

Goldsmiths Research Online

*Goldsmiths Research Online (GRO)
is the institutional research repository for
Goldsmiths, University of London*

Citation

Saint-Arroman, Claudine. 2019. SPACE FOR THE BOUNDARY – BOUNDARY AS PLACE: Architectural boundary as a relational concept in urban mass housing. Doctoral thesis, Goldsmiths, University of London [Thesis]

Persistent URL

<https://research.gold.ac.uk/id/eprint/26173/>

Versions

The version presented here may differ from the published, performed or presented work. Please go to the persistent GRO record above for more information.

If you believe that any material held in the repository infringes copyright law, please contact the Repository Team at Goldsmiths, University of London via the following email address: gro@gold.ac.uk.

The item will be removed from the repository while any claim is being investigated. For more information, please contact the GRO team: gro@gold.ac.uk

SPACE FOR THE BOUNDARY – BOUNDARY AS PLACE

Architectural boundary as a relational concept in urban mass housing

Claudine Saint-Arroman

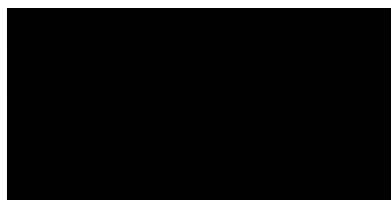
Goldsmiths, University of London

Thesis submitted in fulfilment of the requirements for the degree of Ph.D.

June 2017

Declaration of Authorship

I, Claudine Saint-Arroman, hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.



30 June 2017

Acknowledgements

Without possibly being able to thank all who contributed to this thesis, I would like to thank at least those who have seen and supported me through the process since its inception.

First of all, Juliet Sprake, who gave me superb guidance, together with John Wood and Alex Wilkie, and other colleagues at Goldsmiths University among whom Alexandra Antropoulou, Les Back, John Backwell, Paola Crespi, Duncan Fairfax, Bill Gaver, Rob Imrie, Hannah Jones, Julia Lockheart, John Reardon, Alex Rhys-Taylor, Terry Rosenberg and YaHuei Yang.

My thanks to colleagues at the University of East London, where I teach architecture, for their support and conversations: Dinah Bornat, Isaac Cobo, Chris Groothuizen, Christoph Hadrys, Roland Karthaus, Raphael Lee, Hwei Fan Liang, Miho Nakagawa, Catherine Phillips, Alex Scott-Whitby, Keita Tajima and Renée Tobe, and to other architects who have contributed their knowledge to this thesis: Peter Barber, Giles Bruce, Katherine Clarke and Liza Fior, Richard Dudjicki, Paul Karakusevic, Peter Holmes, Adam Khan, Walter Menteth, Nic Pople, Roger Sedgley, Simon Unwin and Nick Willson.

I must also thank my students, some of whom inspired thoughts about the boundary through their work: Salleh Ahmad, Marie Braithwaite, Nick Chapman, Anastasia Chondronikola, Rohaine Dailey, Michael Eleftheriou, David Gogo, Sara Islam, Noorah Kassinen, Jekaterina Krackovskaja, Shafia Masahir, Sagal Muhumed, Nick O'Hara and Divyani Patel.

My profound thanks to all the residents in the many estates I visited, who did not object and instead allowed me (often accompanied by students, colleagues or friends) to take photographs of their personal edges.

Most grateful thanks are also due to friends and family for their continual and unconditional patience and encouragement: Saskia Baron, Mark Barrett, Mark Blackman, Ray Emery, Lyndon Fothergill, Sue Lanzon, Heidi Moxon, Sarah Morrison, Hellie and Pete Mulvaney, Christine Osborne, Denyse Saint-Arroman, Ash Sodha. Although now departed, I would also like to thank Katherine Shonfield, who was my first guide on this road.

And last but not least, I dedicate this thesis to Sebastian and Luke Fuller Saint Arroman, who gave me the motivation and inspiration all the way through and, while respecting my architectural wanderings, listened tirelessly and contributed their own thoughts.

ABSTRACT

This theory-based research challenges a perceived paradox between the propositions of self-sufficiency and of self-containment in mass housing in London. It focuses on institutional and physical boundaries between private and public space that posit each as separate from the other, in statutory and legal frameworks specific to the UK, and in architectural formulas for high density housing. It challenges conceptions about public/private relationships that support hermeticity: protection of privacy and of propriety, from neighbours, from damage and from climate change. In the construction industries, sustainability is also increasingly assigned to the building's 'performance' rather than to its users' concomitant participation in that performance during the building's lifetime. Through primary source material evidence found in the urban fabric, the research explores privacy/publicity dynamics in architecture and asks whether a reassertion of residential boundaries could provide future paradigms for the collective project of urban sustainability.

These possibilities are scrutinised through the lens of architectural boundaries in selected case studies of high density housing in London, to identify contradictions certain designs generate with regards to sustainability, and to initiate a debate about their implications and relevance to long-term evolution towards a more ecologically resilient urban future.

TABLE OF CONTENTS

ABSTRACT	05
ILLUSTRATIONS	08
Introduction	14
ARCHITECTURAL BOUNDARY: BINARY AND RELATIONAL PROCESSES	
Part I	31
REVISION OF ARCHITECTURAL BOUNDARY	
(Concept Development and Research Methodology)	
Chapter 1	31
BOUNDARIES IN ARCHITECTURE: Concept and Context	
(Literature Review)	
1.1 <i>Sustainability and Fragmentation</i>	32
1.2 <i>Infrastructure and Boundaries</i>	35
1.3 <i>Definitions of the Boundary</i>	43
1.4 <i>Relationality and Privacy</i>	52
1.5 <i>Fragmentations Beyond Public/Private Dichotomy</i>	63
1.6 <i>Excluding or Integrating the Middle</i>	68
Chapter 2	74
RESEARCHING RELATIONALITY IN RESIDENTIAL BOUNDARIES	
(Methods and Processes)	
2.1 <i>Manifestations</i>	75
2.2 <i>Photographic Documentation and Privacy</i>	82
2.3 <i>Assemblage and Interpretation</i>	87
PART II	94
CONTEMPORARY DESIGN STRATEGIES	
Chapter 3	96
BOUNDARY AS HERMETIC WALL (Strata Tower)	
3.1 <i>Airtightness and External Envelope</i>	97
3.2 <i>Indeterminate Users, Indeterminate Weathers within the Pragmatics of Certainty</i>	102
3.3 <i>The Neutralisation of Walls</i>	109
Chapter 4	119
BOUNDARY AS DOUBLE SKINNED SPACE (Consort Road)	
4.1 <i>Alternative and Traditional Planning Conventions</i>	119
4.2 <i>The Relational 'Side'</i>	123
4.3 <i>A-Relationship to Local Streets</i>	127
4.4 <i>Zoning and Planning</i>	130
4.5 <i>Potential and Actuation</i>	134

Chapter 5	142
RELATIONALITY AND ILLEGAL ARCHITECTS (Greenstreet Hill and Telegraph Hill)	
5.1 <i>Strata Tower: the Interior 'Side'</i>	143
5.2 <i>Greenstreet Hill, Privacy and Engagement</i>	146
5.3 <i>Creative Hands and Intelligent Buildings</i>	150
5.4 <i>Adaptive Sustainability by Mutual Learning</i>	154
Part III	164
UNDERLYING PARADIGMS IN RESIDENTIAL BOUNDARY TRADITIONS	
Chapter 6	166
HERMETIC THRESHOLDS AND ACCESS IN BRUTALIST TOWER BLOCKS	
6.1 <i>Keeling House, Bethnal Green, Denys Lasdun (1958)</i>	169
6.2 <i>Balfron Tower, Poplar, Ernő Goldfinger (1963)</i>	
<i>Trellick Tower, North Kensington, Ernő Goldfinger (1972)</i>	177
6.3 <i>Robin Hood Gardens, Poplar (1972)</i>	187
6.4 <i>Alternative Definitions of the Street</i>	195
Chapter 7	202
1930s COUNCIL HOUSING AND EARLIER ACCESS BALCONY HOUSING	
7.1 <i>The East Hill Estate, London County Council, 1929-1985</i>	203
7.2 <i>The Leopold Buildings (1871)</i>	218
7.3 <i>Slum Clearance and Back-to-back Dwellings</i>	221
7.4 <i>Hybrid Street/Domestic Life and Slums</i>	226
Chapter 8	230
ALMSHOUSES AND GEORGIAN ERA – PROPRIETY AND POROSITY	
8.1 <i>Fishmongers' Almshouses (St Peter's Hospital, 1851)</i>	230
8.2 <i>The Original Fishmongers Almshouses (1618-Newington)</i>	237
8.3 <i>Caroline Gardens (as built, then and now)</i>	242
8.4 <i>Georgian Porosity and Trades</i>	251
Conclusion – INSTATING CHOICE AT THE BOUNDARY	260
Postscriptum	268
GLOSSARY	269
Reference List and Bibliography	275

ILLUSTRATIONS

- Fig. 01 Location Map (Case Studies, London, UK)*
By author, on basis of Google map
- Fig.02 Timeline of Case Studies*
By author, on basis of Google satellite stills
- Fig.03 Structure Outline*
By author
- Fig.04 Lea Valley, view from water reservoir (Autumn 2011)*
Photograph by author
- Fig.05 Various Types of Diagrams Identifying Relationships*
By author
- Fig.06 Defensible Space in Deptford (Spring 2012)*
Photograph by author
- Fig.07 Removal of Activities from the edge*
Drawn by author
- Fig.08 London Poverty map by Alasdair Rae at the University of Sheffield*
From The Guardian, 12 April 2012
- Fig.09 Base of the Strata Tower (Autumn 2014)*
Photograph by author
- Fig.10 Cross Ventilation between flats*
Arrows by author over plan layout extracted from ArchDaily
- Fig.11 Exterior of ventilation panels (Winter 2014)*
Photograph by author
- Fig.12 Interior of ventilation panel (2013)*
Extracted and cropped from resident blog photograph that showed whole room
- Fig.13 Location of Ventilation Panels along the Exterior Façade*
Arrows by author over plan layout extracted from ArchDaily
- Fig.14 Office block in London Bridge (Summer 2011)*
Photograph by author
- Fig.15 Google View of Consort Road*
Google Earth with outline by author
- Fig.16 Consort Road Access Balconies, photograph taken from train (Spring 2012)*
Photograph by author
- Fig.17 Consort Road (Peckham, 2007), Fronts (Spring 2015)*
Photograph by author
- Fig.18 Consort Road, South Facing Winter Gardens (Spring 2013)*
Photographs by author

- Fig.19 Shared Ownership (Consort Road) Winter Gardens (Summer 2014)*
Photographs by author
- Fig.20 Shared Ownership (Consort Road) Winter Gardens (Summer 2014)*
Photographs by author
- Fig.21 Twin House Fronts at Consort Road (September 2014)*
Photograph by author
- Fig.22 Back of Terraced Houses at Consort Road (September 2015)*
Photograph by author
- Fig.23 Alternative Representation of Strata Section*
Sketch by author
- Fig.24 Strata Flat for Sale*
Photograph made public on Rightmove website
- Fig.25 Construction Site in Deptford (Summer 2014)*
Photograph by author
- Fig.26 Sketches of Greenstreet Hill by Potter & Holmes Architects*
With kind permission from Peter Holmes
- Fig.27 Samples of Victorian intermediate spaces in South London (Autumn 2014)*
Photographs by author
- Fig.28 Objects on offer at the space in-between public and private domain (Spring 2014)*
Photographs by author
- Fig.29 Donnybrook Front Doors (Summer 2014)*
Photographs and Montage by author
- Fig.30 Transgressions at the Front (Summer 2015)*
Photographs by author
- Fig.31 Impromptu Jumble Sale (Summer 2015)*
Photograph by author
- Fig.32 Parker Morris Diagrams, 1963*
From Katherine Shonfield's *Walls have Feelings* (2001)
- Fig.33 Keeling House (Summer 2013)*
Photograph by author
- Fig.34 Keeling House, laundry spaces and stairs (Summer 2013)*
Photographs by author
- Fig.35 Keeling House, 'back' view between the two south wings (Summer 2013)*
Photograph by author
- Fig.36 Keeling House, Elevation (Summer 2013), Section and Plans*
Photograph by author, Section and plans with kind permission from Hilary French

- Fig.37 Berthold Lubetkin, High Point I (1935) and Bevin Court (1954)*
High Point plan with kind permission from Hilary French; Bevin Court photograph (John Maltby/RIBA Library Photographs Collection) and plan with kind permission from Miles Glendinning and Stefan Muthesius
- Fig.38 Ernö Goldfinger, Balfron and Trellick Towers in Context*
Delineations over Google map stills (2013) by author
- Fig.39 Base of Balfron Tower core (left) and of Trellick Tower core (right)*
(Summer 2013)
Photographs by author
- Fig.40 Balfron Tower street access (left), Trellick Tower street access (right)*
(Summer 2013)
Photographs by author
- Fig.41 Landscapes at Balfron Tower (left) and Trellick Tower (right)*
(Summer 2013)
Photographs by author
- Fig.42 Trellick Tower, site of former care home, from lower and upper levels*
(Summer 2013)
Photographs by author
- Fig.43 Disused footpath at the southern edge of Trellick compound (2013)*
Photographs by author
- Fig.44 Balfron and Trellick Towers Flat Layouts*
With kind permission from Hilary French, colour overlays by author
- Fig.45 Trellick Tower, balcony (Summer 2013)*
Photograph by author
- Fig.46 Balfron Tower, balcony (summer 2013)*
Photograph by author
- Fig.47 Robin Hood Gardens, private balconies (Summer 2013)*
Photograph by author
- Fig.48 Robin Hood Gardens Streets in the sky (Summer 2013)*
Photographs by author
- Fig.49 Robin Hood Gardens, original glazing details (2013)*
Photographs by author
- Fig.50 Robin Hood Gardens, larger alcoves (Summer 2013)*
Photograph by author
- Fig.51 Robin Hood Gardens access deck layouts*
With kind permission from Hilary French
- Fig.52 Robin Hood Gardens, Interior views (Summer 2013)*
Photographs by author
- Fig.53 Robin Hood Gardens, ground level edges (Summer 2013)*
Photographs by author

- Fig.54 Robin Hood Gardens, edge of the estate and utilitarian trough (Summer 2013)*
 Photograph by author
- Fig.55 Photographs of the 1950s*
 Photograph to the left used for front cover
 Centre photograph made public by The Telegraph
<http://www.telegraph.co.uk/culture/books/historybookreviews/9173546/Ch-eek-by-Jowl-by-Emily-Cockayne-review.html>
 Photograph to the right made public by the Guardian
<http://www.theguardian.com/books/2012/mar/23/cheek-neighbours-emily-cockayne-review>
- Fig.56 Delivery boxes at Le Corbusier's Unité d'Habitation, Marseilles, 1952*
 Photographs by author
- Fig.57 East Hill Estate, 1929, LCC*
 From *London Housing, LCC*, 1937, pp 71. 72 &73
- Fig.58 LCC standard layouts*
 From *London Housing, LCC*, 1937, pp 40 & 41
- Fig.59 Back of East Hill Estate*
 With kind permission from the London Metropolitan Archives
- Fig.60 East Hill Estate, Grassed Courtyards*
 With kind permission from the London Metropolitan Archives
- Fig.61 East Hill Estate, Courtyard beyond Entrance Gate*
 With kind permission from the London Metropolitan Archives
- Fig.62 East Hill Estate, Life in the courtyard*
 With kind permission from the London Metropolitan Archives
- Fig.63 East Hill Estate Playground*
 With kind permission from the London Metropolitan Archives
- Fig.64 Mass Exercise in the 1920s*
 Still extracted from Dan Cruickshank's documentary on *Britain's Park Story*, BBC Four, Mon 2 Aug 2010.
- Fig.65 Balcony Access Council Estates in East and South East London (2013-14)*
 Photographs by author
- Fig.66 Leopold Buildings, balcony close ups (May 2014)*
 Photograph by author
- Fig.67 Leopold Buildings, stairs and access balconies (Summer 2014)*
 Photograph by author
- Fig.68 Leopold Buildings, street elevation (Summer 2014)*
 Photograph by author
- Fig.69 Leopold Buildings, Original Plans*
 From Improved Industrial Dwellings Company Limited, Register of Estates,
<https://wilmotst.wordpress.com/>

- Fig.70 Slum Housing assigned for demolition, LCC*
From *London Housing, LCC, 1937*, pp 70, 194 & 210
- Fig.71 Evolution of front and back streets during Victorian Era*
From Leonardo Benevolo's *Origins of Modern Town Planning*, pp. 28, 93, 101
- Fig.72 Parnell House, Peabody Trust*
<http://www.peabody.org.uk/about-us/our-story/our-history/history-of-our-estates>
- Fig.73 Oxford Arms, Warwick Lane, 1875*
From *Lost London 1870-1945*, p.25
- Fig.74 BBC4's reconstruction of a Victorian proposal for a working-class street*
Still taken from *Dreaming the Impossible: Unbuilt Britain*, BBC4 (2011)
- Fig.75 Fishmongers' Almshouses, Back View, 1840-1851*
From Walford's Old and New London, Vol.VI
- Fig.76 Fishmongers' Almshouses, Sections*
With kind permission from the London Metropolitan Archives
- Fig.77 Fishmonger's Almshouses, Ground Floor Plan*
With kind permission from the London Metropolitan Archives
- Fig.78 Fishmongers Almshouses, First Floor Plan*
With kind permission from the London Metropolitan Archives
- Fig.79 Front of Fishmongers' Almshouses*
London Borough of Wandsworth Archives
- Fig.80 1840s Ordnance Survey map*
Outlines by Author
- Fig.81 Back of St Peter's Hospital*
London Borough of Wandsworth Archives
- Fig.82 Fishmongers' Almshouses, 1618*
With kind permission from the London Metropolitan Archives
- Fig.83 Square of the Fishmongers' Almshouses*
With kind permission from the London Metropolitan Archives
- Fig.84 Bedford Square*
Google Satellite Image March 2012
- Fig.85 Caroline Gardens, aerial view*
Google Satellite Image, borders marked in red by author
- Fig.86 Caroline Gardens Back Alleys (March 2013)*
Photographs by author
- Fig.87 Caroline Gardens, front of dwellings (March 2013)*
Photographs by author

- Fig.88 Circulation at the Threshold*
Sketch by author
- Fig.89 Caroline Gardens, front of U Shaped building and Window Detail (March 2013)*
Photographs by author
- Fig.90 Distance and Recesses between Front Doors and Public Street*
Sketch by author
- Fig.91 Caroline Gardens Back Alleys (March 2013)*
Photographs by author
- Fig.92 Caroline Gardens Back Alleys (March 2013)*
Photographs by author
- Fig.93 Caroline Gardens, Complicit Transgression at the Boundary (March 2012)*
Photograph by author
- Fig.94 Georgian London*
From Walford's Old and New London, Vol.III
- Fig.95 Christopher Wren's masterplanning of London after the Great Fire (1666)*
British Library Online Gallery
- Fig.96 LCC Notice in Bermondsey, South London*
Photograph by Saskia Baron, with thanks
- Fig.97 Lost London: Dwellings with Shutters*
From *Lost London 1870-1945*, pp.45, 101, 320 and 327

Introduction

ARCHITECTURAL BOUNDARY: BINARY AND RELATIONAL PROCESSES

This research stems from my experience in architectural practice in London, as a fully qualified project architect and over two decades, and it is carried out in East and in South East/West London boroughs where the majority of my projects were sited and where I was also a local resident.¹ During this time, the profession evolved in many ways, and by the time I left practice in 2011, I was concerned about a number of issues that I perceived as detrimental to the way we design and build high density housing, in areas that were sufficiently familiar to me for the identification of paradoxes: although some of my findings may have relevance beyond London, they are specific here to the context of these areas. These designs were the product of urban regeneration policies in the 1990s and 2000s that have been intensely scrutinised by the press and by the general public over the last ten years for their socio-economic impact on London. The resulting housing crisis is well documented, but there are other underlying concerns that receive less attention and are, arguably, more technical and specific to the design of the accommodation itself.

My research challenges the implications of formulaic high density housing design strategies in London that are fragmented - before and after construction. These fragmentations can manifest through the administrative and procurement systems underlying the process of architectural design and the multiple statutory bodies involved in its assessment at Planning stage (before construction). They can manifest through conceptual separations at Building Control stage (before and during construction) between environmental and social matters - themselves respectively preoccupied with thermal efficiency and domestic matters in favour of wider meanings of environment and of socio-economics. They can also manifest through prescriptive designs that encourage these separations (after construction) through the architecture itself, often at the literal boundary between sides.

Boundaries are not only objects of division but also spatial sites where research, assessment and design methodologies can be coherently integrated. Many architects and theorists are aware of this dynamic, but it is often mentioned in passing rather than explored in depth: the dynamics of architectural boundaries can be very subtle and conditional to small details that are resistant to systematic

¹ See familiarity and repetition, Methods and Processes, p.79

research because of their sheer diversity. My research investigates the possibility of boundary design alternatives for mitigating these fragmentations without overhauling the whole industry. Through an analysis of existing boundary designs in London, it highlights themes revealed and actuated by them. On the basis of observations about occupation that combine environmental *and* socio-economic criteria, it questions their individual merits and shortcomings within a broader context - in order to explore the reasons and reasonings behind the designs. This, in turn, asks whether these paradigms and designs remain realistic in a world that faces significant changes, at environmental and socio-economic dimensions.

I position this inquiry in a temporal framework that challenges long-term *durability* - in terms of construction technologies that have a limited life span, long-term *adaptability* - in terms of spatial conditions that are prescriptive of specific uses, and long-term *viability* - in terms of accelerated change in live/work modes combined with accelerated manifestations of climate change. Durability, adaptability and viability have been extensively discussed in architectural theory from a variety of different perspectives, but these attributes are not included in Building Control or policy guidance on sustainability. They occur (or not) after a building has been designed and built, and are subject to a potential infinity of indeterminate factors. As such, they constitute a grey area in terms of design standards.

Of particular interest to me here, and in chronological order, I make reference to Mohsen Mostafavi and David Leatherbarrow's examination of *Weathering* (1993) in construction processes and buildings' exposure to continual temporal evolution; Jonathan Hill's concept of *Illegal Architects* (1998), that highlights the role of users in continuing design processes after the building is built and handed over; Stewart Brand's proposition that *Buildings Learn* (2004) over long periods of time through adaptive design modifications; Robert Kronenburg's appeal for an *Architecture that Responds to Change* (2007); Jeremy Till's argument for contingency in architectural design to enable contextual integration of everyday social complexity on which *Architecture Depends* (2009); and Robert Schmidt and Simon Austin's more recent research into the theory and practice of numerous strategies for *Architectural Adaptability* (2016). This is not an exhaustive list, but it gives an idea of scope and a sense of sustained academic interest and preoccupation over the past 25 years, about architectural temporality and resilience.

If these findings are rarely reflected in contemporary architectural practice, particularly in mass housing, it could be argued that this body of literature is

developing in reaction to a growing tendency, within the construction industries (and I here include builders, policy makers and developers), to evolve in the opposite direction. Many of the authors above assert that this is the case, and that our buildings are increasingly disposable and prone to premature obsolescence. In terms of sustainability, this poses intractable questions about the exponential impact of construction on the planet's resources. In this context, our current attempts at tackling climate change through thermal efficiency seem comparatively narrow, and statutory focus on climate change itself arguably obscures other changes that are also taking place, not least of which the socio-economic upheavals witnessed over the same period of time, and to which architecture might also need to adapt soon. It would appear that, while change and uncertainty concurrently define our future at socio-economic and environmental dimensions, construction practices instead aspire to stability and certainty - effectively shrouding this future by subduing the processes of temporality through fixed boundary designs.

This paradox constitutes the background of my research. There is an ironic logic in responding to uncertainty (the future) with certainty (the delivered product), and as a practicing architect I was also mindful of the apparent rationality behind many of the institutional policies and directives that have also been proliferating over recent decades. In this sense, I found myself standing between two ideologies, one in favour of designs that work with uncertainty and cater for unknown future scenarios through flexibility, and the other in favour of controlled (and controlling) designs that can be quantified and certified against a multitude of legal, institutional, physical and social 'risks'. I wanted to understand how and why architecture had reached this state of apparent incompatibility, and to investigate ways in which the two polarised principles might somehow reunite.

In the field of mass residential housing, this mechanism of dichotomy reveals itself at many dimensions from within the construction industries. At a more direct architectural design dimension, I perceived contradictions between sustainability principles that involve infrastructural cycles between dwellings and locality, and a widespread inclination in favour of self-contained dwellings isolated from each other and from locality. I was concurrently concerned about some construction details aimed at reducing heat loss but neglectful of quality (for instance, rain cladding that fails within years of construction) and of more directly human requirements, including well-being and indoor air quality. Some of these disparities can also be reflected in administrative separations made between architectural matters related to people and architectural matters related to weather - both of which less quantifiable than the material fabric of architecture.

The building, in this sense, would be treated as an object of certainty that regulates social, environmental and temporal uncertainties, and it could be argued that this is exactly what architecture is about: at its simplest definition of shelter, it protects from the elements - not only weather but also animals, vegetation, micro-organisms and other humans. However, if an inside and an outside are generated by the architecture, this does not preclude that all of the above are only on one of its sides, anymore than that sides should operate in isolation of each other. Even if the architecture conceptually and spatially generates two environments instead of one, these two environments are not merely separate but operate with each other sometimes and against each other at other times, through the dividing architectural element itself which I call the boundary. In other words, these environmental 'sides' are created by the architecture in the first place, but they are also put in relationship with each other at the same time - a relationship usually modulated through degrees of permeability and impermeability at the boundary. This is commonly effected through walls, doors and windows, and the degrees of permeability and impermeability, in turn, affect the boundary itself. In terms of pure logic therefore, the two sides are dependent on the boundary, but the boundary also depends on them. Inside and outside may be regarded here as binary opposites, but the boundary between them is a third party.

I developed this conceptualisation as the result of continual observations on polarisation whereby, instead of trying to encourage meeting points between parts, the predominant inclination in the construction industries seemed in favour of holding them apart. This was always imbedded in the UK's planning system, to some degree, for the purposes of strategic order, and discussions about the advantages and disadvantages of these preconceptions about order abound - not only within urban studies but beyond: the problems of fragmentation created by 'rational' strategic systems are not unique to architecture. However, in this sense, if an architecture of hermeticity and a-temporality that would also be holding sides apart can be said to reflect our current culture, it can also potentially perpetuate the paradigms behind the architecture by embodying them in our everyday environment. I therefore perceived architectural boundary designs as reflective, potentially, of a way of thinking deeply ingrained in culture that, in turn, potentially affects our ways of living - another form of binary co-dependency.

Binary thinking, however, is not a simple concept, especially if one takes into account a third element between the binary opposites. My thesis is based on a (re)conception of binary thinking adapted to architecture: if the architectural boundary is regarded as an agent between two sides, it is also the centre of

relationship between parts. This required an examination of what a binary situation might entail in a way relevant to architecture, and it required an examination of what might constitute a relationship between sides. I will expand on each here through two theses: philosopher Aristotle's *Law of the Excluded Middle* (350 B.C), and physicist Stéphane Lapusco's *Included Middle* (1950s). Symptomatically, the expression of 'Excluded Middle', which is very relevant to my research, is often quoted, but not necessarily with the meanings originally advocated by Aristotle. In Aristotle's *Law of The Excluded Middle*, "intermediates" can reside between "contraries" only if of the same "genus" (Aristotle: 350 B.C.E, Book X, Part 7). This logic implies that two entities can only meet if they belong to opposites within one category; if they belong to different categories, they are separate and therefore cannot meet. Grounded in metaphysics, this presupposition does not define what the intermediate (or Middle) might consist of, but posits that only opposites on either 'side' can be relationally compatible. Beyond abstract reasoning, this raises questions about the definition of entities. What are these intermediates meant to be, and how do contraries belong to the same 'genus'?

Aristotle was a biologist, and the development of his philosophy might have been influenced by the fact that most organic species require the meeting of binary genders for fertilisation. This presupposes that opposite genders belong to the same category, but although this oppositeness is a relatively stable condition, this does not necessarily entail that either gender always abides to oppositeness. Among many mammal species, elephants for instance, herds tend to operate in separate (adult) gender groups if outside mating seasons, and are therefore mostly separate by gender despite their meetings for procreation purposes. In terms of pure logic, therefore, there is an ambiguity about categories (the separate sub-categories of genders inside a larger category of species) even when they are within one 'genus'. Whether or not this principle is drawn from observations about nature, it proceeds from a more binary way of thinking and, while appearing relatively simple, it is complex and ambiguous.

This ambiguity is compounded by the proposition of polarisation implied in the relationship of contraries. According to the Oxford Dictionary, polarisation means that things are in polarity (attraction or repulsion of opposites) but it also means "division into two sharply contrasting groups or sets of opinions or beliefs".² This does not automatically denote oppositeness but emphasises the element of belonging to different categories that, it is implied, are not compatible and are

² <https://en.oxforddictionaries.com/definition/polarization>, last accessed June 2017.

possibly adversarial. It also suggests that, even if they belong to the same category, opposites can be averse to meeting at the Middle.

According to Joseph Brenner (2008), who started out his scientific career in chemistry and later became interested in transdisciplinary research, the issue of category in Aristotle's proposition of the Excluded Middle is problematic, and was raised by physicist Stéphane Lupasco in the 1950s. Lupasco proposed a logic of the Included Middle: *La Logique d'Antagonisme* (Brenner: 2010, p.249). Based on his 'antagonistic' worldview, Lupasco "rewrote the three major axioms of classical logic as follows:

1. *(Physical) Non-Identity: There is no A at a given time that is identical to A at another time.*
2. *Conditional Contradiction: A and non-A both exist at the same time, but only in the sense that when A is actual, non-A is potential, reciprocally and alternatively, but never to the limit of 100%.*
3. *Included Middle: An included or additional third element or T-state ('T' for 'tiers inclus', included third)."* (Brenner: 2010, p.251-52)

Without negating the validity of Excluded Middle principles in abstract mathematical equations, Lupasco argued that the Included Middle represented the dynamic multi-dimensionality of the principle of life, in a continual process of change within indissociable time/space. He proposed that, in order to apprehend and understand the principles of binary duality, it was necessary to focus on the relational element between entities that are, themselves, subject to temporal and existential changes. This, according to Brenner, has received little attention outside the domain of quantum physics, hence his particular interest in bringing Lupasco's work to the attention of a greater public.

If binary conditions warrant re-examination, Aristotle's Law of the Excluded Middle may in fact be understood today very literally and out of context. Aristotle's Middle is conditional to polar opposites within one category, and this in turn posits conditions to the nature of the Middle itself. If this Middle is described as dynamic and characterised by relations or potential for enabling relations, its relational condition might be called relationality. According to architectural historian Alberto Pérez-Gómez (2006, p.16), in Greek philosophy the principle of relationality could be integrated through notions such as *harmonia*, meaning joining, and *chōra*, meaning grounding of relationships. This offsets the way we might understand Aristotle from the contextual perspective of other concurrent philosophical principles that may have been implicit at the time. Binary thinking may have, therefore, been understood differently at the time from the way we understand it

today. If this is the case, *harmonia* and *chōra* (and possibly other Greek principles) would have given a different tone to the proposition of differing categories that meet in other ways when entering a reciprocal situation - and would have come closer to Lapusco's inclusion of a relational (and temporal) Middle.

Arguably, in Aristotle's interpretation and if relationality becomes included, when the Middle is not excluded it could be said to become a third factor in the binary equation, as in Lapusco's *Tiers Inclu*. It could also be argued that the situation would not be binary if the two categories are considered separate and of different kinds, and therefore neither in relationship or in potential relationship. Just as an architectural wall with doors and windows can invite or disable the meeting of two sides, Aristotle's Middle, sometimes excluded and sometimes not excluded, could support three complementary systems of logic: two single discrete entities (different categories and no Middle), a binary order (two inside one category that are in potential relationship) and a tripartite order (the meeting point of two inside one category). In architecture, this might translate as discrete (the boundary disables all possibilities of relationship), binary (the boundary holds potential for relationship) or tripartite (the boundary facilitates relationality between the two sides).

Nested into these complexities is another dynamic that is more emotionally charged. As suggested above, the meeting of these opposites might be adversarial or antagonistic. In architecture, this is not a stable situation. If, for instance, there is a breeze outside and excessively warm air inside, the meeting of the former with the latter would in all likelihood be considered positive. If, on the other hand, the weather outside is cold and the inside is heated, the meeting between the two sides might not be so welcome. In this sense, the Middle potentially hosts collaborative and antagonistic relationships between sides at the same time. Aristotle, however, does not prescribe that the opposites that meet should be either against or for each other (or which side they should be), only that the condition for their meeting is that they should belong to the same 'genus'. Nor does he suggest, linguistically at least, that they should be adversarial. The word 'contrary' does not carry the same connotations as 'opposite'. To compound ambiguities of interpretation, if opposition is equated with polarisation, then the polarisation can be between two principles in opposition, but it can also be between two principles that are not compatible. The latter case, according to Aristotle, would automatically exclude the possibility of an intermediate, whereas the former case would authorise it. If, in the present time, we now consider the two interchangeable, then we also subtly modify Aristotle's original premise.

In architecture, there is an additional level of complexity: a lot of the time, there are more than one entity on each side. People, for instance, might be in a private territory when inside and in a public territory when outside, but they are just as likely to have a private conversation with someone on the public side or to have a public meeting in the privacy of their home. Not only can the 'sides' swap around in time and in place, they can also work with other entities on either side. For example, a conversation outside with a neighbour is more likely on a sunny day or outside working hours, while an altercation between neighbours can occur on a sunny day also - because sound from one side travels through open thresholds to other territories. Therefore, the chemistries are subject to different entities that work together (in desirable ways, in less desirable ways, or in more neutral ways), without belonging to the same category. In this case, I gave the example of people on either side influenced by weather on either side, to demonstrate a simpler form of complexity (people and weather are on any one side, if not both, at the same time); but this multiplicity is potentially infinite to the point where, as Lapusco suggests, "*There is no A at a given time that is identical to A at another time*" and "*A and non-A both exist at the same time, but only in the sense that when A is actual, non-A is potential, reciprocally and alternatively, but never to the limit of 100%.*" (Brenner: 2010, p.251-52)

Lapusco's Included Middle seems, however, as elusive as Aristotle's Excluded Middle, or intermediary. I find this interesting for several reasons. The first is that it should logically 'feel' as though the opposites are more clearly defined because they are opposite to each other, more so than the Middle - to the point where Lapusco should insist that it exists as a third entity, in its own right, and whether or not the two sides are in opposition. The second is that Lapusco should propose that it can be an element or a state. Arguably, the architectural boundary complies in both ways: as a material architectural element that not only divides but also unites, and as a dynamic point of adjacency (state) between spaces, that regulates their intersection as well as their separation. The third is that, when it comes to the 'Middle', Aristotle's and Lapusco's theses both remain highly complex and ambiguous, despite attempting to abide to a precise logic.

Lapusco proposes that the sides might change in time and in space, but is less explicit about the role of his included third element in the overall equation, or about the relationship all three have with each other. Arguably however, he is also more explicit by likening the dynamic to the principle of life itself. In this sense, this definition approaches a definition more often assigned to ecology. According to the Oxford Dictionary, *ecology* refers to "the relations of organisms to one another and

to their physical surroundings".³ Relational principles, in the ecological sense, can transcend and defy metaphysical and mathematical logic because they are difficult to capture, and this raises questions about what constitutes relationship itself. Environmental theorists and scientists who discuss the relational nature of ecology, such as James Lovelock (1979) or Lynn Margulis (1995) who collaborated on the Gaia theory, often offer a world view whereby all organisms and non-organic entities are interrelated and in synergy – a theory that acknowledges these relationships as latent or active, competitive sometimes and collaborative at other times. Lovelock and Margulis' objective was, together with many others such as anthropologist Ashley Montague (1973), to challenge Darwinian theories about competition by underlining the collaborative and cooperative relational elements also co-existent in nature. In this sense, the relationality of opposites also applies here, despite the fact that ecological principles are often described as intricate networks of relationships rather than as potential binary relationships that can be competitive sometimes and in collaboration at other times. Less explicit also is the fact that these relationships can be positive, negative, passive or incidental. All dynamics between entities would here define the nature of relationality as dual, potential and temporal, while the entities themselves represent the complex and multiple parties involved in the relationship(s). Relationality would here represent the 'Middle', and the parties either of its 'sides'.

In its complexities of dynamics, agency and temporality, ecology therefore seems to require different analytical and design tools that can handle relational intricacies. In architecture, traditional design tools such as maps and drawings engender limitations for the expression and inclusion of these relational principles. They are useful for representing stable and often inert objects in space, but can fall short in the representation of more organic and temporal processes of evolution from less stable agents in urban landscape – including weather, nature and people. However, in architecture, this dialectic represents two sides of a single coin. Architecture is designed for the organic principles of human occupation, of time and weather, and of fauna and flora that are in constant interaction with built environments. Even if considered inert in itself, architecture is interchangeably designed to affect these interactions (by creating shelter or microclimates for instance) while simultaneously being affected by these same interactions. Its role is to reconfigure environments for human life and to facilitate reconfigured relationality with them. This includes social, environmental and architectural dimensions, ranging from the 'live' quality of

³ <https://en.oxforddictionaries.com/definition/ecology>, last accessed June 2017.

socio-economic or environmental matters to the 'inert' quality of construction materials.

The issues of certainty and uncertainty raised above might therefore be entangled with issues about the relative stability of inert matters against the relative instability of live processes. In terms of pure logic, the opposites should have an intermediate, but in terms of life and non-life, it is less easy to imagine what something in-between the two principles might consist of. In architecture, however, in as much as walls and their doors and windows are affected directly or indirectly by human agency, by environmental forces and by temporality, the line between one state and the other can be obscured by the processes that potentially continually transform the architecture, alongside the entities on either of its sides. The dimensions of relationality and of temporality are therefore tied in with those of binary thinking, and my research focused on this Middle, through its architectural equivalent, which I call the boundary.

According to the Oxford Dictionary, a boundary is "a line which marks the limits of an area; a dividing line".⁴ It is an abstract definition that suggests its sole function is to keep two 'sides' apart. It does not mention the fact that, diagrammatically, the divided sides are also defined by this process and that, being adjacent, they 'meet' at this line at the same time as they are separated by it. The dynamic, dual and ambiguous nature of its binary function is subdued, and the boundary is described as an abstract and discrete object. However, the word *boundary* originates from old English *bounden/bodne*, which suggests being under obligation, made fast by tying, but also from old Danish *boun* that is associated with dwelling and existing. This would therefore involve environment, i.e. that which surrounds. *Boundary* also comes from old English/French *funda/bonde* that carry the meaning of limit. It is thus suggestive of containment, particularly by way of spatial restriction in relation to the dwelling element, conveying inwardness and exclusion of an outside world with which some binary dynamics might arise. The term, therefore, contains the ambiguity within itself. Its 'footprint' of meaning makes it close to the scale of the human body and its relationship with architecture, and therefore closer to the dimension of physicality. The fact that the negative potentials often attributed to the concept should here be revised to include its equally positive counterpart is also a useful way to convey this inherent binary *and* tripartite synergy.

Boundary touches on tensions inherent to all architectural divisions for their potential to hold things apart and their conjoined potential to host relationship(s).

⁴ <https://en.oxforddictionaries.com/definition/boundary>, last accessed June 2017.

My research is based on a proposed dialectic between the two apparent opposites of architectural separateness and ecological relationality, in response to the dialectic of opposition between construction practices that prefer static/a-temporal designs and theorists who advocate durability, adaptability and viability. This invites a revision of binary structures and of relationality itself, each with the other, rather than binary on the one hand and relational on the other. As I argued, architectural 'sides' are not always in relationship and, when in relationship, the agents on either side can be considered opposites sometimes, but as just two entities at other times. This profound ambiguity, therefore, challenges the common supposition that binaries involve polar opposites without intermediaries, just as it challenges the idea that relationality should be a state rather than a potential that can be active sometimes, passive at other times, or somewhere between the two - and either positive, negative or neutral in any one of these three scenarios. This would apply at the level of physical architecture just as it could apply also to other more conceptual, institutional and structural oppositions between 'contraries'. In this sense, an architecture of separateness would be philosophically reductive, reflective of a partial interpretation of binary principles and of a partial interpretation of relationality - each treated as separate rather than as complementary opposites that work together.

My thesis therefore proposes that an architectural boundary constitutes a key feature in the more relational aspects of urban living. A reconsideration of what it means can also lead to a reconsideration of how it is designed, in a way that would be more open to future scenarios. However, and by nature, this boundary cannot be defined through quantification if its actors and agents are in constant mutation; instead, my focus on the boundary revisits spatial categories in architecture through the point where they are defined but also meet, interact and overlap. In this sense, the boundary is my research object and my research tool concurrently. It harvests the dynamic and relational qualities of ecological interactions at the point where they are concurrently and/or alternately enabled and/or withheld, through the device of architectural boundaries. It scrutinises boundary configurations through specific case studies, each illustrative of specific relational themes, and instead of focusing on the complexity of what is on which side, it focuses on the dynamic potentials between them. This offers a complementary methodology that examines relational possibilities rather than attempting to define the multiple agents and scenarios (weather or utilitarian or everyday socio-economic or bio-diversity matters) that all potentially meet from either side at the same boundary. In this sense, by shifting the centre of architectural examination from space to where spaces meet, it treats the boundary as an integral component

of space, hence the proposition that boundary should be treated as space, and that more space should be made for critical understanding of the design of architectural boundaries.

In order to ensure a degree of consistency in local contextualisation, this research is confined to London and, more specifically, to areas in London where I either lived or worked (*Fig.01, below*). These tend to be in less affluent areas of London, where high density housing is more likely to have occurred for a variety of reasons specific to London and to each local area. I do not make in-depth reference to these aspects of London's geography or socio-economics: typical user groups or local socio-economics change (sometimes very rapidly, as is the case for Strata Tower). What I examine here is the potential resilience to change itself. My primary focus (and material) is on the design of the architectural boundary through the physical evidence it provides as a built form. Much of this evidence is in the detail of construction as it stands today (or as recorded today for buildings that are no longer standing): materiality of the wall, window frame and orientation, balcony configuration - to name but a few. These details, mostly sourced from my visits on site (and illustrated through my photographs and personal observations), are in turn analysed on the basis of evidence of occupation and appropriation provided by residents, and then against theories by others which constitute secondary source material. The combination of the two sets of observations are then analysed as reflections on degrees of division/relationality through selected boundary designs, in the context of greater physical and environmental local circumstances.

My findings are presented through case studies (*Fig.02, below*) that each represent individual aspects of the boundary extracted from my overall research and analysed through binary paradigms: environmental division through the design of the wall, social division through hermetic thresholds, planning conventions on zoning and privacy, etc. The case studies are in reversed chronological order, and this enables a gradual build-up of complexity: more elusive forms of boundary division such as circulation and distance are included later, as are other visible and invisible boundaries that may be found in theory or in practice within the construction industries (see Literature Review in Chapter 1).

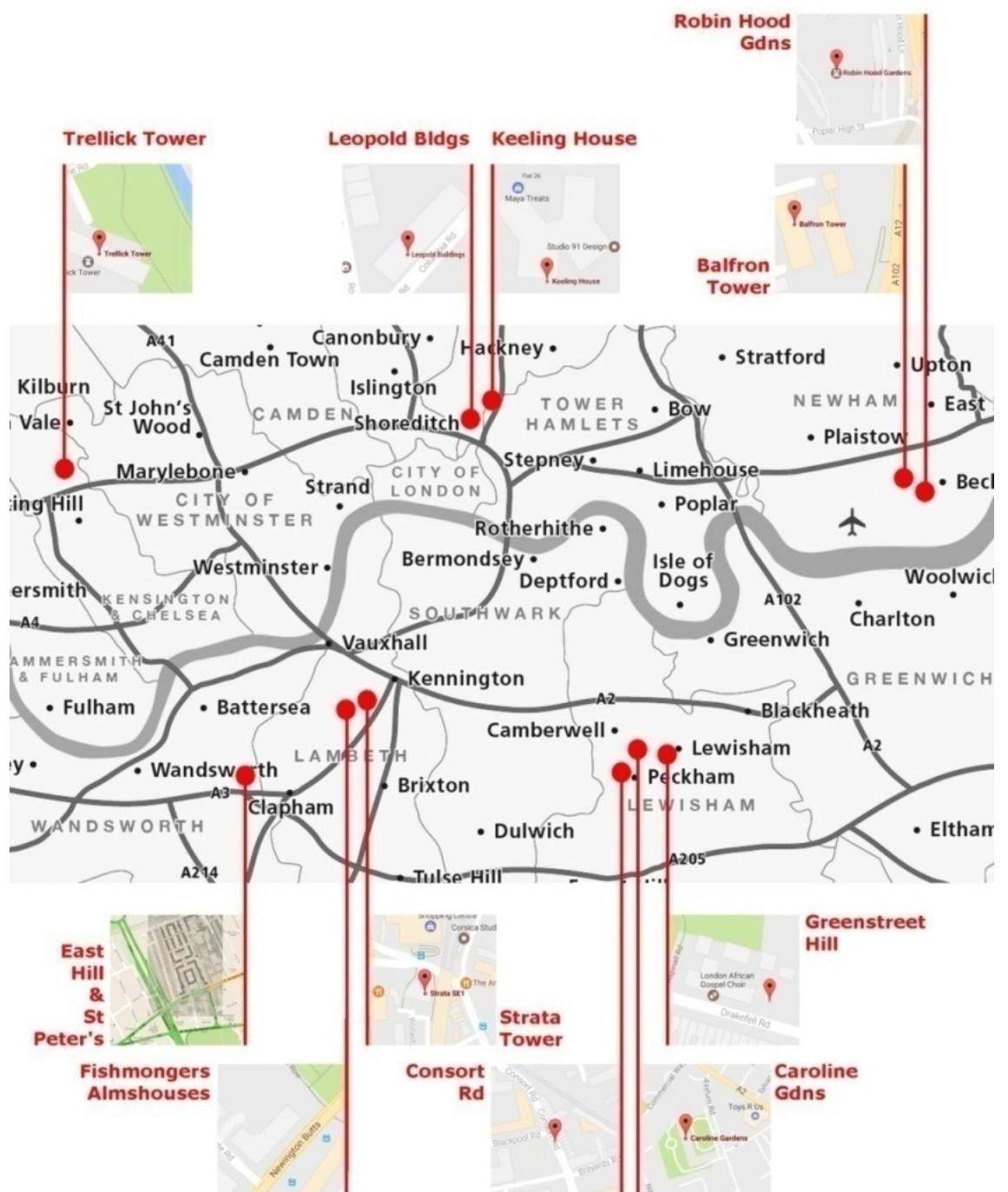


Fig. 01 - Location Map (Case Studies, London, UK)

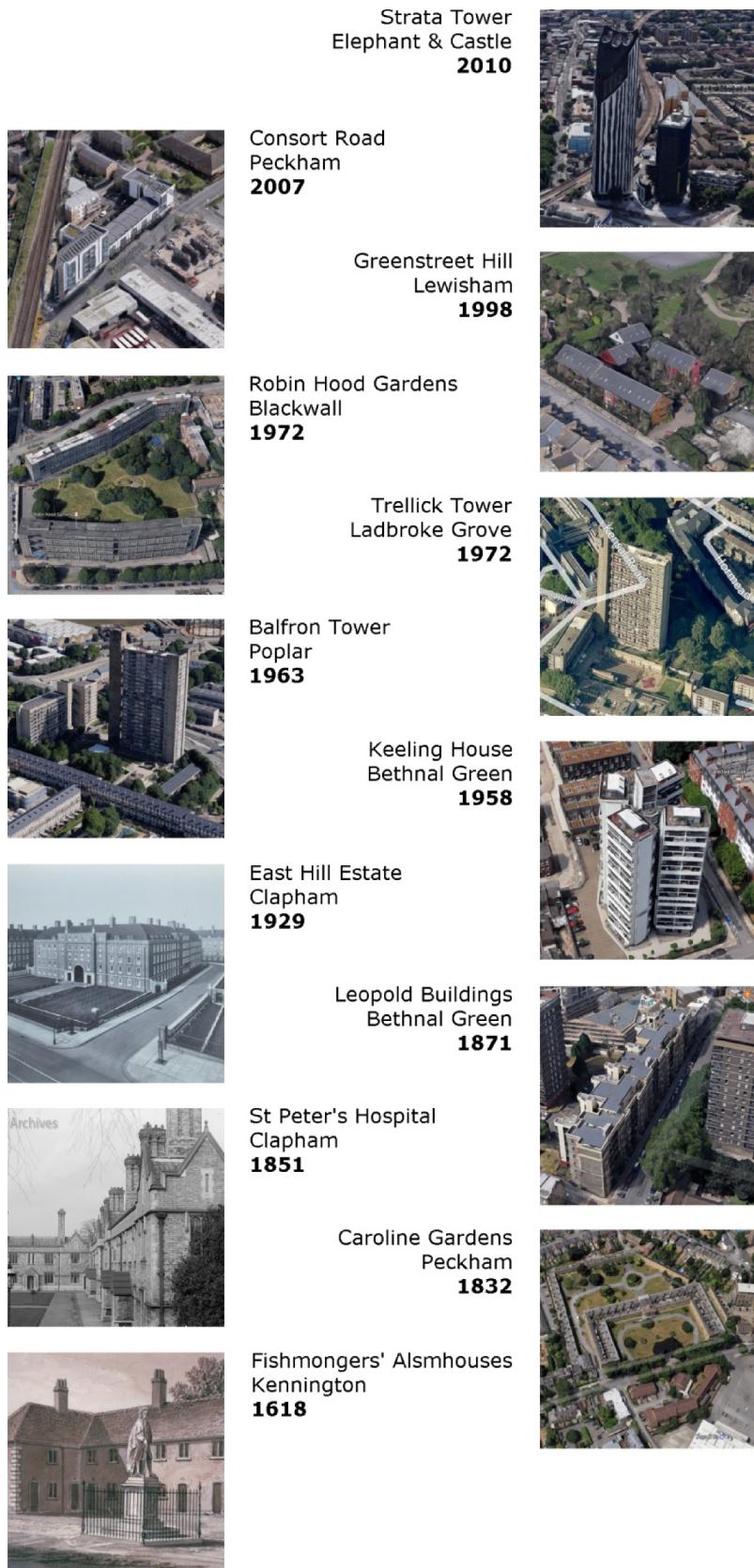


Fig.02 - Timeline of Case Studies

The research is presented in three parts (*Fig.03*) that broadly represent concept development (Part I), expressions of boundary situations in the current era (Part II) and exploration of other boundary typologies from former eras (Part III).

The first part elaborates on this introduction through two chapters. In Chapter 1, the Literature Review surveys a number of different conceptions and paradoxes about the boundary, within the profession of architecture and other professions involved in the construction industries. These reflections are positioned against meanings assigned to sustainability, and reviewed through some authors outside the construction industries who proposed some concepts that influenced the development of my boundary concept and informed my thesis and methodology. This methodology is described in Chapter 2.

The second part of this research is in three chapters, each covering a single theme in my findings, from the perspective of South East London over the past three decades. Each brings in a new level of complexity. Chapter 3 examines a more recent trend in construction technologies specific to air-tightness in the context of Building Control, whereby internal and external weathers are treated as separate and outside the control of residents. This illustrates an architectural boundary at its simplest dimension, which is the wall itself and its thresholds between interior and exterior. Chapter 4 examines the boundary as a space (or Middle) between interior and exterior. This space is treated as a buffer zone that reinforces (social) separation together with the wall in some instances, but enables greater (environmental) control in other instances. This introduces contradictions in strategy between environmental relationality and social relationality, in the context of Planning Authorities and on a site that was formerly industrial. Chapter 5 examines a less typical housing scheme where various forms of choice built into architectural boundary designs offer flexible and negotiable forms of occupation and use. This provides a counterpoint to the initial case study, and to some of the observations made in the second case study. The boundary definitions here extend to wall and space between interior and exterior as objects of mediation and modulation. This counterpoint extends to neighbouring Victorian terraces; these indicate evidence of contemporary boundary uses and of attitudes to the residential boundary that contradicts statutory preconceptions on privacy. This opens the analysis to scenarios that go beyond dwelling, to include a large array of socio-economic community possibilities.

The third part of this research is also in three chapters, but examines case studies from previous eras, although still in London, in order to investigate some origins to

these current paradigms. This begins with the Brutalist era (Chapter 6), revealing different wall and intermediate spaces through four Brutalist blocks from the post WWII era, examined through theories of the time that sometimes contradict the actuation of designs. This is followed by London County Council (LCC) housing from the 1930s and some philanthropic predecessors (Chapter 7) that reveal tensions between what is considered private/utilitarian, and public/appropriate to conventions through access balconies and spatial screening. The last three case studies are three almshouses built in the Georgian and Victorian eras (Chapter 8) that indicate an increase in instances of spatial and boundary devices that separate domesticity from the public. The latter, through evidence of user appropriation on site today, opens up the arguments I make in favour of relational boundaries.

Boundary Concept *Definition and thesis*

PART I

Introduction, Literature Review and Research Methodology inform development of the Boundary Concept:

Binary/tripartite paradigm
Monitoring of relationality between sides
Mutable/adaptive design for addressing environment with socio-economics
Boundary as research tool and research method

Three main typologies

PART II

Three case studies built in the past two decades, each treating separation and relationality in different manners through the design of architectural boundaries:

Simple/simplified boundary design

Strata Tower

Boundary as wall: airtight wall and hermetic windows
Environmental separation and exclusion of user control (Building Control)

Boundary wall with boundary space

Consort Road

Boundary as buffer space: access and balconies between sides
(flexible) environmental control and (hermetic) socio-economics (Planning)

Wall and space work together

Greenstreet Hill

Boundary as mediator: integration of environment with socio-economics
Thresholds and spaces in-between modulate degrees of privacy and publicity (User)

Paradigm Progression

PART III

Progressive accumulation of separation devices over two centuries:

Access vs Circulation

Post WWII Brutalist towers

Thresholds and circulation as separation devices between dwelling and community
Varying degrees of permissiveness at the private balcony

Social/utilitarian vs propriety

Post and pre WWI Access balcony estates

Separation of social/utilitarian life from street life through internalised enclosure
Permissive access balcony

Orderly public space vs disorderly use

Leopold Buildings and slum clearance

Acute tensions between social/utilitarian life and public space
Cultural conventions on propriety

Spatial hierarchy for invisibility

Almshouses

Social life pushed onto utilitarian 'side', front face separated from public
through spatial distance. Appropriation of edges and planning etiquette.

Complexity through polyvalent flexibility

Pre-Victorian streets and façades

Higher degrees of flexibility at boundary and multi-function on
both sides. Blurring of privacy/publicity and domestic/work distinctions

Fig.03 - Structure Outline

My contribution to knowledge is both conceptual and practical: it proposes a revised understanding of binary conditions and of relationality as principles that work *with* each other in architecture - through the boundary. The conclusion summarises findings about this boundary and positions them in a context of future indeterminacy. This includes indeterminacy in future climate trends, and indeterminacy in the way future socio-economic developments might affect our social and environmental everyday structures. It extends the case for treating the architectural boundary as a tool for research and as a method of analysis, by proposing a design method that would embrace durability, adaptability and viability, and could open up possibilities for heterogeneous future scenarios - through the design of the architectural boundary itself.

PART I

REVISION OF ARCHITECTURAL BOUNDARY

(Concept Development and Research Methodology)

Chapter 1

BOUNDARIES IN ARCHITECTURE: Concept and Context
(Literature Review)

This chapter is a literature review of architectural, urban and ecological boundary definitions and associated concepts, within a context of institutional separateness in the construction industries that particularly affects high density housing. By this, I mean not only designers, builders, statutory authorities or legal institutions who all participate in the process of architectural design, but also theorists who specifically discuss matters related either to urban fragmentation or to boundaries themselves. I expand on these sources through a more interdisciplinary context in order to extend existing definitions within the construction industries: throughout my research I visited many different disciplines in order to inform a deeper understanding of the paradigms of separateness and relationality. Art and architecture theorist Jane Rendell (2007), who advocates inter-disciplinary research, points out the strength of destabilising dominant structures through the intersections of disciplines, and this here enabled me to challenge existing literature from a greater contextual perspective in order to extend meanings about boundaries and sustainability. I cannot here aim for a comprehensive reassessment of binary thinking or of ecology; this chapter includes, instead, other key thinkers outside architecture who influenced my interpretation of boundaries and their sides, and of relationality, and subsequently helped me to identify key themes explored through case studies.

I analyse references to boundary principles on the basis of (less relational) binary and (more relational) tripartite principles as articulated in the Introduction, after contextualising boundaries in a framework of sustainability and infrastructure that also requires definition. This underlines tensions between binary parts by transposing ecological thinking about some forms of temporal and sociological relationality against the thinking structures that currently appear to inhibit its integration into meaningful strategic reform. I then examine definitions and approaches to boundaries in architecture and through policy. This raises one of the

central tensions about residential boundaries typified by conventions about privacy, and surveys attempts by theorists and/or urban institutions at joining up fragmented parts.

1.1 Sustainability and Fragmentation

I situate my research around parameters that concern long-term durability, flexibility and adaptability in architecture, and argue that a building's capacity for resilience to change is not only incumbent on climate change but on a vast array of other socio-economic and environmental circumstances that are also likely to change over the course of an extended lifetime. This, to me, is an integral part of sustainability. The proposition of sustainability has a multiplicity of meanings, as does *ecology* (see Introduction, pp.21-22). According to the 2005 World Summit, the terminology of *sustainability* is more comprehensive than ecology because it theoretically merges ecology with biodiversity and socio-economic dimensions, which together constitute its *Three Pillars* (Wilkins: 2008).⁵ This is in continuation with the United Nations' Brundtland Commission which, in 1987, recommended these same three levels of scope.

However, the complexity of sustainability is also temporal and processual. According to the Oxford Dictionary, *sustainability* refers to "the ability to be maintained at a certain rate or level".⁶ The French word for sustainability, *durabilité* (or *durability* in English) is defined by the Oxford Dictionary as "the ability to withstand wear, pressure, or damage" placing emphasis on longevity.⁷ Both definitions imply that things should last, but suggest that they should also stay the same, and this potentially contradicts or resists change. Additionally, the terminologies of *Sustainability* or *Durability* do not automatically convey the relational elements covered by *ecology*, nor their complexity, multiplicity and heterogeneity, defined by the Oxford Dictionary as "The quality or state of being diverse in character or content".⁸ Relational elements are multifold, they come and go and are in constant movement in space and in time. In this sense, ecology is not only temporal and processual, but is also activated by unquantifiable entities or agents involved in the dynamic nature of relationality. These potentially intermingle to such an extent that they can be difficult to treat in isolation, or even to differentiate from each other.

⁵ Not to be confused with Félix Guattari's *Three Ecologies* (1989) – the ecosophy of environmental, mental and social worlds.

⁶ <https://en.oxforddictionaries.com/definition/sustainability>, last accessed June 2017.

⁷ <https://en.oxforddictionaries.com/definition/durability>, last accessed June 2017.

⁸ <https://en.oxforddictionaries.com/definition/heterogeneity>, last accessed June 2017.

The categorisation systems underpinning most of our organisational structures can be more protective of categories and less attentive to the relational elements. This, in turn, affect definitions of sustainability. This is acknowledged by many environmentalists, and some consider this a fundamental challenge. Biologist Arnold van der Valk (2011), for instance, argues that institutional and ecological thinking structures operate on the basis of differing paradigms which have been perpetuating systemic tensions since the 19th century.⁹ These would have been concurrent with the nascent technological and administrative urban systems within which mainstream construction industries are operating today.

Within construction industries in the UK, the agenda for sustainability is relatively comprehensive if less overtly temporal and relational, but discourses about climate change often take precedence over other sustainability matters. Statutory focus on quantification and certification has largely determined the architectural definition of sustainability. BREEAM (Building Research Establishment Environmental Assessment Methodology) encourages a systematic accountancy of criteria listed in framework guides that include community and biodiversity, but place proportionally high emphasis on energy conservation. The Climate Change Act of 2008 has led the construction industries to focus much of their research efforts on energy conservation through thermal efficiency. This is carried out under the guidance and supervision of Building Control's Approved Document Part L (2013), and BREEAM's Code for Sustainable Homes (2006). For the best part of ten years, the latter has exerted enormous pressure on buildings' 'performance', especially on building fabric, and became merged with Building Control regulations. This quantification is often mandatory for the procurement of commissions and advocates a design of the building's envelope that is impermeable (airtight).

A growing number of environmentalists (see Bell and Morse: 2008, for instance) argue that our strategies for sustainability need to be more systemic. Environmental control strategies focused on climate potentially reduce our understanding of 'environment' (that which surrounds) to a purely weather related dimension. Climate change, however, is only one of many key players in the welfare/ecology of the planet and its inhabitants. Professor Will Steffen of the Climate Change Institute (2004) proposes that the rate of loss of biodiversity caused by loss of natural habitats and by various types of soil and water pollutions in turn influence climate, just as much as climate affects them. All dimensions are interrelated and co-dependent. Conceptual separations can thus distract from the intimate relationship each has with the other, in the broader meaning of

⁹ The term *ecology* was also created during the Victorian era.

environment, and they can also distract from more human socio-economic dimensions inherent to urban environments.

BREEAM was developed in the footsteps of LEED (Leadership in Energy and Environmental Design), devised in the mid 1990's by the U.S. Green Building Council. LEED was intended to be a guidance method aimed at providing breadth and coherence to the conception of more sustainable building practices. However, as one its co-founders, Bill Reed, points out (2007), the method soon became a quantification system for accreditation rather than the more comprehensive tool it had originally intended to be. Business ethics researchers Chelli and Gendron (2012) indeed argue that, in the construction industries, quantification has become an ideology in itself and is counterproductive to the implementation of meaningful ecological approaches to the design of architecture. It is currently the most widespread and dominant means of assessing sustainability, and concurrently influences the way buildings are designed and built – particularly when reliant on formulaic methods, as is the case in high density housing.

However, systemic design or assessment tools are not easy to devise and there are many debates about alternative methodologies. For instance, environmentalist RE Smith advocates quantitative methods based on the functionalities of "Subject, Scale and Scope" (2010, p.334) so as to re-distribute bio-socio-economic categories into differing levels of perception and observation; this facilitates an understanding of sustainability activated through the lens of human intervention. Alternative proposed methods are often incumbent on what it is they aim to quantify: energy conservation, water pollution, depletion of biodiversity, etc. – all require different types of expertise, and each is reliant on their own tools.

There are a number of factors at work, including the complexity of a construction industry that crosses over multiple institutional, legal, commercial and industrial disciplines and practices, with different vested interests and different ways of processing them.¹⁰ Statutory authorities often attempt to bridge these divergences through quantification methods that 'prove' the necessity to take action and demonstrate that action is being taken (Asheim and Hartwick: 2011). It is widely recognised that this results in fragmented strategies, and environmentalists in the

¹⁰ For architecture, Bauman Lyons (2008, p.17) go through some of the list as follows: "Project teams have become bigger as skills, due to their complexity and rapid rate of change, become vested in an ever-increasing range of specialists. It is usual to have a project manager, planning supervisor, energy consultant, BREEAM consultants, artist agency, artist, artist's solicitor, marketing consultant, business planner, fundraiser, community consultants, conservationist, commercial agents, housing agents, ecologist, access consultant, planning consultants, development consultant, fire strategy consultant and retail consultant all involved in the development of a project. Previously there would have been only an architect, quantity surveyor and an engineer".

construction industries such as Professor Charles Kibert (2012) underline the scale of paradigm change that might be needed in order to overcome these current issues – a scale which he compares to the changes brought about by the industrial revolution. Positioned against relational definitions of sustainability implicit to ecology, other observations about separative construction practices in the UK can highlight conceptual contradictions about sustainability. UK statutory regulations, combined with economic conditions related to neoliberalism, seem to offer little room for design explorations challenging established formulaic conventions. The difficulty can extend beyond the confines of construction industry matters (urban and/or architectural), through to a number of different dimensions.

1.2 *Infrastructure and Boundaries*

In the construction industries, categorisation systems can affect a built environment that is broadly administered through two separate sectors in the UK: buildings on the one hand, which tend to be stationary (static), and infrastructure on the other hand, which tends to channel things that move, travel or circulate (dynamic) – drainage, water, energy and communication, pedestrian or transport mobility. Both are supervised by various statutory authorities, including the Environment Agency, but the two are administered separately. This is largely due to the contained footprint of a building in a specific locality against the widespread nature of networks that geographically transcend local boundaries. In as much as infrastructure is intended to join parts, holding one and the other apart therefore creates difficulties.

As is the case for *sustainability*, *infrastructure* has a variety of meanings and covers dimensions beyond the built environment. This is epitomised by architect Carolyn Steel who, in *Hungry City* (2008), analysed the extent to which all sorts of urban dimensions pertaining to food – including its manufacture, packaging, transport, commercialisation, consumption, digestion and disposal – pervade the city's urban and social fabrics. This greatly affects infrastructures as described above, but transcends their 'built environment' dimensions because they are also socio-economic (the third 'pillar' of sustainability alongside ecology and biodiversity). These examples highlight the way each household is in environmental, utilitarian and social relationship with its neighbours and with its locality, and needs to be able to balance its internal and external dynamics in order to continue functioning, and to enable the city to continue functioning. For example, the supply of food and removal of waste both rely on vast networks which can be partially relieved by growing some foods and disposing of some wastes nearer the home – as can be the

case for energy supply (producing and feeding back into the network) or water management (collecting rain water and reducing its discharge). This does not only challenge the meaning of infrastructure, it also challenges the meanings of housing, of work or of the everyday; it questions which might belong to what, and where.

Steel argues that, in order to relieve the stress imposed on these infrastructures by high density, architecture needs to devise and host more local strategies to reduce food's overall ecological footprint. This would require infrastructure and building to work with each other right from the earliest design stage, and would require working with local conditions. Many building scientists, such as Umberto Berardi (2011), also support a need to diversify building techniques and approaches to suit pre-established local conditions, but this often appears to others as running against the idea of a cohesive and concerted effort toward more sustainable construction practices.

It could be argued that there is a gap (or Excluded Middle) which is partially generated by differences in scale between strategic ordering of the built environment through infrastructure ('public' services such as transport, utilities and amenities) and local interests. The meaning of infrastructure, in Planning or equivalent guidelines in policy documents, can include buildings, inhabitants and networks between them, but is generally considered in the more pragmatic sense of construction related services (Burdett: 2010). Despite its tendency to transgress public/private divisions between urban territories, infrastructure is often considered a part of the built environment that functions independently of its inhabitants while serving them (Fox: 1994). Implied in its capacity as 'servant' to urban dwellers, infrastructure can thus engender a double hierarchy whereby 'institution' provides services or utilities, while 'citizen' receives them and depends on this provision, rather than taking an active part in it. In terms of boundary, this raises a number of political and social implications about agency between parties. In temporal terms, it challenges users' participation in the continual process of creative appropriation, as explored by Jonathan Hill in *Actions of Architecture* (2003). In territorial and legal terms, it challenges the geographical delineation of public and private domain through physical boundaries. In terms of sustainability, it challenges concurrent aspirations for self-sustainability to relieve high-density pressures on urban infrastructure, and to integrate their management from the premise of (private) household with that of external (public) service providers (Seymour: 2003).

This profound ambiguity can arguably be perceived as a by-product of technologies associated with the sanitation of the city during the 19th Century. As sociologist

Wolfgang Schivelbusch points out, the effects of industrial change on urban life were as social as they were physical, not only in terms of urban density and of labour distribution, but also in terms of domestic relationality with locality. For instance, infrastructural services such as street lighting had been regulated locally and manually by householders and by the rhythm of seasons until they were taken over by policy (Schivelbusch: 1995). Mechanical services above and below ground, such as water supply and street lighting, began to take over infrastructures between public and private territories that had hitherto been carried out by human agency, and often at the edge between dwelling and street. The implications here are administrative and social in the way some local routines and responsibilities shifted from individual to state (in the wider meanings of the terms), and necessitated less personal engagement with local circumstances. Arguably, this would have also affected phenomenological and cognitive engagement with environment and with vicinity – with the relationship between interior and immediate surroundings, at the point of adjacency between private dwelling and local neighbourhood.

Concurrently, by the time technology came to the rescue of the Great Stink in London in the mid 1850s, caused by pollution of streets and waterways combined with untypically hot weather, so too did urban planning start drawing clear divisions in the city between residential, commercial, industrial and leisure areas (Benevolo: 1971). Transient activities such as street lighting, which would have involved blurred boundaries between home life and street life by domesticity or by trade, did not easily fall into these categories. As they were, by nature, without defined accommodation, or often sited at the elusive boundary between public and private territories and/or between domesticity and work, they might have simply become obsolete. Some historians such as Emily Thompson (2004) take the view that they became inconvenient to a spatial order favourable to separating categories. This, arguably, signals an earlier stage of division of the city and the everyday into parts that were more distinct and discrete (Marcuse & van Kempen: 2002). Combined with van der Valk's remarks on the origin of differing paradigms in ecology and in science, it also signals an earlier stage of compartmentalisation of sustainability principles into separate social, economic, environmental and ecological groupings.

In terms of sanitation of the city, however, the removal of waste seems to have resulted in the removal of a number of socio-economic principles. Anthropologist Mary Douglas (1966) argues that, in Western thinking structures, the meeting of categories can be perceived as compromising to the purity of these categories; that categorisation is thus averse to such meetings, while anything that does not belong

neatly into categories is excluded. In this sense, the removal of waste would be the consequence rather than the objective, but she defines waste as that which falls outside (in-between) categories, which would imply that the removal of waste actually creates waste. Interestingly, in infrastructure, the transgression between the two remits (the point where services meet) occurs mostly underground, except for waste bins which remain problematic to the purity of urban presentability and, in this way, symbolise the paradox.

Architect Katherine Shonfield invoked Douglas' theory to argue that the shapelessness of infrastructure comes with an apparent lack of boundaries: "In her book Douglas tries to explain why certain things are considered dirty and unacceptable. In her thesis, matter is classified in terms of identifiable and clearly delineated *form*, in order to establish what is polluted and taboo – the *formless*. (...) The first point of interest then, to both projects, is the extent to which the clean and the unpolluted is identified in architecture with elements that can have an unequivocal, clear line drawn around them" (Shonfield: 2001, p.36). She explicitly draws a relationship between infrastructure and boundaries while discussing the logistics of categorisation.

There are instances where infrastructure itself generates the boundaries. While, for instance, it may seem obvious that a motorway can cut through an urban space in a divisive manner, there is evidence that other factors come into play, even in streets without obstructive traffic. Arguably, this can affect equilibrium in the street's dual function of serving transversal movements in and out of dwellings, and of serving lateral movements from one locality to the next. This is often attributed to the introduction of the car (and its predecessor, the horse and carriage) and the consequent need to differentiate between lateral movement for people (pavement) and lateral movement for vehicles (road).¹¹ Architect Jan Gehl (1971) diagnosed this problem and influenced Danish planning policy – through the insertion of a clause requiring that access thresholds to buildings be included at minimum intervals – reuniting, as it were, architecture and exterior sides through boundary thresholds. In archetypal suburbia, on the other hand, it could be argued that the car was invited into this transversal participation by receiving its own room in the dwelling itself (Busch: 1999).

Cultural theorist Paul Virilio (2012) assigns boundary dysfunctions to transport but also to communication technologies, and argues that they flatten time and space.

¹¹ Kevin Lynch (1981) also suggests that there can be differentiations between slower pedestrian movement at the edge (and potential boundary) of dwellings and faster pedestrian movement nearer the edge of roads.

Conversely, architectural historian Beatriz Colomina (2001, 2006) proposes that the reinforcement of physical boundaries (which would correspond to my observations on hermetic designs) is a cultural response to the dilution of boundaries brought about by transport and communication technologies. Architect Juhani Pallasmaa (1996) suggests that architectural boundaries can concurrently be regarded as either problematic or insignificant, in a world of apparent physical boundlessness brought about by transport and communication technologies that appear to dilute and reconfigure our physical experience of transition. Revisited from this infrastructural point of view, the argument could be that there are not enough boundaries rather than too many.

However, it could also be argued that there are too many categories, and that the problem is our conceptual and/or methodological inability to make them meet. In the 1950s and 60s, a number of architects and theorists, grouped together under the name of Archigram, were provocatively touching on similar issues through transport and communication, with self-contained cities plugging into an indeterminate landscape, or self-contained capsules indeterminately plugging into cities, or temporary settlements defined by loose roofs and infrastructures that could float from one landscape to another.¹² Many of their montages were addressing dichotomies between transience and permanence or between movement and indeterminacy. They frequently seemed to take for granted the redefinition of boundaries as more self-contained and shell-like around a specific entity. They suggested that technologically derived mobility (the 'flow' afforded by cars and/or infrastructure) carries out the relationality. This indicates unresolved issues with transversal and lateral movements and with the separation of boundary from threshold; the spaces in-between, which would have been streets in traditional urban settings, are all but banished.

It also signals an ambivalence between concepts of dwelling and of travelling whereby dwelling is equated with property and staticity, and treated as independent from travelling or movements of body/vessel across space (Brighenti: 2010). Gilles Deleuze and Félix Guattari (1980) drew a differentiation between these two states by calling them sedentary distribution and nomadic distribution; nomadic distribution, to them, transcended categorisation because of its complexity across space and time and in terms of continual transformation. They thus proposed the co-existence of a 'smooth' space of processual and nomadic flows (that would here include circulation and infrastructure) across a 'striated' space of

¹² For further references, see, for instance, Simon Sadler's account of *Archigram: Architecture Without Architecture*, 2005.

defined categories and limits (that would here include housing and hermetic boundaries). They considered that differences across categories were relative to the continual evolution of these categories themselves, through the interaction between nomadic and sedentary states, and through the interaction of smooth and striated space. Planning conventions, in this sense, would tend toward separating sedentary and striated space from nomadic and smooth infrastructure, hence the pivotal role of boundaries and their thresholds in regulating their intersections.¹³

The fact that infrastructure should be associated with movement (and building with non-movement) also carries implications about principles of life and non-life. By association, this can engender an over-simplification of static (inert) and dynamic (live) movements – a recurrent debate within architectural theory. Architecture theorist Adrian Forty (2004) suggests that architectural conceptions about movement have become purely about circulation. He proposes that this originates from the Victorian era. Sociologist Richard Sennett (1994) reaches similar conclusions, but estimates that this might be attributable to literal comparisons made with the city in parallel with human anatomy, during the Age of Enlightenment. Within this logic, matter would thus be static and therefore without movement, despite the fact, for instance, that wind and the brick particles it erodes also 'move'. On the other hand, dynamic matters would be in motion, despite the fact, for instance, that the penetration of rain into a brick is a process that does not involve the movement of the brick from one space to another, but rather its expansion or contraction as humidity fluctuates in and out of the brick. If they lack 'live' properties, these organic processes are nevertheless caused by movements, of rain and wind and of the brick itself in this case, that all defy inert/live categorisations and literal notions about movement across space.

Distinctions between structure and infrastructure also generate hierarchies. Etymologically, the word *infrastructure* refers to that which is below or under (infra) the structure – an interesting analogy for utilitarian services which are mostly, literally, underground; but it also suggests a hierarchical separateness. The (dynamic?) utilitarian infrastructure serves the (static?) structure. The terminology of utilitarian matters potentially asserts that staticity is superior to dynamics and obscures the mutual reciprocity and dependency of each to/on the other. In terms of contingency, this conceptually isolates a more static building fabric from a more dynamic set of relationships with weather, nature or people – hence, possibly, the apparent rationale behind more hermetic and less flexible wall designs. In terms of

¹³ In *Production of Space* (1974), Philosopher Henri Lefebvre also makes comparable distinctions, in terms of abstract/static and social/produced space, putting more emphasis therefore on the social aspects of movement (1974). Both, however, include a political state/static dimension.

cycles, this conceptually isolates the more static building from the more dynamic movements in and out of it – hence, possibly, the apparent logic of compartmentalising dwellings from each other and from their environments.

The relevance of differentiations between live and inert actors and agents in ecological systems is increasingly questioned. Political theorist Jane Bennett (2009) argues that distinctions between inert and live actors and 'matters' become particularly problematic in terms of relationality; they potentially hamper awareness or acknowledgement of the multiple agents and agencies that constitute the ecology of any system, not only conceptually, but also in practice. Bennett proposes that all matter be called *Vibrant Matter*; matter which has aliveness because it is constituent part of life, even if it is not scientifically alive.¹⁴ In terms of environments, matter can also include matters considered less material (which I call invisible nature) such as wind, humidity, spores or dust to name a few. These are agents and agencies in the way they affect and effect material matter, just as architecture can be actor and facilitator of agency at the same time. Dissociations between inert and live principles can, therefore, impact on the relational role intrinsic to architecture in the first place. They can generate conceptual polarisations between the architecture itself, as inert, and all the live environments it hosts, creating hierarchies and categories that appear separate rather than integral to the overall ecological system, and separate also from infrastructure.

Infrastructure cycles are often associated with movement and flow across territories, while boundaries suggest interruption of movement and flow. If the two are analysed separately, considered in isolation or deemed incompatible, they potentially remain conceptually separate. In ecology, however, they often work with each other. In the cellular world, boundaries are primary players in the management of parts and wholes. Mycobiologist Alan Rayner (2010) considers that impermeable cellular boundaries diagnose scarcity or adversity. According to him, boundaries are in a constant state of flux (permeable, semi-permeable and degenerating) that reflects their relationship with internal and external environmental circumstances. The same applies to cellular boundaries in the human body. Biologist David Goodsell (2010) made artistic representations of cells and molecules that depict boundaries as fluffy, porous zones with a complicated mesh of devices for effecting relationship, and other devices for withholding relationship. In human and other mammal organisms, the dysfunction of cellular boundaries can have severe consequences, including cancer (Battle and Wilkinson: 2012).

¹⁴ This is an argument upheld by some architects also, see Christopher Alexander (1977) for instance.

Organisms themselves, at a larger scale, also depend on boundaries for shelter, as do the elements from which they shelter. The photograph in *Fig.04* illustrates this well. While a variety of plants and shrubs intertwine along a flood channel's banks and along a fence that both provide a degree of protection from the speed of winds while retaining the moisture of localised microclimates, nature becomes untypically bare on the borders of highway and rail track. Trees and shrubs, fences or changes of levels – all devices that are commonly used in permaculture (Bane: 2012) – have the ability to filter flow, thereby giving living organisms more opportunities to settle and thrive. In ecology, this might be called the Edge Effect (Levin: 2009). Porous boundaries mitigate flow, and this mitigation is reciprocal and incremental. As boundaries such as shrubs or trees develop, they host increasing diversity of wildlife that, in turn, travels from one boundary to another, through airborne or waterborne flows and other organic movements such as the journeys travelled by animals. The mitigation provided by porous boundaries filters and regulates flows such as wind velocities, rain or sunlight, and this stabilises boundaries while stabilising local flows, microclimates and the settlement of living organisms.



Fig.04 – Lea Valley, view from water reservoir (Autumn 2011)

Conversely, a rigid and impermeable physical boundary, or an absence of boundary, can each promote the opposite dynamic. Both channel or increase climatic flows (wind, rain and the particles they carry), as with the hurricane

Katrina effect for example, engendering turbulence and depletion through excess of flow.¹⁵ It could be said therefore that, in nature, boundaries are an integral part of infrastructure. Alternatively, as architect Tom Holbrook (2011) proposes, it could be said that infrastructure, rather than being conceived as something that travels across the land to serve buildings, could be reconceived as nature itself working with the built environment.

1.3 Definitions of the Boundary

Boundary is not a word commonly found in architectural terminology. Architects use it all the time, but it rarely appears in book titles, chapters or indexes. It is absent from famous architectural lexicons such as Vitruvius's *De Architectura* (c.50BC), or Quatremère de Quincy's *Dictionnaire Historique de l'Architecture* (1832-33), or Wikipedia's current *Glossary of Architecture*.¹⁶ It is not, in itself, a component part of our architectural vocabulary, which is strange if one considers that the kinds of spatiality that architecture carves and advocates can only materialise through the division of space into identifiable parts. This possibly indicates a long-enduring tradition in architectural discourse for endowing the boundary with secondary attributes. One could suppose that the boundary is peripheral to architecture, as much as it can be, literally of course, peripheral to the spaces it defines.

As an experiment, I spent a day at the Bartlett School of Architecture's (UCL) library browsing through their collection of architecture books, one by one systematically from left to right, and only found a handful of books making mention of boundaries in their title or in their index. Books that did contain the word in their title, such as Forster and Davey's *Exploring Boundaries: The Architecture of Wilkinson Eyre* (2007), or Papadakēs' *Zaha Hadid: testing the boundaries* (2005) did not analyse architectural boundaries but used the word for its metaphoric meaning of breaking from traditional limits and investigating new grounds. One exception was the Architectural Association Design Research Laboratory's *Negotiate my Boundary!* (2002). This study is focussed on complexity of negotiations of personal space within domestic dwellings, which brings the word much closer to the binary nature of boundaries. It looks at tensions and negotiations between different parties within an enclosed system – a concept drawn from autopoietic theories (Maturana and Varela: 1987) about self-organisation within groups. It is, therefore, carried out at a more nuclear scale than my research. The notional home is considered self-contained enough to itemise a wide variety of possible actions and

¹⁵ See *Teaching with Hurricane Katrina : the physiography, climate, storm and impact* <http://serc.carleton.edu>, accessed 3 March 2012.

¹⁶ https://en.wikipedia.org/wiki/Glossary_of_architecture, last accessed December 2013.

interactions through computer algorithms, stretching the element of everyday domestic heterogeneity into a more quantitative analysis of relational dynamics.

The concept of boundaries is often applied at a scale that transcends human body and physicality of architecture, and/or as a metaphor rather than a real object. In English and in architecture, it is regularly associated with dimensions that might be closer to those of frontiers. *Frontier* comes from the Latin *frons, frontis*, meaning *forehead, brow, front*, and usually makes reference to a notional or territorial boundary. Such frontiers are not always perceptible within the landscape and they are more likely to be apprehended at 'customs', i.e. the gate which regulates perpendicular flow across the two sides. The gate can be the only physical mark of the boundary, positioned at the point where human flow is expected to take place. Unlike boundaries, frontiers do not draw lines between public and private dimensions in the same way urban boundaries might do, and are less common within the compounds of a city.¹⁷ In this sense, while etymologically (see p.23) boundary encloses the body, frontier demarks larger territories. Within this logic, there is a distinct suggestion that boundaries are closer to the body and little indication that they might open, whereas in the case of *frontier*, the threshold may be the only physical (if very conditional) element, and there are no references to public and private territories directly comparable to residential and urban situations.

As I progressed through my research, I discovered that *boundary* meant different things to different people. For example, a fellow architect presumed that I was looking at fences and party walls; a Planning officer thought that I was looking at streets and traffic; an anthropologist immediately launched into a discussion about rivers and their banks. There is no actual consensus on what *boundary* means. The word sometimes elicits surprise, suspicion or hostility: some people I met hurriedly turned away in vague discomfort. The subservience of *boundary* in architectural language could, in fact, be attributable to the fact that the word is often associated with negative connotations or, as philosopher Henri Lefebvre (1974, pp.192-194) suggests, pre-urban dimensions of human affairs: as anthropologist Marc Augé (1992, p.59) remarks, it is symptomatic that the significance of boundary rituals prior to the advent of more sedentary lifestyles should have waned alongside subsequent, architecture-based concepts about the boundary that promote permanence.

¹⁷ As International Security Reader Nick Vaughan-Williams points out in the introduction to his examination of *Border Politics* (2009), the space-time between them can also be entirely abstract.

Many academic commentators on architecture and the city prefer to use words such as *borders* or *edges*. Urban planner Kevin Lynch made interesting comments about these edges and noted that they do not automatically denote porosity between sides, and may conceal a division (Lynch: 1960, pp.65-69). Even if it is lively, as the terrace of a cafe might be, for instance (Sennett: 2008), a 'soft' edge is only one side of the boundary. Borders and edges do not, in themselves, enable relationship with their other 'side' even if they can host relational encounters on one side at least. Borders and edges are component parts of the boundary but only one of its sides (as is the etymological *front* of *frontier*).

Architecture Professor Jonathan Hill's definition of boundaries includes this binary/tripartite element by defining borders as elements that contain edges: "Although it is normally assumed to be a line, a border actually has a thickness and edges. Often the edges of a border are monitored but not its centre, which is not recognised and defined to the same extent as the territories to each side of it" (Hill: 1998, p.52). The edges would here represent the binary sides, while the thickness between them would represent the middle.

This could be symptomatic of architectural conventions rooted in mathematical conceptions about symmetry that include mirror images and transparency - whereby a notional line is a means of reproduction of opposites rather than an object in itself. In symmetry, two mirrored 'sides' belong to the same object. In transparency, however (and bearing in mind that glass can be reflective and opaque or transparent depending on light conditions on either of its sides), the architectural 'line' between two sides is much more ambiguous and fundamentally more visual than relational (Elkadi: 2006). This ambiguity is also contained in the concept of interface. Although, etymologically, the word denotes what might happen between faces, it often denotes the point at which two entities or principles meet or diverge, as expressed in symmetry, reflection or transparency. The 'line' between 'sides' can be as abstract or notional as it can be solid, even if appearing to be almost immaterial. It does not in itself infer relationship – only that facing entities are in potential relationship with each other. Within this logic, as with Aristotle's logic, there are two possibilities in the interior/exterior or public/private interface: *either* interior and exterior or public and private are separate and there is therefore no relationship between them, *or* they are opposite to each other and there is therefore a relationship between them.

Boundary seems to be a word that is used more commonly in the disciplines of geography, property and law, planning and politics (Kirby: 1995). There are

numerous books and essays on the subject of political and territorial boundaries (Henk van Houtum, Kramsch & Ziefhofer: 2004), and on power relations through boundaries (Hirst: 2005). Several architects have devoted their career to researching them at that scale: Eyal Weizman (Hollow Land: Israel's Architecture of Occupation, 2012) at Goldsmiths University or Mohamed Gamal Abdelmonem (Spaces of Liberation project in Cairo, 2016) at Queen's University Belfast, to name but two. This suggests that *boundary*, in architecture also, refers more to a political concept or to urban delineations, rather than to an actual object in the immediate vicinity of residential space – that connotes, more often than not, adversarial potentials.

Such lines, be they either material or immaterial, can have a substantial impact on the way architectural boundaries are conceived and designed even when denoting property or territory. Tied in with these parameters, they can subtly enforce segregation through means of structured spatiality, prescriptive orchestration of activities in the public space (and, therefore, private space as well), through exclusion of human lingering or of certain classes of people from passing by, and through ambiguous thresholds, signage and electronic devices. This is the context in which Iain Borden uses the expression of *thick edge* (2000) to indicate that, even if immaterial, these delineations of conditional passage can create depletion on both its sides. Some forms of surveillance, human or otherwise, can also constitute boundaries by perverting or preventing the chemistries of interface between place and occupants (Tabor: 2001).

Many boundaries are lines rather than physical objects. Lines, as architecture professor Katharina Borsi proposes, "tend to be representative of closure, rather than flexibility" (2009, p.133), and in architecture they are more often than not 'paper' lines that do not reveal themselves explicitly in the urban fabric. This abstract definition related specifically to boundaries is frequently applied in drawings and maps used by architects, town planners or conveyancing solicitors. These lines often attempt to represent not only the definition of parts, but also the relationship between parts. In a few examples in *Fig.05*, I have modified some examples of typical diagrams commonly used by architects and other institutions in the construction sector to represent relationships, and I have adapted them to something that might concern urban themes.

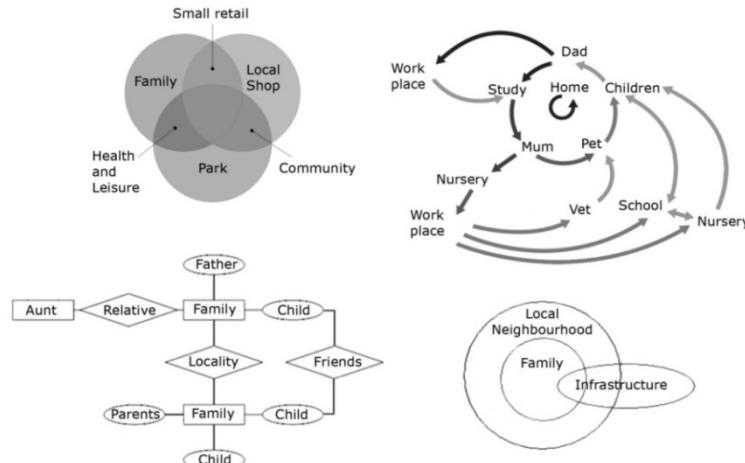


Fig.05 – Various Types of Diagrams Identifying Relationships

The success of these diagrams relies on limiting information to a specific set of criteria, and on isolating parts from each other in order to show how they relate. This provides clarity but shows a specific range and type of relationships/actors at a time, and leaves out possibilities and potentials that fall outside the equation. This also presents relationships as functions outside time and place, and encourages a depiction of a world made up of discrete entities whose peripheries do not meet. Anthropologist Tim Ingold (2014) calls these *lines and blobs*. His particular interest is in the way we often represent relationship(s) of a discrete entity with its environment as the entity inside the environment, and the relationship between them conveyed through an arrow pointing to both 'sides'. This, he contends, encourages a depiction of a world made up of discrete entities, and poses difficulties in representing the relationship between parts. He advocates, instead, a representation of relationships as intertwined lines that form a mesh of knots that bond tightly with each other, and in-between which appears the formation of interstices.

Ingold (2015, p.9) questions the way in which connection between parts operates beyond the relational types advanced by sociologist Émile Durkheim (who, in 1895, first coined the idea of collective consciousness) in his *Rules of Sociological Method*: aggregation, fusion and interpenetration. Ingold argues that the notion of fusion promotes a sense of dissolution, while aggregation promotes a sense that entities remain discrete. He favours Durkheim's third proposition of interpenetration, whereby the interface between the two parties is integrated in the relationship, and integrates the two parties into a collective whole. Ingold suggests that Western ways of thinking are too centre-oriented, and illustrates relationality through the more binary metaphor of the handshake. The handshake crosses over the dimensions of privacy and publicity, in as much as the hands meet within the public realm, i.e. beyond each of the individual's personal identity. He uses this

interpretation of the handshake to point out that our focus on discrete entities is problematic; it can encourage a view of them as statically assembled parts that remain fragmented, rather than a view of them as participants in constant interaction with each other and with a greater whole. Ingold stresses the fact that each hand continues to belong to its owner and that, in this sense, the relational element does not compromise individuality but hosts instead a mutual transfer of influence between categories.¹⁸

Individuality itself is an ambiguous word; etymologically, it refers to that which cannot be divided, and yet according to the Oxford Dictionary it also refers to "the qualities that make somebody/something different from other people or things".¹⁹ It therefore indicates separateness of parts and belonging to the whole at the same time, just as boundary, in the meaning I put forward through Aristotle and Lapusco in the Introduction, can indicate relationality and lack of it at the same time.

Hill's *border* would be closest to that of *boundary* as proposed here, but does not explicitly indicate more temporal and conditional dimensions - although these are often discussed elsewhere in his work. In Latin languages, weather and time share a single word (*temps*, *tiempo*, etc.) associated with temporality. This possibly originates from the close relationship between land and weather in agriculture, at a time when a large majority of people were farmers, even if space and land are expressed through separate words. English has two separate words for time and weather, but the two categories still meet, if on a more unconscious level. Indeed, Hill concludes in his investigation of *Weather Architecture* (2012) that, having set out to write about weather, he ended up writing about time. Hill is interested in process and user participation (see Chapter 6), and here extends this idea of process to the way in which weather marks architecture but also affects the way architecture is designed because of cultural preconceptions about weather and nature in various eras.

The merging of time, weather and space can transcend binary thinking structures that are less inclusive of temporal evolutionary processes, but it can also modify the way we think about binary paradigms. For instance, the Edge Effect is about hybrid cohabitation and collaboration between species at the point where binary sides meet and interact in a way that could be incidental or habitual. Ingold is especially mindful of the temporal dimensions involved in process, and challenges

¹⁸ The idea that the meeting of two categories should produce hybridity, as proposed by Mary Douglas within her theory on exclusion and waste, can be perceived as compromising to the purity of categories in as much as these might become a mixture of both as a result of touching.

¹⁹ <https://en.oxforddictionaries.com/definition/individuality>, last accessed June 2017.

presuppositions according to which, for instance, relational elements such as a handshake might generally constitute passing and unstable incidents. He argues that they can be durable conditions too: although temporality continuously evolves, it does not necessarily follow a clear pattern of evolution. Ingold's handshake can be incidental, or it can be habitual within overlapping types of rhythmic regularity. In the same way, seasonal cycles in the UK are only stable in as much as day follows night. Seasons do not always conform to calendar expectations although, overall, there is still a discernible cycle of successive winters and summers that remains relatively predictable (and evaluated by contrast between opposites). The same could be said about the ecological edge: it might appear reasonably stable and yet constantly adjusts to differing sets of environmental circumstances within and outside of itself, some more regular or predictable than others. Temporality is thus a component actor in boundary principles, and one that also requires complex definitions.

As already suggested on the subject of infrastructure, there are correlations that can be made between boundaries and the relationship between parts, but boundaries can also be spatially engineered through programmatic containment (client brief or master plan) rather than through direct physical boundaries. This can exclude relationship by isolating parts (neighbouring buildings) from each other and rendering them self-sufficient, and/or by subduing chance transgressions into spaces between them that appear to be public but are in fact "pseudo-public". As illustrated, for instance, by architecture professor Kim Dovey (1999, pp.88-96) in his examination of the former and new layouts of the Houses of Parliament at Canberra in Melbourne, individual spaces are sometimes targeted at one specific user and use rather than for any member of the local community. In these cases, boundaries are generated through prescriptive space because relationality is removed from them. The prescriptive element of spatial order in architecture has been the subject of numerous debates in architecture, epitomised by Architect Cedric Price's work on indeterminacy in the 1950s and 60s, which attempted to alleviate such conditions by exploring less finite and more inclusive conceptions of space (Mathews, 2007). His work also advocated design approaches inclusive of users, time and adaptability, through a notion of spatial agency which I would here translate as relationality at the boundary where spaces meet.

Interestingly however, lack of definition can also result in exclusion, as illustrated by architecture theorist Jeremy Till in the cover of his book on the way *Architecture Depends* (2009). This depicts a void space defined essentially through its floor and by a single individual incongruously clad in a bear costume. The image seems

deliberately surreal and emphasises lack of purpose and direction in a space that is ambiguously interior and/or exterior, with minimum definition of boundaries other than a glass banister. Although the 'bear' stands at the centre of the image, there is no obvious indication that he is also at the centre of the space or in physical relationship with anything other than the floor.²⁰ This lack of in-between-ness can generate isolation in terms of discreteness rather than enclosure – a physical separateness generated by shortage rather than excess of boundaries. In this case, the boundary is a space rather than an identifiable object.

Boundaries can also be associated with the idea of marginality, which would suggest exclusion or poor integration in colloquial language. Sociologists Star and Griesemer (1989) developed a theory about *boundary objects*; in her later reflections on the concept and applications of boundary objects (2010), Star explains that she had originally considered labelling these tools as margin objects, i.e. objects belonging to the edge where different spheres could intersect but tend to diverge. The concept of boundary objects was developed from lines of enquiry that concern heterogeneity and diversity, where systems that favour categories are challenged by levels of complexity that defy categorisation. Anthropologist Bruno Latour and sociologists John Law and Michel Callon addressed this apparent incompatibility through their Actor Network Theories (ANT) in the early 1980s. Together, they referred to relationality between multiple actors as *intéressement*, which in English means to guide separate parties into taking an interest in each other and to learn how to 'translate' each other's differing epistemologies (Clarke: 1999).

Star and Griesemer's work was inspired by a method pioneered in the early 1900s to give coherence to the classification of museum exhibits collected in the field by varying parties, from professional, amateur or specialist backgrounds. The understanding of where these objects came from, how they were retrieved and what value they had, needed some coherence. To give an example of what is meant here, we could imagine how, say, a stone can have different values for a geologist than they have for a jeweller or a sculptor. The boundary object will be the tool or system that enables these different realities or perspective points to meet and converse with each other, so that there is an agreement about what the

²⁰ In his preface, p.xii, Till explains that this image was a way for him to express a critique of Modernist icon Mies van der Roe, who for Till incarnated the epitome of order and placelessness when he was a student. He deliberately appointed British artist Mark Wallinger as the 'bear', by reference to Mies van der Roe and by reference to Wallinger's own work, among which are pieces such as *Ecce Homo* (1999), *Time and Relative Dimensions in Space* (2001) and *No Man's Land* (2001-2002), that echo themes about purity, order and disorder and alienation relevant to Till's reflections on contingency.

stone is, what its context is and how it gets classified. In this case, rather than being the stone, the boundary object would be the mapping or categorisation system used to help all three interpretations to become integrated.

Star and Griesemer consider boundary objects as useful tools for cooperation and collaboration in an overall ecological system where the individual value systems are not compromised; as with Tim Ingold's handshake, the hands (or geological, precious or artistic values of the stone) stay in the ownership of their respective owners, but the meeting of hands becomes an additional public and relational dimension. In this sociological context, the terminology of boundary object is intriguing because it is essentially about values and categorisation. It does not necessarily relate to a physical urban and environmental object as architecture might, but could be interpreted as a metaphoric version of the same principle. In these instances, adjacent and notional borders would facilitate relationality, but it is not proposed that they should also offer a withdrawal from relationality as architectural boundaries or edges in nature might. The boundary is understood as a temporarily shared space, not so much a space that regulates these meetings as a space that hosts in-between-ness.

Notably also, there can be more than two agents who share this meeting platform, and the meeting point thus catalyses relationships beyond binary dynamics. Although this reference to boundaries as a conceptual tool appears similar to Lapusco's *Included Middle*, it becomes quite different if transposed into architecture. In the first instance, the presence of a boundary in the urban landscape potentially hosts a more continual process of interaction between parties or entities, which are arguably more random if, at the same time, also subject to more environmental and local chemistries. Secondly, the dynamics are not only between social actors or between actors and material objects. They also include the meeting of other realities, such as weather, which may sometimes need to be regulated during and after translation. Boundary objects, as conceived by Star and Griesemer, may offer a useful complementary tool for instances where conflicting and heterogeneous paradigms come into play, but they do not quite address heterogeneity in the way temporal ecological edge or architectural space in-between might. The parties involved at any one time are not necessarily predictable or even easy to identify, nor do they address the difficulties of polarisation and exclusion typically generated by binary paradigms. They are temporary rather than temporal centres, where divergent interpretations converge and negotiate.

When Star and Griesemer developed their boundary object concept, they were attempting to generate a degree of structure and relational coherence to heterogeneous actors and epistemologies – through method. This principle was subsequently adapted and re-interpreted to a wide array of different applications in sociology, to the point where, in her reflections on boundary objects (2010), Star found that her audience sometimes questioned whether boundary objects could not be considered to be everywhere, thus adding to complexity and possibly compromising their merits for scientific method. The method, as she explains, is a method about *process* rather than *definition* – and, as such, complementary to other, more quantitative methods and approaches. In this sense, the dynamics of encounter take precedence over the precision of defined categories, and the method is closer to a method of analysis through urban boundaries as proposed here.

In many ways, a space for interpretation and negotiation can be similar to a boundary in as much as it is in the middle and in-between, and it is interesting that Star and Griesemer chose this terminology. The ways in which boundaries can be identified thus acquires an infinity of meanings and manifestations that almost imperceptibly pervade apparently unrelated considerations about the built environment. Arguably, this challenges a more institutional preconception about urban space as the sum of separate parts in isolated categories, rather than a more fluid conception of urban space that posits a continual process of production and reproduction of space and place between architectural and social ecologies. The paradox about boundaries and space is that they are intimately dependent on each other for their mutual regulation, and that boundaries are therefore essential players in facilitating the relational integration of fragmented parts, in concept and in urban materiality, just as they can also be players in protecting the same fragmentations.

1.4 Relationality and Privacy

Boundary objects, as described above, could be interpreted as a space in-between, a term which is widely discussed in architecture. This space in-between, however, is frequently associated with the idea of transition and mostly discussed outside the specifics of high density housing. For instance, in their study of *Body, Memory and Architecture* (1977), Bloomer & Moore describe in detail a variety of transitional spaces in many of their precedent studies. Others examine wall and transitional space at different stages in their career. This is the case with architecture professor David Leatherbarrow, who often writes about transition, particularly in his essay on

Facing and Spacing (Asgaard et al: 2009) which describes the poignancy of anticipation in the act of transition from one space to another (Leatherbarrow: 2009). Leatherbarrow and Mostafavi (2002) began their research through the wall itself, and examined the relational impact of building materials and technologies. They examined at great length weather filtration, or *breathing walls*. Professor Simon Unwin followed a similar route with his studies of the *Wall* (2000) and of the *Doorway* (2007), both inspired by his proposition of the *inhabited wall* (Unwin: 1997) whereby, in the act of serving transition, walls and doorways also provide accommodation between sides. This led him to a reassertion of transition and temporariness, with particular emphasis on spaces in-between such as porches and courts that would emphasise, soften or lengthen the experience of transition.

Arguably however, the focus on transition subdues the affordance of multiple and reciprocal relationships between sides that can be weather related as well as human related, including the possibility - within a binary logic of *Included Middle* - that this space should restrict transition sometimes or facilitate it at other times. Architect Michael Graves (1982) put emphasis on this conditional quality and argued in favour of its symbolic and phenomenological importance, and yet there is little evidence, in high density housing, that this stage of passage should be considered valuable beyond access into an estate - to include the threshold between individual dwelling and immediate exterior.

In housing, the concept of space in-between is in tension with that of public/private interface, and the proposition that a space in-between should also be inhabited is often disputed. There are very few institutional policies that include a middle or hybrid zone (Dolan: 2012), and the criteria for what constitutes a public space are different if they are inside an estate from what they would be outside an estate. Housing itself is often analysed as a series of autonomous 'units' or 'layouts', if from a variety of design or social angles. Dynamics and mutuality between dwelling and locality are therefore subdued by the research methods, and their respective qualities are held in separate remits, conceptually inhibited from the possibility of moving into each other.

At the time I started my research in 2010, the London property boom of the late 20th Century and early 21st Century was also coming to a close, and design practices that had been informing it were under the scrutiny of various organisations, including RIBA (Royal Institute of British Architects), CABE (Commission for Architecture and the Built Environment), Shelter or the Rowntree Foundation, who carried out expansive research into housing and public space. The

GLA (Greater London Authority) have now taken some of these reports on board in their *London Housing Design Guide* (2010), which was reviewed several times (Fothergill: 2014) before becoming mandatory in 2016 under the *Housing Supplementary Planning Guidance* (SPG). This should have a positive impact on future housing designs, but on a pragmatic level, concerned with the practicalities of circulation and space rather than with the ways in which they might facilitate interaction between public and private territories: housing is reviewed as an internal condition, separate from public matters and spaces. Many such studies and reports are either focused on public space or on the home, but rarely address both at once, nor question where occupations that cross over the domestic/work/leisure divides belong to.

This meeting point is a grey area in terms of public/private agency because it can be an intermediate space or a line that joins spaces without necessarily being territorial in terms of surface or footprint. It can be between two private dwellings that are adjacent – each private but not private to each other. It can be between a dwelling and a small locality that are, technically, private to a greater public, but also where each part is adjacent to other public or private parts that are less private to each other. The line or space between these notional sides is sometimes called shared space or communal space and is ambiguous in many respects. In legal terms, it can be a remit in its own right and can be physically separate from the two sides. The alternative propositions of semi-private or semi-public space each give emphasis to one 'side' while constraining the meanings of public and private. Although they convey the notion of a more hybrid in-between-ness, they each assume that beyond the private space there is a public space, and vice-versa. This can be problematic if it also suggests that the two are separate and in a state of otherness, without an Included Middle that modulates the meeting points and overlaps between the two contrary but elusive principles.

There are philosophical equivalents to this conceptual scarcity: philosopher Peter Sloterdijk (1998) uses a metaphor to introduce his thesis on *Bubbles* that describes the relationship between a child and the soap bubble he has just blown as one activated by the space between them. The child's breath is inside the bubble and, as such, unites child and bubble through an intense binding force between the two subjects. Sloterdijk uses this metaphor to represent the idea of parts adjacent to each other and within a greater whole, at multiple relational and environmental dimensions. He argues that the image of conjoined soap bubbles (or foam), that sometimes separate into smaller units and other times conjoin into larger bubbles, might provide a more coherent approach to representing relationships between

parts and wholes. In other words, he tries to introduce the relational element by looking at parts and wholes through the peripheries between which parts meet.²¹

Sloterdijk argues that our focus on centres distracts from adjacency and relationship. Centres can distract from adjacency because their peripheries geometrically move away from them in a radial manner. To illustrate this, I shall here borrow another metaphor, from anthropologist Marc Augé (1995) in his description of the ancient myth of Hestia and Hermes. Hestia incarnates the female principle of domesticity and Hermes represents its binary opposite of male and public life. Hestia represents centre and stability while Hermes represents mobility away from that centre and then back towards it in this same radial manner. Augé uses this metaphor to highlight a reciprocal duality and complicity between public and private principles, in a way that emphasises the negotiable and interactive space between them. However, transferred into urban landscapes, this metaphor becomes problematic. If the private dwelling is private, so are all the other dwellings sharing the same neighbourhood. The urban equivalent of Hestia is not only one centre inside a widening circle of outward (public) and inward (homebound) motion; it is also a series of more or less adjacent parts that are 'outside' the notional dwelling and thus technically not private to each other, but not necessarily public. Sloterdijk's reference to foam tries to illustrate the relationship between these multiple parts by focusing on the meeting of peripheries where they become adjacent; the relational element occurs at this meeting point rather than at the centre.²² In an architectural setting, therefore, many forms of relationality would literally be sited at the point where division is engendered - at the space between spaces.

Architect Robin Evans was acutely aware of the effects of boundaries, and many of his theories address the question of privacy and publicity concurrently (Zhu: 2011, Fontana-Giusti: 2011, Allen: 2005). In his view, a tendency toward architectural

²¹ There are a number of philosophers from a variety of disciplines who are directly or indirectly addressing the complexity of binary dynamics by reassessing the meeting point between entities. They include Henri Bortoff (1996) and Fritjof Capra (1997) in physics, or Lere Shakunle (2013) in mathematics, who tried to incorporate the space between discrete numbers in his 'zeroid' theorem.

²² There are others who looked at the same problematics by scrutinising the centres themselves, such as philosopher and mathematician Blaise Pascal who, in his essay on *Double Infinity* (circa 1695) also challenged binary views of the world. Pascal did not exclude the middle between differing principles but, instead, described scale as a linear process that oscillates between (opposite) microscopic and macroscopic dimensions. He argued that, beyond this linear representation of the world, there were infinities of centres operating in a multitude of mathematical dimensions which, he proposed, could only be apprehended through imagination, i.e. beyond scientific method. Philosopher Gottfried Leibniz subsequently picked up where Pascal had left off, by proposing that the boundaries of adjoining parts (Pascal's multiple centres) are the prerequisite for cohesion within a continuous whole (LaRouche: 1997), bringing the centres' relational peripheries to the forefront of examination.

isolationism through boundaries has been building up since the Enlightenment, especially through the device of the corridor, as space in-between employed to separate rooms from each other and to distribute them, instead, at a communal landing for circulation.²³ The gradual increase of architectural privacy was one of the main arguments Evans made in his study of the evolution of *Figures, Doors and Passages* (1978). By comparing architectural layouts with artistic representations of domestic life, he proposed that this architectural evolution was concurrent with cultural norms about privacy. This tallies with sociologist Richard Sennett's study of *The Fall of Public Man* (1977), which posits tensions between self (privacy) and otherness (publicity) whereby diversity inherent in urban conditions encourages an increasing withdrawal into privacy, crafted through the fabrication of 'mask' personalities on display in the spectacle of urban stage, and behind which privacy is concealed. This also tallies with Jonathan Hill's reflections on Sir John Soane's Georgian house (2012), through which he diagnoses the beginnings of architectural introversion and increased need for privacy. When he created a space for his art collection, Soane relocated the centre of the house over the former yard between the house at the front and the workshop at the back, and through a series of architectural devices such as skylights, mirrors and inner court windows, filtered natural daylight into inward looking and cave-like spaces. Cultural evolutions about time, space and weather might have thus been tied in with conceptions about privacy that would have, in turn, affected understandings of boundary situations.

In his essay on *The Rights of Retreat and the Rites of Exclusion* (1971), Evans remarks that polar extremes in the dialectics of privacy and publicity also operate from both sides of the spectrum. On the one hand, privacy may be actively sought, as is the case with hermitage but, conversely, privacy may be enforced, as is the case with imprisonment. In the latter case, it could be argued that prisoners are made private from the public rather than merely enclosed into their privacy, just as, in the former case, hermits may be seen as deliberately pushing the public out of their privacy. There is, here, a double dynamic of privacy – that of protection *from* the public or protection *for/of* the public (or vice versa, protection from intrusion into privacy or into public life).

Evans' preoccupation with this duality was an attempt at defining the wall, and he often suggested that boundaries necessary to create divisions could fail to reunite the spaces they defined (Hensel, Menges and Hight: 2009): inbuilt in the problematics of the boundary is that of discreteness. Rather than being shared,

²³ On the basis of three essays published by the Architectural Association (1996) in *Translations from Drawing to Building and Other Essays*.

boundaries can read as wrapping around autonomous entities. John Habraken (2005) makes interesting comments about the origins of this paradigm in architecture. He argues that the sixteenth century Palladian villa, which is considered an axial stage in the modernity of architecture, is now falsely regarded as an autonomous object. These villas were generally surrounded by spaces in-between such as porticos and arcades drawn from local vernacular tradition. Palladian porticos and arcades assembled territories through their intermediacy as spaces in-between, and were originally intended as environmental and social loci in-between more distinctive sides. Habraken points out that the pre-industrial context (tradition, topography and agricultural lifestyle) in which they were designed differs considerably from the Georgian settings in which these prototypes were later imported. He proposes that this is the point at which they became interpreted as discrete objects. In their transposed urban context, the same porticos were reinterpreted to promote display and separation through subtle deviations in the relationship of the parts to their whole. The instatement of distance on one of the boundary's sides, or the removal of certain lifestyles from it, can transform its dynamics as a whole (Aureli: 2011).

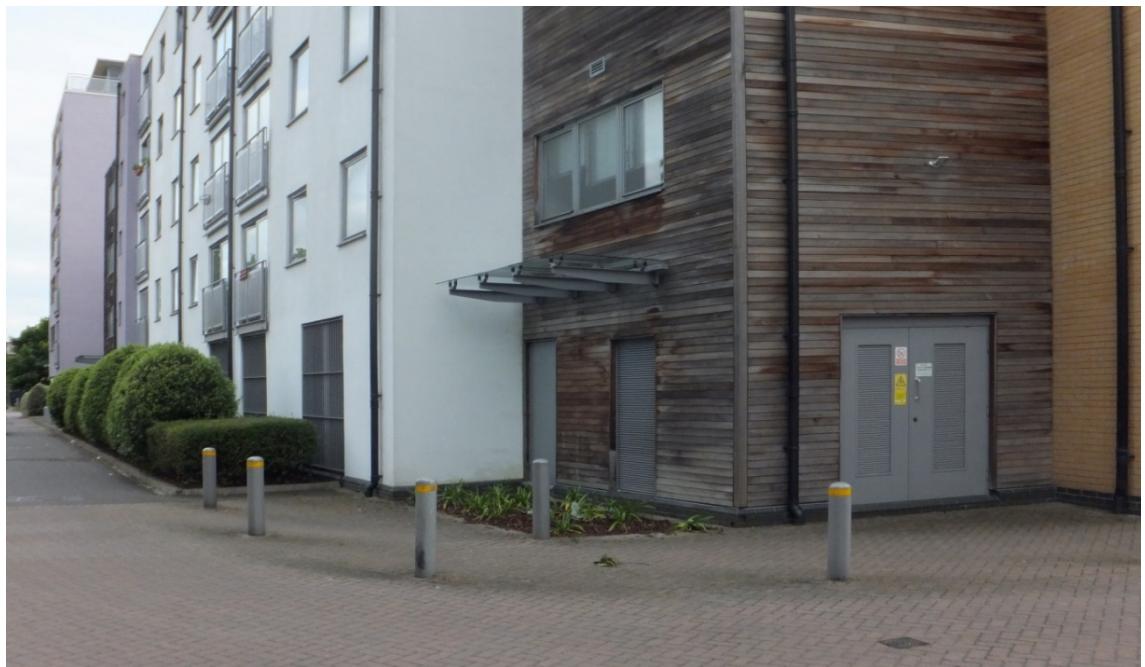


Fig.06 – Defensible Space in Deptford (Spring 2012)

There are numerous examples of buildings or streets and open spaces which have soft edges that appear porous and yet conceal uncompromising divisions, particularly between public and private territories. A façade, for example, can be a continuous glazed wall that provides visual porosity but does not provide access between sides – threshold (the point of transition) and boundary (the point of

division) are separate. This can also happen within the fabric of the wall, through sealed window frames or air-tightness membranes which are then clad with vertical planting – giving an impression of softness and ecological awareness while obstructing relationships between inside and outside. This is the case in the example in *Fig.06*, where closer examination reveals that the openings at ground level are designed exclusively for utilitarian functions rather than for social communication between interior and exterior.

Thresholds, be they doors, windows or otherwise, and walls, with their borders and edges, are all component parts of the boundary but can also be separated by the space between them. Despite the fact that, according to Aristotle's logic, there should be a Middle between public and private space, Architect Miloš Bobić (2004, p.16) argues that policy often prescribes an architecture which separates them entirely: "Current planning processes, design principles and rules, are based upon a no-conflict doctrine which, applied in practice, delivers no-relationship spatial configurations. Private and public domains are divided by sharp boundaries, with a wide range of strategies and protective elements that have been established to prevent any disturbance between them". This echoes some of the comments made by Richard Sennett in his thesis on the *Uses of Disorder* in the 1970s, positioned within the context of gated cities and neighbourhoods. Sennett argues that protection from conflict, be it through policy, local strategy or design, exponentially weakens residents' ability to handle conflict when it occurs, and thus amplifies the problem of conflict instead of averting it.

Non-relationship between sides can be generated through scenarios where transmutation from one territory to its adjacent side is regulated by policy. For example, the guidance contained in *Secured by Design* policies (2014, pp.1-2) can actively discourage communication between sides by recommending that in the space between them: "Footpath seating, design and location avoids the creation of inappropriate loitering places and opportunities for crime and disorder" or "Communal areas have been designed and located in such a way as to allow natural surveillance, prevent unauthorised vehicle access, reduce the opportunity for crime and disorder and not immediately about residential buildings". 'Natural' surveillance by design often consists in combining visibility with distance at the edge between dwelling and local public space, encouraging surveillance by sight but discouraging human interaction, flânerie (meandering without specific purpose), or contact with nature. This is conjoined with another premise according to which domestic space is private, and therefore all other spaces of the everyday are theoretically public. Tied

into these parameters is a binary of polar opposites, and one that is in extreme tension in Planning and institutional conventions in the UK.

Secured by Design policies were derived from the concept of *Defensible Space*, which originates from the United States and is in itself quite extensive. Architect and city planner Oscar Newman (1972) was concerned about the rise of social tensions in architectural configurations such as tower blocks and, through a close analysis of traditional New York terraces, concluded that spaces between dwelling and public space provided residents with a zone from which they could control and take ownership of their relationship with the locality. These theories were influenced by activist journalist Jane Jacobs (1961) and her own reflections on the way street life could be monitored at its edges through a combination of natural surveillance and space for intermediacy and negotiation. However, in planning jargon and high density new-built London, *Defensible Space* is more likely to refer to a personal space near the threshold that ensures a degree of distance between dwelling and public space, but not a degree of connection as well. As its name indicates, this space is associated with fear and safety, and its defensive nomination suggests that it is concerned with boundary as buffer – protective if in-between other spaces, neither entirely public nor entirely private – but not necessarily a host for relationship between the two sides.

Anna Minton (2009) also documented the way in which *Secured by Design* policies can sometimes overwrite local democratic consensus about boundaries, natural surveillance and safety, as was the case in the Fazakerley area north of Liverpool that she analysed. This generates a "democratic gap" (Lidskog, Soneryd and Uggla: 2010) that does not reflect local consensus but instead promotes a top-down preference for certain types of urban residential designs. In this case, there would be differing opinions about what privacy means for local residents and what it means for Planning authorities. This tension may originate from as far back as the Victorian times. In another essay, *Rookeries and Model Dwellings* (1978), Evans revealed that some of the Victorian families who were displaced from slums into new accommodation resisted the prescriptions suggested in their layouts. Philanthropic propriety considered that families should be divided into separate rooms for sleeping, one for parents, another for boys and a third for girls, but many families continued to sleep all together in the same room. There are several implications here about privacy, one of which is that different social groups had different conceptions about privacy. This undermines the institutional proposition of a cultural convention typical of its time.

In *Intimate Metropolis* (Di Palma, Periton & Iathouri: 2009) several authors suggest that there would have been a paternalistic and middle-class bias disclosed by this contradiction that is often loosely attributed to the formation of planning systems seeking to bring order and hygiene to the city. They re-examine urban policy from the perspective of public/private tensions based on a universalised and simplified conception of norms of agreeable publicity and privacy in cities. Beyond the co-existence of different cultures in the Victorian times, there would have been other mutations in interiorisation (private) and exteriorisation (public) principles that oscillated, swapped or overlapped during the Nineteenth Century and beyond.

This proposition is extended by others, geographer David Sibley for instance, who argues that defensive public/private dynamics differ with social status: "Apart from some vaguely specified north-south split in Europe and the distinctive culture of nomads, the mingling of private and public is probably associated also with poverty. It is the poor who are less able to erect barriers to secure their home space from threats associated with the outside than the middle-class. It was poor districts in London in the 1950s, for example, that the photographer Robert Mayne used to demonstrate the vigour of London street life. The porosity of home and street may be something that is lost in the most developed societies as families, architects and planners clarify distinctions between public and private." (Sibley: 2001, p.108).

Sibley also argues that barriers between privacy and publicity are indicative of fear of otherness, and proposes that architect Le Corbusier illustrated this tension well: "We might take Le Corbusier's writing as texts that dwell excessively on the purification of urban space. Although a canonical figure in modernist urban theory, he had particular problems with race, women and nature, themes that were closely related in his writing and which were central to his concern with separations and distancing. As Mabel Wilson has argued: 'Le Corbusier's skyscrapers, contemporary 'white cathedrals' symbolise the restoration of Western culture that transcends and masters filth, the infiltration of 'blackness', and the materiality of the body. Thus, he was disturbed by the transgressive potential of Black American culture and assertive American women'. His *Radiant City* was, according to Wilson, designed 'to enforce and guarantee racial and patriarchal order'. This unease about race and gender relations found another expression in his concern about nature. Le Corbusier had a particular aversion to 'wild nature' which had to be kept in its place. In *Towards a New Architecture*, the antithesis of orderly construction was the disorder of nature" (Sibley: 2001, p.109).

If the privacy/publicity tension is subject to an infinity of different cultural interpretations around the world (Weintraub & Kumar: 1997), many architects themselves argue that the above is a misleading problematic. Stavros Stavrides (2016), for instance, suggests that the threshold between private and public life is also a space of emancipation which enables people to *regulate* their relationship with the inherent otherness of adjacency, and that this stabilises local neighbourhoods through a perpetual adjustment of the equilibrium between proximity and distance. Similar observations were made by urban researchers such as David Seamon (1979) or Quentin Stevens (2007), who mostly carried out their research from the public 'side' but identified the many relational chemistries and synergies between public and private principles taking place at the architectural edges between the two 'sides'. In his study of *Public and Private Spaces of the City* (2003), architecture professor Ali Madanipour also devoted much of the book to his multi-layered description of a relational, transitional and transactional boundary concept that fluctuates anywhere from the boundaries of the body, in the Kantian meaning of bordered body and of personal space, through to those of streets and public spaces. This reveals a profound dichotomy between academic and research knowledge, and interventions from government policy in high density housing designs that promote division without relationality.

There are cultural factors about privacy/publicity that arise from beyond urban institutions themselves and are partially attributable to world events and their effect on mediatized cultures around domesticity. Beatriz Colomina's study of *Domesticity at War* (2001), for instance, draws correlations between the aftermath of WWII and new ideals towards domesticity crafted by new economics and new aspirations. Arguably therefore, although Planning conventions that promote separateness as described above can be deemed arbitrary and uncompromising, they may represent, if partially in both meanings of the word, a reciprocated anxiety among residents themselves. Underscored in this malaise is a series of assumptions which assert that the purpose of a residential boundary is to divide but expressly not to unite, that relational proximity and adjacency are undesirable, and that public and private spaces should be distinct – the atomised dwelling (Schuldenfrei: 2012) inside, but separate from, the greater whole of a 'public' space.

High density housing is usually designed for unknown users in predefined socio-economic categories. These designs cater for perceived general living 'needs' in a manner that is not dissimilar to Abraham Maslow's hierarchy of needs (1943): primary physiological needs, followed by needs for safety and security. Correlated

to formulaic housing design, Maslow's need for safety and security, which I would here call privacy, can be in tension with the next need up his pyramid, for 'belongingness', which I would here assign to locality. Maslow's logic seems to imply that the ability to retreat inwardly is conditional to the ability to then establish connections with others. As social psychologist Drew Westen remarks (1985, p.98), the two are here considered to be different stages or dimensions, as belonging to different categories. This subdues relational conditions between self (privacy) and other (locality), and the ways in which they might overlap and intermingle.

There are several reasons therefore which explain why separateness is highly guarded by Planning and Building Control in the UK, but other observations run contrary to their premise. These can be expressed through other architectural typologies that favour collaborative neighbourhoods, such as environmental scientist Donella Meadows' co-housing projects. These are designed to host collaborative processes and to encourage ways of life that are more attuned to social and natural environments. In her thesis on a *Global Citizenship* principle (1991), Meadows argues that the awareness and application of sustainability is a collective and collaborative endeavour, a thesis which originated from her reflections on the limits of exponential social and economic growth (1972) in the context of finite environmental resources. She advocates the importance of networking as a means of sharing information, and of creatively devising progressive societal systems that are interconnected, that organically feed on each other and potentially trigger more efficient scenarios for everyday sustainability.

There are many such projects today around the world, but they can be deemed idealistic in urban settings where the logistics of high density living exacerbate tensions between the preservation of individual privacy and collective participation in local sustainability. Arguably however, if these alternative scenarios potentially open possibilities for more creative and experimental types of architectural, environmental and social interactions that are realistically compatible with sustainability, current high density housing practices that compartmentalise spaces and keep them in isolation of each other potentially inhibit these relational principles of ecology. Compartmentalisation of dwellings can operate against the possibility of forming collaborative networks with local members of the community, who might potentially devise incremental changes to local strategies and influence each other's personal lifestyles, as suggested by Meadows.

1.5 Fragmentations Beyond Public/Private Dichotomy

Socio-economic sustainability includes dimensions such as community, work, use and lifestyle (Jensen, Søgaard et al: 2009), which operate in cycles that cross over the conceptually separate territories of private domain and public realm. In planning, there is an assumption that work is industrial, noisy and untidy, and that it should be kept separate from the respite of domestic life.²⁴ In a world where boundaries between work and domestic lives and livelihoods are increasingly blurred, the proposition that they should be carried out in separate spaces becomes problematic. This issue was first raised in the 1970s by researchers interested in gender, who questioned the nature of work and of domesticity through the case of women looking after household and children while often holding one or more other transient jobs, at home or elsewhere.

This situation arguably expands to many other social groups, and is thought to be on the increase. Social scientists Nick Buck et al.'s research on *Working Capital, Life and Labour in Contemporary London* (2002) examines the extent to which live/work patterns in London have evolved. Working from home is increasingly a feasible option, at least on a part time basis, while work/parenthood or multiple job holding are more prevalent. The current (2017) situation is partially exacerbated by the crisis of affordability in London housing (which also affects commuting infrastructures) but demonstrates the degrees of hybridity between live/work modes and the way one and the other are less geographically and temporally distinct in the urban everyday than policy surmises. Interestingly, it is difficult to find adequate spatial terminologies to describe this socio-economic intersection. Architect Frances Hollis (2015) examines various existing versions of its architectural equivalent from the domestic side, and calls it Work Home. This diagnoses the limitations of vocabulary that would cover both, in socio-economic terms as well as in spatial terms.

Statutory efforts at separation of domestic and working life into different categories may reflect a bias towards specific work modes in Victorian times. Charles Booth's 1890's poverty maps correlated wealth with regular employment and lesser wealth with transient and casual occupations, and quantified them through residential data. This method is still useful for mapping London populations today (Vaughan & Geddes: 2009), but carries an implied suggestion that, if sedentary modes of work away from home are considered more profitable, they may also be considered a

²⁴ Live/work is often problematic in UK Planning systems because it affects parking and numbers of people using local public space, see <http://www.planningresource.co.uk/article/1209099/live-work-units-q---dcp-section-105>, last accessed May 2016.

model to be aspired to. In his research on *Space Syntax*, Bill Hillier (2009) argues that local architectural configurations are strong factors in the formation of street life and sustainable socio-economic cohesion, and that this cohesion requires the relational inclusivity of different live/work modes in their designs. If forecasts, such as those proposed by economist and social theorist Jeremy Rifkin, in his thesis on *The Zero Marginal Cost Society* (2014), are to materialise, the destabilisation of capitalist structures that informed these planning systems will compromise even further some of the town planning assumptions that have been carried over from Georgian and Victorian times.

With a categorisation of work modes and spaces, there may have been a re-conception of where or how people were supposed to meet. Theorists of the 1950s were preoccupied with clusters (Mumford: 2000) – a term often associated with architects Alison and Peter Smithson, although, according to social scientist John R Gold (2007), the concept was first formulated by Kevin Lynch in April 1954 in his proposition of *nodes*. I have not found an actual definition of what a cluster was, nor where it was supposed to be formed; it seems taken for granted that a cluster was a small gathering of individuals somewhere in the public space. Jacques Lucan collated drawings and quotations of the time that include sketches from the Smithsons and from CIAM (Congrès Internationaux d'Architecture Moderne). These seem to indicate that clusters were meant to take place at the tip end of localised arteries, at the point where linear circulation ceases or at the point where two paths are crossing. Lucan extracted a quotation from the Smithsons that states "We are more concerned with 'flow' than with 'measure'. The general idea which fulfils these requirements is the concept of the Cluster" (Lucan: 2012, p.14). This, to me, seems rather contradictory. Presumably a cluster, however temporary, requires an interruption of flow, unless the pedestrians who have congregated decide to move on together in one direction, rather than to stop and exchange a few words on their way to somewhere else. Here again, there is a tension between flow and staticity.

It would also seem that these clusters were explicitly intended to take place away from the residential edge, and relocated in new 'centres'. Many of the diagrams Lucan collated were maps but, in perspective drawings, pedestrian streets were otherwise depicted as pure circulation zones, with people predominantly walking along the centre of the street but not occupying its public edges (standing on balconies above, on the other hand, seemed to be allowed). The clusters were neither documented in space or in kind. The relocation of these elusive clusters seems to have originated from further back in time, and I found evidence of this while researching housing estates of the 1930s (Gater: 1937). For example, The

London County Council's *Tenancy Handbook* of 1932 for the Becontree Estate included a lot of clauses, particularly about children, that discouraged their presence in the street and promoted back gardens and local play centres as adequate alternatives. In higher density multi-storey estates, access balconies were also essentially designed to accommodate the distribution of flats, and a number of communal and utilitarian activities were located on the other side of the access balcony and at ground level – at one remove from the edge (Fig.07).

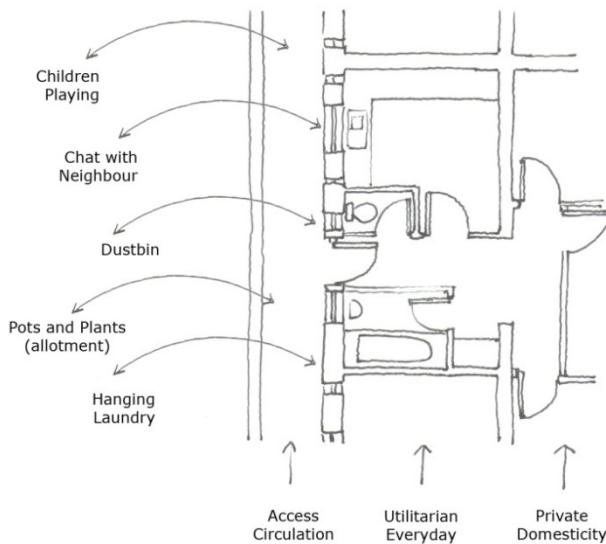


Fig.07 – Removal of Activities from the edge

The design of formulaic housing therefore also attempts to separate domestic space from leisure and community space (such as community and sports centres). In terms of infrastructure, this implies an assumption that such facilities will remain available in the long term. Recent economic downturns have brought about the closure of many such centres, including, in the area where I lived, the local playclub and the local library. Defensive administrative and geographic boundaries inhibit any of the meetings they might have fostered from relocating to the residential edge – where forms of communal activity would have once taken place according to evidence of former times in London, documented by social historians such as Judy Giles (2004) and Elizabeth Roberts (1995) among others. There is less *contingency*, in the meaning brought forward by Jeremy Till (2009), in a more hermetic boundary or its distanced category equivalence, for adapting to longer term change in the locality, be this in physical space or through policy. If much of our current UK residential stock is designed on the basis of criteria that have barely evolved in 150 years, this potentially seals antiquated (and idealised) lifestyles into a long-term future, and constrains the adaptation of public/private dynamics to 21st Century needs.

Planning covers a large array of strategic interventions that are mostly beyond the scale of dwelling/locality. However, there are various forms of neighbourhood plans that attempt to bring cohesion to a locality and usually operate through Local Authority bodies and communities rather than Planning (Rettler: 2013). These initiatives try to address the processes and gradations of transition between a dwelling and its immediate surroundings outside of architecture or physical urban environment (Allmendinger & Tewdwr-Jones: 2009). They include the integration of more socio-economic models such as the *Transition Movement* (Hopkins: 2008), for instance, which merges the promotion of local enterprise with that of community. Others are more directly targeted at social integration. Lewisham's 2008 Wardens scheme, for instance, attempted to reduce the sense of isolation experienced by some residents by appointing community officers to help integrate them with the neighbourhood and its facilities. In this case, the interventions addressed social infrastructures rather than physical infrastructures such as means of circulation or land distribution.

These strategies reveal fragmentation of urban configurations in the physical fabric but can also inform some of the administrative mechanisms behind their implementation. Depending on the time period in which they were built, high density residential buildings are usually procured, designed and built by large organisations that carry out these investments for philanthropic, government policy or commercial reasons. Built into these practices is a distance between designer and dweller that is also often associated with the idea of 'public' as initiator (policy), investor (developer or state), or interests of a local community (Planning), and 'private' as the contained world of individual domestic lives. If the line between them is as elusive as its territorial counterpart, these dimensions of public/private interface are often perceived as polarised and unable to meet. The many different types of consultation and participation exercises that have been deployed since the Skeffington Committee in 1969 after the 1968 reforms to the Town and Country Planning Act, are attempts at creating agency between these polarised parties, with varying degrees of success (Cullingworth: 1999, Reflect: 2003, Blundell Jones: 2005).

Some attempts were made at tracing relationships between housing and local public facilities, for instance by the Housing Corporation, now known as the Homes and Communities Agency. This indicates that there are concerns about these relationships and a desire to uphold them. The assessment was carried out through Housing Quality Indicators (HQI) (National Affordable Homes Agency: 2007), that in part measured the ratio of new residential 'units' against the wider context of the

locality's amenities in which they are being inserted. This was a quantitative exercise of relative merit. As an example, I worked on projects in Stratford where several tower blocks were being built concurrently, but these assessments were made separately for each block instead of cumulatively for the area, thus compromising the accuracy of the ratios.

While there are many government initiatives beyond Planning that attempt to promote sustainability in local neighbourhoods (see, for instance, agricultural allotments, cycling tuitions or recycling projects in schools), the task of environmental sustainability in high density housing is mostly entrusted to building fabric (see government agencies above) while collective endeavours for human sustainability are located outside it. Building and user are, in this sense, separated conceptually and physically from each other, and the lifestyle presumptions contained in the design formulas are potentially sealed statically into the fabric of the building itself. A discrete dwelling can be problematic in terms of cohesion within a community, but also in terms of infrastructure. By definition, urban infrastructure transcends boundaries and crosses over public and private territories. This is the case for utilities and transport networks, but it is also the case for other infrastructures in the wider meaning of the word, including social and economic networks (Mieg & Töpfer: 2013). Giuliana Bruno (2007) and Jonathan Hill (1998), in fact, argue that 'use' in architecture needs to be divorced from institutional determinism in order to be addressed, implying that the systems which analyse and regulate the built environment are in themselves contradictory to such an approach. This might encourage an either/or logic partial to top down or bottom up organisational structures. A reciprocal binary approach would instead propose that realities and/or entities could meet literally and metaphorically at the boundary. Sociologist John Law (2004) points out that while we focus on one reality (use in this case) we are also obstructing other realities or, as he would say, we are creating *otherness*. His *assemblage* method suggests that this does not need to exacerbate separateness if the 'othered' parties are able to meet. In the context of boundary principles in architecture, this could apply to different parties among user, designer and institutional social groups who take different and differing views, as well as the social and local conditions of physical urban environments.

The binary language through which many of these concepts are expressed is also complex and ambiguous. Fragmentation and coherence, agent and agency, inert and organic or static and dynamic matters, structure and infrastructure, local and global strategies, public and private space, are formulated through binary oppositions. Some of these binaries can be quite literally materialised through the

architecture, expressed for instance at the point where it generates internal and external space. In this case, the location where division is effected (typically through a wall) is also that where relationality might occur (typically through doors and windows). But until a space is divided into two sides, there is no inside or outside, public or private space, inert and organic matter, etc. – and therefore no otherness requisite to relationality. Counter-intuitively, perhaps, this suggests here that architectural divisiveness and relationality, despite positing potential opposites, are not only interrelated but cannot exist without each other. In his reflections on *Matter and Memory* (1896), philosopher Henri Bergson indeed argues that we perceive by contrast, and that this thinking pattern enables us to integrate multiplicity with continuity. In this sense, his proposition supports a binary way of thinking that enables evaluation of different dimensions of reality through one quality by reference to its opposite.

The boundary can, therefore, become a useful tool in concept and in practice for incorporating multiple factors into the process of designing buildings; for fulfilling the role of *double agent*, which is not only incumbent on the architectural boundary and on the architect, but the very definition of architecture in practice. As urban designer Katherine Clarke points out (muf: 2014), it is in the nature of the practicing architect to become an agent between different parties and, therefore, in boundary terms, to effect the relational assemblage between them. However, practice seems prone to generate otherness within the design process and its outcomes; in this way, nature, socio-economics and people seem increasingly 'othered' from each other, by the institutional mechanisms generating the architecture, and by the architecture and its infrastructures.

1.6 Excluding or Integrating the Middle

Although boundaries themselves are here conceptualised through their architectural manifestations, the themes of separation that underlie this analysis are often expressed through concerns about polarisation. In *Liquid Times* (2007), sociologist Zygmunt Bauman argues that polarisation and division result in exclusion and that, paradoxically in a system that can be deemed over-structured, these destabilising factors are producing marginality and exclusion. This echoes Mary Douglas' concept of waste, it echoes anthropologist Marc Augé's description of *Non-Places*, and it echoes many of the dissociations articulated above around fluidity and boundaries. Nested into these various dimensions are recurrent discourses about order that scrutinise fragmentation and categorisation: there is a growing body of knowledge from within research about natures in human and other organic lives that defies

other established scientific and metaphysical conceptions of the world, and particularly of 'order' (Keim Campbell et al.: 2011).²⁵ This debate is equally acute with regards to making correlations between observations made about the organic world and about social human behaviour.²⁶ Such tensions are not unique to architecture or statutory systems in the construction industries. According to biosemiotologist Jesper Hoffmeyer (1995), they equally affect sciences closest to ecology, such as biology.

Urban theorist Stephen Read argues that the central difficulty is with making organisation and complexity compatible: "Complexity is, it seems, first of all an idea about our knowledge of things. It is not an idea about things 'in themselves', and not about ideas mastering things, though it may turn out to be about ideas inveigled into, or embodied in, the 'things' we produce in multifarious ways."²⁷ It is also about confronting the gap between the things we can regularise and formalise in our science and the enormous indeterminacy and complexity of the real problems we face in a world of everyday enchantment and concern." (Read: 2012, p.106). I argue here that complexity resides in dynamics just as much as it resides in heterogeneity, and that a revised understanding of binary principles as relational and temporal can bring spatial and organisational focus on the architectural boundary, offering the possibility of a different type of order. In this, I am taking up architect Robert Venturi's reflections on *Complexity and Contradiction in Architecture* (1984), which were already questioning binary thinking and proposing a *both-and* alternative to the more binary *either-or* of polarisation. Venturi took the view that *both-and* expresses (and celebrates) ambiguities and paradoxes inherent to the production and inhabitation of architecture. His proposition was neither specific to the architectural boundary nor to the institutions that inform its design, but I am here positing that the boundary concept potentially applies not only to the architectural boundary itself but also to the systems that try and regulate its design and use.

²⁵ Historian Stephen Toulmin's account of *The Hidden Agenda of Modernity* (1990) attributes this largely to the influence of René Descartes' theories about order against the background of a 17th Century Europe marked by chaos and disorder generated during the Thirty Years War concurrent to his work.

²⁶ For example, the proposition that the formation of autopoietic systems – a term first coined by biologists Humberto Maturana and Francisco Varela (1974) to describe their observations on dynamics of self-organisation within living biological systems – could be applicable to the study of human living systems.

²⁷ Read also argues that phenomenology provides a useful alternative vehicle for integrating and reconciling knowledge originating from human experience with that originating from the physical world. He makes reference to Immanuel Kant's first attempts at reunifying Cartesian duality between subject and object through the concept of the bordered body (Svare: 2006), which again touches on the concept of boundaries, and Hegel's subsequent arguments for a relational perspective between the two principles (Read: 2012).

On the question of durability, flexibility, adaptability or contingency, temporality acquires meanings that correlate climate with nature and socio-economics. Weather, from which a building shelters, and environmental fluctuations inside a building, are both prone to cyclical and yet irregular changes. Human routines inside a dwelling and outside it could also be considered as weathers for their temporal fluctuations, and for the possibility that they might take place inside or outside a building. Political geographer Doreen Massey (2005) indeed argues that the concurrency of time as a series of cyclical rhythms, and space as its social dimension, can radically alter our understanding of both dimensions. She extends this correlation to other preconceptions about movement in space, challenging distinctions that might be made between plasticity and staticity or between inert and live matter. She also reconsiders movement as not only spatial motion but as motion of creativity and memory. With a conceptual union of time with space comes also a union of body and mind with time and space.²⁸

In this context, it is interesting to consider that Plato or Descartes' arguments about duality, another form of binary thinking, should specifically address body and mind relationships or lack of them. Our apparent predilection for categorisation, for separateness and binary thinking, is often attributed to Descartes although, as might be the case with Aristotle's Excluded Middle, many scholars argue that these assignments are distorted versions of the original texts (Baker & Morris: 1995). In either case, the original theories would have been subtly modified and understood in a more partial and less modulated form than that intended by their authors. According to neuroscientist Iain McGilchrist (2009), who examines the mutual dependency between left and right hemispheres (their ability to exchange and assimilate different types of information is administered through the filtering functions of the corpus callosum, which I would here interpret as a form of relational boundary), mutuality and reciprocity is diminishing within the brain itself.²⁹ In his *Steps to an Ecology of Mind* (1973) anthropologist Gregory Bateson argues that we have developed 'habits of the mind' which gradually evolved to such an extent that they should be revisited and re-assessed as to their meaning and relevance. His work (1972) is also directly relevant to the issue of defensive boundaries. He highlights their psychological dimensions, to policy makers as well as users, in providing a misguided promise of safety from threats to individuality.

²⁸ Cognitive scientists Lakoff and Johnson (1999) point out that, phenomenologically, most societies around the world apprehend the passage of time through metaphoric reference to the human body's motion across space. Visual studies professor Giuliana Bruno (2002) points out that motion and emotion, in English, share the same etymology.

²⁹ McGilchrist reaches this conclusion by comparing literature and culture with what is today known about the two hemispheres.

These are therefore important reminders of steps which could be just as essential to an ecology of high density residential architecture – steps that would reinstate the relational Middle as an essential actor in the sustainable regulation of binary dynamics.

From this perspective, the sustainability paradigm shift called for by Kibert at the beginning of this chapter is possibly less intimidating, because it would not involve a complete overhaul of current binary systems (nor of architectural design). Arguably, the structural weakness in binary thinking would be the conceptual loss of *harmonia* or *chōra* (see Introduction, pp.19-20) as agents of relationality, represented in architecture through its boundaries. These could potentially encourage categories and opposites to meet, to shake hands, as it were, and negotiate local adaptive "shifts" in the sense brought forward by Donella Meadows (1997) – minor and yet meaningful changes through small adaptive adjustments to environmental conditions that, because they are organic and not static, continually require subtle responsive and relational strategies. This would necessitate an architectural and urban boundary between inside and outside, or between public and private space, that is flexible rather than hermetic, in order to alternately host and/or withhold this mutuality.

Gregory Bateson (1972) pointed out that collaboration and competition are both conditional to survival in biological systems, and a similar dialectic can be traced in the privacy/publicity tensions described above. According to him, each entity responds to others through feedback loops that control the equilibrium of the system and its individual entities by tweaking multiple variables. This may bring about tensions, but he suggests that feedback loops can also constitute vehicles for mutual learning that can generate positive long-term change because of the cooperative and creative element of co-dependency. He posited that it is through these communication patterns that ecology will be better understood and applied (Harries-Jones: 1995) – a similar argument to Donella Meadows'. The problem with separateness and polarisation without an occasional middle is that it can cancel out the 'good' (collaboration in this case) with the 'bad' (competition in this case), and disable the relational equilibrium.

Arguably, and at least in the case of architecture, the possibility for relationship is not only incumbent on a middle that can negotiate while dividing, it is also incumbent on a concept of relationality that includes occasional non-relationality in its equation – again, therefore, a need for one principle and its opposite to work together. In this sense, relationality in architecture would not compromise the

purity of categories, spaces and entities, but it would encourage them to interact and to generate a multitude of dynamics. The binary principle remains, but the actors within each category multiply, as do the potentials for a variety of relational dimensions.

Urban chronicler Jonathan Raban (1974) argues that the city shapes its inhabitants as much as its inhabitants shape it. This typifies the tensions between design (occupation as intended) and inhabitation as actuated, which can be as political as they are urban. However, it also typifies the mutuality that exists *both ways* between principles that are in apparent opposition. Current high density housing formulas are prone to try and 'do' all the 'sustainability' for its residents and are thus, arguably, removing the dynamics of more organic dweller/architecture interfaces through their preference for hermetic boundaries; the more insular dwellings are, the less likely their social and environmental connectivity to locality.

In light of this investigation, it could be argued that the word 'boundary' is too restricted for the roles that it assumes. However, I argue here that alternative terminologies such as frontiers or borders can be conceptually misleading and partial, leading to a potential dichotomy between boundary and threshold, a misreading of borders as soft and therefore porous, an ambiguous language of natural and electronic surveillances, and the exclusion of life at the edge and/or between the two sides. The residential boundary principle I am proposing and researching is fundamentally a principle about dynamics of adjacency and, as such, as elusive to quantification and qualification as the relationships of urban landscape which it enables or disables. I argue therefore that, not only is it the only word we have to describe this dual ambiguity, the fact that it carries dissonant connotations serves to alert us to the importance of what it embodies, in paradigm and in the urban fabric, in its positive as well as its negative potentials. I am not suggesting here that statutory and legal conventions are wrong, but am challenging an architectural preference for imposing privacy rather than providing the *choice* to be private or less private at different points in time, in order to open up alternative possibilities and interpretations. Privacy is a value that differs widely from individual to individual, across genders, age groups and cultural backgrounds. It also differs with times of day and associated routines, and from one area to another, and the same could (and should) be said for its publicity counterpart if their mutuality is acknowledged.

Although the scale at which I study boundaries is more physical in the sense of grounded dwelling (Seamon & Mugerauer: 1985), those who dwell on the

phenomenon of the boundary seem to agree that, at whichever level they are approached, boundaries define existence, human or otherwise; they determine entity, identity and human dwelling. I suggest that the acknowledgement of the architectural boundary as agent between two sides offers ways of integrating these complexities into the design process. In this context, I would propose that urban boundaries should effectively be regarded as the relational centre between two parts rather than the peripheral edge of each.³⁰

I suggest, therefore, that in high density housing, the tendency to promote impermeability between dwelling and locality is epistemologically and conceptually reductive – in terms of space and in terms of relationality between spaces. If the design of architectural boundaries is dependent on ways of thinking that uphold or negate the ecological dimension of relationality, this review of literature has revealed intricate difficulties in identifying the degree to which a boundary may or may not facilitate relationality, especially when relationality itself is redefined as a quality that can be sometimes active, sometimes latent and at other times withheld. While this Literature Review has highlighted the fact that a large number of theorists and of architects in practice are concerned about walls and their thresholds, this re-conception of binary dynamics challenges a number of statutory policies and architectural conventions that, in turn, can be re-examined from this more complex and yet spatially local perspective. The inclusion of a 'middle' in residential architecture boundaries, and in statutory policy, has potential for unlocking the 'habit' of separating without also uniting. This does not need to challenge existing statutory structures but can potentially insert many degrees of modulation between opposites. These could themselves oscillate between the extremes of hermeticity or porosity as and when needed, and in response to temporal – and therefore constantly variable – factors. The subsequent stage of my research explores the way in which existing boundary typologies in selected case studies might achieve this in various ways and to various degrees, and whether there are correlations that can be made between this tripartite paradigm, architectural flexibility and progressive sustainability – inclusive of human 'weathers' and all other participant entities in urban environments.

³⁰ Architect Amerigo Marras (1999, p.6) indeed argues for a method that advocates shifting the traditional position of the centre (as described above) with that of the margins. Interestingly however, this invitation stops short at the introduction to the topic: the contributors then focus on the debate between natural and technological inputs in the design of environmental control, as ambiguously suggested by the title of the book *Eco-Tec: Architecture of the In-Between*.

Chapter 2

RESEARCHING RELATIONALITY IN RESIDENTIAL BOUNDARIES (Methods and Processes)

The boundary thesis underpinning this research raised difficulties in terms of research methodology inherent in the proposed theoretical condition of dynamic relational qualities in relatively static architectural elements. Architects are familiar with this difficulty and routinely complement site information (physical and/or social) with multiple additional references such as maps, architectural drawings and/or site visits as well as context from legislative frameworks, brief, etc. They rely on evidence that is often already categorised (local microclimates for weather, social or anecdotal data for human habitation, construction details for building fabric, etc.). There are debates within architectural discourse about the extent to which a wider range of information should be included. For example, urban researchers Butterworth and Vardy (2008) argue that architectural research could benefit from being more inclusive of additional social and participatory elements (Alizadeh: 2006), often inaccessible because of budget and time constraints. However, to some extent, this may depend on the purpose of research itself. My research crosses over social and environmental dimensions with a view to connecting them, and is less concerned with the specifics of individual dwellings than with evidence of relationality between sides at their boundaries.

My early research and analysis were carried out through observations of material evidence, typified by buildings already built. I was interested in identifying paradigms behind the evolution of intentions and actuations in mass housing designs in London. This required different methodologies for buildings in London today, other buildings that have now disappeared or different buildings yielding different types of information. This chapter is broadly structured into three main sections, covering what I call *Manifestations* (2.1), Photographic Documentation and Privacy (2.2) and Assemblage and Interpretation (2.3). It explains how and why different methods of research were used.

The first part of this chapter introduces the primary research material gathered from observations on physical objects at the public edges of dwellings that reveal certain lifestyles (material culture). Gathered from research in the field in London, they were collected cumulatively during extensive site walks. Some were subsequently photographed for illustrative purposes on the basis of relevance to identified themes developed from differentiation between dynamic events at the

boundary that are sometimes social and/or environmental, and sometimes either ordinary or extraordinary. These *manifestations* inform some of architecture's mutable and yet relatively stable qualities. They constitute the background material from which further research was subsequently theorised, conducted and interpreted.

Together with the process of selection that resulted in a focus on particular case studies, I go on to discuss my use of photography as illustrative material to document some of my primary source findings in the field, and associated ethical issues pertaining to tensions about privacy and publicity. This leads to a description of the sourcing of additional material through archives and research by others, and to the implications of reliance on photography and other archival sources by others as complementary secondary source research material.

This is followed by reflections about the way in which different research methods were applied in different case studies, for which analysis and interpretation developed through an assemblage of academic theory and pragmatic material issuing from a wide range of academic and professional fields. Subsequent narratives were enabled through the collation of findings deepened through relevant case studies.

2.1 *Manifestations*

Research through material culture elements was an outcome of successive attempts at merging quantitative and qualitative approaches from a number of different perspectives. Having framed my research around a thesis on boundaries inclusive of relationality, I initially attempted to quantify, catalogue or define architectural boundary typologies by analysing and comparing boundaries in precedent studies collated by various authors such as Colquhoun's *RIBA book of 20th century British Housing* (1999), Schneider and Till's *Flexible Housing* (2007) or Hilary French's *Key Urban Housing of the Twentieth Century* (2008). This proved unrealistic for conceptual and practical reasons: no two boundary configurations were entirely alike, and layout drawings gave restricted information about their detail or context. Boundary conditions are not entirely stable. Residents, tenures and localities change in the course of time as do climatic environments, be they generated by human presence or by weathers and local microclimates. In this sense, even if an architectural boundary may be deemed more stable than the sides and movements it hosts, it will be affected by the dynamics of these sides, and the slightest difference in construction details can have profound implications on these dynamics at social and environmental levels. For example, a door with or without glazing will

profoundly affect degrees of relationality, and this same door may have had glazing that was subsequently removed and vice-versa. In its detail, and in temporality, the architectural boundary itself can therefore be less stable than might be assumed, and thus challenging to more quantitative types of analysis.

Subsequently, I attempted to examine and qualify relationality between body and building in order to focus the complexity of these architectural details on use, and explored phenomenology (see Lakoff and Johnson: 1999, for instance) and cognition theories (see Anderson: 1983, among others) to investigate the way in which various types of relationships might become activated between resident and locality within the urban fabric's boundaries. However, this perspective could not critique construction details in themselves. Even if it could shed light on some social and environmental affects and effects of the boundary, it could not define architectural details, nor the extent to which the architecture can participate in these dynamics. Research methods focused solely on the architecture would have been potentially in contradiction with the live nature of relationality and temporality, while research methods focused on social and environmental movements could potentially eclipse the element of design challenged here.

In order to avoid studying weather, nature, people and infrastructure in isolation from each other, I started observing external edges (i.e. edges visible from the 'public' side) as sites where human activity and nature both leave traces. Examples include microclimates, such as the recession of snow along a pavement edge indicating heat loss from a wall, the propensity of weeds to collect where car tyre dust and other particles accumulate at the base of walls, or the arrangements of rubbish bins. This illustrated a variety of ways in which an ecology of edges could be influenced by the combined interventions of humans and of nature, in place and over the cumulative course of time. Together with other indicators, these edges were also revealing the degree to which people cared about the street side of their dwellings, and spent time attending to its maintenance. In other words, these details were indicators of a variety of different attitudes to relationship between inside and outside, and of degrees of human appropriation as well as degrees of appropriation by nature itself.³¹

The interpretation of these observations, based on scrutinising materiality in its wider meaning, could be compared to Daniel Miller's anthropological approach to

³¹ Architect Peter Barber makes frequent reference to appropriation in his work, and about Walter Benjamin's work on arcades, façades and balconies. The delight he took in observing them has influenced many architects. This can be seen as peripherally relevant to my research, but expanding on the large body of literature analysing Benjamin and lack of consensus about his own methodologies and purposes, could easily distract rather than contribute here.

material culture (2010). He argues that everyday artefacts can reveal a number of subtle indications about cultural values and habits that spread and carry over far beyond the single object and single individual. For instance, he gives the example of an Indian sari which, although inert, is an active component of the wearer's life and body, and indicative of the wearer's relationships with cultural, practical and emotional worlds, just as it continuously influences them as if it were a live agent and actor. In the case of the external and visible side of architectural boundaries, the sari would also become part of the architecture while drying after a wash, as would possibly many other objects which Miller would describe as *Stuff* – objects of all kinds that intermingle with social and natural environments to the point where they are intimate parts of the fabric of life and/or of architecture even if, in themselves, they are inert, portable, disposable, impermanent.

These objects are also testaments to both human and environmental lives. My cumulative observations on microclimates, objects and human traces on the architectural fabric thus became related to indications of human life and its relationality to weather, nature and architecture. Concurrently, they pointed to the way in which the design of boundaries permitted, to a greater or lesser extent, a degree of relationality at the border between public and private space. While absence of such human or natural traces did not necessarily indicate architectural hermeticity at the boundary and could indicate choice to *not* display them, their presence could indicate a rapport between the inside and the outside at social and environmental levels enabled (or not) by the architectural boundary. I therefore chose to call them *manifestations*; indicators of degrees of interaction between public and private sides and of degrees of porosity or hermeticity contained in the design of the boundary itself. These manifestations of *Stuff* could be social, just as they could be environmental and architectural – analysed together as a live whole located at the boundary rather than gathered as a set of separate and sometimes inert architectural, social and environmental 'matters'.

In the first instance, I expanded on these early observations by travelling on foot through London, and across housing estates where possible, in search of manifestations as a form of primary research material. I consciously adopted a more psychogeographic approach, scrutinising manifestations and boundary designs as I found them while walking in a meandering manner and without preconceptions about what I might find. Psychogeography derives from the Situationist movement of the 1950s and 60s (Coverley: 2012) and encourages a way of surveying cities through observation in the act of *dérive*, i.e. passing through without explicit purpose other than engaging with the urban environment

and reconfiguring the mapping of the city from these insights.³² At this stage, and without, as yet, a definitive set of research criteria, this preliminary method had the advantage of bringing to light certain urban conditions and boundary configurations that might not have previously attracted my attention.

Subsequently, I refocused my attention on peculiarities of the streets and estates I regularly passed (sometimes also by train) on my way from one place to another, sometimes several times a week and over a period of three to four years. This enabled me to gather data on the stability and accuracy of my observations over a long period of time, and at regular intervals. Most of this second stage of primary source research was conducted in South East, East and South West London (and included many more estates than related here) encompassing three areas where I live or work, or where I often go for other related reasons: Lewisham, Peckham and South Bermondsey in South East London, Shoreditch, Whitechapel, Bethnal Green and Shadwell in East London, and Wandsworth in South West London. This stage of research could be described as socio-spatial (Gottdiener and Hutchison: 2010). The socio-spatial perspective in urbanism examines the ways in which built infrastructure and society interact. It assumes that social space operates as a product and a producer of changes in the urban environment, as advocated by Henri Lefebvre (1991). Political geographer and urban theorist Edward Soja extends the terminology to *Social Spatial Dialectic* (1989) in order to stress the presence of political dimensions also revealed and affected by this same process of production and reproduction, and which have also penetrated some of my observations. Socio-Spatial research methods are often employed by architects, but can interweave into debates about the research value of psychogeography or situationism, for the approach does not define the criteria against which I would select, collect and then interpret my data.

With a more focused experience of manifestations in localised high density housing, I was able to draw more specific socio-spatial inferences. The process of selecting specific buildings for further analysis matured with that of accumulating empirical knowledge while walking through London streets with the research perspective of manifestations. In the early stages, I tended to notice the exception rather than the rule. The exception attracts perceptive attention specifically because it stands out from a norm (Bergson: 1946) and, in my case, this included manifestations that were particularly striking or temporary. These could be less informative about the

³² The movement was partly inspired by the concept of *flânerie* originating from Charles Baudelaire in the 19th Century, which is interesting in terms of cultural heritage in architectural theory.

design of the architecture, in as much as they did not reveal general trends about the way in which threshold configurations specific to one area could influence the way its residents might or might not activate relationships between sides. In some cases however, they revealed unusual, and possibly creative ways of occupying an edge that transcended a norm. In either instance, they also served to highlight by contrast the fact that there were certain degrees of normality which could be taken for granted – the ordinary, by definition, does not lend itself to conscious or specific attention.

The problematic here was in drawing distinctions between rules and exceptions. I was dealing with cases of difference and repetition, not unlike some of Deleuze's observations on immanence (1968), whereby multiplicity and event take priority over substance and essence to provide a world view focused on process and potential. Stability would be in the processes of interconnection – not in the sense advanced by Solà Morales and Whiting (1997) about continuity and interruptions to continuity in architectural designs and topographies, but rather in identifying patterns of occurrence in the manifestations I was observing. Therefore, I decided to look for local trends or norms in search of signs that there were local conventions about these manifestations that might have been encouraged by the design of boundaries. My criteria of observation moved from single events to multiplicity, and my familiarity with these areas enabled me, through repetition of journeys along the same routes, to assess degrees of stability within a certain level of 'normality' which revealed processes of appropriation and potentials of creativity (Deleuze's immanence) within a given locality.

The majority of the estates I passed through displayed varying types of manifestations that reflected everyday life and might be vaguely categorised, and yet the objects were not consistently present from one dwelling to the next and had a strong tendency to intermingle as well as to come and go. For example:

- more or less permanent decorative objects reflecting personality, tastes and creeds
- cyclical signs of everyday life such as the hanging of washing
- signs of family life such as a child's sand bucket and spade
- signs of local journeys such as a bicycle
- signs of utilitarian routines such as the hanging of a bin bag at the door on collection day

On one of the estates I studied in greater depth, I made a list of all the objects found and of the prevalence of each, but this quantified account did not reflect the sense of an organic whole provided by direct encounter with one dwelling after the next. This organic evidence of the everyday was at once serendipitous and routine-

bound, relaying a series of overlapping individual routines and interruptions to these routines in a way that was quite de-centered and yet coherent overall; each single action unique in some ways (hanging washing at different times or of different things for instance) and yet repetitive and rhythmic in other ways. *Vibrant matter* (see Jane Bennett, p.41) was temporal as well as physical.

In their propensity to generate alternations of exceptions and norms, I therefore regarded edge manifestations as expressions of human 'weathers' – susceptible to change due to atmospheric conditions and susceptible to local 'microclimates' of individual human rhythms, both ordinary and extra-ordinary (see Tim Ingold on temporality, pp.47-50). Recording them individually thus seemed contradictory to their nature. Environment as weather and environment as human life became undifferentiated in a way that was consistent with the inclusion of everyday objects in an analysis of dynamics between insides and outsides, encouraged (or not) through architectural intervention. Norm and exception, in this case, became partners in my research and a means for zooming in and out of particularities and generalities (literally with a camera and metaphorically through empirical observation), and to affirm each in the process of comparison with the other.

Some of the estates in the locations identified did not conform to more general norms. Some were entirely devoid of manifestations and uncharacteristically tidy; this can reflect management policies that explicitly forbid the display of such manifestations.³³ For my purposes, these estates could not be studied for the impact of architectural design. In other instances, some buildings were specifically designed to conceal or inhibit life at the edge through the architecture and, therefore, I had to make observations through means other than just passing by on a regular basis. Where not accessible, these estates were not included for the same reason. However, in instances where they could be sourced, I arranged to visit them instead with groups of students – educational purposes an easier means to justify visiting housing estates with more guarded access, and in the company of others for safety reasons. These were all Brutalist towers (see Chapter 6) and the repetition of visits was arranged and scheduled through one of my UEL History and Theory workshops twice a year over three years. Unlike most of my case studies, these towers are very familiar to architectural theorists, and revisited here through boundaries observations for the paradoxes they still carry today. In this case, the

³³ Often around health and safety measures such as fire prevention and to keep access clear for escape, although it could be argued that there are other reasons (see Chapter 7 on 1930s Council Estates).

primary material was construction/occupation detail observations at the boundary rather than the buildings themselves.

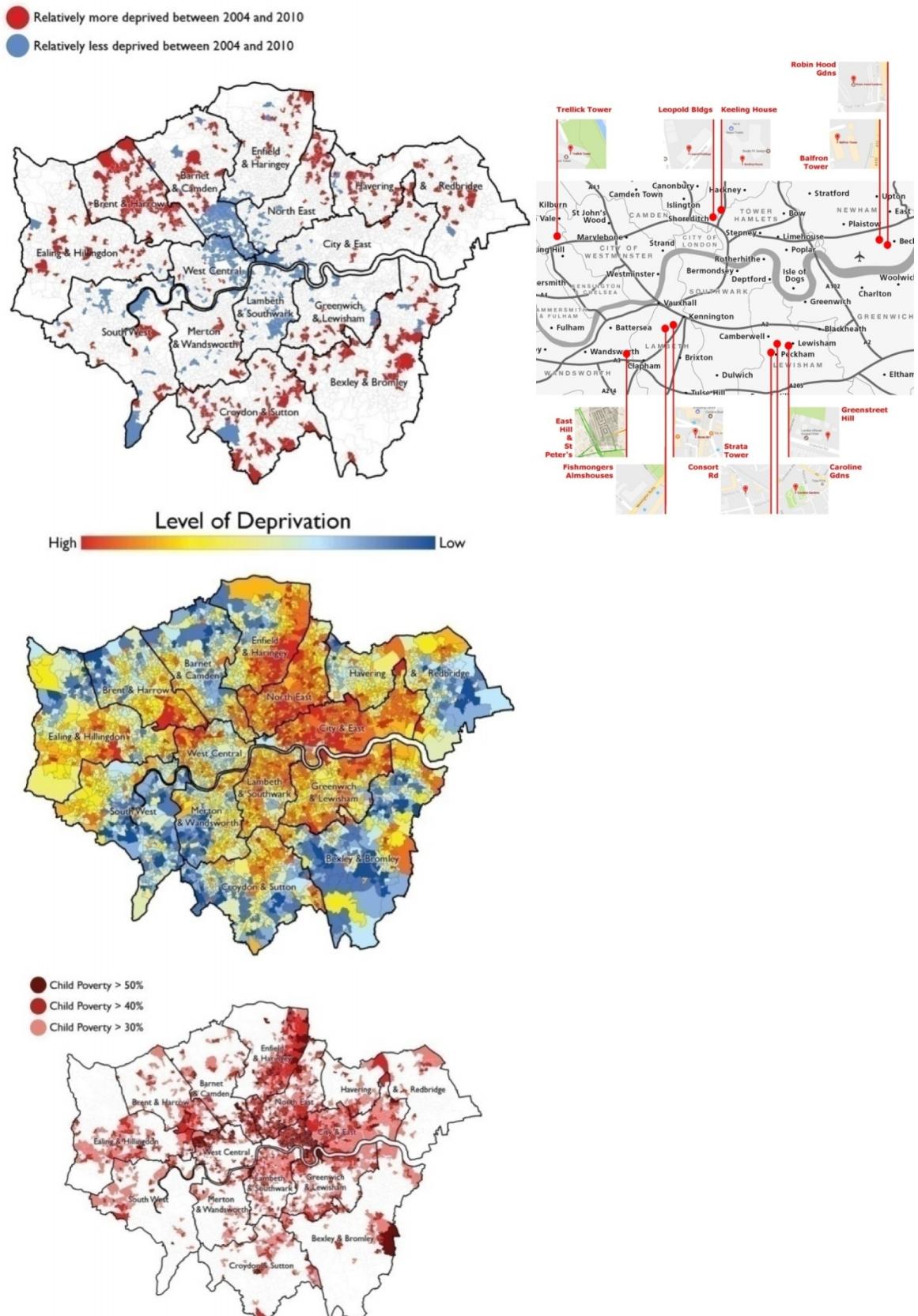


Fig.08 – London Poverty map by Alasdair Rae at the University of Sheffield

Some estates – surprisingly few considering most neighbourhoods I visited are among less affluent parts of London (*Fig.08*) – displayed distinctive signs of neglect. They represented the exception rather than the rule within my geographical parameters of research. Such examples are often invoked by planners and urbanists as to why boundaries should be hermetic in order to protect the public from unsightliness, or neighbours from each other – in friction with quantitative data that demonstrates direct correlations between poverty and urban isolation (Vaughan & Geddes: 2009).

A variety of socio-economic factors come into play in these instances, which have already been discussed widely by others (see Glendinning & Muthesius: 1994, for instance). It is not my purpose here to enter these debates – I focus on researching examples of architectural design of the boundary that might offer alternative conceptions about edge occupation, privacy and architectural coherence. My findings, however, do raise a number of questions about the statistical occurrence of 'normality' against the possibility of deviance from that 'norm'.

2.2 Photographic Documentation and Privacy

I documented most of my work on field by taking photographs. This photographic evidence enabled me to record examples of norms and exceptions for illustrative purposes. These kinds of manifestations can be considered in some ways very ordinary, and they are prolific in the urban fabric. Others also use photography for documentary and illustrative purposes in a similar manner. For instance, John Thomson's portrayal of *Victorian London Street Life* (1877), specifically aimed at documenting street traders, depicts a wide variety of former London architectural typologies and street occupations through photography. Thomson was working with journalist Adolphe Smith, and together they carried out extensive research on the streets from 1876 to 1877. They narrated their findings in a publication called *Street Life in London*. The photographs inserted represented 'documentary evidence' of these findings. These would have required preparation and setting up and were often regarded as means to a documentary end rather than an art form *per se*.

Their project became associated with early forms of social journalism, with the pioneering of photo-journalism, and under the general category of street photography (Meyerowitz & Westerbeck: 2001). This could be deemed similar to some of my own field work in terms of method, in as much as norms and exceptions, as encrypted through photographs or captured on one particular day and place, were selected for what they illustrated by way of illustration of relatively

stable occurrences. The photographic material depends on this stability and would differ widely from photography that captures extra-ordinary single events outside the repetitive everyday, especially as it captures objects rather than people, even if these objects are interpreted as projections of their owners' everyday.

Nigel Henderson's work, which I insert here because it influenced many architects, also differs, but for different reasons. Although his portrayal of 1950s East End was informed by his familiarity with it (he lived there for nine years), his photography often depicts people pausing for the camera. These photographs provide examples of peoples and trades that he thought were common occurrences in the area. But Henderson was also looking for ambiguities in the fabric of the street in a way that extended beyond documentation and into artistic enquiry (Walsh: 2001). Thanks to the relative portability of his Rolleicord, he would have been able by then to capture more fleeting or serendipitous street events, but chose to introduce additional meanings and feelings into his photographs.

The technologies of more portable cameras started surfacing in the 1920s (Gidal: 1973) and later transformed the practice of photojournalism as described above. With the advent of internet media, it has now branched out into many forms of practices associated with journalism but often remote from their earlier precursors (Kobre & Brill: 2004). My photographs belong in the field of documentary and illustrative photography. They are less journalistic, and more anthropological (in the material culture sense) than social, especially with the way they focus on objects and architecture rather than on individual residents.

I made no attempt at manipulating my photographs into aesthetically framed renditions, although some habitual compositional framing may have influenced the angles and perspectives from which I recorded this information (see John Siskin: 2011, on architectural photography and composition). Most of the angles from which I took photographs were incumbent on the distance from which I could locate myself, and on reasonably practical rather than photogenic weather conditions. Some of my photographs were taken relatively hurriedly from train platforms and even from inside a train, as was the case for the back of Consort Road (Chapter 4) which can only be seen from the railway. Although inevitably open to interpretation (Schwartz: 1989), they are only intended to document objects on display on the day I took them, and to give a general overview rather than a detailed description of individual objects, unless I focus on specific details. These primary source photographs are essentially one way of documenting appropriation of external

edges which is then scrutinised through the study of architectural details on site and from other sources.

I never interfered with objects on display (by removing them or relocating them for instance) but, in one way, I did deliberately manipulate my photographs: I favoured perspective angles that concealed door number, bin number or context, in order to remove identification of individual dwellings and to retain residents' relative anonymity. In cases where I could not avoid anonymity, I erased this from the photograph. There is something ambiguous in the fact that manifestations are often objects made public more or less willingly or consciously. Although there are no UK laws prohibiting the taking of photographs of residential buildings from the premise of (loosely defined) public space (Spencer: 2010), I felt that it would be potentially intrusive and compromising to include this information, particularly with regards to Planning law. Architects or planners might argue that manifestations are detrimental to urban propriety (see Caroline Gardens, Chapter 8) and these tensions sometimes also include neighbours, hence my efforts at preserving anonymity as best I could.³⁴

I also avoided taking photographs at times of day when I was more likely to be seen taking photographs. Different people take different views about photographers and/or will act naturally or less naturally if they know they are being photographed (see Marion and Crowder: 2013, on ethics and photography). During most of my excursions throughout London, I travelled with a camera and recorded evidence as I passed it, but when I took photographs I chose times of day which are normally more quiet, i.e. during working hours and school hours, when the chances of intruding on people during their daily business were less likely. I was equally mindful of other reasons related to privacy, and particularly of some instances which I have experienced, where residents were suspicious that such observation might be related to research by developers or policy makers intent on redeveloping the area.³⁵

Nevertheless, as Gómez Cruz and Lehmuskallio (2016) point out, photography of the everyday is selective. However genuinely it may attempt to document a reality,

³⁴ Architect Lewis Jones of *Assemble* and Planner Emma Ormerod of Durham University both documented instances where Planning officers tried to designate an area for demolition on the basis of 'scruffy' architectural fronts.

³⁵ There are other barriers to observing occupancy of the private dwelling which also concern designers and builders, in as much as imperfections can easily lead to liability (another reason for leaving some drawings or photographs simply unidentified). This, incidentally, also encourages a 'safe' design which cannot be deemed responsible for generating undesirable incidents and, in the event of post occupancy research, it requires framing the enquiry in a specific and legally uncompromising manner.

it has a propensity for documenting single events in one moment in time, and at relying on the presence of material to photograph at the time the photographer is also present. My photographs here, of course, could only record one specific moment in time and space rather than continuous, stable and less stable processes of transformation, although the focus on materiality rather than people stretches the suggestion of temporal stability. On very rare occasions, I have included people in the photographs I took, with their verbal permission and after explaining my purpose. These document alternative and incidental occupations of the boundary that were specific and outside the norm, but potentially indicative of creative practices of relationship between private and public sides of the residential boundary that I witnessed in various places.

There were occasions when I met some residents by chance and had conversations with them. I did not include any of these conversations in my narrative in order to let the manifestations 'speak' for themselves. However, I did include anecdotes by other people I met during my research, who might have once lived on the estate or a similar estate. For example: conversations with the estate manager at Keeling House (Chapter 6), who gave me access on four occasions; comments by architects who knew of these estates or were involved with their design in some ways, and who I met for professional reasons not specifically related to my research; and a chance meeting in a park with a woman who happened to run the residents' association at Caroline Gardens (Chapter 8). These comments did not constitute formal interviews; in all cases, except for Consort Road (Chapter 4), they were unsolicited and arose from serendipitous encounters, but could be considered as a form of journalistic inclusion in my narrative, especially as I make reference sometimes to comments made by other architectural journalists that also provide additional information received in similar ways. This anecdotal information was included if it provided a new perspective on the analysis, in the same way Jeremy Till (2009) uses anecdotes to give accessible substance to more theoretical discussions.

My objective here is not to pass judgement on tastes and conventions (although I do challenge in an open-ended manner some parameters about urban propriety within the context of policy), nor is it to advance preferable forms of occupation. My interest is to identify the ways in which social and environmental manifestations might co-mingle at residential boundaries and reflect degrees of porosity within the design of the architecture itself. I looked for material traces that indicate live forms of agencies between subjects and objects. As such, my photographs serve as visual illustrations that document some relatively common forms of manifestations at the

residential boundary, within an infinite potential of scenarios and occurrences in space and time.

I also applied this method of documentation to research using secondary source photographs by others. This started with a photograph of Robin Hood Gardens (Poplar, 1972 – see Chapter 6) after it was built, which revealed that the windows were sealed (Glendinning & Muthesius: 1994, p.142). The original photographer might not have noticed this apparently minor detail – perception of realism in a photograph depends on the audience's own field of interest (Sontag: 1977) which, in my case, scrutinised boundaries. I went on site to verify its actuality and not only discovered its effects but also noticed other boundary features throughout the compound that seemed to indicate that life at the edge of the flats was discouraged by design, not only on the exterior (public) side but also on the interior (private) side.³⁶ Using, as a starting point, other photographs and drawings of post WWII buildings in London that are more famous to architects (Chapter 4), I surveyed other boundary details from the era which were outside my located areas. Photographs by others thus became research material prompting new evidence of findings about manifestations and their architectural correlations.

In the same manner, and through the combination of field observations and material collated by architects, I began to discern some patterns and tendencies about privacy in layouts which went back to philanthropic housing from the Victorian era. I searched for more information on housing over the past 150 years at the London Metropolitan Archives, which holds much of the data on housing estates that were once with the London County Council (LCC), the Greater London Council (GLC) and London Local Authorities. The London Metropolitan Archives directed me to their Collage website (Architecture & Town Planning, Housing, 3908 entries, accessed during the spring of 2013). This contains all the visual data in their archives, and I examined every photograph therein as if I were continuing my psychogeographic research through a linear/alphabetically ordered photographic journey, and with the same criteria of observation as those I developed in the field. Many photographs documented housing estates in the process of being built, sometimes at several stages of construction. In most instances, the estates were either being built or in the process of being moved into by residents, and the photographs contained scarce information about the way in which edges might later become appropriated (or not).

³⁶ I shall be talking more about Robin Hood Gardens in Chapter 6.

Much of this archive material is of buildings that are now demolished (equivalent buildings that survived are often without available documentation about their layouts). However, I did find a few estates that were documented through photographs and architectural layouts, and this enabled me to piece together a more coherent and thorough amount of data for the purpose of analysis. This was particularly the case for the East Hill Housing Estate (Chapter 7), reviewed in the LCC's *London Housing 1937*. This book, which is one of a series of four, explains in great detail the reasons for formulaic design decisions on a large number of 1930s estates, and gives quantitative clues about the way they were conceived and photographed at the time they were built. The estate was documented with additional photographs, sourced from the London Metropolitan Archives, which revealed pragmatic and social norms in the estate. These were particularly interesting because they were clearly taken by (unnamed) civil servants who elected to frame their documentation of these estates in particular ways specific to the account made of their design in the book. A few photographs include residents who, taking into account the elaborate necessities of photographic technologies available at the time, appear to be 'staged' in. As far as I know, these were not examined in architectural theory before and, in this sense, the East Hill Housing Estate documents I present here would also constitute primary source material.

Through the East Hill Estate, I uncovered other information going as far back as the Seventeenth Century, regarding what it was replacing. It was built over former almshouses that were also fairly well documented on drawings and etchings and, therefore, I attempted to collate more information about them from other sources. I went to the local archives at the London Borough of Wandsworth, where photographs of the almshouses were held. I also found an entry about them in Walford and Thornbury's research on *Old and New London: A Narrative of its History, its People, and its Places*, published in four substantial volumes circa 1878. This work documents, through sketches complemented with historical and anecdotal text, buildings often dating from the Georgian era which had been demolished or were about to be demolished during the Victorian era. It depicts some architectural and social features that are rare in London today, as does a comparable venture by Philip Davies (2013), featuring photographs of *Lost London 1870-1945*, inherited from the LCC by English Heritage.

2.3 Assemblage and Interpretation

I assembled data from a variety of sources to research norms and exceptions as perceived by my own empirical visual observations, and as perceived by others, be

they historians, civil servants, archivists, or theorists from disciplines beyond urbanism.³⁷ I combined research strategies in order to assemble different types of material, from photographs of the exterior side of buildings to architectural drawings, sketches and layouts, in order to compile information about interior and exterior boundary conditions without necessarily having gained access to the more private side.

In the course of researching and assembling my findings, I began to identify some distinct themes that were of interest to my analysis of residential boundaries. Some of these themes were particularly highlighted by some of the buildings I researched in more depth, and I focused on particular buildings to explore these themes one by one, in the form of case studies. This research method was inspired by social historian Hester Vaizey (2014). Her research explored the multifaceted experiences of people who were born in the GDR and witnessed the changes brought about by the fall of the Berlin Wall in 1989 (conceptually, this resonates with some facets of fragmentation and polarisation explored here, not only in terms of physical and architectural boundary, but also in terms of interface between 'sides'). Vaizey's earlier research consisted of questionnaires and interview samples collected from several hundred people who were young adults at the time. Their individual stories could represent more typical experiences and others could represent more exceptional experiences. My enquiry also started out from a vast array of data (about boundary conditions in London housing estates), and revealed multitudes of boundary conditions that were sometimes more common than others. They were all different throughout London, just as there are multitudes of different ways in which people experienced the fall of the Berlin Wall. My data sampling differs in as much as, rather than capturing human experiences around a single socio-political event in time and space, my early investigations documented singular architectural boundary details that are constantly subjected to an array of heterogeneous and relatively unstable chemistries between sides and across time, space and environment(s). Vaizey examined the chemistries of interface, whereas my focus is on the possibilities of interface afforded by the design.

Assembled together, and within the context of existing secondary material about political, sociological and discursive narratives about division and reunification, Vaizey's findings revealed recurring themes within a broad spectrum of differing

³⁷ Throughout my research I visited many different disciplines in order to inform a deeper understanding of the paradigms of separateness and relationality. Art and architecture theorist Jane Rendell (2007), who advocates inter-disciplinary research, points out the strength of destabilising dominant structures through the intersections of disciplines, but also the possible compromises to specialism this entails.

responses to change. She selected eight specific cases that typified each theme - from those who had aspired to Western values and were either rewarded or disappointed by them after the event, to those who had been suspicious of Western values and were either affirmed or surprised. In a similar vein, I have here selected some case studies of buildings that represent boundary themes across a spectrum of porous/hermetic designs and across a spectrum of external circumstances ranging from environmental control through to statutory and socio-economic frameworks. Just as Vaizey's findings are not finite and may even change with selected individuals as they mature through life, my findings are not finite and cannot represent all boundary designs in London's high density housing. Distilled into themes, however, the case studies provide a broad overview of the range of my findings.

Case studies are a very prevalent research method in architectural theory. Groat and Wang define the solidity of research through case studies as follows: "(1) focus on either single or multiple cases, studied in their real-life contexts; (2) the capacity to explain causal links; (3) the importance of theory development in the research design phase; (4) a reliance on multiple sources of evidence, with data converging in a triangular fashion; and (5) the power to generalize to theory" (2013, pp.418-419). Interestingly, this description tallies with the considerations I covered at the beginning of this chapter about norms and exceptions. Case studies enable the possibility of zooming in and out of the specifics of a particular building, which can then be positioned in a greater theoretical context that, in turn, informs further analysis of the building itself. Here, my boundary concept became literally the architectural site of assemblage, through theory and through research practice and, as such, a research tool in itself.

I selected my case studies according to themes that range from relatively simple understandings of the boundary and its sides through to more complex (and chronologically older) boundary typologies. These do not attempt to constitute a guide to the evolution of boundary designs in London architecture, but instead posit an array of boundary paradigms and strategies expressed through the architecture. As such, my selected case studies tend to represent striking rather than typical examples of boundary designs in order to discuss their merits and difficulties. They are mostly exceptions rather than rules, but conform in a more legible manner to identifiable boundary themes (see Structure Outline, p.29). In order of appearance (see Timeline p.27):

- Strata Tower combines a wall technology that subdues the opening of windows. This kind of building technology is normally applied to office buildings or in student housing, but potentially sets a precedent for more designs of this type - a matter particularly current in the context of current Building Control pressures;
- Consort Road differentiates access balconies and winter gardens to protect the site from its inauspicious context. This is unusual but results in two buffer strategies that highlight conceptual separations made between weather and community, and this enables an analysis of space in-between as potentially porous or hermetic depending on the 'wall' on either of its sides.
- Greenstreet Hill and its polyvalent spaces and boundaries is similar to other housing typologies inspired by the Segal method, but was familiar to me because I knew people living there. This provided insider information through visits and outsider information through proximity that could not have been obtained otherwise.
- The four tower blocks are very well known and widely reviewed in the context of literature on Brutalism, but although theory generally applies to all four, each had specific boundary details that challenge or illustrate theory through architectural details unique to each: the false windows at Keeling House, the detached centre at Balfron Tower, the peripheral centre and permissive balconies at Trellick Tower, and the sealed windows at Robin Hood Gardens. This was a useful way to draw attention to the importance of boundary details not normally discussed, and to the specific mechanisms that each generated in its own way.
- 1930s council blocks are very common to London, but their permissiveness in terms of appropriation could have compromised residents' privacy in many ways. The East Hill Estate, because it was subsequently pulled down but richly documented in the London Metropolitan archives, enabled an analysis that did not intrude on the privacy of current residents (some surviving estates are documented for their manifestations but not identified).
- Parnell House and the Leopold Buildings were introduced to illustrate how some strategies identified above could be traced much further back in time. There is otherwise little information about these former estates.
- The Fishmongers Almshouses were selected to complement information about Caroline Gardens. Caroline Gardens itself is an exception for its utilitarian truth, which nevertheless enabled me to document in detail the way fronts and backs were appropriated while also documenting the effect of policy on use.

With each case study, I have made loose connections between probable life scenarios between the inside and outside of dwellings, in order to highlight the infrastructural implications of their boundary designs. I was, of course, unable to record manifestations from the past but, where possible, I have recorded the way in which similar buildings are still being used today, in order to supplement what secondary source archive material 'told' through the available primary source evidence about their boundaries. Rather than comparing layouts with art and literature, as Robin Evans (1978) did, I compared manifestations and architectural features at the boundary with secondary source theories and practices from fields within and beyond architecture. Just as the boundary concept potentially joins spatial, social, utilitarian and environmental heterogeneity, I propose that the paradigm of the boundary is also crossing over a multitude of references and disciplines which 'touch' at this point.

Different case studies sometimes required other types of sources and references, including Planning and Building Control material. This was particularly the case for the Strata Tower (Chapter 4). Strata, in fact, came to my attention through anecdotal conversation with a colleague, who knew someone who lived there. This resident's personal experience typified some of the concerns that had motivated my research in the first place, including the potentially adverse consequences of designing airtight buildings entirely reliant on mechanical services and difficult to repair in cases of failure, or to adapt in cases of long term circumstantial changes. This type of building technology is a relatively recent development and attempts to reduce fuel consumption, and I found very few technical reports researching these issues in depth. Observations about overheating or social hermeticity were more often than not raised by architectural journalists in their reviews of recently completed buildings. In this particular case, my findings were therefore gathered essentially from online blogs by residents, photographs of interiors by estate agents, architectural reviews and technical discussions about airtightness in construction industry forums hosted by professional platforms such as LinkedIn and gradually assembled over several years.

The complexity of *Assemblage* as a method is not only in the research approach; it is also in the interpretation of the findings themselves. As John Law (2004) observes in his proposed *method assemblage*, not only do different agents and agencies interpret a situation differently, but the relationality between them is permanently mutable and subject to additional circumstances that may be unknown at the time of research and interpretation. For him, the "craft" of assemblage can consist not only in drawing together sources from a variety of different disciplines

but also in alternating generalities and particularities in order to increase, without hierarchies, the number of perspectives from which interpretation can be refined and deepened. This puts emphasis on relationality in a way that is akin to Bennett's theories on *Vibrant Matter* – all known agents and agencies are treated as entangled in a way that is closer to principles of ecology as defined in my Introduction chapter.

This assemblage of multiple sources enabled the formation of narratives 'related' by and through the architecture, its inhabitants and various practitioners and theorists, and my research in this sense could be regarded as narrative research (Andrews, Squire and Tamboukou: 2013). It extends designer Stewart Brand's suggestion (1997) that buildings can learn and continually adapt in a morphological process, also based on photographic evidence (see Chapter 5), to an organic account of the processes in which weather, time, infrastructure, people and architecture might interact and relate through boundaries. Consistent with the relational and incidental attributes that I assign to heterogeneity, this offers an alternative format for analysing architecture that places emphasis on process and on some of the ways in which boundaries can be instrumental to the facilitation of ecological cycles in social, temporal and environmental dimensions.

I have researched and presented the architectural boundary as a physical entity that potentially 'joins up' realities such as weather, privacy and utilitarian matters – in order to highlight the way in which they are interrelated. Rather than trying to go *Beyond Method* (Morgan: 1983), I propose that the apparently messy or ephemeral nature of these often fragmented architectural realities regains some coherence and order if assessed from the point of view of the boundary; that it therefore acquires a certain realism (as organisational analyst Gareth Morgan would call it) and a pragmatic perspective (in educational psychologist John Creswell's terms, 2002), which unites dimensions and highlights paradoxes between certain theories and certain practices in the built environment. The photographic records I am presenting often signify tensions between appearance in terms of aesthetics and visibility to the public eye (Planning and image) and cultural norms about presentability and privacy that seem to have evolved from the earlier days of urban etiquette. I suggest here that this persistence is nested in the fabric of conventions in the construction industries and thus remains unchallenged – but persists or resurfaces in the physical boundary.

This assemblage of research methods through the architectural boundary enabled me to draw a critique of these conventions by sketching possible correlations

between utilitarian, environmental and cultural pragmatics of certain eras and the design of these boundaries – while exploring some of the boundary potentials as a design tool and as a design paradigm.³⁸ It is a mixed method in many ways (Teddlie & Tashakkori: 2008) – for visiting a present that would have once been inhabited differently in former times, visiting the past without knowledge of how the building was actually inhabited (and without visiting it in some cases), and visiting the social everyday often through absence rather than presence, and at the mercy of all weathers, letting them dictate the serendipitous uniqueness of each encounter.

My thesis places emphasis on analysing the architecture in order to open up existing constraints in boundary designs and in the thinking structures behind them. It expands the analysis of existing or former buildings through the boundary concept, and in the process opens up a number of scenarios and possibilities that are usually less prominent or sometimes forgotten. Each chapter therefore ends beyond its own conclusions and opens up new debates without attempting to resolve them. A large part of my argument in favour of more flexible boundaries is that it prioritises possibilities over definitions. In this sense, my narrative follows the same principle. The boundary concept informed the research itself, but it also informed the analysis of my findings and the way I relate them here. It is a method designed to re-focus architectural analysis at the boundary, to invite a reassertion of current residential boundary design paradigms, and to invite the possibility of new scenarios that would be more ecological and conducive to adaptation, to changing climates and to societal structures, and over a long-term future as yet unknown.

³⁸

I have been very brief about some socio-economic aspects of the London areas where my case studies are sited because most changed substantially between time of construction and current occupation: if interpreted as 'sides' that change with time, these changes support the thesis (in as much as local circumstances can affect the boundary, just as much as the boundary can affect them), and I make reference to them as changes in the past that could continue changing in the future.

PART II

CONTEMPORARY DESIGN STRATEGIES

Following on from a more theoretical part I, this second part of the thesis researches boundary features found in selected housing projects in South East London over the last twenty years. It examines some of the issues about environmental and social hermeticity which were of concern to me during my professional experience in practice, and attempts to identify some of the deeper paradigms behind these design protocols. I have carried out my analysis here through three case studies, each distinctly different and each representing specific boundary strategies. The first boundary strategy (Chapter 3) involves a highly hermetic wall between interior and exterior, the second boundary strategy (Chapter 4) involves a double skin space acting as a mediating boundary sometimes but as a buffer at other times, the third boundary strategy (Chapter 5) involves a polyvalent boundary space in between dwellings.

Chapter 3 examines airtight wall technologies that favour high levels of insulation and hermeticity, combined with reduction in natural ventilation in order to reduce heat loss and reliance on thermal energy. The wall between interior and exterior environments is regulated by mechanical and electrical services so as to carry out necessary air flows between inside and outside. Despite variable environmental conditions on the exterior side of the wall at any one place or time through the entirety of the building, it is assumed that this single strategy can cater for all conditions at once. However, this generates limitations to air quality control on the inside and, potentially, compromises health. The chapter scrutinises this technology through the Strata Tower at the Elephant and Castle (SE1) and, in the context of current Building Control regulations, retraces some possible origins to the current situation from the Modernist movement.

Chapter 4 examines two different design strategies contained in one building where, contrary to the Strata Tower, the street façade encourages a greater degree of relationship between internal and external environments through the insertion of inhabitable double-skin spaces. However, environment here takes on two separate definitions: one for weathers, at the boundary between dwelling and exterior, and the other for social environments that are here as strictly divided as internal and external weathers are divided at the Strata Tower. This social division extends beyond the distribution of neighbouring dwellings to each other through to the

distribution of the compound within its local context. Intermediate spaces and intermediary thresholds are scrutinised through a number of contradictions highlighted by the case of Consort Road (SE15), flexibly designed in some ways and yet highly inflexible in other ways. The principles of double-skin are then reviewed in the context of richer philosophical descriptions that posit more consistent and less divisive interpretations of relationality for architectural design.

Chapter 5 examines an alternative housing scheme that was self-built under the supervision of a housing association and a small architectural practice. This collaborative and non-formulaic procurement route resulted in designs which challenge mass housing conventions and yet respect some of the principles upheld by Planning policy, particularly in terms of privacy. This was achieved through layers of interstitial spaces between internal and external sides which create buffer zones that afford distance and relationality at once, in social terms and in terms of natural environments. However, Greenstreet Hill (SE14) also challenges Building Control regulations by providing high levels of flexibility and adaptability through its timber structure and walls. This is discussed through the possibility that buildings might sometimes 'learn', as suggested by designer Stewart Brand (1995), just as they might 'teach' users in the creative sense brought forward by professor of architecture Jonathan Hill (1998). This leads on to wider considerations about user engagement, edge appropriation, phenomenology and cognition that seem incompatible with statutory and construction requirements explored through the three cases studies.

Chapter 3

BOUNDARY AS HERMETIC WALL (Strata Tower)



Fig.09 – Base of the Strata Tower (Autumn 2014)

This chapter introduces some of the difficulties and tensions brought about by current boundary designs in mass housing, and highlights some features typical of contemporary construction practices which I perceive as problematic – in terms of user choice, in terms of engagement with sustainability, and in terms of the parameters employed to define sustainability. These manifest here as literal wall designs, introducing therefore concepts about the boundary at their simplest dimension of boundary as wall between two sides. I illustrate here the potential problems of airtight construction technologies through an analysis of the Strata Tower at the Elephant and Castle (Fig.09), completed in 2010 and selected for its sustainability credentials and the numerous sustainability awards it subsequently received.³⁹ Elephant and Castle, formerly nicknamed the 'Piccadilly of the South' for its strategic position as an axis to the river Thames, is an area that has been subjected to extensive and contentious urban regeneration transformation. Strata is

³⁹ Strata is one of the tallest residential buildings in London, completed in 2010, of mixed tenure, designed by BFLS to provide accommodation to some 1,000 residents.

the first of several residential towers built over 1970s (social housing) Heygate estate, neighbouring office towers and leisure centre, all now demolished.

Strata claims to achieve a number of sustainability targets such as "a heat recovery ventilation system, low energy lighting, and a high performance façade with an air permeability leakage rate 50% better than the building regulation" (Martin: 2010). But, according to residents (Urban 75: 2011) and journalists (Glancey: 2010), the building holds too much rather than too little heat. The walls are airtight and heavily insulated, and the windows are sealed in a fixed frame which is an integral part of the cladding system and separate from perforated vents that provide restricted natural ventilation. Overheating is a growing issue in thermally 'efficient' buildings built over the last decade, and there are regular anecdotes about this related by architectural journalists. It is, however, accompanied by several other potential detriments to indoor air quality attributable to airtight construction methods. Some architects are beginning to express concern, as is the case with Cartwright Pickard Architects, who presented research on indoor air quality at the British Library in November 2015 (CPA: 2015). In the case of Strata Tower, there are also numerous comments in blogs from residents themselves that provide documented causes for concern about the design of its external envelope – the wall almost completely dissociates internal and external environments from each other and from their users. This example may not represent the norm but is, in my experience, reflective of certain trends in high density housing throughout the UK. The fact that it is, arguably, more extreme, serves here to challenge a number of architectural design paradigms which are more common in the industry of mass housing.

These paradigms frame the professional context that prompted the research for this thesis, and highlight boundary themes that are relevant here to contemporary construction methods particular to the wall. Some of the observations that arise from this analysis may be familiar already to those who have studied high density housing at length, but they will be approached here from a more technical perspective: through the fabric of architectural boundaries. The objective is to broaden the spectrum of sustainability issues that might be subdued in current statutory assessment methodologies. I attempt to bring them together by examining *how* different facets of boundary design affect use and engagement.

3.1 Airtightness and External Envelope

The airtightness issue at Strata Tower was first brought to my attention by Giles Bruce of A-Zero Architects, who discovered through a friend living in the tower that

overheating could be such that, together with their neighbour opposite the landing, they had come to an agreement whereby they would wedge an opening on the doors to their respective flats in order to create some form of cross ventilation.⁴⁰ I have extracted a typical floor plan (Singhal: 2011) to show where this arrangement might take place (the flats are marked out in alternating colours and their entrance doors are indicated with red arrows). *Fig.10* demonstrates that there are only two instances on this floor where cross ventilation between flats can potentially be created in this unorthodox manner.

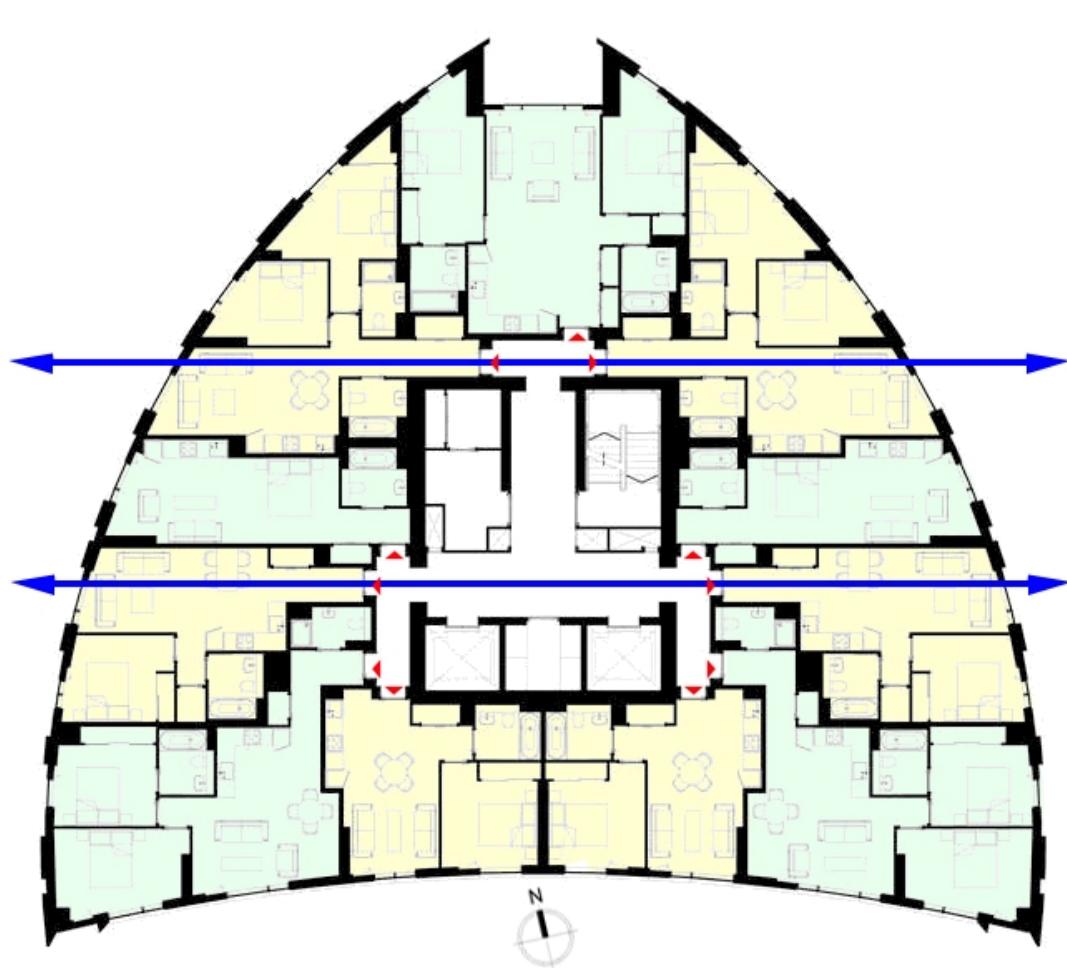


Fig.10 – Cross Ventilation between flats

The reason for this situation with overheating seems to originate from a combination of different factors. In pure boundary terms, this includes an airtight and highly insulated wall with sealed windows equipped with a natural ventilation device that is separate from the window itself. My photograph of these ventilation panels from the nearest platform at the Elephant and Castle railway station reveals

⁴⁰ In Health and Safety terms, this could be deemed unfortunate, as this 'solution' in turn compromises fire safety in the core lobby.

that they are slightly translucent but look fairly solid, in such a way that it is difficult to make out the vents from the other panels of black wall cladding (*Fig.11*).

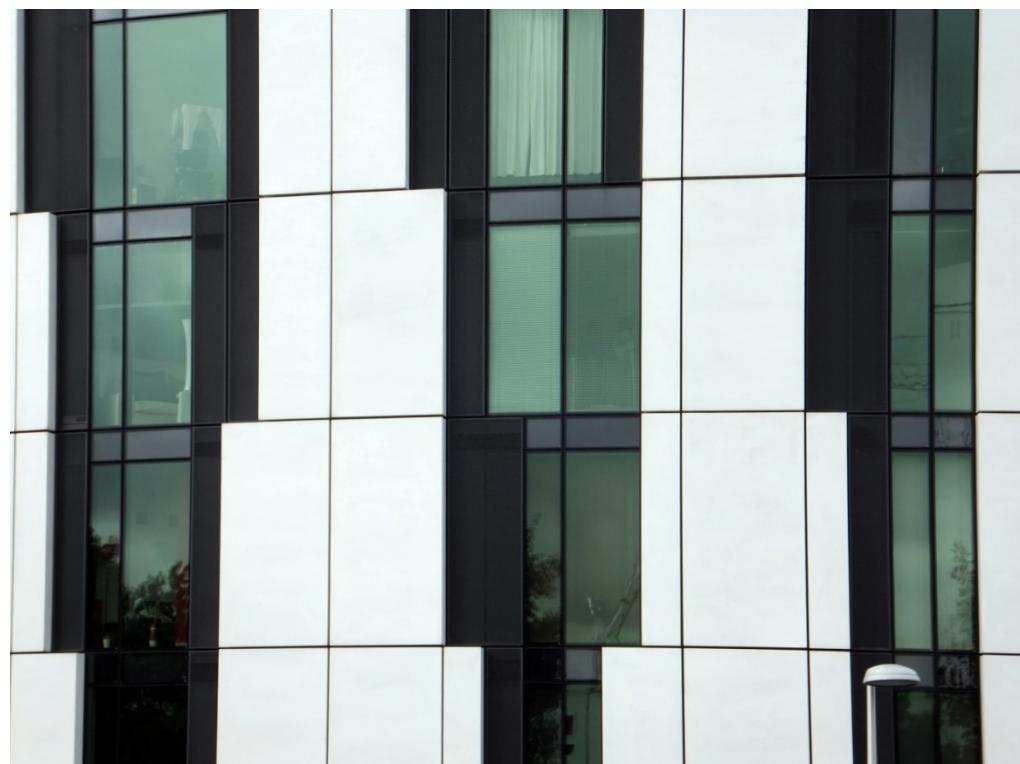


Fig.11 – Exterior of ventilation panels (Winter 2014)

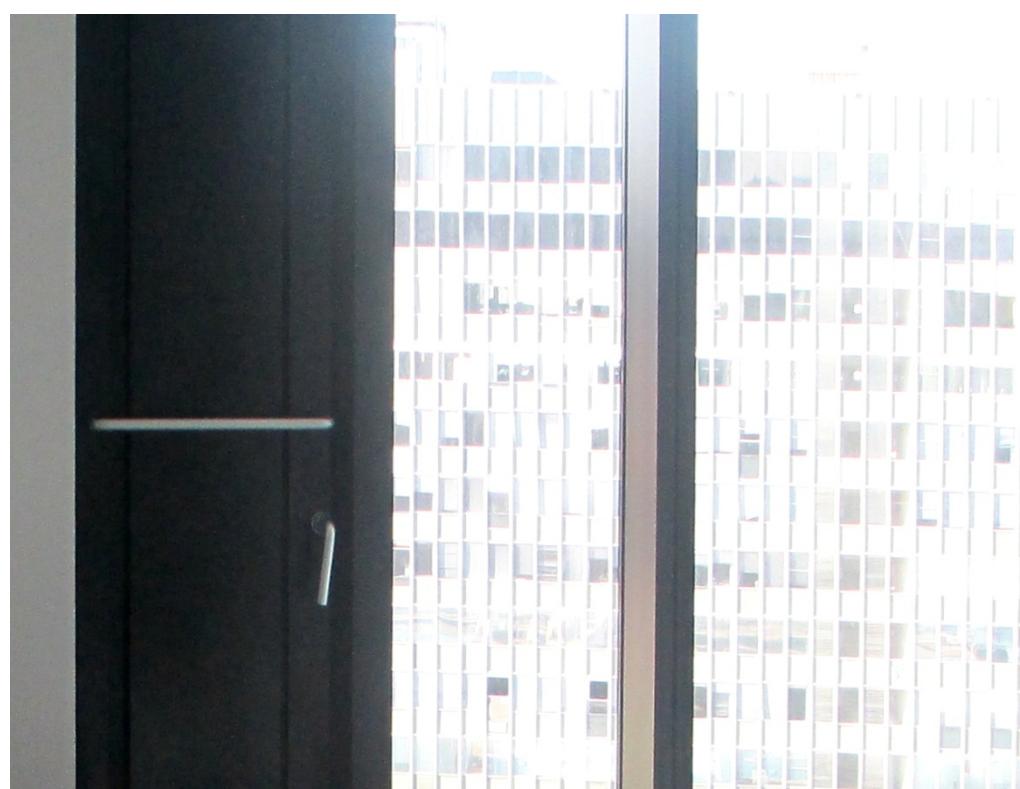


Fig.12 – Interior of ventilation panel (2013)

The perforated mesh constituting this vent is therefore quite dense and limits air current to a large extent. The interior photograph, made public online by a resident, documents the shutter that enables the opening of the vent from inside (*Fig.12*). All habitable rooms, i.e. bedrooms and living rooms, have one such ventilation panel (*Fig.13*), irrespective of room size, use, orientation or position relative to the ground. Wind, rain, pollution and heat conditions will vary considerably near ground level from conditions near the top of the tower, as they will between East, West, North or South, but the uniformity of the wall is equal throughout the building. There is no other possibility of manually effecting local adjustments to suit local conditions, i.e. the differing environmental circumstances outside or the differing environmental circumstances inside (such as lifestyles, which vary from household to household). These local adjustments are presumably expected to be carried out by Mechanical and Electrical (M&E) services that run inside walls and ceilings between rooms and flats – and are, therefore, mostly inaccessible to residents. Their efficiency at this task is clearly insufficient if, as one resident claims, internal temperatures can be tropical, even in winter (Urban 75: 2011).

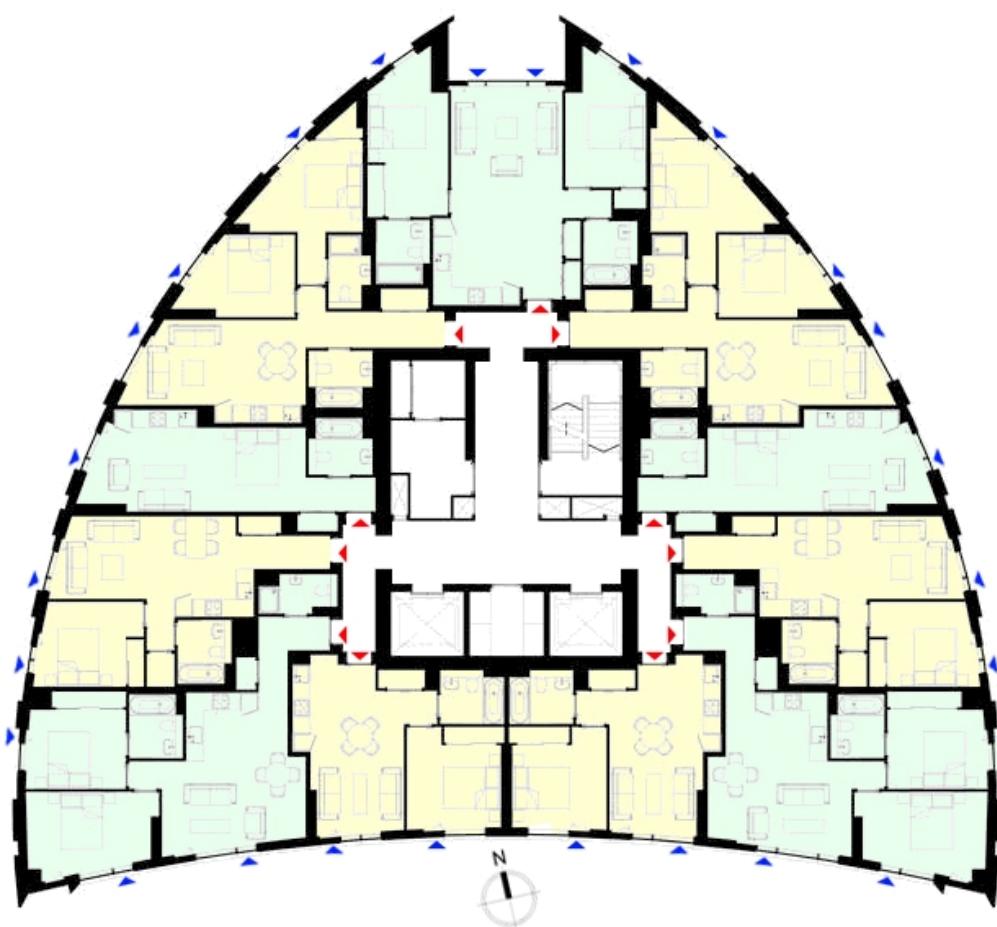


Fig.13 – Location of Ventilation Panels along the Exterior Façade

On its website, Strata assert that they are "championing sustainable living": "The building exceeds current UK building *regulations on sustainability* by 13%, and the turbines are expected to generate up to 8% of the building's *energy needs* – an innovation that translates directly into *electricity bill savings* for everyone of the 408 apartments.⁴¹ Such a *visible* demonstration of *environmental design* at work is creating a new standard for London's architecture. It's all part of the pioneering attitude that sets Strata apart" (my italics).

I have highlighted several expressions that summarise a number of presumptions about sustainability often invoked by construction industry professionals: wind turbines as objects are equated with sustainable life/living; sustainability is a building/construction matter (separate from residing); the building has energy needs (heating, cooling and ventilation through mechanical means); innovation saves money and sustainability can be proved (made "visible"). These statements express assurance and certainty, despite publicly shared anecdotal evidence that the flats can be thermally uncomfortable, and despite the fact that the wind turbines in question are not running as intended because the vibrations they cause generate a background noise which residents of the luxury flats at the top found unacceptable (Wainwright: 2014).

This certainty is arguably built into the walls themselves. On the one hand, residents have little control to remediate environmental disequilibrium because they cannot modify a number of relationships between the inside and the outside. On the other hand, the construction of the wall does not lend itself to architectural remediation: cladding and windows are fixed, as are the perforated vent panels, and would require replacing throughout much of the external envelope. This could only be carried out from the outside and throughout the whole building's external envelope – a flexibility and durability matter. Individual residents cannot, therefore, choose to repair or modify their own walls, and any repair would be extremely costly, to the purse and to material resources, because of its scope.

It is almost ascertained by design that the external envelope will not need maintenance in the course of the building's lifetime, irrespective of unforeseen future circumstances.⁴² The implications of this boundary design on living conditions (both regulatory and circumstantial) are implanted in the functional physicality of the sealed boundary and, by default, in the spaces it defines – potentially affecting

⁴¹ Note that this is on overall sustainability as measured by Building Control. The 50% mentioned above were only about airtightness.

⁴² This is not only a construction matter but also a Planning matter that will be discussed in later chapters.

health and well-being, active and passive attitudes between building and user, and towards sustainability.

3.2 Indeterminate Users, Indeterminate Weathers within the Pragmatics of Certainty

The average UK citizen spends 90% of their time indoors (RSMeans: 2010), in an environment that is often more polluted than the urban outdoors. One of the earliest reports I found on home pollution dates from 1983 (Spengler and Sexton: 1983), demonstrating that the effects of home pollution on health predate airtight constructions. Airtightness is a relatively recent introduction to construction practices. In her account of *Stock Orchard Street*, completed in 2001, Sarah Wigglesworth reminds us that, at the time, building regulations encouraged 'breathing' construction methods which could result in the opposite of airtightness (Wigglesworth & Till: 2001). Early diagnoses of home pollution seem to have started in the 1970s, concurrently with PVC windows, which considerably reduced draughts in old or new buildings. This generated a form of 'first stage' airtightness; a situation that inadvertently encouraged retention of condensation, mould growths and other associated problems. The subsequent proposition of breathing walls could have been a response to this, before airtightness made its comeback.

In 2009, the Institute of Environment and Health, Cranfield University and the Building Research Establishment (BRE) jointly produced a report specific to *Indoor Air Quality in Highly Energy Efficient Homes* (Crump, Dengel and Swainson: 2009). This suggested that airtightness potentially exacerbates the issues of home pollution. When the boundaries of the building are sealed, any ventilation other than natural ventilation (windows and doors) is effected by mechanical services (ducts, pipes, fans, vents and filters monitored by thermostats and humidity sensors) and this not only assumes that they are efficient, but also that they function without fail.

This report, published a year before Strata Tower was built, acknowledges the lack of scientific research correlating airtightness with possible consequences on human health. Indoor air may now contain up to 900 chemicals, particles and biological organisms that can cause a various range of health problems, from allergy-related conditions to chronic respiratory diseases and cancer (Crump, Dengel and Swainson: 2009). This indoor pollution can emanate from the building: cheap building materials (including some of the membranes used to seal the building) are usually more synthetic than natural materials and can emit pollution through the walls. Residues in the M&E services themselves (dependent on regular maintenance of filters to ensure adequate air purification) can contain pollutant substances

sometimes deposited during construction (Adam-Smith: 2014). Other indoor pollutions are created by occupancy, from furnishings such as carpet and furniture imported by the residents to chemicals and detergents used for cooking and washing. Some are entirely inevitable, such as those produced by sleeping, sitting or moving, but others can be produced by additional technologies such as extractor fans, electronic appliances or computers (Saunders: 2002). Lastly, home pollution can also be the product of excess heat or excess humidity, encouraging organic infestations such as mould or house dust mites (due to environmental conditions or to penetration through M&E services). This can be caused by occupants who do not ventilate their homes as much as it can be generated by the building itself, as is potentially the case with Strata Tower.

In UK building regulations, much of the management of this pollution falls under the general category of environmental air quality, essentially regulated through ventilation and separately from the airtight wall (under Parts A, B and L in particular). Building Control Approved Document F (2010), which covers ventilation, states that adequate ventilation is measured in terms of air flow (that can be controlled manually and/or mechanically) and air filtration (that cannot be controlled manually and/or mechanically). This recognises that air quality is not only a ventilation matter, but that ventilation is a key factor to achieving air quality: "Guidance contained in standards and technical approvals is relevant to the extent that it relates to those purposes. However, the guidance may also address other aspects of performance such as serviceability, or aspects which, although they relate to *health and safety*, are not covered by building regulations" (Section 3, p.12). This fragmentation results in a situation where other ventilation or air quality matters are also referred to in Approved Documents B (Fire Safety), C (Resistance to contaminants and moisture), E (Resistance to sound – sound travels easily from dwelling to dwelling, and this sometimes happens through mechanical systems that emit noise themselves), J (Heat producing appliances) or L (Conservation of fuel and power), or to Health and Safety regulations which, other than Part K (Protection from falling), are separate from Building Control.

This results in an ambiguous set of descriptions that appear to be precise and concise and yet are vague in many ways, as admitted by the Approved Document itself: "While it is possible to predict what the ventilation effectiveness of a system should be, there is currently insufficient knowledge of the actual ventilation effectiveness achieved in buildings to allow designers to guarantee performance and so avoid significant under-ventilation by reducing air supply rates. This is because ventilation effectiveness may be influenced by factors beyond the

designer's control such as occupant usage" (F, Section 4, p.16). There seems to be a dichotomy between the precision with which one can achieve airtightness in measurable terms (the airtight wall) but not when concerning ventilation. It is unsurprising, therefore, that the Strata window should have become subservient to the rest of the wall, under the pressure for (measurable) airtightness to 'prove' the building's thermal efficiency.

The same Building Control statement indirectly acknowledges that building control is concerned with the building rather than the occupant, just as matters of Health and Safety listed above are arguably more about safety than about health. The reference to occupant usage is interesting because it seems to place two other principles in opposition to each other. The ventilation system (and the wall's thermal value, in Part L) are quantitatively measurable, while all other factors that enter the equation of ventilation (especially use) are not measurable. This almost presumes that, since the building's performance is quantifiable (although ventilation and boundary are assessed separately) it can be ascertained to be sustainable and certified as such, while anything unquantifiable cannot be deemed sustainable for want of reliable evidence.

Occupancy is a common issue about design and use in high density housing: the designer rarely knows the 'user' beforehand. This inevitable situation (even with pre-emptive consultation, residents will change over the course of time) places great pressure on the building to 'do' the sustainability for the user. However, this can also be accompanied with a sub-textual assumption that the abstracted user in question has to have the sustainability done for them and this, to me, becomes problematic. This assumption is made over purely climatic considerations (thermal 'performance') and excludes by default other aspects and/or applications of sustainability, such as health as in the example of pollution above, engagement and, arguably, perception and phenomenology (see Chapter 5).

The 'environmental' decisions made by the building are derived from figures about *human comfort* that are generally based on statistically obtained averages (Alberti: 2013) and take little account of the space/time relationship between body and environment. As psychologist James Gibson (1966) and anthropologist Gregory Bateson (1979) suggested, conscious sensations often arise from contrast: coming into a room from the cold outside will prompt a feeling of warmth; a persistent smell or background sound will only be perceived shortly after being emitted; a sudden outbreak of sunshine will encourage looking out of the window. Human comfort is thus a relative notion that neither lends itself to mean calculations, nor

necessarily senses straight away the build-up of cold, humidity or pollution as mechanical sensors might. It could be argued, in fact, that optimum environmental conditions represent a stage when physical sensations are equalised with a stable environment, and that the body's awareness of environment arises during disruption of comfort more than during prolonged periods of comfort.⁴³

The human body's inability to sense in the same way as a machine is sometimes perceived as inconvenient to the 'science' of building. In the course of my investigations on this subject, I found that available literature tended to focus either on the machine's performance or on body and perception. For this reason, I tried to find 'conversations' about this apparent dichotomy through live or internet forums and debates, such as Open City's initiative *Green Sky Thinking*, which attracts professionals from a variety of construction disciplines, and through specialist construction LinkedIn forums. Over the years, I regularly came across statements asserting that people did not understand the science behind the principle of airtight construction and did not respond *rationally* to environmental science. For instance, I was told that tenants in one particular estate complained that they were cold despite *proof* that the temperature in their flat was at 21°C (atelier ten: 2012); I also met an engineer who agitatedly claimed that opening windows on a hot day was an unconstructive response to seeking comfort from heat. According to thermometers, opening windows is the wrong response because it lets the hot air in and causes longer term (rising) heat retention in the building.

This thermal estimation of temperature only relates to its own quantitative terms and makes no allowance for the human body. For example, the effect of a breeze on the skin will provide relief, and there are many reports which suggest that people prefer to be able to open their own windows in order to regulate temperature, light and air flow to suit local (and momentary) conditions.⁴⁴ Underscored in these figure-based 'scientific' assertions, there is a suggestion that the human body is unable to adequately sense and resolve environmental conditions. There is, indeed, some evidence that we respond better to feelings than to mathematical equations. Professor Lance La Vine, for instance, carried out an experiment with his University of Minnesota architecture students, whereby they explored the phenomena of heat retention by mechanical experiment and by artistic representation. The latter was more successful than the former (LaVine: 2001). However, this kind of result does not suggest that it is incumbent on the building to

⁴³ It could be argued also that, although this represents a disruption to 'comfort' these experiences are in themselves pleasurable.

⁴⁴ It may be incidental that these reports are usually found in studies about offices rather than about domestic life.

make the decisions for occupants, but it supports a more relational and intuitive rapport between subject and architecture. Yet the Strata resident is actively discouraged from interfering with the boundary, and is, instead, referred to detached switches to operate some of the mechanical services.

This is not to say that Mechanical and Electrical engineers are unaware of these apparent incompatibilities. The Chartered Institution of Building Services Engineers (CIBSE) have produced a Guide A (Environmental Design) on *Thermal Comfort* (2006) that includes what is called the *adaptive approach* (as well as guidance on overheating and health relevant issues). Adaptive comfort is a strategy that acknowledges the indeterminacies highlighted above, by promoting an active user role in controlling indoor environments (this includes *choice* – to lower heating and wear jumpers instead, for instance). According to the book of the same name, there is ample scientific evidence suggesting that this is the more sustainable way of designing (Roaf, Nicol & Humphreys: 2012). Unsurprisingly, many of the case studies in the book are of buildings that have sophisticated ‘natural’ environmental systems built into the fabric of the boundaries which can be manually regulated. There are M&E engineers who specialise in adaptive comfort, and consult with architects and other related professions about environmental design, such as Janet Beckett of Carbon Saver UK, who first introduced me to the concept of adaptive comfort.

However, natural ventilation is not always a sufficient air cleansing measure in airtight buildings. The Passivhaus Institut forum, Passipedia, points out that airtight constructions require more frequent and regular air changes and that, therefore, opening windows to let in fresh air is *not* sufficient, especially at night when windows stay closed for some length of time (József: 2014). With some forms of airtight construction, there is a compulsory requirement for technologies that compensate for lack of natural air filtration, and this may be the argument that was used to justify the sealing of windows altogether in buildings such as Strata Tower.

Passivhaus is now a term widely used to describe exemplary energy efficient buildings that retain (and sometimes store) heat through their fabric. The original Passivhaus concept was developed in the early 1990s, by Bo Adamson and Wolfgang Feist in Germany, and was one of the first movements advocating additional heat retention through super insulation (Torres Moskovitz: 2013). While fully Passivhaus dwellings in the UK are relatively few and, as such, still experimental in themselves, they also tend to be single houses commissioned with reasonably generous budgets, and they are often monitored for their ‘performance’

after completion (Dudjicki: 2014). They can also cover a diverse range of building types and construction techniques that are themselves experimental, such as straw bale buildings – see *Larixhaus*, for instance, completed in 2014, as reviewed by Oliver Style (2014) of ProGetic, who is an active researcher of Passivhaus standards, construction methods and performance. But in the case of Strata Tower, which complies with similar principles and could thus also be deemed experimental, there is no mention of such monitoring. It can be argued that the imposition of super insulation and airtightness is here more problematic, especially as it affects more than 400 households at once.

Although it was only originally associated with some versions of Passivhaus construction, the principle of airtightness became a statutory criterion in 2006 through BREEAM (see Chapter 1, p.33), as a quantitative tool for assessing a building's performance which is often now considered, incidentally, a marketing investment for certification rather than the guideline it originally was (Portkabin: 2010). This assessment and the construction methods required to achieve its guidelines can be financially prohibitive in small developments and tends to represent mainstream construction methods, to the detriment of more experimental alternatives or even products and materials that fall outside the checklist of measured building component performance. For example, architect Carl Turner (2012), who defined his *Slip House*, featured in *Grand Designs*, as Code 5 compliant, revealed in a talk at his house that it had not actually reached Code 5 because the performance of the glazing panels on the front façade could not be quantified.

BREEAM covers a wide range of issues pertaining to sustainability, but its Code for Sustainable Homes reveals that much of the focus is concentrated on the dwelling's levels of airtightness. In single dwellings, the passage from Code 4 to the superior Codes 5 and 6 requires maximum airtightness and its attendant mechanical services. The monitoring of the vapour barrier's integrity on site during construction, together with the mechanical costs, result in a budgetary increase of at least 30% (Willson: 2014). In high rise buildings, this additional cost is merged with the other M&E costs inherent to high density and, therefore, more difficult to estimate. Nevertheless, airtightness seems to come with high costs, in terms of health and adaptive comfort (Wargockj: 2002) as well as literal financial costs that, in turn, contribute to the problem of affordability in mass housing (Bowie: 2011).

This cost may also affect the effectiveness of thermal efficiency itself. There is evidence that increasing thermal efficiency can result in reliance on this efficiency

and, therefore, the development of an increase in the need for thermal comfort. This is called the Jevons Paradox (Polimeni, et al: 2007), a concept first brought forward in the 1860s to propose that increased comfort through building technologies exponentially increases our dependence on them. This can also generate a cultural rejection of the climatically imperfect outdoors and therefore a degree of alienation from nature, as pointed out by architectural theorist Norman Pressman (2005). This paradox is not only a matter of use but also a matter of construction. For instance, as engineer Steve Webb points out (2015), increased building fabric (insulation) results in increased structural load and, therefore, increased resources for structural materials. This mechanism of exponential increases in cycles of consumption and demand is similar to David MacKay's argument (2008) for advocating nuclear power as the only viable long term solution to energy 'needs' if the exponential cycle of growth in energy consumption cannot be broken. Indeed, *Without the Hot Air* may be a particularly apt phrase in the construction industries as a reminder that heat retention has many incalculable and impalpable other costs.

There is another 'side' to the quantitative problem of indeterminacy, in as much as all the above only represent the interior side of the boundary, with very little mention of the equally indeterminate external environment. Outdoor environments often fall in the 'urban space' category, i.e. outside the home (Kishnani et al: 2010). I have already mentioned the indeterminacies of weather and orientation, but there are other influential factors that concern use more directly. Residents will be less likely to open their windows if these open onto high levels of acoustic and environmental pollution, or if the openings compromise safety against intrusion. Some may be better protected than others through vertical location or vicinity to sound breakers such as trees or neighbouring buildings, which are themselves relative to the changing movements of sound, depending on outdoor wind and moisture levels or times of night and day (and season for the presence of leaves). It is interesting to note here that the external environment, which is effectively excluded by the Strata boundary through airtightness, does not receive mention in Part F, despite the fact that natural ventilation, even when restrained by a dense mesh, will also vary depending on wind loads. There are also limits to the range of outdoor indeterminacies included in the airtight boundary, which may not be sufficient to counteract the effects of climate change in the long term.

Both the construction method and the regulatory system are here placing emphasis on the impermeability of walls to tackle the single problem of fuel consumption. In Strata Tower, this results in a boundary that pushes internal and external

environments away from each other to such an extent that they can no longer meet or move into each other when needed. The regulatory role for mediating between them is taken over by M&E services. My research so far indicates that there seems to be scarce actual consensus, scientific or otherwise, about the merits and drawbacks of airtightness, or about the ways in which to achieve this through the physical wall (or not). Debates are often so technical that they focus on the detail outside the greater picture – for instance, whether the vapour barrier should be on the interior side of the cavity wall or on the exterior side. This is an interesting argument because the benefits of either scenario depend on the balance between outdoor and indoor temperatures and rates of humidity at the (dynamic) point where they meet – a case where interior and exterior cannot be considered in isolation. In addition, these membranes are made from materials that may not last the expected lifespan of a building. The long term consequences of potential failure, or the possibilities of remedial action, are rarely discussed. Ironically, it is possible that the indeterminacies pushed out by the hermetic boundary might return their uncertainties into its very fabric through lack of contingent flexibility (Kronenburg: 2007).

I found comparatively few discussions about the indeterminate user – or about weathers of the various types described above. In the midst of these technical arguments, there is almost a demonstration that the only certainty is now in the users' or weather's indeterminacies. This situation can be divisive. I have encountered attitudes towards airtightness that are as rigid as the wall itself, stating that airtightness is "not up for debate. A house does NOT need to breathe" (emphasis in the original quote) (Bailes: 2014). I also witnessed, at Ecobuild Excel 2013, an almost surreal choreography of seminar sessions all simultaneously 'preaching' the need to educate builders and/or users into the intricacies of Passivhaus or its derivatives. The airtight boundary thus potentially separates not only exterior from interior and/or user from use, but can also increase institutional hierarchies between parties and professionals who should preferably collaborate during design and construction processes. In this way, the physical boundary generates other invisible boundaries of an immaterial and cultural nature.

3.3 The Neutralisation of Walls

Overheating is not always solely the product of airtightness and hyper insulation. Concerns about energy consumption could be said to originate from the 1973 oil crisis, which prompted the development of building technologies and configurations that would acquire heat through solar gain (South facing glazing) but could also be

prone to overheating, even in winter (Watson: 1977). Increased thermal insulation at the boundary soon followed in the early 1980s, enabling reduced heating but also causing overheating when other sources of heat such as electric appliances or large gatherings of people came into the equation (Nisson and Dutt: 1985). The super insulated shell had become hypersensitive to fluctuating temperatures and humidity (inside, outside and at their meeting point), and demanding of mechanical assistance for quite some time.

Such incidences could, in fact, be traced back to the 1920's, before concerns about retaining heat arose and, arguably, even further back if one takes into account the impact of glass technologies during the Victorian era. What interests me here is the combinations of 'new' building technologies with 'new' M&E technologies, that were coincidental to the formation of Modernism as an architectural movement through the Bauhaus and CIAM (Congrès Internationaux d'Architecture Moderne).⁴⁵ Le Corbusier, who was largely instrumental to the formation of CIAM, celebrated these technologies and often funded the publications of his Modernist journals, pamphlets and congresses, through the fee-paying advertisements by product manufacturers for their 'latest' technologies (Colomina: 1994). In a way, this is quite similar to today's Ecobuild types of events, in as much as the design and manufacture of industrial products are loosely tied in with an architectural ideology (of Modernism in the 1920s and of sustainability today). There are clear correlations that could be made about the implications of commercial interest on the development of 'new' technologies – which could, themselves, be debated within the context of capitalist ideology.

However, I will concentrate here on the apparent proposition that *one* continuous and commercially biased mechanism for design innovation should be driven by *two* ideologies which are not necessarily mutual or compatible, and yet invoke nature, but in different ways. In very broad terms, the Modernist concept was much concerned with health and sanitation (for the body through the architecture). Arguably since, under the ideology of sustainability, 'nature' imperceptibly moved away from the body and became *othered* as separate from the body, because of the way boundaries were defined in Modernist architecture and beyond.

Overheating was already a recurrent problem in Le Corbusier's early career. For instance, his Salvation Army building in Paris (1929), a shelter for the homeless, consisted of a South facing glazed façade and separate air-conditioning system

⁴⁵ International Congresses of Modern Architecture.

(Leatherbarrow: 2002). According to the few black and white photographs available to document the building in its original state, the continuity of the size of steel mullions throughout the façade seems to indicate that the windows could not be opened, as is the case with Strata Tower.⁴⁶ The air-conditioning system never delivered the necessary power to cool, and the building was so prone to overheating that it was eventually retrofitted with a new façade to *break the sun* (brise-soleil) and open windows. It is interesting that this decision favoured a solution through the façade (boundary) rather than through a new air cooling system, although we could speculate that the first attempt at remediation might have been to install or upgrade an M&E system of sorts, but without success.

In this design, Le Corbusier was knowingly carrying out an experiment involving double glazing and heating/cooling to cause the wall to 'neutralise' something unspecified (weather presumably) as proposed in his concept of *Mur Neutralisant* (Linn & Fortmeyer: 2014). According to the Oxford Dictionary, to neutralise means to render ineffective by applying an *opposite* force or to *isolate* from conflict;⁴⁷ to neutralise can also mean to destroy and kill. Put in this way, the word seems to refer to the resolution of different types of conflict, and this immediately suggests that interior and exterior are considered to be in conflict at the point where they meet, which is the boundary. In the first scenario, opposite force seems to suggest a direct battle between opposites, the forces of which would be equalised (and possibly annihilated) by their confrontational meeting. In the second scenario, one entity is isolated from others that are in conflict. This does not necessarily prevent the others from continuing to be in conflict, but protects the former from this conflict.

In Le Corbusier's 'neutralising' boundary proposition, it is tempting to read the impenetrable double glazed wall as a buffer zone between interior and exterior that totally separates one from the other and, therefore, suppresses the possibility of conflict while the air-conditioning system makes the two meet in a controlled manner. The importance may not be so much in the accuracy of the interpretation as it is in diagnosing the adversarial way in which (undefined) internal and external environments, and the boundary between them, are treated. The fact that internal and external environments are not always 'in conflict', and that their relationship

⁴⁶ The *Le Corbusier Foundation* charges a very large fee for any use of images, from their archives or otherwise, and including photographs taken by individuals. This could be viewed as in keeping with Le Corbusier's practices in his lifetime, but a few relevant photographs additional to Leatherbarrow's illustrations have, probably illegally, been made public by anonymous donours on the internet.

⁴⁷ <https://en.oxforddictionaries.com/definition/neutralise>, last accessed June 2017.

might sometimes be harmonious or beneficial, is not considered. Etymologically, therefore, the glazed and windowless wall of the Salvation Army building deactivated relationship in order to disable presumed conflict – only to transfer conflict elsewhere by generating tensions between body and building. This echoes considerations outlined in the Introduction (pp.18-21) concerning the relationship of opposites (see Aristotle); the separation of opposites to such an extent implies that the two 'sides' are no longer in a binary situation because they are prevented from meeting at the Included Middle (see Lapusco).

It is unlikely to be a coincidence that 1920's Modernism also produced the prototypes of an architecture that is averse to shutters, blinds and curtains, the traditional and vernacular (manual and choice activated) regulators of domestic boundaries. Fresh air, daylight and sunshine were guiding principles of Modernist architecture, and in light of the paradigm behind *Mur Neutralisant*, it could be speculated that the distaste for shutters and curtains assigned to Modernist architecture might have been prompted in the first place by the wish to coerce sun (glazed wall) and ventilation (air-conditioning) into the interiors of architecture. Beatriz Colomina (1997, p.230) takes the view that modern architecture was "unproblematically understood as a kind of medical equipment, a mechanism for protecting and enhancing the body", which came with a recurrent preoccupation with ventilation, sunlight and hygiene (itself already prescient in the Victorian times). It could be inferred, therefore, that although the intention of *Mur Neutralisant* was divisive in concept, it was not intended to exclude the user but was in fact trying to promote the user's health through the agency of the building's walls and M&E systems.

The idea of architecture as medical contraption endures to this day. Many 'smart' futuristic technologies promoted in current designer exhibitions have now started monitoring the body through electronic devices, often nested within the wall so as to appear almost invisible. According to some manufacturers, the house of the future will soon have sensors that recommend a diet, check your temperature, heart rate and sugar levels (Nugent, Augusto: 2006). Some designer projections into the future, such as Rojkind Arquitectos's *Thinking Ahead! House* (Hutt: 2006), represent the house as a womb-like cubicle that mediates internal and external conditions through a windowless membrane that regulates all environments, including the human body's own interior. In this case, the futuristic paradigm retains the Modernist premise that architecture is a 'mechanism for protecting and enhancing the body' which medicalises the body through its walls, as philosopher Ivan Illich (1975), who devoted much of his work to the medicalisation of the

human body, might have predicted – an instance in which philosophy and architectural design could be correlated.

From a relationality point of view, I would ask what kind of relationship is created between body and building, and what happens once the mechanical sensors have compiled and relayed their information. Does the resident choose to act upon the information, or does the wall make this decision? Does the resident choose to interpret this information and instruct the wall to act accordingly? Does the wall force its verdict on the resident, and how? There would be many other variations on this set of enquiries, but fundamentally they question here the nature of the relationship between wall and body, and whether there is a relationship at all.

It could be argued that the *Mur Neutralisant* attempts to promote the body's health through its disengagement from the wall. However, architects Diller and Scofidio (1994) would argue that one cannot be detached from the other; architecture as shelter could be regarded as an extension of the body, a layer beyond skin and clothes, or even a prosthetic of the body to convey the more medical undertones discussed above. This is an interesting concept because, as with the Hestia/Hermes myth whereby (private) Hestia represents a static and centric base from which (public) Hermes diverges and converges (see Chapter 1, pp.55), there would be here a presumption that the body is a centre nested in the peripheral layers of clothes and walls that are incrementally one stage after another, further away from the skin. Ironically, this would subdue the factor of contact with the dwelling and also that of adjacency. In many cases the 'extension' will shelter other co-dwellers, who are excluded here from the metaphor. This promotes conceptual separateness between body/bodies and building, while appearing to present them as 'around' each other and, therefore, in relationship.

Diller and Scofidio also discuss at length some of the 'side-effects' ensuing from this proposition, manifesting through architecture and body culture. The architecture takes over some bodily decisions and, in the process, objectifies the body or regards it as an impediment to the smooth running of the machine. In this sense, the *Mur Neutralisant* is anything but neutral itself – rather, it could be seen as inadvertently neutralising the human component in the process of neutralising interior and exterior environments. Concurring with the definition of neutralisation above, the *nature* of the body becomes trapped in the perceived conflict between interior and exterior *natures*, or isolated from the said conflict. Within this adversarial logic, it seems almost inevitable, therefore, that Le Corbusier's concept of a residential *machine for living* should have resulted in becoming a potential

hindrance to health, as is the case at Strata Tower – the destructive element contained in the terminology of neutralisation, and in its actuation.⁴⁸

Many of Le Corbusier's later designs imposed sun screening through the thickness of projecting concrete fins constituting the wall itself, rather than entrusting protection from outdoor heat to M&E services (Leatherbarrow: 2002). This seems to indicate that, later in his career, Le Corbusier had moved away from his original allegiance to 'new' M&E technologies and reconsidered the merits of dissociating boundary from environmental control. This, it appears, was not taken up by the rest of the profession, which is interesting if one considers the influence he is usually thought to have had on Modernism and Brutalism. However, although it could be conceded that sun screening through the boundary might be a useful architectural device in warmer regions such as the South of France or India, Le Corbusier's interpretation remains a system which promulgates one single sun strategy for tackling all situations and weathers, regardless of where the user lives.^{49,50}



Fig.14 – Office block in London Bridge (Summer 2011)

Having lost momentum in intervening years, the principle of brise-soleil has become quite widespread again in the UK, mostly over the past decade – in the name of sustainability. Overheating is now regularly controlled by external

⁴⁸ This is one of Le Corbusier's most famous manifesto phrases to ascribe 'pure' functionality to the house. Interestingly however, this phrase was actually borrowed from the 1850s (see Birksted: 2011), demonstrating that what is often assigned to the Modernist movement sometimes originates from the Victorian era.

⁴⁹ Unité d'habitation, Marseilles, 1952.

⁵⁰ Villa Shodhan, Ahmedabad, 1956.

horizontal or vertical louvers of various descriptions, often in office blocks (heat and sunlight are disagreeable to computers and their screens) but also sometimes in residential blocks. These provide opportunities for playful variations in the cladding of an exterior wall, but they can sometimes express exclusion of and/or from the world. For example, in *Fig.14*, wall, windows and cladding are screened from public view, obscuring the public, outer face of the building and obscuring exterior views from interior occupants. As architectural journalist Oliver Wainwright (2011) points out, this strategy is also sometimes found in residential blocks that need not be protected from sunlight (by virtue of facing North) and yet receive the same screens to provide visual privacy rather than protection from the sun, as if the two were interchangeable.

In the case of Strata Tower, there are no brise soleils fixed over the façade but there are sun filters in the glazing itself which ‘tint’ and discolour sunlight instead, to reduce the transmission of heat through light. Such devices cannot be modified by users, and there are unresolved debates about the impact this may have, not only on human users but also on house plants. There are differing reports about this effect, particularly as some plants seem more susceptible to certain light spectrums than others, and this is difficult to prove scientifically one way or the other. However, house plants are also known for their potent ability to remove many toxins from indoor air and to regulate humidity and dust (Drummond & O'Reilly: 2017). Their ability to survive could, therefore, partially counteract some of the air pollution issues reported above.

In the case of low budget university campus accommodation that does not fall under the residential category of statutory regulations (Wainwright: 2013), a combination of cost saving measures in the building’s boundary can be detrimental to natural air and light supply. For example, at UCL’s Caledonian Road project (Long: 2013, Woodman: 2013), most windows have no views and no direct daylight. Many also have restricted window openings.⁵¹ This is common practice in educational buildings, often tied up with risk assessment factors concerning window openings (Exeter: 2010). There are some cases in high density housing also which, despite falling under residential category, result in inadequate daylight: the combined need to minimise over-heating and thermal loss on a minimum budget can lead the developer to choose minimum size windows that are compliant with the Code for Sustainable Homes, at average daylight factors as low as 1.5% for

⁵¹ In the summer of 2015, my UEL students complained that their window openings were restricted to a half inch, resulting in overheating that could not be counteracted by (energy greedy) electric fans. This is not unique to the Docklands campus. I mentioned this to Goldsmiths students during a workshop, and they said they had the same problem.

living and dining areas and 2% for kitchens.⁵² According to RIBA (2013), "if left to the minimum regulations, one window per room at just 45cm x 45cm will become common place".⁵³ Their findings prompted them to launch a campaign called *Without Space and Light*.

The literature on the benefits of daylight and sunshine to mental and physical health is vast (Baker, et al: 2002, Veitch: 2001, Hobday: 2006), and would support the apparent reasons which motivated Modernists such as Le Corbusier to open up their walls for more light. It is ironic, therefore, that we should have now reached a stage in construction etiquette that, in the name of thermal efficiency, compromises ventilation and sunshine, with concurrent risks to health and hygiene – through boundaries such as those found in Strata Tower or through boundaries that minimise any form of sunlight without providing recourse to alternative adjustments. The concept and consequences therefore remain similar to those discussed regarding the *Mur Neutralisant*, only the purpose is no longer to protect the body from illness but to protect our energy resources (at a possible cost to the body). While Modernist architecture tried to ensure health through the fully glazed wall, today's architecture of the Strata Tower type tries to ensure 'environmental control' instead (in a partial sense), through the super insulated airtight wall.

I argue here that what happened at Strata Tower not only falls outside Modernism's ideology about health, but also outside current ideologies about ecology. Sustainability may mean a number of different things to different people who don't always agree about what it is, but in my experience architects know that it is a much broader issue than just a measure for energy conservation regulated from the 'private' 'side' (Guy & Moore: 2005). However, the industry, as represented by Ecobuild and equivalent forums, continues to operate in ways that resemble Le Corbusier's 1920s approach: experimenting on new products and new technologies, many designed to fix the latest problem. Thus, the Green Building Advisor has recently published a review of various devices claiming to be able to monitor air quality (Gibson: 2015), which demonstrates that the industry knows about the problem of air quality, while RIBA opened a LinkedIn debate about artificial lighting that mimics light changes from sunrise to sunset (Wang: 2014), which demonstrates that the industry knows about the problem of daylight. While many of these products alleviate one 'problem' at a time, many exceed footprint reduction

⁵² U value is the standard measurement system used to quantify heat loss. The lower the U value, the better the thermal performance of the wall.

⁵³ Apart from the fact that this encourages continual use of electric light during daytime, these windows are often framed alongside a decorative panel which makes them appear much more generous on the façade than they actually are.

on planet resources in the process of production due to their propensity to break or to become obsolete. This is eloquently discussed by architect Howard Liddell (2013), who derogatingly refers to them as *eco-bling*. This also potentially upholds, without question, current airtight construction methods, as the *sole* valid strategy despite a few technical difficulties – by proposing that these can be cumulatively remediated.

In the midst of such an array of technologies, it is not surprising that Building Control should admit to a degree of improbability in calculating the effectiveness of ventilation from any source other than the autonomous mechanical object. But the reference to occupant usage as the only example of ‘factors’ beyond the designer’s control places a degree of responsibility on the user that is, arguably, disproportionate. In as much as thermal efficiency is compulsory for the dweller, the statutory system could be said to have taken over the role once attributed to Modernist architects in imposing, through the architecture, lifestyle conditions on the user under a particular, restricted and commercially/technologically driven ideology. This is not to say that Building Control is anachronistic, for it remains a necessary method for insuring minimum construction standards (Imrie & Street: 2011), but that it is open to obtuse interpretation, particularly in high density housing. The undefined user is potentially treated with condescension as someone in need (of health or of sustainability) and treated also as a potential threat to the established statutory and architectural order. I suggest that the absence of choice or user control at Strata Tower reveals the persistence of a Modernist hierarchy that prioritises ideology and its architectural applications through the construction of its literal and metaphoric walls.

In the case of Strata Tower, the more pragmatic accounts at the beginning of this chapter seemed to indicate that body and building are considered separate. In her exploration of the *Politics of Touch*, Erin Manning (2007) suggests that administrative institutions (such as statutory legislation of the construction industries), concerned with order, are uncomfortable with the dimension of the human body. Manning's thesis is based on the theme of otherness whereby different realities operate in parallel without being able to meet. In architecture, this inability to meet would occur during the design process and, subsequently, in habitation. Building Control could be said to work in parallel with potential users, but the metaphor of parallel lines presupposes two objects that never meet. There is no relationship or potential for relationship and, in this sense, they are discrete and, as such, single rather than binary. Manning suggests that, beyond otherness,

the institutional malaise occurs at the point where institution and body could meet, which is the space in-between, and the relational dimension requisite to ecology.

In terms of boundaries, I would here extend Manning's proposition to the tripartite nature of boundary as concept. If the boundary is considered as an entity that binds and is bound by its two sides, there are three entities as one. In the relationship between wall and body, the boundary is, therefore, the space between body and wall, i.e. the environment. If the relational element is removed, body and wall become discrete. Debates about the impact of technology on architecture and body could be enriched through the inclusion of the design of the boundary and/or of its conceptual intervention.

The point at which body and building literally and metaphorically 'touch' is more often than not at the boundary and its thresholds. Paradoxically – considering these construction policies are informed by environmental concerns, I would suggest that if body and wall are a-relational and do not touch, then the environment is also conceptually removed. Environments, both internal and external, become conceptually immaterial (neutralised), just as they are literally immaterial and separated from each other by a hermetic boundary. It could be argued that, at Strata Tower, this conceptual exclusion of body and of environment became literally incarnated through the architecture. The binary sides, and the boundary between them, are all treated as separate, removing at once relationality and binary conditions, and separating also, therefore, dweller, architecture and environment.

Chapter 4

BOUNDARY AS DOUBLE SKINNED SPACE (Consort Road)

This chapter is the second of three on the subject of contemporary architectural practices in high density housing, and follows on from a critique of construction strategies at Strata Tower through binary paradigms that challenge their premises. Having focused on the ways in which building regulations and industry both seem to promote separation between environments and between user and wall on the interior 'side' of Strata Tower, I now examine boundary management from the other, more public 'side' of Planning guidance, and through the case of Consort Road (Peckham, 2007). I scrutinise the Planning guidelines that accompanied its design while extending the concept of boundary to that of interstitial space, architecturally expressed at Consort Road through double-skin strategies. This challenges conventions about movement and circulation through intermediate zones. Positioned alongside the Japanese concept of *Ma*, which is often translated as interstitial time/space, the potential of such architectural strategies is subsequently expanded beyond more common or pragmatic conceptions about double-skins and about defensible space strategies.

This chapter also includes an intermediate agent: the architect, Walter Menteth, published a description of the project at a RIBA Research Symposium 2008: *Space at Home*. I also had a telephone conversation with him in March 2014, to discuss some of the observations I had already made.⁵⁴ His comments and my findings were subsequently complemented with research I carried out through Southwark Planning documents available in their portal. Interestingly, Menteth's responses also revealed in-between-ness of a different kind, in as much as his design intentions and the social aspirations underpinning them were compromised by a combination of policy and budgetary constraints.

4.1 Alternative and Traditional Planning Conventions

Consort Road is a development comprised of 49 affordable residential units for shared ownership and rental tenure, and has received a number of architectural awards. It is also a place I pass regularly to and from Peckham, on foot or by train, and this has given me occasion to observe its evolution since it was first built. It is characterised by a double-skin buffer strategy along the front and back boundaries

⁵⁴ At the time, I was considering interviewing the residents but later decided to focus on what manifestations revealed in themselves - see Methods and Processes, Chapter 2.

of the housing blocks, to protect dwellings from the acoustic intrusion of main road and railway line arteries that form the immediate external boundaries of the site, and from other pollutions generated by the industrial depots it overlooks (*Fig.15*). This double-skin is made up of potentially inhabitable space at the external edge of the masonry – winter balconies on the street front and access balconies at the back – wrapped in an external layer of glass to provide acoustic relief and thermal efficiency through an insulating space between the heated interior and exterior environments.



Fig.15 – Google View of Consort Road

Double-skin façades are a concept imported from Germany (Heusler et al: 2001). They can consist of a solid wall on one side of an intermediate strip of space and of a glazed wall on the other side. The intermediate space between the interior and the exterior creates a buffer zone often employed against noise pollution and against cold weather, and potentially enables a variety of different degrees of separation between the two sides. There are numerous examples where some 'skins' are louvered or adjustable, and participate through sophisticated engineering in the regulation of temperatures and ventilation between internal and external environments. In some cases, the skins cater for the growing of plants that also play a part in this environmental control and, in many cases, the space between the

skins also serves human circulation. However, they can be expensive and are more commonly found in office blocks than in residential blocks.

In as much as the double-skin access balconies are at the back and overlooking the railway, this arrangement would seem similar to that of many housing blocks throughout London (see Chapter 7) in terms of access and distribution. The entrance doors are flanked by kitchens and bathrooms on either side, which is quite traditional in typical high density housing. However, there are no windows to provide views and ventilation between the inside and the outside (*Fig.16*), other than one instance where they overlook the living space. Menteth told me that this decision had been motivated by a concern about condensation, particularly in bathrooms. If windows were not opened regularly (presumably for security reasons), there would have been a risk of damp and rot, with associated maintenance costs. There is a discrepancy here: the windows are allegedly removed in order to reduce maintenance issues, but the M&E services would also need maintenance and repair in cases of failures, which might themselves bring about condensation issues. This pragmatic decision does not fully explain either why not only bathrooms but many of the kitchens are also blind to the access way. The lack of windows seems unusually protective of privacy, especially when this privacy is only for/from residents who are otherwise screened from street life by the location of the access way at the back and facing the railway.

When Menteth made these design decisions, double-skin strategies were relatively rare in London but they have since become much more common, particularly in close proximity to noisy arteries. In some instances, access balconies enclosed by glass for acoustic protection are now fronting the street side, as is the case for instance at Family Mosaic's new Park View (2014) development at the corner of the Old Kent Road and Glengall Road (SE15), or at London & Quadrant's Goldcrest House (2014) on Lee High Road (SE13). However, in both cases, there are distinct windows as well as doors along the entrance walls.

According to Menteth's description in RIBA's Research Symposium, this access balcony is an "interstitial common entrance space", which "is available for residents to adopt" (2008, p.4). "This acts to isolate this area from all the industrial noise and activity and also the passing trains, allowing the opportunity for much more sheltered walkways which in due course have become colonised. This also affords wonderful views out over central London" (p.3).



Fig.16 – Consort Road Access Balconies, photograph taken from train (Spring 2012)

I have been passing these access ways by train since construction was completed, and I have never witnessed any sign of adoption or colonisation. My experience of these access ways is that they are for circulation only and devoid of manifestations of human appropriation (*Fig.14*). They protect residents from wind and rain on the way to their front door, but this does not appear to make the space hospitable. The absence of windows on either side of the threshold may contribute to this by providing an impermeability of a different kind to that described at Strata. The wall itself is highly insulated although not airtight; the hermeticity is more inherent to the design of its thresholds – the doors and windows.

It is highly likely that 'colonisation' is disallowed for fire safety reasons, and the two other examples above are equally devoid of signs of appropriation. I speculate that, in the case of Consort Road, the glazing also creates a sensation of enclosure (interstitial) not dissimilar to that given by tight internal corridors. This sense of enclosure might be spatially exacerbated by the absence of windows on the wall side and by the floor to ceiling glass panels on the other side, despite a width comparable to that of more common types of access balconies and despite the fact that there are windows interspersed in the glazed skin. These provide a degree of ventilation control between circulation and exterior, but not between circulation and flat.

The bathrooms and kitchens are reliant on M&E services to ensure the supply of artificial light and ventilation, while other social and environmental potentials typical of more traditional access balcony boundary walls and spaces are excluded. There is no 'space' for scenarios other than walking in or out of a front door, least of all scenarios that would encourage residents to watch each other pass by or to watch the view from their flats, as suggested by the report. Possibilities such as receiving the morning sun from the comfort of a chair at the edge of front doors, or meeting immediate neighbours, are subdued by a combination of threshold inhibitions that affect spatial, social and environmental relationships between dwelling and immediate locality.

4.2 The Relational 'Side'

Consort Road's most appraised achievement concerns the design of its winter gardens which, very unusually, are located at the public street front and expose the utilitarian everyday to public display. These winter gardens are effectively enclosed balconies. Some residents cover them with bamboo screens for visual privacy while others don't, although there is a higher tendency for this to happen at the corner of the building, which is more prominent to passing pedestrians than along the main length of Consort Road. Manifestations of everyday life change all the time on these winter gardens, although there are distinct differences in rhythm between the Consort Road façades, where shared ownership flats are located (*Fig.19*), and the corner block that houses Housing Association tenants (*Figs.17 and 18*). The latter are more frequently responsive to weather conditions (such as the opportunistic hanging of washing on a sunny outbreak), whereas the former tend to be more introverted during the week and extroverted at the week-end.

There are, sometimes, different responses to similar local conditions. This seems partly influenced by degrees of immediacy with local external environments, the corner winter gardens less sheltered than their neighbours, also occupied by Housing Association tenants. These corner balconies might feel more exposed in terms of privacy, although most of the bamboo screens depicted in *Fig.18* to the left later (2015) disappeared from two floors, see *Fig.17* to the right. This typifies the many different possible ways in which these balconies are treated. The extra space provides flexibility from within the flats and a degree of flexibility for the management of relationship with the elements, controlled through a louvered system that can be operated by residents. There is no basic or average way of assessing this relationship in environmental terms because each is different and subject to different environmental conditions in the interior. This can be due to

differing lifestyles, but also to the fact that they are self-contained and independent of each other. However, it could be suggested that the displays also reflect the other side of the boundary in some ways, by giving indications about lifestyles and decorative tastes.



Fig.17 – Consort Road (Peckham, 2007), Fronts (Spring 2015)



Fig.18 – Consort Road, South Facing Winter Gardens (Spring 2013)



Fig.19 – Shared Ownership (Consort Road) Winter Gardens (Summer 2014)

On a very hot summer day in 2013, I was surprised to notice that relatively few residents had opened their louvers to create ventilation, and mentioned this to Menteth during our telephone conversation. He replied that residents were to receive training on how to control them to full efficiency but that, as far as he knew, this had not happened. On subsequent journeys past the flats, I gathered evidence that most residents did seem to know how to control the louvers and to act on this option (*Fig.20*). My first observation could have therefore arisen from other reasons, such as the amount of noise pollution or work commitments at this particular time of day.

In retrospect, I found that Menteth's comments were significant for the underlying assumption that education, or lack of it, may be at fault. Without underestimating the value of such education, I would suggest that some of the issues I raised in Chapter 3 about body and architecture come into play in the continuous assessment of their relationship with the environment. If this chemistry is difficult to quantify because of its complexity (external and temporal factors) and its diversity (daily routines and cultural preferences), it is also sometimes assumed to fail. My observations on that day were merely anecdotal; they did not indicate that residents were in full control of the environmental relationship provided by these louvers, but nor did they indicate that residents were not in full control. It is quite possible, in fact, that some residents had chosen to leave their living room sliding doors open to the elements (this was difficult to assess because sun light reflected

on the glass), and that the closed but non airtight louvers were filtering breeze further out into the interiors through the junction between each louver panel.

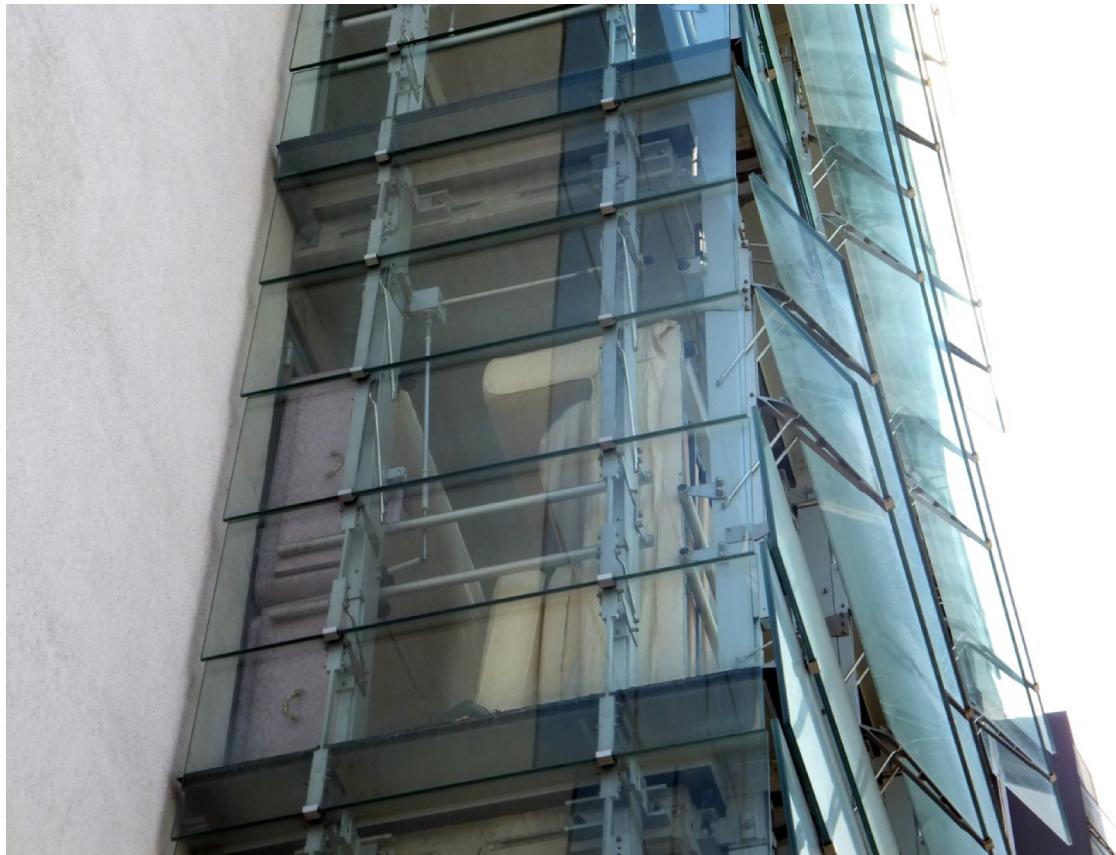


Fig.20 – Shared Ownership (Consort Road) Winter Gardens (Summer 2014)

Winter balconies were relatively rare in London in 2007, but in the ensuing decade, they have penetrated mainstream high density housing practice. This is particularly the case for estates built over the last ten years at close proximity to railway lines (usually along them), and therefore most noticeable when travelling on a train journey rather than walking on the street. Pitman and Tozer's Mint Street project in Bethnal Green (2014) is one example.⁵⁵ The living rooms and bedrooms face the railway and some bedrooms are protected from acoustic and air pollutions generated by trains through a double glazed wall, designed in such a way that it looks like a smooth wall: the 'balconies' are incorporated into the façade, their invisible parapets supporting windows in front of a recessed 'garden' space.⁵⁶ Unlike the winter gardens at Consort Road, this configuration reduces environmental control by its residents – the double glazing and wall are airtight and, unless the external windows are opened, the space as buffer zone also seals the inner glazing

⁵⁵ Their design strategy was informed by planning concerns about looking over neighbouring buildings and also by the greater availability of sunlight on the railway side.

⁵⁶ Access to the winter gardens is shared between bedroom and living room, but living rooms only have a door onto the balcony.

of bedrooms in strict isolation from the outside, requiring therefore alternative environmental support from M&E services. This can isolate residents from external weathers and natures as would a traditional wall, rather than mediate between the two environments as would a balcony. When they revisited, the architects (Pitman and Tozer: 2015) found that these winter gardens tended to be treated as an extra room, and as such were not as utilitarian as the winter gardens at Consort Road, despite being sited away from the public eye of the street.

Winter balconies are usually attached to living rooms or bedrooms in a way that might be vaguely reminiscent of the Victorian bay window. In this sense, Consort Road winter balconies are in a more traditional site on the street side than at the back alongside the railway side. However, although they are extensions of living rooms, these winter balconies are often used for decorative appropriations such as flower pots as well as utilitarian appropriations such as the hanging of washing. The front architecture of Consort Road is in this way quite radical: it displays the utilitarian to the public and transforms it into a feature rather than something to be screened off into the depths of privacy. It also offers equal status to utilitarian and decorative objects.

Arguably, it also provides some degrees of additional privacy to the residents through the treatment of an external skin that, fragmented by its louvered space, hosts a degree of mediatory presence between the two 'sides' without compromising the more private interiors. There is also a certain consistency in the exterior appearance of the architecture, despite the fact that the objects immediately visible to the public change regularly, as do the angles of the louvers.

4.3 A-Relationship to Local Streets

However, the contextual parameters of the scheme are unusual in themselves. In pedestrian terms, such a public 'side' is relatively uncommon in housing situations. The project is built on former industrial land. Apart from the industrial compounds neighbouring the boundary of most of the site, there is now a primary school opposite the corner of the site, but otherwise little social life in the vicinity. Consort Road is primarily designed against circulation arteries. The pavements along its periphery are narrow, the industrial zones are enclosed on themselves, as is the Greenhive Care Home behind the school (*Fig.15*). There are few pedestrians, and Brayards Road essentially connects two residential areas at both its ends and constitutes, as such, a road for passing through in a linear manner, without edges that can be appropriated or that would encourage transversal flow. In many ways therefore, it could be argued that the fronts of the building and their winter gardens

are addressing 'back' conditions. It would be interesting to find out whether a Planning officer would consider a similar proposal on the basis of this precedent for a more residential and 'public' site elsewhere in London, despite the fact that the design's playfulness is combined with architectural rigour. In the areas I have visited during this research, I have not found any equivalent elsewhere.



Fig.21 – Twin House Fronts at Consort Road (September 2014)

Menteth had included some street landscaping features in his design that would have helped alleviate the abrupt division between housing and street along Consort Road, but these were not implemented.⁵⁷ There are architectural boundary features at street level which are not propitious to appropriation, even when transversal. The ground floor of the terraced housing between the two blocks of flats is deliberately internalised and mute to the street (*Fig.21*), without mediating space or windows looking onto Consort Road, and with marked separation at the point of adjacency between neighbours. What appears to be doors are, in fact, access panels to service and/or meter cupboards – the actual access being through the dense aluminium mesh entrance gates that open onto a minimally sized court. Although kitchen and WC have windows opening onto this court, compared to the

⁵⁷ Section 106 Planning conditions required that most of the landscaping should be undertaken in nearby parks, see Southwark Planning Committee, Development Control report 09.11.2004.

traditional twin door configuration of Victorian streets nearby, court and service zone together create a substantial separation between neighbouring entrances.

Similarly to the withdrawal of windows from the back access balconies, this threshold design actively discourages relationship between the two sides and between neighbours. For instance, a recess in the elevation would have provided an intermediate space (while widening the pavement) with more daylight and the possibility of meeting neighbours while going in or out of the house or while tending to some urban agriculture, horticulture or other forms of relational and cyclical appropriation. This lobby, according to Menteth, was designed to "buffer the house from the street" (p.8), which seems in contradiction with the intention to "double the space all around the buildings in terms of the pavement width to try and make this more amenable to pedestrian movement" (p.2). It is unclear whether the design is intended to protect private dwellings from the street or to protect the street from private dwellings. These design decisions enforce privacy between neighbours and privacy from the street, despite the fact that entrances are directly opposite a blank fence that encloses the building yard on the other side of the road – and, therefore, do not compromise privacy on the other side of the street, be it residential or otherwise. As with the access balconies, there is a paradox in the fact that defensive strategies against adverse environmental conditions are reinforced by defensive strategies between neighbours, while the chances of transversal intrusion into privacy between public and private are geographically minimal. The Planning concept of *Defensible Space* (see Chapter 1, p.57) is literally translated here into a space for defense from neighbours as well as from a wider public, and does not provide the natural surveillance that a personal space near the threshold might have afforded.

Satellite views (*Fig.15*) reveal through the shadowing that the back gardens of these houses are also bounded by tall fencing that visually isolates these same neighbours (Menteth's sketch of the same was more spacious and with lower fences). These are East facing and probably quite dark as soon as the sun moves westward enough to cast a shadow of the buildings over the gardens. This affects social porosity between adjacent neighbours, especially as there are no access gates from the back (*Fig.22*). It also reduces the opportunity to grow flowers or vegetables for lack of sunlight. Note the presence of a discarded mattress at the back - symptomatic, in my experience, of boundary dysfunction - against a double boundary zone that screens off six parking spaces clearly intended for the sole use of shared ownership residents.



Fig.22 – Back of Terraced Houses at Consort Road (September 2015)

4.4 Zoning and Planning

Menteth's description of these houses is that: "They are all paired together to give a scale suitable for the context.⁵⁸ They only have one window that we can see when we look down on the street, although there is a large clerestory. They have their storage space located on the street frontage because that is the direction towards the shops and also towards where most of the kids go out for bikes" (2008, p.7). If the reference to clerestory may be considered euphemistic in this instance, the ambition concerning children, shops and bikes seems unfounded. There are no shops in the vicinity, and the children in question would need to ride five minutes or more in any cardinal direction in order to reach 'local' shops. There were meant to be shops at the base of each block of flats, but these remained boarded up for the first seven years. The 'shop' to the north of the site is now an art gallery, while the 'shop' to the south has been converted into an interior design office. This situation was common occurrence with housing blocks designed in the early 2000s, and resulted from Planning policy aimed at breaking the divide between residential towers and street fronts by inserting commercial use at the base. Ironically however, these unspecified commercial premises were rarely fitted in a way that

⁵⁸ Note that the tradition of pairing entrances apparently goes back to almshouses (see Chapter 8).

was adaptable to a variety of commercial types and to local street conditions, and many throughout London remained empty and boarded up.⁵⁹

More specifically to Consort Road, change of use from Class B (Business and Industry) to Class A (Shops and Services) was granted by Southwark Planning because the site, previously allocated in the Southwark Unitary Development Plan as a commercial employment site, had failed to attract renewal. The 'shops' at the base were replacing light industrial premises that had been derelict for a long time, but it was assumed that redevelopment would counter their disuse. Art galleries and interior design offices would normally fall into the Class A category, A2 (professional services) more particularly. Under the A use category there are also, A1 (shops), A3 (restaurants and cafés), A4 (drinking establishments) and A5 (hot food takeaways), all of which are theoretically interchangeable without planning permission. This brings up a number of questions about the definition of the street and the associations made between types of streets and types of 'trades' that are commercially (Class A) or industrially (Class B) biased, and exclude a number of other types of exchanges between private lives and local circumstances. In the case of Consort Road, it seems that because the definition of commerce was vague, it also lacked flexibility.

There are other types of premises that are included in other Planning use categories but excluded from the commercial use category. Menteth explained that the original design for Consort Road comprised communal spaces in the form of an internal courtyard and centre at the back of the site, where residents could have met and interacted. This commentary is interesting because it might acknowledge the less social capacity of access ways and thresholds, and the consequent need to relocate social encounters elsewhere in the compound. These spaces, however, were not implemented. Instead, following consultation with existing local residents, Planning officers had requested additional parking, placing the value of social amenities at a lower priority than parking.

The 'use' system in Planning does not open the possibility that the 'corner shop' site might have offered an alternative communal space for the residents. This would have fallen under the D use category. D1 stands for non-residential institutions, including health centres, day centres, schools, churches and museums. Interestingly, it also includes art galleries, but only art galleries that do not operate

⁵⁹ The same happened on several of the schemes in East and in South London on which I had been working during the same period. In one instance, the commercial space was eventually reconverted at great cost into smaller units. This involved the insertion of underground and ventilation M&E services necessitating the breakdown of a 1metre thick concrete base.

on a commercial basis. Applying a D1 change of use category instead of A or B would have also been consistent with other local premises, such as the neighbouring primary school and care centre for the elderly.

The difficulties engendered by policy and by budgetary cuts during construction are, therefore, without resolution and create urban divisions beyond those created by the architecture itself. These exclude alternative types of activity suitable to this unusual urban locality that might be explored and developed – communal space in the shop space being one of many possible scenarios that could have also included other forms of street life – had the boundaries between internal space and street not been so abruptly defined by policy and/or commercial interest. Although, technically, a Planning Application for Change of Use can be submitted, it would still require that the proposed use category be predefined, thereby reducing the scope for experiment, and trial and error.

Consort Road was not only a pioneering scheme in terms of the winter gardens but also includes a number of sustainability features built into the architecture, such as water recycling, photovoltaic panels on the roof, thermal mass structure and provision for the parking of bicycles. It also features internal partitions that can be moved, providing a level of flexibility in the internal layout which, as architects Schneider and Till (2005) remark, is relatively rare in the UK. The building is regularly appraised for its distinctive architectural boldness and for its (architectural) sustainability credentials, but acknowledgement of the way the winter gardens are used and inhabited is subdued from the discourse. Among the many reviews and commentaries published over the years, I have not found one that comments on the sustainability of the winter gardens *for the residents* – architectural and social sustainabilities are narrated as separate. According to Menteth, the residents have never been formally interviewed about their experience of living there, although he himself revisited on regular occasions.

To me, these semi-public and semi-private intermediate spaces demonstrate an ability on the part of residents to negotiate interior and exterior relationships with their environments, in a manner that challenges impermeable design strategies such as those adopted at Strata Tower (Chapter 3). This also challenges other design decisions at Consort Road, such as the exclusion of bathroom and kitchen windows or the defensive street entrances to the terraced houses. I argue that the manifestations on these winter balconies support design strategies that favour a relational approach in the design of boundaries, strategies that merge human principles and environmental principles, and encourage interaction between

architecture, user, environments and cycles. However, these preliminary observations also indicate that this configuration, revolutionary though it is, enforces hermetic boundaries between public and private domains. Residential units are socially sealed and self contained, and the principal function of access ways and street life is to distribute residents in and out of their flats. Therefore, the institutional discomfort behind these designs may be associated not only with the propriety of what happens at the edges of fronts or backs; it may also concern the hybridity of what happens at and between the front and back edges, both inside and outside.

In the thinking behind the design of Consort Road, there seems to be a discrepancy between aspirations such as those expressed in the RIBA report about colonised access ways or kids on bicycles, and residential edges that seem designed to discourage communication between individual dwellings and locality. In the case of the access balconies, inside and outside are abruptly divided, despite the potential intermediacy of the access way and, in the case of the houses, there are restricted opportunities for contact with the street, despite the presence of an internalised lobby. In the first instance, the intermediate space is treated as purely circulatory and in the second instance, it is caged into the footprint of the house but not legible from the street side. Had there been more flexibility between sides and between neighbours, there would have been a potential for appropriation in each case. Without contingency, the removal of alternative social accommodation, during the process of Planning approval and of construction, effectively resulted in further inhibition of social interaction. The spaces are largely pragmatic, functional and prescriptive, but not adapted for alternative forms of use, unlike the winter gardens, which are not for circulation. The boundaries that enclose the intermediate space cannot be adjusted for purposes beyond their primary function.

It could be argued here that the hermetic boundary as a wall and its thresholds is reinforced by the space in-between created by the double-skin, which Menteth describes several times as a buffer zone. According to the Oxford Dictionary, a buffer refers to "a person or thing that reduces a shock or that forms a barrier between incompatible or antagonistic people or things".⁶⁰ This concept is expressed in terms that are comparable to the concept of *Mur Neutralisant* (Chapter 3), operating on the premise of potential conflict between actors or agents who should not meet. While it would be difficult to underestimate, in this case, the high possibility of conflict with inauspicious acoustic relationality most of the time, the possibility of social relationality is simultaneously repressed and the intermediate space is

⁶⁰ <https://en.oxforddictionaries.com/definition/buffer>, last accessed June 2017.

conceived as an additional closure of the boundary. Interestingly, there are no alternative words in the English language that would convey a more porous and malleable version of this peripheral space, other than *interstice*, used less frequently by Menteth in the RIBA report to describe his access space.

4.5 Potential and Actuation

In order to open up the combined concepts of boundary, access and balcony functions, it might be useful to consider double-skin spaces within a broader paradigm. I am introducing here the Japanese concept of *Ma* as a form of counterpoint to binary logic, in order to present two extremes of paradigms which could themselves be considered opposite but also complementary:⁶¹ Instead of focusing on binary sides, the concept of *Ma* focuses on the transitional qualities between them. *Ma* is an intrinsically dynamic concept that focuses on relational chemistries and integrates subjectivity and objectivity without drawing hierarchic differentiations between human and ecological natures, nor between boundaries, thresholds or centres (Nitschke: 1993). Often translated as *interstice* or space in-between, it explicitly celebrates the moment these dimensions touch or intersect. Because it focuses on dynamics and on transitional states and spaces, it also breaks down separations between categories. In this world view, everything is potentially between everything else, in time and in space. *Ma* relocates the points where peripheries meet into an infinity of centres.

Ma is a time/space word that simultaneously qualifies a moment of transition and a gate (threshold), an *interstice/gap* (space in-between), and a space in its own right (room) (Pilgrim: 1950). In architecture theorist Günter Nitschke's words, the ideogram of *Ma* depicts "a delicate moment of moonlight streaming through a chink in the entrance way, fully expresses the two simultaneous components of a sense of place: the objective, given aspect and the subjective, felt aspect" (Nitschke: 1993. p.49). This translates in an architectural language that relies on post and pillar structures to support highly flexible layers of planes through which gradations between interior and exterior are adjusted and readjusted, so that boundaries and spaces move and re-form with each other and with the body. It is made up of a series of flexible layers that enable a multiplicity of degrees of openings and

⁶¹ There is relatively scarce literature available in English that discusses the concept of *Ma* in any depth, and according to my colleague, Miho Nagakawa , no actual consensus within Japan itself about its philosophical meaning. *Ma*, like Greek philosophy, is an ancient philosophy which may have mutated over time and is likely to have been influenced by other Chinese or Korean concepts. My account of *Ma* is largely derived from the work of Architectural Anthropologist Günter Nitschke (1993), complemented with many conversations with Japanese colleagues about their understanding of *Ma*, which they generally describe or explain as the 'dynamic space in-between'.

closures at the edge. This *En* space is often located at the periphery of traditional Japanese houses that could be compared with Consort Road's winter balconies for its flexibility through adjustable layers. In this sense, it hosts *Ma* between two spaces, just as space hosts *Ma* between two boundaries; the subjective human body is agent in this dynamic *together with* the objective boundary.

The philosophy of *Ma* challenges not only a 'Planning' view of order, but also our understanding of movement: the subjective element is also in the body's fluctuating place in space. *Ma* moves with the body because it is relative to body and environment(s) *and* to space or its boundaries. This concept introduces a perceptual dimension that includes movement in terms of travelling across space and its boundaries, and also movement in terms of travelling across time. The implication of this can be that movement does not only suggest motion across space, because it is *with* space and time. Movement can therefore include staying in one place for a short moment or for a longer moment, while in transition but also as a form of settlement in itself, unlike the access balconies at Consort Road.

It can also include encounters in passing that are incidental, or more repetitive and established, to encompass various dimensions of being in relationship with the wider world, as described by Professor of Architecture David Seamon (1979). This echoes some of Tim Ingold's commentaries about temporality and the metaphor of the handshake (see Chapter 1, p.47), but is difficult to represent visually. As an exercise, I used Ingold's reference to a language of blobs and arrows to 'translate' a section of Strata Tower (*Fig.23*) into a more dynamic visualisation that represents some of the relationships between body, environment and architecture according to the *Ma* principle. This begins to demonstrate the difficulty in representing a relational architecture and multidimensional relationships.

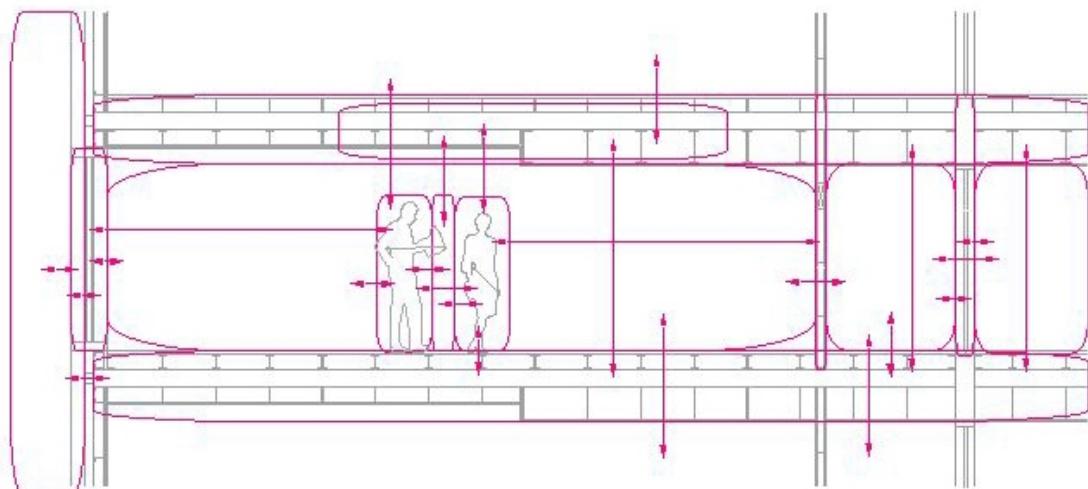


Fig.23 – Alternative Representation of Strata Section

Although they are joined by arrows, these blobs look fundamentally discrete, and the notion of interstice can extend to whole spaces in-between (*inter*), inside or around which a subject happens to be standing (*sistere* – to stand). If movement were to be represented also, there would be many more arrows and blobs and these would be not only subject to movement of people in space and time, but also to materials and environments in relationship with each other; the blobs and arrows would build up ad infinitum.

Although in-between relationships can appear static in their architectural expression, the inclusion of residential inhabitants provides an idea of the way in which spaces in-between spaces can form and dissolve with and through their boundaries as occupants go about their daily lives, move further apart or closer to furniture, or move from room to room or outside a flat. Each situation is potentially a situation of adjacency and of transition at the same time and, as such, a potential relational space and boundary.

I often use the metaphor of Capoeira dancers to try and explain a reconception of movement and in-between-ness along these lines. Some forms of the martial art require that the pair negotiate space in close proximity without actually touching. The space between them becomes a visible, dynamic, interstitial boundary, but its definition dissolves with the tension between the two bodies as they move further apart and become a-relational and discrete from each other through distance.

I also use the metaphor of sound to explain dynamic in-between-ness. During my architectural studies, I circumstantially became involved with a group of visually impaired adults, who gave me accounts of their perceptions of the city that profoundly influenced my own career as a designer. Sound is often understated in its contribution to environmental relationships, and affects the way we design boundaries as much as it is affected by these same boundaries. As non-sighted people know, it is in fact an all-permeating part of our internal and external environments and one that is best perceived from the confines of an enclosed space (St Arroman: 1989). Sound ‘bounces’ against surfaces, and this reverberation is vital for those who need to locate space (and consequently boundaries) through its acoustics; it gives materiality to the optically ‘empty’ environment of what I call *invisible natures* such as temperature, ventilation or pollution.

Sound is perceptively more enveloping than visual space. We cannot see behind us but we can hear someone talking behind us. This is because vision, if panoramic, is nevertheless relatively linear (30° at either side of the eyes) whereas sound is multi-directional and all-encompassing. Sound can be heard from beyond the

spectrum of vision and its reverberations can travel across space from one surface to another, hence giving instantaneous clues about the placement of body through the definition given to space by boundaries. Sound in an enclosed space provides an all-enveloping feeling/sensation of being component to/with an environment. This experience of envelopment is similar to Junichirō Tanizaki's (1933) description of shadows which, by dimming sight, enable other forms of physical perception to enter the appreciation of presence *in* space and of presence *of* space enshrining the body (Schafer: 1985, p.93). Acoustics are, therefore, an important factor in establishing a continuum and environmental tangibility between body and walls as a form of engagement, but one that was essentially addressed from the point of view of exterior environments only at Consort Road.

Blind people prefer spatial intimacy to open space, particularly if that open space is windy or noisy (Hill: 1985). When sound loses the boundaries of enclosure, it becomes blurred, absorbed into the flow of space; it mixes with an infinity of other sounds and the discrimination between 'useful' and 'peripheral' information it conveys becomes confusing and requires concentration. In open space or large buildings, it is the breaking up of sound by intermediate boundaries that gives a sense of location, such as a colonnade, a row of trees or lamp posts between pavement and road, or hedges on either side of a street (St Arromain: 1989). This highlights the importance of boundaries and of relationality in our sense of location in space, it redirects an understanding of movement as a purely linear motion across space, and it diffuses the sense that boundaries are automatically solid or that space is empty. This emphasises a relational dimension whereby everything potentially touches everything else, and whereby place is defined by body and space together.

Sound defines enclosure of space and the quality of the boundaries of that space, not only in terms of surface but also in terms of membrane. Sound can travel through boundaries in the same way light can travel through human tissue, and the perception of sound from beyond the space (the sound of an airplane for instance) defines the position of the bounded space within greater circumstances. As such, the ear can sometimes 'feel' further out than vision in terms of location and placement of subject in world, despite transgressing the boundaries that also define sound (interestingly, M&E services can carry sound and therefore 'send' it through the fabric of the building rather than directly across the walls).

The pervasive quality of sound, dependent on boundaries and yet prone to transgressing them, can be problematic because it challenges privacy in ways that

are quite different to visual privacy. It is interesting that at both Strata Tower and Consort Road, sound was a primary design factor. It is quite possible that the designers of Strata Tower made the decision to seal the external boundary on the grounds of its location at the Elephant and Castle, at the cross-road between several car and train arteries and their attendant sound and air pollutions. For Consort Road, the space in-between, enclosed by a layer of glass, serves an equivalent purpose, despite an apparently very different strategy. However, both strategies, while appearing to remediate the problem from the residential 'side' of the boundary, can exacerbate it from the other 'side'. Music educator and environmentalist Murray Schafer argues that: "noise in the city increases in accordance with the thickness of glazing" (Schafer: 1993, p.200). In the case of the Strata Tower, this applies to glazing and panelling alike, both smooth and hard-surfaced. But the same surfaces also increase reverberation on the inside, and this may be one reason why the access balconies at Consort Road are not appropriated; reverberation can exaggerate domestic sounds and potentially compromise privacy between neighbours. This is an aspect of the boundary that frequently repeats itself at all sorts of dimensions – the more protective/defensive a boundary, the more polarised its sides. The (acoustically) stiff boundary produces exclusion on both sides and, by doing so, also creates excess as the sound bounces back instead of diffusing itself.

Sound is in many ways more difficult to control than visibility and, in this sense, promotes a sense of randomness that is not unlike the unpredictabilities of weather or occupancy. Music composer and theorist John Cage (1968) famously explored this quality by focusing on the 'spaces between spaces' of sound – the 4'33 of silence between two notes. Silence, in music, is a moment between two moments of composed sound (which recalls the *Ma* principle) during which the notes finish their journey in space, bouncing increasingly softly against their enclosure and giving way, eventually, to other sounds contained within the space, such as shuffling of clothes, heartbeats, a flying insect. At this point, the audience can 'feel' these hitherto imperceptible sounds, and the way in which they wrap themselves around the room and around the audience's bodies becomes a *tangible presence* of other natures, which can feel almost solid despite their immateriality. In this sense, spatiality of the in-between acquires organic qualities akin to those of body and wall, a certain materiality which is as palpable as their respective relationships with sides beyond them.

Architect Peter Eisenman calls the architectural boundary interstitial whether it is single or double-skinned: "a solid figuration generally known as *poché*, which is an

articulated solid – usually a wall or façade – between two spaces. While the interstitial is a containing presence that is figured or articulated, it is also primarily inert or static. (...) In order to see the interstitial as something other than its condition as an articulated yet inert presence between two spaces, its status as an embodied figure must be changed. (...) The interstitial [boundary] in this sense proposes a dissonant space of meaning; it becomes an autonomous, figural matrix of forces" (Eisenman: 1997, p.243). In this definition, there is a suggestion that the wall, as an integral component in the relationship, might be regarded as a body in its own right, and therefore as an entity comparable or related to the body. The use of the architectural term *poché* is also interesting because it is a French word from which *pocket* and *poach* derive, suggesting at once contained space and trespass, and therefore boundary and space as entities that work *together*.

However, in as much as double-skin walls can, arguably, also take the form of cavity walls, the added complexity of voids between boundaries seems to exacerbate a conception of boundaries as devices for enclosure, but not for mediation. Cavity walls are made up of two skins, in-between which thermal insulation, condensation and rising damp management have been routinely effected since the 1920s and might have in fact influenced Le Corbusier's concept of *Mur Neutralisant*. The technologies of cavity walls actually date back to the late Victorian era, and if one includes vernacular stone wall types filled with rubble between sides, it arguably originates from much further back in time (Sutcliffe: 1909). Professor of architecture David Leatherbarrow reads the principle of the cavity wall as representative of our culture's difficulty in reconciling architectural representation and production: "The subtle reciprocities and tensions between architectural figuration and rationalized industrial production have a decisive effect on architectural design and understanding; so much so that the nature and dilemma of contemporary architecture is revealed every time a building is covered in cladding" (Leatherbarrow: 2005, p.20). Cladding generally refers to the external skin of cavity walls, which is cosmetic rather than structural and acts as a wind and rain screen, but it could equally apply to the external skin of double-skin configurations.

It is ironic that, while generating additional technical and technological complexity, the 'hollowed' wall should also exacerbate polarisation within a binary language of boundaries made of voids and surfaces. Yet, Consort Road combines novel and flexible boundary strategies with other more traditional and defensive ones through one single strategy of space-in-between. This conveys the complexity of boundary

conditions even when they are more spatial in the sense of containing their own space.

The winter gardens at Consort Road subtly express daily routines and changing rhythms on the private side, while responding to the changing rhythms of street life and external weathers on the public side. Most importantly, as compared to the observations raised at Strata Tower, they reveal that residents can successfully appropriate and regulate this meeting point between the two sides. The manifestations of utilitarian everyday and of more decorative objects indicate that dwellers are attuned to this subtle modulation between external weathers and internal environment, through space and through time. They also attest to the integration of a variety of different internal daily rhythms and of a variety of different degrees of privacy needs. In boundary terms as defined in this thesis, I would infer that they provide a successful intermediary and intermediate space between individual dwellings and external environments, without compromising a certain sense of architectural coherence and integrity throughout the year.

It is all the more surprising therefore that social and environmental interactions should be discouraged at the access ways at the back, and at the lobbies to the houses. These appear to be generated by conceptual separations made between people/environment relationships and people/community relationships. This manifests through restricted thresholds at one of the two 'skins' (on the access balconies) and of concealed/concealing doors to the intermediate entrance lobby to the houses, where access and threshold provide distribution and transition with limited scope for spending time at the edge between private dwelling and local circumstances. The intermediate space created by the double skin strategy serves as a space for distribution at its most pragmatic, and otherwise serves as a defensive buffer zone designed for circulation but not for reciprocity. This exclusion is largely nested in the construction of masonry without windows between access balcony and interior on the inner skin, and in the design of the meshed entrances at the external skin of the house lobbies. Paradoxically, the defensive protection against local acoustic and environmental pollutions is extended to defensive separations between private and public principles, as if the two were interchangeable. While both meet at the boundary, their individual particularities are not recognised and, in this sense, they are also excluded. This affects relationality between neighbours and between dwellers and street, and puts emphasis on division between public and private space.

Arguably, these boundaries materialise through zoning policies: the unusual local circumstances of a former industrial site now given over to residential life weaken the case for needing privacy, especially as the neighbouring sites are also blind to Consort Road and Brayards Road. This points to an institutional preference for separation that could be compared to some of the paradigms behind design constraints previously identified at Strata, except that these here inhibit community life through Planning, rather than environmental fluctuation through Building Control and Health and Safety regulations. The zoning categories are fenced into their respective remits and held apart from, and through, the public space that distributes each. In this sense, streets could also be interpreted as in-between interstitial spaces: boundaries for lateral circulation but not for communication across neighbouring buildings. Like the access balconies, they are flanked with defensive façades that cannot be adjusted for the eventuality that relationships between adjacent territories might one day become more desirable. Inbuilt into such strategies of space-in-between, the notion of in-between-ness itself acquires defensible characteristics that are remote from mediatory and transitional potentials such as those suggested by *Ma* or by more phenomenological forms of dwelling, in terms of space, in terms of place, and in terms of appropriation. The boundary here remains an object for defense and internalised separation, rather than a transactional middle between binary sides.

Chapter 5

RELATIONALITY AND ILLEGAL ARCHITECTS (Greenstreet Hill and Telegraph Hill)

The cases of Strata Tower (Chapter 3) and of Consort Road (Chapter 4) both reveal strategies where relationship between sides is subdued by design at the boundary, and engenders other forms of separation between body and architecture and/or environment. Associated themes about prevention of conflict (*Mur Neutralisant*, buffer skins and withdrawn thresholds) seem to transcend the disciplines of architecture and to permeate regulatory institutions such as Planning and Building Control, suggesting that this convention extends beyond the practice of architecture itself. These inhibitions generate many paradoxes, in terms of social cohesion and also in terms of environmental control.

Professor of Architecture Jonathan Hill perceives some of these paradoxes as inbuilt into, and reflective of, our conception of home: "It is supposedly a stable vessel for the personal identity of its occupant(s), a container for, and mirror of, the self. But the concept of home is also a response to insecurity and the fear of change. A home must appear stable because social norms and personal identity are actually shifting and slippery. Home is a metaphor for a threatened society and the threatened individual. It is an intense manifestation of interiority aligned against exteriority. The safety of the home is really the sign of its opposite, a certain nervousness, a fear of the tangible or intangible dangers inside and outside." (Hill: 1998, p.14).

Hill perceives, as I do, the presence of "gaps" between disciplines and professions, between institutions, architects and users, and between the staticity of architecture and the malleability of live principles. This chapter examines a specific gap (or conceptual boundary) between the defensive definition of home above and evidence that counters this idea, from a housing project in which residents and architect collaborated to create an architecture of privacy through polyvalent boundaries instead. The circumstances of this design fall outside many definitions of mass housing as the 'users' designed and built their own homes. I am not making a case here for or against self-build and alternative tenures and procurement. I am interested in this precedent because it demonstrates the coexistence of designs for boundary negotiations and mediation between privacy and publicity that contradict the above while also supporting it, and that are implemented through the

architecture and also beyond the architecture. I will also make observations about neighbouring street conditions in the residential conservation area around its vicinity, which provide evidence of relative porosity because their Victorian boundary designs are also more multi-functional, if of a very different architectural style. Both prototypes open up a series of potentials that offer alternative interpretations of the role played by architectural boundaries in the actuation of sustainable lifestyles.

5.1 Strata Tower: the Interior 'Side'

Before introducing these alternative boundaries, I will here contextualise them with observations beyond environmental control about the interiorised side of Strata Tower (see Chapter 3). While external and internal environments cannot be modulated, it is designed in such a way that interior life is physically contained and only visible to the public eye through the transparency of glass during night time, when internal lights are on. I researched whether the enforced inability to control relationships with the outdoors correlated with an inability to control relationships indoors by 'surveying' the interiors of Strata dwellings on the basis of photographic evidence from various estate agent websites.⁶² Apart from the blue tint and indoor air quality issues discussed already in Chapter 3, the flats appear to give a relative degree of control to their residents, with accessible radiators (radiators often disappear under the floors nowadays, which creates difficulties in cases of failure) and some instances where windows can be fitted with blinds or curtains, which is not always feasible in many recent construction types. However, there are other details that reveal restrictions in the way these flats can be occupied. Making allowance for the fact that a flat needs to be relatively bland and tidy when it is up for rent or for sale, the walls in different flats tend to be of similar colours and finishes and the rooms are fitted with similar styles of furniture. There are relatively few signs of appropriation, such as fitted shelves, pictures or mirrors (Fig.24).

This could be the reflection of target audiences. According to a study carried out in 2013, among the 24% Housing Association shared ownership occupiers, many are students and therefore unlikely to stay for more than a few years; 75% of the other flats were sold off-plan as buy-to-let investments; private owners who are not letting out their flat often use them as pied-à-terre rather than primary residence (Imrie & Lees: 2014). Therefore, it could be argued that the decor of the flats is aimed at short-term residents and satisfies their need for more transient lifestyles.

⁶² As these change all the time, the links I would give would change within weeks or months. The photograph I have chosen is from <http://www.rightmove.co.uk/property-for-sale/property-54019250.html>, accessed December 2015.

This would imply that a varied range of potential residents require a relatively neutral aesthetic to cover all tastes, together with furnished accommodation in order to reduce travel loads. This could also be perceived as a manifestation of uniform tastes, translated as "Lifestyle Choice" by the brochure of Strata's agent Gordon & Co.⁶³



Fig.24 – Strata Flat for Sale

However, there are also other reasons inherent in the way the flats are built. Symptomatically, the rare wall decorations seem all hung more or less at the same height, which corresponds to where flat television screens are also hung if not rested on furniture. This is very likely due to the way the internal partitions are built. Although I could not access detail drawings, and my interpretation is therefore speculative, Archdaily describe the basic concrete structure as made up of 200mm thick post-tensioned concrete floor slabs and high strength blade columns (*Fig.23*). This is standard, and is usually accompanied by an aluminium frame system that supports plasterboard between rooms. As an indication, I am showing in *Fig.25* a photograph I took in Deptford, which shows such frames being inserted on the inner leaf of the exterior cavity wall. Usually, concrete block walls will separate flats but partitions between rooms within the flats will also be made up of

⁶³ I have tried to confine myself to purely architectural matters but Gordon & Co's brochure (http://issuu.com/goandco/docs/gordon_and_co_corporate_brochure?e=13332556/9098889) is worth visiting, as is Strata's forum, Inhabit (<http://www.strata-inhabit.co.uk/global.php>), which is not accessible to non-residents but, by its front page entries, suggests it is aimed at one single type of lifestyle.

these aluminium frames, which are technically interior in either scenario because they are inside the external cladding. The argument brought forward in favour of this construction method is that it substantially reduces the amount of concrete needed for the structure. The aluminium frames are very quick to install, but also have poor load bearing capacity. From professional experience, I suspect, therefore, that a strengthening device was added to the internal partitions so as to enable the support of picture frames or televisions, but that this can only be done in specific areas on the wall.⁶⁴ Therefore, the relationship dwellers have with their walls is conditional – whether they are tenants or leaseholders.



Fig.25 – Construction Site in Deptford (Summer 2014)

Most of the M&E services are located above hung ceilings or under raised floors (Archdaily: 2010), and therefore difficult to access for repair without causing major upheaval. Increases in technological complexity (in the fabric or the M&E systems) exponentially reduce the possibility for users to engage with their home by rendering it increasingly difficult for them to maintain and repair without specialist input (Alter: 2006). This is the case for technologies nested in raised floors or

⁶⁴ Interestingly, LCC tenancy agreements of the 1930s sometimes prescribed that pictures could only be hung from a picture rail, as is the case for the 1932 LCC Tenancy Agreement for the Becontree Estate, p.14. The Strata restrictions could thus be interpreted as an internalised version of the same thing in as much as the reinforcement rail is no longer visible on the external face of the wall.

suspended ceilings to carry ventilation pipes, electrical ducts, water and waste supply or communication conduits – many of which might also travel inside the internal partitions and would be at risk of damage from perforation. Most of the services listed above also travel vertically and horizontally across flats, transgressing the remits of any single property and therefore blurring the concept of what belongs to whom beneath the *surfaces* of habitable rooms.

In effect, it could be said that such forms of contemporary housing sell or rent space, but not its boundaries, through a combination of recently ordained construction and legal constraints specific to high density housing. The boundaries containing these services become *othered* property, not shared in the sense of communal space but in the sense of overall building management.⁶⁵ These reconfigurations for servicing the building are modelled on the way office buildings are often furbished, whereby internal fabric and structure accommodate service spaces sandwiched between inhabitable surfaces. Ironically, while wall and services seem reunited here, they both conspire to increase self-containment and yet, at the same time, intrude into privacy by restricting lifestyle choices.⁶⁶ On the other hand, the more specifically temporary user is here detached, for temporal reasons related to external societal and economic forces – an unusual instance in which dynamics between public and private principles would have been taken into account.

5.2 Greenstreet Hill, Privacy and Engagement

Greenstreet Hill is, in many ways, the exact opposite of the above. It is a late 1990's development in Lewisham that was inspired by the Walter Segal timber framed construction method and its self-build ideology (McKean: 1988), although none of its residents own their house.⁶⁷ Segal, who practiced and taught architecture, had first developed his method in his own back garden in the 1960s and, through trial and error, devised a building system inspired by various traditional timber prototypes throughout the world. His objective was to enable a fast and affordable way of building with limited construction skills (Broome: 2007).

Greenstreet Hill is comprised of 11 units that are relatively close to each other and share an enclosed common yard. It is rarely mentioned in high density housing discourse for a number of reasons, not least the fact that it was built by the

⁶⁵ This is often the case also in educational and office buildings.

⁶⁶ I like to make reference to Terry Gilliam's film *Brazil* (1984), in which the complexity of services becomes a form of life in itself within the walls that is controlled by outside forces and enables these forces to transgress personal privacy.

⁶⁷ Not to be confused with Walter's Way, in South Lewisham, which was built in the late 1970s.

residents themselves and procured on the basis of 'sweat equity'.⁶⁸ As such, it is experimental in many ways, and falls outside a definition of housing that would entail designing for unknown users prior to them moving in. During a visit in the summer 2014, the residents explained to me that the project was originally initiated by two local people who had thought up the idea and gathered a group of like-minded (but hitherto unknown) others.⁶⁹ They are all, therefore, intimately familiar with the make-up of their dwellings – the layouts of their individual houses are flexible enough to enable adjustments over the course of time, and they all invested into the project with the intention of making them long-term homes.

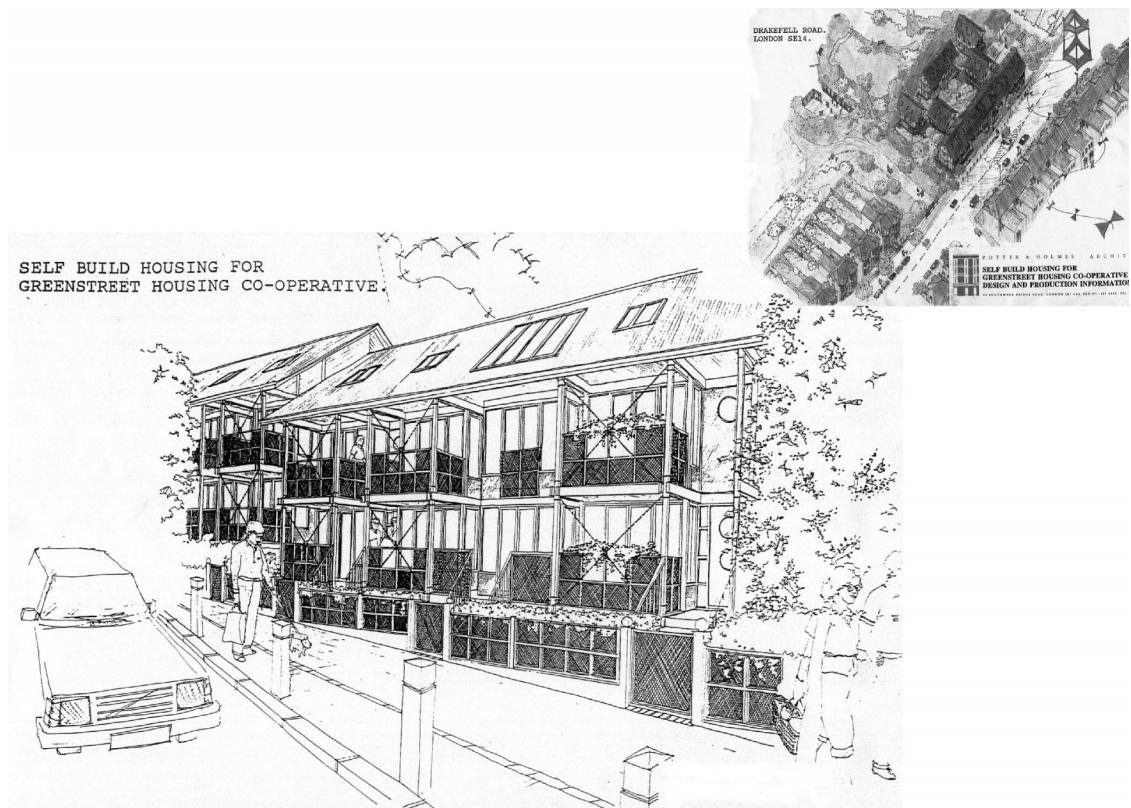


Fig.26 – Sketches of Greenstreet Hill by Potter & Holmes Architects

In this derivative 1990s version of the Walter Segal method, walls are highly insulated but they are not airtight, and the timber frame structure has enabled a number of changes and adaptations to internal layouts and to external layouts over the years, carried out chiefly by the residents themselves and with minimum statutory supervision. In the case of Greenstreet Hill, buildings and users have been working 'collaboratively' to adapt to changing circumstances over the past 20 years

⁶⁸ Completed in 1997 (it took four years to build), funded and owned by CHISEL Housing Association, built under the supervision of Potter and Holmes Architects.

⁶⁹ This is the only instance where I have spoken to residents (Chapter 3 explains why I did not include conversations with residents on the other case studies). The reason for this is that the compound can only be visited through residents and in an organised manner. However this case study falls outside the norm of the other precedents , including the manner in which I have documented it, and thus constitutes an exception in every way.

and although each house is individually modelled, adapted and reconfigured, there is a remarkable consistency of 'feel' (rather than style) in each dwelling, despite the way in which each is also very personally appropriated.

The residents decided to create adjustable porosity between dwellings through a variety of interstitial devices that protect their individual privacies: private balconies, shared access ways, small recessed terraces and entrance porches, internal lobbies, variegated fronts and backs, and a central open-air court screened by lush vegetation and intended for occasional meetings about collective management. These interstitial spaces are modulated through the flexible 'skins' on either of their sides, a large amount of door and window thresholds and additional screens afforded by vegetation along trellises, together with various forms of blinds and curtains. In this sense, they function in a similar way to the winter gardens at Consort Road, but the balconies inside the compound also serve as access ways at the periphery of the central court.

I have no photographs. When I took a group of students to visit Greenstreet Hill in the summer of 2014, it was the first time the residents had opened their doors to a group of visitors and explained the story of the project.⁷⁰ They specifically requested that photographs should not be published.⁷¹ They value their privacy from the wider world, from the local area, and from each other. They retreated from the main road through recesses behind deep balconies over a generous roof overhang and a wild strip of land and vegetation at street level which provides dense visual protection. There are also back territories that share the boundary of the public park behind the site, yet these are more private to the estate in that they face away from the centre but are partially open rather than closed off from the public park. The same strategy applies to their relationship to the inner court and between houses. In this sense, the relationship with the street and between neighbours is the opposite of that at Consort Road. Entry into the compound is shared and accessed through a side entrance off the street, that serves as a small car park and informally introduces visitors to the inward looking heart without entirely allowing them in. Although the compound is not gated, it is loosely fenced-in, and this entry space serves as a transitional inner-court open to the street and to the estate, but marking out the two territories as semi-private and more private. In the instance of this whole compound, privacy is achieved through architectural

⁷⁰ They later decided to open their doors to the Open House event of 2015, in commemoration of Walter Segal's death 30 years before.

⁷¹ There are Flickr photographs on the internet that show construction in progress as well as a few contemporary photographs, which can be tracked on:- <https://www.flickr.com/photos/abridgeover/sets/72057594131979841/>, last accessed 6 September 2015.

porosity, a porosity that employs a variety of strategies ranging from interstitial spaces inside and outside the dwellings to intermediate and adaptable edges, as regulatory devices rather than devices for separation. In their design, the houses are both interiorised and exteriorised at the same time, upholding a need for retreat into the private dwelling while upholding also a need for relationality with local conditions. The two principles work together through the architecture.

The compound looks lush and mature, and its buildings have changed in many small ways over the years, through the intervention of individual touches – both inside and outside the dwellings, through the natural course of weathering and because of the growth of vegetation. Together with the tending of nature, of small agricultural allotments tucked into spaces between the footprint of houses, its buildings have been modified without compromising the integrity of its architectural coherence. Some of these adaptations are remarkable for their intuitive and architectural ingenuity, but might defy some conventions in building standards. Current planning and building regulations would, in fact, oppose a lot of the project's essence, as would tenancy agreements, which are now often averse to any modifications by tenants, especially in the private rental sector. Many blogs and forums on the internet demonstrate that lease agreements today can forbid a large number of everyday activities, including intervention to the walls such as using nails to hang a picture, or 'lifestyle choices' such as having a domestic pet. In these ways, where residents are discouraged from appropriating their space at Strata, they were encouraged to do so at Greenstreet Hill only twenty years earlier.

Inadvertently, recent legislation has resulted not only in disengagement by tenants, but also in disengagement by landlords. Current building standards require costly repairs, which are not only outside the competence of tenants but also outside the budgetary capacity of some landlords. This has prompted a series of research reports attempting to remediate a widening gap between the two parties, usually through a reassertion of the legal system, as is the case with the Law Commission's consultation about *Housing: Encouraging Responsible Letting* (2008). As far as I know, there are no equivalent research papers that challenge the same problem from the point of view of the building's architecture itself, rather than the law, despite the fact that, theoretically, it here becomes the material object of potential conflict.

Arguably, Greenstreet Hill was completed at the end of an era in terms of building regulations, in the wider meaning of the term, and it is serendipitous that Jonathan Hill should have published his theories about *The Illegal Architect* (1998) at the

time the construction of Greenstreet Hill was being completed. Hill's primary contention was that architecture is not a finished product at the time construction finishes, and that the users to whom it is handed over also become architects in the production of architecture over its life time. This concept, which is embodied and endorsed by the case of Greenstreet Hill, not only challenges the role of users, most particularly in a mass housing sector prone to regard them as detached unknown quantities that are potentially detrimental to its smooth functioning, it also challenges the way architecture is designed to facilitate this longer-term, temporal equation.

5.3 Creative Hands and Intelligent Buildings

In his study of *How Buildings Learn* (1994), designer Stewart Brand makes comparable arguments by placing emphasis on the ability that buildings often have in adapting to changing times, circumstances and needs over a long period of time. He examines this phenomenon by comparing photographs of buildings through the course of their lifetime, which sometimes span a century or more. Brand's thesis is that buildings 'learn', which implies that they are metaphorically endowed with principles of life and cognition. He often refers to alternative architecture designer Christopher Alexander (1977), who suggests that buildings are dynamic as well as inert and should, therefore, be considered as live organisms. According to his research, this ability to learn, transform and adapt seems relative to the porosity and flexibility of physical, institutional and legal architectural boundaries.

Importantly, however, the proposition that buildings might learn is also relative to the extent to which body and boundary can relate and, therefore, collaborate with each other in space and in time. A building cannot learn from its neighbours without changing, in small or more perceptible ways depending on the size of the intervention, through the agency of the human hand and/or creativity that will apply these changes; unless these changes are the result of wear and tear brought about by neighbouring micro-climates (weather and social intervention both at the boundary). Similarly, a person cannot fully appreciate and absorb these 'suggestions' by neighbouring buildings without cognitively understanding their merits, and physically translating them in a way that suits both building and neighbour. The trans-communication between body and building involves several relational stages: of dynamic adjacency, of being in relationship and of physically enacting the exchange of information into incremental transformations (repairing and modifying) – most of which are occurrences that involve the architectural boundary and other relational principles.

Many of Grand's commentaries also echo some of the suggestions made by architect Juhani Pallasmaa in *Thinking Hand* (2009), which advocate design and construction processes that involve manual agency. Although his focus is arguably more design-oriented than use-oriented, the principle, nevertheless, applies equally. Pallasmaa begins his thesis by explaining that many anthropologists believe that hand actions and mime may have preceded language, and may have even constituted the earliest forms of language. He applies this proposition to a revision of architectural design that originates from the body's intelligence – that of the designer and that of the user. This is important because it suggests that action contains knowledge and forms it at the same time at all stages – before, during and after construction. This implies that design and dwelling are continual processes through time, between architecture and its many designers, and that the intelligence (in the widest meaning of the word) of building and user is conditional to this relationship. It also implies, as Hill (2003) would uphold, that users can be active participants in the making of architecture, not only before (consultation) and during, but also after initial design and construction.

This theory could also apply to other physical forms of engagement. Kinaesthetics is often regarded as a form of intelligence too (Gardner: 1983), and there is a growing body of research that suggests that it also *forms* intelligence (Thelen: 1996). In terms of human action and in terms of dwelling, this would support the proposition that, in order to succeed, architecture and body/user need to be relational; that they should *both* be involved in the project of becoming more sustainable, and should *both* learn from each other in order to evolve towards the same endeavour.

These observations challenge terminologies such as that of 'Passivhaus' (retaining heat through insulated boundaries and M&E technologies – see Chapter 3, pp.106-107), and some reactions to this ambiguity (is it the house or user who is passive?) have offered alternative terminologies such as 'Activhaus' (retaining heat through insulated boundaries and technological monitoring/modulation) (Hartley: 2014) and even 'Dumb' house (retaining heat through insulated boundaries but without M&E assistance) (Hanley: 2015). These all linguistically focus on the building's 'performance' without acknowledging the user's agency in that performance. In the context of a possible prejudice against the 'user' implicit in the observations throughout the previous two chapters as well as this one, it could be inferred that the focus on buildings' 'performance' constitutes a self-fulfilling prophecy in detaching users from their walls and from their intelligence of these same walls.

The debates covered here about user engagement and construction technology are, therefore, intertwined with other issues that are of a relational kind. Psychologist Judith Davidson indeed asserts that "far from being creatures whose intellectual minds and physical bodies are distinct from their surrounding worlds – both natural and human-engineered – the embodied nature of knowing indicates instead the permeability of the boundaries that we imagine between self and other – animal or thing. As a result of the inter-subjective nature of our relationship to the environment, we are more natural, in the sense that we are submerged and intimate in nature, than we have acknowledged. We are also more technical than we might have imagined, in the sense we incorporate technologies into our bodies as we extend our senses through the use of these tools" (Davidson: 2004, p.199).

In many respects, the simplest building as shelter is also a form of technology in the first place, and debates about technology thus extend to every aspect of body and building (Teyssot: 2004) while being relative to different perceptions and needs by different people. The separation of the body from its architectural boundaries could be considered a matter of culture as a whole, especially as the industry of 'smart' technologies is demonstrably embraced by some users through its commercial success. The difficulty is often in considering body and technology in relation to each other, rather than instigating one in parallel with the other – to enable user cognition to decide on preferred degrees of involvement with technology. Simpler technologies such as timber enable greater flexibility for users as well as for the building, whereas highly technologised construction types require increased involvement from specialised third parties, and dissociate possibilities for users (and therefore buildings also) to interact and adapt together.

These themes are being revisited in architectural discourse through research on cognition – for example, Ann Sussman and Justin B Hollander's new publication on *Cognitive Architecture: Designing for How We Respond to the Built Environment* (2015), or the research carried out by the *Academy of Neuroscience for Architecture*, formed in 2003 in San Diego. I cannot here extensively review the considerable amount of research beyond architecture currently ongoing in the fields of cognition, but I would include Lakoff and Johnson's (1999) work, which assigns *intelligence* to the integrated processes of perception, and underlines in great detail the role and impact of body and time on this process.

As Grand points out, the lifespan of new buildings seems to decrease with each generation, and he gives examples of buildings reaching obsolescence within two decades of completion. If considered incremental to body or building intelligence,

this would indicate a decrease rather than an increase in 'smartness'. This is partially the problem with Strata Tower. Strata is, in many respects, designed as a finished, absolute and immutable product. In this sense, it is designed outside of time and cannot, therefore, evolve into an intelligent building, whereas Greenstreet Hill has greater chances of evolving with changing times and circumstances. It is difficult to imagine that Strata Tower should be able to endure the test of time in this way, not only because its boundaries are disinclined to generating relationships between parts, body and environments, but also because these separations are largely engineered by M&E services and cladding technologies that have a limited lifespan of 25 years or less (Brand: 1994).

There is an apparent lack of studies about the consequences of hypothetical failure of 'new' materials also, such as airtight membranes which, should they occur, might compromise the integrity of the whole exterior envelope. A failure of the Passivhaus envelope has already occurred at a zero carbon school in Dartington, which had to be pulled down within five years of being built because a rainscreen detail fault caused the entire building to rot without possibility of repair (BBC Devon: 2016).⁷² In this sense, a carbon footprint for Strata that would include construction as well as running 'costs' is likely to exceed that of an older building that has been maintained, refurbished and adapted over the span of 100 years, and among which Greenstreet Hill might eventually rank.

As far as I know, there are no current statutory requirements for assessing a building's life span, or footprint figures on energy consumption that relate to lifespan.⁷³ The validity of energy consumption footprint calculations is, in this sense, quite relative. Longevity and resilience sometimes appear in sustainability statements, although not necessarily for the building itself. There are no descriptions for Strata of the ways in which the building might adapt to climate change (URS: 2005), and Lendlease's Sustainability Statement for the Heygate regeneration (2012) adjacent to Strata includes a clause for developing "designs that adapt to changing climate in London". However, further reading seems to suggest that this adaptability concerns transport and access (the separated 'public' side discussed through Consort Road, Chapter 4). The resilience of buildings and their design, it seems, is omitted from the sustainability check list.

⁷² I regularly encounter, during my walks, examples of cladding that is already failing after 10 to 15 years of being built, if not less. I am concerned about additional issues about safety of the public which I cannot cover here in detail, particularly for legal reasons.

⁷³ Not to be confused with *Homes for Life*, which is a policy design requirement for elderly people to ensure they can adapt their home to wheelchair and long term invalidity.

Construction researchers Lacasse and Vanier (1999) have usefully listed some of the multiple factors that define a building's durability. These range from differing technical life spans between structure, services and dependent technologies such as software, and include period of use and economic life span. However, they do not include contingency with context and for change, in the sense brought forward by Jeremy Till in *Architecture Depends* (2009). There are quite a few commentators who call for a lifespan requirement in the way buildings' carbon footprints are calculated, such as Mark Oliver of Building 4 Change (2012), but I have found no official reports acknowledging this.

This reluctance to address resilience, indicated by the construction industries' interpretation of sustainability, could have a number of explanations. For instance, it is possible that statutory authorities are keen to maintain a hold on the building's statutory compliance and are averse to a more mutable version of architecture that would involve people (and, ironically, weather also). It is also possible that, as the housing trade has become an alternative economy that boosts 'economic growth' figures, it is in the interest of developers (and economic forecasters) to build – and, therefore, not in their interest to build something durable, as suggested by Grand (1994). This puts a dark tone on the meaning of sustainability in the construction industries, and the 'prices' of energy saving measures on user lifestyles and on social sustainability in the wider sense seem proportionately greater than the effort to minimise demands on the planet's resources by the building as a whole. This is less related to the physical act of controlling environmental relationships through the boundary on an everyday basis, but involves the element of subjective (user) and objective (building) temporality on a longer-term basis.

5.4 Adaptive Sustainability by Mutual Learning

Greenstreet Hill was built over prefabricated bungalows built after WWII where some terraced houses were bombed. It is surrounded by the remaining Victorian streets, where a number of novel forms of boundary appropriation have been developing over the years. There are terraced houses of varying sizes, but all feature an intermediate space which is usually proportional to the size of a house (*Fig.27*). For larger terraced properties, it can be the size of a small garden whereas, for humbler working-class cottages, it can be relatively narrow, paved rather than landscaped, marked out by a railing as separate from the pavement. I live on a road near Greenhill Street, where this strip is two metres deep, and serves a number of other activities and functions over and above encounters and chats between neighbours that occur there on a regular basis. It is a site where common

and recycling rubbish bins live, symbolic in terms of threshold as they signify the presence of utilitarian cycles of the everyday that transgress domestic boundaries and carry out a transition of sorts between the two 'sides'.

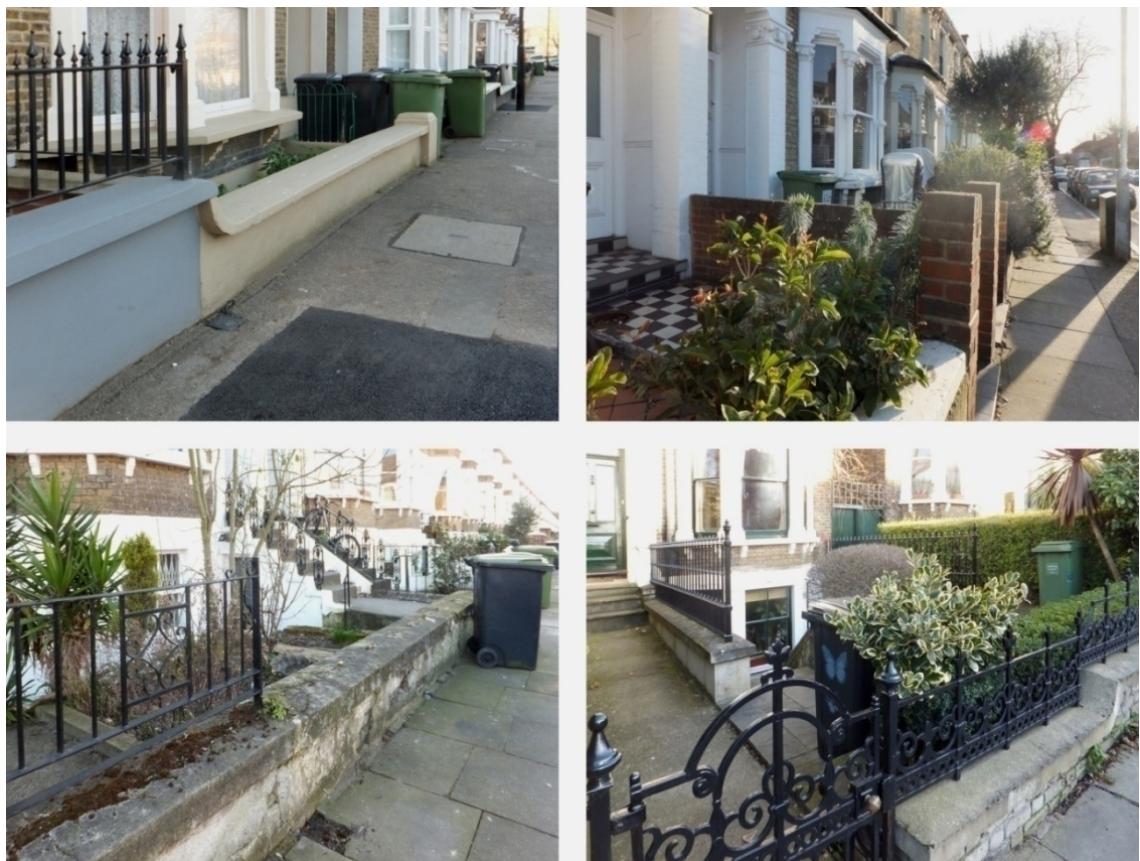


Fig.27 – Samples of Victorian intermediate spaces in South London (Autumn 2014)

It is a site where residents assert their personality (or not) through landscaping or lack of it, through hedges, curtains and screens that regulate their preferred degrees of privacy, or through decorative or illustrative objects on either side of their windows. It is also a site where a number of social exchanges take place, with or without people. For example, every autumn, a neighbour in the street leaves trays full of pears on the edge of their dwarf wall, with a note that typically says "help yourselves". Another neighbour recently did the same for wild strawberries, and another for mint and lavender. Similar invitations to acquire second-hand or surplus items that may still be of value to someone else often apply: e.g. books, children's toys, etc. (Fig.28).



Fig.28 – Objects on offer between public and private domain (Spring 2014)

All of the above signify a local zone in which informal transactions happen spontaneously (and unconditionally), and these transactions are about cycles between private and public territories that might loosely be related to an awareness of certain forms of sustainability at the same time as they are indirect forms of social interaction. These 'exchanges' have been occurring regularly over recent years, but this was not the case when I first moved in eighteen years ago. This signifies an evolution in local neighbourly conventions, and reflects a local culture that has collectively found ways of agreeing on their usefulness and propriety. Although it could be argued that these tendencies are more likely in certain neighbourhoods, they indicate the possibility that neighbours learn from each other and that the architecture of this front space hosts this possibility. They signify a relationship between neighbours that is not, strictly speaking, 'social', and yet constitutes a form of communication.

Local consensus can provide interesting expressions of the hinge between this public/private boundary. The photographs in *Fig.29* are extracted from the central street of Peter Barber's award winning Donnybrook Quarter in Hackney (2006) where, for Planning reasons (related to overlooking and privacy on a limited footprint), the only interface between dwelling (privacy) and locality (public realm) is effected at the door. These are fitted with a small window at head height, that serves as a hybrid between a traditional front door window panel and a peephole.

All the doors that provide direct thresholds into the ground floor flats are screened over with images that project something personal about the residents, despite the fact that the images obscure the daylight that these openings would have provided into the lobbies. The consistency with which this device is applied throughout the street indicates that neighbours may notice and imitate each other.⁷⁴



Fig.29 – Donnybrook Front Doors (Summer 2014)

This highlights the fact that architecture/user concerns are not only between resident and dwelling in the sense of relationship between one and the other, but also between dwellers and their neighbours. These relationships may be expressed through the appropriation or personalisation of space, but also through more subtle, invisible and possibly unspoken associations. Business Manager Alex Laskey's experiment related in TED (2013) seems to suggest that neighbours measure themselves in comparison with each other without relying on knowing each other in person. The energy company, Opower, thus persuaded many

⁷⁴ These 'portraits' on the door reminded me in of Facebook profile pictures, images rather than photographs that say something about a person without revealing what they look like (because the consensus was absolute in this case I kept the door numbers on the photographs). Peter Barber later revealed that, although this interpretation of the design was unforeseen, he had also noted it and has since replicated it in other projects (2014). Incidentally, his records of these pictures are different from mine, which suggests that this is an ongoing process of personalisation at the door.

residents to reduce their energy consumption by quoting the example of neighbours who had spent less on energy.



Fig.30 – Transgressions at the Front (Summer 2015)

Over the years, I have found several examples of residential fronts that displayed attempts at incorporating sustainability on residential borders in a way that is more permanently intrusive, such as the two examples in *Fig.30*: a makeshift bicycle shelter and an agricultural box. Arguably, however, they are of the same nature as the other types of occupation documented above, only longer-term, and there are other types that involve people more directly. Spring and summer are particularly favourable to these more and less permanent interventions, and also sometimes give occasions for some residents to organise impromptu jumble sales, as illustrated in *Fig.31* with permission from the people in the photograph.



Fig.31 – Impromptu Jumble Sale (Summer 2015)

This photograph was taken in 2015, but I have since passed several similar initiatives, including one advertised through posters on trees, announcing a specific date and address for the 'sale' (these were promptly removed from the trees the next day).⁷⁵ I also passed two children further afield from where I live who were selling old toys in the same fashion. All of these examples represent potentially illegal activities because these residents are trespassing on the public pavement and should have technically been issued with a temporary license from the local authority.⁷⁶

I have also witnessed another type of transgression, one that cannot be recorded. Over the years, some objects I have left in my front space have disappeared within hours of being there – an old boiler, an old TV, an old set of wooden shelves, a pile of excess concrete blocks, copper pipes, etc.⁷⁷ I find this intriguing, not only because this indicates that some people are interested in recycling them, but especially because they are collected so quickly. This suggests that there are people, unknown to me, who regularly scan the area for such items, probably with a van (considering the size and weight of these items) and that there are, therefore, one or several local businesses that find it economically beneficial to actively search for them. This complements the standard range of waste disposal services provided by Local Authorities that are struggling under budgetary cuts.

This is an interesting phenomenon, and one that would probably require further investigation were it not for the possibility that it also contravenes various types of legislation, and would, therefore, join the umbrella of Hill's illegal architects even if, in this instance, they may not be local residents at all. However, in the context of this research, these 'exchanges' perform certain types of sustainability, in terms of recycling and of alternative local economies. They are reliant on the boundary space afforded by the Victorian street front; a boundary that is neither strictly public nor strictly private in spatial terms, but private in property terms although considered 'public' under the institutional supervision of Planning and Conservation authorities.

Under this system, rather than providing mediation, resilience and infrastructural porosity, the intermediate space in-between potentially becomes an object of contention between dweller and institution, even if the architecture itself was originally designed to host collaborative trades. Interestingly, the original

⁷⁵ I did not document this with a photograph because the flyer in question contained the resident's full address.

⁷⁶ There are, of course, other technicalities such as trading standards and undeclared income.

⁷⁷ For the concrete blocks, this person knocked on my door to ask my permission.

inspiration behind *Defensible Space* (see Chapter 1, p.59) was drawn from the flexibility and negotiability provided by such spaces, initiated by observations on the traditional Streets of St Louis at the edge of New York City. The *Defensible Space* as conceived today in Planning policy often neglects these more creative attributes and treats it as object of separation but not as the object of mediation it potentially provides.

Conservation policy's efforts at preserving Victorian appearances under Article 4, which requires reconstitution of the original boundary features, can thus become essentially cosmetic if they disapprove of some of the ways these buildings might be used today. There is evidence that these spaces in-between were always designed to be used. According to Eileen Elias (1978), traders of many sorts would regularly visit these same streets during her Edwardian childhood in Telegraph Hill, and residents would leave bones remaining from cooking, broken furniture requiring mending, knives in need of sharpening, etc., in this space while listening out (from inside) for traders' cyclical rounds. During my research, I have suspected that the random nature of such events (which were rhythmically anticipated in those days) is now, in itself, unfavourable to regulatory authorities that prefer a degree of predictability about what happens on this edge, and how it conjointly affects street life and domestic life.

The manifestations described above are less overtly social interactions but are of a more distant and discreet nature, which may account for their success. Sociologist Peter van der Graf (2009) found, when interviewing members of local residential communities in the UK and in the Netherlands, that neighbours prefer some kind of distance from each other and provide signposts for a sense of belonging to a place without requiring close contact or emotional attachment. He argues that attachment is made with place rather than individuals, and that it is in this way that places are constantly being produced and reproduced. This could explain the success of unspoken agreements on our local streets. It would also validate their role in contributing to change and, therefore, the value of having a site in which they can take place, i.e. the space immediately adjacent to and in-between contiguous private dwellings and public street.

This is also the case at Greenstreet Hill. Although residents' accounts of the compound is that it is communal, they are specific about the fact that they also

have spoken and unspoken rules about respecting each other's privacy.⁷⁸ This meets with some of the findings in Jens Axelsson's Master Study in Sweden (2014), which underlines a perceived contradiction. He found that residents in co-housing projects rely on casual acquaintance to generate communal bonds rather than more intimate relationships, and that mutual co-operation relies on this relative emotional distance. He also found that the reciprocity between privacy and community strengthens a sense of individuality, while also strengthening resilience to local differences or changes. The dynamic apparently ensues from the fact that residents are able to retreat into their privacy, and yet are able to relate to their neighbourhood at the same time.⁷⁹ While the design of Greenstreet Hill and its surrounding streets acknowledges cultural tensions between public and private domain, both architectural types provide similar evidence of real-life relationality – enabled by the architecture's ability to host reciprocal negotiations at the space in-between. In this sense, they contradict statutory preferences for enforced privacy, often protected under an assumption of potential conflict, and sustain instead a form of relationality based on the possibility of multiple, temporary and less temporary, scenarios between the extremes of the public/private divide.

These negotiations are temporal, incremental and creative and, in the case of Telegraph Hill, they have opened the way to new forms of interaction that may be increasingly relevant to a sustainable urban future. These various forms of unspoken 'conversations' could be potential ground for mutual learning and one that seems underexplored; a form of adaptive 'seeding' system reliant on small ideas and inspirations, and a *process* that relies on local chemistries and is therefore difficult to forecast or quantify. This is a concept that is gaining ground (Wood and Taylor: 2004, Giaccardi: 2005, Andersson et al: 2015), but can only be verified through the possibility of action.

I suggest that the site for this action is often the boundary – the transitional site between public and private space and the threshold between adjacent parts, where chance and serendipity thrive. The examples above illustrate the way boundaries and edges can provide an intermediate space that is not only occupied for residential use. They are also occupied by/for transient activities that often cross over the standard definitions of domesticity. These are neither work, or trade in the commercial sense, and yet they include transactions of a different kind. Positioned

⁷⁸ I have been there several times over the years because someone who lives there used to have children in the same primary school as mine. Except on the one occasion, specifically intent on listening to the residents' story, I have never met others while visiting.

⁷⁹ Staircases and entrance lobbies, i.e. intermediate spaces that are neither strictly public or private, were considered particularly useful for these encounters.

against existing evidence that attempting to educate people into more sustainable lifestyles bears poor results (BioRegional: 2009), I argue that the alternative of polyvalent boundaries has potential merits. Rather than 'performing' the sustainability for its users, the more porous architecture hosts a platform for subtle and adaptive long-term collective changes towards more sustainability of the urban everyday.

Such apparently opposite and yet complementary dynamics are not unique to the design of architectural boundaries, and resurface through many theories conceived outside architectural discourse. In binary terms, for instance, and under Aristotle's conditions (see Introduction), these oppositions would not constitute a contradiction because of their polarity as opposites and the consequent inclusiveness of the middle between them. Arguably, in this context, the right to privacy would be inclusive of community *because* it is accompanied with the right to acquaintancy that, according to Axelsson's findings, is more incidental than it is formal, and often occurs at the point of transition between private domain and locality.⁸⁰

Paradoxically, the separation of binaries 'neutralised' for their potential opposition, as in Strata Tower or Consort Road, would also neutralise their relational potential – rendering them separate, and therefore in a situation of singleness rather than one of binaries. This would constitute a contributing factor to 'isolationism' themes and may underpin the reasons why residential architecture promotes isolation of people from each other and from their environments. In this sense, it might seem that (compartmentalised) contemporary architecture reflects contemporary culture, or that contemporary culture is integrated into its architecture. In the context of sustainability, it also promotes a way of thinking that, rather than promoting relationship with nature (which involves physical touch and adjacency, both directly and indirectly), also reinforce separations between self and *othered* natures – human, environmental, organic and biological. As cognitive scientist Steven Pinker might conclude (2003), architectures of enforced separation can amount to a *Denial of Human Nature*. Comparable propositions originating from pure logic, from sociology and from phenomenology, all concur here, despite disciplinary distinctions: they are separate but can work together towards mutuality and reciprocity.

In the context of boundaries, a conceptual dissociation between flesh, architecture and environment can engender a series of misconceptions that simultaneously

⁸⁰ Interestingly, one of Axelsson's case studies is at the Boviera, Savedalen project (Liljewall arkitekter, 2009) with shared access balconies and an additional semi-private space between flat and access balcony (as well as private balconies on the other side of the flats).

affect body/city and movement/perception. It almost seems as if, while philosophy and academic research increasingly question polarisation and isolationism, the construction industries increasingly re-inforce them. In order to understand this possible correlation between culture and architectural boundaries, I explored traditions and structures associated with more distant architectural styles. These will identify some more or less conscious sets of social assumptions that are imprinted into the architecture and yet are increasingly remote from current and imminent future social structures, as well as environmental futures that may change even more dramatically according to some forecasts. I shall be scrutinising some of these architectural 'habits' (in the Gregory Bateson meaning of the word, see p.70) in the following section.

Part III

UNDERLYING PARADIGMS IN ARCHITECTURAL BOUNDARY TRADITIONS

Part II positioned possibilities of interface between user and architecture, and possibilities of user engagement, within a canvas of themes concerned with sustainability and inclusive of environmental and human natures. It analysed some current high density housing paradigms, not only in the context of contemporary construction and statutory practices, but also in the context of underlying mechanisms of conditional architecture already in place during the rise of Modernism one hundred years ago. I argued that these conventions generate contradictions and incompatibilities within relationships between parts and wholes, and between users and their environments, and that the boundary principle and its architectural applications are major agents in the facilitation of long-term relational processes, both with human nature and with other natures. The case studies highlighted ways in which current architectural and institutional polarisation between public and private space could prove counterproductive to a cohesive movement for devising alternative urban ecologies. Inflexible boundary designs can potentially hamper engagement with cyclical sustainability, with nature(s) and with collective creativity, and can discourage resilience to change, including climate change.

The following three chapters examine another range of ways in which interfaces between user, architecture and environment(s) can be engineered at the residential boundary, particularly the boundary between neighbours or between private and less private territories in housing estates. I will place emphasis here on architectural norms about privacy, where their cultural underpinnings seem associated with an evolution of high density housing boundaries towards increasing hermetic separations between neighbours, and between dwelling and locality. These predate the contemporary era discussed in the previous three chapters, and even seem to predate Modernism. Through selected case studies, Part III of this thesis analyses some architectural boundary strategies employed in different eras, in order to analyse the relational effects of design intentions and actuations.

These case studies would generally fall under the category of social housing, although some were privately procured while others were procured by the state. As I was scrutinising boundary details, I found a multiplicity of boundary scenarios that controlled privacy for a variety of cultural and social reasons. Part III is an account of these findings. Architectural details are interpreted in relational terms, and the

meaning of privacy at the boundary is extended to include utilitarian and environmental dimensions located at the boundary. The case studies investigate three distinct architectural types of high density housing, the post WWII tower block (Chapter 6), the 1930s access balcony block and its predecessors (Chapter 7), and almshouses (Chapter 8), which share a number of similar subtleties at the boundary. The purpose of this comparison is to highlight some of the traditions that might have contributed to the raising of issues uncovered in the previous section concerning contemporary housing types.

I relate this in a relatively open-ended manner, to articulate habitual boundary details rather than offer critical conclusions. My intention is not to redefine privacy nor the history of social housing, but rather to question the paradigms these boundaries reveal about privacy at its meeting point with its 'public' counterpart, and the degrees of polyvalent use they might or might not have afforded. Positioned into the context of 21st Century London, these diagnose demarcations between public/private, middle/working-class, or even work place/dwelling, that have transmuted sometimes beyond recognition, in their current locality or in the way they are used today.

Chapter 6

HERMETIC THRESHOLDS AND ACCESS IN BRUTALIST TOWER BLOCKS

This chapter investigates the way in which architectural privacy seems to have been a serious concern after WWII, for a variety of reasons that are not always necessarily attributable to privacy in itself. A recurrent theme that arises from literature within and beyond architecture is that of defence, from an array of factors that could be considered environmental. Often regarded as a derivative of Modernism, the rise of the Brutalist architectural movement in the UK, in the late 1940s, appears to have expressed a mixture of conflicting reactions to the destruction of cities, to the shock of the nuclear bomb and to the subsequent omnipresence of the Cold War.⁸¹ Architectural theorist Jonathan Meades took this ambiguity to the extreme in his documentary on Brutalist *Concrete Poetry* (2014). While arguing that Brutalism is much older than Modernism, he decided to discuss Brutalism against the backdrop of artistic and abstract photographs of war bunkers in sequence with artistic and abstract photographs of Brutalist buildings. Photogenic and sculptural angles rendered them unidentifiable to anyone unfamiliar with them, and he treated them as if bunkers and buildings were interchangeable. To me, this conveyed an underlying suggestion that Brutalist architecture was considered as defensive as war bunker architecture, and that war bunker architecture, having survived the assault of WWII weapons, might have even provided a precedent for the architecture of *béton brut*.⁸²

In a high density housing context, this metaphoric correlation between two very different types of shelter would suggest not only a perceived need to protect the family (or team of soldiers) against aggression, but also for the occupants to attack the perceived threat from the premise of their enclosed shelter. In boundary terms, this interpretation would suggest that the boundary defends the family from the world, but possibly also the world from the family. There are two themes here already raised previously. On the one hand, this presumes that the family unit is a single nucleus at the centre of a greater outer world (Hestia/Hermes, see Chapter 1, p.55) and, on the other hand, the relationship between interiority and exteriority is perceived as potentially conflictual, although this version of conflict may cover a

⁸¹ Brutalism roughly spans the late 1940s through to the early 1970s.

⁸² The origins of the term *Brutalism* are unclear, although it is often suggested that it derives from the French term *béton brut*, meaning literally *rough concrete*, the word *brut* containing also a connotation suggestive of brutality. However, there are Brutalist buildings, such as Peter and Alison Smithson's Hunstanton School in Norfolk (1954) which, rather than being made of rough concrete, were made of steel and glass.

wider range of social dimensions than that of Le Corbusier's pre-war *Mur Neutralisant*, discussed in Chapter 3.

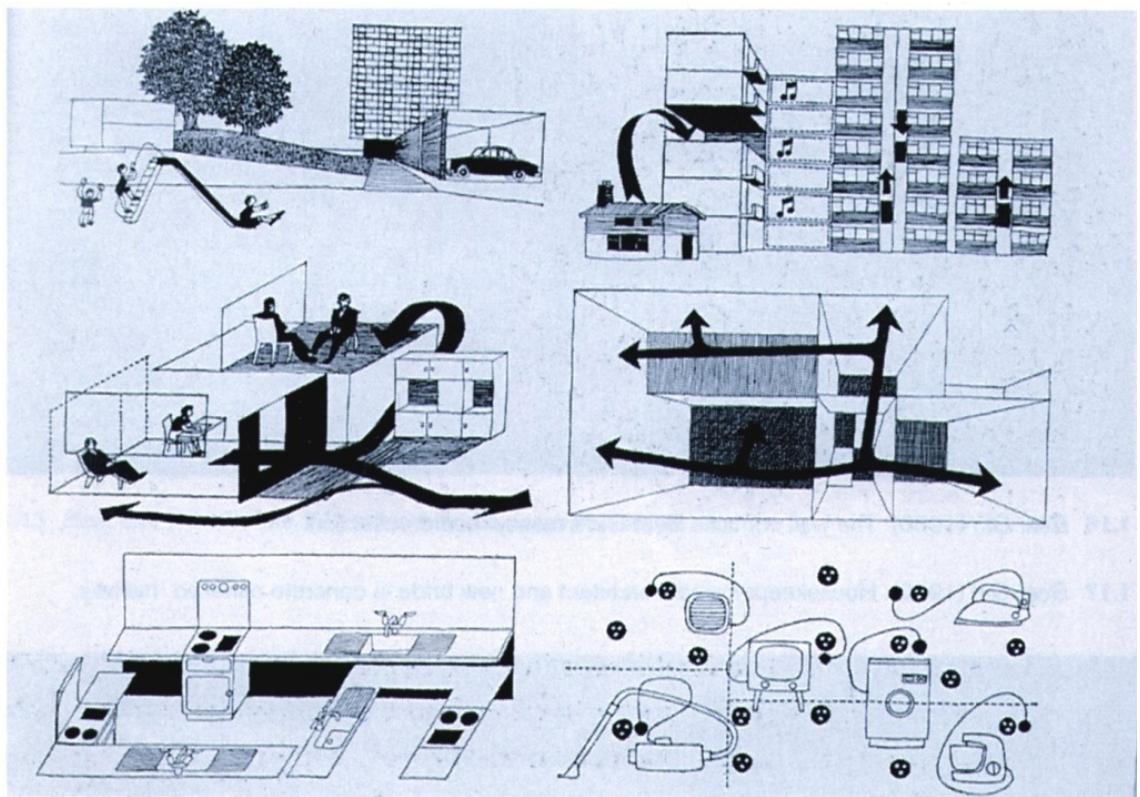
Architecture journalist George Godwin proposes that post WWII "privacy became a major preoccupation and was prevalent at different levels: visual, acoustic and psychological" (1984, p.109), and that this was expressed through distinctive architectural devices. According to him, the need for urban density was exacerbated by the combined pressure to reduce distance between adjacent neighbours, to increase density while retaining visual privacy. However, the notion of self-contained autonomy was also a strong cultural factor. For instance, Chermayeff and Alexander's study of *Community and Privacy* (1963) portrayed the home as an *Innermost Sanctum* that was under assault from an urban landscape invaded by transport arteries and acoustic pollution.⁸³ Understood from the perspective of the autonomy provided by the car, this statement reveals a greater paradox concerning urban transformations brought about by the car conjointly with mass reconstruction. Brutalism is often associated with defensiveness against a new urban landscape dominated by cars and pollution but, at the same time, cars provided a taste for individual freedom and a consequent aspiration for atomisation. In this way, visual, acoustic and psychological factors are intertwined and, arguably, internal (cultural) as well as external (acoustic and visual).

There were other changes of a more societal nature; for example, the way in which children playing on the streets were no longer considered safe because of cars, but also became objects of patronage and observation by the state, while more dependent on the family unit's supervision (Kozlovsky: 2014). This is a peculiar form of hybrid internalisation (into the family unit) and externalisation (into the public eye) debated, among others, by architecture theorist Beatriz Colomina (2001) in her analysis of *Domesticity at War* – the private interior became externalised to the public through the media, as an image of idealised domesticity in a process of industrial and economic commodification of the home.⁸⁴ This interface, and apparent blurring of boundaries, also affected gender projections and, as professor of architecture Laura Miller demonstrates, resulted in a public-private dichotomy that was "instrumental in sublimating middle-class domesticity's conflicted relation with its external audience, an audience it simultaneously craved

⁸³ Interestingly, this comment originates from the United States despite resonating with the British archetype of 'An Englishman's home is his castle'.

⁸⁴ This, incidentally, was not unique to the West, and also practiced in the socialist blocs but under different ideologies. See David Crowley on *Socialist Spaces – Sites of Everyday Life in the Eastern Bloc* (2002).

and rejected" (2014, p.197-198) – another set of paradoxes about privacy and publicity arguably more particular to the post-war era.



1.18 *Homes of Today and Tomorrow*, Ministry of Housing and Local Government (1963): Diagrams by Gordon Cullen.

Fig.32 – Parker Morris Diagrams, 1963

Architecture theorist Christopher Hight (2014) considers that the less widely discussed issue of incoming ethnic diversity was also a concern, especially for Brutalist architects Alison and Peter Smithson. This prompted differences between the pre-war Modernist ideal of universalism and some investigations into the need to provide housing types for a wider number of lifestyles.⁸⁵ Such debates, however, were not particularly apparent in government guidance documents of the time, such as the famous Parker Morris diagrams (*Fig.32*) (Shonfield: 2003). These were drawn up for the Ministry of Housing to set out minimum space standards for high density housing. Although, today, they are considered generous by subsequent standards (or lack of them), they favoured a 'one solution for all' approach and a prescriptive set of design criteria about lifestyles and utilitarian services. Note the way in which they dematerialise boundaries and emphasise movement through the use of large arrows, as if boundaries were negligible and expendable features

⁸⁵ Advocated in particular by the *Congrès Internationaux d'Architecture Moderne*, founded in 1933 and largely initiated and orchestrated by Le Corbusier's architectural philosophy which favoured an international style applicable to all.

subservient to flow. The diagrams depict housing as autonomous stacked units, and rooms as boxes within the dwelling, separate from cars and far from play and nature, yet somehow connected to each other by arrows transgressing insubstantial planes (see Tim Ingold on lines, Chapter 1, p.47).

I will now examine four buildings typical of this era, which demonstrate ways in which boundaries, far from being immaterial, seemed to be creating division through impermeable walls buffered by double thresholds on either of their sides, or through a prevalence of apparent 'flow' that is predominantly longitudinal rather than transversal. In the cultural context summarised above, this paradox seems almost inevitable. I argue here that the ambiguities brought about by cultural reassessments of privacy are architecturally expressed through a language that appears fluid, and yet enforces separation and promotes a-relationality.

I have selected these precedents because they each treated threshold and circulation differently, yet obtained similar conditional treatments for the relationship between dwellings and their edges. The process of comparing them reveals the ways in which privacy was interpreted differently by different architects of the time, and is also reinterpreted today through current English Heritage policy; three of the four tower blocks that I will describe below are about to become Grade II listed or have already been listed, and their original occupants relocated elsewhere.

6.1 Keeling House, Bethnal Green, Denys Lasdun (1958)

Keeling House was designed by Denys Lasdun, and built in Bethnal Green in 1958. It is made up of 8 groups of 8 maisonettes (vertically and horizontally), sculpturally broken up by one floor of single storey flats half way up the tower. It is most striking for its central core, which distributes four sets of open-access balconies serving two dwellings each (*Fig.33*). This gives an outward impression of four towers meeting at the centre. This centre contains two lifts and a staircase distributing all floors and, from it, all access balconies radiate outward. On their journey from dwelling to city, residents travel through doors separating core from access balcony in order to reach the lifts and stairs. The stairs, themselves, are also separated from the core by a fire door. This truncated journey is carried out in circulation spaces of minimum width and, except for the lift, is open to the weather. This circulation device is architecturally separate from the four residential blocks and reads clearly as a circulation element that could almost be detached from them.



Fig.33 – Keeling House (Summer 2013)



Fig.34 – Keeling House, laundry spaces and stairs (Summer 2013)

The only spaces in the core that are not strictly serving the function of circulation and distribution are two side areas either side of the lift landing, which were intended for hanging laundry and which, Denys Lasdun had hoped, would encourage social interaction between neighbours. Unsurprisingly to any visitor, this social interaction was unlikely. The laundry spaces (*Fig.34*) are small, dark and windy, and devoid of any features that might encourage lingering any more than at the lift lobbies that lead to them. The chances of meeting at the laundry spaces while hanging or collecting washing would have probably been the same as of meeting at the lift, i.e. while in transit. Even on a more comfortable sunny day, as was the case each time I visited, the space is constricted and there are no benches or any surfaces on which to rest or lean while having a chat.

Soon after the block was built, Ed Cooney of the Institute of Community Studies found that "far from being places to congregate and talk, they were spaces to move through quickly, especially during the colder months. The net result was that people on the same floor but in different blocks rarely got to know one another" (Gold: 2007, p.207). According to David O'Reilly, who has been receptionist and janitor at Keeling House since 2007, and gave us various tours around the building, this is still the case today. He had made the same observations when he began the job, and took the initiative early on of introducing neighbours to each other as they waited for the lifts, so as to increase their chances of getting to know each other.

In the original design, Keeling House was accessed directly at the core from all its sides, and was mostly utilitarian at street level. The ground level was devoted to car parking, refuse collection and a mechanical plant room, although there are also flats at ground level, one of which was once meant to be occupied by a caretaker. This was not sufficient to control access into the building, and a lobby was created during refurbishment in 2000 by Munkenbeck + Marshall Architects, together with gated fencing around the footprint of the site to counteract the excess of access between site and neighbourhood. Despite this internalisation of the compound, David O'Reilly's social interventions indicate that flats are still very separated, and that the core does not successfully operate as a 'centre'.

At a distance, Keeling House gives an overall appearance of embracing its neighbourhood, particularly because of the way in which the front towers seem to open outwards, yet it discloses very little about its inhabitants. The sense of front and back is indicated by the way in which the north towers seem to form a triangle that opens to the urban landscape, against which the south towers are pressed. The circulation space, pushed inside the core, is screened from all sides of the site by the towers themselves, and by full height opaque panels. Otherwise, the elevations for the fronts (access balconies) and the backs (private balconies) of the towers look similar from the perspective of the street. There is little distinction between either 'side' of the maisonettes, and while vertical circulation is screened off from the public by the towers it serves, horizontal circulation is disguised through an ambiguous architectural language of masonry parapets, which also conceal horizontal circulation from the public gaze at street level (see *Fig.33*, revealing porch only).

The architecture also minimises the chances for neighbours to see each other while they are coming in or out of their flats. The north towers are angled in such a way that the two entrance sides of the maisonettes face each other, but the two south

towers are angled against the side of the north towers and the maisonettes face a blank concrete wall (*Fig.35*) that is obscured by their own shadow, restricting any 'view' for residents leaving their front doors, particularly those nearer the core. In this way, the flats in the north towers that face each other are apparently less self-contained because their access balconies face each other too. Theoretically, this gives neighbours chances of a glimpse into the fronts of each others' dwellings and, therefore, a slightly more public relationship between each other at least, than the south towers which face a wall from the entrance door.



Fig.35 – Keeling House, 'back' view between the two south wings (Summer 2013)

The maisonettes are designed to minimise any form of overlooking at access level. Front doors are signalled architecturally by a sculptural overhead protrusion that acts as a symbolic porch. However, the two windows either side of each entrance door look considerably larger than they are. While 'visible' in section and plan, they are not what they appear on the elevation. The photograph in *Fig.36*, taken from the stairs of one of the maisonettes, indicates that only the top panels can be opened. This is the product of a trompe-l'oeil effect in the glazing, transparent only in certain places. Some of the creamy coloured 'window' panels do not appear at all on the inside, for they run alongside the stairs to the upstairs bedrooms on one side and against the WCs on the other side, and are fixed against a masonry wall. Stairs

and WC would be the two spaces least used in the maisonette, optimising reduction of human occupation at the internal side of the boundary. The actual windows are above eye level only, providing natural light and ventilation but no view outside. This means that the front door is buffered on its inner side by a layer of utilitarian or circulation spaces that creates an additional thickness to the boundary between inside and outside. Only when it is open does the fully opaque door provide a visual threshold between inside and outside.

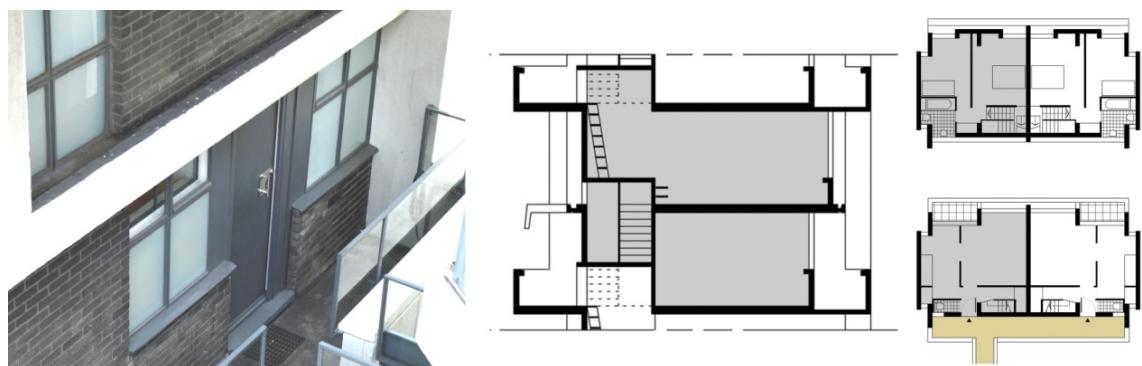


Fig.36 – Keeling House, Elevation (Summer 2013), Section and Plans

The threshold is distanced from living spaces by its thickness on the inside and restricted overlooking on the outside – through a blank wall at the south towers or a distant access balcony in the case of the north towers. Considering that only one of two flats on each access balcony can be passed by its neighbour, this creates an extremely high degree of privacy, but one that pretends not to be so private through cosmetic deception at the exterior face. Compounded with the distance already created by the disarticulation of access between flats and vertical circulation, these dwellings are not only protected from the gaze of others, they are also enveloped into their interiority through the design of the boundary, with very limited choice or natural surveillance, as if to protect others from their own privacy.

Maisonettes were generally thought to replicate the traditional forms of Victorian working-class cottages (Glendinning & Muthesius: 1994) prevalent in the East End of London where it is sited, but the latter often had windows very close to the edge of streets. As post-war historian John Grindrod points out (2013, p.177), their residents were known for liking to spend time at the front door or window for informal social contacts. At Keeling House, the possibility for chatting with neighbours across the two territories was removed from this edge through boundary and circulation strategies, and relocated instead at the ‘centre’. The configuration of the central core is said to meet some of the ideas about clusters that were popular among many architects of the time (see Chapter 1, pp.64-65),

and suggests that the idea of informal and chance meetings is relocated away from doors and windows.

According to urban historical geographer John R Gold, Lasdun had carried out interviews with local working-class people who had expressed a wish for privacy (Gold: 2007). These comments may have been motivated by the fear of not knowing new neighbours after relocation, but Lasdun's interpretation might have been influenced by other factors. Gold suggests that the concept of clusters was first formulated by American urbanist Kevin Lynch in April 1954, who took the view that CIAM's four functional classifications (living, working, leisure and communication), elaborated in the 1930s, should be juxtaposed (Gold: 2007). This is important in as much as it reveals that architectural theory of the time would have acknowledged the need to create porosity between zones, and possibly at the point where they overlap, which is the boundary, at least in conceptual terms.

This impression would appear confirmed by a sketch illustration by Lasdun from RIBA's archive collection (Curtis: 1994), of people meeting in the lift and hanging washing while chatting on either side of the core. In particular, there is a depiction of a woman talking with what appears to be a milkman – a type of conversation or exchange that would normally be expected to happen at the front door.⁸⁶ Lasdun's interpretation of privacy, therefore, implies that social contact or manifestations of everyday life should take place away from public view, and also away from the private dwelling. While apparently providing a place dedicated to living, working, leisure and communication, the relocation of some of these social functions away from the residential boundary expressly attempts to polarise public and private principles by creating a new 'centre' away from its edges.

Paradoxically, the 'cluster' concurrently had the effect of opening the entire building to any members of the public. The reinforcement of privacy at the residential edge resulted in the exclusion of a 'defensible space', (in the meanings discussed in Chapters 1, 4 and 5) in-between the maisonettes and their wider context. As a consequence, unwanted visitors could make their way to individual front doors without any of the natural surveillance that a street might offer. Internal and external circulation caused an abrupt interface between public and private principles, and yet they also generated a physical zone of distance between street and residence, dedicated to human 'movement' but adverse to human interaction. This reveals design contradictions: on the one hand, the meeting of the two principles (public/private interface at the front door) is too immediate and lacks an

⁸⁶ Interestingly in this sketch the laundry spaces appear much larger than they are as built.

intermediate space; on the other hand, the increased circulation (access and communal space) causes an excess of intermediate space that compromises immediacy and adjacency, between neighbours, home life and street life.

Lasdun's design preference for extreme privacy at the boundary is all the more surprising if placed in the context of his career, which started with Russian socialist architect Berthold Lubetkin, and places his design of the central core in a different context. Although he joined Lubetkin's practice *Tecton* two years after Highpoint I (1935) was built, and left before Bevin Court (1954) was designed (see *Fig.37* for both), it would be reasonable to speculate that Lasdun was familiar with at least the former, if not both projects. In both *Tecton* cases, the central core is not designed for specific types of congregation other than incidental encounters in transit. Stairs and lobbies are more generous spaces that would allow temporary social contact without interfering with others' circulation, inclusive of stair access and, in the case of Highpoint I, directly connected to residents' front doors (*Fig.37*, left) – which increases the possibility of meeting immediate neighbours.⁸⁷ In historical terms, this detaches the idea of the central core at Keeling House from the association often made with 1950s cluster theories.

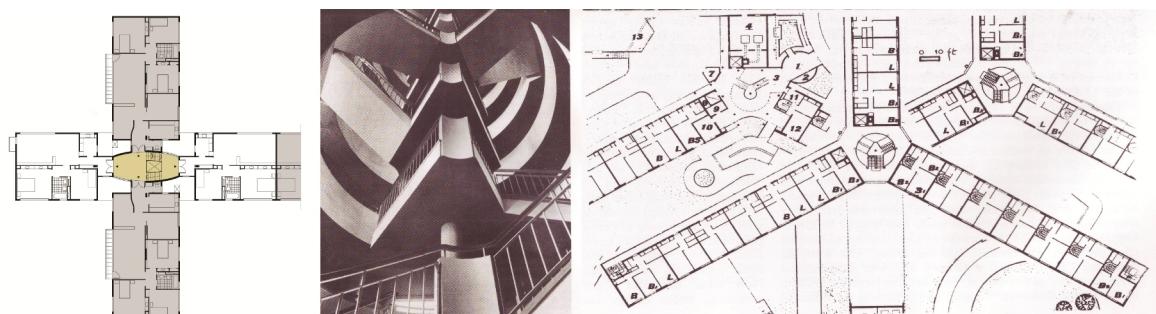


Fig.37 – Berthold Lubetkin, High Point I (1935) and Bevin Court (1954)

The maisonettes at Bevin Court, built only four years before Keeling House, are arranged in a more traditional open-access balcony fashion (see Chapter 7), with front doors between bathrooms and kitchens fitted with average-height windows (*Fig.37*, right). In this light, some design decisions at Keeling House concerning access and privacy could be questioned in a way that places less emphasis on the architect and, instead, investigates other cultural or institutional factors more difficult to ascertain from theoretical speculation.

⁸⁷

According to John Allan (1992), High Point was originally intended for people of moderate incomes but was subsequently put on the market for more middle-class groups. Lubetkin was known for his socialist ideals and was disappointed with the outcome.

Keeling House, originally designed for working-class families, is now occupied by middle-class 'professionals' (30 of 64 households are designers or architects) who, according to caretaker David O'Reilly mentioned above, tend to be in childless couples and therefore have different lifestyles, social expectations and needs. The maximisation of privacy for each household, which prevents its inhabitants from being seen, seems successful among this social group. Therefore, it could be inferred that, rather than constituting a response to observations on working-class preferences, the compartmentalisation of privacy was influenced by middle-class norms projected into design for an undefined general public – and that these norms may still be more desirable to equivalent class groups today.

This tension between building and user may be carried over into the 21st Century in so far as other forms of sustainability are concerned. Beyond his success in orchestrating some forms of relationship between neighbours at Keeling House, O'Reilly told me, after showing me around, that he had experienced some conflicts of interest with his residents. For instance, he had been growing plants and flowers in pots at the entrance, but was asked to remove them because it was thought that Lasdun would not have approved. He also spent a long time arguing an ecological case for the (non-Lasdunian) pond surrounding the entrance, and the suitability of goldfish and aquatic plant life to prevent stagnation (hitherto managed through chemicals). He had also proposed positioning wind turbines in the vacant laundry corners to generate electricity for the estate. Harvesting wind in this way would have seemed a creative use of otherwise adverse environmental conditions created by the architecture itself, but the residents did not share his enthusiasm.

I found it interesting to note this disparity between one man, who demonstrates an organic understanding of human and environmental sustainability, and residents who, despite their profession, appear to find it difficult to reconcile Modernist purity with our contemporary concerns. I find the commentary on the flower pots particularly noteworthy, as they are typically an 'edge' feature between interior and exterior that regularly manifests on balconies or access balconies of any architectural style, including Modernist and Brutalist buildings. At Keeling House, there would be occasion for such manifestations of life outside the edges of front thresholds but, on the days I visited, there were none on the access balconies which are partially visible at certain angles from inside the core.

This could indicate that current residents do not feel it appropriate, but also signals a poor relationship between the inside of the flats and their outer edge that can

only be perceived from outside but not from inside, due to the high slot windows serving staircase and bathroom.

6.2 *Balfron Tower, Poplar, Ernő Goldfinger (1963)* *Trellick Tower, North Kensington, Ernő Goldfinger (1972)*

Balfron Tower was built in Poplar in 1963, and Trellick Tower was built in North Kensington nearly ten years later. Both were designed by Ernő Goldfinger in comparable ways, but each has individual boundary details that modify the overall impact in their respective localities. I have compared them here with each other rather than separately, in order to highlight the way in which differing contexts and small details can modify the chemistries of boundaries quite considerably, despite their apparent overall similarities.

In the summer of 2013, Balfron Tower was awaiting Planning Permission from the Planning Department of Tower Hamlets, although the Planning documents were not accessible to the public, as is normally the case for Planning applications. At the same time, Trellick Tower residents awaited a most uncertain future subsequent to the demolition of the care home for the elderly that was part of its compounds (Dent Coad: 2013), under a strategy by the Royal Borough of Kensington and Chelsea to refurbish the entire estate and convert it into luxury housing. I have analysed them both here from the outside, and supplemented this picture with 'insider' information. Some observations on the edges of their respective sites will be followed by a critical analysis of the edges of residential layouts.

Both towers were designed following very similar principles, and the layouts of their flats, maisonettes and circulation routes are more or less the same, except for the private balconies. The Google map extracts on *Fig.38* give some indication of their location, although this cannot capture the finer and most important details of city fabric. At that scale, these maps demonstrate striking similarities between the two sites in terms of overall layout. They are practically a mirror image of each other in composition and in scale, with a broadly 'U' shaped layout dominated by the tower in the middle and enclosing a central space.

However, they have different relationships with their urban surroundings, particularly at the borders. I suggest that, despite comparable strategies in layouts, the relationship of the compounds with their neighbourhoods is very different because of their specific boundary configurations with locality. In both cases, the towers are flanked by lower annexes perpendicular to the towers, although Balfron Tower stands alone, whereas Trellick Tower is attached to its neighbour through the

walkways at a characteristic freestanding distribution core, serving one in every three levels of flats and maisonettes of various sizes.

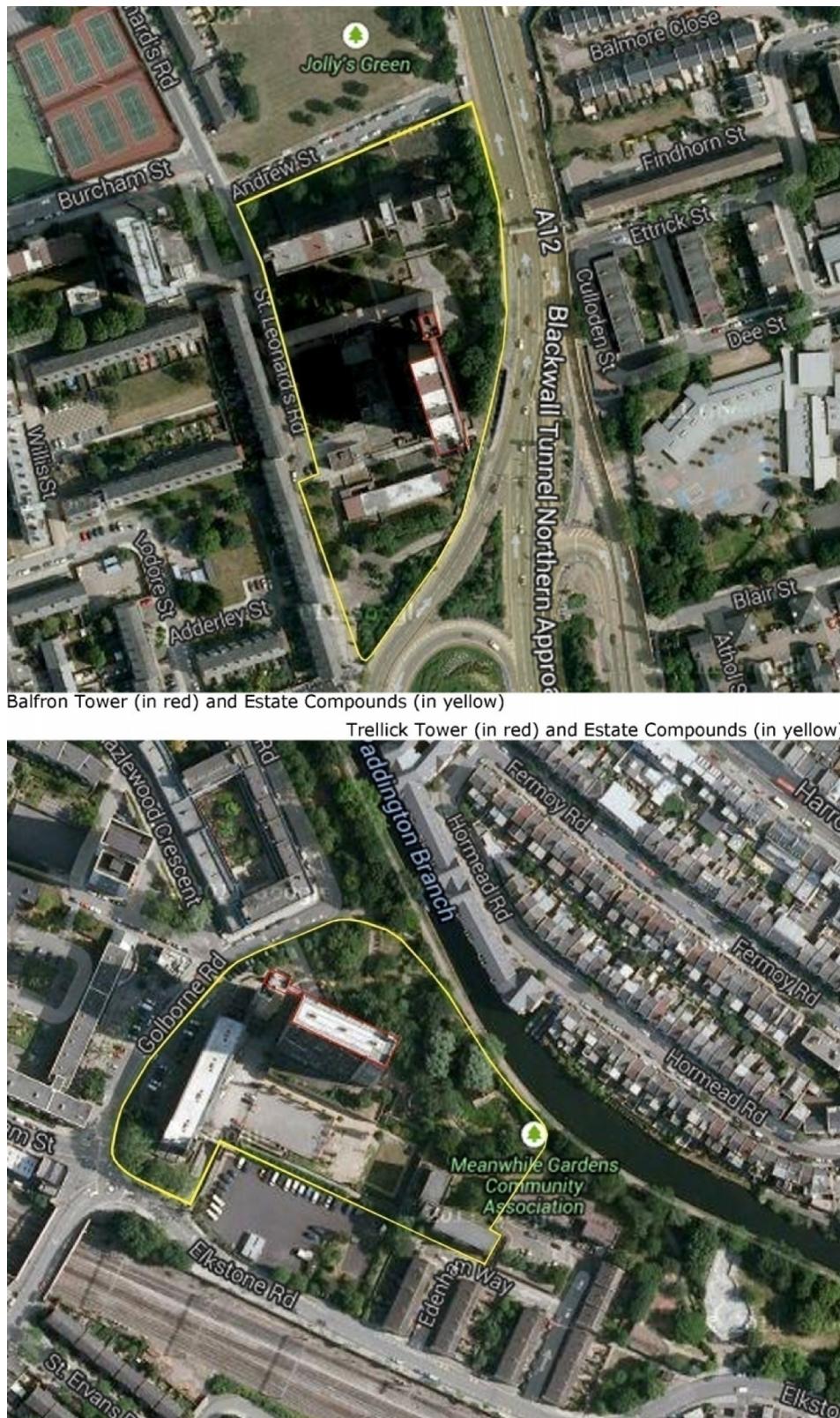


Fig.38 – Ernö Goldfinger, Balfron and Trellick Towers in Context (Google maps 2013)

This served the purpose of reducing communal circulation, and it could be argued that, unlike at Keeling house with two doors per access balcony, this also increases the chances of people meeting in the corridor on the way to their front doors because there are more doors to serve three storeys. These opportunities for meeting by chance would encourage neighbours to be familiar with each other, while being unseen from the external face because of the enclosure of the corridor that protects from wind and allows natural daylight into the corridor.

Both distribution towers are accessed via a bridge at ground floor level, which floats over a deeply sunken service area for car parking and waste disposal (*Fig.39*), and, in the case of Trellick Tower, for loading bays to the shops under the residential block on Golborne Road (this is similar in principle to Keeling House, where utilitarian matters were concentrated at the base, although not sunken).



Fig.39 – Base of Balfron Tower core (left) and of Trellick Tower core (right) (Summer 2013)



Fig.40 – Balfron Tower street access (left), Trellick Tower street access (right) (Summer 2013)

The bridge to Trellick Tower is immediately adjacent to Golborne Road (*Fig.40*). The bridge to the Balfron Tower entrance is, by comparison, considerably longer, and requires travelling across the grounds of the estate from St Leonard's Road (*Figs.38 and 40*). In both cases, I saw quite a few residents come in and out of each tower, but at Balfron Tower, they dispersed across a field of grass whereas, at Trellick Tower, many lingered at the base, by the street shops. Apart from the important absence of local shops in the vicinity of St Leonard Road (Balfron Tower), the proximity to street life from Trellick Tower provides a different experience for residents, despite similar architectural forms. Balfron Tower, at the heart of the compound on plan, is not however, at the heart of its locality. It is Trellick Tower, located at the edge, that provides the more socially interactive 'centre', because it creates a hinge between the compound and its greater surroundings.

Although the 'squares' formed by the three perpendicular buildings look similar on plan in both instances, in reality they provide very contrasting experiences. The lawned landscape at Balfron Tower is positioned at ground level, over the roof of the car parks, whereas at Trellick Tower, it is at the sunken level of the service area (*Fig.39*). Although, at first sight, the 'square' in front of Balfron Tower appears neat and tidy while the 'square' at Trellick Tower is scruffy and covered in graffiti, the latter feels like an integral part of the compound whereas the former feels windswept and exposed (and this was on warm summer days). The interesting thing here is that there are no defined boundaries between St Leonard Street and the compound. Circulation is defined by asphalted paths, guiding residents to their respective blocks (and off the grass), and through a maze of smaller concrete structures interspersed in such a way that they break up the continuity of the 'square' into interconnecting geometric patches. On the other hand, at Trellick Tower, the 'square' is clearly identifiable, from within the dwellings looking out onto it, and from inside the 'square' looking out towards the three blocks. The solidity of the boundary enclosure gives the feel of a very large room, and also protects from wind and acoustic pollution.

The problem at Trellick Tower is in accessing this lower level. It is difficult to assess how this would have been experienced before the care home which occupied half its footprint was closed and demolished. It is now occupied by a ball court that faces a disproportionately tall blank wall (*Fig.41, left*). The building was once accessed directly from the shops at the base of Trellick Tower, fronted by trees and shrubs (*Fig.40, right*). It was also accessed from the opposite side of the 'square' by an upper footpath that, having lost its destination, is now closed off. Interestingly, this is the less propitious side of Trellick Tower, and a boundary analysis discloses the

drawbacks of this walkway. The faults are in the absence of relationship between the two sides it separates. On the one side, the 'square' is far below ground level, and on the other side, there is a car park that is fenced off from the site, with indeterminate separation strips of wire and cast iron fencing (*Fig.43*). In this case, it is likely that this edge would have been a more hazardous area even before it became disused. There are no possibilities of cross (perpendicular) movement to interrupt the linear axis of circulation, a situation partially dictated by the legal constraints of property lines. Incidentally, access to Carradale House (Balfron Tower site) from the street side (Andrew Street) is also made up of longitudinal ramps, walkways and bridges two storeys below street level (which sometimes lead to dead ends altogether), and this creates excessive lateral separation between entrance and street.



Fig.41 – Landscapes at Balfron Tower (left) and Trellick Tower (right) (Summer 2013)



Fig.42 – Trellick Tower, site of former care home, from lower and upper levels (Summer 2013)



Fig.43 – Disused footpath at the southern edge of Trellick compound (2013)

Another feature that is common to Balfron and Trellick Towers concerns the edge also, but in this case it is an artificial mound, located behind and along each tower on the circulation side – west of Balfron Tower and north of Trellick Tower. Both mounds are likely to have been formed out of the rubble accumulated from the service level excavations that are below ground level. Both seem unnatural to the local topography and seem designed to shelter the tower. In the case of Balfron Tower, the protection banks against the eight lane motorway of the A12.⁸⁸ The various pollutions caused by cars are thus partially screened from the base of the tower, which is beneficial. However, the same mound at Trellick Tower is against a canal, which might have once brought about industrial disturbances but is now a peaceful enclave, lined with green foot and cycle paths along a growing settlement of boat dwellings. These similar treatments of the borders, therefore, bring about different results because the circumstantial environments they divide would have had different sets of relationships with each other. This is a case where the nature of the boundary affects its sides as much as the nature of each side affects the boundary itself.

One last common feature between the two towers is the layout of the flats themselves. They are quite complex, due to the fact that each access passage serves three levels, for single or double storey flats. The sample layouts in *Fig.44* are extracted from Hilary French's *Key Urban Housing* (2008) (as were those for Keeling House), but in this case I have added more colours to help the reader navigate their way around which flat might relate to which internal stairs and lobby. The spatial separation between flat and door is often exacerbated by split levels. These configurations give a result similar to that at Keeling House, in as much as two of the five flats (grey and blue) are distanced from the access way through a stair, which here constitutes the entrance lobby to a floor above (grey) or below (blue). These entrance lobbies have a small space allocated for depositing shoes, coats and umbrellas, but there can be a sense of division in transition, although

⁸⁸

The A12, incidentally, also informed the design of Robin Hood Gardens to be examined in the next section, which also has the same mound for the same reasons.

daylight is admitted through glazed entrance doors and occasional windows. The location of service or storage rooms contributes to this longitudinal buffer zone. Of the three flats where the access way is at the same level as the flat (orange and white) or where the living floor is at the same level (green), only one has a window to the access way (orange). The division between public and private side is however less rigid than at Keeling House, and the access side is less open to the elements and relatively generous in depth.



Fig.44 – Balfron and Trellick Towers Flat Layouts

As in Keeling House, vertical access and horizontal walkways are prominent architectural features that could almost be detached from the blocks. It is ironic that the effort to reduce the amount of circulation areas – by limiting access to one in three floors inside the tower – should be mirrored by a considerable amount of circulation outside the building, and at the entrance to the flats. It seems that the price for this vertical ‘saving’ of circulation space shared between three floors is quite high in terms of hermeticity between immediate neighbours, through the distance created between flats and access corridor.

These flats are spacious, and residents are (or were) generally happy with their flats and appreciative of their qualities and of the amount of natural light they receive, together with expansive views of London. Testimony to this is the fact that, before being decanted, many Balfron residents had originally opted for staying or moving back after refurbishment.⁸⁹

At Trellick Tower, a large percentage of residents have been living there for decades, and across generations (Dent Coad: 2013). The most striking visual evidence of this may be the way in which the balconies are used. As *Fig.45* shows, the private balcony side of Trellick Tower is bursting with manifestations of life at the edge. The display of objects reveals the everyday of household chores that were once intended to take place in dedicated laundry rooms away from the flats and hidden from view, but which are now disused. However, there are other objects, including the pots and plants considered out of place at Keeling House, that indicate how this edge to the outside is used, appropriated and cared for.

I view these manifestations as indicators of a harmonious relationship with the outside. Over the years, I have noticed that these displays occur in some estates and not in others; that when they do, it is usually something many people do, and that, while many estates are more bland or neutral (or conceal life on balconies through the architecture as is the case at Keeling House), very few others have an unusual number of balconies displaying abandoned and discarded objects which would indicate that life in those particular estates is not as congenial.

At Balfron Tower (*Fig.46*), this manifestation of private life at the edge is less apparent. The private balconies are less generous and the private side of all three blocks faces the 'square'. In this way, the Balfron site is more introverted from its locality, despite the fact that the location of the circulation space is technically on the public side, while the private side faces inwards towards its centre. Goldfinger's considerations about privacy may have changed in the light of his conversations with residents while he lived there. The more informal strategy at Trellick Tower is also less inhibited regarding what should or should not be 'presentable' to the public. As a consequence, the private side of the maisonettes is the livelier side, untidy but full of manifestations of private lives made partially public through visibility.

⁸⁹ Balfron Tower residents were decanted in 2014 (Mortimer: 2015). This evidence was recorded by artists such as Lucy Harrison, who published interviews with tenants in *Home on High*, Rendezvous Press 2014. The preliminary option of moving back in was subsequently withdrawn (Sng: 2017).

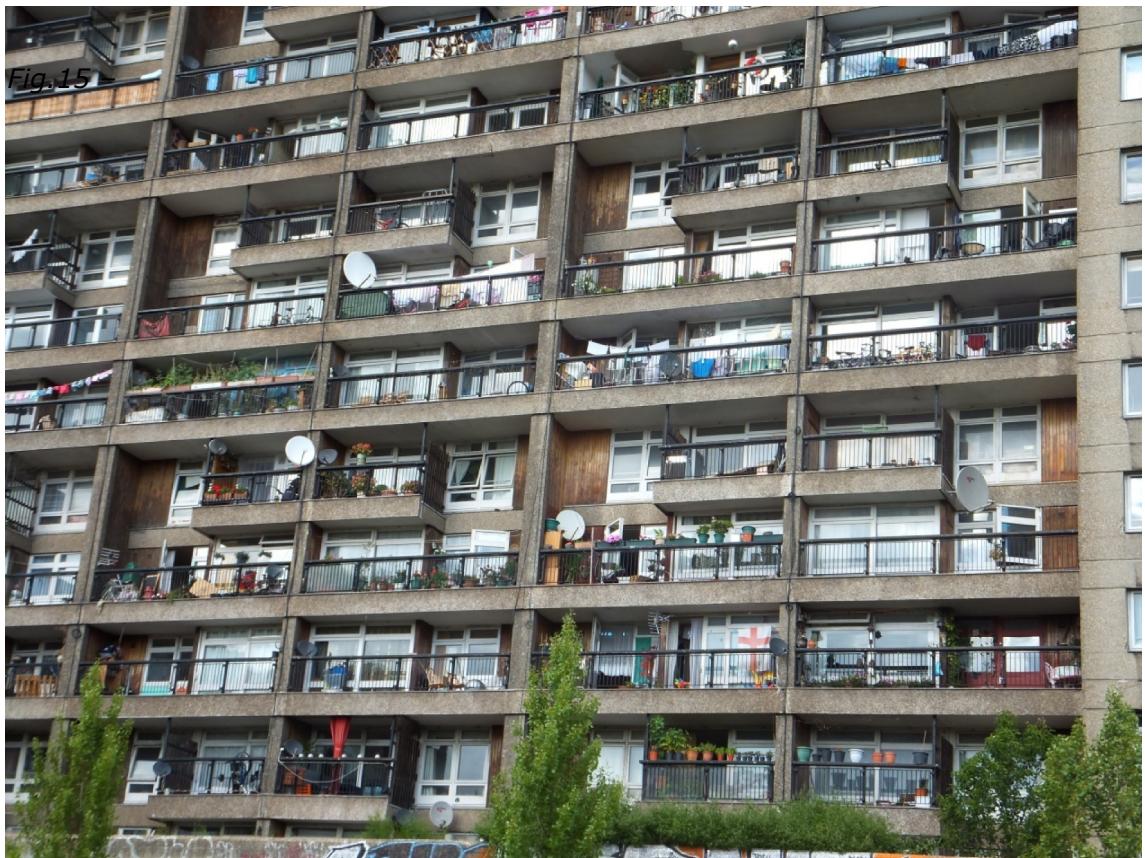


Fig.45 – Trellick Tower, balcony (Summer 2013)



Fig.46 – Balfron Tower, balcony (summer 2013)

Despite a tightened boundary at the threshold of flats, or the effects of more peripheral boundaries that affect both sites through excess of presence or absence, these towers reveal individual residences with confidence. Residents are kept apart socially in terms of spatial adjacency through the thresholds – possibly even more so than at Keeling Tower because in most cases there are no windows at all at the threshold. However, while their chances for meeting others is increased on the entrance side by the number of doors, their private domain is also less contained on the side where it meets with the natural elements. This could indicate a shift in conventions about privacy – there are nearly ten years between the design and construction of Keeling Tower and Balfron Tower – but it also indicates a shift in what is considered purely utilitarian. Pots, bicycles, toys and washing lines are ‘allowed’. Cars and waste, on the other hand, are literally moved underground and divorced entirely from human territories. This creates new divisions between public and private principles – in the ways comings and goings between flats and neighbourhood are negotiated, and in the way relationships between neighbourhood and greater locality are imprinted in the urban landscape.

However, there is a ‘twist’ that involves English Heritage, which I perceive as relevant in the context of commentaries made in Part II of this thesis about contemporary housing and divisive policy. Local ward councillor Emma Dent Coad has been campaigning on behalf of the Trellick community for years to fight the proposed relocation of its residents to Peterborough. English Heritage argue that Trellick Tower needs important repairs and energy efficiency improvements, and that the tower needs to be emptied for this purpose. Dent Coad, who is also an architectural historian, had the building assessed for energy efficiency and its ‘performance’ in this respect is actually quite high (as was that of Keeling House’s walls according to Building Regulations, despite reported draughts channelled into the dwellings by M&E services).⁹⁰ Triple glazed like-for-like replacement windows would cost ten times the price of refurbishing the existing windows, but the authorities insisted that this was the only feasible option. Dent Coad also had the building assessed for repairs, and the building is generally in good condition except for minor faults. She then went on to identify a number of disused spaces in the tower, including the former laundry areas and some plant rooms no longer in use,

⁹⁰ This is also the case at Keeling House, and the walls were not deemed in need of additional thermal insulation (http://issuu.com/aaschool/docs/aa_sed_2013-14_term_1_book/146, accessed July 2013). However, Dr Alex Wilkie points out that, when he lived there, his flat was very draughty (through M&E services), which confirms some of the observations made about Strata Tower regarding the reliability of uniform calculations that do not take local conditions into account.

that could be converted into luxury housing in order to fund the desired refurbishment. This was also dismissed by the local authorities.

There is, here, a super-imposition of pressures from different institutional sources cumulatively directed against the residents' interests: 'environmental' (in the restricted meaning of thermal efficiency), financial (land value, real estate and management by the Borough), social (incoming 'professional' classes) and, I would suggest, of aesthetics over function. Dent Coad argues with English Heritage that Trellick Tower is "built ideology", and that, in terms of historic conservation, its purpose (social housing) should be preserved at the same time as its cosmetic appearance, and its tenants safeguarded. This is not an isolated instance but, beyond the obvious real estate interests at stake for developers and the Local Authority, English Heritage and Building Control give the impression of conspiring in their favour. The walls, in this case, become objects that are literally and metaphorically treated as separate from users, and used as ammunition against the current users to return the building to its original state when it was first constructed just over 40 years ago, while complying with current Building Control standards and relieving local authorities from their charge. The integrity of the architecture is also held separate from temporal processes. Beyond the political and economic dimensions involved, this would constitute another facet to the observations made in Part I regarding institutional discomfort with the body, and the propensity for treating body and architecture as separate entities that do not meet or touch.

What is most interesting about Trellick Tower and, to a lesser extent, Balfron Tower, is the fact that the architecture, if strongly buffered on the public/private side, was designed to enable a generous degree of contact with nature and between interior and exterior. Goldfinger might have preferred that laundry matters should be sited away from the edge, but did not attempt to prevent this from happening through the architecture. In this sense, the boundaries between dwelling and locality at Trellick Tower are more 'permissive' in terms of choice and options than they are at Keeling House, and the balconies reveal an impression that residents have appropriated their dwellings and own their relationship with a greater context.

6.3 Robin Hood Gardens, Poplar (1972)

Robin Hood Gardens was built in the East End by Alison and Peter Smithson in 1972, at the same time as Trellick Tower. It has been the object of many studies by architects over the years, particularly because, unlike the three buildings above, it

was refused listing by English Heritage in 2010. A second campaign to preserve it was launched in 2015, also unsuccessfully, and demolition commenced in August 2017.⁹¹ Robin Hood Gardens is held in high regard among architects and historians because it is the only housing project that Alison and Peter Smithson built, despite their prominent influence on architectural discourses in the 1950s and 1960s about mass housing, particularly with regard to their theories about clusters and about *streets in the sky*.⁹²



Fig.47 – Robin Hood Gardens, private balconies (Summer 2013)

My interest in Robin Hood Gardens concerns the way its boundaries were designed. To me, they revealed contradictions between theory and practice on privacy and community, through details that were located at thresholds, window frames and balcony designs, and are less discussed. If balconies are indicators of a dwelling's relationship with its surroundings (in physical and social terms), the balconies at Robin Hood Gardens (Fig.47) were more introverted than Goldfinger's. There were occasional washing lines, but few other signs of life on most of the balconies. A

⁹¹ The 2008 Credit Crunch put a halt to redevelopment and although some residents have already been decanted, and the flats let out for emergency shelter, much of the original population still resides there.

⁹² Implemented, English Heritage argue, at Park Hill, Sheffield (1961), by Ivor Smith and Jack Lynn.

curious anomaly was that these balconies were only given half the normal depth and, as a consequence, residents could stand on them, but they could not sit down to spend any length of time on their personal outdoor space, unless the French doors were fully open. In that case, residents could behold the outside from inside their living room or bedroom, at a distance sufficient to render them invisible to people on the ground, which also meant that they could view the sky, but not the compound.

The same can be said for the other side of the two blocks, the access side. The Smithsons were famous for their reinterpretation of *streets in the sky*, which proposed that open-air access balconies should provide more than circulation space and should cater for social life just as streets do (Glendinning and Muthesius: 1994). These pedestrian arteries were on the street side, at the exterior of the estate, nearest the public road. The reason for this decision was that the quieter parts of the dwelling (bedrooms and, more untypically, kitchens) were thus protected from traffic noise – Goldfinger created the same inversion at both Balfron and Trellick Towers, to screen off acoustic pollution from the A12 (Balfron) or the canal (Trellick).



Fig.48 – Robin Hood Gardens Streets in the sky (Summer 2013)

Despite the Smithsons' aspirations for social cohesion, I noted several times that these access balconies displayed very few signs of 'street' life; not one flower pot, bench or any personal touch other than door mats, and distinguishing but untidy colourings on the walls, which gave the impression that the paintbrush was hastily dispensed and hurriedly returned to its interiors (*figs.48 and 50*).

On a visit with a colleague, the two or three residents I passed as they were on their way in or out of their flat, seemed to be from more private cultural backgrounds (one woman turned around when she saw our cameras, to avoid being photographed), but this does not explain a systematic desertion of the 'street' on the entire estate.⁹³ This was particularly surprising on one of the hottest days in July, although careful attention revealed that many doors were slightly ajar but guarded by a security chain, with some residents sitting *behind* their front door. I did not take any photographs of this for fear of being intrusive, but this was the case for an estimated two thirds of the front doors of the four floors we surveyed in the eastern block.



Fig.49 – Robin Hood Gardens, original glazing details (2013)

The extrusions that formed the alcoves represented the axial point between internal stairs and external door, and consisted of a minimally sized entrance lobby which doubled up as a landing to the internal stairs. The fact that residents still, unexpectedly, chose to put a chair on this landing was intriguing. On the one hand, it diagnosed an inability for the residents to regulate ventilation – the windows and the fan lights above the doors were deliberately sealed throughout the estate in a single fixed frame (*Fig.49*) which prevented cross ventilation between the fronts and backs of the flats. The glazing (systematically covered by net curtains), was so designed that transparency was for daylight only.

However, the choice to *not* sit out, despite the Smithsons' presumed intentions, was puzzling also. The alcoves sharing two doors were possibly a bit tight for sitting in, but the alcoves with only one door (*Fig.50*) and which were not 'shared' with

⁹³ According to Sara Wigglesworth, who proposed an alternative solution to funding the refurbishment of Robin Hood Gardens, most of the population is of Bangladeshi background.

neighbours, could have hosted a whole number of objects and people without interfering with general perambulation.



Fig.50 – Robin Hood Gardens, larger alcoves (Summer 2013)

According to Hilary French (2008, p.140), the alcoves were introduced so that women with prams could park themselves there if they met and wanted to have a conversation without impeding circulation. I find this interesting, because such a scenario presupposes that they would meet when both outside (on their way to somewhere), rather than between the internal or external edge. It could also be inferred that the sealed windows ensured that gossip was not overheard through open windows. There might have been other concerns about burglaries, or even about fire safety (the communal/fire stairs were extremely narrow) – but this device resulted in removing from residents the choice of opening windows, to create cross-ventilation, or even to hear the world go by on their 'street' (at the risk of also hearing heavy traffic).

The choice not to sit out or to keep personal objects on the edge could also signal a code of behaviour inscribed into the tenancy agreements. Architect Suzanne Tutsch (Urban Lab: 2015), who did an MA study of Robin Hood Gardens ten years previously, has photographs that show occasional signs of appropriation, but the result of architectural and/or administrative measures, coupled with a sense of

general darkness on a very sunny day, was that these 'streets', when I visited them, were devoid of life. If anything, the 'private' side of the blocks was slightly more lively, even if the architecture prescribed that residents could only stand at their private balconies.

As previously observed at Keeling House, and at Balfron and Trellick Towers, the division between interior and exterior happened on both sides of the entrance wall (*Fig.51*), hence the importance of including the whole boundary with its two sides into the analysis of borders and edges. The alcoves, just off the exterior circulation path, were also just off the interior circulation path (a third layer of circulation, as it were) distributing the entrance floor. Both sides of the wall were sites for circulation (internal distribution of rooms and external distribution of dwellings). While air flow was not permitted across the edge and perpendicular to the boundary, the configuration provided three channels of lateral human flow prior to transversal movement (street, door landing and stair landing) – a series of buffering layers of circulation, as in the previous towers, rather than edges favourable to serendipitous interaction at the point where inside and outside met. It could be said that the act of sitting behind the front door, in an interior lobby that was only designed for circulation, almost amounted here to a form of transgression, or even protest.

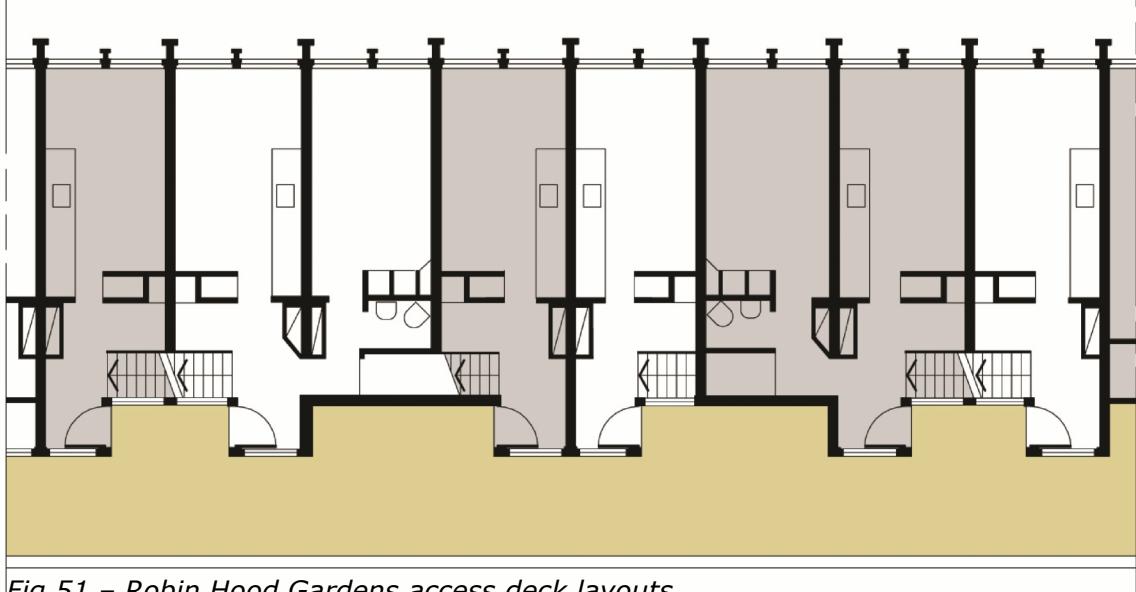


Fig.51 – Robin Hood Gardens access deck layouts

I once visited Robin Hood Gardens with a group of students and, on this occasion, we had the privilege of being able to access one of the flats; it was being refurbished into an emergency shelter for the three years left before scheduled demolition. The boundary features I had observed on plan felt more oppressive than I had imagined, particularly the descent of neighbour stairs at the entrance, which exaggerated a feeling of overhead enclosure on the interior (*Fig.52*).



Fig.52 – Robin Hood Gardens, Interior views (Summer 2013)

The maisonettes were arranged in a lateral scissor fashion so that the upper and lower floors were staggered, kitchen and living room were on separate floors, and the service zones of kitchen and WC were pushed further back into the privacy of the maisonette (as was a bedroom in alternate cases). Despite the relative spaciousness of the 'street' side, the internal rooms were small, and felt contained on the stairs and narrow corridor below.

The builders who were repairing the flat said that these scissor configurations compromised the boundaries between flats in other ways. Services inside the flats, which inherently require absolute verticality on their way down (particularly drainage), had to travel through others' flats on their way below ground. In the case of scissor configurations (and this applies also to the Goldfinger towers), this journey was interchangeably through service rooms such as kitchen and bathroom and through living areas such as bedrooms and living rooms. As a consequence, they carried sound from one flat to the next, which is ironic considering the care with which flats were isolated from each other at the public/private boundary. These transgressing services were also impossible to access if there was a fault, because the source of the fault could not be traced on its route through the horizontal boundaries from one private remit (flat) to another.⁹⁴

⁹⁴ Such difficulties were common to many buildings of this era. Levitt Bernstein, who undertook the refurbishment of the Brunswick Centre in Bloomsbury (Patrick Hodgkinson, 1972) and at Alexandra Road in Swiss Cottage (Neave Brown, 1978), encountered the same issues and found them impossible to eradicate entirely (Tidmarsh: 2015).

The ambiguous architectural management of street life at Robin Hood Gardens was also applied at ground level. There was a doubling up of the street into two parallel but separate streets, one for pedestrians on the 'park' side parallel to another that ran right against the edges of the ground floor flats, with garden parcels in-between (*Fig.53*). As a consequence, the spaces in front of these flats were also neglected. The 'private' allocations of garden space on the other side of the 'private' path were abandoned to wildlife, despite the fact that the public path was on the other side of the railings. The intermediate space afforded by a front garden was detached from the territory of the flat and, therefore, lost its value as an adjacent space between public and private space. The 'street' was once again an integral part of the boundary in the divisive meaning of the word, effectively minimised, though not necessarily intentionally, to a space for circulation/distribution rather than for occupying the edge between inside and outside.



Fig.53 – Robin Hood Gardens, ground level edges (Summer 2013)

Finally, the whole estate was also bounded by a triple layer of parallel strips of circulation: one for cars, rubbish bins and store rooms in a trough (we got lost in two dead ends as we were trying to make our way there), and the other as a non-descript zone, which was also a dead end for pedestrians, but ran parallel to the public pavement outside the boundaries of the estate on the other side of an additional party wall (*Fig.54*).

Through this device, the sanitation of the functionalised street resulted in a space devoid of human presence and, ironically therefore, a different (social) type of potential harm to its purely utilitarian and hygienic purposes.



Fig.54 – Robin Hood Gardens, Edge of the Estate and Utilitarian Trough

6.4 Alternative Definitions of the Street

The Smithsons' streets in the sky were intended to have shops and market booths to reflect "the unadulterated vitality of life in the East End street" (Glendinning and Muthesius: 1994, p.120), together with telephone kiosks and postal facilities (Colquhoun: 1999). It is unfortunate that these ideas were never implemented and tested out, especially as they are a regular feature in other projects that were never built. For example, in their Kuwait Mat-Buildings (1969-70) proposal, they designed a street lined with niches and alcoves to enable the settlement of market stalls that would not affect pedestrian traffic between the street's sides (Architectural Association: 1994). I have not found explanations as to why these did not feature in Robin Hood Gardens, but one likely reason is that they would have contravened the 'use' system in UK Planning, which spatially separates residential and commercial activities (see Chapters 4 and 5).

The Smithsons' interpretation of the street could also be regarded as restrictive for considering commerce, circulation and some forms of social interaction as the primary functions of the street, with shops and cafes enticing public life. Indirectly, this suggests that shops and cafes are only for public life and that public life is only

about shops and cafes. Over the years, anecdotal conversations with some of my students from abroad have revealed that this is not always universal, and that less formal trades of food and skills also happen at the edge, if not inside homes, in many parts of the world. This would be inconceivable in our current Planning system, and the neighbourly chats or informal exchanges previously described in the vicinity of Greenstreet Hill (see Chapter 5) do not feature in this high density housing concept of the street.

Some of the Smithsons' theories about streets in the sky were inspired by Nigel Henderson's photographic studies of street life in the East End (see Chapter 2, p.83). These photographs are now archived at Tate Britain and were mostly taken on the commercial high street. There are comparatively few photographs of residential streets, and these tend to focus on children playing in the vicinity of houses. These streets seem otherwise surprisingly empty, which raises questions about the need for privacy invoked by Denys Lasdun. This would also contradict John Grindrod's commentaries about life at the edge of dwellings mentioned above (p.173). I found that there are many diverging opinions about what this street life might have been and I would speculate that these occurrences varied from street to street, and from times of day, of week or of season. These occurrences would have also varied between high streets, where most shops are traditionally sited, and more residential streets with front and back conditions. This variability of local circumstances has probably escaped rigorous documentation because of its intermittent nature.

Social historians such as Emily Cockayne (2013) or Elizabeth Roberts (1995) documented, through archival photographs, neighbourly encounters that specifically take place at the edge of front and back thresholds in residential streets, such as the window, the door or the back fence (*Fig.55*). In each case, the boundary is also the site of encounter and interaction. In all cases, we can imagine that these neighbours would have seen each other as one was passing by and saw the other on the private side, and that both decided to stop and exchange a few words. In these scenarios, there are improvised connections between private and public realms that occur spontaneously and receive attention, despite the disruption they bring to daily life inside the home and journeys outside the home (there is a choice to open or close windows and curtains). In the third image on the right, there is also a suggestion that the conversation arose at a time when both women were in the middle of 'utilitarian' activities, in the course of their daily routine, in a back street that has no commercial functions.



Fig.55 -Photographs of the 1950s

Although it could be argued that these photographs document the exception rather than the rule, these scenarios are often featured in films: for example, Henry Cornelius' *Passport to Pimlico* (1949) for the post WWII years.⁹⁵ This indicates that film writers and photographers were making different observations – the photographer being limited by place and time to one particular moment, whereas the film writer can agglomerate a whole number of observations about the everyday into the one time frame of the film itself.⁹⁶

The back street in the third photograph could be compared to the balconies described above, except that these became 'private' in the tower blocks and separated from neighbours. In this context, it could be speculated that the Smithsons' *street in the sky* was a front street rather than a back street, even if inclusive of children and milkmen, as was the case for the more fully realised Park Hill in Sheffield, which was designed on the basis of these theories and included an access way wide enough for a milk float.⁹⁷ In Robin Hood Gardens, such encounters could not take place in this informal manner any more than they can take place at Keeling House, Balfron Tower or Trellick Tower. This architecturally enforced degree of privacy inadvertently freezes this situation in time. It reduces the possibilities for neighbours who never met before, to gradually become acquainted with each other, even if the degree of familiarity is a simple acknowledgement rather than a cordial chat. Therefore, it encourages estrangement by relocation to remain static, and discourages the possibility of choice for neighbours to deactivate the impermeability of their boundaries, should they wish to do so.

Underlying these separations is the assumption that these undefined, semi-public or semi-private activities take place somewhere else, as is proposed quite explicitly

⁹⁵ By reference to Katherine Shonfield, who often talked about this particular film.

⁹⁶ Additionally, the film director has no issues related to interrupting privacy or capturing a moment without undoing its spontaneity.

⁹⁷ Park Hill is a former council housing estate in Sheffield (now refurbished and gentrified), designed by Jack Lynn and Ivor Smith on the basis of the Smithsons' theories, and completed in 1961.

at Keeling House. I suspect that the ‘nodes’ and ‘clusters’ of 1950s and 1960s architectural language, which are frequently mentioned but do not seem to receive a lot of descriptions in architectural literature, are supposed to represent this elusive quality of the everyday that crosses over public and private principles and territories. Cluster theories seem to indicate an unconscious awareness of this, but to have offered in its place an idealisation of the front street. In these Brutalist homes or streets, the ‘back’ has no assigned place, in space or in time. All three architects attempted to conceal specifically the laundry element by creating designated locations for it inside the estates and away from the edges and public sight, and otherwise excluded any of the social and utilitarian lives that would have once pertained to the back.

In his analysis of the Thamesmead estate (1968), Edward Robbins argues that this equation of self-containment and separation was a deliberate strategy of segregation aimed at removing certain types of social life from housing estates that were associated with the squalor and unhygienic conditions of slum life (Robbins: 2000). This does not explain why this extrapolation is made in the first place – why social life should be equated with utilitarian hygiene in this way – especially as, paradoxically, the hanging of washing would signal cleanliness rather than neglect.

In this sense, 1950s theories of cluster seem to have produced the antithesis of that which they proposed, in as much as unconscious presuppositions are imbedded in the design of the boundary. Notions about privacy seem somewhat arbitrary, or more to do with the public’s privacy (from evidence of private lives) than privacy between neighbours. I find it particularly interesting that the review of the Smithsons’ work published by Monacelli Press in 2001 should have been entitled *The Charged Void*. From a boundary perspective this would acknowledge, unconsciously perhaps, an elusive ambivalence about adjacency and relationality built into the boundary. The charged void, interpreted from my definition of the boundary, would be the exclusion of communication between two sides, through single walls that impede social, economic and environmental communications, and also through intermediate spaces that are designed to separate rather than unite. In particular, I argue that the single wall in itself, if allowed to host communication between its two sides, potentially becomes a place even if it is not, strictly speaking, a space. If not allowed to fulfil this role, the unoccupied boundary becomes a potential void. The treatment of sealed windows at Keeling house and at Robin Hood Gardens, together with that of M&E services, is particularly interesting, because it signals early stages of environmental hermeticity assigned to different kinds of designs that are more commonly discussed for their social implications

rather than for their environmental effects. These themes were all raised previously in Part I, and this in turn raises questions about the paradigms, conscious or unconscious, which appear to have been carried over into our current era.

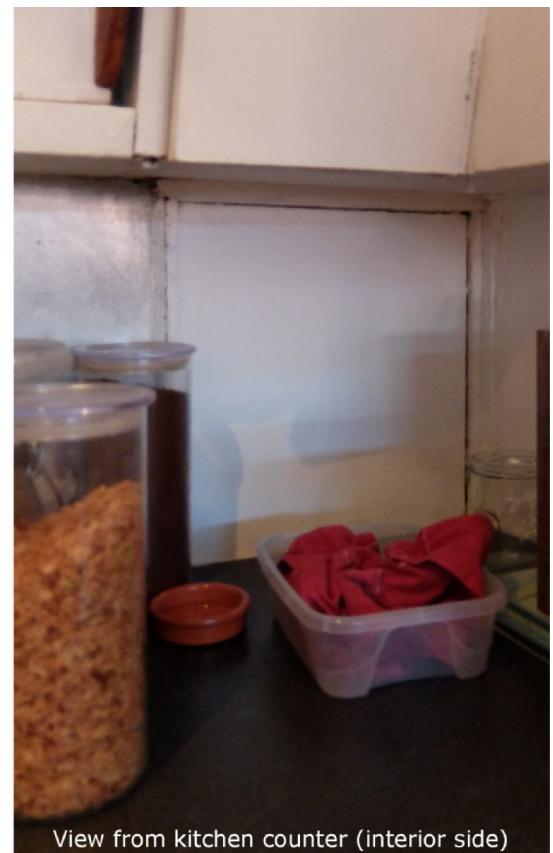
The question of 'isolationism' was a major paradox in urban discourse of the time. Gordon Cullen was already diagnosing it in post WWII design, in his *Concise Townscape* studies first published in 1961. Cullen was preoccupied with the ways in which relationships between buildings and city are nestled into the urban fabric. Many of his observations were drawn from vernacular precedents that placed special emphasis on qualities of edges, their gradations and slow movements, and what he called *viscosity* (Cullen: 1961). Cullen was inferring that these subtleties were removed from Brutalist landscapes and that this was detrimental to social life in the city. Yet it was him who also designed the Parker Morris diagrams (*Fig.32*), with no such 'viscous' edges but, instead, an emphasis on flow, as if arrows and movement constituted the relationship itself.

To me, this is the conceptual fault and architectural default, and may diagnose a restricted meaning of what *relationship* might have already meant at the time – one that proposes it should not involve physical interaction between people and building. An extreme architectural version of this is found at Le Corbusier's *Unité d'Habitation* in Marseilles, France (1952), in a detail that I have never found discussed in books making reference to *Unité d'Habitation*, and which deliberately constrained social contact in transactions between residents and traders. The only opening between flats and the very internalised 'street' (*Fig.56*) was an opaque door, but there was also a hatch between kitchen and corridor, positioned at a similar height to cash machines in the wall, below head height or above the kitchen counter on the other side, to be precise. In practical terms, this enabled the deliveries of milk, bread or parcels, whether or not the resident was indoors. But, in effect, this also enabled the traders to quickly go through their rounds without having to knock at front doors and speak with their clients. Residents and traders were socially and visually distanced by design (at Keeling House their interaction was supposed to be relocated at the core), and the act of trade was, if not mechanised, at least rendered utilitarian, formally 'programmed' into the physical fabric of the dwelling's relationship with its exterior side, and commodified into a purely commercial transaction, just as the 'front' street and its social lives can be deemed to have become commercialised and publicised in some interpretations of street life in the four case studies above.

This is a long way from the street life that the Smithsons or Lasdun might have encountered in the East End of London. In the backdrop of the Smithsons' connection with Team X, formed to challenge and supercede some of CIAM's principles, it seems that their cluster theories express a reaction against CIAM more than a pragmatic appreciation of the principles of interaction between public/private, interior/exterior, social/socio-economic principles. The detailing of residential fronts at Robin Hood Gardens seemed to assume that social life either happens on the inside, or happens on the outside, but not in-between at the boundary. For want of shops, they were left with transient traders and neighbours who could only do on the outside and in the front street what they might have formerly done at the threshold or window.



View from corridor (exterior side)



View from kitchen counter (interior side)

Fig.56 – Delivery boxes at Le Corbusier's Unité d'Habitation, Marseilles, 1952

The restrictive public concept of the street, therefore, also restricts a private concept of the dwelling, and both reveal architectural difficulties with the management of things and activities where the two principles meet – be this at the conceptual level of public/private life or at the physical level of public and private territories. The excluded middle is, in this way, between public and private realms, as is the edge between home and street across notional boundaries that artificially divide social and environmental everydays resistant to spatial

categorisation. In binary terms therefore, the separations diagnosed at Strata Tower and at Consort Road could be associated with architectural 'habits' from the post WWII era, where walls without windows, with windows that cannot be opened, or with view-less windows recur, as do interstitial spaces for longitudinal circulation transformed into devices for separation.

Chapter 7

1930s COUNCIL HOUSING AND EARLIER ACCESS BALCONY HOUSING

Council housing architecture, commissioned by the London County Council (LCC), began at the turn of the 20th Century. Their earliest projects, such as the Boundary Estate in Shoreditch (1900), were of diverse architectural types designed to re-house families made homeless by slum clearance, as documented by historian Susan Beattie (1982). This was the beginning of a state-led initiative to supplement the efforts already made over previous decades by philanthropic societies, to provide better living conditions for the poor. After WWI, this enterprise became more widespread and systematic, and the LCC gradually developed a formulaic but quite distinctive architectural style that is unique to the UK, and more traditional than Modernist in appearance. The architecture of these estates will be familiar to most Londoners, characteristic for its dark bricks, rhythmic and slightly austere façades, and back access balconies.

The East Hill Estate, selected as a case study, is no longer standing, but what particularly interested me about it was the available evidence of its beginnings as a new-built structure, and unexpected previous layers of history that took me back to the 17th Century, and framed my investigation into almshouses in the next chapter of this thesis. My analysis combines photographic evidence from records I found at the London Metropolitan Archives with accounts by GH Gater who, in his capacity as civil servant, wrote *London Housing 1937* on behalf of the LCC. This book, which is one of a series of four, itemises design decisions on a large number of council estates, and gives quantitative clues about the way they were conceived and portrayed at the time they were built. These estates incarnate the introduction of a 20th Century concept in urban vocabulary, that of social and/or public housing – both ambiguous terms because they each suggest that the very private residence is not only a public matter, but that it is also in public ownership.⁹⁸

In the case of council housing, Gater's accounts, despite being both factual and pragmatic, reflect a thorough commitment to improving housing conditions for the poor. What surprised me most was that such high density housing projects were treated as experiments, or rather as a methodology continually re-appraised, in order to bring design improvements into the briefs on the basis of existing

⁹⁸ Arguably, this inevitable public/private tension also applies to other mass, but privately procured, housing types (which were as common in the Victorian times as they are today) in as much as rented property is owned by another party.

knowledge about tenants and societal changes. Arguably, therefore, the remarks I made in the previous section of this thesis about inflexible policy systems seem diluted here, despite the rigour with which they were quantitatively assessed. The estates were regularly monitored on field, and information about residents' levels of satisfaction and needs regularly reviewed for further improvements. Although council housing of the 1930s can be regarded as an architectural type in its own rights, its evolution developed in a relatively organic and subtle manner.

I shall be comparing the East Hill Estate (built between 1925 and 1929 in Wandsworth, South West London) with other examples of social housing dating from further back, and will observe, through boundary details, the way in which these designs were more sensitive and user-friendly than their philanthropic predecessors, or Greater London Council (GLC) successors such as the Brutalist towers examined in the previous section. The theme of privacy was already prevalent and strictly coded, but its interpretation was more fluid – at least on the less public side of the flats, designed to cater for utilitarian matters that could be correlated to the traditional back street or back yard. These were often found in Georgian or Victorian terraces, where servants, goods and services would have intermingled away from public space and from the families they were serving. The public face, in this 1930s version, was designed to minimise direct contact with the wider locality, through a combination of distance and restricted accessibility to the edge of the buildings. However, the sheltered life within its compounds was potentially more social than at the Brutalist tower blocks previously examined.

7.1 The East Hill Estate, London County Council, 1929-1985

The East Hill Estate was demolished in the 1980s to make way for private housing. Consequently, there is no evidence of occupation in our current era, but it was considered enough of a prime example of achievement by the LCC to be featured extensively in *London Housing 1937*. There are a few general design features on these estates which I will summarise before focusing on the East Hill Estate, after providing a brief introduction to its general layout.

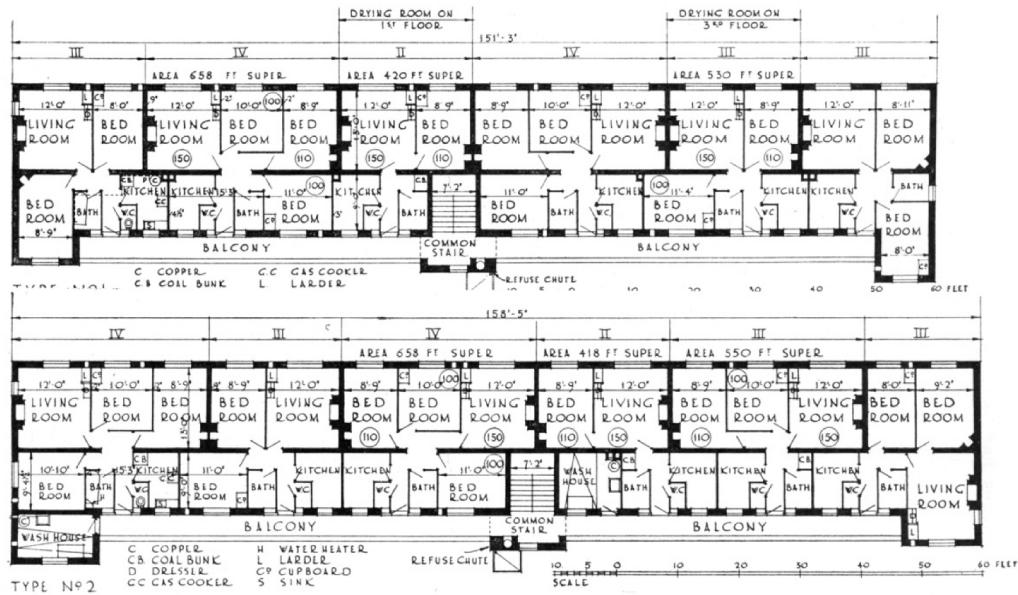
In as much as the contextual position of the remits of the site permitted, these housing estates tended to be designed on the basis of a strict hierarchy between fronts and backs. While the fronts were for display, the backs were for everyday routines and chores: fronts faced the public street and backs faced back gardens (themselves originally utilitarian) from surrounding properties, or railway lines.

Archive material on the East Hill Estate (*Fig.57*) demonstrates this in a particularly straightforward manner.



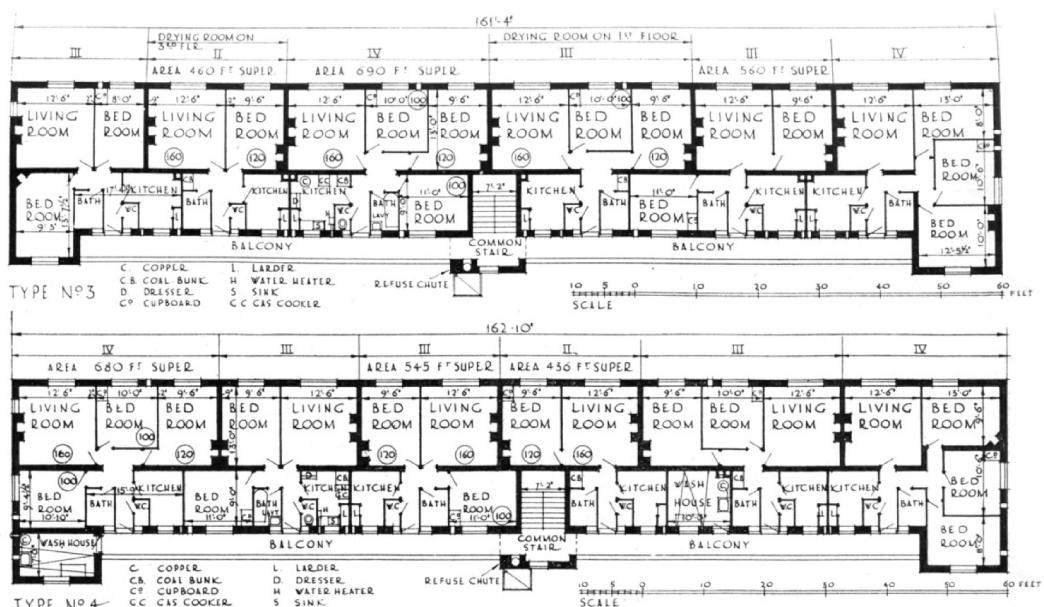
Fig.57 – East Hill Estate, 1929, LCC

Several architectural devices were used to maximise the terms of this hierarchy, through the façade and through circulation strategies. The proportions of the windows on the public 'side' were stately and rhythmic and at a distance from the main road, and the flats had no private doors on the public face, not even at street level, or where new streets were created inside the estate. This generated a strict degree of separation between public front and servicing back, and was reinforced by the absence of paving at the edge of the public façade. The lawn extended directly from the pedestrian pavement to the base of the walls, "to obtain reasonable privacy for the tenants" (Gater: 1937, p.38). This commentary, which recurs regularly throughout Gater's accounts of the LCC's housing programme, signals that some of the issues raised in the previous chapter about post-war housing were already in place before WWII. There was an apparent assumption that this was a necessity that benefitted the tenant, but while there are grounds for questioning this proposition and suggesting that privacy was possibly also considered to be in the public's interest, there are other indications that adjacency between neighbours at the back was less regulated by the architecture.



1934 NOS. (1) AND (2) TYPES

E.P. Wheeler, Architect to the Council.



1934 NOS. (3) AND (4) TYPES

E. P. Wheeler, Architect to the Council.

Fig.58 – LCC standard layouts from London Housing 1937

I did not find detailed plans of the East Hill Estate, but the standard layouts above give an indication of the way flats were probably organised. The jagged edges that appear at the backs of the blocks on the map in Fig.57 indicate the presence of staircases and open walkways leading up to individual front doors. These either face the back gardens of other properties, or they face each other in internal courtyards. This vertical reinterpretation of, effectively, a back alley to the servicing yard, is concurrent with the internalisation of some of the functions it would have previously served. By the 1930s, most of these flats had interior bathrooms and kitchens (of

fairly minimal proportions), between which the front door gave access to the flat, forming a sort of gateway. On plan layout, this additional layer behind the exterior of the boundary is, in spatial terms, not dissimilar to those visited in Brutalist tower blocks, and yet it is rather different in social and environmental terms. Some of the interior rooms have windows to the access balcony, and the access balcony doubles as a private balcony while distributing front and back attributes *together*.

Privacy between neighbours was not particularly strong along the access balconies. Instead of walking through the front of their dwelling towards the back, residents walked through the back to reach the front. Thus kitchen and bathroom, while forming a buffering layer between public and private space, endowed the living room with more privacy (despite facing the public street) and the kitchen/bathroom (and some bedrooms) with less privacy than in more traditional arrangements such as the Victorian working-class cottage.

This can have social merits. I lived in a 1930s estate for ten years and personally experienced the advantages of this configuration. Cooking, particularly at night when electric light revealed the interior through net curtains (which many of us chose not to have in the kitchen), often prompted neighbours passing by on the way to their flat to knock on the window, wave to say hello, or actually knock on the door for a chat. This might have been comparable to earlier times when household chores also involved a degree of informal social interaction, and the fact that doors and balconies opened onto the communal yard enabled natural surveillance and acquaintance with neighbours. As soon as they left their front door, neighbours would be able to see each other and would often nod, if not exchange a few words in passing. Although it could be argued that this estate was particularly friendly, the architecture invited this natural surveillance through the way access balconies looked onto each other.

This configuration was more problematic in the case of bedrooms facing the access balcony, particularly in summer when the need to open windows for ventilation conflicted with overhearing any activities from these same neighbours passing through. It might be supposed that these access balconies were fairly busy in the 1930s. The LCC's standard layouts above (*Fig.58*) Type 2 and 4 include communal washrooms on each floor, incurring passing in front of flats not only to reach a front door, but also to reach a laundry room. I find it interesting that the tradition of laundry rooms should have also been a 1930s feature although, in this case, this may have been a practical necessity rather than a device to keep these activities

away from the public eye, in as much as washing without washing machines was a time-consuming exercise requiring space.

Types 1 and 3 show that other washing facilities were probably located further into the servicing zone of the estate, possibly as an experiment at first. Gater's book reveals that the LCC experimented with several different scenarios in tenure, architectural design and construction methods. He gives details of communal facilities for each estate, including washhouses for washing and drying clothes and linen, workshops, perambulator sheds, barrow sheds, storage and lock-up shops. In some instances, tenants were also provided with allotments. In all these cases, the activities formerly carried out in the terraced back yard of the Victorian cottage were moved to the other side of the circulation space, at one remove from the immediate edge of the dwellings (see *Fig.07*, p.65).

Interestingly, in later developments documented by *London Housing*, these commodities disappear and become replaced with social facilities. This is surprising in as much as post-war technologies such as washing machines had not yet entered the average working-class dwelling, although other facilities might have become disused because of gradual transformations in working patterns. But, as the LCC's case studies move closer to WWII, maternity, childcare centres, community centres and playgrounds become the norm instead. This could reflect a shift in working-class needs of the time, but it also suggests an acknowledgement of the fact that a number of social activities could not take place within the dwellings themselves or at their edge. The looser boundaries of Georgian or Victorian backyards (see Chapter 8) had been replaced by two strict zones, one for access and circulation, and the other for utilities.

Despite being separated into two zones, social and utilitarian dimensions of life in these estates (including the distribution of residents) were both pushed as far away as possible from the public gaze of the main street, and from the public gaze of residents who were not immediately adjacent to each other. Gater did not widely document them through photographic evidence – the tendency being that the more presentable fronts were generally more prone to being illustrated than the backs. This gives indications about the architectural and hierarchical status of these backs, but the London Metropolitan Archives have a collection of photographs of the East Hill Estate, during and after construction, which includes some backs.

These give indications of how the estate was occupied in the early days, bearing in mind that other photographs in the series demonstrate that the estate was still

being built, and that only a few tenants had already moved in (there are occasional captions of people standing on balconies, although this may have been because there was a photographer on site). There are details that reveal some of the activities that might have happened at the back, and particularly at the edges of these backs. In *Fig.59*, for instance, we can observe poles for washing lines, rubbish bins and a horse and cart. There are quite a few manholes and downpipes, which suggest that rainwater collection and other underground services were also located and maintained at the back – the utilitarian services of the building spatially conjoined with the utilitarian activities of the everyday.



Fig.59 – Back of East Hill Estate

Unlike the front and public areas, there is little soft landscaping at the back, and little attempt at any form of adornment. Apart from the one tree in a more street-like access, these areas are quite barren and are surfaced with asphalt. In some courtyards enclosed by access balconies, there is grass, but there are also a lot of details that indicate that this grass is not to be walked on. In *Fig.60*, where the absence of net curtains indicates that tenants have not yet moved in, paving is organised in such a way that it stops at front doors, and this is particularly awkward for one of the ground floor flats, where it appears that residents would need to step

around a bin chute room to get to their door. Otherwise, the privacy of windows giving directly into the courtyard is reinforced by a plant bed for bushes. The seemingly haphazard presence of manholes gives a feeling that this area is for providing light and air to the flats, but not otherwise meant for use.



Fig.60 – East Hill Estate, Grassed Courtyards

On the other hand, courts for display to a relatively more public eye emphasise, through the paving, that this is a route through rather than a place for anything more mundane (*Fig.61*).



Fig.61 – East Hill Estate, Courtyard beyond Entrance Gate

Untypically, the formal layout presented in *Fig.61* is inclusive of balconies. The (inverted) ‘fronts’ of this block face the streets that lead further back into the estate, which indicates an interpretation of the street as a circulation area for passing through but not for relating to its sides. Therefore, the access balconies in the court had to be in view of the processional and pedestrian artery that runs through the central length of the estate. Asphalt at the periphery indicates that some basic utilitarian matters may have been permitted. But social life, as the next photograph indicates, was meant to take place in the spaces that did not receive soft landscaping (*Fig.62*).

Fig.62 is more striking because it is full of people, but it is less clear what they are doing. There are no indications (such as flags or stalls) that people are out for a special event. There are a lot of children, who seem to be waiting for something rather than engaged in play, and there are quite a lot of residents at the top balconies looking down into the courtyard, as if also waiting for something special to happen. Shadows indicate that it is a sunny day, but we are otherwise left wanting to know more about why these residents are there. The only thing that is certain, is that the asphalted areas were also the areas where social life was meant

to take place, and this is perhaps the message that the photographer wanted to convey. True to Jan Gehl's findings about instinctive behaviours in *Life Between Buildings* (1971), there is evidence in this archive material that the residents preferred to congregate near the edge rather than in the centre of the space, an important observation in terms of boundaries.



Fig.62 – East Hill Estate, Life in the courtyard

Bearing in mind that the East Hill Estate had only just been moved into when most of these photographs were taken, there is no evidence of personal touches at the edge of the flats, nor are there any flower pots or flower troughs hanging over the balconies. This could be because the new residents had not yet had time to appropriate their space.

There is a dedicated playground area tucked at the top north-east of the estate (nearest the railway and furthest from the main road), also covered in asphalt (Fig.63). The high fencing protects the flats from stray balls, and the 'front rooms', i.e. the living rooms and some bedrooms, face the area, presumably for surveillance. Windows reveal that, by the time this photograph was taken, life in the estate had become more established. The corner block is also of a later architectural style and clearly annexed to the original layout, which implies that

there would have been no playground in the original design of the estate. On the other hand, it is worth noting too that there are a few 'private' balconies, significant of increased privacy in later LCC designs, and formed of opaque brick rather than less private railings.



Fig.63 – East Hill Estate Playground

Although there are (very few) children in the playground within the playcourt, there is also a notable absence of benches – for parents, but also possibly for anyone wishing to watch a ball game in action. In fact, from the large number of photographs available, there does not seem to be a single bench on the entire estate, even in areas that are clearly allocated for social interaction and play, as in the previous photograph. This is all the more surprising if one bears in mind that the 1920s were also a time when exercise was regarded as testimony to a healthy lifestyle, which was part and parcel of some of the aspirations that motivated slum clearance (Borasi & Zardini: 2005). The archive footage in Fig.64 shows that there were no benches in park sporting grounds either.⁹⁹ There could be several interpretations about this observation, one of which the fact that spectators to

⁹⁹ This was shown in Dan Cruickshank's documentary on *Britain's Park Story*, BBC Four, Mon 2 Aug 2010.

collective exercise were often expected to stand in order to watch, as is the case in *Fig.64*. However, the consistency of this lack of benches throughout the estate seems to indicate, more probably, that exercise and walking (or sitting) were considered separate types of activities. This, in effect, could negate the combined health, cultural and social merits of walking (Solnit: 2001).



Fig.64 – Mass Exercise in the 1920s

This reads like a 'Modernist' approach. If average 1930s blocks were generally less overtly Modernist in their stylistic appearance, they were nevertheless also advocating the principles of ventilation, sunlight and hygiene expressed in the medical architecture of sanatoriums which, Beatriz Colomina argued (1997), informed Modernist aesthetics. These expressions are peppered throughout Gater's explanations for the design of the housing estates, and this would explain some of the observations made above. The large spaces and patches of grass designed to be seen but not touched could be interpreted as the result of an emphasis on open space as provider of fresh air and sunlight, and with it, the generation of distance between the main street and the entrances to the estate.

It is curious that the body should, consequently, be discouraged from spending time in this fresh air and sunlight. There are inconsistencies in this logic, as if body and nature were separate, or fresh air and sunlight designed for the building's health rather than for its occupants' health; unless, of course, walking was considered compromising to privacy on the estate.

This architectural strategy also suggests that there is an equation made between utilitarian matters and social matters, and another that treats nature and movement across space as separate from utilitarian and social matters. Cleanliness

and order are represented through the tidiness of a close-cut lawn, as if manicured nature were somehow representative of a superior natural order that did not include human habitation. It might have been thought that the hard surfaces of utilitarian territories provided ways of easily clearing any mess of everyday life which grass, by contrast, would evidently be unable to withstand. However, this austere interpretation results in a divorce between human principles and principles of nature which are not utilitarian.

Some details at the enclosing edge of the playground show that there are items of linen sticking out of some of the windows. This seems to be in breach of professor of architecture Marion Roberts' assertions about tenancy handbooks of the time (Roberts: 1991). She describes the way they inhibited certain types of social interaction through a number of rules about acceptable behaviour. The edges of the flats were to be kept tidy and all signs of personal life contained inside the flats. Children were not allowed to play on access balconies and stairs, and neighbours who liked a gossip and a chat were considered socially inferior. According to her interviews with former residents, breaches of common rules were frowned upon by the tenants themselves. This suggests that, culturally, the tenants made associations between social status and the visibility of social life, and that their aspirations leaned towards a more middle-class consensus about discretion in social encounters.

I have not been able to source LCC Tenants' Handbooks of the time for access balcony estates such as the East Hill Estate, but samples for Garden City Estates have survived, such as Becontree (dated 1933) or Bellingham and Downham (dated 1934). Both are practically identical in provision of highly detailed instructions about care, maintenance and conduct, and indicate that everyday life was to be contained on the private side. Two illustrative quotes from the Bellingham and Downham Tenants' Handbook: "The tenant shall be entitled to use the back garden of the premises as a drying ground for his own washing, but shall not otherwise expose to public view or hang out from the windows or on the balconies of the premises any washing or any unsightly objects." (p.13) and "The tenant shall be responsible for the orderly conduct of his children on any part of the estate, for any nuisance or annoyance they may cause to other tenants or to members of the public; for any damage to or defacement of any building, wall, fence, gate, or any other property of the Council, and shall repay to the Council the cost of making good any such damage or defacement" (p.14). In the first quote, there is a direct correlation made between washing and unsightly objects. In the second quote, the reference to walls, fences and gates places emphasis on boundary objects and

makes the presumption that children are disruptive and to be kept out of public spaces. It is also interesting that the tenant should be presumed to be a man, despite the unlikelihood that he would have been hanging washing or looking after children in that era.

Roberts' interviews also revealed that women took pride in hiding the fact that they were spending a large part of their day attending to household tasks; this might have applied particularly to lower middle-class tenants, who would have previously relied on part-time help. The 1930s had seen the disappearance of a whole section of the working population who had previously been servants to a wealthier group of Londoners, which resulted in the need for 'social' housing to serve two class groups merged into one, a lower middle-class and an upper working-class (the 'deserving' poor). This would have, inevitably, created tensions, which may explain the severity of judgements on social conduct. The middle-classes took pride in having servants and concealed, as much as they could, instances when they could not afford them: in her childhood recollections of Edwardian South London, Eileen Elias described the way in which her mother was making do without a servant because of a restricted budget, but would still pay someone to clean the front steps so as not to be seen to be doing the housework herself (Elias: 1978). Front steps, of course, are treatments of the boundary and contribute to the public face provided by a façade. It is interesting that tenant judgments on propriety should have again appropriated the more middle-class values of discretion in (household) work, and also that being seen to carry out utilitarian tasks should have been considered demeaning by middle and working-classes alike.

However, because the access balconies are designed in a way that favours social contact between the private and less private sides of the boundary at access balcony and interior, we have to surmise that social encounters were permitted, if only to an extent agreeable to norms of propriety of the time – the possibility of such contacts was built into the architecture and regulated by tenants and Council. In 2015, my UEL colleague, Dinah Bornat, surveyed a number of LCC blocks with a team of students, who sat and observed residents and passers-by. They made notes on their behaviour in the estates and on the way they used available public space within their compounds. Their findings were similar to my personal experience of having lived in a council estate for ten years. On the access balcony 'side', people get to know each other, and this familiarity encourages cross-fertilisation about what goes on in the community.

Although I have no balcony manifestations for the East Hill Estate after it was built, I have found numerous examples of balcony appropriation of the edge in 1930s blocks throughout East London and South East London today (*Fig.65*). Many such estates are now gated at the typical entrances to stairs serving the access balconies, which increases privacy. But this does not seem to have detracted the value of these balconies in supporting manifestations of the everyday, often through the mere hanging of washing, but also through flower pots, bicycles and other paraphernalia. However, I was told by several people who live in them today that these displays of life are no longer allowed by policy. There are indeed several such estates along the railway line near London Bridge which seem 'unnaturally' free of clutter (including flower pots) and are probably run under private ownership with specific rules about propriety.



Fig.65 – Balcony Access Council Estates in East and South East London (2013-14)

The benefits of these configurations also affect the management of waste: during a visit of Veolia ES Southwark Ltd, who sort and recycle residential waste, our guide,

Ian McGeough, made interesting comments about corridors and access ways.¹⁰⁰ According to him, for a number of health and safety reasons, enclosed corridors prevent residents from sorting out much of their own waste, which has to be managed externally instead. He took the view that open-access balconies were, in this sense, more practical, and that they gave residents more choice.¹⁰¹ In his experience, residents of 1930s blocks were generally happy to have their rubbish bags sorted into different categories and ready to be collected once a week, gathered in a translucent bag pinned by the exterior side of their front door. This challenges a number of possible preconceptions about negotiations between public and private principles. According to McGeough, residents are prepared to make their waste temporarily public and have no reservations about utilitarian evidence of their internal lives at their threshold.

1930s LCC architecture throughout London was originally concerned with eradicating disease as well as poverty. My research indicates that, today, it remains a relatively successful format for housing estates, but that health matters and social matters were already treated as separate in the 1930s - in institutional and architectural conventions of the time. There are also signs in the boundary designs that utilitarian and social matters were both considered private, or at least unsuited to the public eye of the city. This carries the possibility of cultural correlations drawn between social and utilitarian matters, together with hierarchic echelons about propriety and impropriety. However, despite the great efforts that seem to have been made to conceal utilitarian and social principles from the public street through the architecture, they were allowed by the design of boundaries to operate within the confines of the backs or courtyards assigned to them and are still, in most cases, successfully achieving this today.

It is worth noting, however, that the Tenants' Handbooks mentioned above contained the seeds of separation described in the previous chapter about post-war estates. Many clauses forbade a number of activities from taking place inside the home – from the storage of goods for trade through to the keeping of animals such as pigs, rabbits or fowl. This indicates that, at some point, residential activities had been crossing over several occupational remits, and that this was no longer considered desirable. But there were also lists of available local amenities ranging from community centres and libraries to scouts or guides clubs, craft and handicraft guilds, sports and games clubs. These, combined with several references

¹⁰⁰ May 2012.

¹⁰¹ Fire Safety officers might however take a different view, as bin bags reduce circulation clearance in case of emergency escape.

suggesting the impropriety of child play on the street side, all indicate that activities which might have once been taking place in the midst of domestic life and across its immediate boundaries between inside and outside, were now considered more favourably if relocated away from the vicinity of residential dwellings. This includes suggestions that they were also of educational and civic value beyond domestic and street life, under the patronage of 'greater' institutions.

7.2 The Leopold Buildings (1871)

I shall now compare the access balcony strategy of LCC estates with a much earlier example of housing for the poor, the Leopold Buildings in Bethnal Green (1871). These were built by the Improved Industrial Dwellings Company Limited, along what is now known as Columbia Road, to house 112 families.¹⁰² What interests me here is its contrast with the relative porosity afforded by access balconies enclosed in on themselves through 1930s courtyards - providing a successful compromise between keeping life out of public sight, and yet giving it accommodation within its own communal privacy. In the Leopold Buildings, where entrances faced the public street, residents were architecturally pushed into the back depths of the building, demonstrating that the desire to keep the everyday out of public sight had been a convention for quite some time before the Modernist era.

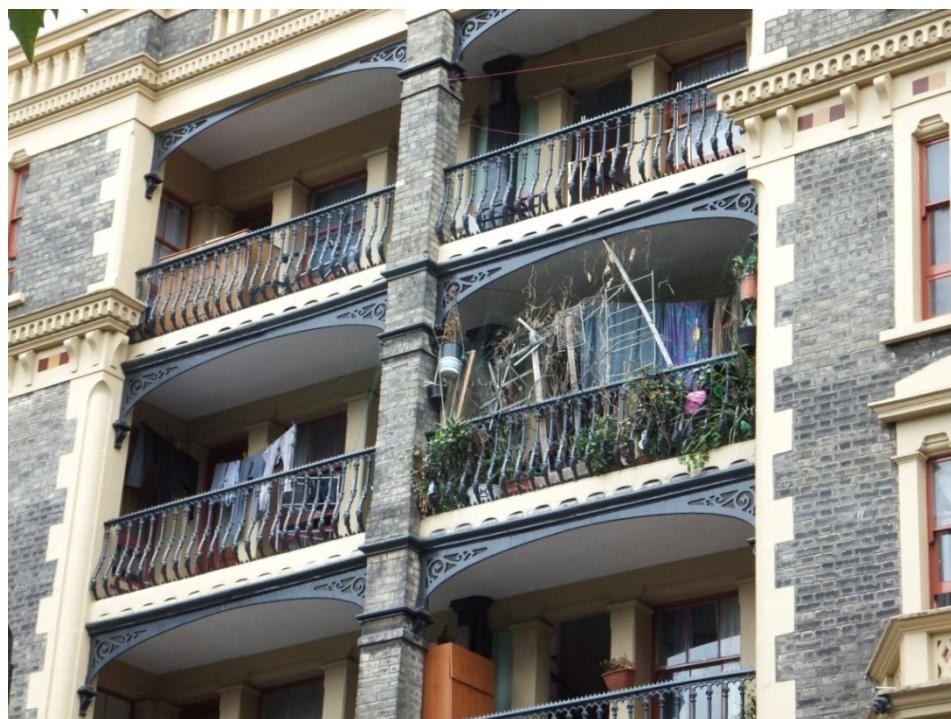


Fig.66 – Leopold Buildings, balcony close ups (May 2014)

¹⁰² Now Grade II listed.

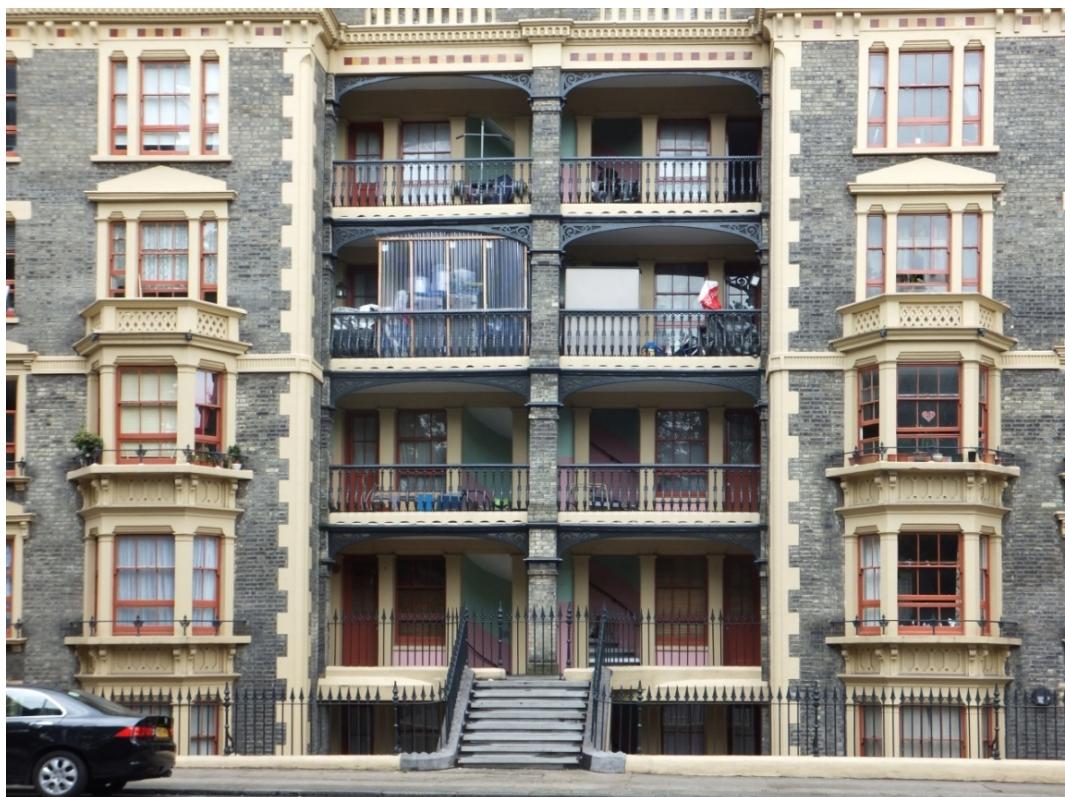


Fig.67 – Leopold Buildings, stairs and access balconies (Summer 2014)

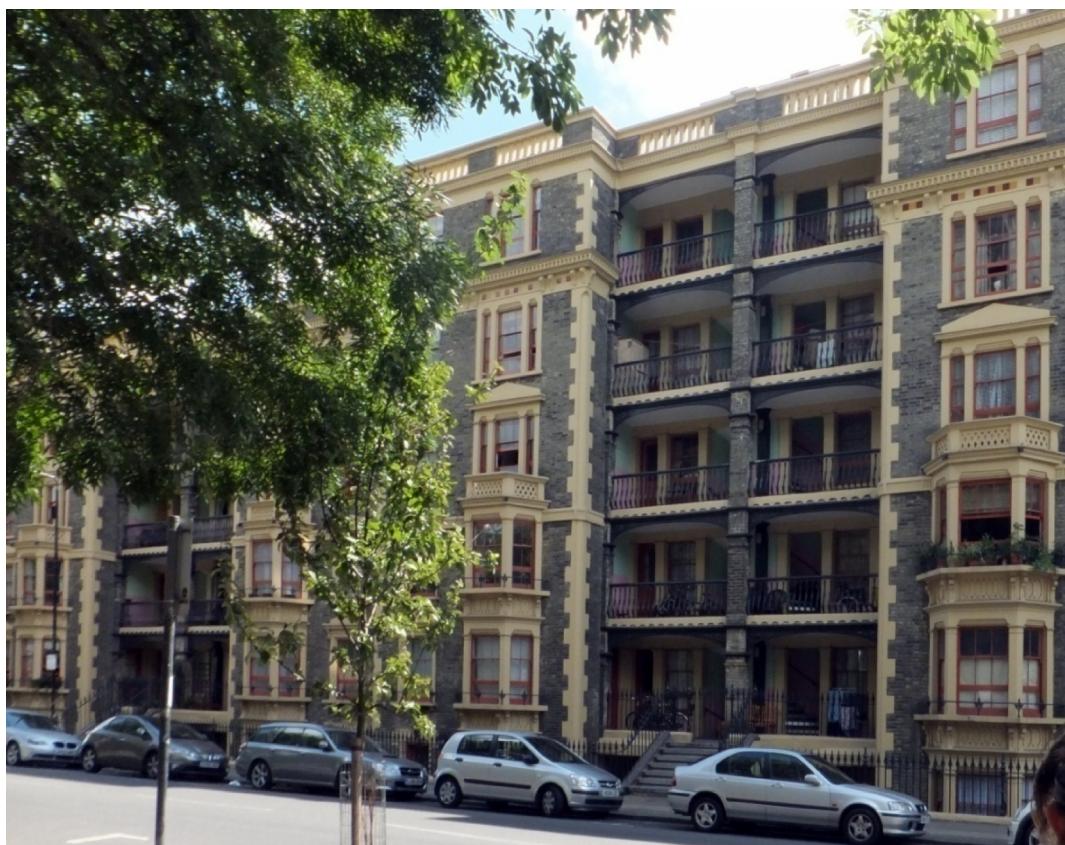


Fig.68 – Leopold Buildings, street elevation (Summer 2014)

The photographs above are part of a series that I took alternately on a sunny day (*Fig.66*) and on a rainy day (*Figs.67 and 68*). In both instances, and several others, there were signs that the balconies were well used, with flower pots, bicycles and washing mingling with other personal objects or screens not dissimilar to those found at Trellick Tower (Chapter 6) or Consort Road (Chapter 4). However, there were a lot more visible signs of life on the sunny day than there were two months later. Tenants might have been asked to remove their clutter when I visited for the second time, although my first visit was on a week day, whereas my second visit was during a week-end. At Consort Road, it was often the week-end that was busiest, so my findings at the Leopold Buildings differ, unless it was rain that encouraged residents to move their belongings indoors.

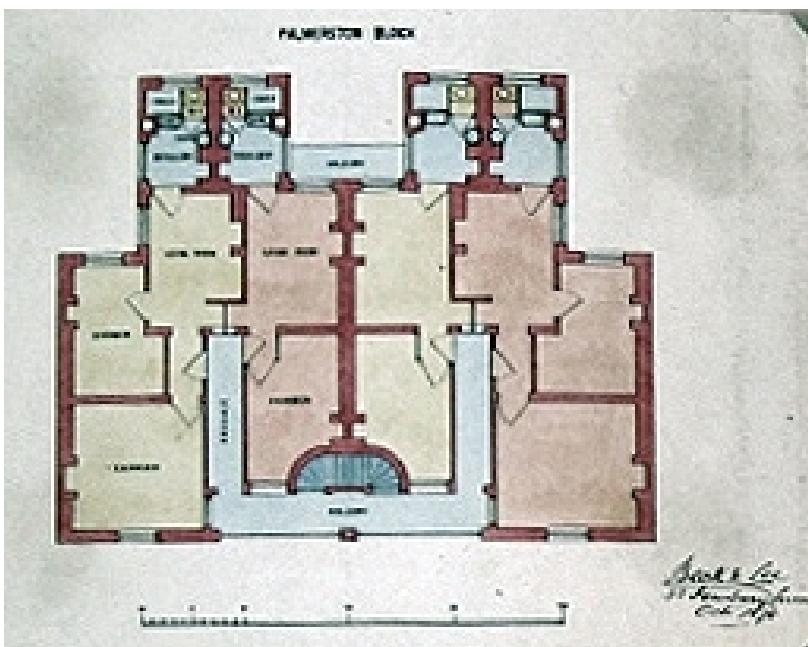


Fig.69 – Leopold Buildings, Original Plans

The architecture as it is today may have been subtly modified. The register of estates of the time, which includes drawings of the flat layouts (signed September 1870) shows that, behind what looks like a front door opening, is a corridor at the end of which are two doors, the actual front doors to the flats, immediately opposite each other and serving two flats (*Fig.69*). This space would have been dark and narrow, and although the openings and door swings are trying to minimise intrusion in each of the dwellings' privacy, there would be additional issues with acoustic privacy in such a contained space. The interesting thing about this arrangement is that it seems to indicate that privacy from the public took priority over privacy between immediate neighbours: note the tiny windows at the end of the corridor, as if neighbours were encouraged to look in on each other at the threshold. There is an attempt to push front doors as far as possible inside the

building and away from the public street, where the entrances to the stairs are sited.

Judging from the evidence found on the balconies today, combined with the minimal proportion given to the original scullery and washing facilities, I would speculate that the twin flats have since been joined into one, encouraging tenants to use their front access balcony as any other balcony. John Nelson Tarn's account (1973, p.53) of such estates when they were originally occupied suggests that only back balconies would have been shared, for the purpose of hanging washing, and this is the case at the Leopold buildings, where a back balcony is shared between two of the four flats. This may be what prompted the LCC to adopt the back access balcony approach which characterised most of the estates built between WWI and WWII.

In cases where front entrance stairs were flanked with access balconies on either of their sides, it is likely that access balconies were not supposed to host any form of appropriation. One of the earliest examples I found of access balconies visible from the street side dates from 1846 and was erected by the Metropolitan Association (Gater: 1937, p.208). Many of these blocks were subsequently demolished because they did not have the basic hygiene facilities that later became indispensable, but those that did, like the Leopold Buildings in Bethnal Green, are still standing. Apart from their intricate architectural detailing, they give an appearance of generosity that is partially afforded by the richly decorated cast-iron work originating from the pavement and distributing access balconies on either side of the stairs. However, the disposition of flats at the end of an oppressive corridor suggests that Leopold Buildings were to be seen, but its residents were to be hidden.

7.3 Slum Clearance and Back-to-Back Dwellings

According to the London County Council (Gater: 1937), much of the housing stock that was branded as slum for demolition after WWI was built at around the same time as the Leopold Buildings, but without standards of sanitary provision that were considered adequate. Some were made up of back-to-back terraces, i.e. terraces without an external back at all (Denison & Yu Ren: 2012). The LCC's photographs of slums before their demolition provide interesting details about this habitation in the poorer districts of London. In many instances, backyards were filled with miscellaneous utilitarian objects, with washing lines, and with women and children (*Fig.70*). For back-to-back dwellings, these activities were located on the front side,

in which case the (more utilitarian) street served front and back activities at the same time.

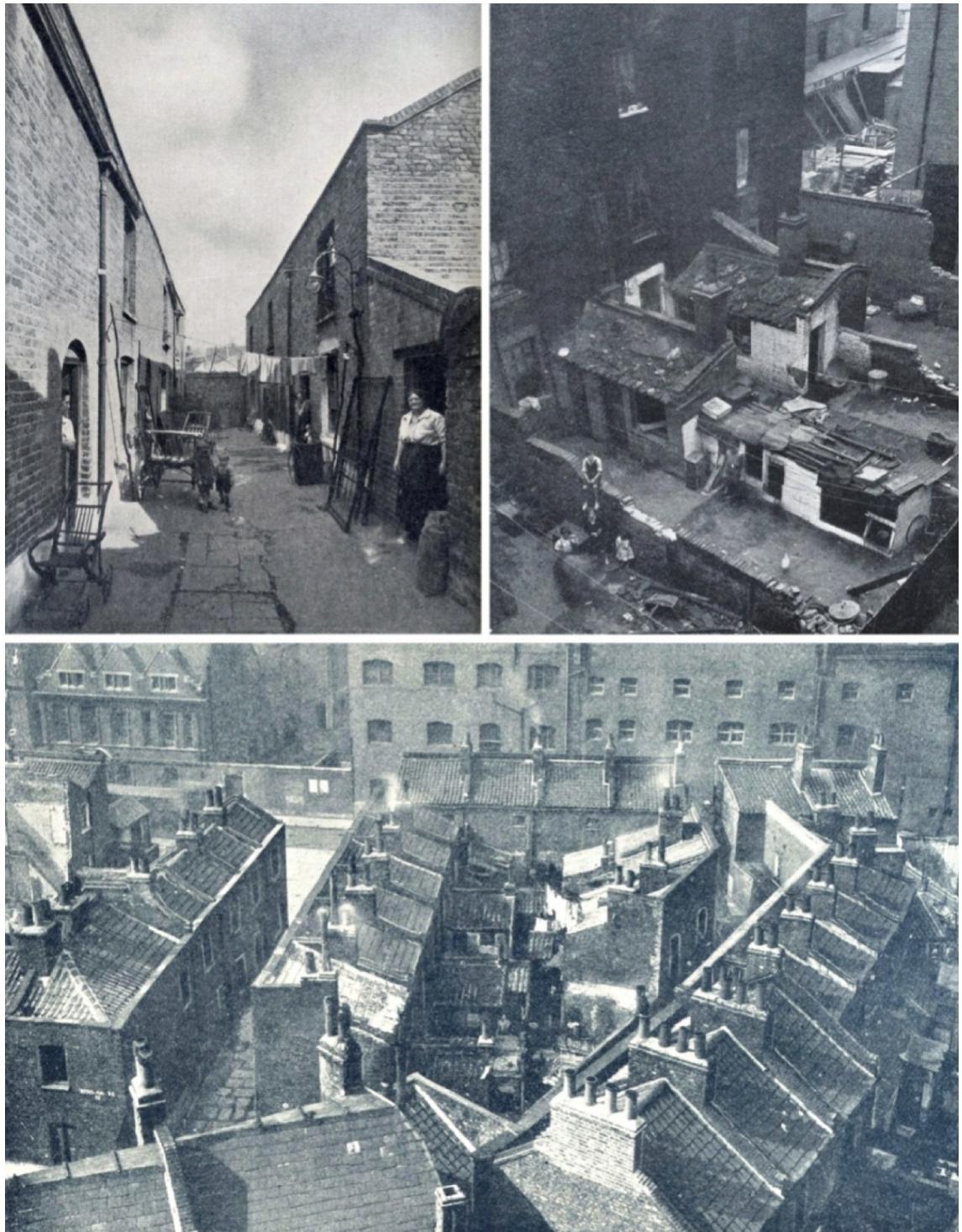


Fig.70 – Slum Housing assigned for demolition, LCC

There seems to have been a correlation made between the notion of utilitarian backs, the propriety of utilitarian matters, and poverty. According to Leonardo Benevolo (1971), street layouts in Fig.71 testify to a gradual rationalisation of fronts and backs, whereby the disappearance of back-to-back cottages is

accompanied by a new type of back street – the backs become self-contained within the boundaries of each individual dwelling, and communicate with each other along a narrow alleyway. The second half of the 19th Century would have seen fluctuations of interpretations on the public/private patterns of residential norm described above. However, although the concepts of public face and private back were retained in the mass housing configurations of the Victorian terrace, the back alleys described above seem to have gradually disappeared. Instead, directly adjacent back-to-back gardens, or yards in the case of working-class cottages, became more prevalent and therefore inaccessible to the public eye.

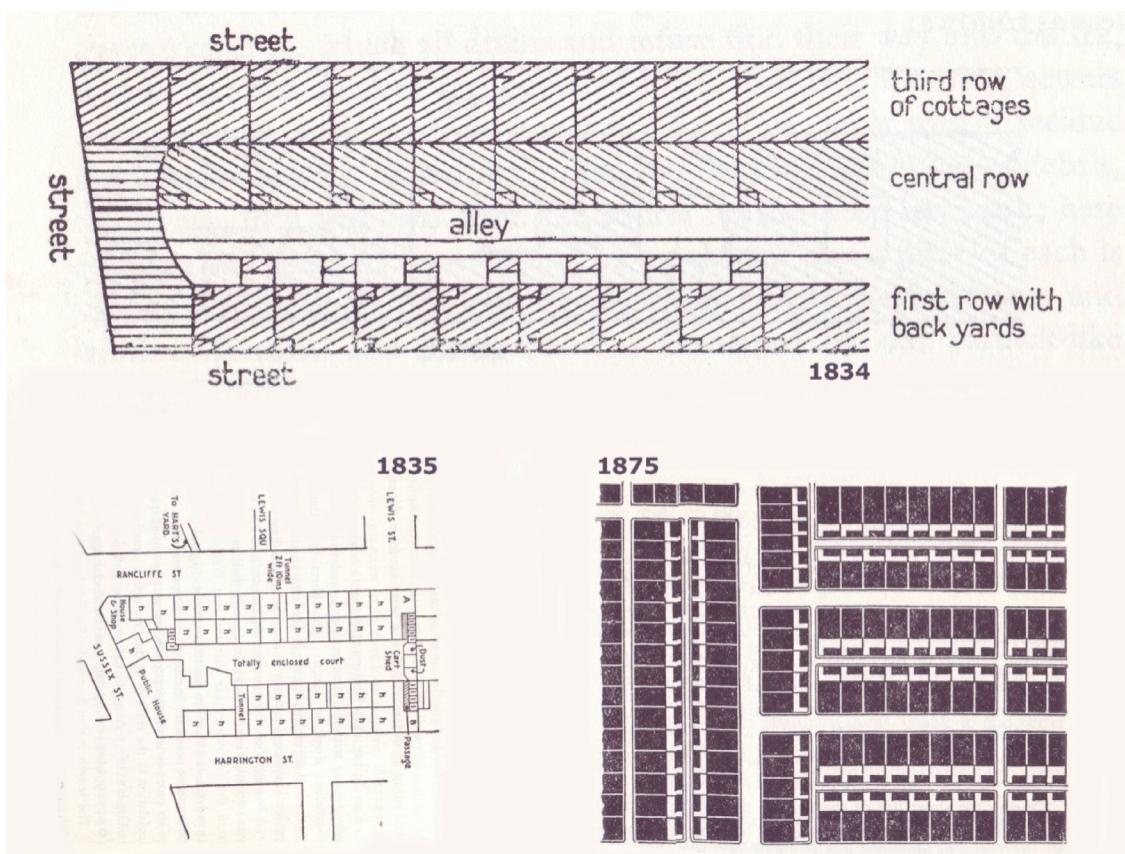


Fig.71 – Evolution of front and back streets during Victorian Era

Concurrently, many of the utilitarian activities that were formerly undertaken outside, moved indoors into the scullery. In particular, in the absence of cellars, this affected the way in which the comings and goings of everyday life were carried out – many would have needed to be distributed through the front instead. With the expansion of water and drainage supply networks across the infrastructural fabric of London, some services had retreated underground and they no longer needed to be distributed in and out in the same way, nor through human agency. The utilitarian space thus became more self-contained, and this would have subtly affected social relationships between neighbours, social relationships between

residents and the street, and social structures (see Caroline Gardens in Chapter 8). This raises questions about what conceivably belongs to the domain of street life. Once the back alleys made way to contained individual back yards, themselves back-to-back, some pragmatic daily incomings and outgoings had to move to the front. For example, the coal or the milk had to be delivered at the front alongside refuse bins, thus compromising the strict divide between public fronts and servicing backs. In effect, two types of street (front and back) merged into one. With these permutations, the role and purpose of the boundary changed as subtly as the relationships between dwelling and locality.

In this context, the design formula of 1930s council estates seems surprisingly unconventional, despite the internalisation of social and utilitarian matters at the back, and especially if compared to some of the earlier estates built by Housing Associations such as Peabody's Shadwell estate built in 1866, which were sometimes without balconies at all.¹⁰³ Some were so austere and impermeable that they were akin to workhouses in their architectural language, but this was not a consistent rule: Parnell House (*Fig.72*), which was later acquired by Peabody, was built in 1850 by the Society for Improving the Condition of the Labouring Classes, and features continuous and generous access balconies along most of the internal courtyard. These are portrayed as inhabited, by people, but also by plants – note other details such as bin, bicycle and pram against the railing in the courtyard.



Fig.72 – Parnell House, Peabody Trust

¹⁰³ <http://www.peabody.org.uk/about-us/our-story/our-history/history-of-our-estates#abbeyorchard>, accessed 14 March 2013.

These configurations, in themselves, were not new. In English Heritage's collection of LCC archive photographs (Davies: 2009, p.25), there is, for instance, a documentation of The Oxford Arms coaching inn, built in the 17th Century – the demolition of which, in 1878, prompted the formation of the Society for the Protection of Ancient Buildings (*Fig.73*).



Fig.73 – Oxford Arms, Warwick Lane, 1875

These changes could not have been as commensurable to the architecture as described. The working and domestic lives of poor people were likely to be resistant to planning categorisation, and their presence in the city must have been subject to fluctuations over and beyond territorial borders between residential, commercial and public borders.

In his survey of *Life and Labour of the People* (1889) Charles Booth's poverty maps of the late 1800s did not separate home and work, but instead drew correlations between trade, income and domestic conditions. The work life of tenants in Gater's descriptions is also taken into account, together with domestic circumstances, even if, by then, it is assumed that (men's) life and work have become separate.

7.4 Hybrid Street/Domestic Life and Slums

While it is difficult to document a life of porous transience at the domestic boundary of Victorian times and, therefore, make meaningful comparisons between boundary types in this period, we have evidence of similar practices in today's slums around the world.¹⁰⁴ Contemporary slums are still characterised by poverty, high density and poor sanitation, and an apparent lack of planning and urban distinction between interiors and exteriors (Nijman: 2009). Crucially, from the perspective of boundaries, circulation arteries in slums are frequently blurred at the edges between streets and dwellings, which cater for a multitude of shops, kiosks and informal stalls for crafts and trades tended throughout the course of other daily activities, including household management and childcare. This is not to say that these settlements are unplanned – they are in fact highly (self) organised – but their boundaries and spaces are indistinct, sometimes consisting of mere fabric and temporary partitions, enabling any one space (internal or external) to be used in different ways at different times of day (Gordon & Kilian: 1992). While comparative studies need to make allowances for climatic differences (many of these slums are in warmer regions than in the UK) this represents, in a way, a direct opposite to the logistics of urban planning as we understand them. It is worth noting here that the flexibility of the boundary is concurrent with the flexibility of interior and exterior spatialities and socio-economics.

This can be viewed as incompatible with basic principles of modern planning, particularly in terms of visibility. The desire for order, in the Planning meaning of the term, associated with a certain kind of legibility in the outline of buildings and pavements, might have been associated therefore with the desire to hide what could not be classified, including people and their various daily activities crossing over the demarcations of domesticity and of work. The activities that occur at these blurred edges in contemporary slums today are strikingly reminiscent of 'lost' Victorian street trades, which were informal and cyclical, possibly improvised sometimes to the tune of special events, and certainly hybrid. Many of these traders had several different types of 'jobs' in any one day, some in a scheduled and cyclical manner (on a weekly or fortnightly basis).

There are reasons to believe that the growing informality of work modes in London today may result in comparable, if different, long-term trends. These tasks and sources of livelihood also included the recycling, maintenance and repair of the rich

¹⁰⁴ For reasons of space and also because I am focusing on London, I cannot document this at length here but I have built up a lecture series on the topic for my students at UEL.

city's leftovers (the rag and bone man being the archetypal representative). This highlights the fact that not all waste can be handled by underground pipes, and that it requires human agency – 'waste' being a very relative term, does not only originate from industrial pollution or overcrowding. As 'waste warrior' Jack Sim proclaims, waste can even be regarded as a potential asset (George: 2010). While waste, in these cases, can be the by-product of wealth, slums in this sense can be considered sustainable, but without neglecting the fact that the two 'sides' are also *co-dependent* over and across any surface boundary determined by property lines. This may be relevant to our future urban environments, in the West also.

According to Leonardo Benevolo (1971), the origins of Town Planning as we know it today are anchored in the Victorian times, themselves characterised by the effects of the industrial revolution on its protagonists and on the city. It could be speculated that the institutions which produced Strata Tower are reproducing an unresolved dilemma originating from the Victorian era. Dr Olivia Horsfall Turner, in BBC4's documentary *Dreaming the Impossible: Unbuilt Britain* (2011), reported that someone in the Victorian times, pondering on the difficulties of growing traffic in the streets of London, proposed in all seriousness that there should be two streets, one for the middle-classes at normal level, and another, underground street, for the working-classes only.

The BBC created a montage of this proposal for its audience (*Fig.74*) and do not reveal who originally came up with this idea, but it does provide food for thought. We could ask how the author was proposing to sort out who belonged to which class, and how they were to negotiate points at which one might have needed to meet the spatially *othered* 'other'. There is an assumption here that things and people can simply be separated into isolated zones that have no relationality, and that utilitarian matters and their human agents can be separated from commerce and leisure. Arguably, this would be the confession of a deep malaise that could be perceived as expressed in the architecture of these social and philanthropic housing schemes, to various degrees.

This imagery is symbolic of a world view that favoured the concealment of all things utilitarian, and there might be justification for arguing that the disappearance of some services underground in the Victorian times was not only expedient but also convenient to this desire to make certain things invisible; to hide utilitarian principles altogether, in the same way that soluble waste and water pipes became buried underground. This, in itself, questions the validity of some slum clearance

strategies and the validity of 'privacy' criteria based on class and utilitarian aspects of the everyday.



Fig.74 – BBC4's reconstruction of a Victorian proposal for a working-class street

The combination of a certain order within apparent disorder has prompted a number of urbanists to revisit slums from the perspective of self-organised planning, as they now seem to offer possible future models for flexibility and self-sufficiency that transcend more normative arguments about top-down and bottom-up urban strategies (Rose and Miller: 2010). It is problematic that a lot of the legislation that prompted the 'sanitation' of cities came under the Poor Law, and enforced a correlation between poverty and sanitation. Leopold Buildings appear to confirm this correlation, but 1930s council blocks seem to have provided a degree of compromise. I suggest that this compromise is essentially located at the configuration of architectural boundaries, and that their greater flexibility reflects a moment between Victorian and Brutalist eras when, alongside and in spite of the rise of Modernism, some of the boundaries between the notions of utilitarian lives and matters were temporarily softening and, arguably, becoming more realistic.

There are many critics of the current propensity for portraying slums as potential models for the future sustainable city, with cautionary arguments for treating these studies as theory for the time being (Rao: 2006). In the context of boundary issues, one of the most interesting objections is the way in which the image of the slum is treated as a sort of opposite, a 'social polarisation' (Pessina: 2012) against 'conventional' urban living. Rare are the cases in the world where the two territories actually meet in observable contrast (presumably under the auspices of a reluctant

boundary). Some researchers suggest that it may be more realistic to discuss slums as grey zones of 'subaltern urbanism' (Roy: 2011), which might be an equally appropriate definition for 1930s council housing, at least – or more particularly perhaps, in terms of building conservation, which does not assign any particular historical interest to these prototypes. I often wonder why these buildings do not seem protected by English Heritage. This could be because they are very common in London and considered ordinary, but it could also be, I would suggest, because they are not as private as other philanthropic typologies for the poor, nor private mansions for wealthier populations.

The East Hill Estate was a particularly well-designed estate, and it is symptomatic that, upon its demolition, the entrance gate that enclosed its predecessor, the almshouses of St Peter's Hospital, should have been conserved and retained, but that no physical traces of the East Hill Estate should have been otherwise preserved, not even its footprint and accompanying streets.¹⁰⁵ Despite commemorative plaques posthumously added to the gate in 1996 and 2001 to acknowledge St Peter's Hospital and the East Hill Estate, the preservation of the gate could read as a celebration of the separation it marked between the two sides rather than an act of historic conservation. Paradoxically, the rest of the enclosure was removed with the erection of their successor, sublimating the threshold, but not the boundary. The stand-alone threshold is here depleted of context, an included middle that has effectively lost its sides. Interestingly, the LCC's commentaries bear testimony to the way in which architecture and policy both attempted to mediate and modulate between principles of interest to the city and of interest to local residents. In the context of later architectural designs that create more overt architectural, social and spatial divisions and are now listed, this reflects a depletion, from policy and institutions, of ways of thinking that were, arguably, more complex and sensitive towards a polyvalent meeting point between sides.

¹⁰⁵ This is not an isolated case, and I have come across a number of examples in London where demolished buildings (not only housing but also workhouses) were commemorated through the preservation of their entrance gate.

Chapter 8

ALMSHOUSES AND GEORGIAN ERA – PROPRIETY AND POROSITY

The East Hill Estate's predecessor, the Fishmongers' Almshouses (otherwise known as St Peter's Hospital, and built in Wandsworth, South West London, in 1851), prompted me to return to another compound of almshouses with which I was familiar because I had been living nearby for five years. The Licensed Victuallers' Benevolent Institution Almshouses, built in Peckham, South East London, in 1832, is now known as Caroline Gardens. Almshouses are arguably one of the first forms of social housing. However, unlike any of the other buildings examined so far, almshouses built during the Georgian and Victoria eras were essentially for elderly people who belonged to trade guilds and had come into retirement. According to the Almshouses Association, they were originally conceived to help people in need, and this tradition goes back at least 1,000 years.

My interest in almshouses is in the treatment of their boundaries, which seems to have constituted some kind of vernacular precedent to the case studies covered so far. Twin doors and constricted landings, enclosure, narrow paths along the edges, concealment of residents (boundary) and separation by distance (polarisation) are all themes already visited, but also applicable to the three buildings I am going to present here. The differences between them is not so much in the architectural style than in the degrees to which they internalise residents and/or conceal them from the public face, while determining the terms of their adjacency to each other through the design of the architectural boundary.

8.1 Fishmongers' Almshouses (St Peter's Hospital, 1851)

According to London historian Edward Walford (Walford and Thornbury: 1878), St Peter's Hospital, commissioned by the Fishmongers' Almshouses, was built in 1851, although the 1840 Ordnance Survey map already shows it in detail on site. The term *hospital* did not make reference to health or disease at the time, but meant a place for hospitality, for 42 retired couples in this instance. This parallel is interesting in the context of later architectural ideals more overtly preoccupied with health and hygiene. St Peter's was selected for this thesis because it provides evidence of sophisticated sanitary technologies inside the dwellings, suggesting the possibility that hospitality and sanitary technologies might have started being interchangeably correlated at around that time. Such technologies were

progressive, and more frequently developed in the south of London where land, which had hitherto been agricultural, made these new and mostly underground infrastructures easier to install at the same time as fresh foundations were laid.



Fig.75 – Fishmongers' Almshouses, Back View, 1840-1851

Section (*Fig.76*) and Plan (*Fig.77*) drawings reveal that kitchen and washing facilities had already moved indoors, and were fully connected to a local drainage and water supply system. The WCs had also moved indoors, which is untypical of Victorian houses and cottages of the time for other sanitary reasons, including ventilation. Using doors as indicators of scale, the front and back rooms look reasonably spacious with a living room, a kitchen and a scullery. The first floor is also intricate (*Fig.78*): the bedroom has an alcove at the back with its own window, indicating that this might have been some kind of washroom additional to the facilities already available at ground floor level.

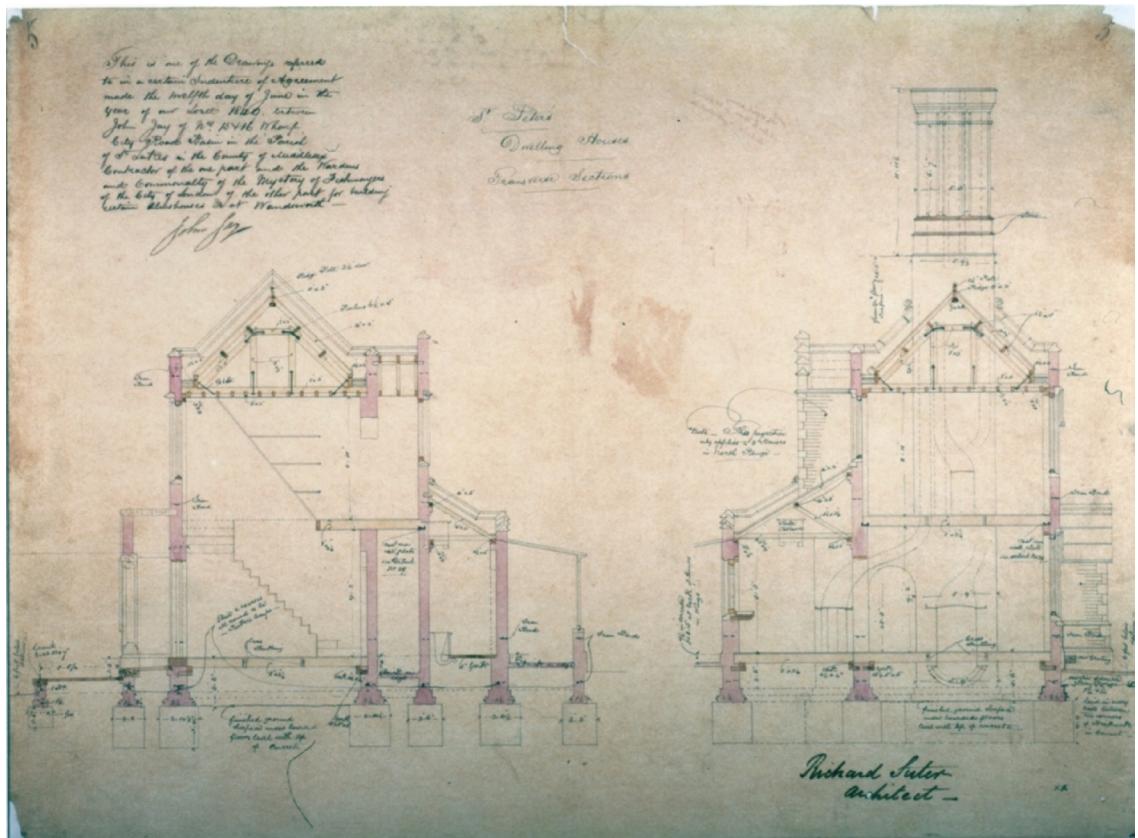


Fig. 76 – Fishmongers' Almshouses, Sections

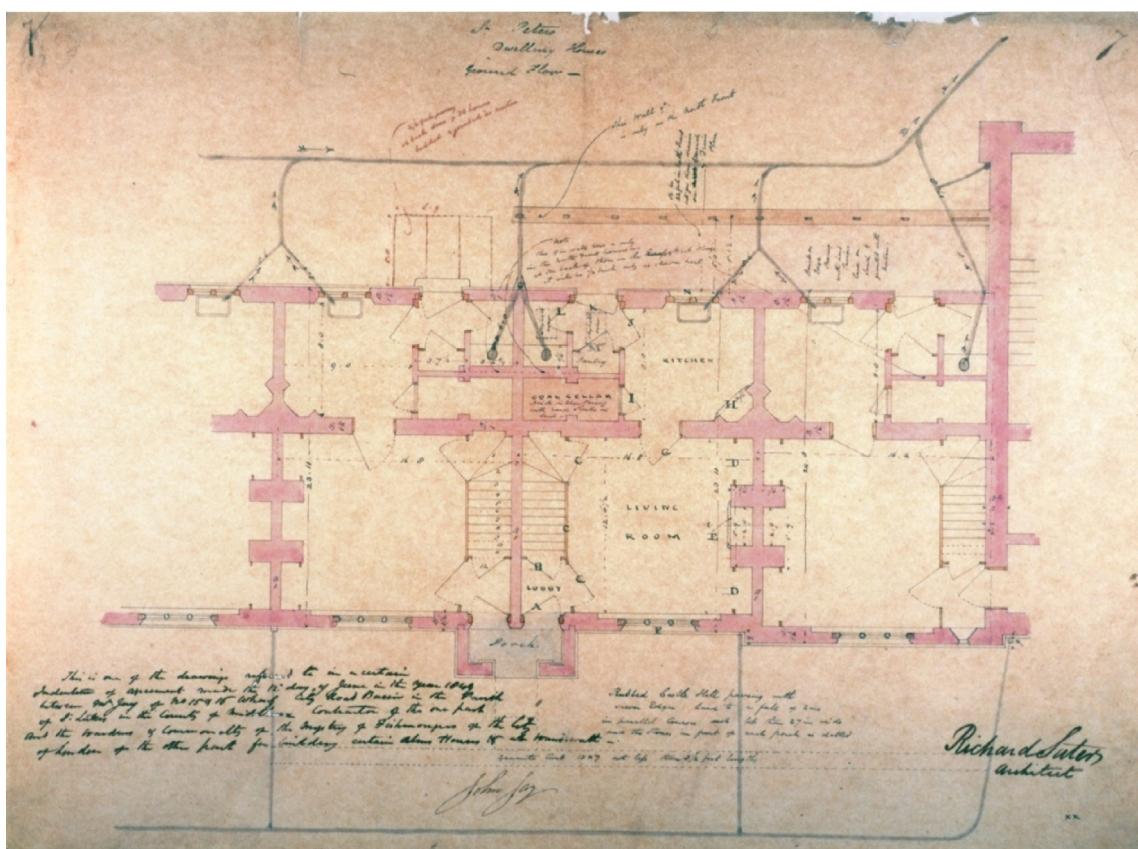


Fig. 77 – Fishmonger's Almshouses, Ground Floor Plan

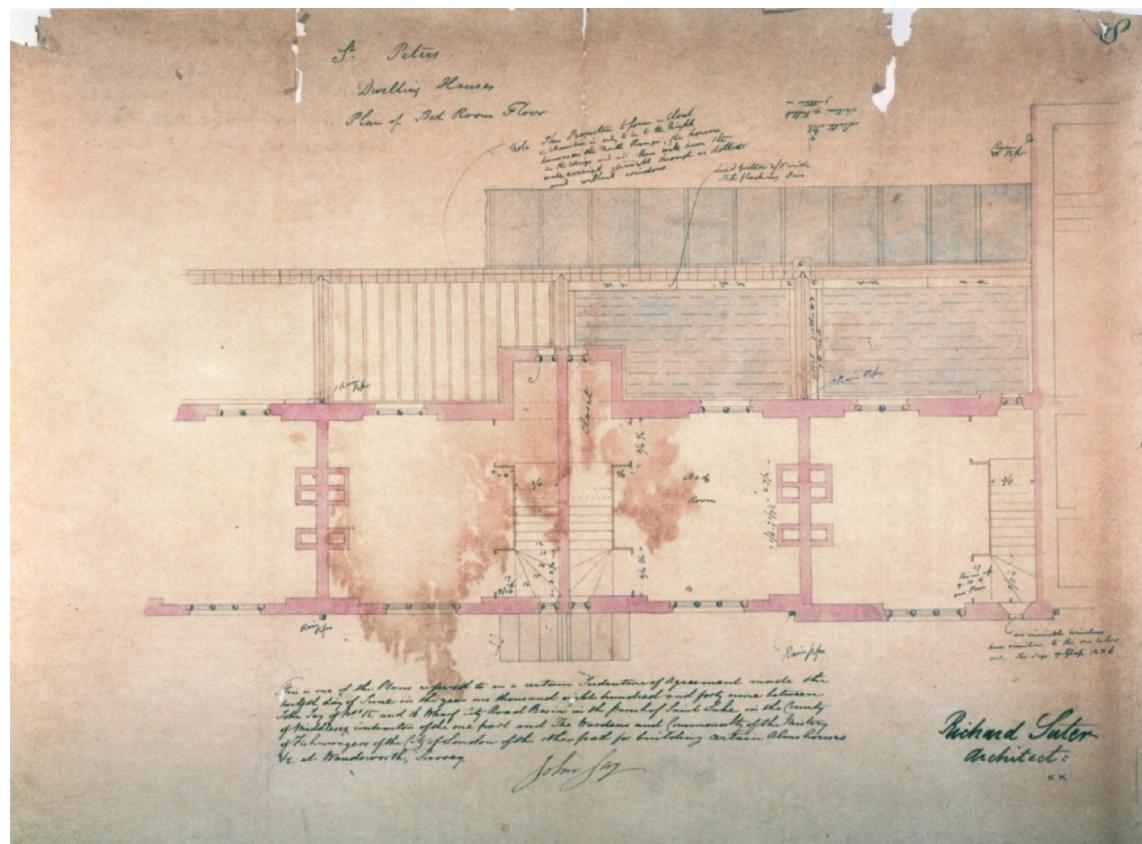


Fig. 78 – Fishmongers Almshouses, First Floor Plan

The amount of structural and environmental detail in the section drawing (*Fig.76*) is concurrent with a complexity of spatial layers created between front and back. Unusually for Victorian housing, or for traditional almshouses, these terraced cottages had a colonnade at the back, which provided an intermediary space between the common gardens and the kitchen and washing areas; a discreetly shaded site of activity, sheltered and partially screened off from view under a form of interstitial veranda. The etching in *Fig.75* indicates that this treatment was carried out with pride and care, despite facing towards the railway and away from the public street.

This intermediate space might have also been regarded as less utilitarian than a more traditional back because some utilities were moved inside the cottages, although we could speculate that the shelter might have catered for the hanging-out of washing. Despite the possibility that some more utilitarian forms of social life would have been moved indoors, residents were given a space to enjoy an outdoor 'back' life of a more leisurely or less utilitarian nature, such as sitting out in relative shelter from the elements, while possibly meeting other immediately adjacent neighbours, or admiring the scenery. It is interesting that the engraving in *Fig. 75* portrays the almshouses from the back rather than the front (see also photograph in *Fig. 81*). In many ways, the colonnade gives the building a certain grandeur that

caters for semi-public and semi-private life in a 'presentable' manner, despite its exclusion from the main public street. The arcaded back balconies could have been used for socialising among immediate neighbours, but would not have been used for circulation in the same way access balconies in Chapter 8 were - although lack of evidence suggests that they might or might not have been compartmented from each other, forming either a continuous row, or a series of contiguous balconies.

The servicing back was, therefore, both internal and external, but the gardens it overlooked were not directly accessible from the colonnade, as *Fig.76* reveals. Photographs available at the London Borough of Wandsworth's archives were not taken close enough to see what happened within the colonnade, but there is a distinct change of level between veranda and gardens, and the central chapel and corner blocks do not appear to have doors or stairs into the gardens. This suggests that nature was there to be seen by the residents but not to be transgressed, other than in a more formal manner via the front court, and then turning to the side, notably along some of the cloistered 'backs', where privacy might have been relatively compromised (a person is depicted walking right along this edge).



Fig.79 – Front of Fishmongers' Almshouses

The front entrances were shared in pairs (this is very common in almshouses), sheltered by an external portico that, at a distance, gave the impression of serving a single, larger dwelling. This would have provided possibilities for lingering at the front threshold without visually interfering with access to the more private cottages; individual doors were side by side and did not face each other, and the

doors themselves faced a staircase, distracting from the more private interior of the sitting room. At the upper level, the party wall crossed at the front in the middle of a window slot above the portico. The masonry of the internal wall carried right through into the exterior envelope, creating two tall windows slots complimentary of the Neo-Gothic style (*Fig.79*), that provided the two cottages with privacy from each other, while giving an outward impression that they might be conjoined.



Fig.80 – 1840s Ordnance Survey map

St Peter's Hospital was geographically distanced from its locality by a large territory of gardens. The red line in *Fig.80* indicates the property remit of the almshouses (which corresponds to the subsequent boundaries of the East Hill Estate), characterised also by a dense layer of trees all around the outline of this property line. They would have acted as a visual screen, at least in summer, between the compound and adjacent territories. These large open spaces were not only designed to provide healthy light and ventilation, but would also have been designed to create distance between a greater public on the main street and the intimacy of life inside the cottages.

St Peter's Hospital faced two streets, as indicated on the Ordnance Survey map. John's Hill, to the south, was the main public street, but there was also an unnamed side street to the east that provided access to the back of the adjacent Wandsworth and Clapham Workhouse. The almshouses were U-shaped and distanced from the main public street by a large public front garden, but it appears that such distance to the workhouse was not deemed necessary. In fact, the two were lined up at the front nearest the main road, side by side, as it were. However, the front of the workhouse was closed in on itself, and access was effected through a main entrance also distanced from John's Street, through a strip of front gardens. On a speculative basis, there is a possibility that proximity with the workhouse might have indicated a zoning of social classes.¹⁰⁶ This has an important bearing on observations about relationships between open space and sanitation in Chapter 7, which are often presented as pragmatic solutions to the sanitary problems related to density and adjacency.

The divide between the centre of the front landscaping and the edge of the cottages (*Fig. 79*) reveals two layers of paving between the cottage entrances, and reasonably generous shared landings. The fact that they protruded effectively created a third buffering layer on the pavement itself, which provided ground floor windows with a degree of privacy because they were set back from circulation. This configuration gives the impression that life at the front was permissible, and that there might have been three layers of lateral circulation, to differentiate passing through on the way to the deeper end, or taking a transversal step towards one of the porches on the side.

While much of life in the compound was clearly designed to take place away from the main street, the several layers of circulation at the front and back of the cottages offered a variety of scenarios and degrees of presence or appropriation at the edge, including the possibility of exchanging conversation under the porches or on the verandas. However, although in social terms this building seems to provide subtle layers of porosity, the overall layout seems to indicate that, by the mid-19th Century, nature was already meant to be seen but not touched, and that interaction with landscape had to be carried out in a formal manner.

¹⁰⁶ And this challenges some beliefs about modernism.



Fig.81 – Back of St Peter's Hospital

8.2 The Original Fishmongers Almshouses (1618-Newington)

Tantalisingly, the history of the Fishmongers Almshouses has another time layer further back in its chronology. The original almshouses were built in 1618, in Newington, South London (*Fig.82*). At first glance, the basic formula seems quite similar, except that we can safely presume that there were no sanitary facilities within the dwellings. Therefore, hybrid and utilitarian streets might have been more common, and there are details that reveal softer, less demarcated attitudes to public and private principles, and to utilitarian matters. Instead of shared thresholds, the cottages have individual front doors that are accessed from within a partially enclosing court, itself apparently formal rather than utilitarian – a semi-public space hidden from view from the main road, but enabling residents to see each other as they step in or out of their dwellings and, therefore, a social space. The more public, outer elevation does not seem to make specific attempts at divorcing itself from the street. It is, in fact, quite close to the main road but protected by a masonry wall just below head height.

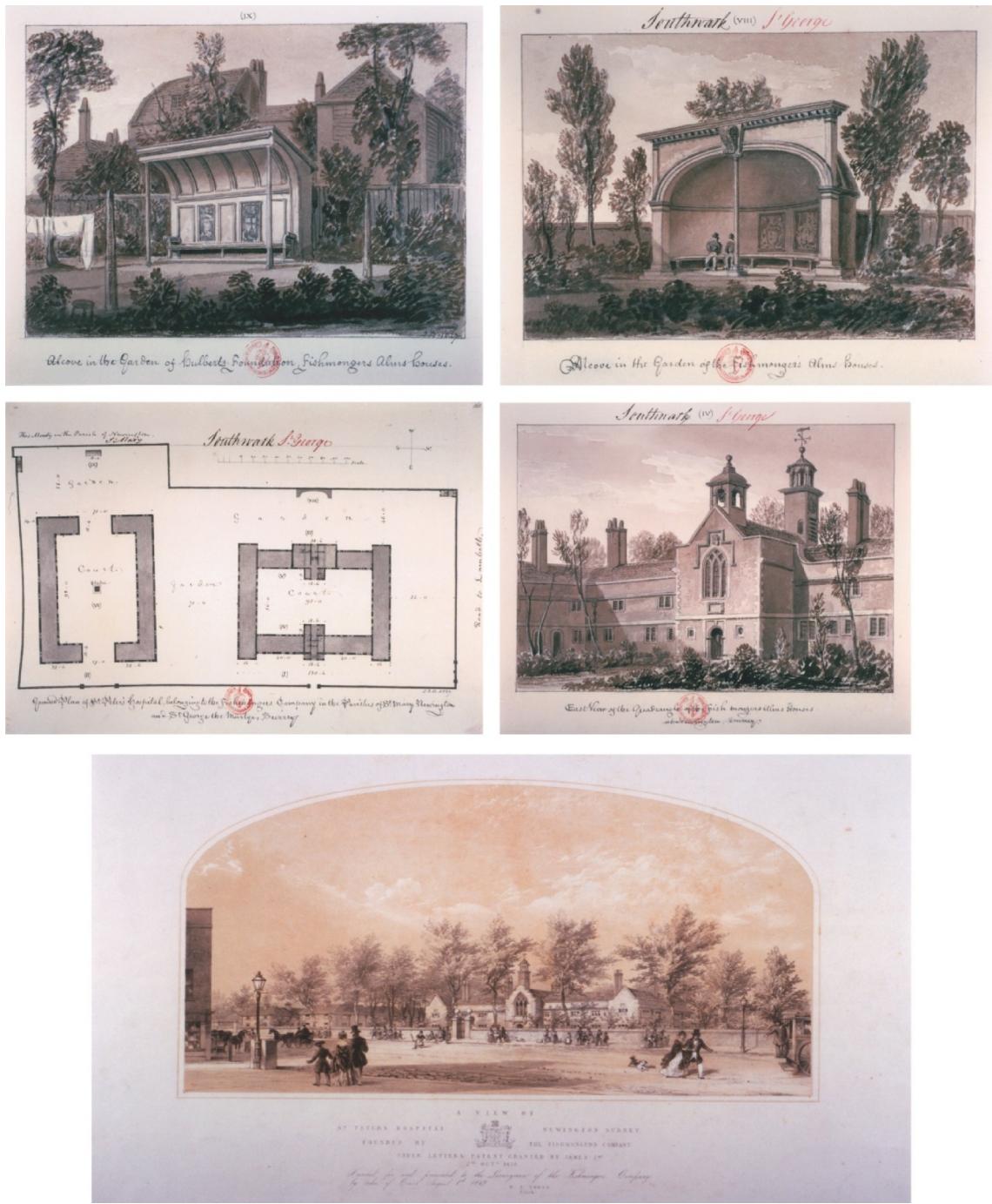


Fig.82 – Fishmongers' Almshouses, 1618

Incidentally, this road seems disproportionately large for the 17th Century, and the illustration does not show much traffic (of carts and/or horses). Pedestrians are gathered on the pavements, and those on the side of the almshouses are, therefore, close to the compound, which they can easily see (intermittently at least) through the gates, despite the tall brick boundary marking out the two territories. Houses nearby also seem to be overlooking the compound through a line of trees.



Fig.83 – Square of the Fishmongers' Almshouses

There are elaborate features in the gardens at the back which are clearly designed for sitting, and therefore to spend time. Interestingly, there are people near or on these seating areas, but not shown elsewhere in other illustrations. One of the 'benches' is located by the washing line and, presumably, a water supply point nearby. The location of these outdoor congregational points is marked in the layout drawing, as are two other dark rectangles that may indicate where water supply and waste disposal were carried out. Of the two, the one by the laundry area is more indicative of a relaxed approach to matters of privacy and publicity. It faces across the "Square" (*Fig.83*) and right through to the double front gates on the main road. There is a statue in the middle of the split courtyard, and this may be the reason why this access was created, enabling residents inside the compound and passers-by on the street side to behold Mr James Hulbert. There is something interactive about this layout, in the sense that people from the back of the estate are allowed to look into the distance of the public street, just as people on the public street are allowed to glimpse people into the depths of the compound.

Unfortunately, there is no information available to indicate whether the cottages had a back door as well as a front entrance. Apart from the two dark rectangles on the layout drawings mentioned above, and the representation of washing lines on

one of the etchings, there is little indication of anything utilitarian. However, the fact that the doors we do see face the 'Square' would confirm that they are the 'front', and there seems to be a form of bench or table and, next to it, a barrel, which would let us presume that this was also where some forms of community and utilitarian life were expected to happen, as well as those elsewhere in the greater compound. Also, the fact that this communal space was called 'Square' suggests that these cottages were simply considered as parts of a greater whole in the locality; dwellings forming a sub-enclosure but not an enclosed boundary between a greater public and residents' individual privacies.

This Square was built before the other compound on the right hand-side of the layout drawing. We can see that, by the time the second building was built some 30 years later (Walford & Thornbury: 1878), on a grander scale in terms of architecture, the courtyard had also become fully enclosed, thereby creating a more deliberate separation between public and private territories. There was also the addition of a chapel; these subsequently became traditional almshouses features of the Georgian era, and religious worship conditional to the terms of residence.

Another design decision affecting relationality between interior and exterior was to have small windows at a height that would have prevented neighbours from looking into each others' interiors while in the courtyard. Privacy was asserted by the boundary in such a way that, if inside, residents were protected from the exterior but, if on the exterior, they had more chances of meeting one another on their way out (and through another layer of gardens before passing the front gate to the main road).

Although it precedes the Georgian era by a hundred years, and is more reminiscent of medieval monastic enclosures, this enclosed courtyard shares some features with Georgian squares, which were also designed as a form of retreat from the city. These residential squares were developed for the benefit of wealthy populations wishing to move into the city, but also retain some of the countryside they were leaving behind. The Georgian square attempted a compromise between country estates and city by screening off the (utilitarian?) messiness of city life and providing an inward-looking reproduction of idyllic nature shared by its peripheral residents. The city was otherwise congested with the incomings and outgoings of daily life, not least of which were food and waste at both ends of the urban cycles of consumption, and the increasing traffic of traders and goods concomitant to an increasingly dense population (Steel: 2009).



Fig.84 – Bedford Square

In other ways, when compared to medieval times, the Georgian square offered a reversed interpretation of the traditional courtyard. Residential courtyards of the former generally constituted the more private, utilitarian and central core of a dwelling or locality, and the more public front faced the street on its outer edges. Urban layouts from the late Middle Ages reveal that courtyards often provided basic utilities for servicing water, food and waste management, as well as transport (carts and animals) and fuel (wood) (Schoenauer: 1981). Many were also already at the back of terraced buildings fronting a grid of streets around a utilitarian centre of adjoining back yards. In this way, Georgian squares might indicate early signs of trying to remove the utilitarian not only from public view but also from residents' private view.

Georgian properties around the square formed an internalised but public 'front' (*façade*) while pushing their 'back' (and more 'private') functions against the peripheral edge of the square. This created a number of normative complexities to do with public and private spatial arrangements in relation to the greater context of urbanity - in terms of fabric but also in terms of social life. Arguably, this also advocated the co-existence of two types of street – a front street and a back street, as can be observed in the satellite image of Bedford Square (*Fig.84*). The back of these Georgian properties was made up of service yards designed to cater discreetly for the utilitarian incomings and outgoings of daily life along their own distribution arteries, without impinging on the activities carried out at the front, on

the ‘public’ street. This overall arrangement gave spatial substance to a specific cultural order to public and private matters. Assigning radial hierarchy to front and back in this way, and relocating the private core at the external (but invisible) edge of the locality, transformed the boundary of the square into a zone of high activity.

8.3 Caroline Gardens (as built, then and now)

It is the principle of this ‘invisible edge’ that I explore further through the analysis of similar servicing backyards at the Licensed Victuallers’ Benevolent Institution Almshouses (now called Caroline Gardens) in Peckham, South East London (*Fig.85*). Invisible edges of this kind are not, in themselves, an uncommon feature in London (Denison & Yu Ren: 2012). Back-to-back yards separated by an alleyway were also common in less affluent parts of London, where residents had to take care of their own everyday cycles. In the case of Caroline Gardens, these were servicing small terraced cottages for retired publicans, comprised of one room upstairs and another downstairs (Berridge: 1987).¹⁰⁷ The central, U shaped building (1832) was built in such a way that the ‘backs’ met back-to-back in a trough and central spine configuration, and could not be seen other than by the residents themselves from inside their home, or by immediate neighbours in the vicinity of their own ‘backs’. The cottages on the outer border of the site were built later (1849), against the boundary of the compound (and constructed almost simultaneously with St Peter’s Hospital). These back alleys, although common to street arrangements of the time, are not a common feature in almshouses, but resonate with Benevolo’s depiction of back streets in 1834 (see Chapter 7, pp.222-223). Caroline Gardens is therefore, in this sense, a hybrid – possibly influenced by the Georgian traditions mentioned above.

As the photos in *Fig.86* indicate, the yards themselves are more like personal alcoves of space along an inner street, spatially marked out by the extrusion of the WC blocks. The paving sloping towards a central spine would have been designed to collect waste water, rainwater and sewage. Water provision points still present on the edge of the site indicate, however, that Caroline Gardens may not have been as advanced in terms of infrastructural technologies as St Peter’s Hospital was. We can infer that this back area was essentially conceived for the purpose of servicing the building and that, without historical evidence of communal areas for hanging washing in the Caroline Gardens compounds (although there was a room for washing at the north west corner of the site), these functions were also intended to

¹⁰⁷ There are occasional larger units at the corners.

be carried out in the privacy of this back space, together with things related to cooking, the storage of refuse and of wood or, possibly, coal. Note that the hanging-out of washing, which had been publicly (and proudly) on display in the 1600s almshouses above, had now been moved into the hidden parts of the compound, but that at the same time, some of it is also next to the back door of the cottages and, therefore, easy to move in or out of the cottage.

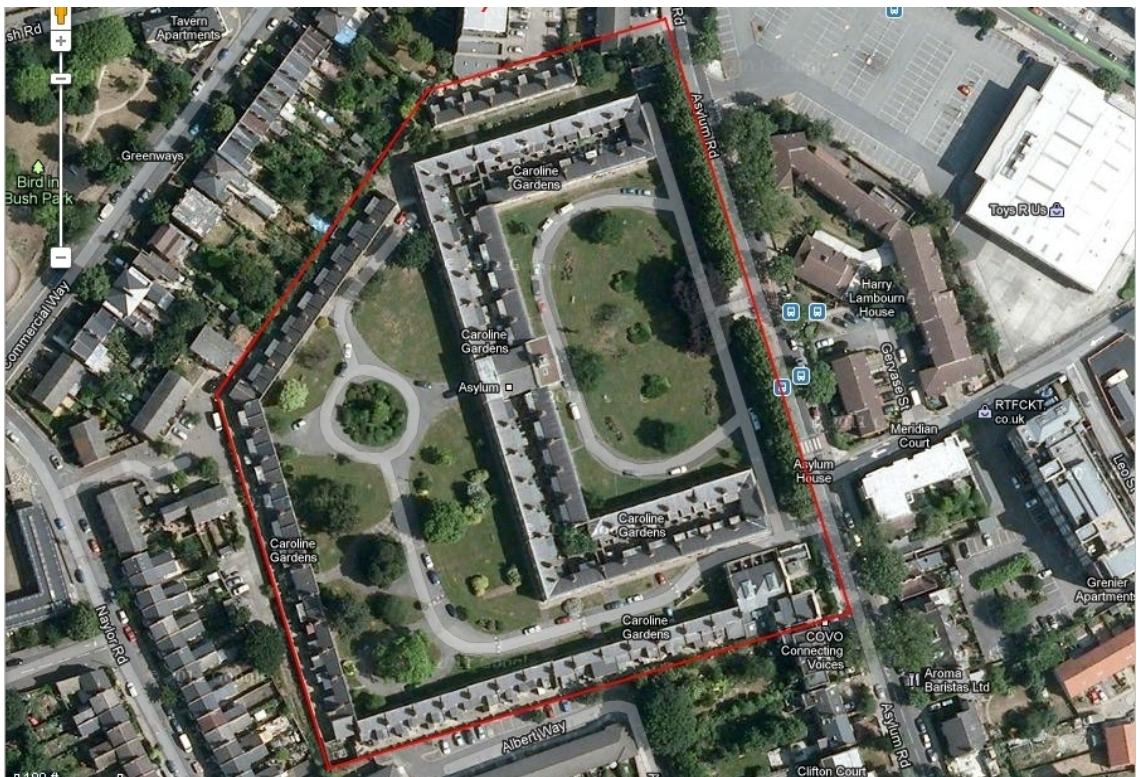


Fig.85 – Caroline Gardens, aerial view



Fig.86 – Caroline Gardens Back Alleys (March 2013)

Although these cottages have a clearly demarcated front and back, the two sides are separated by just one room. In this particular instance, if the back space is

private in relation to the compound's public face, it is not so private in terms of neighbourly contact. The distance separating back from back is narrow, and implies that any form of cooking, washing or use of toilets would be heard, smelt and possibly seen by others, challenging any divide between public and private principles at a more local level. Those closest to the gate to the alley would have witnessed the traffic of others using the space to travel deeper into the alley.

Some of the tasks serviced by this space would have been time-consuming, and necessitated spending large parts of the day at the very edge of inside or outside, for the purposes of cooking or washing. Therefore, these servicing areas would have been zones of social interaction. Privacy in the back alleys of Caroline Gardens was from the public gaze, but not from neighbours, and 'back' boundaries would have hosted high levels of utilitarian and social activities.



Fig.87 – Caroline Gardens, front of dwellings (March 2013)

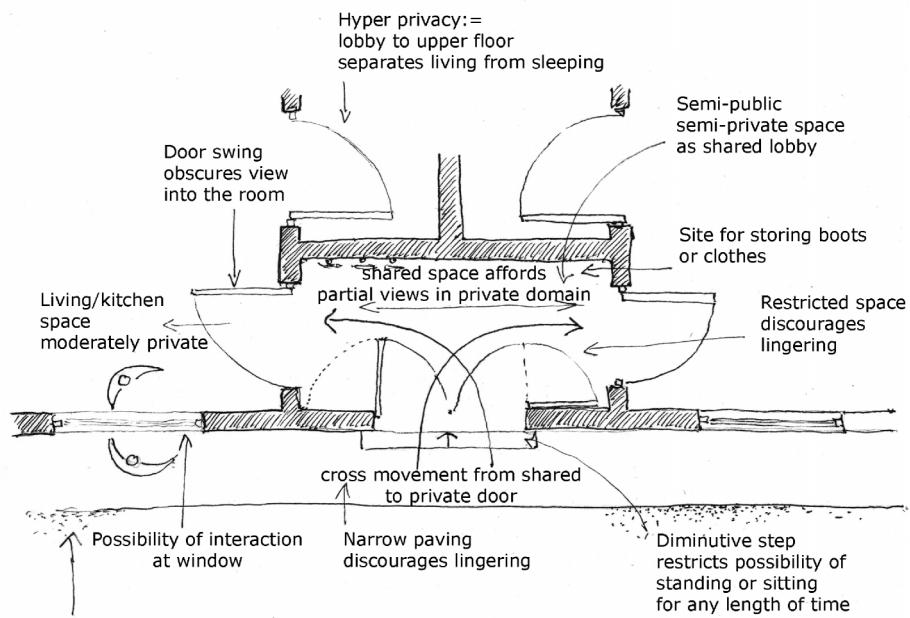


Fig.88 – Circulation at the Threshold

Today, residents still have one front access and one back access each. Fronts are shared in pairs, as was the case at St Peter's Hospital, but the photograph on the right-hand side of *Fig.87* reveals that the front door is split into two halves, each with a different number for each of the perpendicular doors opposite each other in the small landing behind the front doors (as is the case at the Geffrye Museum's former almshouses of 1714).

This tiny axial space (*Fig.88*) increases privacy between each residence and the front façade by creating two thresholds at right angle but, at the same time, reduces privacy between each of the two cottages.¹⁰⁸ These front doors also share access paving of minimal width, which encourages residents to pass closely by neighbours' doors and windows before reaching their own front door(s). This reduces privacy between neighbours but increases the distance between residents and a wider public, buffered by a wide strip of lawn. The narrowness of the path, rather than encouraging possibilities of lingering on and having a chat at the window, seems designed to encourage people to pass along quickly in order not to disturb the privacy of interiors. This seems to be borne out by the fact that, without exception, every interior today is concealed behind net curtains at ground level. The split door and landing also discourage the possibility of people standing or sitting by their front door. Altogether, these details seem largely engineered to discourage residents from spending any length of time at the front of their cottages.



Fig.89 – Caroline Gardens, front of U Shaped building and Window Detail (March 2013)

This circulation and distribution arrangement also serves purposes of architectural and social decorum. One door surrounded by five windows gives the appearance of a double fronted property but, unlike the entrance situation at St Peter's Hospital, there is no possibility here for the public to peep into the interior while privacy

¹⁰⁸ Note the similarity of facing twin doors at a shared sub-landing with Robin Hood Gardens, despite the fact they are larger and not enclosed.

between neighbours is compromised by the entrance doors facing each other across a very minimally sized lobby, which acts as a form of internalised porch.

This trickery of status extends to a curious detail found above the window over the front doors of most of the properties, whereby the partition between the two units runs vertically into the middle glass panels of the window (*Fig.89, right*), a detail that compromises acoustic privacy between cottages. The deception also expresses itself in the end pieces at the extremities of the U shaped layout, which wrap in such a way that the back alley is inaccessible as well as invisible (*Fig.89, left*), while the whole block looks generous and stately in its front and depth. Front and back thus indicate not only that front was for grandeur, but also that front was for privacy. In fact, part of the rules of public face seem to indicate here that social interaction was also a private matter best kept behind front doors. Social interaction, outside the household unit itself and between neighbours was, by design, pushed into the service and 'servants' area (*Fig.90*).

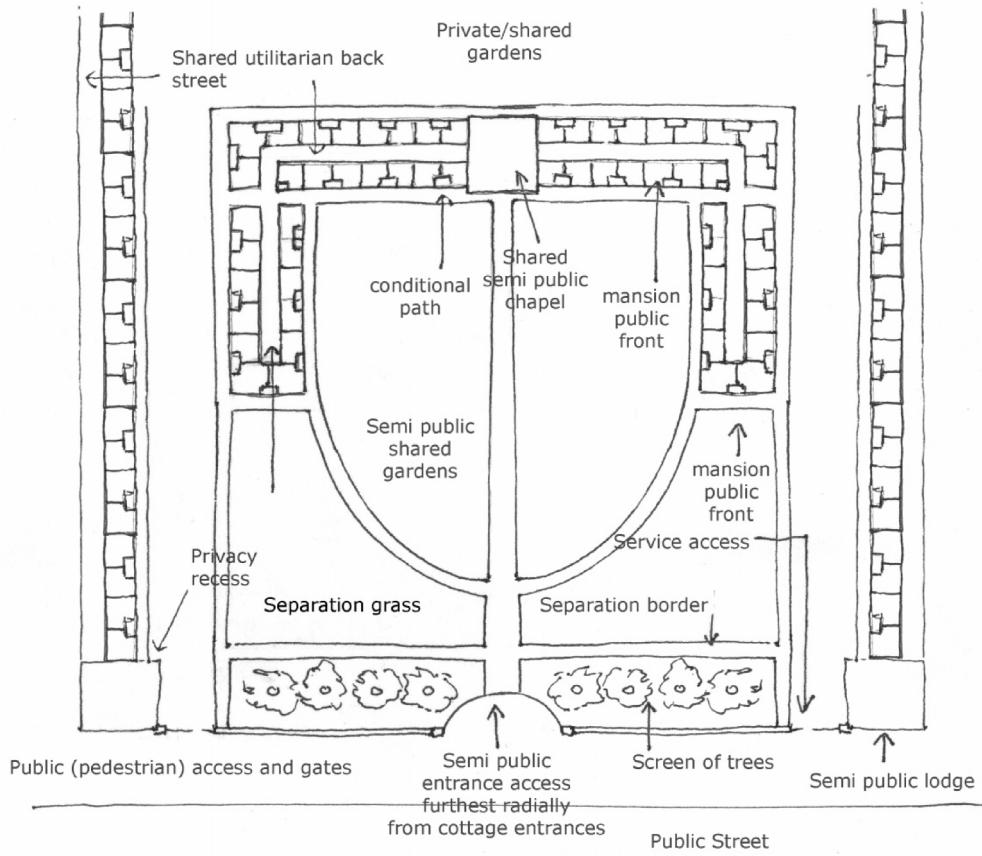


Fig.90 – Distance and Recesses between Front Doors and Public Street

Caroline Gardens was given Grade II listing in 1962, shortly after it was handed over to the London Borough of Southwark, who still rent it out to people over 50 years old. I lived on Asylum Road for five years, and made frequent detours into

the compound for the pleasure of retreating into a parcel of tranquillity. Most intriguing was the fact that it never seemed to have anyone in it.¹⁰⁹ There are only a few benches in the communal gardens, which I never saw used. Very few residents add personal touches to their 'front' other than occasional pots of plants, but many manifest their lifestyles and personalities in the back alleys. It was these 'transgressive' objects that brought me back, to carry out an informal study of the 172 cottages.

Southwark Council's Conservation Area Appraisal (undated) reveals that conservation etiquette struggles with expressions of everyday life, and that this applies not only to the front but also to the "communal courtyards" described above: "*There have been a number of small-scale, yet damaging additions and alterations to buildings throughout the Conservation Area. These range from crudely designed grab rails and satellite dishes attached to buildings to the erection of pergola structures and fencing at the rear of properties. Clearly, there is a need to provide guidelines on which alterations are unacceptable in principle and how others could be accommodated sensitively.*" (Southwark Council, p.21).

This comment poses questions about differences between the two eras; was this considered important in 1832 when deliberately screened off from sight, and why is it considered important now? Current policies may explain some distinct differences in the way the 'communal courtyards' are now used. The backyards nearer the entrances to the alleys tend to be as shown above (*Fig.86*), but upon penetrating deeper into the alleys, interesting observations come to light. The "pergolas and fences" in question start appearing, together with a whole number of other personal touches infringing into the remits of individual yards (*Fig.91*).

Contravening Planning jargon, these are clearly not considered 'communal' by the residents and are, instead, treated as defined outdoor extensions of their personal territories, often enclosed with additional markers (the distinction between private yard and alley is defined along the line marked by the WC footprint). In some cases, the definition of these additional boundaries is fierce and, interestingly, this happens in clusters. For instance, as one progresses into the alleys, wooden fences 'happen' in close succession and then disappear, just as full height curtains of tarpaulin also appear at one locality and then disappear further down. This

¹⁰⁹ This situation has changed since 2010, when artists Jo Dennis and Dido Hallett founded *Asylum*, using the chapel as a project and exhibition space, and also for hiring out for events such as weddings, or film and photography.

clustering of transgression can also be seen in the erection of personal washing lines and placing of flower pots.



Fig.91 – Caroline Gardens Back Alleys (March 2013)



Fig.92 – Caroline Gardens Back Alleys (March 2013)

This seems to indicate that there are spoken or unspoken arrangements (or divergences) made informally between immediate neighbours, that apply to small localities rather than to the whole estate. These varying interpretations of the boundary are therefore local, and related to specific conditions of adjacency and proximity. Notably, on the outer ring of buildings at the edge of the site, clusters of

benches, chairs and tables indicate that these spaces are sometimes also used for sitting out, i.e., for spending some length of time at the edge (*Fig.92*). The interesting difference between these alleys and backyards is that they face a solid brick wall rather than someone else's backyard. This increased privacy seems conducive to more overall care for these informal, and sometimes playfully creative, displays of individuality.

Among the many other objects that I encountered during my observations were more pragmatic paraphernalia – cleaning brushes and buckets, bicycle parts, barbecue grills, DIY tools and materials. These are worthy of specific attention, in that they neither belong strictly to the interior of a dwelling nor to its exterior, but are, nevertheless, personal possessions; if they can be deemed to be utilitarian, they are not utilitarian in the sense of waste, water or wood/coal. The fact that they have no particular assigned place and intermingle with decorative objects and waste receptacles, points to a quality that is more typical of back sides than front sides. They are miscellaneous, they have no category of their own in a rigorous system of order between public and private conventions. They do not belong at the front and so live at the back instead, together with those things deemed so private that they cannot be revealed to a wider public, and together with the relationships that somehow form between neighbours, even if they do not have conventional or formal bonds other than their mutual proximity. This 21st Century habitation of a late Georgian/early Victorian design therefore endorses the adaptability of this particular model.

While revealing uneasy neighbourly proximity in some places, the manifestations also reveal positive neighbourly contacts in other places, confirmed perhaps by the fact that I have been allowed to move up and down them for years without ever being told that I was transgressing, despite my proximity to private backs. I have also noticed that, even on colder days, many people leave their doors or windows slightly ajar so that, as I travel along them I can hear the sounds of life inside. To me, this indicates confidence about neighbours, and about strangers who, like me, know about Caroline Garden's secret backs. It also indicates that the residents have no inhibitions about keeping objects at the edge of their doorstep, be these utilitarian objects, decorative and personal objects, or washing left out to dry on the line. In other words, the standards of privacy are loose. Some residents enjoy a direct contact with the outside, and different residents make different choices about their degree of exposure to these backyards.

These manifestations fluctuate between localities or clusters of adjacency, but they also fluctuate with times of the year and as tenants come or go. Conversely, there are also some manifestations that always seem to be there and, having visited many times over the years, I generally know where they are. However, on one recent occasion, I took a friend to visit and realised that many of the decorations, such as plaster rabbits or gnomes at the back, or flower pots at the front, had disappeared. I did not have a camera with me on that day, so went back two weeks later to record this, only to find that all had returned to their respective places. I cannot explain this, but could not help but suspect that a conservation officer had been scheduled to visit and that the 'offending objects' were removed and then subsequently returned to their usual place. The statement above would indicate that (non-resident) conservation officers feel they have a personal right over these backs, despite their invisibility to the public eye.

This is another side to the issue of privacy, and whose privacy is in question, but this privacy is now also being compromised by changes in the way Caroline Gardens is being used by a somewhat different public. The central chapel, which was partially damaged during WWII, is now being hired as a venue for artists and weddings. This has substantially modified the chemistries of the cottages, their edges and locality. Many months after my last visit, and in a public park twenty minutes away, serendipity and a conversation about dogs introduced me, by chance, to the head of the Caroline Gardens Residents' Association. According to her, the opening of Caroline Gardens to a greater public has inadvertently invited threats of burglary. Residents are now increasingly wary of strangers, and have been asked to tighten security at their boundaries. I had noticed this might be the case, through one particular threshold that had always been left open so as to enable daylight to nourish a row of house plants inside the lobby (*Fig.93*). Despite its impingement on a very minimal lobby, this indicated a certain cordial entente between neighbours, without revealing which of the two tended them. Now, however (2016), the front doors are kept closed.

Arguably, the disappearance of this arrangement does not denote increased security in itself. The lobby is of such minimal proportions that any unusual visits and associated sounds would have been more noticeable from the outside by the locality, and from the inside by the two neighbours, with the doors opened rather than closed. Nor had the increased privacy of this former open arrangement, if perceived or formulated as such by new policies, hitherto compromised the appearance of the public face of the almshouses: it was sited to the left and outer face of the U shaped compound. This defensive response to changing

circumstances, while affecting the symbiosis between architecture and human life at the more and less public and private edges of the compound, may also, in the long term, affect communal cohesion and encourage isolationism. The limitation of perceived transgression from inside the dwelling onto the outer edge could eventually also increase chances of greater transgression from outside the dwelling into the privacy of these small cottages.

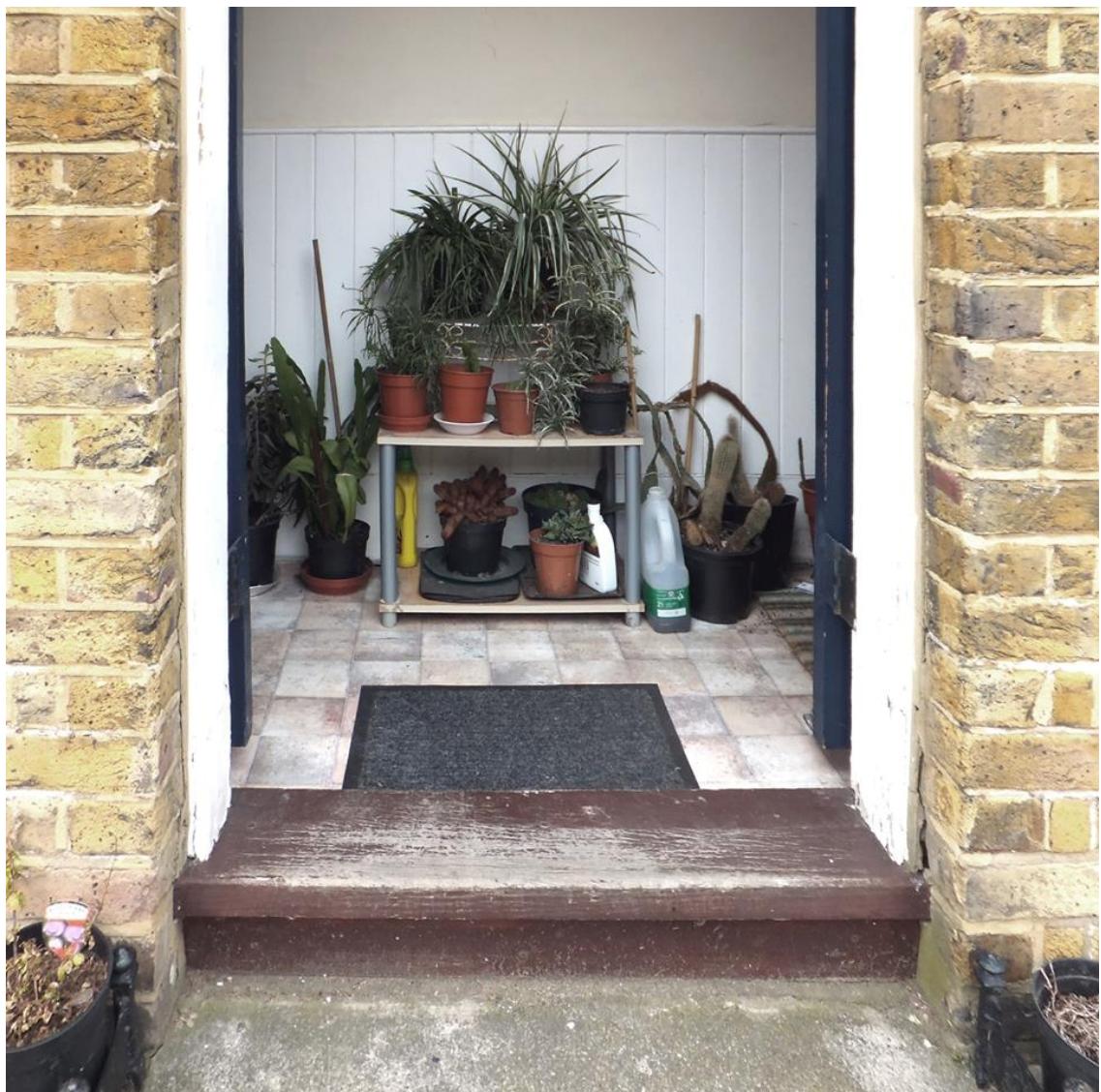


Fig.93 – Caroline Gardens, *Complicit Transgression at the Boundary* (March 2012)

8.4 Georgian Porosity and Trades

The earliest London almshouses were built in the 14th Century (Berridge: 1987) and any of those that would have been built at the same time or earlier than those illustrated above, and which have survived through a few etchings, would give us too little information to track this development further back in history. Those that still stand today, such as Dulwich College, will have received so many modifications

over the course of time, especially in the way they related to their greater surroundings, that it is difficult to make any more general inferences about the expression of conventions of the time through the architecture. However, Edward Walford gives us other testimonies of urban London before 1875, which seem to confirm that pre-Victorian London was a place of greater porosity, where 'front' and 'back' principles mattered less, and where utilitarian lifestyles intermingled with daily life on the streets, front or back (Walford: 1872). Formal fronts would have been for the main arteries essentially, and the multitude of less significant streets behind them more difficult to assign to front or back principles. Many of Walford's illustrations demonstrate that smaller streets were often the site of pluralist lifestyles, utilitarian and social, and that the boundaries of the architecture defined less precisely what, or who, belonged on which side (*Fig.94*).

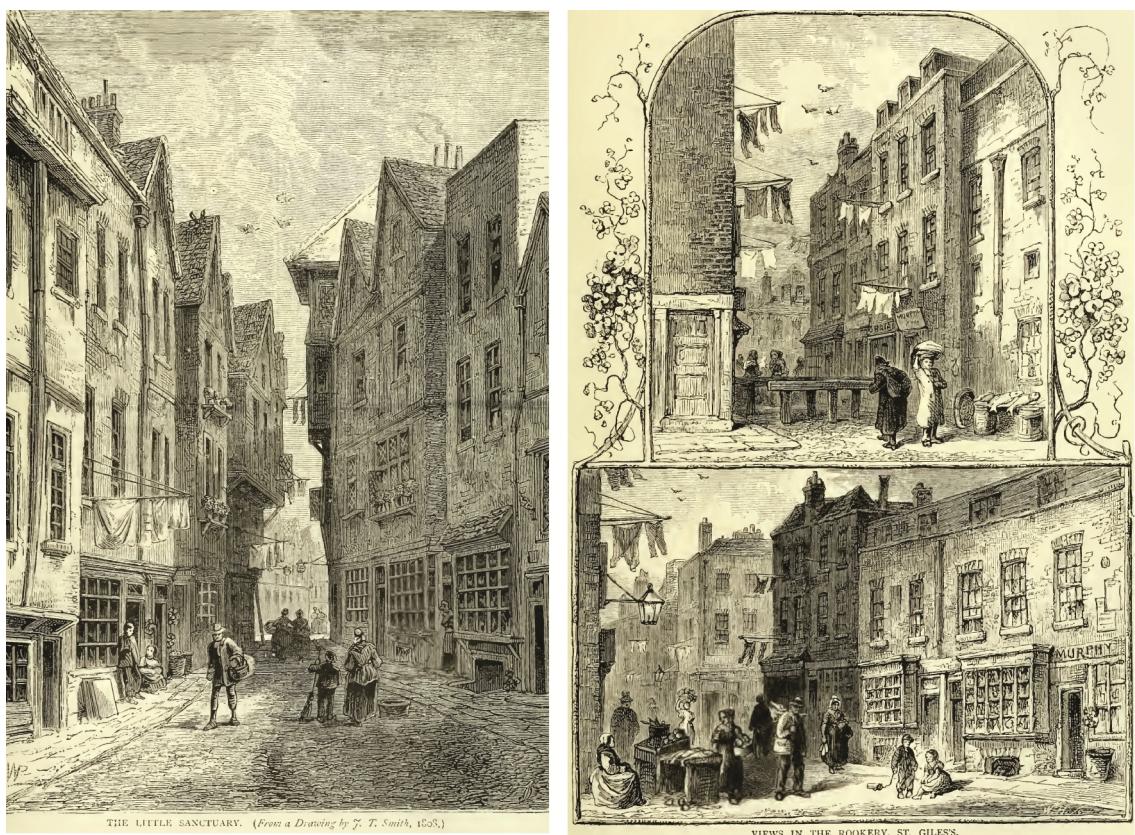
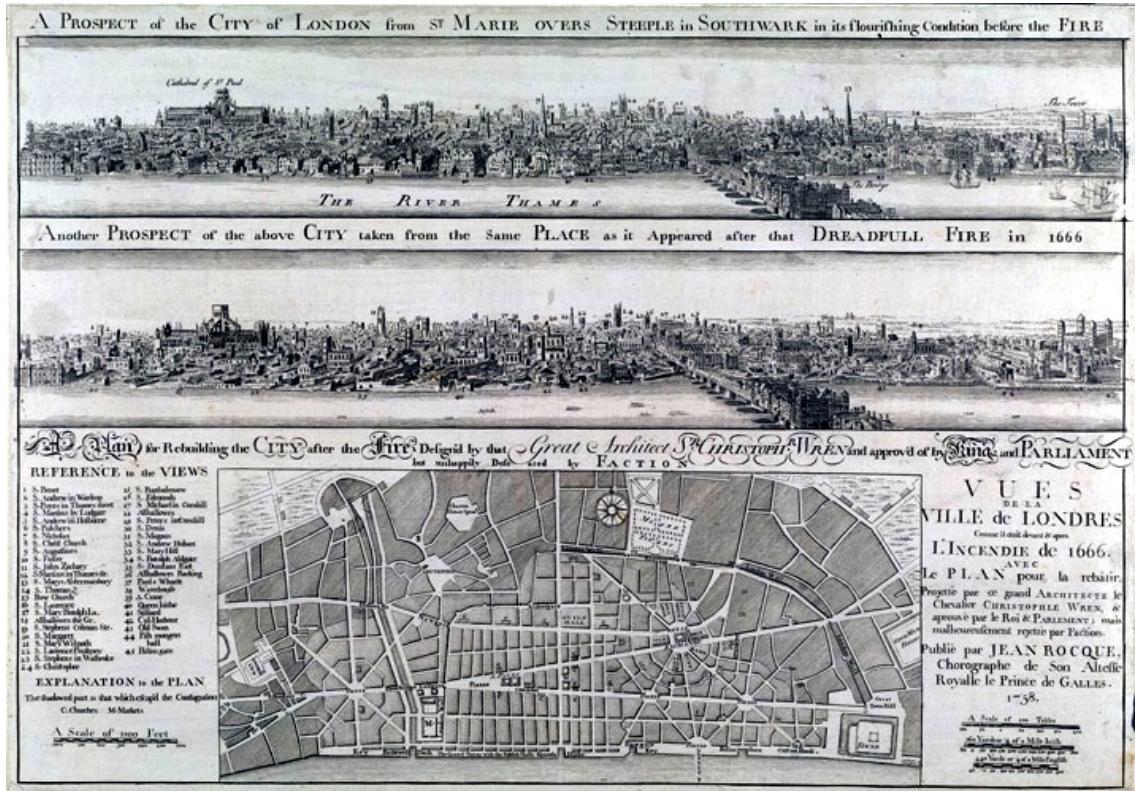


Fig.94 – Georgian London

Walford reports that many of these architectural types were rapidly disappearing at the time, or had already disappeared. Porous edges might have thus fallen out of favour, and been associated with lack of clarity. However, as Christopher Wren's proposed reconstruction of London after the Great Fire of London in 1666 (*Fig.95*) demonstrates, this might have been a case of creating a hierarchy between large and smaller streets rather than removing smaller streets altogether, despite the implementation of building regulations banning timber construction and imposing a

minimum street width (Manco: 2014). It is worth noting here that the first Great Fire of London in 1212, which claimed thousands of casualties, as opposed to that of 1666 (Bryson: 2011), resulted in an early form of building regulations banning the use of thatched roofs, but not the use of narrow streets.



1758 copy of Christopher Wren's proposal for rebuilding London after the Great Fire of 1666
British Library, Online Gallery

Fig.95 – Christopher Wren's masterplanning of London after the Great Fire (1666)

After the Great Fire of London, new legislation required that the number of narrow alleys be reduced so as to reduce chances of fire spreading across neighbourhoods, but formal reconstruction was not carried out. However, as a consequence of the 1666 fire, masonry party walls were extended to the roof line. A century later, windows were recessed towards the inner leaf of the external wall, and their external timber frame banned (Manco: 2014) – fire separation was effected at the boundary of immediate adjacency.

Wide streets were becoming popular urban features in the 17th Century, but other streets were not necessarily associated with demarcations (boundaries) between public and private. Whereas arteries might have provided a more ceremonial experience of the city, the smaller streets might have hosted more pragmatic and hybrid everyday activities. According to social philosopher Richard Sennett, rather than being related to health and safety matters, the appearance of large urban

arteries was related to the perfection of the perspective point, concomitant to mathematical and philosophical ideals of the time (Sennett: 1990).

The overall feel of pre-Georgian London is difficult to assess, particularly when buildings of greater stature are more likely to have been recorded. For example, illustrator John Leighton's sketches of "London Cries & Public Edifices" (Limner: 1847) were specifically sited in the City of London to capture architectural landmarks at the same time as documenting street life – many of these buildings dating back to the 17th Century. In this sense, his documentation only represented one type of street in relation to the traders he depicted. On the other hand, Walford's documentation of pre-Victorian London reveals that narrower streets could also host informal trade as well as social and utilitarian activities, together with a rich variety of architectural thresholds on either of their sides. Two of the three engravings in *Fig.94* depict a sort of table in the middle of the street, one of which, it seems, is for food and the other, possibly, for craft - indicating movements between domestic and street lives that become more difficult to differentiate in a binary manner.

Making a comparison with a further past, Sennett describes late medieval cities as commercial hubs, but not in the sense that we would understand commerce or hub today (Sennett: 1994). If streets were generally not as wide, there would have been commercial streets and squares with dedicated shops (Schoenauer: 1981), but there would also have been a myriad of small trades and traders involving goods and services and scattered throughout the fabric of the whole city, including the more dedicated commercial areas. Some of these traders might set up shop temporarily for a day or a few hours (e.g., for shoe polishing) while others would travel from door to door (e.g., pots and kettles mender). This conjecture would be upheld by social journalist John Thomson's portrayal of *Victorian London Street Life* (1877) through photographs of street traders.¹¹⁰ Many of these traders are not always sited in the high street and appear to have been trading at the very edge of people's residential front doors or windows.

Victorian London's website documents hundreds of such 'professions' that have almost entirely disappeared today, but which would have also predated the Victorian times (Lee: 2014). Their role in the city greatly affected qualities of the street and qualities of the everyday, both inside and outside. I would speculate that the presence of these trades required a certain degree of flexibility between inside

¹¹⁰ These are now held with the London School of Economics' digital archives.

and outside, and therefore of the boundary; that those inside needed to pay attention to those outside in order to 'catch' one another at opportune moments. We could thus infer that porosity of the walls was as important as the social porosity that enabled the city to function.

Many of these transient traders were also the poorest of London's poor, and there are reasons to suspect that their poverty was associated with all manner of insalubrious conditions in the city, including order and hygiene, especially as many of these occupations (such as crossing sweepers) were utilitarian services to the greater locality rather than what we would now call commerce. There are signs that, when the management of street services became entrusted to the state rather than to individual dwellers, this street life became less tolerable to Planning etiquette. Historian Emily Thompson describes the way in which the city of New York, in trying to tackle noise pollution, passed laws against street vendors, musicians and peddlers but not against carts and horses (Thompson: 2005). Similar processes would have evolved within London, illustrated by this plaque in Bermondsey (*Fig. 96*).



Fig. 96 – LCC Notice in Bermondsey, South London

This is undoubtedly reflected in the design of Caroline Gardens, which makes overt distinctions between public and private matters at the same time as it makes

distinctions between leisure/circulation and utilitarian matters, and might also have made other, class related, distinctions (as suggested by the proximity of St Peter's Hospital with a workhouse). In the context of trade, almshouses are slightly at odds with the context of the city because they were usually designed for people who were retired, and thus assumed to have left what we would now call a working life. However, if they later became influential precedents for the building of housing per se, also isolated from work functions, they might have inspired urban planners as a model of distinction between 'functions' that was less problematic than lodger-houses or other forms of high density dwelling in the city related to transient occupations.

It is important to note here that, although these commentaries about trade may not be deemed to be related to the boundary, they are nevertheless relevant because their presence or absence would have transformed relationships between the two sides in relational terms, and therefore the boundary on the one hand, but also the labelling of either of its sides. These traders would have been what I call *human bridges*, a relational presence at the boundary that required porosity in more qualitative ways than just material (and quantitative) composition, and which defied any strict divide between residential life and non-residential everyday in the local vicinity.

There are other relational dimensions that cannot be covered through a history of traders, particularly with regard to attitudes towards weather. Although we could infer that outdoor life was more widespread than it is in today's London, there are indications that the architecture also catered for various environmental scenarios, including weather. English Heritage's collection of photographs from the LCC's archives (Davies: 2013), which depict buildings that were in the process of being demolished during the late Victorian era, reveals a number of different window prototypes featuring internal blinds, external shutters and various other layers, sometimes multiple at one single window. This is over and above the internal folding or sliding shutters, sometimes fitted with venetian blinds, that could be found in more aristocratic dwellings and which are more readily documented. However, according to Victorian style historian Linda Osband, Charles Eastlake, in his 1878 *Hints on Household Taste*, considered shutters and attendant layers of curtains over-complicated and advocated 'simpler' arrangements (Osband: 1991, p.145). This would indicate that Modernist ethics of aesthetics were already well under way fifty years earlier.



*Top left, The Old Dick Whittington Inn, City, p.45
Top Right: The Old Bell Tavern, City Wall, p.101
Bottom Left: 20-23 High Street, Lambeth, p.327
Bottom Right: Lynedoch Street, Shoreditch, p.320*



Fig.97 Lost London: Dwellings with Shutters

The case studies in this chapter indicate that, over the course of three centuries, utilitarian life became increasingly at odds with aspirations for order, cleanliness and propriety. They provide evidence that, in this process, architecture and culture evolved alongside each other to conceal the utilitarian, and devised a number of strategies to create divisions between utilitarian and non-utilitarian principles. Some of these are what I call 'invisible' boundaries and include spatial distance and segregation. Others are the more visible boundaries of building fabric. This

challenges a number of possible preconceptions about negotiations concerning public and private principles, attitudes to utilitarian matters, and the relational treatment of these boundaries, with regard to social and environmental variety. It demonstrates the extent to which one set of principles can affect the design of the city, just as the everyday of the city affects its design. This shows the ways in which public and private principles are inherently interdependent – the boundary between them affecting and being affected by both its 'sides'.

It also demonstrates a correlation between utilitarian matters and forms of social life that would have naturally been compromised when the machine took over some of these utilitarian matters. It could be argued here that the boundary no longer needed to be as porous, because of a depleted utilitarian street life. But it could equally be argued that, with less social presence at the exterior (public) side of the boundary, there was also less need for a more solid boundary/screen between public and private matters. Caroline Gardens provides testimony to forms of relationships in adjacency that are in constant negotiation with immediate neighbours today. Although it no longer upholds some of the Georgian conceptions that might have underpinned its original design, it has evolved in a way that still promotes a degree of porosity between neighbours and attests to numerous different types of 'arrangements' between them.

It is worth bearing in mind that the principle of the back street was not unique to the poorer quarters of London. For instance, the service troughs at Somerset House (1776), not dissimilar to those at Caroline Gardens but buried below street level, were appropriately selected as *Forgotten Spaces* by RIBA's 2011/12 project (Merlin: 2011), acknowledging this subdued, and now almost mysterious status. There are many such troughs throughout London's more aristocratic Georgian squares, and in many ways they separated street and dwelling more severely than their later Victorian counterparts. On the other hand, in their back street versions, they might have been more porous and polyvalent.

In this context, one could speculate on many meanings of propriety in 21st Century London, particularly if compared with a building that is nearly 200 years old, such as Caroline Gardens. The way Caroline Gardens is inhabited today reveals interesting clues to the proposition that, despite the movement of some utilities indoors, the everyday is still a zone of negotiation between adjacent neighbours and that, despite this movement of utilities indoors, not all things utilitarian can move indoors. It is worth asking, therefore, whether the past ideas of the presentable front and the utilitarian back still hold any significance today; why, as

seen with Brutalism or with Strata Tower for instance, architectural boundaries continue to tighten up; and why design conventions for everyday domestic and street relationships become increasingly prescriptive.

As we move into a 21st Century concerned with sustainability, and with the likelihood of considerable societal *as well as* environmental change, such capacity to adapt would seem not only practical, but essential. In architectural terms, it is interesting to note that boundary types and strategies from the past seem to become increasingly complex in the way they work and multiple in what they do, as do the Georgian and Victorian streets and façades depicted here. This is less to do with decorative features - arguably, many of these typologies have a certain simplicity about them - and more to do with a multiplicity of devices employed between sides to regulate binary relationships.

Conclusion

INSTATING CHOICE AT THE BOUNDARY

Having set out to understand how and why high density residential architecture was becoming increasingly static alongside growing advocacy for resilience and adaptability among theoreticians, the tripartite binary perspective of boundaries enabled me to compare architecture between concept, in terms of paradigm, and actuality in terms of construction. Much of the literature on boundaries that informed the development of my concept originates from debates unrelated to high density housing, and this research attempts to demonstrate their relevance to housing and to sustainability. One of the central themes that arose is the tension surrounding issues about privacy, and yet the research extends this observation to a way of thinking that supports separation at many other levels. By analysing architecture through 'social' manifestations, I was able to avoid intrusion on privacy, and to bridge at the same time social analysis with environmental analysis.

I began the narrative of my research in the present, and then travelled back to former times, and will here briefly recapitulate in reverse, in order to underline the way in which, according to my findings, ways of thinking and of building have concurrently become increasingly hermetic in high density housing: while some boundary details from more recent case studies seem almost simplistic in pure binary terms, they become more complex and multifaceted as the thesis progresses backwards in time. They often reveal contradictions and paradoxes that appear to have intertwined and overlapped cumulatively, and I argue here that, in some cases, the evidence I have found on site no longer supports some of the premises invoked by current institutional structures and systems.

In the original Fishmongers Almshouses of 1618, individual cottage doors opened onto a centre, in a manner that would enable neighbours to see each other if they chanced to cross their thresholds at the same time, and with the possibility of spending time on the exterior face of the threshold, as indicated by objects represented on the elevation. This centre was crossed by an axis between public street and communal back gardens, enabling a visual connection between front and back that was also inclusive of utilitarian and more formal social encounters, including dedicated and elaborate benches at close proximity to the hanging of washing. Although the architecture was simple, the axial spatiality built into the

reciprocity between thresholds enabled relationality between neighbours and with locality.

The subsequent Fishmongers Almshouses of 1851 established a more formal hierarchy between fronts and backs, locating the front face at a distance from the public street, and differentiating between transversal and lateral access to front doors that were twinned. The backs were utilitarian and social at the same time; partially interiorised but also designed to allow for spending time at the threshold, with an arcaded shelter between interior and exterior enabling contact between immediate neighbours where it is presumed that activities such as the hanging of washing were also carried out. This utilitarian and social buffer is likely to have provided visual contact with the back gardens but not direct physical access, enforcing a distinction between more formal social and public interaction with nature, and less formal and utilitarian life at the rear threshold.

At the Licensed Victuallers' Benevolent Institution Almshouses, built twenty years earlier than the above, but still standing today, this hierarchy is more pronounced. The utilitarian and social backs are pushed against the blind boundary of the compound, or against each other in a trough that is invisible to the public eye. There are a number of threshold details which suggest that some forms of social life at the front, other than access, were discouraged by design, but that privacy between adjacent neighbours was subdued and possibly compromised at the utilitarian back, particularly in the troughs. The divide between public and private principles was increased between street and compound, while other social and utilitarian matters were screened from public view but not protective of privacy between neighbours who, however, have a range of choices about degrees of privacy, manifested through their own management of the boundary between recess and alley.

In circumstances where distance between private dwellings and public street could not be spatially instated because of geographical urban constraints, as was the case in the Leopold Buildings of 1871, the front boundaries were reinforced instead, pushing access to the dwellings into the depth of the building to reduce public visibility of private and utilitarian matters - while exacerbating immediate adjacency between neighbours at entrance doors, and through shared utilitarian balconies at the back. This indicates that differing interpretations about privacy and whose privacy were already established in the Victorian era.

An alternative solution that combines high density with screening backs away from the public street, found at Parnell House in 1850, was to enclose access, social and

utilitarian life inside a courtyard. This strategy was replicated in 1929 at the LCC's East Hill Estate, but despite a combination of policy and conventions discouraging life at the edge, the architecture was relatively permissive. Current evidence of occupation in similar estates demonstrates that many residents are, today, hanging their washing or keeping pots, brooms and rubbish bags at the immediacy of their fronts doors, while interacting with each other in a relatively porous and informal manner. However, by the 1930s, there were strong indications that nature was 'designed' to provide light and fresh air but not to be appropriated, or that nature had become divided into two separate principles: light and fresh air (or weather) on the one hand, and, on the other, visible nature such as grass and trees, treated as landscape separate from human nature and utilitarian matters.

Other issues concerning architectural privacy between adjacent neighbours seem comparatively recent and engineered at the threshold; through circulation, private balconies and concealed/separated utilitarian zones in the four Brutalist tower blocks of the post WW2 era. These design strategies were concurrent with debates about street life, and I speculated that, beyond mass housing, there was evidence that some former street configurations would have previously been more porous and less commercially prescriptive architecturally – inclusive, in particular, of a multiplicity of more or less transient street traders, who have almost disappeared today but were often operating at the edge between public and private territories. In the 1950s, remaining postmen and milkmen seem to have been distanced from the edge, and the idealised residential (non-commercial) street, designed primarily for lateral circulation between localities. Circulation paths became additional means of separation between adjacent neighbours, and between neighbours and local street. Although it could be argued that these conventions concerning propriety were already culturally established in the terms of Tenancy Handbooks of the 1930s, they later seem to have become architecturally incorporated in layouts that increased containment between residential dwellings and locality, between leisure and play, between domestic and non domestic 'work', and between functional circulation and unorchestrated everyday encounters. This treats housing as a single function, despite its co-dependency with all other aspects of the urban everyday, which in turn overlap into housing itself.

While some of the observations made throughout these analyses of individual case studies sometimes intersect, the focus on the architectural boundary enabled me to examine a period of 400 years, and to identify a progressive polarisation of principles that is more recognisably chronological. Although these appear to be associated with tensions about privacy and publicity, the premise of the boundary

also enabled me to discuss, by implication, the social and utilitarian hierarchies nested into the public/private debate in terms of urban cohesion, and the correlated prescriptiveness built into the physical boundaries.

There is evidence from the case studies of current occupation, that many dwellers who are given the choice to do so will transgress the architectural line between their private dwelling and the local environment, by 'spilling out' and appropriating their immediate external environment. My research also demonstrates that, if so inclined, these same residents are much more likely to do so with care than with neglect. However, this interpretation of appropriation takes on a multiplicity of manifestations that may not be commonly regarded as appropriate by a greater public, or its representatives in legal and statutory institutions that regulate this intersection. The two examples I was able to document, where porosity between internal and external environments is complemented with porosity between adjacent neighbours (the back streets at Caroline Gardens and the fronts of the Victorian street) both suggest that there are local negotiations on propriety between neighbours which are acceptable to them, but transcend the criteria of propriety laid out by these authorities. The case of Consort Road also demonstrates that there can be architectural means for hosting these manifestations without compromising architectural integrity.

Where boundaries are relatively spatial, i.e. inclusive of intermediate territories and within the context of a cyclical definition of sustainability, I have also documented their ability to provide transgressional sites that serve informal, intermittent and serendipitous initiatives which are of potential benefit to a more cohesive management of urban sustainability. These operate outside the control of statutory bodies and, sometimes, at a border between legal and illegal activities. They may even be revealing the existence of a network of people who have already started taking on some cyclical tasks such as waste management, previously entrusted solely to public institutions (which, themselves, took over from servants and street traders of various descriptions). I argue that these localised clusters, where forms of collective intelligence and self-organisation are taking place, could open up possibilities for creating new urban scenarios that loosen the divide between public and private principles and institutions – and encourage a more collaborative participation in city management. I suggest that this is particularly relevant for increasing self-sustainability, in order to alleviate infrastructural congestions in the management of water, waste, energy and food, and needs for transport associated with their distribution - by individuals who often need to travel to this physical cusp between public and private remits.

The case of Strata Tower illustrates a further increase in the practice of hermetic boundaries, whereby additional polarisations are implemented more directly between user, architecture, neighbourhood and weather, through the fabric of the boundary itself. Concurrently, temporal design considerations that concern durability and adaptability, by users and/or architecture, seem overshadowed by an immediate concern with thermal efficiency which overrides the longer-term possibility that societal and climate change may soon compromise any construction that cannot adapt to them.

In Chapter 3, I discussed tensions between dwelling, dweller and environment in Building Regulations, and pointed to other health and safety measures that can compromise relational designs. These regulations are designed to ensure that architecture does not engender unreasonable risks to dwellers, to the general public and to builders, and to ensure that duty of care is taken into account at all stages of design, construction and occupation. However, there are many current debates over the benefits of some health and safety policies, and differing points of view. On the construction side, for instance, Construction Design and Management (CDM) regulations, which first came into force in 1994, have yielded inconclusive evidence that their implementation generated substantial improvements to safety on site (Griffiths: 2006). On the user side, some studies such as CABE's research about *Living with Risk* (2007) suggest that over-designing risk management can be counterproductive and can encourage people to disengage from the environment, i.e. to lose the ability to consider risks and to pay careful attention to their movements in space. I have extended this interpretation of environment to include awareness of nature and awareness of locality and, with that, the suggestion that prevention also carries the subjugation of possibilities that are not necessarily predictable or quantifiable, but not necessarily undesirable either.

I extend these arguments on danger and conflict management to the management of nature itself, by arguing that subduing a relationship between interior and exterior can also subdue our ability to deal with climatic disruptions. 'Bad' weather is disruptive, just as accidents and disagreements can be, but sealing ourselves away from climate can have a long term effect of reducing resilience to its extremes. The same applies to utilitarian cycles such as repair and waste management, and to knowledge of other natures, both biological and social. This highlights ways in which self-sustainability might complicitly rely on adjacency and locality (traders, neighbours, etc.) without compromising needs for privacy when boundaries permit choice and polyvalence.

It is ironic that preventative regulations should generate conflict in themselves, especially as they represent, through prevention, a partial account of the world. Accidents and conflict are often the exception rather than the norm, and quantified and quantifiable precisely because they fall outside the norm. I argue that the management of environments or of conflict through hermetic boundaries can encourage a-relational and isolationist strategies that are counterproductive to managing sustainability.

Another risk that concerns Planning professionals is that of an aesthetic of disorder, one which would approve of some types of appropriation and overcome the difficulty of typifying acceptable and less acceptable interventions. I suggest that this is not only about order, but that it also concerns taste. One of my most unexpected findings from my observational research of boundaries throughout London estates and streets, is that manifestations that indicate neglect and carelessness are rare, even when their occupation of boundaries is more utilitarian than decorative. This supports the suggestion I make, that architectural design should treat its boundaries as centres and as space concurrently. In this way, the design might be able to cater for utilitarian, infrastructural, environmental, social and ecological sustainabilities, without compromising privacies (for the public or for the private resident), or a general sense of order and coherence, from the street side any more than from the dwelling side.

My introductory chapter provided a definition of sustainability that framed the purpose of my research. The boundary concept that underpins this thesis is the product of the research itself. Porous boundaries are a natural feature in nature and a zone of hybridity and heterogeneity, but rarely feature in commentaries about sustainability, just as they rarely feature in architectural discourse on mass housing. In Chapter 1, I articulated some of the ambiguities contained in the terminologies and concepts associated with boundaries, and extended these ambiguities beyond architectural epistemology. Other definitions found in philosophy and sociology explore some of the paradigms that might underpin this tendency. Some acknowledge boundary as a relational object that provides potential heterogeneity or hybridity. I propose that the architectural boundary also needs to be relational; that the boundary is, by definition, the arbitrator between two 'sides' and, therefore, between the *either* and *or* of binary world views which are prone to regarding public and private principles, or human nature and weather, or utilitarian matters and presentability, as separate and potentially in conflict or incompatible.

In this proposition, I am suggesting that regulation itself is an adaptive process rather than a static and preventative process, and that regulation should be able to open up the boundary when conditions are favourable, and to restrict porosity when conditions are less favourable (these conditions may alternate sometimes in close succession). I have therefore added here the additional dimension of *choice*, which I regard as crucial to the modulation of this regulatory function - as an *Included Middle* as defined by Lapusco (see Introduction). I suggest that the ignorance or misunderstanding of this duality of roles actually contributes to the polarisations described throughout, and that this applies to the architectural boundary itself, to anyone regulating it be they the user(s) or the institution(s), and to the categorisation of its sides.

The implications are, thus, political as much as they are physical. A meeting of realities built into the boundary principle automatically concerns those of institution and user who are in interface. My findings have led me to conclude that, rather than attempting to protect privacy, these strategies tend to protect, instead, a certain assurance of order and propriety on the public 'side'. Without denying that individuals may sometimes incur disruption to this order, I am challenging a narrative which might consider this possibility as a rule, against evidence presented here which suggests that they are the exception. This meets with James Gibson's reflections on perception, which is prone to noticing the extraordinary rather than the ordinary. The documentation of such events can indeed provide a swayed perspective of everyday occurrences which constitute a statistical majority, but are not acknowledged as such.

The boundary of choice is, in this sense, a boundary of adaptability to multiple scenarios, dimensions and chemistries that cannot always be predicted or quantified. Chapter 2 introduced some of the difficulties in narrating or representing this assemblage of heterogeneity through the boundary. The limitations of the methodology I adopted, which relies on visual situations and therefore relatively anecdotal evidence in terms of visibility from the public side, enabled me, however, to record an everyday which is not normally documented unless as the exception rather than the rule. It provided a view of the world where the exception is absorbed generally quite well by the general rule, in as much as most cases of manifestation are either neutral or creative.

In Chapter 5, I also tried to convey the deeply organic nature of boundary principles in our involvement with the world, in action and in cognition, pointing out in particular that separation affects cognition and, therefore, our appreciation of the

world in perceptual and proactive terms. This revealed an institutional tendency to treat as separate principles of life and environment that are anything but separate. This provides an additional dimension to the arguments above, by suggesting that separation inhibits the development of certain skills and cognition which are themselves dynamic and mutable. On the positive side, my findings reveal that this cognition is not lost, and is still operative when boundary configurations allow it.

Designs such as the Strata Tower signal a trend in polarisation between users and buildings that echoes other themes about separation encountered throughout this thesis. I have argued that this can generate contradictions and incompatibilities in relational and ecological terms, and that the boundary principle and its architectural application are major agents in relational processes. This requires a reassertion of opposites as sometimes discrete, sometimes compatible, and sometimes adversarial. It also requires a reassertion of public and private space as sometimes mutual, and other times defensive. The same applies to climate change, biodiversity and the weathers of human activities and economics, which all meet at the same boundary and produce temporal chemistries beyond the grasp of quantification or prediction.

Arguably, all the professions involved in the construction industries who currently favour hermeticity would thus need to adapt their ways of thinking, and expand their understanding of binary dynamics. This includes not only architects, but the policy makers who write the legislation, and Planning or Building Control officers who enforce it. I have encountered early signs that a growing number of professionals are embracing more relational thinking. Relational dynamics also require complementary assessment tools that are less quantitative and prescriptive, and more open to process and long-term adaptability, beyond the apparent certainty of a finished product. A focus on boundary polyvalence offers a type of flexibility that can alternately enable or disable the meeting of sides to encourage modulation, and this often depends on detailing boundaries and thresholds in a way that instates the possibility of mediation. This would provide an alternative to existing mass housing formulas that, because it affects relationship between spaces rather than the size of space itself, is realistic in terms of high density urban situations, and relatively minor in terms of existing construction techniques. Subject to further research on the design of boundaries as binary and relational tools, this would open the possibility that boundaries can be inclusive of the principle of ecology. It would also invite all parties involved in the design of the boundary to achieve the paradigm shift necessary, and to position conditional relationality as the central agent for an architecture of resilience and choice.

Post Scriptum

This thesis will be read in the aftermath of the Grenfell Tower tragedy, which occurred on 14 June 2017, just before the final submission of my manuscript. While anecdotes and analyses of the event will accumulate and evolve for many months to come, Grenfell marks a historic moment comparable to the collapse of Ronan Point in 1968. Ironically, it had been designed to withstand internal explosions, in response to lessons learnt from Ronan Point.

According to press reports so far, residents at Grenfell had officially complained for several years about repairs and maintenance, fire safety and regular power surges which sometimes caused electrical appliances to combust. It is unsurprising that the fire should have been ignited by a fridge, and that smoke alarms and emergency lights failed. This risk was compounded by the closure of an entrance, resulting in reduced access in and out of the building. In this context, the single issue of thermal efficiency should not have been a refurbishment priority, even before it was tackled with a combustible cladding system.

Many issues raised in my research are relevant here: the prioritisation of aesthetics in a gentrification agenda, the isolation of the building from its locality at the threshold, the hostile disregard of user knowledge, the ignorance of wears and tears, and needs to adapt to new technologies and lifestyles, and the fragmentation of a building control system that treats infrastructures and services as legitimately separate from fabric, structure and residents.

Perhaps most haunting of all is the thought that, had they not been told to stay within the containment of their flats (internalisation through policy), many more residents might have been able to escape and survive. In offices or any other public building instead, a fire alarm requires that everyone leaves the building: public and residential policies are therefore in contradiction.

I am concerned that this event, having occurred in a 1970s tower block housing social tenants, might be manipulated into an additional injunction against social housing, and by the fact that other tower blocks built in the past twenty years should await a similar fate. The combination of inflammable claddings within cavities that can act as potential chimney flues is increasingly widespread, and the risks of fire will continue to increase with the exponential multiplication of electronic devices in our homes and offices.

The isolated strategy of thermal loss prevention should have never resulted in the destruction of the shelter and the lives they were supposed to protect. However, the dysfunctions arose from more systemic reasons than the single product itself. The temptation may be to erect even more uncompromising boundaries. Yet this instance demonstrates that it is not always right to be contained, and that the concept of choice at the threshold might offer viable alternatives to future designs for fire safety.

GLOSSARY

Adjacency, adjacent

Spatial territories or entities that are next to each other and in potential relationship through this proximity. This can include adjacencies across categories, such as the adjacency of an architectural space to nature, the adjacency of two private dwellings to each other, or the adjacency of a neighbour to the garden next door.

Affordance

Based on psychologist James Gibson's meaning for *Affordance Theory* (1966), to mean a potential between perceived and actual properties of an object/dynamic, and an action that this object/dynamic might invite. Thus a door knob, for instance, might invite opening or closing of a door but might potentially also serve as a temporary hook for a jacket, or as a reflector of sunlight for a poetic observer.

Airtight

Quite literally, wall construction methods and technologies that prevent internal warm air from leaking out and/or external cold air from leaking in. The regulation of internal air quality is taken over by Mechanical and Engineering (M&E) services, sometimes entirely if windows are also sealed. Built into the expression is a cultural undertone which asserts that this is the most efficient design solution for thermal conservation (see Chapter 3, Strata Tower).

Architecture

This is here used in the widest meaning of the word, to encompass any building designed for human habitation and as-built, rather than to buildings considered to have certain stylistic merits. When the word is used to make reference to more aesthetic intentions or to make reference to the professional practice of architecture, this is specified to differentiate human design activity from the building as object.

Binary

Usually considered as that which involves two parties, binary is here extended to three relational dimensions: one where the two parties are not in relationship and therefore single rather than binary, one where the two parties are potentially in relationship sometimes but not always, and one where there is a third element between them that enables the regulation of relationships between the two sides. Conceptually, this would be the middle between them (see below), and architecturally this would be the boundary between them (see Introduction Chapter, p.17).

Border

Fused from the two definitions of *edge* and *boundary*, this is often used by architects to indicate the limits where two spaces meet, and to indicate the side which is visible to the public (Chapter 1). The extended meaning here includes the part of the boundary and near the boundary which marks out external space from internal space. It can be a strip of space or an actual architectural element, but

does not necessarily indicate that the two sides can communicate with each other (see Chapter 1, pp.45-46).

Boundary

Beyond the meaning of dividing line, the meaning is extended here to integrate the etymology of enclosure found in old English (*bounden/bodne*, see Introduction) with the dividing element. It is applied to architectural conditions whereby walls or spaces between adjacent spaces divide, but also regulate, the relationships between inside and outside, through various architectural devices such as windows, porticos, steps, forecourts, construction materials, spatial distance, etc (see Introduction, pp.23-24).

Building Control

Statutory body in Local Authorities that regulates the design and construction of buildings through a set of government guidance documents to ensure minimum and coherent building standards. Building Control officers used to visit construction sites on a regular basis to inspect and discuss progress and compliance with builders, clients and architects. Building Control, however has been privatised extensively since the beginning of the 21st Century, and is now largely taken over by private organisations that also deliver certificates, guarantees and insurance policies. Privatised Building Control regulators often prefer electronic communication, are more concerned with compliance, and less concerned with negotiation and creative/pragmatic solutions to site problems as they may arise.

Built environment

Constructed human spaces which are usually urban, and are essentially designed to host and facilitate the human everyday. This can include spaces dedicated to nature (ie. parks), spaces dedicated to movement (ie. streets), spaces dedicated to infrastructure (ie. electricity supply). It can also include any internal or external space dedicated to other human activities.

Collective intelligence

Beyond cybernetic meanings by academics such as cultural theorist Pierre Lévy (1999) or legal scholar Cass Sunstein (2006), the word is here related to all types of networks between human beings that potentially foster creative interaction and cross-fertilisation. This, in turn, potentially contributes to overall growth of knowledge and evolution of adaptable everyday strategies. It includes incidental physical meetings between people, learning by seeing something interesting in a serendipitous manner and reproducing it elsewhere – without necessarily being in direct contact with another person. Inspired by journalist James Surowiecki who, in *The Wisdom of Crowds* argues that “the best way for a group to be smart is for each person in it to think and act as independently as possible” (2005, p.XX).

Construction industries

Includes any party involved, at some point, in the design and construction of any one building, from the commissioning of design through to its completion. To name but a few: developer, builder, architect, engineers and building consultants, Planning, Building Control, Environmental Agency and other statutory bodies, Health & Safety and legal representatives, etc. This excludes user creativity (see Jonathan Hill and Chapter 6) unless they commissioned the design with the intention of living in them.

Contingency

In architecture theorist Jeremy Till's meaning of the word (2009), to describe a flexible or malleable property in the design of a building that enables the building to adapt to changes that may occur a number of times, and thus increases the building's life expectancy. This includes environmental change in the widest meaning: socio-economic and ecological.

Creativity

In educational psychologist's Ken Robinson meaning of the word, to mean resourceful, imaginative and innovative ways of resolving problems or situations that may influence others and contribute to a more incremental and collective building up of new, if often pragmatic, strategies of the everyday.

Duality, dualism

Rather than assigned to philosophy matters concerning mind and body (as would be the case with Plato or Descartes), this term is used here to make reference to a potential for antagonism in a binary situation. However, it also includes the possibility that an antagonistic encounter may also resolve itself - as an encounter between two people in Capoeira practice, for instance, would amount to assessing the opponent's adversarial space, and to negotiate mutually this contended space. Dual entities do not here need to belong to similar categories or opposites in the 'genus' meaning of Aristotle's logic (see Introduction, pp.18-22).

Dwelling, dweller

Private place where a resident lives, extended here from flat or house through to belonging to local environment in the meaning brought forward by Geographer Edward Relph (1985, p.19): "different modes of closeness and involvement with the world which are necessarily part of existence." This suggests, therefore, that this 'place' may be very private sometimes but less private at other times, depending on fluctuating circumstances specific to individual lives and local environments.

Ecology

Any form of relationship, sometimes collaborative and other times competitive, between environments built or natural, flora and fauna and human beings, with each other and across categories, that constitute the overall dynamics of a living system. By implication, *ecological* means that which sustains balance and long term survival of the overall system (see Introduction, p.22).

Edge

See definitions above for *Border* and for *Boundary*. Edge is possibly the most widely used of the three terms in architecture to signify the line, strip or space between the visibly public façade of a building and the street and public space adjacent to it. It does not indicate whether or not there are potentials for relationship between private and public, or interior and exterior spaces.

Environment

That which surrounds any one entity, each interrelated and interdependent of the other. In geographer Joseph Grange's definition (1985, pp.72-74) this includes the way in which there is an open space within the body just as there is an open space outside it. He argues that it is precisely the limit (boundary) of our body which enables the appreciation and understanding of interiority and exteriority (in physical, emotional, conceptual and metaphoric terms).

Environmental Agency

Statutory authority that assesses sustainability strategies and risk in the natural environment, and in the context of built environment. In the case of architecture, this addresses mostly flood risk, but also pollution.

Hermeticity

Architectural design feature that discourages movement between sides. This can include air, as in airtightness, but it can also include separation between any other entities that would otherwise be allowed to cross over between sides to greater degrees.

Heterogeneity

Situation whereby a large diversity of human and environmental actors/entities or dynamics belonging to many different categories interact, to the point that they become difficult to quantify or predict.

Infrastructure

In urban environment cases, this normally denotes mechanical services that serve the city: utilities such as electricity or drainage, all forms of transport and other 'utilitarian' facilities that cater for human everyday pragmatics. Unless otherwise specified, this is here extended to include all ecological and socio-economic entities and activities that might pervade an urban environment, and transcend the static boundaries generated by architecture (see Chapter 1, pp.35-43).

Mass housing

Housing designed and built in large numbers and in a repetitive manner, to cater for multiple users who are not known at the time the building is designed and built. Usually targeted at specific user groups, this can include housing designed by speculative builders and developers in the Georgian and Victorian era, from working-class cottages through to large houses, from mansion flats through to social housing.

Micro-climate

Climatic conditions specific to a very local set of circumstances, whereby different entities work together to create local conditions that may be different from conditions in a wider locality. Micro-climate includes the effects of this climate on micro-organisms that develop and, in turn, affect this ecology.

Middle (Excluded and/or Included)

Based on arguments made by Aristotle and Lapusco (see Introduction, pp.18-22), this is here the third party inherent to binary relationships: the potential dynamic point where opposites, or sides, may or may not meet. It is here regarded as the conceptual equivalent of an architectural boundary.

Modulation

Act of fine-tuning or making small changes which enable responsiveness to, and control of, fluctuating conditions on either side of a boundary, and in their relationship with each other.

Mutuality

A state of relationship which is shared between sides and reciprocated without hierarchies.

Nature

Anything in the environment which is not directly the product of human intervention. This includes fauna, flora and climate, it includes appropriation of human objects by them, and it also includes the human body and relatively innate tendencies in human behaviour for acting or feeling in particular ways.

Place

Location, setting or position in space, usually an urban space. This can include the more phenomenological attributes of a sense of belonging, but generally indicates a relatively undefined spatial point that can be inhabited, or used on a temporary or more permanent basis.

Planning

Statutory body in Local Authorities that regulates the design of a proposed new building, or a proposed change to an existing building, in order to ensure that they do not affect a locality adversely. This can include cosmetic matters, such as the appearance of a building.

Porosity

A boundary's potential ability for enabling and hosting filtration and movement of environments, entities or actors between its two sides.

Relationality

Potential to be in relationship, as in Lapusco's *Tiers Inclu*. This can be a quality and a situation, it can be spatial and material, and it is subject to temporal processes over short and long term (see Introduction, p.20).

Residential/resident

A more official and abstract term than *dweller*, applied for people who live in a specific flat or house and/or in a specific locality.

Stuff

In material anthropologist Daniel Miller's meaning (2010), to denote miscellaneous objects of the everyday, from clothes through to utilitarian artefacts, that are technically not alive but part of life, to such an extent that they become an integral part of the ecology between humans, habitation and environment (see Chapter 2, pp.76-77).

Sustainability

As defined by the 2005 World Summit to merge ecological and green principles with socio-economic environments. Included here is the long-term ability for a system to adapt and produce efficient strategies that are responsive, creative and less harmful to natural or human welfare (see Chapter 1, pp. 32-35).

Waste

In the pragmatic and theoretic meanings: waste as anything that needs to be removed and processed in order to keep the city reasonably clean and orderly, and waste in anthropologist Mary Douglas' meaning in *Purity and Danger* (1966) as "matter out of place" that does not belong to categories and cannot be processed or integrated (see Chapter 1, pp.37-38).

Reference List and Bibliography

- Abdelmonem, M. Gamal (2016)
Spaces of Liberation project in Cairo, Queen's University Belfast
- Abdelmonem, M. Gamal and Ruth Morrow (2012)
Peripheries: Edge Conditions in Architecture, Routledge
- ACPO Crime Prevention Initiatives Limited (2014)
Secured by Design New Homes
- Adam-Smith, Ben (2014)
HPH044: Avoiding the Risks of Poor Ventilation, interview with Mark Siddall from LEAP (Low Energy Architectural Practice), House Planning Help, March 2014
<http://www.houseplanninghelp.com/hph044-avoiding-the-risks-of-poor-ventilation-with-mark-siddall-from-leap/>, last accessed May 2014
- Alberti, Marina (2013)
Planning Under Uncertainty: Regime Shifts, Resilience, and Innovation in Urban Ecosystems, Urban Ecology Research Laboratory, Washington's College of Built Environments
- Alexander, Christopher (1977)
A Pattern language, towns, buildings, construction, Oxford University Press
- Alexander, Christopher (1980)
The Phenomenon of Life, Book One of The Nature of Order – An Essay on the Art of Building and the Nature of the Universe, The Center for Environmental Structure
- Alexander, Lucy (2010)
Elephant and Castle Hits New Heights, The Times, 19 March 2010
<http://www.thetimes.co.uk/tto/life/property/londonhomes/article2465997.ec>, last accessed May 2014
- Alizadeh, Pardis (2006)
Case Study as a Methodology in Architectural Research, International Conference Research Methodologies Science, Engineering and Technology, <http://www.daneshir.ir/fileEssay/tahghighat-87-1-16-b-sy.pdf>, accessed March 2016
- Allan, John (1992)
Berthold Lubetkin: Architecture and the Tradition of Progress, Black Dog Publishing (2012 edition)
- Allen, Matthew (2005)
Robin Evans "Figures, Doors and Passages" (Written 1978, published in Architectural Design 4/1978), from *Translations from Drawing to Building and Other Essays*, AA Publications
- Allmendinger, P. and Haughton, G. (2009)
Soft spaces, fuzzy boundaries, and metagovernance: the new spatial planning in the Thames Gateway, Environment and Planning A, 41(3), 617–633

The Almshouses Association
<http://www.almshouses.org>

Alter, Lloyd (2006)
Futureproofing our Homes, Tree Hugger Design, Sustainable Product Design (2006)
[, last accessed May 2014](http://www.treehugger.com/sustainable-product-design/futureproofing-our-homes.html#14521202245551&action=collapse_widget&id=0&data=)

Andersson, D. E., E. Andersson and Charlotta Mellander (2015)
Handbook of Creative Cities, Edward Elgar Publishing

Anderson, John Robert (1996, first published 1983)
The Architecture of Cognition, Lawrence Erlbaum Associates Publishers

Andrews, Molly, Corinne Squire and Maria Tamboukou (2013)
Doing Narrative Research, SAGE Publications

ArchDaily (2010)
Strata SE1 / BFLS 25 Jul 2010
<http://www.archdaily.com/70142>, last accessed May 2014

Architectural Association (1994)
Climate Register: four works by Alison & Peter Smithson, London:
Architectural Association

Aristotle (circa 320bC)
Metaphysics, Book X, Part 7,
<http://classics.mit.edu/Aristotle/metaphysics.10.x.html>

Armstrong, Rachel (2012)
Living Architecture: How Synthetic Biology Can Remake Our Cities and Reshape Our Lives, Ted Conferences

ARUP (2014)
Cities Alive – Rethinking Green Infrastructure, Foresight

Asheim, Geir B. and John M. Hartwick (2011)
Anomalies in green national accounting, Ecological Economics 70 (2011) 2303-2307, Elsevier

Asgaard Andersen, Michael and Henrik Oxvig (2009)
Paradoxes of Appearing: Essays on Art, Architecture and Philosophy, Lars Müller Publishers

atelier ten (September 2012)
Sulgrave Gardens Passivhaus social housing, with Cartwright Pickard Architects, Open City

Augé, Marc (1992)
Non-Places – An Introduction to Supermodernity, Verso (2008 edition)

Aureli, Pier Vittorio (2011)
The Possibility of an Absolute Architecture, MIT Press

- Axelsson, Jens (2014)
Together on our Own – The meaning and position of the residential community, Chalmers University of technology
- Baker, Nick and Koen Steemers (2002)
Daylight Design of Buildings: A Handbook for Architects and Engineers, Routledge
- Baker, Gordon and Katherine J. Morris (1995)
Descartes' Dualism, Routledge
- Bailes, Allison A. (2014)
The Great Ventilation Debate, Live at the ACI Conference, Green Building Advisor, Building Science, 6 May 2014
<http://www.greenbuildingadvisor.com/blogs/dept/building-science/great-ventilation-debate-live-aci-conference>, last accessed May 2014
- Ballantyne, Andrew (2007)
Deleuze & Guattari for Architects (Thinkers for Architects), Routledge
- Bane, Peter (2012)
The Permaculture Handbook: Garden Farming for Town and Country, New Society Publishers
- Banks-Leite, Cristina and Robert M Ewers (2001)
Ecosystem Boundaries, John Wiley & Sons
- Barbaras, Renaud (2009)
Invisibility at the Heart of Appearance: On Perception, Art and Desire, from Paradoxes of Appearing – Essays on Art, Architecture and Philosophy, Müller Publishers
- Barber, Peter (2013)
Open House 2008 and interview 2013
UEL Evening Guest Lecture Series, May 2013
- Barber, Peter (2013)
Gates to the City, The Architect's Journal, Better Housing, pg 34, March 2013
- Barlow, Stuart and Dusan Fiala (2006)
How adaptive comfort theories might influence future low energy office refurbishment strategies, De Montfort University, Leicester & Reid Architecture, University of Karlsruhe
- Barlow, Stuart (2011)
Guide to Breeam, RIBA Enterprises Limited
- Bartha, P. (2001)
Monstrous Neighbours or Curious Coincidence: Aristotle on Boundaries and Contact, History of Philosophy
- Bateson, Gregory (1972)
Steps to an Ecology of Mind, Frogmore: paladin
- Bateson, Gregory (1979)
Mind and Nature: A Necessary Unity, Bantam Books

- Battle, Eduard and David G. Wilkinson (2012)
Molecular Mechanisms of Cell Segregation and Boundary Formation in Development and Tumorigenesis, Cold Spring Harbor Laboratory Press
- Batty, Michael and Stephen Marshall (2009)
The evolution of cities: Geddes, Abercrombie and the new physicalism, Centenary paper TPR
- Baudelaire, Charles (1859)
Le Spleen de Paris (Petits Poèmes en Prose), J'ai Lu (2004 edition)
- Bauman, Zygmunt (2003)
Wasted Lives: Modernity and Its Outcasts, Polity
- Bauman, Zygmunt (2007)
Liquid Times: Living in an Age of Uncertainty, Polity Press
- BaumanLyons Architects (2008)
How to be a Happy Architect, Black Dog Publishing
- Bearl, Alasdair N. (2007)
CDM Regulations: 12 years of pain but little gain, Proceedings of ICE, Paper 14431
- Beattie, Susan (1982)
A Revolution in London Housing: LCC housing architects and their work 1893-1914, Greater London Council
- BBC Four (2010)
Britain's Park Story (presented by Dan Cruickshank), Monday 2 August 2010
- BBC Four (2011)
Dreaming the Impossible: Unbuilt Britain (presented by Olivia Horsfall Turner), 12 August 2013
- BBC News Devon (2016)
Leaking £7m Dartington eco-school is demolished, 30 November 2016
- BCSA (British Constructional Steelwork Association) (2011)
The Whole Story – from Cradle to Grave, www.steelconstruction.org
- BCSA (2012)
Target Zero – Cost Effective Routes to Carbon Reduction, Building Design
- Bell, Simon and Stephen Morse (2008)
Sustainability Indicators: Measuring the Immeasurable?, Earthscan
- Benevolo, Leonardo (1967)
The Origins of Modern Town Planning, MIT Press (1967)
- Benfield, F. Kaid (2014)
People Habitat: 25 Ways to Think About Greener, Healthier Cities, Habitat Communications
- Benjamin, Walter (1982)
The Arcades Project, Harvard University Press (2002 edition)

- Bennett, Jane (2009)
Vibrant Matter: A Political Ecology of Things, Duke University Press
- Bennington, Geoffrey (2008)
Frontiers: Kant, Hegel, Frege, Wittgenstein, CreateSpace Independent Publishing Platform
- Berardi, Umberto (2011)
Managing Green Innovations for Sustainable Building, Politecnico di Bari
- Bergson, Henri (1946)
Creative Mind: An Introduction to Metaphysics, Kensington Publishing Corp, (1998 Edition)
- Berridge, Clive (1987)
Almshouses of London, Ashford Press
- BioRegional (2009)
BedZED seven years on: The impact of the UK's best known eco-village and its residents, published July 2009
- Birksted, J.K. (2009)
Le Corbusier and the Occult, The MIT Press
- Bloom, Susan (2012)
Let The Sun Shine in: The Value of Daylight, Light Logic for the 21st Century, 18 October 2012
- Bloomer, Kent C. and Charles W. Moore (1977)
Body, Memory, and Architecture, Yales University Press
- Blundell-Jones, Peter (2005)
Participation in Architecture, Routledge
- Bobić, Miloš (2004)
Between the Edges, Street-building transition as urbanity interface, Thoth Publishers
- Booth, Charles (1889)
Life and Labour of the People in London, MacMillan and Co. Limited
- Borden, Iain (2000)
Thick Edge: architectural boundaries in the postmodern metropolis, from *InterSections – Architectural Histories and Critical Theories*, edited by Iain Borden and Jane Rendell, Routledge
- Borden Iain, Joe Kerr, Jane Rendell and Alicia Pivaro (2001)
The Unknown City – Contesting Architecture and Social Space, MIT Press
- Borden, Iain, Joe Kerr, Alicia Pivaro and Jane Rendell (1996)
Strangely Familiar – Narratives of Architecture in the City, Routledge
- Borsi, Katharina (2009)
Drawing and dispute. The strategies of the Berlin block from Intimate metropolis: urban subjects in the modern city, edited by Vittoria Di Palma, Periton, D. And Lathouri, Routledge

- Bortoff, Henri (1996)
The Wholeness of Nature: Goethe's Way toward a Science of Conscious Participation in Nature, Lindisfarne Books
- Bortoff, Henri (1985)
Counterfeit and Authentic Wholes: Finding a Means for Dwelling in Nature, from *Dwelling, Place and Environment*, Krieger Publishing Company (2000 edition)
- Boubekri, Mohamed (2008)
Daylighting, Architecture and Health, Routledge
- Bowie, Duncan (2013)
Tackling Squalor: The pivotal role of social housing, Centre for Labour and Social Studies
- Bowman, Wayne (2004)
Cognition and the Body: Perspectives from Music Education, from *Knowing Bodies, Moving Minds – Towards Embodied Teaching and Learning*, edited by Liora Bresler, Kluwer Academic Publishers
- Brager, G.S. and R. De Dear (2001)
Climate, Comfort & Natural Ventilation: A new adaptive comfort standard for ASHRAE Standard 55, Center for Environmental Design Research, Centre for the Built Environment University of California
- Braham, William (2002)
Do Houses Evolve? Neo-biology at House_n, University of Pennsylvania, Department of Architecture
- Brand, Stewart (1997)
How Buildings Learn: What Happens After They're Built, Phoenix Illustrated
- BRE Trust (2010)
Strata SE1, London,
<http://www.building4change.com/page.jsp?id=473>, last accessed May 2014
- BREEAM (2014)
The case for BREEAM Communities, BRE Global
- BREEAM (2014)
BREEAM UK New Construction 2014, Key updates from 2011 version
- Brenner, Joseph (2008)
Logic in Reality, Springer (2010 edition)
- Brightenti, Andrea Mubi (2010)
Lines, barred lines. Movement, territory and the law, Cambridge University Press
- Brin, David (1999)
The Transparent Society: Will Technology Force Us to Choose Between Privacy and Freedom?, Basic Books
- Broome, Jon (2007)
The Green Self-build Book: How to Design and Build Your Own Eco-home (Sustainable Building), Green Books

- Bruce, Giles (March 2013)
Environmental Design: How Should Architects Approach It? UEL Evening Guest Lecture Series
- Bruno, Giuliana (2002)
The Atlas of Emotion – Journeys in Art, Architecture and Film, Verso Books
- Bruno, Giuliana (2007)*
Public Intimacy: Architecture and the Visual Arts, The MIT Press
- Bryson, Bill (2011)
At Home: A Short History of Private Life, Anchor
- Buck, Nick, Ian Gordon, Peter Hall, Michael Harloe and Mark Kleinman (2002)
Working Capital: Life and Labour in Contemporary London, Routledge
- Buck-Morss, Susan (1991)
The Dialectics of Seeing – Walter Benjamin and the Arcades Project, MIT Press
- Buchanan, Ian (2001)
Michel de Certeau: Cultural Theorist (Published in association with Theory, Culture & Society), Sage Publications
- Buchanan, Ian and Gregg Lambert (2005)
Deleuze and Space, Edinburgh University Press
- Building Research Establishment (2013)
Good Building Guides and Good Repair Guides: A library of information for all construction professionals, BRE Press
- Burdett, Richard (2010)
Heart of the city, London School of Economics
- Busch, Akiko (1999)
Geography of Home, Princeton Architectural Press
- Butterworth, Carolyn and Sam Vardy (2008)
Site-Seeing: Constructing the 'Creative Survey', Field Journal, vol.2 (1), <http://www.field-journal.org/index.php?page=journal-2>, accessed February 2016
- CABE (2006)
Design and Access Statements: How to Write, Read and Use Them
- CABE (2007)
Living with risk – Promoting better public space design, CABE
- Cadenasso, Mary L., Steward T. A. Pickett, Kathleen C. Weathers And Clive G. Jones (2003)
A Framework for a Theory of Ecological Boundaries, Vol. 53 No. 8, BioScience
- Cage, John (1968)
Silence – Lectures and Writings, Marion Boyars Publishers Ltd (1994 edition)

- Capra, Fritjof (1997)
The Web of Life: A New Scientific Understanding of Living Systems, Anchor
- Cartwright Pickard Architects and MEARU (2015)
Are our homes making people sick? The Architects' Journal, 7 August 2015
- Casati, Roberto and Achille C. Varzi (1999)
Parts and Places: The Structures of Spatial Representation, MIT Press
- Chapman, David (1996)
Creating Neighbourhoods and Places in the Built Environment, E&FN Spon
- Chartered Institute of Building (CIOB) (2013)
Sustainable Construction and the Green Deal
- Chartered Institution of Building Services Engineers (2006)
Guide A: Environmental Design, CIBSE
- Chelli, Mohamed and Yves Gendron (2013)
Sustainability Ratings and the Disciplinary Power of the Ideology of Numbers, Springer, Journal of Business Ethics, Vol. 112, No. 2 (January 2013), pp. 187-203
- Chermayeff, Serge and Christopher Alexander (1963)
Community and Privacy, Towards a New Architecture of Humanism, Penguin
- Choo, Li Jie and Bronwyn Kotzen, Benno Rembeck, Claudia Sinatra (2014)
Relational Grain, London School of Economics, Cities, Vol. 2
- Clarke, Steve (1999)
Human Centered Methods in Information Systems: Current Research and Practice, Idea Group Inc.
- Clarke, Katherine (2014)
Prototyping Uncertainty
UEL Evening Lecture Series, October 2014
- Climate Energy (2013)
East London's Largest Passive House Scheme Gets the Go-Ahead (Rainham Housing, Essex), ClimateEnergyUK, March 2013
- Cockayne, Emily (2013)
Cheek by Jowl: A History of Neighbours, Vintage
- Cockayne, Emily (2007)
Hubbub: Filth, Noise, and Stench in England, 1600-1770, Yale University Press
- Colomina, Beatriz (1994)
Privacy and Publicity: Modern Architecture As Mass Media, MIT Press
- Colomina, Beatriz (1997)
The Medical Body in Architecture, from Anybody, Edited by Cynthia C. Davidson, MIT Press
- Colomina, Beatriz (2001)
Domesticity at War, ActarD Inc

- Colomina, Beatriz (2006)
"Escape From Today: Houses of the Future." In *Open House, Architecture and Technology for Intelligent Living*, 228-57, edited by Alexander von Vegesack and Jochen Eisenbrand. Germany: Vitra Design Stiftung
- Colombino, Laura (2013)
Spatial Politics in Contemporary London Literature: Writing Architecture and the Body, Routledge
- Colquhoun, Ian (1999)
RIBA Book of 20th Century British Housing, Yale University Press
- Conaghan, Paddy (2015)
Planning for Gold: Research that could improve building performance is being lost to construction for want of a method to disseminate it, CIBSE Journal, February 2015
- Conger, John P. (1988)
Jung and Reich: The Body as Shadow, by North Atlantic Books (2005 edition)
- Cornelius, Henry (1949)
Passport to Pimlico
- Cotterell, Janet and Adam Dadeby (2012)
The Passivhaus Handbook: A Practical Guide to Constructing and Retrofitting Buildings for Ultra-Low Energy Performance (Sustainable Building), UIT Cambridge
- Coverley, Merlin (2012)
Psychogeography, Oldcastle Books
- Creswell, John W. (2002)
Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, SAGE Publications
- Crowley, David (2002)
Socialist Spaces – Sites of Everyday Life in the Eastern Bloc, Berg 3PL
- Crump, Derrick and Andy Dengel, Michael Swainson (2009)
Indoor air quality in highly energy efficient homes – a review, NHBC with BRE Trust, IHS BRE Press
- Cullen, Gordon (1961)
Concise Townscape, Routledge
- Cullingworth, J. B. (1999)
British Planning: 50 Years of Urban and Regional Policy, The Athlone Press
- Cumming, Graeme S. (2011)
Spatial Resilience in Social-Ecological Systems, Springer
- Curtis, William J. R. (1999)
Denys Lasdun: architecture, city, landscape, Phaidon
- Davidson, Cynthia C. (1997)
Anybody, MIT Press

- Davidson, Judith (2004)
Embodied Knowledge: Possibilities and Constraints in Arts Education and Curriculum, from Knowing Bodies, Moving Minds – Towards Embodied Teaching and Learning, edited by Liora Bresler, Kluwer Academic Publishers
- Davies, Jonathan S. (2002)
The governance of urban regeneration: a critique of the 'governing without government' thesis, Blackwell Publishers
- Davies, Philip (2013)
Lost London 1870-1945, English Heritage
- De Certeau, Michel (1980)
The Practice of Everyday Life, University of California Press (2011 edition)
- de Selincourt, Kate (2014)
Natural Ventilation: Does it Work? Passive house +, Issue 6, UK Edition
<http://passivehouseplus.ie/magazine/insight/natural-ventilation-does-it-work.html>, last accessed May 2014
- Deleuze, Gilles (1969)
The Logic of Sense, Columbia University Press (1990 edition)
- Deleuze, Gilles and Pierre-Félix Guattari (1968)
Difference and Repetition, Continuum International Publishing Group Ltd (2004 Edition)
- Deleuze, Gilles and Pierre-Félix Guattari (1980)
EPZ Thousand Plateaus, Continuum London (2004 edition)
- Denison, Edward and Guang Yu Ren (2012)
The Life of the British Home: An Architectural History, John Wiley & Sons
- Dent Coad, Emma (June 2013)
Listing social housing: Trellick Tower and Edenham Way by Erno Goldfinger, paper given at *Mobilising London's housing histories: the provision of homes since 1850*, Conference organised by the Centre for Metropolitan History (IHR), in association with the Survey of London (English Heritage) and the Urban Laboratory (University College London)
- Department for Communities and Local Government (2016)
Building regulations, Collection,
<https://www.gov.uk/government/collections/approved-documents>, last accessed June 2017
- Department for Communities and Local Government (2006)
Code for Sustainable Homes – A step-change in sustainable home building practice
- Department for Communities and Local Government
Code for Sustainable Homes, Technical Guide, November 2010
- Department for Communities and Local Government (2009)
Planning for Town Centres – Practice Guidance on Need, Impact and the sequential Approach

- Di Palma, Vittoria, Diana Periton and Marina Lathouri (2009)
Intimate Metropolis: Urban Subjects in the Modern City, Routledge
- Diller, Elizabeth and Ricardo Scofidio (1996)
Flesh: Architectural Probes, Princeton Architectural Press
- Dolan, Paul (2012)
Happiness by Design: Change What You Do, Not How You Think, Plume
(2015 edition)
- Douglas, Mary (1966)
Purity and Danger: An Analysis of Concepts of Pollution and Taboo,
Routledge (2002 edition)
- Dovey, Kim (1999)
Framing Places: Mediating Power in Built Form, Routledge
- Dovey, Kim (1985)
The Quest for authenticity and the replication of environmental meaning,
from *Dwelling, Place and Environment*, Edited by David Seamon and Robert
Mugerauer, Krieger Publishing Company
- Drummond, Ian and Kara O'Reilly (2017)
At Home with Plants, Mitchell Beazley
- Dudjicky, Richard (May 2014)
Conversation between colleagues
- Durham, Scott (1998)
Phantom Communities: The Simulacrum and the Limits of Postmodernism,
Stanford University Press
- Eisenman, Peter (2007)
Written Into the Void: Selected Writings, 1990-2004, Yale University Press
- Elias, Eileen (1978)
On Sundays We Wore White: Childhood Reminiscences, WH Allen/Virgin
Books
- Elkadi, Hisham (2006)
Cultures of Glass Architecture, Routledge
- Environment Agency
<https://www.gov.uk/government/organisations/environment-agency>
- Evans, Benjamin H. (1981)
Daylight in Architecture, McGraw-Hill Inc.
- Evans, Robin (1971)
The Rights of Retreat and the Rites of Exclusion, from *Translations from
Drawing to Building and Other Essays*, Architectural Association Publications
- Evans, Robin (1978)
Figures, Doors and Passages, from *Translations from Drawing to Building
and Other Essays*, Architectural Association Publications

- Evans, Robin (1978)
Rookeries and Model Dwellings, from *Translations from Drawing to Building and Other Essays*, Architectural Association Publications
- Exeter University (2010)
Energy Use in Buildings: The Legislative Framework and Beyond, Exeter University
- Farley, Paul and Michael Symmons Roberts (2011)
Edgelands – Journeys into England's True Wilderness, Jonathan Cape
- Folke, Carl (2006)
Resilience: The Emergence of a Perspective for Social-Ecological Systems Analyses, Global Environmental Change, Elsevier, 16, 253–267
- Fontana-Giusti Gordana (2011)
Walling and the city: the effects of walls and walling within the city space, Taylor and Francis online
- Forster, Kurt W. and Peter Davey (2007)
Exploring Boundaries: The Architecture of Wilkinson Eyre, Birkhäuser
- Forty, Adrian (2004)
Words and Buildings: A Vocabulary of Modern Architecture, Thames & Hudson
- Fothergill, Lyndon (2014)
GLA: The Future is East
UEL Evening Guest Lecture Series (February 2014)
- Foucault, Michel (1966)
The Order of Things: Archaeology of the Human Sciences, Routledge (2001 edition)
- Fox, William F. (1994)
Strategic Options for Urban Infrastructure Management, The World Bank
- French, Hilary (2008)
Key Urban Housing of the Twentieth Century, King Publishing
- Fulcher, Merlin (2011)
Forgotten Spaces finalists revealed, The Architects' Journal, 16 June 2011
- Gardiner, Michael (2000)
Critiques of Everyday Life: An Introduction, Routledge
- Gardner, Howard (1983)
Frames of Mind: The Theory of Multiple Intelligences, Basic Books (2011 edition)
- Gater, G.H. (1937)
London Housing, London County Council
- Gehl, Jan (1971)
Life Between Buildings: Using Public Space, Danish Architectural Press

- George, Rose (2010)
Nowhere to go: Health Crises thrive where toilets don't exist, The Rotarian, January 2010 Vol. 188, No. 7
- Gething, Bill and Katie Puckett (2013)
Design for Climate Change, RIBA Publishing
- Giaccardi, Elisa (2005)
Metadesign as an Emergent Design Culture, Project Muse Art and Architecture, Vol.38, Number 4, pp.342-349
- Gibson, James Jerome (1966)
The Senses Considered as Perceptual Systems, Houghton Mifflin
- Gibson, Scott (2013)
Seeing Passivhaus in a Whole New Way, Green Building Advisor, 7 May 2013
<http://www.greenbuildingadvisor.com/blogs/dept/green-building-news/seeing-passivhaus-whole-new-way>, last accessed May 2014
- Gibson, Scott (2015)
Monitoring Air Quality at Home, Devices that can track particulates and other air pollutants at home are beginning to find their way to market, Green Building Advisor, 26 March 2015
<http://www.greenbuildingadvisor.com/blogs/dept/green-building-news/monitoring-air-quality-home>, last accessed May 2015
- Gidal, Tim (1973)
Modern photojournalism: origin and evolution, 1910-1933, Macmillan
- Giles, Judy (2004)
The Parlour and the Suburb: Domestic Identities, Class, Femininity and Modernity, Bloomsbury Academic
- Gladwell, Malcolm (2002)
The Tipping Point: How Little Things Can Make a Big Difference, Abacus
- Glancey, Jonathan (2010)
Spin city: London's Strata Tower, The Guardian, 18 July 2010
<http://www.theguardian.com/artanddesign/2010/jul/18/strata-tower-london-green-architecture>, last accessed May 2014
- Glendinning, Miles and Stefan Muthesius (1994)
Tower Block. Yale University Press
- Godwin, George (1984)
The Shape of British Housing, E.R. Scoffham
- Gold, John R. (2007)
The Practice of Modernism: Modern Architects and Urban Transformation, 1954-1972, Routledge
- Goldstein, Bruce (1981)
The Ecology of J.J. Gibson's Perception, Pergamon Press
- Gómez Cruz, Edgar and Asko Lehmuskallio (2016)
Digital Photography and Everyday Life: Empirical Studies on Material Visual Practices, Routledge

- Goodman, Chris (2011)
Lifetime Homes Design Guide, IHS BRE press
- Goodsell, David S. (2010)
The Machinery of Life, Copernicus
- Gordon, C. and K. Kilian (1992)
Chandigarh: Forty Years After Le Corbusier, ANQ document, Architectura & Natura Press
- Gottdiener, Mark and Ray Hutchison (2010)
The New Urban Sociology: Fourth Edition, Westview Press
- Grange, Joseph (1985)
Place, Body and Situation, from *Dwelling, Place and Environment*, Krieger Publishing Company (2000)
- Graves, Michael (1982)
The Sense Of Boundary In Architecture, Pidgeon Digital collection
- Greater London Authority (2010)
London Housing Design Guide
- Greater London Authority (2016)
Housing Supplementary Planning Guidance
- Griffiths, Owen V (2006)
Understanding the CDM Regulations, Routledge
- Grindrod, John (2013)
Concretopia: A Journey Around the Rebuilding of Postwar Britain, Old Street Publishing
- Groat, Linda N. and David Wang (2013)
Architectural Research Methods, John Wiley & Sons
- Guattari, Félix (1989)
The Three Ecologies, Bloomsbury Revelations
- Gunderson, Lance H., Craig Reece Allen and C. S. Holling (2010)
Foundations of Ecological Resilience, Island Press
- Guy, Simon and Steven A. Moore (2005)
Sustainable Architecture: Cultures and Natures in Europe and North America, Spon Press
- Habraken, N. John (2005)
Palladio's Children: Essays on Everyday Environment and the Architect, Taylor & Francis
- Hall, Edward T. (1990)
The Hidden Dimension, Anchor Books
- Hanley, Lynsey (2012)
Estates: An Intimate History, Granta Books

- Hanley, Stephen (2015)
This "Dumb" House is Actually Pretty Smart, Green Building Elements website, 29 January 2015
<http://greenbuildingelements.com/2015/01/29/dumb-house-actually-pretty-smart/>, last accessed May 2015
- Harmon, Katharine (2009)
The Map as Art: Contemporary Artists Explore Cartography, Princeton Architectural Press
- Harries-Jones, Peter (1995)
A Recursive Vision: Ecological Understanding and Gregory Bateson, University of Toronto Press
- Harrison, Lucy (2014)
Home on High, Rendezvous Press
- Hartley, Gary (2014)
Activhaus: Milestones towards zero carbon homes – Energy and water efficiency at home, Products and technology, Energy Saving Trust website, 14 July 2014
<http://www.energysavingtrust.org.uk/blog/2014/07/milestones-towards-zero-carbon-homes>, last accessed May 2015
- Hartman, Hattie (2013)
Active House: HTA's model homes for Velux complete, Architects' Journal, sustainability blog (2013)
- Hatherley, Owen (2010)
A Guide to the New Ruins of Great Britain, Verso Books
- Hatherley, Owen (2013)
A New Kind of Bleak, Verso Books
- Hensel, M., C. Hight and A. Menges (2009)
Space Reader: Heterogeneous Space in Architecture, John Wiley and Sons
- Heusler, Winfried, Rolf-Dieter Lieb, Martin Lutz and Eberhard Oesterle (2001)
Double-Skin Façades: Integrated Planning (Architecture), Prestel
- Heynen, Hilde and Gúlsúm Baydar (2005)
Negotiating Domesticity – Spatial Productions of Gender in Modern Architecture, Routledge
- Hight, Christopher (2014)
Pervasive Intimacy: the Unité d'Habitation and Golden Lane as instruments of Postwar Domesticity, from *Intimate Metropolis*, edited by Vittoria Di Palm et.al., Routledge
- Hill, Jonathan (1998)
The Illegal Architect, Black Dog
- Hill, Jonathan (1998)
Occupying Architecture: Between the Architect and the User, Routledge
- Hill, Jonathan (2003)
Actions of Architecture: Architects and Creative Users, Routledge

- Hill, Jonathan (2006)
Immaterial Architecture, Routledge
- Hill, Jonathan (2012)
Weather Architecture, Routledge
- Hill, Miriam Helen (1985)
Bound to the Environment – Towards a phenomenology of sightlessness,
from *Dwelling, Place and Environment*, Krieger Publishing Company (2000
edition)
- Hillier, Bill (2009)
*The City As A Socio-Technical System: a spatial reformulation in the light of
the levels problem and the parallel problem*, Keynote paper to the UCL
Conference on Spatial Information Theory, September 2009
- Hirst, Paul (2005)
Space and Power: Politics, War and Architecture, Polity Press
- HM Government (2008)
Climate Change Act 2008
- HM Government (2010)
The Building Regulations 2010, Approved Document Part H, Drainage and
Waste Disposal
- HM Government (2010)
The Building Regulations Approved Documents
<http://www.planningportal.gov.uk/buildingregulations/approveddocuments/>
- HM Government (2013)
*The Building Regulations 2010, Approved Document L, Conservation of Fuel
and Power*, 2013 Edition
- Hobbs, Richard J. and Katharine N. Suding (2009)
New Models for Ecosystem Dynamics and Restoration, Peter Society for
Ecological Restoration International, Island Press
- Hobday, Richard (2006)
Light Revolution; Health, Architecture and the Sun, Findhorn Press
- Hoffmeyer, Jesper (2008)
A Legacy for Living Systems: Gregory Bateson as Precursor to Biosemiotics,
Springer
- Holbrook, Tom (2013)
Contested Fields, Our Lost Pastoral, UEL Lecture Series, 1 February 2013
- Holloday, Martin (2011)
Are Passivhaus Requirements Logical or Arbitrary? Green Building Advisor, 1
April 2011
<http://www.greenbuildingadvisor.com/blogs/dept/musings/are-passivhaus-requirements-logical-or-arbitrary>, last accessed May 2014

- Holliday, Martin (2013)
Passivhaus Buildings Don't Heat Themselves, Green Building Advisor.com,
10/05/2013
<http://www.greenbuildingadvisor.com/blogs/dept/musings/passivhaus-buildings-don-t-heat-themselves>, last accessed May 2014
- Holliday Martin (2013)
All About Thermal Mass, Green Building Advisor, 4 December 2013
<http://www.greenbuildingadvisor.com/blogs/dept/musings/all-about-thermal-mass>, last accessed May 2014
- Holmes, Peter (2015)
Interview about Greenstreet, September 2015
- Hopkins, Rob (2011)
The Transition Companion: Making Your Community More Resilient in Uncertain Times, Chelsea Green Publishing Company
- Horsfall Turner, Olivia (2011)
Dreaming the Impossible: Unbuilt Britain, BBC4
<http://www.bbc.co.uk/programmes/p01cyrf9>, last accessed August 2014
- Howes, David (2005)
Architecture of the Senses, from *Sense of the City – An Alternate Approach to Urbanism*, Lars Müller Publishers
- Hutt, Dana (2006)
Open House: Intelligent Living by Design, Vitra Design Museum
- Ijeh, Ike (2013)
The daylight factor, Building, 24 April 2013
- Illich, Ivan (1975)
Medical Nemesis: The Expropriation of Health, Random House
- Imrie, Rob and Emma Street (2011)
Architectural Design and Regulation, Wiley-Blackwell
- Imrie, Rob and Loretta Lees (2014)
Sustainable London?: The future of a global city, Policy Press
- Ingold, Tim (2007)
Lines: A Brief History, Routledge
- Ingold, Timothy (May 2014)
On the Life of Lines, Lecture at IKKM (Internationale Kolleg für Kulturtechnikforschung und Medienphilosophie)
<https://vimeo.com/97117540>, last accessed May 2014
- Ingold, Timothy (2015)
The Life of Lines, Routledge
- Intille, Stephen S. (2002)
Designing a Home of the Future: technology and behaviour change, MIT School of Architecture and Planning, IEEE Pervasive Computing, vol. April-June, pp. 80-86

- Intille, Stephen S. (2006)
The Goal: Smart People, Not Smart Homes, from Smart Homes and Beyond,
 Assistive Technology Research Series, MIT
- Jackson, Lee (2014)
Dirty Old London: The Victorian Fight Against Filth, Yale University Press
- Jacobs, Jane (1961)
The Death and Life of Great American Cities. Vintage Books (1993 edition)
- Jaggs, Michael and Chris Scivyer (2009)
A Practical Guide to Building Airtight Dwellings, BRE and NHBC Foundation
- Jensen, Jesper Ole and Michael Søgaard Jørgensen, Morten Elle, & Erik Hagelskjær Lauridsen (2008)
Has social sustainability left the building? The recent conceptualization of "sustainability" in Danish buildings, Sustainability: Science, Practice, & Policy Volume 8.1, ProQuest
- Johnson, Mark (1987)
The Body in the Mind, The University of Chicago Press
- Jones, Owain and Joanne Garde-Hansen (2012)
Geography and Memory: Explorations in Identity, Place and Becoming, Palgrave Macmillan
- József, Vajda (2014)
The ventilation system – there is no alternative
https://passipedia.org/planning/building_services/ventilation/the_ventilation_system_-_there_is_no_alternative, last accessed November 2014
- Kauffman, Stuart A. (1993)
The Origins of Order: Self-Organization and Selection in Evolution, Oxford University Press; 1 edition
- Keane, John (1984)
Public Life and Late Capitalism, Bureaucracy: the organizing principle of modern life, Cambridge University Press
- Kearney, Richard and Alan Montefiore (1991)
Poetics of Imagining: From Husserl to Lyotard (Problems of Modern European Thought), Routledge
- Keim Campbell, Joseph, Michael O'Rourke and Matthew H. Slater (2011)
Carving Nature at its Joints: Natural Kinds in Metaphysics and Science, MIT Press
- Kibert, Charles J. (2012)
Sustainable Construction: Green Building Design and Delivery, John Wiley & Sons
- Kirby, Kathleen M. (1995)
Indifferent Boundaries: Spatial Concepts of Human Subjectivity, The Guilford Press

Kishnani, Nirmal and Vikas Bhatt Kailankaje, Ahana Basu, Astee Lim Ying Hui
(2010)
Attributes of a Sustainable Built Environment, Green Practice Committee
Task Force, Singapore Institute of Architects

Klein, Norman M. (1998)
See *Scripted Spaces: Navigating the Consumer Built City*, from *Consuming Architecture*, edited by Sarah Chaplin and Eric Holding, John Wiley & Sons

Kobre, Kenneth and Betsy Brill (2004)
Photojournalism: The Professionals' Approach, Focal Press

Konrad, Aglaia and Johan Lagae (2000)
Desert Cities, Mevis & Van Deursen Publications

Koskela, Lauri and Ruben Vrijhoef (2000)
The Prevalent Theory of Construction is a Hindrance for Innovation, Lean Construction Institute UK

Kostich-Lefebvre, Gordana (2000)
Facing Fronting, Interstices – Journal of Architecture and Related Arts (New Zealand), Journal 05, "Faciality"

Kozlovsky, Roy (2014)
Urban Play: Intimate Space and Postwar Subjectivity, from *Intimate Metropolis*, edited by Vittoria Di Palm et.al., Routledge

Kroll, David (2013)
London's Other Architects: the Role of the Designer in Speculative Housing, 1880–1939, Survey of London/University London

Krier, Léon (1998)
Architecture: Choice or Fate, Andreas Papadakis Publisher

Kronenburg, Robert (2007)
Flexible: Architecture that Responds to Change, Laurence King

Kishō Kurokawa (1977)
Metabolism in architecture, Studio Vista

Lacasse, M.A. and D.J. Vanier (1999)
Durability of Building Materials and Components, pp. 1867-1873 of *Building Performance Starts At Hand-Over: The Importance Of Life Span Information Performance-over-time and life span information*, Institute for Research in Construction, Ottawa, National Research Council Canada

Lakoff, George and Mark Johnson (1999)
Philosophy in the Flesh: the Embodied Mind and its Challenge to Western Thought, Basic Books

Lam, K. C. (2000)
Quality Assurance System for Quality Building Services Maintenance, Building Services Engineering Department, The Hong Kong Polytechnic University, SAFM Journal, Singapore

- Land Lease (2012)
Sustainable Design and Construction, Transforming the Heygate, elephant and castle
- Lane, Thomas (2010)
Death of the Cavity Wall – Understanding the changes and challenges of compliance with Part L 2010, Building Magazine, 26 November 2010
- Lang, Richard (2000, first published 1985)
The Dwelling Door: Towards a Phenomenology of Transition, from *Dwelling, Place and Environment*, Krieger Publishing Company
- LaRouche, Lyndon H., Jr. (1997)
Spaceless-Timeless Boundaries in Leibniz, Fidelio, Vol. VI ,No. 3.
- Larson, Kent and Mark A. Tapia, José Pinto Duarte (2001)
A New Epoch – Automated Design Tools for the Mass Customization of Housing, MIT Media Lab, Changing Places
- Larson, Kent. and S. Intille, T.J. McLeish, J. Beaudin and R.E. Williams (2004)
Open source building – reinventing places of living, BT Technology Journal, Vol.22 No.4
- Laskey, Alex (February 2013)
How Behavioral Science Can Lower Your Energy, TED
https://www.ted.com/talks/alex_laskey_how_behavioral_science_can_lower_your_energy_bill?language=en, last accessed March 2013
- Lathouri, Marina, Vittoria Di Palma, Diana Periton (2009)
Intimate Metropolis: Urban Subjects in the Modern City, Routledge
- Latour, Bruno (1991)
We Have Never Been Modern, Harvard University Press
- LaVine, Lance (2001)
Mechanics and Meaning in Architecture, University Of Minnesota Press
- Law, John (2004)
After Method: Mess in Social Science Research (International Library of Sociology), Routledge
- The Law Commission (2008)
Housing: Encouraging Responsible Letting, (LAW COM No 312) at
http://www.lawcom.gov.uk/wp-content/uploads/2015/03/lc312_Housing_Encouraging_Responsible_Letting.pdf, last accessed March 2016
- Leatherbarrow, David (2009)
Facing and Spacing, from *Paradoxes of Appearing – Essays on Art, Architecture and Philosophy*, edited by Asgaard Andersen, Michael and Henrik Oxvig, Lars Müller Publishers
- Leatherbarrow, David (2009)
Architecture Oriented Otherwise, Princeton Architectural Press
- Leatherbarrow, David and Mohsen Mostafavi (1993)
On Weathering: The Life of Buildings in Time, MIT Press

- Leatherbarrow, David and Mohsen Mostafavi (2002)
Surface Architecture, MIT Press
- Le Corbusier (1923)
Towards a New Architecture, The Architectural Press (1985 edition)
- Lefebvre, Henri (1974)
The Production of Space, Blackwell Publishing (1991 edition)
- lendlease (2012)
Elephant Park Sustainability
<http://www.elephantpark.co.uk/elephant-park/sustainability>, last accessed May 2014
- Lévi-Strauss, Claude (1966)
The Savage Mind, Weidenfeld & Nicolson
- Levin, Simon A. (2009)
The Princeton Guide to Ecology, Princeton University Press
- Lévy, Pierre (1999)
Collective Intelligence: Mankind's Emerging World in Cyberspace, Perseus Books
- Lewis, Miles (1985)
From Hollow Brick to Brick Veneer, in Proceedings of the 7th International Brick Masonry Conference, eds. T. McNeilly and J.C. Scrivener, 2 vols., 7th International Brick Masonry Conference
- Lewis, Sally (2005)
Front to Back – A design agenda for urban housing, Architectural Press
- Liddell, Howard (2008)
Eco-minimalism: The antidote to eco-bling, RIBA Publishing
- Lidskog, Rolf, Linda Soneryd and Ylva Uggla (2010)
Transboundary Risk Governance, Earthscan
- Limner, Luke (1847)
The Cries of London and Public Edifices, Unknown Binding
- Linn, Charles D. and Russell Fortmeyer (2014)
Kinetic Architecture: Design for Active Envelopes, Images Publishing
- Local and Central Government Relations Research (1994)
The Governance Gap: Quangos and Accountability, John Rowntree Foundation
- London Borough of Lewisham (2008)
Review of Lewisham's Wardens Service, Safer and Stronger Communities Select Committee
- London Borough of Southwark (2007)
Unitary Development Plan, Southwark Council
- London County Council (1932)
Becontree Tenants Handbook

- London County Council (1934)
Bellingham and Downham Tenants Handbook
- London School of Economics (LSE)
 Charles Booth's London, Poverty maps and police notebooks
<https://booth.lse.ac.uk>
- Long, Kieran (2013)
Carbuncle Cup nomination — 465 Caledonian Road, London, Building Design,
 16 July 2013
- Lovelock, James (1979)
Gaia: A New Look at Life on Earth, Oxford Paperbacks
- Lstiburek, Joseph W. (2013)
BSI-053: Just Right and Airtight, Building Science Corporation, September
 13 2011
- Lucan, Jacques (2012)
Clusters et Mégastructures Stem, Laboratoire de théorie et d'histoire 1,
 Ecole Polytechnique de Lausanne
- Lynch, Kevin (1960)
The Image of the City, MIT Press
- Lynch, Kevin (1981)
Good City Form, MIT Press (1984 edition)
- Mabey, Richard (1973)
The Unofficial Countryside, Little Toller Books (2010 edition)
- MacKay, David (2008)
Without the Hot Air, UIT Cambridge
- Madanipour, Ali (2003)
Public and Private Spaces of the City, Routledge
- Maitland, Sara (2009)
A Book of Silence: a Journey in Search of the Pleasures and Powers of Silence, Granta Books
- Manby Smith, Charles (1857)
Genesis of the Workers, Social Investigation/Journalism: The Little World of London, Victorian London Publications
- Manco, Jean (2009)
History of Building Regulations
<http://www.buildinghistory.org/regulations.shtml>, last accessed June 2010
- Manning, Erin (2007)
Politics of Touch: Sense, Movement, Sovereignty, University of Minnesota Press
- Manolopoulou, Yeoryia (2013)
Architectures of Chance, Ashgate Publishing, Limited

- Marcuse, Peter and Ronald van Kempen
Of States and Cities: The Partitioning of Urban Space, Oxford University Press
- Margulis, Lynn and Dorion Sagan (1995)
What is Life?: The Eternal Enigma, Weidenfeld & Nicolson
- Marion, Jonathan S. and Jerome W. Crowder (2013)
Visual Research: A Concise Introduction to Thinking Visually, Bloomsbury Academic
- Mark, Laura (2013)
Housing review could signal end of Code for Sustainable Homes, Architects Journal, 21 August, 2013
- Mark, Laura (2014)
It's official: government to scrap Code for Sustainable Homes, Architects Journal, 20 March 2014
- Marras, Amerigo (1999)
ECO-TEC: Architecture of the In-Between, Princeton Architectural Press
- Marres, Noorje (2010)
The making of climate publics: Eco-Homes as material devices of publicity, from *The Technologies of Politics*, edited by Ingunn Moser and Kristin Asdal: 27-46
- Martin, Emer (2010)
Residents hit boiling point at the eco tower where turbines don't turn, London Evening Standard, 17 August 2010
- Massey, Doreen B. (2005)
For Space, SAGE Publications Ltd
- Matthews, Stanley (2007)
From Agit Prop to Free Space: The Architecture of Cedric Price, Black Dog Publishing
- Mathieson, Debbie (2010)
GLA Housing Design Standards 2010, Evidence Summary
- Maturana, Humberto and Francisco J. Varela (1972)
Autopoiesis and Cognition: The Realization of the Living, Boston Studies in the Philosophy of Science, Vol. 42, Reidel Publishing Company (1980)
- Maturana, Humberto and Francisco J. Varela (1987)
The Tree of Knowledge: The Biological Roots of Human Understanding, Shambhala Publications (1992 edition)
- Maxwell, Robert (1993)
An Eye for an I: Failure of the Townscape Tradition, from *Sweet Disorder and the Carefully Careless*, Princeton
- McCole, John (1993)
Walter Benjamin and the Antinomies of Tradition, Cornell University Press

- McGilchrist, Iain (2009)
The Master and His Emissary: The Divided Brain and the Making of the Western World, Yale University Press
- McKean, John (1988)
Learning from Segal: Walter Segal's Life, Work and Influence, Birkhauser (Architectural)
- Meades, Jonathan (2014)
Bunkers, Brutalism and Bloodymindedness: Concrete Poetry, BBC4, 16 February 2014
<https://vimeo.com/93963469>, last accessed November 2014
- Meadows, Donella H. (1991)
The Global Citizen, Island Press
- Meadows, Donella H. (1997)
Leverage Points: Places to Intervene in a System, Donella Meadows Institute
- Meadows, Donella H., Dennis L. Meadows, Jørgen Randers and William W. Behrens III (1972)
The Limits to Growth, Universe Books
- Melton, Paula and Tristan Roberts (2011)
Passive House Schism Leaves US in Limbo, Green Source the Magazine of Sustainable Design, September 2011
- Menteth, Walter (2013)
Interview about Consort Road, SE15
- Merleau-Ponty, Maurice (1962)
Phenomenology of Perception, Nabu Press (2011 edition)
- Mertins, Detlef (2011)
Modernity Unbound: Other Histories of Architectural Modernity (Architecture Words), Architectural Association Publications
- Meyerowitz, Joel and Colin Westerbeck (2001)
Bystander: A History of Street Photography, Little, Brown & Company
- Mieg, Harald A. and Klaus Töpfer (2013)
Institutional and Social Innovation for Sustainable Urban Development, Routledge
- Miller, Daniel (2010)
Stuff, John Wiley & Sons
- Miller, Laura J. (2014)
Denatured domesticity: an account of femininity and physiognomy in the interiors of Frances Glessner Lee, from *Negotiating Domesticity: Spatial Productions of Gender in Modern Architecture*, by Hilde Heynen and Gülsüm Baydar, Routledge
- Minton, Anna (2009)
Ground Control: Fear and happiness in the twenty-first-century city, Penguin

- Monmonier, Mark (1991)
How to Lie with Maps, University of Chicago Press
- Montagu, Ashley (1973)
Darwin: Competition and Cooperation, Praeger
- Morgan, Gareth (1983)
Beyond Method: Strategies for Social Research, Sage Publications
- Mortimer, Benjamin (2015)
How Balfron Tower tenants were 'decanted' and lost their homes, East End Review 24 March 2015
<http://www.eastendreview.co.uk/2015/03/24/balfron-tower-poplar-harca/>
- Moss, Stephen (2011)
The Death of a Housing Ideal, The Guardian, 4 March 2011
- Mossessian, Michel (2013)
UEL Evening Guest Lecture Series, January 2013
- Mukherji, Subha (2013)
Thinking on Thresholds: The Poetics of Transitive Spaces, Anthem Press
- Mumford, Eric (2000)
The CIAM Discourse on Urbanism, 1928-1960, MIT Press
- Nakagawa, Miho (2010)
The Production of Multi-layered Space in Japanese Spatial Representations Between 2D and 3D, University College London
- The National Affordable Homes Agency (2007)
721 Housing Quality Indicators, (HQI) Form version 4
- Neal, John (2011)
Improving Housing Quality, Unlocking the Market, RIBA Publications
- Newman, Oscar (1972)
Defensible space; crime prevention through urban design, Macmillan
- Newman, Oscar (1996)
Creating Defensible Space, Institute for Community Design Analysis, PD&R, US Department of Housing and Urban Development, Office of Policy Development and Research
- Nicholas, Dean (2010)
In Pictures: Strata Tower, Residential Skyscraper At Elephant And Castle, The Londonist, 18 March 2010
http://londonist.com/2010/03/a_tour_around_the_strata_tower.php, last accessed May 2014
- Nijman. J. (2009)
A Study of Space in Mumbai's Slums, Department of Geography & Regional Studies, Urban Studies Program, University of Miami, USA, Received: March 2009; revised June 2009
- Nisson, J. D. Ned and Gautam Dutt (1985)
The Superinsulated Home Book, John Wiley & Sons

- Nitschke, Günter (1993)
From Shinto to Ando – Studies in Architectural Anthropology in Japan,
Academy Editions Ernst & Sohn
- Nugent, Chris and Juan Carlos Augusto (2006)
Smart Homes and Beyond, Assistive Technology Research Series, 19
- O'Reilly, David (July 2013)
Conversations at Keeling House, July 2012, 2013 and 2014
- Oberweis, Carine and Sarah Sandison (2007)
Ranulf Road PassivHaus: buildings in the UK, PHPP (Passive House Planning Package) bere-architects
- Odin, Steve (1995)
Derrida and the Decentered Universe of Ch'an/Zen Buddhism, from Japan in Traditional and Postmodern Perspectives, edited by Charles Wei-Hsun and Steven Heine, State University of New York Press
- Olcayto, Rory (2010)
Localism can, and does, improve the quality of the built environment, The Architects' Journal, 29 July 2010
- Oliver, Mark (2012)
Why Housing needs a Lifespan Requirement, Building 4 Change, #1497, 4 October 2012
<http://www.building4change.com/article.jsp?id=1497#.Vo2hwVdRF6A>, last accessed May 2014
- Osband, Linda (1991)
Victorian House Style, David & Charles Books
- Österreichisches Institut (2009)
Passivhaus-Bauteilkatalog: Details for Passive Houses: A Catalogue of Ecologically Rated Constructions, Springer Vienna Architecture
- Pallasmaa, Juhani (1996)
The Eyes of the Skin: Architecture and the Senses, John Wiley & Sons Ltd
- Pallasmaa, Juhani (2009)
The Thinking Hand, Wiley & Sons
- Papadakēs, Alexandra & Andreas Papadakis (2005)
Zaha Hadid: testing the boundaries, Papadakis Publisher
- Pascal, Blaise (1669)
Pensée 22, Pensées by Blaise Pascal, Pocket Publisher (2004 edition)
- Pawlyn, Michael (2011)
Biomimicry in Architecture, RIBA Publishing
- Peabody
History of our Estates
<http://www.peabody.org.uk/about-us/our-story/our-history/history-of-our-estates#abbeyorchard>, last accessed 14 March 2013

- Pellegrini, Ann (2011)
Movement, from *Material Religion: The Journal of Objects, Art and Belief*,
Volume 7, Number 1
- Pérez-Gómez, Alberto (2006)
Built Upon Love – architectural longing after ethics and aesthetics, MIT Press
- Perks, Sydney (2007)
Residential Flats, The rise of mansion blocks, tenements and other city dwellings (1905), JM Classic Editions
- Pessina, Gloria (2012)
From the slum to the house: towards a less polarised Mumbai? Politecnico di Milano, Dipartimento di Architettura e Studi Urba
- Pilgrim, Richard B. (1950)
Intervals in Space and Time, from *Japan in Traditional and Postmodern Perspectives*, edited by Charles Wei-Hsun and Steven Heine, State University of New York (1995 edition)
- Pinker, Steven (2003)
The Blank Slate: The Modern Denial of Human Nature, Penguin Books
- Pitman, Tim and Luke Tozer (2015)
Homes: Houses and Housing, UEL Evening Guest Lecture Series, February 2015
- Planning Portal
Change of Use
<http://www.planningportal.gov.uk/permission/commonprojects/changeofuse>
Last accessed 10/09/15
- Polimeni, John M. and Kozo Mayumi, Mario Giampietro, Blake Alcott (2007)
The Jevons Paradox and the Myth of Resource Efficiency Improvements, Earthscan Research Editions
- Portakabin (2010)
A Practical Guide to Breeam: An essential tool for sustainable development, design and construction PK7492/04/10
- Powell, Kenneth (2011)
21st Century London: the New Architecture, Merrell
- Pressman, Andrew (2012)
Designing Architecture: The Elements of Process, Routledge
- Pressman, Norman (2005)
The Idea of Winterness: Embracing Ice and Snow, from *Sense of the City – An Alternate Approach to Urbanism*, Lars Müller Publishers
- Price, Cedric
Works, 1952-2003: A Forward-minded Retrospective, Architectural Association, 2015
- Qian Yi (2007)
Circular Economies, from *Climate Action*, edited by Natalia Marshall, SDI Sustainable Development International

- Quatremère de Quincy, Antoine (1832)
Dictionnaire historique d'architecture, le Clere
- Raban, Jonathan (1974)
Soft City, Picador (2008 edition)
- Ramtv, Aljosa Dekleva, Manuela Gatto, Tina Gregoric, Robert Sedlak, Vasili Stroumpakos (2002)
Negotiate My Boundary!, Architectural Association Design Research Laboratory
- Rao, V. (2006)
Slum as theory: the South/Asian city and globalization, International Journal of Urban and Regional Research, 30.1, 225–32
- Rayner, Alan D.M. (2010)
Inclusionality and Sustainability – attuning with the currency of natural energy flow and how this contrasts with abstract economic rationality, Department of Biology and Biochemistry, University of Bath
- Read, Stephen (2012)
Meaning and Material: Phenomenology, Complexity, Science and 'Adjacent Possible' Cities, from *Complexity Theories of Cities Have Come of Age – An Overview with Implication to Urban Planning and Design*, by Portugali J. et al, Springer
- Reed, Bill (2007)
Integrative Systems Thinking and Regeneration, from *Sustainable Healthcare* by Robin Guenther and Gail Vittori, Wiley
- Reflect (2003)
New Commitment: In Architecture, Art and Design, NAI publishers
- Relph, Edward (1985)
Geographical Experiences and Being-in-the-World: The Phenomenological Origins of Geography, from *Dwelling, Place and Environment*, Krieger Publishing Company (2000 edition)
- Rendell, Jane, Jonathan Hill, Mark Dorrian and Murray Fraser (2007)
Critical Architecture, Routledge
- Rettler, Tim (GLA) (2013)
UEL Evening Guest Lecture Series, September 2013
- Rhys-Taylor, Alex (2010)
Coming to Our Senses: A Multisensory Exploration of Class and Multiculture in East London, Goldsmiths College UCL, Sociology Department (PhD)
- RIBA Professional Services (2008)
Consort Road, Research and Development Symposium 2008: Space at Home
- RIBA Research Symposium 2007
Reflections on Practice: capturing innovation and creativity
14: Low rise, high density urbanism at Donnybrook Quarter

RIBA Research Symposium 2008

Space at Home, 05: Case Study: Consort Road, Peckham

<https://www.architecture.com/Files/RIBAProfessionalServices/ResearchAndDevelopment/Symposium/2008/WalterMenteth.pdf>, last accessed winter 2012

RIBA (2013)

Without Space + Light, RIBA Publications (Homewise)

Rifkin, Jeremy (2014)

Zero Marginal Cost Society, Palgrave Macmillan Trade

Richardson, Katherine, Will Steffen and Diana Liverman (2011)

Climate Change: Global Risks, Challenges and Decisions, Cambridge University Press

Roaf, Susan and Fergus Nicol, Michael Humphreys (2012)

Adaptive Thermal Comfort: Principles and Practice, Earthscan

Robbins, Edward (2000)

Thinking Space/ Seeing Space: Thamesmead Revisited. pp 29-35 Urban Design International (1996) Miles, Malcolm, Tim Hall and Ian Borden, (eds), *The City Cultures Reader*, Routledge

Roberts, Elizabeth (1995)

Women's Work, 1840-1940, Cambridge University Press

Roberts, Marion (1991)

Living In A Man Made World: Gender Assumptions in Modern Housing Design, Routledge

Roberts-Hughes, Rebecca (2011)

The Case for Space – The Size of England's New Homes, RIBA Publications (Homewise)

Roberts-Hughes, Rebecca (2013)

City Health Check – how design can save lives and money, RIBA Publications

Robinson, Ken (2011)

Out of Our Minds: Learning to be Creative, Capstone

Rose, Nikolas and Peter Miller (2010)

Political power beyond the State: problematics of government, The British Journal of Sociology Special Issue: The BJS: Shaping sociology over 60 years, Volume 61, Issue Supplement s1, pages 271–303, January 2010

Roudman, Sam (2013)

Bank of America's Toxic Tower New York's "greenest" skyscraper is actually its biggest energy hog, New Republic, July 2013
<https://newrepublic.com/article/113942/bank-america-tower-and-leed-ratings-racket>, last accessed May 2014

Roy, Ananya (2011)

Slumdog Cities: Rethinking Subaltern Urbanism, Volume 35.2 March 2011 223–38 International Journal of Urban and Regional Research

- Roys, Mike, Maggie Davidson and Simon Nicol, BRE (2010)
The Real Cost of Poor Housing, BRE Press
- RSMeans (2011)
Green Building: Project Planning & Cost Estimating, John Wiley & Sons
- Sadler, Simon (2005)
Archigram: Architecture Without Architecture, MIT Press
- St Arroman, Claude (1989)
The Physical and the Intellectual: a Study on Sensory Perception,
 unpublished Degree Essay, South Bank Polytechnic, Degree Thesis
- Saunders, Thomas (2002)
The Boiled Frog Syndrome: Your Health and the Built Environment, John Wiley & Sons
- Savage, Nathan (2014)
Fenestration frustrations – Daylight in Architecture, Design Arabia, 18 February 2014
- Schafer, R. Murray (1985)
Acoustic Space, from *Dwelling, Place and Environment*, Krieger Publishing Company (2000 edition)
- Schafer, R. Murray (2005)
Soundscape, from *Sense of the City – An Alternate Approach to Urbanism*, Lars Müller Publishers
- Schivelbusch, Wolfgang (1995)
Disenchanted Night: The Industrialization of Light in the Nineteenth Century, University of California Press
- Schmidt, Robert and Simon Austin (2016)
Adaptable Architecture: Theory and Practice, Routledge
- Schneider, Tatjana and Jeremy Till (2007)
Flexible Housing, Routledge
- Schoenauer, Norbert (1981)
6000 years of housing, Garland STPM Press
- Schuldenfrei, Robin (2012)
Atomic Dwelling: Anxiety, Domesticity and Postwar Architecture, Routledge
- Schumacher, Patrick (2012)
The Autopoiesis of Architecture, Vols. I&II, John Wiley & Sons
- Schwartz, Dona (1989)
Visual ethnography: Using photography in qualitative research, Qualitative Sociology, June 1989, Volume 12, Issue 2, pp 119–154
- Seamon, David (1979)
A Geography of the Lifeworld: Movement, Rest and Encounter, Routledge Revivals (2015 edition)

- Seamon, David and Robert Mugerauer (1985)
Dwelling, Place and Environment, Krieger Publishing Company
- Sefaira (2013)
The Top Five Ways an Architect Can Drive Sustainability, SCO200C-01
- Sennett, Richard (1970)
The Uses of Disorder: Personal Identity and City Life, Penguin Books
- Sennett, Richard (1977)
The Fall of Public Man, W. W. Norton & Company
- Sennett, Richard (1992)
The Conscience of the Eye: The Design and Social Life of Cities, W. W. Norton & Company
- Sennett, Richard (1994)
Flesh and Stone: The Body and the City in Western Civilization, Faber and Faber
- Sennett, Richard (2008)
The Public Realm, Quant, London School of Economics (unpublished)
- Seymour, John (2003)
The Self-sufficient Life and how to Live it: The Complete Back-to-Basics Guide, DK Publications
- Shakunle, Lere (2013)
Transfigural Mathematics, LAP Lambert Academic Publishing
- Shaw, Martin (1995)
The development of 'common risk' society: a theoretical overview, paper delivered at seminar on 'Common risk society', Garmisch- Partenkirchen
- Shonfield, Katherine (2000)
Walls Have Feelings: Architecture, Film and the City, Routledge
- Shonfield, Katherine and muf architects (2001)
Purity and Tolerance, from *architecture – the subject is matter*, edited by Jonathan Hill, Routledge
- Sibley, David (2001)
Comfort, Anxiety and Space, from *architecture – the subject is matter*, edited by Jonathan Hill, Routledge
- Siskin, John (2011)
Photographing Architecture: Lighting, Composition, Postproduction, and Marketing Techniques, Amherst Media
- Sloterdijk, Peter (2001, first published in German 1998)
Spheres, Volume I: Bubbles – Microspherology, translated by Wieland Hoban, MIT Press
- Smith, R. E. (2010)
Quantifying eco-architecture, Eco-Architecture III, Integrated Technology in Architecture Center, School of Architecture, University of Utah, USA

- Smithson, Alison and Peter Smithson (2001)
The Charged Void: Architecture, Monacelli Press
- Soja, Edward W. (1989)
The Socio-spatial Dialectic, Verso
- de Solà-Morales, Ignasi (1996)
Differences – Topographies of Contemporary Architecture, MIT Press
- Singhal, Sumit (2011)
Strata SE1 Tower in UK by BFLS Architects designed using MicroStation,
AECCafé April 15th, 2011
<https://www10.aeccafe.com/blogs/arch-showcase/2011/04/15/strata-se1-in-elephant-castle-uk-by-bfls-architects/>, last accessed July 2013
- Sng, Paul (2017)
Dispossession: The Great Social Housing Swindle (film documentary)
- Solnit, Rebecca (2001)
Wanderlust, Verso Publications
- Sommer, Robert (1969)
Personal Space: The Behavioral Basis of Design, Spectrum Books
- Sontag, Susan (1977)
On Photography, St Martins Press
- Southwark Council
Local Development Scheme
<http://www.southwark.gov.uk/planning-and-building-control/planning-policy-and-transport-policy/local-development-scheme>, last accessed March 2012
- Southwark Council
Caroline Gardens, Conservation Area Appraisal
file:///C:/Users/User/Downloads/100712_Caroline_Gardens_Appraisal_compressed.pdf, last accessed June 2013
- Southwark Council
Castle House 2-20 Walworth Road, London SE1 6SP: Application Summary
ref 05/AP/2502, Tuesday 29 November 2005
http://planbuild.southwark.gov.uk:8190/online-applications/applicationDetails.do?activeTab=summary&keyVal=_STHWR_DCAPR_9519846, last accessed May 2014
- Southwark Notes (2011)
A Different Strata, 21 January 2011
<http://southwarknotes.wordpress.com/our-longer-writings/a-different-strata/>, last accessed May 2014
- Southwark Planning Committee (2004)
45-71 Consort Road, Development Control report 09.11.2004
<http://moderngov.southwark.gov.uk/Data/Planning%20Committee/20041109/Agenda/Item%2017%20-%2041%20-%2075Consort%20Road%20SE15%20-%20report.pdf>, last accessed March 2012

- Spencer, Stephen (2010)
Visual Research Methods in the Social Sciences: Awakening Visions, Routledge
- Spengler, JD and K Sexton (1983)
Indoor Air Pollution: A Public Health Perspective, Building Science, July 1983, Vol 221 no. 4605
- Star, Susan Leigh (2010)
This is Not a Boundary Object: Reflections on the Origin of a Concept, Science Technology Human Values, 2010 35: 601, DOI: 10.1177/0162243910377624
- Star, Susan Leigh and Griesemer, James R. (1989)
Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39, Social Studies of Science, Volume 19, Issue 3 (Aug., 1989), 387-420
- Stavrides, Stavros (2016)
Common Space: The City as Commons, Zed Books Ltd
- Steadman, Philip (2014)
Building Types and Built Forms, Matador
- Steel, Carolyn (2009)
Hungry City: How Food Shapes Our Lives, Vintage
- Steffen, Will et. al. (2004)
Global Change and the Earth System: A Planet Under Pressure, Springer
- Stevens, Quentin (2007)
The Ludic City: Exploring the Potential of Public Spaces, Routledge
- Strata SE1
Championing Sustainability
<http://inhabit.stratalondon.com/tower/sustainable-living>, last accessed 2013
- Strayer, David L., Mary E. Power, William F. Fagan, Steward T. A. Pickett and Jayne Belnap (2003)
A Classification of Ecological Boundaries, Vol. 53 No. 8, BioScience
- Style, Oliver (2014)
Passive Progressive (LarixHaus)? CIBSE Journal 14/24 (2014)
- Summers, David (2009)
The Archaeology of Appearance as Paradox, from *Paradoxes of Appearing – Essays on Art, Architecture and Philosophy*, Müller Publishers
- Sunstein, Cass R. (2008)
Infotopia: How Many Minds Produce Knowledge, Oxford University Press
- Surowiecki, James (2005)
The Wisdom of Crowds: Why the Many Are Smarter Than the Few, Abacus
- Sussman, Ann and Justin B. Hollander (2015)
Cognitive Architecture: Designing for How We Respond to the Built Environment, Routledge

- Sutcliffe, G. Lister (1909)
The Principles And Practice Of Modern House Construction, Hansebooks
(2017 edition)
- Svare, Helge (2006)
Body and Practice in Kant, Springer
- Tabor, Philip (2001)
I am a Videocam, from *The Unknown City – Contesting Architecture and Social Space*, MIT Press
- Taleb Nassim Nicholas (2008)
The Black Swan: The Impact of the Highly Improbable, Penguin
- Tanizaki, Junichirō (1933)
In Praise of Shadows, Vintage Books (2001 edition)
- Tarn, John Nelson (1973)
Five Per Cent Philanthropy: An Account of Housing in Urban Areas between 1840 and 1914, Cambridge University Press
- Teddlie, Charles and Abbas Tashakkori (2008)
Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences, SAGE Publications
- Teyssot, Georges (2004)
Prosthetic Architecture: an Environment for the Techno-body, materialverlag
- Thelen, Esther (1996)
A Dynamic Systems Approach to the Development of Cognition and Action, MIT Press
- The Twentieth Century Society (2010)
Robin Hood Gardens Re-Visions, The Twentieth Century Society
- Thompson, Emily Ann (2004)
The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900-1933, MIT Press
- Thomson, John (1877)
Victorian London Street Life in Historic Photographs, Dover Publications Inc.
(2000 edition)
- Thorpe, Ann (2012)
Architecture and Design Versus Consumerism: How Design Activism Confronts Growth, Earthscan
- Tidmarsh, Gary (2015)
Talk to UEL students about technicalities encountered by Levitt Bernstein during their refurbishment of Brunswick Centre (Patrick Hodgkinson, 1972, Bloomsbury) and of Alexandra Road (Neave Brown, 1978, Swiss Cottage), in February 2015.
- Till, Jeremy (2013)
Architecture Depends, MIT Press

- Torres Moskovitz, Julie (2013)
The Greenest Home: Superinsulated and Passive House Design, Princeton Architectural Press
- Toulmin, Stephen Edelston (1990)
Cosmopolis: The Hidden Agenda of Modernity, University of Chicago Press
- Tri Minh Ly (2011)
Reinterpretation of the Metabolist Movement: Collective Forms and the Contemporary Idea of Changes in Architecture, University of Houston
- Trotman, P. and C. Sanders, H. Harrison (2004)
Understanding dampness – effects, causes, diagnosis and remedies, BRE Press
- Turner, Carl (2012)
Slip House, Green Sky Thinking, Clapham, September 2012
- Turvey, Malcolm (2008)
Doubting Vision: Film and the Revelationist Tradition, Oxford University Press
- United States Green Building Council (USGBC)
Leadership in Energy and Environmental Design (LEED)
<http://www.usgbc.org/leed>, last accessed June 2017
- University of the West of England (May 2011)
Is BREEAM Based on Sound Evidence? Debate
<https://www.youtube.com/watch?v=11aU7HGLXTU>, last accessed March 2013)
- Unwin, Simon (2000)
An Architecture Notebook: Wall, Routledge
- Unwin, Simon (2007)
Doorway, Routledge
- Unwin, Simon (2013)
Analysing Architecture, Routledge
- Unwin, Simon (2014)
Twenty-Five Buildings Every Architect Should Understand, Routledge
- Urban 75 (2011)
The rarely spinning turbines of the Strata Tower, 8 December 2011
<http://www.urban75.org/blog/the-rarely-spinning-turbines-of-the-strata-tower-south-london/>, last accessed May 2014
- Urban Lab (2015)
The Case of Robin Hood Gardens, 22 June 2015, UCL
- URS Corporation (2005)
Environmental Statement Non-Technical Summary: Castle House, Multiplex Living
<http://planbuild.southwark.gov.uk/documents/?casereference=05/AP/2502&system=DC>

- Vaizey, Hester (2014)
Born in the GDR: Life in the Shadow of the Wall, Oxford University Press
- Van der Graaf, Peter (2009)
Out of Place?: Emotional Ties to the Neighbourhood in Urban Renewal in the Netherlands and the United Kingdom, Amsterdam University Place
- Van der Valk, Arnold (2011)
Philosophy of Ecology, edited by Kevin deLaplante, Bryson Brown and Kent A. Peacock, Elsevier
- Vaneigem, Raoul (1967)
Revolution of Everyday Life, Rebel Press (1983 edition)
- van Houtum, Henk, Oliver Kramsch and Wolfgang Ziefhofer (2004)
B/ordering Space, Ashgate
- Vaughan, Laura and Ilaria Geddes (2009)
Urban form and deprivation: a contemporary proxy for Charles Booth's analysis of poverty, Radical Statistics 99
- Vaughan-Williams, Nick (2009)
Border Politics: The Limits of Sovereign Power, Edinburgh University Press
- Veitch, J.A. (2001)
The Physiological and Psychological Effects of Windows, Daylight, and View at Home, Institute for Research in Construction
- Venturi, Robert (1984)
Complexity and Contradiction in Architecture, Museum of Modern Art Papers on Architecture
- Virilio, Paul (1983)
The Lost Dimension, MIT Press (1991 edition)
- Virilio, Paul and Bertrand Richard (2012)
The Administration of Fear, MIT Press
- Vitrivius (circa 15BC)
The Ten Books of Architecture, translated by Morris Hicky Morgan, Dover Edition (1960 edition)
- Wacks, Raymond (2008)
Law: A Very Short Introduction, Oxford University Press
- Wainwright, Oliver (2011)
Wardroper House by Sarah Wigglesworth Architects and Arch Street by S333, Elephant & Castle, South London, Building Design, 27 July 2011
- Wainwright, Oliver (2013)
'Prison-like' student housing wins Carbuncle Cup for worst building, The Guardian, 29 August 2013
- Wainwright, Oliver (2014)
Horror storeys: the 10 worst London skyscrapers, The Guardian, 28 April 2014

- Walford, Edward (1872)
Old and New London: A Narrative of Its History, Its People, and Its Places: Westminster and the Western Suburbs (Vol.III), Cassell Petter & Glapin
- Walford, Edward and Walter Thornbury (1878)
Old and New London: The Southern Suburbs (Vol.VI), Publisher unknown
- Walsh, Victoria (2001)
Nigel Henderson: Parallel of Life and Art, Thames & Hudsons
- Wang, Ucilia (2014)
How to Bring the Sun Indoors, LED Bulbs Can Mimic Natural Light's Changing Hues to Help Maintain Our Daily Rhythms, The Wall Street Journal, 28 September 2014
- Wargockj, John (April 2010)
Green Building: Public Regulation or Private Certification? (LEED – Leadership in Energy and Environmental Design), Yale University, Environmental Politics and Law, Lecture 21
- Watson, Donald (1977)
Designing & building a solar house: Your place in the sun, Garden Way Publications
- Webb, Steve (2015)
Engineering in Architecture: Some principles to build by, UEL Evening Guest Lecture Series, January 2015
- Weintraub, Jeff and Krishan Kumar (1997)
Public and Private in Thought and Practice: Perspectives on a Grand Dichotomy, University of Chicago Press
- Weizman, Eyal (2012)
Hollow Land: Israel's Architecture of Occupation, Verso
- Westen, Drew (1985)
Self And Society: Narcissism, Collectivism, and the Development of Morals, Cambridge University Press
- Whitehead, Christine (2009)
Land Supply and the Planning System in *Who should build our Homes? – Six experts challenge the status quo*, CABE
- Wikipedia
Glossary of architecture
https://en.wikipedia.org/wiki/Glossary_of_architecture, last accessed June 2017
- Wilkins, Hugh (2008)
The Integration of the Pillars of Sustainable Development: A Work in Progress, McGill International Journal of Sustainable Development Law & Policy, Vol. 4, No. 2, 2008
- Willson, Nick (2014)
Climatic Dwelling, UEL Evening Guest Lecture Series, February 2014

- Wigglesworth, Sarah and Jeremy Till (2001)
9/10 Stock Orchard Street: A Guidebook, Bank of Ideas
- Wolff, Kurt H. (1950)
The Sociology of Georg Simmel, The Free Press
- Wood, Denis (2010)
Rethinking the Power of Maps, Guilford Press
- Wood, John (2007)
Designing for Micro-utopias; thinking beyond the possible, Ashgate
- Wood, P. and C. Taylor (2004)
Big ideas for a small town: the Huddersfield creative town initiative, Local Economy, 19, 380-395.
- Woodman, Ellis (2013)
Carbuncle Cup winner 2013: A triumph for the dark side, Building Design, 29 August 2013
- Yeang, Ken (2009)
EcoMasterplanning, Wiley
- Yorke, FRS (1934)
The Modern House, the Architectural Press
- Zaiser, Rainer (1988)
Le pli: Deleuze et le Baroque, Editions de Minuit
- Zardini, Mirko (2005)
Sense of the City: An Alternate Approach to Urbanism, Canadian Centre for Architecture, Lars Müller Publishers
- Zero Carbon Hub and AECOM (2012)
Informing the Part L 2013 consultation: Fabric Energy Efficiency for Part L 2013, Worked Examples and Fabric Specifications, February 2012
- Zhu Jianfei (2011)
Robin Evans in 1978: between social space and visual projection, Taylor and Francis online