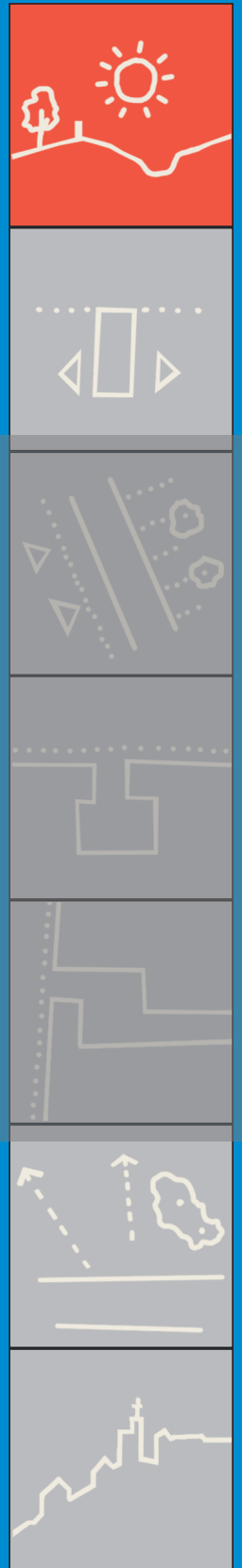


Housing Typology (6 of 7): Topographic and Climatic Responses





^ Negotiating height differences - Victoria Street, Edinburgh
(image: nomadpete, [CC BY-NC-ND 2.0](#))

Introduction

This piece explores a sample of housing responding to site-specific local conditions such as topography, flooding or micro-climate. This sixth of seven in our typologies series illustrates responses to steep topography, high rainfall and sunlight. Illustrated by mapping, photography and scale drawings, our aim is to show the linkage between design of the house and the place of which it forms a part.

Sloping land, wind, rainfall and a precious low winter sun, are just a few of the distinctive characteristics influencing the siting and design of housing in Scotland.

Here we illustrate built examples where architects and urban designers have sought to reconcile contemporary living with the wider roles and functions of the individual house that are integral to placemaking.

Roles of topographic and climatic responses

The success of this form can be attributed to some of the useful roles it plays:

1. Economic Value

- conserving energy
- harvesting energy
- minimizing compensatory engineering costs

2. Townscape Value

- developing a contemporary Scottish vernacular
- creating built form in harmony with the natural landscape
- linking to indigenous architecture

3. Cultural Value

- creating attractive and comfortable living conditions – indoors
- creating attractive and comfortable living conditions – outdoors

4. Environmental Value

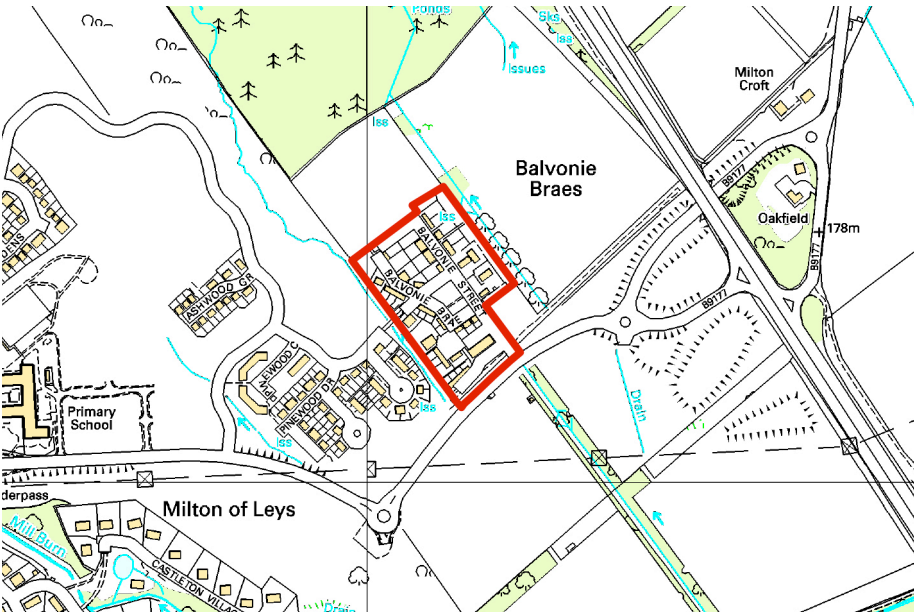
- mitigating adverse impacts such as flooding
- achieving energy-efficiency

Viewing this data

Drawing and mapping were prepared by Architecture and Design Scotland in 2013, based on material supplied by the architects involved.



^ Swale integrated into the streetscape.



^ Location plan

Responses to rainfall and SUDS

Balvonie Street, Inverness

A swale, designed to attenuate surface water through the use of a series of dams, is designed as an integral part of the streetscape of the EXPO site. Houses are accessed via bridges formed from recycled rail sleepers and the particular house types respond imaginatively to this setting leading to a site-specific solution but one that has wider relevance for the integration of blue infrastructure.

These houses form part of Scotland's Housing Expo site at Balvonie, Inverness.

Credits

Design (swale): AREA

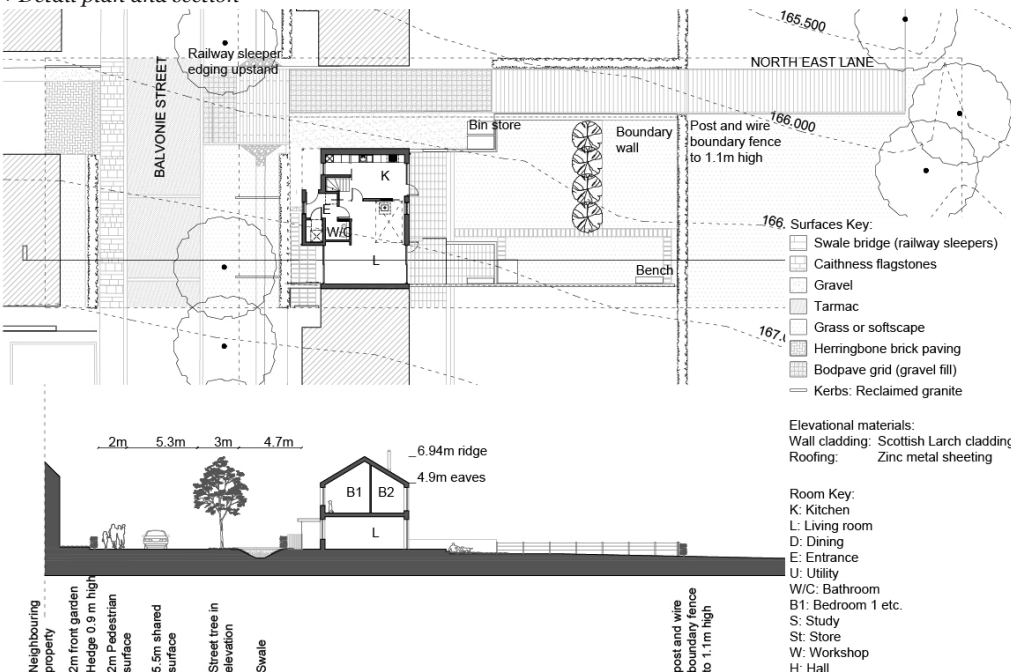
Design (building): Malcolm Fraser Architects

Image: AREA



^ Site plan

Detail plan and section





^ View over one of the retention basins

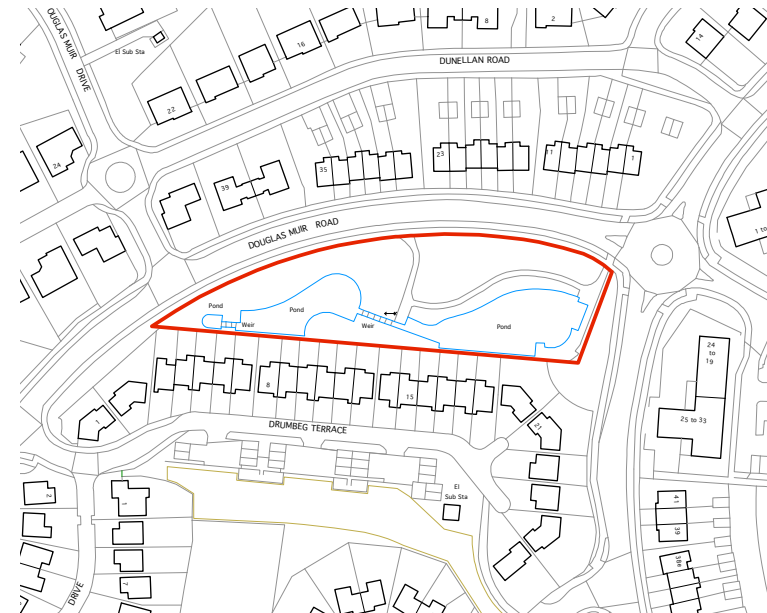
Mains Estate, Bearsden

A good example of the way in which drainage infrastructure, in the form of two retention basins, can create a very attractive focus for new housing. This relies on imaginative planting and landscaping. Completed during the 1990's this shows the longterm value of maturing landscape over time.

Credits

Design: Various Architects

Image: A&DS



^ Location plan



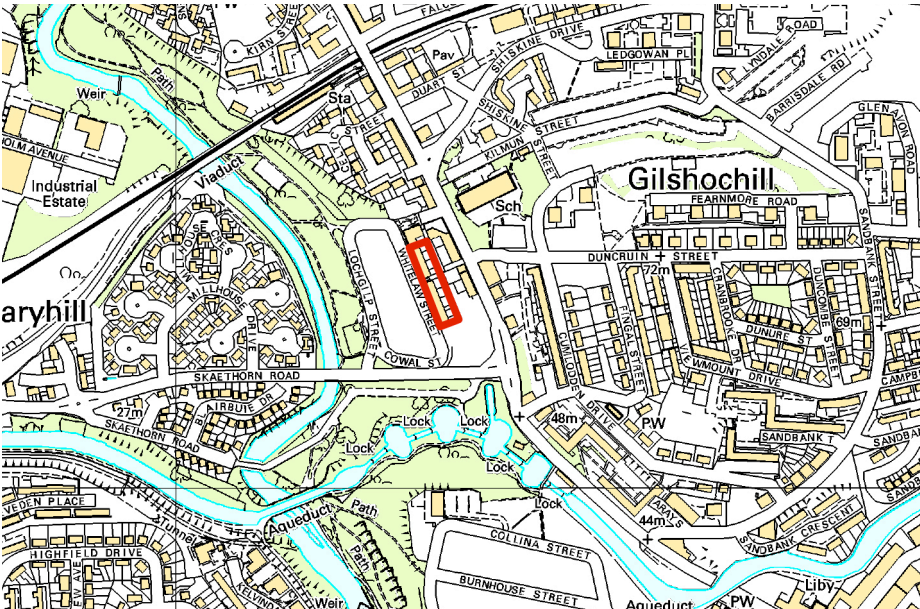
^ View showing private elevated gardens

Responses to Topography

Botany, Maryhill

These terraced houses negotiate a steep site from lower street front to higher back gardens. Whilst lower level rooms open south towards the front garden and the street, upper level kitchens open onto an elevated private garden.

Credits
Design: Elder&Cannon Architects
Images: Elder&Cannon Architects

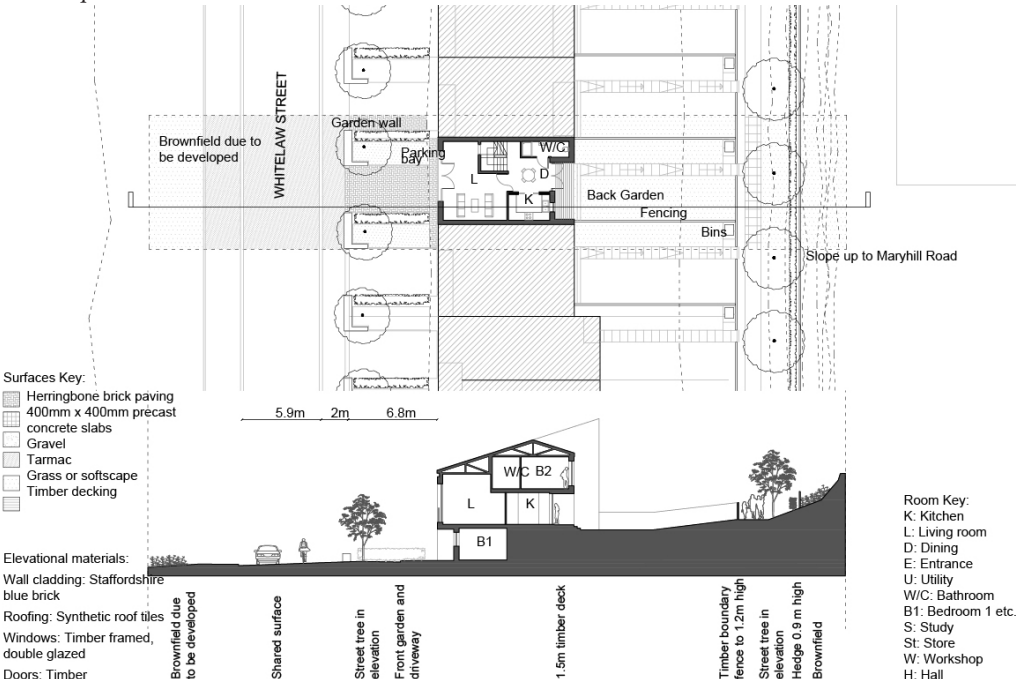


^ Location plan



^ Site plan

Detail plan and section



^ South facing entrances on the lower level



^ View of entrances

Da Vadill, Lerwick

Individual houses facet and step to respond simultaneously to local street patterns and steep topography, leading to a form that is both contemporary and seemingly rooted in the site and local architecture.

The front to back section, with its well-integrated retaining wall, allows a responsive street front to be reconciled with parking infrastructure to the rear.

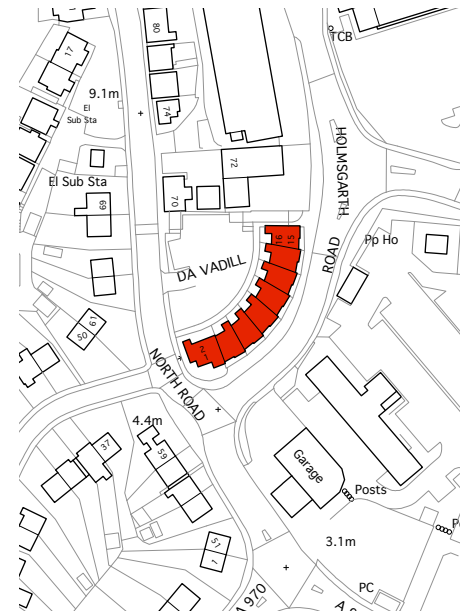
Credits

Design: Richard Gibson Architects

Images: www.phatsheep.co.uk

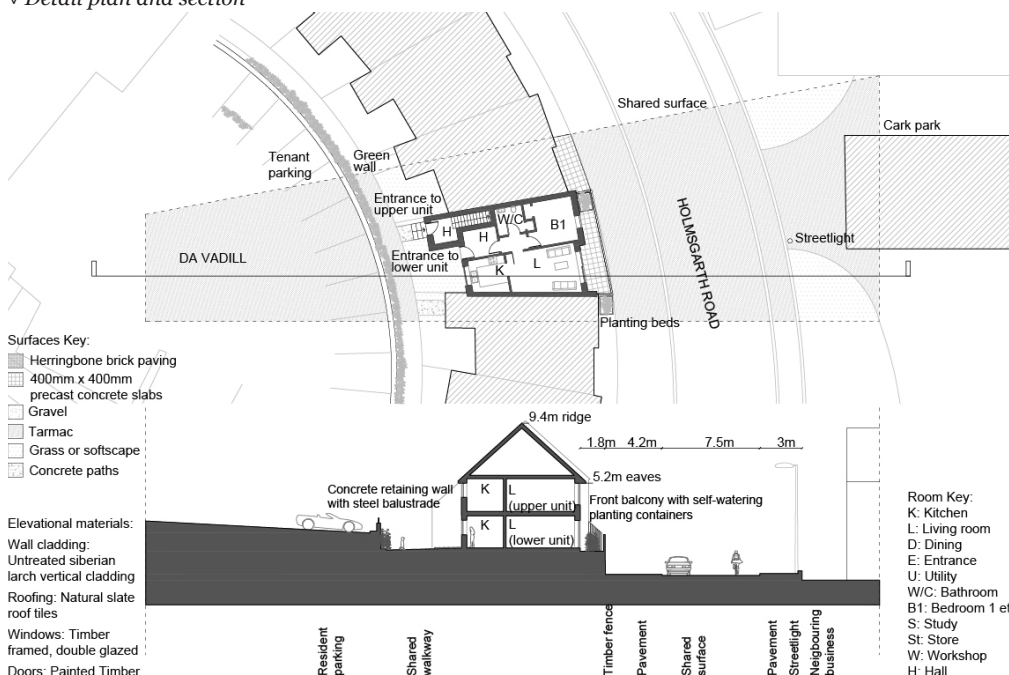


^ Location plan



^ Site plan

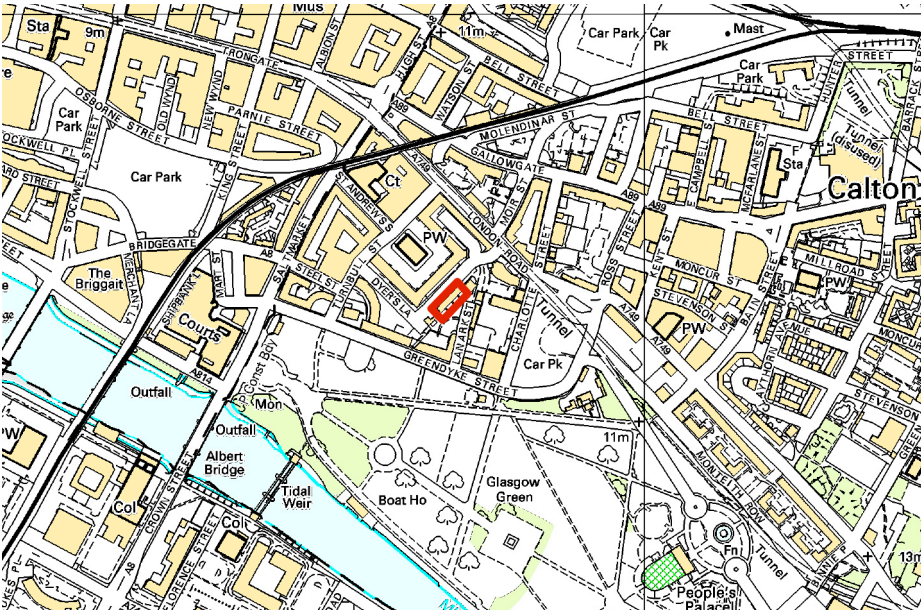
Detail plan and section



^ Frontage to Holmsgarth Road

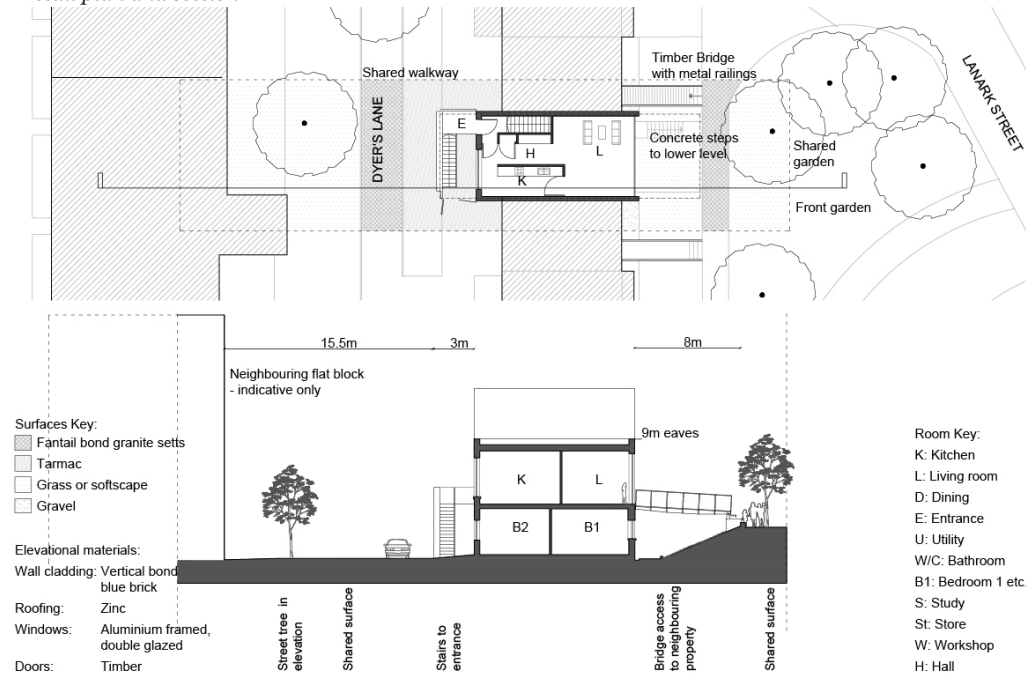


^ Frontage overlooking the common garden space



^ Location plan

∨ Detail plan and section



Lanark Street, Glasgow Green

These terraced houses reconcile significant level differences between front and back whilst maintaining urban roles for the architecture on both sides. Each side has a significant role, one frontage overlooking a common garden space, the other providing a street frontage.

Bridges provide access for living rooms to the common garden at the upper level. External stair structures towards Dyer's lane and the slope towards the common garden help define a threshold of defensible space alongside bedrooms at the lower level.

This terrace forms part of Homes For The Future 1999

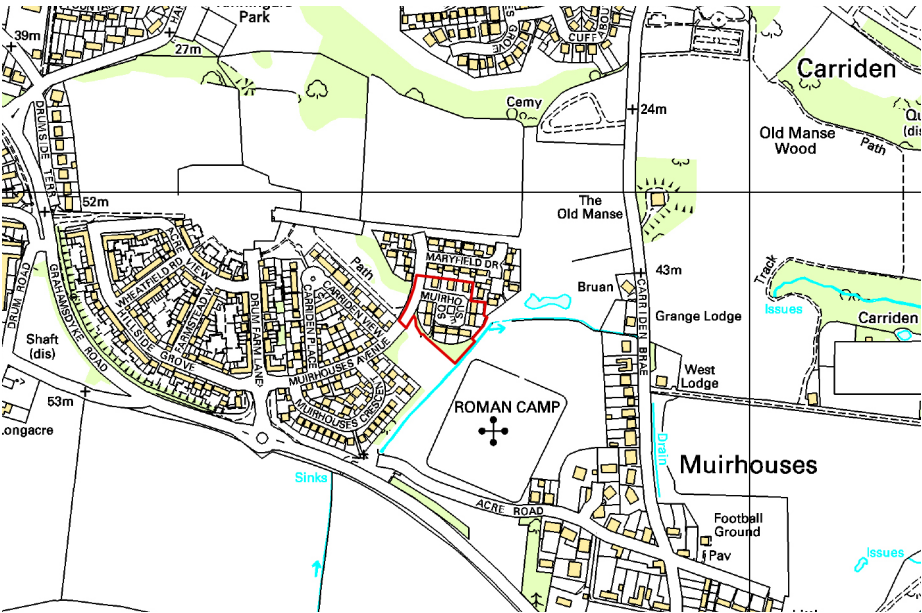
Credits
Design: Mckeown Alexander Architects
Image: jmachitects



^ Site plan

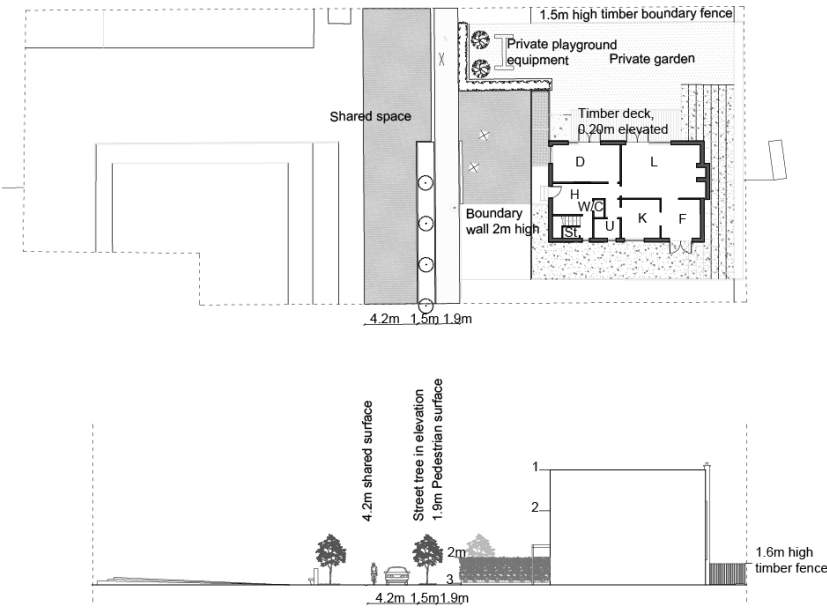


^ South facing elevation



^ Location plan

∨ Detail plan and section



Surfaces Key:

- Brick paving
- Concrete block pavers
- Gravel
- Tarmac with chippings
- Lawn
- Herringbone paving
- Concrete
- Planting beds

Elevational materials:

- 1. Black slate tiles
- 2. Whitewash plaster walls
- 3. Navy brick

Responses to Solar Orientation

Muirhouses Square, Bo'ness

These 3 detached houses collectively front south over an urban square, responding to solar orientation with south, east and west facing frontages.

Kitchen and family room face east towards the morning sun whilst dining and living rooms face west towards the afternoon sun. The dining room on the narrow south-facing elevation overlooks the entrance yard and parking area. Facing the street are a walled parking court and a high hedge, the house set back within a surrounding garden providing privacy and shelter.

Credits

Design: Malcolm Fraser Architects

Images: A&DS



^ Site plan



^ Dining room window onto entrance yard



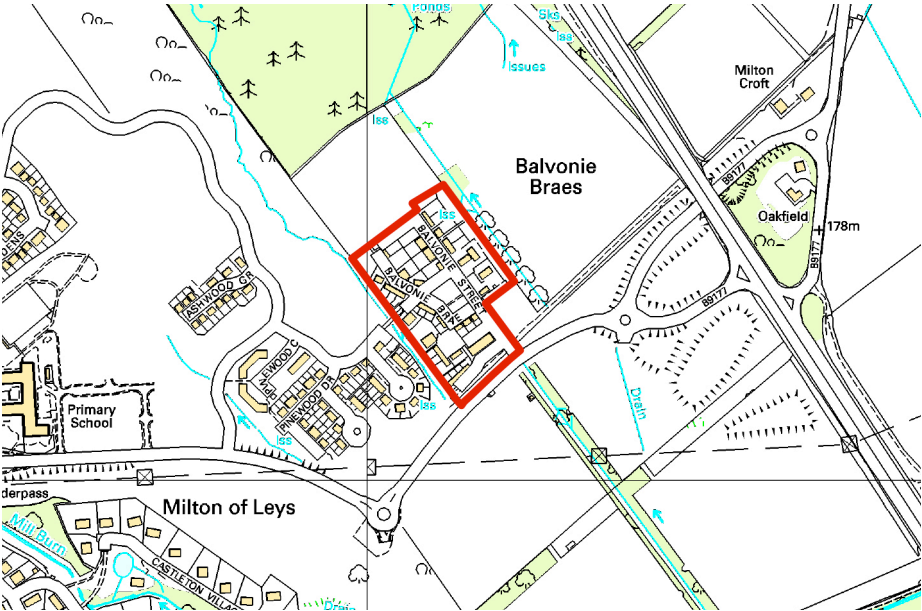
^ Stepped terrace elevation facing Balvonie Brae

Balvonie Brae, Inverness

Built to Passivhaus standard, these houses exploit southern orientation to rear garden elevations and a simple stepping per house addresses changing topography at the street front.

This terrace forms part of Scotland's Housing Expo site at Balvonie, Inverness.

Credits
 Design: HLM Architects
 Image: HLM Architects

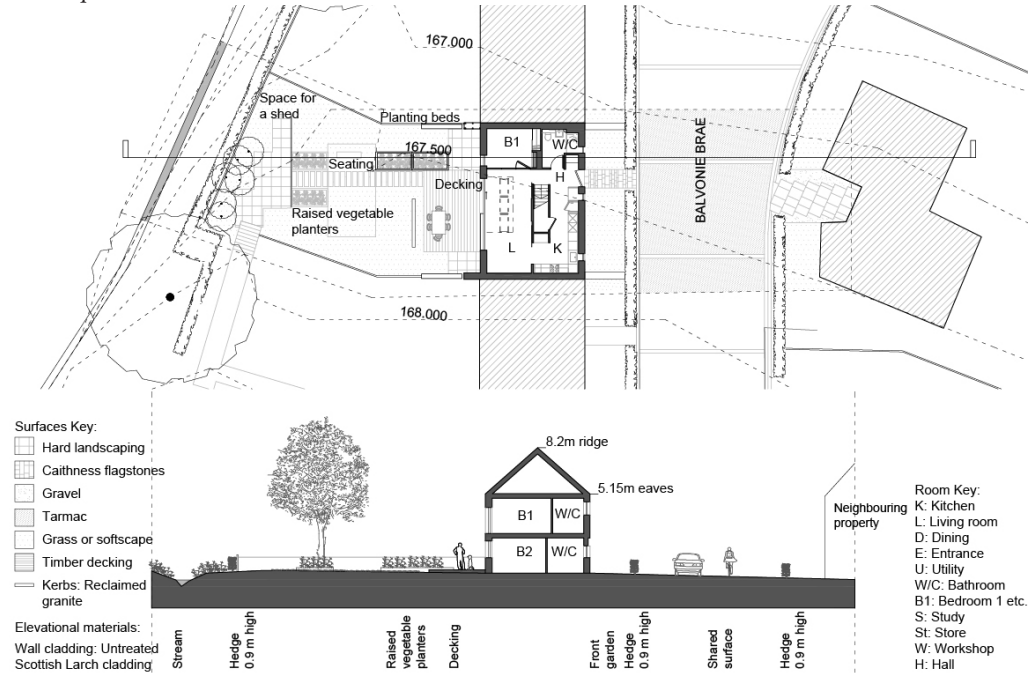


^ Location plan

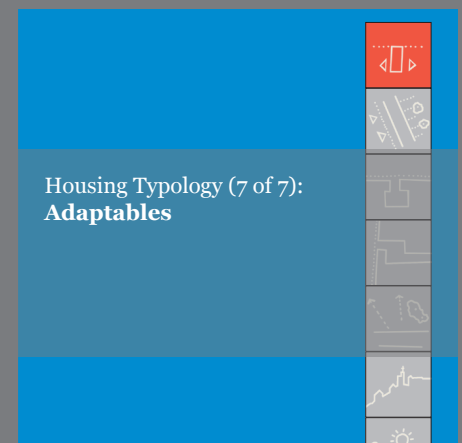
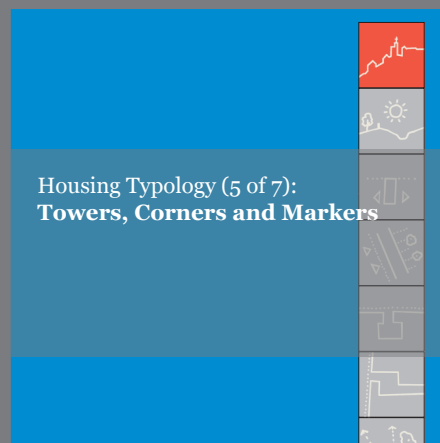
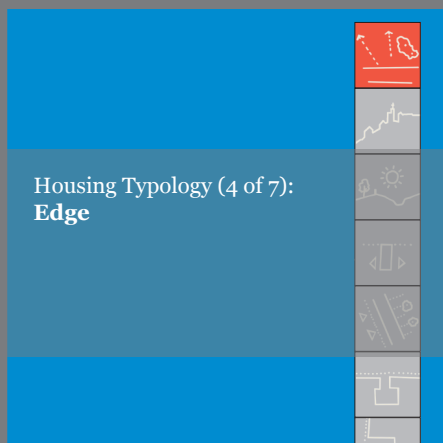
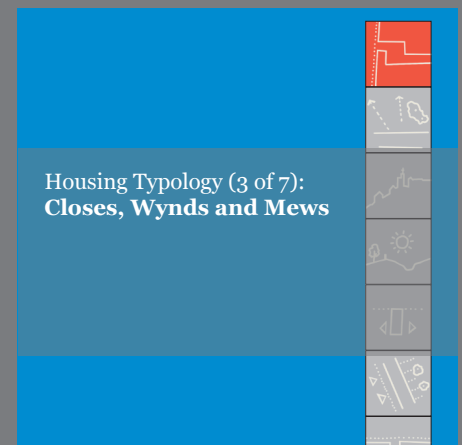
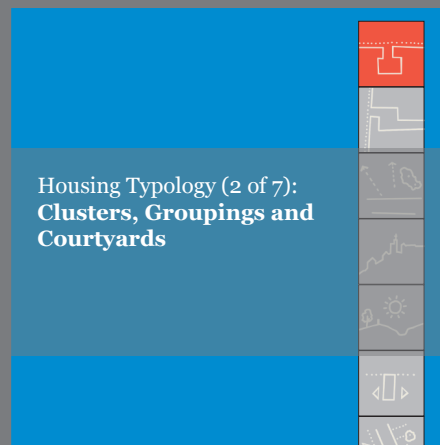
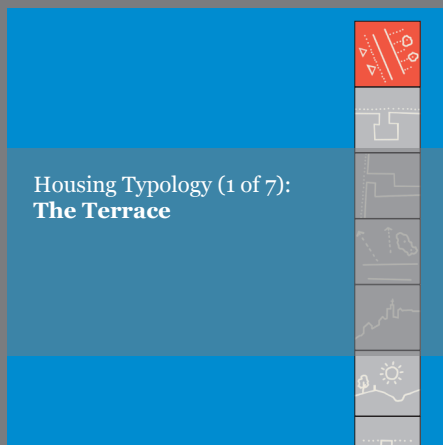


^ Site plan

∨ Detail plan and section



Other documents in this series:



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