RAISE

THE

ROOF

PROPOSITIONS FOR BRIDPORT

FOREWORD

The work in this document was produced by interdisciplinary organisation Assemble in conjunction with Bridport Town Council, Common Ground, Wessex Community Assets and the Arts Development Company.

This document draws together initial responses to the challenge of how good design can enable better development in Bridport.

Our ambition is to draw upon locally available material, cultural and technical resources to design buildings and organise production to enable the construction of buildings which are more ecological, more spatially generous and varied, and more materially and visually rich than what is typically realised in urban and rural contexts today.

These designs are intended to act as a starting point for more detailed discussions with local partners, businesses and organisations and to enable more detailed examination and development of the technical, spatial, industrial and political aspects of the project.

In the short term, we believe the Mansion House type is an option that could viably be taken forward on development sites such as Vearse Farm without major changes to wider plans for the site.

If you are a local construction business, craftsperson, material supplier or are involved in land and resource management in the South West we would love to hear your thoughts and to discuss ways in which we might work together to develop the technical aspects of the proposals.

If you are a local community-led housing group, Housing Association or developer then we would love to discuss how these ideas might be taken forward and tested on a project.

INTRODUCTION

These propositions set out initial ideas for a different approach to the development of sites in Bridport. They are not site specific, but contain principles that could inform approaches to Greenfield sites - previously undeveloped areas of land, such Vearse Farm on the edge of Bridport - but also more urban situations.

Greenfield sites are often agricultural fields within a rural context, and the development proposed on them tends to be large scale. In Dorset and in the UK at large, there are many situations which are similar; in the characteristics of the existing site; proximity to a neighbouring settlement; the proposed volume of new build homes and associated infrastructure; and in the degree of local opposition to the planned transformation.

There are a variety of factors that shape the way in which development of these sites is approached and the form that they take. As sites, previously undeveloped Greenfields are typically cheaper to develop, represent fewer risks and a more stable financial proposition for developers. As an industry and a marketplace, housebuilding in Britain is dominated by a relatively small number of very large companies plays a part in limiting choice compared to other Northern European countries. As a society, we also prize the percieved security and status that individual, private ownership can bring and as a culture, we tend toward the stylistically conservative - for the most part, people want to live in buildings that conform to traditional stereotypes. The consequences are strikingly similar developments across the country, lacking in quality and variety. Habitats and ecosystems are destroyed, while private enclaves and a lack of public, open space produce sterile and isolating environments. In combination, the result is a poor built and rural environment for the people, animals and ecosystems.

Our interest is in how we might adopt a different approach - one that enables more social and communal ways of living together, which is kinder to the local and wider environment, which brings more local economic benefits and reflects specificity of place and culture and which offers a level of variety and adaptability that can enable neighbourhoods and communities to adapt their spatial needs to meet future needs. We will approach this through three scales of thought - strategies which respond to the negotiate site and broader economic and policy questions; building types which negotiate the need for variety and density; and technology which negotiates the need for the building industry to develop way of making buildings which cause less environmental harm.

TECHNOLOGY

Perhaps more than any other, the building industry looks remarkably similar to the way it did 200 years ago. While many homes in the UK are now constructed using newer materials and to more stringent standards, innovation in the way in which houses are actually built has been limited. Recent investment into by Government agencies and the some of the largest housebuilders have sought to bring industrial innovation, particularly automation, into housing production. When operating at capacity, these initiatives can provide well-built homes at a cost reduction of around 20%, enable significantly reduced time on site and greater degrees of consumer-choice.

But there are downsides, too. Dimensionally buildings are constrained by the requirement to transport them on local roads. As they need to be craned into position on site, they require additional which can limit future flexibility. And while consumer choice is superficially attractive, it prioritises a set of superficial considerations over more material concerns: what the building is made of, how adaptable it can be to changing requirements of residents, and the public role that the exterior appearance of individual dwellings play as a backdrop to our collective public environment.

There has been remarkable development in both the performance of materials that buildings are made of and the establishment of common standards which new buildings are expected to perform to. But this is increasingly paradoxical. Stringent standards for environmental performance are driving the design of buildings increasingly to be hermetic and mechanically-regulated systems. The cost of meeting modern building codes has driven the specification of cheap, globally sourced materials that mean the buildings we make today are made of more inorganic material than ever before. Ubiquitous norms governing access and space standards have resulted in a market with a remarkably generic and inflexible set of options.

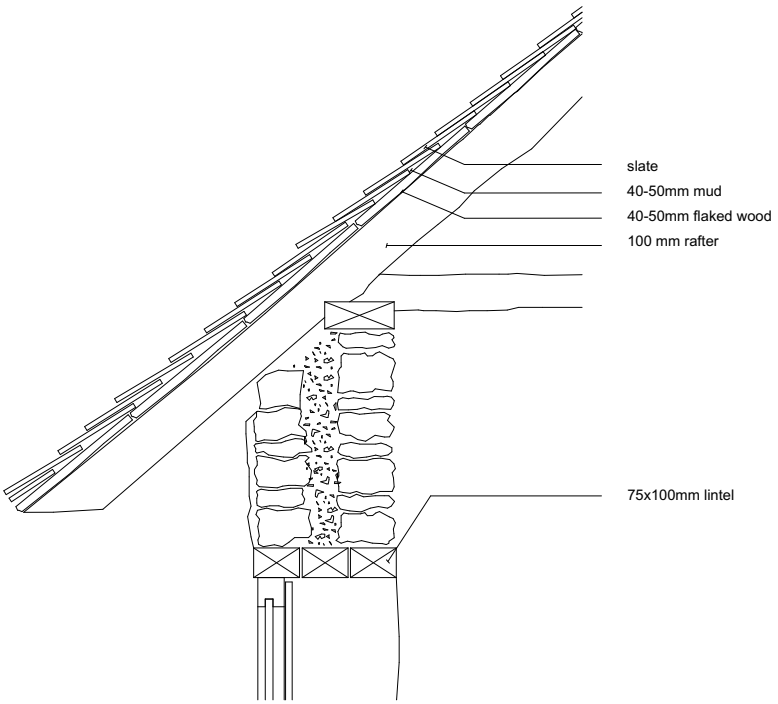
We believe there is an opportunity to think more critically about the application of technology in housebuilding, which learns from historic approaches to construction to create buildings which employ local materials and expertise, are environmentally responsive, and which employ contemporary technology as a means of achieving a wider variety of standards and an increased potential for future adaptability to the chaning requirements of residents and communities.

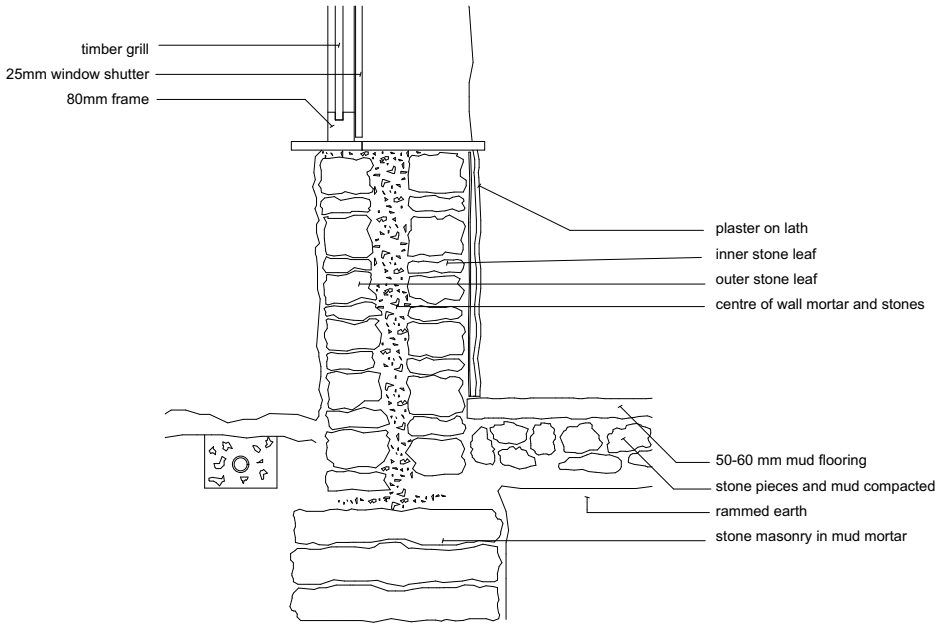
THEN - VERNACULAR

Montacute Street, Somerset

Vernacular stone buildings are the most prevalent building type in Dorset and the South West. The availability of a variety of local stones lend the towns and villages - Blue Lias, Ham, Purbeck and Portland to name a few - each create a strong sense local distinctiveness across the different regions of Wiltshire, Somerset, Dorset and Devon.

The buildings themselves were typically simple and durable. Thick loadbearing stone walls on below-ground stone foundations, with a lime or clay render applied to the interior and exterior walls, allowing them to breath. Openings for doors and windows were typically formed in timber, or more expensive stone. Roofs were formed from timber joists were typically clad in thatch or slate.


slate
40-50mm mud
40-50mm flaked wood
100 mm rafter
75x100mm lintel


timber grill
25mm window shutter
80mm frame
plaster on lath
inner stone leaf
outer stone leaf
centre of wall mortar and stones
50-60 mm mud flooring
stone pieces and mud compacted
rammed earth
stone masonry in mud mortar

NOW - CONTEMPORARY

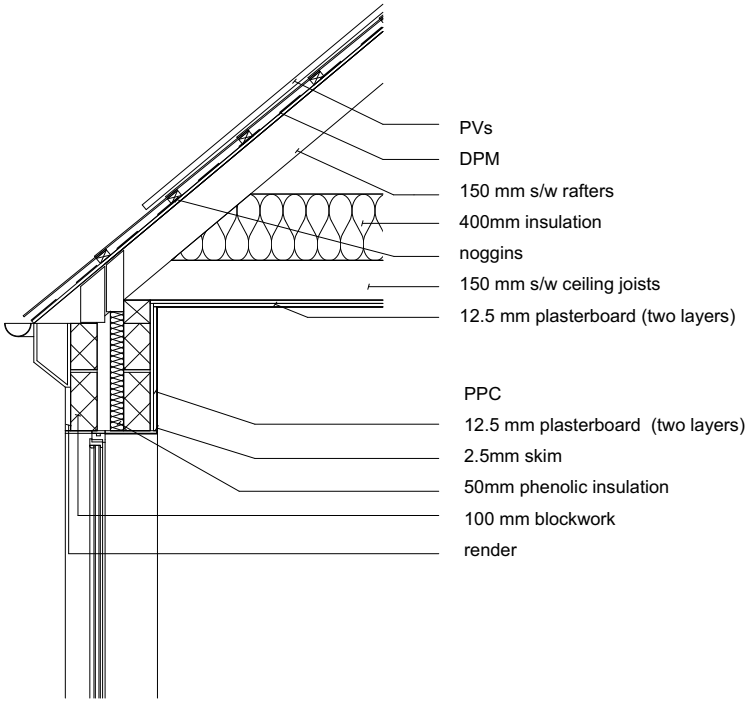
New Homes by housebuilder C G Fry

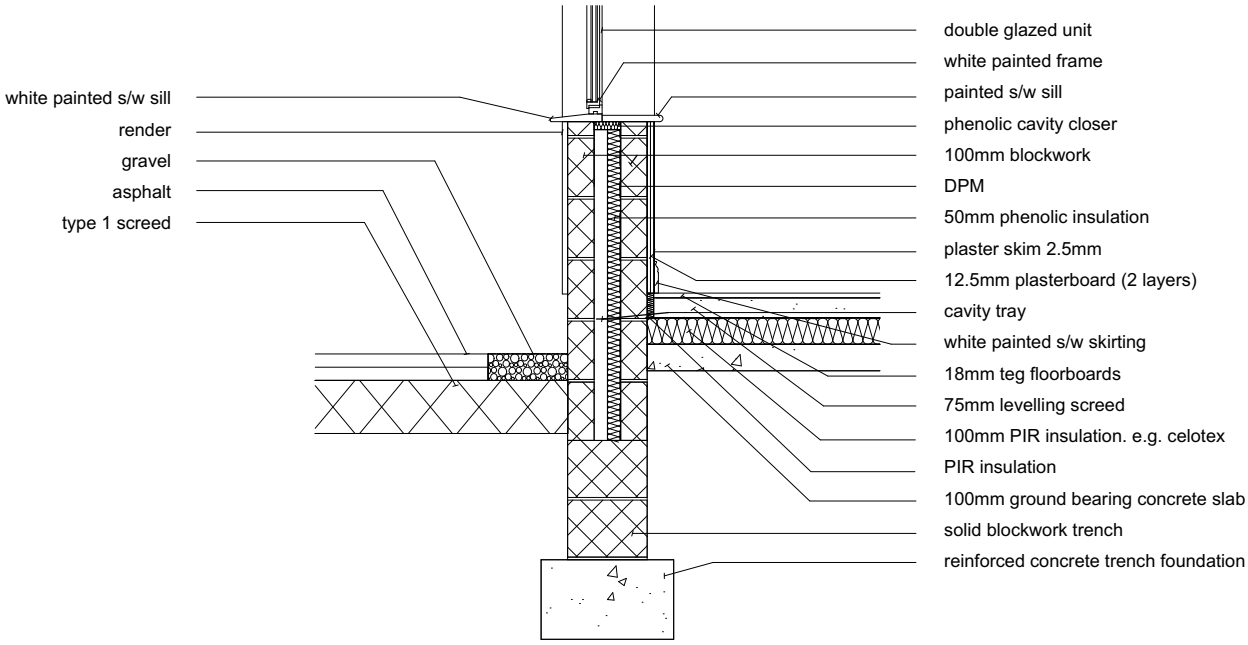
Typical homes built today retain many of the formal characteristics of more traditional house types - but the complexity of construction the nature of the materials and the diversity of sources from which the supply chain draws are all considerably more sophisticated.

While superficially similar, beneath the exterior render are a further 7 layers of construction to ensure the building is better insulated, more air tight and more consistent in appearance and performance.

Concrete block and brickwork with polyurethane or rockwool insulation are used to form the walls in combination with plastic membranes that prevent moisture penetrating the wall buildup. Openings are typically formed using concrete or steel lintels.

The use of timber for windows and doors or stone as a roofing material are increasingly replaced by non-organic materials such as PVC.


PVs
DPM
150 mm s/w rafters
400mm insulation
noggins
150 mm s/w ceiling joists
12.5 mm plasterboard (two layers)
PPC
12.5 mm plasterboard (two layers)
2.5mm skim
50mm phenolic insulation
100 mm blockwork
render


white painted s/w sill
render
gravel
asphalt
type 1 screed
double glazed unit
white painted frame
painted s/w sill
phenolic cavity closer
100mm blockwork
DPM
50mm phenolic insulation
plaster skim 2.5mm
12.5mm plasterboard (2 layers)
cavity tray
white painted s/w skirting
18mm teg floorboards
75mm levelling screed
100mm PIR insulation. e.g. celotex
PIR insulation
100mm ground bearing concrete slab
solid blockwork trench
reinforced concrete trench foundation

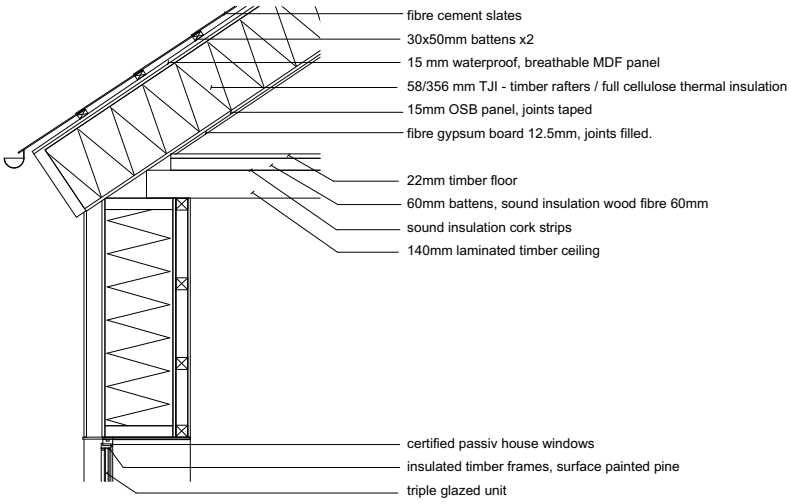
BETTER - PASSIVE HOUSE

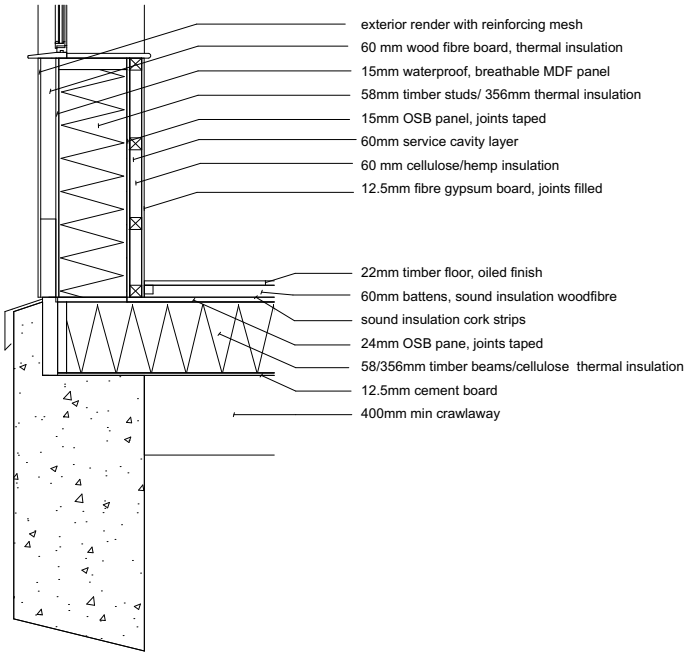
Bere Architects award-winning Larch House

Passive House design is a voluntary standard for energy efficiency in a building, which reduces the building's energy demand by reducing the need for space heating or cooling. A number of design techniques are incorporated to achieve this:

Passive solar design encourages the orientation of buildings and the design of openings to create stable temperatures year round. Planting and landscaping provide shade and cooling. Superinsulation of walls and roofs, triple glazed and low-E windows and frames, high levels of airtightness, natural ventilation and lighting, and recycling of waste heat and water are important aspects of Passive House design.

Much of this is good, but it has drawbacks. It typically involves using many non-organic products that are energy intensive or harmful to produce and dispose of, such as polyurethane insulation. Designs are usually limited, too, with the technology appearing 'tacked on' and unintegrated.


fibre cement slates
30x50mm battens x2
15 mm waterproof, breathable MDF panel
58/356 mm TJI - timber rafters / full cellulose thermal insulation
15mm OSB panel, joints taped
fibre gypsum board 12.5mm, joints filled.
22mm timber floor
60mm battens, sound insulation wood fibre 60mm
sound insulation cork strips
140mm laminated timber ceiling
certified passiv house windows
insulated timber frames, surface painted pine
triple glazed unit


exterior render with reinforcing mesh
60 mm wood fibre board, thermal insulation
15mm waterproof, breathable MDF panel
58mm timber studs/ 356mm thermal insulation
15mm OSB panel, joints taped
60mm service cavity layer
60 mm cellulose/hemp insulation
12.5mm fibre gypsum board, joints filled
22mm timber floor, oiled finish
60mm battens, sound insulation woodfibre
sound insulation cork strips
24mm OSB pane, joints taped
58/356mm timber beams/cellulose thermal insulation
12.5mm cement board
400mm min crawlaway

BEST - ECOLOGICAL

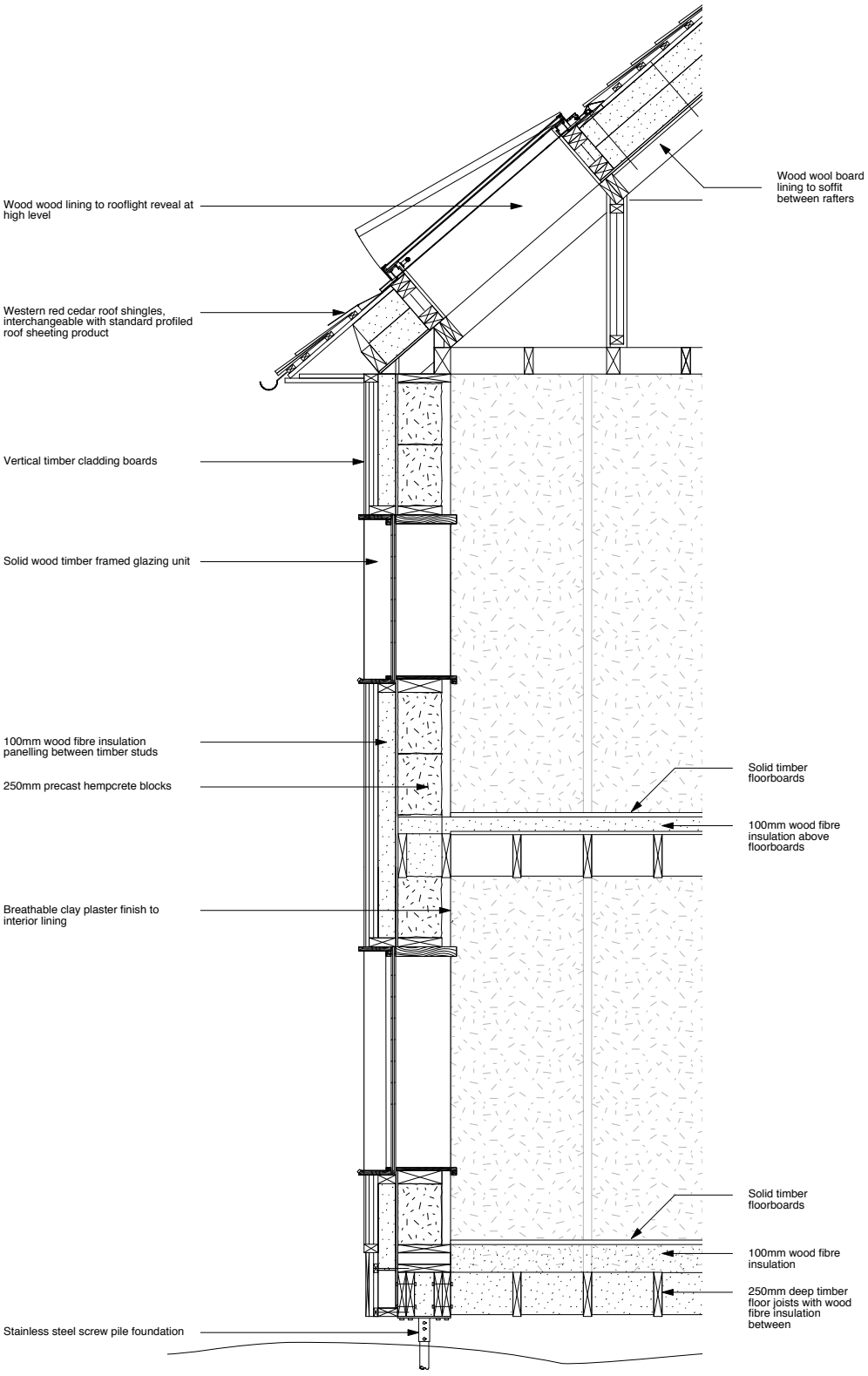
Flat House, Practice Architecture

An ecological approach to construction is an attitude toward use of local materials in construction and a way of approaching building which clsoely relates to the wider environment.

Principally, this approach advocates the use of materials in construction that are available locallyand that are organic and replenishable, with low-embodied energy and toxicity.

It also emphasises the importance of working with the site from the strategic scale down to specific details to make the act of building a practice that is capable of producing an environment that is locally distinct, enhancing the unique characteristics of a location's geography, biodiversity and cultural use.

Buildings themselves should be constructed utilising processes which employ the potential of contemporary technology to enable the production of buildings that have both low embodied-energy and a low energy and water demand. They should be safe to build and easy to adapt.


Wood wool board lining to soffit between rafters
Wood wood lining to rooflight reveal at high level
Western red cedar roof shingles, interchangeable with standard profiled roof sheeting product
Vertical timber cladding boards
Solid wood timber framed glazing unit
100mm wood fibre insulation panelling between timber studs
250mm precast hempcrete blocks
Solid timber floorboards
100mm wood fibre insulation above floorboards
Breathable clay plaster finish to interior lining
Solid timber floorboards
100mm wood fibre insulation
250mm deep timber floor joists with wood fibre insulation between
Stainless steel screw pile foundation

TYPE

Historically, the kind of housing that is built in Britain has closely reflected the ideals and values of mainstream society at the time. The Garden Cities of the early 20th Century spatialised a specific set of ideas about family, community, domesticity and identity which continue to exercise a profound influence on contemporary society.

The Arts and Crafts style played an important role in shaping the character of the Garden Cities, and in the search for something more particularly British after the aberration of International Modernism architects, developers and the wider public were able to appropriate it as a means of incorporating contemporary ambitions with traditional values.

The Arts and Crafts was a movement as much as it was a style, with a set of political, economic and social ideas which were as revolutionary and influential as the Garden City movement itself. Over the last 50 years, very different ideas have underpinned the transformation of housing in the UK, with the major housebuilders superceding the Government as the primary suppliers of new-build homes nationwide. While many of the socially ambitious and radically transformative ideas of both the Garden Cities and the Arts and Crafts have been exorcised, their image continues to be associated with a set of cultural and civic ideals which consumers continue to trust. Equally enduring are the attitudes to density which were established by the early Garden Cities. Low-density sprawl has become a feature of development outside of cities, diminishing common green spaces which planners and architects like Howard, Unwin and Parker aspired to enshrine. With the cost of acquiring Greenfield increasing, more intensive clustering of relatively low-density types is producing less generous shared public spaces than in developments 100 years ago.

The most remarkable legacy is the endurance of the ‘family home’ as the predominant type of market-built housing. While an increasingly diverse society has more varied circumstances and cultural needs than ever before, developers continue to build an overwhelming majority of homes in types which correspond to a view of Britain as a predominantly married, predominantly Christian society.

What are needed is a greater diversity of housing types that offer alternatives to the deeply embedded fictions that the housing sector holds about the kinds of people that make up modern Britain. More than aping a set of stylistic tropes from the early 20th Century, we should dig deeper for the more fundamental ideas that the housing and urban design of the time sought to give form to: new forms of shared ownership and co-operation, improved environmental standards and a culture of building which recognised the role of craft and skilled work in the creation of shared civic environments.

01 MANSION HOUSE

View of Mansion House type

The Mansion House as a type combines the spatial arrangement of a typical mansion block type the density of a detached suburban villa.

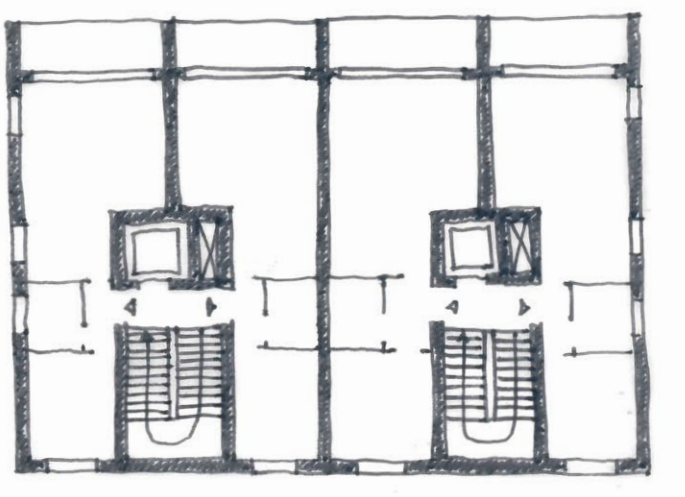
The mansion block was a type that developed in the late 19th Century and represented a particularly British idea of apartment living. In contrast to European apartment models, the plans were often different on every level and flats could spread over multiple levels.

All residents enter through a shared entrance at the centre of the ground floor into a space that has the capacity for communal and social elements. There are two stair cores around which the homes are organised.

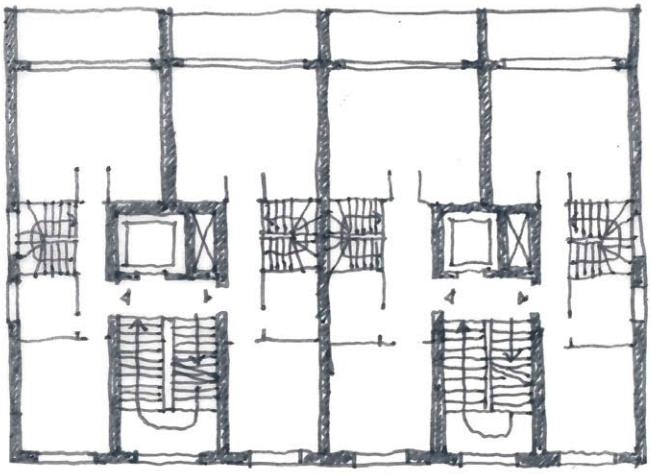
On the ground and first floors are arranged four maisonette homes which have the capacity for 3 bedrooms over 2 floors. On the second floor, within the same plan form is a simple 1 bedroom home.

The plan form of the houses is based on Benson & Forsyth's housing at Maiden Lane in London and arranges rooms relatively flexibly around a core that contains the less flexible services including internal stairs and bathrooms.

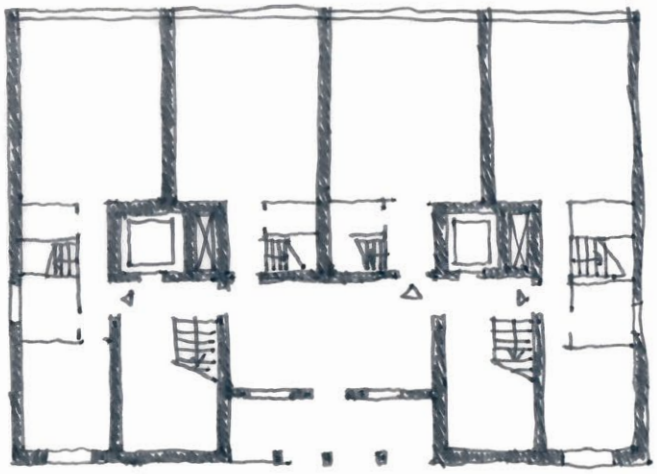
The rear of the block opens up into balconies at first and second floors, providing private external space for each dwelling on top of any communal external spacve provided for around the building.



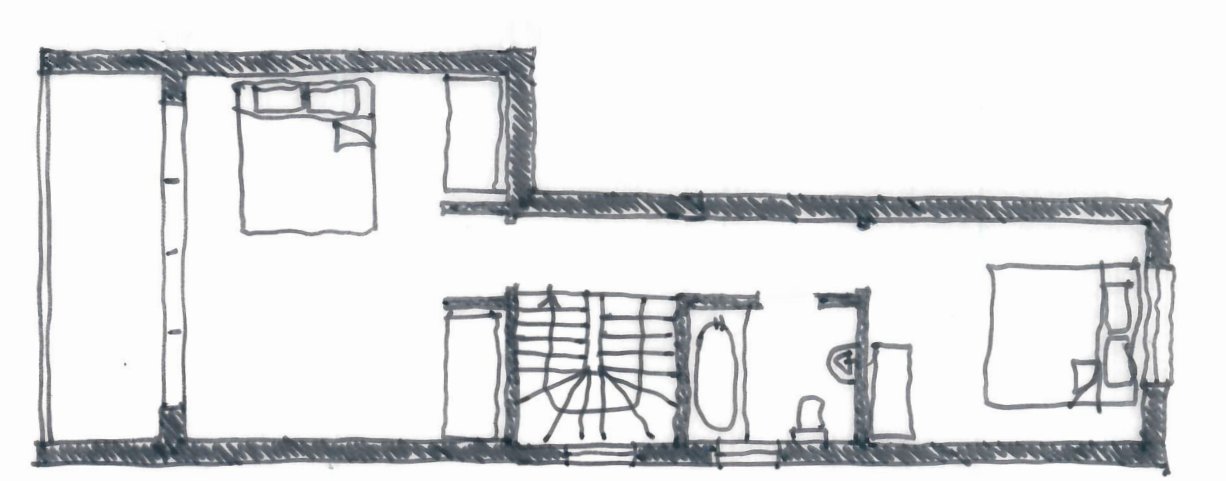
Second Floor Plan, 1:250



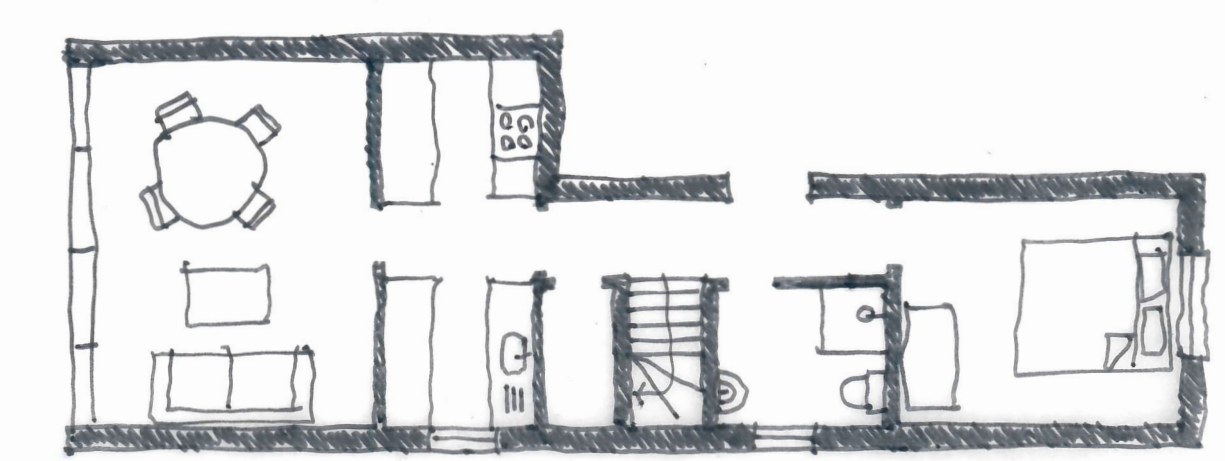
First Floor Plan, 1:250



Ground Floor Plan, 1:250



3B House First Floor Plan, 1:100



3B House Ground Floor Plan, 1:100

02 COURTYARD ROW HOUSES

View of Courtyard Row House type

The courtyard row house is an elaboration on Britain's most successful and prolific housing type - the terraced house.

The basic principle is that rather than consolidating upward on a small footprint as the traditional terrace does, it stretches backwards to make a long narrow footprint with a pair of courtyards.

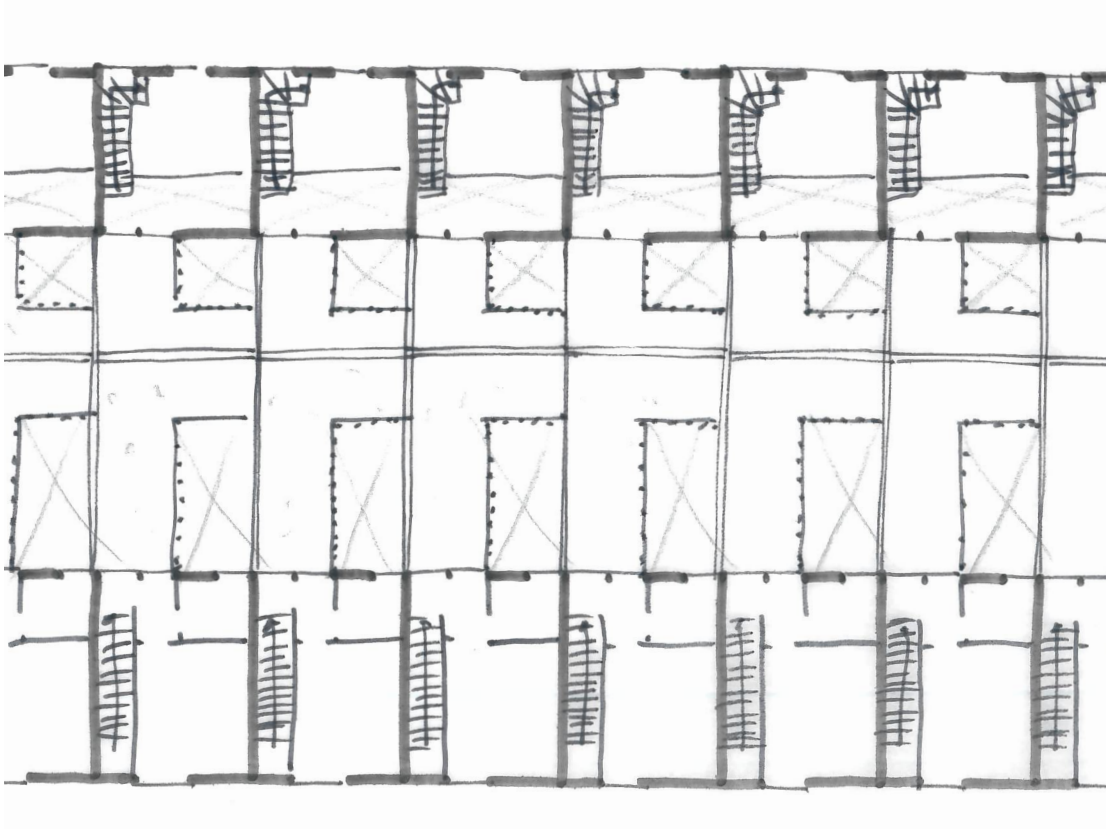
In effect, the house has two faces. There is the principle entrance into the part with the double pitch, which could be oriented along a street for example. And there is a secondary entrance into the part with the monopitch, which could open out onto a mews or a lane. This double-aspect, along with its layout gives it a lot of flexibility.

Accordia, Cambridge. Feilden Clegg Bradley Architects

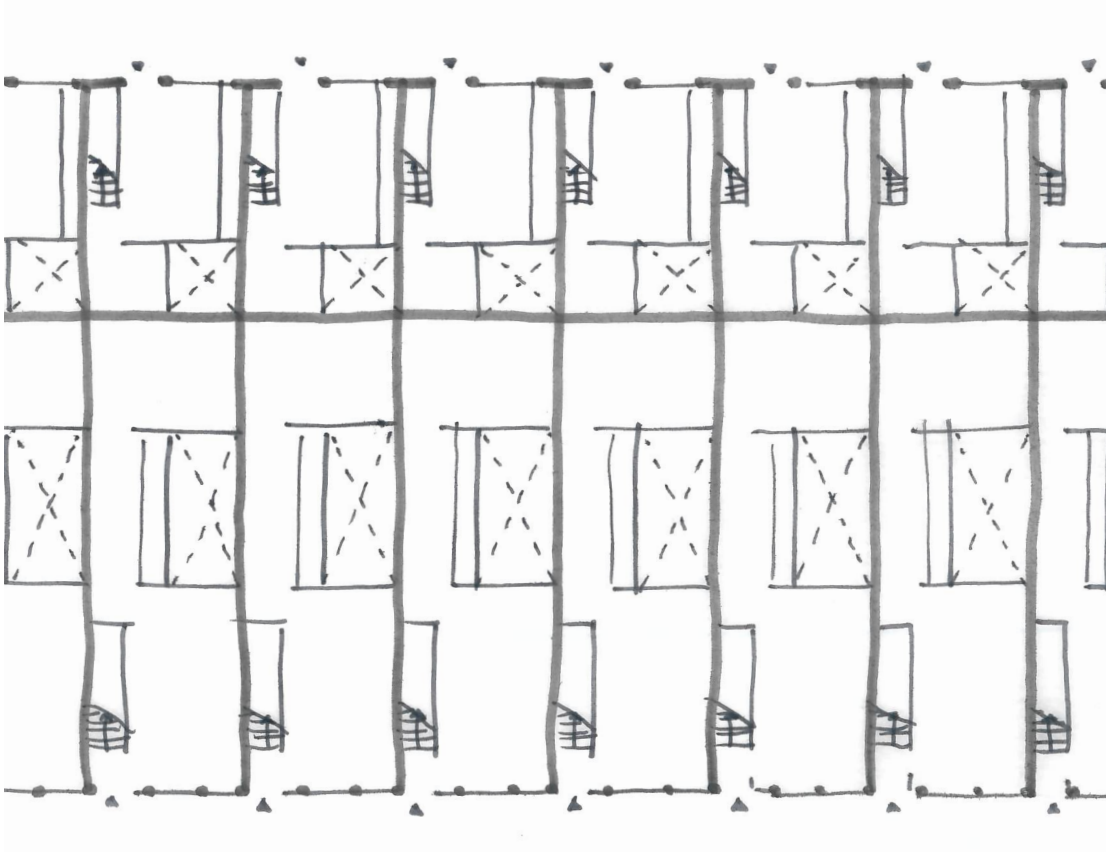
As an example, the version drawn here in the unit plan shows it being split into two homes, a generous two-bedroom house and a small one-bedroom house. But it could equally be a three or four bedroom house if combined.

The plan form also encourages a diversity of ways of occupying it by arranging and dividing the spaces around the courtyards rather than along a principle circulation route such as a corridor or stair.

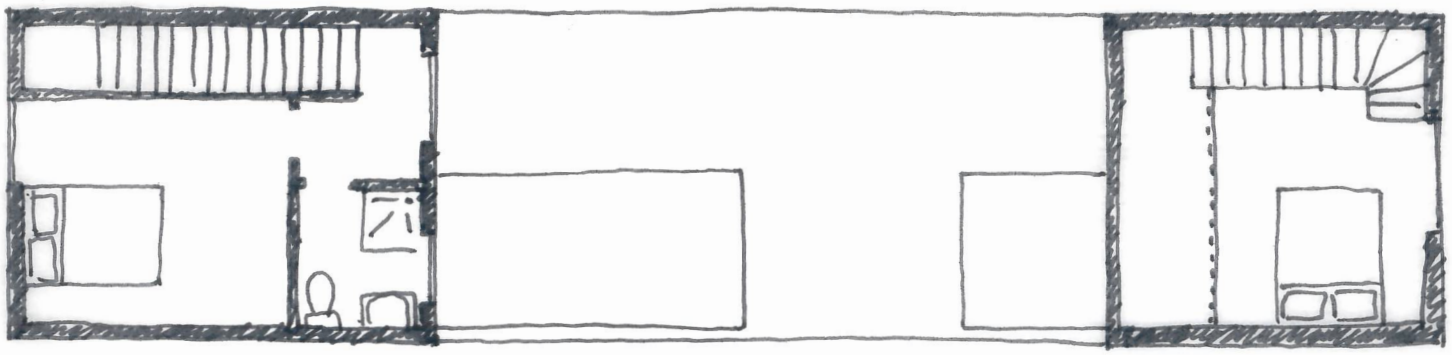
The internal courtyards provide private gardens in addition to any common gardens that surround the blocks.



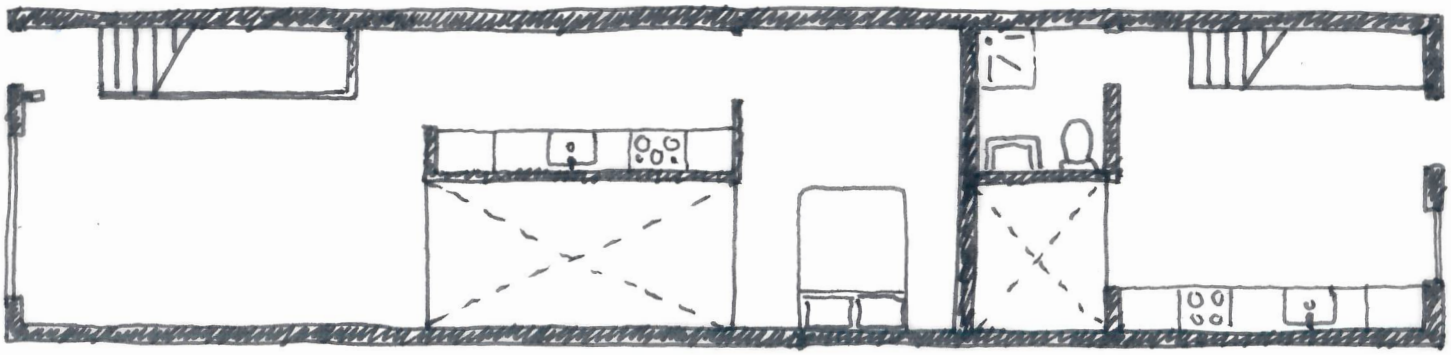
First Floor Plan, 1:200



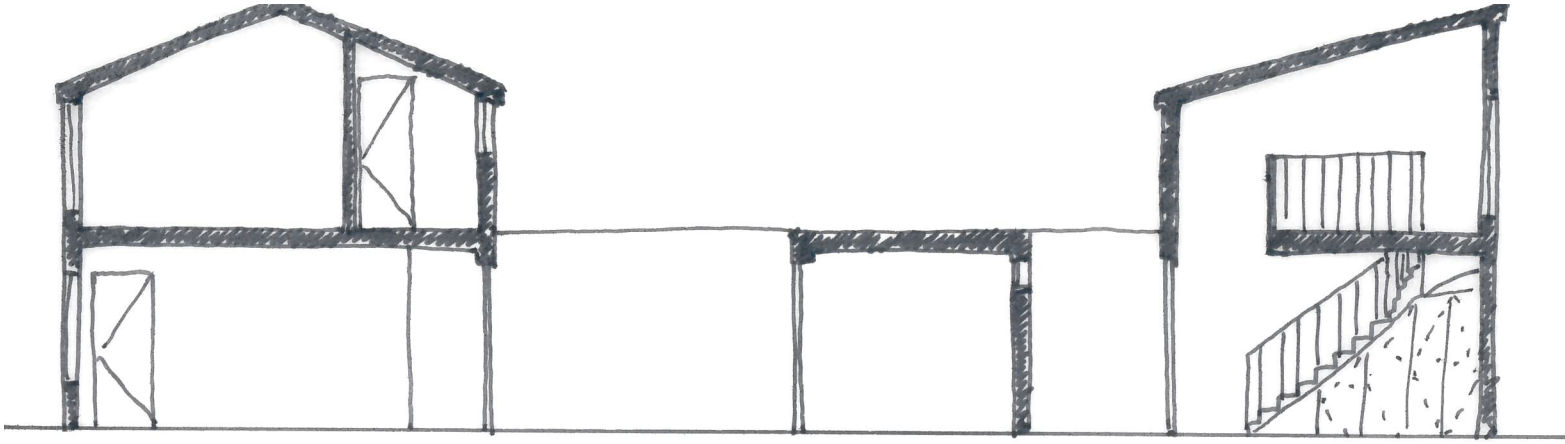
Ground Floor Plan, 1:200



2B House, w 1B House. First Floor Plan, 1:100



2B House, w 1B House. Ground Floor Plan, 1:100



Short Section, 1:200

03 ROW HOUSES

View of Row House type

The Row House is a simple and rational form of terraced house. Drawing on a rich of history of terraced housing, and looking to dutch examples such as the housing at Ypenberg by MVRDV this type looks to create an economic ratio of space to envelope, and an adaptibility of space in the plan.

The plan is arranged around a central service core that in this case contains the stairs, toilets, bathroom and kitchen. In doing so all of the elements of the building that a) are difficult to move, and b) have vertical connections are consolidated into the centre. This allows the spaces around the core to be freely arranged according to the inhabitants.

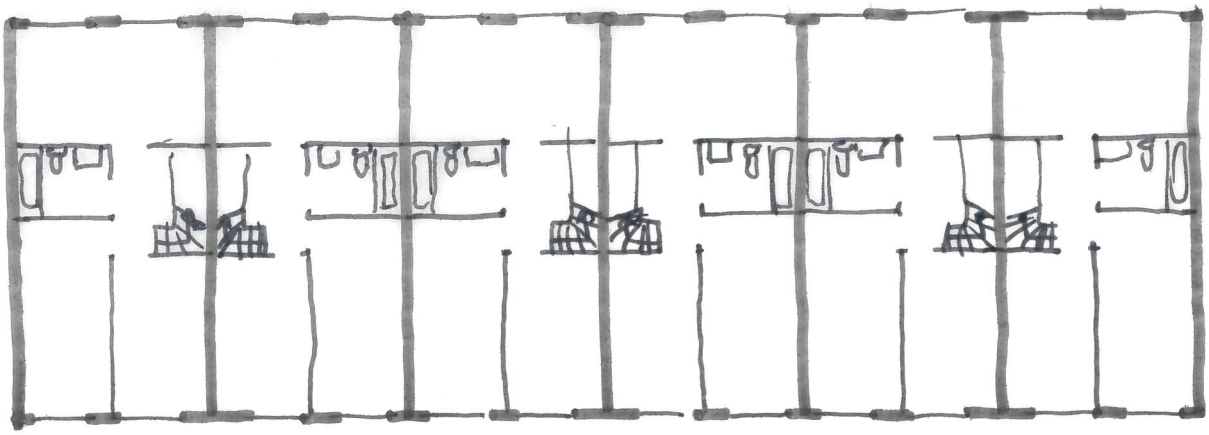
Communal Housing, Netherlands, MVRDV

As an example, it can accommodate a 3 bedroom house with a generous living and dining room downstairs or as a 4 bedroom house for example.

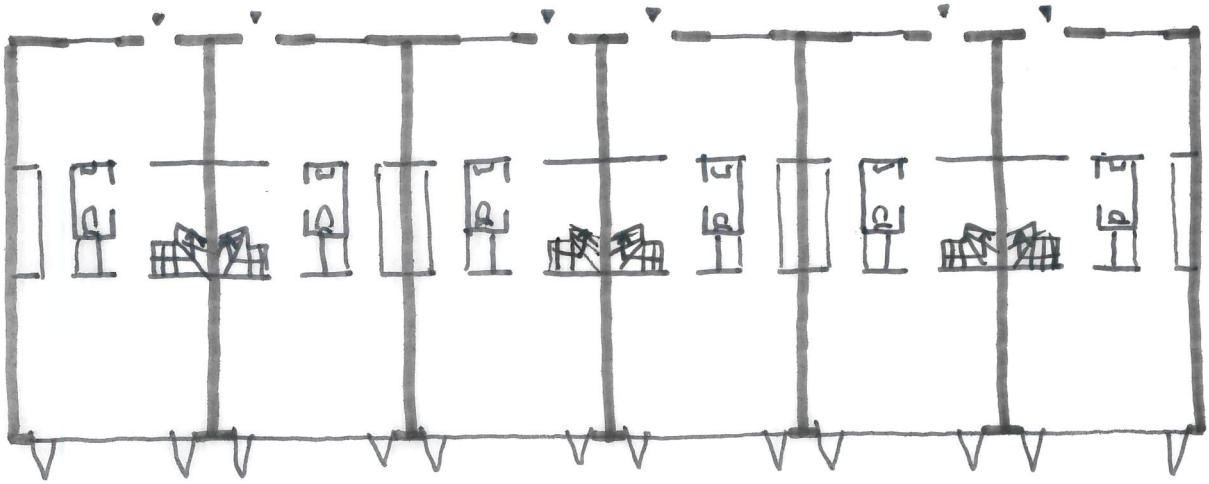
The pitched roof allows for the possibility of extra space within the roof - whether for storage, an additional room, or other use.

The virtue of these houses lie in their simplicty, which would make the construction very economical.

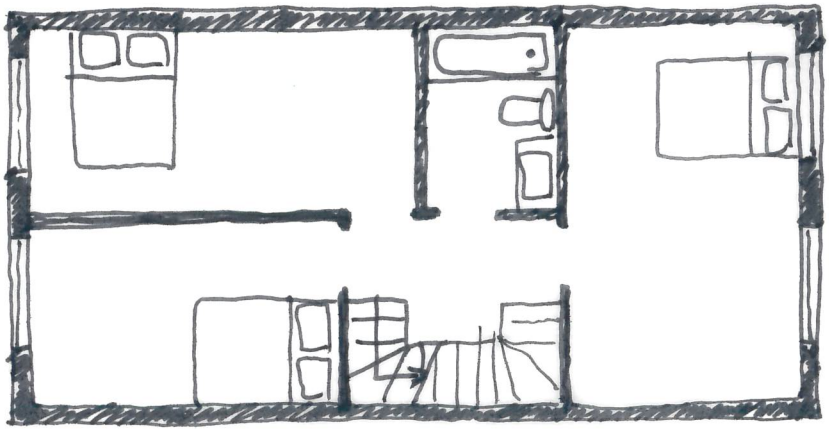
These houses would be combined with some private gardens in combination with shared garden space.

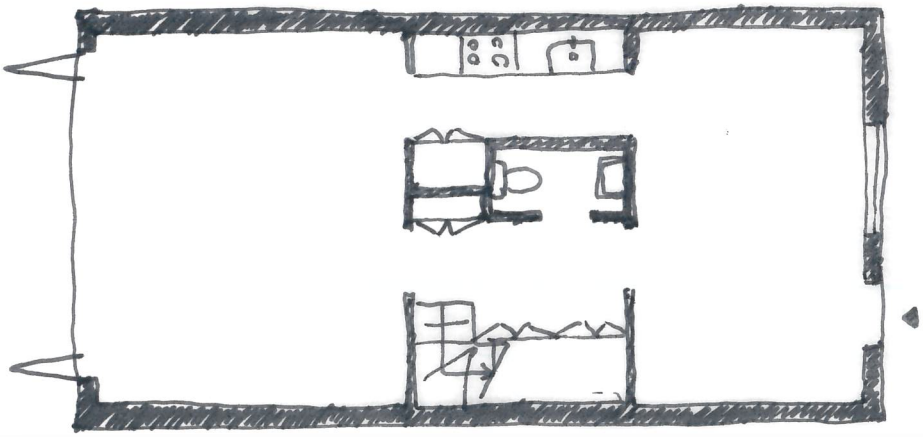


First Floor Plan, 1:200

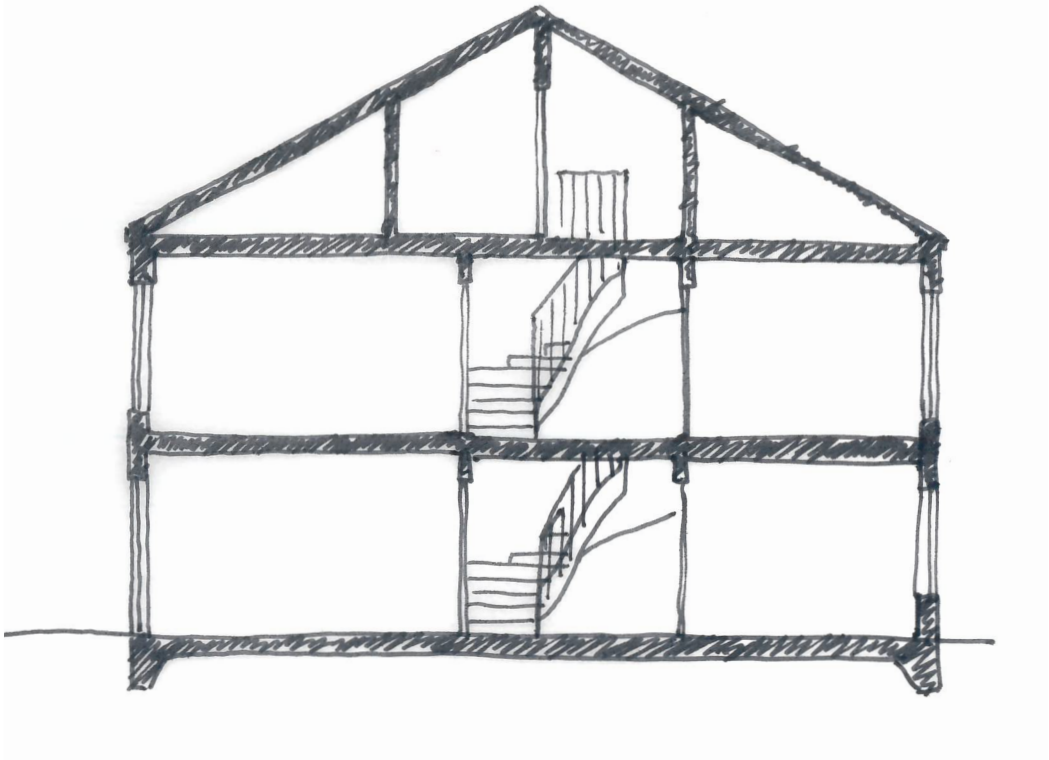


Ground Floor Plan, 1:200





3B House. Ground Floor Plan, 1:100



Short Section, 1:200

04 APARTMENT BUILDING

View of Apartment Building type

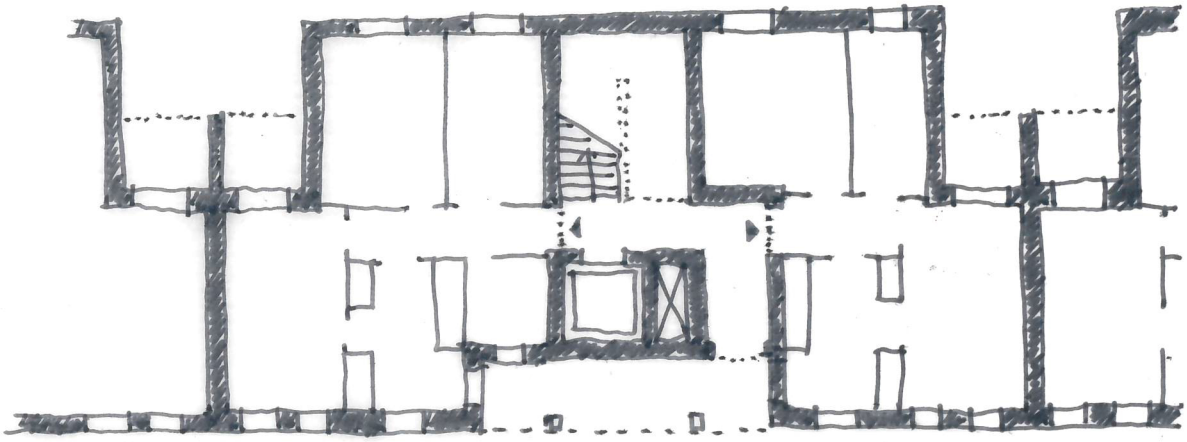
Drawing on a large tradition, particularly from Europe, of the low-rise linear housing block this type arranges 6 flats around a shared stair-core on a pattern that can be repeated multiple times. On the ground floor the flats are 1 bedroom changing to 2 bedroom above. But the pattern could be adapted in order to provide for larger apartments if required.

The bedrooms are all oriented along one wall of the building with the public rooms of the houses oriented along the other. This allows for sensitive orienting in terms of both light (bedrooms on the north or easterly aspects for example) and toward streets or public places (with the public facing rooms of the dwellings facing out towards these).

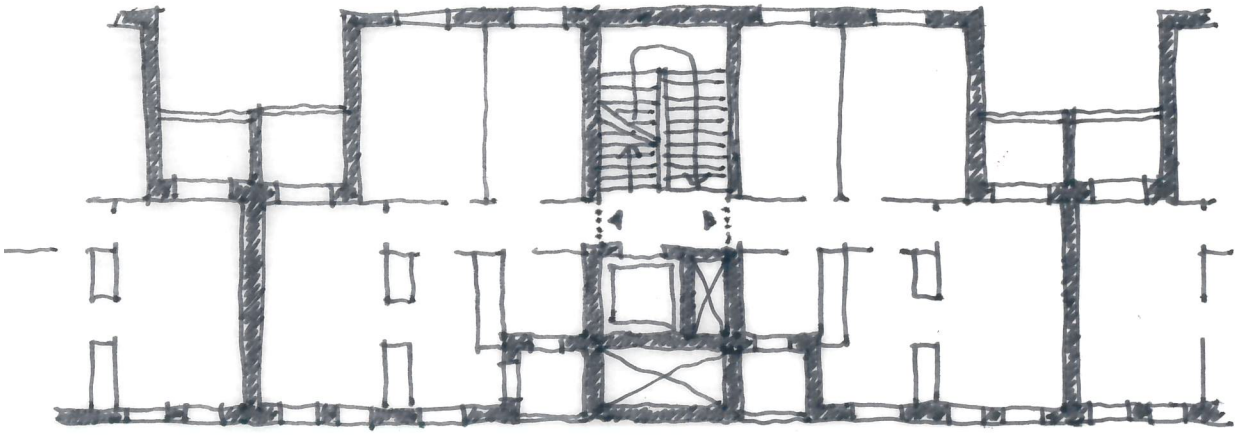
Ham Common Flats, London, Stirling and Gowan

As with the Row House there is an efficient ratio of envelope to space, and a simplicity and repetitiveness that should help it be an economic option to build.

The plan form allows for small balconies to be formed on both elevations of the building allowing them to catch a variety of lighting conditions.

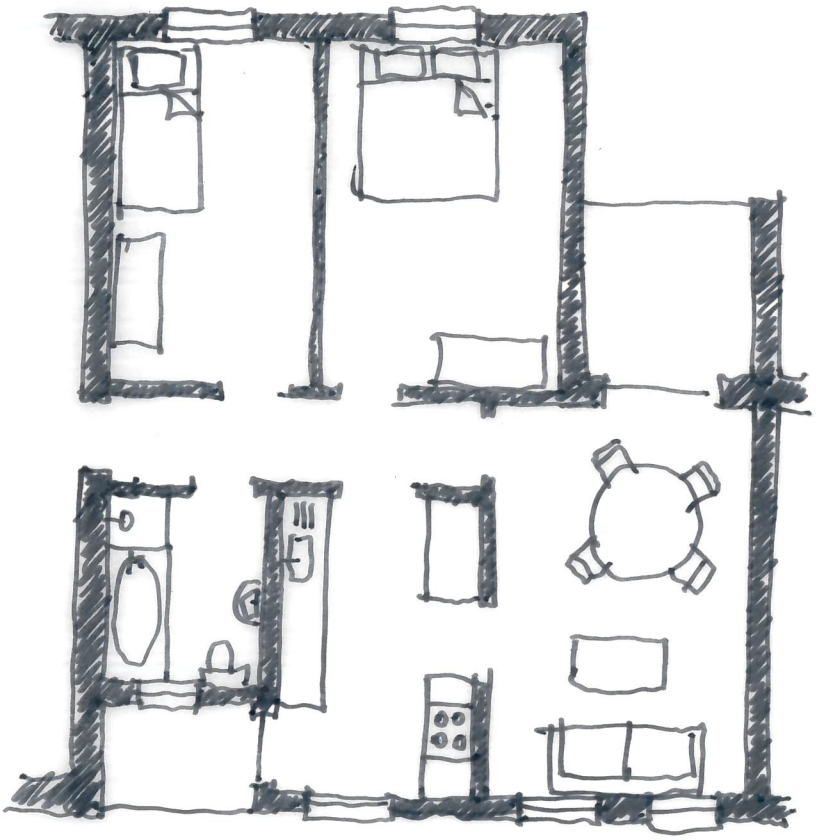


Typical Floor Plan, 1:200



Ground Floor Plan, 1:200

Short Section, 1:200



2B House Plan, 1:100

05 COURTYARD BLOCK

View of Courtyard Block type

The Courtyard Block is the most ambitious type in terms of its urban scale and form, describing a large scale arrangement of - in this case - row houses.

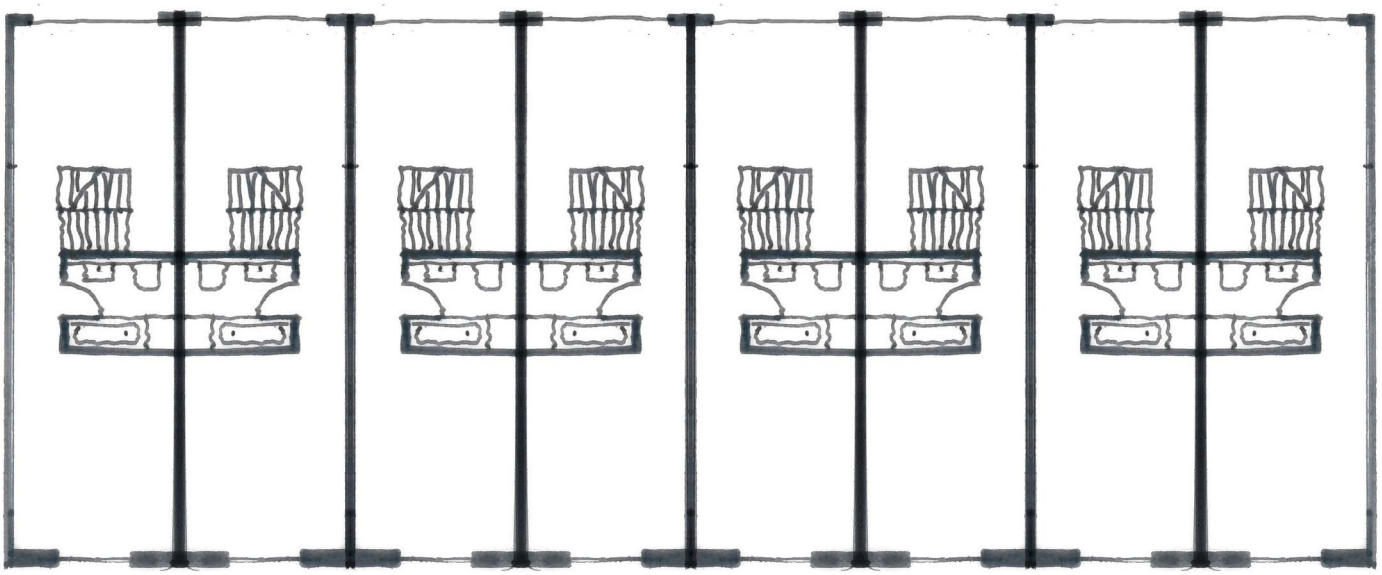
Inspired by extraordinary early-20th Century examples like the Berlin Hufeisenseidlung by Bruno Taut and the work of Kay Fisker in Copenhagen, it describes a form where the interior of the courtyard is of a sufficently large scale that it become closer to a public park than a typical shared garden. This also harks back to an earlier mode of British city making in the squares of the London Estates, where a shared space was common to a unified block of housing that surrounded them.

Hufeisenseidlung, Berlin, Taut and Wagner

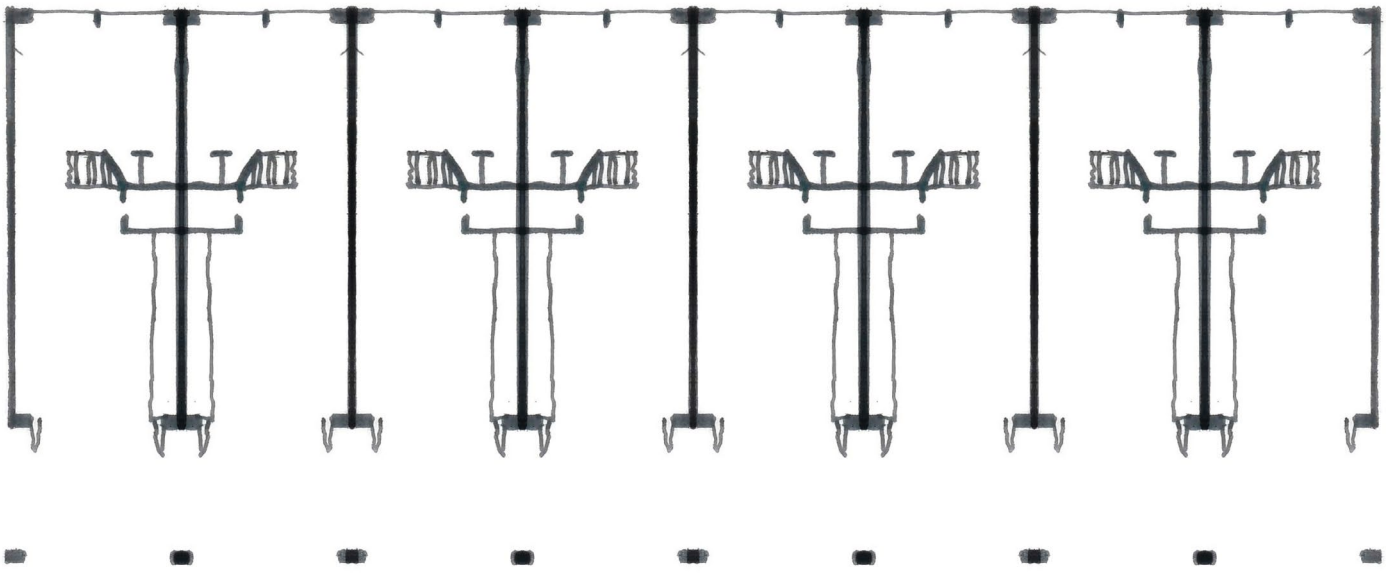
The form of the houses sets back the entrance to each home from the common area with the device of a small collonade.

The plan of the houses, much like the other row houses consolidates the stairs and bathrooms into a central core off which the other rooms are arranged.

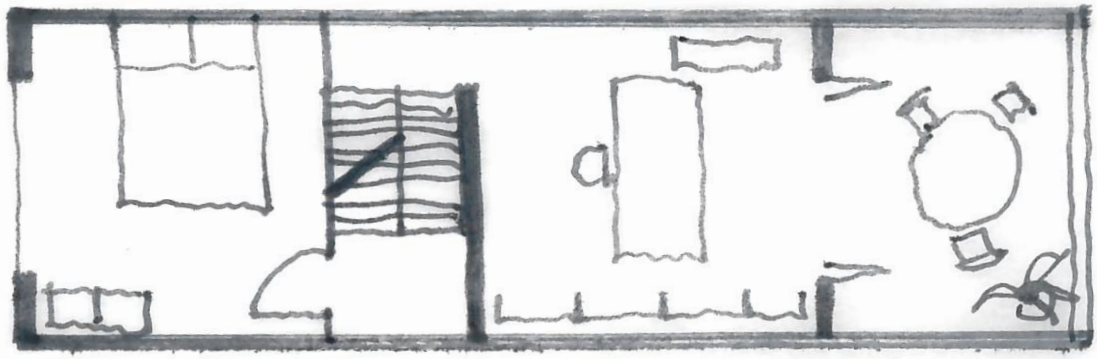
At the top of the houses opening back onto the communal courtyard and the sky, is a private balcony.



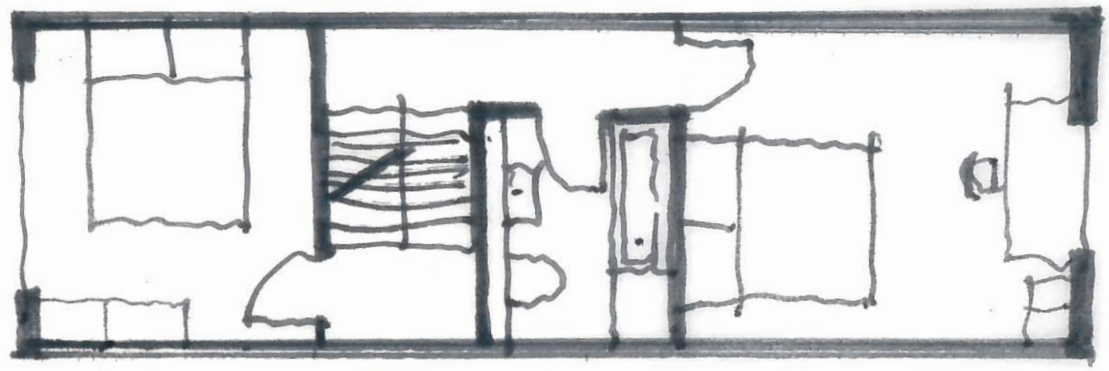
First Floor Plan, 1:200



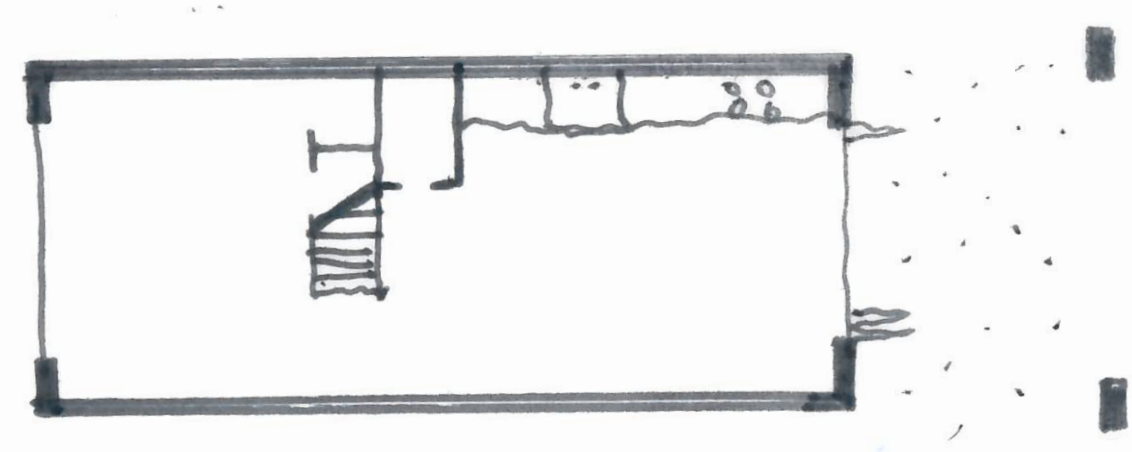
Ground Floor Plan, 1:200



3B House First Floor Plan, 1:100

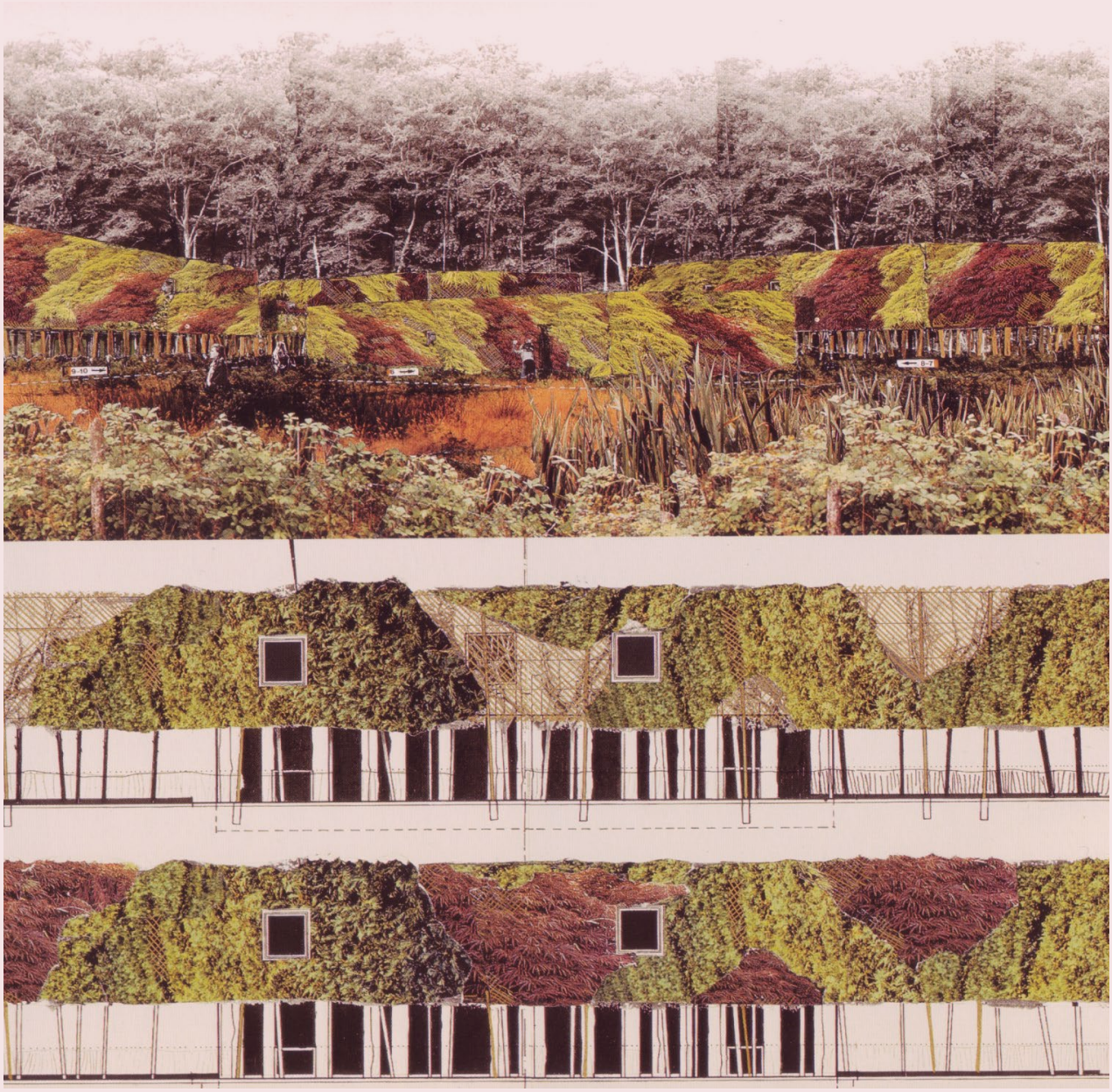


3B House First Floor Plan, 1:100



3B House Ground Floor Plan, 1:100

STRATEGY



The most basic and fundamental responsibility of any strategy for development on Greenfield sites is simple: it must be improving. The authorities, developers and communities, who are the custodians of a project but not its only stakeholders, must uphold this responsibilty. We want to set out some ideas that can act as tools to enable them to do so.

The first idea is that we value what is already there. Instead of seeing undeveloped sites as a 'tabula rasa', we need look more carefully at the existing topography, signs of geological and cultural history, its water, soil, trees, crops and flora, which in turn support all kinds of wildlife and ecosystems. Any strategy must work with these characteristics to produce a landscape that sustains and enhances these characteristics and increases biodiversity.

The second idea is that landscape can act as a shared space between all subsequent development – seeing its design as the primary, shared, public fabric of development rather than the outcome of a raft of decisions which consider the requirements of private needs to be paramount. This idea resists the kind of sprawl that typifies Greenfield development which results in places characterised by a lack of distinct public space and civic life.

The third idea is that a variety of building types and different densities of development contribute to a rich mix of public and private spaces, from streets, courtyards and yards. We want to live in places that are full of vitality and liveliness. This relies on proximity between places of dwelling, work and industrial activity, moving beyond the modernist logic of single function zones in our built environment, such as commuter-housing, business parks and industrial estates. Some things need separation – but if it needs to put out of sight to be out of mind, we should think about the long term implications of doing it anyway.

The fourth idea is understanding Development as an ongoing process of gradual change, rather than a stage with a clearly defined beginning that concludes with a neatly defined outcome. Proposals should work with different time-horizons, from the longest (Geological), medium (Life) and short term. Long-term proposals are more open-ended and short-term proposals are more specific. This procedure offers adaptability and openness to change that more deterministic master-planning approaches fail to accomodate.

Economic and political conditions are in constant flux - these changes are happening at ever increasing rates, posing risks to the viability of transformative Greenfield projects. Embracing indeterminacy and ensuring long-term projects contain the capacity for open-ended, adaptive and responsive use is vital.

DEVELOPMENT

In the short term, we want to work with local business and industry to develop the capabilities in Bridport and Dorset to construct buildings in an ecological way.

We also want to work with local organisations such as Community Land Trusts to develop schemes that demonstrate the potential for these technologies to combine with alternatives to the typical building types that commercial developers and Housing Associations provide.

Together, these ideas about type and technology have the potential to enable developments which create economical, flexible and generous places to live.

Taking the Mansion House type as an example we will explore the key ideas behind the structure, construction and facade in more detail.

STRUCTURE

We are looking to work with local contractors and foresters to develop detailed approaches to construction for 2-4 storey buildings utilising varieties of timber that are locally available.

Our prototype design is a development on traditional timber frame construction. The frame is fabricated off-site in timber cassettes 1200 wide, which are made to a high tolerance and brought to site where they can be rapidly assembled.

The design could be adjusted to make use of composite timber sections or larger solid timber elements, such as Cross Laminated Timber cores or spine walls.

CONSTRUCTION

Hemp is used as insulation between the timber frame, with an additional layer applied to the exterior. Internally the hemp is left exposed, creating an unusual and expressive interior.

The hemp could be pre-fabricated off site in blocks to reduce costs, or be compacted on site. Externally, the building is clad in timber which is panellised to allow for off-site fabrication.

FACADE

The facade is constructed of rainscreen comprising timber boards which increase in width with each storey. The boards are coloured with natural pigments and are left rough sawn.

Metal sheeting, either natural zinc or aluminium, is used for the roof. This enables it to be easily replaced in the future for a more ecological material - hemp roof panels are being tested by a number of manufacturers, but are not yet compliant with British Standards.

Windows and door frames are manufactured using local timbers.

NEXT STEPS

We are interested in exploring the potential for an ecological approach to the design of housing in the Bridport area to create opportunities for local economic development, employment and training.

We want to work with local businesses and organisations to develop new knowledge, build up local technical and production capacity and support the emergence of a regional network of industry and business with the ability to build houses that are locally distinctive, environmentally kind, affordable to construct and economical to maintain and adapt.

If you are a local construction business, craftsperson, material supplier or are involved in land and resource management in the South West we would love to hear your thoughts and to discuss ways in which we might work together to develop these ideas.

If you are a local community-led housing group, Housing Association or developer then we would love to discuss how these ideas might be taken forward and tested on a project.

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