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Living Large in Small Spaces

an architectonic of finding a perfect balance

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Abstract

Trading off between spatial sizes of a small well-connected and urbanised condominium unit and a comfortable long commuted suburban townhouse puts a significant pressure on the inhabitants of any metropolitan city. This is particular more so for the Bangkok's residents due to the city's severe traffic problem and the residents' buying dilemma on the equally expensive property prices of the urban and suburban locations. In what way could design offer to enliven the quality of the small and urbanised residential unit so much so that comfortability of the suburban townhouse is less compromised? This paper is a report on an architectural design project, which attempts to investigate creative ways to try an answer to this question.

To do so, it first established a design guideline compiling from the review of recommendations on psychological expectation of the convenience of central location and the economical and cultural opportunity against the spatial size. This results in a design method of 'shrink to fit' and 'overlapping functional surface'. However, users should be able to maintain their identities through 'choice and control' over their spatial usage as well as make their residential premise 'homey'. The design then explores the ways in which the guideline ought to be maintained. It offers physical versatility of spatial usage through three configurations: stripe(s), square and stretch.

As a result, the unit is designed as 'a box within a box.' The outer box consists of the existing brick and mortar party walls and prefabricated exterior walls on the southeast corner of a multi-family residential building, whereas the inner box is a makeup of vertical and horizontal wooden surfaces concealing utilities essential for

everyday living. Everyday spatial usage on choice and control can be carried out on the arrangement of the inner box through moving partition, rotating wall elements and etc., i.e., collapsing and extending spaces. More importantly, the adjustable inner box does not only serve the variation of the everyday spatial usage, it also help generates changes of experience within a small confinement so much so that the comfortability of spacious residential type could be replicated. Thus, the desired living quality against the small spatial size could be achieved while the psychological expectation could be well met.

Keywords: urban residential / small space / spatial versatility / user experience / shrink to fit / overlapping functional surfaces / choice and control / quality living / comfortability

1. Background

According to a market summary report launched by CBRE in Q4 – 2011, a person with three million baht budget has a choice of purchasing a small condominium unit of 30-40m² (with the average THB138,397 psm) in location along the concentrated mass transit system, or a town house with a useable space of over 150m² in a suburban location. The given choices might be a simple size to size comparison for residents of well planned cities such as Copenhagen, Seoul and Singapore, to name a few, but for residents of Bangkok, a city corroded with severe traffic problem resulted from poorly planned public transportation network in the past and the populist economic policies giving tax credit to first time car buyer in recent years, the choices leave them with sour dilemma. For most Bangkok work force, to live comfortably in a larger space where their family has rooms to grow forces them to spend roughly about two hours on daily commute, in comparison to the world average of 40 minutes (Boniface, 2014). On the other hand, to live closer to the city center or mass transit stations where they can get to and from work in reasonable time means that their and their family living quality will have to fit within a confinement of whatever small size apartment unit they can afford. This design project focuses on and serves the latter, those Bangkok workforces that trade their expansive living quality for the convenience of urban commute.

The condominium market in Bangkok is driven by location, and because most of the demand is from end-users, by affordability (CBRE, 2011). The affordable aspect and the scarcity of land availability in the city area have over the years driven down the market's typical unit size, making the end-users having to constantly adjust their expectation and compromise. Designed and built to serve a wide range of users, typical cookie cutter layouts aimed to meet the basic requirement of the median are widely available as partial or fully furnished. Figure 1 below show example of typical one-bedroom and two-bedroom apartment unit along BTS and MRT line in Bangkok with the unit price of THB3.5-4.5 million on average.



Figure 1: Typical one- and two-bedroom apartment IDEO Mobi, a branded residential property product line launched in 2012 serving modern lifestyles of city dwellers from Ananda Development. The sizes are roughly 30m² and 55m² respectively. source: www.thinkofliving.com



The project presented in the following sections is a refurbishment of a small apartment unit owned by a young professional couple. The design is a response to the stigmatized Thailand property development's vision for small apartment, its "smallness", and the mundane cookie cutter layouts and decorations that have in recent years presented itself as a backdrop for Bangkok middleclass living quality and lifestyles.

2. Project Description

Project Name: B710

Project Type: Residential Interior Refurbishment

Client: Private

Location: Klong Toei, Bangkok, Thailand

Area: 54.5m²

Design Team: Orama Siamseranee & Sebastian Ewers

Project Year: 2014

Photographs: Sitthisak Namkam

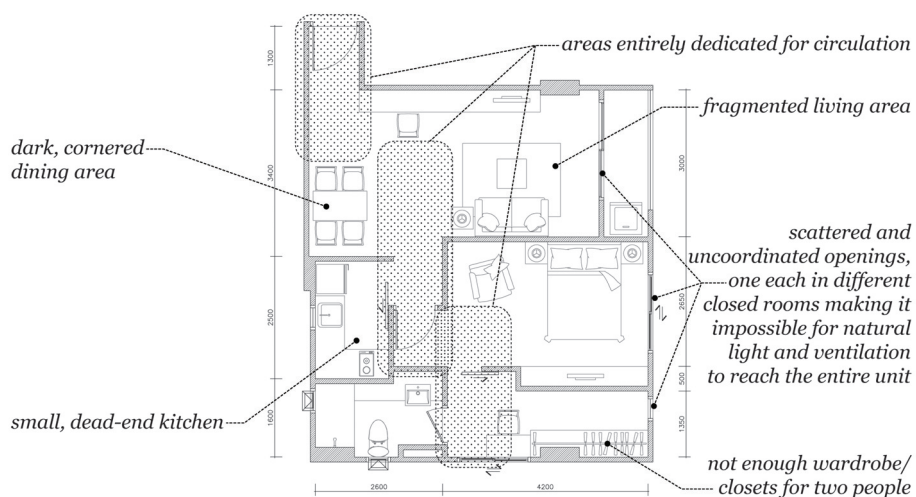


Figure 2: Existing floor plan of the unit overlaying with analysis of spatial structure and inflexible planning arrangement.

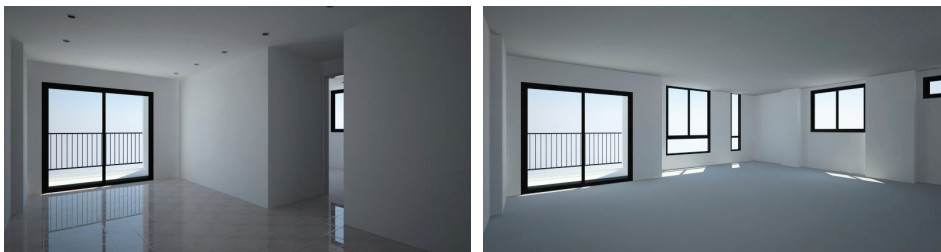


Figure 3: Visualization of the existing site pre – and post-demolition, revealing physical potential of the site that was not realized by the original plan, in which openings are located perpendicular to one another allowing ample amount of natural light and cross-ventilation across the unit.

3. Design Criteria

When it comes to understanding the quality of a living space, the notion of size becomes only somewhat relative. There are several factors that influence the planning in which, if done correctly, could emphasize the quality of the given space rather than focusing on the lack there of.

For B710, size does matter – but only to a certain degree – while other ingredients matter more in making up a quality living space. Finding the right ingredients that prevent a small space from becoming too small of a living unit is the key approach in the design and construction of this project. The design process began with a lot of questions asked to help sorting out, and create a mutual understanding of the importance and unimportance of familiar traditional living elements, which were then consolidated into the following set of guideline/criteria that help manage users' expectations and design flexibilities towards this new, small living space throughout the entire process.

4. Design to meet users' expectations

Research from the Royal Institute of British Architects (RIBA) says that lack of space is the most common cause of dissatisfaction people cite in relation to their homes (Castella, 2013). So what could possibly be the benefit of living in a small space? Happily living in a small home is first of all about psychology, according to Hannah Booth, homes editor at Guardian Weekend (Castella, 2013). It is also about the dwellers' willingness in trading off the unimportance in order to gain the essentials. For example, living closer to the CBD means living closer to economic opportunities where the societal and physical infrastructure support their economical and professional growth, but it also means living in a comparatively smaller footprint. This is also true for the city of Bangkok where the conveniences of being in the epicenter of economic opportunities drive up the property prices which have inadvertently driven down the size of affordable housing units. It is therefore important for the future dwellers of the small living space to understand that physical as well as psychological changes will have to be made in order for them to benefit the most of their new home while enjoying the experience and the convenience the urban dwelling provides.

For B710, the physical changes are created through the method of *shrink to fit* and *overlapping functional surface* which allow fundamental living elements to be incorporated into the given footprint, while the psychological changes are addressed

through the architectonic of space making that emphasizes positive user experience and the possibilities of their new home.

5. Design to enhance user identity

Beyond the economic impact of smaller spaces, our homes also serve an important role in communicating our values and goals, or what scientists call “identity claims” (Urist, 2013). In a residential unit, regardless of types or sizes, the identity claims are expressed through the choices the dwellers make and the level of control they have within the given space.

The initial concept of B710 was grounded on the belief that the balance of one’s self-expression and relaxation depends upon the amount of freedom one has in exercising his or her *choice and control*. Take the size constraint into account, the challenge becomes a question of *how?*; how to utilize the planning of a small space so that the result can accommodate users’ identity claims promoted through freedom of choice and control?

6. Design for Today

Daily life is a sequence of events, and each event takes place in different time of the day and requires diverse spatial configurations. Thus managing spatial requirements while in constant battle with the lack of space becomes one of the main struggles in the design and construction of B710.

To satisfy the essence of today’s living, the new spatial arrangement will include work-at-home space for a couple, areas where they sleep, dress, relax, cook, do their laundry, and often times receive their guests. To achieve that level of satisfaction, the design of B710 must utilize the existing condition of the given 54m² to its full potential, and accommodates these strings of event by shifting and overlapping the space based on the rotating priority of such events at a given time. Though the applicable building code does not allow partitioned and exterior walls to be physically modified, the use of existing surfaces in B710 must also go through a creative process by which the non-static spatial arrangement can benefit from. Natural light and ventilation will be captured and distributed throughout the unit to support the dance of daily events while offering visual and thermal comfort to the dwellers and visitors alike.

7. Design for Tomorrow

The paramount of designing a small living space is the account for future life events. To try and embrace the unforeseeable, good residential design allows the division of space to be altered while the existential meaning of home remains. However, speculations of how the space will be occupied and used over time can also lead to overly-prepared and excessive features/space that may or may not be suitable for today's living. It is therefore essential for the design of small home to strike a good balance between the importance of now and the prospect of then living conditions, and to appropriately address and provide agile solutions if needed.

The design of B710 addresses the unforeseeable with careful intervention and provides alternative solutions that require degrees of users' participation in adjusting and adapting to their future needs.

The most important method used in tackling this design challenge is *physical versatility*, in which the overall space is aesthetically and functionally designed and constructed in homogeneity, allowing daily and future alteration to appear seamless. Another helpful method is *decluttering* which involves ongoing users' participation. In this case, the design of B710 has to provide for ample storage space where users can put away clutters anytime they feel the need to. Although size does not entirely matter, every square inch on every surface matters in B710 for efficient decluttering. Vertical surfaces are designed in conjunction with concealed storage, while still providing versatile and homogeneous space which helps facilitate a well-balanced space alteration when required.

8. Design Execution

Based on the aforementioned criteria, B710 is designed as *a box within a box*. The *outer box* consists of the existing brick and mortar party walls and prefabricated exterior walls on the southeast corner of a multi-family residential building, whereas the *inner box* is a makeup of vertical and horizontal wooden surfaces concealing utilities essential for today's living.

The placement of the *inner box* in relationship to the *outer box* is determined by the placement of

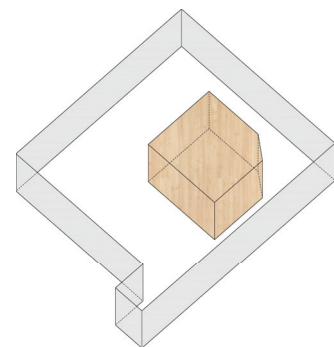


Figure 4: a box within a box

activities in the space between the two. The ‘activities’ are categorized into three types which require three different configurations. Based on their characteristics such as area requirement and how flexible they are in allowing integration and overlapping of different types of function, the three configurations are *Stripe*, *Square*, and *Stretch*.

Stripe(s): a spatial configuration that accommodates interval and sporadic activities, or activities that do not require long term occupation of space. In comparison to other configurations, Stripe(s) does not need to be placed in the locations where natural light and ventilation are maximized.

Square: a spatial configuration that accommodates median occupation of roughly 3-6 hours. Due to its four equal orthogonal sides, this patch of space can be integrated to adjacent spaces to make up new space. Square(s) should be placed where the reach of natural light and ventilation help sustaining the 3-6 hours activities with comfort.

Stretch: the only spatial configuration that allows for arrays of activities regardless of how often and how long it takes for such activities to occupy the space. Stretch can be read as a combination of Stripe(s) and Square(s), and therefore require the biggest footprint and maximum light and ventilation.

The division of activities based on time and limited resources (real estate, natural light, natural ventilation) not only constitutes the categorization of three spatial configurations, but also crucial in highlighting the hierarchical importance that helps breaking down the analysis of each design experiment so they can be equally compared and evaluated.

The placement of the three spatial configurations anchors the location of the *inner box*, and together creates a ring of circulation that allows users to reach parts of their living space without having to backtrack. This loop-like circulation, a string of flow overlapping and threading Stripe(s), Square, and Stretch together, is strategically introduced to help counteract and relax the users’ perception of the space. The flow of space created by ‘*a box within a box*’ planning arrangement is only interrupted by series of functional doors that keep sections such as pantry, washroom, wardrobe and bedroom overlapped with the ring circulation closed while in use. The non-linear, cross-functional relationship with in the small footprint created by the loop-like circulation offers the users various choices and different levels of control on their orientation, navigational sequences, and most of all, their experiences.

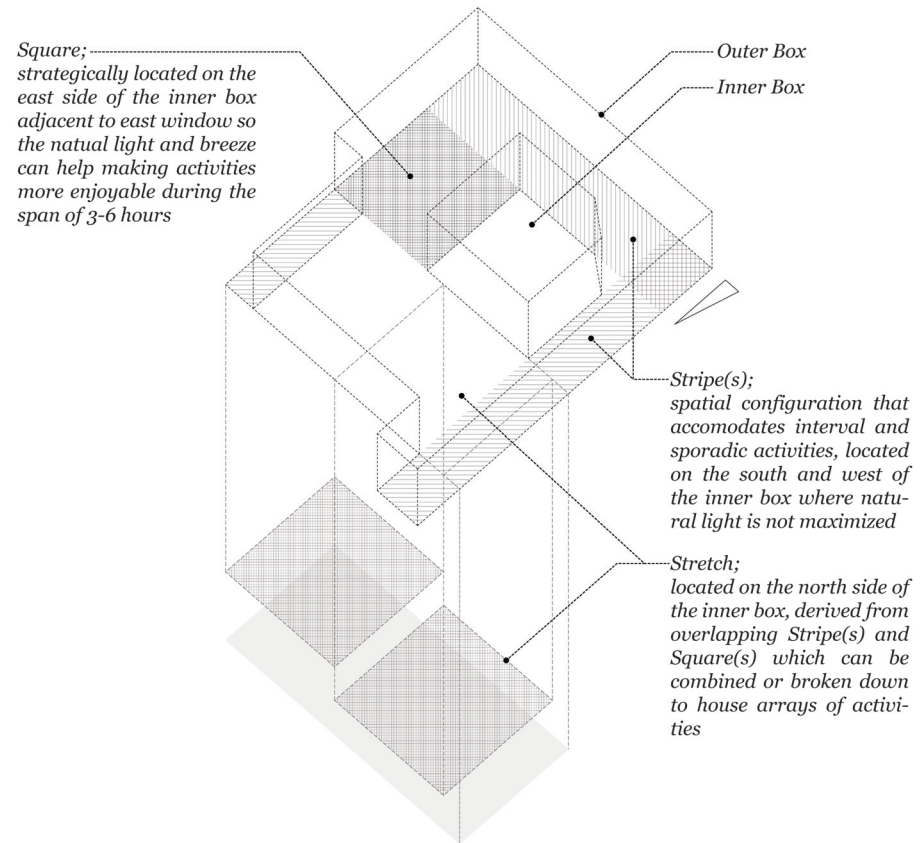


Figure 5: *Stripe(s)*, *Square(s)*, and *Stretch*

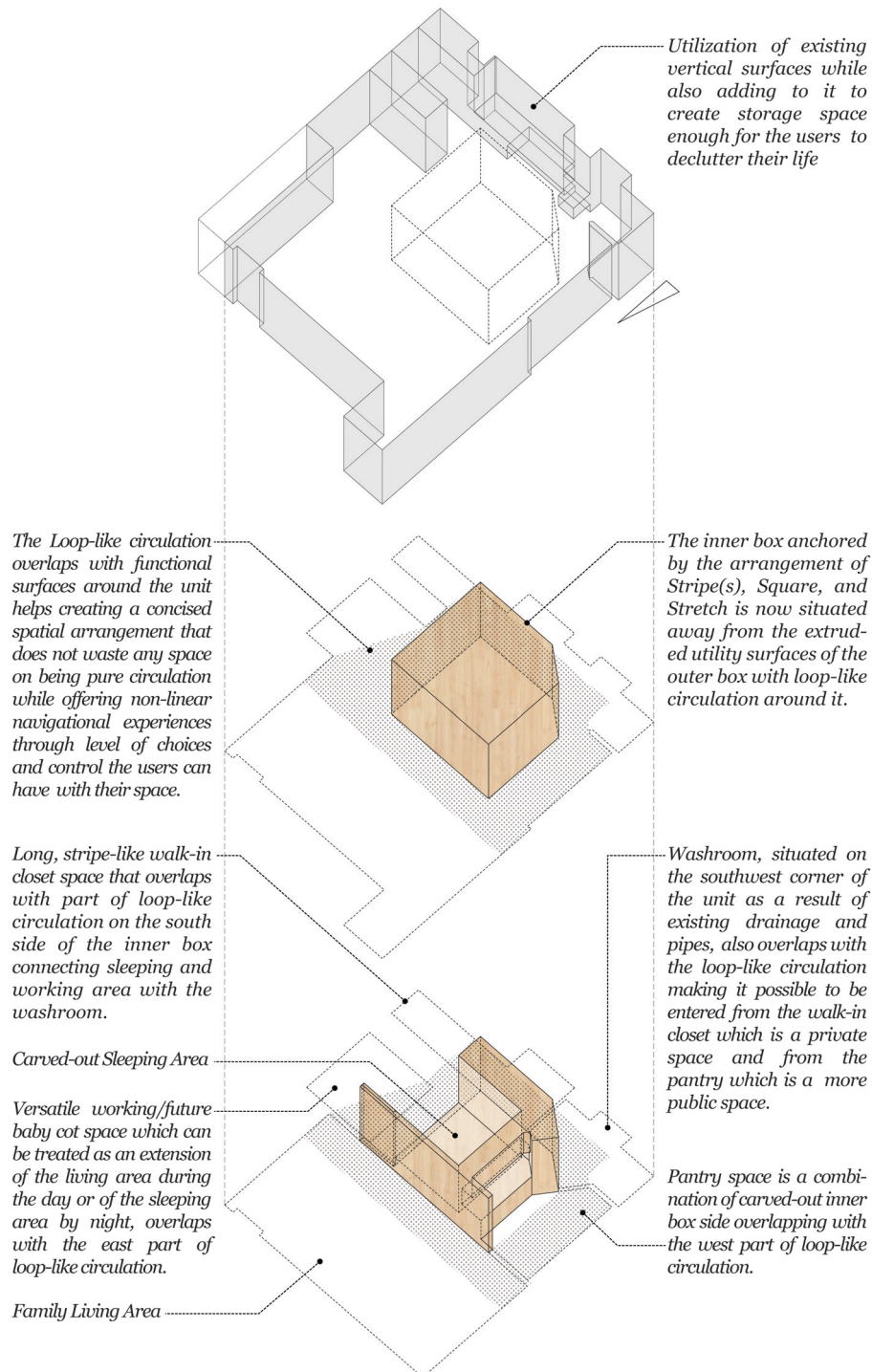


Figure 6: Overlapping Functional Surfaces

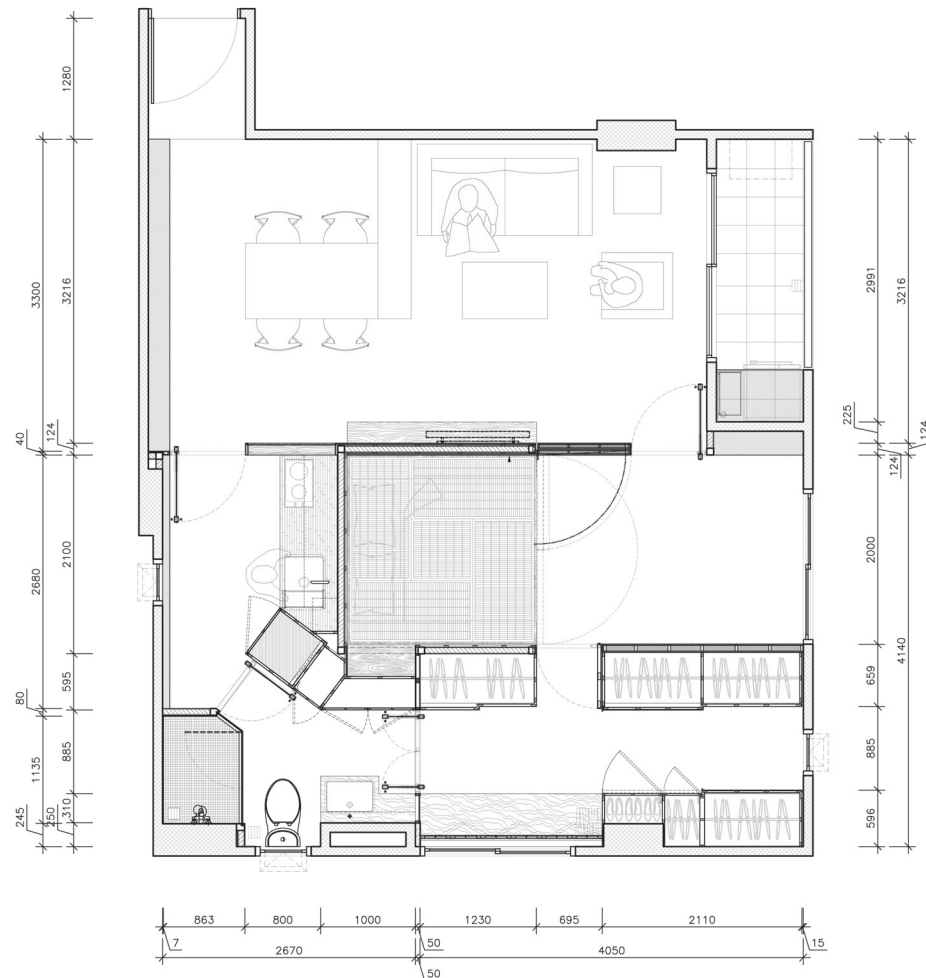


Figure 7: B710 Final Floor Plan

To intensify choices and control the users can have with their living unit, a space altering mechanism is integrated into the wooden surface of the *inner box* allowing parts of the box to be manually manipulated. To operate the parts is like turning a shunt that diverts the affected portion of the space to be a part of, or separated from, either of the adjacent function, creating new configurations that are useful and versatile. By doing so, the users can decide which particular space they want to combine at a given time, and as a consequence control in which sequence they or their guests navigate through their living unit.



Figure 8.1 - 8.3: Collapsing, Overlapping, Combining Space



Figure 8.4 - 8.6: Collapsing, Overlapping, Combining Space



Figure 8.7: Collapsing, Overlapping, Combining Space



Figure 8.8 – 8.10: Collapsing, Overlapping, Combining Space



Figure 8.11 – 8.12: Collapsing, Overlapping, Combining Space



Figure 9: Extended Lavatory/Extended Walk-in Closet



Figure 10: Visual & Spatial Connection



Figure 11: Visual & Spatial Connection



Figure 12: Visual & Spatial Connection



Figure 13: Stripe(s), Square, and Stretch combined to make up a light filled, airy living space

The choice of materials used in B710 reflects the users' preference as well as the idea behind how the space is constructed. The appearance of '*the outer*' and '*the inner*' is achieved by the loop-like circulation in-between that keeps the surfaces of '*the outer*' and '*the inner*' apart, and also by the drastic use of contrasted finishes and textures among the two.

The material of the *outer box* is primarily kept as it was; brick and mortar finished with plain, subtle texture and color. Whatever sticks out of the *outer box*, such as functional doors and cabinets, employs the same surface treatment and thus creating homogeneity that keeps the space neutral and calm. The *inner box* is constructed using sandwiched engineered white oak plywood with the mix of brick and mortar and 2x4 wooden studs as the composite core, depending on the function and the location of that particular surface. While the surfaces of the *outer box* stand tall from floor to ceiling, the top and bottom rim of the *inner box* where the vertical surfaces would meet the horizontalness of floor and ceiling are recessed to keep the box afloat. The solidity of the wooden box is then interrupted by interior punched window with transparent low-e single pane glazing to promote perception of depth and visual connection throughout.

Starting as a solid wooden cube, the *inner box* is then systematically carved out to accommodate essential living utilities which can be both exposed and concealed by the control of the remaining parts that act as a flap-like cover. The Stripe(s) configurations are placed on the west and the south side of the box, constituting a small

pantry and a washroom respectively. Hence, the east side where the big window is located opens up for Square configuration, in which a versatile working/future baby cot space is placed adjacent to the carved out sleeping area. Separated by a set of flap-like wooden walls, the north side of the box lays a Stretch configuration consists of family living and dining area. The users can operate the flap-like wooden walls in combination with the control of functional doors to merge two spatial configurations together and create their desired, enlarged family space while benefiting from cross ventilation and natural light coming through east and south windows. The reverse can also be achieved to sectionalize the entire space and create more privacy and better controlled air-conditioned environment.

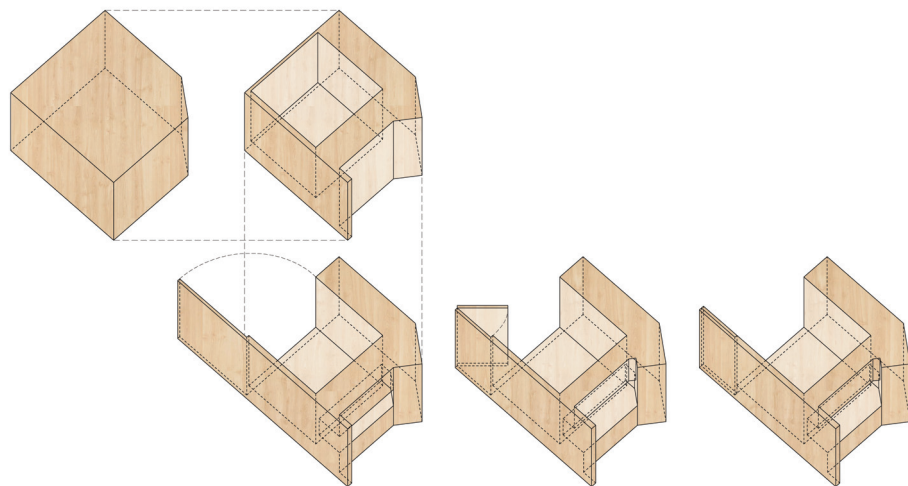


Figure 14: Inner Box Morphology

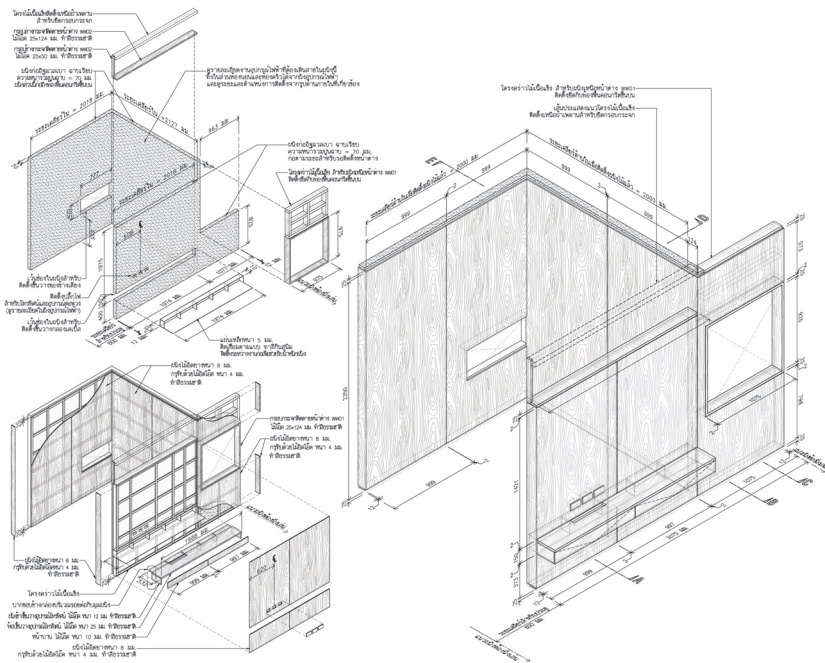


Figure 15: Inner Box Detailing

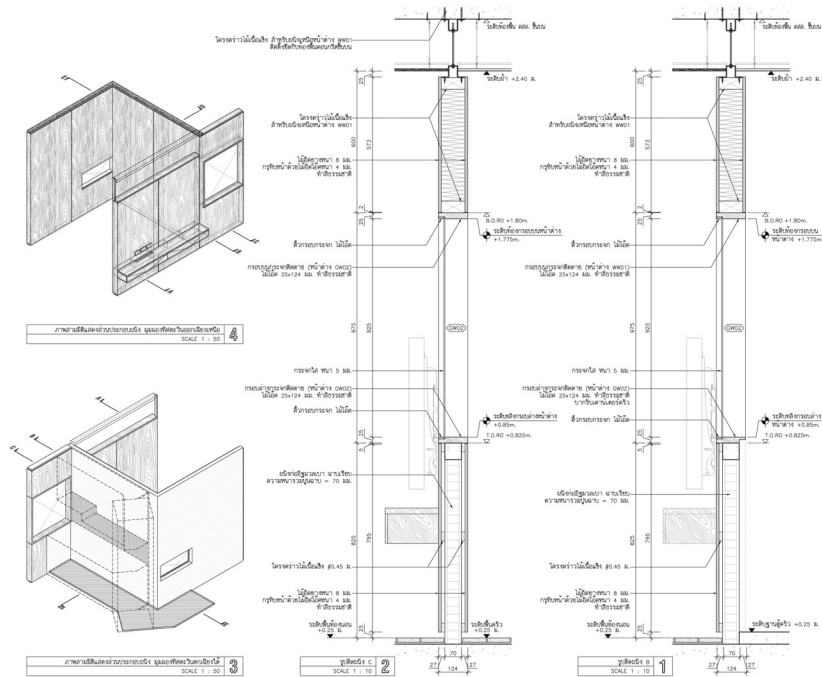


Figure 16: Inner Box Detailing

9. Discussion

Through the strategically employed tectonics described above, it is hoped that the renovation of B710 would provide the occupants their desired living quality despite being bound to the size of their apartment which is a result of their economic choice driven by Bangkok's affordable urban housing shortage. The design of B710 is grounded on the belief that, with efficient planning, size is merely a constraint that can be mitigated by understanding users' expectation, promoting users' identity, and accommodating other timely projective considerations (today's living vs future's living). During the design process, users' participation and their willingness to adapt to physical and psychological maneuvers have also been recognized to play an essential role in the failure or success of any design, particularly and extremely so in the design for small living space. It must be noted that B710 does not try to solve global or local urban housing shortage, or propose a deadset design solution applicable to any sizes or living situation. The design of B710 is just an example of intention, and a well received design execution, to study the roles architecture plays to help its users cope with the living condition in the post-nuclear age.

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