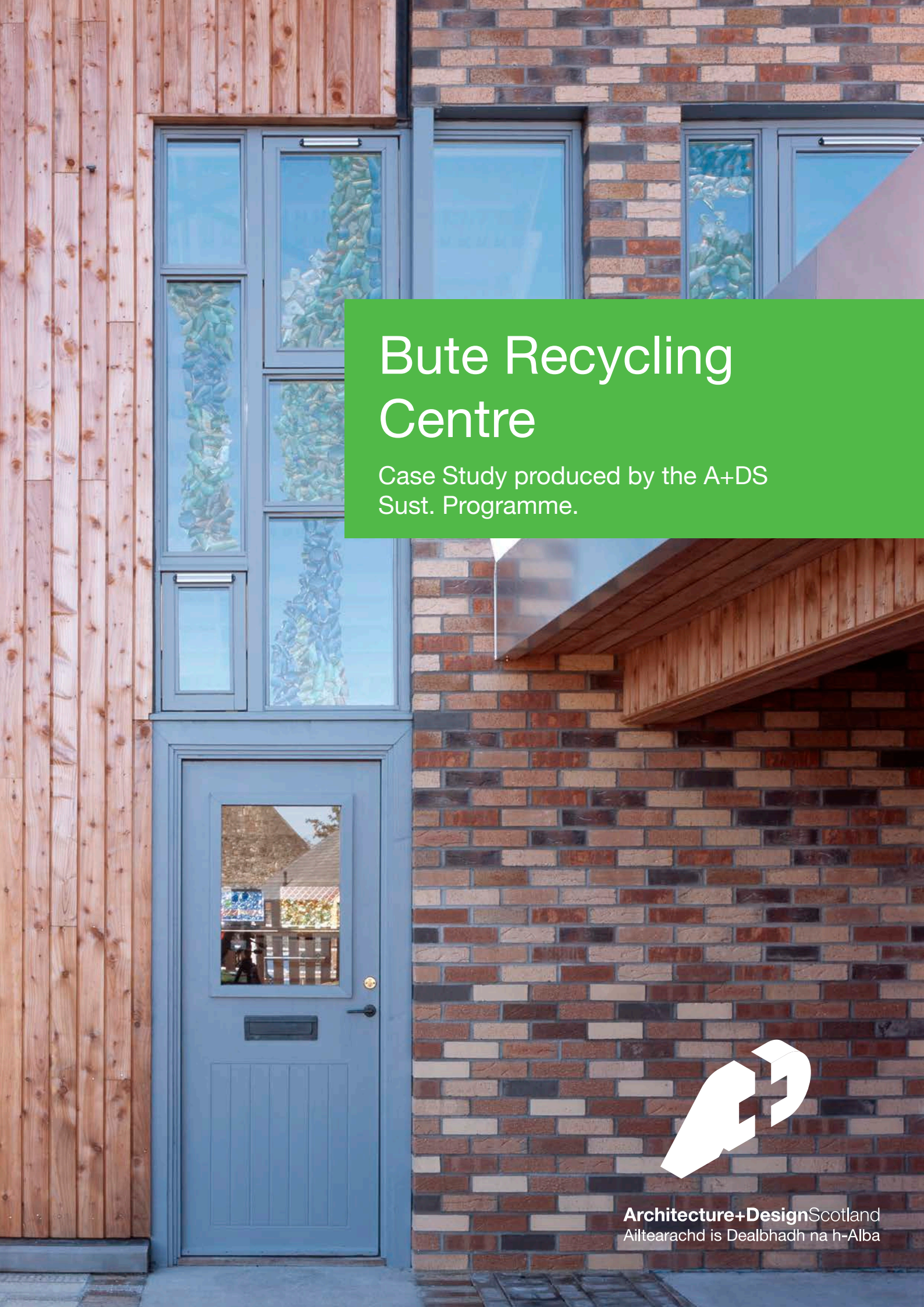


Bute Recycling Centre

Case Study produced by the A+DS Sust. Programme.

Architecture+Design Scotland
Ailtearachd is Dealbhadh na h-Alba

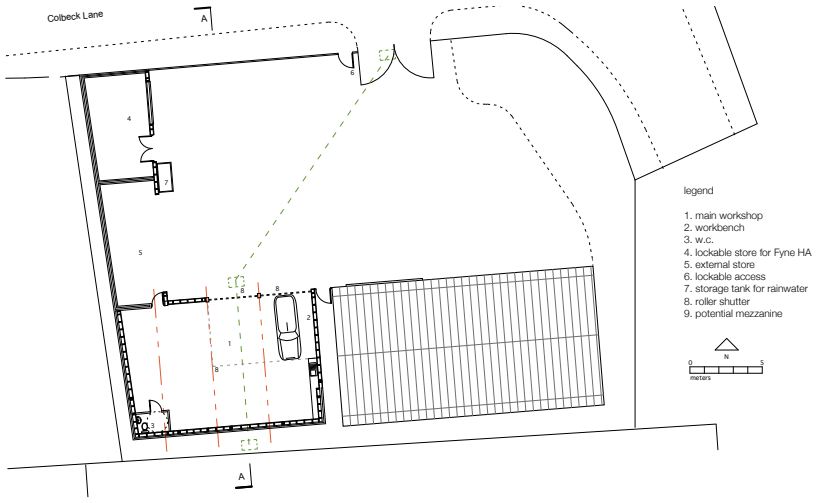
Bute Recycling Centre

A recycling centre constructed largely using materials recycled, re-used or supplied from sustainable sources, and in which designer, client, contractor and planner signed up to an organic process of design and construction.

BACKGROUND

In 1999 a group of volunteers on Bute started collecting aluminium cans for recycling, under the name of Bute Waste Watchers. Cans were collected using a bicycle and trailer and stored in individuals' premises until sufficient quantity were assembled to ship to the scrap buyer on the mainland. A grant from Awards for All enabled Bute Waste Watchers to employ one person to develop the work but as the quantity of cans collected increased, so too did the need for more reliable storage premises, and Bute Waste Watchers were already looking into collecting additional recyclable material. Peter Macdonald of Fyne Homes, the Housing Association that serves Bute, Mid Argyll, Kintyre and Cowal, had become involved on a voluntary basis in the work of Bute Waste Watchers, eventually becoming their Chair. When the need for storage premises became paramount, he obtained the agreement of Fyne Homes for Bute Waste Watchers to use an unused part of one of Fyne Homes' maintenance yards in Bute for storage. In early 2001 the idea was conceived of building a new facility on this site for the storage and processing of the materials collected for recycling. Over a 3-year period funds were successfully raised by Fyne Homes from Communities Scotland (Wider Role funding), Highlands and Islands Enterprise and the Lottery fund 'Fresh Futures'. Fyne Homes gave the land for the building.

Over time Bute Waste Watchers handed over the recycling project to be developed and managed by Fyne Homes themselves. Fyne Homes felt that it fitted well with their social role as a housing association, and particularly within the 'Wider Role' being envisaged at that time for housing associations by Communities Scotland. Fyne Homes also possessed the administrative and management infrastructure to support the recycling business with less need for a dependency on grants. Fyne Homes' engagement in this area of activity led to the creation in 2004 of a separate charitable company, Fyne Futures, which now pursues a range of work including food growing, energy-efficiency and recycling.



> Site plan

<< Main entrance to centre

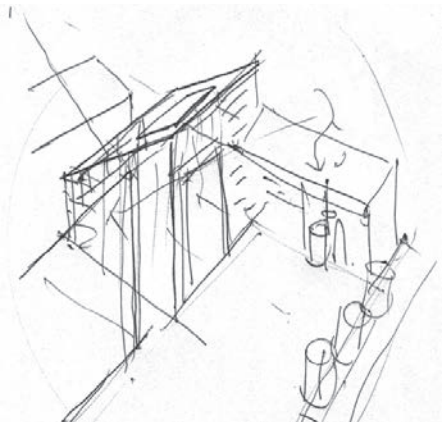
Bute Recycling Centre

APPROACH

Fyne Homes had already commissioned Chris Stewart Architects (later to rename as Collective Architecture) to design a series of terraced houses in Rothesay (Mansefield Place); through conversations Fyne Homes felt that they and Chris Stewart had a mutual interest in creating a building that would not only clearly represent the business going on inside it, but would be created as far as possible with similar principles of re-use of resources and sustainability. A simple brief was agreed along these lines, with key aspects of the approach being:

- A client-driven partnering process or a design and construction process where client, architect and contractor would work in partnership,the process being directed by the client;
- Use of Bute-based contractors for all but the most specialist parts of the construction process: there was a negotiated tender for the basic construction. Through their mainstream work Fyne Homes were well aware of appropriate contractors and local construction costs, particularly for a building of such small scale;
- Use of recycled materials as far as possible.

To make this approach successful required a strong, positive, trusting relationship between client, design team and contractor. The client consciously allowed the design of the building to evolve as the most appropriate solutions were found to match the sustainability aspirations, and through their good relationship with Argyll and Bute Council, Fyne Homes were able to retain the support of the planners while the form and details of the building were gradually resolved. With some building materials (for example recycled doors and other fittings) only identified and sourced during the building process, the contractor needed to be fully supportive of the aspirations and approach of the project.



^ Concept sketch

PROCESS

The requirements for the building were:
- A large protected and lockable space for the processing and storage of materials, that would house 3 sorting, crushing and bailing machines;
- An open-fronted external store for materials;
- A toilet and washroom facility;
- A small separate lockable store.

Staff-room, kitchen and office for the recycling staff were to be provided by converting space in the maintenance building already on the site, then used for document storage. All the fittings and equipment for this conversion were from re-used stock.

On the south side of the site for the building was a nursery school, with a play area directly bounding the proposed site of the Recycling Centre. This provided something of a design paradox, with the orientation presenting the possibility of opening up the elevation for thermal gain and good day

Bute Recycling Centre

> View of main yard

lighting while the location of the school all but demanded an opaque treatment. The solution prompted one of the most visually arresting uses of material in the Centre: glass screens that use recycled glass bottles. The semi-transparent screens allow natural lighting through but also provide the privacy necessary for the neighbouring school.

The majority of materials used to construct the Centre were recycled, reclaimed or supplied from sustainable sources. The bricks were Ibstock quality seconds which might normally have been scrapped but were suitable for use as cladding for the timber-frame main section of the building, and as structural wall for the external store. As there was not enough of each brick type to build significant sections with each, the architect decided to mix the bricks instructing the bricklayer 'never to let two bricks of the same type touch'. The effect is a definite expression of the reclaimed nature of the material.

The roof is made from 100% recycled aluminium supplied by Rigidal - made of the same aluminium cans that the Recycling Centre itself collects. Larch grown in Ayrshire was sourced for external cladding, minimizing transport miles, and from a source that ensured a new tree is planted for every tree cut down. Structural timber had to be sourced from Sweden due to stress treatment not being available for timber grown locally.

Throughout the interior, various recycled and reclaimed elements were incorporated, sourced by the architect and contractor from different places on the island. These included kitchen and bathroom units taken out of other Fyne Homes properties and doors retrieved from buildings due to be demolished, treated where necessary to achieve required standards.

RESULT

The building is a simple form of two single-pitched structures at right angles to each other, placed on the perimeter of the yard where vans load and off-load materials, and where materials that do not need protection can be stored. The yard is shared with the maintenance building that is also on the same site, where the office/mess-room facility for the Recycling Centre is situated.

The principal element of the building which houses the sorting/crushing machines was designed to be high enough to have a mezzanine floor inserted in all or part of the space – at the time for a possible interpretation facility to be used by educational use, but now more likely to be used for additional work-space.

The semi-transparent windows are placed to admit light both from the south-facing back of the building facing the nursery school, and on the front of the building, where they provide an unexpectedly decorative element for such a utilitarian building. These windows are formed from traditional double glazed units with large cavities, into which were glued pieces of used glass bottles of varying thicknesses and colours, collected on the island. The architects themselves broke and selected the pieces and worked with the glazing contractor to fix the pieces with silicone onto

> Can compacting machines within the main workshop


BWW

Bute Recycling Centre

^ Rear elevation - reclaimed bricks and recycled glass windows

the internal leaf within the cavity of each window unit.
Rainwater is collected from the roof and stored externally in a water barrel for general use. Low maintenance, durable materials were selected that particularly suited the west of Scotland climate and the site in particular. Cyclical painting/upkeep procedures are not required and the primary materials, timber, aluminium and brick have indefinite life spans.

The multi-coloured brick walls, which show on both the exterior and the interior of the building - particularly as when operating the front of the building is generally opened up - form the most striking feature of the building, and again reinforce the 'recycled' message of the building and the building's use.

IN USE

When the building was first conceived, Bute Waste Watchers were recycling one tonne of materials. At the end of the building's first year of use in 2005 50 tonnes of material had passed through the recycling centre, with 3 staff operating the business, using 2 vans to collect and deliver material. After receiving additional development support from Wider Role funding and other sources such as Future Jobs funds, the Centre was self-sustaining by 2011 with the income from its recycling facilities. It has a service level agreement with Argyll and Bute Council for the collection of steel and aluminium cans, paper, metal from Bute and Cowal, and this year expects to process 460 tonnes of material. Additional external storage space has been rented off Fyne Homes across the road. The lower covered store building has been converted to accommodate a new part of Fyne Futures' recycling business, the processing of bio-fuel derived from the used cooking oil from the many guest houses, pubs and catering outlets on Bute.

The creation of the Recycling Centre enabled Fyne Homes to develop its recycling service, providing a valuable social service on Bute and Cowal, and much valued local employment in so doing. The successful establishment of recycling as part of Fyne Homes' 'Wider Role' laid the foundations for the expansion of this work in the programme of Fyne Futures, whose fruit and vegetable growing project Bute Produce has also generated new employment and is providing locally grown fresh fruit and vegetables to Bute residents and businesses.

The form of the Recycling Centre, where the materials used (for example, brick seconds and broken glass bottles) and the way in which they are used (the random use of the different bricks and the incorporation of bottles into translucent glass screens) both reinforce the building's message, has played a strong symbolic role in promoting and reinforcing the work of the Centre. Such is the success of this work that the Centre has (in 2011) clearly become too small for the range and scale of operations in which it is involved.

Bute Recycling Centre

KEY LESSONS

Factors of cost and the attitude of the client can provide major barriers to paying full attention to issues of sustainability in building projects. Although the small size of this building made this easier to handle, the Bute Recycling Centre indicates how much can be done by a 'pro-active and environmentally progressive client…willing to search for alternative funding and…open to novel approaches to architecture' (in the words of the architect). The architect was also committed to sustainable principles and willing to search far and wide for appropriate solutions. 'People say you can't do these things' said the client 'but if you put your mind to it, you can.'

Fyne Homes' previous experience of commissioning projects, creating buildings, approaching funding bodies and working with planners obviously put them in a strong position to realise this project, and they acknowledge that they would not have been able to be so creative in larger scale projects. The architects however feel that the design process used in this project could be applied to bigger projects, for instance the mode of specifying brick 'seconds', and have incorporated aspects of this in subsequent projects.

Sourcing re-usable materials provided many challenges, including ensuring that you could get them at the time you needed them or, if they came too early, having somewhere to store them. Again, this relied on good communication between architect, supplier and contractor. The client considers that the actual cost benefits of re-using materials (such as bathroom and kitchen fittings) were small, but that they were still worth doing as a part of the overall project.

^ Recycled glass windows

In taking this approach to design, the architects learned not to be too precious about exact finishes. Due to the uncertainty about sourcing materials, some of the design was not finalised until the building was complete, which caused some anxiety on the part of the planning department. But by becoming assured of the validity of the process through regular communication from the architects and client and the opportunity to see samples of the materials proposed, the local planning department approved the building even though at that stage they were not 100% sure what it was they were approving.

Project Information

Location:	Colbeck Lane Industrial Estate, Rothesay, Isle of Bute, PA20 0RB
Client:	Fyne Homes
Date Completed:	2004
Project Value:	£120,000
Gross floor area:	172.4 sq. m. (including external stores); 118 sq. m. (excluding external stores)
Architect:	Chris Stewart Architects (now Collective Architecture)
Consulting Engineer:	CDP
Quantity Surveyor:	Brown and Wallace
Specialist Consultants:	Haran Glass
Main Contractor:	George Hanson Building Contractors
Funders:	Communities Scotland, Highlands and Islands Enterprise, National Lottery (Fresh Futures Fund)
Image Credit:	Andrew Lee

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