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FUTURE DOMESTIC
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Contents

Evolving Room

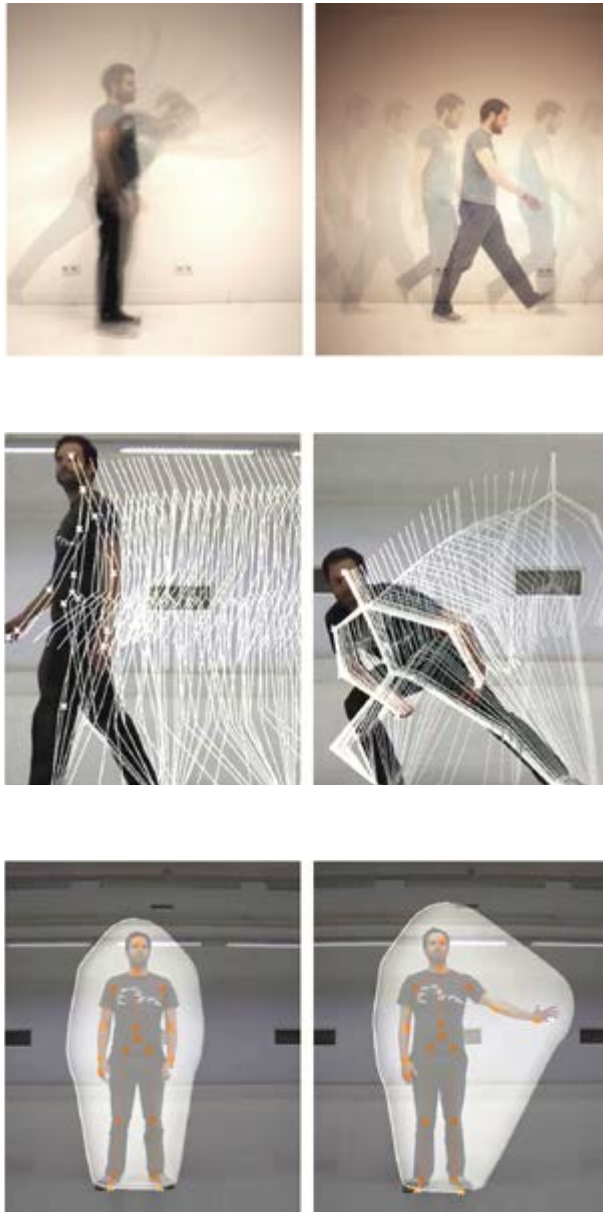
Inhabiting Zero Wasted Space

Stavros Gargaretas

Architectural space is left largely empty even when we are inhabiting it. We have become accustomed to this empty space. We could not imagine a life in which we were forced to occupy only the space that we use. *The Evolving Room; Inhabiting Zero Wasted Space* is a project that simulates an extreme architecture based on real-time ergonomics and space efficiency. It is part of a larger research on the 'Adaptive City' carried out in The Why Factory.[1] The main focus of this research is the exploration into how our physical environment (at different scales) must adapt to accommodate our everyday desires. The project focuses on the scale of the human body and the space it needs to exist.

At its core, the project serves as a means for observing the discrepancies between the space we use, and the space we take up, which is a common theme in the densely populated Netherlands and in particular in the work of The Why Factory and MVRDV. By exploring architectural space at the scale of the body, the project focuses on the fundamental ingredient of density: the space a human occupies. Through its core research question, the project questions whether we can live with zero wasted space. The research therefore interrogates the requirements and implications that an architecture of zero wasted space would have. In this sense, the project extends the experiments of Hungarian architect Imre Makovecz who explored the concept of 'zero space wasting' by generating architectural space that was derived from human movement. Also relevant is the work of Archigram and particularly David Greene's *suitaloom* project, which constructed 'the autonomous bubble for one, occasionally two'.[2] This project was published in Archigram 8, and was exhibited in 'The Greater Number' Trienale of Milan in 1968.

Cover image (facing page): Inhabited zero wasted space model: 18:00-18:20. For full image details, see figure 6.



Figures 1-3 (top to bottom): Photographic exploration, Muybridge exploration using Microsoft's Kinect, *and the virtual halo and interacting with it. Images courtesy of the author.*

This area of inquiry is of particular relevance to the research that Archigram envisioned as the 'suit' environment, functioning as an 'extension of personality'[3]—something implied in the research of the evolving room—where architectural space is able to learn and evolve together with the behavioural traits of its user. Peter Cook went on to convey a similar position in his 'domestic Metamorphosis' in Archigram 8, where the structure of space begins to resemble the human systems within it, and 'the parts slowly but continuously evolving—a sensory and responsive role and it all gets clearer as it gets nearer the minds within'.[4] *The Evolving Room; Inhabiting Zero Wasted Space* further addresses these questions brought up by Archigram and Imre Makovecz. It uses current available motion sensing technology as its tool to achieve the minimal, yet liveable space—never larger than what is essential: 'inhabited zero wasted space'. The project further utilises this technology to explore what Archigram referred to as 'occasionally a space for two', asking how our emotions and relationships to other people can be understood and translated to architectural space.

The truly interactive relationship between an inhabitant and his physical environment is called 'adaptive architecture'. It differs from 'intelligent architecture' because of its immediacy: it implies a 'two-way interaction between the user and his technologically changing physical environment'.[5] Such environments become customized to the individual, and function with a monitoring and data collection system. This system is highly interactive, unlike older intelligent systems which had to store, process and interpret data.[6] Within this 'new' definition of adaptive architecture, the project uses Microsoft's *Kinect* sensor to develop a series of tools with which to investigate the space we inhabit and the relationship that we could have with that particular space.[7]

The mapping device tracks and logs how we use space during different activities of the day and uses this date to generate the precise space used during the mapping: a model of zero wasted space. This provides us with valuable and accessible information about the way one inhabits space. The interface allows us to interact and customize the spatial model generated from the mapping tool. This interface connects us directly to our

The Flemish Béguinage

Privacy, Piety, and the City

Catherine Hawley

Inscribed into the urban grain of many Northern European towns and cities are some particular and intriguing figures. Ghent, Bruges, Antwerp, Leuven, Turnhout; each has its own béguinage or begijnhof. Dating from the thirteenth century onwards, the larger urban ensembles, sometimes termed 'court' béguinages, are within the region of Flanders. The UNESCO listing of the Flemish béguinages cites their value as exemplars of medieval concepts of urban development, which were widespread internationally and preserved in these miniature cities intact; they were small towns within towns, set apart.

The béguinages were enclosed communities of single women, often widows of frequent European wars, gathered together for security: spiritual, physical and financial. They varied hugely in size from single houses of eight to ten women to communities of up to two thousand. Whilst the béguinages were deeply religious orders there were no vows of poverty, the women, known as Beguines, bringing with them their own wealth, or lack thereof. The Beguines vowed chastity and to follow the rules of the béguinage yet they were free to leave the community and marry at will.

If the ancient world did little to acknowledge the role of economics in its foundation and the strength of its cities, the medieval, in contrast, saw the rise of economic man as citizen. Tensions between the growing medieval economy, the State and the burgeoning church could be uncomfortable and fraught however. The attachment of the citizen to his or her own city was often in conflict with economic interest, best served by trade and movement. The surviving artefacts of the medieval city, in particular the religious ensembles, churches and cathedrals, bear testament to an en-

Figure 1 (facing page): Model of the Grand Béguinage, Leuven. Prouced by Diploma Unit 3, University of Kingston. Image courtesy of the author.

Figure 2: Grand Béguinage, Leuven. Image courtesy of Hugh Strange.

during communal attachment to and investment in place. These artefacts also evidence a Christian desire for community, not necessarily in terms of the city as an entity in itself, but the religious community as a place of 'moral reference' within it.

As religion grew in influence, and new religious ideas took hold, concepts of community became allied to ideas of sanctuary, where compassion and charity bonded strangers. Two opposing imperatives arose: freedom of individual action facilitated by prosperity and the desire for a place where people care for others. Emerging spontaneously around 1200, the Béguine movement reflected the current of religious renewal sweeping through Europe in which women played an important role: in this context the movement represents an unusual marriage of interests. Alongside the burgeoning Convent movement the Beguines represent the rise of women dedicating themselves to God but, in contrast, not withdrawing from the world. Women, who were particularly vulnerable to social and economic forces, gathered together here to self-govern and control both their individual wealth and to maintain devout religious communities that, as entities themselves, had financial strength and commanded respect. A Beguine could be an economic woman operating from and within this world.

Each béguinage was a sovereign entity, its members enjoying equal rights and privileges. The foundation of these lay communities was the desire to harmonise daily life with spirituality, and a charitable solidarity, which extended beyond their own walls to the city outside. There was no overriding religious order that bound individual béguinages together. Instead each community developed its own character and rules in relation to its scale and the physical and social context. A béguinage was supervised by a 'Grand Dame', selected for a limited term and often assisted by a council; she inhabited the grandest house within the community. Rich and poor were housed; the rich could build their own houses, and charitable homes with multiple occupancy were built for less fortunate members. These shared dwellings generally provided homes for six to eight women.

Making the Temporary Shelter a 'Home'

Transitional Housing in Chile and Peru

Elizabeth Wagemann

One of the critical aspects of sheltering after a disaster is the gap between short-term (emergency or temporary shelter) and long term needs (permanent housing). However, more often than not, short-term housing solutions based on universal prototypes are not related to the local culture and climate, and focused on the immediate product instead of the whole process of reconstruction. Therefore, families modify their shelters in order to make them appropriate for their needs. Cases of transitional accommodation provided after earthquakes in Peru (2007) and Chile (2010) by TECHO NGO and the Government of Chile are no exception. The following pictures are part of a research that aimed to understand the process of recovery after a disaster, based on the study of 27 shelters modified by their inhabitants.

The transitional houses studied in Peru were built on plots (non-displaced) owned by families. Families stayed in their plots after the earthquake, and used the transitional house as a starter home first and as an extension to the permanent house later. In Chile, the transitional houses analysed were placed in temporary settlements. Families were displaced due to the total destruction of their houses and neighbourhoods caused by the tsunami. The government coordinated the provision of transitional settlements and most families applied for social housing, also provided by the government.

The comparison of cases from the two countries showed similarities and differences in the process of transition from a temporary situation to a durable house. The initial hypothesis was that families would modify their houses in order to get a sense of normality and to make the shelter more

Figure 1 (facing page): Temporary modified shelter in Cañapay, Peru, 2012. Image courtesy of the author.

LINEAR DOMESTICITY

THE HONG KONG SINGLE OCCUPANCY STRIP

Jason F. Carlow

According to the World Health Organization, seventy percent of the global population will live in urban areas by the year 2050.[1] As new cities form and existing cities burgeon in size, state and city governments across the world will need to grapple with the repercussions of densification. As residential buildings account for most of a typical city's building stock, increased density will have a significant impact on the urban dwelling. Hong Kong's political and economic system, limited developable land and population make it one of the most crowded urban environments in the world. Skyrocketing real estate prices fed by profit driven developers and a deluge of investment and speculation in recent years have made it increasingly hard for many families and individuals in Hong Kong to afford an apartment. One report indicates that 'property price increases in Hong Kong are now accelerating again, despite the economy slowing…prices in Hong Kong have surged 73% (56% inflation-adjusted) over the past three years, propelled by very low interest rates and strong foreign demand'.[2] Much of the foreign demand for real estate in Hong Kong has come from investors in mainland China seeking a more stable market.

Restrictions on land sales in Hong Kong in recent years have aggravated housing problems by encouraging developers to offer smaller, more expensive units. 'When land prices fall, Hong Kong restricts new land sales. The overall effect is that Hong Kong's hard pressed citizens' homes get smaller and they become increasingly unhappy with their lives…A two-bedroom, 506 square-foot unit that would probably house a family of three (or one wealthy person) is offered at $HK2896 per (so-called 'saleable') square foot, a total price of just under $HK1.5 million', close to US$2 million.[3]

Figure 1 (facing page): The HK:SOS façade modules can be sequenced based on owner preferences. The resulting seemingly random façade pattern resembles a façade that has been individually changed by residents over time. Image courtesy of Carlow Architecture & Design Ltd.

How have shrinking living spaces built to minimum standards shaped our domestic lives? The Hong Kong Single Occupancy Strip (HK:SOS) project is a response to a growing housing crisis in Hong Kong in which the domestic environments of the future are becoming more unaffordable and less habitable. In reaction to the increasing cost and shrinking size of Hong Kong housing units, the HK:SOS project explores the challenges and limitations of living in minimally sized spaces by producing a linear apartment for a single individual. By packing life's quotidian activities into an impossibly thin strip, the project pushes the design of a domestic environment to a spatial extreme.

The project was initially investigated by 'unfolding' a typical high-rise, Hong Kong apartment building into a linear array of rooms along the façade of the building. The result is a thickened strip of exterior and interior space that the project uses as a conceptual platform for design. The model revealed a thickened façade system where window projections, balconies, plumbing and mechanical systems on the exterior were intimately related to furnishings, rooms and programs on the interior (Fig. 2).

In the project, spaces for living, dining, cooking, bathing and sleeping are strung out in a linear array of micro-rooms (Fig. 3). Domestic activities are pushed into projecting window volumes that position the occupant precariously between a residential interior and the city outside. Window units are sized and oriented in response to each domestic activity and are angled and inflected inwards and outwards to adjust for privacy or views. Room types can be sequenced differently on each floor according to the desires of the occupants. Units are stacked on top of each other to create a building that could be attached to the blank walls of industrial or commercial buildings to take advantage of highly valuable, underutilized space in the city.

Figure 2 (facing page, top): This conceptual drawing unfolds a typical Hong Kong tower floor plan into a linear array of living and circulation spaces. Image courtesy of Carlow Architecture & Design Ltd.

Figure 3 (facing page, bottom): This exploded axonometric drawing shows a Hong Kong Single Occupancy Strip unit with a linear sequence of inwardly and outwardly projecting volumes that contain domestic programs. The exterior surface is proposed to be made of glass fiber reinforced concrete, while the interior spaces are wrapped in a seamless, thermoformed solid surface material. Image courtesy of Carlow Architecture & Design Ltd.

Contributors

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Jason holds a BA in from Harvard and an MArch from Yale. He is an Assistant Professor and Director of the MArch Program at the University of Hong Kong, Department of Architecture. His work, research and teaching are centered on the relationship between digital and traditional modes of modeling and fabrication.

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Simone has recently completed her doctoral studies at the Department of Architecture at the University of Cambridge, and is a UK-registered architect. Her research synthesises architecture and cinema studies to interrogate the means through which space is conceived, experienced, and interpreted differently across cultures, with a particular focus on East Asia.

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Maria was born in Chicago, Illinois and has written a number of books on art, design and on contemporary culture including books on fashion, food, and drink. She now lives in London and teaches Historical, Critical and Theoretical Studies at Kingston University and the University for the Creative Arts.

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Stavros was born and raised in Athens, and subsequently moved to the UK and to the Netherlands to pursue his architectural education. He graduated from TU Delft and The Why Factory in 2014 with a high commendation for his research *Inhabiting Zero Wasted Space* under the supervision of Prof. Winy Maas. He curently works as a researcher at The Why Factory.

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Richard is an architect and architectural historian. He earned his master's of architecture degree from the Yale University's School of Architecture. His research focuses on the Aesthetic Movement in nineteenth-century England and American architectural culture of the 1960s. His prior publications include *The Yale Building Project: The First 40 Years*, a comprehensive history of an important program in American architectural education that originated in the context of student activism and volunteerism during the 1960s. In 2009, Richard was a visiting fellow at the University of Cambridge. And in 2013, he returned to Cambridge as a visiting fellow of Clare Hall.

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Helene is a multidisciplinary artist, who across her practice uses research and archival material to generate moving image and multimedia installations looking at the analysis of risk and the image of future ruin. Focusing in particular on the domestic space—the home or the house—as the site where a complex range of values converge and where small-scale actions of preparedness or anticipation mediate the effects of risk and its management into a range of affective and experiential registers. Helene is presently a PhD candidate at the Centre of Research Architecture, Department of Visual Cultures, Goldsmiths.

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Contributors

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Vyta is a graduate of the Bartlett School of Architecture (MA Architectural History) and Wesleyan University (BA Studio Art/Architecture). She is interested in the intersections of architecture, film, gender, and culture. Currently, Vyta is a Fellow with the Architect of the Capitol in Washington, D.C., where she studies modernist representations of the Capitol building.

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Alex works at the nexus of architecture and performance art. His projects include Practise Architecture at Tate Britain, Flatland at New York's Sculpture Center, Its Form Follows Your Performance at Berlin's Magnus Muller, and A Sac of Rooms All Day Long at the San Francisco Museum of Modern Art. His piece, Counterweight Roommate (sketch featured on this issue's cover) has recently been acquired by the Museum of Modern Art, New York. Alex has been a guest professor at the Southern California Institute of Architecture, Pratt Institute, and the Institute for Art and Architecture in Vienna. He is currently a PhD candidate in the Department of Architecture at the University of Cambridge.

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Elizabeth is currently conducting doctoral research on housing in extreme situations using prefabricated and modular designs. Before starting her studies at the University of Cambridge, she worked the Catholic University of Chile as an instructor and coordinator of the masters programmes. She graduated from the Catholic University of Chile with a Bachelor of Architecture (2001) and a Master in Architecture (2005), and received an MPhil in Architecture (2012) from the University of Cambridge. She is currently pursuing a PhD in Architecture from