CONSERVATION PRESSING TASK AND NEW DOCUMENTATION OF OLD TUBE HOUSES IN HANOI OLD QUARTER THROUGH THE CASE OF NO. 47 HANG BAC STREET HOUSE

Hanoi is the oldest capital city in Southeast Asia. During its long urban evolution, indigenous cultural elements gradually formed up that are best found in its Old Quarter. With regard to architecture, “tube house” should be the most significant dwelling form here. Under strong urbanization and modernization processes within the last decade, many tube houses have been torn down for new constructions or at least seriously downgraded and much modified. Thus, it has become a pressing task to conserve those precious tube houses, especially oldest and most originally remained ones, then to restore or renovate them as historic monuments for future generations as well as foreign references. This paper generally discusses on the more pressing task to conserve invaluable tube-houses, then focuses on describing existing situations and finally publishes the latest complete documentation (as of Sept. 2006) of the chosen study case: the 47 Hang Bac house.

**Keywords:** Hanoi Old Quarter, tube houses, conservation, 47 Hang Bac, documentation

1. Introduction of Hanoi Old Quarter and related previous studies

1.1. Overview of Hanoi Old Quarter and its typical “tube-house” dwelling form

Hanoi is the most ancient capital city in Southeast Asia with almost 1000 year history. During its long urban evolution, the city was alternately ruled by different foreign regimes, through that many exotic cultural elements were brought in. However, indigenous ones have always remained and flourished that could be best found in the Old Quarter—the root of the city. This 100-ha quarter (also commonly called “36 Old Streets” or sometimes “Ancient Quarter”) has been serving as an administrative center, a highly dense residential area (approx. 660 residents/ha in late 1990s) as well as a trade center for many centuries. With regard to architecture, “tube house” should be the most significant dwelling form here. This particular term implies Vietnamese traditional attached street-houses in old urban areas (such as Hanoi, Hoi An...), whose widths are narrow while their lengths are very long. For instance, a typical tube house in Hanoi may be 2-4 meters wide, yet 20-60 meters long, in some special cases the length could even reach up to 100 meters (Fig 3). The evolution of tube house settlement in Hanoi Old Quarter was commonly hypothesized by various Vietnamese scholars and officially published in many publications (i.e. “Preserving Hanoi’s architectural & landscape heritage” by Nguyen Ba Dang et al) as described in Fig 2. Therefore, in this paper, we don’t aim to discuss more about this hypothesis, yet just want to explain briefly the evolution and significance of tube houses as follows. When the rural migrants settled down in Old Quarter, they applied traditional rural housing type (1st) into new urban context with some modification by building a shop at front (to produce and sell products, 2nd). When the settlement was gradually populated up, especially after a new feudal governmental act had been given out to tax shops by their front widths, the front parts were divided much smaller, and vacant land between houses were fully built up. At last, when street façades were fully filled up, the houses were expanded inwards [by alternate mass (rooms)-void (yards) composition, see 3a], making them gradually longer and finally shaping up the tube form (3rd). Inner yards allow natural lighting, ventilation and create enjoyable “micro universes” for residents versus noisy street outsides. This kind of significant spatial arrangement in dense urban context was very creative and different from “shop-houses” found elsewhere (like China towns).

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Bibliography


Fig. 1: Aerial photo of Old Quarter in 1925
(A tube house was marked in black)
Source: Hanoi Scientific-Technical Library

Fig. 2: Hypothesis of tube house evolution in Hanoi Old Quarter
1st, 2nd, 3rd
1a, 1b Rural housing type
2a, 2b Houses built in rows (make, sell goods)
3a, 3b Houses denser up in urban streets
Therefore, we can conclude that Vietnamese tube house form is precious and the neighborhood (Hanoi Old Quarter) is worldwide unique. By early 20th Cent. (French colony), the quarter had been extremely populated and been densified with tube houses, reaching a stable status (Fig.3). Later on, the quarter physically changed not much, though the city experienced extremely hard times of wars, postwar socialist reconstruction and state central planning periods until the launch of Doi Moi (Reform) policy in 1986.

1.2. Review of related previous studies and projects in highlight

From early 1990’s, about 12 foreign research groups already came to Hanoi to help Vietnamese scholars to set up preservation strategies for the Old Quarter. After that, there have been a number of related studies for the last decade, undertaken by Vietnamese, foreign and/or collaboration groups, focusing on various subjects and applying different approaches and methodologies. Followings are highlighted previous studies and projects.

For example, the very good book titled “The historical environment and housing conditions in the “36 Old Streets” Quarter of Hanoi” by Hoang Huu Phu and Yukio Nishimura (1990) and several studies carried out by Hanoi Architectural Institute (in Vietnamese) are remarkable references. In 1995, some foreign organizations such as AusAID and SIDA came here, proposed some plan and pilot project on planning and development. It is also worth to mention the studies by Suzuko Tsuji and Yukio Nishimura on urban housing (1995) and urban character (1997). In respect of urban development, it is recommended to refer the PhD dissertation of Michael Waibel (2001). In terms of new housing type that meets modern living demands while still applied the advanced characteristics of traditional dwelling style, it is worth to highlight the experimental project named “50% porous: Space blocks Hanoi Model” by Kojima & Mugaribuchi laboratories in collaboration with National University of Civil Engineering, Hanoi (1999-2003). As for the conservation of the Old Quarter, there was a good study by Sawako Utsumi (2004) focusing on the transformation of the façade of town houses. With regard to comprehensive approach with realization, the pilot projects (regarding housing, townscape, transport improvement, traditional cultural revitalization and traditional trade enhancement) which have been being developed by HAIDEP office (JICA) in collaboration with Hanoi’s People Committee (from 2005) should be among the best projects related to the quarter. And in respect of old house renovation, it’s also worth to mention the “HANOI 2010 - Heritage & Cultural Identity” project undertaken by the cities of Hanoi and Toulouse as well as Brussels Capital Region.

2. Background and objective of our study

Along with the country’s strong economic growth, Hanoi has become one of the fastest developing cities in the region, making drastic changes in urban fabrics. The Old Quarter is not an exception. Under rising modernization processes, many old tube houses (especially those over 100 years old) were torn down for new commercial-oriented constructions (Fig.4). Others partially fell down or at least seriously downgraded and were much modified. Two major threatening factors are (1) the natural downgrading and/or damaging process by the time, and (2) residential spontaneous modifications and/or damages. Therefore, it is time to press more on the task to preserve those very few precious tube houses against "extinction" threat, then to restore/renovate as historic monuments or "museums" for future references.

In order to realize this essential vision, three experimental/pilot renovation projects were realized: (1) the house at No.87 Ma May St. was renovated as a museum for Vietnamese traditional housing and culture (non-residential); (2) the house at No.38 Hang Dao St. was renovated and opened for visitors, but also serves as Old Quarter Management Board office; and (3) the house at No.51 Hang Bac St. was renovated and also opened for visitors, in which pre-renovation residents resumed to live in. However, in those projects, remaining original components and details are just very few and can hardly be distinguished with old-style newly-made ones. Meanwhile, there is still at least another precious house which is very much worth to be conserved plus restored, but not in deserving good care and common concern, especially by local authority (thus became our research interest). That is the house at No. 47 Hang Bac St. (or shortly called as "the 47 Hang Bac house"). This is the oldest tube house in the quarter which was typically constructed in tube-house structure, much originally remained and seriously downgraded. There have been several simple surveys as well as some measurements of the house so far (undertaken by different research/administrative groups and in different years). However, for some reasons (such as shortage of financial capacity or unclarity of house ownership), no renovation or restoration has been made for this house yet. Therefore, we chose this house as a case study for our research. Besides, most of the previous studies were focusing on different subjects (as mentioned in section 1.2) so our chosen
subject would expectedly not be overlapping with any previous one.

In order to restore or renovate old houses, the first and important step must be to take documentation (measurement, drawings, pictures...) as archival data. An official measurement of the 47 Hang Bac house were taken in 1999 and stored in Old Quarter Management Board until now (also once printed in a professional book12, but most of the dimensions were too small and unreadable). Our reason to take a new measurement was that, the 1999 measurement had become outdated as we came and check. There have been some minor modifications so far (new partitions, new roof by new materials, new staircase position...). Besides, some dimensions were not accurate as we checked at the site. Thus, we decided to make a new complete documentation (measurement, drawings, photos and 3D CAD modeling) and publish in this paper. It is also an essential base for our next study to restore original architectures during different periods (to publish in our next paper).

3. Our chosen case study: The 47 Hang Bac house

3.1. Overview of the 47 Hang Bac house from other sources

The house is situated at No.47 of Hang Bac Street (literally means Silver Street or Changers' Street; in French: Rue des Changeurs). This is one of the oldest streets in the Old Quarter (nowadays belongs to the official 1st rank sub-quarter for strict conservation). This street “came into existence between 1460 and 1497”13. According to the owners of the house, this house was probably built about 166 years ago and has now been home for 5 households (about 25 people). People believe that it is the oldest house in the Old Quarter (also means the oldest house in Hanoi), and fortunately still “standing” in the Old Quarter.

Mr. Do Ngoc Thanh, 67, is one of the oldest owners who are still active and collaborative to research visitors. He has been living in this house since he was born, so he could provide us much useful information about the house's history, architecture during different periods and current living situations. According to Vietnamese historian Duong Trung Quoc, this house carries an original design of Vietnamese traditional architecture... The house was mostly made of wood, with crossbeams, pillars and wattles almost entirely made from iron-wood. It is divided into 3 two-storey built groups that cover about 206 m²14 (Fig.5) The house has also typical tube house architecture: “The front room was generally reserved for a shop, and behind it was an open yard letting sunlight into the house. Containers to catch rainwater for washing and cooking were placed in the yard. Behind that is a storeroom, followed by a place to produce goods, then another open yard with a kitchen and toilet. Most of the houses were only one floor with a roof made from red tiles sitting on high walls. Some have a small 2nd floor with a low ceiling and only small windows, as it was illegal to look at the face of the Emperor from that height!"15

3.2. Description of the existing architecture and spatial arrangement of the house

The following is our present observation of the house. The current architecture could be divided into 3 groups and 2 inner yards in-between as open spaces for ventilation and natural lighting (Fig.12). According to the owners, there was originally the 4th group at the back of the house (common toilet and kitchen), so there was 3rd yard in-between (Fig.12). However, due to different demands, the 3rd wooden group was rebuilt by a concrete block (in 1981) and the yards were minimized by plug-in blocks (late 1980's). The main gate stands in the middle of the façade. On the left, there is a little shop for hire. On the right, there is an old timber panel wall that hides a washing corner. Mr. Thanh’s family lives in a very small room on the left of the entrance. This room is just about 10 m² (Fig.7), which serves as living, dining as well as bedroom (in a low mezzanine). Since it is too small, they utilize the dark and poorly rooted yard for cooking (Fig.8). The wooden ladder to the 2nd floor of the front group stands on the right side of the entrance. Behind the yard is the 2nd group. On the 1st floor, there is another bed-sitter room for another family (Mr. Thanh's relatives). Next, there is a little dark kitchen facing the wooden ladder leading to the altar room (2nd floor). Crossing the dark low passage, one will reach the 2nd little yard. There is a concrete staircase for the new 4-storey block. At the foot of the stair, bricked water tanks, pumps, sewage system and a washing basin were installed. Behind the yard there is a little bicycle and motorbike parking lot. This is also the access way to the deepest area: a dark dirty storage, an extremely dirty common toilet and a little abandoned sky yard (6 m²).
3.3. Description of the residents’ current living conditions and their spontaneous modifications

The residents have been living in a miserable condition: lacking most of minimum requirements for living, such as living spaces (Fig.11-bottom), clean sanitary, natural lighting, ventilation and privacy. The house has been seriously downgraded and been in danger for decades. Whenever storms are forecasted, many residents have to flee out to avoid danger of collapse. The house is easy to catch fire due to open kitchens (we were measuring the yard while Mr. Thanh’s wife was cooking nearby, see Fig.8). It is also flooded easily as its ground level is under the street’s level. The house is too downgraded that its worm-eaten wooden static structures may fall at anytime. The 2nd floor of the front group was abandoned for years. Its timber floor was worm-eaten so badly that no one can step on it anymore. Thus, the access way to that room was blocked. However, we requested the owners for permission to climb up the ladder to take photos of the room. The result was beyond our expectation: the original wooden structures remained well and very referable. So we introduce a photo of that room here (Fig.9).

According to Mr. Hao, a resident, the biggest modification was the reconstruction of the 3rd fallen wooden group in 1981 (Fig.12). Other modifications were a block attached to the altar room (1981) and a new 2-storey block (late 1980’s) “plugged-in” the 1st yard. Recently, one original tile roof of the 1st group fell down by a storm, so a new plastic roof was replaced (in 1999 drawings, the tile roof was still there). During our 2 week survey (Sept. 2006), we casually observed the latest change: the original worm-eaten wooden main gate was replaced by a new metal gate. Mr. Thanh explained that the residents need more security assurance for the house, but he could store the wooden gate in a safe place. However, in our opinion, the new metal gate ruins the common old-fashion charm of the façade, and because the wooden gate could be damaged or lost without good care, it could become a permanent loss of the well-remained traditional style façade.

3.4. Our newly drawn archival 2D drawings plus 3D CAD modeling of the existing architecture (as of September 2006)
Fig. 10. New measurement drawings (plans, facade and sections) of the existing architecture of the 47 Hang Bac house (Sept 2006) (Source: To Kien)

Fig. 11. New 3D CAD modeling images of the existing architectural conditions of the 47 Hang Bac house (Source: To Kien)
1. Top left: normal passengers' view on the street
2. Top right: Bird eyes’ view from front part to rear part
(Bottom line: photos of correspondent existing architectural components (dotted arrows show corresponding elements)

Except the renovation project of the 51 Hang Bac house, there has been no 3D CAD modeling for any other tube house in previous published studies that we have known so far. Therefore, we decided to make 3D CAD modeling of existing architectural conditions of the house. The advanced visualization of the modeling would help others to easily understand current living and architectural situations, and it set up a good base for our next research step to build up restoration 3D CAD models of the house's original forms during different periods.

3.5 Analysis on residents’ spontaneous spatial modifications

The word “spontaneous” usually implies “unplanned” and thus “no rule”. However, in terms of residents’ spontaneous spatial modifications, we hypothesized that there could be some basic principles that the residents had probably considered before changing their dwelling spaces. So according to our own interview with different residents, in fact, the most common demands to modify their dwelling spaces are (1) the need to have more spaces due to the house’s population growth, (2) the need to upgrade their living spaces as much as their financial capacities allow, and (3) the need to fix damages and/or to change some protection components for better security. The following modification typology with specific principles was concluded based on our interview plus our logical evaluation (Fig. 12):
4. Conclusion

In this paper, we have summarized and demonstrated briefly the history and significance of tube houses—the invaluable Vietnamese traditional urban housing typically found in Hanoi Old Quarter—that deserve strict conservation. We also discussed on a rising serious problem that tube houses have been threatened with "extinction" under strong urbanization and modernization processes. Many old tube houses already fell down partially or were reconstructed or at least seriously downgraded and much modified. Thus, it has raised a more pressing task to preserve those precious remaining tube houses, then to restore/renovate them as historic monuments for future references. The 47 Hang Bac houses—the oldest tube house whose original structures remain most—is one of the best reflections. However, the house has been extremely downgraded and not in deserving good care as well as adequate common concern. Therefore, it was chosen as our case study.

Next, we have shown our latest complete document (measurement, drawings, photos and 3D CAD modeling) of the house (as of Sept. 2006). It showed not only the residents’ miserable and seriously downgraded situation of the house, but also the invaluable originally remained architectural elements to be preserved. This new documentation is both (1) an essential scientific base for our next research step in building 2D & 3D CAD restoration models for the house (to publish in our next paper), and (2) useful for any other study regarding housing in Hanoi Old Quarter in general, or regarding restoration, renovation or maintenance of that house in specific. Besides, the residents’ spontaneous house spatial modifications were also analyzed through the same case study. We concluded that there are 3 major types of modifications, namely (1) the former tube houses “plug-ins”, (2) the new construction replacing old parts and (3) the new partitions. Each modification type has a couple of principles that the residents (2) probably had considered before modifying. This finding could be an initial base for any other future study regarding housing’s unplanned modifications and/or transformations in Hanoi Old Quarter.

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Notes

4. In 1995, AusAID (Australian Agency for International Development) proposed “The ancient quarter local structure plan” and SIDA (Swedish International Development Authority) proposed a pilot project on renovation and development.
9. For more information please refer to the website: www.hanoi2010.org or to Hanoi Old Quarter Management Board (No. 38 Hang Dao St.)
10. For more information please refer to the website: www.hanoi2010.org or to Hanoi Old Quarter Management Board (No. 38 Hang Dao St.)
11. "Hanoi architectural & construction Co.", "Research institute on architecture" as well as many scholars such as Le Van Lan, Nguyen Ba Dang, Dang Thi Hoang, Soichi Ota, Sawako Utsumi, Shimizu Fumio, Michael Waibel… visited and/or surveyed the house (Information given by owners).
14. For original content please refer to the webpage: http://www.vir.com.vn/Client/Timeout/index.asp?url=content.asp&doc=10366

Fig.5. Photo source and photo caption cited from the book: "Preserving Hanoi’s architectural and Landscape heritage", Hanoi 1999, pp.49.
和文要約

研究の背景と目的

ハワイは1000年の歴史をもつつ東南アジアの最も古い首都である。その長い歴史の発展の中で、特有の都市文化的な要素は次第に発展し、それは街のルーツでもあるハノイの歴史地域に最もよく観察できる。約100haのこの地域は、過去には行政の中心であったとも同時に、何世紀もの間都域の中心でもあった。そして非常に高い人口密度をもつ1900年頃末には約600人/haも達している。建築に関してみれば、「チューブハウス」と呼ばれる住宅が最も重要な建物である。

このチューブハウスとは、ハノイやホイアンなど古都ベトナムの都市地域にある街路に面した伝統的な都市住宅のことである。ある幅が平均2〜4mと非常に狭く、奥行きは平均20〜60mと非常に長い住宅である。

ベトナムがドイミ政策（経済開放政策）を採用して以来の都市化と近代化の強い波をうけて、多くの中核的チューブハウスはすでに部分的な崩壊、壊しての再構築、あるいは再開発や変更などによって、伝統的建築の要素が低くない深刻な変化を受けています。この変化の二つの大きな原因は、老朽化による崩壊と、住民の必要から再構築や変更である。したかつて、現在残っている重要な住宅をチューブハウスを保全することが急務であり、またベトナムの将来の世代あるいは外国人の関心のために、歴史的建造物として保存する必要がある。そのために、まずなすべきことは、これらの住宅の建築的記録を作成することである。実験的な試みとして、マーダイ通り87番地住宅、ハリダ通り38番地住住宅、ハリダ通り51番地住住宅の3軒の住宅について、修復計画が立てられ実行された。しかしこれらの修復計画は、当時の建築家が、都市の住民が、家族が、それぞれの住宅が住む人の住むものであることを忘れていた。古く見せた歴史の建物と大きく変わりのないものとなってしまった。

研究の対象——ハンバーパック通り47番地住宅

一方で、保存修復されるべき価値のあるひとつの住宅がある。しかし、人々の多少の注意が払われておらず、地元の役所から間違きも低い。それは、1460年から1497年に存在していたハノイで最も古い通りのひとつハンバーパック通りの47番地住住宅である。住家の所有者によって、この住家は約165年前に建てられたので、現在1世帯の家族が5家族住んでいる。この住家はハノイの歴史地区では、当初の形を残す最も古い住家であるものの、あちこちで改装や変更が行われている。これらで行政や研究者などにいてある個々の調査が行われてきたい。しかしながら、財政事情の悪さや住宅の所有形態の複雑さなど諸般の事情で、何の対策も採られてこなかった。本研究では、したがってケーススタディの対象として、この住家を選んだ。

古い住宅を保存修復し利用する目的としては、最初で重要なことは、実測調査をして基礎的な情報を得ることである。ハンバーパック通り47番地住住宅の実測は1999年に政府によって行った。これにより、中核時代のベトナム建築（ベトナム語による）として、2002年にハノイで出版されている。そして歴史地区管理委員会に図面が伝えられている。今後、我々の事前調査によって1999年の図面には、次のようなる事が可能である。つまり、1999年から現在まで、新しい開発が可能な樹脂、階段の位置の変更など、すでにいくつかの修改が行われていることを、いくつかの寸法について間違いないことがある。公表された報告書の寸法が小さくて読めないなどである。

こうした理由から、完全な調査図面、写真撮影、3次元GAG作成、したがっても、我々は2006年9月に新たに実施調査を行った。

我々の調査により、以下のことが判明した。

第一に、住民の住環境が非常に劣悪なものであり、住民の生活は、広さ、衛生、採光、換気、そしてプライバシーや問題など、生活する上で必要不可欠なあらゆる条件が不足している。そして、これらに問題があることで、このような住民に住まう住宅が著しく低下している。例えば、大きな自然災害が発生した場合、火災で傷んだ住まいの住宅は簡単に崩壊するだろう。またオープンキッチンのため火災に弱く、かつ住宅の地盤が道路より低いため、浸水しやすい状態となっている。

しかし、調査によると、多くの住人が建物当初のまま残存しており、ベトナムの伝統的な住宅をそのまま残存しており、充分保存に値する状態である。住宅のほとんどは木造であり、大梁、柱、木戸など部材のほとんどが、堅い木で作られている。空間構成に関しては、2階建ての3グループの住家で構成され、住居の間に採光と換気のための中庭が設けられている。これは最も典型的なチューブハウスの空間構成の一つである。

結論

本研究は、ハノイ歴史地区のハンバーパック通り47番地住宅をはじめ、他のチューブハウスの保存修復のために有効であるとともに、次いで発表予定の将来の利用に向けた同地区の次3次元モデル作成にも役立つものである。

住民による修歴あるいは変化に関する調査は、本研究によって初めて、住民に対する聞き取り調査によって調査が行われたものである。筆者の知る限り、今までのような具体的な研究者は、ベトナムの研究者並びに他の海外の研究者によっても残されていない。この調査によって、住民による空間の使い方の変更や変化の基本原則は、主に3タイプがあることがわかった。まず、(1)中庭に新しい建物を飲むタイプ（plugin）、(2)古い建物を横に新しい建物を新築するタイプ、そして、(3)単純に新しい間で空間を仕切るタイプである。

全ての変化の時期については、明確な年代を知ることは非常に困難である。しかし住民に対する聞き取り調査と現状の観察から、上記(1)の新築が、古い部分に対する影響が少ない。それで最初に行われたと推測される(2)と(3)に関しては、後に独自に行われたと考えられる。住屋の歴史的な変遷についての詳細については、次稿で検討する予定である。

上記の各タイプには、例えば(2)に関しては、住民が制御する前に考慮すべき点が以下の3点あると考える。①新築する際は、最も古くない部分は最も古くない部分に限定すべきである。②古いファサードは新築すべきではない。そして③宗教的空間は新築すべきではない。この調査結果は、旧市街における無計画な住居や、そしてこれに関する今後の研究のための基礎になると考える。

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