The Value of Design | How local authorities can use design to improve residents quality of life in houses of multiple occupation

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Can the analysis of Japan and South Korea's 'share houses' help to improve our awareness of what constitutes as 'good design' when designing environments which are to be shared by strangers?

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Abstract

Well-designed housing is acknowledged to be a significant factor in helping to improve one's quality of life, yet current regulations for houses in multiple occupation (HMOs) do not take this into account. Despite being the most common form of shared accommodation, most HMOs are not designed with the housing needs of sharers in mind, but rather created by modifying existing housing stock originally intended for families. Research has revealed that the inconsiderate modification of existing stock can exacerbate some the challenges of sharing accommodation, disrupting the balance between privacy and communality, which can in turn negatively impact resident's health and well-being.

Despite these findings, little attention has been given to the design of shared accommodation in the UK and consequently there is a lack of understanding regarding what constitutes as 'good design' when designing houses to be shared by strangers. However, a new housing typology has recently emerged in Japan and South Korea, called the 'share house,' specifically designed with the housing needs of sharers in mind.

This paper analyses a series of share houses to identify what constitutes as 'good design' when designing a house to be shared by strangers, looking principally at how the architects have designed the physical environment to negotiate the balance between privacy and communality. It has then investigated how existing housing stock, before and after modification, compares to 'good design' standards, observing that family houses have the potential to aid successful sharing, provided that they are not modified too significantly. Subsequently, the paper recommends implementing more rigorous design guidelines for the conversion of family homes into HMOs, that will limit the ability for landlords to convert communal rooms into bedrooms.

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1.0 **Introduction**

1.1 Setting the Scene | Why the interest in sharing?

"The increased pressure on housing markets across the country, as the result of lack of supply, patterns of new household formation, persistent affordability pressures, and reductions in housing and other welfare benefits make it inevitable that more people will move into shared accommodation as the most financially viable solution to their housing needs."

(Batty *et al.*, 2015: ix-x)

1.1 Setting the Scene | Why the interest in sharing?

The UK currently lacks sufficient affordable housing and is struggling to meet demand, in 2014 only 140,000 new homes were built, just over half of what was required (Crisis, 2016). What's more, the disparity between supply and demand has resulted in property prices rising disproportionately to people's incomes, particularly in London and the South East (The Guardian, 2015). This has resulted in many individuals, particularly single young people, having to share accommodation for longer as buying property is rarely an option and renting one bed apartments is often extremely expensive.

Housing Benefit rules have been adjusted to reflect these conditions and in 2011 the Shared Accommodation Rate (SAR) was extended from under-25 to under-35 (House of Commons, 2014). The SAR applies to single people living in the private rented sector (PRS), and caps the amount of housing benefit they can receive to align with the average rate for *"renting a single room in a shared house"* ("SAR for under 35s", 2017). Extending the SAR has forced increasing numbers of single people to share accommodation with strangers as their only way to avoid becoming homeless (Crisis, 2014; Rugg *et al.*, 2011; Rugg, 2008).

The most common type of shared accommodation exists in the form of houses of multiple occupancy (HMOs) in the private rented sector (PRS). HMOs are arguably a vital component of the UK housing market, yet there are significant concerns that living in HMOs can be detrimental to a resident's health and well-being. Research shows that people living in HMOs are eight times more likely to suffer from mental health problems than the general population (Shaw *et al.*, 1998).

However, despite these concerns, HMOs remain the only option for many single young people and are predicted to become increasingly relied upon in the future (Barratt *et al.*, 2012; Batty *et al.*, 2015), which highlights the importance of improving the affiliation between HMOs and residential well-being.

1.2 Research Motivation | The problem with sharing

"Existing housing stock in the private rented sector is rarely tailored towards the housing needs of sharers. This is manifest in various architectural deficiencies.... compromising privacy, security, and one's sense of integration into the household."

(Heath 2011: 11)

1.2 Research Motivation | The problem with sharing

As mentioned in the previous section, there are significant concerns that living in HMOs may be detrimental to people's health and well-being. With this in mind, this section seeks to discuss how poor quality, and inconsiderate architectural design may be contributing to this correlation.

Barratt *et al.*, (2012: 40) claims that "*HMOs may pose a greater threat to the mental health of residents than other forms of housing tenure because of greater insecurity, less control and poorer social networks.*" These issues are generally attributed to the inappropriate matching of tenants, poor quality accommodation and inadequate management (DCLG, 2015; Kemp, 2011). However, new research has revealed that, poor quality architectural design is also a contributing factor (Heath *et al.*, 2017).

Most HMOs in the UK are located within existing housing stock originally designed for family use, so consequently, shared households rarely benefit from a physical environment that has been designed with their needs in mind (Roberts, 2013). Heath *et al.*, (2017) claim that when landlords reconfigure houses to make them more 'appropriate' for adults of equal status, they rarely do so to enhance the space but rather as a means of monetary gain. It is commonplace for living rooms to be converted into additional bedrooms to maximise on rent, with landlords failing to appreciate the impact that such modifications may have on the dynamics of the house.

Research has shown that modifications such as these, can exacerbate feelings of loneliness, lack of control and insecurity, all of which can threaten one's mental stability (Heath *et al.*, 2017; Giddens, 1990; Ebert, 2017). Moreover, research has identified that the physical environment can have a significant impact on the likely success of a shared living arrangement, with increased communal space generally leading to more positive housing outcomes (Heath *et al.*, 2017). Despite these significant findings, there are no design guidelines for landlords converting their properties into HMOs and furthermore there is a lack of understanding regarding what physical design features can help to aid successful

sharing at the scale of a single dwelling (Heath *et al.*, 2017; Batty *et al.*, 2015).

Heath *et al.*, (2017: 106) argues that "*very little consideration appears to have been given by architects to the needs of households that do not conform to conventional models of the family.*" This may be true for the UK; however, a new housing typology has recently emerged in Japan and South Korea called the 'share house,' specifically designed with the housing needs of sharers in mind ("LT Josai", 2013).

Through analysing a series of 'share houses' and picking out reoccurring themes, this paper hopes to improve our understanding of what constitutes as 'good design' with regards to designing properties that will help aid successful sharing. It will then go onto examine some typical examples of HMO reconfigurations in the UK, highlighting how they fail to match up to 'good design,' therefore illustrating the need for better guidelines to ensure landlords reconfigure properties to facilitate successful sharing rather than hinder it.

2.0 **Literature Review**

2.1 Introduction to Literature

Despite shared accommodation becoming increasingly common in the UK, there is a lack of robust research on sharing amongst young people and little understanding of what factors enable shared housing to work (Heath, 2014; Batty *et al.*, 2015). However, there are a handful of authors who have turned their attention to shared housing in recent years, most notably; Heath & Kenyon, 2001; Kenyon & Heath, 2001; Heath, 2004; Rugg *et al.*, 2011; Batty *et al.*, 2015 and Heath *et al.*, 2017.

This literature will begin by looking at the relationship between living in HMOs and poor mental health, observing that many of the issues arise from sharing with strangers, rather than sharing in itself. It will then go on to explore, how sharing accommodation with strangers challenges the conventional notion of what a 'home' is , and finally will examine how to overcome some of these challenges, acknowledging the importance of relationship and achieving the right balance between privacy and communality.

2.2 HMOs in the PRS | 'Friendly' shares vs 'stranger' shares

"HMOs come in a variety of forms. The most familiar are traditional bedsit type accommodation, where unrelated tenants share basic amenities, and shared houses, where a group of unrelated people rent a property under a single tenancy agreement." (DCLG, 2015: 7)

Rugg *et al.*, (2011) has often described these two groups as 'friendly' shares and 'stranger' shares. Proposing that 'friendly' shares are intentional and usually consist of a group of friends sharing a house or flat under a single tenancy agreement. Whilst 'stranger' shares are less intentional, and most commonly refer to renting a *"room in a house where the other residents are unknown at the time of the move"* (Rugg *et al.*, 2011:8).

'Stranger' shares can emerge in a variety of circumstances, they are often the only option for single young people in receipt of the shared accommodation rate (SAR), however they are also acknowledged to be a convenient and flexible housing option for mobile young professionals (Rugg *et al.*, 2011; Heath & Kenyon, 2001; Kenyon & Heath, 2010).

Literature frequently states that the 'success' of a shared household is determined by whether it is intentional or not, suggesting that it is only 'friendly' shares that lead to positive housing outcomes (Kemp & Rugg, 1998; Kemp, 2011; Vickery & Mole, 2007). However, a new research project called 'Under the Same Roof' has found this distinction to be unreliable, with their research revealing that similar challenges emerged irrespective of context, most notably balancing the needs of the individual with those of the collective (Heath *et al.*, 2017).

2.3 The Problem with HMOs | HMOs and mental health

"HMOs may pose a greater threat to the mental health of residents than other forms of housing tenure because of greater insecurity, less control and poorer social networks"
(Barratt et al., 2012: 40)

Research has identified a strong correlation between living in HMOs and poor mental health, generally relating it to a lack of control, feelings of insecurity and poor social networks, all of which, contradict what we believe a 'home' should be (Shaw et al., 1998; Barratt, 2011; Barratt *et al.*, 2012).

Heath *et al.*, (2017) propose that such feelings are much more pertinent within 'stranger' shares compared to 'friendly' shares, with strong social bonds having the ability to overcome some of the challenges of sharing. This suggests that the problems associated with HMOs are perhaps more largely associated with sharing with strangers than sharing itself (Rugg *et al.*, 2011).

Rugg *et al.*, (2011) and Vickery & Mole, (2007), have both found that poor management can exacerbate some of these issues, observing that landlords who take a more active role in

property management can help to reduce household tensions. Furthermore, they discovered that allowing tenants to have more input regarding the selection of new occupants can have a huge impact on the likely success of that household.

Accommodation quality is also acknowledged to intensify some of the challenges associated with sharing, Barratt *et al.,* (2012) found that poor quality accommodation can lead to low self-esteem and feelings of insecurity, both of which are detrimental to one's mental health. In line with these findings, Unison (2014) proposes that low income SAR claimants are most susceptible to developing mental health problems. Alongside having little choice regarding who they are sharing with, they are also exposed to the worst quality of accommodation (The Work & Pension Select Committee, 2014).

Whilst acknowledging that accommodation quality and appropriate matching of tenants is undoubtedly very important, this paper seeks to explore the more inherent challenges associated with sharing accommodation, those which can emerge even in ideal circumstances. It will look in particular at how sharing accommodation with strangers challenges the conventional concept of 'home' as a place a safety with one's family.

2.4 How Sharing Accommodation Challenges the Meaning of Home

From a theoretical perspective, sharing accommodation with strangers challenges the traditional ideas surrounding the concept of home. Davidoff & Hall (1987), Rybczynski (1988) and Saunders & Williams (1998), have all written about the conventional meaning of home, proposing that the 'home' is traditionally associated with privacy and family and is a safe place that provides refuge from the outside world. Furthermore, King (2004: 41) suggests that conventionally the home "*protects us from intrusion and unwanted attention.*" Therefore, allowing us to choose who we let into our personal life and who we do not.

"It is barely an exaggeration to suggest that in British society the private realm is constituted by the home, and the home is constituted by the private realm" (Saunders & Williams; 1998: 88).

Heath, *et al.*, (2017) claim that the boundaries between the public and private realm become less clear cut in shared households; with residents often feeling that they lack privacy and are being forced to share their personal space with people whom they wouldn't necessarily welcome into their private life. This is particularly problematic for individuals who are sharing with strangers who they have not chosen to live with, as is often the case for single young people claiming the shared accommodation rate. Rugg *et al.*, (2011), Green & McCarthy, (2015) and Ortega-Alcazar & Wilkinson, (2017), all propose that it is conditions such as these that can cause individuals to feel extremely vulnerable and insecure. What's more, research by Barratt *et al.*, (2012) revealed that forced social interaction can be detrimental to an individual's mental health.

2.5 The Importance of Privacy

It is thought that feelings of vulnerability and insecurity at 'home' can have a detrimental effect on an individual's sense of identity and personal well-being (Barratt, 2011; Heath *et al.*, 2017). Giddens (1990) and Saunders (1990) propose that unsatisfactory and unpredictable housing conditions affect one's ability to obtain 'ontological security;' a state of being in which one feels mentally stable and secure.

"Basic to a feeling of ontological security is a sense of the reliability of persons and things."
Giddens (1990: 92)

Ebert (2017) suggests that the unpredictable and precarious nature of living with strangers can make the achievement of 'ontological security' more challenging, as the boundaries between public and private realm become less black and white, so does one's sense of control over their surroundings. Heath *et al.*, (2017) argues that the presence of 'strangers' in the home, makes the facilitation of privacy within the boundaries of the home even more important, recommending that it is vital for people to have at least one room in which they feel secure and in control.

2.6 The Importance of Community

Whilst having a secure and private living environment is undoubtedly very important for one's mental health, King (2004) argues that stability in one's social sphere is equally vital, positing that successful shared living environments can in fact help individuals to feel more stable and secure in their self-identity. Family households are a good example of this, as though they undeniably have their challenges, they largely help individuals to feel secure and develop their own sense of identity (King, 2004).

Similarly, Heath *et al.*, (2017: 12) propose that *"all shared living arrangements are united by the centrality of everyday relationships to their success or failure. If relationships are good, sharing can work really well; if they are bad, shared housing can become a nightmare."*

Every shared household is composed of a unique combination of individual personalities, therefore making it inevitable that everyone will experience their shared living environment differently (Easthope *et al*, 2015). Luzia (2011) proposes that it is common for individuals to have contrasting ideologies and different expectations regarding what they want from their shared living environment, for example some may seek solitude, whilst others may thrive in social situations.

Smart *et al.* (2012), propose that the personal wellbeing and 'ontological security' of sharers is affected by their relationships with the housemates whom they so intimately share their private space. This perspective explains why research has often found 'friendly' shares to result in considerably more positive outcomes than 'stranger' shares (Rugg *et al.*, 2011). The strong relationships that exist amongst friends can help to overcome the feelings of loneliness and insecurity that often emerge when living with strangers (Kemp & Rugg, 1998).

However, further research has revealed that 'stranger' shares can often develop into friendships, which can lead to more positive housing outcomes (Heath, 2004). Nevertheless, this is inevitably not a given as relationships not only require work but also necessitate that people have similar expectations and desires. For this reason, it is common for housemates

to remain as acquaintances, co-existing but not relying on one another for support (Heath *et al.*, 2017). Moreover, Barratt *et al.*, (2012) argue that there are some instances in which the mixing of housemates may even be detrimental for those involved, particularly vulnerable individuals.

2.7 Facilitating Community | When strangers become friends

Morgan (2009) advises that two conditions are necessary for an acquaintance to become a friend; these being a high degree of knowledge and a high degree of contact. In 'stranger' shares such conditions are not necessarily a given, people often operate on different timescales and have little interaction with one another, especially when there is no communal living room. However, given that most house shares include some degree of communal space it is reasonable to assume that the chance of having no contact with your housemates is highly unlikely.

Research has shown that the more contact acquaintances have with one another, the more likely they are to develop deeper relationships and become friends (Heath, 2004). Similarly, Maffesoli (1996) also states that increased proximity can result in unintentional and unconventional friendships. However, it is important to note, that in some instances the development of friendships is virtually impossible, for instance, where tenants have been poorly matched and have very different expectations of what they want from their home environment (Heath *et al.*, 2017).

Whilst accepting that some people will likely never become friends, this section has highlighted that if 'stranger' shares are to have a possibility of developing into 'friendly' shares, the home environment needs to facilitate social interaction. Bearing this in mind, the following section will explore how the design of our physical environment can either help or hinder social interaction.

2.8 The Role of Architecture

"The physical environment, in particular, can have a big effect on the success of a sharing arrangement." Heath (2014)

Research has shown that *"achieving an appropriate balance between privacy and communality proved central to understanding if and how different shared households 'worked.'"* (Heath *et al.*, 2015). Privacy is vital, to feel safe and in control, whilst community is important to help mitigate feelings of loneliness and isolation.

Williams (2005) acknowledges that the physical environment can play a significant role in helping to achieve this balance, observing how co-housing communities are often strategically designed to create environments that both foster community and retain privacy. Similarly, purpose-built student accommodation is carefully designed to optimise the opportunity for student interaction whilst also respecting the importance of privacy and providing individuals with the option to withdraw from the collective.

However, given that most HMOs are located within existing housing stock and designed for family use, sharers rarely get to benefit from a physical environment designed with their needs in mind. As mentioned previously, living with strangers blurs the boundary between public and private realm, often leaving sharers feeling overwhelmed and lacking privacy, an issue Heath *et al.*, (2017) argue is exacerbated by using housing stock originally designed for families.

Whilst privacy may feel like a necessity in shared houses, Munro & Maddigan (1993) suggest that privacy plays a very different role in family households as the strong intimate relationships that exist between family members make the need for privacy less of a necessity. Furthermore, what may be deemed as intrusive behaviour amongst sharers, is often viewed as an act of care amongst family members (Morgan 1996).

What's more, it is common for landlords to reconfigure existing houses to create more

bedrooms, frequently turning living rooms into downstairs bedrooms (Figure 1). The 'Under the Same Roof' research project has revealed that modifications like these can significantly upset the balance between private and communal space, forcing residents to spend most of their time in their bedrooms and reducing the chance of them interacting like a 'normal' household, which in turn exacerbate feelings of loneliness and insecurity (Heath *et al.*, 2017). Whilst this is an issue that affects many shared households, SAR claimants are perhaps impacted the most given that the SAR only covers the cost of accommodation with no communal room (Kemp & Rugg; 1998).

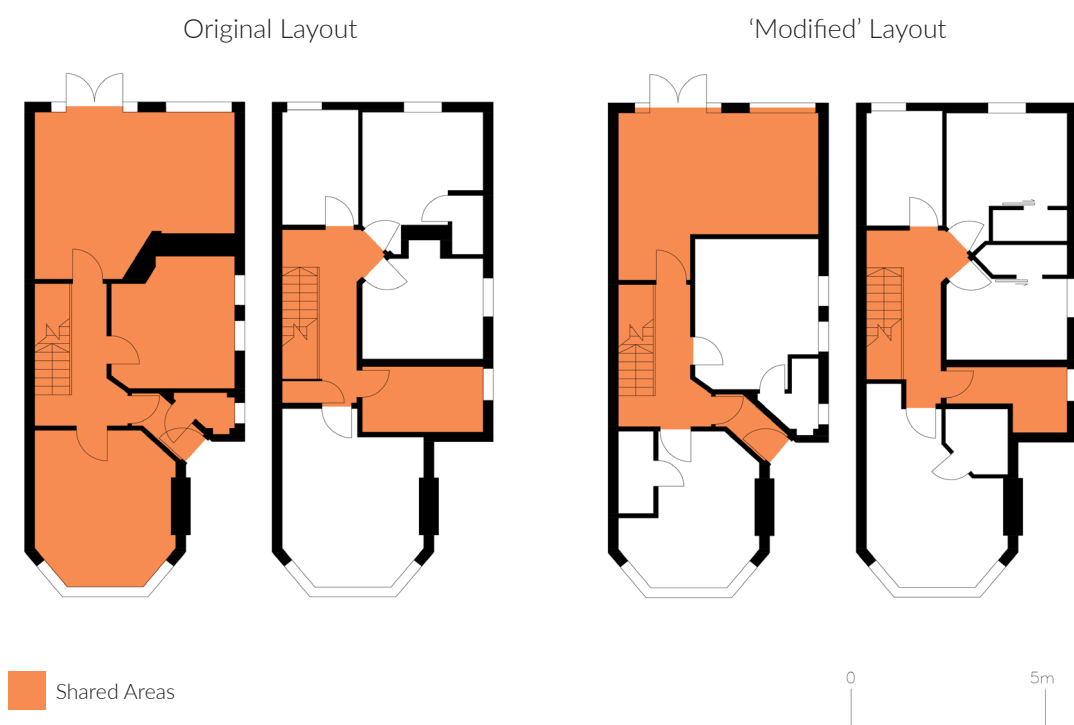Original Layout   'Modified' Layout

Shared Areas

0   5m

Figure 01

Despite the knowledge that poor-quality design may be exacerbating some of the mental health issues associated with sharing, there are still no design guidelines for landlords converting their properties into HMOs. It is still unclear what constitutes as 'good design' when it comes to designing a shared house, or the type of architectural features that help to achieve a good balance between privacy and communality (Heath *et al.*, 2017; Batty *et al.*, 2015). Currently there are no examples of houses specifically designed for sharers in the UK, however a new housing typology has recently emerged in Japan and South Korea called the 'share house' specifically designed with the housing needs of sharers in mind ("LT Josai", 2013).

2.9 Summary of the Literature

Whilst the link between HMOs and poor mental health is generally ascribed to inappropriate matching of tenants, poor quality accommodation and insufficient management, this literature review has revealed that the physical environment can also have significant impact on the likely success of a shared living arrangement, and consequently it's probable impact on an individual's mental health.

The literature review has discussed how shared living challenges the conventional notion of home, and presents difficulties because it blurs the boundary between the public and private realm. Shared living frequently forces strangers to live in much closer proximity than they might wish, leading to feelings of insecurity, loneliness and lack of control, all of which pose a threat to one's mental health. However, it has also illuminated that good relationships with your housemates can help to overcome some of the challenges associated with sharing accommodation, helping to explaining why 'friendly' shares are often perceived more positively than 'stranger' shares.

Finally, it has discussed how the physical environment can play an important role in helping to achieve this balance between privacy and communality; helping people to feel secure and in control, whilst also facilitating the opportunity for social interaction, therefore allowing strangers to get to know each other. Existing HMO legislation does not consider this balance, thus enabling landlords to convert their properties with little regard for how their actions may disrupt the balance between privacy and communality, which may then be detrimental to a resident's health and well-being.

3.0 **Research Proposal**

3.1 Gap in Knowledge

"It is time to pay attention to the value of design." (Design Council, 2017:1)

The Design Council have long recognised the value of good design; acknowledging the significant impact it has on the quality of our lives, along with its potential to help tackle 'major societal challenges' ("About Us", 2017).

Due to the UKs housing shortage and continued cuts to welfare, shared housing is increasingly becoming the only housing option for many single young people. However little attention has been given to the design of such accommodation and consequently there is a lack of understanding regarding what constitutes as 'good design' when designing houses to be shared by strangers.

Whilst this may be true for the UK, a new housing typology has recently emerged in Japan and South Korea, called the 'share house,' specifically designed with the housing needs of sharers in mind. This paper seeks to analyse a series of share houses to identify what constitutes as 'good design' when designing a house to be shared by strangers, looking principally at how the architects have designed the physical environment to negotiate the balance between privacy and communality.

3.2 Research Question

Can the analysis of Japan and South Korea's 'share houses' help to improve our awareness of what constitutes as 'good design' when designing environments which are to be shared by strangers?

4.0 **Research Design**

4.1 An Overview of the Research Design

The research aims to explore what can be learnt from Japan and South Korea's 'share houses,' to better inform the design of houses being used for sharing in the UK. It will look in particular at how the architects have considered the balance between privacy and communality, given that this has been identified as a crucial component for the success of a shared household.

Research will be carried out in two phases, the first will be an in-depth analysis of four purposefully designed 'share houses,' with the aim being to identify what constitutes as 'good design,' when designing houses that are to be shared by strangers. The second phase will be to compare these findings with the UK's current situation, investigating how traditional family homes and 'modified' family homes compare to the 'good design' standards.

Phase 1 | What is 'good design'?

Aim: To define what is regarded as 'good design' when designing houses that are to be shared by strangers.

Objectives:

1. Select several relevant 'share houses' from Japan and South Korea that are comparable in size and nature to 'shared households' in the UK.

2. Analyse case studies individually to identify key themes.

3. Cross analyse these case studies to identify similarities and differences.

4. Define what constitutes as 'good design,'

Given that purpose built 'share houses' only emerged in the last five years, there is a lack of robust research on them. What's more, much of the information that does exist on them is not written in English. Consequently, most of the data will be collected through doing

area analysis of the architect's plans. However, there will also be an additional fact sheet discussing the architect's intentions for the design, collated with information gathered from their website and other reliable sources.

Phase 2 | How does the UK's system compare?

Aim: To investigate how traditional family homes and modified family homes match up to 'good design,' particularly regarding balancing privacy and communality.

Objectives:

1. Select several examples of HMOs that have been created by 'modifying' traditional family homes.

2. Carry out area analysis on original layout and modified layout.

3. Cross analyse these with area analysis of 'share houses' to identify similarities and differences.

Areas will be calculated using the same methods as those used for the share houses, to make the results as reliable as possible.
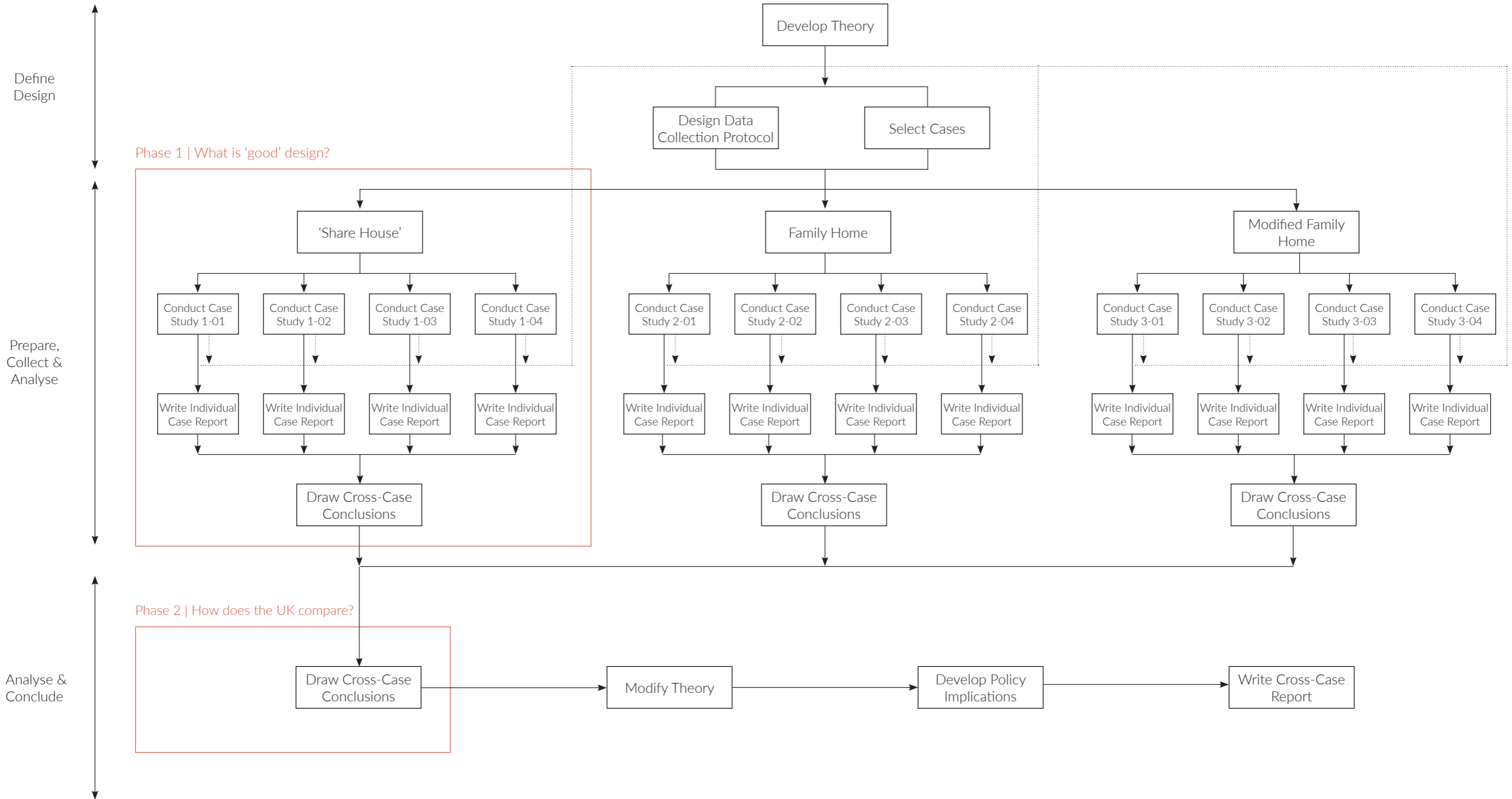
4.1 An Overview of the Research Design

Define
Design

Phase 1 | What is 'good' design?

Prepare,
Collect &
Analyse

Phase 2 | How does the UK compare?

Analyse &
Conclude

Develop Theory

Design Data
Collection Protocol

Select Cases

'Share House'

Conduct Case
Study 1-01

Conduct Case
Study 1-02

Conduct Case
Study 1-03

Conduct Case
Study 1-04

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Draw Cross-Case
Conclusions

Family Home

Conduct Case
Study 2-01

Conduct Case
Study 2-02

Conduct Case
Study 2-03

Conduct Case
Study 2-04

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Draw Cross-Case
Conclusions

Modified Family
Home

Conduct Case
Study 3-01

Conduct Case
Study 3-02

Conduct Case
Study 3-03

Conduct Case
Study 3-04

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Draw Cross-Case
Conclusions

Draw Cross-Case
Conclusions

Modify Theory

Develop Policy
Implications

Write Cross-Case
Report

Figure 02

4.2 Rationale for Design Choice

There are several reasons for choosing a multi-case study approach for the purpose of this research; the initial motive being that this study is investigating 'how' to improve the design of shared houses in the UK, something which can arguably be aided by examining other successful examples; furthermore, the focus of the study is a current issue; and finally, the research is not concerned with controlling people's behaviour but rather considering the potential impact of one's environment on their behaviour. Yin (2014) proposes that in situations where these three conditions are met, the most suited method of research are case studies.

"Doing case study research would be the preferred method, compared to others, in situations when (1) the main research questions are "how" or "why" questions; (2) a researcher has little or no control over behavioural events; and (3) the focus of the study is a contemporary (as opposed to entirely historical) phenomenon." (Yin, 2014:2)

Eisenhardt (1989: 548–549) also recognises the value of case studies, suggesting that they are *"particularly well suited to new research areas or research areas for which existing theory seems inadequate."* The literature review has revealed a gap in our understanding regarding the design of shared households, thus highlights the potential advantages of undertaking case study research. Moreover, the decision to do cross-case analysis presents the opportunity to gain new knowledge, Khan & VanWynsberghe (2008:1), *"propose that mobilization of case knowledge occurs when researchers accumulate case knowledge, compare and contrast cases, and in doing so, produce new knowledge."*

4.3 Limitations of Design Choice

Case studies have received substantial amounts of criticism in the past, with concerns that they are often too specific and inadequate at providing generalised conclusions (Crasnow, 2010; Tellis 1997). However, Hamel *et al.*, (1993), Yin (2014) and Welsh & Lyons (2001) have all disputed this, claiming that sample size does not dictate the effectiveness of a study; proposing that whilst a small sample size may not be statistically generalisable it can still be analytically generalisable. Consequently, as this study does involve a small sample size, it will limit its ability to be statistically analysed.

What's more, whilst single-case studies may have limitations, such as being too specific, Herriott & Firestone (1983) argue that by carrying out a multiple-case study some of the limitations commonly associated with case-studies can be overcome. Propositioning that multiple-case studies provide more analytical benefits and in turn create more robust and compelling research.

One of the main limitations of case study analysis is the bias of the researcher, as it is inevitable that they will have preconceived ideas about the outcome of the investigation. To minimise this, it is crucial that the researcher continually challenges their 'pre-existing assumptions and hypotheses'. A further restriction often associated with case studies is the selection of relevant case studies (Crasnow, 2010). Given that there are only four well documented 'share houses,' the choice has been made more straight-forward, however it is still imperative to acknowledge that the behaviour of individuals in Japan and South Korea is different to the UK, which will most likely have an impact on the design of these schemes.

5.0 **The Research**

5.1 Phase 1 | What is 'Good' Design?

Define
Design

Develop Theory

Design Data
Collection Protocol

Select Cases

'Share House'

Prepare,
Collect &
Analyse

Conduct Case
Study 1-01

Conduct Case
Study 1-02

Conduct Case
Study 1-03

Conduct Case
Study 1-04

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Analyse &
Conclude

Draw Cross-Case
Conclusions

Define 'Good' Design
Standards
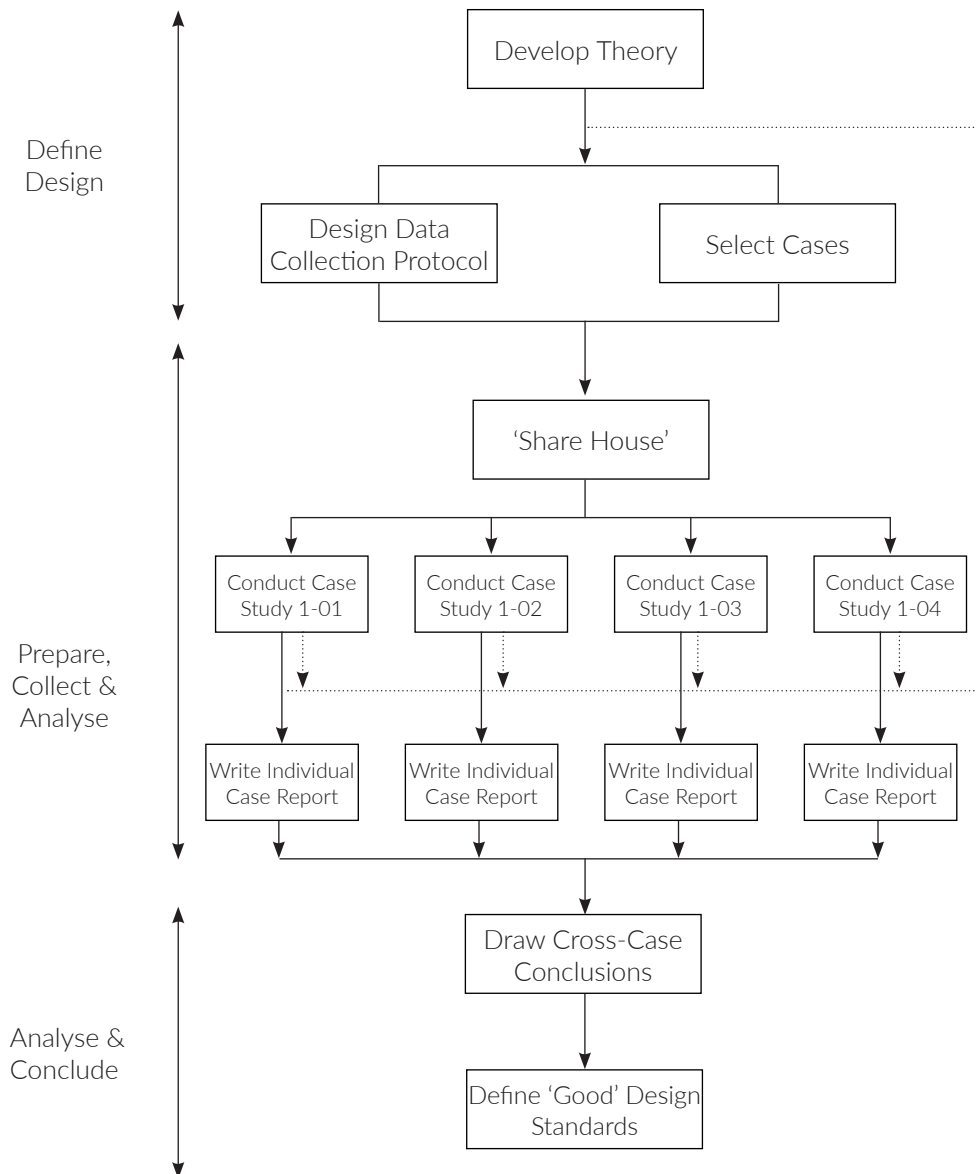
Figure 03

5.1.1 **Selecting the Case Studies** | Introducing the 'Share House'

"The "share house" is an increasingly popular style of living in Japan, somewhat close to a large house... What makes it different from a large house, however, is that the residents are not family and are, instead, unrelated strangers. So, a special technique in both its management and its space becomes necessary for complete strangers to naturally continue to share spaces with one another."

("LT Josai / Naruse Inokuma Architects", 2014).

5.1.1 Selecting the Case Studies | Introducing the 'Share House'

There are many positive examples of purpose built shared accommodation in the UK, such as student accommodation and co-housing developments. However, these are often of a relatively large scale, consisting of several dwellings grouped together with access to additional communal areas and facilities. Consequently, this makes them difficult to compare to a shared household in the UK which generally refers to a single dwelling that functions independently. Accordingly, student accommodation and co-housing developments have not been included in the selection process. With this in mind, this research thought it important to find examples of individual dwellings that had been purposefully designed with sharing in mind. Despite sharing being relatively commonplace in the UK, such dwellings do not exist, therefore turning attention to more international approaches to sharing.

The 'share house' is a new typology of housing that has recently emerged in Japan and South Korea, which has been designed to meet the housing needs of sharers and to help facilitate a more harmonious shared living environment ("LT Josai / Naruse Inokuma Architects", 2014). Unlike purpose built student accommodation or co-housing the 'share house' is a single dwelling, making it comparable to a shared household in the UK.

"The 'share house' is an increasingly popular style of living in Japan, somewhat close to a large house... however, the residents are not family and are, instead, unrelated strangers. So, a special technique in both its management and its space becomes necessary for complete strangers to naturally continue to share spaces with one another." ("LT Josai / Naruse Inokuma Architects", 2014)

Whilst sharing accommodation with strangers is a relatively common phenomenon in the UK, it has only recently gained popularity in the East (Heath, 2017). There are two main reasons for this: the first being the desire for more space, a rarity when living alone in a dense city like Tokyo; and the second being the social and cultural changes which have resulted in a greater demand for more sociable living environments ("Sillim-dong Share House / JYA-RCHITECTS," 2016).

Social withdrawal has become a significant concern in Japan, with increasing numbers of young people withdrawing from social interaction as a means of dealing with the complexities of modern life (Furlong, 2017). This has become known as the Japanese hikikomori phenomenon, defined by Furlong (2008) as the *"acute social withdrawal among young people."* Though this phenomenon is not considered a major issue in the UK, it has been recognised and research suggests it is likely to increase in the future (Furlong, 2008). The UK is currently exhibiting many of the preconditions of hikikomori, for instance the fragmentation of social structures, increased individualisation and the weakening of ontological security, which as identified in the literature review can be exacerbated by unsuccessful shared accommodation (Furlong, 2008; Beck, 1992; Giddens, 1991).

Japan has acknowledged the growth of this phenomenon, and although not documented, 'share houses' would appear to be a reaction against hikikomori, with increasing numbers of individuals acknowledging the positive potential of shared accommodation for our mental health and wellbeing. However, as cited previously, the social advantages are just one of the benefits of shared accommodation, people are becoming increasingly dissatisfied with small self-contained units and recognise that sharing accommodation allows them to benefit from a much more comfortable living environment ("Sillim-dong Share House / JYA-RCHITECTS," 2016).

Whilst most shared accommodation involves the renovation of existing properties, these 'share houses' illustrate what can be accomplished when architects are given the freedom to prioritise the needs of sharers ("Various methods are born in share house: TOTO communication", 2017). Subsequently, they provide a valuable example of what might be deemed as 'good design' in regard to creating environments that are more conducive to successful sharing.

The following section will analyse four of the most documented share houses with the intention of discerning what architectural design features help to create an environment that is more conducive to successful sharing. The selected four are; (i) The 'Share House'; (ii) The house for Seven People; (iii) The Sillimdong Share House and (iv) The Gap House. Each has been designed by a different architect and accordingly represent a variety of different approaches to solving the same problem.

5.1.1 The 'Share House' | Selected Case Studies
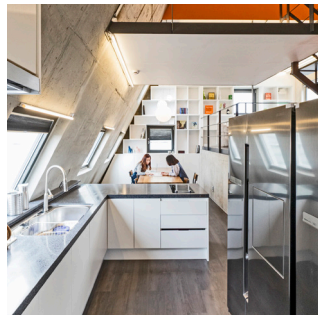
Case Study 1-01

'Share House' | LT Josai

Figure 04

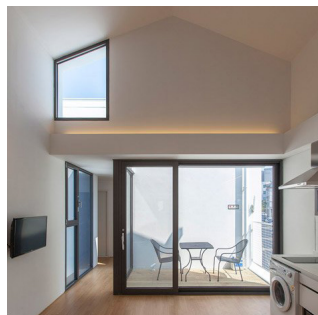### Case Study 1-02

House for Seven People

Figure 05

Case Study 1-03

Sillim-dong Share House

Figure 06

Case Study 1-04

Gap House

Figure 07

5.1.2 Data Collection Protocol

Given that purpose built 'share houses' only emerged in the last five years, they are still a relatively new phenomenon, and consequently there is a lack of robust research on them. What's more, much of the information that does exist on them is not written in English. However, each case study has featured in arch daily, and they have all been recognised as noteworthy and successful projects. These articles, along with area analysis, have provided sufficient information to enable the identification of reoccurring themes, helping to highlight what design features assist in creating a more harmonious shared living environments.

The following areas* will be calculated for each project:

	Area (m^2)	Average area per person (m^2)	Percentage of total (%)
Communal Space			
Circulation Space			
Shared WC			
Exterior			
Public (all above)			
Private			
Total Area			

*All areas will be calculated in the same manner - measured to the internal face of the perimeter wall.

Communal Space refers to all usable shared living space, such as kitchens, living rooms and dining areas.

Circulation Space refers to public space that is purely functional, such as staircases and corridors (storage space has also been included in this figure).

Shared WC refers to all shared washing, bathing and toilet facilities

Exterior includes all outdoor space that is clearly defined and closely associated with the property, such as internal balconies and walkways.

Public Space refers to all space that is accessible by all residents of the house.

Private Space refers to an individuals private bedroom and includes en-suites where applicable.

5.1.3 Case Study 1-01 | Share House - LT Josai

Figure 04

Figure 08

Figure 09

Location	Nishi, Nagoya, Japan
Date Completed	2013
Total Floor Area	333m²
Living Units	13
Architects	Naruse Inokuma Architects
Public Vs Private (%)	57% Public

Design Intent | Why is the project being built?

According to the architects, Naruse Inokuma, the LT Josai share house has been *"designed in response to the increasing demand for houses in Japan where unrelated individuals share kitchens, living spaces and bathrooms."* ("LT Josai / Naruse Inokuma Architects," 2014).

The architects observed that most current shared houses are adapted from existing properties - originally designed to be inhabited by families - and saw the opportunity to create a new housing typology for sharing amongst strangers, the 'share house'.

The LT Josai Share house has been built with the needs of sharers in mind and purposefully designed to create a more harmonious living environment that allows *"complete strangers to naturally continue to share spaces with one another."* ("LT Josai / Naruse Inokuma Architects," 2014).

Naruse Inokuma Architects acknowledge that living with strangers can be challenging, so have consciously designed a space that encourages residents to connect and interact with one another. With the hope that doing so will help to create more cohesion between residents and in turn create a more harmonious living environment ("LT Josai", 2013).
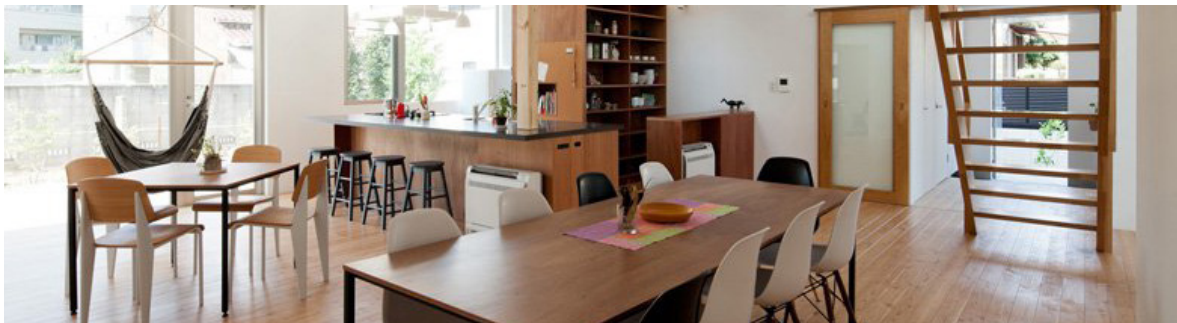
Figure 10

Design Considerations | What was the design process?

When designing the building, the architects have carefully considered the creation of both individual and shared spaces, acknowledging the crucial balance between privacy and communality. Consequently, the building has been designed to create a hierarchy of different spaces, with some communal spaces being tailored towards the individual and others towards the group, therefore enabling them to create a softer boundary between private and communal spaces. ("LT Josai", 2013).
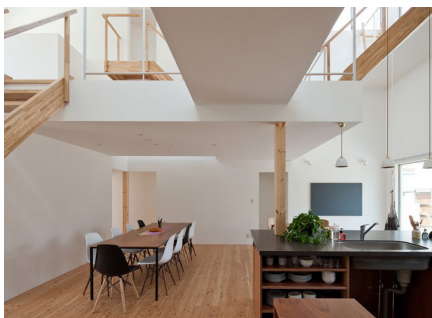
"The shared and individual spaces were studied simultaneously and, by laying out individual rooms in a three-dimensional fashion, multiple areas, each with a different sense of comfort, were established in the remaining shared space." ("LT Josai / Naruse Inokuma Architects," 2014).

Figure 15

Informal Breakout Space (2-4)   Fig. 11

Second Floor

Informal Dining Space (4)   Fig.12

Formal Dining Space (10)   Fig. 13

First Floor

Informal Seating (3)   Fig. 14
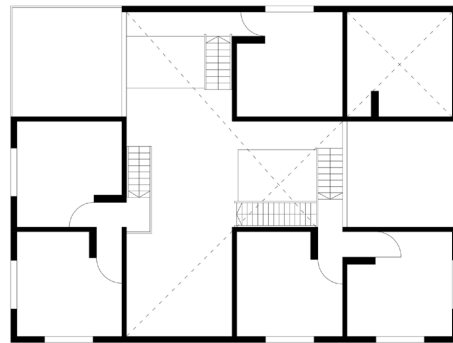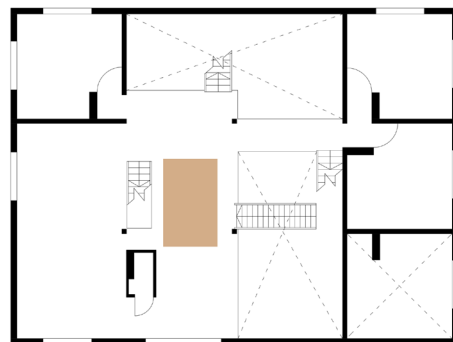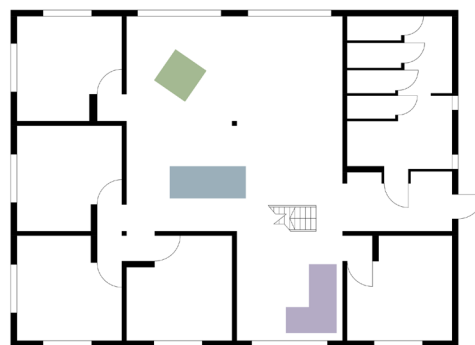
Ground Floor

Figure 16

Second Floor
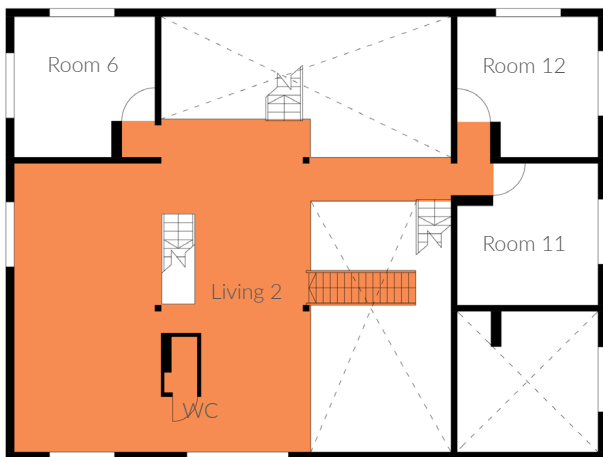
First Floor

Ground Floor

Public | Private

43% Private

57% Public

- Private (inc. en-suites)
- Communal Areas (inc. external)
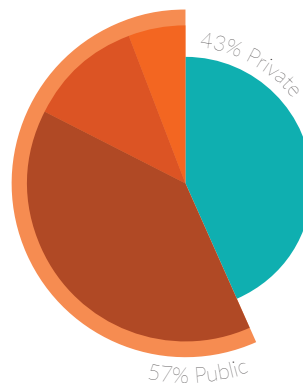- Circulation & Storage
- Shared WCs
- Public Space

Figure 17

0   5m
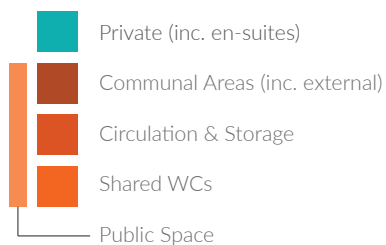
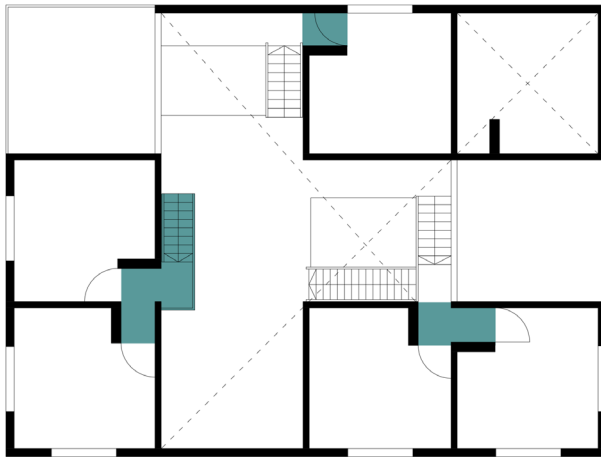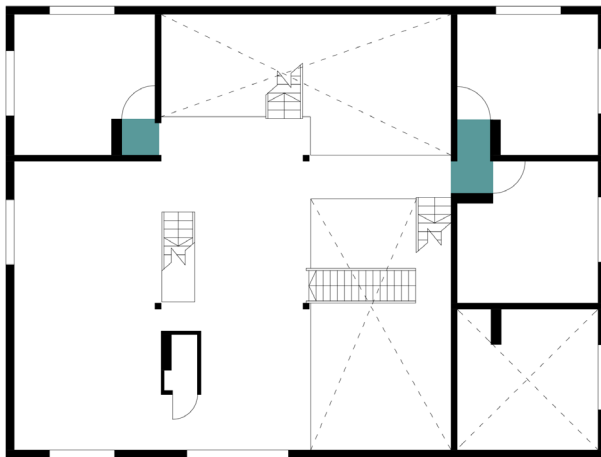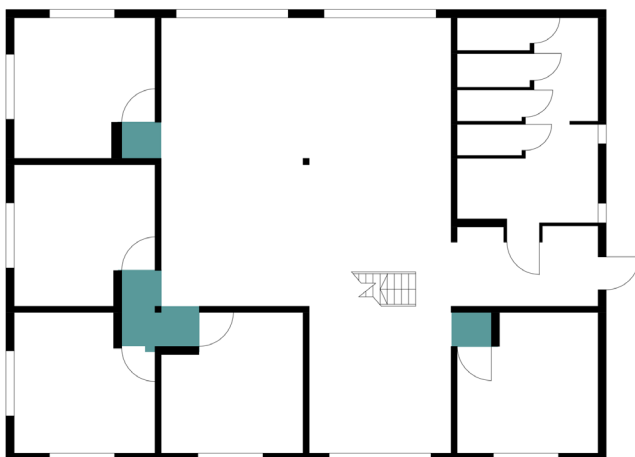Figure 18

Second Floor

First Floor

Ground Floor

Spatial Hierarchy
Public --> Private

Bedroom Lobby   Fig. 19

0   5m

Program Elements | Key Design Features

Community	Open plan communal space, making interaction between residents inevitable.
Privacy	Bedrooms are on the periphery and entered via a lobby to help retain privacy.
Spatial Hierarchy	A variety of different conditions are created within the communal areas, giving people the option to spend time in communal areas yet not feel forced to interact.
Equality	All bedrooms are the same size to help create equality and reduce the chance of hierarchies forming in the house.
Strategic Circulation	Circulation doubles up as communal space and is designed to feel open, connecting the different levels and unifying the whole building.
Natural Light	It is important that people want to spend time in communal areas of the house. Double height, light spaces have been incorporated for this reason.
Shared Space	Emphasis has been placed on shared space to create a more generous living environment.
Outdoor space	Terraces have been incorporated to create a create a connection with the surrounding environment.

Space Analysis | Privacy & Communality

	Area (m^2)	Average area per person (m^2)	Percentage of total (%)
Communal Space	104.2	8.0	31.3
Circulation Space	39.7	3.1	11.9
Shared WC	18.8	1.4	5.6
Exterior	26.2	2.0	7.9
Public (all above)	188.9	14.5	56.7
Private	144.52	11.1	43.3
Total Area	333.5	25.7	100

5.1.3 Case Study 1-02 | House for Seven People

Fig. 5

Fig. 20

Fig. 21

Location	Chiyoda, Tokyo, Japan
Date Completed	2013
Total Floor Area	160m²
Living Units	7
Architects	MNM Architects
Public Vs Private (%)	72% Public

Design Intent | Why is the project being built?

One of the main motivations behind this project was the desire to create a more generous living environment, something increasingly uncommon in Tokyo due to its density. The architects saw opportunity in converting this traditional family home into a house for seven people, recognising that by maximising shared space they could provide the inhabitants with a much richer living environment ("House For Seven People / mnm", 2014).

"When living alone in central Tokyo it is rare to find a dwelling large enough for a spacious living room, a long bathtub, a large kitchen or a green garden. But by designing a house for seven people, it is possible, through the use of shared spaces, to realise rich dwelling spaces in the centre of the city." ("The house for seven people", 2014)

Alongside aiming to create a more generous living environment, the architects also wanted to create a dwelling that was community focused and inviting, not just for the inhabitants but also the local community. They envisaged that it would act as a communal hub and help to stimulate revitalisation of the local community ("House For Seven People / mnm", 2014).

Figure 22 - 'Public Living Room'

Design Considerations | What was the design process?

The architects have focussed most of their attention on the communal areas of the project, deciding to minimise the bedroom areas in order to maximise communal living space. The majority of the ground floor is designed to be a 'public' living room, with one side open to the street, thus blurring the boundary between the public and private realm and taking the notion of collectivism to the next level. It is through doing this that the architects hope to extend the influence of the project to the surrounding neighbourhood ("House For Seven People / mnm", 2014).

Most of the sleeping accommodation is located on the first floor, however unlike a traditional dwelling where the bedrooms are located on the periphery, the architects have reconfigured the space and placed the circulation along the exterior of the building. The circulation is designed to function as a veranda would, encouraging individuals to use the space as an extension of their private room, and thus creating a smoother transition between public and private spaces.

"The Engawa (veranda) allows daylight into the rooms, and naturally provokes the inhabitants to utilize that space as an extension of their own rooms. They can read next to the window, grow plants or dry their washing in this space; it blurs the borders of the private and public rooms. The more inhabitants spend time in Engawa, the more their life overlaps with others, enhancing the sense of sharing space, and becoming a catalyst for a close community."
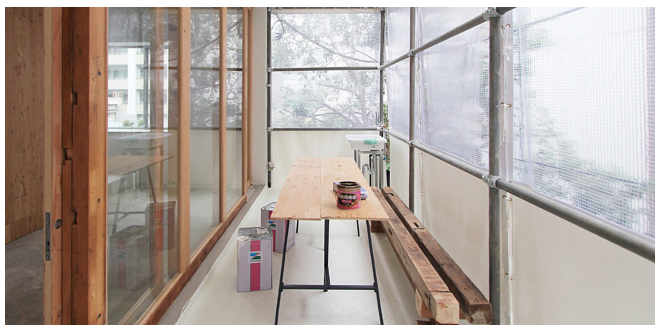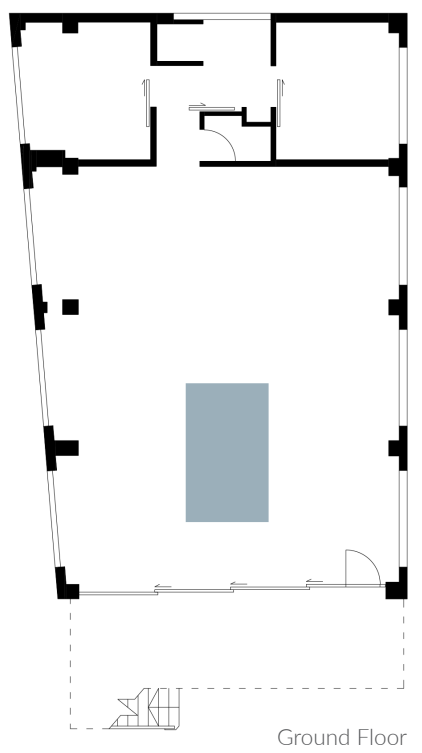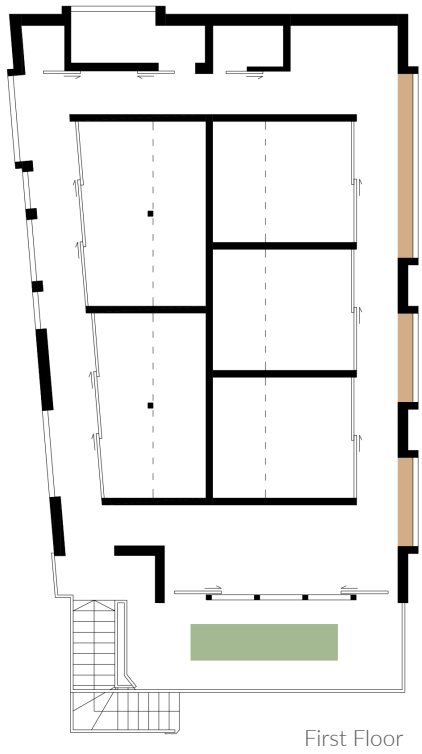("House For Seven People / mnm", 2014)

Fig. 23

Fig. 20

Room 1   Room 2

Public Living Room

Room 3   Room 5

Room 6

Room 4

Room 7

Transitional Space

0   5m

Ground Floor

First Floor

Fig. 24

Figure 25

Creating Different Conditions
Within Shared Space

Informal Breakout Space (1-2)   Fig. 20
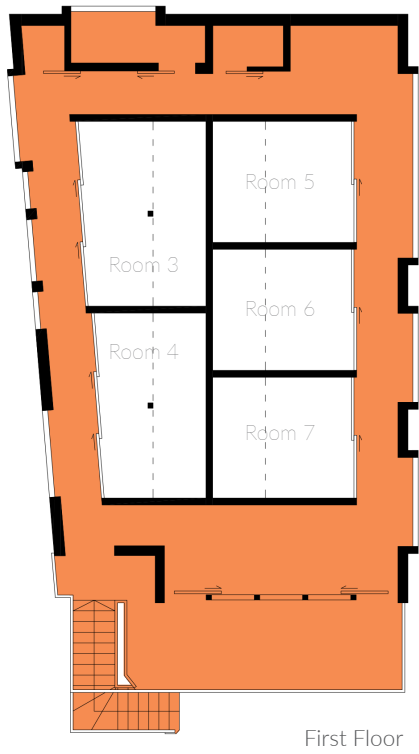

2. Informal Dining Space (8)   Fig. 23
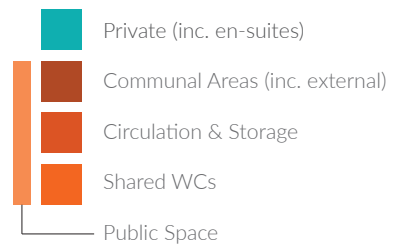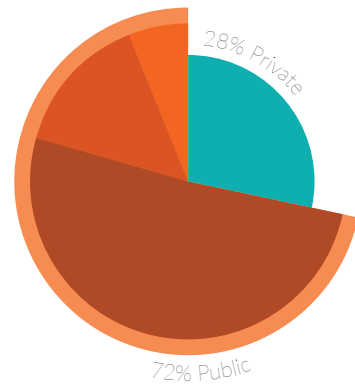

3. Formal Dining Space (8)   Fig. 5

First Floor

Ground Floor

0   5m

Figure 26

First Floor

Public | Private

28% Private

72% Public

■ Private (inc. en-suites)
■ Communal Areas (inc. external)
■ Circulation & Storage
■ Shared WCs
☐ Public Space

Figure 27

Room 5

Room 3

Room 4

Room 6

Room 7

Room 1

Room 2

Public Living Room
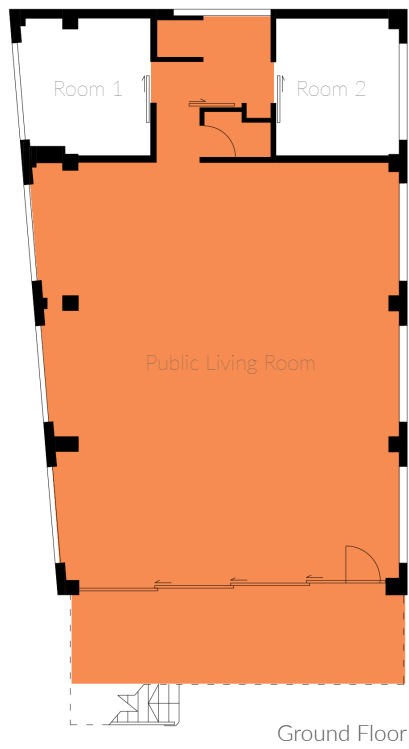
Ground Floor

0   5m

Program Elements | Key Design Features

Community	Open plan communal space, making interaction between residents inevitable. Also designed to extend the public realm and stimulate revitalisation of the local community.
Privacy	Bedrooms are located away from the communal spaces, with the veranda and lobby used as spatial buffers to soften the boundary between public and private.
Spatial Hierarchy	Veranda doubles up as semi-private space, giving people the option to spend time in communal areas yet not forced to interact. Provides alternative to large communal space downstairs.
Strategic Circulation	Circulation doubles up as communal space and helps to soften the boundary between private and public areas of the house.
Natural Light	It is important people want to spend time in communal areas, natural light has been emphasised by incorporating a veranda on the first floor.
Shared Space	Emphasis has been placed on shared space to create a more generous living environment, and encourage community.
Outdoor space	Outdoor space has been incorporated to extend the home and create a stronger connection with the surrounding environment.

Space Analysis | Privacy & Communality

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	61.2	8.7	38.1
Circulation Space	23.4	3.3	14.6
Shared WC	9.5	1.4	5.9
Exterior	21.0	3.0	13.0
Public (all above)	115.0	16.4	71.6
Private	45.6	6.5	28.4
Total Area	160.6	22.95	100

5.1.3 Case Study 1-03 | Sillim-dong Share House

Fig. 6

Fig. 28

Fig. 29
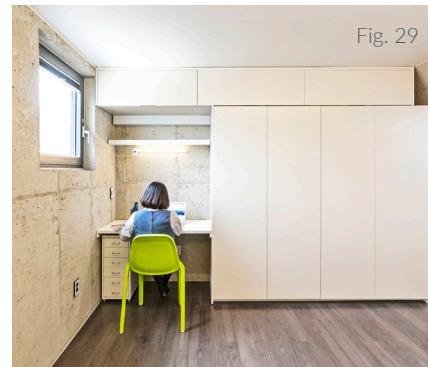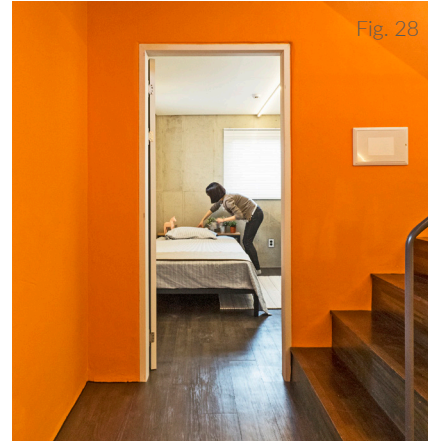
Location	Sillim-dong, Seoul, South Korea
Date Completed	2016
Total Floor Area	230m²
Living Units	10
Architects	JYA-RCHITECTS
Public Vs Private (%)	57% Public

Design Intent | Why is the project being built?

Similarly, to the 'House for 7 People,' this project was also influenced by the desire to create a more spacious living environment, which is extremely sought after in a dense city like Seoul. At the beginning of this project the architects asked themselves "*what is the most unique charm of a share house in today's housing reality?*" ("Sillim-dong Share House / JYA-RCHITECTS," 2016).

Their answer was not community and companionship, as one might expect, but instead focused on the more practical advantages of sharing. They recognised that by being open to sharing, individuals were able to live in a much higher standard of accommodation with "*nicely designed and spacious spaces such as a kitchen, dining room, living room and bathroom, all of which individuals may not be able to afford or dream of—at least in a crowded and expensive city like Seoul*" ("Sillim-dong Share House / JYA-RCHITECTS," 2016).

Figure 30. 'Spacious Living Room'

Design Considerations | What was the design process?

Given the incentive behind this project, many of the architect's design decisions have been influenced by their desire to make the communal areas as spacious and enjoyable as possible. They identified that one of the sites main advantages was that it provided views of the nearby mountain range, consequently the architects have located most of the communal space at the top of the building to maximise the views and allow everyone to enjoy them.

As well as the main communal space, the architects have also incorporated a secondary communal space on the ground floor. However, they have carefully tailored the design of this space to make it more intimate and better suited to smaller groups gatherings, thus helping to create a hierarchy of spaces and ease the transition between public and private ("Sillim-

dong Share House / JYA-RCHITECTS," 2016).

Considerable attention has also been given to the vertical circulation in the building, with the architects choosing to implement split levels to make movement through the building more natural and encourage interaction between the different floors, which helps to unify the building socially and physically ("Sillimdong Share House", 2017).

Bedrooms have been located on separate floors to the communal areas to help maintain privacy.
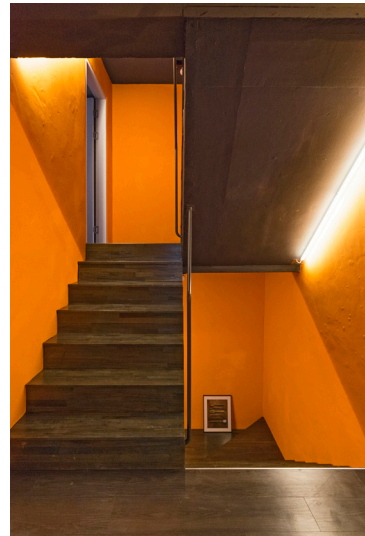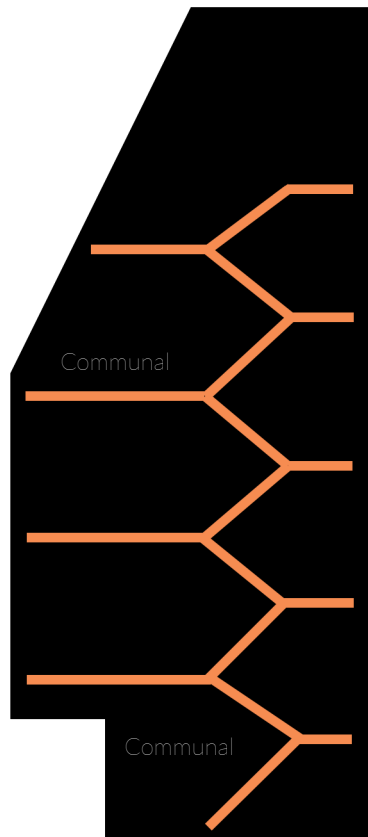
Fig. 31

Fig. 32

Fig. 33

Split levels to unify the building

Figure 34

Room 9   Room 10

Kitchen   Dining

Living

Room 7   Room 8

Room 5   Room 6

Room 3   Room 4

Room 1   Room 2

Terrace

Cosy TV Room

Utility

0

Public | Private

43% Private

57% Public

- Private (inc. en-suites)
- Communal Areas (inc. external)
- Circulation & Storage
- Shared WCs
- Public Space

Figure 35

51
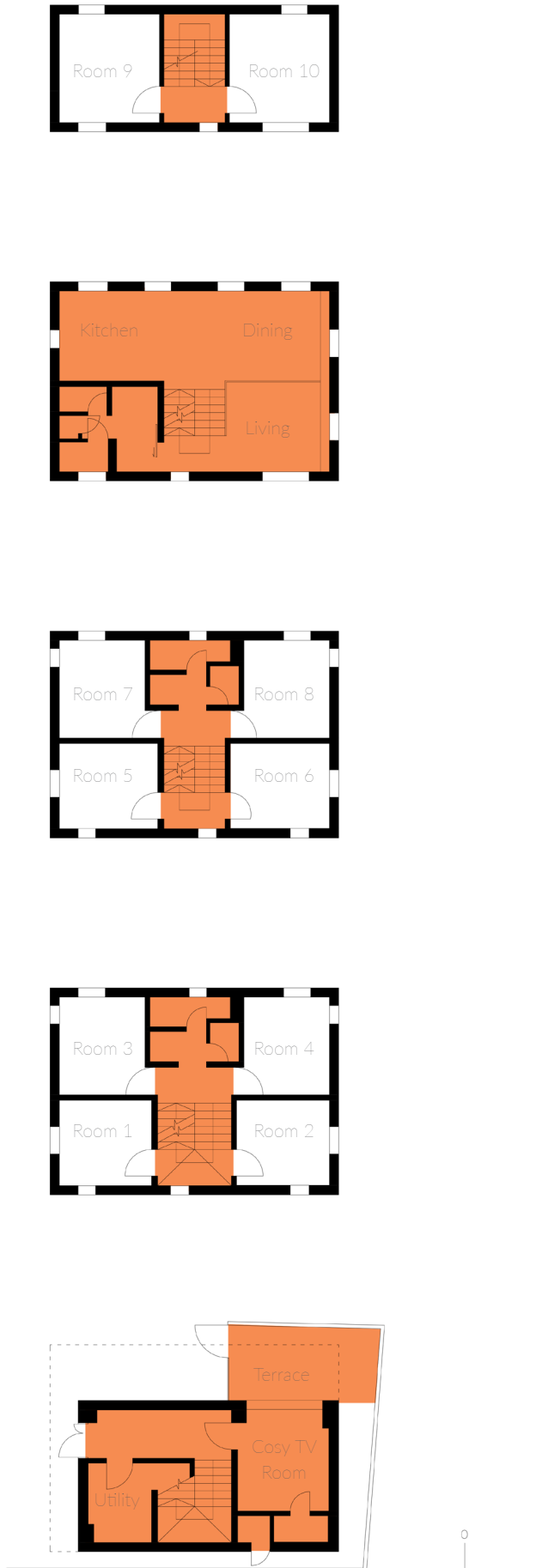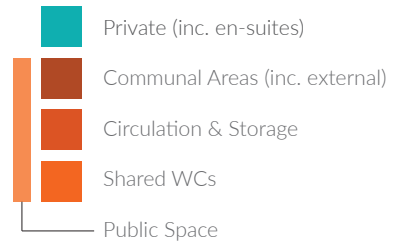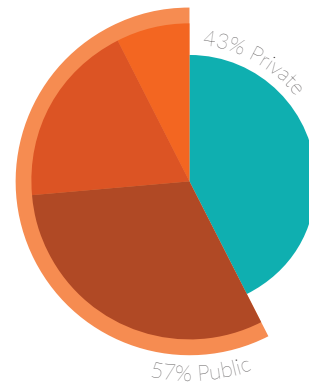
Figure 36
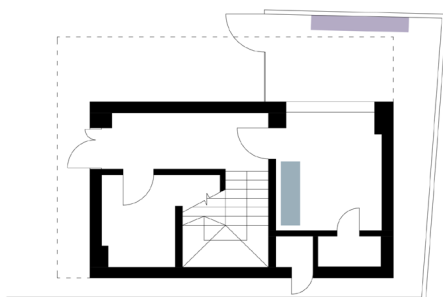
Creating Different Conditions
Within Shared Space

Casual Seating (2)   Fig.30

Informal Dining Space (8)   Fig. 37

Cosy TV Room (4)   Fig. 38

Outdoor Seating Area (4)   Fig. 39

0   5m

Program Elements | Key Design Features

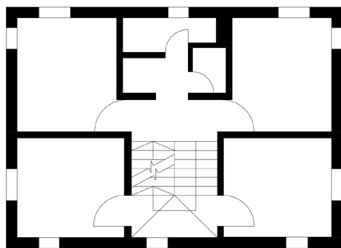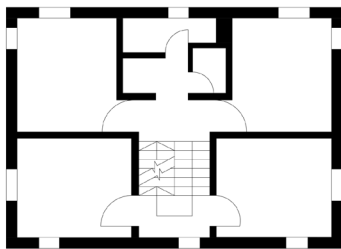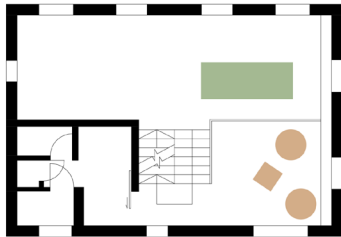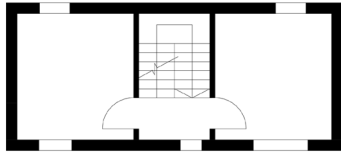|	
Community	Open plan communal space has been incorporated to encourage interaction between residents.
Privacy	Bedrooms are located on separate floors to the communal spaces, protecting people's need for privacy.
Spatial Hierarchy	A variety of different conditions are created within the communal areas, giving people the option to spend time in communal areas yet not feel forced to interact
Strategic Circulation	Split levels implemented to help unify the house and avoid segregation between the different floors. Horizontal circulation kept to a minimum to maximise space.
Natural Light	It is important that people want to spend time in communal areas, placing the main communal area at the top of the building has helped to achieve a more pleasant environment.
Shared Space	Emphasis has been placed on shared space to create a more generous living environment, and encourage community.
Outdoor space	Outdoor space has been incorporated to extend the home and create another type of space to spend time in.

Space Analysis | Privacy & Communality

	Areas (m^2)	Av. Per person (m^2)	% of Total
Communal Space	59.4	5.9	25.8
Circulation Space	44.0	4.4	19.0
Shared WC	16.7	1.7	7.3
Exterior	12.2	1.2	5.3
Public (all above)	132.0	13.2	57.3
Private	98.5	9.8	42.7
Total Area	230.4	23.0	100

5.1.3 Case Study 1-04 | Gap House

Fig. 7

Fig. 40

Fig. 41
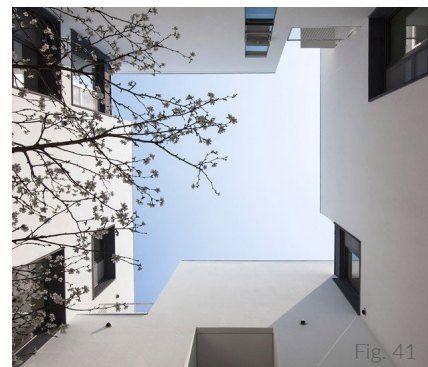
Location	Bokjeong-dong, South Korea
Date Completed	2015
Total Floor Area (living Units)	502m²
Living Units	18 (6 Flats of 3)
Architects	Archihood WXY
Public Vs Private (%)	55% Public

Design Intent | Why is the project being built?

"The typical character of high density residential areas in the capital such as the monotonous and generic looking units – which were designed for maximum profit and efficiency of space has left residents with living spaces that were poorly designed to support the ideal lifestyle and routine" ("Gap House / Archihood WXY", 2015).

The project is a reaction to architecture like this, and has been designed to be more responsive to the housing needs of young people. The architects have recognised the growing interest in sharing accommodation amongst young and single people in South Korea, and so have consequently chosen to design a 'share house' to help meet this demand. They have also recognised that if we want to create more user focused design, the design intent needs to change; design decisions need be driven by the housing needs of the user, not the bank balance of the developer ("Gap House / Archihood WXY", 2015).
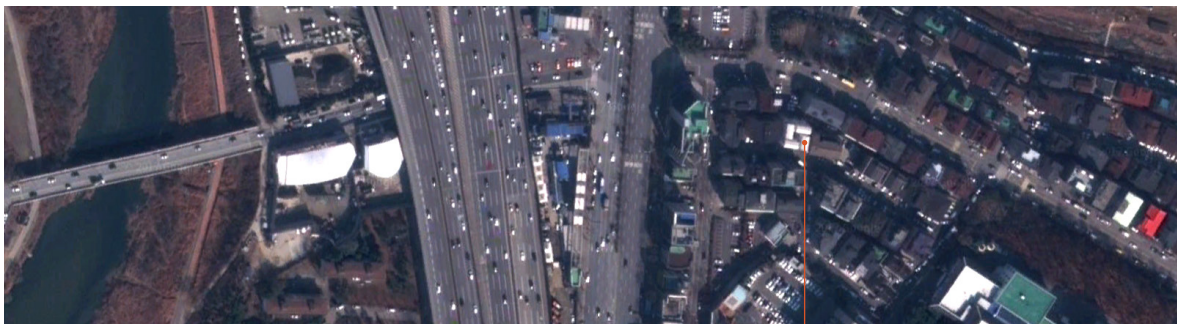
Fig 42. 'Gap House'

Design Considerations | What was the design process?

Similarly, to the LT Josai 'share house', the architects who have led this project have also carefully considered the balance between private and communal space, recognising that the relationship between such spaces has a significant impact on the dynamics of a shared living environment. Given that this building is composed of six 'share flats,' the architects have been careful to consider the interaction between different flats as well as between the tenants living in each flat. Whilst they greatly appreciate the value of communal space, the architects also value the need to facilitate privacy, especially given the density of the design ("Gap house", 2015).

"Archihood WXY focused on a design that creates a balance between the common and private spaces deeply considering the 'share house' amenity" ("Gap House / Archihood WXY", 2015).

The architects, have also placed significant value on the importance of exterior spaces in the design; using these areas to help connect the residents with nature as well as to create more opportunity for interaction amongst the buildings inhabitants ("Gap house", 2015).

Figure 43
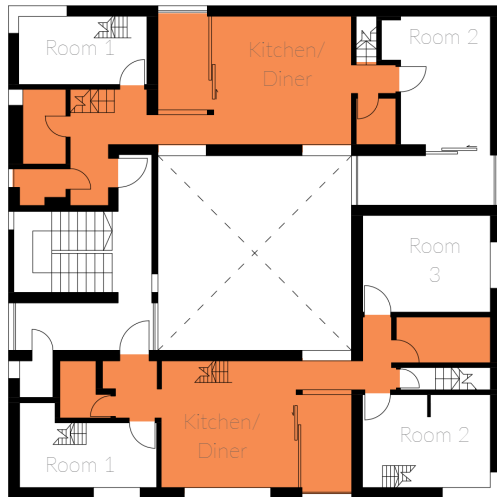
Third Floor
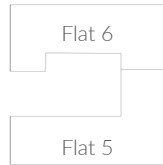
Flat 6

Flat 5

Public | Private

45% Private

55% Public

Private (inc. en-suites)

Communal Areas (inc. external)

Circulation & Storage

Shared WCs

Public Space

Figure 44

Second Floor

Flat 4

Flat 3

First Floor

Flat 2

Flat 1

0
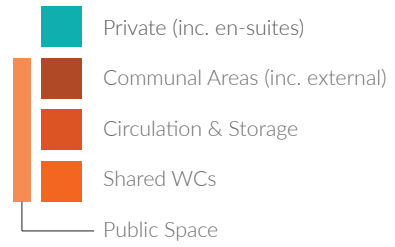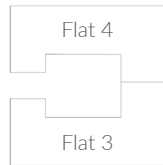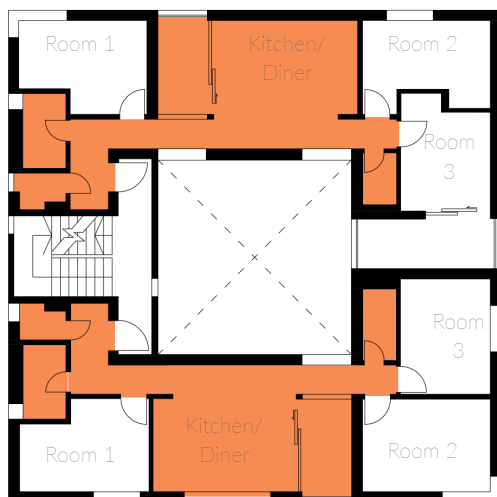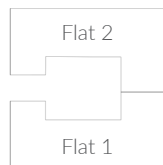
Program Elements | Key Design Features

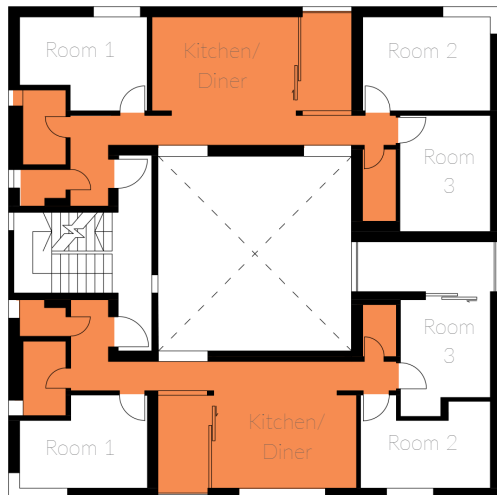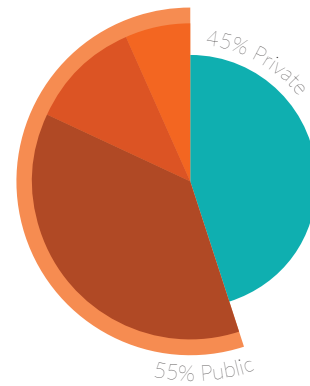|	
Community	Open plan communal areas and a central community courtyard have been incorporated to encourage interaction between residents.
Privacy	The design is careful to avoid any chance of overlooking between the different apartments. Bedrooms are located on the periphery to help maintain sense of privacy.
Spatial Hierarchy	A variety of different conditions are created within the communal areas, giving people the option to spend time in communal areas yet not feel forced to interact
Equality	All rooms are the same size to help create equality and reduce chance of hierarchies forming in the house.
Strategic Circulation	Circulation doubles up as communal space to maximise potential for interaction
Natural Light	Double height spaces have been incorporated into the design to emphasise natural light and create a more pleasant living environment.
Shared Space	Emphasis has been placed on shared space to create a more generous living environment, and encourage interaction between residents.
Outdoor space	Outdoor space has been incorporated to extend the home and create a connection with surrounding environment

Space Analysis | Privacy & Communality

	Areas (m^2)	Av. Per person (m^2)	% of Total
Communal Space	25.9	8.6	31.0
Circulation Space	9.6	3.2	11.5
Shared WC	5.4	1.8	6.4
Exterior	4.9	1.6	5.9
Public (all above)	45.8	15.3	54.8
Private	37.9	12.6	45.2
Total Area	83.7	27.9	100

*Areas calculated as an average of the six flats

5.1.4 'Share House' Cross Case Analysis | Identifying Themes
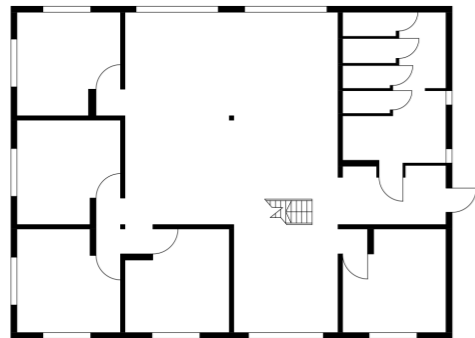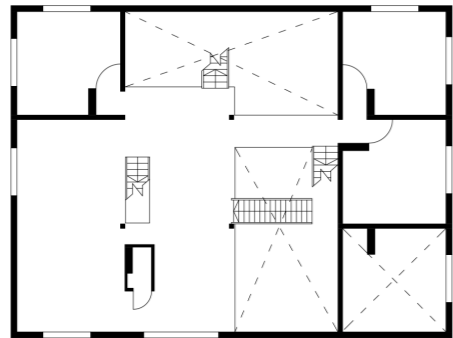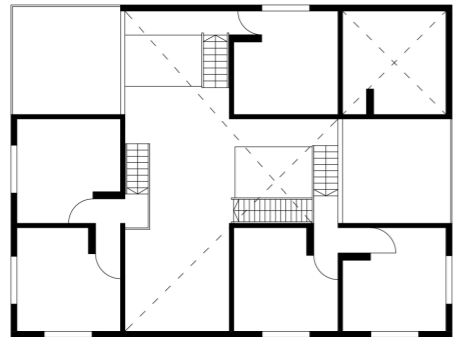
01 | 'Share House'

(13)
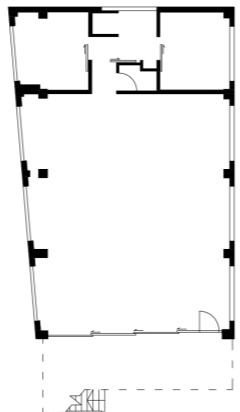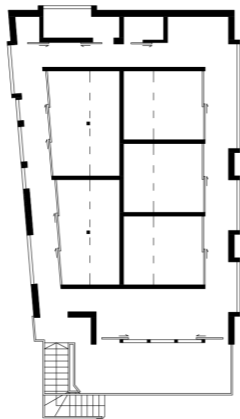
02 | House for 7 People

(7)
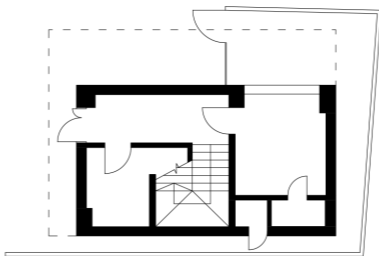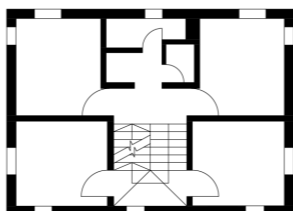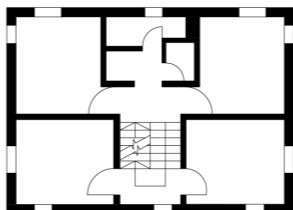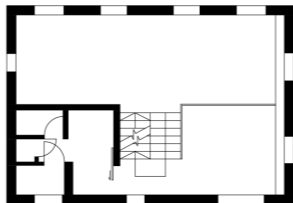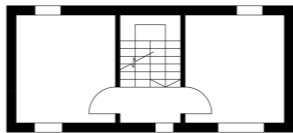
03 | Sillimdong Share House

(10)

04 | Gap House

(18)

0   5m

Figure 45

59
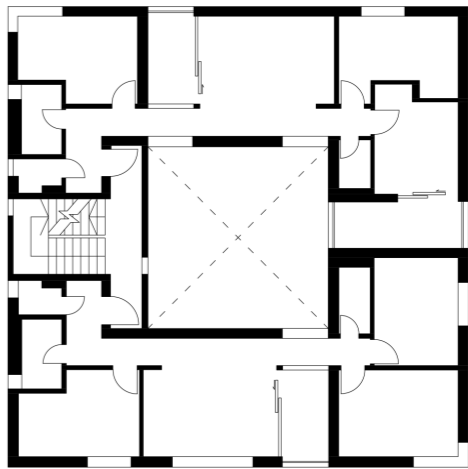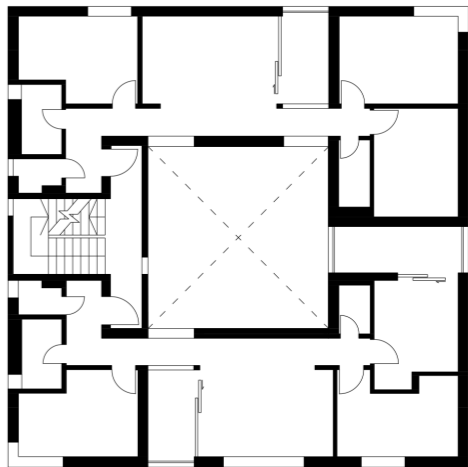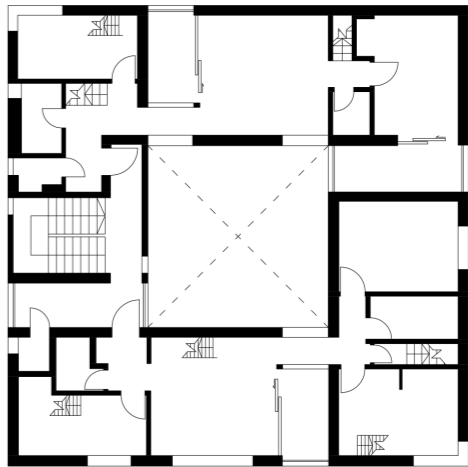
5.1.4 'Share House' Cross Case Analysis | Reoccurring Themes

1. Spatial Hierarchy | Softening the boundary between public and private realm

Three out of the four projects have viewed it crucial to create different spatial conditions within the communal areas, with some being aimed more at the individual and others at the group. Doing this gives individuals the option to seek solitude within communal spaces, therefore extending the notion of privacy. When there is only one social area, such as a kitchen-diner, residents are given little option but to interact or be alone. This was particularly important in larger properties, such as the LT Josai share house and Sillimdong Share House.

2. Strategic Circulation | To maximise space & ensure interconnectedness

Each of the architects have acknowledged the potential for circulation to dissect spaces and create segregation. Subsequently, they have all avoided the use of long corridors, but rather created circulation that doubles up as communal spaces. Not only does this maximise space but it also helps to encourage interaction between residents.

3. Emphasis on Communal Space

All the projects have given significant dedication to communal space, recognising that it is one of the big advantages of sharing accommodation. When living alone in Tokyo or Seoul, space is very limited, however by compromising and sharing accommodation you can get a lot more space for your money. Three of the four properties make some degree of social interaction inescapable, acknowledging that it is through interaction that relationships will begin to form.

4. The Importance of Privacy

Whilst recognising the importance of communal space in shared living, the architects have also acknowledged the necessity of facilitating privacy, with each project dedicating significant attention to creating individual spaces where residents feel safe and secure. Aside from in the Gap House, the architects have always tried to create a distinction between public and private space, whether this is through the creation of a bedroom lobby or by placing the sleeping accommodation on a different level to the communal space.

5.1.4 'Share House' Cross Case Analysis | Area Analysis

Average Areas Calculated for the 'share houses'

Communal Space (inc. external) : 9.8 m² pp
Private Space : 12.6 m² pp
Total Space : 27.9 m² per person

Legend:
- 1-01 | LT Josai Share House
- 1-02 | House for Seven People
- 1-03 | Sillimdong Share House
- 1-04 | Gap House
- 1-05 | 'Good Design' Average Areas
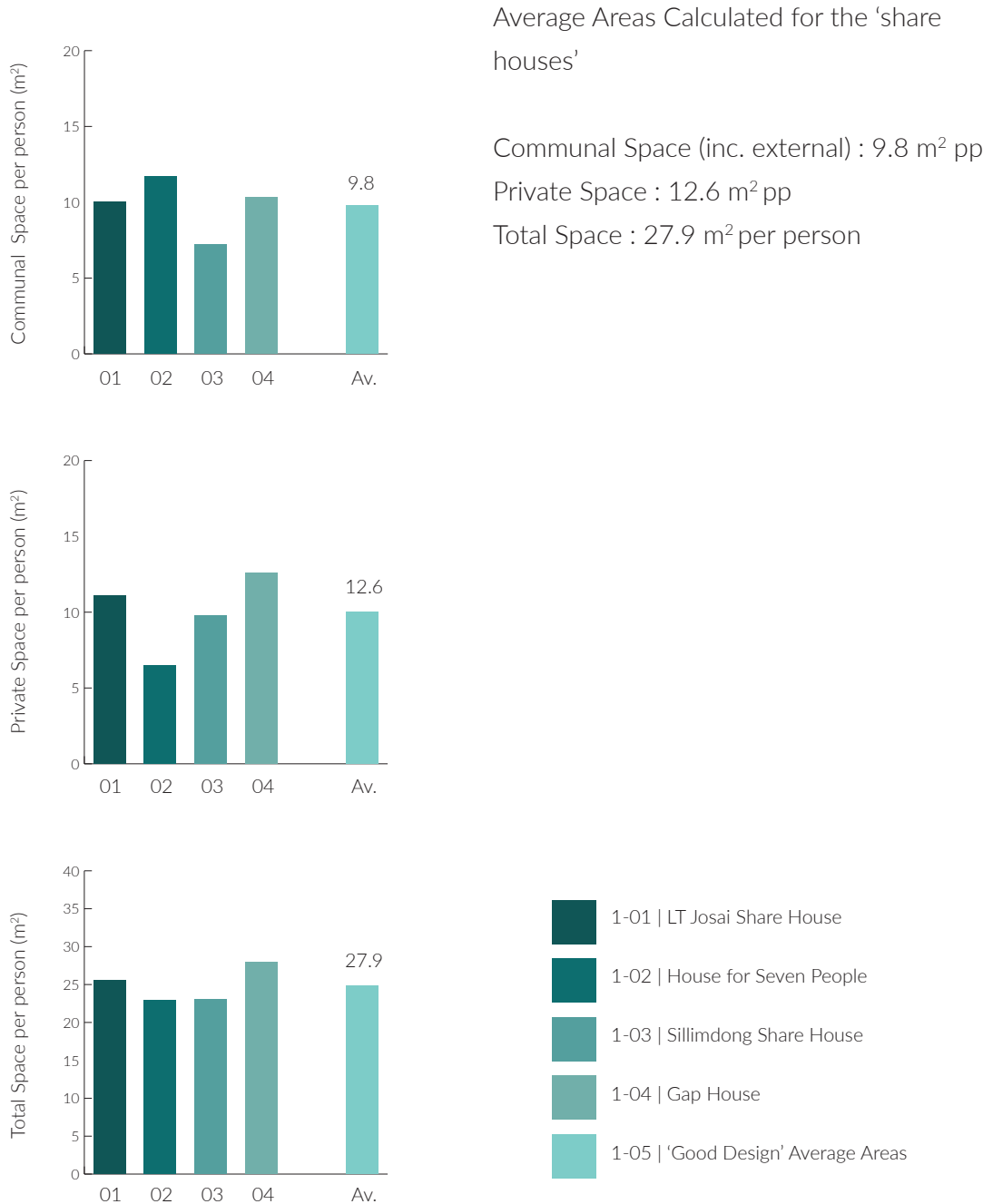
Figure 46

5.1.4 'Share House' Cross Case Analysis | Public : Private

Space Analysis | Privacy & Communality

Averages	Areas (m²)	Av. per person (m²)	% of Total
Communal Space	62.7	7.8	**31.5**
Circulation Space	29.1	3.5	**14.2**
Shared WC	12.6	1.6	**6.3**
Exterior	16.1	2.0	**8.0**
Public (all above)	120.4	14.9	**60**
Private (inc. ensuite)	81.6	10.0	**40**
Total Area	202.0	24.9	**100**

LT Josai Share House   House for Seven People   Sillimdong Share House   Gap House
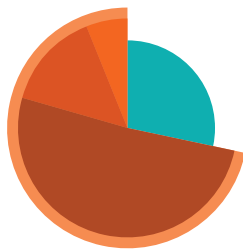
Private (inc. en-suites)

Communal Areas (inc. external)

Circulation & Storage

Shared WCs

Public Space

'Good Design' Average

40% Private

60% Public
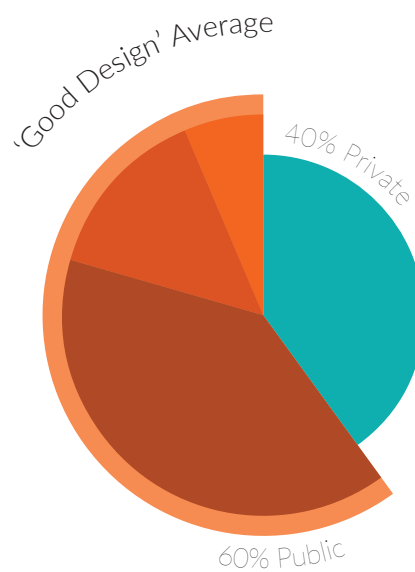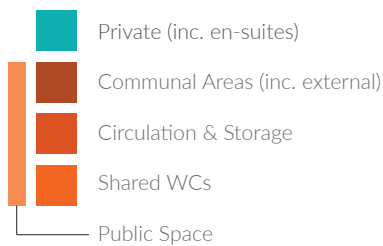
Figure 47

5.2 Phase 2 | How do HMOs compare?

Define
Design

Develop Theory

Design Data
Collection Protocol

Select Cases

Phase 1 | What is 'good' design?

'Share House'

Family Home

Modified Family
Home

Prepare,
Collect &
Analyse

Conduct Case
Study 1-01

Conduct Case
Study 1-02

Conduct Case
Study 1-03

Conduct Case
Study 1-04

Conduct Case
Study 2-01

Conduct Case
Study 2-02

Conduct Case
Study 2-03

Conduct Case
Study 2-04

Conduct Case
Study 3-01

Conduct Case
Study 3-02

Conduct Case
Study 3-03

Conduct Case
Study 3-04

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Write Individual
Case Report

Draw Cross-Case
Conclusions

Draw Cross-Case
Conclusions

Draw Cross-Case
Conclusions

Phase 2 | How does the UK compare?

Analyse &
Conclude

Draw Cross-Case
Conclusions

Modify Theory

Develop Policy
Implications

Write Cross-Case
Report

Figure 02

5.2.1 Selecting the UK Case Studies | Pre & Post Modification

Four UK properties have been selected for the next phase of research, two in London, and two in Newcastle. All of the properties are HMOs that have been created by reconfiguring traditional family homes. The properties have been selected to represent a range of different house types, however the small sample size inevitably limits the potential for these results to be statistically analysed.

The two London properties have been taken from Sirer Global Investments, a company who specialise in the reconfiguration of traditional houses and flats into HMOs.

"Sirer HMO investment business model is based on purchasing an un-modernised property, usually a house, but can be a large flat, which is upgraded, re-configured and or enlarged so as to increase the number of letting bedrooms to maximise the income potential"
("Sirer HMO Residences", 2017).

The two Newcastle properties, are both examples of houses that have been converted for use by students or young professionals. The first is a typical semi detached house that has been converted from five to seven bedrooms, whilst the second is a typical Tyneside flat in which the living room has been converted into an extra bedroom (Newcastle City Council, n.d.).

5.2.1 The UK Case Studies | Selected Case Studies

Case Study 2-01 & 3-01

Sirer Global One

Figure 48
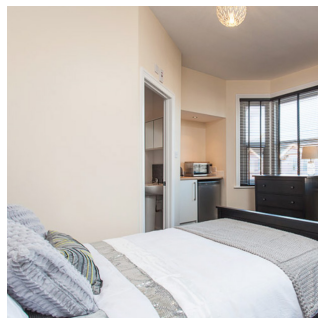
Case Study 2-02 & 3-02

Sirer Global 2

Figure 49

Case Study 2-03 & 3-03

Newcastle Semi Detached

Figure 50

Case Study 2-04 & 3-04

Tyneside Flat

Figure 51

5.2.2 - **Case Study 2-01** | Sirer Global 1 - Original Layout

Figure 52
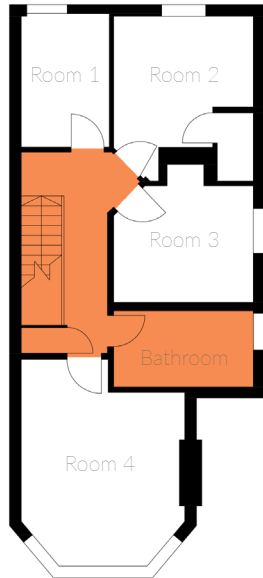
First Floor

Public | Private

64% Private

36% Public

■ Private (inc. en-suites)

■ Communal Areas (inc. external)

■ Circulation & Storage

■ Shared WCs

— Public Space

Figure 53

Ground Floor
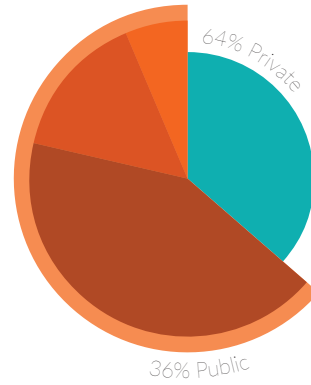
Averages	Areas (m²)	Av. per person (m²)	% of Total
Communal Space	44.2	11.1	42.2
Circulation Space	15.7	3.9	15.0
Shared WC	6.4	1.6	6.1
Exterior	0	0	0
Public	66.4	16.6	63.4
Private	38.4	9.6	36.6
Total Area	104.8	26.2	100

0   5m

5.2.2 - **Case Study 3-01** | Sirer Global 1 - Modified Layout

Figure 54

First Floor

Ground Floor

0   5m

Public | Private

36% Public   64% Private

■ Private (inc. en-suites)

■ Communal Areas (inc. external)
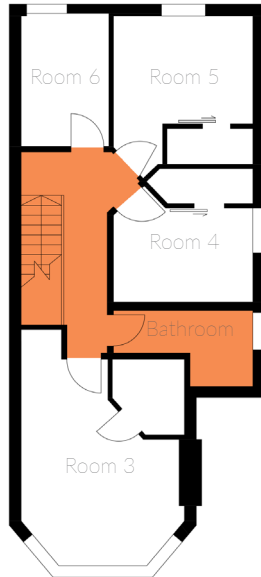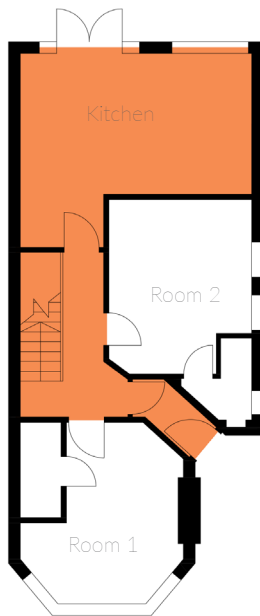
■ Circulation & Storage

■ Shared WCs
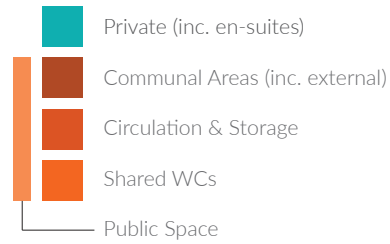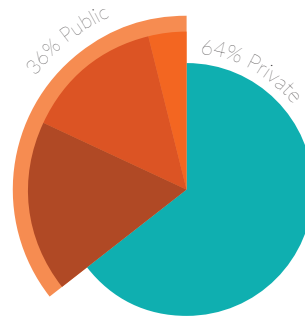
— Public Space

Figure 55

Averages	Areas (m²)	Av. per person (m²)	% of Total
Communal Space	18.5	3.1	17.5
Circulation Space	15.1	2.5	14.3
Shared WC	4.0	0.7	3.8
Exterior	0	0	0
Public	37.5	6.3	35.6
Private	68.1	11.3	64.4
Total Area	105.6	17.6	100

5.2.2 - **Case Study 2-02** | Sirer Global 2 - Original Layout

Figure 56
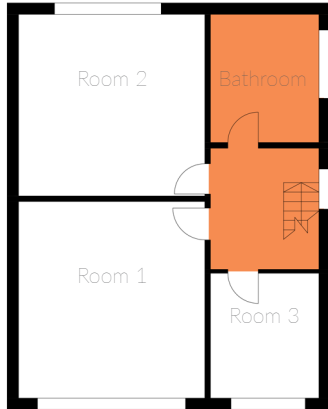
First Floor

Public | Private

28% Private

72% Public

- Private (inc. en-suites)
- Communal Areas (inc. external)
- Circulation & Storage
- Shared WCs
- Public Space
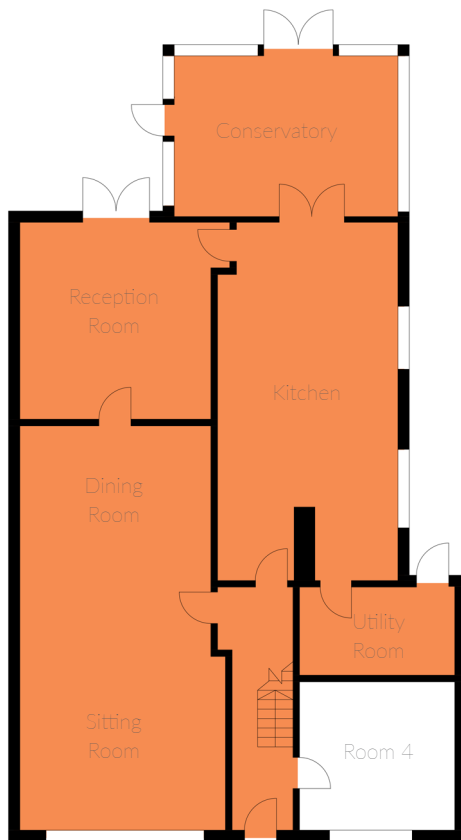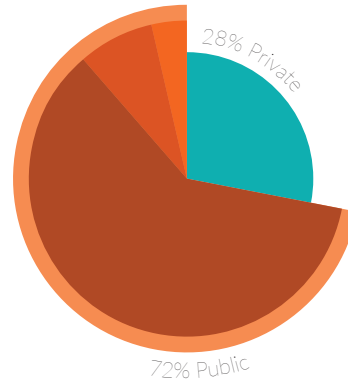
Figure 57

Ground Floor
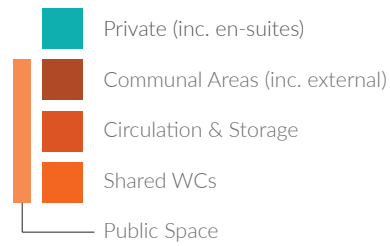
Averages	Areas (m²)	Av. per person (m²)	% of Total
Communal Space	161.3	40.3	60.7
Circulation Space	20.12	5.1	7.6
Shared WC	9.7	2.4	3.6
Exterior	0	0	0
Public	191.1	47.8	71.9
Private	74.7	18.7	28.1
Total Area	265.8	66.4	100

0   5m

5.2.2 - **Case Study 3-02** | Sirer Global 2 - Modified Layout

Figure 58
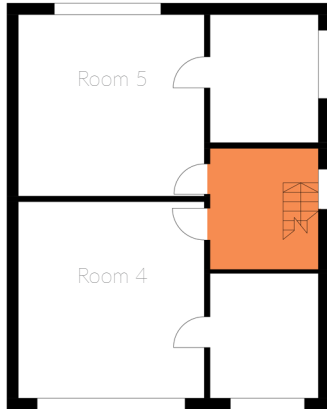
First Floor

Public | Private

- Private (inc. en-suites)
- Communal Areas (inc. external)
- Circulation & Storage
- Shared WCs
- Public Space
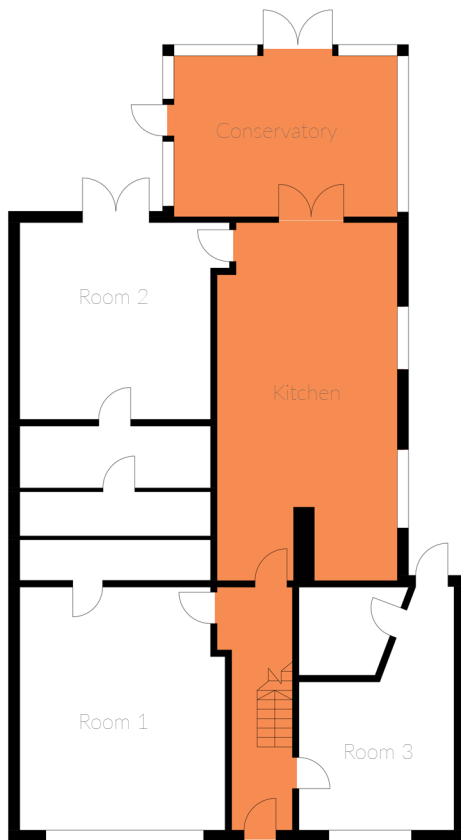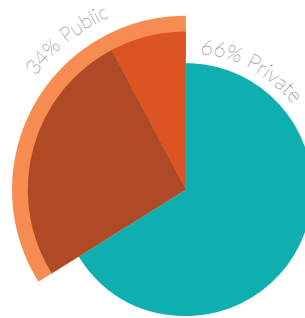
Figure 59

Ground Floor
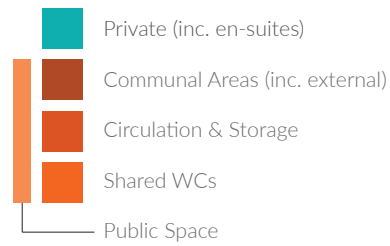
Averages	Areas (m²)	Av. per person (m²)	% of Total
Communal Space	68.8	13.8	26.1
Circulation Space	20.2	4.0	7.6
Shared WC	0	0	0
Exterior	0	0	0
Public	89.0	17.8	33.7
Private	175.1	35.0	66.3
Total Area	264.1	52.8	100

Figure 60

Second Floor

First Floor

Ground Floor

0   5m

Public | Private

44% Private

56% Public
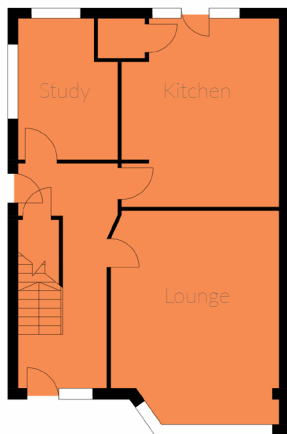
- Private (inc. en-suites)
- Communal Areas (inc. external)
- Circulation & Storage
- Shared WCs
- Public Space
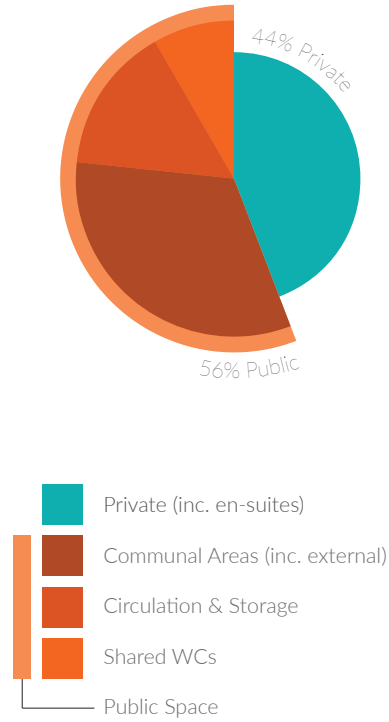
Figure 61

Averages	Areas (m²)	Av. per person (m²)	% of Total
Communal Space	61.6	12.3	32.7
Circulation Space	28.2	5.6	15.0
Shared WC	15.4	3.1	8.1
Exterior	0	0	0
Public	105.2	21.0	55.8
Private	83.2	16.6	44.2
Total Area	188.3	37.7	100

5.2.2 - **Case Study 3-03** | Newcastle Semi - Modified Layout

Figure 62

Second Floor

First Floor

Ground Floor

0   5m

Public | Private

37% Public   63% Private
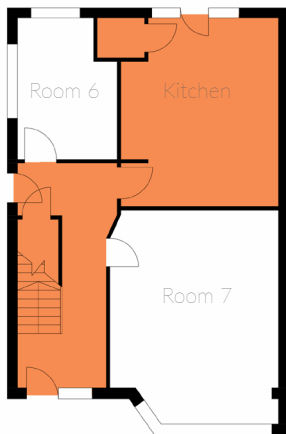
- ■ Private (inc. en-suites)
- ■ Communal Areas (inc. external)
- ■ Circulation & Storage
- ■ Shared WCs
- Public Space
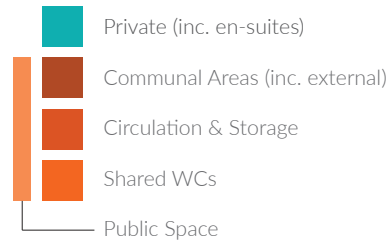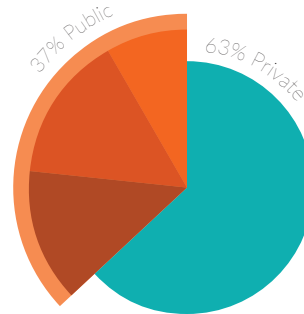
Figure 63

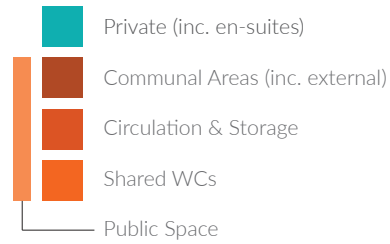| Averages	Areas (m²)	Av. per person (m²)	% of Total
Communal Space	25.7	3.7	13.6
Circulation Space	28.2	4.0	15.0
Shared WC	15.4	2.2	8.2
Exterior	0	0	0
Public	69.3	9.9	36.8
Private	119.2	17.0	63.2
Total Area	188.4	26.9	100

5.2.2 - **Case Study 2-04** | Tyneside Flat - Original Layout

Figure 64
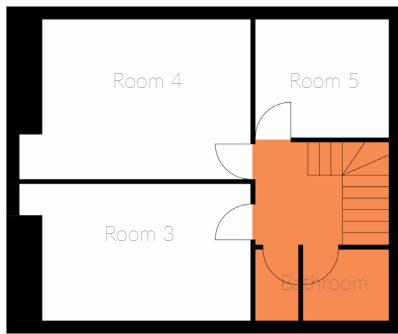
Second Floor

Public | Private

- Private (inc. en-suites)
- Communal Areas (inc. external)
- Circulation & Storage
- Shared WCs
- Public Space

42% Private

58% Public

Figure 65

First Floor

0   5m
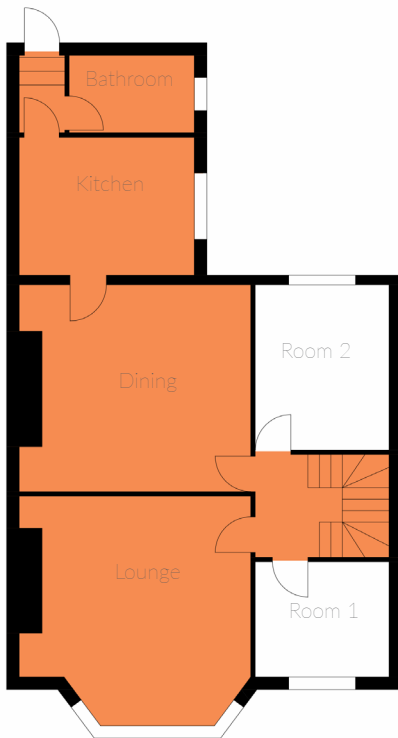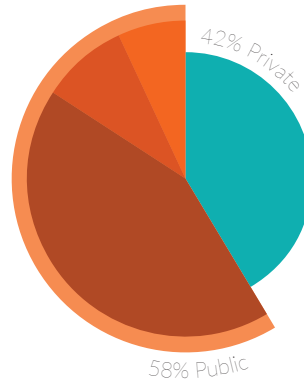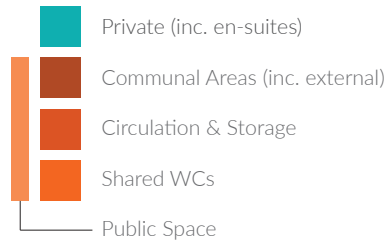
Averages	Areas (m²)	Av. per person (m²)	% of Total
Communal Space	61.1	12.2	42.8
Circulation Space	12.8	2.6	8.9
Shared WC	9.6	1.9	6.7
Exterior	0	0	0
Public	83.5	16.7	58.4
Private	59.5	11.9	41.6
Total Area	143.0	28.6	100
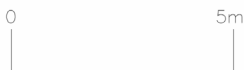
5.2.2 - **Case Study 3-04** | Tyneside Flat - Modified Layout

Figure 66

Second Floor

First Floor

0   5m

Public | Private

- Private (inc. en-suites)
- Communal Areas (inc. external)
- Circulation & Storage
- Shared WCs
- Public Space
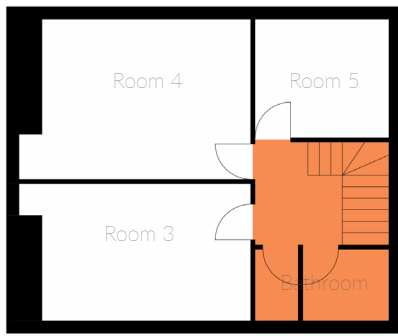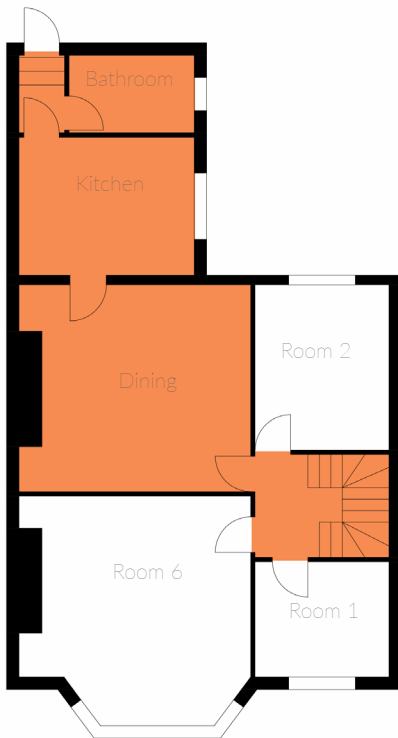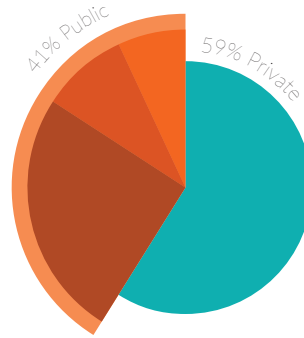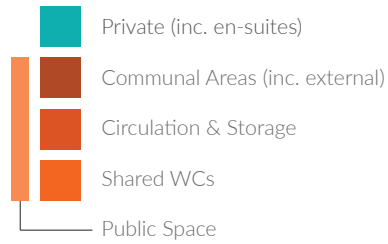
Figure 67

Averages	Areas (m²)	Av. per person (m²)	% of Total
Communal Space	35.6	5.9	25.2
Circulation Space	12.8	2.1	9.0
Shared WC	9.6	1.6	6.8
Exterior	0	0	0
Public	58.0	9.6	41.0
Private	83.2	13.9	59.0
Total Area	141.1	23.5	100
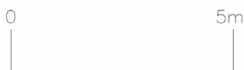
2-01 & 3-01 | Sirer Global 1

2-02 & 3-02 | Sirer Global 2

2-03 & 3-03 | Newcastle Semi

2-04 & 3-04 | Tyneside Flat

Figure 68

5.2.3 'Original Layout' Cross Case Analysis | Public : Private

Space Analysis | Privacy & Communality

Averages	Areas (m²)	Av. Per person (m²)	% of Total
Communal Space	82.0	19.0	**44.7**
Circulation Space	18.8	4.2	**11.3**
Shared WC	10.3	2.3	**6.2**
Exterior	0	0	**0**
Public (all above)	111.1	25.4	**62.2**
Private (inc. ensuite)	63.9	14.2	**37.6**
Total Area	175.0	39.6	**100**

Sirer Global 1   Sirer Global 2   Newcastle Semi   Tyneside Flat 1

Private (inc. en-suites)

Communal Areas (inc. external)

Circulation & Storage

Shared WCs

Public Space

Original Layout Average

38% Private
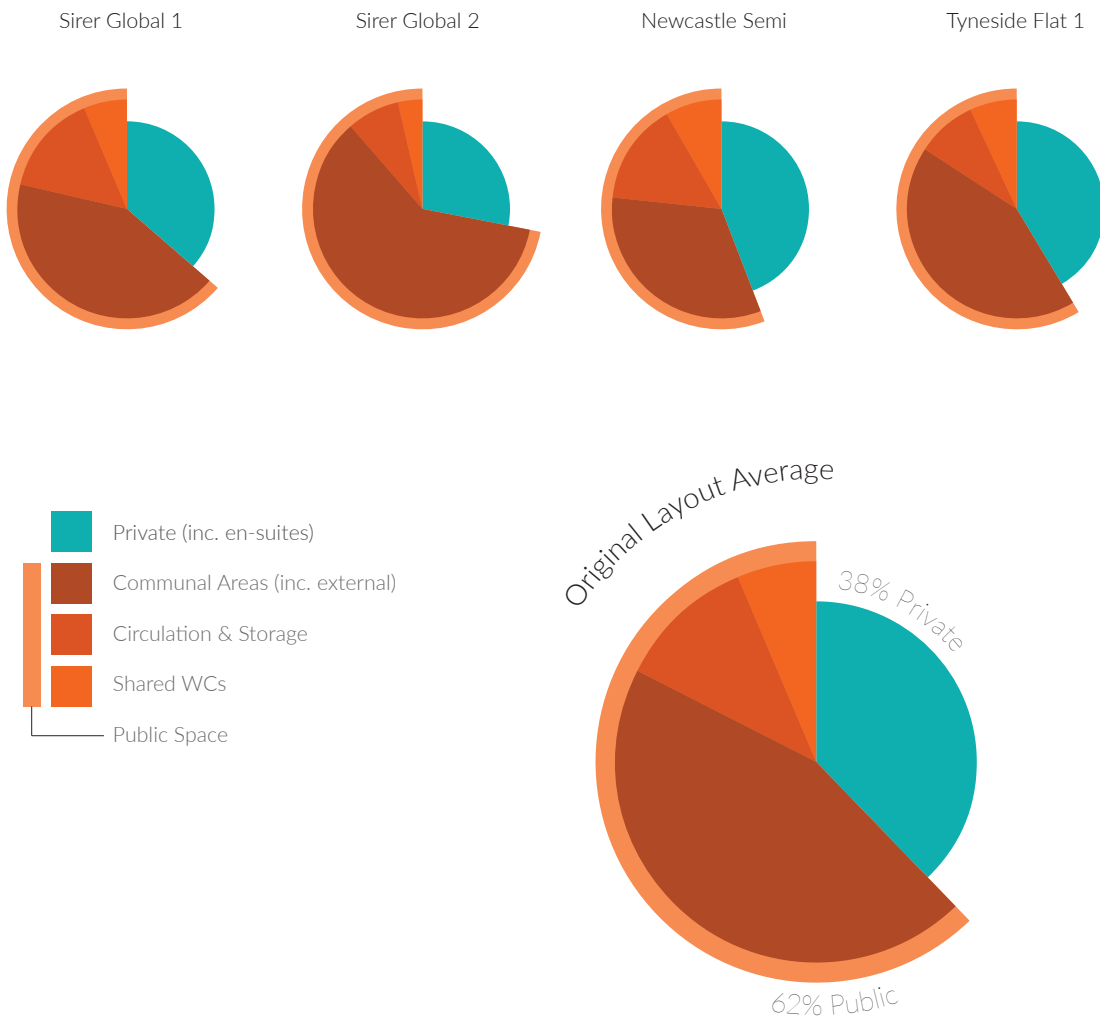
62% Public

Figure 69

5.2.3 'Modified Layout' Cross Case Analysis | Public : Private

Space Analysis | Privacy & Communality

Averages	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	37.1	6.6	20.6
Circulation Space	19.0	3.2	11.5
Shared WC	7.3	1.1	4.7
Exterior	0	0	0
Public (all above)	63.4	10.9	36.8
Private (inc. ensuite)	112.0	19.3	63.2
Total Area	174.8	30.2	100

Sirer Global 1   Sirer Global 2   Newcastle Semi   Tyneside Flat 1

- Private (inc. en-suites)
- Communal Areas (inc. external)
- Circulation & Storage
- Shared WCs
- Public Space

Modified Layout Average
37% Public   63% Private
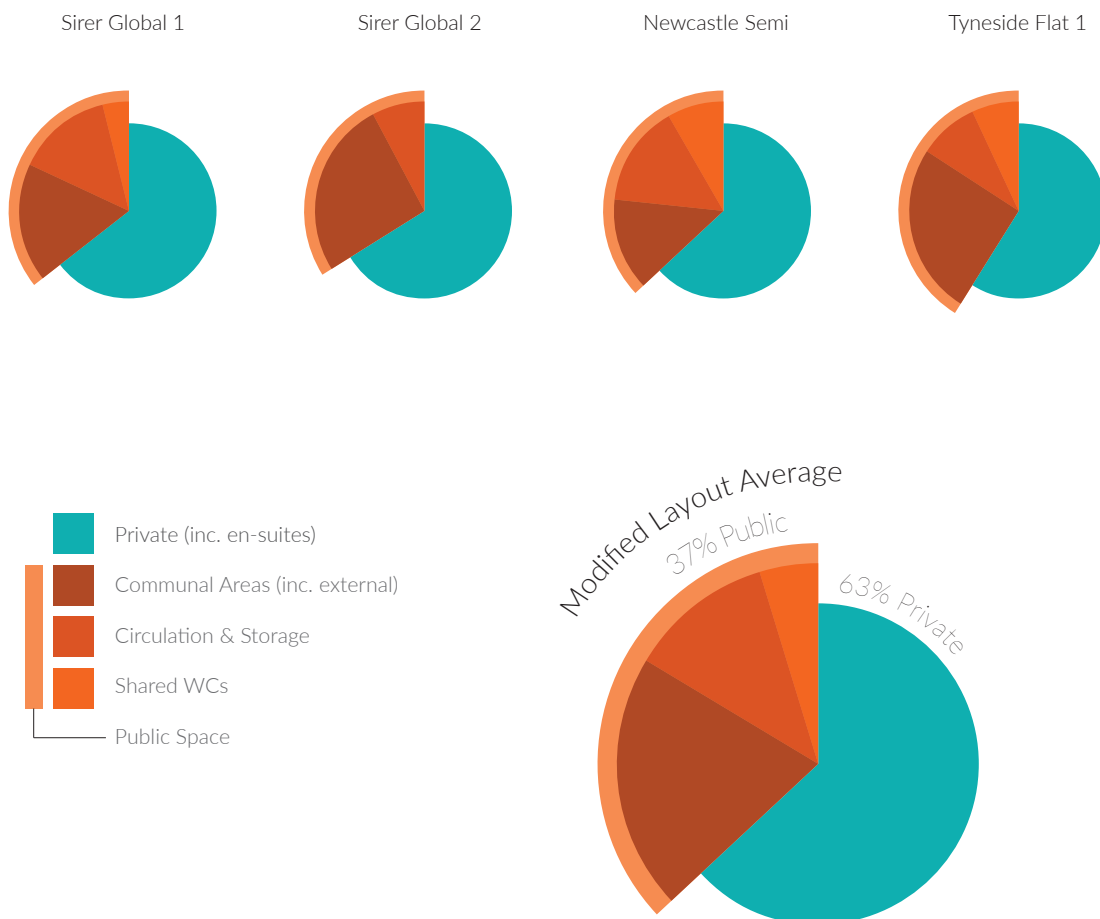
Figure 70

5.2.3 **'Original Layout' Cross Case Analysis** | Area Analysis

Average Areas Calculated for the 'share houses'

Communal Space (inc. external) : 18.9 m^2 pp
Private Space : 14.2 m^2 pp
Total Space : 39.7 m^2 per person

2-01 | LT Josai Share House

2-02 | House for Seven People

2-03 | Sillimdong Share House

2-04 | Gap House

Av. | Traditional House Average Areas
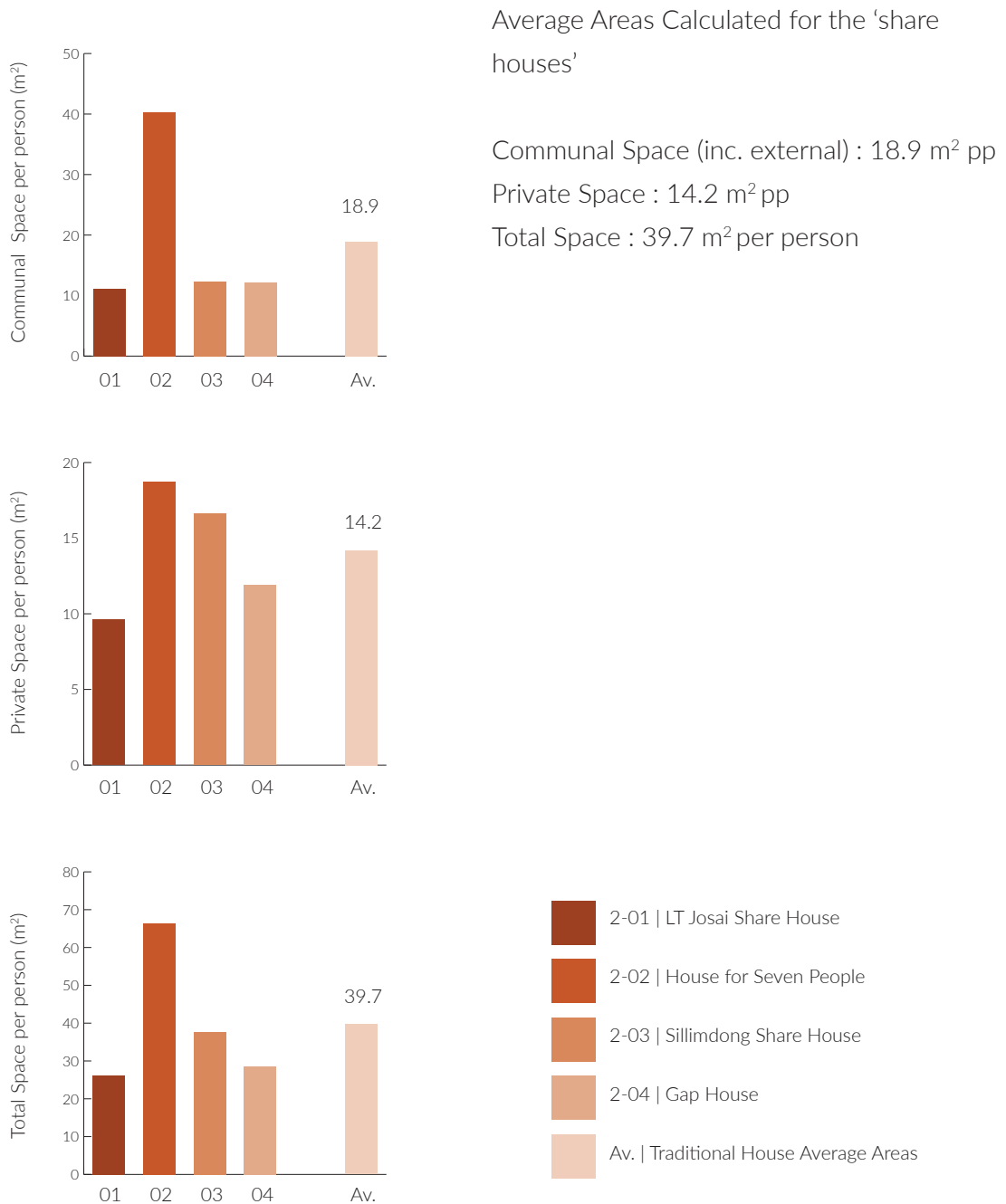
Figure 71

5.2.3 'Modified Layout' Cross Case Analysis | Area Analysis
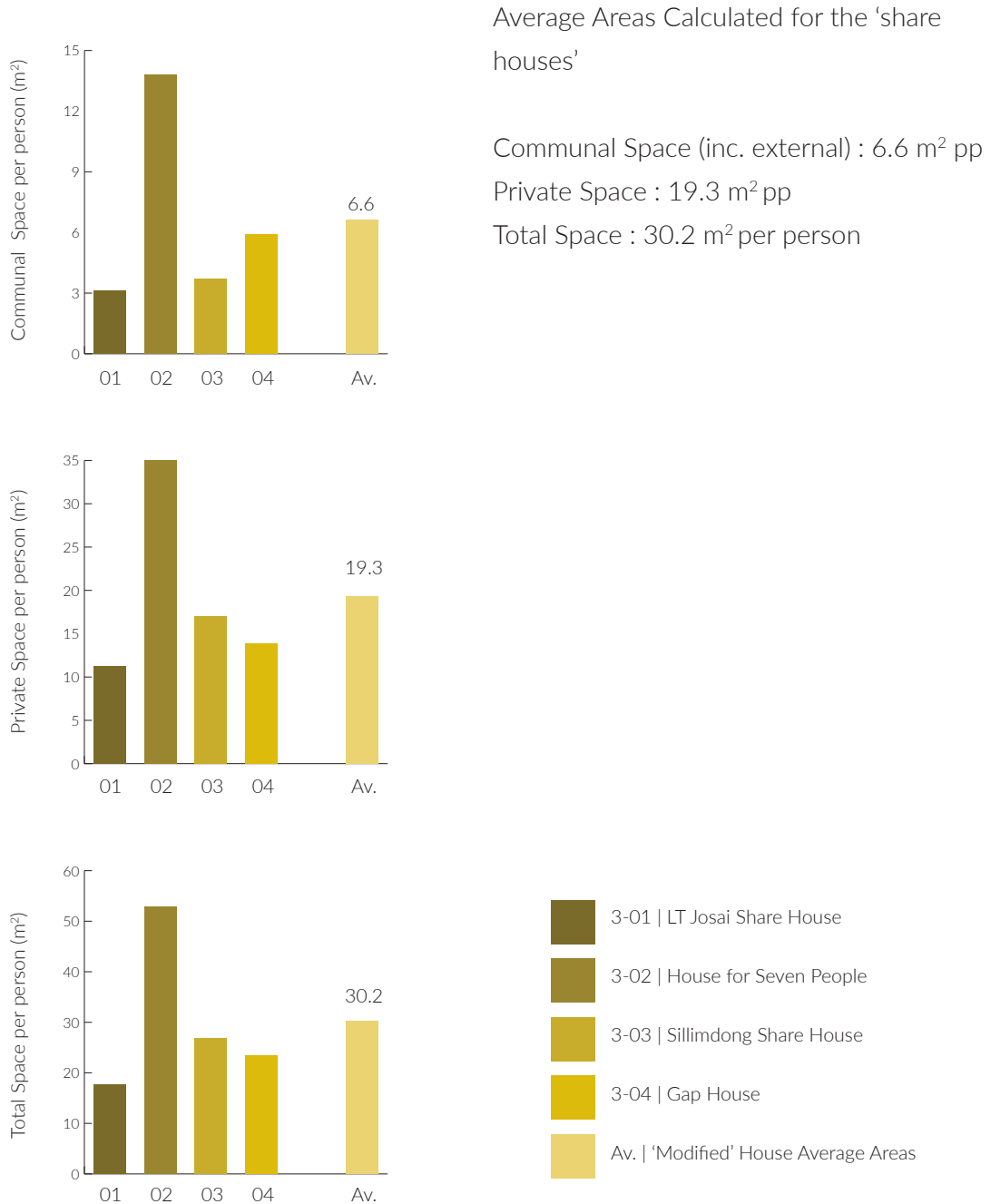
Average Areas Calculated for the 'share houses'

Communal Space (inc. external) : 6.6 m^2 pp
Private Space : 19.3 m^2 pp
Total Space : 30.2 m^2 per person

3-01 | LT Josai Share House

3-02 | House for Seven People

3-03 | Sillimdong Share House

3-04 | Gap House

Av. | 'Modified' House Average Areas

Figure 72

■ 1-01	■ 1-02	■ 1-03	■ 1-04	■ 2-01	■ 3-01	■ 2-02	■ 3-02	■ 2-03	■ 3-03	■ 2-04	■ 3-04
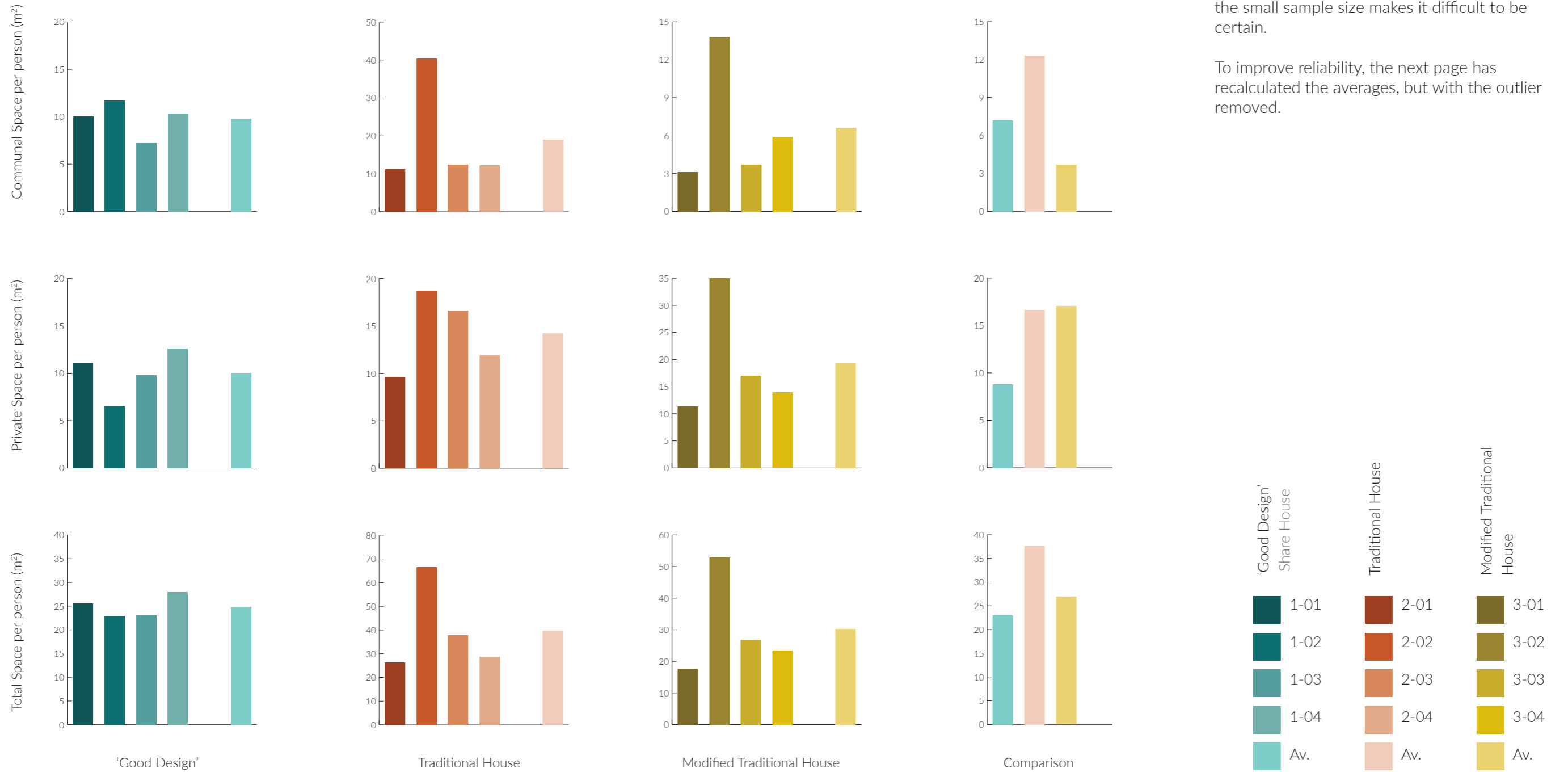
Figure 73

* 2-02/3-02 appears to be an outlier, however the small sample size makes it difficult to be certain.

To improve reliability, the next page has recalculated the averages, but with the outlier removed.

'Good Design'   Traditional House   Modified Traditional House   Comparison

'Good Design'
Share House

Color	
	1-01
	1-02
	1-03
	1-04
	Av.

Traditional House

Color	
	2-01
	2-02
	2-03
	2-04
	Av.

Modified Traditional House

Color	
	3-01
	3-02
	3-03
	3-04
	Av.

Figure 74

80
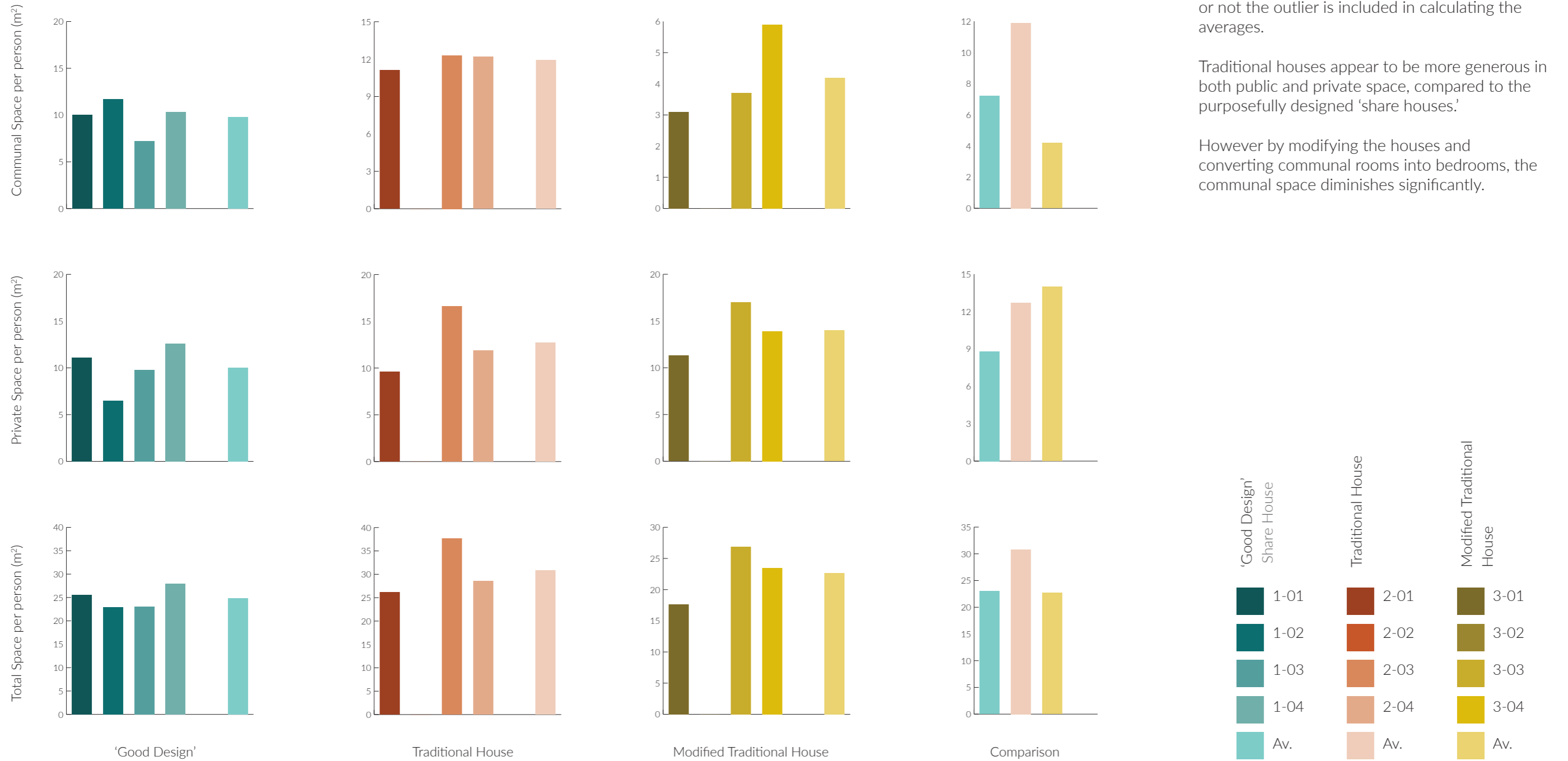
The same patterns emerge regardless of whether or not the outlier is included in calculating the averages.

Traditional houses appear to be more generous in both public and private space, compared to the purposefully designed 'share houses.'

However by modifying the houses and converting communal rooms into bedrooms, the communal space diminishes significantly.

Figure 75

Share House - 'Good Design' Average
40% Private
60% Public

Traditional House Average
38% Private
62% Public

Modified Traditional House Average
37% Public
63% Private

Private (inc. en-suites)

Communal Areas (inc. external)

Circulation & Storage

Shared WCs

Public Space

The balance between public and private areas is remarkably similar in the traditional family home compared to the purposefully designed 'share house'. The modified family home however, completely inverts this balance, significantly affecting the relationship between privacy and communality.

Figure 76

6.0 Discussion & Conclusion

6.1 Discussion | Policy Implications

The findings from this multi-case analysis have shed light on the need to implement more rigorous design guidelines when converting traditional family homes into HMOs. Current legislation enables private landlords to easily convert communal rooms into additional bedrooms, with little concern about the needs of those living in the properties. However, this investigation has revealed how a simple conversion such as this can completely invert the balance between privacy and communality. This not only limits the likely success of a shared household (Heath *et al.*, 2017), but also threatens the mental health of those living in it. Insufficient communal space, restricts the opportunity for social interaction, which can in turn lead to feelings of loneliness, lack of control and insecurity, all of which can threaten one's mental health and wellbeing (Barratt, 2011).

Analysis of Japan and South Korea's 'share houses' has exposed two main advantages of sharing accommodation; the first being that it affords us extra space, a luxury that most individuals would not have if living alone and the second being that it provides the opportunity for social interaction. Whilst the situation in Japan and South Korea is undoubtedly quite different from the UK, the same principles remain relevant. However, given the current state of HMOs in the UK, increased social interaction and extra space are not necessarily characteristics one would associate with shared accommodation. This is especially true for those on lower incomes or SAR claimants who often cannot afford accommodation with a communal living room (Kemp & Rugg, 1998).

Analysis of the 'share houses' also revealed the importance of creating a hierarchy of different spaces to help negate the boundary between public and private. Three out of the four cases sought it imperative to create a variety of conditions within shared space, giving residents the option of spending time in communal areas yet not feeling forced to interact. The opposite is true for HMOs with only one communal room, which leave residents little option but to either interact or be alone. Which is particularly problematic as forced interaction can be detrimental to an individual's mental health (Barratt *et al.*, 2012).

Literature suggests that one of the main complications regarding shared accommodation in the UK is that we are limited to using existing housing stock that hasn't been designed with the housing needs of sharers in mind (Heath *et al.*, 2017). However, a comparison with Japan and South Korea's share houses has revealed that traditional family homes aid themselves

quite well to sharing. Whilst they may be restricted due to varying room sizes and thin walls, the family homes analysed exhibit a very similar ratio of private to communal space as a purposefully designed 'share house'. Suggesting that modifications are perhaps the main issue rather than being restricted to existing stock.

There is currently no incentive for landlords to retain communal rooms, despite evidence that they help to support successful sharing (Heath *et al.*, 2017). Bearing this in mind, this paper recommends that local authorities implement stricter guidelines for the conversion of existing housing stock into HMOs, particularly regarding the preservation of communal spaces within the house. Proposing that doing so will help to mitigate some of the mental health risks associated with living in HMOs.

Nevertheless, as significant as these findings may be, they are just one part of the problem. Whilst a more generous living environment may help to aid successful sharing, it cannot overcome some of the challenges that arise from poor management and the inappropriate matching of tenants. Consequently, guidelines such as these will be significantly more effective if enforced alongside improved management regulations and more appropriate matching of tenants.

6.2 Limitations & Focus of Further Research

The relationship between housing layout and shared accommodation remains relatively under researched, therefore it is important to acknowledge that this paper is just the beginning and intended to help mobilise knowledge on the subject. Whilst its findings may be novel, they are far from conclusive and are limited by several factors. One being that the 'share houses' analysed are not based in the UK, making one question their relevance. However, given the conditions in which they have arisen, alongside there not being any similar examples in the UK, they are arguably the most relevant cases that currently exist.

Another limitation, has been the method of data collection, whilst area analysis has revealed interesting results, they are limited due to the size of the sample. What's more, houses types vary significantly across the UK, therefore the sample is not necessarily representative. To strengthen these findings further it would be interesting to use a much larger sample size and observe if the same patterns remain.

Whilst this paper has started to analyse the emergence of the 'share house' as a new typology of housing, there remains gaps in our knowledge. This investigation has considered the architects intentions and design processes, yet little is understood about the lived experiences of those residing in the houses. Further research might consider interviewing residents of the various 'share houses' to get greater insight into how their lives have been influenced by their physical environment.

6.3 Conclusion

This research paper has identified that the success of a shared house is largely affected by how effectively it manages to balance the needs of the individual with those of the collective (Heath *et al.*, 2017). What's more, it has highlighted that the physical environment can have a huge impact on the likelihood of achieving this balance.

Most shared accommodation in the UK has not been designed with the housing needs of sharers in mind and is often created by modifying existing family homes to make them HMO compliant. There are concerns that inconsiderate conversions of family homes can exacerbate feelings of loneliness, insecurity, and lack of control, all of which can be detrimental to one's health and well-being (Barratt, 2011; Health *et al.*, 2017).

Analysis of Japan and South Korea's purpose-built 'share houses' has helped to reveal what constitutes as 'good design' when it comes to designing shared accommodation. Highlighting that shared accommodation can be made a more positive experience by designing environments that encourage social interaction and community. Inevitably, some people will choose not to interact, but it is important to provide the option.

Permitting landlords to convert communal rooms into bedrooms, is enabling them to significantly disrupt the balance between privacy and communality, which in turn limits the potential for that household to be successful. By converting communal rooms into bedrooms, you limit the opportunity for social interaction, which inadvertently affects the relationships between housemates. This illustrates the importance of implementing more rigorous HMO legislation that limits the ability for landlord's to convert communal rooms into bedrooms.

Given that shared accommodation is predicted to become increasingly relied upon in the future (Batty *et al.*, 2015), the findings from this paper are particularly relevant. If we

fail to acknowledge the implications of poorly designed shared accommodation, we risk exacerbating the link between living in HMOs and poor mental health. The 'share houses' of Japan and South Korea, present a thought-provoking response to an increasing demand for shared accommodation, viewing it as an opportunity, rather than an inevitability. Whilst there may not currently be any examples of 'share houses' in the UK, it is not unrealistic to think that they may emerge in the future.

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Figure 11 | Nishikawa, M. (2014) *LT Josai - 1/22* Retrieved from https://www.archdaily.com/497357/lt-josai-naruse-inokuma-architects/534df2b6c07a8067e2000060-lt-josai-naruse-inokuma-architects-photo

Figure 12 | Nishikawa, M. (2014) *LT Josai - 12/22* Retrieved from https://www.archdaily.

com/497357/lt-josai-naruse-inokuma-architects/534df2d2c07a80d193000051-lt-josai-naruse-inokuma-architects-photo

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Public | Private - Area Calculations

Share House' - Good Design

LT Josai - Share House — No. of beds: 13

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	104.23	8.017692308	31.25712
Circulation Space	39.71	3.054615385	11.90847
Shared WC	18.79	1.445384615	5.634859
Shared Balcony	26.21	2.016153846	7.860013
Public (all above)	188.94	14.53384615	56.66047
Private (inc. ensuite)	144.52	11.11692308	43.33953
Total Area	333.46	25.65076923	100

House for 7 people — No. of beds: 7

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	61.16	8.737142857	38.07508
Circulation Space	23.42	3.345714286	14.58009
Shared WC	9.46	1.351428571	5.889311
Shared Balcony	20.95	2.992857143	13.0424
Public (all above)	114.99	16.42714286	71.58688
Private (inc. ensuite)	45.64	6.52	28.41312
Total Area	160.63	22.94714286	100

Sillimdong Share House — No. of beds: 10

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	59.43	5.943	25.79651
Circulation Space	43.59	4.359	18.92091
Shared WC	16.72	1.672	7.257574
Shared Balcony	12.16	1.216	5.278236
Public (all above)	131.9	13.19	57.25323
Private (inc. ensuite)	98.48	9.848	42.74677
Total Area	230.38	23.038	100

Gap House — No. of beds: 3

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	25.935	8.645	30.99677
Circulation Space	9.59	3.196666667	11.46169
Shared WC	5.36	1.786666667	6.406119
Shared Balcony	4.925	1.641666667	5.88622
Public (all above)	45.81	15.27	54.75081
Private (inc. ensuite)	37.86	12.62	45.24919
Total Area	83.67	27.89	100

Averages

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	62.68875	7.835708791	31.53137
Circulation Space	29.0775	3.488999084	14.21779
Shared WC	12.5825	1.563869963	6.296966
Shared Balcony	16.06125	1.966669414	8.016716
Public (all above)	120.41	14.85524725	60.06285
Private (inc. ensuite)	81.625	10.02623077	39.93715
Total Area	202.035	24.88147802	100

Traditional Houses - Original Layout

London House 1 Pre Refurb — No. of beds: 4

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	44.24	11.06	42.20971
Circulation Space	15.74	3.935	15.01765
Shared WC	6.44	1.61	6.144452
Shared Balcony	0	0	0
Public (all above)	66.42	16.605	63.37182
Private (inc. ensuite)	38.39	9.5975	36.62818
Total Area	104.81	26.2025	100

London House 2 Pre Refurb — No. of beds: 4

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	161.26	40.315	60.67652
Circulation Space	20.16	5.04	7.585506
Shared WC	9.7	2.425	3.649772
Shared Balcony	0	0	0
Public (all above)	191.12	47.78	71.9118
Private (inc. ensuite)	74.65	18.6625	28.0882
Total Area	265.77	66.4425	100

Newcastle House 1 Pre Refurb — No. of beds: 5

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	61.56	12.312	32.68904
Circulation Space	28.21	5.642	14.97982
Shared WC	15.38	3.076	8.16695
Shared Balcony	0	0	0
Public (all above)	105.15	21.03	55.83581
Private (inc. ensuite)	83.17	16.634	44.16419
Total Area	188.32	37.664	100

Tyneside Flat Pre Refurb — No. of beds: 5

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	61.13	12.226	42.76021
Circulation Space	12.75	2.55	8.918579
Shared WC	9.62	1.924	6.729155
Shared Balcony	0	0	0
Public (all above)	83.5	16.7	58.40795
Private (inc. ensuite)	59.46	11.892	41.59205
Total Area	142.96	28.592	100

Averages

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	82.0475	18.97825	44.58387
Circulation Space	19.215	4.29175	11.62539
Shared WC	10.285	2.25875	6.172582
Shared Balcony	0	0	0
Public (all above)	111.5475	25.52875	62.38184
Private (inc. ensuite)	63.9175	14.1965	37.61816
Total Area	175.465	39.72525	100

Traditional Houses - Modified Layout

London House 1 Post Refurb — No. of beds: 6

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	18.49	3.081666667	17.50781
Circulation Space	15.05	2.508333333	14.25054
Shared WC	3.98	0.663333333	3.768583
Shared Balcony	0	0	0
Public (all above)	37.52	6.253333333	35.52694
Private (inc. ensuite)	68.09	11.34833333	64.47306
Total Area	105.61	17.60166667	100

London House 2 Post Refurb — No. of beds: 5

	Areas (m2)	Av. Per person (m2)	3
Communal Space	68.77	13.754	26.04234
Circulation Space	20.16	4.032	7.634339
Shared WC	0	0	0
Shared Balcony	0	0	0
Public (all above)	88.93	17.786	33.67668
Private (inc. ensuite)	175.14	35.028	66.32332
Total Area	264.07	52.814	100

Newcastle House 1 Post Refurb — No. of beds: 7

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	25.69	3.67	13.63371
Circulation Space	28.21	4.03	14.97108
Shared WC	15.38	2.197142857	8.162182
Shared Balcony	0	0	0
Public (all above)	69.28	9.897142857	36.76697
Private (inc. ensuite)	119.15	17.02142857	63.23303
Total Area	188.43	26.91857143	100

Tyneside Flat Pre Refurb — No. of beds: 6

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	35.56	5.926666667	25.19484
Circulation Space	12.75	2.125	9.033584
Shared WC	9.62	1.603333333	6.815927
Shared Balcony	0	0	0
Public (all above)	57.93	9.655	41.04435
Private (inc. ensuite)	83.21	13.86833333	58.95565
Total Area	141.14	23.52333333	100

Averages

	Areas (m2)	Av. Per person (m2)	% of Total
Communal Space	37.1275	6.608083333	20.59468
Circulation Space	19.0425	3.173833333	11.47239
Shared WC	7.245	1.115952381	4.686673
Shared Balcony	0	0	0
Public (all above)	63.415	10.89786905	36.75373
Private (inc. ensuite)	111.3975	19.31652381	63.24627
Total Area	174.8125	30.21439286	100

Share House

		Ground					First			Second					Total	Average Per Person	Total Public	% Public	% Private
	Communal Areas	57.41					46.82								104.23	8.017692308	188.948	56.66150875	
	Circulation	16.97					11.93				10.818				39.718				
	WC	17.76					1.03								18.79				
	Outdoor Area									13.07	13.14				26.21				
		Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 11	Room 12	Room 7	Room 8	Room 9	Room 10	Room 13					
	Bedrooms	11.05	11.19	11.14	11.13	11.14	11.05	11.18	11.08	11.19	11.07	11.19	10.99	11.12	144.52	11.11692308			43.33849125
														Total Area	333.468	25.65138462			
														GIFA	307.258	23.63523077			

House for 7 people

		Ground		First				Total	Average Per Pe	Total Public	% Public	% Private
	Communal Areas	53.61		27.96				81.57	6.274615385	126.17	73.43577207	
	Circulation	NA		NA								
	WC	3.88	0.98	1.56	1.11	1.93		9.46				
	Outdoor Area	24.97		10.17				35.14				
		Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7				
	Bedrooms	6.05	6.01	6.1	6.1	6.1	7.11	8.17	45.64	3.510769231		26.56422793
							Total Area	171.81	13.21615385			
							GIFA	136.67	10.51307692			

Silimdong House

		Ground	First		Second				Third		Fourth	Total	Average Per Pe	Total Public	% Public	% Private
	Communal Areas	16.69							42.74			59.43	6.274615385	131.9	57.25323379	
	Circulation	12.97	9.89		8.3				5.7		6.73	43.59				
	WC	1.58	5.87		5.87		1.32	0.48	1.6			16.72				
	Outdoor Areas	12.16										12.16				
			Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	Room 7	Room 8	Room 9	Room 10				
	Bedrooms		9.5	9.5	8.7	8.7	9.7	9.7	9.32	9.32	12.02	12.02	98.48			42.74676621
										Total Area	230.38	23.038				
										GIFA	218.22	21.822				

Gap House

		First Floor						Second Floor					Third Floor						Averages	Average per person	Total Public	% Public	% Private
		Flat 1			Totals	Flat 2			Totals	Flat 3		Totals	Flat 4			Totals	Flat 5		Totals	Flat 6		Totals	
	Communal	17.24			17.24	17.62			17.62	17.31		17.31	17.68			17.68	15.84	11.2	18.97	46.01	17.47	22.28	39.75	25.935	8.645
	Circulation	7.05	2.85	9.9	1.7	8.32	10.02	1.72	8.22	9.94	7.03	2.93	9.96	3.1	4.06	1.02	8.18	8.32	1.24	9.56	9.593333333	45.81666667	54.75441182
	WC	2.34	3.12	5.46	3.15	1.72	4.87	3.12	1.71	4.83	3.15	2.35	5.5	2.36	4.21	6.57	3.15	1.8	4.95	5.363333333			
	Outdoor	4.92	4.92	3.15	4.93	4.93	4.92	4.92	4.92	4.93	4.92	4.92	4.93	4.925									
		Room 1	Room 2	Room 3	Room 1	Room 2	Room 3	Room 1	Room 2	Room 3	Room 1	Room 2	Room 3	Room 1	Room 2	Room 3	Room 1	Room 2	Room 3				
	Bedrooms	10.52	11.59	10.14	32.25	10.47	10.18	16.43	37.08	10.34	10.24	16.39	36.97	10.45	11.68	10.35	32.48	13.78	17.38	12.05	43.21	13.06	12.86	19.25	45.17	37.86			45.24558818
																				Total Area	83.67666667	27.89222222		
																				GIFA	78.75166667	26.25055556		

Siren Global 1 Original

		Ground	First			Total	Total Public	% Public	% Private
	Communal Areas	44.24				44.24	66.42	63.37181567	
	Circulation	9.3	6.44			15.74			
	WC	1.21	5.23			6.44			
	Outdoor Area					0			
		Room 1	Room 2	Room 3	Room 4				
	Bedrooms	5.82	10.07	8.31	14.19	38.39			36.62818433
						104.81			
					GIFA	104.81			

Siren Global 1 Modified

		Ground	First			Total	Total Public	% Public	% Private
	Communal Areas	18.49				18.49	37.52	35.52693874	
	Circulation	9.3	5.75			15.05			
	WC		3.98			3.98			
	Outdoor Area					0			
		Room 1	Room 2	Room 3	Room 4	Room 5	Room 6		
	Bedrooms	13.31	13.65	16.33	8.69	10.29	5.82	68.09	64.47306126
								105.61	
					GIFA	105.61	17.60166667		

Siren Global 2 Original

		First	Second		Total	Total Public	% Public	% Private
	Communal Areas	161.26			161.26	191.12	71.91180344	
	Circulation	11	9.16		20.16			
	WC		9.7		9.7			
	Outdoor Area				0			
		Room 4	Room 1	Room 2	Room 3			
	Bedrooms	16.05	25.56	23.59	9.45	74.65		28.08819656
						265.77		
				GIFA	265.77			

Siren Global 2 Original

		First	Second	Total	Total Public	% Public	% Private
Communal Areas		68.77		68.77			
Circulation		11	9.16	20.16	88.93	33.67667664	
WC				0			
Outdoor Area				0			
Bedrooms	Room 1	Room 2	Room 3	Room 4	Room 5		
	39.73	41.22	25.65	35.13	33.41	175.14	66.32332336
						264.07	
				GIFA	264.07	52.814	

Newcastle Semi Original

	Ground	First	Second	Total	Average Per Pe	Total Public	% Public	% Private
Communal Areas	61.56			61.56	12.312			
Circulaton	11.66	10.29	6.26	28.21		105.15	55.83581138	
WC	1.43	8.22	5.73	15.38				
Outdoor Area (Not inc. in commnal)								
Bedrooms	Room1	Room 2	Room 3	Room 4	Room 5			
	22.52	17.4	10.38	13.64	19.23	83.17		44.16418862
						188.32	37.664	
				GIFA	188.32	37.664		

Newcastle Semi Modified

	Ground	First	Second	Total	Average Per Pe	Total Public	% Public	% Private
Communal Areas (inc. circula	25.69			25.69	3.67			
Circulation	11.66	10.29	6.26	28.21		69.28	36.76696917	
WC	1.43	8.22	5.73	15.38				
Outdoor Area (Not inc. in commnal)				0				
Bedrooms	Room 1	Room 7	Room 2	Room 3	Room 4	Room 5	Room 6	
	9.91	26.07	22.52	17.4	10.38	13.64	19.23	119.15	63.23303083
							188.43	26.91857143
					GIFA	188.43	26.91857143	

Tyneside Flat Original

		First	Second	Total	Total Public	% Public	% Private
Communal Areas		61.13		61.13			
Circulation		5.59	5.34	10.93	81.68	57.87161683	
WC		4.93	1.57	3.12	9.62		
Outdoor Area				0			
Bedrooms	Room 1	Room 3	Room 4	Room 5	Room 6		
	11.21	7.83	17.49	8.05	14.88	59.46	42.12838317
						141.14	
				GIFA	141.14	28.228	

Tyneside Flat Modified

		First	Second	Total	Total Public	% Public	% Private
Communal Areas		35.556		35.556			
Circulation		1.79	5.62	5.34	12.75	57.926	41.04268224
WC		4.93	1.57	3.12	9.62		
Outdoor Area				0			
Bedrooms	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6	
	11.21	23.75	7.83	17.49	8.05	14.88	83.21	58.95731776
							141.136	
					GIFA	141.136	23.52266667	