



# HOME AS WORKPLACE

A spatial reading of work-homes

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PART -A



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# Introduction

The relationship between place of work and place of residence has been of particular interest in studying modes of urbanisation and place-making in the city. What does this relationship look like when the two places coincide? This proximate co-existence of the spheres of work and home has spatial and social effects on not only the worker but also other individuals using the space or the vicinity, scaling at times to the neighbourhood and the city. In a global wave of ‘working from home’ during the COVID-19 pandemic, multiple studies have acknowledged and measured the social, psychological and spatial impact of work and home occupying proximate spaces. Many of us would have experienced the complexities that are engendered by an overlap of two distinct identities — that of a worker and that of a householder — when spheres of work and home bleed into each other across space, time and sociality. It is especially pertinent to discuss at this moment those who have always had to navigate both work and home from adjacent spaces, maneuvering the complexities, benefits and vulnerabilities that are resultant from a general mixing of work and home environments. What does this coexistence look like? How does one’s identity affect the spatial organisation of work and home? How do neighbourhood level processes like upgradation, tenure and location in the city play out?

To answer these questions comprehensively, this study looks at all the ways in which home aids work, spatially and infrastructurally. Home is workplace for not just the more universally recognised categories of home-based work or home-based enterprises, but also those who use their homes in some way to aid their livelihood. This includes those using the home to furnish infrastructural needs or simply as storage, viz. street vendors, rag-pickers, vegetable vendors among others. **The study introduces the term ‘work-home’ as a category where domestic and productive activities happen in the same or adjacent space.**<sup>1</sup> As such, home-based enterprises, home-based work, work-live, etc., come within the purview of this study. This study investigates the spatial characteristics of what it describes as the ‘work-home boundary’ in work-homes. The term ‘*domestic activities*’ refers to the activities performed to reproduce the home and the household, including all forms of household work, unpaid care-work as well as social relations of the household such as interactions with neighbours. The term ‘*productive activities*,’ refers to all activities that pertain to wage or own-account work, including all forms of paid work, piece-rate work, as well as unpaid work in family or household enterprises. This includes all ancillary activities — storage of goods and equipment, preparatory activities including access to physical infrastructure, interaction with suppliers and vendors, customers, and managing authorities — required for work or enterprise<sup>2</sup>. The geographical scope of the study remains countries in the Global South.

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<sup>1</sup>An important factor to consider when defining work-homes is that when domestic and productive activities happen in adjacent spaces, they should share at least one user. This is to ensure the inclusion of shop-floor and other kinds of urban forms where domestic and productive activities happen in segregated spaces, like different floors of the same building or adjacent structures.

<sup>2</sup> While work-homes would also include instances of activities around tele-work, the study excludes tele-work from its scope.

Domestic and productive activities have specific spatial requirements and characteristics, like the amount of space an activity occupies, the requirements of light, ventilation, and access to physical infrastructure. **The study calls the space an activity takes as its ‘spatial footprint’, which describes not only the amount of space the activity takes but also its relative location in the space of the work-home.** This footprint may be fixed or flexible. For instance, productive activities which require heavy machinery may tend to have spatial footprints of a more fixed nature. A domestic activity like cutting vegetables, on the other hand, may have a slightly more flexible footprint. The study imagines fixed and flexible as two ends of a spectrum. The flexibility of an activity’s spatial footprint is in not just the amount of space it occupies, but also in the location of this footprint relative to other activities, infrastructure and paraphernalia in the work-home.

**Similarly, the study understands ‘temporal footprint’ as the amount of time an activity takes and when it happens.** Like spatial footprints, temporal footprints can be fixed or flexible. This flexibility indicates the ability of a particular activity to accommodate itself around other activities carried out in the work-home through the day. For instance, certain activities like beading are more flexible and can be done throughout the day in temporal gaps left by domestic activities. Beading is also spatially more flexible, and the small amount of space it needs can be accommodated in most spaces of the house. Therefore, beading, a productive activity, has both spatial and temporal footprints lying towards the flexible end of the spectrum. Another example is sewing. In Boeri’s (2016) study in Ahmedabad, respondents report that they sew in the time that remains after completing their domestic work, doing it for instance, in the temporal recesses when their children have gone to school. Sewing, however, has a more fixed spatial footprint. It may, of course, be relocated within the house, but not as frequently or as easily as beading. Sewing may also require electricity depending on the type of machine, which reduces its spatial flexibility. Sewing, hence, has a fairly flexible temporal footprint, but a fairly fixed spatial footprint.

Studying an activity’s spatial and temporal footprint gives an insight into how domestic and productive activities co-exist in work-homes. **Domestic and productive activities may align with, be indifferent to, or intrude into each other.** The way domestic and productive activities interface is what the study understands as work-home boundary in work-homes. The study uses the word ‘interface’ because domestic and productive activities also tend to actively shape each other in work-homes. Consider the example from earlier — domestic activities such as care work, household chores and children’s presence shape when sewing can take place. Similarly, beading is shaped by domestic activities as it happens in the time left after finishing household chores. A case in point is from Kellett’s (2003) study of a small shop in Delhi that Mehar Jahan operates from her house. Storage of goods for Mehar Jahan’s shop takes up much space not leaving enough space for her furniture. Resultantly, she does not keep charpoys in her house and sleeps on the floor. Storage, a productive activity competes for space with sleeping, a domestic activity. Given their specific needs of space, light, ventilation and infrastructure, domestic and productive activities may compete for spatial and infrastructural resources. Often, they also compete for time. However, as illustrated in Mehar Jahan’s case, how domestic and productive activities eventually occur is up to the users of the work-home. In not keeping charpoys, Mehar Jahan chooses to use her limited space for storage, rather than domestic activities.

Another example from the same study shows Mr. and Mrs. Khumalo run a gaming shop from their house in Pretoria, South Africa. The heavy gaming machines are moved inside the work-home each



night to store them safely, and moved outside the work-home under a covered space every day where children can play. They do this to clear space in the room for other domestic activities during the day. In spite of what one would generally expect to be fixed, the Khumalos treat the spatial footprint of using and storing heavy gaming machines as flexible, though not without difficulty. In Chirag Dilli, a neighbourhood in Delhi, momos<sup>3</sup> are made from scratch in many work-homes (Narayanan & Veron, 2018). Space within the work-home sees much spatial and temporal transformation through the day. Users carry out productive activities like preparing momos, cleaning utensils used, doing accounts; and domestic activities like cooking for themselves, eating and sleeping, all in the same space. In Savda Ghevra, a resettlement colony in Delhi, many residents undertake piece-rate work in their work-homes, like cutting straps of rubber chappals, sewing tags on finished products or beading<sup>4</sup>. While the spatial footprint of such piece-rate work is often small and flexible, the way it is accommodated in the work-home varies across cases. Some people carry out these activities inside the house, near a window or door. Others spill out into the street adjacent to their work-homes sitting on charpoys. Some even sit on the ground in a nearby park. **It is important here to note the complex agency the users exhibit in maneuvering, and in turn shaping the work-home boundary.**

Work-home boundary transforms not only due to the varying needs of domestic and productive activities but also in how these needs are addressed with respect to bye-laws, authorities, user preferences, engagement with neighbours etc. As such, work-home boundary has been studied through various lenses. Notable among these are gender (Miraftab, 1996; Ghafur, 2002; Mahmud, 2003; Kellett, 2003; Neethi, 2014), Occupational Safety and Health (Tipple, 2006; HSNA, 2011; Lund, 2012; Lund, Alfors & Santana, 2016; Nankongnab et al, 2015; Ko Ko et al, 2020), and livelihood (Sinai, 1998; Mahmud, 2003; Avogo et al, 2017). This study looks at the work-home boundary with spatiality as the central lens. Such a spatial investigation is pertinent to understand the implications of work-homes on planning, architectural design of housing, access to infrastructure, tenure, safety, risk, and vulnerability. As demonstrated above, spatial and temporal footprints and their flexibility are useful concepts in understanding the ways work-home boundaries work and how users maneuver them. With this aim, the study addresses the following questions:

1. What determines the spatial and temporal footprints of domestic and productive activities in work-homes?
2. How do domestic and productive activities interface in work-homes, and what are the characteristics of the resultant work-home boundary?
3. How do various actors experience, engage with, and maneuver the work-home boundary?

The report presents the research as a two-part secondary review of close to 160 studies across various urban geographies in the Global South. Parts A and B are designed to be read alongside each other. Part A of the study establishes the framework and delves deep into how work-home boundary is shaped, with particular attention to the factors and actors that shape domestic and productive activities, making references to various case studies from Part B as relevant. Part B is not a primary analysis but a representation of secondary case studies from various sources across the globe. It presents an inventory of spatial analysis of work-homes across industries, types and scales as much as can be gleaned from a secondary study. Part B has 51 cases detailed in single or multi-page spreads.

<sup>3</sup> Momos are a type of stuffed and steamed dumpling, a popular street food in Delhi. All steps involved in the elaborate process of making momos, viz. preparing and rolling dough, preparing stuffing, filling, and closing and steaming dumplings are carried out in many work-homes in Chirag Dilli.

<sup>4</sup> From field experiences of authors of this study.

Annexure A is a bibliography of literature covered in Parts A and B. Annexure B is a quick tabulated view of all the cases analysed in Part B of this study.

Part A is structured into five sections. The first section unpacks the factors that affect spatial and temporal footprints of domestic and productive activities. It then discusses these factors through spatial analysis of select illustrative cases from part B, adding nuance to the researchers' understanding of how domestic and productive activities organise themselves in a work-home. In doing so, the study also introduces the actors at play and gestures to the agency they exert in maneuvering the work-home boundary.

The second section forays into the ways in which domestic and productive activities engage with each other and how that transforms the work-home boundary. It discusses the nature of the work-home boundary and illustrates the particular ways in which it operates across scales. This section then examines how the work-home interfaces with planning and other regulations, while paying attention to a layering of risks that the user experiences across domestic and productive spheres.

The third section explores the practical ways through which users experience, engage with, and maneuver the work-home boundary. This section places emphasis on the complexity of agency exerted by users, demonstrating it through an analysis of anecdotal evidence across the globe. It categorises these modes of maneuver, and notes how post-facto improvement and modification of space by users addresses spatiality particular to work-homes.

The fourth section investigates the role of the state in spatially enabling or limiting work-homes. Using the Indian context as an illustrative example, the study establishes the framework one can employ in studying urban planning norms and regulations. This section examines India's National Building Code, and comparatively studies bye-laws applicable to such spaces in Mumbai and Delhi, bringing forward conceptual bases in paradigms of planning central to the home-work relationship in home-based work. The study then looks at how processes like upgradation, rehabilitation and relocation impact this relationship at scales of unit, neighbourhood, settlement and city.

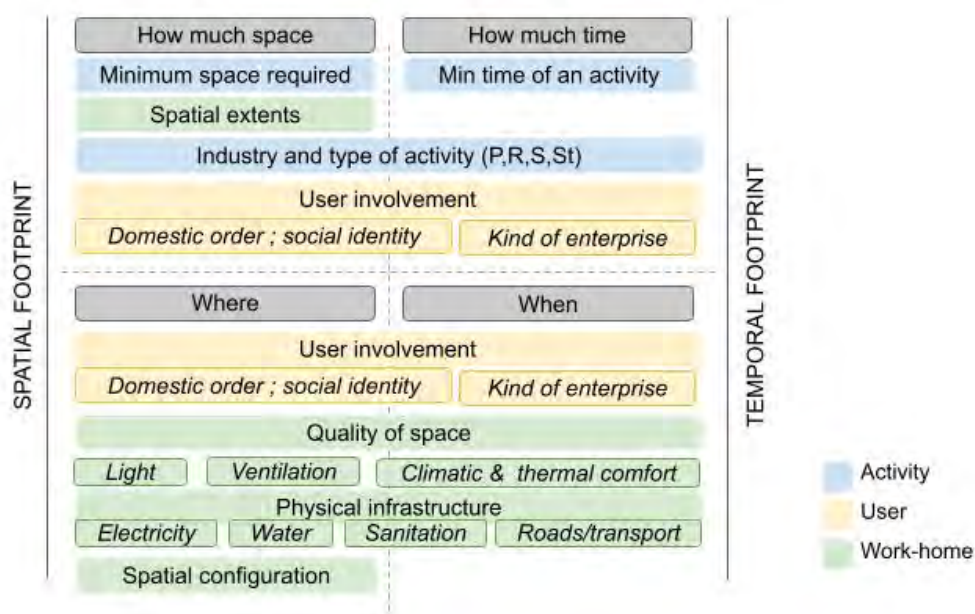
The final section synthesises the understanding of the spatial aspects of the work-home boundary, and proposes a way forward in designing and planning for work-homes. With attention to the participation and role of different kinds of actors, it dwells here on the tension between formal and informal processes. This section also proposes enabling frameworks and paradigms that improve quality of work as well as living in work-homes.

## Section 1

# How do activities organise themselves in the work-home?

This chapter begins by providing an understanding of how domestic and productive activities organise themselves in a work-home. As established by Rapoport (1990a, 1990b, 2000), every activity is organised in space and time which defines the spatial setting associated with it. The organisation of an activity in a work-home is thus described by its spatial and temporal footprints. As defined in the introduction, spatial footprint describes **how much space** an activity occupies and **where in the work-home** it takes place. Similarly, temporal footprint describes **how much time** an activity occupies and **when** it happens. Spatial and temporal footprints can be fixed or flexible. The factors that affect each of these can loosely be placed into three buckets — first, factors specific to the activity (in blue), second, interaction of users with the activity (in yellow), and third, characteristics of the work-home (in green). Fig 1.1 illustrates how various factors affect the specific aspects of spatial and temporal footprints, as well as their fixedness or flexibility. While these factors do not act in isolation, and in fact shape each other, this framework is useful to unpack the footprint of an activity and resultantly the formation of work-home boundary.

Fig 1.1 Factors affecting spatial and temporal footprints of activities



## 1.1 Minimum space and spatial extents

Any activity needs a minimum amount of space for it to happen. Based on the ergonomic requirements for performing the said activity, this may be standardised. Say bathing requires a minimum space of 1 m x 0.8 m, as is standard in designing bathing spaces. Anthropometric studies typically calculate this optimum space as the space needed for physical movements and necessary equipment to perform the said activity. Consider, for example, working on a sewing machine. The minimum space required would be calculated considering a user sitting at a desk height of 3 feet (or 0.9 m), with enough elbow space, and space for the feet to operate the sewing machine. It is important to note that the spatial footprint of a tailoring space in a work-home may be larger or smaller than this optimum space, depending on the limitations of the work-home itself.

## 1.2 Minimum time and user involvement

Similarly, each activity takes a minimum amount of time. The kind of user involvement an activity requires also shapes when it takes place. Further, if an activity can be clubbed with another, where the said activity happens is also affected. Tipple (1993) makes one such attempt to unpack activities by involvement in the distinction between active and passive home-based work. Active home-based work is that which is done with direct involvement of one or more workers, and passive home-based work usually has no direct involvement of a worker. Such a classification requires more nuance in its framing, so the study distinguishes them as 'intermittent' and 'continuous' involvement. Some activities can be carried out intermittently while others need a sustained continuous involvement. For instance, frying fish requires continuous involvement, while something like beading can be done more intermittently. Consider now tailoring, — in certain stretches it requires continuous involvement, and in certain stretches it can lean towards intermittent.

**The ability to break an activity into multiple spurts also allows it to be easily picked up, rendering it more temporal flexibility.** The associated labour that goes in also shapes whether these activities can sometimes be combined or not. While the ability of activities to be clubbed with each other depends on the involvement of the user, it also significantly depends on the identity of who is carrying it out. For instance, as Boeri (2016) finds, beading is carried out by women, any time 'their hands were free'. One reads the complexity here as women describe even their work as 'leisure'. Boeri (2016) importantly notes that the temporal and spatial nature of such activities creates the image of a worker who is 'always available' and 'easily disposed of in the subcontracting system'. The study discusses the pertinence of the identity of the worker further in 1.4 and 1.5.

The user is not just the home-based worker but also the customer or client; the latter's involvement is also significant in shaping the temporal footprints of productive activities. For instance, a tea and bites selling joint in Dar es Salaam only runs from 7 am to 11 am, after which it becomes a video shop till midnight (Huba and Yohannes, 2015) (Bhadja, 2019). Another example of a service-based activity is that of daycare centres that operate from residential premises. Here, children are dropped off at the daycare centre when parents are on their way to work and picked up after work. Other service-based activities are also carried out similarly based on the convenience of the client (Mahmood, 2015).

**Whether activities are performed at the same time or at different times has an impact on the space available in a work-home at a given time.** As Tipple and Kellett (2000) quote Payne (1974), restricted spaces are optimised by ‘...spatial and chronological symbiotic interaction of activities (which) creates a greater effective space than exists physically.’ They employ this in devising this formula,

‘Net HBE space = space used exclusively for HBE +  $\frac{1}{2}$ (space used jointly between HBE and domestic uses).’

While such a formula will not necessarily work across all contexts, what is noteworthy is the underlined assumption here that space for domestic use also ends up being used for productive activities.

### 1.3 Industry and type of activity - Production, Retail, Service, Storage

Activities across different industries have different requirements of space and time. The same activity may also be seen carried out with different spatial and temporal footprints in different work-homes. Further, some activities only happen during certain seasons, based on demand or production cycles, while others are not as fixed. In a later study, Tipple (2005) finds that home-based enterprises usually conduct more than one activity and do not fit neatly into industrial categories. Sometimes they engage in activities at different stages of production of the same product. See for instance, Case M2 from Part B, where Meenaben Shah carries out various stages of papad-making in her work-home (Bhadja, 2019). Or Case M11, where multiple stages of pottery are carried out within the same work-home in Kumbharwada (CRIT & JJ College of Architecture, 2010). Other times they may cater to different industries. See for instance, Case M6, where activities related to weaving and loom, and beedi-making both take place in the same work-home (Mathankar et al, 2018).

Kellett (2003) categorises ‘domestic micro-enterprises that occur inside the house or on the lot’ into five kinds<sup>5</sup>. Mpembamoto et al (2017) echo this classification based on the activities and resources associated with the enterprise, viz. plot, manufacturing, selling, service, and care<sup>6</sup>. Sinha (2015) classifies home-based work into six broad categories, viz. artisan production, personal services, trade, repair, and clerical and professional work<sup>7</sup>. The study regroups these categories based on their spatial implications into the following, with color codes as specified:

<sup>5</sup> (1) **Sales**: shops that sell necessities of daily consumption, this also includes sales for consumption on site like bars, cafes, etc.

(2) **Production of items to sell**: e.g. clothing, fabrics, electronic components, shoes, masks, gloves, suitcases, jewellery, bricks, carpentry, etc. Also includes food prepared to sell elsewhere such as at workplaces, schools, or on the streets.

(3) **Services**: repair of watches, clothes, cars; personal services: beauty salons, dentists, healers and doctors, telephones, photocopies and photography, etc.

(4) **Activities of a social nature**: schools, children’s homes, health centres, some organised as private businesses or sometimes through NGOs or official agencies.

(5) **Activities directly related to the lot and open spaces**: raising chickens and animals; cultivation of bushes, etc.

<sup>6</sup> (1) **Activities related to the plot** itself: renting room, rearing poultry solely for sale, brewing and consuming beer, and using a plot for services such as car parking; (2) **Making or repairing things**: vehicle, bicycle and electronic repair, shoemakers/menders, carpentry, tailoring, and preparation of food for selling within the home and elsewhere; (3) **Selling**: general stores, shops and kiosks, and small-scale sale of drinks, sweets and ice lollies; (4) **Service-type activities**: hairdressing, barber services, and medical services such as traditional healing and cleansing; (5) **Activities of a more social/communal nature**: schools, nurseries and primary health care.

<sup>7</sup>(1) **Artisan production**: weaving, basket-making, embroidery, and carpet-making; (2) **Personal services**: laundry, beautician and barber, dressmaking, lodging and catering; (3) **Trade**: small shops or bars run from home; (4) **Repair Services**: shoe repairs; bicycle, motorcycle, and auto repairs; (5) **Clerical work**: typing, data processing, telemarketing, bookkeeping, accounting, call centre telephonists; (6) **Professional work**: tax accounting, legal advising, design consulting, computer programming, writing, engineering, architectural, medical.

Table 1.1 Broad categories of productive activity types

Category	Description	Typical spatial requirements
Production (P)	Any activity that falls within the cycle of production of any kind of goods. This could be any industry.	<ul style="list-style-type: none"> <li>- Optimum space for users and equipment subject to the kind of industry.</li> <li>- - Storage.</li> </ul>
Retail (R)	Any activity which involves sale of some kind. This overlaps with what Sinha calls 'trade', and Mpembamoto et al call 'selling'.	<ul style="list-style-type: none"> <li>- Particular types of access for customers as well as goods.</li> <li>- Particular types of frontage.</li> <li>- Might have requirements for seating, waiting depending on the kind of retail and footfall.</li> <li>- Storage.</li> </ul>
Service (S)	Any activity that provide services, including personal services, repair services and education and childcare services.	<ul style="list-style-type: none"> <li>- Particular types of access for customers as well as goods.</li> <li>- Particular types of frontage.</li> <li>- Storage.</li> </ul>
Storage (St)	While this is not explicitly discussed as a kind of home-based work, the study regards this as one of the key activities that is a requirement across P, R and St.	<ul style="list-style-type: none"> <li>- Space that is weatherproof, safe from damp and pests, and easy to access.</li> </ul>

In addition to these four broad categories, there are ancillary activities specific to industry. Often, more than one kind of activity takes place in a work-home. See Case M10, where Hasan's work-home accommodates retail, service as well as storage on the same floor (CRIT, 2011). Or see Case M11, where production, retail and storage happen in different parts of the same work-home (CRIT & JJ College of Architecture, 2010). As illustrated in this case, resultantly the street between the back of two units is used for production and storage and assumes a different characteristic, while the street on the front assumes a retail characteristic, with shop-fronts of all the work-homes on the same side of the street.

**Hence, spatial and temporal footprints of productive activities also render particular characteristics beyond the scale of their work-home, often to their street and neighbourhood scales.**

## 1.4 Kind of enterprise

Two broad kinds of enterprises operate out of work-homes — self-employed and sub-contracted. In self-employed work-homes, the head of the enterprise might choose to employ multiple people resulting in a larger spatial footprint of a productive activity. This can also be true in case of sub-contracted work where family members assist in work, also having implications of a larger spatial footprint. In this respect, the kind of enterprise is relevant only to the extent of its size and number of workers involved in productive activities, which **becomes particularly pertinent when attempts are made to keep it hidden from authorities due to their 'violation' of planning or development**

**regulations.** Additionally, this has implications on requirements around physical infrastructure. Studies also document a predominant presence of women within subcontracted home-based work (Miraftab, 1996; Mahmud, 2003), as opposed to men who own and operate enterprises that tend to have more workers attached to it. They point out the differential ways the gender of the head of the enterprise, among their other social identities, shapes separation or integration of domestic and productive activities in the work-home. This is discussed in detail in 1.5.

## 1.5 Social identities; domestic and social orders of activities

Multiple identities of the user are active in the same space — their identity as a worker, as a migrant, as a parent or caregiver, their gendered identity, and religious and caste identities are some examples. Additionally, productive activities also have a certain social order in how they are perceived in the society. How numerous identities of the user interact with the social order of various activities shape the work-home relationship across scales of unit, neighbourhood and settlement.

Often, certain identities are associated with types of productive activities. For example, in Guadalajara, Mexico, women work as piece-rate workers, while men own and operate multi-person home-based enterprises (Miraftab, 1996). Particular productive activities are more amenable to being coupled with domestic activities because of their social orders at the unit level in the work-home. It is well established that home-based work is one of many survival and livelihood strategies of women navigating and combining multiple reproductive roles and responsibilities. The setting of the work-home is significant here since temporal and spatial characteristics of work become intertwined with care tasks (Miraftab, 1996; Mahmud, 2003; Gough, Tipple & Napier, 2003; Tipple, 2004; Boeri, 2016). Mahmud (2003) calls home-based work a 'transformation of domestic spaces for income generation'. The realm of the home is understood as domestic space, where the domestic aligns with social orders attributed to women's roles at home. Home-based work transforms this domestic space, bringing in what is recognised as productive. The domestic space doubles up as a site for income generation. Several studies also suggest a frequent pickup of home-based work by women in particular, in certain trades that align with domestic roles. For example, in a study conducted in Zambia, in the settlement of Chaisa, for every HBE run by a man, there were almost two run by women, particularly dominating certain trades viz. food production and processing businesses, beer brewing, selling refreshments, selling second-hand clothes, and hairdressing. Other HBEs, such as retail stores, grocery shops, barber shops and repair shops, were dominated by men. (Mpembamoto et al, 2017).

As discussed earlier, performing productive activities in work-homes enables participation from the household at no additional cost and as needed, which would not be possible at a different work location (Boeri 2016; HNSA 2014). It is seen particularly in labour-intensive occupations with multiple steps in production where the entire family is engaged in productive activities. For example, in the case of street food vending in India, women are engaged in the domestic act of food production, whereas the men engaged in outward facing acts of selling or vending the products. Pottery in Sri Lanka was found to follow a similar pattern (HNSA, 2014). Miraftab's (1996) study of home-based work of clothes manufacturing in Mexico finds that there is a preference for a male 'front' in the case of family-run enterprises. Apart from referring to an interface with those outside the realm of the home and *maquila*<sup>8</sup>, and representing a social order, this front also shapes a gendered spatial configuration of the work-home. Miraftab's (1996) work also maps spatial modifications for production activities, and

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<sup>8</sup> A 'maquila' is the name for a low cost duty-free or assembly factory in Mexico.

examines how male and female homeworkers use domestic space differently for productive purposes, navigating multiple roles, responsibilities and identities. **In turn, productive activities and their spatial and temporal footprints affect gender roles in both the home and enterprise.** An example of the spatial implications of this are seen in Boeri's (2016) findings in Ahmedabad. Women often do not devote a section of the work-home for productive activities; rather, they carry out productive activities in the same space as that used for domestic activities.

Gender is one example of how social orders and identity influence spatial relations across work and home. Similarly, caste identities and their associated social orders that govern neighbourhoods shape home-based work, based on the kinds of work and interactions that are socially accepted. Another social group studied extensively for home-based work is that of migrant home-worker and a renter versus a homeowner. Some researchers (Goldscheider, 1989 as referenced in Sinai, 1998) claimed that using home as place of work is inversely related to the length of the migrant's stay in the city. This assertion, however, is refuted by Sinai's (1998) study on home-based work in Kumasi, Ghana. Data from the study shows that roughly the same percentage of migrants and non-migrants use their homes for income-generation activities<sup>9</sup>, and the longer the migrants stay in the city, the more likely they are to use their home for work. The study also highlighted that for the sample, owners, renters, and those residing rent-free in family housing were equally likely to use their home for income-generation. Apart from various tenure arrangements, work-homes also occur in a varied type of housing types. For instance in Yangon, Myanmar, work-homes occur in family-owned houses, shared accommodation like partitioned rooms and dormitory-style rental rooms, as well as housing shared with the landlord (Ko Ko et al, 2020).

## 1.6 Spatial configuration

The report seeks to understand spatial configuration as a snapshot of the spatial organisation of a work-home at a given moment. This spatial configuration may remain the same or change across the day. For instance, Case M6 displays three spatial configurations of the Ghosi residence at different times of the day — in the morning, afternoon and night (Mathankar et al., 2018). While it is not an hourly distinction, multiple snapshots illustrate how spatial and temporal footprints of domestic and productive activities organise themselves viz.a viz. material features of the work-home (viz. partitions, openings, fenestrations) and paraphernalia (furniture, assets, etc.). It also lends insight into the interaction of various activities with each other. **Just as there are diverse material forms of housing across geographies, there are diverse sites and typologies of work-homes and spatial configurations.** The average size of houses and space per person for domestic and productive activities differ across contexts.

Ghafur (2002), in his study on home-based work in three intermediate-sized cities in Bangladesh, describes the following ways an activity might organise itself given the spatial configuration of a work-home, viz. dwelling proper - where the productive activity occupies part of a room; separate room - where the productive activity occupies a separate room, partitioned from the main space and may also be used for domestic activities; adjoining semi-open verandah - where productive activities are carried out temporarily or permanently either because they cannot be done inside or to take advantage of commercial opportunities in the surroundings. A socio-spatial analysis of women's live-work environments in Wisconsin, United States of America (USA), demonstrates that home-based paid work

<sup>9</sup> 23.4 per cent of non-migrants; 22.8 per cent of migrants.



was mainly conducted in designated settings within the residence (Mahmood A, 2007). However, if the nature of work requires regular contact with clients, the workspace could spill over to other spaces of the residence, and sometimes even require space in the surrounding neighborhoods to accommodate the need for privacy. Based on this, the study also categorises degrees of seclusion (adapted from Wikstrom, Linden, & Michelson, 1998) for home-based workers (Mahmood. A, 2007). This is defined as the seclusion of the work-place from the rest of the house, and is a spectrum that can range as given below, along with results of the study:

- 1 = primary work space in a room also used for other activities.
- 2 = work space used as thoroughfare or with open connection to the rest of the house.
- 3 = separate working room within the residence adjacent to unpaid work spaces.
- 4 = separate working space in a separate part of the dwelling.
- 5 = work space in a separate structure.

In South Africa, spazas – small shops normally operating from the front room of a house – are the most prominent type of home-based activity (Napier & Mothwa, 2001). Ligthelm (2005), in his study of spazas across different provinces in South Africa identifies various spatial configurations with respect to the work-home that spazas occur in. These were categorised as spaza operating either from within the structure of the house, the spaza operating from a room or shed attached to the house, or the spaza operating from a separate structure in the backyard of the house. In Kumasi, Ghana, three-fourths of the population lives in single and multiple storey compound housing — a housing configuration of approximately 16 rooms around a courtyard, often with front, and/or back verandahs, shared courtyard, shared cooking and bathing areas. In each compound at least one or more residents use their housing for economic activities – 40 per cent of which is rental of space and 60 per cent is through different forms of home-based work. The study also documents that different parts of the work-home are used for productive activities – the house, the yard, the verandah, the street adjacent to the plot.<sup>10</sup> (Sinai, 1998).

It is hence established across geographies that space adjacent to the unit plays an important role in aiding productive activities of the work-home. The use of this space adjacent to the work-home is subject to the kind of planning regulations that are enforced on a work-home. It is important here to distinguish that regulations enforced are not the same as regulations applicable — it is known that work-homes use the space adjacent to their units despite the regulations, but at the risk of removal or other punitive measures. These are worked around by various kinds of uses of the space adjacent to the unit, say only using the space without significant construction (e.g. Case SP1); extending furniture and assets to this space for limited durations (e.g. Case SSt2); installing temporary structures that may be removed if the risk for punitive measures by authorities presents itself; enclosing owned space reserved by regulations to be semi-covered (e.g. Case SS6); installing permanent structures and taking a calculated risk in favour of expanded space (e.g. Case M2) (CRIT & JJ College of Architecture, 2010; Bhadja 2019). **Different users hence employ different means to use unit-adjacent spaces, depending on the amount of space available to extend into, the kind of restrictions enforced, and the agency they are able to exert among other factors.** It is important to note here, how sometimes the space adjacent is not just the adjoining street (though this is the most common), but also adjoining open land that may or may not be for public use, say an open space next to a Gurudwara

<sup>10</sup> The house itself (42.5 per cent), the yard (32.5 per cent), the verandah (16.7%), and the street adjacent to the house plot (22.5%).

as used by Mr. Paik in Bhumiheen camp (Kellett, 2003), parks in the neighbourhood as used by women in Savda Ghevra<sup>11</sup> or even public infrastructure like a public tap.

Part B offers a glimpse into the variety of sizes and configurations of work-homes across various geographies, and how tenants as well as owners use work-homes for productive work, across types of tenure. Sometimes this configuration remains more or less fixed through the day but undergoes many changes at other times. For instance, in Case M10, Hasan segregates the ground floor of his work-home by creating a partition and renting out the smaller space to a pan-wallah to run his shop (CRIT, 2011). He uses the rest of the space on the ground floor for his tailoring shop as well as storage for the same. In Case M8, Mrs. Tsehay carries out her detergent packaging work, as well as domestic activities in the same space of her one-room work-home (Girmay, 2020). She changes the configuration of the furniture to create more space for her and her staff. In Case M3, Shenaz uses her single room work-home in Tevar Nagar to carry out domestic and productive activities (Karlsson, 2009). She has a mezzanine which she uses for storage, as well as for sleeping, and other domestic activities.

It is of note that in cases where there are multiple storeys in the work-home, it is common to see a separation of floors for domestic and productive activities. For instance, Hasan (Case M10) uses the entire space on the ground floor of his work-home for productive activities, reserving the upper floors of his house for domestic use. In Case M4, Ibrahimhai separates the retail on the ground floor, uses the first floor for domestic use as well as tuition, and the second floor exclusively for domestic use (CRIT, 2011). **Whether or not one's work-home is on the ground floor also affects the option and extent of extending one's space.** See for instance, Meenaben Shah's work-home (Case M2) and Dilipbhai Darji's work-home (Case SS6). They both had similar original structures to begin with, in multi-storey apartment complexes. However, the kinds of changes Meenaben is able to make is possible because she has a ground floor structure. Dilipbhai, on the other hand, uses most efficiently the limited space he has by enclosing the balcony and making other re-configurations.

## 1.7 Quality of space

Spatial qualities of a work-home, particularly access to natural light and ventilation, are vital in shaping when and where an activity takes place. Boeri (2016) notes that respondents in her study would place their sewing machine by a window to use natural light instead of overhead light. However, given the morphology of the settlement in her study, only limited daylight enters the work-homes. This also affects when women work because they prefer not to work after sunset to avoid using electricity, since infrastructural costs for domestic as well as productive activities have to be borne by them.

In Case SS6, Dilipbhai explains that among all the spaces in the house, only the front room has optimum light for him to carry out his tailoring business. In Case M2, Meenaben Shah uses the front room to make papad, as it has the best light and ample ventilation required for drying papad. Both Dilipbhai and Meenaben express that they face issues when guests come home, since they both use their front room for productive activities, which is also where they have to entertain guests, or in Meenaben's case, use as a passage to the inner room (Bhadja, 2019). Thus, domestic and productive activities end up interfacing with each other due to the spatial setting of the work-home itself.

It is important to underline the user-agency exhibited by both Dilipbhai and Meenaben to accommodate productive activities into their work-homes. Additionally, both Dilipbhai and Meenaben

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<sup>11</sup> As noted by authors of this report in their field experiences.

made different modifications to the original structure, depending on their specific needs which the original structure was inadequate to fulfill. This is discussed in detail in section 3, when we talk about the nuanced and complex ways users exert agency to maneuver the work-home boundary.

## 1.8 Physical, social and economic infrastructure

While section 2 will discuss the way work-home boundary is affected by physical infrastructure, this sub-section will briefly look at a few examples of how quality of infrastructure affects the footprints of productive activities. Certain activities require electricity to run equipment; most others require lighting, at least in the absence of daylight. Access to water is also key, especially in activities such as cooking or pottery. Connection to proper drainage and sewage networks are basic requirements for all kinds of work-homes. The kind of access roads work-homes have is of importance for the supply and movement of goods. In case of retail and service activities, its quality becomes even more critical with respect to the clients or customers.

### **Interruptions in access to physical infrastructure can result in pronouncing the competition between domestic and productive realms, making pressure experienced by users more acute.**

For instance, a 55-year-old home-based garment worker in Yangon, Myanmar (Ko Ko et al., 2020) remarks that she has to reschedule her orders when her house floods during the monsoon. In the same study, a garment worker who uses an electric sewing machine notes that she cannot work during power-cuts in her work-home; while another who uses a manual machine also notes the difficulty in working in candlelight and stops working if not urgent. Such interruptions in access to infrastructure have not only financial implications but also on time and the amount of labour required. For instance, women in Yangon and Pakistan alike report how they could have used the time lost in commuting to access water, and drainage at times of flooding for productive activities (Sultana, n.d.). This again highlights the detrimental effect poor access to infrastructure adds to vulnerabilities experienced by an already disadvantaged group.

Social and economic infrastructure, including access to markets and their operating times also shape productive activities and their times. This is however best understood in relation to a competing domestic activity, which is discussed in section 2.

## 1.9 Spatial and temporal footprint in documentation

Through the cases in this section, the study sees the logics of spatial organisation that are particular to work-homes. However, spatial documentation of one spatial configuration does not adequately capture nuances of the work-home boundary. It is also difficult to determine the fixed and flexible nature of an activity's footprints using such single-dimensional studies. As also covered in 1.6, spatial documentation needs to be layered across time to get a more practical understanding of how work-homes operate. Temporal aspects of studies are important, as is the mapping of space by multiple users. Spatial implications of social aspects of the work-home boundary are often overlooked and need to be taken into account in spatial documentation exercises. Understanding the fixed and flexible aspects of a work-home boundary are crucial to acknowledge the labour that goes into altering and adapting limited space to serve domestic and productive activities.

## *Section 2*

# Nature of the work-home boundary across scales

Domestic and productive activities interface and engage with each other — they may align with, be indifferent to, or intrude into each other — through the work-home boundary. Since spatial and temporal footprints of domestic and productive activities are not necessarily static, the resultant work-home boundary may be fixed or flexible in space and time, as different stakeholders exert influence across scales. The interface of the domestic and productive implies shared needs, a balancing of opportunities for work, as well as risks particular to this interface across scales. Ghafur's (2002) work on home-based work in three cities in Bangladesh classifies these scales or hierarchies of space as micro (dwelling and courtyard), meso (lane or street) and macro levels (broader neighborhood and urban public space). This section discusses the work-home boundary across the scales of the unit, the settlement or neighborhood, and the city.

### **2.1 Ways of interfacing: in alignment, indifference or intrusion**

At the unit level, domestic and productive activities may interface with one another and shape the work-home boundary in different ways. As discussed earlier, they may align with one another; for example, a garment worker and mother's activity of tailoring may be productive, while also continuing with domestic activities of looking after children (Miraftab, 1996). They may also be indifferent to one another; for example in Case SS6, Bhadja (2019) notes how Dilipbhai, a tailor, uses the front room for productive activities while his wife does household activities and his son watches TV after school in the same space. However, in the same example, Dilipbhai also notes - 'I am always working in the front room, so when guests arrive, I have to discontinue my work and compulsorily engage with them.' Domestic activities performed by the wife and son, and Dilipbhai's tailoring are indifferent to each other. But with social calls and tailoring, the domestic and productive intrude into each other. In choosing to stop work in favour of entertaining guests, Dilipbhai maneuvers the shared needs of domestic and productive. The work-home boundary depends not just on spatial and temporal footprints of various activities, but also on how the user may prioritise these, which is discussed in greater detail in section 3.

## 2.2 What makes some settlements more amenable to work-homes than others?

Not only do neighbourhood characteristics of the domestic affect home-based work, but home-based work and the productive domain also affect the neighbourhood and the domestic in diverse ways. Further, the relationship between home and work, the domestic and the productive is dynamic and works both ways. Numerous studies discuss that while productive activities create finance, opportunity and reasons for home improvement, transformation of housing for productive activities is in itself a livelihood strategy (Miraftab, 1996; Mahumud, 2003; Avogo, Wedam & Opoku, 2017). Poor households are more likely to use housing for income generation (Sinai, 1998), and certain neighbourhoods<sup>12</sup> have high percentages of work-homes. Certain types of home-based work, categorised according to the markets<sup>13</sup> they engage with, are also more prevalent in certain types of neighbourhoods (Strassmann, 1986). A study in Delhi on momo production in a neighbourhood points out how the characteristics of a settlement make it conducive to the trade, while in turn the trade ascribes its identity to the settlement where the neighbourhood is 'a conducive ecosystem' for productive activities (Narayanan and Veron, 2018). Literature also discusses the concept of the 'neighbourhood as a factory' and the clustering of work-homes in particular neighbourhoods (Benjamin, 1991 as referenced in Tipple, 2005).

Work-homes add both economic and social value to the neighbourhood, with convenience as well as circulation of resources within the neighbourhood, benefitting even those households that are not work-homes (Mpembamoto et al 2017). Carrying out productive activities in the work-home can also trigger improvement to the quality of housing as well as the settlement (Smit & Donaldson, 2011). It also tends to generate new housing typologies and housing markets as is evident in Chirag Dilli (Narayanan and Veron, 2018) and Kumbharwada (CRIT, 2011). But what makes certain neighbourhoods amenable to certain kinds of productive activities?

Work-homes occur across locations in the city, including the city core and the periphery. At the periphery, there is often a need for better infrastructure and transport links. Work-homes situated in cores of the city may be better located with respect to access to different markets, yet often face insecure tenure and contestations of land, such that concerns of visibility and surveillance may exist. Workers also consider the cost of space along with the cost of transport. (Sinai, 1993; Miraftab, 1996). Spatial factors that enable home-based work can be seen as a bundle at the neighbourhood or settlement scale as well as the city scale. **Home-based work is more frequent in neighbourhoods where the characteristics of access, cost of space and density overlap with the spatial needs of certain trades** (Strassmann, 1986). For example, renting a space in a residential settlement is often considered cheaper and prone to less competition than having a shop in central business districts, commercial or industrial areas. Operating a home-based business in one's own residential area is considered more likely to be well-known to customers, and the aspect of working where one lives also allows one to take the work elsewhere when they go to a new house (Smit & Donaldson, 2011).

As briefly discussed in 1.8, access to services such as water supply, drainage and waste infrastructure enables the operation of both the enterprise as well as the home, and the quality of services. Often, access to services can imply de facto tenure and enables workers to invest in the infrastructure and space of both their housing and enterprise (Mpembamoto et al., 2017). Each enterprise is located in an

<sup>12</sup> Strassmann's (1986) study shows how certain formal and informal neighbourhood categories have a disproportionately higher percentage of work-homes. This includes neighbourhoods categorised in Lima as popular urbanisation — formally recognised housing category of small sites and minimal services — and informal housing categories of pueblos jovenes and substandard/subdivided housing.

<sup>13</sup> Strassmann's (1986) study of home-based work in Lima also categorises home-based work across neighborhood types engaging with markets at various scales — the city scale, neighborhood scale and across businesses.

ecosystem of raw material, supply chain and markets at the city and local scale. Access to markets is often key to the productivity of enterprise (Strassmann, 1986). Cases show examples such as home-based garment work clustered along industrial infrastructural corridors (Miraftab, 1996), or the clustering of types of trades in particular neighbourhoods (Narayanan & Veron, 2018).

## 2.3 Tenure, infrastructure and upgradation

Across the scales of unit, neighbourhood and the city, claims to space through tenure and planning classifications shape the work-home boundary, also influencing the worker's autonomy over both the domestic and the productive domains. Literature documents that work-homes occur with a range of claims to space — tenure and planning classifications, as well as arrangements of home ownership and rent (Sinai, 1993; Mahmud, 2003; HNSA, 2017). These arrangements imply different abilities to make a claim to space and affect questions of privacy, autonomy and security, and de facto and de jure tenure to use space as home, work, or both. For example, a case study comparing work-homes in three “bustee” settlements in Dhaka — an illegal bustee, a private bustee, and a refugee camp on government land — illustrates how tenure arrangements influence spatial configurations, opportunity for transformation, as well as types of work differently<sup>14</sup> (Mahmud, 2003). Lack of tenure is a deterrent to investing in the physical structure of the work-home and neighbourhood, and has implications on the access to physical infrastructure. Lack of tenure also hinders certain kinds of work or its visible scaling, and mode of operation. Workers often protect themselves from eviction and surveillance by spatial modifications that ensure that the enterprise is not visible, or can be perceived as temporary (Miraftab, 1996). Neighbourhood and city level processes like upgradation, resettlement and relocation deeply impact work-homes.

## 2.4 Layered and offsetted vulnerabilities

The ways in which domestic and productive activities interface within the work-home is important for the opportunities it enables as well as the particular risks it pronounces for homeworkers. For many, an alignment of the domestic and productive activities in the work-home means using the physical space of the household as an asset — a spatial, human and financial resource for livelihood. Considering the dynamics of spatial and social orders, the combination of domestic space as productive enables livelihood opportunities for women within the domestic domain, as discussed briefly in section 1.5. As discussed further in section 3, income generated through the work-home enables repair, upgrading and spatial transformation of not just the productive but also domestic sphere, and the work-home boundary.

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<sup>14</sup> Tenure arrangements affect the autonomy of work-homes to configure their space. Work-homes in Babupara, an “illegal bustee” (*with landlords occupying the land illegally - identified as the land mafia*), configure and partition their work-homes in relation to their tenure security. They use the inner or bed-room for cooking food, and sell it outside the work-home. In Badal Mia, a “private bustee” (*on land owned privately by a landlord*), workers perceive a greater threat of eviction by a private landlord looking to consolidate and redevelop landholdings. Workers engage more in subcontracted home-based work, while the common neighbourhood spaces transform for cooking activities. In Ershad Nagar, a refugee camp on government land, workers perceive a comparatively better de facto tenure security of the work-home. This enables a more visible transformation of housing for work such as partition of space, as well as a high and visible footfall of clientele in the neighbourhood (Mahmud, 2003).

The dynamics of the work-home boundary hold a set of risks associated with inadequacies of quality of space and access to infrastructure that are particular to work-homes, at the scale of the unit as well as the settlement. Examples of the kinds of risks have been described in several studies — poor ventilation and respiratory health of home-based garment workers (Koko et al., 2020, HNSA 2011-WIEGO 2020); impact of high temperatures, high humidity, and poor ventilation in tin-roofed homes of garment workers in Yangon, and resultantly unfavourable working conditions (Ko ko et al., 2020); examples of thermal discomfort in spaces while working (Kellet & Tipple 2000); inadequate waste infrastructure and impact on health and work, especially during rains in Yangon (Ko Ko et al., 2020); drainage backflow and impact on domestic and productive activities for home-based workers in Lahore (Sultana, n.d.).

Studies in Yangon also illustrate an increase in mental as well as physical stress caused by power cuts (Ko ko et al., 2020); Boeri (2016) observes the bleeding of emotional stress of paid and unpaid work and the resultant conflict; home-based workers working for prolonged hours in poor lighting, and poor posture when working on the floor causes ergonomic issues like musculoskeletal pain, blurred vision, and eye strain (Ghvamshahidi, 1995 and Sarna & Shukla, 1994 as referenced in Tipple 2006; Boeri, 2016; Ko Ko et al., 2020). As discussed earlier in section 1.7, the quality of light and ventilation in a work-home determines the quality of productive activities. One sees hence how risks due to poor quality of spaces in the work-home are offsetted from domestic to productive spheres.

A very notable way risk offsets from the domestic to productive is the security of tenure. The risk of eviction of a squatter settlement has implications on both the work and the home. As discussed earlier, insecure tenure is a deterrent to improving both the domestic and the productive spheres. Households may prioritise space for work over certain domestic requirements for an interim amount of time, which will be discussed further as tradeoffs in section 3. Risks may arise due to conflict between domestic and productive activities amidst limitations of time and availability of resources of space and infrastructure. For example, in some neighbourhoods, the home-work schedule may be aligned according to the time for a domestic chore of filling water, at the cost of productive activities. On the contrary, a prioritisation of productive activities may mean crowding space otherwise used for domestic activities.

The converse is also known to happen. For instance, at the neighborhood level, this could imply an increased pressure on infrastructural services. Interestingly, Tipple (2004) notes that while a few enterprises may generate waste that could be classified as more dangerous, the waste from most enterprises in his study was similar to domestic waste but in larger quantities. Similarly, while the amount of water required across enterprises differed, none of these had a water load that would not be serviceable at full domestic service pressure, although clusters of such enterprises may reduce the water pressure. This implies that for most work-homes it is not the nature of the infrastructural load – waste, water etc., but the quantum that is of significance. It is also to be noted that certain basic requirements of domestic and productive activities, viz. quality of light and ventilation, structural safety, and access to quality physical infrastructure align with each other. **This hints that better provisioning of infrastructure and living conditions for domestic activities would also aid productive activities.**

It is imperative to note again how risks faced by the domestic or productive sphere extend into each other. Home-based workers experience these risks in parallel through their intersectional identities as both residents and workers. While one understands these risks through their relationship with domestic and productive activities, in reality, the worker experiences these simultaneously. For

example, limitations in the quality and adequacy of housing may risk productive activity because of flooding of the work-home in an instance, while also impacting the health and wellbeing of the worker beyond the productivity of the work.

The opportunities and risks linked to the work-home have scalar dynamics, as discussed in this section. These are addressed by various stakeholders with different agency and influence at different scales. Since these risks and opportunities are often experienced and considered in parallel, the user's agency is an important factor to pay attention to. Users consider these aspects while maneuvering the work-home boundary and shaping the work-home, discussed further in section 3. While access to infrastructure like sanitation, waste disposal, water and access to roads have a direct bearing on home-based workers' exposure to and ability to deal with health risks, local authorities are a key player in addressing these (Lund, 2012). The report discusses the agency of users themselves in maneuvering the work-home boundary ahead in section 3, and the role of the state and spatial governance through section 4.



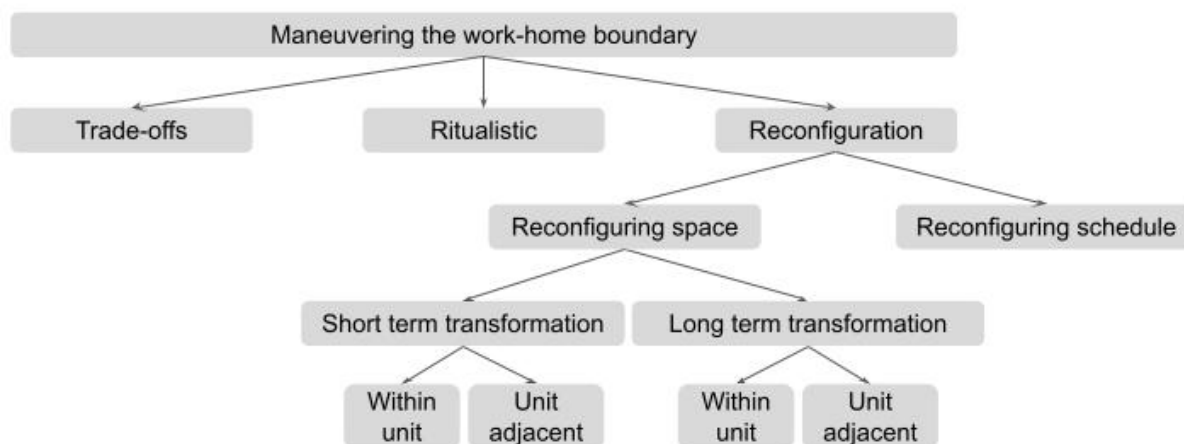
### Section 3

# Experiencing and maneuvering the work-home boundary

This section places particular emphasis on user agency and the complex ways in which users experience, engage and maneuver this work-home boundary. Literature categorises boundaries between productive activities and domestic activities in three ways, namely spatial (e.g., walls, partitions, and decor), temporal (e.g., scheduling household or home-based activities), and behavioural (e.g., allowing or denying clients/employers access to the residence and delegating paid and unpaid work) (Altman, 1975, 1977, Mahmood, A. 2007). Mahmood brings specific attention to the actions users take to reinforce the work-home boundary.<sup>15</sup>

Fig 3.1 illustrates how a user may maneuver the work-home boundary. They may make trade-offs where they prioritise the needs of one activity over another; they may perform an activity as a ritual to establish the work-home boundary; or they may reconfigure either space (the work-home) or time (their own schedule). Reconfiguration of space may be short term or long term and may be done within the unit or adjacent to the unit, as hinted in section 1.6 and as seen in many cases in part B. While spatial and temporal reconfigurations are easy to map, trade-offs and ritualistic boundaries are more slippery to document. These are often under-reported or remain largely tacit.

Fig 3.1 Ways of maneuvering work-home boundary



<sup>15</sup> Mahmood calls actions taken by users to mobilise and organise spatial and temporal boundaries in their everyday lives as 'technologies of environmental adjustment'. These actions help reinforce the distinction between domestic and productive spheres and hence the work-home boundary. He further distinguishes them into defending and intruding. Actions that manage interruption of productive activities by domestic activities are known as 'defending', calling the converse 'intruding'. In contrast, the act of self-switching involves movement between the domains of home and work.

### 3.1 Trade-offs

This way of maneuvering is specially employed when domestic and productive activities conflict with each other — either due to space, time or domestic/social orders. Prioritising one need over others becomes a way of conflict resolution. The introduction of the report discusses the example of Mehar Jahan and how she experiences the work-home boundary. Not being left with enough space for her charpoys, she resorted to sleeping on the floor. She aspires to build another floor and separate domestic life from business. Here, Mehar Jahan prioritises the needs of her enterprise over the basic domestic function of sleeping. She articulates,

*"We have problems at night. We have to sleep on the floor and our son sleeps at his sister's house. If we can build upstairs, we can keep things from the house there and things from the store stay down here..."* (Kellett 2003).

Hansha prioritises her tasks depending on what she deems as more urgent,

*"If home-based work is urgent, I do that, but if my daughter needs tutoring, I help her."* (Boeri 2016).

Jaya, another respondent in the same study, says that when work is urgent, she prioritises it over the domestic role of cooking, opting to buy food from a canteen instead,

*"We have to bring meal from outside and eat. The most important is to deliver the work."*

SM maneuvers through the conflict created due to social calls during work by abandoning work for a while, saying,

*'On such occasions I would just stop working for a while, because I wouldn't feel comfortable to keep working while there is an event going on in my house.'* (Tipple & Kellett, 2003).

Trading work off due to social and domestic calls is a recurring theme in the case studies. Case M2 and Case SS6 also echo this choice they have to make between engaging with the guests and continuing to work. In such cases, it is often because the most well-lit and ventilated room of the work-home, i.e. the room most amenable to productive activities is the front room, which also happens to be the space where anyone visiting would be entertained or would have to pass.

### 3.2 Ritualistic boundaries

**Ritualistic boundaries are established when there is no significant spatial change made to the work-home as such, but the performance of an activity marks a threshold between domestic and productive spheres.** This pronounces the act of what Altman (1977) calls 'self-switching'<sup>16</sup>. This kind of a maneuver is difficult to find in literature, because such practices might usually be taken for granted by the users themselves. It also depends on whether users identify a certain act as a ritual, or perform it more tacitly, as a part of the everyday.

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<sup>16</sup> Altman (1977) describes self-switching as a technology or practice that involves movement of a home-based worker between the realms of home and work. This type of practice facilitates boundary removal or increases the permeability of the boundary between the two realms and helps to integrate them.

Mr. Kusnari, a shoe-maker in Indonesia, works in the living room, cleans it with help from his family to read the Koran, and resumes work once done. He says that reading the Koran does not take too much time, and hence he is able to balance his work with alternative domestic functions that the space should accommodate. Kellett (2003) remarks,

“Cleaning is much more than a practical action: it is a fundamental ritual that helps establish the conceptual limits that organize behavior inside the house”.

### 3.3 Reconfiguring schedule

Miraftab (1996) notes that one way to maneuver the work-home boundary is to schedule the day such that the same space serves specific functions at specific hours. This mostly involves reconfiguration of work around unpaid care work. Boeri (2016) finds that multiple respondents schedule their productive activities around their domestic activities. Asha, Biliksha and Kaia all wait for their respective children to go to school before starting their productive activities. If orders are not completed in those hours, Asha works once her children fall asleep. Similarly, the study finds that Vali stops her work at midday to prepare lunch for her husband. **Boeri notes that scheduling is a technique that her respondents use to create time for productive activities without interruption.** Reconfiguration of schedule may also happen around access to infrastructure, power-cuts, etc. A common example is working during the day to avoid using electricity at night.

### 3.4 Reconfiguring space: short-term transformation

How space is reconfigured, and what directs users opting a particular spatial configuration is a site to study the agency users exert in maneuvering the work-home boundary. This is of particular interest to understand the requirements of home-based workers. **It is also of note how most of these reconfigurations of space are post-facto construction to adapt inadequate housing into work-homes.** Transformation of space may be short-term or long-term. Long-term transformations to space and the role of home-based work as a trigger to home improvement are discussed later in this chapter. This sub-section discusses short-term transformations carried out either through the day or by spatial reconfiguration catering to productive activities.

#### 3.4.1 Short-term transformation within unit

Short-term transformation includes certain spatial choices made at the unit level, such as separating domestic and productive activities or multiple uses of space (Miraftab, 1996). Kellett (2003) considers reconfiguring space by moving furniture or equipment as a way to maximise space and minimise conflicts, which is made possible through ‘the spatially and chronologically symbiotic interaction of domestic and work activities creating an effective space that is more than what exists physically.’

For instance, the Budiyanto family in Surabaya, Indonesia, put away their mattresses and other things on the side during the day, converting their 15 sq.m rented space into a workshop (Kellett 2003). Huba & Yohannes (2015), in their study in Dar es Salaam, note that a combination of different spaces serves the needs of productive activities at different times. For instance, corridors, rooms and courtyards may be used for storage of material, while the kitchen may be used for preparing food items for sale as well

as cooking food for the family. They also highlight how utensils and furniture stored in the corridor are used both for productive activities and domestic activities. (Huba & Yohannes, 2015). This dual-use of furniture and household articles is important to note in the case of work-homes, as **not only space, but assets are also used interchangeably.**

In the case of momo-making enterprises in Chirag Dilli, discussed earlier, the workers live and work in the same 1BHK<sup>17</sup> space (Narayanan, Veron 2018). Casual labour often lives together with the momo entrepreneur as momo production and selling continue throughout the day. The same space transforms through the day as it is used for productive activities like producing momos, cleaning utensils, and doing the accounts, and domestic activities like cooking for the workers, eating and sleeping. Mrs. Tseyah in Case M8 uses her one-room house for both domestic and productive activities and says,

*"I do this job in the main living room. All I have to do this job is to clear the living space and bring the working tools, then sitting on the sofa I can pour the detergent soap into the little bottles. I use the sofa in the main living room to put my staff and store the poured detergent before I take them to my customers."* (Girmay, 2020).

Legality and legitimacy of home-based work are also reasons to configure work-homes a certain way. As discussed earlier, the invisibility of home-based work is sometimes strategic to work around the limitations on home-based work. Miraftab (1996) notes that it is common to establish work premises on the back of the house, unless it is easier to bribe than conceal the activity spatially. This is also done to be discreet about multi-person operations.

### 3.4.2 Short-term transformation adjacent to unit

Another way to configure the use of space is to move activities with greater spatial flexibility to spaces adjacent to the unit. Section 1 of the report mentions that space adjacent to the unit is an indispensable asset that many users leverage. This could be the porch of the house, an adjoining street, a nearby vacant plot of land, or a public space like a park. As discussed earlier, the ability of a user to do this is subject to the social acceptability of a particular trade or activity, and also significantly on the claims to public space one is able to lay. Kellett (2003) finds similarities of users extending their productive activities in spaces adjacent to the unit across South Africa, Bolivia and Indonesia. He gives an example in Indonesia where people making masks use footpaths in front of work-homes to dry the masks, and women sit on benches outside their work-homes where they chat and watch children while they sew shoes by hand. Another example he gives is of Mr. Paik in Delhi whose work-home is small, and hence resorts to teaching children in an open space next to the temple. In Case SS1, broom-making extends to the space adjacent to the work-home, and in Case SR1, parts of the retail activity extend onto the street, while in Case SSt1, residents use the street to store their goods.

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<sup>17</sup> A unit with one Bedroom, Hall and Kitchen is colloquially called 1 BHK.

### 3.5 Reconfiguring space: Long-term transformation

It is seen across the globe that creating better spaces for work is a trigger to improve living conditions. This may be by building or expanding the work-home, or by spatial or infrastructural improvements. These are typically more long-term in nature and may be done within or adjacent to the unit.

“Housing transformation processes are an example of a livelihood strategy from which livelihood outcomes are derived to improve the well-being of household members” (Avogo, Wedam & Opoku, 2017).

These processes have many forms — repair, upgrading, adaptation, expansion — taking place in different situations. At the unit level, modifications to the house are based on spatial requirements, types of production, number of workers and gendered relations. Single worker homes and multiple workers homes often have different spatial configurations, which is also linked to the type of enterprise (contracted or self-employed), and the gender of the home-workers (Miraftab, 1996). It is important to recognise that these configurations of the work-home change over time with changes in the requirements of domestic and productive activities. This is linked to changing sizes and family relations, as well as changes in the kind or expansion of the enterprise. This can involve construction of additional rooms or partitions, upgrading within a unit, to a trajectory that Miraftab (1996) describes as “phases of spatial organization”. Strassmann (1986), in his study on Lima, discusses 16 types of improvements mapped in a survey<sup>18</sup> and found that most households added a room. As the spatial requirements of the household and enterprise transform, these relations and gendered dynamics within the household inform the spatial configurations, while also being influenced by the latter (Miraftab, 1996).

#### 3.5.1 Long-term transformation within unit

Alteration of internal space by demolishing walls or installing new partitions is a popular way to transform space to accommodate productive activities (Huba & Yohannes, 2015). Mrs. Meisie, who faced difficulties due to limited storage, aspired to build more space to segregate the space for storage, and expand her shop. She created a smaller room for storage so the paraffin could be stored there instead of in the kitchen (Kellett 2003). Hasan, in Case M10, makes a partition on the ground floor of the house to separate the space for his tailoring from the space rented out to the pan-wallah (CRIT, 2011).

Improving poorly designed homes to achieve climatic comfort is another mode of long-term transformations to the unit. For instance, a 20-year-old home-based garment worker in Yangon, Myanmar, said she had to ‘get creative’ and make holes in her bamboo wall to get some relief from the heat that gets trapped in the pillow-stuffing material during summer (Ko Ko et al., 2020). Similarly, a 55-year-old home-based garment worker reported making a concrete floor to prevent flooding, albeit unsuccessfully (Ko Ko et al., 2020). Mr. Y, a teacher running coaching classes in Bhoomiheen Camp, cites making the floor more comfortable for children to sit as the reason for cementing the floor and improving his work-home (Tipple and Kellett, 2003). Mr. SS, a textile shop owner in Bhoomiheen Camp,

<sup>18</sup> Some of these 16 types are - reconstructed the shell, added rooms, improved the kitchen, installed better water or sanitary facilities, plastered and painted the inside or outside, improved wall or roofing materials, finished ceilings, improved flooring, installed better windows or doors, improved the garden, added fill or graded the site, and built a fence or wall around the site.

while investing to improve his house and construct a toilet, stated that he would not invest any more as it could be subject to evictions in the future (Tipple & Kellett, 2003). Productive activities, as discussed earlier, are thus often a trigger to improve homes.

### 3.5.2 Long-term transformation to home adjacent to unit

Huba & Yohannes (2015), in their research on work-homes in Buguruni Mnyamani, Dar es Salam, observe how space inside as well as outside the work-home are used for work. Apart from the construction of new rooms, extension into and sometimes enclosure of open space is common practice. Materials used may be temporary or permanent. Reasons for temporary enclosures may not just be due to affordability of such material, but also at times factors of tenure insecurity, and an attempt to create spaces without flouting formal limitations on construction. While some 'vibanda'<sup>19</sup> are movable, others are fixed to the ground. Such an extension using temporary structures like shaded frontages for customers causes a reduction and densification of common space outdoors (Huba & Yohannes, 2015).

Samuel in South Africa initially carried out activities for his fried fish business in his kitchen. However, he faced issues with domestic and productive spheres intruding into each other's space, as well as time. He finally built a kiosk in a separate lot of the house exclusively for frying fish (Kellett, 2003). Samuel says,

*'... I decided to take my business out of the house because the place was not suitable for the food that I prepare, and the kitchen is really for daily food. I realised that I was bothering the others in the kitchen and could not concentrate on work. ... I had to do other household chores. I had to wash the dishes and pots, or give them time to cook and eat, or sometimes when they finished the meal [the children] did not leave everything as I needed... then it was my turn to start cleaning and washing everything, to collect the water ... and thus I was running out of time and space is very restricted...'*

Meenaben Shah's work-home from Case M2 is another example of transformation of space adjacent to the unit by enclosing it into the work-home. The papad-making space and her husband's shop were both created by enclosing the space outside the original unit. As discussed earlier in the report, which floor the work-home is on becomes an important factor in determining the extents of the expansion. Other examples of such transformations are Case SS4 and Case SS5.

## 3.6 Initiatives by other actors

As noted earlier, most spatial interventions happen post facto construction, design and occupying the structures. **Very few examples of housing exist that were made anticipating productive activities to be carried alongside domestic ones.** These maneuvers are not just limited to users devising the solution. Other actors like NGOs and collectives also play an important role in catalysing this user agency, particularly through mobilisation towards better access to infrastructure, spatial interventions, even providing products or techniques that users may easily adapt or install into their work-homes.

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<sup>19</sup> A 'vibanda' is an enclosure made with corrugated sheets and wooden poles.

An example of this is the work done by MHT, SEWA, Footprints EARTH, and SELCO in the design of skylights for improving lighting and ventilation in work-homes (World Habitat, 2017). As illustrated in Case M21, this skylight can be easily installed in roofs made of corrugated sheets, as is found in a wide number of work-homes across geographies. The design initiative by SPARC is another good example, which not only created additional space in the work-home but also effected a revision of DCRs<sup>20</sup> as will be discussed in section 4. Some other examples of such interventions are illustrated in Case M13 and Case M14 by the design of storage space suitable to particular kinds of trades (WIEGO & MHT, 2021)

Mahila Housing SEWA Trust (MHT), in India, works towards creating access to basic services for women working in the informal economy, which includes those working from their work-homes. MHT forms Community-Based Organisations (CBOs) of these working women, building their capacity and finally linking them to urban local government bodies so that workers themselves can ensure basic services in their communities. It also links them with feasible financial solutions that can be used to make home and community infrastructure improvements. (HNSA-WIEGO, 2020). In Bhubaneswar, Odisha, MHT collaborated with ROAD, a grassroots organisation working with home-based workers. The initiative sought to mobilise women workers to secure solid waste management (SWM) systems and individual water connections in their settlement (HNSA, 2017).

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<sup>20</sup> DCR stands for Development Control Regulations, also sometimes referred to as Development Control Norms.

## Section 4

# Work-homes and urban governance

This section discusses how the state spatially enables or limits work-homes. There are different actors in urban governance that affect work-homes through various means. Among the key actors are land-owning agencies, urban development authorities, state policies and laws around eviction, and resettlement and rehabilitation. As such, the development plan or the Master Plan of a city is one of the key instruments of spatial governance, which lays down regulations at the city level as well as at the neighbourhood level. Zonal plans and local area development plans, where applicable, also affect work-homes at a neighbourhood level. Enforcement of particular land uses restricts the use of the work-home for productive activities. Various state agencies and institutions that notify settlements, categorise them by types, and set out guidelines and norms for resettlement and relocation are also key players in determining the fate of work-homes. Thus, work-homes find themselves in a layered set of vulnerabilities and opportunities based on the security of tenure — de facto or de jure —, proximity and access to industrial and commercial zones and their supply chain, and access to social, economic and physical infrastructure among others.

This section examines how the spatial side of work-home environments is addressed by planning in India, through the cities of Delhi and Mumbai. **While planning separates the domestic and productive at the scale of the city through zoning, it can also engage with the work-home boundary through the mixed-use category.** Planning also attempts to regulate and allocate spatial requirements for domestic and productive activities through regulation at the building level, addressing some of the factors of quality of space discussed in section 1. Yet, as discussed in section 2, home-based work, while prevalent across neighbourhoods and planning classifications across the Global South, is more frequent in neighbourhoods that are often out of the bounds of planning. The study, therefore, reflects on the processes of upgrading and rehabilitation where the state does intervene in neighbourhoods where home-based work is frequent, to understand how these processes relate to home-based work.

### 4.1 Planning in India: An illustrative Case

The study examined how planning norms in India address the widespread practice of home-based work by looking at three planning documents — The National Building Code (2016), and the Masterplans for Delhi and Mumbai (see box 4.1), and in particular, at three kinds of regulations – a) land use regulation, b) general building regulations and c) regulations for rehabilitation and



redevelopment. The study examines these documents as instruments of spatial governance by the state at the scale of the city, to ask two questions:

- i) Do masterplans recognise the category of home-based work?
- ii) Do existing residential planning norms for general, rehabilitation and resettlement buildings service the shared needs of domestic and productive activities and the work-home boundary as discussed in the previous sections? If not, what are the lacunae?

Box 4.1: National Building Code and Masterplans of Delhi and Mumbai

**The National Building Code, 2016:**

As described by the Bureau of Indian Standards, “this comprehensive building code is a national instrument providing guidelines for regulating the building construction activities across the country. It serves as a model code for adoption by all agencies involved in building construction works be they Public Works Departments, other government construction departments, local bodies or private construction agencies. The Code mainly contains administrative regulations, development control rules and general building requirements; fire safety requirements; stipulations regarding materials, structural design and construction (including safety); building and plumbing services; approach to sustainability; and asset and facility management”. Urban local bodies use the NBC as the base code and fine-tune it to develop localised norms for their cities – also known as development control regulations which are included in statutory masterplans.

**Masterplans for Delhi and Mumbai:**

To plan for the future growth of cities, planning authorities make statutory master plans every 20 years. The master plan comprises:

- land use plan that specifies the uses that can be allowed on the plot; and
- development control regulations (DCRs) that specify the design criteria and construction techniques that must be followed to develop a safe, healthy, and efficiently functioning built-form on a particular plot of land.

#### 4.1.1 Examining land-use regulations: Do masterplans recognise the category of home-based work?

The idea of home-based work is an anomaly to modern planning practices that are based on the separation of uses. The act of delineating separate uses at the level of city/town through planning is called zoning. Zones are demarcated in land use plans and seek to ensure that uses in a particular area are predominantly of one type. The National Building Code (henceforth NBCs) prescribes land use to be categorised as residential, commercial, public and semi-public, industrial, transportation, primary activity, protective and undevelopable, special area, recreational, and mixed-use zones. Uses are also separated at the level of a building. Development control regulations (henceforth, DCRs) read a building as residential, commercial, institutional, mixed-use etc., and prescribe norms as per the use.

Neat categorisations allow planners to prescribe targeted norms for activities that are allowed within these zones and create neighbourhood infrastructure specific to them. In an ideal modern plan, work

and commerce (productive activities) are supposed to be carried out in the commercial, industrial, public and semi-public zones, while the residential zone is for domestic activities. However, plans cannot dictate the complex land use of Indian cities into neatly bound categories. Most areas in Indian cities, in reality, fall under the category of the “mixed-use zone”. This zone captures the messy, variegated, and mixed nature of land and building use and the dynamism of the work-home boundary.

The unit of focus in this report – the ‘work-home’ – where domestic and productive activities are carried out together, is a mixed-use category. However, home-based work is not formally recognised in the plans, hence not planned for. Graver still, it lies in a grey zone of legality as a lot of home-based work is carried out from residential zones and buildings earmarked for domestic use. To ease this tension, home-based work can be subsumed into the category of mixed-use at the land and building level. Alternatively, all residential zones/buildings can permit HBW. The study looks at examples of two cities to understand how master plans relate to the wider spread practice of mixed-use and home-based work.

### **Mixed-use in Delhi and Mumbai Master Plans**

The approach towards mixed-use zones and buildings varies across the country. Mumbai has embraced mixed-use zoning wholeheartedly. Delhi, on the other hand, has had a more apprehensive approach.

#### Box 4.2: Mixed use and Development Plan for Greater Mumbai

##### **Mumbai:**

Even though the Development Plan for Greater Mumbai (DPGM) 2014 - 2034 delineates residential, commercial, industrial and other zones, exemptions are made to each of these categories to allow multiple land uses. Hence, all zones, even when not mixed-use, have allowed multiple uses to cope with the existing needs of urban life. Thus, there is no conflict of carrying out home based work in Mumbai at the zoning level. But, even as the DPGM 2014 - 2034 embraces mixed land-use as the dominant zonal form, vertical mixing within buildings is controlled. For example, tailoring, embroidery and button-hole making shops are allowed in residential areas only so long as they follow certain criteria, viz. The shop is on:

1. the ground floor with or without separate access;
2. a plot that abuts a minimum street width of 12 m; or
3. streets having a width of more than 18.3 m excepting some specific roads.

Different norms apply to different activities. These criteria are explained in elaborate tables that have to be cross-referenced to understand the restrictions that apply (See Annexure to Section 4 at the end of report). In examining these conditions, the study finds that the plan seeks to enforce at least a floor-wise separation of commercial (productive activities) and residential (domestic) activities, as well as separate accesses to different uses while provisioning for vertical mixing. This is perhaps to regulate circulation and limit nuisance to residents. This inadvertently means that certain kinds of work-homes where domestic and productive activities occur in the same space, say as in single-room work-homes, are discouraged by the plan.

## Box 4.3: Mixed Use and Master Plan of Delhi

**Delhi:**

Early Delhi master plans were notorious for their rejection of the mixed-use zone and favoured clean single-use zones. But on the ground, mixing of uses continued as per need. Commercial establishments sprouted in residential areas and vice versa. The government tried to penalise land-use violations through large-scale sealing and demolition of commercial establishments operating from residential areas. Eventually, in 2006, the government relented, and mixed-land use was permitted. Regulations were drawn to that effect, recognising commercial and mixed-use streets in residential areas, and formalised in MPD-2021 that was notified on February 7, 2007.

MPD-2021 also provided an additional FAR of 10% for commercial activities in residential areas under rehabilitation and resettlement sites and in-situ upgradation sites specifically to cater to “home-based economic activity”. In addition, it allowed up to a maximum of 5 people and 5KWs/unit for “household industry” in all existing and new residential areas and new industrial units so long as it was not a polluting industry. Thus, through the language of “home-based economic activity” and “household industry (HHI)”,<sup>21</sup> the master plan recognised the occurrence of some specific kinds of home-based work but sought to separate it from the home by building community work centres and limiting it to specific residential zones.

Mixed-use streets delineated in MPD-2021 were carried forward into draft MPD-2041. The draft plan also continues to allow HHIs in specific residential areas. The number of people allowed for HHI has been raised from 5 to 9, and wattage consumption has been raised from 9 to 11 kw in draft MPD-41. In addition, the draft MPD-2041 allows a vertical mixing of uses in all residential areas of the city. However, the plan prescribes a restrictive list of uses under HHI<sup>22</sup> that can be allowed in the residential areas. An examination of the activities tells us that scale, nuisance, and pollution are perhaps the criteria used to select the activities that are permissible within residential areas. Activists have argued that such a list is non-exhaustive and limits future uses in the zone. A better approach would have been to provide a list of hazardous activities prohibited in residential areas as they threaten the health and safety of residents (Main Bhi Dilli, 2019).

But implicitly, by allowing HHIs, recognising home-based economic activity, and allowing vertical mixing of uses, the draft Delhi Master Plan has made some provisions for home-based work to be carried out from residential areas.

#### 4.1.2 Examining general building regulations: Are existing norms for residential housing sufficient for HBW?

The role of planning norms is to ensure that the built form provides adequate, safe, healthy and secure spaces for various activities being carried out within it. This section examines existing planning norms to determine if residential buildings built according to code can service the shared needs of both domestic and productive activities. In other words, what changes would have to be brought to DCRs to build work-homes that are adequate?

<sup>21</sup> Household industry (HHI) is different from home-based work (HBW). Unlike HHI, HBW does not require heavy machinery and a large number of people. This makes HBW more amenable in residential areas.

<sup>22</sup> These include activities like batik works, block-making and photo-enlarging, biscuit, cakes and cookies-making, button-making, fixing of button and hooks, bookbinding, making brushes and brooms (by hand), calico and textile products, cane and bamboo products, cassettes-recording etc.

The study compares the regulations for residential buildings with commercial buildings like offices, mercantile, shops etc. Many productive activities that are carried out in work-homes can be carried out in commercial buildings without additional infrastructure and strict codes applied to industrial buildings. Hence, the study has not included industrial building norms in the comparative examination, carried out at three scales — the housing unit, the built form of group housing, and the neighbourhood. The study has specifically chosen to examine the built form of group housing rather than other forms of housing as this typology is most commonly used for rehabilitation and resettlement of slums and unauthorised colonies where HBW is a dominant practice. This section examines general building regulations that shape the work-home boundary and the quality of space within the work-home through regulations that define requirements for (i) room sizes, (ii) light and ventilation, (iii) access, (iv) parking, (v) fire safety, (vi) right of way and sidewalks. (See table in annexure for reference.)

Table 4.1: Comparison of residential and commercial regulations across the NBC, DPGM and MPD<sup>23</sup>

Parameter	NBC (National Building Code)	DPGM (Mumbai)	MPD (Delhi)	Notes and recommendations
(i) Room Size	Same for residential and commercial.	Same for residential and commercial.	Same for residential and commercial.	Mumbai allows a max floor-to-floor height of 4.5 m, which allows the provision of a 1.5 m height loft space.
(ii) Access (staircase and elevators)	Elevator norms same for residential and commercial.  Staircase narrower in residential.	Elevator and staircase norms same for residential and commercial.	Elevator norms same for residential and commercial. Staircase narrower in residential.	NBC and Delhi should increase the width of stairs in residential to commercial building sizes.
(iii) Light and Ventilation	After a height of 10 m, residential has higher stipulations of side and rear setbacks than commercial.	Same for residential and commercial.	Same for residential and commercial for plots of size 2,000 sq.m to 10,000 sq.m.	Residential buildings built as per NBC by-laws are well-lit and ventilated.
(iv) Parking	Higher parking norms for commercial.	Higher parking norms for commercial.	Higher parking norms for commercial.	To include at least a temporary parking area and area for loading and unloading.

<sup>23</sup> Refer 'Annexure A2' at the end of the report.

(v) Fire Safety	<p>Mumbai and Delhi masterplans ask building entities to refer to the fire safety code in the NBC. In the NBC, fire safety norms differ as per the use of the building. On the issue of mixed-occupancy (use) buildings, NBC states, “in so far as the fire protection is concerned, all the occupancies/the entire building shall be governed by the most restrictive provisions of the code among those applicable for individual occupancies.” As long as the stricter code is applied, NBC is comfortable with a mix of uses. A building facilitating home-based work would have to compare the fire norms for commercial and residential areas and apply the more stringent norm.</p> <p>NBC does not imagine the mixing of activities to take place in the same unit – it expects a vertical or horizontal separation. As the document does not recognise home-based work where uses are mixed, it does not specify the norms to be followed for buildings that allow it.</p>			
(vi) ROW and Sidewalks	Recommends larger sidewalks for mixed use zones.			Sidewalks to be designed as per mixed use.

Future buildings could be designed for HBW with some tweaks in norms to enable and support home-based work. These norms should especially apply for resettlement colonies, slums, unauthorised colonies and settlements around industrial areas where home-based work is dominant. The study notes that in many cities redevelopment, rehabilitation and resettlement colonies are blind to the requirements of HBW. The next section discusses the case of Mumbai.

#### 4.1.3 Examining Development Control Regulations for redevelopment, resettlement, rehabilitation housing in Mumbai : Are existing norms for residential housing sufficient for HBW?

Slums dwellers and project-affected people are rehoused in Mumbai through market-led redevelopment. The Municipal Corporation of Greater Mumbai (MCGM) provides developers with incentive FAR to rehabilitate slum dwellers in situ in multi-storey group housing — slum rehabilitation component — and allows them to use the remaining land area for market development — market component. DCRs lay out the regulations for this redevelopment and define the size and form of these buildings by regulating distances between buildings, building heights, maximum and minimum unit densities per hectare etc. Since the introduction of these norms, slum dwellers and organisations working with them have been demanding improvement in these norms to ensure a better environment for living and working. Resultantly, the size of the rehabilitation unit in Mumbai has increased from 16.75 sq.m (180 sq.ft) to 27.88 sq.m (300 sq.ft). This allows for greater flexibility and division of space for work and living.

Organisations have also experimented with designs that facilitate home-based work in these colonies. For example, in the late 80s, an organisation named Society for the Promotion of Area Resource Centres (SPARC) began to work on the rehabilitation and redevelopment of buildings for slum dwellers

in Mumbai. After much consultation with architects and slum dwellers, they decided to build units that were 14 ft high and use the height to provide a loft that could be used for storage or other activities. However, back then, the maximum floor height for residential units was capped at 9 ft (2.74 m). Special permissions were granted to SPARC to construct their 14 ft homes. The success of this project prompted the MCGM to change the 1991 (DCRs) development norms and raise the maximum floor height of residential units to 14 ft (4.2 m). Their designs also provided for larger corridor spaces (2 m wide) for multipurpose use; this is also a feature that has been incorporated into regulations for slum redevelopment (S.Burra et al., 2001).

However, not all is well with slum redevelopment schemes in Mumbai. In order to provide greater developers incentives for slum redevelopment, MCGM has tweaked DCRs. Mainly, the 1991 DCRs allowed slum rehabilitation buildings to be packed close to each other by reducing the requirements for setbacks to 1.5 m from boundary wall and minimum distances between buildings to a min of 3 m. In comparison, general building regulations in 1991 required 24 m (G+7 storey) buildings to have a distance of 16 m between them. This packing left more land for market development and made the scheme more lucrative for developers to participate.

However, these distances are crucial for the flow of light and ventilation inside residential units. The drastic reductions in distances between slum rehabilitation buildings have led to very poor conditions of lighting and ventilation which are not suitable for living, let alone working. The previous sections discussed some instances of issues faced by users of such spaces, including poor eyesight, respiratory problems and increased need for artificial lighting, to name a few (Boeri, 2016; Ko Ko et al., 2020; HNSA 2001-WIEGO 2020, P. Pardeshi et al., 2020). Despite opposition and appeals from doctors, housing activists, and planners, the DCRs of Mumbai DP 2034 continue to provide relaxation for setbacks and distance between buildings for slum rehabilitation buildings. Upgradation may be better suited to the needs of some slums in Mumbai. However, the Mumbai Development Plan does not provide norms for upgradation.

## **4.2 Upgrading, rehabilitation and home-based work**

While conventional planning does try to engage with the work-home through mixed-use categories and spatial allocations to various activities, it is in its limited recognition of diverse neighbourhoods where work-home occurs, and a punitive rather than enabling regulatory stance, that it often misses engaging with the incrementality, flexibility and ingenuity of work-homes. However, the state and the plan do intervene in these neighbourhoods through various processes such as upgrading and rehabilitation. The study now discusses the relation of these spatial processes of state intervention, and how these relate to work-homes.

The earlier section discussed upgradation of homes by users, and instances where interventions of NGOs and CSOs have catalysed the upgradation. This section focuses on the role state upgradation plays in improving spatial conditions, specifically in the provision of physical, social or economic infrastructure, and how that affects work-homes. The process of upgrading itself can create conditions conducive to trade and contribute to the viability of home-based enterprises. In a number of geographies, upgrading processes can be correlated with an increase in home-based enterprises and improved business opportunities.

In the upgradation and rehabilitation carried out in Mathare settlement, Nairobi, special attention was paid to ensure that businesses were not lost during rehabilitation. Those who conducted productive activities in their work-homes were allocated units with work areas, most of these along the main road of the rehabilitated settlement. Further, improvement in the basic infrastructure allowed an expansion and setting up of enterprises that were earlier infeasible<sup>24</sup> (Kigochie, 2001). Kampung Improvement Programmes (KIP) in Indonesia, and Pavao-Pavaozinho in Brazil, saw an increase in the number of home-based enterprises (Batarfie, 1987 and Treiger & Faerstein, 1987, both as referenced in Tipple, 2004). Similar experiences of work-homes are found in the upgradation of Chaisa, Zambia. What is interesting to note in this study is the differential influence of the upgradation of different types of work-homes. Electricity allows running of new equipment as well as extend working hours; improved roads mean better access for supply of goods as well as for clients accessing the work-homes (Mpembamoto et al. 2017). These examples indicate that the process of upgrading can itself improve conditions for trade and, thereby, contribute to raising the viability of HBEs.

It is already established that resettlement to distant sites has an adverse impact on livelihood, not just the shock experienced to work-homes but also the disruption caused to supply chains (Coelho, Venkat & Chandrika, 2012). It is also noteworthy that work-homes are more dependent on the state for certain forms of upgradation that are at a neighbourhood or settlement level, like roads, street lights, etc. Provision of services by the state also lends to de facto security of tenure. However, the degree of security is also subject to other identities, viz. a renter or a 'landlord'. The provision of tenure security should be a key area of focus during upgradation. The effect of upgradation on work-homes that were on rent was slightly more complex, dependent on the participation of the landlord as well as the state<sup>25</sup> (Sinai, 1998; Mpembamoto et al. 2017). In the interim period when upgradation is being carried out, work-homes experience challenges and inconvenience not only in the domestic sphere but also in the productive sphere.

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<sup>24</sup>Electricity has helped dry cleaners run their enterprises; street lamps have helped some 'proprietors' extend their working hours; permanent roads instead of the previous dirt roads have made it easier to transport supplies.

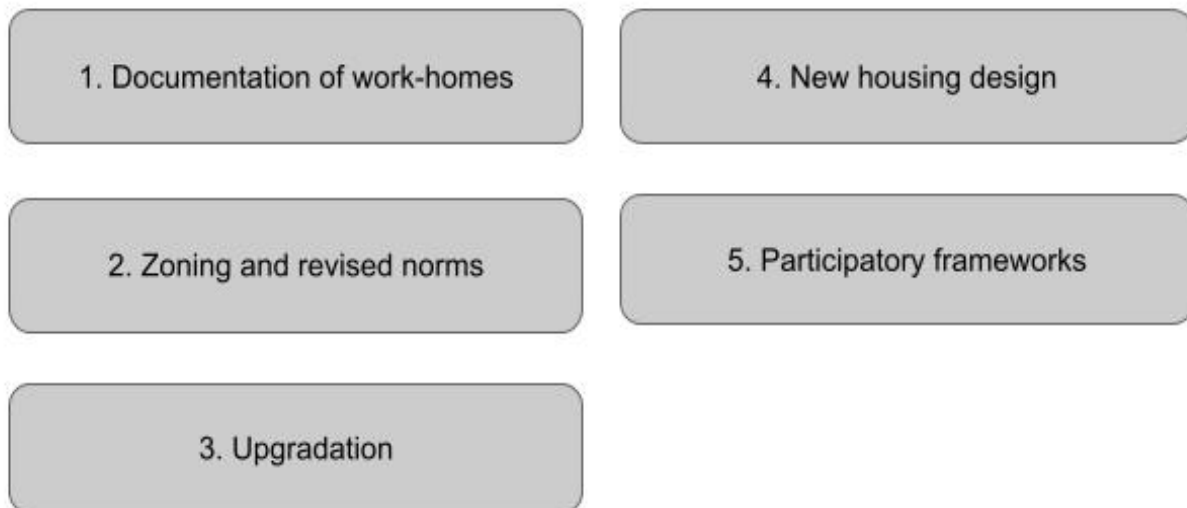
<sup>25</sup> For instance, in a case of upgradation of work-homes in Ghana, it was observed that those involved in productive activities made sacrifices on the upgrades required in the current building structure and used the funds to simply rent out more rooms to continue carrying out productive activities (Sinai, 1998).

## Section 5

# A Concluding Note

As discussed in the earlier sections, the ways users transform their work-homes to maneuver the work-home boundary is a rich site of inquiry to derive lessons for planning, housing policy and architecture. Part B offers a rich repository of the spatial and temporal innovation users devise to balance domestic and productive spheres in their homes. The repository is a reminder of the particularities of work-homes to context and location just as much as they reveal patterns of shared features and characteristics across geographies of the Global South. Among what is shared are their experiences — in interfacing with planning and authorities — as are their strategies of maneuvering the work-home boundaries. The recommendations below suggest a way forward in policy and practice to frame planning paradigms that are more suited to the on-ground reality of work-homes and are responsive to on-ground interventions, participation and user agency.

Fig 5.1 Recommendations for policy and practice around work-homes



### 5.1 Create in-depth and thorough repositories of knowledge around work-homes

Based on the secondary research for part B, the study makes the following recommendations for lacunae that exist in the spatial documentation of work-homes. Studies with nuances such as mapping the transformation of work-homes through the day, and longitudinal effects of infrastructure, accessibility, markets etc., will be valuable to understand the dynamic nature of the work-home boundary. Such a study is critical to recognise the labour users invest in making better spaces for work. It is also crucial to identify opportunities and areas of intervention for existing work-homes, and



integral lessons for the design of new work-homes, with specific attention to particular industries, kinds of enterprises, and social identities. Here are some facets of work-homes that should be included in a spatial study:

- Study the same work-home across scales viz. unit level, neighborhood, and city.
- Study temporal footprints along with spatial footprints.
- Study user mapping in the work-home and the intersection of user identities in their spatial usage.
- Study user responses on the experience of maneuvering the work-home boundary.
- Map legal dimensions of the work-home and adjacent spaces.

## 5.2 Better zoning and revised norms addressing work-homes

1. Incorporate diffused spatial reservations. Identify influence zones near recognised and unrecognized industrial areas, and natural markets where work-homes are anticipated in larger numbers.
2. Recognise and permit mixed-use in residential areas within particular housing typologies (resettlement colonies, informal settlements, and Category E-H neighbourhoods). Devise specific mixed-use norms for the same.
3. Do not permit relaxations in DCRs that affect the quality of light and ventilation of rehabilitation buildings (or any residential buildings) that may hinder work in residential areas.
4. Preserve and expand existing mixed-use typologies (for example, shop-line buildings) through form-based codes where needed.
5. Prescribe a list of productive activities that are not permissible instead of coming up with a list of permissible productive activities, as the latter will not be exhaustive.

## 5.3 Upgradation of existing work-homes

1. Ensure tenure security for all to catalyse self-initiated improvements of work-homes.
2. Provide access to quality physical, economic and social infrastructure.
3. Support incremental improvements of work-homes, and technical assistance in improving homes to catalyse self-initiated improvement.

## 5.4 Design of new housing

Design all new housing in anticipation of productive activities, including housing made for upgradation, resettlement and rehabilitation.


1. Design adequately sized units with proper light and ventilation, no lesser than 300 sq.ft. in carpet area.
2. Provide open spaces and well lit corridors, quality access to physical infrastructure, viz. electricity, toilets, water, sewage networks, and access roads.
3. Provide common storage areas in new housing, and loading and unloading areas for efficient management of goods related to home-based work.
4. Provide a portion of parking spots for carts, minivans etc.

5. Provide additional facilities like extra toilets and water fountains on the ground floor for people visiting work-homes.
6. Provide economic infrastructure like halls for working with ample light and ventilation, and access to toilets.
7. Provide community areas like playgrounds, reading rooms, libraries at the neighbourhood level where kids can play and study and not be disturbed by home-based work activities especially in smaller homes.
8. Unbundle parking from homes, and allow residents to buy a space for storage instead of parking.
9. Develop shared parking norms for new buildings where home-based work is permitted.

## 5.5 Participatory frameworks

1. Enable self-initiated improvement of work-homes by ensuring tenure security.
2. Support and scale initiatives of NGOs and other actors to develop alternative techniques and products to improve the quality of already built work-homes, making alternative technologies of retrofitting small spaces to make homes more efficient and healthy.
3. Develop systems for people's participation for healthy design of upgradation, rehabilitation and resettlement.

Work-homes across varied planning typologies are widely characterised by autoconstruction. This study has been able to identify spatial particularities of work-homes that are embedded at the interface of multiple actors, and the tension between policy and practice. Users maneuver space and time to adapt to a co-existence of domestic and productive spheres. Work-homes should be recognised by formal systems of planning as not only strategies of livelihood and spaces of employment, but also as a catalyst for improvement of spatial and infrastructural aspects of housing. Supporting users and other stakeholders to enable this will be an important step in recognising, replicating and enabling forms of urbanisation that are more responsive, inclusive, and have participation of users at their core.



# ANNEXURE-A1

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## **ANNEXURE-A2**

A comparison  
across NBC,  
DPGM and MPD

	NBC2016	DPGM 2034 (DCRs)	Delhi Masterplan 2041 + UBL 2016
<b>1. Room Size</b>			
Residential	<b>Size:</b> min 9.5 m <b>Width:</b> min 2.4 sq.m In case of 2 rooms one room min not less than 9.5 sq.m other not less than 7.5 sq.m with min width of 2.1 <b>Height:</b> min 2.75 m	<b>Size:</b> Not mentioned <b>Width:</b> Min width 2.4 m <b>Height:</b> Min 2.75 Max 4.2 m - anything above counted in FSI	<b>Upto 50 sq.m</b> Size 7.5 Width 2.1 Height 2.75  <b>Above 50 sq.m</b> Size: 9.5 Width: 2.4 Height: 2.75
Commercial	Same as residential	<b>Shops:</b> <b>Size:</b> min 6 sq.m <b>Width:</b> min 1.2 m <b>Height:</b> Shops/IT/office buildings Min 2.75 Max:4.2 m	<b>Size:</b> Minimum 9 sq.m <b>Width</b> 2.4 <b>Height</b> 2.75
<b>2. Access</b>			
Residential	<b>Staircase:</b> Depending upon the type of building 1 m to 1.25 m min width  <b>Lifts:</b> Lift required for buildings over 15 m in height  <b>Corridors:</b> Not mentioned	<b>Staircase:</b> Min width 1.5 m up to 70 m in height, 2 m for over 70 m  <b>Lifts:</b> At least one lift for buildings more than 16 m and two for buildings taller than 24 m, where one is fire lift.  <b>Corridors:</b> Min width 1.5 m up to 70 m in height, 2 m for over 70 m	<b>Staircase for low-rise (DU under 50 sq.m):</b> 0.9 m  Staircase for lowrise (DU above 50 sq.m): 1m  <b>Staircase for high-rise:</b> 1.35 m  <b>Lifts:</b> At least two lifts for five floors or above  <b>Corridors for low-rise:</b> 0.9 m  <b>Corridors for high-rise:</b> 1.35m
Commercial	<b>Staircase:</b> 1.5 m min width	Same as residential	<b>Corridors:</b> 1.5 m min width



	<b>NBC2016</b>	<b>DPGM 2034 (DCRs)</b>	<b>Delhi Masterplan 2041 + UBBL 2016</b>
	<p><b>Lifts:</b> Lift required for buildings over 15 m in height</p> <p><b>Corridors:</b> Not mentioned</p>		<p><b>Staircase:</b> Minimum 1.5 m width</p> <p><b>Lift -</b> Minimum one (occupancy six people) for seven floors. Minimum two for 11 floors and above.</p>
<b>3. Ventilation</b>			
Residential	<p>For residence 10 m (G+2) and above</p> <p><b>Side &amp; rear:</b> Height/3. After 30 m (G+9) height + 1 m for every 5 m increase</p> <p><b>Between two buildings:</b> 2x (side/read open space)</p> <p><b>Window size:</b> 1/10 of floor area of room for hot and dry climate</p> <p>1/6 of floor area of room for humid climate</p> <p>1/8 of floor area for temperate and composite climate and</p> <p>1/12 of floor area for cold climate</p>	<p>Varies across plot sizes:</p> <p><b>Side &amp; rear marginal open space:</b></p> <ul style="list-style-type: none"> <li>•For plot less than 1,000 sq. m and average width/depth of plot less than 20 m – up to height of 32 m (G+9): Min width 3.6 m subject to Height/5</li> <li>•For plot more than 1000 sq. m and average width/depth of plot more than 20 m – up to height of 32 m (G+9):</li> </ul> <p>Min 3.6 subject to H/4</p> <p>(max requirement of open space keeps increasing as the building height increases)</p> <p><b>Between two buildings:</b> 2x(side/read open space)</p> <p><b>Window size:</b> 1/6 of floor area of room</p>	<p>Minimum plot size for group housing 3,000 sq.m. (UBBL,2016)</p> <p><b>Side &amp; rear:</b> For plots between 2,000 – 10,000 sq.m-: 9 m (front) 6 m (sides and back)</p> <p>For plots 10,000 sq.m and above: 15 m (front) and 12 m (sides and rear) (DMP2041)</p> <p><b>Window size:</b> 1/10 of floor area of room</p>
Commercial	<p><b>Side &amp; rear:</b> Open space around buildings not less than 4.5 m for heights up to 16 m and 0.25 for every 1 m increase post that.</p>	<p><b>Side &amp; rear:</b> Same as residential distances, except the min distance is 4.5 m for side &amp; rear marginal open space</p> <p><b>Between two buildings:</b> 2x (side/read open space)</p>	<p>Setbacks same as residential for plots between 2,000-10,000 sq.m</p>

	<b>NBC2016</b>	<b>DPGM 2034 (DCRs)</b>	<b>Delhi Masterplan 2041 + UBBL 2016</b>
	<p><b>Between two buildings:</b> 2x (side/read open space)</p> <p><b>Window size:</b> same as residential</p>	<p><b>Window size:</b> Same as NBC</p>	
<b>4. Parking</b>			
Residential	<p><b>Cars:</b> 1 Off-street car parking unit for every residential unit.</p> <p>Parking norm in rehab/redevelopment depends on the size of the town and type of occupancy. For a town that has a population over 50 lakh people, for every 75 sq.m of multi-family residence a parking space of 2.75mx5m (common parking standard) has to be provided.</p> <p><b>2-wheelers:</b> Parking space for motorcycles and cycles is also required at the rate of one per tenement. Size: 1.25 sq.m and 1 sq.m respectively.</p> <p>Other Vehicles: No requirements</p>	<p><b>Cars:</b> One parking space for every.</p> <p>a) 4 tenements having carpet area up to 45 sq.m each.</p> <p>b) 2 tenements with carpet area exceeding 45 sq.m but not exceeding 60 sq.m each. Provided further that in case of (a) &amp; (b), at the option of owner/developer, may provide one parking for each tenement.</p> <p>c) 1 tenement with carpet area exceeding 60 sq.m but not exceeding 90 sq.m</p> <p>d) 1/2 tenement with carpet area exceeding 90 sq.m</p> <p>In addition to the parking spaces specified in (a), (b), (c) &amp; (d) above, parking for visitors shall be provided to the extent of 25 percent of the number stipulated above, subject to a minimum of one.</p> <p><b>2-wheelers:</b> one spot for every 2 units</p> <p><b>Other Vehicles:</b> No requirement</p>	2.0 Equivalent Car Space/100 sq.m built up area

	<b>NBC2016</b>	<b>DPGM 2034 (DCRs)</b>	<b>Delhi Masterplan 2041 + UBBL 2016</b>
Commercial	<p><b>Cars:</b> Business – 25 sq.m or fraction thereof?</p> <p>Public/Semi-public office/Industrial – 50 sq. m or fraction thereof</p> <p>Loading and unloading area requirements for Industrial, Storage, Commercial spaces @rate of 3.5 mx7.5 m for loading and off-loading for every 1,000 sq.m of floor area or fraction thereof</p> <p><b>2 wheelers:</b> Other Vehicles: Not mentioned</p>	<p><b>Cars:</b> For offices and govt. buildings: One parking space for every 37.5 sq.m of office space up to 1,500 sq.m and for every 75-sq.m of additional space for areas exceeding 1,500 sq.m in other areas.</p> <p><b>For other commerce:</b> One parking space for every 40 sq.m of floor area up to 800 sq.m and one parking space for every 80 sq.m of space for areas exceeding 800 sq.m provided that no parking space need to be provided for floor area up to 50 sq.m</p> <p><b>2-wheelers:</b> As many 2-wheeler spots as car spots</p> <p><b>Other Vehicles:</b> One space for every 2,000 sq.m for heavy vehicles</p>	3 ECS/ 100 sq.m depending on the use
<b>5. Street (sidewalks)</b>			
Residential	<p>Min ROW Not mentioned</p> <p>Sidewalks 1.8 m width</p>	Not dependent on use	<p>Min ROW at least 12 m approach road</p> <p>Sidewalks: Not mentioned</p>
Commercial	<p>Min ROW Not mentioned</p> <p>Sidewalks: 2.5 m width in commercial and mixed use areas</p>	Not dependent on use	<p>Min ROW at least 12m approach</p> <p>Sidewalks: Not mentioned</p>





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Women in Informal Employment  
Globalizing and Organizing

When home serves as workplace, the interface of domestic and productive spheres has spatial and social effects on various users of the space, scaling at times to the neighbourhood and the city. This study looks at all the ways in which home aids work — spatially and infrastructurally — and illustrates the role of various factors and actors in engaging with and shaping the work-home boundary. Work-homes in the Global South often engage transversally with formal planning. Users of work-homes exercise their agency in complex ways to maneuver the work-home boundary, often making post-facto modifications to the work-home. The study collates a repository of spatial and temporal innovation strategies devised by users to balance domestic and productive spheres in their homes, as a site to derive lessons for planning, housing policy and architecture. It investigates the role of the state in spatially enabling or limiting work-homes, and using the Indian context as an illustrative example, suggests enabling frameworks in planning that address the spatial particularities of work-homes.