

Sean Griffiths

Output 4:
Riverside One, Middlesbrough, 2011

Abstract

Riverside One is an apartment block in Middlesbrough built as part of the regeneration of the former industrial Middlehaven Docks. The brief for the building was to deliver a highly sustainable, landmark housing project exceeding Eco Homes 'Excellent', in line with 'One Planet Living' sustainability goals. The building addresses the following research questions: How can a memorable building challenge the flatness of generic urban planning within the framework of market driven regeneration? How can the communicative surface perform architecturally? How can environmental principles be incorporated into an art based architecture practice? The design of Riverside One was driven by contextual concerns involving detailed fieldwork and a close reading of the site to discover the narratives of place and the specifics of its history. Found models were then reworked through collagist / dada-ist methods to create a new assemblage that carried with it old associations and meanings and created new ones. Methods used to reorganise existing information into a new constellation were the appropriation of images, references, history and values; collage, juxtaposition and humour. At the same time as this visual, aesthetic research, Riverside One required considerable environmental and technical research to meet its sustainability standards. This involved participation in numerous

sustainability workshops and in depth, detail design of the building's external façade to ensure water and airtightness. Riverside One is a contentious building that has been widely disseminated and debated in the architectural and public media. This includes articles in dezeen, Building Design, Architects Journal and The Guardian. Built at a time of financial plenty and when there was a great deal of optimism about urban regeneration, it is seen as both representative of that optimism and all that was unreal about it. As such, it is an important building in Griffiths and FAT's polemical oeuvre.

Key Words

Sustainability, market driven, regeneration, landmark, housing

Context

Riverside One, otherwise known as 'Community in a Cube', is an apartment block in Middlesbrough (fig.21), designed for a joint venture client, the charity BioRegional and developer Quintain, as part of the redevelopment of the former industrial Middlehaven Docks. Development was to have proceeded according to a master plan designed by Will Alsop in 2005 that included a series of apartment blocks leading from the city centre to the waterside (fig.01, 02). These were to have been designed by Alsop himself, Feilden Clegg Bradley, Branson Coates, FAT and Grimshaw, but BioRegional Quintain was wound up in 2010. As a result, only Middlesbrough College (2008), a public square and FAT's Riverside One (2011) were realised. FAT's building proceeded despite the downturn due to bespoke HCA funding.

General Description

Designed for a joint venture client, the charity BioRegional and developer Quintain, the brief for this building was to deliver a highly sustainable, landmark housing project exceeding Eco Homes 'Excellent' (approximately Code for Sustainable Homes Level 4). Known as 'Community In A Cube' (CIAC), the 82-unit scheme develops its narrative from the brief and aspirations of the client to provide a mix of unit types and occupiers within a volume prescribed by Alsop's master plan. The necessity of slicing up and excavating this volume created courtyards, shared amenities, garden space and helped derive the character of a building where different housing typologies are juxtaposed (fig.23).

Sean Griffiths was FAT's lead architect on the project. He is well known as one of the most talented, polemical and lively architects operating in the fields of housing and urban design today. He is highly respected amongst his peers and is a prolific contributor to architectural debate through lectures, symposia and papers. He and his partners link research into the nature of contemporary visual communication and fabrication techniques with the creation of socially meaningful, economically and, in this case, environmentally sustainable environments. This both continued in a deliberate fashion the work of post-modernism, with its interest in visual communication, signage and historical and popular reference, and applied it in a market driven environment with sustainable values and goals.

The northern elevation was punched open to bring light into the square plan (fig.13, 22). This exposed the main circulation core and cleaved the building open into two wings to the south lined by balconies and decks (fig.15, 24). The entrance to the building is under a parapet of cloud motifs and the letters CIAC (standing for 'Community in a Cube') (fig.28), reminiscent of Venturi, Rauch and Scott Brown's Guild House of 1964. From here, a theatrical sequence activates the building's figural section, taking one up a single flight of stairs to the first floor terrace (fig.07, 36). A spiral staircase then winds up to the main access corridor on the second floor (fig.37). This sequence was designed

to encourage exercise and social interaction, in support of One Planet Living goals of health and happiness (fig.06). Surmounting this lively ensemble is a surreal street of blue clapboard New Urbanist 'sky homes' resting on the roof of the block (fig.31-33) accessed by decks that include oversized Eternit-clad trusses (fig.34). The eastern corner of the block appears to rest on a timber chalet (fig. 14, 29, 30).

The building addresses its surrounding public square through specific characterful elements that help form the streetscape (fig.24, 25), while the higher levels of the building address the city (fig.35). Its interior court develops its own character, its wood panelled surface inscribed with a cross-cross pattern (fig.38, 39). Materially, the building uses a pallet of tough brick to its exterior, responding to the industrial landscape of the old docks (fig.27). Its interior court is lined with a softer, warmer timber to which decorative motifs and planting are used to add to its character (fig.37). Planting around the inner courtyard is irrigated by recycled rainwater. Circulation links this shared, upper level garden space with the public square through planted terracing, encouraging a strong yet defined link between public, semi public and private space. The ground floor integrates commercial units, a community centre and the corner pub (fig.02, 08).

Flats (studio, one- and two- bedroomed) are market driven, i.e. small in plan, but with 2.7m floor to ceiling heights and large windows that take advantage of views over the water. Two thirds of the flats have water views and are

dual aspect (fig. 11). They are accessed by a single core and a circulation strategy that achieves 82% net to gross.

The building's structure is a post-tensioned concrete frame with 100 per cent recycled aggregate and 50 per cent cement substitute; the concrete is exposed internally for thermal mass. External walls, about 400mm thick, are made of FSc-certified timber infill panelling heavily insulated with wood fibre insulation and brick cladding (fig.19). This achieved a high thermal performance for the external envelope of less than 0.21 W/m²degC. Much of the know-how for this was imported from One Brighton, a previous building by the same developer.

A plant room located to the rear ground floor of the building houses a woodchip biomass boiler of sufficient capacity to serve the first three residential blocks (fig.08). They would have met these three block's entire heating and hot water demand, which together comprise about 50 per cent of the site's total energy requirements. The remaining 50 per cent electrical load would have been supplied via a private network, a single renewable electricity provider locked into the scheme.

Research Questions

The following primary research questions were addressed by the project:

- 1) How can a memorable building challenge the flatness of generic urban planning within the framework of market driven regeneration?
- 2) How can the communicative surface be used to perform architecturally?
- 3) How can environmental principles be incorporated into an art based architecture practice?

Aims and Objectives

1) To use the narratives of place and the specifics of its history to make a memorable, visually stimulating building that challenges the flatness of generic urban planning within the context of market driven development.

Riverside One extended Griffith's research into the design of memorable buildings that challenge the flatness of generic architecture and urban planning, within the framework of market driven development. Its key constraints were given by the Alsop masterplan adopted by Tees Valley Regeneration that specified that the buildings along the southern edge of the quay were to operate within pre-defined parameters such as a 30 x 30 m footprint, lightness of tone and emphasis on cubic form (fig.01). These characteristics were determined at masterplan stage in relation to the provision of office buildings, and presented issues of daylighting and plan depth that the design had to address. The necessity of slicing up and excavating this volume created courtyards, shared amenities, garden space and helped derive the character of a building where different housing typologies were juxtaposed. (fig.03-07).

The design assembled disparate, culturally significant elements into a collage to express the characteristics of the local community (fig.03, 04). Riverside One is the only apartment building in Middlesbrough. By incorporating familiar building typologies and lifestyle references into the design, it was coded with the meanings associated with these building types and spaces. It was something new, yet at the same time strangely familiar. Clear as a billboard, Riverside One's three key components – Swiss chalet pub, apartment block, and rooftop townhouses – were stacked in a surreal domestic triptych, perhaps no better put than by Griffiths' almost Dadaist description: "It's just a straightforward modernist apartment block, resting on a chalet, with a little street of suburban homes on the roof!" (fig.04) <<http://www.bdonline.co.uk/buildings/community-in-a-cube-middlehaven-by-fat-architects/5035535.article>>).

FAT was asked to design a building that not only created demand for quality and exciting waterside living, but did so within an acceptable risk and satisfactory return. This

was achieved within the parameters set by the developer. It was built for £11 million. Planning consent for the building was obtained on 23 July 2007, construction started on 07 January 2010 and completion was reached on 27 March 2012.

2) To use the communicative surface to perform architecturally.

As in others of his buildings, Riverside One extended Griffiths' research into the use of the communicative surface to perform architecturally. The purplish bricks used on the external façade make reference to the dockland warehouses that used to stand on the site (fig.26); the untreated larch lining the inner courtyard and serving as a rain screen (fig.37) was intended to smell and resemble a lumberyard. Griffiths speaks of this as a sober jacket with a flashy lining. Its surface is criss-crossed with black diagonal lines applied by scorching in-situ, producing what Griffiths refers to as "flame grilled Burger King" (fig.39). Apertures were created in this façade with a pattern of triangular, circular and square perforations (fig.37). The main service core rising through the courtyard was treated as a strong architectural element and painted with a geometric harlequin pattern in pink, green and blue (fig.21,40). This deployment of FAT's folk pop library of signs and symbols and clashing cultural icons both expressed their interest in staging clashes between working class inner city taste and architectural sensibilities, and was expressive of wider processes of demolition and construction, urban decay and regeneration, labour and time.

3) To incorporate 'One Planet Living' objectives into an art based practice.

The vision for Middlehaven was to create a truly sustainable community development that acted as an exemplar scheme integrating principles of sustainability, community and excellent design. In FAT's building, Griffiths linked research into the nature of visual communication and the creation of socially meaningful environments with sustainability goals. The building espoused the ten goals of BioRegional Quintain's 'One Planet Living.' These tenets, also at the heart of London's Olympic bid, encompassed built environment and lifestyle issues, including principles of: energy efficiency; the use of renewable technologies and locally sourced materials with low embodied energy; zero waste; encouraging low carbon modes of transport; using water more efficiently; restoring biodiversity; promoting local food; reviving local identity and wisdom; creating bioregional economies; encouraging active, sociable, meaningful lives to promote good health and well being (see <<http://www.oneplanetliving.net/>>).

The strategies deployed at Riverside One to meet these goals included (PO6): a ground floor woodchip biomass boiler of 250kW capacity to meet the building's entire heating and hot water demand (fig.08); bicycle store and recycling room; power points for electric cars; the recycling of roof water to water the courtyard garden; planters around the walkways giving access into flats and walk up gardens, providing an alternative vertical access to the elevator (fig.06, 07); external

facades built of face brick, with the courtyard lined with untreated larch from renewable resources; emphasis on natural ventilation - of the ten flats per floor, eight have corner aspects (fig. 1.1), which, along with their higher than usual 2.7 m floor to ceiling height, contributed to air circulation; use of exposed concrete soffits for thermal mass; effective insulation of exterior walls (fig. 1.7). The construction of the building was undertaken by local contractors to create economic activity in the region.

The result was a striking visual composition that challenged the aesthetic usually associated with sustainable design. Managing director Pete Halsall, who led BioRegional Quintain's five-strong sustainability team stated: "This is a radical design. Middlesbrough is a house town where personality looms large. This building has personality and uniqueness that mirrors the town - old and new. The more conventional a building looks, people don't believe its green, but characterful design can be congruent with sustainability" (<<http://www.architectsjournal.co.uk/buildings/residential/low-carbon-fat/8608540>. article>).

Research Methods

Riverside One was driven by contextual concerns involving detailed fieldwork and a close reading of the site to discover the narratives of place and the specifics of its history. Found models were then reworked through collagist / dada-ist methods to create a new assemblage that carried with it old associations and meanings and created new ones. Methods used to reorganise existing information into a new constellation were the appropriation of images, references, history and values, collage, juxtaposition and humour. These tactics are the foundation of cultural practice in the age of the internet, appropriated here as methods of architectural design.

At the same time as this visual, aesthetic research, Riverside One required considerable environmental and technical research to meet sustainability standards. This was guided by the 10 'One Planet Living' goals: zero carbon, zero waste, sustainable transport, local and sustainable materials, local and sustainable food, sustainable water, natural habitats and wildlife, culture and heritage, equity and fair trade, health and happiness. Certain of these could only be met at a masterplan level, e.g. sustainable transport, equity and fair trade, local and sustainable food, but wherever possible the building was designed to meet sustainability goals. To address the zero carbon objective, the CHP biomass boiler, with sufficient capacity to heat and power five buildings, was included within the building's envelope at the architect's suggestion (fig.08). Research into the thermal performance, fire rating and cost of natural materials such as wool, newspaper and rope for use as insulation was undertaken. Detail design of

the building's external façade aimed at water- and airtightness (fig.17-20). The goal of zero waste was addressed through using standard modular dimension for building components to reduce waste and including waste recycling as part of the building contract. The provision of planter boxes in public spaces was a decision to facilitate food cultivation and encourage biodiversity. Water sustainability was addressed through the specification of low usage taps and toilets, and, even though it was ultimately rejected for cost reasons, the reuse of rainwater for watering planter boxes was investigated. As described above, the preservation of local culture and heritage was a primary driver in the design of the building. Health and happiness led to the development of dual aspect, large windowed, high ceilinged apartments, and the decision to make upper floors walkable through well-located stairs (fig.12). The architect continues to participate in post occupancy research being undertaken by Leeds Metropolitan University and University College London into the building's environmental performance, in partnership with Good Homes Alliance.

Dissemination / Impact

Riverside One was nominated for a 2013 RIBA Regional Award. It has been widely disseminated and debated in the architectural and public media. Built at a time of financial plenty and when there was a great deal of optimism for urban regeneration, it is seen as both representative of that optimism and all that was unreal about it. Stranded in an otherwise empty landscape, it is at once a didactic sign and a parody of the vision it stood for.

Reviews of Riverside One in the architectural media include:

'Community in a Cube by FAT.' *dezeen*, 27 February 2013
<<http://www.dezeen.com/2013/02/27/community-in-a-cube-by-fat/>>

Wainwright, O. 'Homes Alone.' *Building Design*, 27 April 2012, pp. 10-13 (P01).

Wainwright, O. 'Community in a Cube, Middlehaven, by Fat Architects.' *Building Design*, 25 April 2012
<<http://www.bdonline.co.uk/buildings/community-in-a-cube-middlehaven-by-fat-architects/5035535.article>>

Parnell, S. 'FAT's 'Alone in Riverside One.' *Architects Journal*, 26 April 2012, cover, pp. 54-57 (P02).

Hartman, H. 'Low-carbon FAT.' *Architects Journal*, 25 November 2010
<<http://www.architectsjournal.co.uk/buildings/residential/low-carbon-fat/8608540.article>>

Waite, R. 'Middlehaven Runs to Fat.' *Architects Journal*, 12 July 2007, pp. 14, 15 (P03).

Reviews in the popular media include:

Rose, S. 'Constructive Criticism: the week in architecture.' *The Guardian*, 4 May 2012.
'Dreamscape becomes a reality.' *North East Times*, 01 September 2008, pp. 09 (P04).

Breen, J. 'On the Waterfront.' *Living*, 08 July 2008, pp. 23-27 (P05).

Evidence

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- Fig. 42 Walkways, timber cladding, photograph Charles Hosea

Press

- P.01 Wainwright, O. 'Homes Alone.' *Building Design*, 27 April 2012, pp. 10-13
- P.02 Parnell, S. 'FAT's 'Alone in Riverside One.' *Architects Journal*, 26 April 2012, cover, pp. 54-57
- P.03 Waite, R. 'Middlehaven Runs to Fat.' *Architects Journal*, 12 July 2007, pp. 14, 15
- P.04 'Dreamscape becomes a reality.' *North East Times*, 01 September 2008, pp. 09
- P.05 Breen, J. 'On the Waterfront.' *Living*, 08 July 2008, pp. 23-27
- P.06 RIBA awards programme: Sustainability Statement

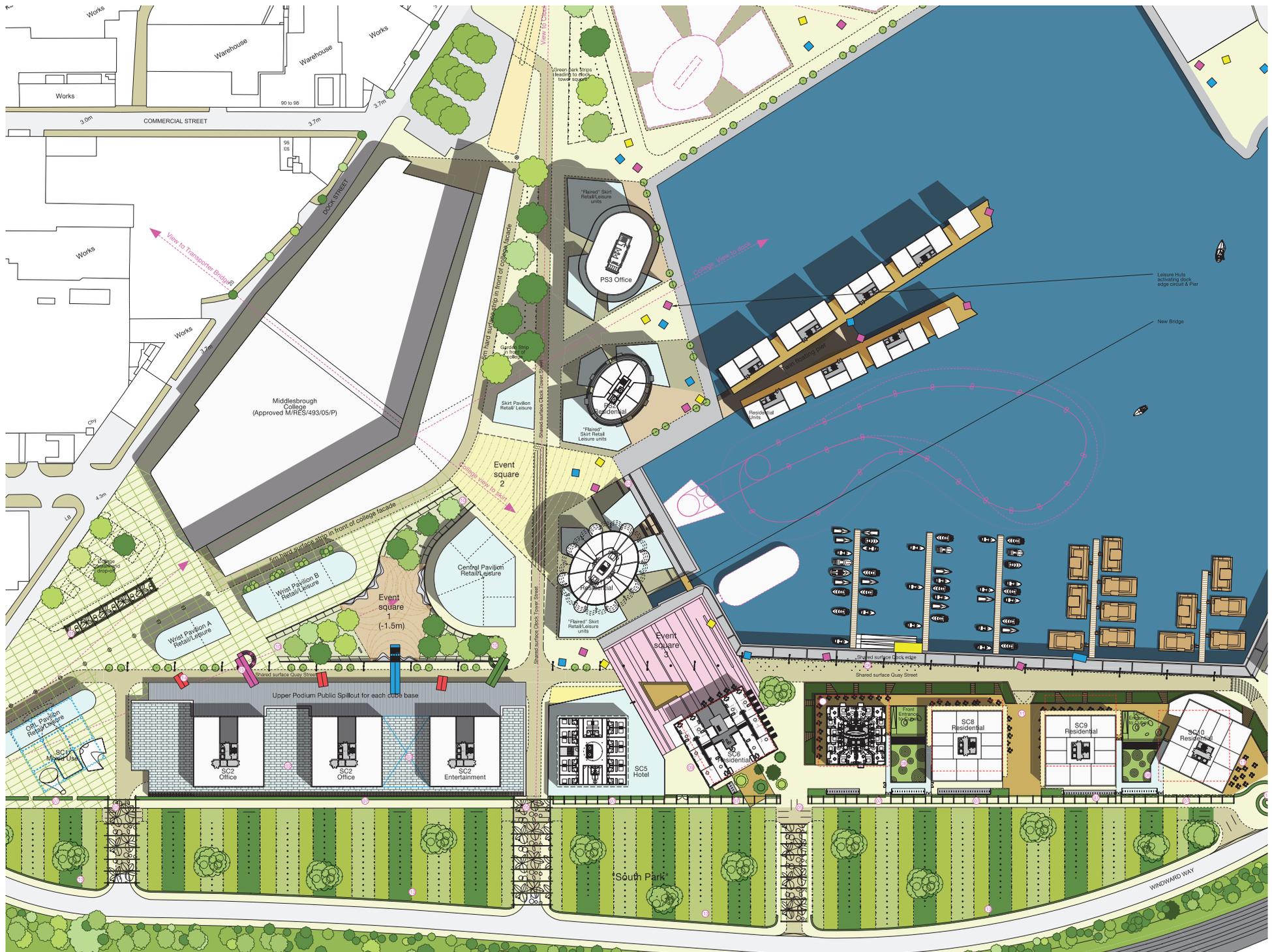


Fig. 01 Middlehaven Phase 1 Masterplan



Fig. 02 Middlehaven Phase 1 Masterplan Model Detail



Fig. 03 Conceptual Diagram 1

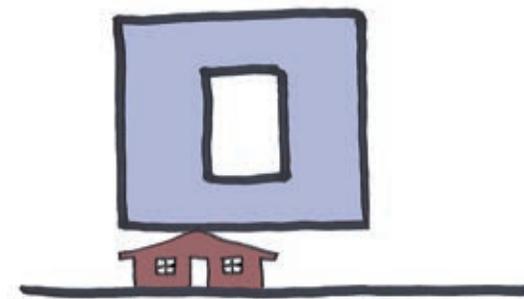


Fig. 04 Conceptual Diagram 1



Fig. 05 Conceptual Section 1

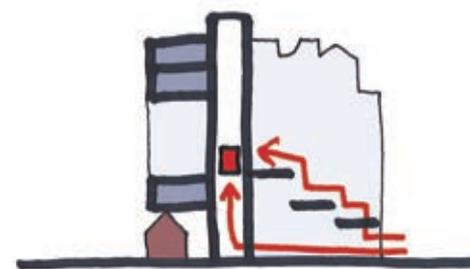


Fig. 06 Conceptual Section 2

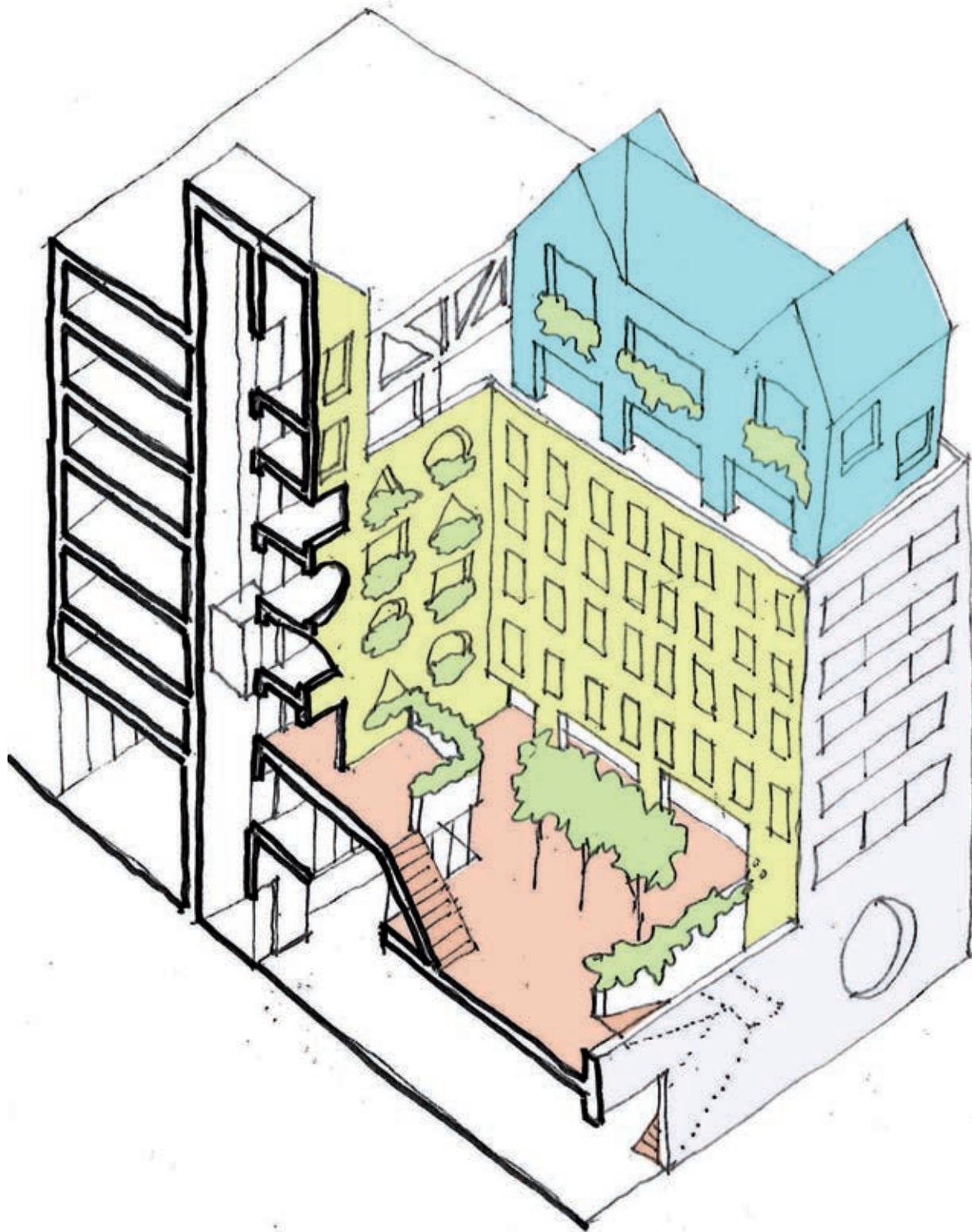


Fig. 07 Cutaway Section

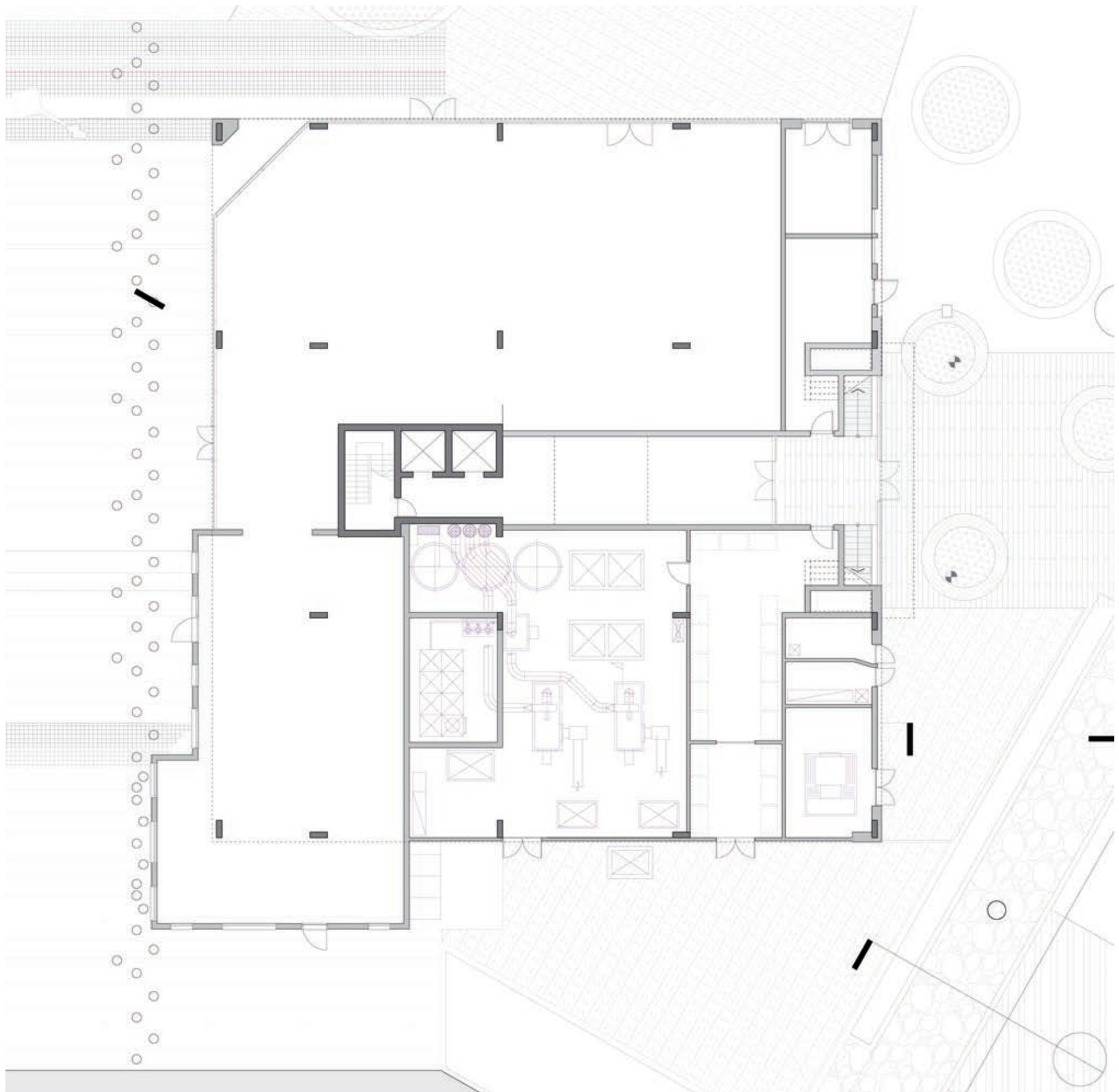


Fig. 08 Ground Floor Plan



Fig. 09 First Floor Plan



Fig. 10 Second Floor Plan



Fig. 11 Typical Floor Plan

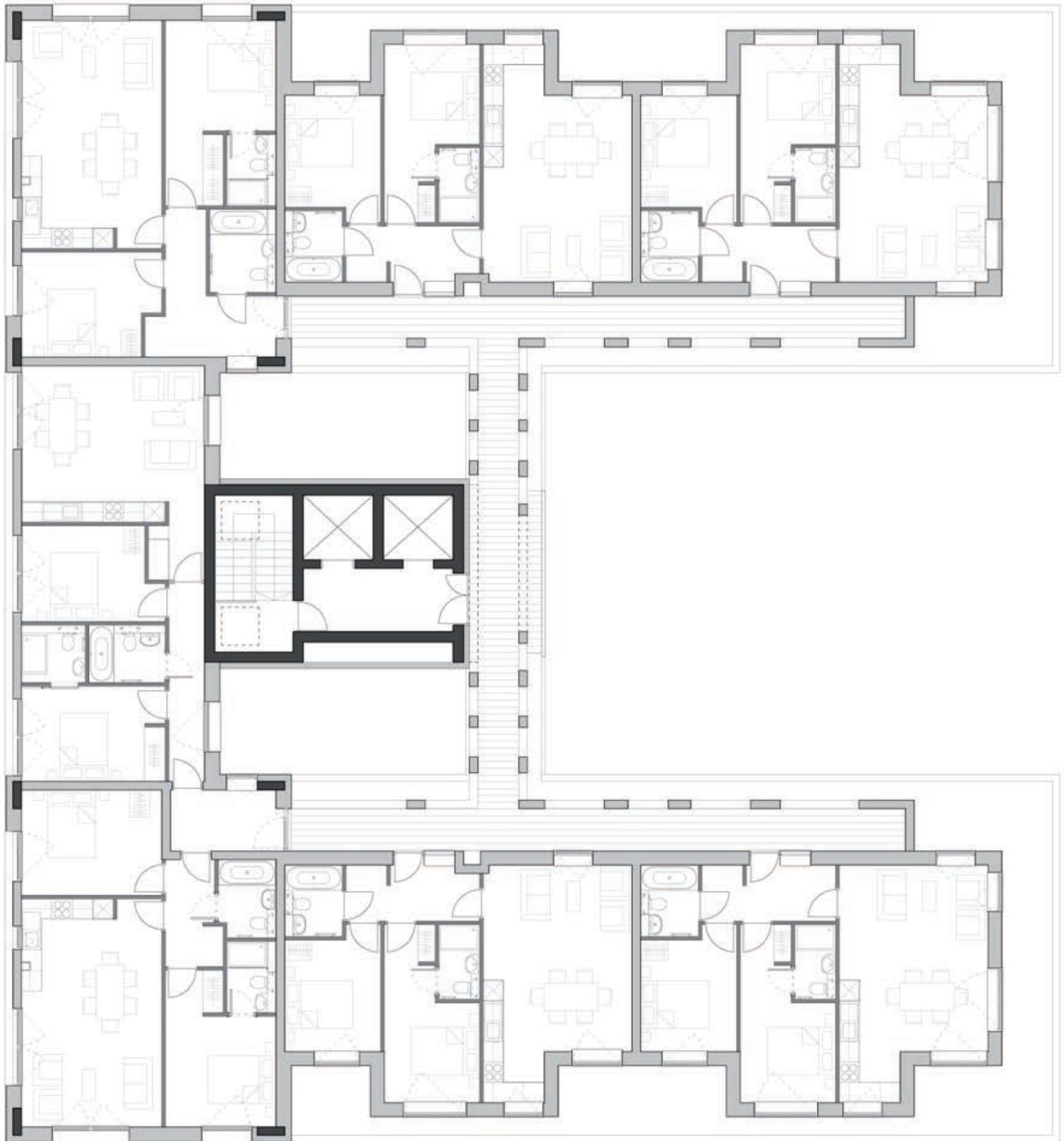


Fig. 12 Sky Homes Level Plan



Fig. 13 North Elevation



Fig. 14 North Elevation

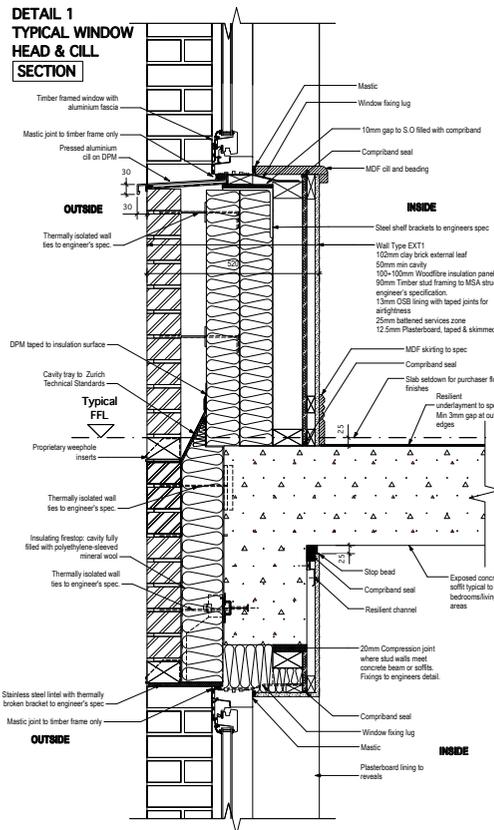


Fig. 15 South Elevation



Fig. 16 Cross Section through courtyard

**DETAIL 1
TYPICAL WINDOW
HEAD & CILL
SECTION**



**DETAIL 2
INFILL PANEL
HEAD & CILL
SECTION**

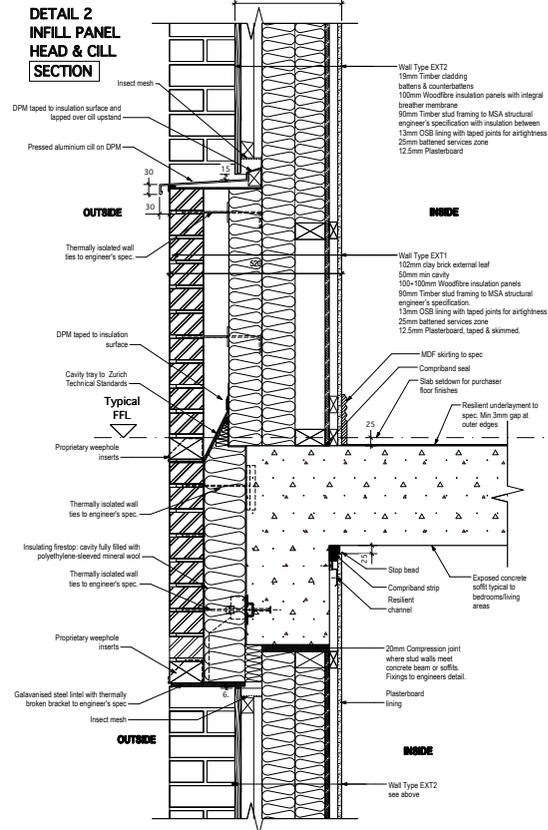
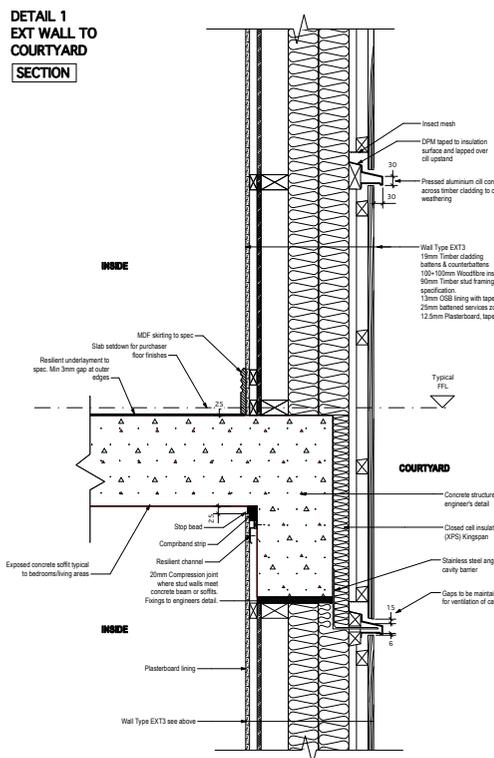


Fig. 17 Typical Window and Infill Panel Head and Cill Sections

**DETAIL 1
EXT WALL TO
COURTYARD
SECTION**



**DETAIL 2
WINDOW TO
COURTYARD
HEAD & CILL
SECTION**

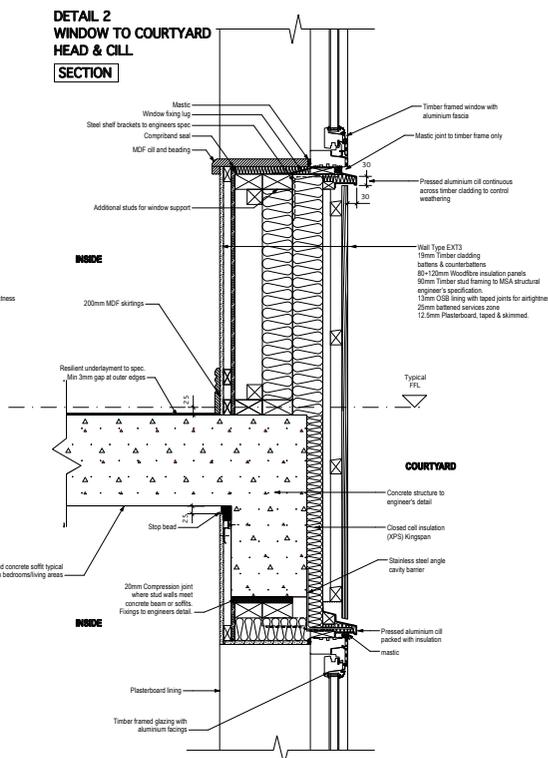


Fig. 18 External Wall to Courtyard and Window to Courtyard

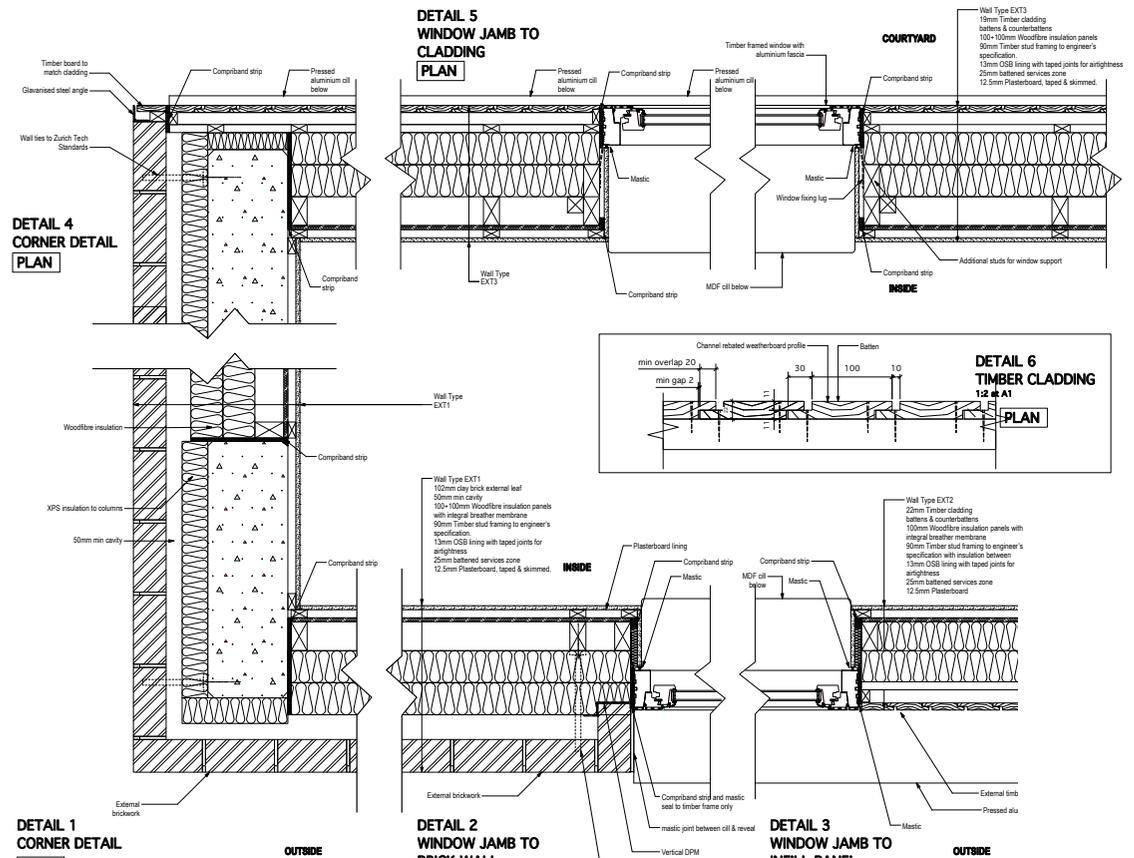


Fig. 19 External Wall Plan Details

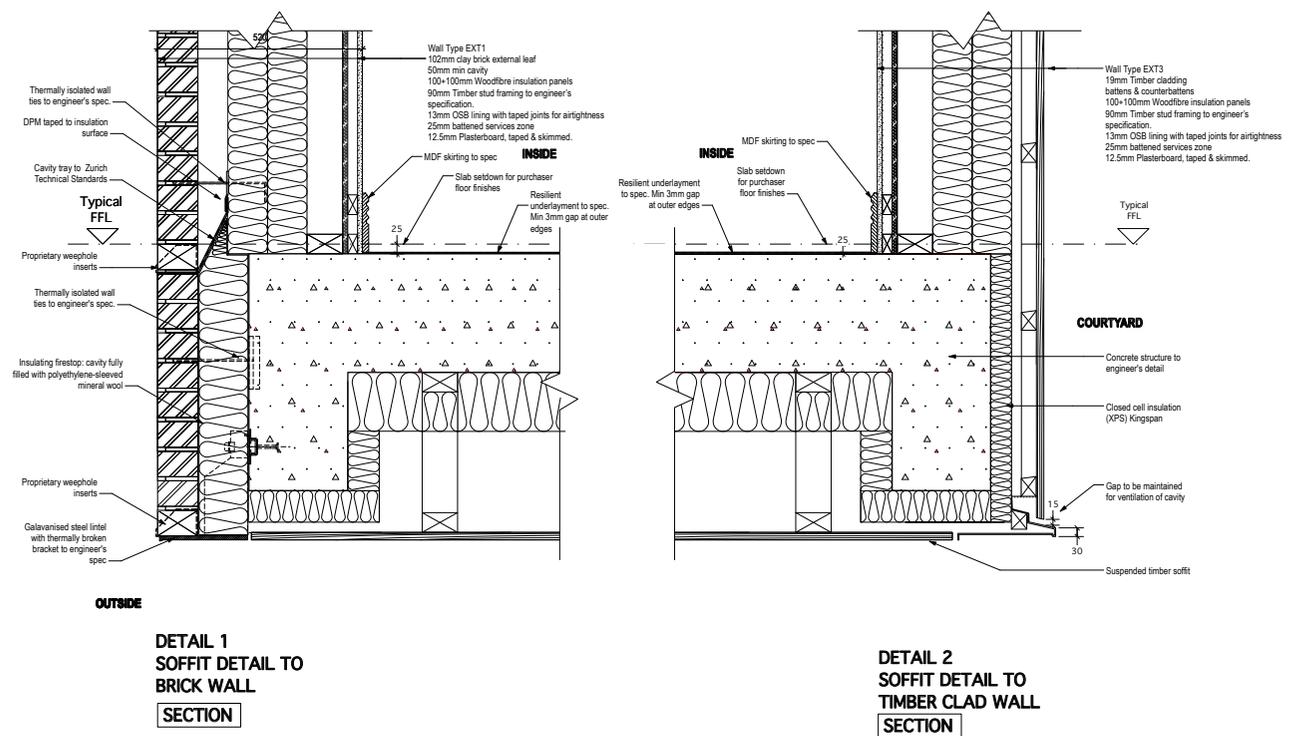


Fig. 20 Soffit Details



Fig. 21 North Elevation, photograph Rob Parrish



Fig. 22 North Elevation from broad-walk, photograph Rob Parrish



Fig. 23 Building from the South East, photograph Rob Parrish



Fig. 24 South Elevation from road, photograph Rob Parrish



Fig. 25 South Elevation from parking, photograph Charles Hosea



Fig. 26 East Elevation, photograph Rob Parish



Fig. 27 West Elevation, photograph Charles Hosea



Fig. 28 Entrance, photograph Rob Parrish



Fig. 29 North West Corner, photograph Rob Parrish

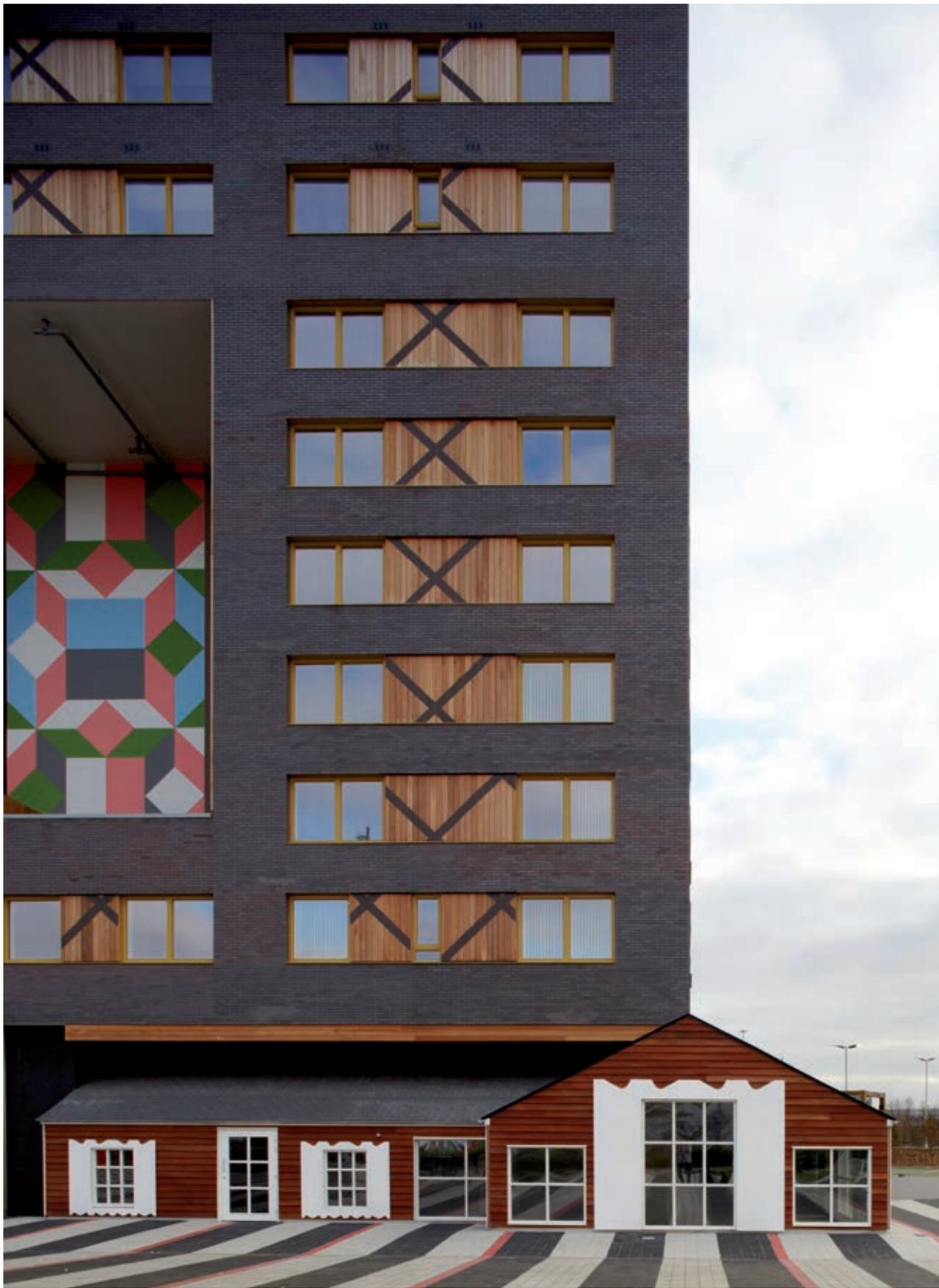


Fig. 30 North West Corner 2, photograph Rob Parrish



Fig. 31 View of sky homes, photograph Charles Hosea



Fig. 32 Sky homes detail, photograph Charles Hosea



Fig. 33 Sky homes detail 2, photograph Charles Hosea



Fig. 34 Sky homes access walkway, photograph Charles Hosea

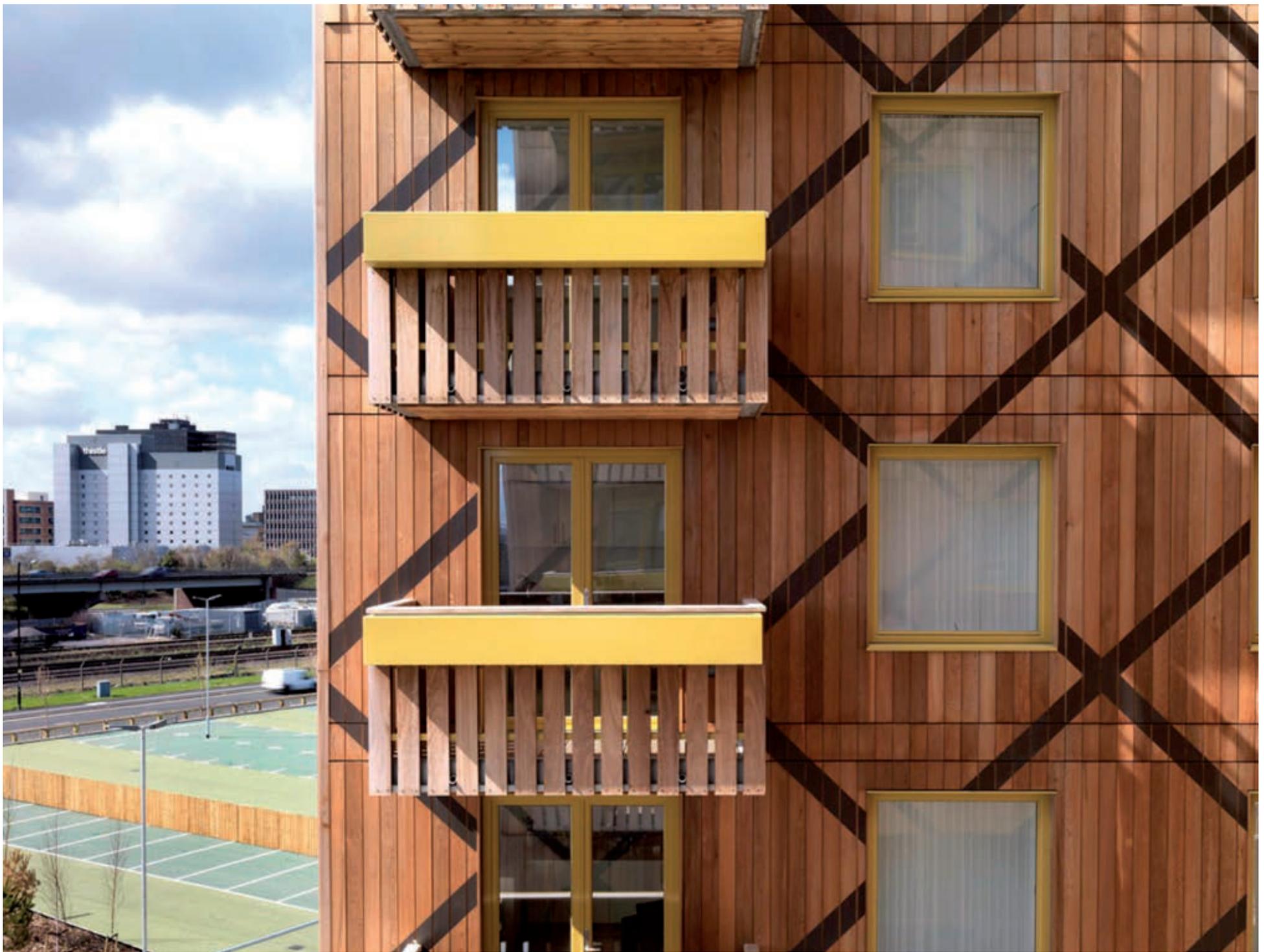


Fig 35 Typical floor, corner balconies, photograph Charles



Fig. 36 Entrance courtyard, first floor, photograph Rob Parrish



Fig. 37 Walkways, timber cladding, photograph Charles Hosea



Fig. 38 Timber cladding detail 1, photograph Charles Hosea



Fig. 39 Timber cladding detail 2, photograph Charles Hosea

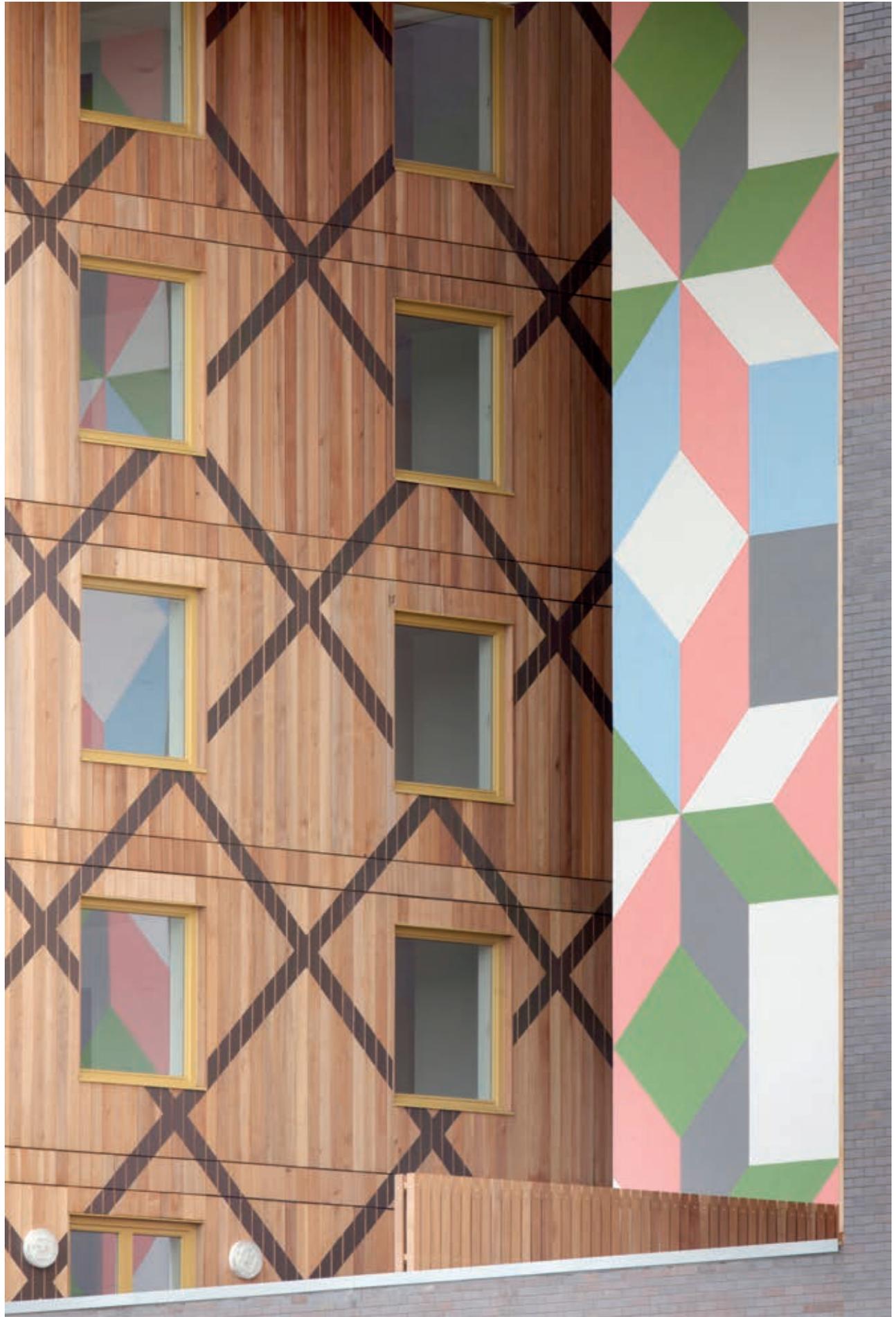


Fig. 40 Timber cladding detail 3, photograph Rob Parrish

The most tragic thing, which often happens with masterplans in Britain, is that the vision disappears during delivery,” says Will Alsop, as he floats above a fairytale landscape of fantastical forms — a cinema like a Rubik’s cube, a primary school like a giant spelling block, an expanse of water dotted with wakeboarders. “Not here.”

This is the promotional animation for Middlehaven, a 100ha swathe of post-industrial dockland in Middlesbrough, as reimagined by Alsop into a psychedelic dreamscape. Unveiled in 2004 (see *Archive*, back page), the £500 million development was slated to provide more than 2,400 homes, 75,000sq m of commercial space and a surfeit of hotels, bars and restaurants on the site of the former docks, which had closed in 1980 and lain derelict ever since.

Commissioned by a Blairish alliance of regeneration agencies, the strategic framework was launched in the wake of Alsop’s publicity-friendly plans to flood the centre of Bradford and bestow Barnsley with a halo, as well as similarly outlandish schemes for Halifax, Walsall and Stoke. Middlehaven was to be the apogee of his unique brand of toy-based urban planning, the denouement of a decade that had seen northern emperors queuing up to try on his new clothes.

The scheme followed the usual formula of novelty object-buildings strewn at random across the site, like the aftermath of an incident in the soft-play area. At one end a giant teddy bear sat next to an office block in the shape of Marge Simpson’s hair; at the other, a “Gucci glove” by Nigel Coates reached out to caress a hotel modelled on the marble game Kerplunk. A line of “sugar cube” housing blocks marched down the edge of the site, while mixed-use “Prada skirt” towers lined the dockfront, each with its own catchy nickname.

“There was a huge amount of optimism about regeneration at the time,” says Sean Griffiths, director of Fat, whose £10 million Community in a Cube housing block is the only recognisable fragment of the vision to have been built. “It was a

golden age for architects.”

Since then, reality has bitten and the development company — a brave marriage between green charity BioRegional and the self-styled “thinking man’s developer” Quintain — has been dissolved, leaving its cube stranded in a lonely landscape. Its only neighbour, across a field of empty plots, is the gleaming hull of Archial’s £70 million Middlesbrough College. A 250m-long cliff face of shimmering metallic panels tacked on to a boxy shed, it proves that the real dangers of Alsop masterplans are when his wacky one-liners are interpreted by lesser architects.

Remains of the vision

At the other side of the dock are two more remains of the vision: a three-storey prefab office block, optimistically titled “Manhattan Gate”, and the taut wiry frame of Temenos, the first fateful meeting of Anish Kapoor and Cecil Balmond and the only one of the planned “Tees Valley Giants” to make it off the drawing board. In light of what this couple has since spawned in east London, it is a comparatively graceful thing; although next to the majestic transporter bridge and the area’s industrial monuments, the need for a gestural steel sculpture seems questionable.

Fat’s building would have stood in the middle of a row of nine other cubes in the masterplan, refined by Studio Egret West in 2006 — including a stack of Jenga blocks by Feilden Clegg Bradley and a glassy box by Grimshaw — its footprint twisted 45 degrees to peek out of the building line and frame a dockside square. The effect can be imagined, as a path of reclaimed sets and a rank of tilted lampposts, part of Grant Associates’ public realm, now delineate the long march of the phantom sugar cubes and bring you to the building off-axis from the north-west.

A giant teddy bear sat next to offices in the shape of Marge Simpson’s hair

From this angle the “Community in a Cube” concept is immediately legible. Clear as a billboard, its three key components are stacked in a surreal domestic triptych, perhaps no better put than by Griffiths’ almost Dada description: “It’s just a straightforward modernist apartment block, resting on a chalet, with a little street of suburban homes on the roof.” It is at once a didactic sign and a parody of everything the vision stood for.

The principal elevations are of a generic kind that could have been lifted from any number of canal-side regeneration schemes, grids of purplish engineering brick and ubiquitous timber panelling. But this restrained wrapping is soon disrupted. To the north, a vast five-storey hole has been punched through to reveal the main circulation core painted in a colourful harlequin costume, like the jazzy lining of an otherwise sober suit. This big hole brings light into the flats and frames a broad elevated deck — “so you can have a Mussolini moment, overlooking the square,” says Griffiths.

The punch line is saved for the ground floor, where the entire eight-storey slab appears to be resting on the pitched roof of a timber chalet, poking out of the north-west corner. A cartoonish shed with oversized white shutters, it is more trailer home than Alpine cabin, executed with an intentional stage-set flimsiness that belies its Herculean task. It will hopefully soon house a pub, while the rest of the glazed frontage is earmarked for commercial units, propped at the other corner by a single brick gallows post, a recurring motif in Fat’s folk-pop library of signs and symbols.

The nature of the design and build contract — in which Fat worked to Stage E but was not kept on as adviser — has led to some ham-fisted clunks: bulky drainage pipes hang from the atrium soffit, while the crucial overhang where the building meets the chalet has been clumsily boxed in.

To the south, the cube is cleft open into two parallel wings, its brick skin peeled back to expose a woody back-garden world of balconies and access decks. Rows of circular and triangular apertures perforate the rear screen, while the facing eleva-

tions are inscribed with a criss-cross pattern, in a “Burger King flame-grilled look” — originally to be burned on, now painted.

Surmounting this lively ensemble are two rows of blue clapboard “skyhomes”, perched like quaint New Urbanist houses plucked from the sunnier shores of Andrés Duany’s Seaside. Gleaming in the sun on the day we visit, with wisps of steam rising from the central chimney, they are an arresting sight, finished with the bold graphic clarity of the original rendering.

“The first thing locals told me was that Middlesbrough is a house town, that people wouldn’t live in flats here,” explains Pete Halsall, former director of BioRegional Quintain. “So we put some houses on top.” This may seem glib, but Griffiths claims otherwise.

“We’ve always been interested in working-class, innercity taste,” he says, “and how it contrasts with architects’ aspirations.” Whether Fat’s work champions, or caricatures, such taste has always been a moot point; but here, as at New Islington, the ambition is sympathetic. Although quite where the working-class fit in remains to be seen, given that the mayor, Ray Mallon, has declared he wants this to be the “unaffordable” side of Middlesbrough, luxury one- to two-bed flats aimed at luring a higher-income demographic. At the time of writing, 10 of the 80 units had sold.

Dramatic view

Entering the building is a delightfully theatrical sequence, conceived as a route through the multiple layers of the facade, a procession through the “figural section”. A grand, double-backing staircase, profiled with cloud motifs, takes you to a first-floor deck, from which the studio flats are accessed. From here, a spiral stair rises to the top of a glazed lantern, which brings light down into the lift lobby, providing access to the second-floor deck. From then on it’s a straightforward lift or stairs, which at each floor give on to an external access deck and a dramatic view of what could one day be the hanging gardens of Middlehaven — if the

The elevations feature a criss-cross ‘Burger King flame-grilled look’

communal window boxes are planted and maintained.

The flats themselves are “market-driven” (that is, small) in plan, but relieved by unusually airy 2.7m ceiling heights, while the skyhomes enjoy spectacular double-height volumes with pitched ceilings and quirky attic-like spaces. Vast picture windows provide triple-aspect views over the docks, and views between the facing wings give a literal sense of neighbourly streets in the sky.

Encouraging residents to walk up to their flat through the building’s stepped section, as well as the generous ceiling heights, is apparently all part of BioRegional’s One Planet Living philosophy of health and happiness. The scheme is designed to the (now superseded) EcoHomes Excellent standard, with 500mm-thick walls and the incorporation of a biomass boiler — although the pellet storage shed has been bizarrely tacked on to the side of the building as an afterthought. The other OPL principles, such as locally sourced, recycled materials and rainwater harvesting, were either ignored or value-engineered out, and were conspicuously absent from the wider plan. As Cabe commented at the time: “It is curious that the approach to sustainability does not appear to be manifest in the layout of the masterplan and the proposed built form.” Curious indeed for a developer dedicated to eco-evangelism.

For all its ambition and carefully crafted moments, the building is the product of the fundamentally flawed idea that a residential block should take the form of a 30x30m cube. By slicing it into two slabs, connected by a core, Fat has achieved the most efficient layout and highest net-to-gross possible, although still four rooms per floor look out 3m on to a blank wall, in a north-facing undercroft. It is telling that

the neighbouring Alsop cube, planned to Stage E, was in fact no such thing, slimmed to more of a tower form with a central core and awkward played flat plans to avoid the 15m single-aspect depth.

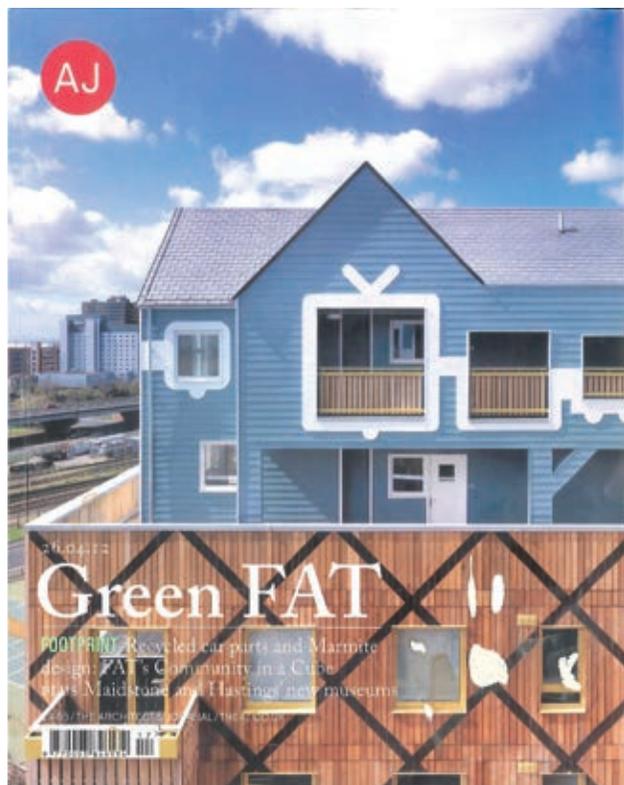
Since the developer disbanded and the land was handed back to the HCA earlier this year, there is hope that the plan might be adjusted, designed less with the arm’s-length sales pitch in mind and more with an idea of making Middlehaven a good place to live. Urban Initiatives has been commissioned to reassess the masterplan, with a focus on improving access to the site — currently severed from the town by railway tracks and an A-road, with only one point of access — and reinstating with the former street pattern. Practice director Kelvin Campbell talks of a “finer grain of family housing”, of “buildings edging streets” and of the “location of front doors” — all welcome words to a place born in the blind euphoria of noughties regeneration, high on the marketing potentials of object architecture.

As we leave, Adrian Wyatt, the founding chief executive of Quintain, arrives, hotly pursued by a stern-faced Mayor Mallon. He explains that, in the current climate, his business is moving out of the regions to consolidate interests in London.

“This project is not commercially viable, make no mistake. But the question is: is this a loss for us, or a loss leader?” asks Wyatt, in a theatrical turn of rhetorical developerspeak. “We’ve put a stake in the ground — and God loves a trier.”

PROJECT TEAM

Client BioRegional Quintain
Architect Fat
Executive architect Devereux Architects
Masterplan architects SMC Alsop / Studio Egret West
Structural engineer Martin Stockley Associates
M&E engineer DSSR Consulting Engineers
Landscape architect Grant Associates
Project manager Buro Four
QS Davis Langdon



Sustainability study

Alone in Riverside One

FAT's 'Community in a Cube' casts doubt on the viability of sustainable schemes in the current climate, writes *Steve Parnell*. Photography by *Charles Hosea*

Middlebrough is a town divided in two by the railway and the A66. To the south lies the generous civic square that forms today's heart, but on the wrong side of the tracks, over the banks of its river, lies the site of the original market square and where the docks traditionally lived.

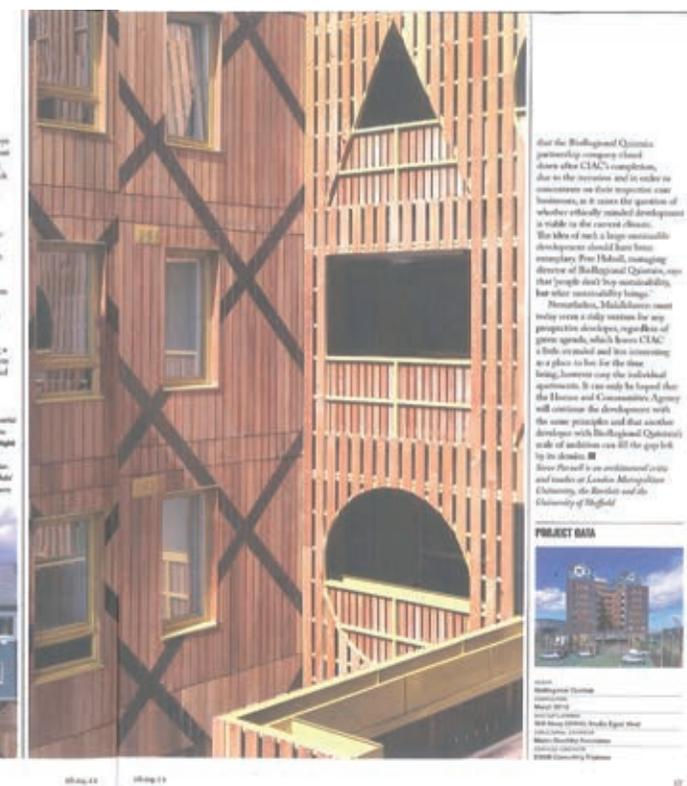
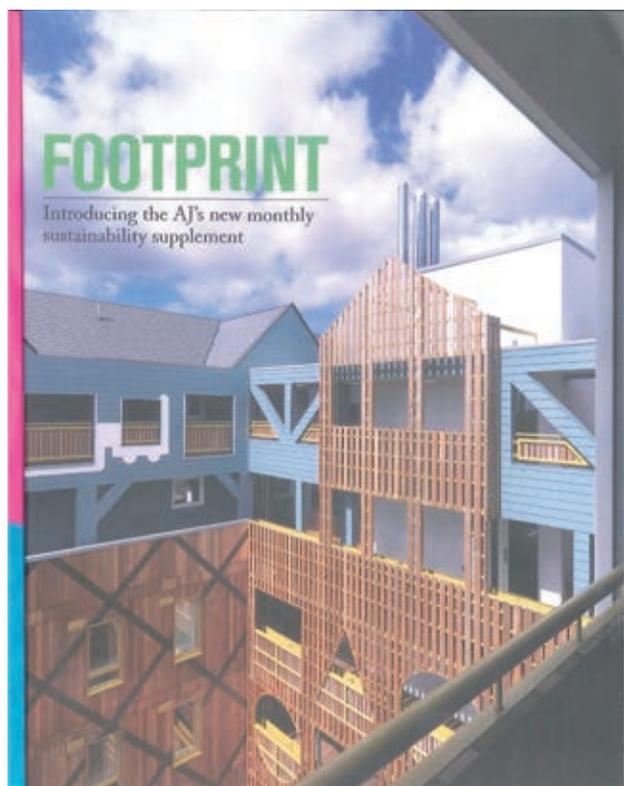
Riverside One is part of the Middlebrough development on the site of the old railway sidings that fed the docks, and is an identifiably WJG design-led masterpiece, commissioned by the now-defunct

East Valley Regeneration (EVR) development agency. The plan followed the design principles favoured for regeneration of individual units by separate owners, houses across a long site across the river. The five also of Middlebrough were to be apartment blocks alongside three 'live studios', housing kitchen facilities such as a cinema and hotel. Besides the college, the only completed building of the original masterplan is FAT's 'Community in a Cube', or CIAC, comprising



83 apartments above a restaurant and commercial space. The site, which is only five minutes' walk to the main station and 15 to the town centre, has a superb location next to the well-served blue metropolitan bridge. Surrounding the site are the South Kesteven and Civil Buildings' hypothetical site - former railway houses at 'Timoness', and Airedale's Manufacturing College, which offers further education to more than 6,000 students but falls to the area's transport. The potential for an ecological, social

Site plan
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P.02 Parnell, S. 'FAT's 'Alone in Riverside One.' Architects Journal, 26 April 2012, cover, pp. 54-57

Alone in Riverside One

FAT's 'Community in a Cube' casts doubt on the viability of sustainable schemes in the current climate, writes *Steve Parnell*. Photography by *Charles Hosea*

Middlesbrough is a town divided in two by the railway and the A66. To the south lies the generous civic square that forms today's heart, but on the wrong side of the tracks, 'over the border' as it's ominously known, is St Hilda's. This was the site of the original market square and where the dockers traditionally lived.

Riverside One is part of the Middlehaven development on the site of the old railway sidings that fed the docks, and is an identifiably Will Alsop-designed masterplan, commissioned by the now-defunct Tees Valley Regeneration (TVR) development agency.

The plan followed the early-noughties formula for regeneration of individually named buildings by signature architects, thrown across a map like dice across Las Vegas baize. The five dice of Middlehaven were to be apartment blocks alongside three 'dice shakers', housing leisure facilities such as a casino and hotel.

Besides the college, the only completed building of the original masterplan is FAT's 'Community in a Cube', or CIAC, comprising

and even economically sustainable post-industrial place is palpable.

The site's infrastructure has been largely completed, thanks to English Partnerships, and is of a decent quality, if unexciting design.

Even in its tumbleweed state, it is not difficult to imagine people heading for this place and wanting to linger. Where dockers once would have marched, dribbles of headphoned students now shuffle during the week, and armies of Boro supporters parade of a Saturday afternoon towards the Riverside Stadium whose capacity confirms Middlesbrough's class origins but belies its town status.

CIAC is clearly a development of the Brutalist idea of housing a whole community in a single building. One thing that Ivor Smith says he would have done differently at Park Hill was to treat the ground and top floors differently to those in between. FAT have achieved this within CIAC by sandwiching six floors of regular apartments between the vernacular New Urbanism motifs of the cube's ground and penthouse floors, which form the memorable after-image of the building.

The two-storey pitched-roof blue weatherboard houses on top are reminiscent of MVRDV's blue roof extension in Rotterdam, completed around the time CIAC was designed. Whereas MVRDV's extension stands out like an architectural Blue Man Group, FAT's is more the New Urbanism of Seaside, Florida. Nevertheless, the blue houses are hugely likeable without appearing contrived. The ground floor equivalent is a less successful log-cabin restaurant. Its squat form looks uncomfortably squashed and reminiscent of temporary Christkindlmarkt cabins. Thankfully, the vernacular motif

High-density metropolitan living does not exist in this part of Yorkshire



Site plan

1. CIAC
2. Middlesbrough College
3. Anish Kapoor sculpture



Above FAT's Cube overlooks the former Middlesbrough docks. Right Blue gabled houses and a log cabin restaurant form the top and base



82 apartments above a restaurant and commercial space.

The site, which is only five minutes' walk to the train station and 10 to the town centre, has a superb location next to the still-operational blue transporter bridge. Surrounding the old dock are Anish Kapoor and Cecil Balmond's hyperboloid wire-frame sculpture known as 'Temenos', and Archibald's Middlesbrough College, which offers further education to more than 6,000 students but little to the area's townscape. The potential for an ecological, social >>



did not multiply all over like WAM Architects's similarly sized stacked houses for the Inatel hotel in Zaandam.

The building elicited a confused reaction from the locals I asked. Among the predictable 'eyesores' and 'not for the likes of us' comments, one said that he didn't like the design, but thought the development was positive, another that it was 'like Marmite - you either love it or hate it.' High-density metropolitan living does not exist in this part of Yorkshire where everyone likes to keep their feet firmly on the ground.

The cube is intelligently split into two wings with only a service core and access decks in the centre. This minimises corridor lengths and allows most flats to have a dual aspect. The marketing suite model shows trees in the central courtyard and greenery spilling out over balconies and decks, but no such softening has arrived on site yet. The installed planters along the decks unfortunately remain empty and it is ambiguous who will tend them, although a 'green facilities manager' has just been appointed.

The south-facing raised courtyard is a nice idea, although at its grade level (first floor), only two flats' kitchen sink windows overlook it.

The apartments in the middle storeys are of a contemporary size and layout but their 2.7 metre floor-to-ceiling height and large windows with thick reveals and excellent views make them feel larger.

For a speculative private development, CIAC's ecological credentials are remarkable. A fabric-first approach means the 400mm-thick exterior walls are packed with insulation and heating is from a biomass boiler sized to heat five blocks. The approach to specification is also impressive: recycled North Sea oil pipeline segments form the foundation piles, the roof tiles are made of recycled car dashboards, the insulation is wood fibre (giving a wall U-value of 0.2) and the concrete uses 50 per cent GGBS and recycled hardcore aggregate.

It is therefore disappointing

Top left A log cabin restaurant is a tongue-in-cheek expression of the building's base. Below Blue gabled houses form the top floor flats, a cheerful expression of the building's top. Right A south-facing recess in the plan maximises the flats' southern exposure



that the BioRegional Quintain partnership company closed down after CIAC's completion, due to the recession and in order to concentrate on their respective core businesses, as it raises the question of whether ethically minded development is viable in the current climate. The idea of such a large sustainable development should have been exemplified. Pete Hahall, managing director of BioRegional Quintain, says that 'people don't buy sustainability, but what sustainability brings.'

Nevertheless, Middlehaven must today seem a risky venture for any prospective developer, regardless of green agenda, which leaves CIAC a little stranded and less interesting as a place to live for the time being, however cosy the individual apartments. It can only be hoped that the Homes and Communities Agency will continue the development with the same principles and that another developer with BioRegional Quintain's scale of ambition can fill the gap left by its demise. ■

Steve Parnell is an architectural critic and teaches at London Metropolitan University, the Bartlett and the University of Sheffield

PROJECT DATA



CLIENT
BioRegional Quintain
COMPLETION
March 2012
ARCHITECTS
Will Alsop (2004); Studio Egret West
STRUCTURAL ENGINEER
Martin Stockley Associates
SERVICES ENGINEER
DSSR Consulting Engineers

AGENDA



1. Section showing pub, bottom left

2. The massive waterfront redevelopment, featuring SMC Alsop's Krusty building third from left and FAT's CIAC fourth from left

MIDDLEHAVEN RUNS TO FAT

By Richard Waite

London-based Post-Modernist practice FAT has been given the go-ahead for this residential cube – part of the ambitious Will Alsop/Studio Egret West-designed Middlehaven masterplan in Middlesbrough, North Yorkshire.

The practice's Community In A Cube (CIAC) building and SMC Alsop's neighbouring Krusty housing block are the first two projects on the massive waterfront plot to be approved by the Middlesbrough Council.

Backed by developer BioRegional Quintain and Tees Valley Regeneration, the £7.5 million FAT scheme will create 80 apartments over eight floors.

The flats will sit above a new pub which will be built on the north side of the site. The south side will feature an 'Italianate' stepped garden,

nestled between the U-shaped residential blocks.

On the top of the development will be a series of 'dinky' skyhomes, described by FAT co-founder Sean Griffiths as 'streets in the sky with the look of New England or New Urbanist houses.'

According to Griffiths, the two rooftop levels of housing will be clad in an 'imitation wood' cement fibreboard for ease of maintenance.

There will be two entrances into the development: one a route up through the building via the green terraces; another into a grand top-lit hall complete with giant chandelier.

The main block will have a concrete frame dressed in brick and the central courtyard will be clad in patterned wood – an interior likened by Griffiths to the lining of a 'flashy jacket'.

Comparing CIAC to the firm's other recent work, Griffiths said: 'The scheme is slightly different from our others in that there is not so much emphasis on the facade – unlike our other projects which played that card.'

'This is a much more sculptural project. There is a sense of grandeur.' He laughed: 'It's almost heroic.'

The FAT scheme will also house a biomass boiler which will serve another seven similar sized 30m³ cubes which have yet to be designed.

Work on CIAC is expected to start on site in December this year and complete before the end of 2008.



3. The main block will have a brick-dressed concrete frame, with patterned wood cladding around the courtyard



An artist's impression of RiversideOne.

One thing's for sure - Middlesbrough's new RiversideOne has made a bold statement from day one. It's heralded as the UK's largest zero carbon development, but what exactly does this mean for the old Middlehaven dockside? Karen Southern finds out more.

WITHIN A decade, the empty wasteland lying between the Riverside Stadium and the Transporter Bridge will be radically transformed into a vibrant new waterfront community with a distinctly futuristic look.

In setting a new bar for urban regeneration, RiversideOne is heavily focused on energy-efficiency and sustainability - and these aren't just empty buzzwords, according to developer BioRegional Quintain, which has linked up with Tees Valley Regeneration (TVR) to fulfil this unique £200 million dream.

The London-based company - which also has projects on the go in the capital and in Brighton - has put its money where its mouth is by investing in a host of renewable energy sources, including a highly innovative hydrogen fuel cell.

The cell, currently being trialled in RiversideOne's marketing suite, is a European first. Pete Halsall, managing director, explained: "The concept was invented in Britain 150 years ago, but hadn't been progressed until recently."

"Now the economics are improving month on month and the technology will get progressively cleaner. We thought it would be an ideal launchpad as there is a thriving hydrogen industry and storage facilities here in the Tees Valley."



Temenos is the first art installation in the planned Tees Valley Giants series.

There are other energy and water efficient technologies being utilised in the development as it is gradually rolled out over the next seven to 10 years; these include a biomass boiler; use of recycled materials such as granite sets and crushed glass in the landscaping; thermal efficient windows; natural renders; and central heating with a fresh air ventilation and heat recovery system to reduce costs.

And in line with the principle of sourcing local skills, resources and contractors, Durham-based Hall Construction has started the first phase of the public realm works on site, which boast distinctive lighting and street furniture, and imaginative use of greenery and planted pergolas.

The scheme has already attracted international acclaim, being highlighted as an example of best practice in new sustainable waterfront development at last year's Expo in Portugal.

At the time, Mr Halsall commented: "We've said from the outset that Middlehaven would be the UK's first ever major zero carbon development, and of all the projects on show at the Expo, it certainly appears to be the only one taking sustainability to the extent we are."

Work has already started on roads and landscaping for the 900,000 sq ft development, and the first residential phase should begin at the end of the year.

Artists' impressions show a range of visually striking, radically different architectural designs, to include 750 homes and a host of leisure, education and office facilities.

Apartments in the first residential "cube" (nicknamed CIAC - Community in a Cube) have already been released for sale, with four more to follow, at prices starting just under £95,000.

Twelve apartment types are available in CIAC, each named after a pioneering modern artist such as

Rodin, Hepworth and Popova.

At ground level, there is an area of open space containing a chalet building and a central courtyard flanked by two wings.

And as well as a fine riverside vista, residents will also enjoy stunning views of planned megasculpture, Temenos, part of the world's largest public arts initiative. Set to reach 110m in length and almost 50m in height, it will be the first in the Tees Valley Giants project, with others to follow in Stockton, Hartlepool, Darlington, and Redcar and Cleveland.

Joe Docherty, chief executive of TRV, added: "RiversideOne is a great example of what Middlehaven and the regeneration of the Tees Valley is all about."

"It is about the future - the way we will live tomorrow, and creating truly sustainable projects like Middlehaven to secure the resources of the planet for future generations."

"Tees Valley Regeneration's role is to attract the interest of ground-breaking companies such as BioRegional Quintain and the CPI (which helped in the development of the fuel cell), and spread the word that the Tees Valley is a great place to live and do business."

For more information, visit www.riverside-one.com

What's the story?

This unique £200 million scheme will include:

- 750 homes
- State-of-the-art leisure, education and commercial facilities
- World-class public art installations
- Sustainable living principles
- Innovative alternative energy sources

communicate

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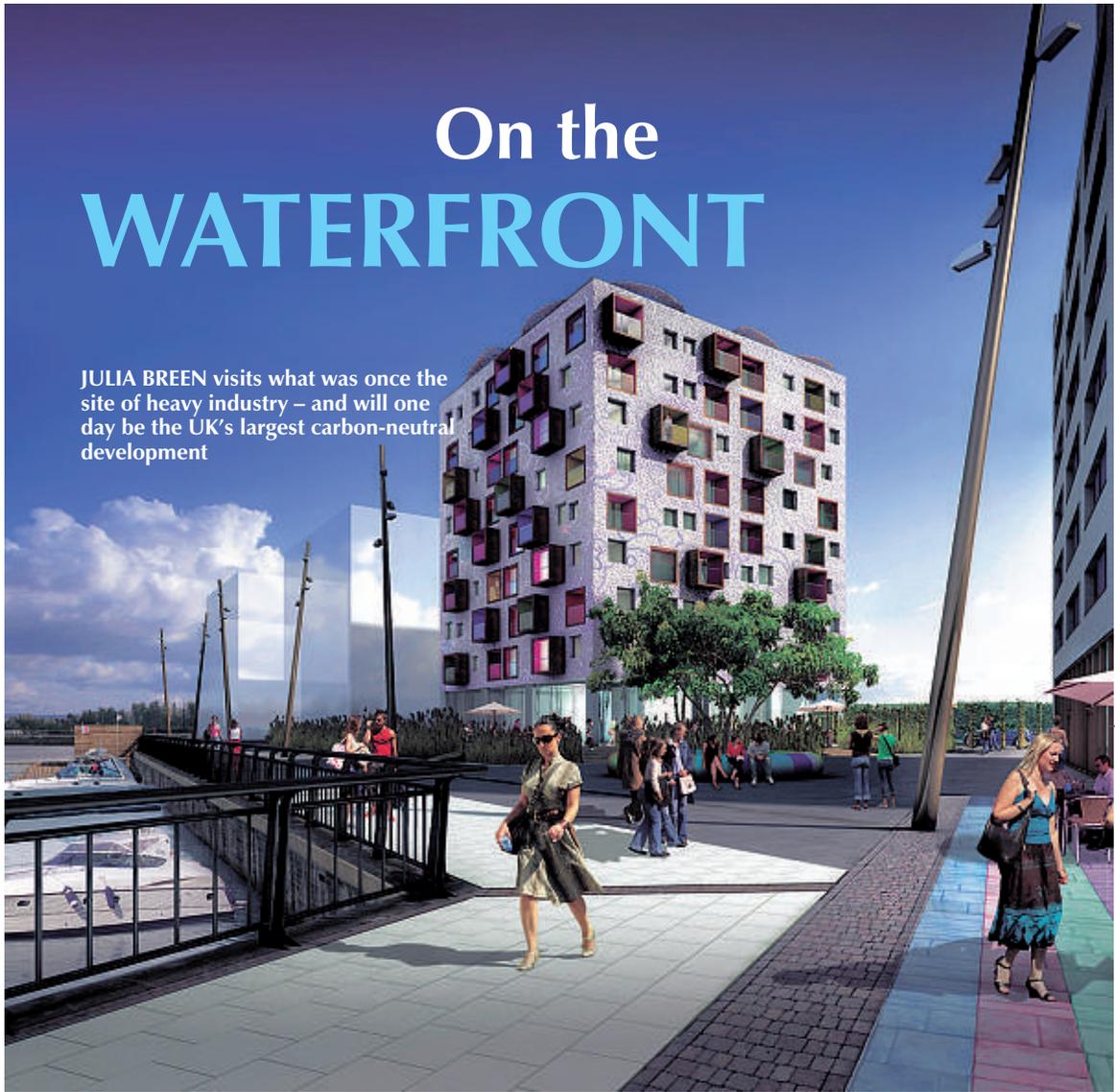
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On the WATERFRONT

JULIA BREEN visits what was once the site of heavy industry – and will one day be the UK's largest carbon-neutral development



ONCE crowded with cranes, trains and sheds, with dockers loading 16-stone sacks in all weathers, Middlehaven Dock was a noisy, dirty, industrial hub until its closure in 1980.

It became a redundant wasteland, the shining outline of Middlesbrough FC's Riverside Stadium, an oasis in a brownfield desert.

But across the dock basin from the

football ground, a vision of the future is coming to fruition.

In ten years, futuristic apartment blocks, offices and a hotel will stand on this site, next to the Middlesbrough College campus, which opens in September. Not only are these buildings different because they are designed by award-winning architects, they are also carbon-neutral. They will be powered by a combination of biomass

boilers, wind and, possibly, hydrogen fuel cell technology in the UK's largest carbon-neutral development to date.

The vision of RiversideOne is ambitious. Sailing boats will glide across the dock basin and there are plans for a water sport zone and moorings for boats. There are even plans to import sand to create a beach. The carbon-neutral apartment blocks, offices, and a hotel will overlook the waterfront. ▶



An artist's vision of the RiversideOne development at Middlehaven and, below, an on-site show apartment

◀ flanked by some of Middlesbrough's best-known landmarks – the stadium, the old clock tower, and the Transporter Bridge.

Pete Halsall, managing director of developers BioRegionalQuintain, says: "This will effectively create a new and vibrant quarter of Middlesbrough.

"Waterfront living is very popular. There is a huge market for people who want to live in a Venetian way, with the water just outside their window. It creates a very tranquil environment. But it isn't just going to be somewhere to live. It will be a community, and somewhere for people to visit."

The development will eventually provide more than 750 homes by the waterfront – and some apartments will even be built on two floating piers in the dock basin, based on Dutch technology.

The college will provide amenities for residents, including a restaurant, creche, internet cafe, gym and, of course, night school and adult education classes.

The ground floor of most of the



buildings will be taken up with shops, pubs or restaurants, the idea being that the development will provide a whole community. There will also be a full cultural programme, including open air music festivals and art exhibitions.

An outdoor events square will host farmers' markets and other attractions, and an entertainments building will provide a cinema, bowling alley, bars and restaurants.

On-site allotments are also being provided next to the second building to continue the sustainable food theme, and there will also be a food box delivery scheme for residents.

The first two buildings, CIAC (which stands for Community in a Cube) and Qube, are the first to be built and, along with the events square, will be complete by the end of next year. Studios and one and two-bedroom apartments are for sale in CIAC now. The on-site show apartment gives some idea of how they might look, but as all the apartments are different shapes and sizes, it is difficult to be specific.

The apartment's bathroom and ▶



en-suite come with high-spec fixtures and fittings and the kitchen includes a fridge, oven, and in the two-bedroom apartments, a dishwasher – all triple A rated for energy efficiency. The heat will come from a biomass boiler in the basement of the building which is guaranteed by BioRegionalQuintain to be the same price or cheaper than current energy costs – a pressing concern for many people.

CIAC, the first building, will have a south-facing terraced garden courtyard in the centre of the cube. The whole building is designed around trying to bring people together to meet their neighbours, helped of course, by the pub which will be on the ground floor and an atmospheric lobby,

complete with a giant chandelier. Mr Halsall says: “The idea is to create a community there, even before the whole development is complete. The communal garden areas, the pub and the events square will all contribute to this.”

Looking at the model showing the whole RiversideOne development is like looking at a prediction of not 21st, but 22nd Century living. The buildings are so futuristic, so colourful, like nothing that has been designed before.

Many predicted that the original masterplan of Middlehaven, designed by architect Will Alsop, would be watered down.

But the individual buildings are as ambitious as ever.



Prices for a studio apartment in CIAC start at £89,000 and the larger two-bedroom apartments, with balconies and waterfront views, go up to £139,500. There is also a first-time buyer scheme for key workers and those who work nearby. For more information, phone 0808-172-2430.

Win gym membership at the Quality Living Leisure Club

WHETHER it's for exercise or pure relaxation, you will find all that you want in a health club at the Quality Living Leisure Club at Scotch Corner.

The club has superb modern equipment, a large range of facilities and friendly and experienced staff who can write tailor-made exercise programmes to help you achieve your goals. Leisure facilities include a sauna, spa, swimming pool and steam room, as well as a fast tan sunbed. The club also offers water-based activities such as aqua aerobics and swimming lessons.

All-round fitness is a combination of strength, stamina, flexibility and a good cardiovascular system. The gyms at Scotch Corner are all designed around this fundamental principle and you can choose from cardiovascular exercise machines, resistance equipment, traditional free weights and floor exercises.

The Scotch Corner Hotel is giving away a

one-year membership for two people, plus a six-month membership for one runner-up. To enter, just tell us the name of the leisure club at Scotch Corner.

Answers on a postcard with your name, address and telephone number, to be received by the end of August, to Scotch Corner Gym Membership, Living Magazine, Features, The Northern Echo, Priestgate, Darlington DL1 1NF.

Quality Living Leisure Club – Scotch Corner, near Darlington DL10 6NR; email scotchcorner@quality-living.com; phone 01325-500555; Fax 01748-850475. Open: Monday to Friday 7am to 10pm; Saturday and Sunday, 8am to 10pm. Off peak hours are Monday to Friday 9am-5pm.

Terms and conditions: Sun bed sessions, beauty treatments, time in the hair salon and any food and beverages purchased are not included in the membership and will incur an additional cost. The prize is subject to availability.



Above: The superb facilities at the Quality Living Leisure Club at Scotch Corner

WINNER: The winner of the June competition, a night away at the Grey Street Hotel, Newcastle, is Mrs P Edwards, of Northallerton. Congratulations!

RIBA awards programme: Sustainability Statement

The RIBA is committed to meeting the challenge of climate change and raising the understanding of sustainability within the profession. This document is to provide where possible quantitative and qualitative data on the sustainability credentials of buildings submitted for awards. There may be buildings where it is not possible to produce quantifiable data either because of their size, or because they do not provide climatic enclosure, in which case only the written statement needs to be included.

Gross floor Area	6,000	m ² Treated floor area (eg where energy use can be measured)	5,200	m ²
Annual energy/CO ₂ consumption for space and water heating (excluding any contributions from onsite renewables which should be noted below)		Zero – 100% biomass heating and hot water	Zero	*kgCO ₂ /m ²
Annual energy/CO ₂ consumption for electrical usage (excluding any contributions from onsite renewables which should be noted below)		74,000 kWhrs		38,200 *kgCO ₂ /m ²
Total Annual CO ₂ emissions/m ² treated floor area				38,200 *kgCO ₂ /m ²
What EPC rating was achieved by the Building on completion			Details Unavailable	
Give the basis of calculations/software / measured data used to achieve the above data.				
Give details of any benchmarking evaluation system that has been completed for the building(e.g. BREEAM , , SAP, CSH, LEED EPC ratings etc) EcoHomes “Excellent”				
Where appropriate provide the name of the engineer or engineering consultancy that has validated the above figures. N/A				
Give brief details of any renewable energy systems that are incorporated into the design. A biomass boiler plant of 250kW capacity provides 100% of the heating and hot water demand which reduces the carbon emissions for heating and hot wtare to 5,100				
The RIBA considers building handover & client feedback to be important in assessing the success the buildings design. Please confirm if you have commenced RIBA Stage L2 and intend to undertake stage L3.				

*For calculations of carbon emissions please use the following conversion factors:
 Natural Gas 0.198 kgCO₂/kWh
 Grid Electricity 0.517 kgCO₂/kWh (Divide by seasonal COP for Heat Pumps)
 Fuel Oil 0.297 kgCO₂/kWh
 Biomass 0.013 kgCO₂/kWh
 Biogas 0.018 kgCO₂/kWh

The intent of the developer, Bioregional Quintain in 2006, was that the development was to follow the “One Planet Living” principles developed by Bioregional Development Group and WWF to promote the concepts of sustainable living and ecological foot-printing.

Building on their experience from the New England Quarter in Brighton, BRQ prepared a sustainability action plan which set out their vision for creating a truly sustainable community on the site of the regeneration of Middlehaven docks.

This document was the reference point for all decision making in the design and construction of the buildings and the public realm. A ten point action plan is set out that addresses carbon emissions, recycling, transport, materials, opportunities for on-site food production, water consumption, biodiversity, sustainable community structure, and access to pleasant outdoor space.

Sustainability was a cornerstone of the development principles and all members of the team were inducted into the one planet living principles and the action plan for the project.

The design team worked together to develop designs for the building and structure that reduced the demand on resources and will assist the residents to live a sustainable lifestyle. Design features included:

- High thermal performance for the external envelope of less than 0.21 W/ m²deg C
- Community heating installation with Heat Interface units in each flat serving the flat heating and the domestic hot water storage cylinder.
- Balanced whole house ventilation
- Low energy light fittings
- Low flow taps, showers and WC cisterns
- Drying spaces to avoid the need for tumble dryers
- Natural lighting to circulation areas to reduce electrical energy consumption
- Provision for waste segregation for recycling and composting
- Roof top irrigated mini allotments for local food production
- Rainwater harvesting for irrigation

In order to meet the aspiration of net zero carbon the heating and hot water is generated by a wood chip biomass boiler which meets 100% of the demand and it is intended that electricity is purchased through a certified off site renewable energy generator.

The contractor was set and achieved the target of recycling 80% of the construction waste.

All of this contributed to an EcoHomes rating of “Excellent”.