. ■

A programme on the Triangle, 'Kevin's Grand Design', will be aired on Channel 4 on 8 December at 9pm (the first of two parts)



Credits
START ON SITE
July 2010
CONTRACT DURATION
14 months
GROSS INTERNAL FLOOR AREA
Two-bedroom house: 46m ²
Four-bedroom house: 115m ²
FORM OF CONTRACT
JCT Design and Build 2005
TOTAL COST
£4.2 million
COST PER SQUARE METRE
£970 (excluding external works)
£1,185 (including external works)
CLIENT
Hab Oakus
ARCHITECT
Glenn Howells Architects
STRUCTURAL ENGINEER
Curtins Consulting
M&E CONSULTANT
Max Fordham
QUANTITY SURVEYOR
DBK
LANDSCAPE CONSULTANT
Studio Engleback
SERVICES CONSULTANT
Max Fordham
CDM CO-ORDINATOR
DBK
TRANSPORT CONSULTANT
Pinnacle
EMPLOYER'S AGENT / COST CONSULTANT
DBK
PROJECT MANAGER
DBK
MAIN CONTRACTOR
Willmott Dixon
APPROVED BUILDING INSPECTOR
PG Surveyors
ANNUAL CO ₂ EMISSIONS
11.85kg/m ²
U-VALUE OF WALLS
0.19W/m ² K
U-VALUE OF GLAZING
1.3W/m ² K
AIRTIGHTNESS AT 50PA
5m ³ /m ² .hr
DAYLIGHT FACTOR HABITABLE ROOMS
2% minimum
EXTERNAL WALLS
Lime Technology
WINDOW/DOORS
Idealcombi
TIMBER FRAME STRUCTURE
Pinewood Structures
ROOF TILES
Marley Eternit
GABIONS
Hy-Ten
INTERNAL PARTITIONS
Pinewood Structures
CORK TILES
Granorte UK
RAINWATER GOODS
Lindab Ltd
KITCHENS
Symphony Kitchens
SANITARYWARE
Vitra

The Triangle

Glenn Howells Architects

Thermal chimney

The roof cowl is not for exhausting smoke like a traditional chimney, but is a fundamental part of the environmental strategy for the houses. Increasingly modern homes are comfortable in the winter, but tend to overheat in summer due to high levels of insulation and airtightness. At the Triangle the design of the natural ventilation system overcomes this problem, ensuring comfortable internal conditions throughout the year.

A vent behind a secure aluminium-louvred screen can be opened on the ground floor allowing warm air to vent through the chimney using the open stairs as a 'stack'. Thus the home stays cool without mechanical ventilation and, to prevent waste, the heating is

interlocked with an insulated ventilation hatch so that the heat pump-driven heating system does not operate until the hatch is closed.

The chimney is prefabricated, constructed from a timber frame clad in sheets of plywood, with a reinforced mesh to receive a lime-rendered finish. By building the structure on the ground, the quality of workmanship is consistent, and it can be lifted into place to fix into the rest of the timber roof structure, thus providing the structural stability to resist windloads.

Managing the water run-off and driving rain while still allowing the free flow of air through the external grilles was a critical aspect of the design. This was achieved through robust detailing of the sloping lead roof and the provision of internal compartments sitting just behind the grilles to ensure any water ingress is drained back on to the tiled roof.

Dav Bansal, director, Glenn Howells Architects

1. 18mm marine grade plywood to timber frame
2. Lead roof finish
3. Lime based render finish
4. Aluminium weather stop
5. PPC aluminium louvres
6. Clay single cambered roof tiles

Opposite A simple palette of materials includes lime render, stock clay tiles in three finishes, galvanised steel and timber. Gabion wall bin stores enclose rubbish and recycling bins

