




City Building



THE GLASGOW HOUSE
Delivering Energy Efficiency





City Building (Glasgow) LLP

City Building Overview






City Building was formed in October 2006 and now one of Scotland's largest construction companies

Over 2,200 full-time staff and annual turnover of c£190m

Employing approx. 430 apprentices at in-house training academies at Queenslie + Laurieston

Manufacturing facility at our sister company RSBi

Industry champion in equipping young people with necessary skills to secure long term employment

Building to a Higher Standard



RSBi (formerly Blindcraft)

UK's largest manufacturing facility supporting employees with disabilities

Total workforce of 250 manufacturing:

- Timber Kits**
- Kitchens**
- Fitted Wardrobes**
- Full House Packages**
- Soft Furnishings**
- Educational Furniture**
- Office Furniture**






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New Build Housing

Design and Build or Traditional Procurement

In house pre-manufactured timber kits + floor cassettes

In house kitchen and furniture manufacture

Project completed or in progress for a number of Housing Associations incl:

- North Glasgow HA
- Sanctuary HA
- Glasgow HA
- Maryhill HA
- Tollcross HA

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Repairs + Maintenance Solutions

Repairs + Maintenance Services

- 24/7 Responsive Reactive Repairs
- Planned / Preventative Maintenance
- Programmed Cyclical Maintenance
- Gas Maintenance + Gas Servicing

Specialist Services

- Licensed Asbestos Contractor
- Out of Hours Emergency
- Furnished Accommodation
- Lift Maintenance & Property Security

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The Glasgow House

THE GLASGOW HOUSE
Delivering Energy Efficiency

...using locally trained labour and apprentices

Building to a Higher Standard
Using locally trained labour and apprentices

RSB

Structural Timber Kits and high quality fixtures manufactured into grade in Glasgow by RSBti

2 prototypes of Modern Sustainable Homes sited at City's Construction Skills Academy.

Featuring high standards of insulation, low energy running costs & simple technology.

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The Start of the Concept



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Our Vision

Partnership

Working together with the same vision were - City Building, PRP and GHA

Our Vision

to demonstrate that attractive homes, designed to meet low carbon emissions targets and future building standards can:

- a) Achieve highly efficient, attractive homes that reduce energy costs to residents
- b) Be comfortably constructed by locally trained labour and apprentices



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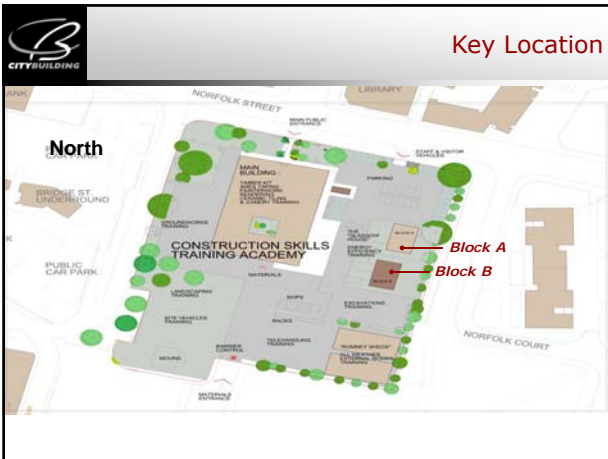
Aims & Objectives

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- Reduce fuel poverty
- Reduce Glasgow's carbon footprint
- Create training & employment opportunities
- Present a smart, modern and flexible option
- Deliver a practical solution that's simple & easy to maintain
- Deliver it within affordable build costs



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Key Location

Strategic Location

- Excellent Location at City Building's Skills Academy in City Centre
- Highly visible to public
- Set within Laurieston Regeneration Area

GHA Grant
towards apprentice involvement

City Building
Co-investing in project

Supported by **Glasgow City Council** and Sustainable Glasgow

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Integrated within Skills Academy

Structure

- 1). Clay Block (imported from Germany) chosen by architects**
- 2). Traditional Timber kit chose of City Building**

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Structure Types



Key Features

High Levels of Insulation

- Under-floor
- Walls
- Roof

Air Tightness

- Hollow Clay Block – $3\text{m}^3/(\text{hr}\cdot\text{m}^2)$
- Timber kit – $3.47\text{m}^3/(\text{hr}\cdot\text{m}^2)$

Solar Gain

- Windows and sun room designed to utilise solar gain all year round

Heat Recovery

- The mechanical heat recovery system continually moves air around the house at low levels. Removes stale air from inside replacing it with clean fresh air 24/7 whilst maintaining its temperature.



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Main Heating Source

Heating

- SEDBUK Band A rated combi gas condensing boiler with ultra low emissions (class 5).

- Highly efficient and incorporating user friendly controls.

- Hot Water Storage Cylinder & Solar Panel Cylinder



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Key Components 1 - Roof Cassettes

Roof Cassettes

- Highly insulated "roof cassettes" – the "JJ Intelliroof" have been utilised in the Glasgow House.

- City Building pioneering this novel system for first time in Scotland.

- Pre-manufactured locally the cassettes significantly reduce heat loss

- Steep pitch and absence of rafters create usable loft space



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Key Components 2 - Electrics

Electric Card

Control of lighting via cards similar to "hotel room keys". On removal of the card all lights are automatically turned off. This concept can be adapted to control all other parts of the electrical installation if desired.

Low Energy Lighting

Low Energy light bulbs and fittings have been provided throughout to reduce electricity costs.



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Key Components 3 - Roofs

Roof Finish

•Two options are shown on the Glasgow Houses -
A - Traditional concrete tile
B - Re-cycled tyre/plastic tile.



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Other Key Features

Thermal Mass

- Concrete Floor
- Clay Block



Engineered Beams Through out

- Lighter for handling
- Resist warping and twisting



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Other Key Components

Kitchens

High Quality Kitchen Fitments manufactured by RSBI. Appliances – All appliances are "A" Rated appliances.



Windows

Windows and external doors manufactured from a hybrid system of sustainable timbers and aluminium for low external maintenance. Glazing is E glass. Overall U-value 1.2 W/m2K including frame



At the end of their service life the timber, glass, aluminium and fittings, are all fully recyclable.

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Local Labour + Materials

Local Labour

GHA Grant towards apprentice involvement in the Glasgow House



City Building co-investing in project utilising in-house trades and promoting training in renewable energy installations

Local Materials

Locally sourced materials as much as possible
Timber Kits, Kitchens, Wardrobes and Interior Design Packages all manufactured at Blindcraft in Springburn.



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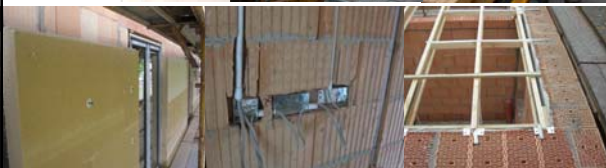
Speed of Construction

Speed of Construction

•Advantages of using locally produced timber kits and off-site prefabrication



•Masonry option proving labour intensive with more imported materials



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Completed on Programme

Start
February 2010

Finish
Doors Open Event
September 2010



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Post Build

Energy Efficiency Testing & Monitoring

Mackintosh School of Architecture Energy Unit (MEARU) monitored energy ratings in 2 completed units

- Traditional Timber kit out performing clay block
- Scenarios – Family, Elder, Reduced Occupancy &Un-maintained mechanical ventilation
- Co-Heating

Average SAP Ratings

- GHA Core Improved Stock - 76
- Glasgow House - 87

"Real-Time" Training Centres

•The 2 partially completed units will be utilised by the Skill Academy as "real time training centres"





Training for Renewables

Youth Apprentice Recruitment
currently about 430 apprentices

Renewable Energy Skills

Schools Vocational Programme

"Construction for All"
–Single Parents Initiative

Employability Training





Training

Joiners

•3 - day Renewables awareness course at Clydebank College

Plumbers

•3 - day Renewables awareness course at Clydebank College
•3 - day BPEC training course on solar thermal
•Then for their specialism in 4th Year will be either gas or solar

Electricians

•3 - day Renewables awareness course at Clydebank College
•3-day NICEIC training course on





Renewable Installations

Installation of PV units for Sanctuary Housing Association



Installation of PV units at St Benedict's Primary School for Glasgow City Council Education Department



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