

University of Dundee

The Hybrid Home

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THE HYBRID HOME:

ADAPTABLE DESIGN FOR SMALL HOMES WITH CHILDREN

July 2022

The Hybrid Home: adaptable design for small homes with children.

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Project web: <https://athomewithchildren.ac.uk>

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1. FOREWORD

This design guide is one of the outputs of the *At Home with Children: Learning from Lockdown* research project. The project's main aim was to understand what constitutes 'liveable' domestic space for families with children (1-17 years old) under pandemic conditions. The research sought lessons from the lockdown experiences of families in order to inform the ways we re-imagine, design, and inhabit our homes. Part of this exploration centred on the role of domestic space in alleviating and/or exacerbating the psychological and social impacts of COVID-19 on families.

The Hybrid Home reflects on how we should design homes for families with children beyond the pandemic. Lockdown has revealed new ways of 'being together' at home, shaped by the individual needs of children as well as adults. The idea of a 'new normal' that includes hybrid working and potential schooling from home, for example, demands a re-think of domestic space design. Even without such radical changes to homelife, the intensity of living through lockdown has revealed spaces of tension and inadequacies in the family home that can be addressed through design that better supports ongoing everyday life. *The Hybrid Home: adaptable design for small homes with children* therefore calls for housing designers and housing providers to consider design adaptability as the best way to meet the wellbeing needs of both children and adults living together in small homes.

The Hybrid Home is supported by research conducted by Newcastle University (PI: Professor Rosie Parnell, RA: Dr Husam Abo Kanon, Dr Emily Pattinson, Dr Alkistis Pitsikali) and the University of Dundee (Co-I: Dr Sandra Costa Santos, RA: Dr Heba Sarhan) thanks to funding from the UKRI/AHRC Covid-19 Rapid Response Fund [Grant number: AH/V014943/1].

2. EXECUTIVE SUMMARY

Lockdown, triggered by the COVID19 pandemic, brought the lived experience of housing to the fore. Demands on the family home both intensified and expanded to accommodate remote working, schooling, play and exercise, putting design standards to the test.

The *At Home with Children: Learning from Lockdown* research project was concerned to understand the lived experiences of families with children in relation to the 'liveability' of domestic space and family wellbeing. The study revealed that the challenges of lockdown domestic life were particularly felt by those living in small terraces and flats. It also highlighted that most of these families made adaptations to their homes during lockdown, and that more than half expected to keep the changes they had made. For many families, the necessity to co-exist in the home for long unbroken periods of time presented unprecedented spatial and wellbeing-related challenges. With children at home, work-life patterns shifted, often revolving around home-schooling or childcare responsibilities.

KEY FINDINGS

The *At Home with Children* Survey Report shows that families' satisfaction with their home during lockdown differed significantly according to housing type. For example, those who lived in small terraces were least satisfied with their home size and layout, the number of rooms and the size of these rooms, while families who lived in flats were least satisfied with their connection with the outdoors and were most likely to report that a lack of time and space to themselves impacted their wellbeing. Socio-spatial challenges were also felt unevenly across housing types, with shared/crowded spaces and limited space availability posing a problem for over 1 in 2 families living in small terraced houses and flats. However, challenges related to a lack of adaptability and compartmentalisation were felt across all housing types.

ADAPTABILITY OF THE HOME DURING LOCKDOWN

- Almost a quarter of families were dissatisfied with their home's ability to meet their needs. However, 40% of families living in flats and 35% of those living in small terraces were dissatisfied, compared to 18% in medium or large terraces and 15% in detached houses.
- Half of respondents were dissatisfied with their home as a space for home schooling. Out of all housing types, families living in flats were least satisfied.
- A third of respondents were dissatisfied with their home as a space for alone time. Out of all housing types, families living in flats were least satisfied.

FAMILY WELLBEING DURING LOCKDOWN

- Around half of respondents experienced more familial conflict or tension during lockdown.
- More than two-thirds of respondents agreed lockdown made it more difficult to have 'time and space to themselves'.
- Around half of respondents agreed that lack of time and space to themselves had a negative impact on their wellbeing.

RECOMMENDATIONS

Improving the liveability of small family dwellings requires a degree of spatial adaptability in the design to accommodate emerging needs of adults and children. Design which enables the designation of spaces for children's play and family time, for individual schoolwork, working from home and alone time for both adults and children, will ensure spatial adaptability in the long run.

POLICYMAKERS SHOULD

- Prioritise design (and refurbishment) for **adaptability** in national and local authority housing policy, design codes and design guidance for small family dwellings. Adaptability is here interpreted to extend beyond issues of access and mobility (Part M) over a resident's life course, to include responses to the everyday diverse and changing activities of families and their related social and mental wellbeing needs.
- Review domestic space standards and policy definitions (such as 'Decent Home') to address families' need for **Space to Play**.

DESIGNERS SHOULD

- **Designate Space to Play (child play and family time), Space to Work (schoolwork and working-from-home) and Space to Rest (individual adult and child alone time).**
- **Design for Adaptability**
 - The design of multi-functional living/dining/kitchen spaces for small family dwellings should allow compartmentalisation.
 - Consider adaptable design strategies that enhance space efficiency for various needs, such as designing dividable rooms, flexible partitions, layout reconfigurations, etc.
 - Include accessible storage spaces in different interior and exterior locations to increase the adaptability of small homes with children.
- **Design for Play**
 - Attend to requirements of play spaces to be safe and appropriate for a range of different activities, from sedentary to active and messy play.
 - Incorporating adaptable spaces, served by accessible storage, enables more play possibilities within space-limited dwellings.
- **Design for Wellbeing**
 - Attend to environmental aspects such as natural ventilation, appropriate natural lighting, and sound insulation. Our survey showed that post-2010 dwellings had the most challenging indoor environments.
 - Providing direct access to a private or shared outdoor space and a sense of connection to the outdoors from the interior of the dwelling are both important factors in family wellbeing.

3. INTRODUCTION

THE CASE FOR SPACE IN HOUSING, WHAT NEXT?

Nine years before the UK's first national lockdown, the RIBA initiated a debate on contemporary homes through *The Case for Space*¹. Primarily, as the most urgent issue, the debate focussed on the *amount* of space in the home, as a requirement for both dweller wellbeing and home adaptability. However, the need for research into *how* the space of the home should meet contemporary needs and lifestyles was also emphasised.

The document used the Greater London Authority's *Housing Space Standards* as a contemporary benchmark. The *Standards* considered normal family activities to include 'eating, socialising, and playing'. Accordingly, space for 'cooking/eating/living' was viewed as a primary need of the family home, whilst (strikingly) 'space for play' was considered a secondary need and therefore optional. This understanding of the spatial needs of families was contingent on the alignment of the child's needs to those of the adult and rooted in mid-century understandings of 'being together' as a family. In other words, 'being together' at home hinged on joint leisure during the free time that family members had from paid work and schooling duties. Similarly, 'private external space' was listed as a secondary need, with obvious looming implications for lockdown access to the outdoors.

The COVID-19 lockdown shook the family home to the core and put *Housing Space Standards* to the test by introducing *new ways* of being together as a family for extended periods of time. The fact that most families made changes to their homes to adapt to the new challenges, tells us that size itself is not enough to ensure adaptability. But also, in the aftermath of the pandemic, 'hybrid working' and 'blended' home-school learning are part of our 'new normal', highlighting the need to re-think the ways of 'being together' as a family.

The Hybrid Home: adaptable design for small homes with children brings new understandings of 'being together' as a family in the contemporary domestic setting. Working from home whilst supervising a toddler, wanting to be together whilst doing parallel activities, or needing adult support whilst studying, are just some examples of this new togetherness. The 'hybrid home' could be conceptualised as a domestic space for work, rest, and play, which facilitates adaptability to accommodate the individual needs of both adult and child.

The Hybrid Home design guidance sets out adaptable design practices for liveable small family homes. The research underpinning the design guidance suggests that spatial adaptability is an important contributor to dwelling-scale liveability and family wellbeing. Adaptable design of small homes reconfigures multi-functional living spaces to better accommodate privacy and proximity needs of both adult and child. Finally, the Hybrid Home (work | rest | play) asserts the place of the child in the home as an individual in their own right.

¹ RIBA, *The Case for Space: the size of England's new homes*, (London: Royal Institute of British Architects, 2011). <https://www.architecture.com/knowledge-and-resources/resources-landing-page/space-standards-for-homes> (Accessed July 2022).

4. METHODOLOGY AND METHODS

The *At Home with Children* research project involved three phases. This design guide draws from the data collected in each phase:

Phase one included a large-scale survey² completed online by 1246 families who were asked about their satisfaction with their home during lockdown, along with any dwelling-related challenges they faced and any changes they made;

Phase two involved online in-depth interviews³ with 45 of these surveyed families to better understand which spaces were important to them during lockdown and which didn't work for them, as well as the perceived relationship of home space to family wellbeing;

Phase three involved focus groups to engage members of different participating households in co-developing a set of design tools and strategies to improve the adaptability of the family home.

Each phase of the research built on the previous, with the phase three focus groups culminating in discussion about propositional design and inhabitation ideas.

Ten focus groups were conducted online with a total of 21 adults and 15 children. Participants were grouped, according to their experiences, around common challenge scenarios in the family home that had emerged from the findings of phases one and two. Children's focus groups involved a 'Diamond 9' exercise, which asked them to discuss and rank nine varied images of furnished domestic spaces, according to how well they thought they might address a particular challenge scenario. Children reflected on their own experiences both during and post-lockdown in order to come to their conclusions. Adult focus groups took place in two parts. The first part explored possible micro-interventions - or 'Home Hacks' - for existing dwellings that might address specific challenge scenarios. The second part took a participatory approach to re-designing a 3-bedroom terraced house with the highest average area achieved by housebuilders in England: 98sqm. The plan for this sample house was taken from the RIBA report, *The Case for Space*, and selected (from the two dwelling types presented) as the most appropriate for a family with children.⁴ The research team produced annotated 3D drawings to test design strategies that could increase the adaptability of living spaces. The visuals were used as a prompt for discussion and amended throughout to reflect participants' thoughts about the ways in which space might address challenge scenarios and help alleviate family tensions, informed by their experiences during lockdown. The common issues and reflections that emerged were then used to develop the design guidance.

² Emily Pattinson et al., *At Home with Children: Learning from Lockdown Interim Findings Report: Survey*. (April 2022). <https://athomewithchildren.ac.uk/findings/> (Accessed July 2022)

³ Emily Pattinson et al., *At Home with Children: Learning from Lockdown Interim Findings Report: Interviews*. (June 2022). <https://athomewithchildren.ac.uk/findings/> (Accessed July 2022)

⁴ See Appendix, Figure 8 for original plans from *The Case for Space*. The report also includes designs for a one-bed flat.

5. HOW TO READ THIS DESIGN GUIDANCE

WORK | REST | PLAY

The structure of the design guidance responds to the concept of *The Hybrid Home* as a space where work, rest and play of both adults and children can co-exist. *Work* relates to working-from-home and schoolwork-from-home; *rest* involves both adult alone time and child alone time; and *play* includes family time together and child play. Within each theme (work | rest | play), the guidance presents specific space needs with a description of the main spatial challenges, definitions and locations of spaces and the design considerations for space. Drawing on *The Case for Space*⁵, the design guide then takes the 'highest-average area' 3-bedroom terraced house as the basis for exemplifying each space need and its design features, this time updated with a post-lockdown understanding of family needs. The principles set out in the design guidance have particular relevance for terraced houses and small flats, but are intended to be applicable across housing types.

DESIGN PRINCIPLES

The guidance is based on the overarching principle of adaptability and four key sub-principles, as outlined below. These principles inform the rationale of the design guide, driven by the aim to improve the liveability of small dwellings for families with children.

OVERARCHING PRINCIPLE

ADAPTABILITY means enabling a space to extend, allow flexible spatial connectedness (open space or separated space) and be multifunctional in use, whilst maintaining appropriate comfort levels.

SUB-PRINCIPLES

EXTENSIBLE SPACE facilitates future extension to meet changing family circumstances⁶.

FLEXIBLE CONNECTEDNESS refers to the degree of visual, acoustic, and physical isolation required to increase or decrease communication and privacy between two spaces and allow them to be extendable.

MULTI-FUNCTIONAL SPACE can be easily laid out in multiple configurations, and thus support the complex relations between individual work, rest, and play needs within a limited floor area.

COMFORT is underpinned by essential indoor qualities such as thermal and acoustic comfort, ventilation, and natural light.

SPACE FOR PLAY is a primary spatial need of the child at home. Adaptable design of small family dwellings should provide suitable spaces for children to play safely at home, considering the diversity of spatial requirements demanded by varied modes of play.

⁵ RIBA, *The Case for Space*.

⁶ Milton Keynes Partnership, *Tattenhoe Park Design Code*. (Milton Keynes: Milton Keynes Partnership, 2007)

6. DESIGN GUIDANCE

WORK | REST | PLAY

6.1 WORK



6.1.1 WORKING FROM HOME

MAIN CHALLENGES AND NEEDS

During lockdown, working from home was particularly challenging when adults had to work in multifunctional living spaces intended for various daily activities. This often resulted from a lack of available rooms in the dwelling, limited bedroom size unable to accommodate a desk, or the adult's need to be near children to supervise home-schooling. Lack of privacy and noise were reported as the main challenges that adults faced when working from home.

Working from home in a private space, such as a bedroom, created different challenges. While this afforded privacy and separation from the living spaces, away from disruptions, it also trapped the adult in the same space all day. Adults reported a blurring of boundaries between work and relaxation and identified the need to keep a 'zoom ready' environment as an added pressure.

A lack of technical services such as Wi-Fi, power sockets, etc., throughout the dwelling also posed a challenge for home working, limiting possible locations for setting up an appropriate workplace.

DEFINITIONS OF SPACE

From the described challenges, three types of space are defined. The first is defined as a *designated integrated home working space* within main living areas, including comfortable seating and a flat surface equipped with necessary services for remote working, such as power sockets and Wi-Fi. The second is defined as a *designated separate home working space*, allowing privacy and quiet for work focus and calls. The separation materialises at visual, acoustic, and physical levels to achieve a suitable degree of spatial privacy. The third is defined as a *designated detached home working space* within the dwelling's grounds that provides an independent space for the benefit of work-life separation.

LOCATION OF SPACE

The guidance suggests three different locations for accommodating a *home working space* in the family dwelling according to various work-life needs and modes. The first is to locate a *home working space* within living spaces, preferably with views of adjacent areas. This will allow an adult to work from home while supervising their children. The second location for a *home working space* is in the main bedroom, without affecting its internal circulation or the use of the bedroom furniture. In the case of houses, a *detached home working space* should be considered: with easy access from the house, it helps work-family life separation.



OTHER 'WORKSPACE' OPPORTUNITIES

More generous circulation areas can provide another option for working or schoolwork from home, with the potential for adults / children to be in adjacent living or bedroom spaces, allowing supervision or companionship, while retaining a degree of separation. An attic workspace offers the appeal of greater vertical distance from living spaces, increasing privacy and work-life separation, with potential wellbeing benefits. Consider including a habitable attic space, or the means to easily convert this in the future through an appropriate structural strategy, stair design and first floor layout.

DESIGN CONSIDERATIONS

Both an *integrated* and a *separate home working space* should be provided when designing small family dwellings such as flats or terraced houses. The design of flats should accommodate a space that affords privacy and provides separation from family activities, such as within the adult bedroom, and an area that allows working in proximity to other family activities, such as within the living room. Alongside these spaces, small terraces could include a *detached home working space* in their grounds, or alternatively provide an appropriate space to achieve this in the future.

INDOOR SPACE (LIVING ROOM)

- The size and form of the living room should consider a *designated integrated home working space*. The space should be big enough to accommodate a desk for two people to sit, work and study, and be provided with technical services such as power sockets, Wi-Fi signal, etc. that allow IT equipment to be used.
- Ideally, the space will be connected to adjacent spaces/areas such as the kitchen or dining area through flexible partitions (e.g., sliding walls, foldable partitions, etc) that enable an open or enclosed arrangement. These strategies, alongside the use of materials that enable visual connection between adjacent spaces, allow an adult to work while supervising their children.
- Design strategies should incorporate noise reduction systems to decrease unwanted noise when other activities take place nearby, such as acoustic wall panels, floor dampening, etc.

INDOOR SPACE (MAIN BEDROOM)

- In small dwellings such as flats and small terraced houses, main bedrooms should be designed to accommodate a *designated separate home working space*. This space should be big enough to fit a desk for one person to sit and be provided with accessible storage. The space should enable visual separation from the sleeping area either through a flexible or a fixed partition.
- It is essential to equip the space with IT facilities and electric sockets to enable remote working.

OUTDOOR SPACE

- In small dwellings, the size of an outdoor space, such as the back garden, should allow the future installation of a *detached home working space* (e.g., garden room). The outdoor area should be designed to allow suitable allocation of the space without affecting the natural light and privacy of the main building and adjacent blocks.
- The space should be large enough to accommodate desk area(s) for 2 persons to sit and should be provided with accessible storage.

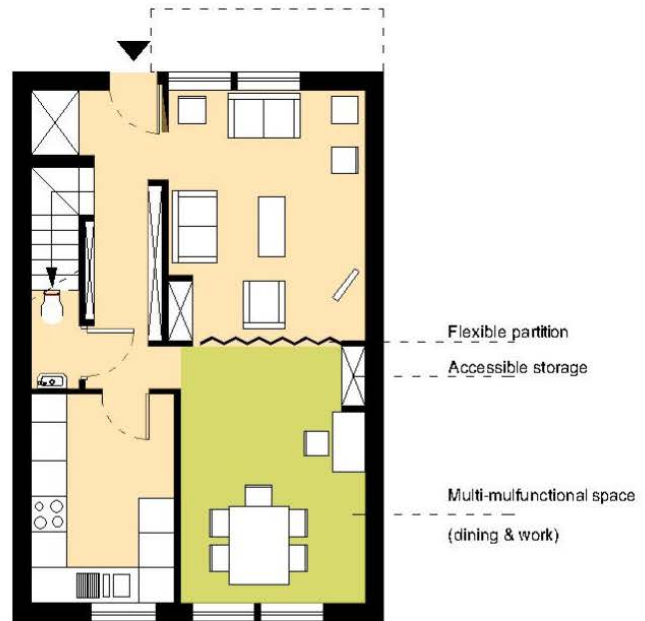
DESIGN CONSIDERATIONS

Living space: adapting the living space to be dividable by incorporating a flexible partition between living and dining areas and creating a multi-functional space to be used as dining/working area.

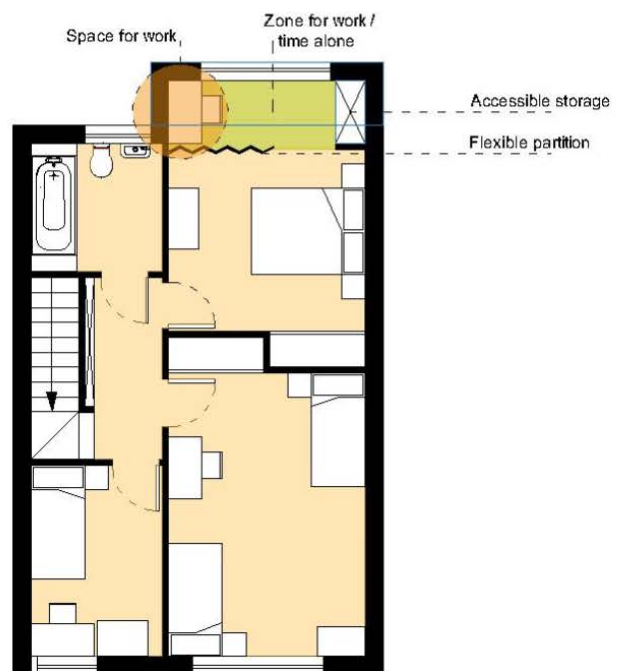
0.5 sqm built-in storage to be incorporated into the multi-functional space.

Main bedroom: An increase of 4 sqm to the bedroom to be used as multi-functional space for working /relaxing.

0.5 sqm built-in storage space to be incorporated into the main bedroom.



Ground floor



First floor

Figure 1 Home Working Spaces

6.1.2 SCHOOLWORK FROM HOME

MAIN CHALLENGES AND NEEDS

Children's home-based schoolwork can be divided into two major categories: independent schoolwork where children study on their own and schoolwork in the presence of adults and with their support. During the pandemic, dwelling design brought considerable challenges to families in both modes of home schooling. For independent schoolwork, challenges of noise and interruption stemmed from siblings sharing a bedroom when all of them were home-schooling, or when one was doing schoolwork and others were playing in the room. On the other hand, doing schoolwork alongside adults in living spaces often meant that there was disruption and noise coming from other family members' activities. While some children just needed awareness of an adult's proximity, others felt a lack of companionship and support and experienced feelings of isolation and inability to concentrate or make progress with work. Another challenge to home schooling was a lack of required services in the appropriate places, such as sockets or Wi-Fi signal.

The design of new family dwellings should incorporate appropriate designated space for children's home-based schoolwork. Not only will dedicated space benefit children's learning and school progress, it will also alleviate tension and conflict between family members, given the increase in the number of children being permanently home schooled⁷ and the decrease in demand for early years childcare⁸ since the beginning of the pandemic.

DEFINITIONS OF SPACE

From the described challenges, there is a need for two types of *schoolwork spaces* in family dwellings. The first is defined as a well-equipped *designated separate schoolwork space* that allows a child to learn and study on their own.

The second can be defined as well-equipped *designated integrated schoolwork space* within a living area; preferably a living area that accommodates fewer distracting activities while the schoolwork is taking place but enables a child to do schoolwork alongside an adult to receive direct support from them.

LOCATION OF SPACE

The design of small family dwellings should include two different locations for *designated schoolwork spaces*. The first is within the child's bedroom: a *separate*, more private, and quiet space for independent home-schooling. The second location is *integrated* within a living space (such as dining room) for situations that demand adult companionship and/or support while doing schoolwork.

⁷ BBC, "Increase in home schooling since start of pandemic", *BBC News*, February 15, 2022 <https://www.bbc.co.uk/news/uk-england-wiltshire-60379562> (Accessed July 2022)

⁸ UK Parliament, "Impact of COVID-19 on Early Childhood Education & Care". *UK Parliament Rapid Response*, October, 27, 2021 <https://post.parliament.uk/impact-of-covid-19-on-early-childhood-education-care/> (Accessed July 2022)

DESIGN CONSIDERATIONS

Small family dwellings such as flats and terraces should be designed to accommodate two locations for *schoolwork spaces*. First, the dwelling should provide a *designated separate schoolwork space* for each child in their bedroom. This will benefit the changing needs of children for more independent home-based schoolwork as they grow older. Where younger children's bedrooms are designed to be shared, designing for flexible temporary division of the room will enable more privacy and quiet when needed. Second, the dwelling should accommodate a *designated integrated schoolwork space* within living areas with proximity to adult activities. For example, a dwelling for a family with two children, should provide each child with study spaces in their bedroom/s and one study space within a living space.

CHILDREN'S SHARED BEDROOM

- A shared children's bedroom should be designed to accommodate two *schoolwork spaces* and enable the potential division of the room into separate spaces for each child to study on their own. The size of each study area should be enough to accommodate a desk and a chair.
- The design should consider online learning demands such as facilities for ICT equipment (power sockets, avoiding materials that reduce Wi-Fi signal, etc).
- The design should ensure a good-quality indoor environment by providing adequate levels of natural light, ventilation, and soundproofing of each divided space.
- Sufficient space for, or integration of storage should be considered to accommodate ICT equipment and learning material (such as stationery or books).

LIVING SPACES

- An adequate *designated schoolwork space* should be *integrated* within a living space, preferably in the dining area. The size of this space should fit a desk and chair for each child.
- Ideally, the design will allow flexible separation from the rest of the living space, allowing more privacy and less interruption when needed. A dining area often lends itself to this possibility, for example.
- It is essential to design the space with IT facilities in mind and provide electric sockets to enable remote learning demands.
- Sufficient space for, or integration of, storage should be considered to accommodate ICT equipment and other learning material.

DESIGN CONSIDERATIONS

Living space: adapting the living space to be separable by a flexible partition between the living and the dining areas and creating a multi-functional space to be used as a dining- and school-work area.

0.5 sqm built-in storage to be incorporated into the multi-functional space.

Children's shared bedroom: Allowing shared bedrooms to be divisible by a flexible partition.

A study space to be included in the children's shared bedroom with 0.5 sqm built-in storage space.

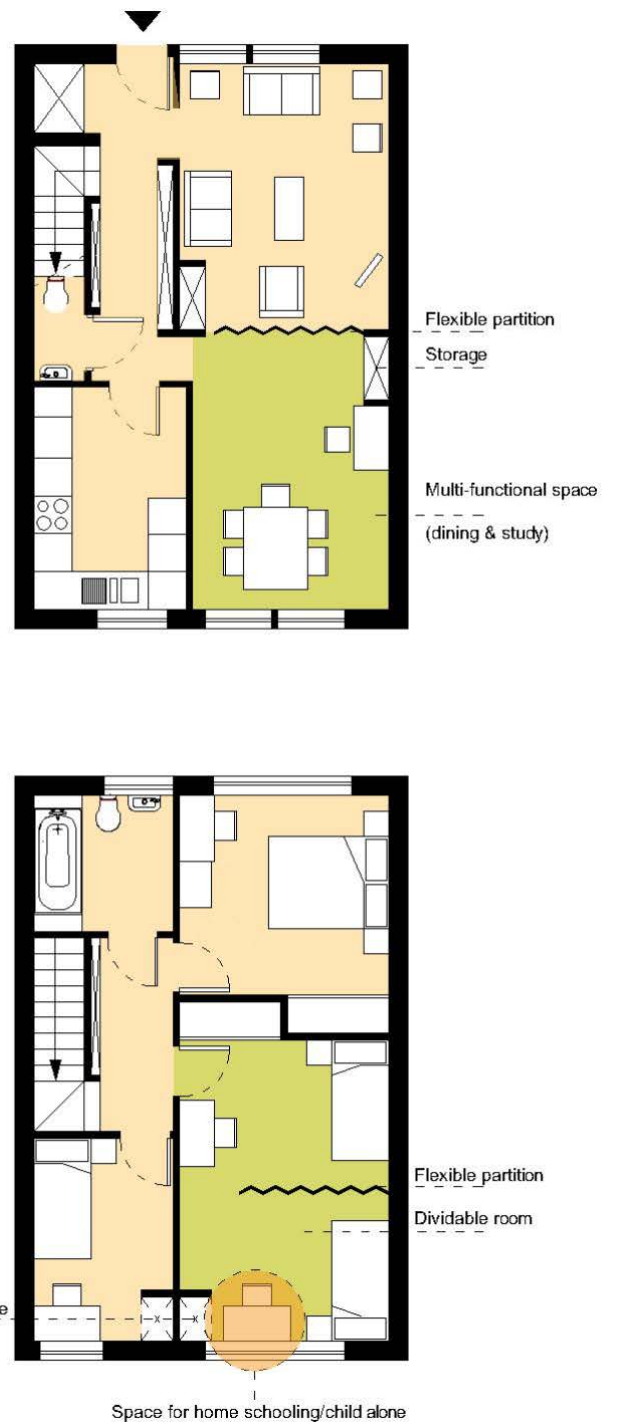


Figure 2 Spaces for Schoolwork from Home

6.2 REST



6.2.1 ADULT ALONE TIME

MAIN CHALLENGES AND NEEDS

Having a specific space in the family home that allows an adult to spend quality time alone for self-care is particularly important for maintaining wellbeing, productivity, and mental health. The pandemic highlighted challenges stemming from the design of dwellings when adults needed to spend time away from others in the family.

A conflict often arose when an adult (especially a single parent) needed to be alone yet supervise children at the same time. In living spaces, the mess and noise of children's play and activities posed a key challenge to adult leisure and relaxation. Other challenges to alone time mentioned by adults included interruptions, lack of space and an inadequate level of comfort.

DEFINITION OF SPACE

Within the context of small family dwellings, *adult alone space* is defined as a designated space that enables adults to spend quality time alone with a good level of 'privacy' and 'comfort' for their self-care and wellbeing. In this context, privacy is associated with the 'visibility', 'accessibility' and 'proximity' that are needed to spend alone time around children who may need support and/or supervision. Indoor comfort relates to good quality air and natural light, and adequate sound and thermal levels.

LOCATION OF SPACE

In a small family dwelling, the recommended location for *adult alone space* is dictated by its potential to be separated and personalised. The design guidance suggests three possible locations for this space: within the main bedroom, within a living space (such as the living room) and within an outdoor space (such as garden or balcony).



OTHER 'ALONE TIME' OPPORTUNITIES

The attic offers the same separation and privacy advantages for alone time as it does for work. With increased physical and psychological distance from living spaces, the attic space is valued by adults and children. For many children, the 'cosy' quality of an attic afforded by its sloping roof and potentially smaller-scale spaces under the eaves, offers an extra appeal for 'chill-out' time.

DESIGN CONSIDERATIONS

The design of small family dwellings should consider *adult alone spaces* through the provision of two recommended locations. The first location is within the main bedroom, allowing visual separation from others. The second location is within a living space (such as the living room) or a weatherproof balcony/sheltered outdoor space with a visual connection to living spaces, as this allows an adult to spend time alone while supervising children. Alongside these locations, small terraces can provide a private, detached space for alone time in their grounds.⁹

LIVING SPACES

Living spaces such as the living room should be designed with a designated *adult alone space*. The space should enable spatial separation while retaining visual connection to the adjacent space/s to allow an adult to supervise their children. The size of the space should accommodate comfortable seating and a table/desk for at least 1 person with sufficient space for, or integration of, storage to accommodate small equipment for hobbies. It is essential to consider the indoor comfort when designing the space, attending to ventilation, natural light, and appropriate sound and thermal levels. Designing with the provision of IT facilities and electric sockets in mind will also ensure an independent use of the space.

MAIN BEDROOM

The recommended *home working space* in the main bedroom (see paragraph 1.4.2) can also be used as *adult alone space* if offering comfortable seating, a desk for 1 person and sufficient space for, or integration of, storage to accommodate small equipment for hobbies and relaxation.

OUTDOOR AREA

Small family dwellings should be designed with a directly accessible outdoor *adult alone space*. The space should enable visual connection to living spaces to allow the supervision of children. It is also recommended that the space (e.g., a balcony in a flat) enables temporary weatherproofing through sliding panels, for example. The size of this space should accommodate comfortable seating and a table for at least 1 person, with sufficient space for, or integration of, storage to accommodate small items of equipment for hobbies and relaxation (see 6.1.1 OUTDOOR SPACE). The size of the grounds should therefore allow the future installation of a garden room without affecting the natural light and privacy of the main building and adjacent blocks.

⁹ A small, detached space in the grounds could adapt to meet the needs of both home-working and alone time.

DESIGN CONSIDERATIONS

Living space: creating a separable multi-purpose living room by incorporating a flexible partition between the living and the dining areas to allow the use of the living room as a space for adult time alone.

Master bedroom: An increase of 4 sqm to the bedroom to be used as multi-functional space for working or relaxing.

0.5 sqm built-in storage space to be incorporated into the bedroom.

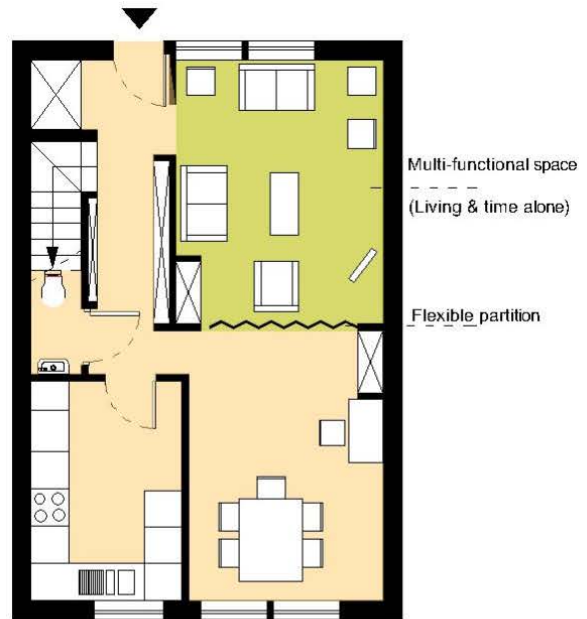


Figure 3 Spaces for Adult Alone Time

6.2.2 CHILD ALONE TIME

MAIN CHALLENGES AND NEEDS

Being able to spend time alone at home is critical for children's individual development and growing independence. However, the pandemic highlighted the inadequacies of dwellings in supporting children's need to spend time alone within the family home.

During the lockdown, the inadequacy of shared bedrooms to accommodate children's time alone was a challenge for families. Often, shared bedrooms failed to provide a private, quiet, and individual space for each child. The challenges arising from this lack of suitable space were most obvious when children from different age groups shared the bedroom. Therefore, the design of shared bedrooms for children must consider features that support a child's need to spend time alone alongside other activities such as sleep, study, and play.

DEFINITION OF SPACE

A *child alone space* is a designated, private, and safe space that allows a child to be on their own, doing individual activities. The concept of private space considers the factors of visual and acoustic isolation, to ensure a good degree of spatial privacy.

LOCATION OF SPACE

The location of a *child alone space* becomes more critical for children as they get older. As such, it needs to be considered by housing designers with a degree of flexibility that responds to the changing lifecycle needs of families. For small family dwellings with pre-school children and children in the early years of primary education, the recommended locations are both living spaces and children's bedrooms. As children grow up, their bedrooms and outdoor spaces are often preferable locations for *child alone space* within the home.



OTHER 'ALONE TIME' OPPORTUNITIES

Although adults are unlikely to gravitate to circulation areas for their restorative time alone, the small, potentially child-scale spaces in and around stairs, entrances, corridors and landings can often appeal to younger members of the family. Consider opportunities to create variety of space, visibility, separation etc. through circulation and storage design.

DESIGN CONSIDERATIONS

The design of family dwellings should include appropriate designated *child alone spaces*. In small family dwellings such as flats and terraced houses, the best location for a *child alone space* will be within the child's bedroom. Shared bedrooms for children should be designed as dividable spaces allowing each sibling to have their private *time alone space* when needed. When designing outdoor areas, it is recommended to consider a safe *child alone space* outside.

SHARED BEDROOM FOR CHILDREN

- The size and form of shared bedrooms for children should be designed to enable division of the room into separate *child alone spaces* for each child to withdraw while their siblings do other activities.
- The design should provide indoor comfort to allow children to have good quality alone time, by considering good-quality natural light and ventilation, and appropriate sound and thermal levels of each divided space.
- The provision of time alone space within the shared bedroom should consider a nearby storage space that fits equipment for individual activities.
- Electrical services should be provided for each divided space, such as power sockets and lighting.

DESIGN CONSIDERATIONS

Children's shared bedroom: Designing a dividable room when children share a space will allow each child to benefit from individual alone time.



Figure 4 Child Alone Spaces

6.3 PLAY



6.3.1 FAMILY TIME

MAIN CHALLENGES AND NEEDS

There is no clear definition of family time, but it broadly captures various activities with different degrees of interaction between parents and children, ranging from eating together, to sharing leisure activities and even doing unnoticed daily routines. Despite its varied nature, the relation between family time and family wellbeing is widely acknowledged.¹⁰ The pandemic increased family time as a result of being at home for longer periods: adults and children engaged intensively in family activities such as cooking, exercising, watching movies, eating together, playing, etc. However, many families struggled to accommodate shared activities within the home, due to the insufficient size of living spaces and a lack of adequate storage. A common challenge stemmed from a lack of space in the kitchen, hindering food preparation and cooking together as a family. In some cases, lack of space brought a sense of overcrowding when all family members were located within a living space for a longer time. The multi-functional character of living spaces was also challenging for family time, adding stressors such as mess, noise, and distractions. Finally, inadequacies in outdoor space reduced the opportunities – so valued by many during lockdown – for families to spend time together outside.

DEFINITIONS OF SPACE

Taking into consideration the previous challenges, this design guidance defines living space/s as *flexible-extendable* space/s that allow the creation and removal of spatial boundaries to accommodate added family activities. The term *flexible-extendable* space blends the concepts of flexibility *in size* and flexibility *in connection* with adjacent areas to enable the space to flexibly add to its size and create different forms of spatial relation (open space or separate space).

LOCATION OF SPACE

The location of living spaces in small family dwellings should be carefully considered in relation to outdoor spaces. At least one of the living spaces, such as the living room, dining room or kitchen, should be designed with direct access to a private/shared outdoor area overlooked from the living space. If the outdoor space is private, designing an extensible living space is advisable.

¹⁰ Killian Mullan and Stella Chatzitheochari, “Changing times together? A time-diary analysis of family time in the digital age in the United Kingdom”, *Journal of Marriage and Family* 81 (August 2019):795-811.

DESIGN CONSIDERATIONS

Living spaces (such as the living room or kitchen) within small family dwellings should be designed to be *flexible-extendable*, by ensuring flexibility in connection with an adjacent space and extendibility in size. When there is a private outdoor space, extensible living spaces are advisable.

LIVING SPACES (FLEXIBILITY AND EXTENDIBILITY)

- Form, proportion, and alignment between living spaces should be designed to allow families to join adjacent spaces and separate them according to the design principles of *flexible-extendable* space.
- The physical boundaries between adjacent living spaces (such as living room, dining room and kitchen) should be designed to allow flexible connection – opening/separating the space through flexible partition solutions.
- Consider the location of services to enable the use of flexible partitions.
- Consider the impact of each possible configuration of the living space on indoor environmental quality, to ensure that an appropriate level of natural light, thermal comfort, and soundproofing is achieved in each sub-space.
- Storage space should be provided in the living spaces to keep equipment for family activities, such as games, electronics, etc.

LIVING SPACES (EXTENSIBILITY)

- At least one of the dwelling's living spaces (such as the living room) should be designed to enable its future extension. In flats, this could take the form of enclosed balconies or terraces and in terraced houses, this could be a rear extension into the back garden.
- When dwellings take the form of houses,
 - A living space should be located adjacent to the back garden to enable family activities to extend into the outdoor area, overlooked from the interior space, and future extension of the living space.
 - The structure, construction methods and services should be designed to allow disassembly for extension in the identified wall area.
 - Foundations for future extension should be considered in the design of the dwellings.¹¹

¹¹ Milton Keynes Partnership, *Tattenhoe Park Design Code*

DESIGN CONSIDERATIONS

Living space: creating flexible separable living spaces by incorporating flexible partitions between living, dining, and kitchen areas to allow different family activities to take place.

Living space: Flexible kitchen-dining space to accommodate family activities (e.g. cooking together)

Living space: Flexible living-dining space to accommodate family activities (e.g. family play and entertaining)

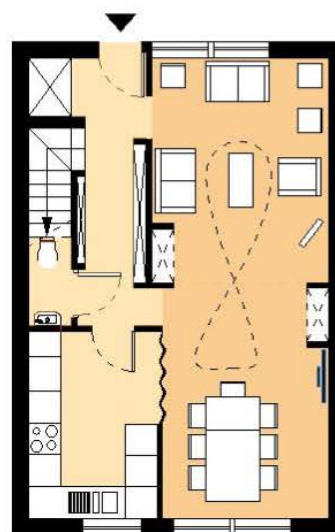
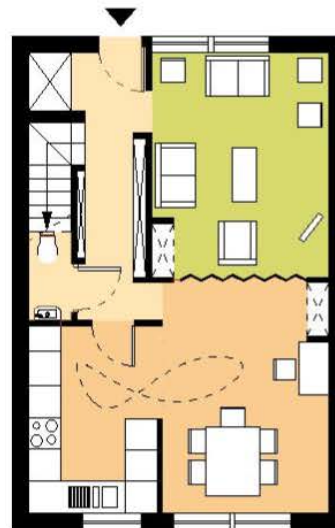
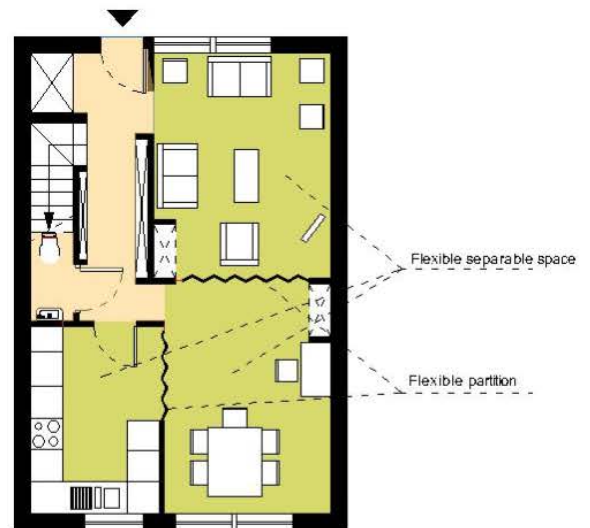


Figure 5 Spaces for Family Time

6.3.2 CHILD PLAY

MAIN CHALLENGES AND NEEDS

It is widely acknowledged that indoor and outdoor play at home supports children's physical, emotional, psychological, and social development within a secure environment.¹² During lockdown, play in the home intensified as adults – keen to support their children's wellbeing – tended to encourage more and different types of play. However, a lack of adequate indoor and outdoor space for children's play generated family tensions, and conflict arose between the needs of adults and children. Dwelling design often made it difficult for adults to work, rest, or do individual activities while also keeping an eye on their playing children. In living spaces, where child play and adult activities took place at the same time, a lack of free space and storage, alongside the noise and adult-perceived 'mess' caused by play, affected other activities taking place, creating conflict, distractions and interruptions. Play in children's bedrooms was also reported as challenging due to limited space and insufficient storage, often creating mess and disruption to siblings' activities. Other challenging factors resulting from the design of dwellings included the lack of outdoor space in some housing types, such as flats, and the limited number or size of available spaces in small family dwellings, restricting play possibilities.

DEFINITION OF SPACE

A family dwelling's *space for child play* is defined as a designated, and safe space that responds to the child's play needs and minimizes disruption to other areas. Such space should allow the child to explore and develop their physical, emotional, psychological, and social skills in a secure and safe environment. The design of a small family dwelling should consider varied *spaces for child play* to allow children to develop both social and independent playing skills and to connect with nature.

LOCATION OF SPACE

Child play occurs all around the home. However, designing *spaces for child play* within a small family dwelling should favour three locations: a living space, the child's bedroom, and an outdoor space. The flow between spaces, connection to outdoor space and the visibility between indoor and outdoor spaces are other important considerations for designing *spaces for child play*.

DESIGN CONSIDERATIONS

The design of small family dwellings should include two *spaces for child play* indoors- one in a living space, another in the child's bedroom - and one outdoors. Wherever possible, the outdoor *space for child play* should be directly accessible and overlooked from a living space. In flats where private outdoor space is limited, a shared *space for child play* should be incorporated, overlooked by the living space of the flat. The design of *spaces for child play* within living areas should provide flexibility in connection to adjacent areas/rooms to allow visibility for supervising children, while permitting containment of the paraphernalia and products of play.

¹² Mariane Hedegaard and Marilyn Fleer, *Play, learning, and children's development: everyday life in families and transition to school* (Cambridge: Cambridge University Press, 2013)

LIVING SPACES

- A *space for child play* can be designed as attached to (e.g., interlocked) or integrated within (space within a space) a living space.
- Both visual connection and flexible separation of the space should be considered.
- *Spaces for child play* with visual connection and direct access to the outdoor space are recommended.
- The design should consider indoor environmental features related to child play, such as natural light, ventilation, and soundproofing.
- The *space for child play* should be designed to provide a play-friendly and safe environment, attending to surfaces, openings, and fittings appropriate to a range of play types – from sedentary to active and messy.
- The provision of storage solutions to serve the *space for child play* is essential. These should be suitable for storing and organising different kinds of play materials and toys to keep the area clutter-free and attend to child ergonomics to support individual play.

CHILD'S BEDROOM

- The design of two adjacent children's bedrooms should consider the possibility of an opening/flexible partition between spaces to create a spacious *space for child play*.
- The design of a child's bedroom should consider the provision of child-accessible storage that is suitable to store and organise different kinds of play materials and toys to keep the area clutter-free.

OUTDOOR AREA

- It is recommended that both flats and terraces be provided with an outdoor *space for child play*. This could be shared where private outdoor space is limited.
- The size and form of an outdoor *space for child play* should accommodate storage for outdoor toys/equipment, planting and surfaces/levels that permit use of wheeled toys.
- Consider child-friendly and safety measures in terms of ground surface (e.g., soft landing) and fencing.
- Design an outdoor *space for child play* to be overlooked from one of the dwelling's living spaces.



OTHER 'PLAYSPACE' OPPORTUNITIES

The spaces 'in-between' the main rooms of the home are an important part of children's play practices. Whether they permit the ebb-flow of play between different spaces, creating larger 'playspaces', or whether they offer specific qualities in their own right, their design needs to consider their inhabitation during play. Entrances and corridors can often offer the longest stretch of clear space in the home, with particular active and potentially game-based play affordances (sliding, rolling, running, bowling etc.). Consider the (safe) play potential of stairs and interconnection between vertical, adjacent, and sub-spaces. Creating variety in size and scale of space, visibility, and separation etc. for alone time will also afford additional play possibilities.

The principle of the joint flexible children's bedroom, affording spacious shared *space for child play* can work equally well in an attic space and offer children an increased sense of independence in play.

DESIGN CONSIDERATIONS

Living space: adapting the living space to be separable by incorporating a flexible partition between living-dining areas and creating a multi-functional space to be used as a dining-playing space.

Dining table and study/work desk to be foldable for multiple uses of space.

Children's bedrooms: Promoting joint flexible children's bedrooms, affording a spacious shared space for child play.

Children's bedrooms: creating joint flexible children's bedrooms by incorporating flexible partitions between rooms to allow the spacious shared area.

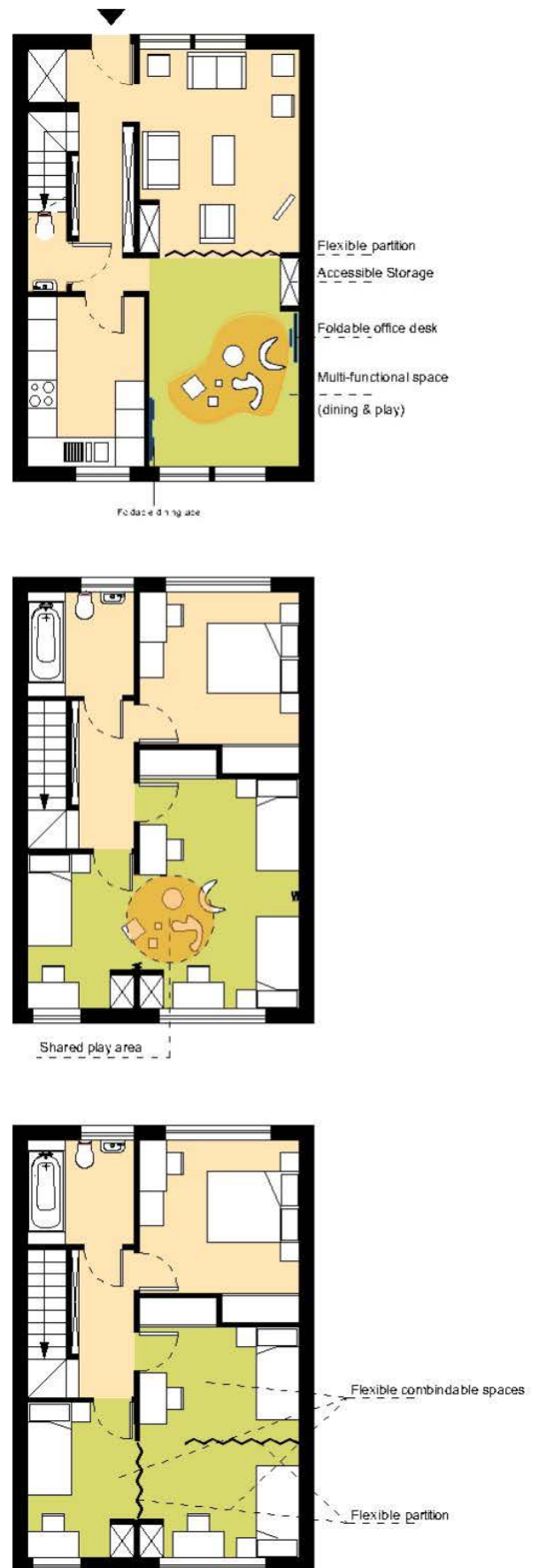


Figure 6 Spaces for Child Play

7. CONCLUSION

The design of new-build family dwellings should be based on an understanding of dwelling-scale liveability, supporting better physical, social, and mental wellbeing and productivity at home. When designing small family dwellings, liveability can be achieved through adaptability in design, enabling the creation of accommodation suitable for the contemporary needs of both adults and children. Extending domestic space standards to address adaptability will also better address the changing needs of families over time to ensure future-proofing of the housing stock. This attention to policy should involve a review of domestic space standards and statutory definitions to address the quality and nature of space required for families' *primary* needs to work, rest *and* play. Ultimately, policy should acknowledge the needs of individuals within the family: both adults *and* children.

The *Hybrid Home* design guidance provides information on space requirements and particular considerations for the design of family dwellings that adapt to varied and dynamic everyday needs. Through design for adaptability, small homes can offer multiple possibilities for inhabitation and efficient use of space. The guidance has aimed to exemplify the proposed design strategies in the form of a diagrammatic review and amendment to a sample 3-bedroom terraced house with the highest average area achieved by housebuilders in England, as shown by *The Case for Space* in 2011. The guide therefore enables a comparison between pre- and post-pandemic priorities for family dwelling design, and points towards a re-examination of the RIBA's¹³ endorsement of multi-functional living spaces becoming the new family social hub, fuelled by a reconstructed appreciation of compartmentalised domestic space. The suggested design strategies have been developed with the limited space of small, terraced houses and flats in mind, however, designers can draw upon the same principles and transfer these across different housing typologies.

¹³ RIBA, *Future Trend Survey 2015*

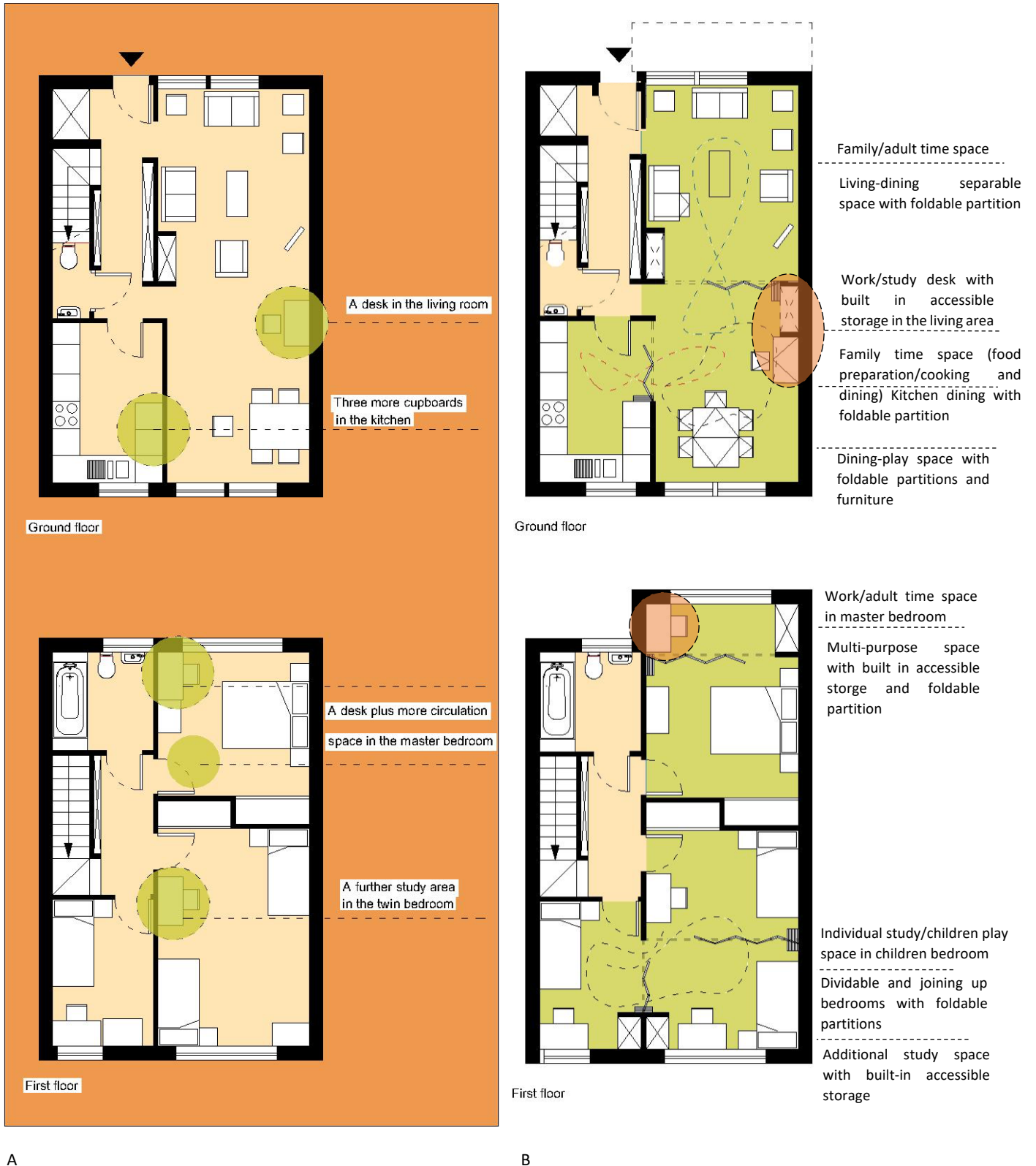


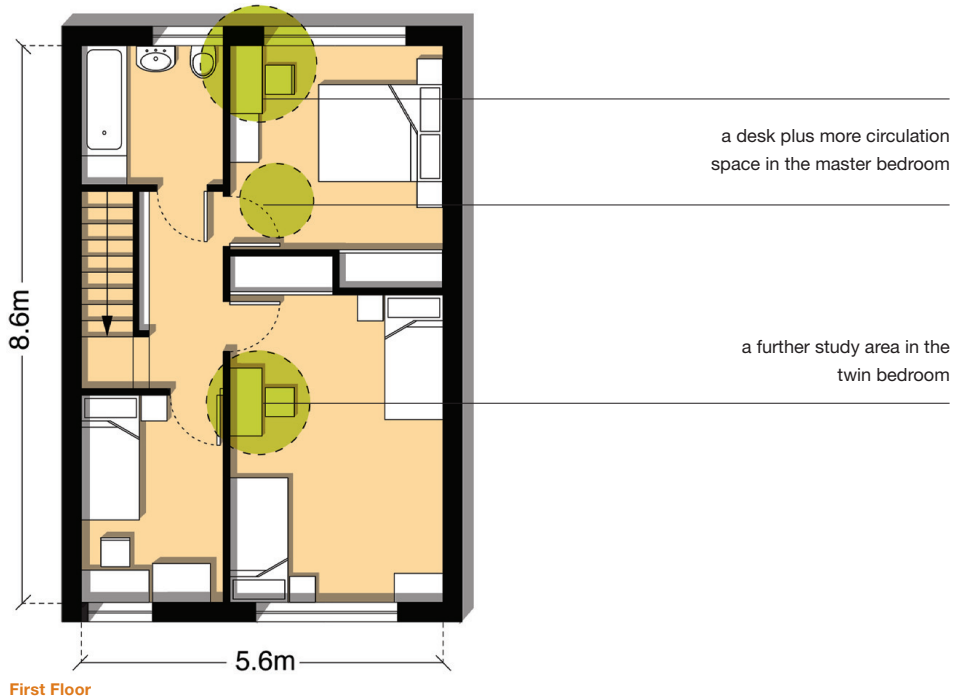
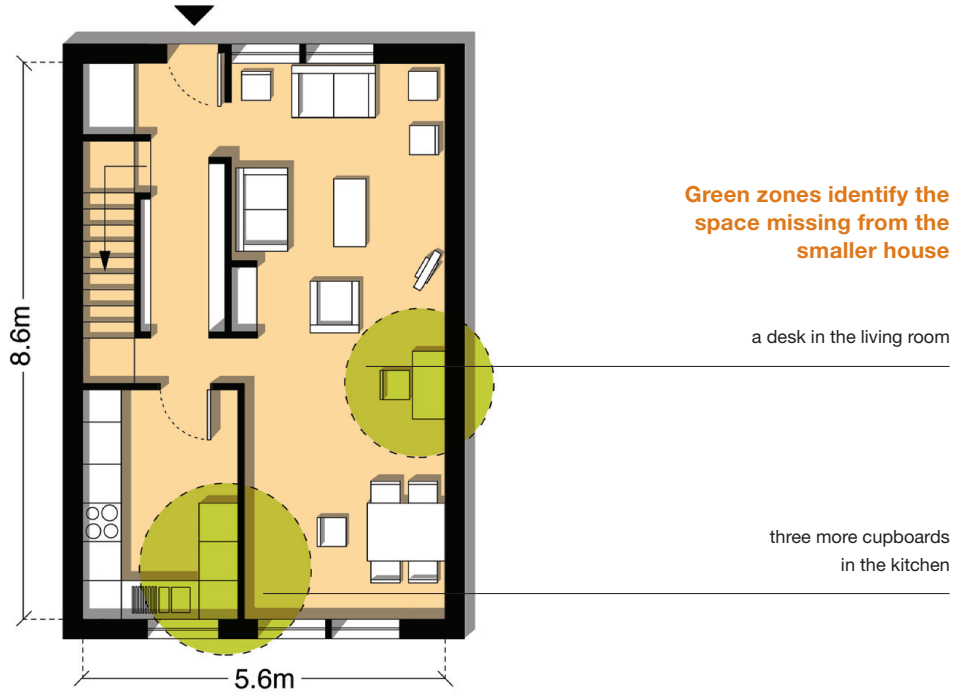
Figure 7 Summary comparison of A) the highest area 3-bedroom terraced house plans as shown in *The Case for Space*, RIBA, 2011 with B) the same plans amended to the principles of *The Hybrid Home: adaptable design for small homes with children*.

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9. APPENDIX

98 sqm 3 bedroom house



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THE CASE FOR SPACE

Figure 8 Plans for a 3-bedroom terraced house with the highest average area achieved by housebuilders, as shown by *The Case for Space: the size of England's new homes*, RIBA, 2011, p.29. Copyright by Aubrey Kurlansky (2011). Reprinted with permission.