Space, Buildings and the Life Worlds of Home-Based Workers: Towards Better Design

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Abstract

This article draws on recent research into the architecture of home-based work, the working practices of the home-based workforce and the range and types of buildings they inhabit. The initial project was conducted in 2005-07. It involved 76 informants, from urban, suburban and rural contexts in England: a London Borough, a London suburb and a West Sussex village. Follow-on research was conducted in London in 2009-11. Originating in architecture, the research employed a number of visual methods, including photography, orthogonal drawing and diagram-making. While these visual methods are commonplace in architecture, they are normally used to portray idealized buildings and interiors. People and their everyday lives are usually absent. In contrast, as is more typical of sociology, a primary concern of this research was to understand the ordinary daily lives of people who either lived at their workplace or worked in their homes. The research sought a better understanding of the historical and contemporary significance of the spaces and buildings that would be of use to this workforce, one which could give a voice to contemporary home-based workers across the social spectrum and in a wide variety of occupations. Representing their life-worlds visually has been central to this aim.

Introduction

1.1 This article attempts to show how an architect's eye for the importance of space, and her experience in using visual methods, can contribute to wider understandings of the social situation of home-based workers[1]. It will argue that the visual material produced by an architect for the analysis of space can tell us something about the constraints within which home-based workers work and the ways that they construct their work and domestic identities through their use of space.

1.2 Architecture is defined as the art or practice of designing and constructing buildings, or the style in which a building is designed and constructed. It is a profession that is perceived as focusing on the spatiality, form and appearance of buildings; people, their relationships and the structures of society are not necessarily thought to be part of the field. The primary area of investigation in the architectural research project on which this article draws was the relationship between domestic space and workspace in buildings inhabited by home-based workers, and how this enabled and/or constrained different ways of working. Unusually for architectural research, it involved 76 informants, from urban, suburban and rural contexts in England: a London Borough, a London suburb and a West Sussex village. Follow-on research from 2009 to 2011 concentrated on the development of a design guide, pattern book and precedent database for dual-use buildings combining dwelling and workplace (see <http://www.theworkhome.com>). Current work is focused on design for home-based work in social housing, following the UK coalition government's pledge to lift the ban on social tenants starting businesses in their own homes (HM Government 2010). Colleagues and I aim ultimately to develop a better understanding of how buildings and cities could be designed and governed more effectively to accommodate the rapidly growing contemporary home-based workforce.

1.3 Visual methods offer an especially useful way of understanding the building type that combines dwelling and workplace because, while this may appear an unfamiliar concept, in reality such buildings exist all around us and have done for hundreds, if not thousands, of years. Photographs and drawings can make us aware of them and, as analytical tools, help us to understand the nature of a little studied or understood phenomenon that has immense contemporary relevance. This article presents findings on the relationship between home-based work, workers, space and place, and discusses the role visual methods played in developing this knowledge.

Background

2.1 Both the numbers of people working at home (or living in their workplace) and the spatial and environmental implications these practices involve have changed over time. Home-based work was almost universal before the industrial revolution and as a result the majority of pre-industrial buildings combined dwelling and workplace in some way. In medieval times most people were members of self-

sufficient and self-reproducing communities, their lives involving a combination of productive and domestic work, undifferentiated and indistinguishable. Clearly defined class distinctions determined different lifestyles for people according to their social status, however, and the generally dual-use buildings of the period reflected this. While peasants commonly shared humble accommodation with their livestock (Fig 1), the often vast households of the nobility generally lived and worked in spacious manor houses (Fig 2).

Figure 1. Reconstruction of daily life in a medieval longhouse, Wharram Percy, North Yorkshire (left)
Figure 2. Baron's Hall at Penshurst Place & Gardens (right)

Figure 3. Early nineteenth-century weavers' houses, Crossland Square, Bethnal Green, London. Photograph 1954 (left)
Figure 4. Interior of early nineteenth-century Bethnal Green weaver's house. Photograph 1894 (right)

2.2 Until the industrial revolution most manufacture was home-based, often in purpose-built buildings (see Fig 3, Fig 4). The invention of the factory and the development of the City as a financial institution initiated a separation between home and work for many people. But although no longer the dominant practice home-based work continued throughout the nineteenth century. Evidence of this working practice can be found in the original notebooks from Charles Booth's 1886-1903 'Survey of Poverty in London' (Booth & Steele 1997; LSE Archives 1903). These include many descriptions of people from across the social spectrum and in a wide variety of occupations living at their workplace or working in their homes. However, at the beginning of the twentieth century social reformers such as Beatrice Webb, eliding the problem of overcrowding and poor sanitation with the issue of home-based work, achieved the prohibition of this working practice in the social housing built after slum clearances (Webb 1938). This ban contributed to a growing spatial and conceptual separation between dwelling and workplace. Although home-based work continued for people in a wide range of occupations, from the Prime Minister in Downing Street to the artist in their purpose-built studio-house (Fig 5), the doctor with a surgery in their house (Fig 6) and the rag-trade machinist (Fig 7), by the mid-twentieth century it was seen as a more marginal practice.

Figure 5. Artist's workhomes at St Paul's Studios, Talgarth Rd, London, 1890, Frederick Wheeler

Figure 7. Cypriot home-based machinist, 1954

2.3 In contrast, over the past 30 years the home-based workforce has been growing rapidly, although estimating its size in the UK is problematic as this work is often hidden. In addition, as there is no agreement about definitions in this field, surveys often count different populations. As this research has an architectural focus, all home-based workers are of interest regardless of occupation, class, ethnicity etc because each uses the space available to them in a way particular to their occupation, family structure and personality. I have therefore, since my doctoral research, adopted the broad definition of a home-based worker as

> any person who engages in productive work in or adjacent to their homes, from their home as a base, or who lives at their workplace, in any occupation, for a minimum of eight hours a week (Holliss 2007: 55)

This is the point at which I consider home-based work becomes spatially significant.

2.4 Despite the difficulties inherent in counting the home-based workforce in the UK, there is general acceptance that it is both under-reported and that the rate of increase shows a remarkable trend. Felstead and Jewson's analysis of data from five different surveys providing labour force information found that while

> In 1981 4.3% of employed people in the UK worked mainly at or from their home; almost 30 years later this proportion had risen to 11.3%, representing 3.2m workers or triple the number reported in 1981 (Felstead 2011: 5).

2.5 However, as Felstead and Jewson define home-based workers as those who work *mainly* at or from home, they include neither the substantial proportion of employed people who work in their homes for at least 8 hours per week, nor those living at their workplace. Nonetheless, Felstead and Jewson's analysis of the Skills Survey 2001-2006 indicates that '...more than a quarter of workers reported that they did not work in 'a single workplace away from home [e.g. office, factory or shop]' in the week before interview (Felstead 2011: 7), implying that these people were, at least in part, working at home during the period in question.

2.6 Complex factors underlie this rapid increase in home-based work. It can be attributed in part to a globalised economy and innovations in telecommunications and information technologies that make it increasingly unnecessary for large sections of the workforce to gather in collective workplaces to carry out their work. The fact that women's employment is also increasing may also be a contributory factor, because home-based work enables them to interweave paid employment with caring responsibilities.

2.7 It seems likely that the number of home-based workers will continue to rise. It is a popular working practice that offers many potential social benefits. As well as allowing people to combine their paid and domestic work, it is good for the city, as it increases the number of people inhabiting their local neighbourhoods over 24 hours, and therefore tends to contribute to an increase in local social networks and busier, and therefore livelier and safer, neighbourhoods (Urban Task Force 1999). By reducing

commuting and making the use of the overall building stock more efficient, it also tends to contribute to a reduction in carbon emissions (Dwelly & Lake 2008). And it is good for the economy, as both large corporations and start-up businesses use home-based work to reduce overheads and increase profitability (BT 2006). It can also involve a range of potential problems and disadvantages, including social isolation and issues around occupational identity (Holliss 2007).

2.8 Despite the increasing number of people working at home, and the likelihood that this will continue, the implications for planning and design are rarely considered. The historical marginalization of home-based work means that we do not generally plan or design for home-based work at either the urban or the building scale, nor consider its social implications. And as a result, the dual-use buildings the home-based workforce inhabits are generally concealed. While a substantial body of scholarly work exists on these buildings, it is fragmented and often disguised in publications about houses or workplaces, about individual buildings or architects' oeuvres, or about particular geographical locations or periods of history (for example Prest 1960; Benton 1987; Barnwell et al. 2004; Pollock 2005), and therefore difficult to access.

2.9 Working at home, or living at the workplace, presents a series of social, spatial and environmental issues. Historically, these revolved around a gradual differentiation between paid and domestic work over time that resulted in an increasing spatial separation between the dwelling and workplace elements in the home, as well as a growing awareness of health and safety issues. This led to animals and machinery being separated from living accommodation and attempts to create acoustic separation between dwelling and workplace functions, especially where the work was noisy (Prest 1960). The built environment still shows evidence of historic home-based workspaces, often with large areas of glass where high levels of natural light were required or high ceilings to accommodate tall machinery (see Fig 8).

Figure 8. Cash's cottage factory, Kingfield, Coventry, 1857

2.10 Today's issues revolve primarily around relationships between family and work, home and workplace, and public and private, as well as issues of occupational identity. The spatial relationship between dwelling and workplace elements in dual-use buildings is central to how home-based workers and their families attempt to resolve these issues. Where does home stop and work start, or vice versa? Are the two functions separate or overlapping? What is the relationship of family space to workspace? Is the building conceived as a workspace, a home, or something in-between? And what is the relationship of private space to public space? How do members of the public use the building? How does the building accommodate employees, and what is their relationship to the family and domestic spaces? And, crucially for the home-based worker, what impact does working at home, or living at their workplace, have on their occupational identity, their status, and/or their position in society? An investigation of the lives of a group of contemporary home-based workers, the spaces they inhabit and the constraints within which they work casts light on some of these issues.

Methodology

3.1 An equal emphasis on investigating the life-worlds of informants as on the buildings they inhabited led our research project to overlay methodologies usual in sociology and architecture. Data retrieved through interviews informed the spatial and formal architectural analysis, while visual techniques, including photography, orthogonal drawing and diagrammatic mapping, contributed to the development of an understanding of informants' working practices and life-worlds.

3.2 After an interview schedule was piloted with a home-working colleague, in-depth, semi-structured interviews were carried out, in a conversational style, with 76 home-based workers. This qualitative interview material was then manually collated (including both bullet points and direct quotations) into a dense document and analysed to extract themes. The section on 'disadvantages to home-based work' alone amounted to 25 pages of single-spaced text.

3.3 In addition, a measured survey[2] was made of each building in which the interviewees lived and worked to enable simple plans to be drawn, abstracted through colour-coding (Fig 9), and analysed. Photographs were taken of both the interior and exterior of the building being studied. The process of producing the photographs engaged the informants, reinforced their occupational identity, and led to further revelations about the home-based work under scrutiny. The images provided the researcher with a visual notebook, an analytical tool and a way of presenting and disseminating the research findings later on.
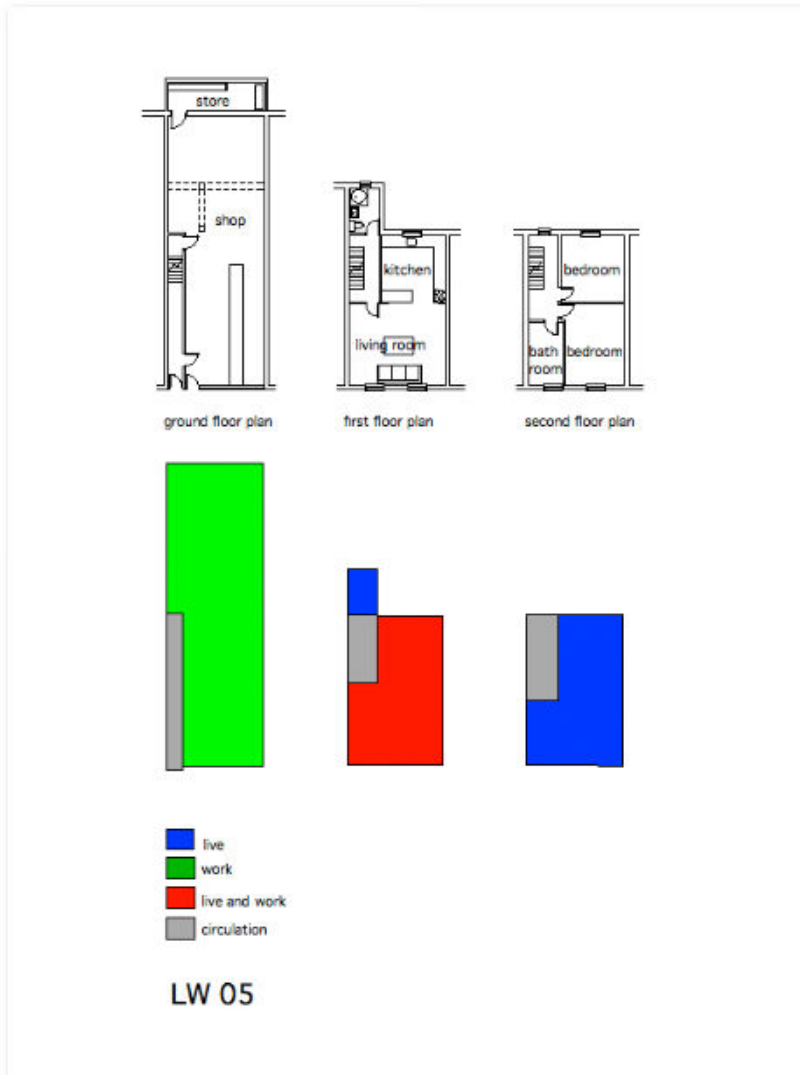

Figure 9. Plan, and abstracted plan, of shopkeeper's premises, London borough, 2005

3.4 While visual research methods are commonplace in the field of architecture, they are generally used to portray idealized buildings and interiors. Architectural photographs are commonly taken to investigate and communicate the architectural form and spatiality of a building, its materiality and quality of light. They generally depict buildings as objects; people and their everyday lives are usually absent. The living room of the house photographed in Fig 10, for instance, is represented as a careful composition of planes and volumes, forms and spaces; even the furniture is left out. It is hard to imagine the space inhabited by an unruly family, or full of the detritus of everyday life. Photographs such as this are 'knowing' in what they show and what they omit. It can be argued that their primary purpose is to market a product comprising building and lifestyle. By consistently portraying architectural interiors as formal spatial compositions devoid of human habitation, a less than useful myth is perpetuated. The reality of most people's lives involves a collision of people and artifacts in less-than-ideal spaces. The more accurately we can understand how buildings are used and inhabited, the better they can be designed. This is particularly important when thinking about buildings that combine dwelling and workplace, as the two functions often have conflicting programmes in terms of public/ private, noisy/ quiet, dirty/ clean, dangerous/ safe.

Figure 10. House in Lincolnshire, Caruso St John, 2005

3.5 The photographs taken in this study therefore aimed to capture not only the formal and spatial qualities of the buildings, but also the way the home-based workers inhabited them, acknowledging that 'the image can reveal that which respondents cannot say in words, are not aware they know and do not realize is of immense relevance to the project' (Felstead et al. 2004: 118).

3.6 The use of photographs was particularly successful in terms of increasing rapport. Most informants enjoyed the idea that their set-up would contribute to the analysis and understanding of a previously unmapped building type. Many engaged actively and positively with the process of creating the photographic material, suggesting shots that would represent their premises or their working practice most effectively. They also seemed to enjoy being interviewed, reporting that the process gave them a sense of recognition and affirmation of their lifestyle and the environment in which they lived and worked. This contributed to a developing understanding of the home-based work, and associated building, under scrutiny. The collaboration between researcher and researched confirmed Felstead's et al.'s assertion that using photographs is likely to 'open the researcher's eyes and ears to the worlds of meaning that respondents inhabit' (Felstead et al. 2004: 119). In many cases the informants' active involvement led to further revelations about how they worked, inhabited their space or felt about their home-based work. For instance, a curtain-maker with a garage-based workshop pointed to a typewriter on her kitchen worktop, suggesting that a photograph of 'her office' might be good (Fig 11). Moreover, the photographic process itself seemed to reinforce informants' occupational identities. Many spoke of their home-based work as hidden and unrecognized. Their involvement in the research project appeared to affirm an important part of their lives and as a result they often posed proudly (Fig 12). A hairdresser spent several hours telling me her story: how she had started up in home-based work when she became a single parent, her working practice and how she had converted her suburban semi-detached house to accommodate a fully kitted-out salon because she hated the mess, the smell of the work and also having members of the public in her home (Fig 13). A published poet described the way she had created two spaces adjacent to each other in her attic, separated by a shoulder-height partition, one a business-like space that reinforced her identity as a writer, the other a slightly feminine space in which she could relax and sleep (Figs 14, 15). These informants, and many others, engaged thoughtfully with this process.

Figure 11. Home-based curtain-maker's 'office', London suburb, 2005

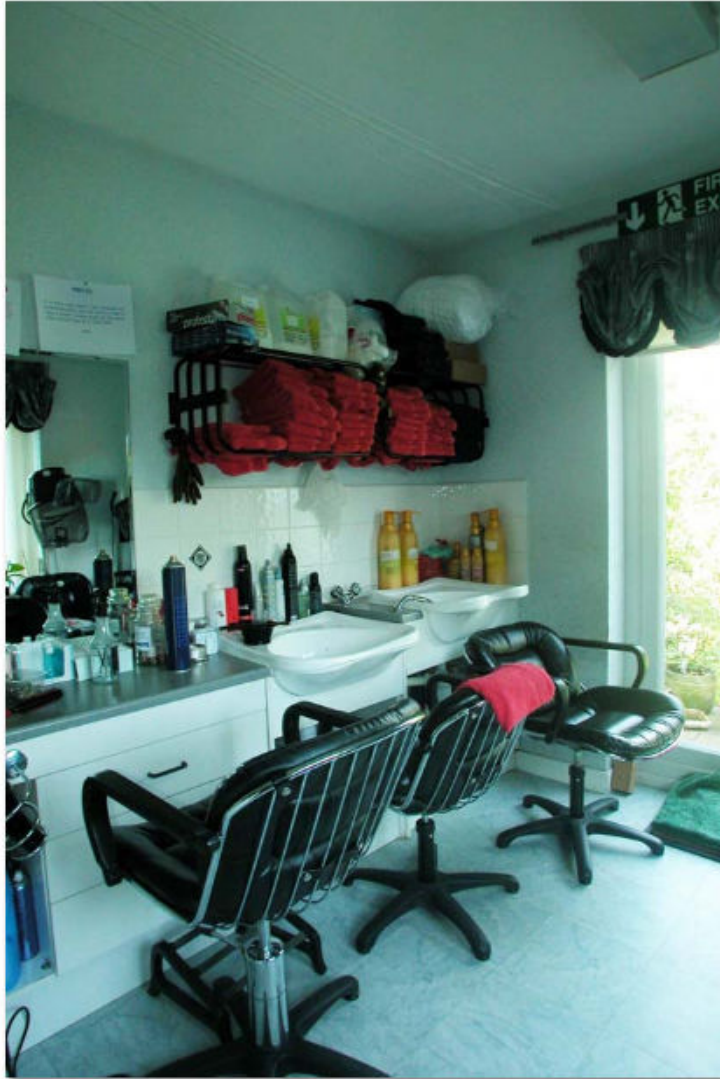**Figure 12**. Shopkeepers, West Sussex village, 2005

Figure 13. Home-based hairdresser's 'hair room', London suburb, 2005

Figure 14. 'Bed' side of poet's attic, London borough, 2005 (left)
Figure 15. 'Work' side of poet's attic, London borough, 2005 (right)

3.7 The photographic material was useful in a number of ways as a visual notebook. First, data contained in both interior and exterior photographs facilitated the process of drawing up the measured surveys by confirming spatial relationships and providing information that was difficult to record in sketch plans made as part of the interview process. Images also provided a useful reminder of earlier environments visited; this was helpful in the selection of informants to maintain a diverse sample. In addition, when new themes emerged as the research progressed, the photographic material could be reviewed to search for evidence from earlier interviews.

3.8 A series of ethical problems emerged. Sieber (1992) identifies beneficence, respect and justice as the three issues central to research ethics. Fulfilling the requirement for respect involved a careful and sensitive assessment, made silently as the interview was progressing, of which images would be most valuable in terms of meeting the research aims. This was then gently negotiated with each informant. Some were relaxed about having photographs taken. Others were less comfortable; in these cases the negotiation was more delicate and precise, with the informant giving exact instructions as to what could, and could not, be photographed. From the research perspective the ideal images included an exterior shot of the building and interior shots of each space the informant used as a workspace, including him or her at work. In domestic contexts the focus was on workspace, but in work-dominated contexts domestic space was also photographed in order to investigate the impact the work had on the informant's home. When informants expressed discomfort about particular spaces, these were not photographed. A graphic designer, for instance, spoke of her unease when she had to answer the front door to her terraced house to a new male client, and then lead him up past her most private spaces, her bedroom and bathroom, to her crisp, modern purpose-built second floor studio (Fig 16). While images of this route would have been useful, I did not take them and, in general, where I did not feel comfortable photographing was a good guide to where informants felt was most private.

Figure 16. Home-based graphic designer's attic studio, London borough, 2005

3.9 An unexpected finding of the research was that most informants' inhabitation of their dual-use buildings was covert. Many feared they were breaking some regulation or other, and many more actually *were* breaking some regulation or other. So guaranteeing 'beneficence' and 'justice' was not straightforward. It became apparent that extreme care would be needed to protect the identity of informants and the location of their buildings. This was problematic, because interior and exterior photographs were considered essential to the project both as analytical and presentational tools. This issue was discussed with each informant before any photographs were taken. The interview, which informants generally enjoyed, led to a build-up of trust and this made it possible to have an open conversation about anonymity, confidentiality and imagery. A hierarchy of protection was devised. For some informants (a shopkeeper comes to mind) the legality of their situation was so sensitive that no photographs were taken. In these (few) cases, the absence of images is as significant as the images are for the remaining majority of cases. Other informants consented to have interior, but not exterior, shots taken, in some cases with themselves out of view and in others with themselves at work or in their workspace. It was agreed in all cases that images including people would have the faces, and any identifying signage, blurred when used in publications.

3.10 Several years on from the completion of the initial research project, it is the visual material that has proved the more arresting and useful to ongoing research into the architecture of home-based work. This is because many of the images provide incontrovertible evidence of maybe unexpected subject matter, and can therefore broaden generally held views of home-based working practices, bringing a building type that has previously been largely ignored into focus[3].

The concept of the 'workhome'

4.1 The photographs helped me to conceptualise the dual-use building more explicitly and to identify continuities between contemporary and historic buildings. Until the industrial revolution a dual-use building that combined dwelling and workplace was called a 'house', with sub-sets of 'longhouse', 'manor house', 'ale-house', 'bath-house', 'bake-house' etc. Through the twentieth century, however, the term 'house' came to mean a building type in which unpaid domestic, rather than paid productive, work took place. It became somewhere people cooked, ate, bathed, slept, brought up their children and, eventually, watched TV, providing a base from which members of the household could 'go out to work' to earn their livings. So the building type that combines dwelling and workplace became nameless. Unfortunately, as the great Swedish botanist Carl Linnaeus, whose classification system for the biological sciences is still in use today, wrote in *Philosophia Botanica* (Linnaeus 1751: 158), 'If you do not know the names of things, the knowledge of them is lost too'. This may be key: to be able to think about, analyse and develop a conceptual framework for this old but neglected building type, it needs a name. So, in the same way that 'dwelling' refers to all the buildings we live in, from igloo to bungalow, and 'workplace' refers to all the buildings we work in, from coalmine to theatre, I coined the term 'workhome' to refer to all buildings that combine dwelling and workplace, from medieval longhouse to contemporary live/work unit.

4.2 Hundreds of historic photographs, found in a wide range of publications and archives, were assembled as evidence of the existence of this previously unrecognized building type, opening up a new architectural field (see <http://www.theworkhome.com/precedents/>). Many offer clues about the home-based work of the period; others confirm the built form of defunct workhomes. Two photographs of nineteenth century workhomes, and the associated home-based work, illustrate some of the social and spatial issues raised by such visual evidence.

4.3 The first, taken at the turn of the twentieth century, by a missionary concerned about social conditions in the East End of London, shows a woman and a girl making matchboxes at a table (Fig 17). The carefully posed subjects are clean and tidy; a sense of pride and dignity is portrayed. The work is carried out in one of the infamous slum 'courts'. The reported intention of the photographer was to show that

those living in poverty in the East End were 'not a lower species, but ordinary people trying to scrape by' (John Galt 2006). This image contrasts with a contemporaneous photograph of a family making streamers in their home (Fig 18). Here a woman and six children, including a baby in arms, are gathered around a mound of shredded paper on their stairs, making toys out of streamers. The mother looks grim. The children are dirty and unkempt; they look apprehensive and anxious. The work appears to be dirty and incompatible with the domestic use of the building, a glimpse of which can be seen in a corner of patterned wallpaper with a teapot and other knickknacks on a shelf. While this image was also probably carefully posed, this time by social reformers campaigning to end a practice they considered exploitative and degrading, it still offers clues about the spatiality of home-based work and the life-worlds of these home-based workers at the time.

Figure 17. Matchbox making in an East End court c1900

Figure 18. Making streamers c1900

4.4 The opposing bias detectable in the provenance and contexts of these two contrasting images of home-based work is also apparent in many other similar images of the period which take one perspective or the other. However, both types of picture show home-based work as a family-centred activity involving adults and children, often carried out either in the cramped conditions in the home or in the yards and courts behind and between dwellings. These indeterminate spaces present themselves as important semi-public places where the poor could earn a living, taking pressure off overcrowded living spaces, and where neighbourly social interactions could take place. Supporting textual evidence, in the form of the notebooks from Booth's Survey of Poverty in London (1886-1903), triangulates the visual evidence provided by these photographs which, validated this way, provides a useful insight into the spaces and practices of nineteenth century home-based work.

4.5 Such analysis, carried out on imagery of home-based work and associated workhomes from medieval times to the present day in England, established the workhome as a previously unmapped building type. This process has supported the hypothesis that this is a building type, and working practice, that may be found in every period of history, in every country and culture of the world.

Workhome typologies

5.1 If the defining characteristic of all workhomes is that they combine dwelling and workplace in a single building then, as we have already seen, such buildings come in a wide range of different shapes and sizes. Visual research methods have helped in the development of knowledge about this previously unrecognized, and little understood, building type.

5.2 Architecturally, the primary area of interest is the use of space. How do contemporary home-based workers structure the relationship between the 'workplace' and 'home' aspects of their workhomes? How do occupation, household structure, personality and the amount of space available, affect this relationship between workplace and home? Building on a groundbreaking study of telework in detached North American houses (Gurstein 2001) and the ongoing work of US architect Thomas Dolan in the live/work field (<http://www.live-work.com>), three typologies were developed through an analytical process based on visual patternmaking with abstracted plans, supported by a close examination of associated photographs. Each typology addressed one of three issues in the use of space: 'dominant function', 'spatial design strategy', and 'patterns of use'. Each casts different light on the relationship between home and work in the workhome, and on the way home-based workers use the spaces available to them. It is thought these typologies may be universally applicable.

5.3 First, it became apparent from both the photographs - and the abstracted/colour-coded plans of the 76 workhomes, discussed below - that some of the buildings were mostly workspace, while others were mostly dwelling. (Photographs and plans were blu-tacked up onto three large cupboard doors in my home-based workroom and arranged and rearranged until the patterns made sense). From this process emerged perhaps the most basic, but potentially also the most useful, workhome typology, that regarding 'dominant function'. Some home-based workers work in their homes (Figs 19, 20) while others live at their workplaces (Figs 21, 22). This simple observation identifies two radically different types of workhome, which I have labeled **'work-dominated'** and **'home-dominated'**. These workhomes provide quite different life-worlds for their associated home-based workers. Not all 76 workhomes fell into these two groups, however. A third, less common, category is where the dwelling and workplace elements of the building have **'equal status'**, each function with direct access onto the street. The identification of these three types has major architectural and policy implications. It also suggests human behavioural implications and significance in terms of both the domestic and occupational identities of home-based workers. These will be discussed later.

Figure 19. Working at home (writer/journalist), London borough, 2005 (left)
Figure 20. Working at home (curator), London borough, 2005 (right)

Figure 21. Living at the workplace (car mechanic), London borough, 2005 (left)
Figure 22. Living at the workplace (furniture-maker), London borough, 2005 (right)

5.4 The second typology, of 'spatial design strategies' (again established through a visual pattern-making process using the abstracted/colour-coded plans), identifies a trio of basic spatial relationships between home and work that underlie all 76 workhomes. Each provides a different degree of spatial separation between the dwelling and workplace aspects of the workhome. In **'live-with'** workhomes, both functions are carried out in a single built envelope with a single entrance onto the street (Figs 23, 24). Within this type there are a number of possible models, including the 'office in the spare bedroom' and 'double-height space with mezzanine' models. In '**live-adjacent**' workhomes, a greater degree of spatial separation between the two functions is created; home and workplace are adjacent to each other, but in separate built envelopes and with separate entrances (Fig 25). This type is common in pubs and shops, where a clear division between public and private spaces is preferred. In the third type, '**live-nearby**', an even greater degree of separation between workplace and dwelling elements is achieved by locating the two functions in separate buildings a short distance away from each other (Fig 26). Common examples include the 'shed at the bottom of the garden' and the 'mews workplace at the bottom of the garden with a separate access road'.

Figure 23. 'Live-with' home end (costume designer-maker), London borough, 2005 (left)
Figure 24. 'Live-with' work end (costume designer-maker), London borough, 2005 (right)

Figure 25. 'Live-adjacent' (shopkeeper), West Sussex village, 2005

Figure 26. 'Live-nearby' (building surveyor), London borough, 2005

5.5 A realization that different home-based workers inhabit the spaces available to them in distinct ways led to the development of a third typology: 'patterns of use'. Three basic types of space were identified: **'dual-use space'**, **'dedicated work-space'** and **'dedicated living-space'**. It became apparent that some members of the home-based workforce do not differentiate between their paid work and the domestic aspects of their lives, and as a result all the spaces in their workhomes are in dual use. Others make a rigid division between their paid work and their domestic/leisure pursuits, and as a result the spaces in their workhomes are used either as dedicated living-space or dedicated work-space. They do not allow their paid work to migrate into their living spaces, or domestic life to migrate into their workspace. Most people, however, fall somewhere between these two extremes, combining dedicated workspace, if there is room, with dual-use space and dedicated living space.
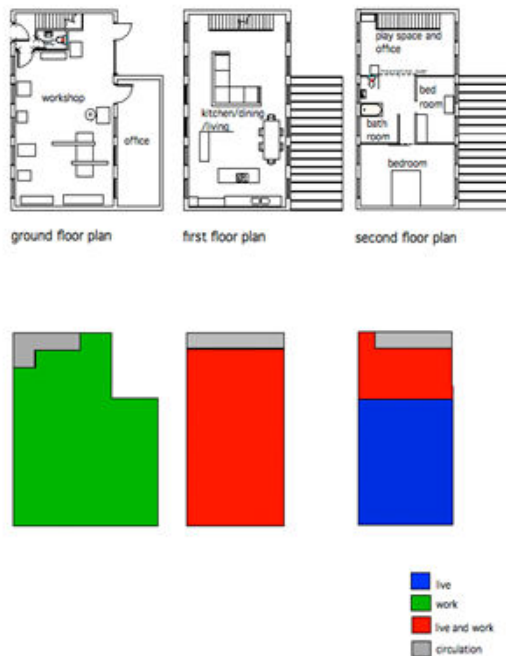
5.6 These typologies were tested against both the workhomes in the sample and many other architectural precedents; it is thought they may be universally applicable. They provide us with tools for thinking about past, present and future home-based working practices and the buildings and spaces that accommodate them. They have some echoes elsewhere. The 'dominant function' distinction can also be seen in Felstead et al's identification of detachment, juxtaposition, assimilation, collision and synthesis as aspects of a 'socio-spatial configuration of home and work' (2005: 111). Similarly, aspects of different 'spatial design strategies' can be seen in the UK Labour Force Survey questions which seek information regarding both 'live-nearby' and 'live-with' home-based workers. The different types of workhome, and ways of inhabiting space in the workhome, identified in these typologies were seen in the interview data to have a major impact on home-based workers' life-worlds and occupational identities. Social class and gender have been identified as mediating factors and will be discussed later.

The use of visual analysis to identify different types of workhome

6.1 The visual analysis that enabled the development of these typologies may deserve closer examination. While many architects carry out such processes, often intuitively, it is possible this methodology may have a wider application. It started with the production of simple orthogonal floor plans of each building, drawn at a scale of 1:50 and with each space identified through a generic name and diagrammatic furniture. As the initial issue under scrutiny was the relationship between the dwelling and workplace aspects of each workhome, these plans were abstracted through a process of colour-coding that identified and located the space(s) in the workhome in which the home-based worker carried out their paid work, as well as other spaces: green for dedicated work-spaces in which no domestic functions took place, blue for dedicated living-spaces in which no paid work took place, red for dual-use spaces and grey for circulation (Figs 27, 28, 29).
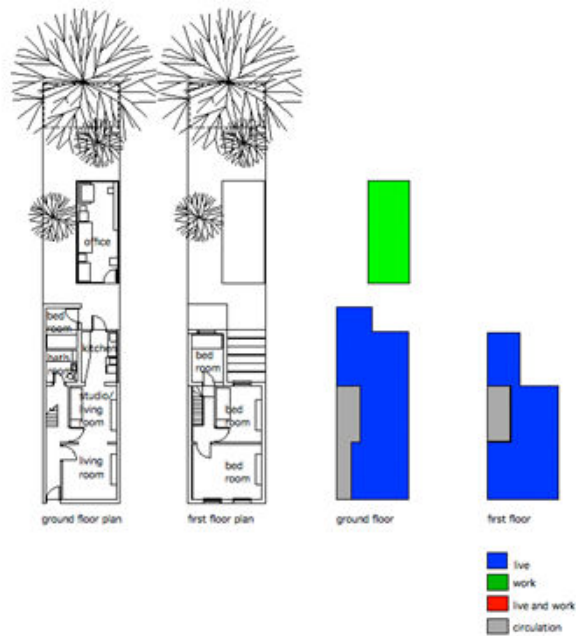
Figure 27. Simple plan and abstracted colour-coded plan (photographer) showing the entire workhome characterised by dual-use areas (left)
Figure 28. Simple plan and abstracted colour-coded plan (furniture-maker) showing a workhome characterised by a combination of dedicated workspace, dual-use areas and dedicated living space (right)
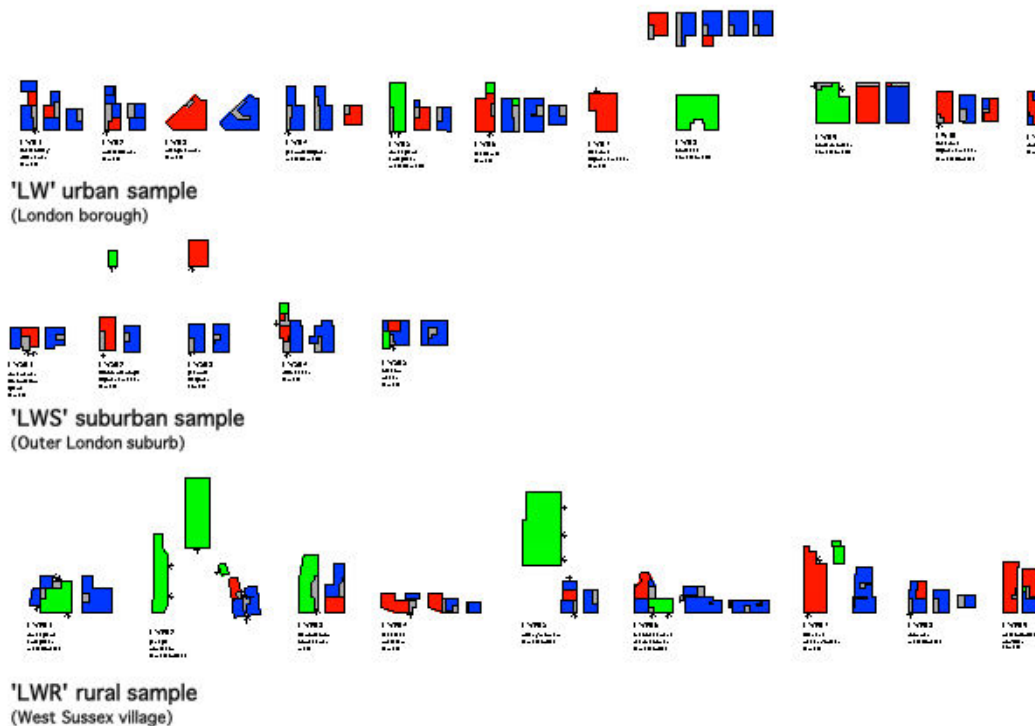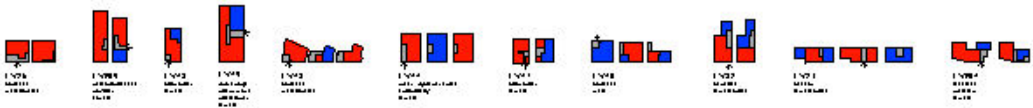
Figure 29. Simple plan and abstracted colour-coded plan (building surveyor) showing a workhome characterised by a combination of dedicated workspace and dedicated living space only

Both interview and visual/ photographic survey of the premises provided the evidence of how space was used. In some cases queries were later resolved by a follow-up phone call with the respondent.

6.2 All 76 of the abstracted/colour-coded plans were then assembled (initially in the order the interviews/surveys were made: LW01, LW02, LW03 etc) into a series of composite drawings (Figs 30, 31).

'LW' urban sample
(London borough)

'LWS' suburban sample
(Outer London suburb)

'LWR' rural sample
(West Sussex village)

'home dominated' workhome:
dwelling function dominant, ie home-based worker works at or from their dwelling
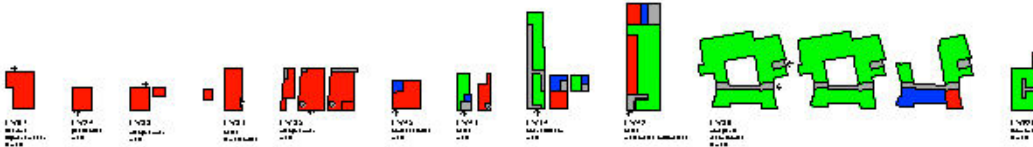
'work dominated' workhome:
workplace function dominant, ie home-based worker both lives and works at their workplace

'equal status' workhome:
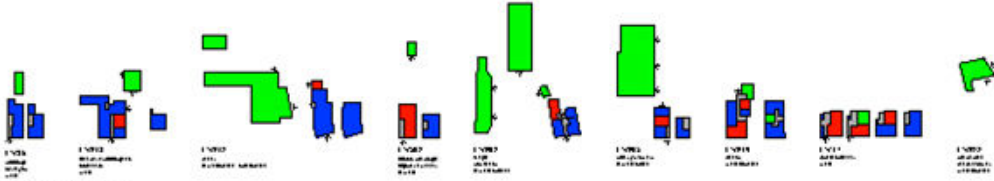workplace and dwelling in which both functions have equal status

Figure 30. Fragment of composite drawing no 1: sample of 76 (showing larger workspaces, as indicated by the greater density of green, are more prevalent in the rural, than the urban, sample) + dominant function typology (showing a lack of dedicated workspace, indicated by less density of green, more prevalent in home-dominated workhomes)
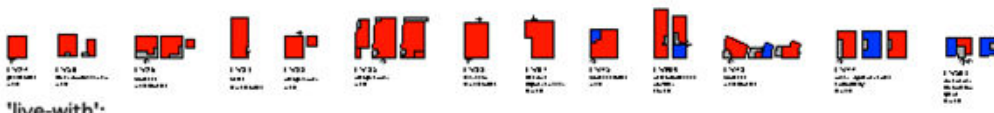
'live-with':
...dwelling and workplace functions contained within a single compartment with with a single entrance
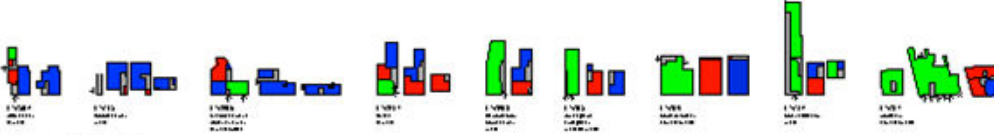
'live-adjacent':
...workplace in a separate compartment from, but attached (either above, below, or next-door) to, dwelling, with a separate entrance

'live-nearby':
...workplace detached and at a small distance from dwelling

all spaces in dual use:
...all spaces within the workhome are dual-use

some dual-use, some dedicated 'living' spaces:
...the workhome consists of dual-use spaces combined with dedicated 'living' spaces

some dual-use, some dedicated 'living' spaces, some dedicated 'working' spaces:
...the workhome consists of dual-use spaces are combined with both dedicated 'living' spaces and dedicated workspace

all dedicated 'living' spaces or dedicated 'working' spaces:
...all spaces in the workhome are either dedicated 'living' spaces or dedicated workspaces
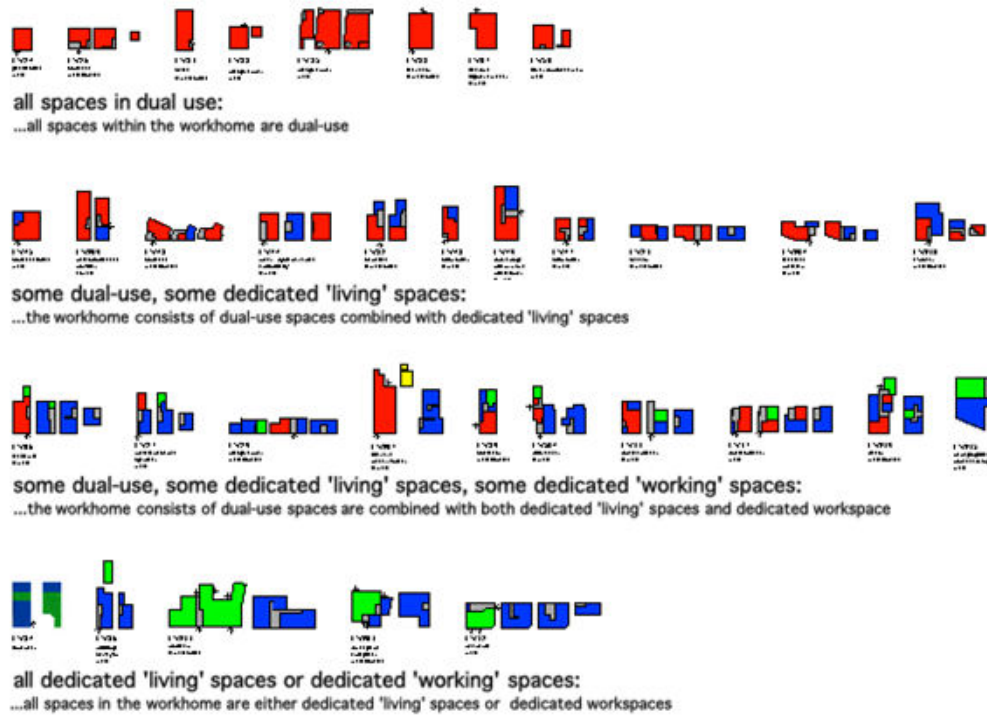
Figure 31. Fragment of composite drawing no 2: spatial design typology (showing a consistency of size in 'live-with' workhomes that is absent in 'live-nearby' workhomes) + patterns of use typology (showing that 'all dual-use spaces' and 'all dedicated living or working spaces' are less prevalent in the overall sample)

6.3 A visual process of pattern recognition was then carried out that involved rearranging the groupings and order of the plans according to variables such as size, form and function (i.e. by colour). A visual analysis of photographs of the exteriors of the workhomes contributed to this process. The walls and every horizontal surface of my workroom were covered in plans and photographs for weeks. The patterns that emerged were then translated into typologies that (a) helped to make sense of radically different types of workhomes within the overall type ('dominant function'); (b) identified three underlying relationships between the dwelling and workplace aspects of the workhomes ('spatial design strategies'); and (c) revealed a range of different ways that home-based workers inhabit space in their workhomes to accommodate their work ('patterns of use').

6.4 Images communicate these typologies more simply than words. For example, photographs tell us something fundamental about both the differences between 'home-dominated'/ 'work-dominated'/ 'equal-status' workhomes and also the differences in their inhabitants' life-worlds. The workhomes pictured below (see Figs 32, 33, 34), showing an example of each spatial combination, belong to a social policy researcher (home-dominated), a costume designer-maker (work-dominated) and a picture framer/gallery proprietor (equal status). We are all experienced, to a greater or lesser degree, in reading the visual language of our built environment and how curtains, gardens, lorry or car access, as well as smaller or larger floor plans, windows, doors and storey heights, for example, communicate 'home' or 'work'. Overlaid on this, our experiences of inhabiting domestic and industrial spaces inform our understanding of the implications of inhabiting domestic space for work or non-domestic space as home.

Figure 32. Home-dominated workhome (social policy researcher)(left)
Figure 33. Work-dominated workhome (costume designer/maker) (right)

Figure 34. Equal status workhome (picture framer/gallery proprietor)

6.5 This visual analytical process was developed to investigate the relationships between spaces used for different functions in each workhome. The already abstracted plans were further abstracted into a series of topological diagrams, showing the specific relations of the component parts in terms of shape, size and position (see Figs 35, 36, 37, 38). While still drawn to scale and colour-coded according to function, in these diagrams the spaces are 'exploded' from each other[4]. A thin black line joins only those spaces connected to each other by a door or opening.
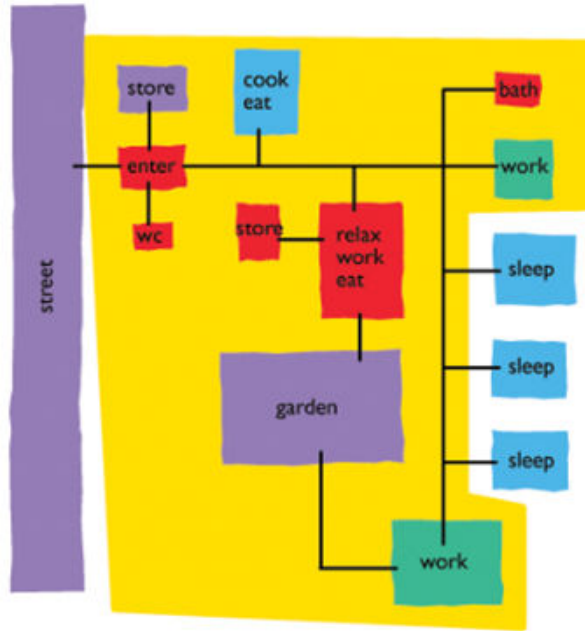
Figure 35. Topological diagram (childminder) showing a prevalence of publically accessed space, indicated by the yellow area
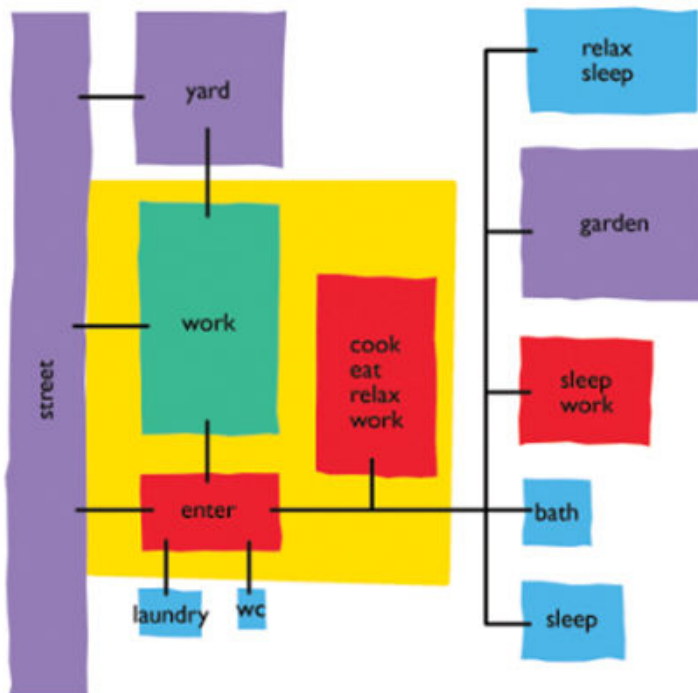

Figure 36. Topological diagram (car mechanic) showing three separate entrances off the street and a higher proportion of non-publically accessed space
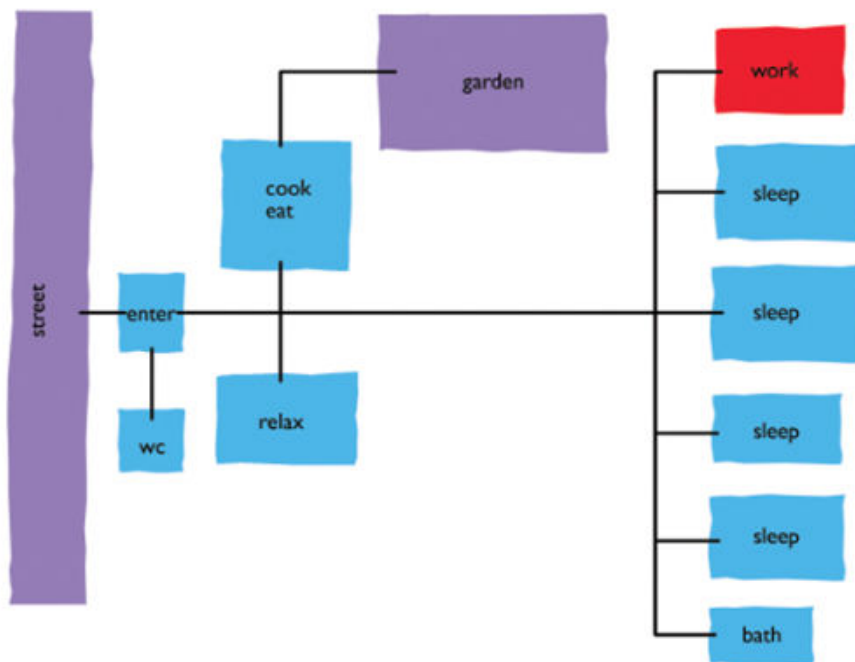
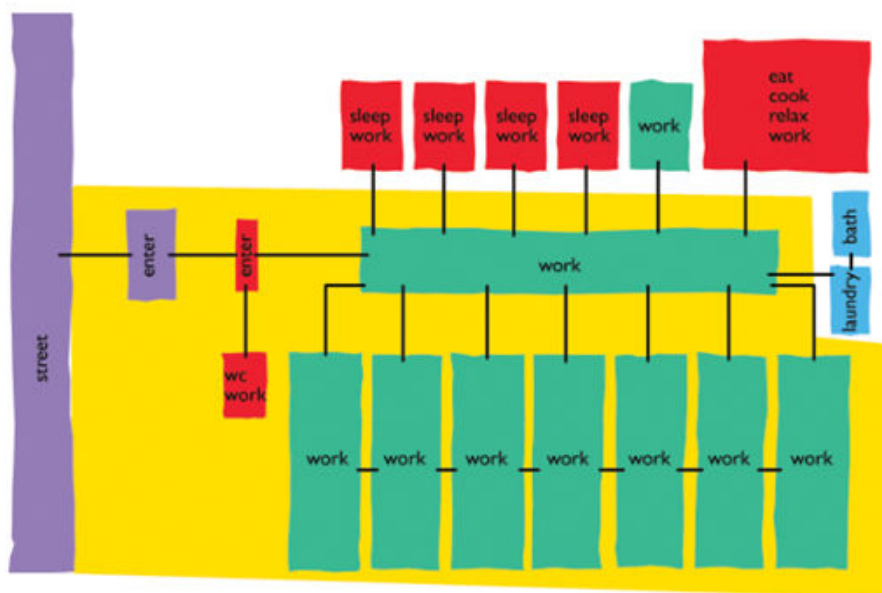**Figure 37**. Topological diagram (BT senior manager) showing a home-dominated workhome with no public access

Figure 38. Topological diagram (artists' collective) showing an unconventional work-dominated workhome with substantial public access

6.6 These diagrams reveal the wide range of home-based working practices and living situations, as well as their distinct associated spatiality and built form. Drawing them initiated an exploration of the relationship between public and private space, an important theme that emerged in the course of this analysis. While common perceptions of home-based work tend to emphasise solitary and private occupations (such as manufacturing piecework or telework), many home-based occupations involve interactions with non-household members, for instance the home-based workers' employees (see Fig 39), or members of the public, such as people who have appointments (see Fig 40) or passing trade (see Fig 41). These interactions raise complex social and spatial issues. The topological diagrams, in which public spaces in the workhome are overlaid in yellow, helped to clarify the nature, extent and impact of the public/private interaction for each informant.
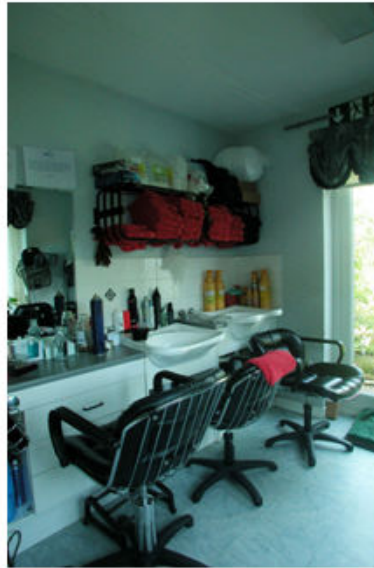
Figure 39. The public workhome: 'employees' (architect) (left)
Figure 40. The public workhome: 'by appointment' (hairdresser) (centre)
Figure 41. The public workhome: 'passing trade' (fish and chip proprietor) (right)

6.7 Architects are accustomed to 'playing' with visual data. The visual processes unwrapped here contributed to the development of a better understanding of both the buildings home-based work is carried out in and the working practices. They helped to raise questions about the nature of both 'home' and 'workplace' and to broaden horizons in terms of both the occupations we think of as home-based work and the buildings we visualize as accommodating them.

Occupational identity and home-based work

7.1 The spatial distinctions and typologies identified above also point towards important aspects of the informants' life-worlds. Space has many layers of meaning. Henri Lefebvre's (1991) conceptualization of different types of space provides a framework for an interpretation of home-based workers' attitudes to their work and premises. Rejecting the idea of space as a fact of nature, an empty vessel in which activities take place, Lefebvre conceptualises space as a 'product' of the ideas, and in particular the power relationships, of the society that produces it. He proposes the 'social' production of space, describing the city as ' …a space that is fashioned, shaped and invested by social activities during a finite historical period' (Lefebvre 1991: 73).

7.2 In particular Lefebvre's concept of 'lived' space, which involves the ideas people have about spaces in their heads, as portrayed and influenced by images on the media, overlaid with symbolism and imagination, is useful when thinking about the implications of the spatiality of home-based work for occupational identities. He describes lived space as

space as directly lived through its associated images and symbols, and hence the space of

'inhabitants' and 'users', but also of some artists and of those, such as a few writers and philosophers, who describe and aspire to do no more than describe. This is the dominated – and hence passively experienced – space which the imagination seeks to change and appropriate. It overlays physical space, making symbolic use of its objects. (Lefebvre 1991: 39)

7.3 As lived space, the workspaces of different occupations - the corporate office, the designer's or artist's studio, the factory, the hairdressing salon - all conjure up particular images in our minds. Some spaces are formal, even opulent, some casually chic, while others are clinical and hygienic or chaotic, untidy and even dirty. They all, however, usually share the characteristic of being impersonal and incorporating neither children nor domesticity. Since occupational identity is closely associated with particular images of occupationally specific spaces, what happens to occupational identity when we engage in home-based work?

7.4 Visual material and processes also help us develop some understanding of different ways that the design and inhabitation of the workhome can affect occupational identity for home-based workers. For instance, Fig 42 shows an artist standing in his double-height studio filled with a painter's paraphernalia, a number of works in progress on the walls. Upstairs a completed painting hangs on the wall, but his compact living space is chaotic. Laundry is draped over the stair, papers and meal remnants cover the table and there are piles of clutter throughout (Fig 43). While earning his living primarily as an academic, this home-based worker's occupational identity is embedded in his creative work and this dominates his workhome. He identifies his untidiness as inherent to his identity as an artist

> Clients come to my studio, it doesn't matter to me that it's my home as well. Mostly they don't come upstairs, but it doesn't bother me anyway, people expect artists' studios to be untidy. I don't need to keep my world private. It's very personal work, so I'm opening up my personal world anyway; I don't have to keep up some kind of an image.

Figure 42. Artist in his workhome, double-height studio, London borough, 2005

Figure 43. Artist's workhome, mezzanine living-space, London borough, 2005

7.5 The converse is true of many other home-based workers. While the design and mode of inhabitation of the artist's double-height studio and untidy mezzanine living quarters reinforces his sense of who he is, the architect who inhabits the self-designed 'live/work' unit pictured in Fig 44 is concerned that his work may not be taken seriously; this is not only because the building has a domestic scale but because it lacks the insignia of high design

> An architect's office should be a barn-like structure with a six metre high ceiling, open trusses and big industrial windows, just like in Shoreditch. That is what I would like.

7.6 In line with this image his kitchen, doubling as a technical library, is kept spotlessly clean, tidy and, like the rest of the building, devoid of personal artifacts or evidence of domestic inhabitation (Fig 45). The domestic and personal are erased in an attempt effectively to imprint a professional identity on the building and its spaces. For both the artist and the architect, therefore, ideas of what their working space *should be like* seem to drive the way they inhabit space in order to conform to and reinforce their occupational identities.

Figure 44. Architect's workhome, domestic-scale office, London borough, 2005

Figure 45. Architect's workhome, kitchen/ technical library, London borough, 2005

7.7 This is not universally the case, however. Fig 46 shows a cluttered, windowless and uninsulated workshop that provides a home-based professional curtain-maker with a cold, dark, view-less workspace that lacks even effective storage for materials. However despite being physically far from ideal, and not apparently supporting the curtain-maker's occupational identity in any easily understood way, the only problem this home-based worker identifies is that she cannot see when it is raining to get the washing in off the line. Having previously spent 27 years as an employee on the minimum wage, the appropriation of this underused garage space in her modern detached suburban house (Fig 47) has enabled her to set up her own business, radically increasing the degree of control she has over her life. As a craftsperson, her reputation resides in the quality of the goods she produces, rather than the nature of the spaces she inhabits. Home-based work emerges here as a mechanism that has enabled a shift from subordination to personal control. The physical qualities of the workhome, in this case, are of less importance to her than the fact that the existence of a space (of some sort) enables her to be her own boss.

Figure 46. Curtain-maker's workhome, windowless workshop, London suburb, 2005

Figure 47. Curtain-maker's workhome, London suburb, 2005

7.8 Those home-based workers who deal with the public also face issues around occupational identity. Kirk and Wall posit that 'If work holds the capacity or hope to shape the identity of individuals and groups, it may be that the importance of recognition and respect is vital in this context' (Kirk 2011: 10). Many home-based occupations involve interaction with the public; examples from the study range from baker to car mechanic, publican, funeral director, childminder, manager of a historic house, rector and school caretaker. Of these, most live at their workplaces rather than working in their homes. Their workhomes are often publically identifiable, and as a result these people receive recognition and respect for their home-based work and for the role that they play in their communities. Images of the buildings they inhabit (Figs 48, 49, 50) help us to understand the importance, and visibility, of these home-based workers' social and economic roles. The way these are imprinted on the built fabric of the neighbourhood reinforces their occupational identities.

Figure 48. School caretaker's workhome, London borough, 2005

Figure 49. Funeral director's workhome, London borough, 2005

Figure 50. Baptist minister's workhome, London borough, 2005

7.9 In contrast, the many home-based workers inhabiting 'home-dominated' workhomes face serious difficulties in both carving out appropriate space in which to work and, relatedly, with asserting and maintaining their occupational identities. The images of a social policy researcher at work (Figs 51, 52) provide clues to the struggles going on in her household regarding her work, between herself, her domestic partner and her children as well as visiting friends and relations. Papers strewn across her kitchen table have to be moved when her children return home from school; when people come to stay she loses her workroom. Neither kitchen nor guestroom provides her with a formal space in which she can work in a 'business-like' way. Her role as wife and mother takes precedence. The exterior of her workhome (Fig 53) gives no clues to passers-by, or the neighbourhood at large, about the work that is carried out inside since both work and worker are invisible. In similar vein, a highly respected home-based curator, who works at the table in her dining room, says that 'I would never call it my workroom, it is invisible work that disappears; when the rest of family life appears I put it all away'. Both these home-based workers organise meetings in spaces outside their workhome, at colleagues' or clients' premises or in cafes, restaurants or bars, as a way of maintaining their professional identities despite being home-based in their work.
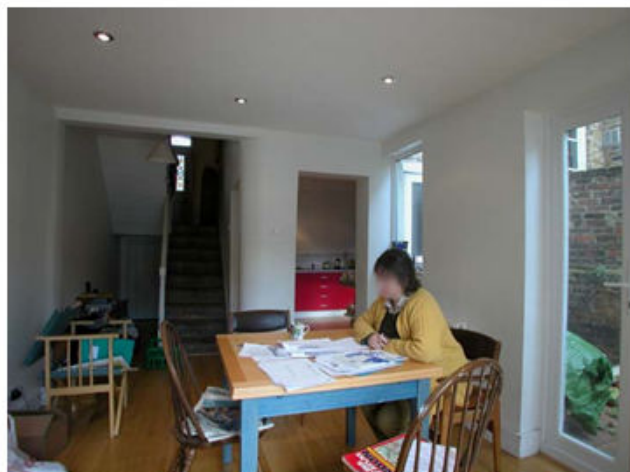

Figure 51. Social policy researcher's workhome, kitchen table workspace, London borough, 2005

Figure 52. Social policy researcher's workhome, spare bedroom workspace, London borough, 2005

Figure 53. Social policy researcher's workhome, exterior, London borough, 2005

7.10 Photographing these buildings and spaces encourages informants to look with fresh eyes and articulate their experience of working in them both in practical terms and also in terms of the impact they have on their occupational identities. The resultant images make a contribution to a developing understanding of the relationship between different types of workhome and the occupational identities of the people who live and work in them.

How are different workhomes linked to occupation, gender and class?

8.1 It will already be apparent to readers that there are strong links between the organization of space among home-based workers and gender identities and class divisions. This is not surprising since gender ideologies and class divisions shape life-worlds in important ways. The 76 informants divided between 40 women and 36 men; 45 could be roughly considered, judging by occupation and type of housing, middle class and 31 working class, while 12 were of black or ethnic minority origin.

8.2 An equal number of men and women were found in modern forms of generally 'invisible' IT-dependant occupations that do not involve face-to-face interaction with members of the public, such as journalism, illustration or translation. A similar gender balance was found amongst people working in occupations that involve face-to-face interactions with members of the public, such as hairdressing or car repair, childminding or shopkeeping. However there was a substantial gender imbalance in terms of the type of buildings these people inhabited.

8.3 Nearly two-thirds of the home-based workers who lived at their workplace were male, while the same

proportion of those working in their homes were female. This tendency is emphasized if we look at the visible and socially valued 'backbone of the community' type of home-based worker inhabiting recognizable buildings specifically designed for dual functions, such as the public house, the funeral parlour, the school caretaker's house or the rectory. More than eight out of ten of these people were male, albeit sometimes supported by a female family member. In these cases the dominant function of the workhome had a major impact on the characteristic of the life-world of the home-based worker and, as a result, on their occupational identity. As well as being designed, or at least organized, to facilitate particular occupational processes, these buildings also have semiotic value. They communicate the social and economic value of the associated work to the home-based worker themselves, to their family, and (where visible in the urban grain) to the neighbourhood. This reinforces the occupational identity of the male home-based workers who identify themselves, and are identified within their families and their communities, with this work.

8.4 The converse is often true about those inhabiting home-dominated workhomes, who were mainly women. Here work is generally squeezed into domestic accommodation, often to the detriment of both functions and the occupational identity of the home-based worker. The finding that more men inhabit work-dominated workhomes, while more women inhabit home-dominated workhomes, suggests that problems relating to occupational identity may be more typical for female, than for male, home-based workers. The differences between men's and women's use of household space is readily apparent, even without considering the presence of children in the household. Despite the equal distribution of men and women in IT-dependant occupations, the extent to which their work, and work role, was allowed to dominate the domestic environment differed. In many cases women had to clear away their work every night, in contrast to men whose work remained a permanent part of the domestic space.

8.5 A parallel class-based imbalance seems to exist, in so far as home-based working residents of social housing generally inhabit smaller, less flexible spaces and are affected more by restrictive governance issues. An elision of the problem of overcrowding and poor sanitation with home-based work, by social reformers such as Beatrice Webb at the turn of the twentieth century, has resulted in this working practice being discouraged or prohibited in social housing ever since. UK social housing has as a result been designed as a series of spaces in which tenants can cook, eat, bathe, sleep, bring up their children and watch TV, but nothing else. As a result all home-based work in social housing involves people working in their homes, with the resultant difficulty regarding occupational identity that has been identified above. In addition, tenancy agreements prohibited, or at least discouraged, home-based work until a 2010 change in governmental policy (HM Government 2010). Fears about breaking tenancy agreements, and therefore risking eviction, have led to covert working, as well as discouraging many residents of social housing from engaging in home-based work. While in the private sector this working practice is generally accommodated through under-occupation (such as the curtain-maker working in an unused garage), allocations policies mean this is rarely possible and home-based work in social housing often leads to overcrowding as a result. In this study two childminders inhabiting social housing sacrificed personal space to accommodate their home-based work. One had converted her living room into a workspace and used her bedroom as a bed-sitter (Fig 54). The other shared a bedroom with her youngest daughter so her own bedroom could be used as an upstairs playroom (Fig 55).

Figure 54. Childminder's workhome in social housing, living room as workspace, London borough, 2005

Figure 55. Childminder's workhome in social housing, bedroom as workspace, London borough, 2005

8.6 Most home-based workers in social housing therefore operate covertly in overcrowded conditions, putting their households under great pressure. The childminder in Fig 54 had challenged her housing provider's prohibition of her home-based work and, after an appeal, was given permission to continue. However, most do not have the confidence to go through this process; one reported being so anxious about her home-based piecework manufacturing that she worked behind closed venetian blinds to ensure neighbours and passers-by did not see her work. A gender difference is apparent here too. While men's manual home-based work was easily accommodated in the indeterminate spaces of nineteenth century London's East End courts, sheds and yards, the new Model Dwellings, built in the place of razed East End slums from the early twentieth century, were deliberately designed to discourage (and governed to prohibit) this work. This pattern continues today. This project found few contemporary male residents of social housing engaged in home-based work; the only participant in this category was an illustrator. This may contribute to unemployment running at twice the national rate in social housing (Communities 2008-10)

8.7 The UK coalition government's 2010 pledge to lift the ban on social tenants starting businesses in their homes provides the opportunity for enormous change in this sector. This change in policy could enable home-based working residents of social housing to operate openly and offer a route out of worklessness for the long-term unemployed. There is a substantial research opportunity here, as little is known about this sector, because it has been prohibited, discouraged, or operating covertly for so long.

Conclusions… and what needs to be done?

9.1 This article shows how a study of the spatiality of home-based work may increase our knowledge about the life-worlds of home-based workers. Starting with an empirical focus on real buildings and spaces led to fresh insights regarding the rapidly growing, but generally covert, UK home-based workforce. Halford suggests that sociologists should take space as a starting point, rather than 'seeing the spatialities of work and organization as only supporting actors to other, non-spatial, sociological approaches' (Halford 2008: 939). As an architect without pretension to sociological knowledge, it seems there may be value in an interdisciplinary approach. Insights that may be useful to sociologists thinking about work have emerged from this study of buildings and space. Similarly, useful observations of space for architects may emerge from investigations of work and organization by sociologists. While it would be unreasonable to expect researchers to be theoretically informed in each other's disciplines (for instance, neither class nor gender form explicit concepts in architects' battery of considerations), such collaborations might enable the development of interlinked understandings of the built landscape of work.

9.2 New policy is starting to recognize the potential contribution home-based work could make to a reduction of worklessness amongst residents of social housing. It seems probable that further policies will follow, to encourage and support home-based work more broadly. However despite the rapid increase in size of this workforce, current architectural and urban design orthodoxies do not engage with this working practice as a contemporary design focus. It is possible that sociological investigators, although previously interested in documenting home-based work, have become similarly disengaged. The identification and analysis of the old but neglected building type, the 'workhome', contributes to our understanding of how we could design and govern more effectively to accommodate this workforce. But urban design and planning for home-based work cannot be explored or addressed through the design of the individual building, nor can its social and spatial potential for community development. There appears to be scope here for further research.

9.3 The identification of two distinct forms of workhome (and therefore home-based work) triggers an insight into gender differences in terms of the recognition and respect home-based workers receive for their work and for the role that they play in their community. Questions are raised about the meaning of home as workplace, and workplace as home, and perceptions about the relative value of productive and domestic work. Social class also emerges as an issue, especially regarding the spatial disadvantage of social housing.

9.4 Recognising the increasing extent of home-based work, and the potential social and individual advantages and disadvantages of this working practice, there seems to be an urgent need for the

exploration of ways that society could more effectively be organized around this working practice, in terms of social and economic policy as well as both urban and building design. A recognition of the essential overlap between the social and the spatial may be useful in enabling researchers from both sociology and architecture to engage with, and learn from, each other's work.

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Figure 18: © The Salvation Army

All other images are the author's own, taken 2005-10

Notes

[1]I would like to thank the editors for their comments on an earlier draft

[2]Dimensions were taken of each building, using a laser measuring device, immediately after the interview,

[3]The images collected have been used in numerous talks, publications and exhibitions, including Holliss (2010); Holliss (2011); Holliss (forthcoming); 'Introducing the Workhome' Exhibition, The Gallery, ASD, London Metropolitan University, 18 February - 7 March 2011; and Islington Housing competition exhibition, Finsbury Library, 21 June -26 June 2010, as part of London Festival of Architecture 2010.

[4]In an architectural plan, adjacent spaces are separated only by the thickness of the wall between them. In these topological diagrams, spaces (drawn to scale) are reorganised on the page to communicate potential patterns of movement or direct communication between spaces.

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