



Delft University of Technology

## Incremental Housing A Short History of an Idea

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### DOI

[10.4324/9781003100362-13](https://doi.org/10.4324/9781003100362-13)

### Publication date

2021

### Document Version

Final published version

### Published in

The New Urban Condition

### Citation (APA)

Mota, N. (2021). Incremental Housing: A Short History of an Idea. In L. Medrano, L. Recaman, & T. Avermaete (Eds.), *The New Urban Condition: Criticism and Theory from Architecture and Urbanism* (pp. 160-182). Routledge - Taylor & Francis Group. <https://doi.org/10.4324/9781003100362-13>

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# 10

## INCREMENTAL HOUSING

### A Short History of an Idea

*Nelson Mota*

#### Introduction

Over the last decades, sustainable development became a catch-phrase to frame narratives related with the built environment. The apex of this debate was the Habitat III Conference convened by the United Nations in 2016 in Quito, Ecuador. The New Urban Agenda (NUA), based on 17 Sustainable Development Goals, is arguably the most prominent outcome of Habitat III. While the NUA (Habitat III Secretariat, 2017) addresses aspects that touch upon the field of operations of a wide range of disciplines, urban and architectural design are also called to take the responsibility to contribute to achieve some of its goals and targets.

Access to adequate housing is one of the critical challenges arising from the rapid urbanization that will take place in the coming decades. The shared vision for the NUA highlights the importance of establishing “cities and human settlements that fulfil their social function, . . . with a view to progressively achieving the full realization of the right to adequate housing as a component of the right to an adequate standard of living, without discrimination” (Habitat III Secretariat, 2017, p. 5). Furthermore, the NUA stresses the importance of cities and human settlements that are “participatory, promote civic engagement, engender a sense of belonging and ownership among all their inhabitants” (Habitat III Secretariat, 2017, p. 5).

In the context of the debate on strategies to accomplish the sustainable development goals, incremental housing has been proposed by housing scholars as a contribution to the development of adequate housing that can enable citizens’ participation and enhance a sense of belonging and ownership (Wakely & Riley, 2011; Lindert, Smets, & Bredenoord, 2014). Slowly but steadily, incremental housing has also penetrated the jargon of architects and urban designers since the 1970s.<sup>1</sup> However, there is not yet a clear definition of what incremental housing is, what it does, and who does it. In this context, this chapter aims to shed some light on this concept and discuss how it can implicate the role of the architect, architecture, and the city in the 21st century.

Before moving further, it is important to settle an answer to the first question: what is incremental housing? According to the Merriam-Webster dictionary, the adjective “incremental” means “of, relating to, being, or occurring in especially small increments.” For example: “*incremental* additions” or “*incremental* change.” Accordingly, I would define incremental housing as a conceptual approach to the design of houses that can gradually accommodate vertical and/or

horizontal changes and expansions, evolving from the initial configuration in a series of increments over time. House types with these characteristics can thus be assembled under the notion of incremental housing.

While its popularity is growing in housing scholarship and architectural narratives, incremental housing approaches seem to remain at odds with the hegemonic structures of power that influence global and local housing policies. Since the neoliberal turn of the 1980s, housing programs all over the world have been mostly rooted in a form of economic rationality geared to satisfy the needs of, and to partner with, the market. From that moment on, a major paradigm shift in housing policies started taking shape. The paradigm of the state as provider of housing that prevailed throughout the decades of welfarism was suddenly replaced by the paradigm of the state as enabler of private initiatives. Despite some remaining cases of welfarism still being operational in countries like the Netherlands, or the Nordic countries, over the last four decades the use value of housing has been quickly replaced by its exchange value. Rather than promoting housing as a social good, states all over the world shifted their policies to stimulate home ownership, indeed promoting housing as a commodified asset (Fishman, 2018).

Housing programs rolled out over the last two decades in such diverse geopolitical realities as India, South Africa, or Brazil testify to this change (Bredenoord, Lindert, & Smets, 2014). Their focus on short-term efficiency—a typical feature of neoliberalism—created detrimental consequences to the livelihoods of millions of citizens. In this context, incremental housing has been looked upon as a possibility to create a more inclusive, resilient, and sustainable approach to the production of affordable housing (Bredenoord & van Lindert, 2010; Wakely & Riley, 2011). It is not clear, however, what mechanisms need to be put in place to make incremental housing a possible solution to solve the affordable housing crisis that is threatening the way we live today. It is even less clear how it could influence the way we will live in the cities of the 21st century, shaped by a relentless process of planetary urbanization (Brenner & Schmid, 2012).

Many housing scholars stress the importance of de-commodifying the development of affordable housing to tackle the rising social and spatial inequality triggered by the neoliberal system (Marcuse & Madden, 2016; Martin, Moore, & Schindler, 2015). Others highlight the importance of challenging the enabling strategy that gained momentum in housing policies disseminated after the neoliberal turn (Yap, 2016).

Paraphrasing John Turner's famous axiom, there is a growing consensus that housing as a product should again be replaced by housing as a process. It is in this context that a critical review of incremental housing approaches is necessary. As this text will show, incremental housing approaches deconstruct the binary polarity of housing-as-a-*process*/housing-as-a-*product*. As such, this text will examine the extent to which the ambiguous political agency and accountability of incremental housing practices can be instrumental to rethink the current models of housing production.

A great deal of the scholarship produced on this topic has been primarily focused on aspects related to governance and policy. It has been far less discussed, however, what does *housing as a process* mean today for the architecture discipline and to meet the targets of the New Urban Agenda. To what extent can housing design contribute to promoting a more inclusive society? And, more specifically, how can design and governance be interwoven to promote the right to housing and the right to the city using incremental housing approaches?

To try and provide some possible answers to these questions, in this text I will examine the historical evolution of incremental housing approaches developed since the interwar period (1920s–1930s) until the turn of the 2020s. In this chapter I will use “incremental housing” as an umbrella term to describe different housing approaches and house types designed to

accommodate growth and change through time. There are indeed a few other terms used to designate this housing approach or these types of house: “growing,” “expandable,” or “evolutionary” houses; “aided self-help housing” and “sites-and-services.”

While all of these terms can be placed under the umbrella of “incremental housing,” they are not interchangeable. In effect, they mean different things, in different historical moments. They all have in common, however, the fact that their popularity is inversely proportional to economic stability. In other words, incremental housing approaches usually coincide with times of scarcity of resources, fiscal austerity, or economic recession. Sometimes, all of these combined.

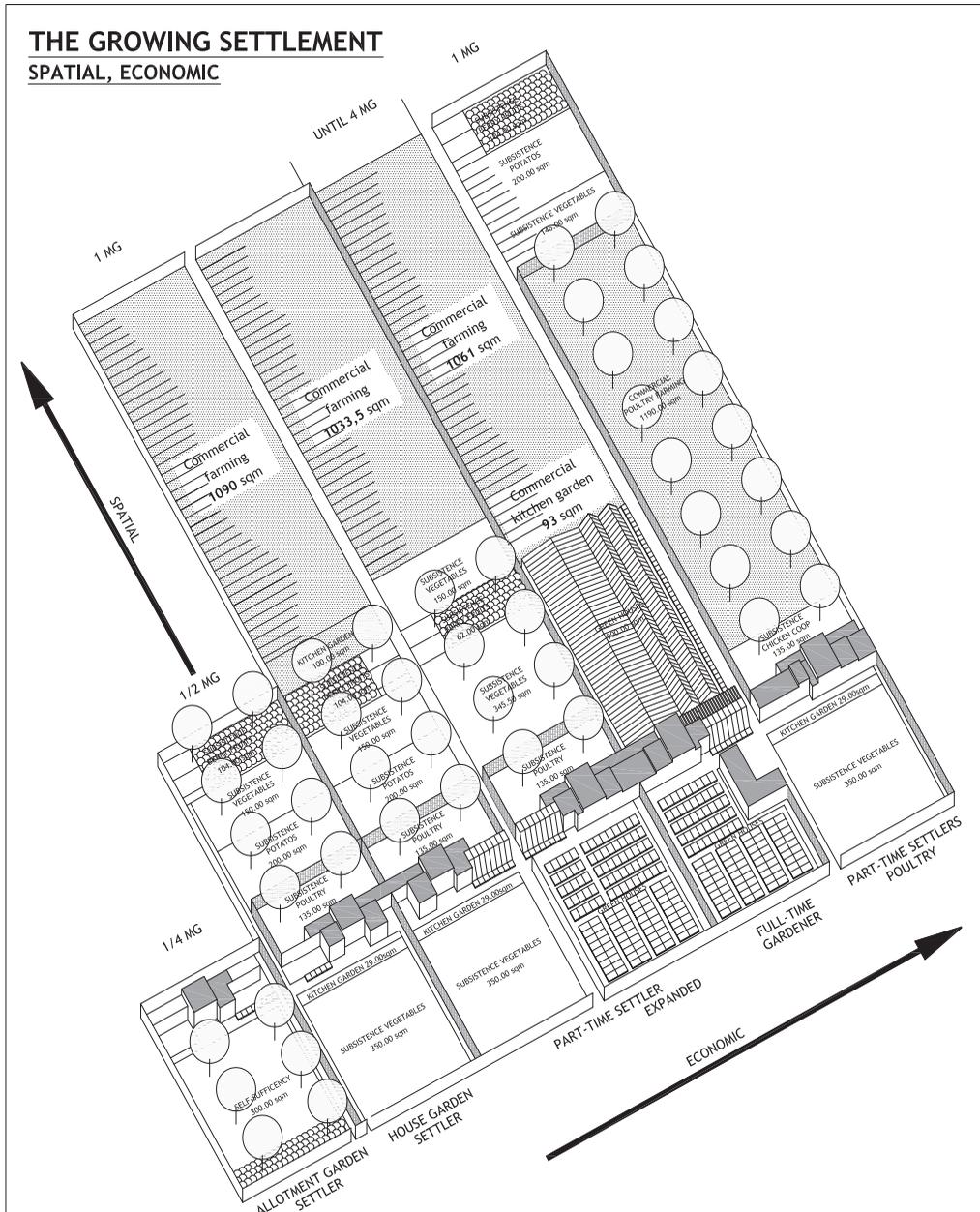
## The Growing House

One of the first publicized experiments on incremental housing design came about in the early 1930s, a period characterized by a world crisis that depleted the financial resources of families and governments worldwide. But it was also a period when social inequality was on the rise and the livelihoods of the poor were being seriously threatened. It was in this context that the German landscape architect Leberecht Migge published in 1932 *Die wachsende Siedlung nach biologischen Gesetzen* (*The growing settlement according to biological laws*). In this book, Migge developed a project for a farming community that included a design for a “growing” house. Migge’s idea of a productive landscape followed up on Adolf Loos’ projects for self-sufficient communities, designed for the outskirts of Vienna in the 1920s (Hochhäusl, 2014). In Migge’s growing settlement, the architectural definition of the house was not overlooked. Rather, he designed the house as an organism that could evolve through time, from just a shed, to a small 25-m<sup>2</sup> core-house, to a 100-m<sup>2</sup> two-bedroom house with indoor areas for food production (Haney, 2010). The project was designed to be feasible using a limited palette of materials and easily accessible craftsmanship and construction tools.

Also in 1932, Migge, together with other leading exponents of German *Neues Bauen*, participated in the exhibition *Das Wachsende Haus* (*The Growing House*), curated by Berlin’s chief city planner Martin Wagner (Fezer, Hager, & Hiller, 2016). Both Migge’s book and Wagner’s exhibition were attempts to answer the acute housing crisis experienced at the turn of the 1930s, as well as a critique to the prevailing paradigm of housing production in Germany. Wagner’s growing house condemns the detrimental lifestyles of the metropolis, as well as the social inequalities reproduced by existing urban-planning and architectural measures. Wagner’s critique of the status quo highlighted the interdependence between typological solutions and the political economy of housing. As Tatjana Schneider (2016, pp. 193–194) asserts, “the rigid standardization of worker’s housing and the commodification of living space, . . . came to assume not only a use value, but also a speculative value.” For Wagner and most of the *Neues Bauen* architects, the growing house was promoted as a design and technological experiment, but also as a way of empowering and emancipating working-class families, providing conditions to improve their sanitary conditions, and acquiring some level of self-sufficiency.

## Aided Self-Help

While the growing house approach was being discussed in Central Europe, another approach to the development of self-sufficient communities, “aided self-help,” was being developed in parallel as a policy to cope with resource scarcity. “Aided self-help” approaches started at the beginning of the 20th century, included in the housing policies of some Nordic countries. According to Richard Harris (1999, p. 283), Sweden’s national “Own Homes” Loan Fund of



**FIGURE 10.1** Illustration of the “Growing Siedlung,” as published in Leberecht Migge’s *Die wachsende Siedlung nach biologischen Gesetzen* (1932).

1904 was the first program to include aided self-help housing. However, aided self-help did not gain traction as a full-fledged housing approach until the end of World War I. From the 1920s on, this would change dramatically. In a context of post-war recovery, it was used in European cities such as Stockholm and Vienna, but also in the young Soviet Union, “as a pragmatic, untheorised, response to severe housing shortages and political unrest after the First World War” (Harris, 1999, p. 282).

Afterwards, through the hand of people such as the American engineer and urban planner Jacob L. Crane, self-help housing policies would also be developed in North America. Then, from the 1950s on, it would be widely used in development aid, chiefly as an alternative for ill-defined public housing policies. In his canonical book *Man's Struggle for Shelter in an Urbanizing World*, published in 1964, Charles Abrams dedicated an entire chapter to “Self-help, Core housing, and instalment construction” (Abrams, 1964, pp. 164–181). From the 1960s through the 1980s, “assisted” or “aided” self-help housing approaches became popular as a methodology used in development aid by global players such as the United Nations, the Ford Foundation, USAID, and the World Bank.

The British architect John Turner would become an influential voice spreading the word on the virtues of self-help communities (J. Turner, 1968). His work would set the background against which the International Design Competition for the Urban Environment of Developing Countries was created. Organized by the staff of *Architectural Record* in 1973, this competition was thought of as a contribution to the United Nations Habitat Conference, which would be held in Vancouver in 1976. Its goal was to establish a privileged *forum* to discuss experiments in the architecture of self-help communities. The site selected for the competition was Dagat-Dagatan, an area of reclaimed fishponds located in Manila's Tondo Foreshore. In the brief of the competition, the part dedicated to the guidelines for the housing design instructed the competitors to clearly specify what was supposed to be provided as a *bare minimum*. The feasibility of the proposals, considering the limited financial resources available, was highlighted as a key criterion for the evaluation of the entries. However, the brief explained, “additional improvements, expansion possibilities and additions to the floor space and finishes should also be indicated whenever applicable” (Seelig, 1978, p. 30).

With 476 projects submitted, the competition was a huge success. The project submitted by Sau Lai Chan, a young Malaysian graduate of North-East London Polytechnic, provides a good illustration of how the idea of “self-help community” influenced architectural thinking and projects in the mid-1970s.

Chan's project, which won third prize in the competition, was done to obtain his master's degree thesis from Manchester University in 1975. It showed an approach to the architecture of self-help communities based on a cluster of core-house units. Each cluster was meant for a community of 10 to 30 households. The cluster was organized around a communal courtyard, with a water tap, laundry areas, and a windmill for generating electricity. At the scale of the dwelling unit, Chan proposed a core-house with a small footprint (9x5 m for up to 7 persons and 11x5 m for up to 10 persons). Each house was delivered to the residents by the government with a few built elements only: concrete footings, timber load-bearing structure, and roof. Each individual family would “complete the construction of its own home at its own pace as determined by its skills and resources” (Seelig, 1978, p. 59).

Sau Lai Chan's project shows how the concept of self-help influenced the 1970s' approach to housing design. At all the different scales of the project, the architect deliberately avoided fixing the spatial configuration of the settlement and the social and spatial practices that it could accommodate. Instead, the architectural project focused mainly on the definition of the infrastructure of public spaces and patterns of association to promote meaningful social spaces and accommodate vernacular domestic practices.

## Sites-and-Services

Following up on the “self-help” tradition, the “sites-and-services” approach was strongly focused on the interwoven relationship between top-down design of the infrastructure (services) and

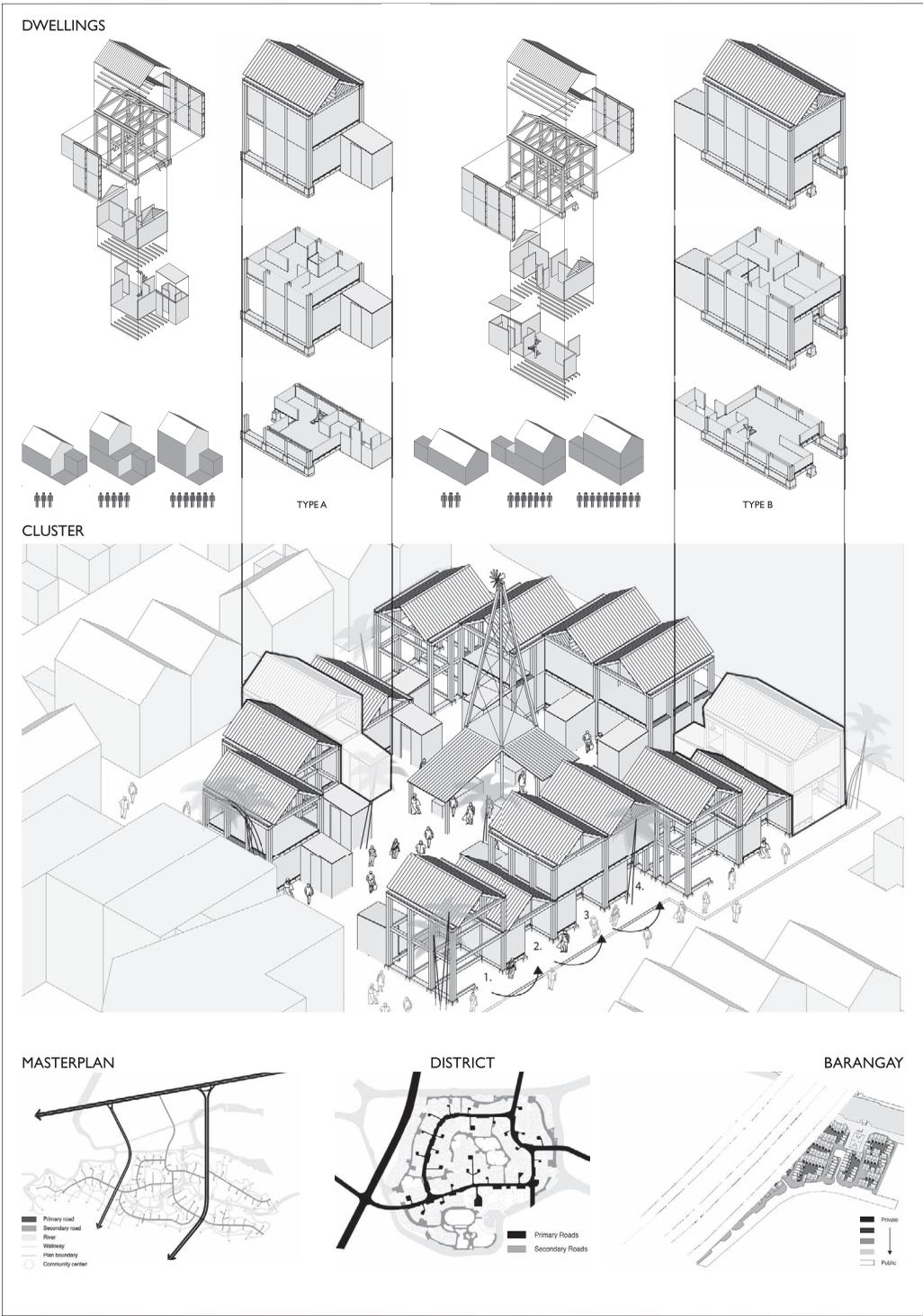


FIGURE 10.2 Project submitted by Sau Lai Chan to the International Design Competition for the Urban Environment of Developing Countries (1976).

bottom-up incremental improvement of the houses built on the plots (sites). According to Jan van der Linden, the sites-and-services approach had an historical precedent in the allotment garden movement that developed from the middle of the 19th century onwards in Europe (Van der Linden, 1986, pp. 40–46). The driving motives for the ideologues of the allotment garden movement were contradictory, though. For conservative organizations such as the Dutch “Anti-Social-Democratic Union of Railway Employees ‘Right and Duty,’” it was a way of promoting God, Family and Property (the slogan in the organization’s banner), fighting the spread of socialism. For the labor movement, however, allotment gardens were seen as “an antidote against the alienating effects of factory work and city dwelling” (Van der Linden, 1986, pp. 41–42). In any case, the allotment gardens were initiated with a top-down approach but designed to give the laborers freedom to decide on the micro-management of their plot. Eventually, in countries like England, Wales, and the Netherlands, allotment gardens were instrumental to promote a shift from charity to self-help, advancing the emancipation of the laborers (Van der Linden, 1986, p. 43).

Developed mainly in the 1970s and 1980s, the sites-and-services approach shares with the allotment garden movement its ideological ambiguity. On the one hand, it was based on high-level decision-making and policies, usually at governmental level, with the support of international aid organizations or financial institutions. On the other hand, it was intended to give room for the progressive emancipation and empowerment of the low-income groups living in cities of the developing world.

There were three fundamental premises in the sites-and-services approach: resilient urban infrastructure, security of tenure, and self-help housing practices. These premises also have aspects in common with the aided self-help approach described previously. The main differences are in the scale and agency of the program. While aided self-help was mostly focused on the scale of the dwelling and the resources and tools of the household and local community, sites-and-services schemes were designed from scratch by national and international organizations to create new townships or urban districts, supported by an infrastructural network procured and developed by public governmental institutions.

In their *Urbanization Primer*, Horacio Caminos and Reinhard Goethert (1978) made the case for the sites-and-services approach as an alternative for mass housing. For these authors, the solution was either providing “complete dwellings to a few beneficiaries, or to provide only basic utilities and services to a much larger sector of the population” (Caminos & Goethert, 1978, p. 6). The latter would become the framework for most of the housing initiatives sponsored by development aid agencies. Eventually, the “sites-and-services” approach, mostly due to the sponsorship of the World Bank, would be responsible for the development of several millions of incremental dwellings built in the 1970s and 1980s (Williams, 1984).

In *Urbanization Primer*, Caminos and Goethert compiled a comprehensive set of project assessment, site analysis, and design criteria to optimize the development of efficient sites-and-services schemes. Their research on the optimum layout for the sites-and-services developments would set the standard for worldwide dissemination of this approach. However, the popularity of the sites-and-services approach in the 1980s would also propel some critical reviews from leading architects operating in the developing world. For example, two of the most well-known Indian architects, B.V. Doshi and Charles Correa, have explicitly rejected the mechanist, technocratic, and rigid design guidelines associated with the sites-and-services approach (Correa, 1989, pp. 14–30). In the mid-1980s both developed housing projects that showed an alternative approach to the sites-and-services schemes, in particular, and to incremental housing, in general. B.V. Doshi’s project for the Aranya township and Correa’s Belapur neighborhood advanced design strategies to mitigate the rigidity of the guidelines proposed by Caminos and Goethert.

In both cases, there was a strong emphasis on the clustering strategy and in the sequence of spaces that mediate the transition between the city and the dwelling unit. In their projects, Doshi and Correa also went beyond Caminos and Goethert's technocratic approach, introducing guidelines regarding architectural image and materiality that were instrumental to establish a connection with the vernacular patterns of inhabitation.

While these two notable designers introduced a high level of sophistication in their designs for residential communities, the bread and butter of departmental bureaucrats in international agencies and in local planning offices was characterized by a higher level of pragmatism. However, the results were not necessarily compromised. The Bombay Urban Development Project, sponsored by the World Bank and developed in Mumbai during the 1980s, is a case in point. This project had the ambitious goal of improving the living conditions of 100,000 households (500,000 inhabitants) living in slum hutments and squatter areas of Mumbai, creating "legal, environmentally-acceptable neighborhoods under the project through the provision of infrastructure improvements, long-term, leasehold tenure, and loans for home improvement" (The World Bank—South Asia Projects Department, 1985, p. 17).

The main component of this project was the Land Infrastructure Serving Program (LISP), dedicated to develop 85,000 serviced residential, commercial, and small industrial plots, using the sites-and-services approach in 12 different locations spread over Mumbai's metropolitan region. The project for one of these locations, Charkop, provides a compelling illustration of the fundamental tenets of the sites-and-services approach.

Charkop was a vast area of reclaimed marshland located on the northwest of Mumbai's peninsula. Under the auspices of the World Bank project, 15,420 plots were created in an area of approximately 180 hectares. The Charkop sites-and-services project was coordinated by Vidyadhar Phatak, an urbanist working for Bombay Metropolitan Region Development Authority (BMRDA), with the technical assistance of Alain Bertoud (World Bank). The key features of the project are the design of the typical residential cluster and a clear hierarchical street grid and open space network (Padora, 2016, pp. 179–196).

Each typical cluster included 35 plots varying from 25 m<sup>2</sup> (3.5x7m) to 40 m<sup>2</sup> (3.5x11.5m). Despite the relatively small size of the plot, over time each household could expand the house vertically, growing the habitable area incrementally with self-initiated expansions. Over the last 30 years, the projected incremental growth happened as planned. The social, economic, and environmental qualities of the neighborhood were not undermined by this incremental growth, though. In fact, the opposite is true. Charkop became a sought-after area showing, according to a recent study (Owens, Gulyani, & Rizvi, 2018, p. 268), a high level of liveability.

Not all the sites-and-services schemes developed in the 1970s and 1980s show such good results as Charkop. The success stories usually demonstrate an alignment of three key conditions: locations close to possibilities of income generation, reliable infrastructure, and affordable housing finance. Regarding design, there was one fundamental aspect: adequate plot size and configuration, clustered in meaningful communities.

## Evolutionary Houses

The "sites-and-services" projects were mainly implemented in the developing world and were generally characterized by a high level of control, both in terms of urban design and governance. The architectural definition of the house was seldom included in these programs. Conversely, in the post-war period, "evolutionary houses" gained momentum as a new concept to define house types that could accommodate growth and change through time. They became an important field of research for post-war architects.

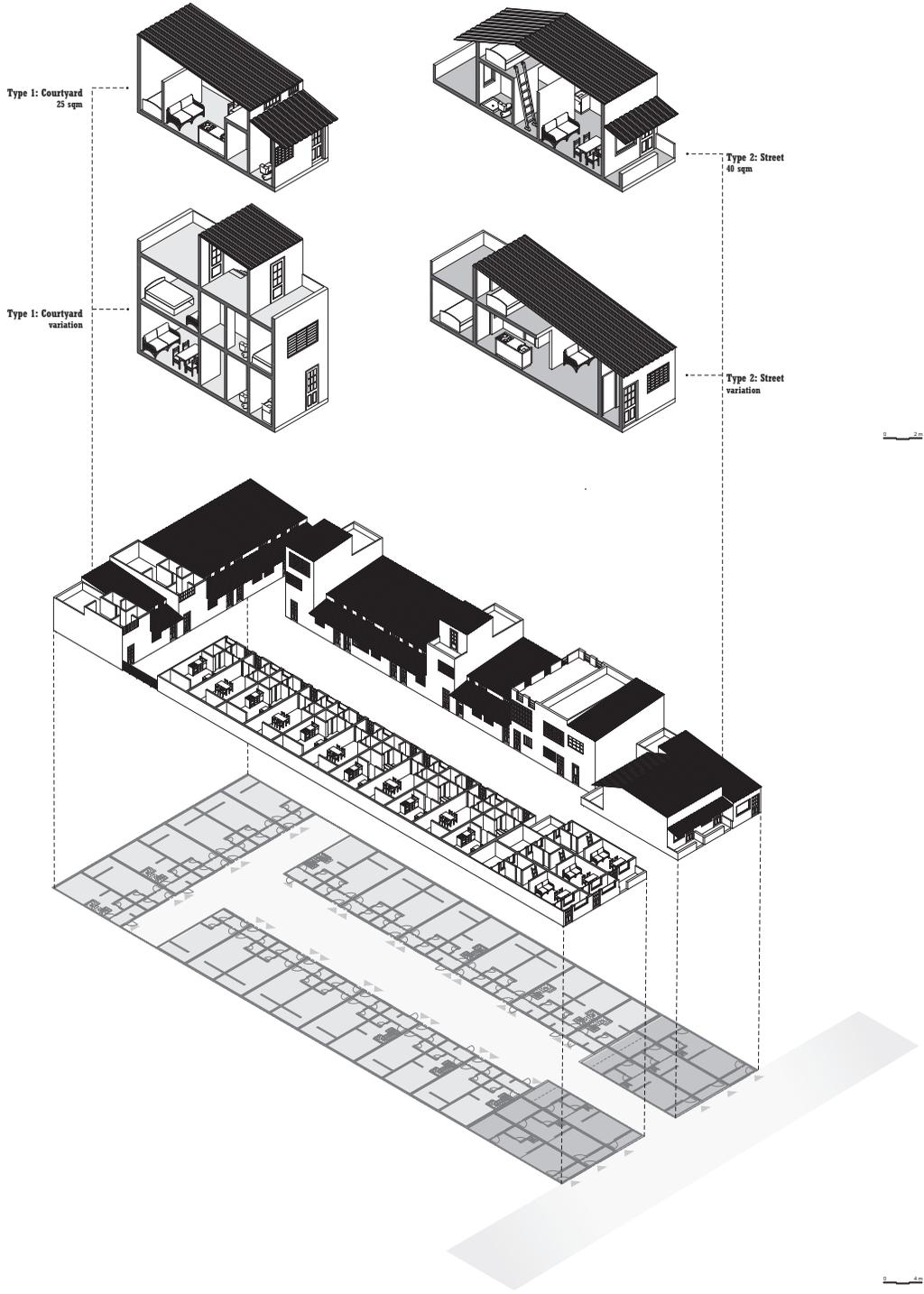


FIGURE 10.3 Axonometric perspective of the typical cluster for low-income families in the Charkop sites-and-services scheme (Kandivali, Mumbai).

Some of the most active groups participating in the post-war CIAM (*Congrès Internationaux d'Architecture Moderne*) congresses showed already an interest in growth and change at the ninth CIAM congress, held in Aix-en-Provence in 1953. It became a central topic during the discussion on the habitat for the greater number. This theme was famously discussed by Michel Ecochard, where he and his fellow members of the CIAM group ATBAT-Afrique showed projects to accommodate large groups of rural migrants in the French protectorate of Morocco (Avermaete, 2012).

The notion of *habitat évolutif* (French for “evolutionary housing”) would stem from the discussions at CIAM IX and be developed further by architects such as Ionel Schein, Claude Parent, and Georges Candilis. In his notes while attending the 1953 CIAM congress, the Romanian-born French architect Ionel Schein wrote: “Function Living: It varies according to the evolution of society. What men builds to dwell should be able to perpetually change” (quoted in Berselli, 2015, p. 6). Schein’s interest in the dynamic nature of dwelling practices comes back again, in 1953, in an essay dedicated to evolutionary housing that he wrote together with Claude Parent in *L'Architecture d'Aujourd'hui* (Parent & Schein, 1953).

Some years later, in the 1956 CIAM congress held at Dubrovnik, the interwoven relation between housing for the great number and *habitat évolutif* would evolve into a specific focus on the “problem of growth and change,” with a commission fully dedicated to reflect this theme (Mota, 2014, pp. 423–425). In the preparation for the 10th CIAM congress, the topic of “growth and change” would be highlighted as a key factor for the creation of a Charter of the Habitat. In the draft framework prepared in 1954 by the CIAM X commission, the importance of acknowledging the dynamic nature of social and spatial practices was stressed, and how they should be accommodated in each particular house for each particular type of community. “Architecture and planning,” the framework document stated, “must lose something of their finite character. Habitat should be planned and constructed so as not to resist their own spontaneous development (the development of those they serve)” (CIAM 10 Commission, 1954).

For the new generation of architects coming of age during the 1950s, the concept of *habitat évolutif* or evolutionary housing would remain a topic of intellectual investigation and experimentation in the following decades. In 1959, Candilis, Josic, and Woods published in the magazine *Techniques et Architecture* their proposal for evolutionary housing (Candilis, Josic, & Woods, 1959). As Tom Avermaete explains, in their project, the dwelling unit was put forth as an evolutionary habitat, “a living environment that has to be relentlessly appropriated, annihilated and re-appropriated” (2005, p. 174).

The engagement of architects with the idea of evolutionary housing would increase during the 1960s. Some of the most ground-breaking architectural experimentation of the time, such as Oskar Hansen’s (1961) Open Form theory, was dedicated to projects that explored evolutionary housing. In the Netherlands, evolutionary housing was part of John Habraken’s theory of supports (Habraken, 1999) and Constant’s “New Babylon” project. In France, it was a key feature in Yona Friedman’s “Spatial City” (*Ville Spatiale*), and in England, Cedric Price played with evolutionary housing in his “Fun Palace” (Anderson, 2019). The work of Constant, Friedman, and Price would remain influential mainly in theoretical debates, as arbiters of an insurrectional architecture, as Michel Ragon (1977, pp. 13–19) put it. However, Habraken’s structuralist theory of supports would be taken further with the creation of the Foundation for Architects Research (*Stichting Architecten Research*, SAR) and a worldwide dissemination of its method for the design of mass housing (Bosma, Hoogstraten, & Vos, 2000).

Next to these novel architectural narratives, the notoriety of evolutionary housing approaches would be boosted by one event, the PREVI-Lima competition. PREVI-Lima would become one of the most famous experiments, exploring the potential of evolutionary houses as the basis

for a new approach to the production of affordable housing. This experience was triggered in 1965 by the joint initiative of the United Nations and the Peruvian government, whose president was Fernando Belaúnde, an architect, to invite Peter Land, a British architect and urban planner. According to Peter Land, incremental housing was one of the fundamental principles that framed the experiment. The urban design should be based on the possibility of future expansion, and the concept of a growing house should be used to accommodate the growth of households over time (Land, 2008, p. 12). The brief of the competition, published in the April 1970 issue of *Architectural Design*, was clear about this feature: “The dwelling was not to be conceived as a fixed unit but as a structure with a cycle of evolution” (“Previ/Lima. Low Cost Housing Project,” 1970, p. 188).

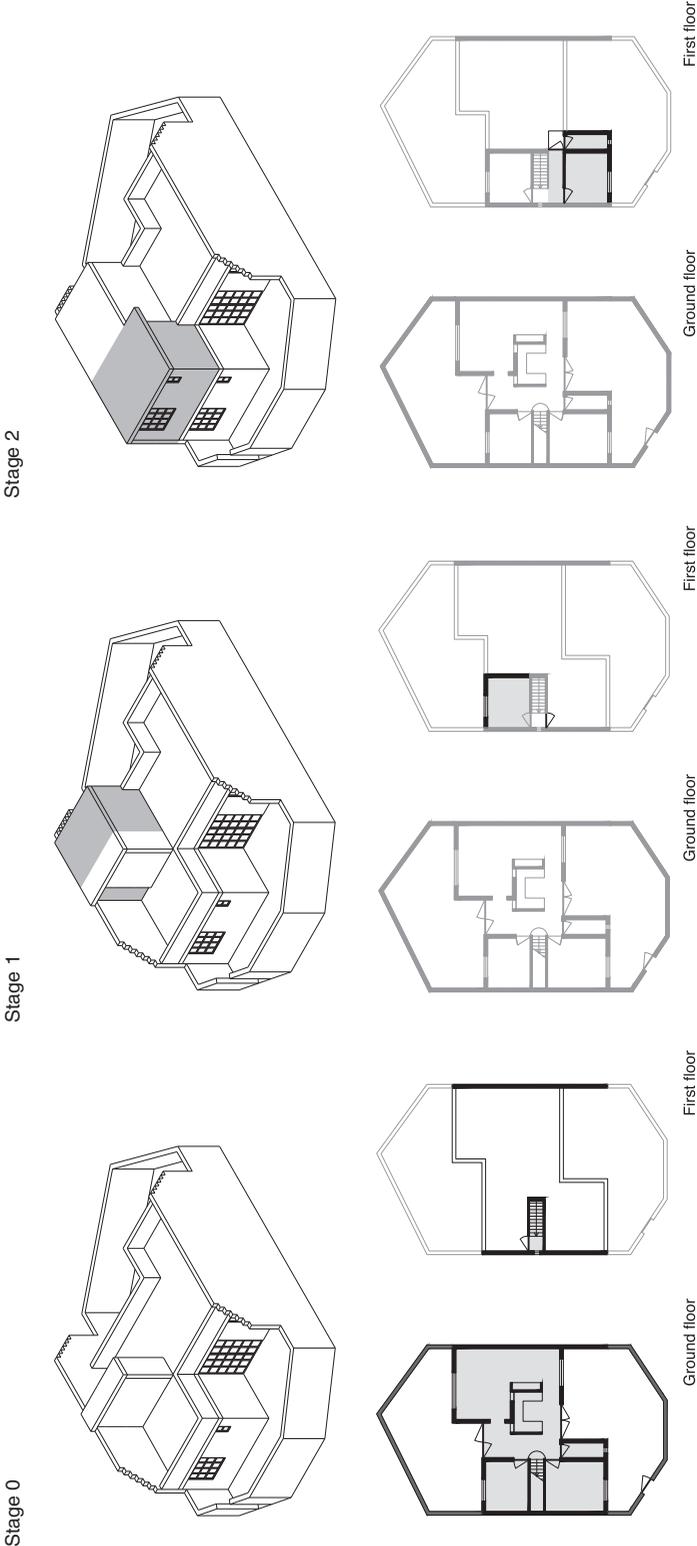
PREVI would become a housing experiment, gathering projects from some of the most outspoken supporters of the notion of “open architecture,” as well as other notable international and Peruvian architects. In total there were project submissions from 26 architects/architectural offices, including acclaimed international names such as Oskar Hansen, Fumihiko Maki, Candilis, Josic & Woods, Aldo van Eyck, James Stirling, and Christopher Alexander (Land, 2015).

The project presented by Aldo van Eyck offers an innovative approach to incremental housing. The most striking feature in Van Eyck’s project is the hexagonal shape of the plots, where the initial basic houses would be built with a rectangular footprint. The odd shape of the remaining triangular areas, Van Eyck argued, would “discourage further building by the inhabitants in any direction which would result in the loss of external space or internal light—a frequent development in self-build *barriada* housing,” as well as loss of “a genuinely urban character” (“Previ/Lima. Low Cost Housing Project,” 1970, p. 205). The layout of the basic houses and their expected incremental growth took into consideration climate considerations, allowing cross-ventilation through the core of the house. Climate considerations were also instrumental for the clustering strategy, shaping the pedestrian paths to take advantage of the cooling breezes in the summer and protection from winter winds.

Interestingly, the devices of control defined by Aldo van Eyck and most of the other PREVI-Lima architects proved to be powerless in shaping the residents’ self-initiated transformations. A study conducted on the actual conditions of the houses 30 years after completion shows that in most cases the inhabitants went much further than the architect’s wildest imagination (García-Huidobro, Torriti, & Tugas, 2008). In any case, this study also shows the importance of the spatial configuration of the plot and the strategy for clustering the dwelling units. While each house may grow and change through time, the structure of public and social spaces remain and sustain resilient urban communities.

## Expandable Houses

The concept of “expandable houses” is closely related with that of “evolutionary housing.” There are occurrences for the term “expandable houses” in the early 1950s that overlap chronologically with the emergence of *habitat évolutif*. I would argue, however, that there is one subtle difference in the use of these two terms. While “evolutionary housing” was the preferred term used by those exploring growth and change from a more theoretical—or even academic—framework (e.g., Parent, Candilis), “expandable houses” was favored more by agents related with the production of housing. For example, an unsigned article published in February 1952 in the American magazine of building *House & Home* was entitled “Does the Expandable House Make Sense?”. The epigraph of the article summarized the relevance of the question: “with higher down payments shrinking the house market, the cry of ‘half a house is better than none’ is heard over and over again.” The author thus concluded: “It’s a good time to take a



**FIGURE 10.4** Axonometric perspective of the expected stages of growth and change of the dwelling units designed by Aldo van Eyck for the PREVI-Lima competition.

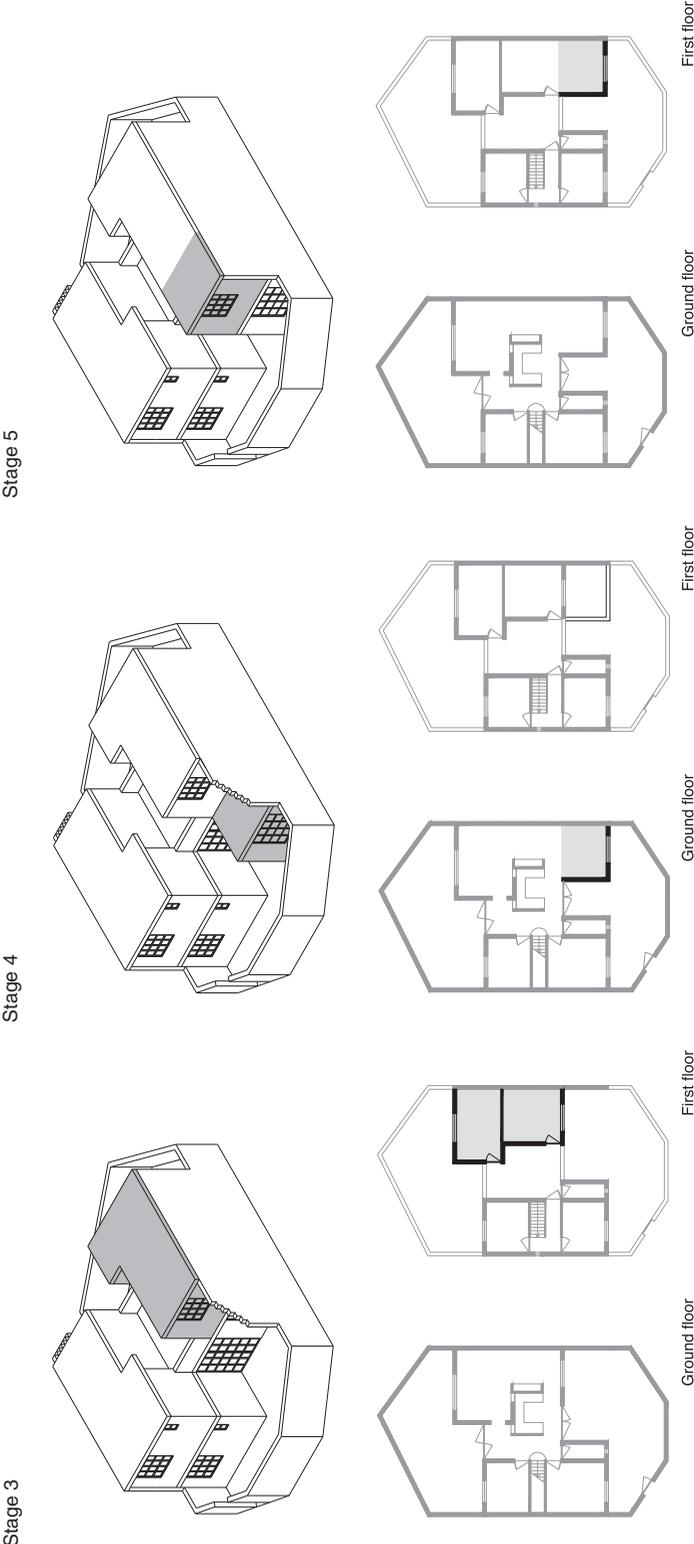


FIGURE 10.4 (Continued)

closer look at the expandable house” (*House and Home*, 1952, p. 114). The article moves on to offer pragmatic advice on how to “make expansion work,” showing a collection of examples of expandable houses, conceived by builders, engineers, and architects, with clear influences of the American vernacular tradition.

Distilling vernacular examples of “expandable houses” as an inspiration for new designs gained currency. In 1959, the magazine *Ekistics* published extracts from a booklet produced by Bandung’s Regional Housing Centre (Indonesia), illustrating “four house types designed to be expandable in accordance with the growth of family needs and family incomes” (Indonesia, 1959). The project draws inspiration from the Indonesian dwelling tradition, expressed in the options regarding building materials and techniques as well as climate design.

The use of expandable houses would also be encouraged in processes based on self-help initiatives. The *Manual for Self-help Housing*, published by the United Nations in 1964, testifies to this: “Certain desirable design features are especially useful in self-help housing, and should be considered and employed by any architect” the manual recommends. And it goes further stating that “the most important and valid aim is to make the house expandable; and this should be true whether maximum or minimum self-help houses or complete, shell, nuclei, or core houses are to be designed” (United Nations, 1964, p. 384).

As discussed earlier, through the 1970s, approaches to the design of mass housing based on the *habitat évolutif* approach were seen as a vehicle for the democratization of architecture. This was the period when flexibility and adaptability became fetish concepts for architects engaged with proving housing that could adapt to the changing needs of users. The time was also ripe to explore expandable systems for housing.

Skjetten Town, a new settlement projected for almost 2,000 households to be located in the vicinity of Strommen, approximately 20 km east of Oslo, Norway, is an exemplary experiment with expandable houses. Nils-Ole Lund was the coordinator of the team that won the competition for a new low-rise high-density housing district, launched in 1965 by the municipality (Hultberg, 1971). While there were some multi-story blocs included in the plan, the majority of the households were accommodated in the expandable two-story, 6.4m-wide row-houses. The project for the row-houses was based on a modular system, with a fixed core and multiple possibilities for expansion. These expansions, however, should be framed within the structural grid, using industrialized, factory-produced components to be assembled on site. To stress further the openness of the project, the designers created a house manual, meant to support the residents’ self-initiated expansions, demonstrating the possibilities of the system as well as the technical and economic implications.

The motto of Lund’s team’s winning proposal was “Variation—Order—Community—Privacy.” This motto demonstrates the team’s attempt to negotiate contrasting values, combining order with possibilities for individual expression, and securing the privacy of each household while promoting a sense of community. The focus on the spatial agency of the residents was central to the project. Writing in 1973, Nils-Ole Lund (2012, p. 25) stated that “at Skjetten, one did not try to find a general housing type, but sought rather a system that could make each house as distinct as possible.” And he further asserted that “in the same way that each family is different from every other family, so is their need different when it comes to dwelling.”

The Skjetten project illustrates the potential of incremental housing to be used as a design approach for a more humanistic approach to mass housing. As Mari Hvattum (2012, p. 9) puts it, “instead of the paternalistic model of post-war planning, the multi-disciplinary ‘Skjetten team’ sought a less patronizing way of making architecture, one that considered the residents as individuals rather than as average abstractions.”

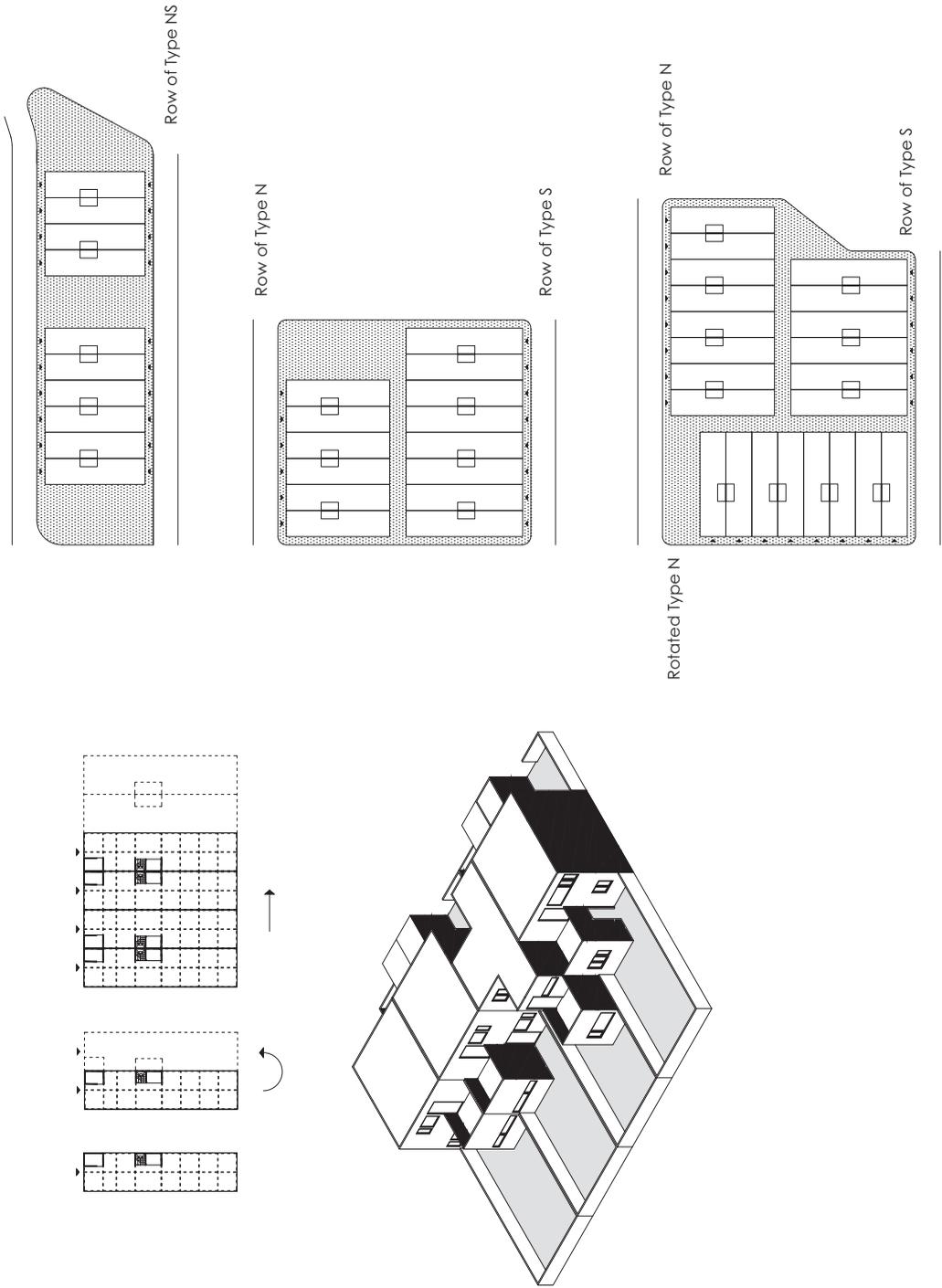


FIGURE 10.5 Clustering strategy for typical dwelling plots in Skjetten.

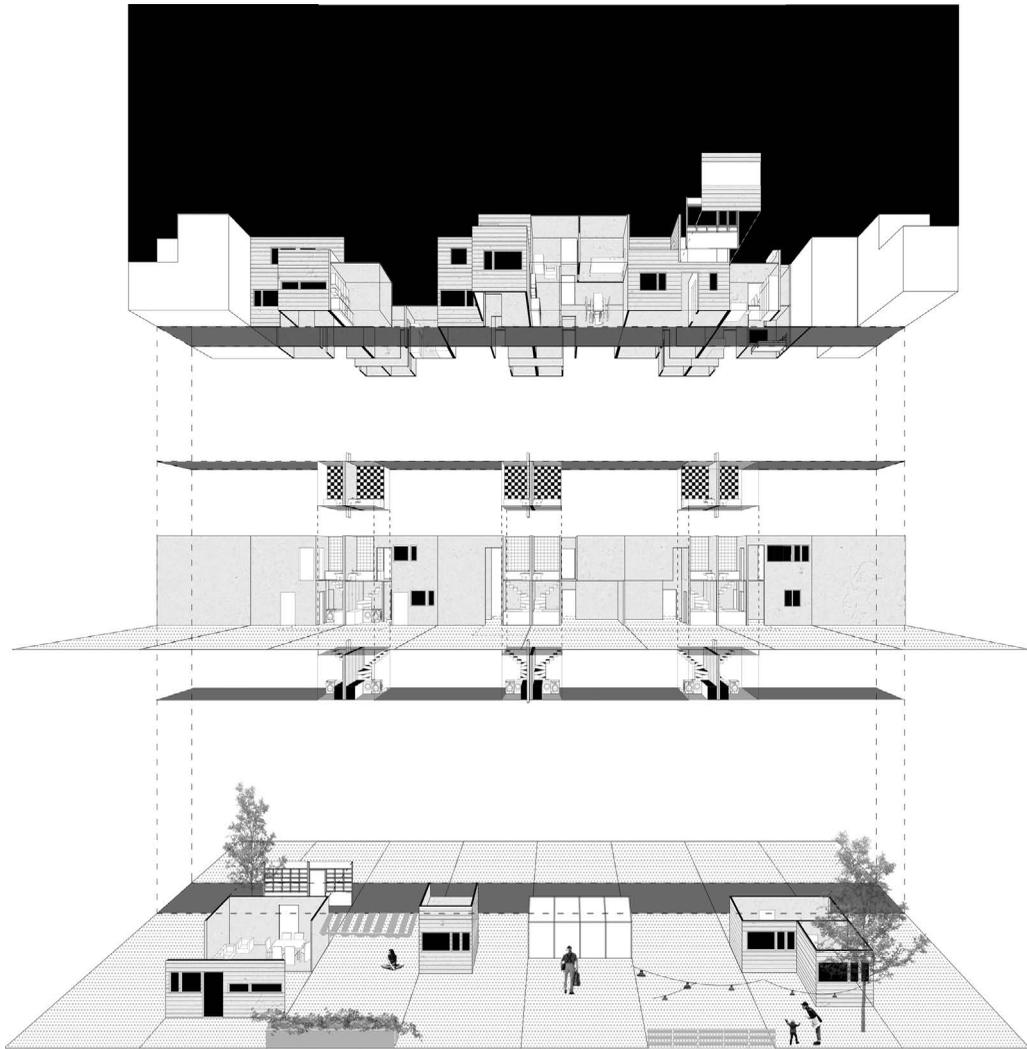


FIGURE 10.6 Illustration of the basic design principles of Skjetten Town.

## Incremental Housing

The terms discussed in the previous sections are still used to describe contemporary projects. The project “Rumah Tambah” and the “Modular expandable housing concept for Peru” developed by a multi-disciplinary team of Peruvian architects and engineers testifies to this (“Modular Housing by Arana & Suasnabar Architects Lets You Add Rooms,” 2019; “Rumah Tambah | Urban-Rural Systems,” n.d.). However, since the turn of the 21st century, “incremental housing” progressively became the preferred term to describe approaches to the design and development of houses able to accommodate growth and change through time. The first occurrences of “incremental housing” in scholarly articles started in the early 1970s, a time when most of the terms discussed earlier were still widely used.

In 1973, the Indian civil engineer and urban planner Shirish B. Patel wrote a piece in the journal *Economic & Political Weekly* in which he suggested a research program for urban housing, with a set of investigations necessary to solve the Indian perennial crisis in the provision of

housing for the lower-income sections. For Patel an in-depth investigation into the possibilities of using “incremental housing” was urgent. However, Patel warned:

the real difficulty is to start with the cheapest form of construction and incrementally upgrade it to the next better level, without destroying entirely the initial construction and starting over again, and without damaging seriously the livability [sic] of the house while construction is in hand.

*(Patel, 1973, p. 673)*

For Patel, the incremental housing approach should be combined with, and associated to, a selection of local materials and labor to implement those incremental improvements, securing the tenure of the householder, and a selection of convenient site locations, affordable but connected to transportation systems and opportunities for income generation.

In the last decades of the 20th century, precious few cases followed Patel’s criteria for a successful implementation of incremental housing approaches. The Charkop sites-and-services project, mentioned prior, is one of those exceptions. The list, however, is not extensive. Recently, the popularity of incremental housing approaches has risen conspicuously. This upsurge was underpinned by the visibility of the “Quinta Monroy” project, developed between 2003 and 2006 by the Chilean architectural office Elemental for Iquique, a coastal city in the north of Chile (Aravena & Iacobelli, 2013).

This project was Elemental’s answer to the progressive withdrawal of the Chilean government in the provision of housing for the lower-income groups and the relentless reduction of housing subsidies provided by the state. One of the direct consequences of this process was the reduction of the size of the dwelling units for the poor, as well as their displacement to underserved peripheries far from the urban centers and main areas of work and income generation. To tackle these challenges, Elemental’s proposal was based on four principles. First, they encouraged the establishment of families in a consolidated urban area. Second, they sustained that incremental construction should be done without neighborhood deterioration. Their third principle was that all future expansions should be safe and affordable. Finally, they advocated design with community participation (Aravena & Iacobelli, 2013, p. 98). Quinta Monroy was used as a test case for this strategy, and it proved successful, at least in terms of media visibility and international prestige for Elemental.

Disseminated worldwide, this project would be responsible for launching Elemental as the world reference for social housing projects based on the incremental development approach. The social concern of the Elemental design approach would also be instrumental to promote one of the office founders, Alejandro Aravena, to the architectural star system and eventually win the coveted Pritzker Prize, in 2016. As the Brazilian architect Pedro Arantes writes in his *The Rent of Form*, “the [Pritzker] award to Chilean Alejandro Aravena in 2016 seems to show that the ‘social’ dimension has finally been acknowledged by the system of values and higher decorations of the privileged architectural circle” (Arantes, 2019, p. 206). For Arantes, however, this acknowledgment does not suggest any departure from the status quo engaged in pursuing ways to monetize architectural innovation. Rather, he adds, Aravena “is a hero of the poor, invented by the rich, and therefore a hero under control. He does not attack the system, but recycles it” (Arantes, 2019, p. 230).

Despite its controversial contribution to enhance social equity, Elemental’s experiments with housing undoubtedly revived the interest in design strategies for incremental housing that had been somewhat dormant in the mainstream architectural media during the last decade of the 20th century. Furthermore, I would argue, this revived interest in incremental housing

triggered a reconceptualization of the role of the architect, inducing a renegotiation of the boundaries between design decision-making and governance.

## Negotiating Design and Governance

As the previous sections demonstrate, the different approaches to the design and development of incremental housing are historically determined. Over the last century, incremental housing approaches navigated always in two different disciplinary fields: design and governance. These two fields were not always balanced, though. In some cases, design decisions were at the core of the approach, whereas in other cases, the focus was primarily placed on managerial strategies.

In the growing house approach, for example, there was a strong focus on design as the medium to explore the most advanced technological possibilities available at that time in the industrialized world. The optimization of the layout of the floor plan and the solutions to integrate pre-fabricated elements in the construction of the dwelling units were front and center in the designers' research. The stakes for the designers were high. They were invested with the responsibility to regenerate society. In a time of scarcity, the growing house approach embodied the hope for a new way of life, which should be able to overcome the detrimental consequences of life in the metropolis. It was simultaneously an attempt to improve the living standards of the society but also meant to be a technologically advanced product, rather than a DIY approach (Urbanik, 2020, p. 247).

In the post-war period, the redemptory reliance on technology to improve the living standards of the citizens would fade away from the main narratives of architects and urban designers. The focus on the efficient production of mass housing, using standardization and closed forms was heavily contested, though. Starting with the post-war CIAM congresses and moving into the Team 10 meetings, the theme of "growth and change" influenced a whole generation of architects and urban designers active in the period the French call *les trente glorieuses* (1945–1975). Over this period, rather than an obsession with control and permanence, the discourse moved to flexibility, openness, and democracy. The role of the architect was readjusted to give agency to other stakeholders in design decision-making processes. First and foremost, citizens' participation gained currency in housing design as a required feature to enable an architecture of democracy (Jones, Petrescu, & Till, 2005).

With this paradigm shift, form and design were not alone anymore at the center of the operations. The importance of managerial aspects surfaced as a key component of incremental housing approaches. The aided self-help movements that developed in the interwar period and were further disseminated in the aftermath of World War II put a strong emphasis on governance. Defining the different systems of home ownership, selecting appropriate locations for the development of new housing settlements, and providing access to adequate financial instruments were key components of the "aided self-help" and "sites-and-services" approaches. The development of Charkop (1984–1990) in India, with the sponsorship of the World Bank, illustrates the importance of managerial decisions for incremental housing approaches.

Incremental housing requires an interwoven relationship between design and managerial decisions. More so, I would argue, than other approaches to the production of affordable housing. The particular nature of incremental housing challenges hegemonic power relations and reveals agonistically the conflicting interests of the stakeholders involved in mass housing production. Developers, designers, builders, and residents have to re-adjust their role in the process and navigate constantly between top-down decisions and bottom-up initiatives.

This complex network of relations, as well as the ambiguity inherent to the agency of the different stakeholders, makes incremental housing approaches simultaneously fragile and appealing.

Its fragility is associated with the fact that promoting self-help initiatives to foster the agency of the citizens in shaping their own living environment is politically weak. This weakness stems mainly from two factors. On the one hand, the lack of organized social constituency in self-help initiatives antagonizes the building industry, trades—including some architects and urban designers—and policy makers (Harris, 1999, p. 301). On the other hand, its political philosophy navigates in ambiguous territories. For example, some approaches are influenced directly or indirectly by such distinct ideas as those advanced by the social planning of Patrick Geddes or by the critique of the capitalist system by anarchists like Kropotkin. While the first was an inspiration for the work of advocates of self-help housing such as Jacob L. Crane (Harris, 1998) and Charles Abrams (Henderson, 2000), the latter featured front and center in John Turner's manifesto towards people's autonomy in building environments (Turner, 1972; Gyger, 2019). The political weakness of incremental housing approaches is also evident in its vulnerability to be appropriated by ideologies that diverge from its constitutional aims. For example, the "sites-and-services" approach has been recuperated by neoliberal ideas, like those of the Peruvian economist Hernando de Soto (2001), based on strategies to stimulate low-income households to become homeowners and enhance the role of the markets in the provision of affordable housing.

The way the "freedom to build" is enacted depends a great deal on the housing type proposed. For its particular characteristics, an incremental housing approach relies heavily on what it does for the household, the smallest social structure of a community. As the overview of the different approaches to incremental housing discussed herein shows, the spatial configuration of the housing settlements is predominantly based on the single-family house type. This did not happen without a clear social and political agenda.

From Leberecht Migge's "growing houses" to Charkop's "core-houses" the use of schemes based on single-family housing communities was ideologically motivated. Offering conditions for the self-reliance of each family was instrumental to mitigate social tensions and reduce people's dependency on governmental support. It was also a vehicle to promote the commodification of housing. Promoting the single-family house as the basic element for incremental housing schemes was instrumental to enhance the security of tenure and eventually homeownership. Consequently, with an initial input of governmental bodies, the house could develop its status as an asset (most of the time, the main asset) of a family. This precious commodity would then create communities of homeowners with access to bank loans and other financial instruments secured by real estate, the most trusted collateral. Additionally, security of tenure would also increase the government's catchment basin to collect property tax. At first sight, this looks like a win-win-win proposition.

Some voices, however, have been unveiling the "dark side" of this operation. Architecture and urban design scholars Camillo Boano and Francisco Vergara Perucich are a case in point. In their piercing critique of Elemental's approach to incremental housing, they considered the "good half-house" strategy as a neoliberal method to produce social architecture (Boano & Vergara Perucich, 2016, p. 62). Rather than a counter-hegemonic approach to the design of good architecture to the poor, Boano and Vergara Perucich (2016, p. 70) contend that Quinta Monroy illustrates "a utilitarian approach to social architecture for neoliberal goals." Elemental's project, they advance, is more a good economic strategy than a good mode of spatial production. Ultimately, it's a win for financial institutions, but not necessarily a win for the people or a win for the city.

Boano's and Vergara Perucich's critique of Elemental's neoliberal method to produce social architecture highlights the disciplinary and political ambiguity of incremental housing approaches. Rather than conforming to the binary polarity of "housing as a product/housing as a process," incremental housing approaches entail the combination of diverse spatial agencies in managerial and design *processes* to enable the progressive development of a *product*.

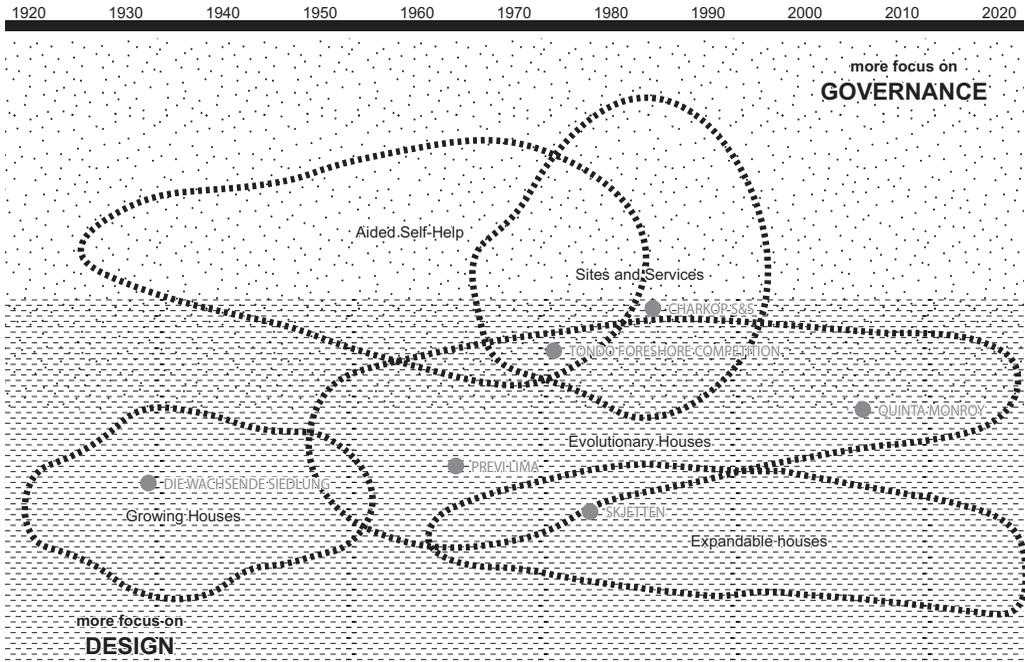


FIGURE 10.7 Balance between design and governance in different incremental housing approaches.

## Conclusion: Give Time a Chance

Since the Industrial Revolution (if not since forever), we live in a permanent housing crisis. In the 21st century, or at least in the foreseeable future, this everlasting housing crisis will only get worse. Over the last century, incremental housing approaches have been implemented to try and tackle the shortage of affordable housing. It was used by capitalist and socialist regimes. It was embedded in housing policies integral to planned economies but also to neoliberal programs. And now, what will be its role to face the housing challenges in the post-neoliberal world?

The different approaches to incremental housing discussed in this text suggest that architects and urban designers can play an important role in contributing to developing better livelihoods. Recent reviews of incremental housing settlements, which were frowned upon at the time they were built, are now praised for having created resilient urban communities (McGuirk, 2015, pp. 67–80; Owens, Gulyani, & Rizvi, 2018; Rouissi, 2019). This suggests that *time*, which is a basic ingredient of any incremental housing approach, is a key factor to take into account in the development of sustainable housing approaches. The articulation of design and managerial decisions is yet another key feature of incremental housing approaches. On the one hand, design decisions such as clustering strategies, plot configuration, dwelling layout, and selection of building materials and construction techniques determine decisively the social and environmental quality of urban communities. In incremental housing approaches, these design decisions can result from collaborative practices, rather than be enacted by hegemonic processes designed to reproduce the power relations that exclude the urban poor. On the other hand, managerial decisions such as the definition of homeownership models, adequate locations, and access to housing finance play a key role in the economic sustainability of each household, in particular, and urban communities in general. In incremental housing approaches, these managerial decisions can be instrumental to provide security of tenure, easy access to income-generating activities, and affordable rents, loans, and mortgages.

The intrinsic political ambiguity of incremental housing approaches may not be a detrimental factor for the architecture and city of the 21st century. Conversely, it may be a precious tool to activate the role of architects and urban designers as key players in shaping the spatial production for a world undergoing a process of planetary urbanization. As this historical review shows, incremental housing approaches have a strong impact on social and spatial practices, labor, and fluxes of people and materials. Using their inherent capacity to negotiate and mediate different types of expertise and disciplines, architects and urban designers can revive incremental housing approaches to influence the urban metabolism of cities in the 21st century and create a better social life for the city to come.

## Note

1. A search for the keywords “incremental housing” performed on three of the most comprehensive databases of scholarly articles and publications in the field of architecture and urban design produced the following results: Avery Index of Architecture Journals: 33 results. The oldest record is dated from October 1978; Science Direct: 91 results. The oldest record is dated from 1983; Jstor: 112 results. The oldest record is from April 1973. Search performed on May 26, 2020.

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