



Tigh-Na-Cladach

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Tigh-Na-Cladach

<< Frontage of houses

A development of 15 low-energy houses for first-time buyers, which includes the first social Passive House in the UK provided as part of an affordable housing initiative.

BACKGROUND

The site for this development was owned by Argyll and Bute Council and occupied by a care home managed by the Council which had been closed down when the building became dilapidated. The site overlooks the Firth of Clyde, on a residential road leading south out of Dunoon and is backed by woodland on a hill behind the development. The wood is also owned by the Council, but managed as a public amenity by a local voluntary body, the Bullwood Group. As part of any re-development of the site the Council were keen to maintain the Bullwood Group's presence on the site and public access to the woodland. With housing studies in the Dunoon area showing a shortage of affordable family housing, the Council wished to see whoever purchased the site provide this kind of housing. Fyne Homes found the presence of the Bullwood Group on the site and their management of the woodland as something that added value to the development, and as a social housing provider they knew that they could provide the right type of housing to meet the Council's expectation. Fyne Homes agreed to lease one of the completed housing units to the Bullwood Group as an office and workshop on the theory that the Group's presence on the site would add a beneficial element of 'mixed use' to the development, and would also ensure the maintenance of the woodland, which Fyne Homes had no desire to undertake. Fyne Homes purchased the site for the value given by the District Valuer and with its subsidiary company Fyne Initiatives ready to build the housing, set out to design a scheme for the site that would generate the number of houses necessary to make the scheme work financially. The Scottish Government provided the shared equity backing through its Homestake scheme to support the purchase of the houses by first-time buyers.

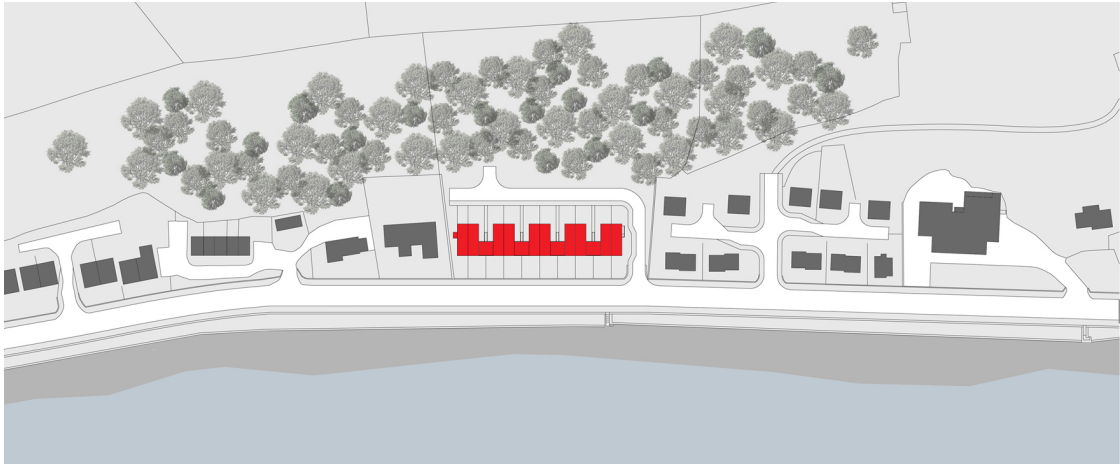
APPROACH

Fyne Homes already have a strong existing commitment to creating low-energy housing, partly to reduce running costs for the tenants of their properties, and to wider issues of sustainability in terms of creating communities that worked well for their tenants. Having formed a good relationship with the architect Gokay Deveci in 2004 on the creation of their award-winning A'Chrannag development of 15 rented homes in Rothesay, Fyne Homes felt that the nature of the Dunoon site provided a good opportunity to work with Deveci again. After an initial discussion they appointed him directly to this project even though he was not one of their framework architects. In addition to his expertise in low-energy design, Deveci had a long-running commitment to bringing good design to the making of social housing. Deveci also had a wider view of sustainability in that he wanted to provide well-designed houses that people would be proud to live in and value in the long term.



^ Traditional Scottish coastal settlement which inspired the development's form

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Location Plan



Ground and first floor plans



Long section through development



- Key**
- 1 Hall
 - 2 Living/Dining
 - 3 Kitchen
 - 4 Bedroom
 - 5 Shower Room
 - 6 Roof Garden

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^ Frontage of houses

In starting to plan how many houses could be created on the site, both in terms of the size of the site and of creating a viable financial package, Fyne Homes and Deveci aimed at maximising the number of 2 and 3-bedroom houses (to meet the principal demand for family houses) but were keen to create a mix of inhabitants by also providing 1-bedroom apartments for young couples. The ingenious creation of this particular mix of dwellings on this particular site, to low-energy specifications, was to become one of the key features of the scheme.

PROCESS

In his first site-meeting with the client, the architect sketched the idea of a development that addressed the sea-front location, with a simple vernacular feel to it, perhaps with some reference to fishermen's houses, and a strong element of colour. In terms of orientation for low-energy purposes, the site was awkward – long and thin on a north-south axis, with the sea view to the east, and with any south-facing glazing ruled out by the planners because that would overlook neighbouring properties. To make the development work financially it was concluded that 14-15 units had to be accommodated; there was no room for 14-15 detached houses, and the final inter-locking of 3-bedroom, 2-bedroom and 1-bedroom units in a terraced form, in which even the 1-bedroom units (which apart from one are all located on the upper storey) have their own outdoor space, took some time to resolve.

The fishermen's cottage form of house with its narrow gable pointing to the sea endured as the final form of the terrace, with the inter-locking of dwelling units meaning that 15 units are contained within a compact terrace of only 10 gables. This form has advantages for energy-efficiency in that the traditional form of gables orientated towards prevailing wind minimises heat loss, and allows for sharing of walls between units, improving insulation and generating cost savings that could be re-directed into extra energy-saving measures.

Three alternative schemes were presented to the public in Dunoon long before any planning submission was made. Through this the architect gained important information on local weather conditions, people's general feelings about materials and which worked well in this area, and people's views on other comparable developments. This process also gave the architect confidence that his thoughts about the design of the scheme were going in the right direction.

Fyne Initiatives appointed a contractor from their framework agreement who was local and who, although they had not worked with the architect before, had the skills to follow the architect's instructions and to deliver his aspirations. Architect and contractor came together at an early stage and quickly formed a good understanding and a collective commitment to the scheme: this was particularly important given that the architect was based in Aberdeen. In addition to meetings on site, periodic design team meetings took place in Perth.

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The idea of making one of the houses a 'Passive House' came through discussions between architect, contractor, client and quantity surveyor during the design stage. The quantity surveyor was able to re-direct the additional 15% funding needed for this house from savings made elsewhere on the scheme; despite the extra input needed from the contractor to monitor the build and installation standards to ensure Passive House certification would be achieved, the contractor and client were keen to do this as it would be the first Passive House built as part of an affordable housing scheme in the UK.

The Scottish Passive House Centre in Glasgow were taken on as advisers for this part of the project, helping with calculations, advising on and supplying components, and liaising with the Passivhaus Institut on testing and certification.

In the middle of the project a saving of £300,000 had to be made on the overall budget: this was achieved by removing features such as glass canopies, reducing the specification of some ironmongery and taking out some of the landscaping, but without compromising any of the overall sustainability targets or the Passive House.

RESULT

A total of 15 units were provided, comprising 6 one-bedroom, 5 two-bedroom and 4 three-bedroom dwellings. The unit leased to the Bullwood Group being the ground-floor one-bed apartment (no. 1) at the north end of the site, and the Passive House being the 2-bedroom two-storey house (no. 15) at the southernmost end of the site. A service road at the northern end of the site provides access for pedestrians and cars from the main road along the sea-front - Bullwood Road; this leads to parking for 30 cars and access to the front doors of all the houses (which are on the ground floor) and to the foot of the outside stairs leading to the one-bedroom apartments on the first floor. The one-bedroom apartments have an outdoor sitting or clothes-drying space (formed above the ground-floor kitchen of the houses) outside their front doors. The houses all have a small outside area around their front doors and next to the car-parking, and a small steeply sloping garden area on the other side of the house, leading off the living room, that faces the sea.

All the houses are built to Code for Sustainable Homes level 4 and Lifetimes Homes standards. As on all properties built by Fyne Homes, space standards are more generous than the minimum required. The houses have large windows, particularly facing the sea, and the ceilings of all the second-floor rooms go up into the pitch of the roof.

The construction of all the houses is a prefabricated closed panel timber frame system, pre-insulated with 300mm 80% recycled content glasswool insulation in the walls and 400mm in the roof. External walls are finished in block work and render. All windows and doors are triple glazed. The Passive House has an additional 50mm of insulation fitted in the roof, and is constructed to a much higher degree of airtightness, and the framing of the glazing in the Passive House is also insulated.



^ Typical unit

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There was no mains gas on the site. All of the houses are equipped with an electric immersion heater for domestic hot water, operating on a timer. The Passive House also has a solar thermal collector on its south facing roof, feeding the domestic hot water tank. Heating in the 14 regular houses is by electric storage heaters located in the hall, living room and (for the houses on two-storeys) on the upstairs landing.

The Passive House is fitted with a Mechanical Ventilation and Heat Recovery system which extracts air from the kitchen and bathroom and transfers the heat from this air to raise the temperature of the fresh air which the system distributes to the lounge and bedrooms. A 1kW heater pre-heats the air which the MVHR system brings into the house; a small 1kW air-to-air heat pump with its outlet in the hall and a heated towel-rail in the bathroom upstairs generate an additional amount of heat in the house for the MVHR to circulate. If south-facing glazing could have been introduced into the house these additional heat-sources might not have been required.

The five bright pastel colours with which the outside of the houses are painted give the development a striking presence on the sea-front, which is otherwise mainly occupied by buildings finished in stone, red brick or white render. For a long time the planners pressed for these new homes also to be finished in white render, but Deveci persuaded them that there were many Scottish and Nordic precedents for using colour on the exterior of buildings, particularly sea-facing buildings - on which fishermen often used up surplus colour from their boats. For Deveci this kind of treatment not only enabled a group of simple houses to have a presence and make a statement, but also reinforced the cultural aspect of sustainability.

IN USE

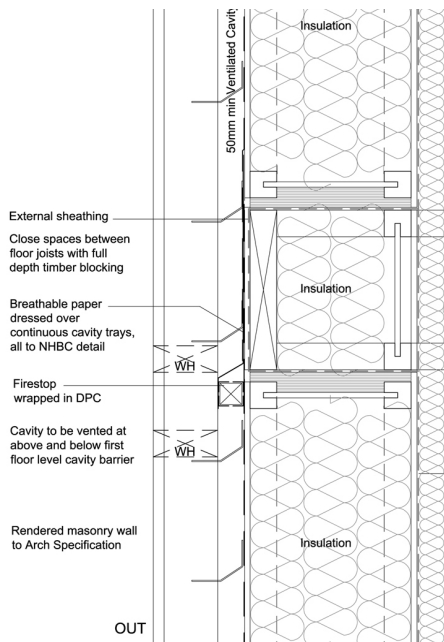
The bright colours of the houses attracted attention to the development, helped create a lot of interest in the houses when Fyne Initiatives started to promote them to potential buyers, and have continued to make the houses a talking-point in the area. Within 2 months 20 applications had been made for the 14 houses. A year after the houses were all occupied Fyne Initiatives are pleased with the mix of families and young couples, the way that the residents appear to interact, and the sense of community that has already been created. Residents talk about where they live as 'the street'. The access road and parking area at the back of the development are used as a safe playground by the children from all the houses (to the occasional anxiety of some owners about the wear on their patches of grass).

The use of one of the houses as an office, exhibition and training area by the Bullwood Group appears to add to the mix, without causing any conflict of use through noise etc. Although they all enjoy the proximity to the sea and the stunning views, the tenants express some dissatisfaction with the extent to which the slope of the front gardens limits their use, but say that the space behind the properties compensates for this.



△ Entrance stair to upper flat with front doors to house and lower flat either side

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^ Detail of wall insulation

Fyne Initiatives and the architect were disappointed that they were not able to make more of the space behind the properties, having been obliged by the Council highway department to put in a 5m carriageway, and by the planners to allow parking space for 30 cars.

All tenants are pleased with the space, the light and the warmth in their properties, and one finding that their electricity bills are substantially lower than where they lived previously. Depending on the size of the property, bills were averaging at £50-£80 per month for the 'regular' houses, with much lower bills in the Passive House.

In the cold winter of 2010/11 the temperature in the Passive House could not reach the target of 21°C, and it has taken time for the MVHR system in the house to operate as designed, partly due to installation defects, but also allowing the house-owner to become familiar with the system. The operation of the Passive House is being monitored for a 2-year period by the Department of Mechanical and Aerospace Engineering at the University of Strathclyde, together with one of the other houses and another house nearby in Dunoon. This is at no cost to Fyne Initiatives (or to the owner of the house) but will be used by Fyne Initiatives to assess the value of using similar measures in future developments. Glasgow School of Art is also carrying out a Post Occupancy and Performance Evaluation Study of the houses, funded by the Technology Strategy Board, which will also compare the operation of these houses to comparable houses in Dunoon.



- 1 Living/ Dining Room
- 2 Dining Area
- 3 Bedroom
- 4 Roof Garden

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< Front elevations

KEY LESSONS

The architect pays tribute to the client for backing the design and for their commitment to sustainability, for 'putting their money where the mouth was' and for selecting the right team and letting them get on with it. The architect stresses the need for genuine commitment by all members of the team on a project such as this, which was not run of the mill, and needed an attention to detail and the application of high standards. The client's wider approach to sustainability put the project into a bigger and more important context that facilitated this degree of commitment.

The client stresses the need to choose the right people with the right expertise for any scheme. In this case the contractor's site foreman was particularly crucial to the success of the job, due to the meticulous attention he paid to the architect's drawings; and he won an NHBC 'Pride in The Job' award for his work on this scheme. The bringing together of architect and contractor at an early stage to work together and develop a mutual understanding was also seen by the client as a crucial factor in the successful delivery of the project.

Fyne Initiatives were glad that they took some trouble to select a buyer for the Passive House who had some experience of low-energy systems and was willing to get to know this system and be patient while the system settled down. However the owner of the house would have welcomed a user-friendly operational manual for the MVHR and associated systems, rather than the technical manual that was left with the system after installation. Although Fyne Initiatives welcomed the support from the Scottish Passive House Centre and associated consultants for the installation of the necessary measures in the Passive House such as the MVHR, they regretted not being more on top of the workings of the system themselves by the time the house was occupied; if they had been, they felt that they would have been better able to judge the nature of the problems when the system appeared not to be operating correctly, help them be resolved sooner and given more support to the owner of the property.

< Section showing possible use of spaces

Project Information

Location: Bullwood Road, Dunoon, Argyll, PA23
Client: Fyne Initiatives Ltd
Date Completed: 2010
Project Value: £2.19m
Internal floor area: 1446 m²

Architect: Gokay Deveci
Structural Engineer: Ramage Young Partnership
Quantity Surveyor: Morham and Brotchie
Specialist Consultants: Scottish Passive House Centre
Main Contractor: John Brown (Strone) Ltd

Core Funders: Scottish Government
Awards: Shortlisted for the 2010 RIAS Andrew Doolan Best Building in Scotland Award; Scottish Design Award 2011 (Architecture Grand Prix), RIBA Award 2011.

Image Credit: Andrew Lee

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