

SMALL DIMENSIONS, BIG IMPACT: Transformative-Furniture as a Platform for Community Cooperation and Learning

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The compact city land-use policy of Hong Kong is recognized globally as a successful case behind the principles of transit-oriented development and high-density living. Its urbanistic implementation has been footnoted for contributing to a number of admirable indices and measurements: from low carbon footprint per capita to an efficient and viable transit network system (Figure 1 & 2). It is also credited for protecting much of its Country Parks from real estate encroachment. However, realizing such densification is not without its compromises. The concentrated development has contributed to a dismal dwelling area with soaring real-estate prices. Such constriction has enticed homeowners to partition standard apartments into Subdivided Units (SDUs) directly profiting from those living on the fringe and indirectly propelled the issue of housing injustice into the public discourse (Figure 2).

Hong Kong Census and Statistics Department estimates around 3% of its total population reside in SDUs. Included among them are school-aged children under 15 which accounts for 18%¹. Having visited several families at the SDUs and in sharing

observations with colleagues researching on the same social agenda, we realized there is a lack of personal space for children to claim as their own². In most instances, homework is done on the dining table without any additional spaces for books or stationery. It means, even the rudimentary task of studying and doing homework is a challenging routine (Figure 3). This shortcoming is argued to have impeded the academic performance of the children and contributes to a perpetual cycle of impoverishment³.

To alleviate this situation at the SDUs, we designed and pro-totyped a series of Transformative-furniture. By targeting school-aged children as its primary beneficiaries, the project aims to enhance the learning experience and to engage with the community. Transformative-furniture in this context serve both as a tool and an environment⁴. The design carries three unique characteristics, combining a small stature, multi-function of use and modular assembly for ease of transportation, features that are born out of the confined living spaces of the SDUs. During our visits to the SDUs, residents shared with us their living habits

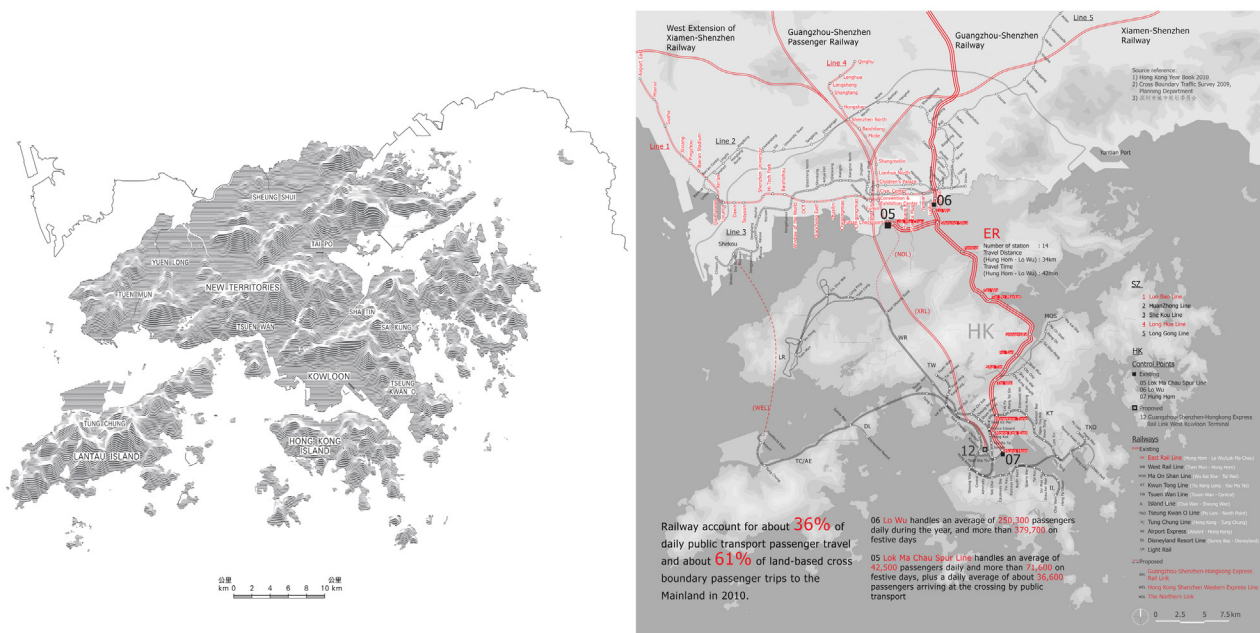


Figure 1. The lack of buildable flat land due to hilly terrains has pushed the planners in Hong Kong to develop a compact urban planning policy. Such development model has enabled a highly efficient mass transit system. Image credit.

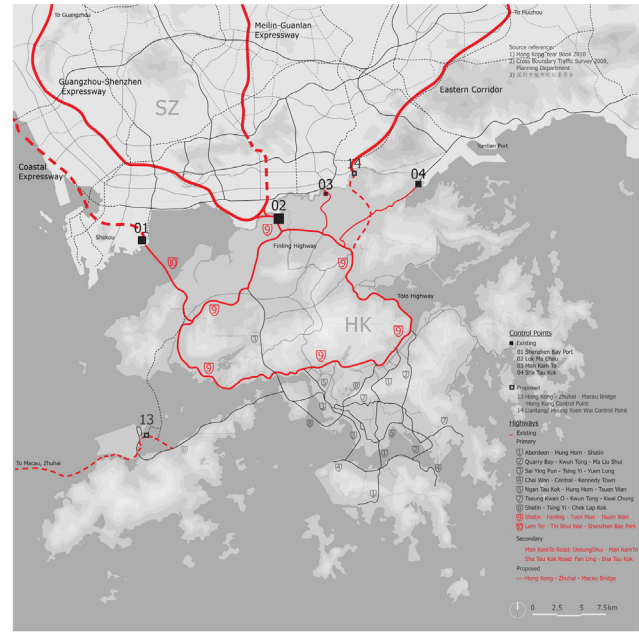
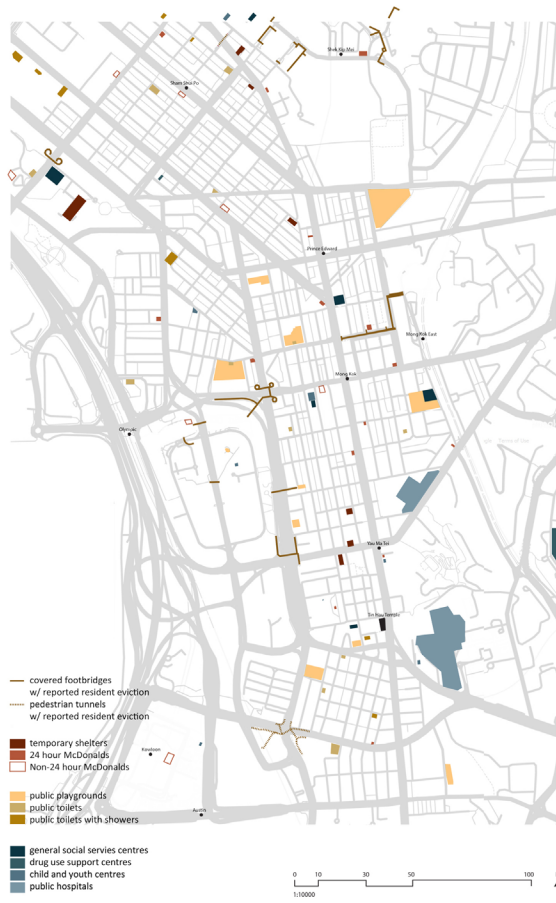


Figure 2. Only 25% of Hong Kong's total land area are developed. As such, majority of its population resides in highly densified conditions, about 6,000 people per square km. Such concentration have resulted in dismal living condition, street sleeper phenomenon and other social challenges. Diagram on the left tracks the street sleepers and public social services. Image credit.

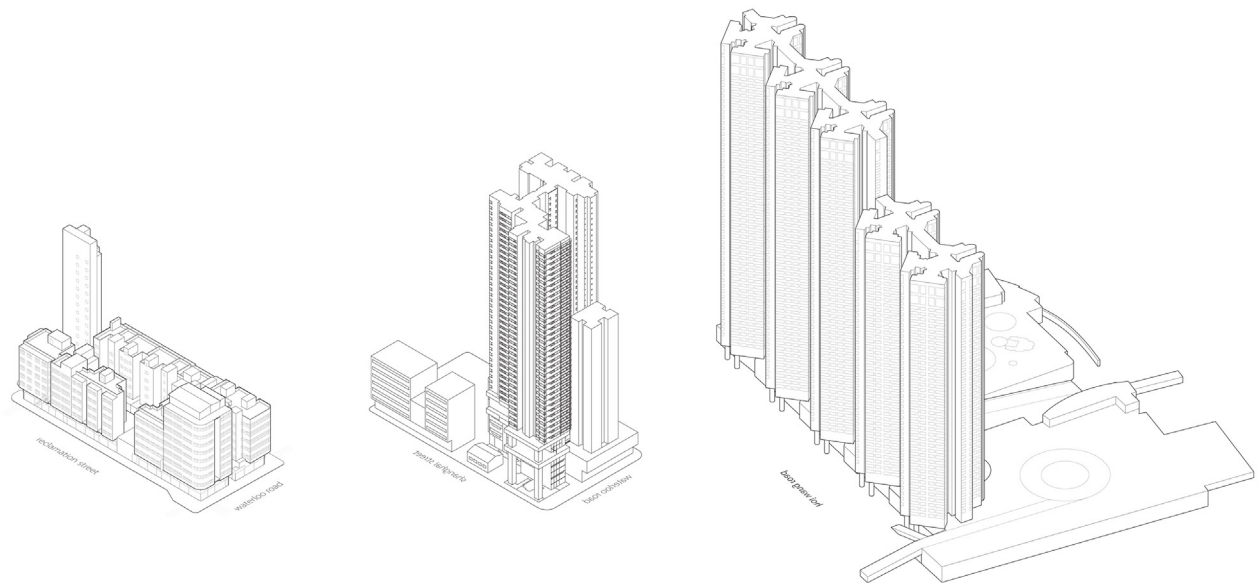


Figure 3. Residential typologies have evolved over the years from engagements with the public life to creating a vertical gated community. This change of residential development pattern is created in part by the gulf in wealth disparity. Lin, Wu, Chan.

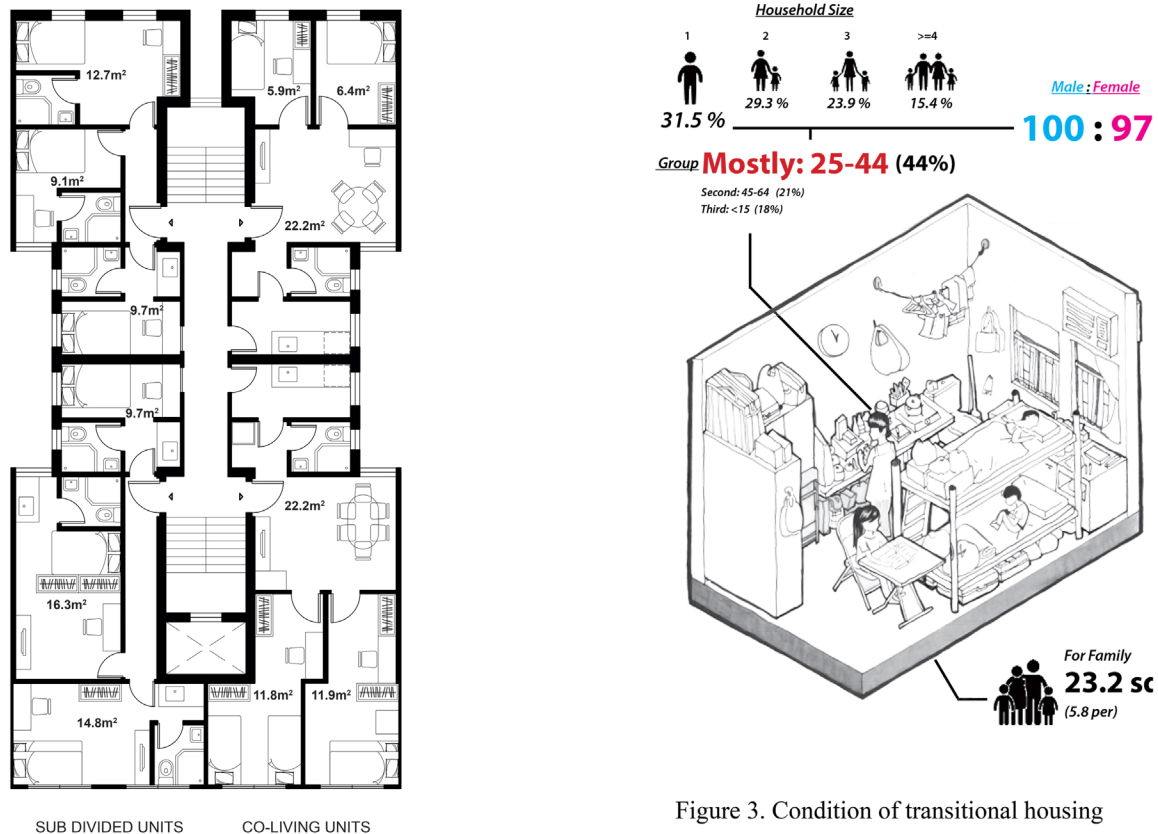


Figure 3. Condition of transitional housing

Figure 4. The pressurized condition has encouraged greedy homeowners to partition apartments into Sub-Divided Units (SDUs) profiting on those living on the fringe. (Plan on the left) Right side indicate the original layout, while the left side indicate the layout after subdivision. Chan.

and use of space (often times ineffectively). Through direct communication, we were able to understand the nuances involved in living at the SDUs and what transformative-furniture could play in easing the pressurized living environment. Our team recorded critical measurements in SDUs to determine the optimum dimensions for the design criterion.

To sow the seeds of social advocacy through design, students from the School of Architecture were invited to participate in this cause. Organized by the author and led by 3 tutors together with two local NGO groups, 60 final-year students worked with the families to define a specific set of functions that suited their needs. Each team consists of 3-4 members with a defined purpose reflective of the constrained conditions at the SDUs. For example, a bed that can be folded into a table, or a chair that can be modified into a table (Figure 5). Rather than provide customized designs for each of the units, the approach was to work towards universal prototypes for units of similar conditions. Students not only designed, but fabricated practical, multi-purpose furniture within a specified spatial limit. The prototypes gave a real sense of ergonomics, materiality, constructability and notion of cost. The student involvement expanded the project's impact and elevated the public's awareness to the needs of the SDU residents. By calling attention to the urgency of this issue, the project attracted

coverage from a number of traditional and social media news outlets (Figure 6).

Once the furniture components were fabricated, we invited 12 families to participate in an assembly and testing workshop. The families discussed and gave critical comments on how the furniture would facilitate their everyday activities. From this engagement, families from the SDUs, which normally do not have an opportunity to meet, were able to work together and engage meaningfully (Figure 7). After the workshop, each attending family were invited to complete a question-naire designed to understand different aspects of their living habits and conditions. Through this research, we developed a direct line of communication and trust with the community. It also affords us a deeper understanding of the complexity and degree of severity that the fringe community is facing.

Subsequent to the workshop, we donated some of the transformative furniture to the families. One piece, "Orange & Blue" was delivered to Ms. Yu, a single mom living with her 5-year-old daughter together with a female flatmate (Figure 8).

The installed furniture enables us to advance the project through user surveys. We intend to monitor the life of the project by creating a reflection-in-action process for further

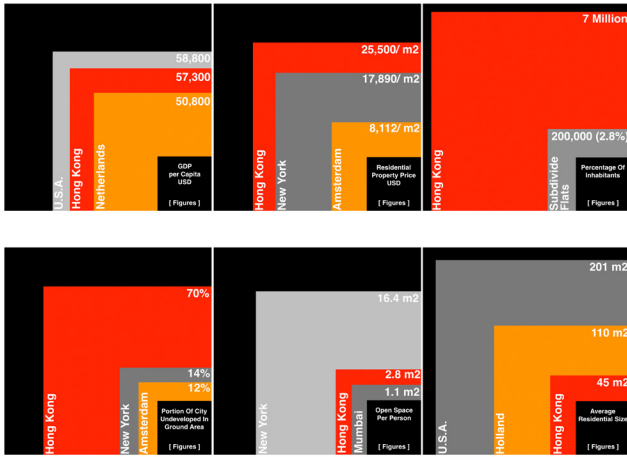


Figure 5. Hong Kong has created formidable economic figures in the past 3 decades, however liveability remains low. Image credit.



Figure 6. Students visited social housing and subdivided units to observe the constrained and challenging living conditions. By meeting with the residents, the students gained first hand experience in the hardships of the condition. Image credit.



Figure 7. 12 families from the social housing were invited to the School of Architecture to assemble and test the furniture mock ups. Image credit.

P1

FoTable Chair

CHAN Tin Hang, Sean
CHO Lok Man
LEUNG Ka Shu, Calvin
LIN Sheng, Ken
WU Yu Shang, Sunny

<https://www.youtube.com/watch?v=ps6MFEUaG8>

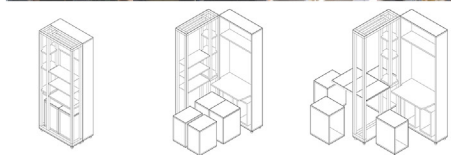


T3

FoTable Chair

HE Haoju
KWOK Tsz Shun
LI Ho Kong
TONG Ben
ZHANG Yutong

https://www.youtube.com/watch?v=nd4V9StnU_k

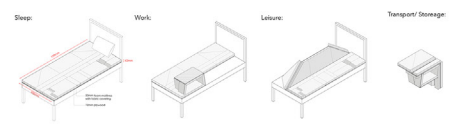


P2

Bed Peel

LAU Cheuk Wang, Michael
LAU Sum Yuen, Kimberley
SURH Jae Sok
LIU Tsz Kwan
CHAN Nok Yue

<https://www.youtube.com/watch?v=AMFQOx1po>



T2

Wall-drobe

CHEONG Kam Seng
CHEUNG Yan Ling
LIZHUANG Min Yi
SO Ching Ching
WONG Ho Tung, Cheryl

<https://www.youtube.com/watch?v=XyDzCtzeedU>

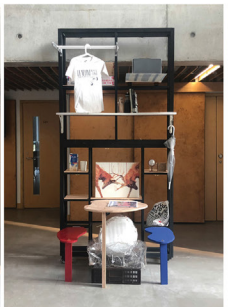


Figure 8. Students designed various transformative furniture after interviewing the tenants. The final mockups gave a real sense of ergonomics, materiality, constructability and notion of cost to the students. Chan, Cho, Leung, Lin, Wu et. al.

optimization and refinement⁵. In lieu of an immediate and actionable plan to address the shortage of housing supply in Hong Kong. This targeted project seeks to be a catalyst for alleviating the everyday challenges faced by the SDU residents. Given the trend that urban areas from around the world will continue to absorb world's population growth and short-fall in affordable housing supply⁶. Design advocacies that encourages stakeholders within the community to positively intertwined and dialogue, such as the proposed project, will become increasingly significant and imperative.

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ENDNOTES

1. Census and Statistics Department. Thematic Household Survey Report No. 60 (HK: HKCSD, 2016), 70.

2. Proponents of this cause, social action through furniture design in Hong Kong, includes the not-for-profit practice DOMAT. The practice has been working with NGOs to identify needy families, the team provides flat specific furniture to help organize with their daily activities.
3. OECD. Equity in Education: Breaking Down Barriers to Social Mobility (Paris: OECD Publishing, 2018).
4. Paul Cornell. "The Importance of Physical Space in Creating Supportive Learning Environments," in *The Impact of Changes in Teaching and Learning on Furniture and the Learning Environment*, no. 92 (2002), 33-42.
5. Donald A. Schön, *Educating the reflective practitioner : toward a new design for teaching and learning in the professions* (San Francisco: Jossey-Bass, 1987).
6. Department of Economic and Social Affairs, Population Division, *World Urbanization Prospects: The 2018 Revision* (New York: United Nations, 2019).

