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Data of Alteration

A Databased Exploration of the Terraced House Alterations

In the past century, many terraced houses, the standard housing typology of the late nineteenth and early twentieth centuries, were extended and converted, and their interiors were changed in response to changing domestic practices. This paper investigates how contemporary spatial norms were reproduced within the Victorian terraced house, drawing upon multiple types of sources: quantitative data derived from floor plans of terraced houses available in online planning systems and qualitative data collected from London's residents. The findings of this exploratory study contribute to our understanding of contemporary spatial norms, while also studying the design features that allowed the continuing use of terraced houses for more than a century to be possible.

The speculative terraced houses of nineteenth-century England continue to characterise London's residential environment.¹ While the streetscapes largely retain highly standardised original architectural features, the interiors have been altered in various ways. Some of them have their interior layouts reorganised, some have been extended and enlarged towards the backyard, the attic, and in some cases, below ground, and others, especially those in

1 According to Valuation Office Agency statistics for 2018, 35% of the dwelling units in London were built before 1900 and 51% before 1939, and most of these were houses. Valuation Office Agency, "CTSOP 3.1: Number of properties by Council Tax band, property build period

and region, county, local authority district and lower and middle super output area," Council Tax: Stock of Properties, 2018, <https://www.gov.uk/government/statistics/council-tax-stock-of-properties-2018>.



central areas, have been partitioned into flats.² However varied the spaces they created might be, these alterations help maintain the housing infrastructure in line with contemporary expectations from and understandings of dwellings and domestic spaces. How are contemporary spatial norms reproduced within the Victorian terraced house? In this paper, I present a spatial and social analysis of terraced house alterations, drawing upon multiple types of sources: quantitative data derived from floor plans of terraced houses available in online planning systems and qualitative data collected from London's residents. While the literature from social sciences on renovations has paid a great deal of attention to the understandings, motivations, and processes of renovations, systematic analyses that integrate design aspects are sparse. Our knowledge of how the housing stock is being transformed—in Stewart Brand's words "what happens [to buildings] after they're built"—is limited.³ Exploring this question not only helps enhance our understanding of contemporary spatial norms but also prompts a consideration of design features that support the adaptability that made the uninterrupted usage of terraced houses for more than a century possible.

New Spatial Patterns

The built form of dwellings embodies certain ideologies of home that are the "dominant conventions about both the conduct of relationships within the household and the relationship of the household to the outside world."⁴ The design of the Victorian

2 According to the 2011 edition of the English Housing Survey, in the UK, 73.5% of dwellings built before 1919 (which are largely Victorian terraced houses) had at least one major alteration such as (from the most common to the least) extensions, rearrangement of internal space, complete refurbishment, conversion to more than one dwelling and loft conversions. Department for Communities & Local Government, "English Housing Survey: HOMES - Annual Report on England's Housing Stock, 2011" (London: Department for Communities and Local Government, 2013), Annex Table AT1.21:

Dwellings with any major modifications since built by dwelling age, 2011.

3 Stewart Brand, *How Buildings Learn: What Happens after They're Built* (London: Phoenix Illustrated, 1997).

4 Ruth Madigan and Moira Munro, "The more we are together": domestic space, gender and privacy," in: *Ideal Homes?: Social Change and the Experience of the Home*, ed. Tony Chapman and Jenny Hockey (London: Routledge, 1999), 61.



terraced house—its size, spatial organisation, and materials—reflected the labour and care practices and morals of the nineteenth-century family.⁵

Highly standardised in its dimensions, layouts and materials—thanks to the pattern books that allowed any speculative developer to build them—the Victorian terraced house had a deep floor plan with a narrow street frontage and a small backyard.⁶ It was vertically separated into day and night uses with common areas (day) located on the ground floor, and bedrooms (night), on the upper floors. It had three rooms on the ground floor, a parlour, a living room, and a scullery, that were organised from entrance to backyard in an order from public to private and clean to dirty.⁷ The front room or parlour, was commonly reserved for special occasions such as Sundays and holidays, and typically furnished with objects of status. The middle room was the heart of the home, used for sitting, meals, and interactions. The scullery or back kitchen, where the water supply was installed, was dedicated to specific dirty tasks such as washing up and laundry and was not a space to otherwise inhabit. The WC was typically installed out in the backyard. On the first floor, there were two or three bedrooms, zoned, with space permitting, according to age and gender (parents' room, boys' room, and girls' room). These were often unheated and used only for sleeping.

How has this layout been altered? To answer this question, I analysed the floor plans of 120 of such terraced houses. These houses were built in the same decade, before 1900, in a neighbourhood in East London and are being used as single-family

5 Harold James Dyos, "The Speculative Builders and Developers of Victorian London," *Victorian Studies* 11, Supplement: Symposium on the Victorian City 2, (1968): 641–90; John Burnett, *A Social History of Housing: 1815–1970* (Newton Abbot: David & Charles, 1978).

6 Dyos, "The Speculative Builders and Developers of Victorian London."

7 Roderick J. Lawrence, "The Organization of Domestic Space," *Ekistics* 46, no. 275 (1979): 135–39; Ritsuko Ozaki, "The 'front' and 'back' Regions of the English House: Changing Values and Lifestyles," *Journal of Housing and the Built Environment* 18, no. 2 (2003): 105–27; Richard Roger, *Housing in Urban Britain 1780–1914*, *New Studies in Economic and Social History* (Basingstoke: Macmillan, 1989); Victoria Kelley, "The Virtues of a Drop of Cleansing Water: Domestic Work and Cleanliness in the British Working Classes, 1880–1914," *Women's History Review* 18, no. 5 (2009): 719–35.



houses. While larger terraced houses in more central areas have mostly been converted into flats in the 1980s, smaller ones, usually in the Victorian urban fringes, are still used as single-family homes.⁸ East London is one such location that has been witnessing expanding waves of gentrification in the past decades, which exacerbate the transformation of housing infrastructure.

I collected the floor plans from the online planning system of the corresponding London borough. All boroughs in London, and the UK in general, have created online systems through which planning applications that cover roughly the past ten years can be accessed online.⁹ These platforms are publicly accessible and allow people to view and comment on the planning proposals. These online systems hold a massive amount of data including architectural drawings for existing buildings and proposed alterations. But they are rarely analysed, even by the local authorities themselves, and are viewed only as repositories.

While online planning systems offer a great source to understand changes in the building stock, they are also limited as not all alterations require planning permission. For instance, interior changes, most of the time, do not require planning permission. Permitted development rights also allow back extensions without the need for planning permission if certain depth, height and volume requirements are satisfied.¹⁰ While for some alterations that could fall under permitted development, full planning applications were submitted, and some permitted developments were registered in the planning systems for building control purposes, we cannot confidently say that all changes to dwellings are registered in these systems. Therefore, my analysis considers only major alterations. I analysed floor plans by comparing them to one another and to the original nineteenth-century terraced house layout of this neighbourhood. This was a visual and quantitative analysis of the

8 Chris Hamnett, "Gentrification and the Middle-Class Remaking of Inner London, 1961–2001," *Urban Studies* 40, no. 12 (2003): 2401–26.

10 The Town and Country Planning (General Permitted Development) (England) Order 2015, No. 596.

9 For an example of such planning system visit: <https://hackney.gov.uk/planning-searches>



types of extensions, rooms, and amenities added and removed; changes made to walls separating the rooms in the original layout; as well as new kitchen layouts. I simultaneously coded the changes observed relative to the original terraced house layout in a table and organised the floor plans in a matrix. Such an organisation of floor plans allowed “their relative differences and similarities [to be] generalised,” supported the coding of layout categories, and helped elicit further formal and organisational qualities to enhance the description of results.¹¹ Comparative matrices were also useful; as terraced houses were originally very similar, organising them in matrices allows compelling visualisations of the variations that alterations have resulted in (Fig. 1).

This analysis showed repeating spatial patterns in new layouts. For brevity, I will report only the changes made to the ground floors. All of the houses I analysed were extended towards the back on the ground floor, enlarging the living areas. Extensions were made in several ways. In some of them, they were added to the back of the existing projections, where the original kitchens were located. In some others, they were added to the side of these projections, squaring off the originally L-shaped ground floors. In others, they were added in both directions, creating a deeper plan. Ranging up to 6 m, these extensions brought the depth of ground floors to an average of 12 m, and added, on average, 15 m² of floor space.

Back extensions were rarely undertaken to create additional habitable rooms at the back of the ground floor. Even though there were a few extended ground floors in which the front rooms were used as bedrooms, additional bedrooms were generally created by loft extensions in the attic, keeping the first floors with bedrooms and the original vertical day and night division intact.

¹¹ Sam Jacoby, *Drawing Architecture and the Urban* (Chichester: Wiley, 2016), 228.

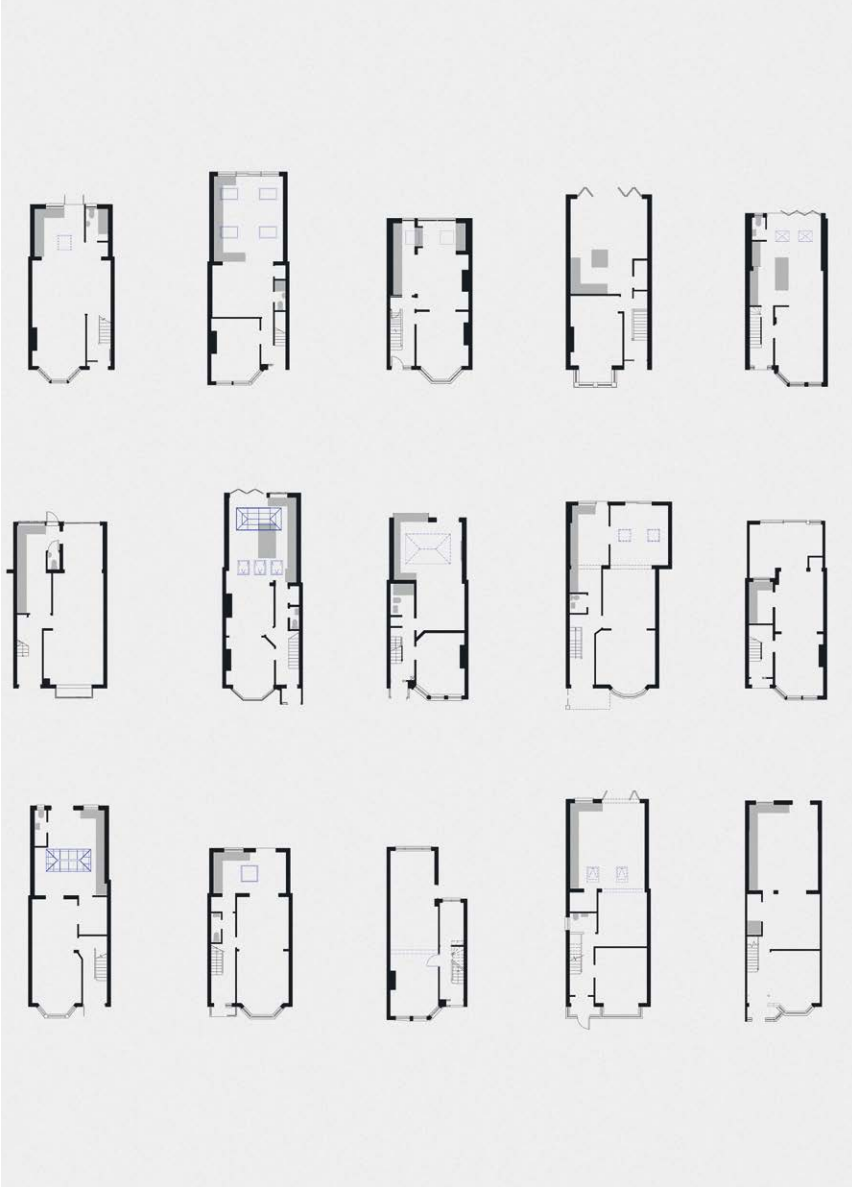


Fig. 1: Floor plans analysed. Source: Source: Image by author



Back extensions were often designed to enlarge the kitchens. It is inevitable that the back extensions have an impact on kitchens that were originally located at the back. However, kitchens were not only enlarged with longer worktops, more storage and additional dining spaces but were also combined and merged with the rooms in the main part of the house in a variety of ways. Walls separating extended kitchens from the middle rooms, and middle rooms from the front rooms were variously moved or removed, or large openings were added to them. As a result, in new layouts, the separations between the three original rooms—parlour, living room, and kitchen—became less clear, and in some cases, non-existent. These changes suggest that kitchens were not merely by-products of extensions but were the focus of extensions. The additional floor area was also used to add new amenity spaces, i.e. bathrooms, WCs, storage, and utility rooms. Storage and utility rooms, which do not require natural lighting, were mostly located in the middle of the floor plan.

Redesigning Homes

While studying floor plans gives us an idea about spatial patterns, they are limited in terms of linking these spatial changes to the understandings, framings, and motivations of alterations. Moreover, while there are similarities in their organisation, every house was altered in different ways. Alterations are, most of the time, individual processes undertaken by different people at different times that result in different spaces. To explore the motivations and considerations in alterations, I draw upon interview data that I collected as part of the larger project.¹²

I collected these data via an online survey that included open-ended questions and follow-up semi-structured interviews. They included a broad set of questions about daily routines, particular

12 Seyithan Özer and Alasdair Jones, "Changing Socio-Spatial Definitions of Sufficiency of Home: Evidence from London (UK) before and during the Covid-19 Stay-at-Home Restrictions," *International Journal of Housing Policy* 24, no. 2 (2022): 290–315.



uses of rooms, and experiences of individual spaces. Even though the participants were not from the houses I analysed, some of them were living in similar houses and had undertaken alteration projects. For instance, when asked whether they use their home as laid out when they moved into it, and to list the changes they have made, some of them replied with: “extension added, to make the kitchen, dining and sitting area all one,” “filling in the side return, knocked the dining and kitchen into one room,” and “rear and side return extension creating an extra living room zone in the new kitchen.”¹³ Some also mentioned other types of changes on the ground floors: “knocked together two reception rooms to make one large space,” “took down the wall separating the dining room & kitchen,” and “took out the door and knocked through part of the wall separating the living space from the stairs down to the flat’s front door and up to the bedroom, opening up the flat for light and space.”

The interview data showed a number of motivations and considerations in ground floor alterations. When discussing their larger, combined kitchens, interview participants referred to the inconvenience of having two separate spaces, a kitchen for the preparation and storage of meals and cleaning, and a dining room for the serving of meals. For instance, Jacob, who had just submitted a planning application for a back extension and layout change, reported: “We don’t use the dining room [...] we have enough space next to the kitchen, which is much easier to use. We’re doing a little bit of rearrangement [...] an extension so that you can have the kitchen in the dining room.”

Interview participants acknowledged and referred to such an understanding of the kitchen. For instance, Roshini, a working

¹³ 76 respondents (out of 239, 32%) said they had made some changes and 15 survey participants listed extensions and major remodelling of interiors as the changes they have made. Moreover, 5 out of 21 interview participants discussed extensions they had made to their homes.



mum, who had recently built a side return extension, noted that the older division of the living area into kitchen, dining room and living room did not work for them:

“[prior to the extension] it wasn’t great spending time in the kitchen [...] it was a bit more awkward [...] the kitchen was a much more functional space [...] the middle room was a dining room, but it never got used [...] having the extension meant that the dining area has moved into the kitchen and there is also a play area and a bit of extra living space.”

In fact, such spatial changes in kitchens and living spaces align with both the design preferences that can be observed in new-built dwellings and the literature from social sciences on home renovations. Combined kitchen and living room arrangements, as well as multiple bathrooms, have been the norm in London’s new dwellings since the 2000s.¹⁴ The literature from social sciences highlights changing understandings of tidiness, convenience, and modern living as significant drivers of such spatial changes.¹⁵ For instance, Irene Cieraad argued that the separation of kitchens, living rooms, and dining rooms sustained the gendered division of domestic spaces (who uses the kitchen for cooking, serving, and cleaning), whereas the open plan reflected the “social equality between men and women, between parents and children.”¹⁶ Martin Hand and Elizabeth Shove related these to a shift in the understanding of cooking and eating as “sociable lifestyle activities” and kitchens as “the places of leisure and as places the whole family thinks of as home.”¹⁷

Besides enhancing the functional uses of homes, alterations also contribute to the feelings and meanings of home such as

14 Seyithan Özer and Sam Jacoby, “Dwelling Size and Usability in London: A Study of Floor Plan Data Using Machine Learning,” *Building Research & Information* 50, no. 6 (2022): 694–708.

15 Ellis P. Judson, Usha Iyer-Raniga, and Ralph Horne, “Greening Heritage Housing: Understanding Homeowners’ Renovation Practices in Australia,” *Journal of Housing and the Built Environment* 29, no. 1 (2014): 61–78.

16 Irene Cieraad, “‘Out of My Kitchen!’ Architecture, Gender and Domestic Efficiency,” *The Journal of Architecture* 7, no. 3 (2002): 276.

17 Martin Hand and Elizabeth Shove, “Orchestrating Concepts: Kitchen Dynamics and Regime Change in Good Housekeeping and Ideal Home, 1922–2002,” *Home Cultures* 1, no. 3 (2004): 245–47.



safety, identity, attachment, belonging, control, pride, and status.¹⁸ As residents alter their homes, they exercise control over their dwellings and attach new meanings to their dwellings. By re-designing the domestic space to better suit their needs and preferences, residents express their identity, aesthetic preferences and status.¹⁹ In this way, alterations are also related to residents' consumption choices and the decisions residents make when improving their houses are greatly influenced by the media, which contributes further to the reproduction of contemporary ideologies of home.²⁰

Interview participants mentioned a number of considerations that determined the spatial form of their new ground floors that help us understand the variety in the studied floor plans.

The first issue that emerged was natural lighting. A deeper extension restricts the amount of natural light available for inner rooms, which are already limited on ground floors. Jacob, who created only a very short extension (~1 m) says: "What we have done is try and make an extension so that you can have the kitchen in the dining room. You could square it off [side return extension] but that becomes light and the bit in the middle of the house becomes dark again." Connecting and opening the rooms to each other, to an extent, relieves the problem of air circulation and daylight. But it also requires a careful calculation. For instance, Roshini reported that:

18 Julia Cook, "Understanding Home Renovation as a Material Future-Making Practice," *Sociology* 55, no. 2 (2020): 384–99; Bronwyn Tanner, Cheryl Tilse, and Desleigh de Jonge, "Restoring and Sustaining Home: The Impact of Home Modifications on the Meaning of Home for Older People," *Journal of Housing For the Elderly* 22, no. 3 (2008): 195–215.

19 Michael Mackay and Harvey C. Perkins, "DIY Dreams and the Potential of Home," *Housing, Theory and Society* 36, no. 1 (2019): 112–28; Minna Sunikka-Blank, Ray Galvin, and Carrie Behar, "Harnessing Social Class, Taste and Gender for More Effective Policies," *Building Research & Information* 46, no. 1 (2017): 1–13; Elizabeth B. Silva and David Wright, "Displaying Desire and Distinction in Housing," *Cultural Sociology* 3, no. 1 (2009): 31–50.

20 Aneta Podkalicka and Esther Milne, "Diverse Media Practices and Economies of Australian Home Renovators: Budgeting, Self-Education and Documentation," *Continuum* 31, no. 5 (2017): 694–705; Shae Hunter, "Reflexive Renovation and the Future of Household Sustainability: The Role of Media and Imagination in Household Consumption," *Geographical Research* 58, no. 3 (2020): 214–25.



“currently [...] when you’re going down the corridor to the kitchen from the front door [...] under the stairs, there’s some storage and there’s a toilet under there. And on the other side, there’s kind of a little block that has got a door to it and that’s got our washing machine boiler in. [...] We could have extended that cupboard and made it more of a utility room. But we decided against that because it would have meant less light into the living room [...] and we wouldn’t have had that kind of semi open plan feeling between the two.”

In addressing the natural lighting problem, the use of skylights, wide windows, and glazed doors in rear extensions was very common (Fig. 1). Two other participants, Carrie and Callum, created a small courtyard between the original back wall and extension to enable the original back room to have daylight and air. During interviews, financial considerations also emerged. First, extensions require homeowners to have a certain level of financial capacity to cover the high costs of extensions.²¹ Second, homeowners need to justify their investment financially. One of the interview respondents, Marion, explained:

“[We wanted to extend the kitchen] but again, it was financial [...] you wouldn’t be able to actually increase the value of the property

21 According to Architecture for London, an architecture firm experienced in house extensions, a single-storey extension in London often costs between £2,500 and £4,000 per square metre. This can easily amount to more than £50,000 for a project. “How much does a house extension cost in London?,” Architecture for London, accessed 24 April 2025, <https://architectureforlondon.com/news/house-extension-costs-in-london/>.



because there is a ceiling price on those two-bedroom properties whatever you do. [A kitchen extension] would be nice, but I think this is not my forever home and there is only so much money we want to spend.”

Terraced house alterations are entangled with broader urban and economic issues, too. In the context of London, where housing affordability is a significant problem, older stock in need of repair has been an attractive option for homeownership, as well as for those who have been amateur property speculators.²² Tim Butler and Garry Robson note that “[t]he history of gentrification in London over the past nearly 40 years has been largely one of upgrading of mainly [nineteenth-century] property by individuals or small-scale developers.”²³ Homes “embody the majority of [owners’] savings and secure the bulk of their debt.”²⁴ Maintenance of and investment into homes, in the form of renovations and alterations, is also essential to the maintenance of the exchange value of homes, hence the savings of owners, and this is particularly important in an asset-based welfare system.²⁵ For instance, real estate websites list adding a bathroom, creating an open living space, extending the loft space for additional bedrooms, and even obtaining planning permission for an extension as ways to maintain and increase property value.²⁶

22 Joe Moran, “Early Cultures of Gentrification in London, 1955–1980,” *Journal of Urban History* 34, no. 1 (2007): 101–21.

23 Tim Butler and Garry Robson, “Social Capital, Gentrification and Neighbourhood Change in London: A Comparison of Three South London Neighbourhoods,” *Urban Studies* 38, no. 12 (2001): 2145–62. See also: Chris Hamnett, “City Centre Gentrification: Loft Conversions in London’s City Fringe,” *Urban Policy and Research* 27, no. 3 (2009): 277–87.

24 Nicole Cook, Susan J. Smith, and Beverley A. Searle, “Debted Objects: Homemaking in an Era of Mortgage-Enabled Consumption,” *Housing, Theory and Society* 30, no. 3 (2013): 1–19.

25 John Doling and Richard Ronald, “Home Ownership and Asset-Based Welfare,” *Journal of Housing and the Built Environment* 25, no. 2 (2010): 165–73.

26 NAEA PropertyMark, “Doer-Uppers” Spent £48 Billion on Improvements”, 1 April 2019.



Conclusions

In this paper, my aim was not to provide an extensive analysis of terraced house alterations but to explore what kind of issues they entail. Home alterations differ from new-built dwellings. The interview data shows that alterations can provide a lens to the contemporary spatial norms as they are understood, translated, negotiated, and reproduced. But, to think about home alterations means to attend not only to the functional uses of homes, needs, preferences, and practices of owners and owner-occupants, but also to the meanings of home, and issues such as the lack of affordability and housing availability, financialisation of housing, asset-based welfare, and gentrification. This complexity requires socio-spatial methodologies that integrate multiple methods and sources.²⁷

The floor plan data, with the variety of extensions, conversions, and remodelling in the older housing stock showed that terraced house typologies are flexible and that they can accommodate a variety of living space arrangements. Architecturally, the availability of space with which to extend backwards, double aspect design, and particularly, the disposition of the entrance hall, staircase, and scullery on one side, and habitable rooms on the other, accommodate a variety of interior layouts. There is much to learn from the housing stock to build more flexible dwellings. But, at the same time, new alterations seem to limit any further changes, as the ground floors have become deeper than before. We must carefully consider what this means for the future of the existing housing stock.

27 Denise L. Lawrence and Setha M. Low, "The Built Environment and Spatial Form," *Annual Review of Anthropology* 19, no. 1 (1990): 453–505; Thomas F. Gieryn, "A Space for Place in Sociology," *Annual Review of Sociology* 26, no. 1 (2000): 463–96; Setha M. Low and Denise Lawrence-Zúñiga, eds., *The Anthropology of*

Space and Place: Locating Culture (Malden, MA: Blackwell, 2003); Hilde Heynen, "Space as Receptor, Instrument or Stage: Notes on the Interaction Between Spatial and Social Constellations," *International Planning Studies* 18, no. 3–4 (2013): 342–57.

