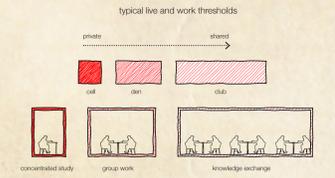
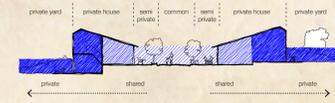


Introduction

We are undergoing a third industrial revolution. Manufacturing is going digital. Rapid Prototyping and Fabrication (RPF) technologies are for the first time enabling high-tech, high-precision manufacturing to take place on a domestic scale. This calls for a need to investigate what a factory of the future might be like, and what implications this might have on both the workplace and home.

The FactoryHome addresses this issue, providing an urban factory of the future in which people can live and work. A detailed analysis of workplace trends reveals a transition from productive based management (Taylorist principles) towards more humanist based management which prioritises knowledge exchange and social interaction between building occupants. Meanwhile, many experts argue that the dominance of private housing culture in the UK has assisted in the fragmentation of residential communities. The recent government report *Healthy Neighbourhoods* (DCLG 2011) highlights both the neglect and importance of social networks within our built environment. Alternative community based typologies such as cohousing (originating in Denmark and the Netherlands) offers an architecture which, like the modern workplace, encourages interaction between residents and aims to provide stronger residential networks and a form a socially supportive environment.

The FactoryHome builds on both these developments in the workplace and in housing and combines the two, to create a social place for modern artisans to live and work - a sector which is recognised as a vital part of the future UK economy.



Both residential developments and knowledge based organisations rely on a spectrum of spatial thresholds to provide places which are private, semi-private, and public. These different spaces enable different activities to occur, and different types of work to take place.

A key design feature of the FactoryHome is that it builds on a wide range of both historic and modern live/work precedents to increase the occupant control and flexibility of these spatial thresholds.

During the working day both privacy and social interaction are facilitated. A central 'transition zone' enables a hub of creative energy between the building occupants to take place.

Outside of working hours the transition zone becomes an extension of the live units.

Both live and work units are designed with a number of different components, to allow control of various spatial thresholds, even to the extent of temporarily removing the entire facade of a unit. Such features blur the traditional thresholds in our live and work environments - offering more opportunities for building occupants to interact.

The concept of a transition zone also addresses the issue of the increasing demand, and increasing costs of urban live and work spaces. Across the world, many workplaces rest dormant outside of working hours and residences dormant during working hours which can be considered a wasteful use of accommodation and resources, particularly in densely populated locations with high land values.

The FactoryHome attempts to maximise adaptability:

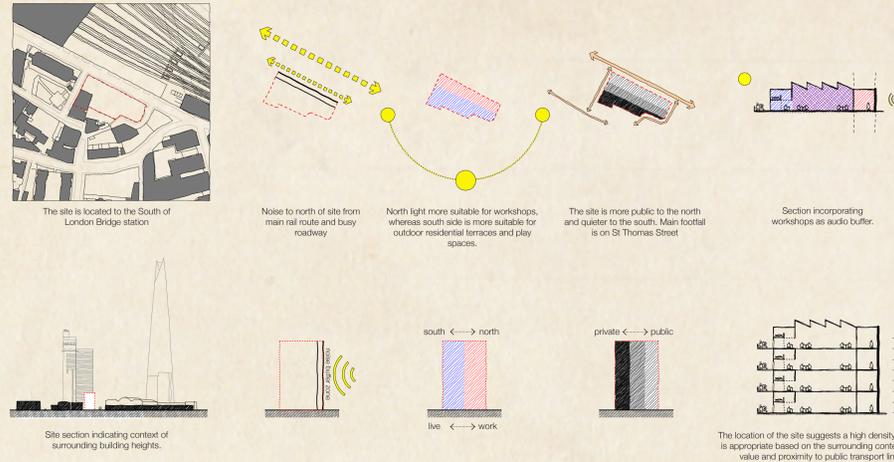
- on a short term basis for the social benefit of the building occupants - offering an alternative to our conventional housing and workplace typologies.

- on a long term basis to maximise the flexibility of the building structure over time, adapt to changing family needs, and minimise the environmental footprint of the building by facilitating adaptation, rather than demolition.

Please note that in all images, diagrams and in the film that blue = live and red = work.

Influence of the site context

The site is located to the south of London Bridge Railway Station, in Southwark, London. The site environs have significantly influenced the design of the FactoryHome:



Design concept

The FactoryHome clearly expresses the separation of live and work elements of the building both externally and internally. The work areas occupy the street level, and north side of the building. The live areas occupy the south side and the roof spaces. Both live and work spaces interlock around a central space - the 'transition zone'. This essentially acts as an internal street which is claimed by the work units during the working day, and claimed by the live units during non-working hours.

The development of the transition zone has been aided by precedent studies, and a detailed investigation of both live and work environmental thresholds. It is the aim of the building to facilitate a 'healthy neighbourhood' - an innovative, social and strong live and work community as an alternative to typical private residential developments which currently dominate the UK housing market.



Short term adaptability



Perspective of the interior street in use during working hours.



Perspective of the interior street in use outside of working hours.



Perspective of the interior street used for an event (this could be for either work events or non-work events)

Long term adaptability

Core structure



Structural Model: North side

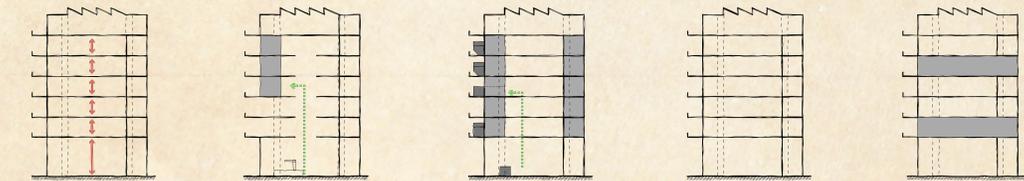
Structural Model: South Side

Structural Model: North Elevation

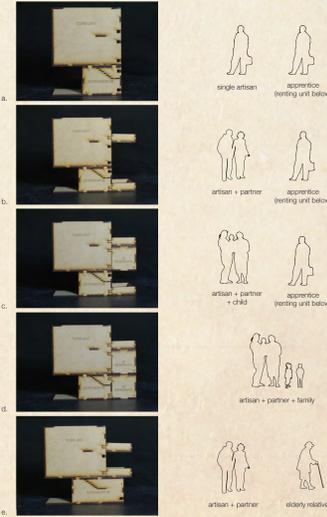
The FactoryHome has also been designed with long term adaptability in mind:

Live units and studio spaces require smaller floor areas, it is therefore logical to place the main structural columns to the perimeter of the building - freeing the central space. This also maximises the flexibility for a future change of use - such as conversion to solely commercial or residential use.

The Fabrication Laboratory or 'FabLab' on the ground floor allows continuous additions and modifications to be made to both live and work units. The key structural elements of the building simply act as a frame and are expected to last for 100 years +. The smaller elements of the building are demountable and simple to dismantle and adapt.



Adaptable live units

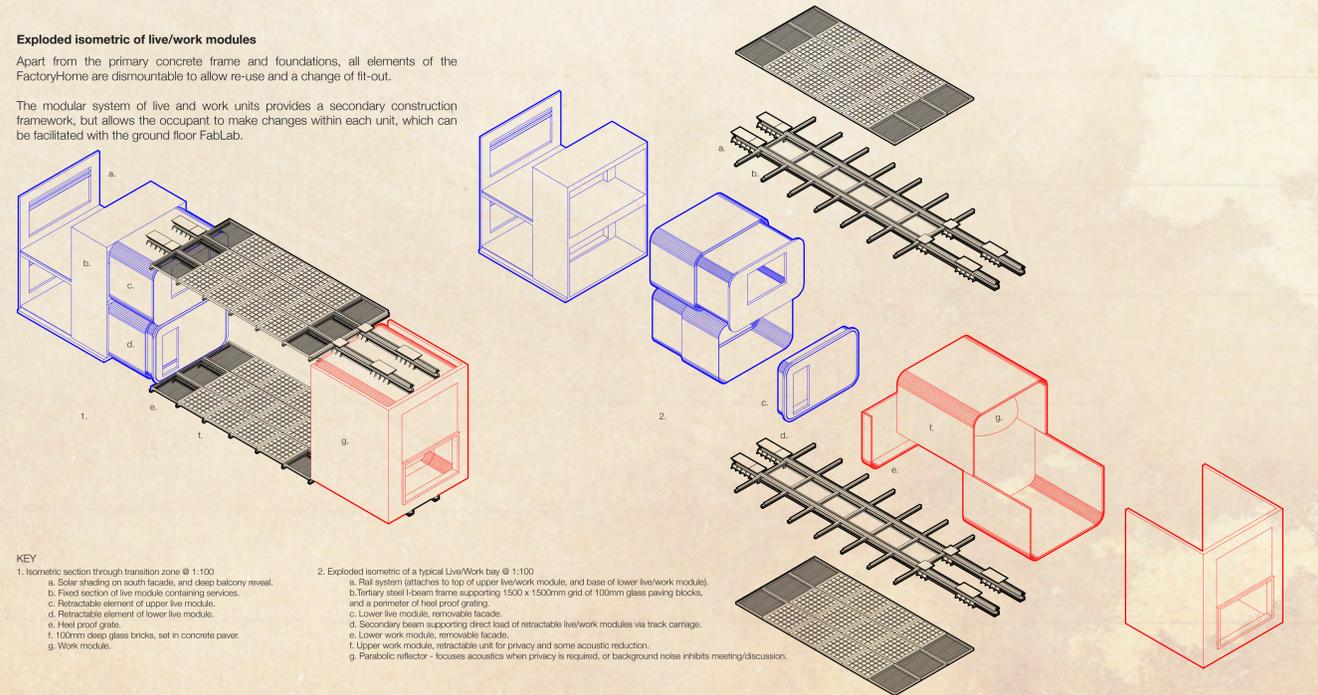


- Different accommodation options suitable for different family stages
- Base unit + rentable unit.
 - Base unit + rentable unit + 2 no. outdoor terrace.
 - Base unit + additional bedroom + 2 no. outdoor terrace.
 - Base unit + 2 no. bedrooms + outdoor terrace.
 - Base unit + granny annex + 2 no. outdoor terrace.

Exploded isometric of live/work modules

Apart from the primary concrete frame and foundations, all elements of the FactoryHome are demountable to allow re-use and a change of fit-out.

The modular system of live and work units provides a secondary construction framework, but allows the occupant to make changes within each unit, which can be facilitated with the ground floor FabLab.



KEY

- Isometric section through transition zone @ 1:100
 - Solar shading on south facade, and deep balcony reveal.
 - Fixed section of live module containing services.
 - Retractable element of upper live module.
 - Lower live module, removable facade.
 - Heel proof grate.
 - 100mm deep glass bricks, set in concrete paver.
 - Work module.
- Exploded isometric of a typical Live/Work bay @ 1:100
 - Rail system (attaches to top of upper live/work module, and a perimeter of heel proof grating).
 - Tertiary steel I-beam frame supporting 1500 x 1500mm grid of 100mm glass paving blocks.
 - Lower live module, removable facade.
 - Secondary beam supporting direct load of retractable live/work modules via track carriage.
 - Lower work module, removable facade.
 - Upper work module, retractable unit for privacy and some acoustic reduction.
 - Parabolic reflector - focusses acoustics when privacy is required, or background noise inhibits meeting/discussion.

1:100 Floor plan of a typical floor indicating the relationship of the central street, live and work units



- KEY**
- | | | | |
|---|---|--|---|
| 1. Live units are dual access and can be accessed from the central space or to the rear of the live units on the upper level. | 4. Work space extended. Removable facade (contains additional space and invites interaction between different organisations). | 8. 'Concept pod' to stimulate ideas by changing one's surroundings. | 11. Pull out desk and chairs. |
| 2. Example of work space extended, but closed for privacy and/or acoustic insulation. | 5. Work access. | 9. Atrium for ventilation, lighting and to encourage interaction between floors. | 12. Retractable hammock. A partially retracted facade can invite interaction from neighbours. |
| 3. Live space closed and retracted. | 6. Communal kitchen (each live unit is also equipped with a kitchenette). | 10. Fold down dining table for entertaining guests and neighbours. A number of these can be used simultaneously for large common meals and events. | 13. Occupant working table. |
| | | | 14. Central space used as a play space. |

This plan of the FactoryHome indicates a working day on the left (work units open) and after work/weekend scenario on the right (live units open). The plan has been based on a 1500x1500mm grid system to allow future adaptation to an office environment and to allow co-ordination with various building elements. Also note the absence of columns in the central space, allowing this area to be used for a wide variety of purposes. One of the most important features of the building is the focus on community based living. Each resident has private space, but there are also a variety of common facilities such as the common kitchen. The removable facades allow residents to expand their living space into the shared space, increasing opportunities for casual interaction with other building occupants and provides a break out space for the work units. The design aim is to encourage interaction between building occupants and facilitate both a strong work and residential community.

1:200 Elevations

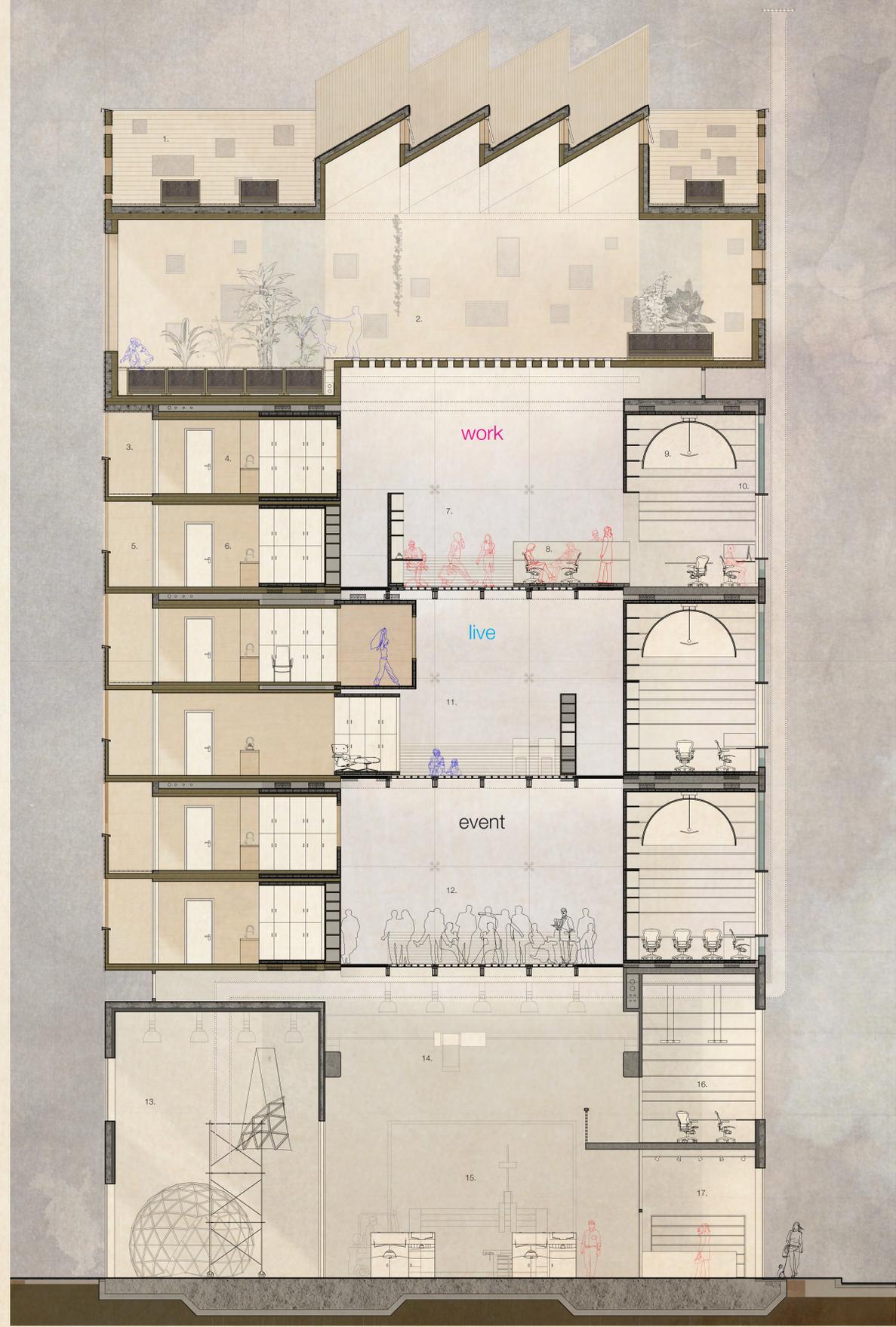


1:200 Site Plan



- KEY**
- | | | | |
|---|---------------------------------------|--------------------------------|--------------------------|
| 1. Circulation to live units (secondary access). | 5. Multipurpose medium size workshop. | 10. Outdoor break out space. | 15. Large RFP equipment. |
| 2. Large multipurpose workshop/gallery/exhibition/conference space. | 6. Multipurpose medium size workshop. | 11. Timber workshop. | 16. Materials shop. |
| 3. Exhibition/retail space. | 7. Multipurpose workbenches. | 12. Small RFP equipment. | 17. Storage. |
| 4. Electronics equipment. | 8. Reception/lobby. | 13. Technician space. | 18. Loading bay. |
| | 9. Presentation space. | 14. Metal & plastics workshop. | |

1:50 Section A-A



- KEY**
- | | | |
|---|---|--|
| 1. Roof terrace & productive garden. | 5. Private south facing terrace. | 11. Central space used as an extended living space outside of working hours. |
| 2. Winter garden & productive garden. | 6. Lower live unit. | 12. Central space used for an event (this could be for live or work purposes). |
| 3. Rear expandable studio space. | 7. Central space used as work space during working hours. | 13. Large flexible workplaces suitable for a range of different needs. |
| 4. Upper live unit (can be connected to lower unit via an optional staircase to accommodate changing family needs). | 8. Expandable studio space. | 14. Small gantry crane. |
| | 9. Extendable top section to provide privacy and acoustic insulation when required. | 15. Large scale Fabrication Laboratory 'FabLab'. |
| | 10. Channel glazing with semi-transparent aerogel insulation provides high levels of diffused light to studio spaces. | 16. FabLab support facilities and flexible meeting rooms. |
| | | 17. Fabrication bureau, materials shop, exhibition space and specialist retail facing main street. |

The ground floor FabLab, workshops and support facilities are available to both the businesses based within the building, and for community use and external businesses. High floor to ceiling heights provide flexible future adaptation to retail or commercial use, and allow simple replacement and maintenance of services (should the services requirements change in future).

The environmental strategy for the building uses passive techniques, and the frame provides a high level of thermal mass. This allows for a range of occupancy levels, and minimises the need for additional services/replacement of services.