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Article *in* Journal of Asian Architecture and Building Engineering · May 2010

DOI: 10.3130/jaabe.9.207

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Spatial Recomposition of Shophouses in Phnom Penh, Cambodia

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Abstract

This study had the aim of explaining the mechanisms of autonomous spatial recomposition of shophouses in Phnom Penh (Cambodia), along with understanding the current status of spatial recomposition of these dwellings based on a field survey. Four detailed case studies were chosen for analysis and it was discovered that three points can be raised as causes for spatial recomposition: (1) securing living space, (2) securing independence and (3) changes in access method and four locations can be raised as spacial recomposition locations: (a) dwelling unit interior, (b) residential block interior, (c) city block space and (d) space between residential blocks. In addition, the results of analysis of 60 buildings and 74 dwellings showed 289 spatial recomposition locations. In particular, it is characteristic that there are a high number of extensions to residential block interiors and many instances of privatization of corridors, addition of kitchens/bathrooms, interiorization of terraces and construction of small rooms on roofs can be seen. By organizing the spatial recomposition methods, it was discovered that eight ways exist: (1) stacked layer, (2) installation of interior floors, (3) addition of kitchens/bathrooms, (4) appropriation of space outside the dwelling, (5) fencing in space, (6) closing of stairways, (7) installation of stairways, and (8) removal of walls.

Keywords: shophouse; Phnom Penh; Cambodia; spatial recomposition

1. Introduction

1.1 Background and Aim of the Study

This study aims to discover the basic composition of shophouses, the urban-type dwellings in Phnom Penh, Cambodia and to explain the mechanisms of autonomous spatial recomposition of these dwellings based on a field survey, along with understanding the current status of spatial recomposition of shophouses that are seemingly complex and diversely self-built.

Phnom Penh was reduced to ruins under the rule of Pol Pot from 1975 to 1979 and, due to the continuing civil war following that, the social and economic facets of the country were completely shattered and it is difficult to say that there is enough provision of social infrastructure even nowadays. On the other hand, since the conclusion of the 1991 Paris Peace Agreements and the return to a royal government in 1993, the country has experienced rapid change and in the period from 1999 to 2008, the Cambodian economic growth rate has shown an annual average rate of 9.4% (Ministry of Economy and Finance, Cambodia). In the capital, Phnom Penh, along with a rapid increase in population, development is progressing at a fast pace thanks to foreign and domestic capital.

In the centre of Phnom Penh, mid-rise shophouses line the streets and with most dwellings and shops being concentrated in this area, they create a characteristic urban landscape, however, along with the urban development, hotels, department stores and office buildings that are a stark contrast to the original urban landscape are beginning to be constructed. Even when shophouses are rebuilt, it is considered that there are cases in which they are built in a manner that is not suited to the lifestyle of the residents.

This study, through the clarification of the current status and mechanisms of the spatial recomposition of shophouses based on a field survey, and along with clarifying a manner of building that is suited to the lifestyle of the residents, has the primary aim of obtaining a collective residential dwelling plan policy for the future of Phnom Penh.

The area to be surveyed was chosen as Daun Penh district, the first district in Phnom Penh to begin development and currently its most densely populated district. The local survey was conducted over 3 years: 11th August – 2nd September, 2006, 9th – 23rd August, 2007 and 5th – 23rd August, 2008 with the cooperation of our counterpart, the Royal University of Fine Arts. From within the survey area, the authors

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(Received April 8, 2009 ; accepted January 20, 2010)

randomly selected 60 diverse dwellings that were eligible to participate and took measurements for floor and sectional plans as well as asking questions.

1.2 Overview of Areas Surveyed

In 1863, with the conclusion of the France – Cambodia Protection Treaty, Cambodia became a French protectorate. The capital was transferred to Phnom Penh in 1866 and in 1887; Cambodia was incorporated into French Indochina. By 1910, the survey area, the Daun Penh district, had already been formed.

Fig.1. shows a current map of the Phnom Penh urban area. Norodom Boulevard, a major road, runs from north to south with Wat Phnom to the north and the Independence Monument to the south forming a north/south axis for the city. In the area around Wat Phnom stand such buildings as hotels constructed in the French colonial style, the National Library, universities and hospitals, and government buildings line Norodom Boulevard. Moniwong Boulevard, which runs from north to south to the west of Norodom Boulevard, is lined with commercial buildings. The survey area situated to the east of the Central Market area is a commercial district. Located to the southeast is the education district that includes sites such as the Royal Palace, the Unalom Temple and the National Museum and residential areas with low-rise residences stretch to the south and southwest. The survey area has been positioned as a Chinese residential area near the trading port since the formation of Phnom Penh. These city blocks were formed by building shophouses next to each other, facing on to the streets.

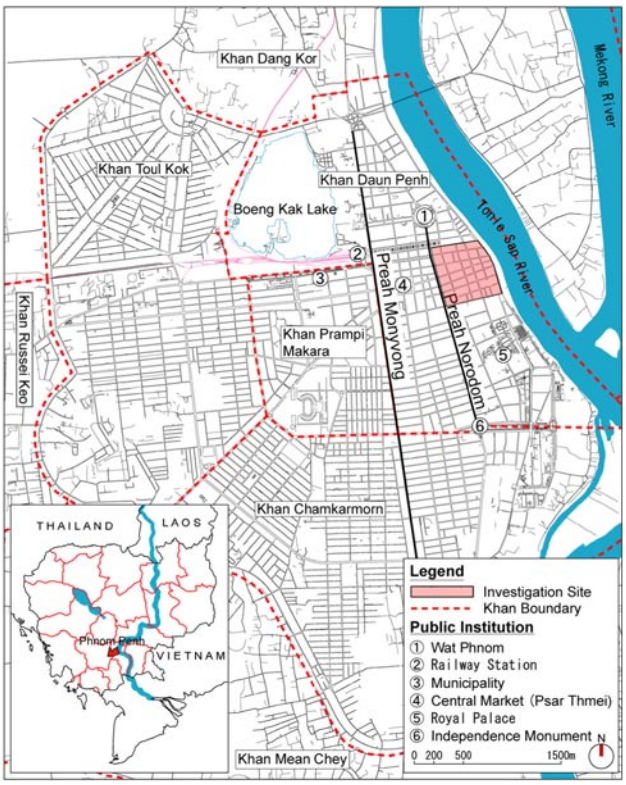

Fig.1. Map of Phnom Penh

2. Spatial Composition of Shophouses

2.1 Basic Composition of Shophouses

Shophouses are tenement buildings that have shops on the ground floor and living quarters on the upper floors and are a form of urban dwelling that can be found in urban areas in the countries of Southeast Asia such as Singapore and Thailand. These dwellings were formed to combine economic activities and urban residences for southern Chinese people who had spread widely over Southeast Asia mainly as merchants.

The shophouses of Phnom Penh under French rule are understood from photographs in the 1890s to have been generally composed on a multiple span. They were generally 2 storey buildings with sloping roofs (there were some rare 3 storey examples) with veranda ways on the ground floor.

During the field survey, it was almost impossible to find French rule period shophouses. Due to the large-scale urban redevelopment that began after independence in 1953 to the early 1960s, the unpopulated city policy of Pol Pot's rule and the confusion of the civil war from 1979 to 1991 as well as the rapid population influx that has been underway since 1993, it is considered that French rule period shophouses have disappeared. Apart from those that were constructed after 1990s, it is thought that most shophouses were built after independence between the mid-1950s and the 1960s.

Those that can be seen today generally have a shop on the ground floor and the upper floors are used as residences with living room facing on to the street, bedrooms and mezzanine in the centre and kitchen, toilet, bathing area and a stairway at the back. While these units with storefronts of approximately 4m and depth of 10 – 30m adjoin neighbouring units and share walls, they are built in a strip. They are approximately 4m high and most have a mezzanine. The upper floors have verandas facing on to the street and these jut out

Fig.2. Map of Daun Penh District

about 1m from the ground floor wall line.

The Daun Penh district has mostly 4 – 6 storey shophouses. Contrary to those constructed under French rule, there are few with sloping roofs and flat roofs seem to be the norm. Most shophouses have been renovated.

2.2 Dwelling Formation of Shophouses

In a previously published paper, the authors clarified the spatial composition of shophouses in Daun Penh district based on a field survey conducted from 2004 to 2006. Focusing on the position of access spaces such as stairways and corridors, etc., it was discovered that 3 classifications can be made: interior stair type (stacked layer living), exterior stair type (flat living/stair access) and exterior corridor type (flat living/corridor access).

Even in multiple span shophouses, 1 span is a residential unit. However, shophouses of the stacked layer residence with multiple floors seen under French rule have changed their appearance to create the formation of single floor residences such as flat living/ stair access type and flat living/corridor access type. Interior stair type shophouses that integrate working and living are considered to have housed one family unit or multiple family units of blood relatives on multiple floors but currently over 80% of shophouses are flat residences. The changes in dwelling type occurring in the process of exteriorizing access type are generalized into those with stairs that make each floor independent or those that are accessed from corridors.

3. Spatial Recomposition of Shophouses as seen in Case Studies

3.1 Case Studies

A broad overview of the specific spatial recomposition of 4 shophouses.

(1) Case Study 1 District No. 06, House No. 02 (Fig.3.)

This is a 5 span, 2-storey shophouse in the inner portion of a city block. The depth of the courtyard is approximately 4m but it is privatised and divided into two by the residences on either side and used as work areas for doing or hanging up washing or as a space for cooking preparation. It is understandable that the use of stoves (charcoal) that pose smoke ventilation problems and housework that involves water are exteriorized.

Doors and iron railings have been added on to the 2nd floor corridor in 4 places and each household forms its own individual area. All residents give crime prevention as a factor for these additions but each household's possessions (refrigerators, tables, chairs, kitchens) spill out into these privatised areas and the residents spend most of their time outdoors during the day.

In addition, corridors are connected to the neighbouring buildings and have been changed to allow access to the 2nd floor by another route. The severance of access routes due to corridor privatization is avoided by connecting to a separate building. The roof shape is trapezoid but, as approximately 3m on the courtyard side is flat, small rooms have been constructed and are used as living space. Stairs have been added at 2 locations in the 2nd floor corridor and these give access to the roof. The dwelling unit is divided into separate rooms and a mezzanine has been constructed on top of these. A basic spatial composition of living room, separate rooms and kitchen/bathroom can be seen from the entrance.

(2) Case Study 2 District No. 14, House No. 02 (Fig.3.)

This is in the same series of shophouses as that of Case Study 3, except that this dwelling is a high-rise 4-storey construction (there are rooms only in the rear section on the 4th floor). Refurbishing started in 1993 and is currently still in progress. The reason for the high-rise construction is that there is not enough living space for the 4 family units comprising 14 people. In addition, the building itself is deteriorating and the interior such as interior walls, etc. is all being refurbished.

A mezzanine has been added to the front section of the ground floor and what was the courtyard has had a toilet and shower room added on. A large kitchen has been added to the back of the rear section and a mezzanine has been added to the whole rear section. What was originally the courtyard now functions also as a stairway giving access to the rooms both in the front and rear section of the upper floors. The distribution of rooms on the upper floors is basically the same and in the front section, separate rooms line up from the entrance, while the living room and veranda are at the back. Depending on the floor, the room nearest the entrance is a bathroom and the rear area as a whole is used for separate rooms.

(3) Case Study 3 District No. 14, House No. 03 (Fig.3.)

This is a 6 span 2-storey shophouse. It still has its original form but the floor in the rear section of the 2nd floor has collapsed. Originally, the roof did not hang over into the courtyard but currently it has been extended to cover the whole building. A mezzanine has been added on to the front of the ground floor and the 2nd floor space is quartered with the addition of 2 separate rooms. The ground floor is used as a dining area with the front section as shop space and the rear section as cooking space. The mezzanine is used as a bedroom for the couple who live there. After the shop closes, the tables, etc. on the ground floor are tidied away, the front is used as a parking space and the children sleep in the separate rooms on the 2nd floor.

(4) Case Study 4 District No. 17, House No. 03 (Fig.3.)

This was a shophouse with 5 floors in the front section and 2 floors in the rear section spanning the road, however, currently the rear section is high-rise

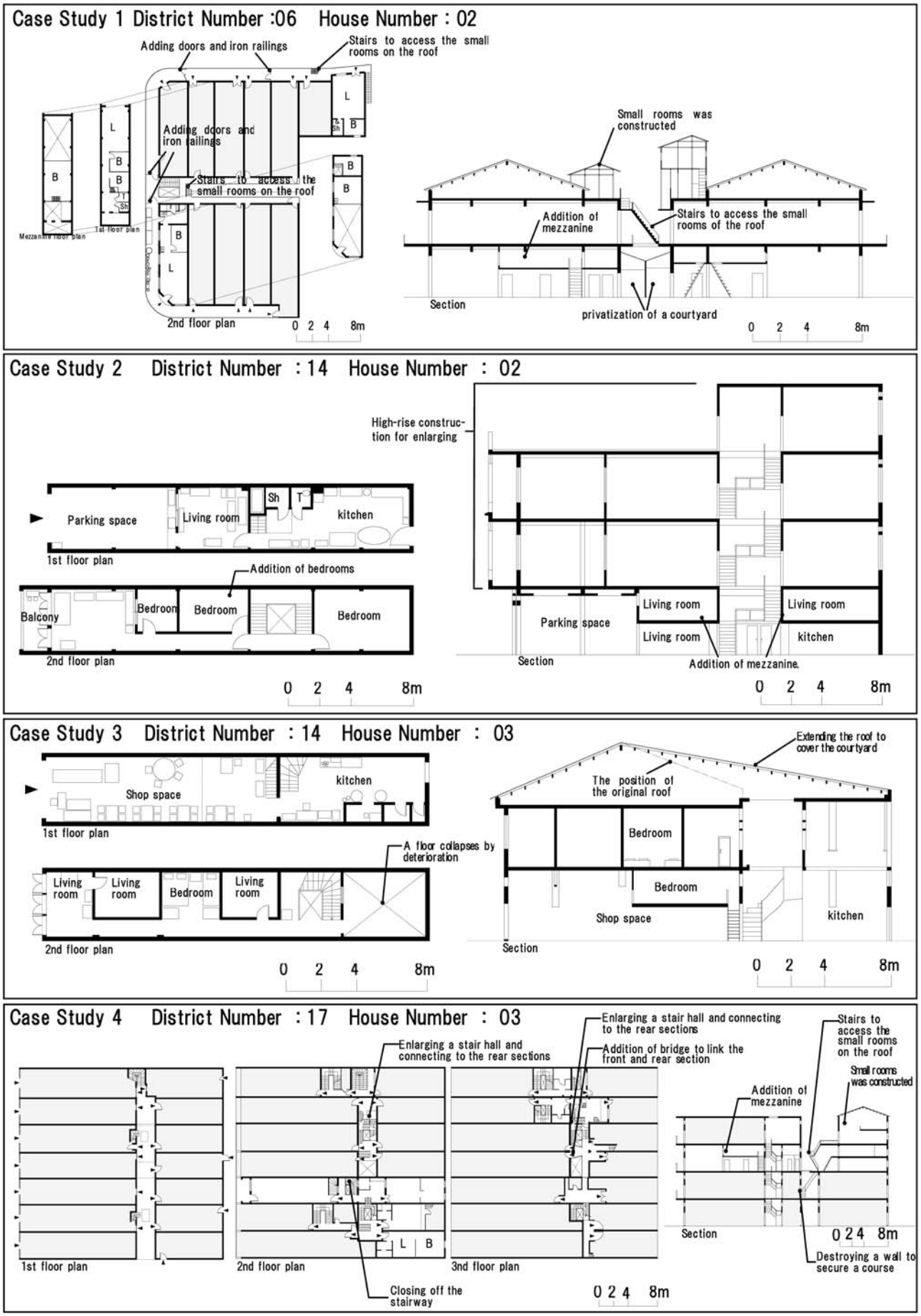

Fig.3. Case Studies

with 4 floors. There is a stairway in the front section inside the dwelling and access to the upper floors used to be through the ground floor inside the dwelling. However, currently, as each floor apart from the ground and 2nd floors that are managed by the same family unit is inhabited by a different family unit, each floor has been made independent by closing off the stairway that connects the 2nd and 3rd floors and each level has secured a separate access route. The rear section was made high-rise gradually. First of all, the 3rd floor flat roof was added followed by the addition of a 4th floor with entrance on top of the 3rd floor roof.

Access to the 2nd floor section is from the stairs which have been constructed in the corridor, however, by adding a further stairway here, access to the 3rd floor is also possible. In addition, the ground floor of the front section is used as a working space and the 2nd floor of the front section is used as a residence and it is possible to exit from the 2nd floor separately using the exterior stairs. It was originally separated from the adjoining building by a wall but currently this has been removed and it is possible to move in 2 directions from this stairway. The 3rd floor rear section has an approx. 5m setback and it is possible to access the 4th floor from yet another stairway that has been added here. In addition, on the 3rd floor and above the front section, a bridge that links the front and rear sections crossing to the stairway has been added and each floor can be accessed from this. The stairway itself has been converted to a closed space divided by doors and the independence of each floor has been secured. The interior follows the basic pattern of separate rooms distributed in the centre of the dwelling unit and the addition of a mezzanine on the upper portion.

3.2 Causes of Spatial Recomposition

When the causes of spatial recomposition based on case studies are organized, the following 3 points can be raised.

(1) Securing living space

It is understandable that extensions are carried out in order to compensate for the lack of living area and existing functions. They all have kitchens/bathrooms and mezzanines added on. There are cases of reconstructing buildings in order to secure living space such as making the residences high-rise (Case Study 2) and constructing small rooms on the roof (Case Study 4). The privatization of corridors and the interiorization of alleys (Case Study 4) occupies shared space and expands living space.

(2) Securing independence

As the format of multiple layer shophouses for large families disappears, there is a current trend of many existing interior stair type stairways being closed (Case Study 4). This is a case of enhancing the independence of the dwelling unit. Further, the addition of separate rooms was seen in all case studies. The separate rooms are used as sleeping areas. This is a case of independent spaces being created in the interior of dwelling units. Long and narrow dwelling units with a width of 4m are divided and utilized.

(3) Changes in Access Methods

By adding extensions, there are cases in which access to each dwelling unit is inhibited. In Case Study1, access routes have been lost because of the privatization of corridors by each dwelling unit but by removing walls, access is made possible from the adjoining building. In Case Study 4, access to dwelling units on the upper floors has been lost by closing the interior stairway but it is made possible by utilizing the space between the adjoining building to install stairs or bridges along with removing a part of the wall.

3.3 Spatial Recomposition Locations

Looking at the 4 case studies, the interior of the dwelling unit is the most common location for spatial recomposition. In Case Study 1, a mezzanine and separate rooms have been added, in Case Study 2, a mezzanine, separate rooms and kitchen/bathroom have been added and the residence has been made high-rise, while in Case Study 3, a mezzanine, separate rooms and kitchen/bathroom have been added. In Case Study 4, along with the addition of a mezzanine, separate rooms and kitchen/bathroom, the interior stairway has been closed.

However, even in sections outside of the interior of the dwelling unit, there are locations in which extensions have been added. Extensions to shared spaces such as exterior stairways and corridors can be seen in Case Studies 1 and 4. In Case Study 1, there is the privatization of the 2nd floor corridor, the extension of a kitchen/bathroom into the ground floor courtyard, the installation of a stairway to the 2nd floor corridor and the extension of a small room on the roof and in Case Study 4, there is the extension of a small room on to the roof section, the addition of a stairway, the privatization of corridors and the extension of a kitchen/bathroom. In addition, there are also extensions into the alley. Case Study 4 was originally two buildings and is an example that includes stairway and living space in the alley between buildings.

The 2 examples above can be considered as cases of spatial recomposition that is conducted in the interior of residential blocks and in city blocks. Apart from this, the change of access methods indicated in 3.2 (3) is not an example that is complete with only single dwelling units/residential block interiors but may be considered as a case in which these are mutually linked.

According to the above, it is possible to raise the following 4 points as locations where spatial

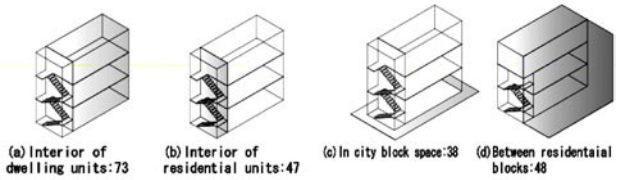

Fig.4. Spatial Recomposition Locations

recomposition is carried out (Fig.4.).

(a) Dwelling Unit Interior: Additions in the interior of shophouses. Excludes shared space such as exterior stairways/corridors.

(b) Residential Block Interior: Extensions in spaces that are shared by residents such as exterior stairways/ corridors.

(c) City Block Space: Mainly extensions in alleys. Extensions in empty spaces and alley space on city blocks.

(d) Between Residential Blocks: Extensions that exceed dwelling and residential block units such as the connection of shophouses to each other.

4. Characteristics of Spatial Recomposition

4.1 Spatial Recomposition Trends

Concerning spatial recomposition that was confirmed in the 60 shophouses in which measurement surveys were conducted, the contents of the above 4 locations was organized (Table 1.). Analysis parameters for the 60 shophouses were set to make it possible to confirm the location and the content of spatial recomposition.

First of all, (a) 7 main methods exist for the interior of dwelling units. Among the 73 residences that were eligible for analysis, it was confirmed that a-1: 55 had added a mezzanine (75.3%), a-2: 60 had added separate rooms (82.2%), a-3: 2 had expanded the residence to the exterior (2.7%), a-4: 26 had added kitchens/bathrooms (35.6%), a-5: 3 had used the loft (4.1%), a-6: 4 had made the residence high-rise (5.5%) and a-7: 7 had closed the interior stairway (9.6%).

Next, (b) 7 methods exist for the interior of residential blocks. Among the 47 shophouses that were eligible for analysis, it was confirmed that b-1:

Table 1. Spatial Recomposition Locations of Each Shophouses

			(a) Dwelling unit interior							(b) residential block interior							(c) City block space			(d) Between residential blocks		
District No.	Building No.	House No.	a-1	a-2	a-3	a-4	a-5	a-6	a-7	b-1	b-2	b-3	b-4	b-5	b-6	b-7	c-1	c-2	c-3	d-1	d-2	d-3
2	1	a	○			○				–	–	–	–	–	–	–				–	–	–
	2	a	○																			
		b		○		○							○									
	3	a	○	○																		
		b	○	○													○	○				○
		c	○	○																		
	4	a	○	○														○				○
	5	a	○	○																		○
		b		○																		
	6		–	–	–	–	–	–	–								–	–	–			○
4	1	a	○	○																		
		b																				
	2	a	○												○		–	–	–			
	3	a	○	○																		
6	1	a		○		○			○				○		○		–	–	–			○
		b		○					○													
	2	a	○	○																		
		b	○	○																		
		c	○	○							○	○	○	○	○					○		○
		d																				
		e	○	○																		
	3	a									○	○	○	○	○		○		○	○		
		d	○	○		○																
	4		–	–	–	–	–	–	–	○		○	○		○		○			○		
8	1	a	○	○									○		○		○					
	2	a		○																		
		b															–	–	–			○
10	1	a		○			○										○					
13	1	b				○						○			○		○					
		c	○	○		○																
14	1	a	○	○																		
		b	○	○		○				○							–	–	–			○
	2	a	○	○		○																
		b	○	○		○		○														
	3	b	○	○		○				○			○	○	○					○		
17	1	a	○	○															○			
	2	b	○							○			○				○					
	3	a	○	○		○		○	○			○		○	○		○		○		○	
	4	a		○		○			○													
		c	○	○		○						○	○	○	○		○				○	○
		d	○	○					○													
	5		–	–	–	–	–	–	–			○	○	○			○					○
	6		–	–	–	–	–	–	–	○		○	○	○			○					
	7	a	○	○		○							○									○
	8		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	9	a	○	○		○	○	○							○							
	10	d	○	○																		
		f		○									○		○	○						
		g				○																
	11	a	○	○																		
		b	○	○							○		○		○		○					○
		c		○				○	○													
18	1	a	○	○																		
		b	○			○				○	○	○	○	○	○							
	2		–	–	–	–	–	–	–		○	○	○		○		–	–	–			○
20	1	a	○	○		○			○													
		b	○	○			○			○				○	○				○		○	
	2		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
21	1		–	–	–	–	–	–	–	○	○	○	○	○			–	–	–			
25	1	a	○	○																		
		b	○	○									○		○							
27	1	a	○	○		○																
		b	○	○		○				○										○		
	2	a	○	○																		
	3	a	○	○									○									
	4	b																				
		c	○	○								○			○		–	–	–			
	5	a	○	○																		
		b	○	○						○		○		○					○			
	6	a											○				–	–	–			
	7	a	○	○		○																
	8	a	○	○		○				○							–	–	–			
	9	a	○	○		○																
28	1	a		○						○			○									
	2	a	○	○		○				○												
	3	a	○	○	○	○																
	4	a	○	○																		
		b	○	○						○	○	○	○	○	○		–	–	–	○		
		c	○	○																		
		d	○	○																		
31			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
34	1	a	○	○	○	○							○		○							
Total			55	60	2	26	3	4	7	14	7	14	23	12	20	1	12	2	5	6	3	13

14 had interiorized the terrace (29.8%), b-2: 7 had appropriated the courtyard (14.9%), b-3: 14 had constructed small rooms on the roof (29.8%), b-4: 23 had privatized corridors (48.9%), b-5: 12 had added stairways in corridors (25.5%), b-6: 20 had added kitchens / bathrooms in corridors (42.6%) and b-7: 1 had closed a stairway (2.1%).

(c) In city block space, it was confirmed that 3 methods exist. Among the 38 buildings that were eligible for analysis, it was confirmed that c-1: 12 had privatized alleys (31.6%), c-2: 2 had structures that connected the ground floor to an alley (5.3%) and c-3: 5 had added stairways to alleys (13.2%).

(d) Between residential blocks, among the 48 buildings that were eligible for analysis, it was confirmed that there were 3 forms of connection: d-1: 6 had connections between residences (12.5%), d-2: 3 had connections between residences and the interior of residential blocks (6.3%) and d-3: 13 had connections between the interiors of residential blocks (27.1%).

When comparing the ratio of each extension, (a) out of 74 dwelling unit interiors, 157 alterations had been made giving an average of 2 alterations per dwelling and after that, (b) the ratio is high for residential block interiors with 91 alterations in 47 buildings. (c) Approximately half of 37 buildings had made alterations in alley space (19 alterations) and (d) out of 48 residential block units, just under half (22) had been altered.

These results demonstrate that the dwellers try to establish their living environment not only by extending spaces inside their dwelling units but also appropriating the common spaces or even connecting two shophouses. The high number of extensions in (b) residential block interior extensions is particularly characteristic. There are many extensions such as b-1: interiorization of terraces, b-3: construction of small rooms on roofs, b-4: privatization of corridors, b-5: addition of stairways in corridors, b-6: addition of kitchens/bathrooms in corridors but among these, the fact that b-4: privatization of corridors occupies approximately 50% is characteristic.

4.2 Spatial Recomposition Methods (Fig.5.)

According to the analysis above, a total of 20 spatial recomposition methods were discovered in 4 locations but when these are analyzed in relation to the causes clarified in 3.2, results shown in the table are obtained.

(1) As methods to secure living space, a-1 addition of mezzanines, a-3 expansion to exterior of residence, a-4 addition of kitchens/bathrooms, a-5 use of lofts, a-6 making residences high-rise, b-1 privatization of corridors, b-2 addition of kitchens/bathrooms, b-3 interiorization of terraces, b-4 construction of small rooms on roofs, b-6 privatization of courtyards, c-1 privatization of alleys and d-2 connections between residences can be raised. When these are organized by contents, they are divided into stacked layer (a-6, b-4), installation of interior floor (a-1, a-5), addition of kitchens/bathrooms (a-4, b-2), appropriation of space outside the dwelling (expansion of dwelling units a-3, appropriation of interior of residential blocks b-1, b-3, b-6, appropriation of city blocks space c-1).

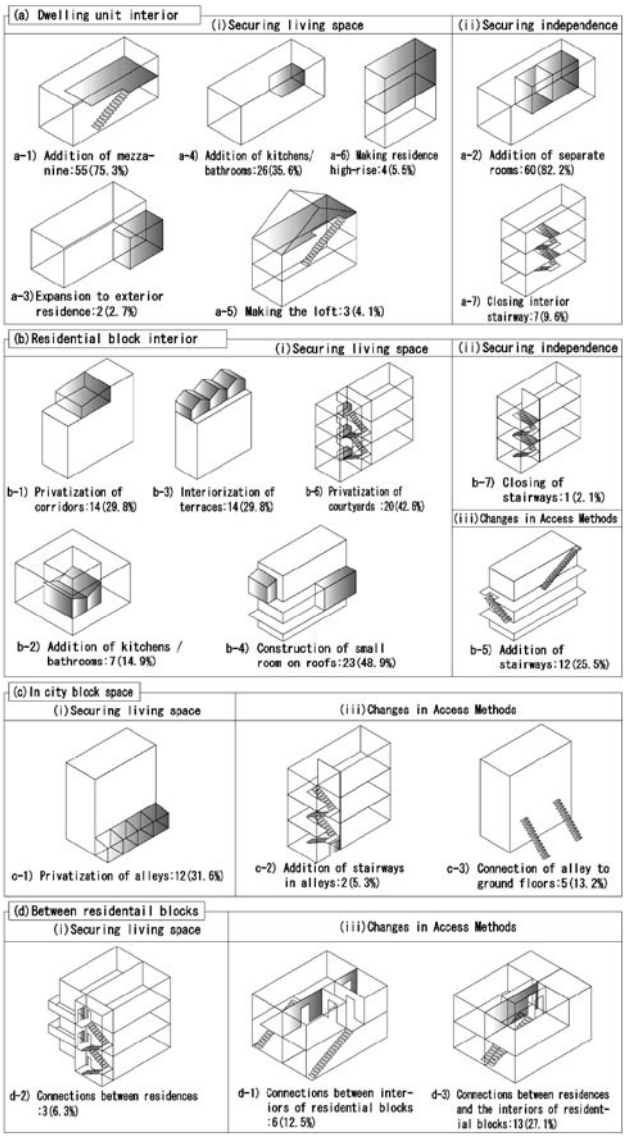

Fig.5. Spatial Recomposition Methods

(2) Methods used to secure independence can be divided into 2: fencing in space (a-2 addition of separate rooms), closing of stairways (a-7 closing interior stairways, b-7 closing of stairways).

(3) As methods to change access, b-5 addition of stairways, c-2 addition of stairways in alleys, c-3 connection of alley to ground floors, d-1 connections between interiors of residential blocks and d-3 connections between residences and the interiors of residential blocks can be raised. These can be divided into 2: installation of stairways (b-5, c-2) and removal of walls (c-3, d-1, d-3).

When spatial recomposition methods are organized, it can be understood that 8 ways are being used: (1) stacked layer, (2) installation of interior floor, (3)

addition of kitchens/bathrooms, (4) appropriation of space outside the dwelling, (5) fencing in space, (6) closing of stairways, (7) installation of stairways and (8) removal of walls.

5. Conclusions

This study had the aim of explaining the mechanisms of autonomous spatial recomposition of shophouses in Phnom Penh, along with understanding the current status of spatial recomposition of these dwellings based on a field survey. The target was 60 shophouses in the Daun Penh district, the first district in Phnom Penh to begin development and currently the most densely populated district.

Four detailed case studies were chosen for analysis and it was discovered that 3 points can be raised as causes for spatial recomposition: (1) securing living space, (2) securing independence and (3) changes in access method and 4 locations can be raised as spacial recomposition locations: (a) dwelling unit interior, (b) residential block interior, (c) city block space and (d) between residential blocks.

In addition, the results of analysis of 60 buildings and 74 dwellings showed 289 spatial recomposition locations. It was discovered that the following methods are used : 7 methods in (a) dwelling unit interior : a-1: addition of mezzanines, a-2: addition of separate rooms, a-3: expansion to exterior of residence, a-4: addition of kitchens/bathrooms, a-5: use of lofts, a-6: making the residences high-rise and a-7: closing of interior stairways, 7 methods in (b) residential block interior : b-1: interiorization of terraces, b-2: appropriation of courtyard, b-3: construction of small rooms on roofs, b-4: privatization of corridors, b-5: addition of stairways in corridors, b-6: addition of kitchens/bathrooms in corridors and b-7: closing of stairways, 3 methods in (c) city block space : c-1: privatization of alleys, c-2: structures connecting ground floor to alley and c-3: addition of stairways to alleys and 3 methods in (d) between residential blocks : d-1: connections between residences, d-2: connections between residences and the interior of residential blocks and d-3: connections between the interiors of residential blocks. In particular, it is characteristic that there are a high number of (b) extensions to residential block interiors and many instances of privatization of corridors, addition of kitchens/bathrooms, interiorization of terraces and construction of small rooms on roofs can be seen. By organizing these spatial recomposition methods, it was discovered that 8 ways exist: (1) stacked layer, (2) installation of interior floors, (3) addition of kitchens/bathrooms, (4) appropriation of space outside the dwelling, (5) fencing in space, (6) closing of stairways, (7) installation of stairways, and (8) removal of walls.

In Phnom Penh, which is in the middle of great change, there is rapid progress in lifestyle change and the diversification of residential households. Further, residences are expected to be flexible regarding the composition of families that change along with the passage of time. The case studies of Phnom Penh shophouses in which can be seen a rich variety of spatial recomposition show the changing face of collective housing that responds to the passage of time. It can be said that a collective housing plan that does not limit these recompositions but that makes it possible to briskly conduct such actions is required. It is important to execute a core housing system that allows extensions coupled with a construction method system that makes it possible to extend both vertically and horizontally and a plan that allows an open-ended ability to live well.

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