

KIOSK  
DEVELOPMENT OF PARTICIPATORY URBAN DESIGN GUIDELINES FOR  
REHABILITATION OF HISTORIC NEIGHBOURHOODS, CITY OF QUANZHOU, FUJIAN  
PROVINCE, CHINA

by

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## ABSTRACT

The objective of this thesis is to apply the latest development in Information Technology (IT) and multimedia to contribute and supplement in the formulation of participatory urban design. Using new media tools, this study has concentrated on one specific urban design case in a historic neighborhood in the city of Quanzhou in China.

The neighborhood, called Qinglong Xiang, is a residential area containing a high number of fine, traditional, vernacular houses. However, it is suffering the negative impact from fast housing market growth. Recent self-built houses of no local historical architectural value, usually made with imported modern materials and in a style that departs radically from the traditional vernacular, are quickly replacing the old vernacular houses. Through participatory planning approach, the thesis contains a set of incremental urban plan, housing principles, regulations and design guidelines for the historic rehabilitation urban design of the Qinglong Xiang neighborhood. In the format of a multi-media presentation, the thesis provides materials for the establishment of an interactive CD-ROM for both the residents of the neighborhood and the government authorities. In order to facilitate a participatory process, the CD-ROM can be used via an electronic kiosk that is accessible to both sides.

The proposed process of participatory, digital, interactive and feedback enabled urban design is considered an avant-garde attempt in China. The interactive multi-media CD-ROM provides foundation upon which future developments in IT and digital community may be implemented to enhance the participatory urban design.

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\* All images and drawings in this paper are made by the author unless when indicated.

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## CHAPTER 1 INTRODUCTION

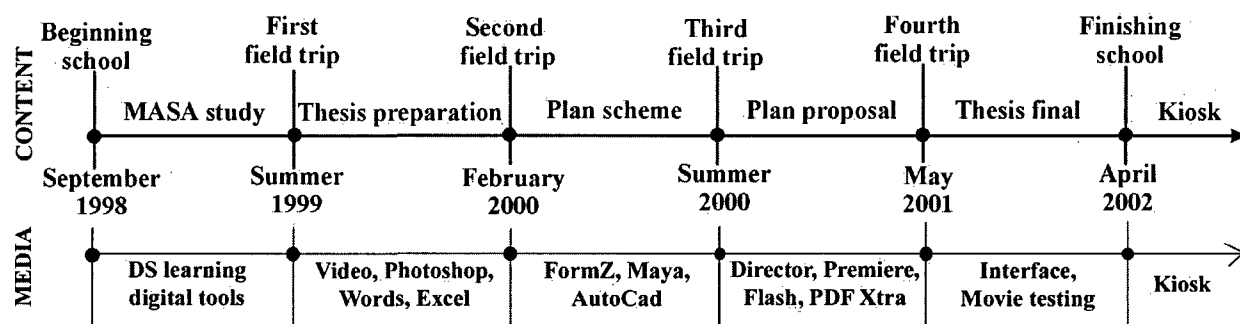
The influence of Information Technology (IT) is growing fast and it benefits many professional activities in today's world, including urban design. This thesis uses IT and multimedia in formulating a participatory urban design. This project is based on a specific case study of urban design in the Chinese city of Quanzhou. New media and digital tools are being developed in urban design resulting in this approach which is new in China.

Chinese cities have seen increasing change and redevelopment since the 1980's because of the booming economy. Many historic cities, communities, and buildings are being redeveloped and destroyed at the same time. Chinese urban planners recognize that strategies of conservation and rehabilitation in historic cities and communities are urgently needed. The practice of urban planning in China differs considerably from the West. Social and economic changes require urban planning approaches to resolve conflicts between multitudes of new interest groups.

The site chosen as the case study area is an historic neighbourhood called Qinglong Xiang (meaning "Green Dragon Lane") in the city of Quanzhou, Fujian Province. The thesis represents a convergence of a wide-ranging study of new multi-media tools in the lab of UBC's Architecture Professor Jerzy Wojtowicz; the introduction of a community-level participatory approach to urban planning and management in Quanzhou, jointly organized by Tsinghua University's Department of Urban Planning and Design and UBC's Center for Human Settlements; and a consulting commission to the Municipal Urban and Rural Planning Bureau of Quanzhou to develop a historic rehabilitation-urban design proposal for Qinglong Xiang.

This thesis explores new multi-media applications — specifically, an interactive CD-ROM — for creating a rehabilitation urban planning proposal, including design guidelines and housing regulations, through participatory approaches to benefit the residents and the planning authorities of Quanzhou. In order to facilitate a participatory process, the CD-ROM can be used as the basis for an electronic kiosk or enclosure that is accessible to both the community and the government. The proposed process of participatory, digital, and iterative urban design can be seen as avant-garde in the Chinese context.

The timeline below shows the entire thesis process:





## CHAPTER 2 HISTORIC CONTEXT

### 2.1 City

Quanzhou is located on the southeast coast of China, and is the closest city to Taiwan separated only by the Taiwan Strait. The city, built in 711 A.D., has more than a thousand-year history and a traditional characteristic urban fabric. During the Song and Yuan dynasties (10<sup>th</sup>-14<sup>th</sup> centuries), it was Asia's largest port for international trade, and China's chief window to the world. It was from Quanzhou (then called Zayton) that Marco Polo departed when he left China in 1291 after staying for 20 years.

Although the city's prominence as a trading center diminished after the collapse of the Yuan dynasty (15<sup>th</sup> century), it has always maintained close connections with overseas Chinese communities throughout Southeast Asia, the Middle East and the West. Multi-cultural influence is one of the important characteristics of the city. Another important aspect is a dynamic private property ownership structure. This is quite different from the rest of the cities in China, where state-controlled economy and ownership have been in control since the revolution. Quanzhou has an established tradition of urban change at the neighbourhood and household levels, while other cities in China have had government-led processes of urban development in recent years. Therefore a participatory planning approach is especially appropriate in Quanzhou.

Long history of Quanzhou has left the city with unique and exquisite vernacular architecture, which until recently dominated most parts of all the Old City. A colonial architectural style was popular in early the 20<sup>th</sup> century, since the overseas Chinese brought back European architectural styles mostly from Southeast Asia. They were combined with local traditional courtyard houses when they were built in Quanzhou. This style of architecture is still considered to be adaptable to the local urban fabric, because it used traditional materials and details. In the recent 10 years, the Old City is experiencing the negative impacts of fast growth, as relatively well-off families seek to enlarge their living areas and improve the infrastructure of their houses by replacing their dilapidated vernacular houses to live a modern life. This self-building behavior has historically been the way by which the city has achieved its character. However, the newer self-built houses have no architectural or cultural value, often using generic building materials and style such as white glazed tile surfaces. Unlike the colonial style houses popular in the early 20<sup>th</sup> century, this

current construction usually conflicts with the traditional urban fabric and architectural environment due to a lack of consideration for the historic ambiance. The booming private construction has forced the government to focus on keeping the historic character of the city. Therefore, the important task facing the urban design of conservation and the upgrading of Quanzhou is how to preserve its traditional urban fabric and architecture, while at the same time, improving the environment of the city and the living conditions for the residents.

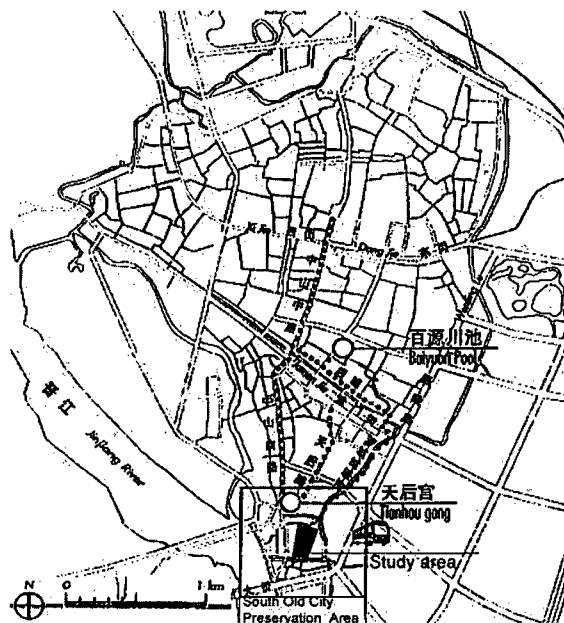


Figure 1 Map of the city and location of the working site (drawn by Johan Nilsson)

## 2.2 Neighborhood

Qinglong Xiang (Green Dragon Lane) is a historic neighborhood in the South Old City of Quanzhou, which played a significant role in the past for the international trade due to its special location by the Jinjiang River which flows into the East China Sea. The South Old City area used to contain a church, several ports, temples, commercial streets and trading areas which left a large number of colonial style shop houses built in the early 20<sup>th</sup> century. There are many other historic sites and structures which still exist. Among them is only one famously elegant residential area containing a large number of fine traditional vernacular houses, which is called Qinglong Xiang. The neighbourhood has a reputation that is still legendary in the city for being the home of wealthy Chinese officials and prosperous Arabs and other traders, some of whom may have hosted Marco Polo himself! It was designated a preservation district by the Master Plan of the city in 1993.



Figure 2 Map of the South Old City

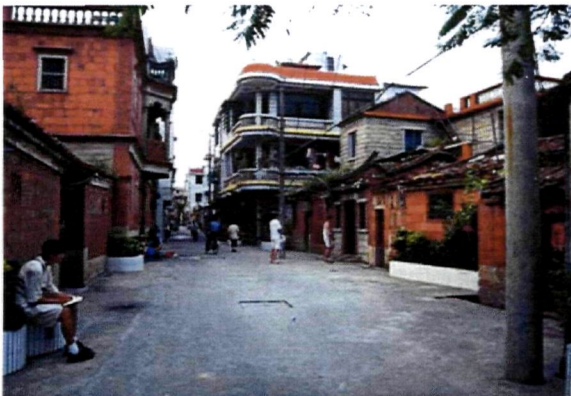


Figure 3 Streetscape of Qinglong Xiang



Figure 4 Roofscape of Qinglong Xiang

In recent years, Qinglong Xiang is experiencing the same problems as the rest of the Old City with a large number of new “modern” style houses replacing fine vernacular ones. Therefore, the rehabilitation planning task for this neighborhood plans to create formal design guidelines, regulations of house conservation and upgrading, and also find ways to improve the living conditions of the residents while rehabilitating its historic neighborhood character. All of these should be accepted by the government, planners, architects, and most importantly by the residents, while accommodating desires for modernization and at the same time maintaining the traditional “character” of the area.

With this concept, there is a need to propagate participatory design and planning methods for this transformation to take place. And the new media and IT have an important role to play in this transformation of the old urban areas and in offering new models for change to the community.

### CHAPTER 3 DOCUMENTING EXISTING NEIGHBORHOOD CONDITIONS

The neighborhood is renowned for its collection of fine traditional vernacular housing of characteristic local granite and red brick, which should be preserved. However, there is a particular challenge to municipal planning authorities in their efforts to enforce preservation policy and building regulations in Qinglong Xiang. Since after many generations an old one-story courtyard house is often shared by many relatives, it was subdivided among them and replaced by separate houses built on a small portion of the original plot to accommodate different households. The new homes are much larger than the old, usually has three-, four- or five-stories with gleaming white glazed tile in a modern style. Most of exceed the three-story height limit established by the government for all private housing within the Old City.

Numerous drawn maps and models to document the existing condition of Qinglong Xiang have been created:

- *The Figure-ground Map* shows how the buildings cover the ground. The total area of the neighborhood is just over 2 hectares.

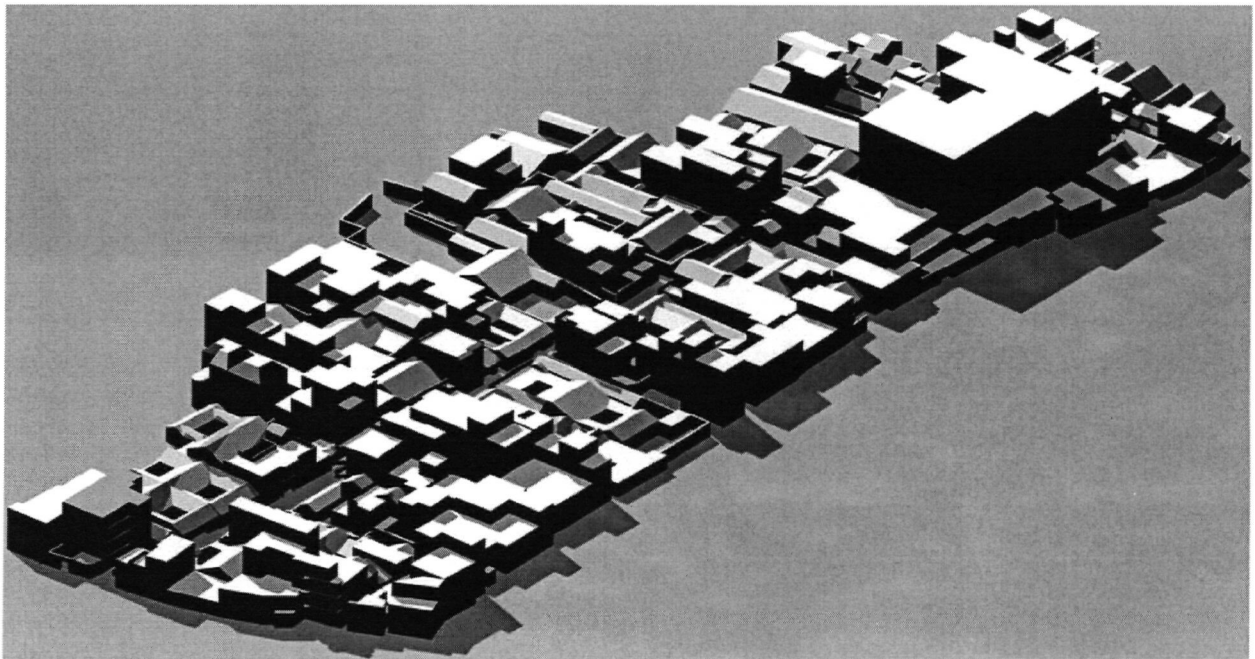


Figure 5 Computer model of Qinglong Xing neighborhood

- *The Property Boundary and Household Number Map* shows each of the household numbers and their property boundaries. There are 103 household numbers in total with about 700 people living there. Some of the household numbers have more than one family.

Qinglong Xiang is a typical and rather stable community in Quanzhou's Old City. The average family has lived in the lane since before 1949, and many live on plots that have been owned by their families since at least as early as the Qing dynasty (1636-1911).

- *The Typology of Roof Map* shows the roof style of all buildings in the neighborhood. From the map we can see that almost half of the houses have traditional pitched roofs, the other half are rebuilt with flat roofs.
- *The Building Height Map* shows the number of stories of each building, from one to six stories. The traditional courtyard houses have only one story, while the colonial houses have 2-3 stories. The new rebuilt modern houses usually have 3-6 stories, which destroys the space relationships and blocks views, sunlight and air.
- *The Land Use Map* shows the diverse usage and ownership of the properties. Most of the buildings are private residential houses. There are also a few private shop houses, public rental houses and a commercial apartment building. The Qinglong Xiang Senior Association owns a place for their activities. A small temple located at the north end of the street serves the neighbourhood for religious activities.
- *The Open Space Map* shows the open space areas of the neighborhood, including the public space which is the street space, the semi-public spaces which are the small lanes connected with the street and the houses, and the semi-private spaces which are the courtyards and lightwells inside the houses. The public street space is the spiritual and physical heart of the community, and is quite often used for all kinds of public activities, including communication, sports, traffic and commercial use, major religious activities etc. Therefore, it is the overall space, not just the buildings, which should be maintained.
- *The Typology Map* shows the different architectural types of buildings in the neighborhood, including traditional courtyard houses, colonial houses, dilapidated old-style houses, multi-story modern houses with traditional architectural materials, multi-story modern houses with modern architectural materials, and a modern large-scale apartment building. These traditional courtyard houses and colonial houses contribute to the historical character of the street, while the modern-style houses and apartment detract or are disruptive.

## CHAPTER 4 TOWARDS A PARTICIPATORY URBAN DESIGN PROCESS

### 4.1 Overview

In order to better understand the neighbourhood, and to ensure that residents would support any planning and design policy for it, consultants from Beijing and UBC introduced participatory approaches that have not been used for urban design in Chinese cities before. To do this, four field trips were taken to involve both the residents and the government directly in the entire design process. New media have been used to obtain information, to illustrate and test alternatives, to produce the design outcome, and to create an interactive implementation environment.

### 4.2 The First Field Trip — Survey in summer 1999

The first field trip to Quanzhou was conducted in the summer of 1999. A field studio organized by the Center of Human Settlement of UBC provided a survey about city planning in Quanzhou. The survey of Qinglong Xiang included architectural studies of individual housing units and public spaces by sketching, photographing, taking notes and mapping, resident interviews and questionnaires, and interviews with neighbourhood committee members and urban management officials about housing and household information of the neighbourhood.

### 4.3 The Second Field Trip — Participatory Activities, February 2000

A second field trip to Quanzhou in February 2000 was to introduce a community-level participation approach in urban planning and management which was sponsored by the Ford Foundation. [1] Its aim was to obtain a consensus on appropriate housing and urban design improvements and regulations for Qinglong Xiang. The participatory activities mainly included:

- A physical community modelling exercise in which residents would isolate problems and opportunities for action by placing categorised cards on a model of the neighbourhood.

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[1] Reference from Abramson, Daniel. "Participatory Planning in 'Transitional' Societies: Some Generalizations from Experience in Poland and China" pp15-16. *The 42nd Annual Association of Collegiate Schools of Planning Conference, November 2-5, 2000*



- Identifying what different interests there are within the community and holding group discussions about their problems and interests with each interest group.
- Forming a “core group” of residents willing to keep the community informed and involved.
- Brainstorming and conflict resolution meetings with residents and different agencies of the government to acquaint both residents and planning officials with interactive techniques of discussion.

After these activities, it became clear what the problems were in the existing neighbourhood, what the residents wanted, and what the government wanted. Further more the questions like what kind of trade-offs could be made between the residents and the government, and what was needed to preserve the historic environment of the neighbourhood and improve the living condition for the residents as well was clear. A rehabilitation scheme was initiated and a technical study of conservation and upgrading options was proposed.



Figure 6 Model and card activities



Figure 7 Discussing the plan proposal with residents



#### **4.4 The Fourth Field Trip — Participatory Urban and Housing Design and Guidelines, Summer 2000**

The Summer 2000 participatory activities in the third trip focused on carrying out design-oriented activities in Qinglong Xiang. [2] The collaborative group included Tsinghua and UBC faculty and students. Major exercises that had been undertaken over the three weeks in Quanzhou were:

- A private housing “design clinic” in which our team members worked with volunteering households to make designs for their housing preservation and upgrading, and to seek a balance between residents’ self-building aspirations and government regulations.
- A public space “envisioning” exercise in which different degrees of changes and intervention were proposed. The comparison of photo-edited streetscape images of the neighbourhood showed the relationship between individual houses and the public environment, and let all people try to understand what was the best for the neighbourhood.
- A set of design guidelines to allow residents a degree of flexibility to control their housing preservation and upgrading.
- Presentation and discussion meetings with the residents and the government to discuss the action plan scheme created after the second field trip and also the results of first three exercise results above.

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[2] Abramson, Daniel et al, “Governance and Design: Participatory Planning, Residential Design Guidelines and Historic Preservation in Quanzhou, Fujian Province, China: A Year 2000 Studio Report”, Asian Urban Research Network Working Paper Series #WP27, Vancouver: UBC Centre for Human Settlements, 2001.

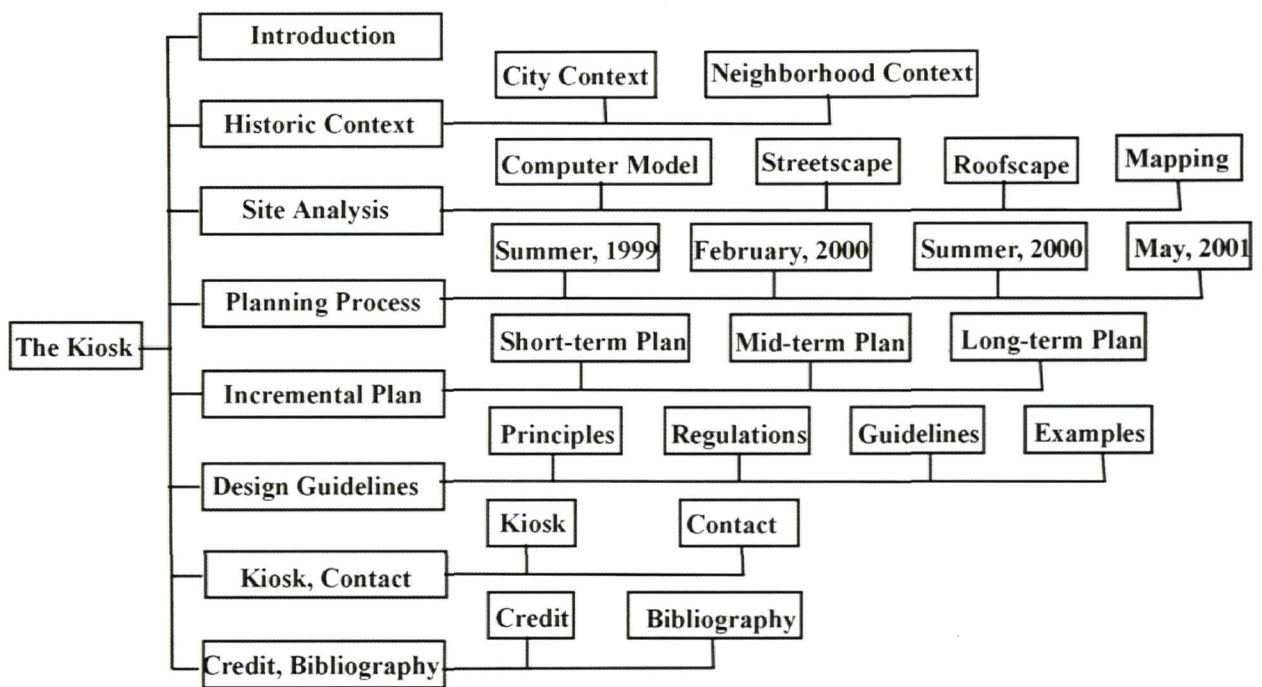
#### **4.5 The Fourth Field Trip — Closing Session of the First Stage Participatory Planning Process, May 2001**

Based on the outcome of the third field trip, changes were required and made. After the formal version of the proposal for the rehabilitation plan of the historic neighbourhood of Qinglong Xiang was finalized, the fourth field trip to Quanzhou was taken in May 2001. The task of this trip was to have a presentation meeting with the government officials, experts, the neighborhood committee members and the residents. In the meeting, problems and improvements for the proposal were studied in order to obtain an agreement for the rehabilitation plan. Also discussed were the application, institutionalization and implementation of the action plan and regulations, aided with a multi-media environment in an interactive way, to prepare for the next stage. Since no method had yet been found to institutionalise the participatory process in Quanzhou, or even in other cities of China for on-going planning and management, a proposal of a new media participatory approach for institutionalising the process as the next stage was brought up by the author, and called the “Kiosk”.

#### **4.6 “Kiosk” — A New Paradigm for Participatory Design Process**

Based on all the information ready to be organized together and used by the neighbourhood and the government in a creative, dynamic and participatory way, a new method shall be created and utilized to achieve the goal. Multi-media are the suitable method. Therefore, the next step of this participatory process is to introduce multi-media to the neighbourhood and the city, which can be used for both the presentation of the outcome of the rehabilitation plan and a method of participatory management and implementation.

A multi-media presentation has been created in a CD-ROM, which contains all the information and background about the neighborhood and the planning work to this point. The contents are presented by images, 2D drawings, 3D models, videos, animations, QuickTime movies and texts, which are put together and organized as a complete multi-media movie. The software being used is Auto Cad, Form Z, Photoshop, PageMaker, CorelDraw, Premiere, Flash, Maya, Word, Excel and Director. In the presentation movie, all the contents are grouped into different topics which can be selected for viewing in an arbitrary order. These contents are organized as follows:



The CD-ROM is ready to be used in Quanzhou on computers. Two copies of the CD-ROM have been made; one for the neighborhood and another for the Municipal Planning Bureau. A computer with the CD-ROM can be placed in the neighborhood. This new media device can be an interactive screen wall, integration with a building, a freestanding and mobile computer or other proposals. This participatory multimedia environment can be called a “kiosk”. The residents can come into the kiosk to access the computer, search for any information about their neighborhood and the rehabilitation plan, check the design regulations and guidelines for their housing design and reconstruction, and choose design examples for their housing preservation and upgrading in an easy, simple, direct and visual way. They can also give their feedback, questions, and comments through the Internet with contact information shown in the CD-ROM.

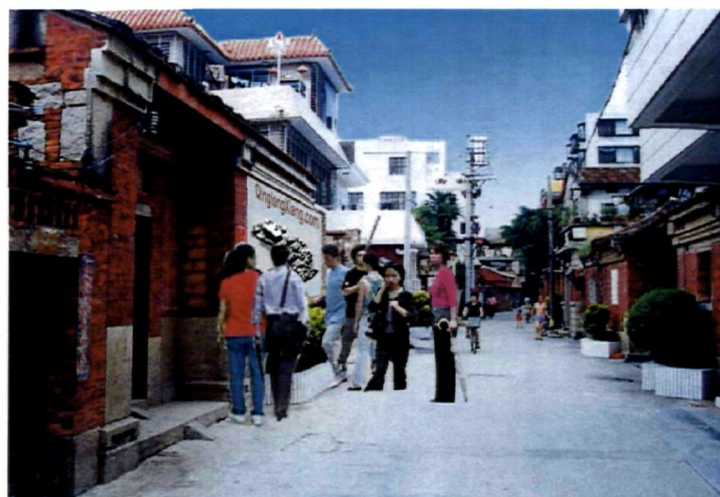


Figure 8 One proposal of kiosk in the neighbourhood

Another kiosk of similar style can be built inside the Municipal Planning Bureau with the other CD-ROM, so that it may be used by officials and professional experts in the Planning Bureau and other authorities of the city, to search for all the information about the neighbourhood and the rehabilitation plan as well, and most importantly, to check the design regulations and the guidelines for approval of the preservation or upgrading proposals that the residents submit. Meanwhile they can regularly check and sort the feedback given by the participants and upgrade the regulations and guidelines more suitably for the neighborhood.

In future work, the Planning Bureau may continuously add, change, improve or upgrade information to this multi-media presentation according to residents' feedback and actual changes in their practice of housing preservation and upgrading. Planners and architects in the Planning Bureau can continue to add more individual housing design examples into the multi-media presentation for all the houses so that all residents can have choices or references for their housing preservation or upgrading design. New features may be added to the CD-ROM by computer science engineers to make it more interactive, to let the residents vote on what they like or dislike, agree to or disagree with and to submit requests and questions. More further, the multimedia presentation may be published on the Internet and have its own web page so that this project can be more creative, participatory and dynamic, and people all over the world can visit. Because most of the regulations and the guidelines are suitable for other neighborhoods in the Old City of Quanzhou as well, they can be edited and used in other neighborhoods when they need to be preserved and upgraded, or even used in the whole Old City. In addition, the new multi-media participatory approach can be introduced to urban design projects in other areas of China, where they haven't been ever used before. It could become an important instrument developed to assist the community to deal with the participatory transformation of the specific area.

## CHAPTER 5 THE REHABILITATION PLAN OF THE NEIGHBORHOOD

### 5.1 Background

There are quite a few regulations for housing preservation and upgrading formulated by the government through the years, such as The City Master Plan, The Control Plan of the Old City, and The Regional Plan of the Old City, etc., which designated Qinglong Xiang as a preservation district of historic vernacular houses. No buildings higher than three-stories are allowed in these districts. The Self-built House Regulations in the Old City strictly order that one-story buildings have to remain at one story, the others can only be one or two stories when being rebuilt, and they need to be of local traditional vernacular house style.

The government however has hardly enforced any regulations for the following reasons, as outlined in the Report from the Summer 2000 studio:

“First, an unusually high rate of private home ownership and the substantial private savings of the residents gave individual households an economic power with which any local government in China would be ill-equipped to deal with (for example, there is no property taxation system). Second, urban management in China is based on mobilization of collective action as much as on regulation of private action. Third, design and construction policy in China lacks such tools as tax incentives; sophisticated density measures; guidelines and other information services; and the linking of home mortgages and insurance to clear property title and building code compliance. Indeed, the mortgage and insurance market hardly exists in China. Within this policy climate, the Quanzhou planning authorities have little leverage over households that can afford to upgrade their houses but have little regard for the public environment. Their response has been simply to make building regulations more draconian.” [3]

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[3] Abramson, Daniel et al, “Governance and Design: Participatory Planning, Residential Design Guidelines and Historic Preservation in Quanzhou, Fujian Province, China: A Year 2000 SCARP Field Studio Report”, pp.2.

Under these circumstances, the new urban plan and regulations have to be created to maintain the historic environment of the neighborhood while having enough flexibility for the residents to satisfy their own needs, so that they can be accepted by both the government and the residents. In accordance with this public participatory consultation process, a new incremental urban plan could emerge to be implemented stage by stage to reconcile the conflict between the residents and the government, achieving the goal of rehabilitating the historic neighborhood environment and gradually improving the living condition of the residents. The plan is divided into short-term, mid-term and long-term phases, as described below:

## **5.2 Short-term Proposal (within 2 years)**

The pressing problems to be dealt with are what affairs the residents put forward the most and those concern the government the most. From the participatory process, the author learned that the problems of the neighborhood are the outdated infrastructure, public facilities and urban landscape, and the deteriorating condition of the vernacular houses. These should become the priority for solutions in the first stage. Therefore, the actions in the first stage of the plan include:

- Landscape, infrastructure and public facility improvements:  
Remove all temporary illegal shelters that cover the public street space. Put all sewage pipes, water supply systems, power cables, telecommunication wires, and TV cable underground; Replace the pavement with local granite stones instead of concrete paving, which covered the traditional stones a few years ago. Plant some small trees and planters, and add streetlights, lanterns, street furniture, garbage cans, and telephone booths on the street. Such improvements will rehabilitate the sense of the traditional neighborhood environment, and the living conditions of the residents will experience a tremendous improvement with the new infrastructure system, public facilities and landscape. The details are shown through the drawings: (*The Short-term Plan Map, The Urban Design of the Public Street Space.*)

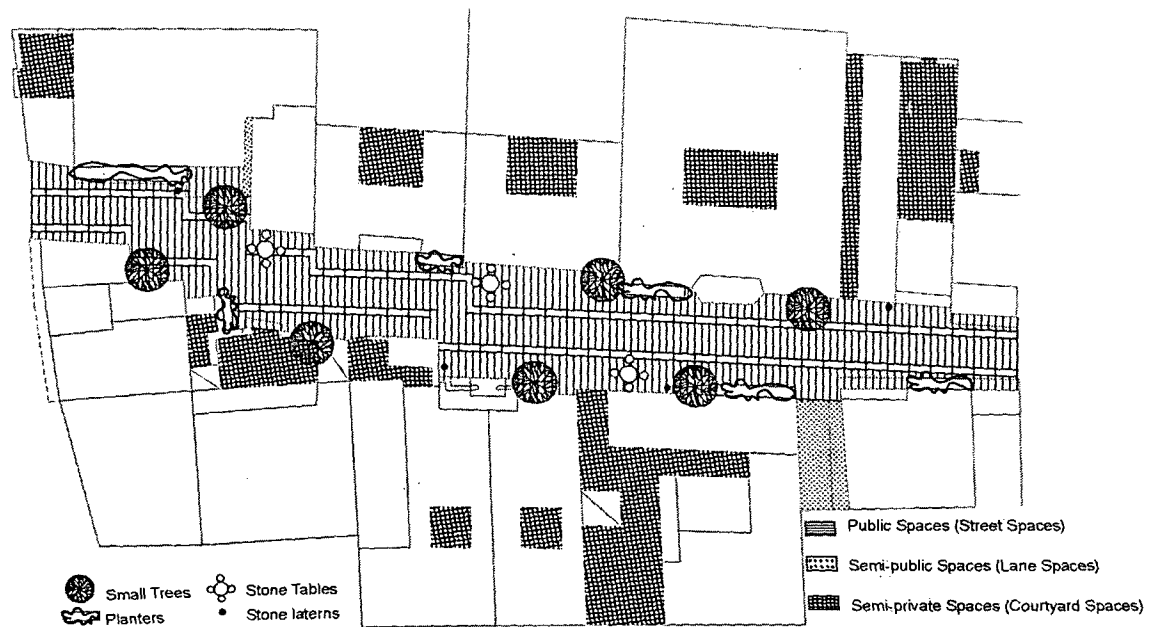


Figure 9 Urban design of the public street space

- Restoration of vernacular houses:

There are 14 traditional courtyard houses and colonial style houses which still keep the original style and layout, and are still in good condition. These houses are the most important for the historic character and therefore need to be restored strictly to keep the historic architectural elements of the neighborhood. (See: *The Restorations of Vernacular Houses Map*)

- Development of new residential buildings:

It is necessary to locate an area, ideally close to Qinglong Xiang (perhaps the warehouse area just east of the neighbourhood), to develop new houses and apartments for relocating the residents whose houses will have to be demolished or partially removed in the next stage. (See: *The South Old City Diagram Map*)

### 5.3 Mid-term Proposal (within 5-10 years)

- Remove all third-story-and-above houses along the public street space. Remove all fourth-story-and-above houses 3.5 meters behind the public street space. This will rehabilitate the historic scale of the street space; reduce the building density, which at current level gives a lot of pressure to the infrastructure and the public space. This will also allow sunlight and ventilation to come through the public and private spaces to improve the living conditions for the residents, and reduce the impacts of massing with the historic architecture. (See: *The Mid-term Plan*; *The Building Height Map of the Mid-term Plan*)

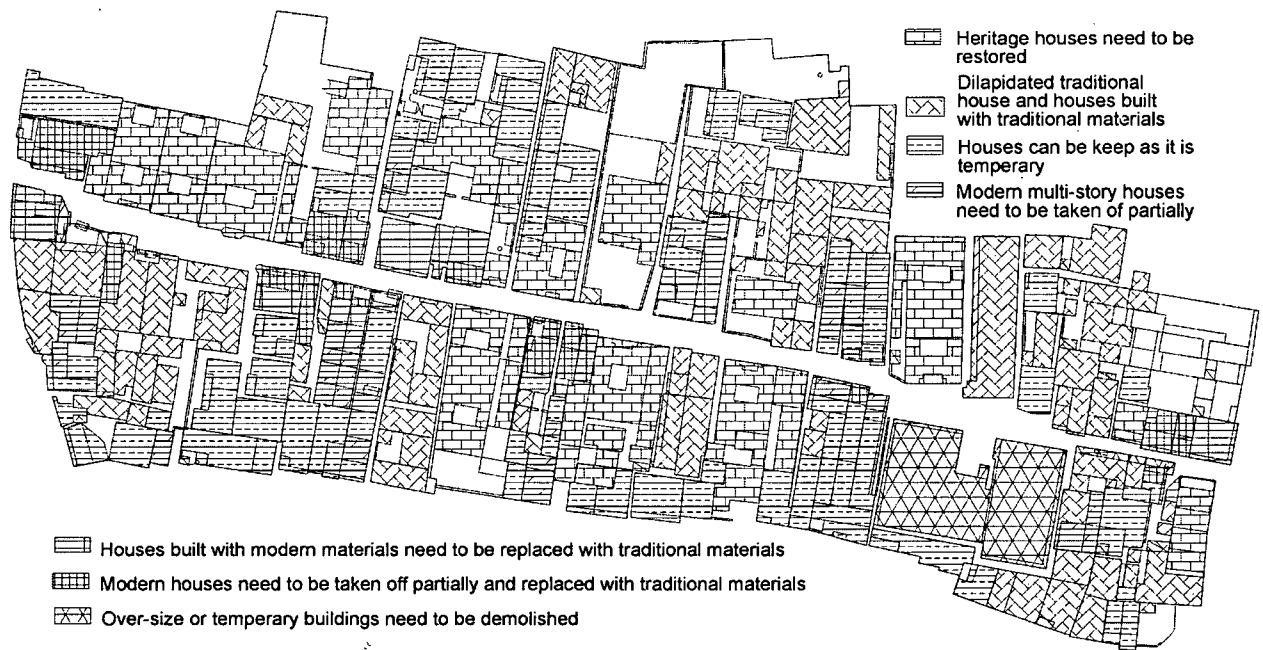


Figure 10 Mid-term plan map

- Refinish all modern houses along the street with traditional materials or materials that match with traditional materials. This will rehabilitate the historic architectural features along the public street space.
- Demolish the illegal, unsafe and massive six-story apartment building, and use its site as an open public space with good landscaping and public facilities for the neighborhood. As a result the largest modern building in the neighbourhood, currently disrupting its character the most will be removed and the area transformed into a most elegant environmental contribution to the neighbourhood. (See: *The Urban Design of the New Open Public Space*)
- Relocate the families whose houses have to be demolished or partially demolished to the new residential area proposed for them in the first stage, probably in the warehouse area nearby.

#### 5.4 Long-term Proposal (within 10-50 years)

- This historic residential neighbourhood shall be open to the local people and tourists. Several vernacular houses shall be turned into a museum, a family hotel and an activity center. The traditional Su's Garden, which was one of the most famous gardens in the Qing Dynasty in the local area, shall be restored. The neighborhood could become an open historic vernacular house tour route site within the South Old City tourism system. (See: *The Long-term Plan Map*)



- All the buildings must be only one or two stories when being rebuilt. This regulation will match the existing regulations that the government has issued, so that the neighbourhood will regain its historic urban fabric, scale and density. (See: *The Building Height Map of the Long-term Plan Proposal*)
- All the buildings have to coordinate with the traditional vernacular house style, including the courtyards, pitched roofs, traditional local architectural materials and details when being rebuilt, to match the historic feature of the neighborhood. (See: *The Roof Plan Map of the Long-term Plan Proposal*)

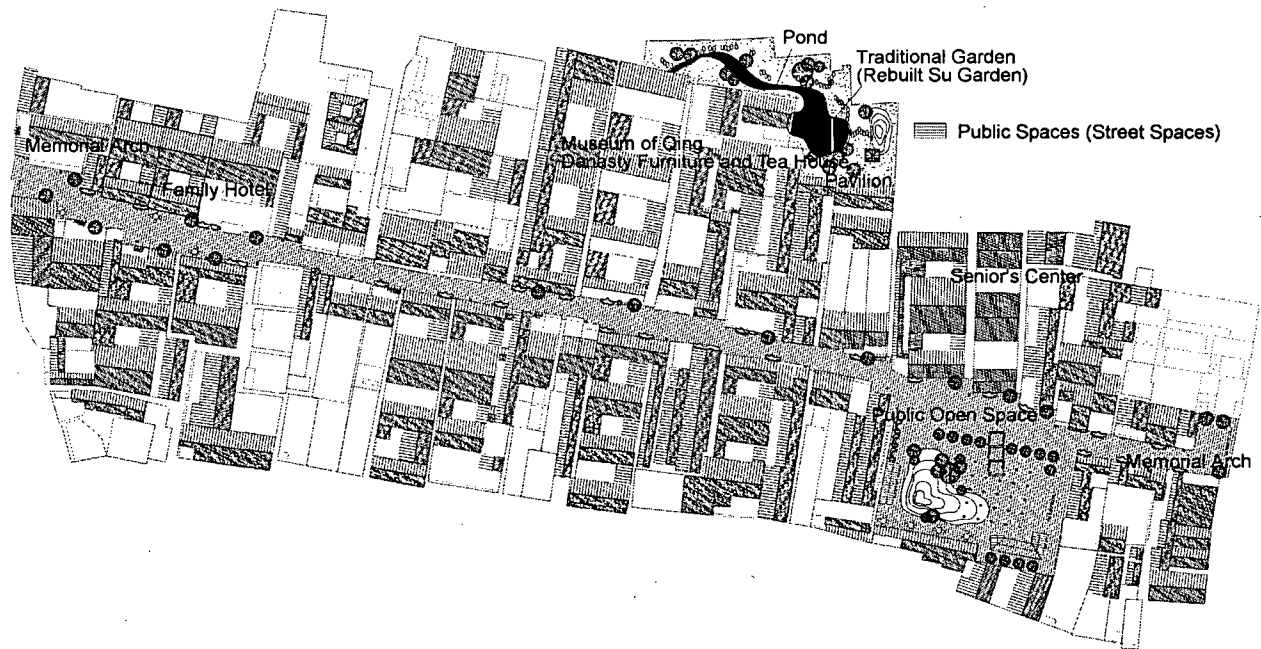


Figure 11 Roof plan map of the long-term plan proposal

- All the vernacular houses shall be maintained and their infrastructure shall be improved, including kitchen and bathroom facilities, power, water supply and drainage systems. Residents living in those houses can live a modern life while in traditional spaces.

## 5.5 Design Guidelines and Regulations of Urban and Housing Preservation and Upgrading

Design guidelines are the most important concept of the plan, which have never been created in Quanzhou. Meanwhile, principles and regulations of preservation and upgrading for housing design are also proposed to give each house particular rules according to its own condition to avoid the guidelines being too general. The entire contents of the design principles and regulations are shown in Appendix A and B.

The Design Guidelines [4] (see the entire content in Appendix C), which are a set of general yet explicit principles of decision-making about specific elements of the design, are created to be used with the regulations at the same time for housing and public space design and construction. The goal of the guidelines is to allow residents a degree of flexibility for their housing preservation and upgrading. The guidelines are organized roughly into three major categories: Streets, Building Form, and Facade Elements, in order of scale, from large to small, from public to private space. For example:

## **STREET**

### **Street Pattern and Width**

- The street should favour pedestrians over cyclists, cyclists over motor vehicles (except emergency), and support social activities as well.
- The width of the street should be preserved. It should not be too wide in order to keep the intimacy, cozy and human scale of the street.
- However the street should be wide enough for emergency vehicles such as police cars, fire trucks, and ambulances.
- Jogs and width changes along the lane create a sense of intimacy and interest, and support a range of social activities.
- Small alleyways between buildings on either side of the lane add to the hierarchy of access and sense of privacy, and their entrances should be highlighted by street furniture, lighting, and changes in pavement, overhangs or other elements.

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[4] These Guidelines are based on the Design Guidelines created in the summer of 2000 in Quanzhou by Dan Abramson, Danny Chan, Alex Chang, Savina Praseuth and the author, forming part of the results of the participatory process.



Figure 12 Map of Qinglong Xiang

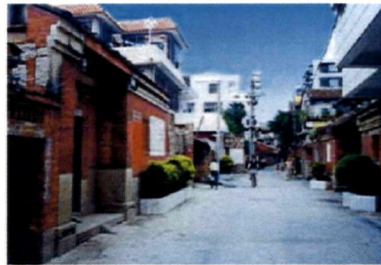


Figure 13 Streetscape of the neighbourhood

## BUILDING FORM

### Massing & Setbacks

- Traditionally, courtyards are used in houses as the means of bringing in natural light. But multi-story modern houses at Qinglong Xiang enclose as much space as possible and rely on the exterior envelope to obtain natural light. If each house is built in the current modern style, then lighting quality will become a serious issue in multi-story buildings due to close spaces. Therefore, new houses should include setbacks, and should also include courtyards and lightwells where possible.



Figure 14 Traditional houses use courtyards to bring in natural light (drawn by Danny Chan)



Figure 15 New houses should include setbacks (drawn by Danny Chan)

- Setbacks should be determined in relation to the width of the street and the height of the surrounding buildings in order to provide enough natural light and ventilation to adjacent lanes and buildings, and to avoid overshadowing of the street.
- To retain the intimacy and vernacular face of the Qinglong Xiang neighborhood, the mass of multi-story buildings should be broken down by employing a variation of materials on the façade, shifting the vertical and horizontal planes of the face of the buildings, or applying visual breaks.

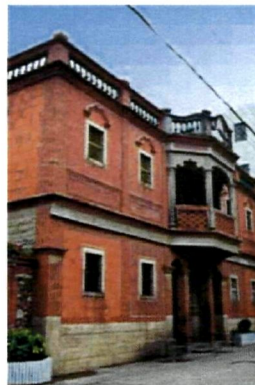


Figure 16 The mass of multi-story buildings should be broken down by variation of materials, vertical and horizontal planes, or visual breaks on the façade, like this colonial house



## EXTERIOR FACADE ELEMENTS

### Windows

- Window openings may not occupy more than 1/3 of the entire facade area.
- Window openings should be vertically oriented or square in shape.
- Windows should be divided into frames that open outward, casement-style, with overhead transoms; sliding frames should not be used on publicly visible facades.
- Window glazing should be transparent and colourless.
- Window frames visible from the public space must be made of wood; metal and sliding frames should be used only behind stone, brick or ceramic grilles.



Figure 17 Different types of traditional windows (photographed by Danny Chan)

- Security grilles should be placed on the interior face of the window.



Figure 18 Security grilles should be placed inside the window



Figure 19 Caging around the window should not be used

- If security grilles are placed at the exterior face of the window, they should be placed such that they are invisible from the street; caging around windows should not be used.

## CHAPTER 6 CONCLUSIONS

This thesis has successfully explored how IT and multimedia could contribute in the formulation of participatory urban design. It is based on field trips to the city of Quanzhou in Fujian Province, China and a case study of a historic neighborhood — Qinglong Xiang in Quanzhou.

Quanzhou is a historic city with a thousand-year history and was once one of the largest ports for international trade in the world between the 10<sup>th</sup> and 14<sup>th</sup> centuries. Qinglong Xiang is a historic residential neighborhood which has a large number of fine traditional vernacular self-built houses. However, in recent years, like anywhere else in the Old City of Quanzhou and many historic cities in China, it is facing a fast growth of modern style houses without considering the urban fabric and historic ambience, causing conflicts to the historic environment. A fine and practical rehabilitation plan is urgently needed for the neighborhood. This thesis explores new multi-media applications—specifically, an interactive CD-ROM — to create a rehabilitation urban planning proposal, including housing design regulations and guidelines, exploration and presentation through participatory approaches to benefit the residents and the planning authorities of Quanzhou.

During the four field trips to the Qinglong Xiang neighborhood from the summer of 1999 to May 2001, a large quantity of information and materials about the neighborhood were gathered through a series of participatory activities, considered to be avant-garde in the urban planning of Chinese cities. These activities include interviews, questionnaires, a physical modeling and card exercise, different interest group discussions, conflict resolution meetings with the residents and the government, a private housing design clinic, a public space envisioning exercise, design guidelines and several presentation and discussion meetings with the residents and the government. After these participatory activities and information gathering, a set of maps was created digitally using new media to analyze the exiting conditions of the neighborhood.

With the field trip experience and participatory activities, a better plan for the preservation and upgrading of the urban design was to created through an incremental urban plan which can be implemented stage by stage, with a set of design guidelines that have enough flexibility for the residents to satisfy their own needs. This approach can reconcile the conflicts between the residents

and the government, and gradually achieve the goal of both rehabilitating the historic environment and improving the living conditions of the residents.

The incremental plan proposal is divided into three phases. The short-term proposal is to improve public living condition, such as infrastructure, public facilities, and landscape in public areas. Conserving and maintaining the traditional vernacular houses are also required in the first stage. The mid-term proposal is to demolish the top portions of over-limit houses and the massive illegal apartment building; both present extremely conflicts to the traditional architecture and historic public spaces. Another aspect is to refinish the façade of the modern style houses with traditional materials, or new materials matching with the traditional materials. Develop an open public space with beautiful landscape in the neighborhood. Relocate the families in demolished houses to a new residential area, which would be built in the first stage of rehabilitation. The long-term proposal is to designate this neighborhood as a historic vernacular preservation area for tourists, and to restore a traditional garden and several of the vernacular houses which were significant in the past. All new buildings must coordinate with traditional vernacular houses in style, material and massing. Maintain and improve the infrastructure and living conditions of the vernacular houses.

Design guidelines are the most important concept of the proposal, which have never been created in Quanzhou. They are a set of general yet explicit principles of decision-making about specific elements of the design. They are created to be used with the regulations at the same time, to allow residents a degree of flexibility for house and public space design and construction. Meanwhile, principles and regulations of preservation and upgrading for housing design are also proposed to give each house particular rules according to its own condition to avoid the guidelines being too general.

The next step of this participatory process is management and implementation of the plan in a creative, dynamic and participatory way. In order to achieve this goal, a new method shall be created and utilized. The author thinks that using new media is a suitable method for this process. Therefore, multi-media is proposed to be introduced to the neighborhood and the city, which can be used as both presentation of the outcome of the rehabilitation plan and a method of participatory management and implementation.



A multi-media presentation in a CD-ROM has been created which contains all of the information and background about the neighborhood, and the planning work to this point. These contents are presented by images, 2D drawings, 3D models, videos, animations, QuickTime movies and texts, which are put together and organized as a complete interactive multi-media movie. In the presentation movie, all contents are grouped into different topics to be selected to view in an arbitrary order.

Two copies of the CD-ROMs can be installed in two computer devices, called “kiosks”, which can be placed in the neighborhood and at the Municipal Planning Bureau. Users may access the kiosks to search all information about the neighborhood and the rehabilitation plan. The residents can search the design guidelines, principles and regulations and choose design examples for their housing preservation and upgrading. They can also give their feedback, questions and comments through the Internet by using contact information shown in the CD-ROM. The officials in the Planning Bureau can check the design regulations and the guidelines to decide approval for the preservation or upgrading proposals that the residents submit. Meanwhile they can regularly check and sort the feedback given by the residents and upgrade the regulations and guidelines to be more suitable for the neighborhood.

The future work for the Planning Authority is to continuously add, change, improve or upgrade information to this multi-media presentation according to the residents’ feedback, resulting in actual changes in the neighborhood and in the practice of housing preservation and upgrading. Planners and architects in the Planning Bureau can continuously add more individual housing design examples into the multi-media presentation until all the residents can have choices or references for their housing preservation or upgrading design. New features by computer science engineers can make it more interactive, by letting the residents vote on what they like or dislike, agree on or disagree on and submit requests and questions. Further, this multimedia presentation can be published on the Internet, so that it will be more creative, participatory and dynamic. And people all over the world can visit. The regulations and the guidelines can be edited and used in other neighborhoods, even be extended for use in the whole Old City of Quanzhou. Further more, this new media participatory approach, which hasn’t ever been used before, can be introduced to other urban design projects in China. It would become an important instrument developed to assist the community in dealing with the participatory transformation of the area.

## **Appendix A: Design Principles of Housing Preservation and Upgrading**

The typology of houses in the neighborhood is divided into five categories. The design principles are created according to these categories, which show the general rules of housing preservation and upgrading. Below are the design principles in each category.

### **(1) Traditional courtyard houses and colonial houses**

- Building typology, layout and courtyards must be strictly conserved.
- Structures should be preserved and supported.
- Traditional materials and fine details should be maintained and repaired.
- The dilapidated parts of the first courtyards must be restored as original as possible, and kept as one story.
- The dilapidated parts behind the first courtyards may be restored as original as possible, or at least using traditional materials and constructions, and not higher than two stories.
- The new modern elements, which were added to the traditional buildings, will have to be removed.
- Infrastructures and living conditions may be improved with modern technique without disrupting the traditional architecture.
- Interior can be renovated in traditional or modern style.
- The existing trees inside the houses must be maintained. Small trees and planters are strongly recommended to be placed into the courtyards.

Household numbers in this category include:

Q1, Q3, Q5, Q7, Q27, Q32, Q35, Q38, Q45, Q 53, Q64 & D19, Q93, Qinglong Temple.

There are 13 household numbers in total.

### **(2) Dilapidated historic houses**

- Houses need to be renovated or rebuilt as traditional style, or as modern style with traditional materials and details, especially the elevations exposed to public street space.  
(Also see Design Guidelines discussed in Appendix C)
- The traditional elements should be maintained as much as possible. Especially the traditional style facades along the street should be preserved and repaired.
- Either existing courtyards be restored, or relevant new courtyards be created.

- Height of the new buildings should be referenced with the original ones, and should not be higher than two stories.
- The existing trees inside the houses must be maintained. Small trees and planters are strongly recommended to be placed into the courtyards.

Household numbers in this category include:

G2, G3, Q4front, Q8, Q10, Q12, Q20, Q30, Q30back, Q28, D7, Q62, Q62B, Q62back, Q44, Q46, Q50, D23, D25, D27, D29, Q31, Q44back, Q23, Q27A, Q39, Q43, Q49, DC3, DC5, Q55-71, Q73, Q77, Q79, Q79B, Q79C, Q83, Q85, Q87, Q89, Q91.

There are 41 household numbers in total.

### (3) Multi-story houses with traditional architectural materials

- All third story and above of the houses along the public street spaces should be demolished; all fourth and above of the houses within 3.5 meters of the public street space should be demolished in the second stage.
- The modern elements which do not match to the traditional character must be removed, or replaced with traditional elements in the second stage.
- Houses can be renovated or rebuilt as traditional style, or as modern style with traditional materials and details or mixed with modern materials and details that match the traditional ones, especially the parts exposed to the public spaces. (See The Design Guidelines discussed in Appendix C)
- In general, houses should not be built higher than three stories. In addition, houses within 3.5 meters from the street should not be built higher than two stories.
- Courtyards in the house (if available) should be preserved, or relevant new open spaces must be created when renovated or rebuilt.

Household numbers of multi-story houses with traditional materials include:

Q12back, Q14A, Q14B, D5, D11, D13, D15, D21, Q66, Q68side, Q19, Q21, Q27B, Q27C, Q31, Q33, Q33B, Q33C, Q39A.

There are 19 household numbers in total.

### (4) Multi-story houses with modern architectural materials

- All principles for the third category also apply to this category.
- In addition:

- Houses with parts exposed to the public street space have to be refinished with traditional materials and details, or mixed with modern materials and details that match the traditional ones in the second stage.

Household numbers of multi-story houses with modern materials include:

Q2, Q4back, Q6, G1, D1, D2, Q14, Q14C, Q16, Q18, Q22, Q22A, Q24, Q34, Q36, D9, Q38side, D17, Q68, Q44mid, Q48, Q50back, D33, Q98, G4, G5, Q9, Q11, Q13, Q21A, Q25, Q39A2, Q39B, Q39C, Q51A, Q51, Q51B, Q95, Q97, H1.

There are 40 household numbers in total.

**(5) Poor quality and illegal developer-spec-built apartment building**

- The building must be demolished in the second stage due to its poor quality and negative impacts to the public space and to the neighbors. Replace the building with an open public place for greenery and a few public facilities to serve the needs of different kinds of collective activities by the residents.

Household number in this category is Q70. There are 48 families living in the building.

## Appendix B: Design Regulations of Housing Preservation and Upgrading

Here the regulations presented are only for the houses along the two sides of the street. For other houses behind the street, since there will be no significant changes, the Design Principles shown in Appendix A are enough to be used as a reference. The regulations must be used together with the Design Guidelines shown in Appendix C.

### (1) Housing design regulations for preservation and upgrading of the west side of the street

House - hold No.	Typology	Regulations	Demo- lished Areas
G4	Four-story modern style and materials with flat roof	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down; Refinish the building facade with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove the metal security grilles or place them inside the windows; Remove the metal security cages surrounding balcony; Replace big metal door with wood or matching material door; Scale down the house mass by setbacks, variation of materials, shifting the vertical and horizontal planes, applying visual breaks etc.	195M <sup>2</sup>
Q1	One-story traditional courtyard, pitched roof; good condition	Preserve strictly; Replace old roof tiles and rafters with new ones; Repair the inclined right side wall.	
Q3	One-story traditional courtyard, pitched roof; good condition	Preserve strictly; Replace old roof tiles and rafters with new ones; Rebuild the collapsed right side room in the first courtyard.	
Q5	Two-story colonial courtyard, pitched roof; good condition	Preserve strictly; Repair columns, beams, porches, and roof of the second-story; Repair drainage system.	
Q7	Four-story colonial, flat roof; good condition	Preserve strictly; Replace roof tiles; Repair the right sunk wall.	
Q11	Five-story modern	The third story of the houses within 3.5 meter-distance from the	150M <sup>2</sup>

	style and materials with flat roof	street shall be torn down; The whole top two stories shall be torn down; Refinish the building facade with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove the metal security grilles or place them inside of the windows and doors.	
Q13	Three-story modern style and materials with flat roof	The top story of the houses within 3.5 meter distance from the street shall be torn down; Refinish the building facade with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove metal security grilles or place them inside the windows and doors.	19M <sup>2</sup>
Q23	Two-story colonial, pitched roof; refinished with mosaic	Remove the mosaic and restore it to its original look.	
Q25	Three-story modern style and materials with flat roof	The third story of the houses within 3.5 meter-distance from the street shall be torn down; Refinish the building facade with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove metal security grilles or place them inside of the windows and doors.	27M <sup>2</sup>
Q27	One-story traditional courtyard, pitched roof; good condition	Preserve strictly; Replace old roof tiles with new ones; Replace the front base wall with granite, which should be the original material; Restore the “swallow-tail” style ridge.	
Q35	One-story traditional courtyard, pitched roof; the first courtyard part is in good condition	Preserve the first courtyard part strictly; Clean the front white stucco, replace it with original red brick; Remove the overhang added to the front façade; Replace the front metal door with a wood door; Restore the “swallow-tail” style ridge.	
Q37	One-story traditional courtyard, pitched roof; good condition	Preserve; Restore the partially collapsed front wall as original look; Clean the front white stucco, replace it with original red brick same as the adjacent wall; Replace the big front metal door with red brick wall.	
Q39C	Two to three-story	Refinish the building facade and the wall of the front yard with	

	modern style and materials with flat roof and front yard	traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove metal security grilles or place them inside the windows; Remove overhang of the front wall, or replace it with red terracotta tile roof-style overhanging; Replace the front big metal door with wood or matching material door.	
Q41	Two-story modern style, with modern and traditional materials, flat roof	Refinish the white tiles of the facade wall and balconies with traditional materials and details, or mixed with modern materials and details that matches the traditional ones; Replace the front metal door with wood or matching material door.	
Q45	One-story traditional courtyard, pitched roof; good condition	Preserve; Remove the front metal door, or place inside the wall, Refinish the top part of the one-story building, which was added along the street, with materials that match the lower part of the building.	
Q47	Dilapidated one-story traditional courtyard, pitched roof	Rebuild the house into one story with traditional style or modern style, but with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Preserve the front façade and maintain it; Remove the front metal door and overhang of household number 49.	
Q51A	Three-story modern style and materials with flat roof	The third story of the houses within 3.5 meter-distance from the street shall be torn down; Refinish the building facade with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Replace the front metal door with wood or matching material door.	16M <sup>2</sup>
Q51	Three to four-story modern style and materials with flat roof and front yard	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down; Refinish the building facade and the front yard wall with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Replace the front yard overhang with red terracotta tile roof-style overhang.	65M <sup>2</sup>
Q51B	Three to four-story modern style and	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down;	45M <sup>2</sup>

	materials with flat roof and front yard	Refinish the building facade and the front yard wall with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Replace the front yard overhang with red terracotta tile roof-style overhang.	
Q53	One-story traditional courtyard, pitched roof; good condition	Preserve strictly; Replace old roof tiles and rafters with new ones; Repair the front wall which has cracks on it; Rebuild the collapsed side room, with original traditional style; Repair the collapsed part in the second courtyard.	
Q55-71	Dilapidated one-story, pitched roof	Rebuild the house into one story with traditional style or modern style, but with traditional materials and details or mixed with modern materials and details that match the traditional ones.	
Q79	Two and a half-story, traditional materials with pitched roof	Clean the walls; Replace the concrete finishing wall of the second story with the same material of the adjacent wall; Remove metal security cages surrounding balcony; Remove metal security grilles or place them inside the windows.	
Q85	Two -story, traditional materials with pitched roof	Replace the white stucco-finishing wall of the first story with the same material of the adjacent wall; Use traditional material to rebuild the metal balcony.	
Q87	Two -story, traditional materials with pitched roof	Replace the gold metal door with wood or matching material door; Remove metal security grilles or place them inside the windows.	
Q89	Two -story, modern material-finishing with pitched roof	Refinish the building facade and the front yard wall with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove metal security grilles or place them inside the windows.	
Q93	Two-story colonial, pitched roof	Preserve; Remove overhang of the balcony, or replace it with red terracotta tile roof-style overhang; Use traditional material to rebuild the metal balcony.	
Q95	Three to four-story modern style and materials with flat roof	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down; Refinish the facade and balconies of the second and third stories with traditional materials and details, or mixed with	35M <sup>2</sup>



		modern materials and details that match the traditional ones; Remove metal security grilles or place them inside the windows; Remove metal security cages surrounding balcony; Replace the big metal door with wood or matching material door.	
Q97	Three to four-story modern style and materials with flat roof	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down; Use traditional material to rebuild the metal balcony.	20M <sup>2</sup>
H1	Two-story modern style and materials with flat roof	Refinish the facade and balconies of the second story with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove metal security grilles or place it inside the door; Scale down the house mass by using setbacks, employing variation of materials, shifting the vertical and horizontal planes, applying visual breaks etc.	

**(2) Housing design regulations for preservation and upgrading of the east side of the street**

House - hold No.	Typology	Regulations	Demo-lished Areas
Q2	Two to three-story modern style and materials with flat roof	Demolish the temporary shelter which occupy public street space; Refinish the building façade and balcony with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove metal security cages surrounding balcony.	
Q4 front	One-story with front yard, pitched roof	Demolish the temporary shelter which occupy public street space.	
Q6	Three to four-story modern style and materials with flat roof	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down; Demolish the temporary shelter which occupy the public street space; Refinish the facade and balconies of the second story with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove	56M <sup>2</sup>

		metal security cages surrounding balcony.	
Q8, 10	Dilapidated one-story traditional courtyard, pitched roof	Rebuild the house into one story (or two story in the back) with traditional style or modern style, but with traditional materials and details or mixed with modern materials and details that match the traditional ones; Preserve the front façade and maintain it.	
Q12	One to two-story with courtyard, flat and pitched roofs	Refinish the front concrete wall with traditional materials and details or mixed with modern materials and details that match the traditional ones.	
Q14	Three-story modern style and materials with flat roof	The top story of the houses 3.5 meter distance from the street shall torn down; Refinish the building façade and balconies with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove metal security grilles or place them inside the windows and doors.	35M <sup>2</sup>
Q16	Three to four-story modern style and materials with flat roof	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down; Refinish the building facade and the balconies with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove metal security grilles or place them inside the windows and doors, Remove metal security cages surrounding balcony.	50M <sup>2</sup>
Q20	One -story stone house, flat roof	Remove metal security grille or place it inside the door.	
Q22	Three to four-story modern style and materials with flat roof	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down; Refinish the building facade and the balconies with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Replace the metal door with wood or matching material door.	32M <sup>2</sup>
Q22A	Three to four-story modern style and materials with flat roof and front yard	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down; Refinish the building façade, balconies and yard wall with traditional materials and details, or mixed with modern	62M <sup>2</sup>

		materials and details that match the traditional ones; Remove metal security cages surrounding balcony. Replace the metal door with wood or matching material door; Replace the overhang of the front yard wall with red terracotta tile roof-style overhang.	
Q24	Three-story modern style and materials with flat roof and front yard	The third story within 3.5 meter distance from the street shall be torn down; Refinish the building façade, balcony and yard wall with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove metal security cages surrounding balcony. Replace metal door with wood or matching material door.	8M <sup>2</sup>
Q30	One to two-story with courtyard, combining traditional and modern style, pitched roof	Preserve the traditional façade by cleaning the north and south side walls to their original look; Refinish the concrete wall of the second story with traditional materials and details, or mixed with modern materials and details that match the traditional ones.	
Q32	One-story traditional courtyard, pitched roof; good condition	Preserve strictly; Replace the metal door with wood door; Replace old roof tiles and rafters with new ones; Repair the side rooms in the last courtyard; Repair the beams and rafters of the second courtyard; Rebuild the front part of the building with traditional style when necessary.	
Q34	Three to four-story modern style and materials with flat roof and front yard	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down; Refinish the building façade, balconies and yard wall with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Replace metal door with wood or matching material door; Replace overhang of the front yard wall with red terracotta tile roof-style overhang; Remove the metal security grilles or place them inside the windows and doors.	55M <sup>2</sup>
Q36	Three to four-story modern style and materials with flat roof	Part of the third story within 3.5 meter distance from the street shall be torn down; The whole top story shall be torn down; Refinish the building façade and balconies with traditional materials and details, or mixed with modern materials and	37M <sup>2</sup>

		details that match the traditional ones; Replace the metal door with wood or matching material door; Remove metal security grilles or place them inside the windows and doors.	
Q38 side	Two to three-story modern style and materials with flat roof	Refinish the building facade and the wall of the front yard with traditional materials and details, or mixed with modern materials and details that match the traditional ones.	
Q38	One-story traditional courtyard, pitched roof; good condition	Preserve strictly; Replace the metal door with wood door; Replace old roof tiles and rafters with new ones; Restore the white stucco wall into its original look; Restore the “swallow-tail” style ridge; Replace the structure of the back rooms with new ones.	
Q62B	One to two-story, traditional material, flat and pitched roofs	Remove metal security grille or place it inside the door.	
Q62	Two-story, stone, flat and pitched roofs	Remove metal security grille or place it inside the door; Refinish the south gate wall with traditional materials and details, or mixed with modern materials and details that match the traditional ones.	
Q64	One-story traditional courtyard, pitched roof	Preserve; Repair the overhang of the front facade; Rebuild the side rooms along the street; Rebuild the rooms in the second courtyard.	
Q66	Three-story modern style, traditional materials with flat and pitched roof	The third story within 3.5 meter distance from the street shall be torn down; Remove metal security cages surrounding balcony; Remove metal gate and overhang, or replace with wood or matching material door and red terracotta tile roof-style overhang.	28M <sup>2</sup>
Q68	Three-story modern style and materials with flat roof	The third story within 3.5 meter distance from the street shall be torn down; Refinish the building façade, balcony and yard wall with traditional materials and details, or mixed with modern materials and details that match the traditional ones; Remove metal security cages surrounding balcony. Remove metal security grilles or place them inside the windows.	11M <sup>2</sup>
Q68	Three-story modern	The third story within 3.5 meter distance from the street shall	11M <sup>2</sup>

side	style, traditional materials with flat roof	be torn down; Use traditional material to rebuild the metal balcony; Remove metal security grilles or place them inside the windows and door; Refinish the white stucco wall of the first story with red brick and gray-white stone to match the other walls.	
Q70	Six-story modern apartment with one basement, flat roof	Demolish the whole apartment building; Replace it with an open public place with greenery, some public facilities to serve the needs for the residents of different kind of activities.	5000 M <sup>2</sup>
Q44	One story, traditional material, pitched roof	Demolish the part of the building that is 2 meters from the street to make for public street space; Merge household Q46, Q48 and Q44 and rebuild into two houses with traditional materials and details, or mixed with modern materials and details that match the traditional ones.	24M <sup>2</sup>
Q46	Dilapidated one story, traditional material, pitched roof	Demolish the part of the building that is 2 meters from the street to make for public street space; Merge household Q46, Q48 and Q44 and rebuild into two houses with traditional materials and details or mixed with modern materials and details that match the traditional ones.	8M <sup>2</sup>
Q48	Two to three-story modern style and material, flat roof	Demolish the part of the building that is 2 meters from the street to make for public street space; Merge household Q46, Q48 and Q44 and rebuild into two houses with traditional materials and details or mixed with modern materials and details that match the traditional ones.	20M <sup>2</sup>
Qing-long temple	One-story new built traditional style, pitched roof	Preserve strictly; Remove temporary metal gate cage and roof of the front yard, or replaced with traditional style and materials.	

## **Appendix C: Design Guidelines of Preservation and Upgrading**

The Design Guidelines, which is a set of general yet explicit principles of decision-making about specific elements of the urban and housing design, shall be combined with the Regulations in the same time for house and public space design and construction. The objective is to allow residents certain degree of flexibility in the timing and manner of their compliance with the Regulations. [5]

### **STREET**

#### **Street Pattern and Width**

- The street should favour pedestrians over cyclists, cyclists over motor vehicles (except emergency), and support social activities as well.
- The width of the street should be preserved. It should not too wide in order to keep the intimacy, cozy and human scale of the street.
- But it should be wide enough for emergency vehicles such as police cars, fire trucks, and ambulances.
- Jogs and width changes along the lane help create a sense of intimacy and interest, and support a range of social activities.
- Small alleyways between buildings on either side of the lane add to the hierarchy of access and sense of privacy, and their entrances should be highlighted by street furniture, lighting, and changes in pavement, overhangs or other elements.

#### **Street Space**

The space of the street in section may be considered as consisting of three zones, moving from ground up to sky:

- Earth zone: includes street paving, gutters, planters, street furniture, garden lantern and wall bases, steps and thresholds of the buildings lining the street. Elements in the earth zone should be similar in material and colour; heavy materials and large construction units like granite block should predominate.

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[5] These Guidelines are based on the Design Guidelines created in the summer of 2000 in Quanzhou by Dan Abramson, Danny Chan, Alex Chang, Savina Praseuth and the author, forming part of the results of the participatory process.

- Middle zone: includes ground-level facade of buildings (above the wall base), streetlights, shrubs and small trees. Elements in middle zone may be more varied and of finer and lighter construction than in the earth zone. Finer stone, brick, wood or stucco should predominate. The elements should mainly be warm colours (except greenery).
- Sky zone: includes the visible upper-level facades of buildings, balconies, cornices roofs, tree canopies and overall skyline. Elements in sky zone should not be massive or intrusive, or should be set back from the street. They should allow adequate natural light penetration and wind to reach the street. The elements should mainly be warm colours (except greenery).

### **Street Furniture**

- It should be functional as well as decorative.
- It should be predominantly of heavy granite block or slabs with unpolished surfaces.
- It should be located at widened sections of the lane, beneath shade trees, or wherever social activities are concentrated.
- It also includes some water-related elements like stone basins, wells or fountains.

### **Street Lighting**

- Street lighting that assists pedestrians to identify objects and other people in the lane at night shall stand between 3m and 4m high.
- Street lighting that highlights changes in the ground such as steps and curbs, or other changes in elevation or edges to pathways should stand less than 1m high, e.g. garden lanterns.
- The number of light posts should be minimized; light fixtures can be attached to buildings to minimize occupation to the street space.
- Lighting need not be evenly distributed throughout the lane. Lighting should be concentrated at intersections, entrances to side alleys, entrances to buildings, and outdoor seating areas.
- The type of lights, including materials and forms, should be chosen to match the historic environment.

### **Alleyways**

- They should be free of obstacles for emergency access.
- Balconies and overhangs should not extend into the alley space to avoid fire spread from building to building.
- Their entrances may be identified with gate-like roofs or overhangs.

### **Planters**

- Planters should be of granite blocks or slabs placed either horizontally or vertically.
- Tiles should not be used as surfacing material on planters.
- Planters can also serve as benches, especially under shade trees.
- Planters should be placed at wider spots on the street to avoid blocking traffic.
- Planters should be placed cooperating with small trees.

### **Trees**

- Trees should be used to beautify streetscape, define space and direct views as well as to provide shade from the heat and sun, provide visual screening and privacy, and attenuate airborne sounds.
- Small trees combining with planters should predominate the street greenery.
- Large trees may be grown along the street only in widened areas. Otherwise they should be planted in large open spaces such as a park, or in private yards.
- Paving may go all the way to tree trunk, with configuration of paving and size of paves adjusted to allow growth of tree.

### **Paving**

- Material used in lane paving should be primarily granite slabs.
- Orientation of stone paving should not run parallel to the flow of traffic as prevention against bicycle wheels being trapped inside the gaps.
- Brick should be used sparingly and outside the main flow of traffic.
- Smooth or polished surface paving should not be used on public streets because it becomes slippery when wet.



- Patterns on pavement can be used to decorate points of transition, such as entryways to houses or side alleys.
- Pave size and weight should be standardized to allow easier repair and replacement.
- Paving may be designed to allow easy access to underground infrastructure.

### **Infrastructure**

- Infrastructure should be hidden underground except for storm water drainage, which should be isolated from wastewater drainage.
- Storm water drainage should be a feature of the street design, and include decorative stone or ceramic drains and granite gutters.

## **BUILDING FORM**

### **Massing & Setbacks**

- Traditionally, houses use courtyards as the means of bringing in natural light. But modern houses at Qinglong Xiang enclose as much space as possible and rely on the exterior envelope to obtain natural light. If each house is built in the current modern style, then lighting quality will become a serious issue even in multi-story buildings. Therefore, new houses should include setbacks, and should also include courtyards and lightwells where possible.
- Setbacks should be determined in relation to the width of the street and the height of the surrounding buildings in order to provide enough natural light and ventilation to adjacent lanes and buildings, and to avoid overshadowing of the street.
- To retain the intimacy and vernacular face of Qinglong Xiang's neighbourhood, the mass of multi-story buildings should be broken down by employing variation of materials on the façade, shifting the vertical and horizontal planes of the face of the building, or applying visual breaks.

### **Roof**

Roofs of new buildings should reference traditional vernacular or colonial style, or combination of both.

- Traditional vernacular style roofs consist of curved pitches, overhanging eaves with wood brackets, high fire walls or gable ends, “swallow-tail” roof ridges, red terracotta roof tiles. The higher the roof, the longer the roof spans.
- Colonial style roofs consist of straight pitches, balustrades, cornices and parapets, red terracotta square floor tiles. The higher the building, the shorter the roof spans.

### **Balconies, Overhangs, Porches, Parapets and Cornices**

- Balconies should not extend either beyond the property line or along the side alleys due to potential fire spread
- Roofs or overhangs over gates in garden walls may extend beyond the property line.
- In large houses, building mass should be reduced on upper stories by using porches or terraces instead of fully enclosed rooms on the side(s) of the house facing the street.
- Caging surrounding balconies must not be used.
- Cornices should be articulated and may extend outward from the face of the building.
- Each of these features should be of materials and detailing that references traditional or colonial vernacular architecture.

### **Courtyards and Lightwells**

- Courtyards and lightwells must be preserved in traditional courtyard houses to provide sunlight, ventilation, activity spaces and greenery spaces. They are one of the important characters of traditional vernacular houses.
- In new buildings courtyards and lightwells are highly recommended to get more sunlight and ventilations as well as to reduce the building density.
- Trees and plants are highly recommended in courtyards and lightwells.
- Drainage systems should be provided in courtyards and lightwells to drain rainwater.
- Rough granite should be used as the paving material of courtyards and lightwells.
- Traditionally, courtyards and lightwells are lower than ground level of rooms, with steps as transitions to them.

## **EXTERIOR FACADE ELEMENTS**

### **Gates and Entries**

- Gates in garden walls should have roofs or overhangs.

- Traditional entries are recessed and contain fine carvings around the doorways.
- Materials around entrances should be mainly of granite, though more finely cut and finished than the granite in the street.

### **Steps and Thresholds**

- Designs for steps and thresholds should be considered as part of the “ground zone” and be of granite or other materials that blend in with the street pavement.
- Steps and ramps should not be allowed to extend too far into the public spaces, as they can become obstacles against pedestrians and vehicular traffic; if necessary, steps and ramps can be turned parallel to the building face.

### **Doors**

- Doors should be of wood whenever possible; if metal doors are used, they should not be visually dominant.
- Metal door grilles are acceptable, if not highly reflective and kept free of rust.

### **Windows**

- Window openings may not occupy more than 1/3 of the entire facade area.
- Window openings should be vertically oriented or square in shape.
- Windows should be divided into frames that open outward, casement-style, with overhead transoms; sliding frames should not be used on publicly visible facades.
- Window glazing should be transparent and colourless.
- Window frames visible from the public space must be of wood; metal and sliding frames should be used only behind stone, brick or ceramic grilles.
- Security grilles should be placed on the interior face of the window.
- If security grilles are placed at the exterior face of the window, they should be placed such that they are invisible from the street; caging around windows should not be used.

### **Wall Structure and Facing Material**

- Local red brick and white granite should form the basic architectural background, as they are the tradition in Quanzhou’s old city. Glazed ceramic tiles contrast sharply with Quanzhou’s vernacular architectural tradition, therefore, should not be used. Brick, stone

and stucco should be the predominating building materials as they are graceful as they are aging.

- A suitable wall design in Qinglong Xiang should make reference to the following:
  - Facing materials in Quanzhou's vernacular architecture are "swallow-tail" red bricks in extensive, which have various construction patterns, often with granite stone quoin.
  - Red bricks and stones are arranged in characteristic patterns called "chu zhuan ru shi" or in other creative patterns (hua zhuan). "Chu zhuan ru shi" should be used only for garden walls and one-story buildings.
  - Other materials that compose a vernacular wall structure are granite at the base (base stone), and brick cornice or wooden eave at the top.
  - Many existing traditional walls are comprised of a mortar and rubble core, which is sandwiched by brick facing or other decorative facing materials.
  - Plaster and stucco in earth-toned colour may be used as a facing material, especially in combination with a granite wall base and stone or brick framing around windows, doors and corners, and brick cornices.
- Glazed tiles can be improved by replacing the tiles with stucco, clay facing brick (plain red or swallowtail pattern), or tiles that are less shiny and are similar in shape and color to red brick, with joints that are similar in width to bearing-wall joints.
- If large areas of a multi-story wall surface covered by glazed tile are replaced with another material (as above), the new material should not be uniform across the entire facade, but should be varied:
  - Corners of the building or window openings can be trimmed with different materials or colors than the main area of the wall.
  - Floor or sill levels can be articulated by a change in facing material, or by a joint (if the material is stucco).
  - Shifting the vertical and horizontal planes of the face of the building, and/or applying visual breaks.
- The principle of using materials are: heavy, large size, rough and natural materials, such as rough granite, should be used on the lower parts of buildings; less heavy, mid-size, non rough and more artificial materials, such as brick, polished granite, wood, should be used on the middle parts of buildings; light, small-size, smooth, artificial and finely detailed

materials, such as stucco, ceramic and terracotta tiles, wood, should be used on the upper parts of buildings.

- Traditional materials and their use are shown below:

NAME	COLOUR	USE	ILLUSTRATION
Red Brick	Red	Exterior wall, garden wall	Vertical oriented construction
Swallow-tail brick	Red with black	Exterior wall, garden wall, column, window frame, parapet, roof planter, balcony, cornice	Combined with red brick and granite, they should be the predominating building material.
Granite	Gray-white	Exterior wall, garden wall, column, beam, window frame, wall base, planter, step, street furniture, garden lantern, paving, carving, visual break	Granite should be the material predominated the earth zone.
Terracotta roof tile	Red	Pitched roof and overhang	Glazed ceramic roof tile should not be used.
Mortar	Light yellow or red	Exterior wall, garden wall	Usually comprised with rubble core, plus other decorative facing materials.
Wood	Wood colour	Structure, window and door frame, door, interior wall, carving	Traditional wood structure should be replaced with wood when being repaired.
Terracotta floor tile	Red	Floor, flat roof	
Ceramic vase-shape balustrade	Green	Balustrade of balcony and parapet	It should be used with “swallow-tail” brick.
Sea shell	Gray-white	Exterior or interior side wall	

- Other materials, which can match traditional materials, and their use are shown below:

NAME	COLOR	USE	ILLUSTRATION
Non shiny	Red	Exterior wall, garden wall	It should not be used in

modeled tiles, similar in shape and color to red brick			vernacular house repairing.
Non shiny modeled tiles, similar in shape and color to swallow- tail brick	Red with black	Exterior wall, garden wall, column, beam, window frame, wall base, planter, step, street furniture, garden lantern, paving, carving, visual break	It should not be used in vernacular house repairing.
Modeled stone, similar in color to local granite	Gray-white	Exterior wall, garden wall, wall base, window frame, visual break	It should not be used in a large wall area and should not be used in vernacular house repairing.
Stucco, Plaster	Warm colors matching traditional materials	Exterior and interior wall, window frame, visual break	It should not be used in a large wall area. It is better used on upper levels.

### Wall and Roof Plantings & Front Gardens

- Plantings can be used to mitigate the impact of glazed wall tile or other undesirable elements on facades.
  - Trellises, window boxes or rooftop planters can hold trailing and vining plants that mask the exterior wall.
  - Trees can be planted in front gardens or in public space to block views of the wall.
- Large trees in private gardens must be preserved.
- Trees are highly recommended in front gardens. They can change the skyline of the street.

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