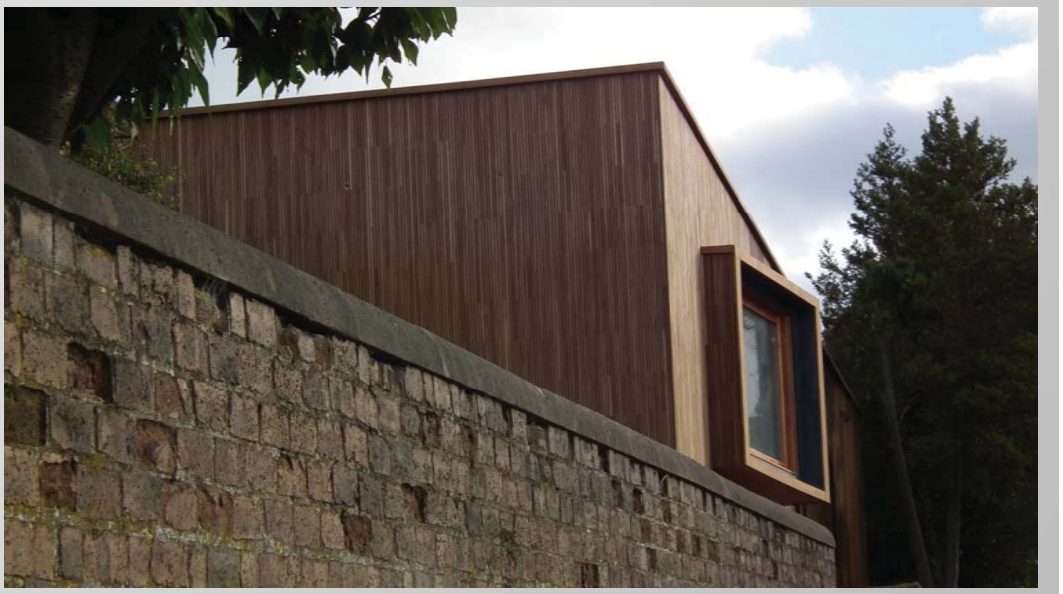
THE GLASGOW SCHOOL OF ART

RESEARCH EXCELLENCE FRAMEWORK 2014

MACKINTOSH SCHOOL OF ARCHITECTURE

Dyer House, Falkirk.



How can a contemporary dwelling satisfy a demanding environmental criteria, sit comfortably amongst Edwardian and 1920's neighbouring houses and create an effective setting for a three generation family maximising views and daylight on a topographically-challenging site?

Submitted by Christopher Platt
Output No.1

NARRATIVE

Narrative
The focus of all the work in this portfolio can be summarised with the question, 'what is place?' The work explores the thesis that the artistic dimension of architecture is the human experience of what we describe as 'place'. The topic is examined through actual built works, reflective writing and analysis of contemporary Swiss architecture and architects exploring similar themes.

The Dyer House is a modest family house which reconciles a demanding environmental criteria (particularly with regards to embodied energy and material and component recycling) with the less tangible issues of meaning, memory and delight and is situated in a suburban setting on a topographically-challenging site. It is an exemplar of a building which draws meaning from an unpromising site condition and transforms that condition into an architectural destination of quality. It demonstrates how it is possible to use an untypical (for its context) contemporary architectural language which nevertheless facilitates the design of a building which enhances and contributes to the characteristics of that same everyday context. This is an issue much misunderstood within local authority planning departments where the insistence on using a local architectural language is the norm, regardless of the constructional or cultural culture informing the design. The project has wide relevant lessons for small, contextually-driven projects in small towns and suburbs.


The completed building

CONTEXT

Context

At the beginning of the 21century, it is arguable whether the building of individual dwelling houses can be environmentally justifiable. Current environmental orthodoxy claims that the most important characteristic of the sustainability movement is empirically-quantifiable building performance, leaving other, less easily measurable values, such as delight, meaning, memory and sense of place of little relevance within a design criteria. Whilst it is rightly a matter of ethical responsibility that all buildings perform at the highest environmental level, history suggest that environmental performance is not the key issue in establishing longevity in architecture; arguably sustainability's most fundamental characteristic.

This tension between the measurable and the immeasurable has become more prevalent at different times in history e.g. between the engineer and the artist at the end of the 19th century/early 20th century (at the time of the Glasgow School of Art's opening), between the sociologist and the architect in the 1960's and now between the scientist/environmental engineer and the architect at the beginning of the 21st century. It is within this tension, that this project operates.

Question

How can a contemporary dwelling transcend a demanding environmental criteria, restrictive planning guidelines and unpromising site conditions to connect a family to the memories and values of a personal history in an architecture which maximising views and daylight to create a delightful place for dwelling? How can architecture be created from the tensions between the measurable, empirical nature of a brief and its less tangible aspects?

METHODOLOGY

Methodology
The design process involved the following tools and procedures:

1. Accurate topographical and photographic analysis of the site and its physical environs.
2. A series of regular (and intensive) face to face conversations with the client both at their previous home (also located on the site) and in the architect's studio.
During this period, the aim was to establish some essential quantifiable accomodation requirements, but also to 'read between the lines', listen to the clients' chance comments and build up a relationship of trust in order to discover the deeper dreams and aspirations of the client.
3. Hand sketches, measured drawings, physical models, computer-generated drawings were all developed and used to both explore and present the developing design to the client. These tools were employed to test the design against the initial design criteria.

General Description
The project consists of a new family house, built on a steeply-sloping part of an existing garden in suburban Falkirk in central Scotland. Contemporary architecture of any distinction is scarce in Falkirk and within residential suburban enclaves almost unheard of. The clients, who were still living in their existing 1970's villa when we were commissioned, were husband and wife GPs, were about to retire from their nearby practice and wished to 'downsize' and live in a smaller house than their current home. The new house was to be capable of occasionally accommodating elderly parents and grown up children with grand children at different times. The design and the construction was to maximise energy creation and retention and exploit where feasible, recycled materials and components.

View to existing house and through driveway

View back towards existing house with through driveway (site for new house)

View of existing rear garden

The brief therefore involved the demands of a run-of-the mill suburban setting, requirements for the highest environmental standards and use of recycled materials, a social, inter-generational agenda as well as less tangible qualities and ambitions of the client surrounding past experiences in other countries and qualities they valued. This modest building answers the questions posed by the inherent tensions between these issues. Those issues included, family sociability, a particular quality of daylight and the memory of an upbringing in an African country. The task was to synthesise these issues to inform a work of architecture which both looked comfortable in its physical setting, performed to its contemporary criteria and yet transcended those same factors to connect its inhabitants to the memories and values of a

personal history through the creation of a sense of place. It uses the process of editing and composition to establish the appropriate presence for often conflicting value systems.

Both the Linsiader (described in a separate paper and output) and the Dyer House in Falkirk contain almost identical programmes yet radically different settings. Using similar technology and construction system of timber frame assisted by steelwork and externally clad in timber, each project displays contrasting means of expression. Both projects explore the question of how to use the physical and cultural context to generate architectural ideas within a tightly constrained technology. Linsiader acknowledges typology and makes a 'quiet' architectural statement while Falkirk breaks with typology and speaks louder within its context.

Context and Research Methods

- Site analysis.

All our work at studioKAP begins with a close study of the physical and cultural context in which a new design will be located. This is usually about distance and proximity, i.e. factors which are up close and aspects which are far away as well as characteristics which are visible and others which are hidden. A topographic survey was commissioned to establish levels, contours and the location of existing trees and landscape as well as underground and overground service runs. Photographic studies were done of the neighbouring buildings as well as the immediate and distant views. On one side, the existing 1970's house (located as it was on a corner site), broke the pattern of the neighbouring Edwardian semi-detached dwellings whilst on the other street a series of 1920's bungalows established a looser, yet regular street arrangement.

- Planning Department guidelines and discussions.

Whilst the building was not located in a conservation area, planning guidelines stated the normal presumption that any new buildings would reflect or continue existing local architectural forms and qualities. The general presumption is that what is of quality in any period, can be replicated in any other period, regardless of the constructional or environmental culture which prevails at the time. This is one of the key shortcomings in planning policies generally and one which we invest considerable time in unpicking with each project we build. The Dyer House is a good example of how this cultural presumption has been transcended successfully to produce a piece of contemporary architecture with authentic character which makes a positive contribution to the scale and character of its physical surroundings.

Through a series of face to face meetings with the planning officers, our initial design strategies were presented to make the case that the most appropriate solution lay in locating an atypical (for the context) flat-roofed building parallel to the street, utilising a steeply-sloping existing driveway.

- Client ambitions and aspirations- measurable and immeasurable.

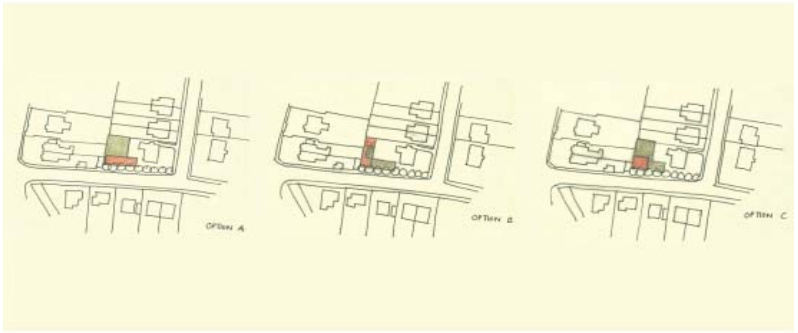
There are measurable factors and immeasurable factors that the client expressed during the initial briefing/discussing period. From our very first conversation, before we had been formally commissioned, it was clear that they held a strong ethical view on the use of the world's resources and the importance of being environmentally responsible in all aspects of their life.

Their existing house and site for the future dwelling, located a few minutes' walk from the train station gave quick and reliable direct connection eastward to Edinburgh and westward to Glasgow. In wishing to 'downsize', they felt that their existing garden had the capacity to host another dwelling and almost as importantly, would allow them they to continue to use public transport and minimise car useage. Their only justification for building a new building was that it was to have as small a carbon footprint as possible with maximum use of recycled materials and components and that its procurement and construction was considered in the light of energy consumption, locally-sourced materials and expertise. That concern extended beyond the building specification to issues such as where the main contractor would travel from on a daily basis. These priorities were measurable and to an extent quantifiable (i.e. they could be assessed against financial or other criteria).

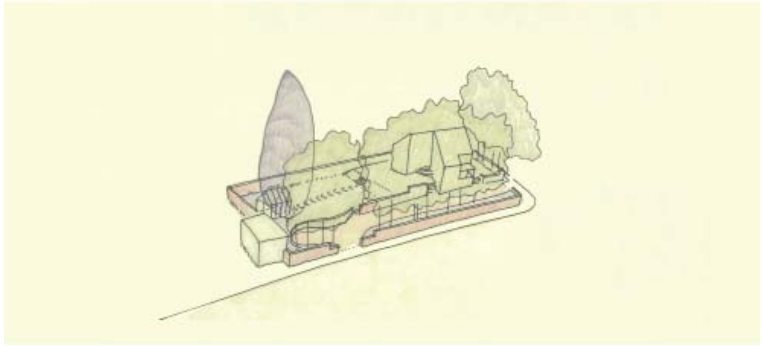
One of the clients had been brought up and graduated as a doctor in Zambia, while the other (also a doctor) had worked in Malawi. There was a more intangible desire on their part to feel part of that previous world they had inhabited (and to which they planned to return for short voluntary working periods during their imminent retirement). This desire extended from the use of certain materials to an ambition for a certain quality of daylight and a relaxed, sociable interior to share with family and friends of different generations as well as with their church choir which practised regularly in their existing house. These aspects were more difficult to translate into measurable requirements and so were understood by us as 'values' to aspire to without knowing quite how they would manifest themselves physically in the design solution.

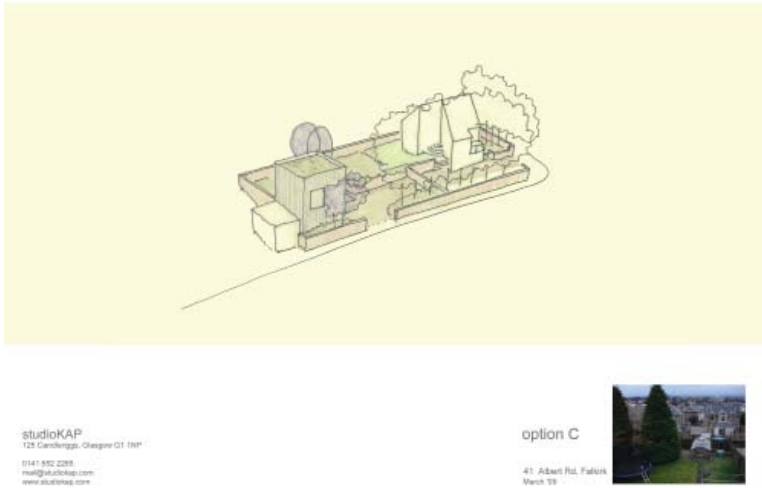
- Detailed design involvement with a main contractor who had previous experience working with the architect together.

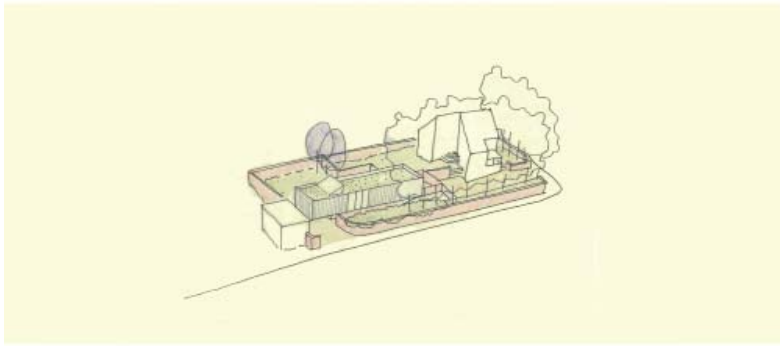
Initial costing estimates by contractors suggested that the building design exceeded the clients' initial budget. In order to satisfy the clients' requirements that the overall size and design of the building remained unchanged, one of those contractors who was initially invited to provide a cost estimate on the initial planning drawings, was invited to negotiate a price with the quantity surveyor whilst working closely with the architects as the tender documentation was developed. This allowed the contractor to influence details as they were being developed in the architect's studio, as a means to containing costs and maximising their input as experienced builders. This was only effective because a close working relationship had been built up over a 10 year period between architect and contractor through the delivery of nine built projects together. In particular, this influenced the detailed design and execution of the external cladding material and system which was developed by architect and contractor together.

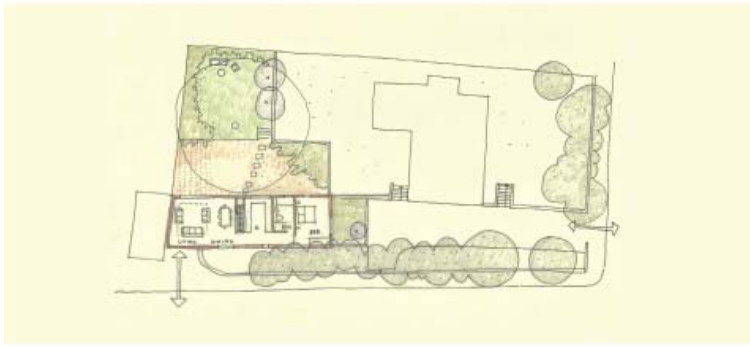


Three design strategies discussed with planning department and client. Option A became the final design.







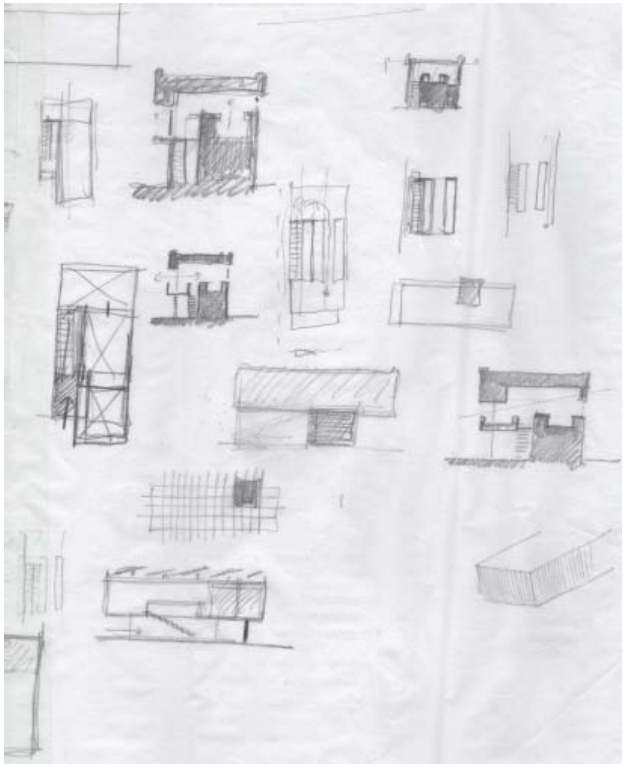


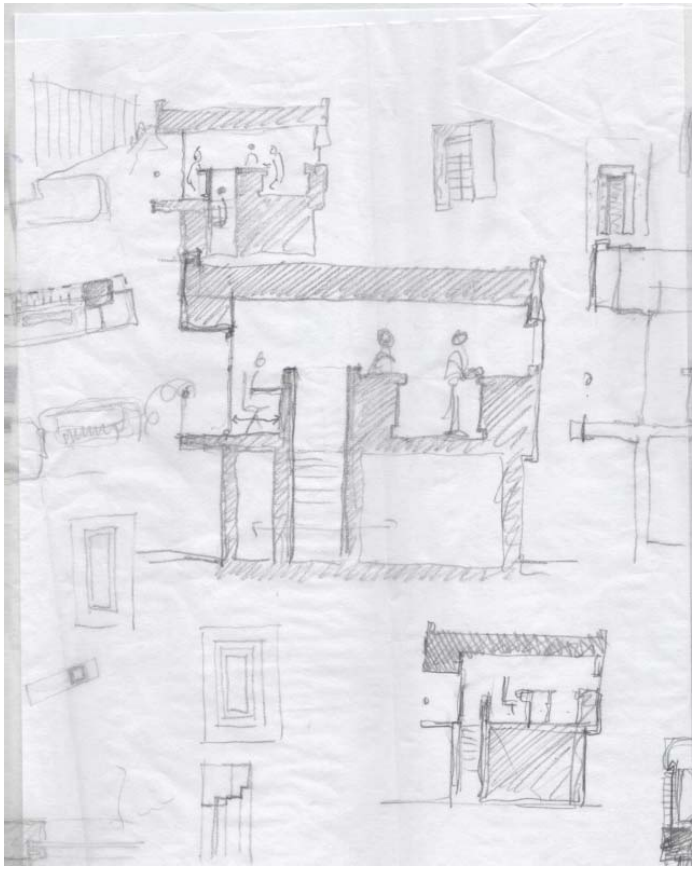
Option A outline design proposals

Aims and Objectives
The particular part of the site chosen to build on was a private route - a driveway from one public road to another. The challenge was to turn this route into a destination; literally a place to dwell. That place was designed to contain special qualities of delight which the clients would experience. It was to both connect them firmly to that particular piece of a Falkirk garden; a place which they held in affection and where they physically wished to set up home (for the second time), while on the other hand, reconnect them through association and memory to distant, happy experiences in Zambia and Malawi.

Within a physical context of surrounding suburban houses from Edwardian to post war periods as well as the close proximity of the existing brick, 1970's villa, the new building had to strike the right note in finding its own cultural as well as physical space. Making the most of the existing garden for two, rather than one household and retaining as many of the existing trees as possible added further constraints to an already demanding situation.

The design strategy exploits the constraints to innovate a solution to satisfy the brief. The building internally creates an upper and a lower world and the journey from one to the other reinforces the qualities of the site. Externally, the house establishes itself as a street building with a courtyard strategy of approach, arrival and entrance. The two internal worlds find their expression externally by a composition of a timber-clad vessel resting on a stone –clad plinth. Both materials are reclaimed from other buildings and make immediate visual connections to their physical surroundings. The stone plinth extends the existing stone garden wall language and the narrow Iroko slats provide a less literal link to the tree branches which brush against them.





Two early design sketches exploring sectional development of timber vessel 'upper world' and solid plinth 'cave'.

The journey from lower to upper world can be interpreted as one from 'cave' to 'bird's nest'; from a solid-feeling, homogenous entrance hall (expressed through an exposed concrete floor and stair and matching walls) to a series of bright, daylit timber and glass spaces above. This modest architectural promenade is conceived as a climb up the site and ends in a relaxed series of white-painted spaces floored in recycled African Opepe timber allowing the clients to be physically connected on a daily basis to material that was grown on the continent they love so much. The exploitation of the 'haptic realm' to both solve a practical problem (what material to walk on) as well as making a cognitive connection to the building's users characterises the approach to the design. The 'two world' design strategy also allows the client to live conveniently on one level while having additional space (guest bedrooms and shower room on the lower level) discreetly-located at their disposal for extended family visits. This spatial parti avoids the problem of a couple living within a 'baggy shell' where only a proportion of the space is used full throughout the year.

Conclusion

The Dyer House in Falkirk is an everyday exemplar of an environmentally-informed design which transcends the fundamental constraints of site, budget and planning restrictions to create a work of architecture that addresses a series of issues related to the retirement generation. These include the demands of physical downsizing whilst also being able to accommodate elderly parents, grown up children and grandchildren for certain times throughout the year; the desire to have a tangible connection to aspects of a past history and memory and particularly in this case, the need to adjust to sharing their house plot with a new occupier.

The resulting building transcends these constraints and uses a contemporary architectural language to enhance its physical context to create a series of quality internal and external spaces to suit a complex inter-generational and social criteria. In doing so, it displays lessons applicable for wider applications than the single family house.

The success of the design lies in the combination of fruitful relationships and imaginative ideas. Whilst this underpins all good architecture in our experience, the close engagement between the architect and the key parties bore particularly fruitful results. A close, trustful relationship between architect and client allowed open discussions about the clients' deeply-held and personal values and aspirations to be aired and accomodated. By discussing three different design strategies with the planner at an early stage face to face, a dialogue was established which helped steer the design to the most fruitful architectural destination without the disruptive process of planning rejection, appeal and subsequent delay. Through an existing close relationship with the contractor and an ongoing body of experience together, innovative detailing was collaboratively developed. This found expression particularly in the reuse and formatting of recycled Iroko floorboards for the external cladding with a system which avoided the use of visible face-fixing and which made a significant contribution to the building's appearance enhancing its surroundings .

DISSEMINATION

Dissemination

Professional Journals:

- 5 House by 5 Practices, in *The Architect's Journal* 06.12.2012 vol. 20. no. 236 pp 52-57 .
  This is an illustrated description of the project including an architect's general description and detailed explanation of a key building element (in this case the large window). It is cited among 4 other exemplary UK house projects which forms the main content of this issue.

Public Lectures**:**

- UCD Dublin, April 2012 (Youtube, March 21 2012 by ucdarchitecture).
- Sint Lucas School of Architecture, Ghent, 2011.
- Faculty of Architecture, "Federico 11", Naples 2011.

Public Exhibition:

- Public exhibition designed by studioKAP : 'Snap Shot'.
  'studioKAP exhibition celebrates a decade's work', reviewed by Urban Realm in www.urbanrealm.com, March 29th 2012.

Impact

Esteem Indicators

- 2012 Saltire Housing Award shortlist.
- 2012 Glasgow Institute of Architects commendation

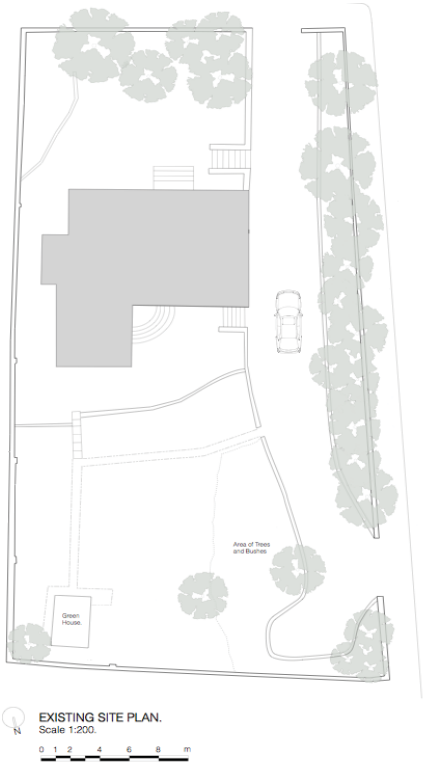
Development Work and Photographs on Completion

Reference Images

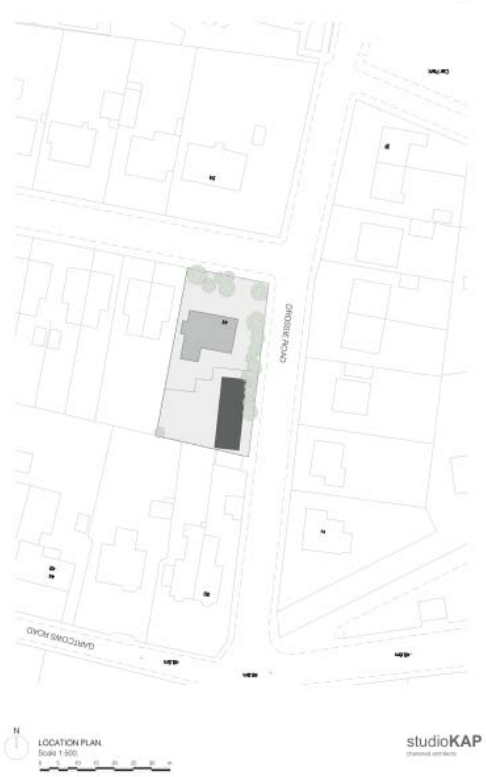
Narrow strip timber cladding without visible face fixings: Atelier Peter Zumthor, Haldenstein, Switzerland
Architect Peter Zumthor 1986-86.

Narrow strip timber cladding without visible face fixing: Alvar Aalto House and studio, Ruhities, Helsinki
Architect: Alvar Aalto 1934-36

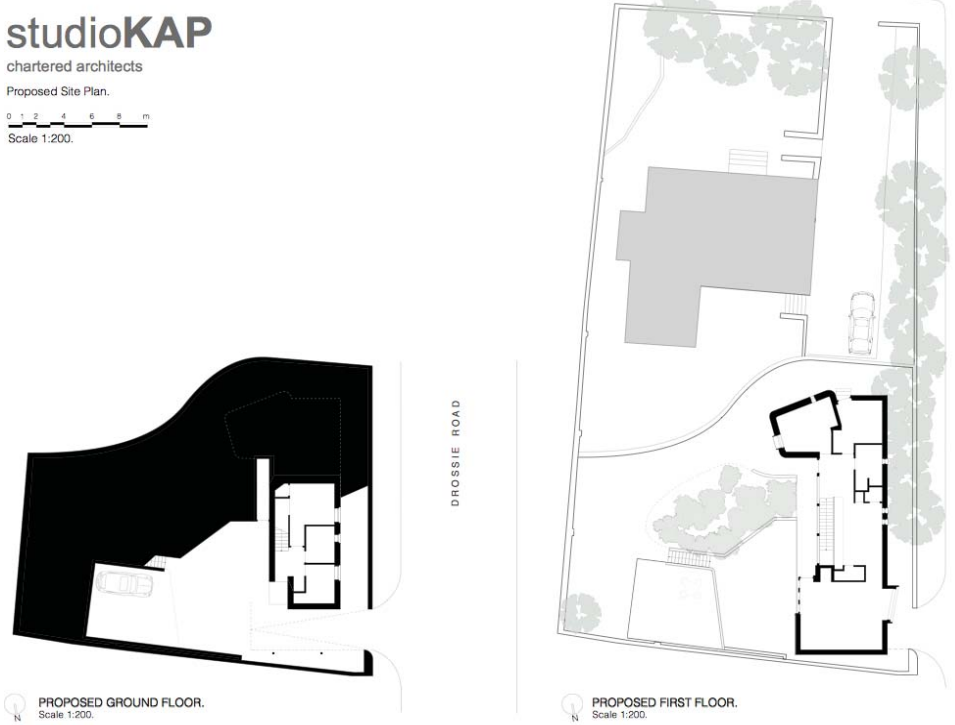
Jorn Hagen vertically boarded shuttering which informed the vertically boarded shuttering for the retaining walls.



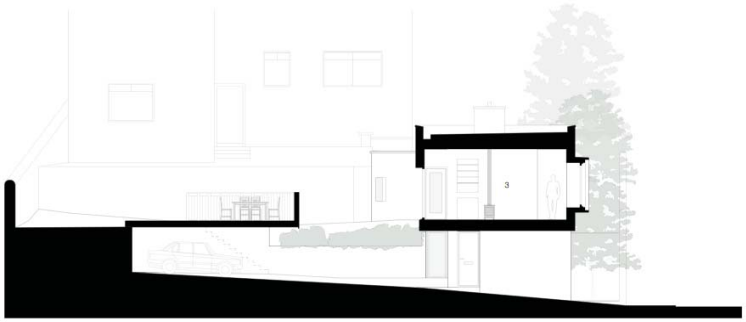
Existing site condition showing position of existing house and through driveway which became location for new house.



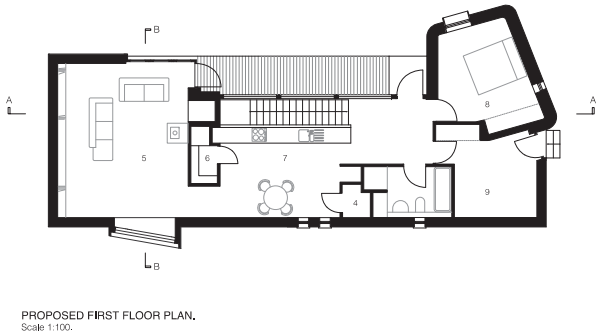
Site plan showing existing and new house positions.



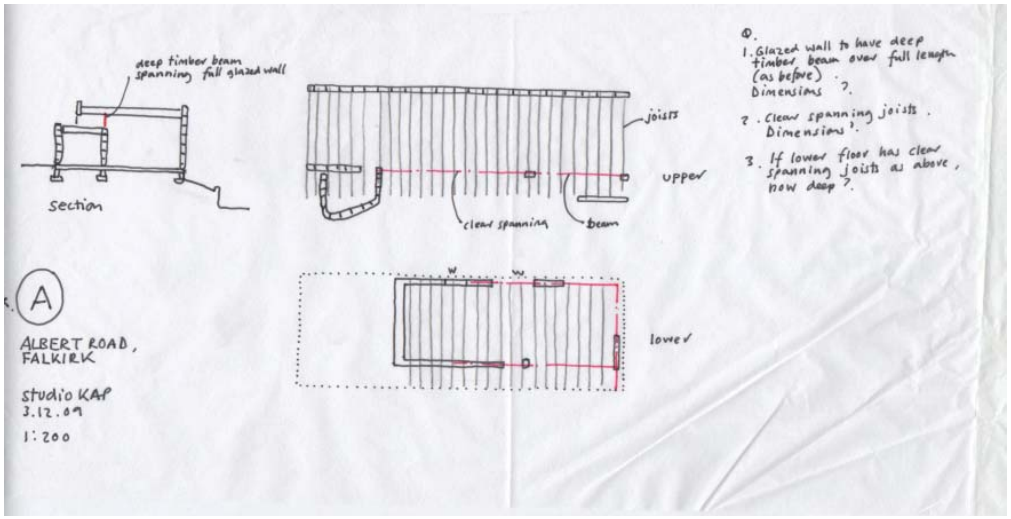
Lower and upper floor plans showing sequence of approach, arrival and entrance.



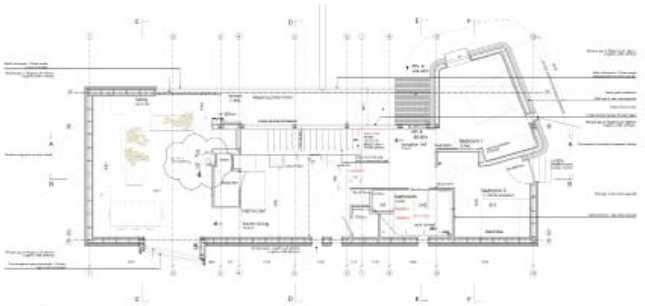
Sections through house showing the 'lower' and 'upper' worlds



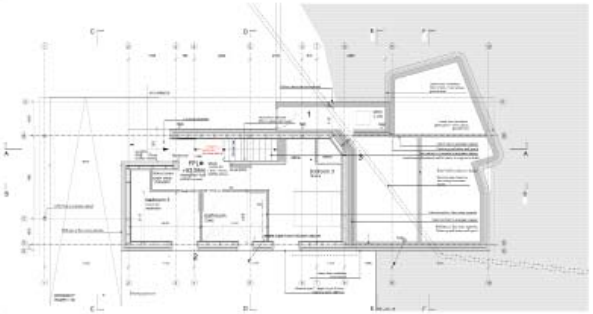
Lower and upper floor plans showing the compartmentalised
Lower floor for occasional visitors and the more open nature
Of the upper floor for the client couple.



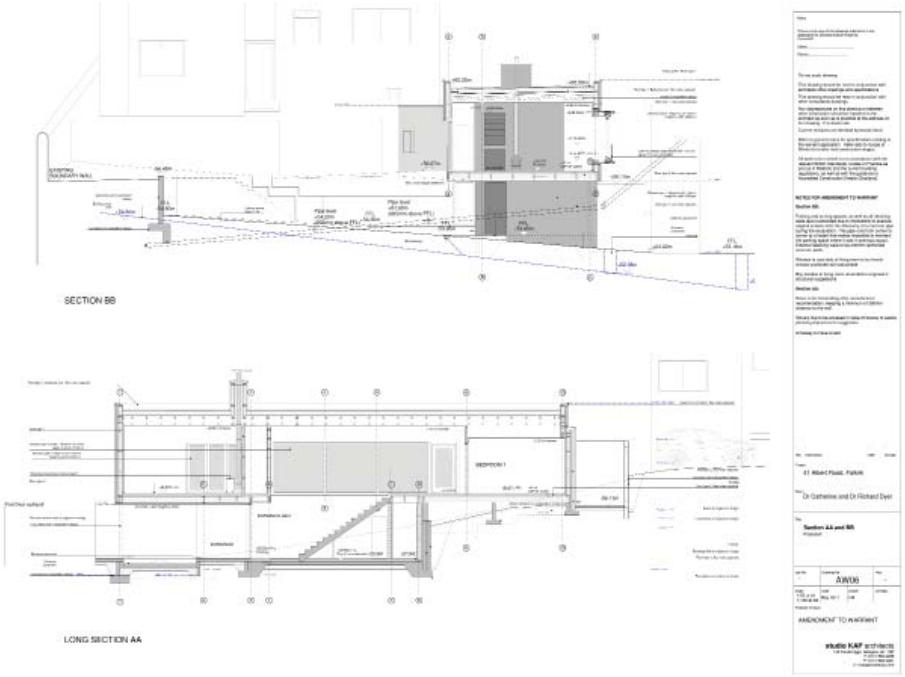
Early structural sketch by architect for discussion with structural engineer.



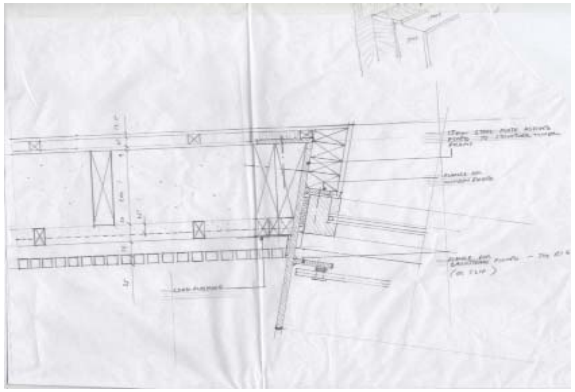
PROPOSED FIRST FLOOR PLAN



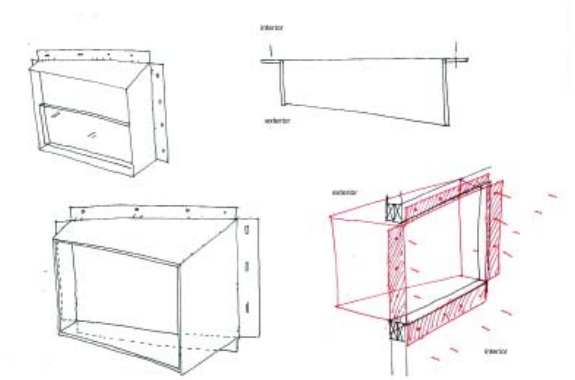
PROPOSED GROUND FLOOR PLAN



Working drawings showing the contrast between the upper timber 'vessel' and the lower, more solid 'plinth'.



An early detail study of window with steel surround (rejected on structural and aesthetic reasons).



Further early studies of steel surround for large window.

1 - 12.5 Plasterboard and skim
2 - 25mm SW battens
3 - 9mm OSB Sheathing
4 - 200mm Hemp insulation packed between structural timber stud
5 - 25mm Pavatherm plus insulation.
6 - Building paper.
7 - 25x25mm vertical battens. Ventilated cavity.
8 - 35x35mm horizontal battens.
9 - 25x25 Vertical larch rainscreen battens with 5mm gap between battens.
10 - 12mm ply board
11 - 150mm Hemp insulation packed between structural timber stud
12 - Double glazed HW window
13 - Ex 100x150 HW frame to window
14 - DPC
15 - Timber subframe.
16 - DPC and flexible point to external join
17 - Timber carcasing.
18 - 12mm ply board
19 - Aluminium sheet cladding with flush seams and no visible fixings, on top of DPM.
20 -15mm laminated glass balustrade fixed to timber stud

WINDOW DETAIL.
Plan. Scale 1:5.

0 25 50 75 100 150 200 250 300 mm

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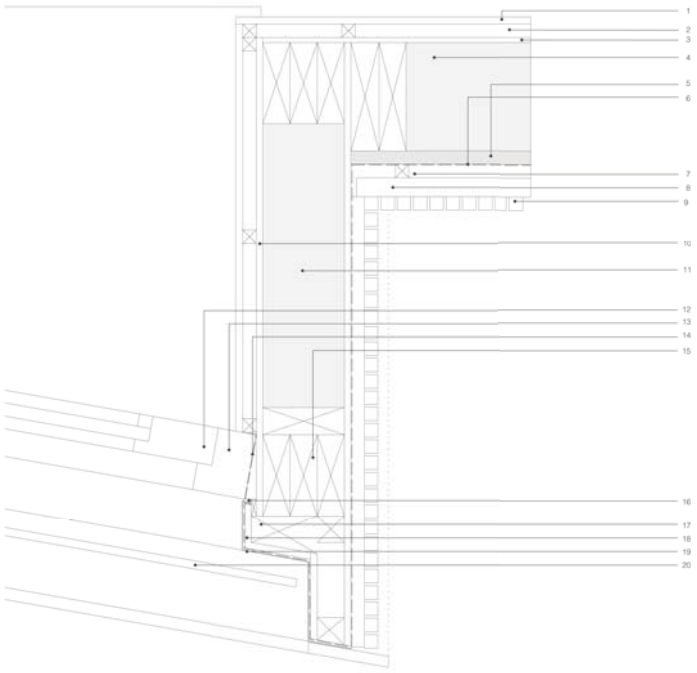
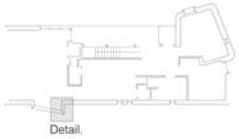


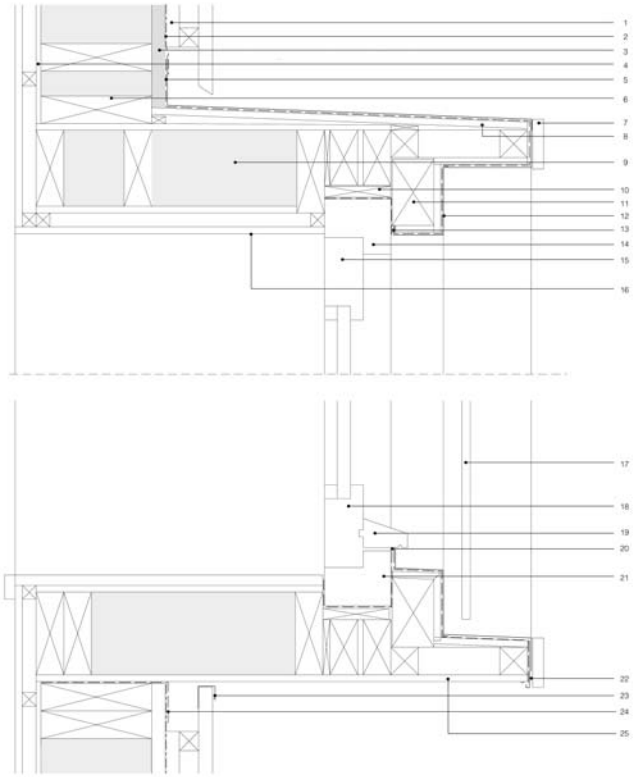
1- 25x25mm vertical battens. Ventilated Cavity.
2 - Building paper.
3 - 25mm Pavatherm plus insulation.
4 - 9mm OSB Sheathing.
5 - DPC beneath Aluminium.
6 - 200mm Hemp insulation packed between structural timber stud.
7 - Aluminium cladding to window.
8 - 12mm ply board.
9 - 150mm Hemp insulation packed between structural timber stud.
10 - Timber packer to HW frame.
11 - Timber subframe.
12 - Aluminium cladding to window.
13 - DPC and flexible point to external junction.
14 - Ex 100x150 HW frame to window.
15 - Double glazed HW window.
16 -12.5 mm plasterboard and skim.
17 - 15mm laminated glass balustrade. fixed to timber stud.
18 - Double glazed HW window.
19 - HW drip.
20 - Ex 100x150 HW frame to window.
21 - DPC and flexible point to external junction.
22 - Aluminium cladding and drip.
23 - PPC aluminium flashing.
24 - DPC.
25 - Painted plywood soffit.



WINDOW DETAIL.
Section. Scale 1:5.

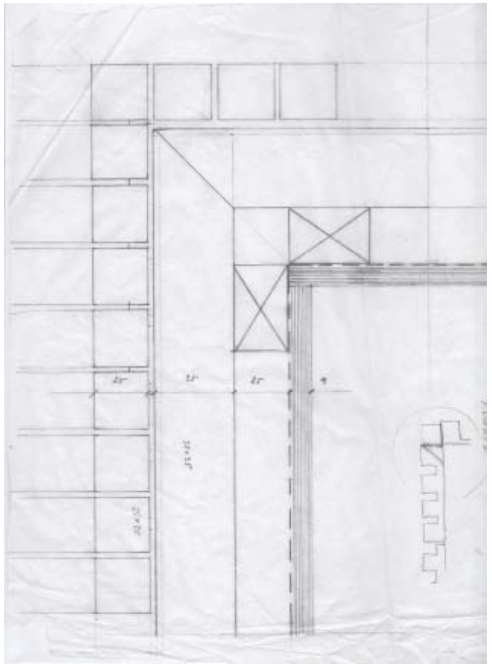
0 25 50 75 100 150 200 250 300 mm

studioKAP
chartered architects



The details of the cladding system and the large window which was developed in close collaboration with the contractor.

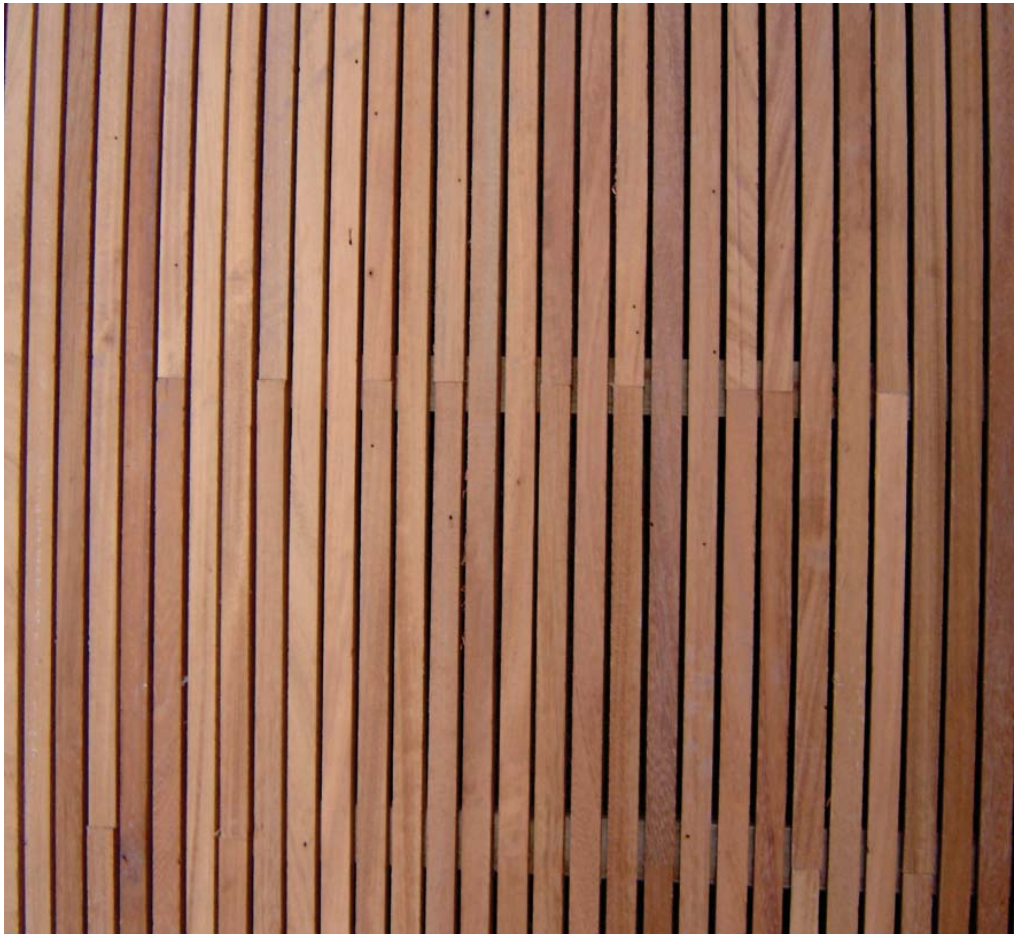
Early detail study of timer vessel structure and stone plinth. Timber structure overhanging lower structure to 'cloak' stone cladding in 'curtain' of timber above.



Early 1:1 detail of cladding exploring setting out and fixing of corner batten.

The development of a template to set out each panel of recycled Iroko strips in the contractor's workshop.

One of the façade panels ready for delivery to site to be erected onto the main structure.



Detail of the cladding panel without visible fixing and only the occasional nail hole (from its former life as floor boards) visible.

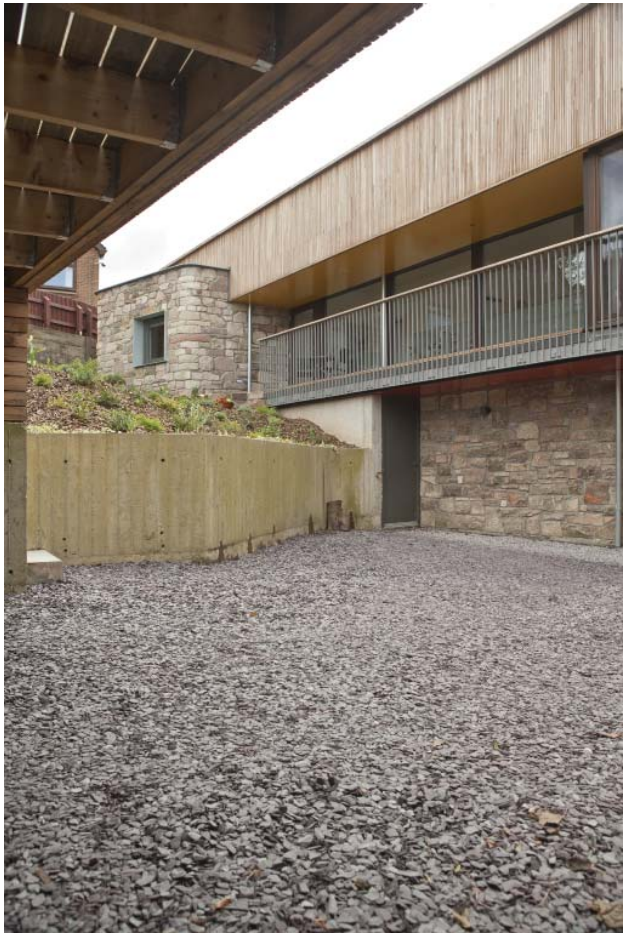
Cladding in place on site.

The 'cave' and 'nest' parti of the overall composition.

Completed Photographs (Tim Dyer Photography)

The private side maximising visual links to the modestly-sized garden and exploiting daylight.

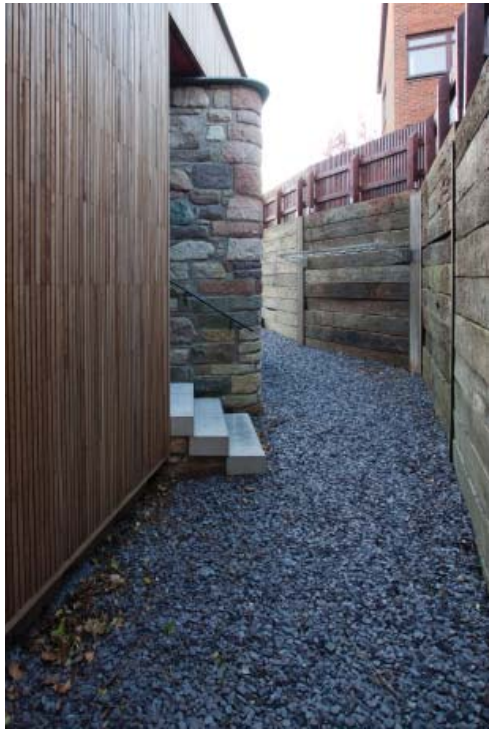
A relaxed relationship between inside and outside.



The difficult topography exploited to create an entrance courtyard of strong character.

The compressed entrance porte cochere sequence.

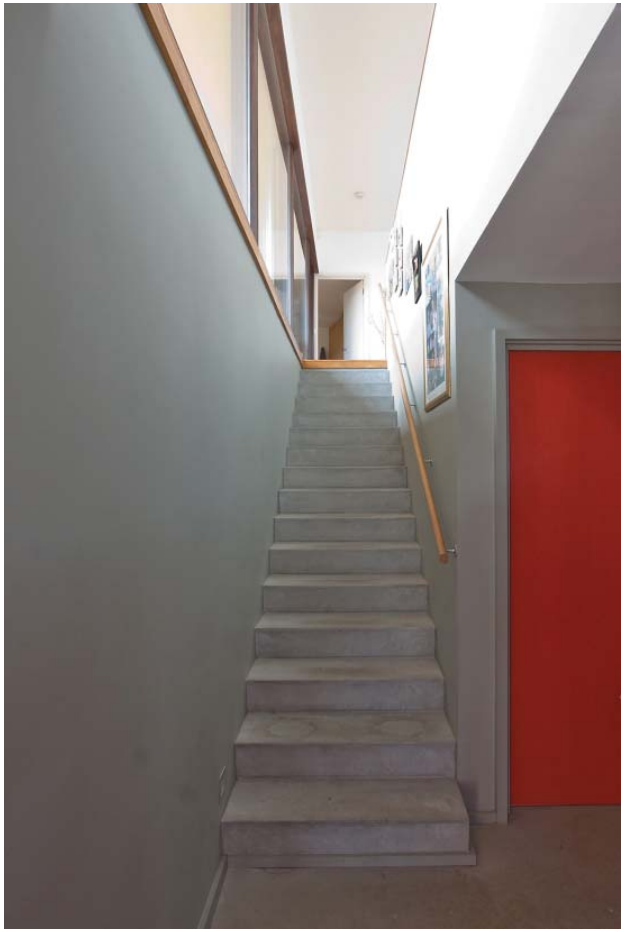
The upper world of African flooring, daylight and open sequence of spaces.



Texture from recycled materials used to generate architectural character.

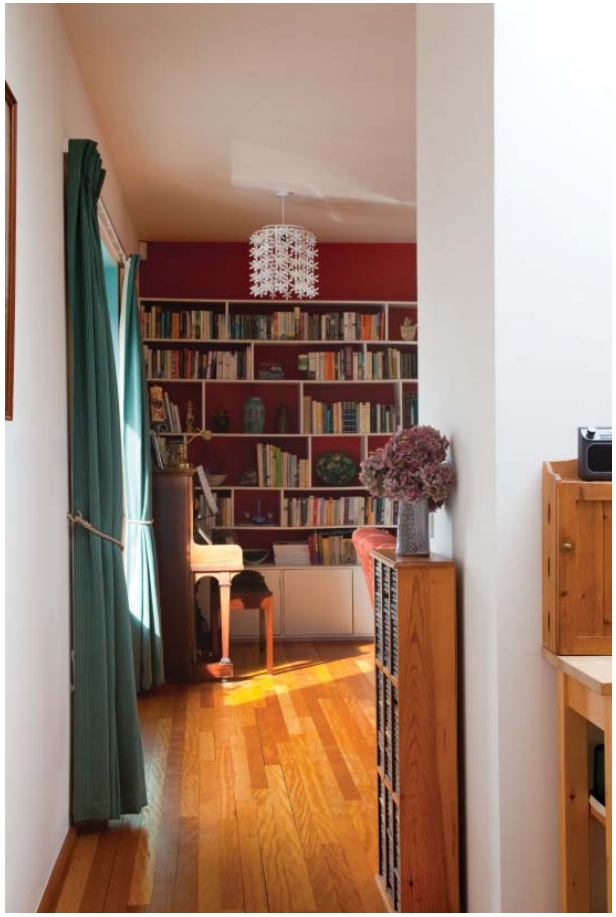
Relationship between tree branches and narrow strip cladding

From dark cave to bright nest.



The lower homogenous 'cave' character of the entrance area contrasting with the brightly-lit upper floor.

Bright timber vessel of main living accomodation



Relaxed sequence of living spaces

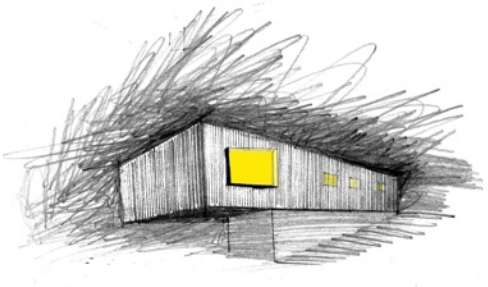
The cladding system extended to the large window element.

The building makes positive connections to the immediate and to the distant context

Appendix

Dyer House, Falkirk

studio**KAP** chartered architects



Project Title: Dyer House, Falkirk

Project details

Architect: studioKAP

Client: Drs Cath and Richard Dyer

Contractor: Standard Construction

Contract sum: £402,000.00

Completed: December 2011

Contract type: Traditional

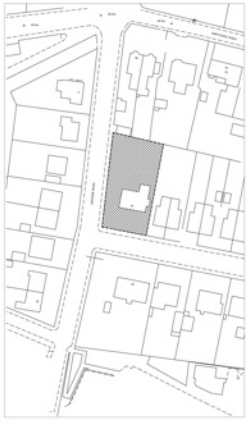
Context: Suburban

No. of homes: 1

Cost per sqm: £ 2,900.00

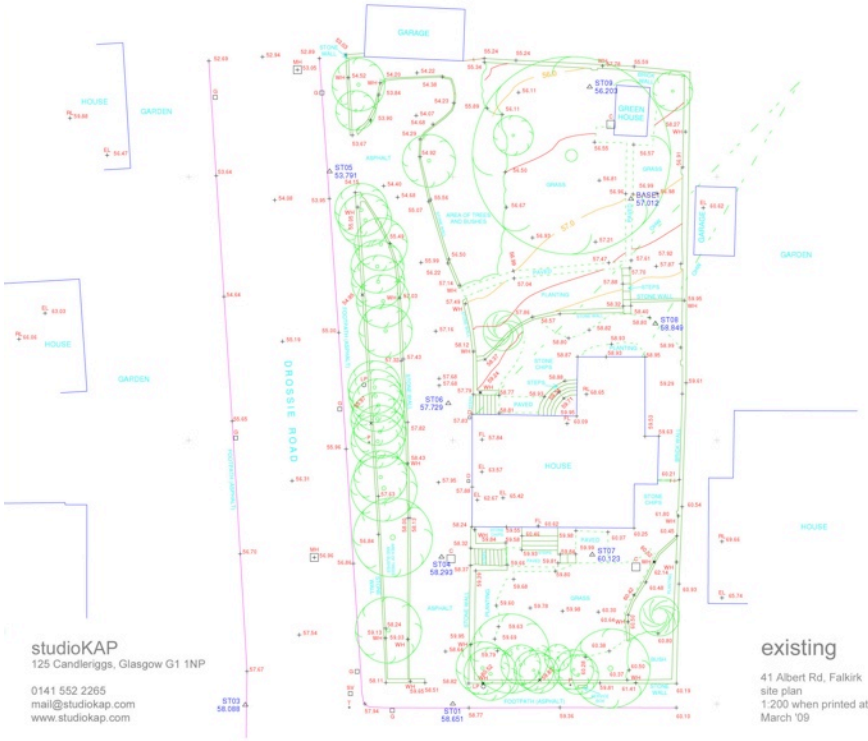
Dyer House, Falkirk

studio**KAP** chartered architects



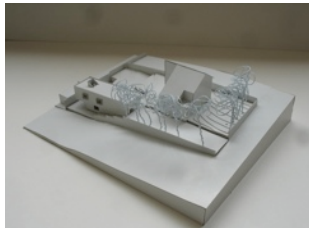
LOCATION PLAN. SCALE 1:500

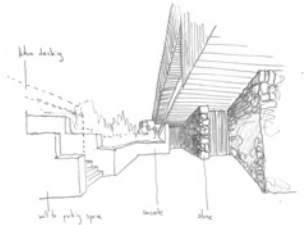
N

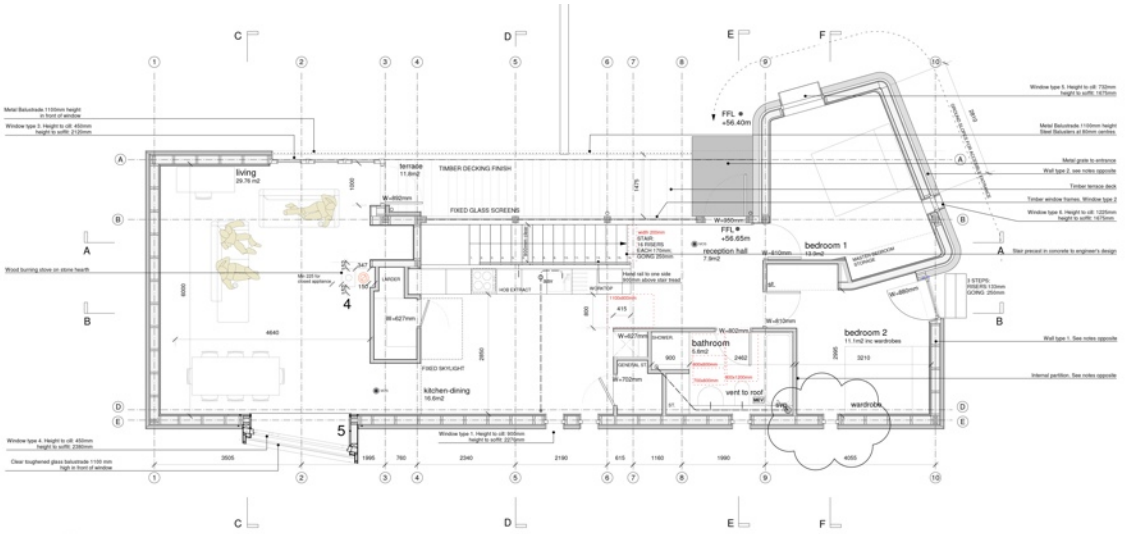


Dyer House, Falkirk

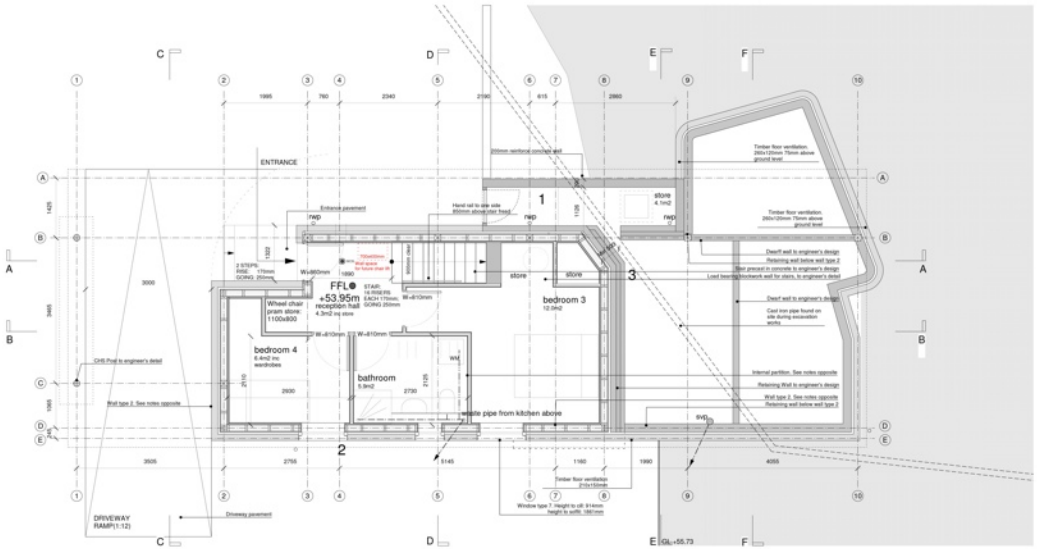
studio**KAP** chartered architects







PROPOSED FIRST FLOOR PLAN



PROPOSED GROUND FLOOR PLAN

Dyer House, Falkirk

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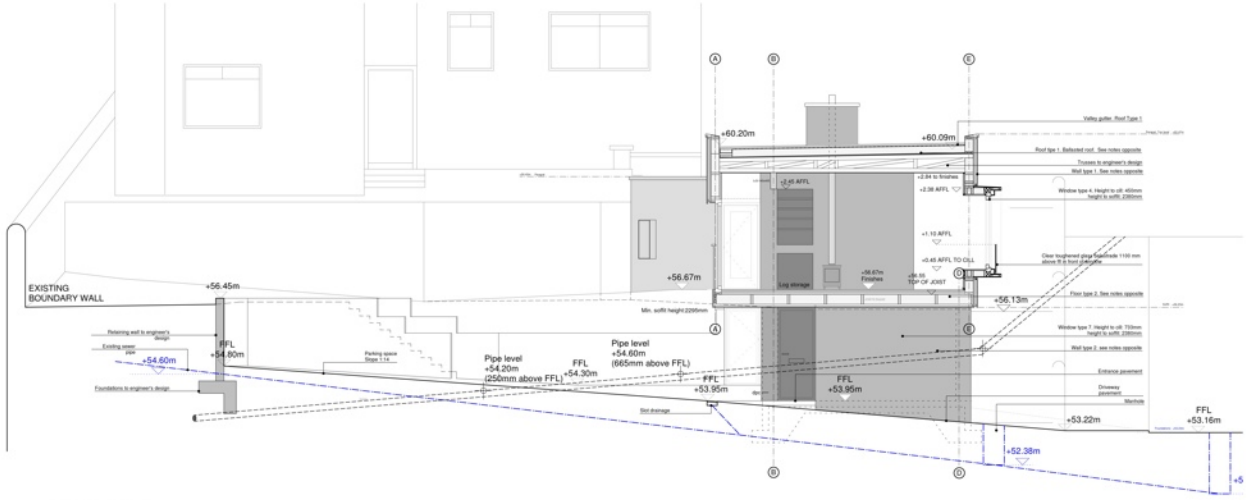
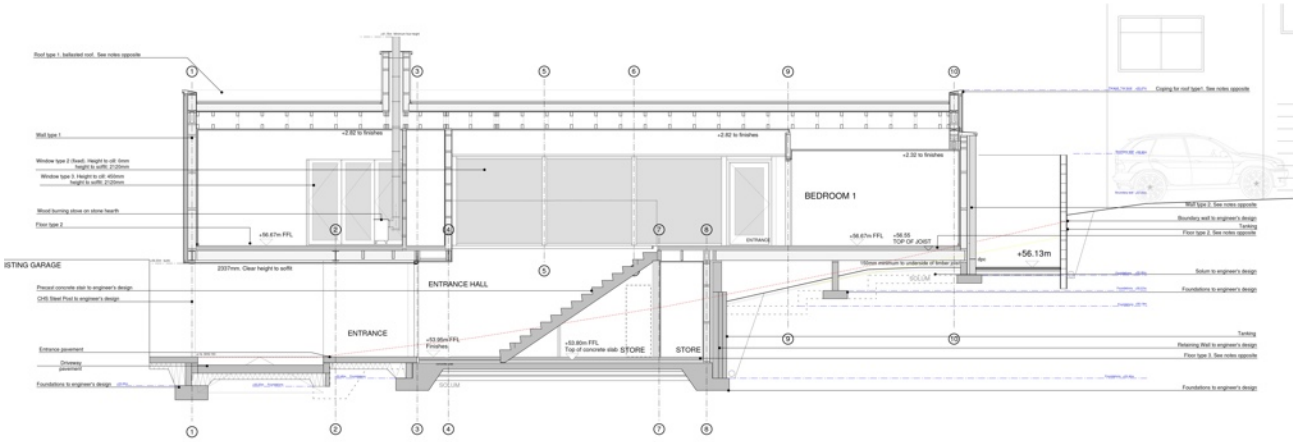


SECTION BB



LONG SECTION AA

Dyer House, Falkirk

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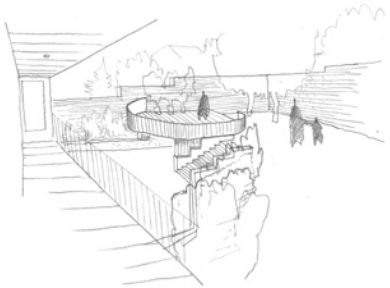

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