idiosyncrasy of two architectural forms. And the similarity provides the foundation for the renew design.

5.3.2. Complement

With the further study of the traditional building complex and mat building, I realized that some characters of the designing strategies of mat building could aim at the limitation or demerit of the traditional building complex, and carry out the proper ameliorative renew design. In the concept, the designing strategies of mat building `match` the traditional building complex in the renew design. `Match` means complementary. The

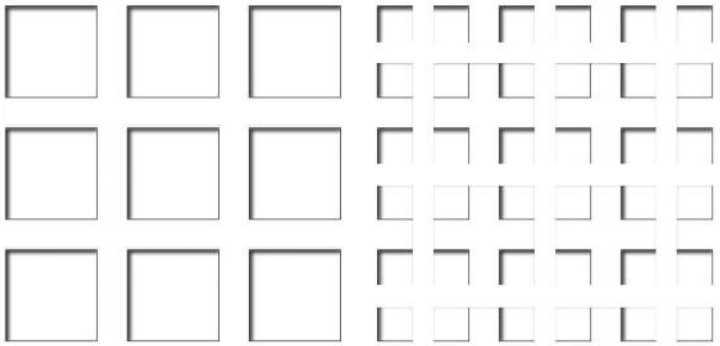

Fig. 5-40 Unit Comparison (Traditional Building Complex- Left/ Mat Building- Right)
Source: Author

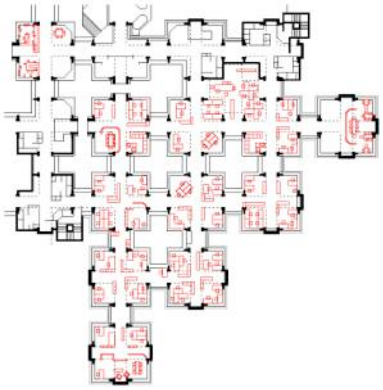

Fig. 5-39 Open and Multifunction Units
Source: Author

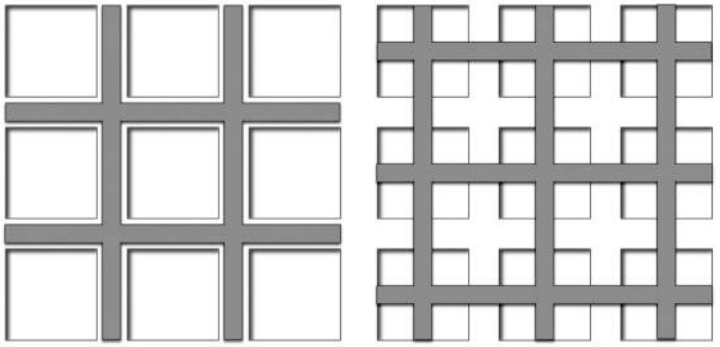

Fig. 5-38 Strategies Comparison (Traditional Building Complex- Left/ Mat Building- Right)
Source: Author

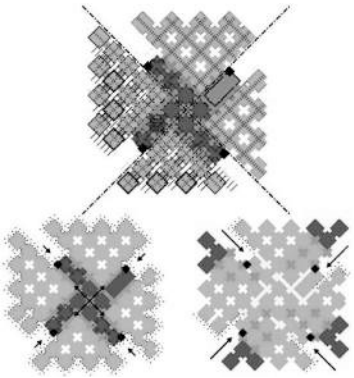

Fig. 5-37 Interior affective Strategy
Source: Author

match between the traditional building complex and the designing strategy of mat building expresses in space, function, structure and diverse aspects.

From the evaluation in the cognitive view of traditional buildings, the most serious limitation of in traditional building complex is the obturation, which is the result of Chinese traditional culture and constructive reasons. In the community level, the component of tradition building complex is mostly roads and dwelling houses. Each dwelling house is a closed courtyard or courtyards, enveloped by the walls around. Road system plays the role of communication space. In the unit or courtyard level, even in the same courtyard, different houses are separated in diverse level, which reflects the relationships and respects in Chinese traditional society. However, the direct results of the obturation are the closed courtyard and small spaces in wooden structure. The closed courtyard, basing on self-development, ignored the infrastructure and connection with the community, which cause the physical condition and energy of community remaining in low level. The closed wooden spaces were used for the living spaces. With the transformation of the time, the life mode of the whole

family was replaced by the mode of small-scale family. The small wooden spaces could not meet the contemporary dwelling needs. Further more, the closed small space limits the compatibility for introducing other functions. The low compatibility leads to the traditional buildings in the low utilization, losing the energy, and finally abandoned. The fixed and closed walls limit the spaces in the settled shape since being built. The settled space means the low flexibility. Both the low compatibility and flexibility of traditional space result in the rejection of the new functions and proper alternation to meet the needs in contemporary society, in other words, in low adjustability.

As mentioned in the introduction of mat building, some of the designing strategy of mat building seems perfectly match the limitation of traditional buildings. The matrix effect, stated in the renaissance periods, provides the foundations in containing the diverse and characteristic spaces and their alternation. The matrix concept, aiming at the obturation in community, manages the whole complex as the matrix, the diverse spaces as the insertion; then the close connection would be constructed among the building complex. The matrix strategy combines the building complex as a whole, introducing the flowing spaces and infrastructures. Then, the operational strategy and flexible units together transform the closed wooden space and the yard space. The advantages of operational strategy and flexible units are the flexible space and the space organizing in the flowing special order.

Another defect in traditional building complex is their poor physical condition. In the view of entropy, to sustain the value and meaning, the building complexes need to be renewed while conserving their characteristics in form or beyond. In the view of time, we should explore the profound meaning and value of traditional buildings and specially the value in contemporary society. Further more, in view of space, the connection with the citizen and community should be reestablished to improve the energetic atmosphere in community, and arouse the public memory in the community. All the views in cognizing the traditional building complexes indicate that traditional building complexes need the renew design.

5.3.3. Motivation

Generally, the primal motivation of the renewal design for existing buildings aims at maximizing values, which means an arduous balance or choice between the original attaching values and potential acquiring values. With the instruction of the diverse values on traditional building complex, we establish the comprehension of the values related on existing buildings. The values include two aspects, the original attached values in the past and the potential acquiring values in the future. The original values attach on the traditional buildings through the long period of time since built, including the effect of historic events, time, natural force and the potential ecological values. The potential values would acquire through the transformation process, in which the existing buildings gain the abilities in containing new spatial experience and functions. The transformation values are, mainly, the application or utility values.

The original values and the potential values have conflicted for centuries. The motivation of the renew design is to reach the balance point and maximize the value of the whole building. In other words, the motivation of the renew design is to stabilize the original values and, in the same time, gain the potential values.

The original values include monument value, history value, age value and ecology value. The common points of the four kinds of original values are their physical carriers, existing buildings. The conditions of physical carriers determine the existence and status of the original values. While, the physical carriers of the original values belong to separate parts of the building. The continuance of monument value depends on the existence of original buildings and their environment, according to the specific monumental contents. The structure and environment exist, and the monument value continues. Because the

historical value concerns more on the historical information, the physical carrier of the information, the whole structure, should be conserved to maintain much historical information as possible. The age value gains in the using process through the time, so the vestiges in the surface are the carriers to pass the age value. As in the monument value, the existence of the structure is the carrier of the ecological value, which avoids the huge loss and waste in the reconstructing process.

The potential values usually gain through the transformation, or renew, to acquire the abilities in containing the bran-new space experiences and functions. The transformation process not only extends the capacity of the existing buildings, and, objectively, prolongs the effective life of them. Through the comprehension of the buildings, the transformation process could mend the existing buildings in multi-aspects, such as time, space and energy. Because of the alternation happened in and around the building, the original setting in the buildings do not match the social environment in contemporary, which blocks the normal function of a building and shortens its life. The transformation process could reconstruct the relationships in aspects of historic context, urban environment and processing energy. In the view of time, the renew design would solve the time distance between the present and the past, and explore the existing structures, which are out of time, with contemporary values. In the view of space, the renew design would restore the original shapes enriching the urban forms, and enhance the connection with the environment through the energetic activities introduced into the existing structures. In the view of energy, the renew design would provide the material and functional support to the existing buildings, which strengths the structures and matches the contemporary functional demands, objectively extending the life of buildings. In all, the transformation, renew design process, could introduce the new activities and some modulation capacities into the existing buildings engendering the potential values in time, space and energy aspects.

To balance the original and potential values, there are some basic rules to follow during the renew design process, which include the essential space measures in renew design.

1. The clear distinction lies between the original and additional spaces, which provide the spaces for separate development and a clear-cut sign of transformation.
2. The transformation or addition of important buildings could be removed, which provides the remedial possibility for future preventing the permanently irreparable scars for contemporary ignorance and impulsion.
3. The addition spaces should well cooperate the original spaces. The cooperative relationship would benefit the both and adapt to the further development.
4. Explore the compatibility of the original spaces. The compatibility means containing the multiform additional spaces, and possessing the adjustability and flexibility.
5. The additional and original space should be in similar characteristics.

In practical renew design, the final strategy should well consider the renew design result in the both aspects

5.4. Renew Design Process

Before the formal renew design process, I briefly hackle the subject studies and special analysis emerging previously in my research, in order to make a distinct clue connecting all the background information.

Generally, this paper includes two parts: background literature research and renew design process. The literature research introduces the essential notion, character, evolution and other related contents on renew design, traditional building complex and mat building.

First, according to the essential task of the research--the renew design, the chapter on the renew design introduces the instructional notions and space models in the field. The notions outline the direction and scope or degree of the renew design, ensuring it in the proper supervision. And the space models demonstrate the general relationship between the original spaces and adding spaces.

Second, the studies on traditional building complex, which is the key-object of renew design, include the formal characters, from planning to construction, and the diverse values attaching to them. The planning characters improve the understanding the evolution of the traditional building complex, while the design and construction characters provide the technical support for the renew design. The attaching values are the essential reference of conserving contents, and the values become the judging standards for the renew design.

Third, the studies focus on renew-design method, the mat building strategies. In this part, the contents include the evolution and the concrete designing strategies of renew design. The evolution of the mat-building, since 1950s, establishes the full image for me, and also implies the potential application, both of which are effective reference during the renew design process. According to the comprehensive understanding of mat building, I surmise the concrete designing strategies of mat building.

After the literature research, the research gets into the part of renew design process. The renew design is a complex process. It includes preparation stage, design stage and evaluation stage. Each of the stages supports the final outcome from separate angles.

Preparation stage means the related demonstration and reference cases. The demonstration proves the necessity and feasibility of the renew design. The reference provides the partial matching cases studies. The both contents ensure the renew design on the right track.

Then comes the concrete renew design measures. The renew design carries out in different scales, from community to building detail. Above all, the guideline and scope of the renew design confirm according to the renew notion and attaching values of traditional buildings. In community level, the design combines the isolated spaces, and solves the infrastructure with overall view. The operational strategies strengthen the connection and organization of the site. One or several buildings form the essential unit, which is the basic component of both function and structure. Finally, after balancing the original values and organizing strategies, the design would make further improvement in detail level.

With the outcome of the renew design, the evaluation process carries out with the standards from both renew notions and traditional values.

So much for summarize, let’s get into the recountal.

The introduction of renew design process includes two aspects: stating the renew measures, and illustrating with the concept design. The renew measures bases on the previous theory and literature research of three essential fields. Following that, a concept design further illustrates the idea on a real site in Ci, a historical town in the east of China.

Ci Town officially established in Tang Dynasty (738 AD). In history, it was the crucial regional center of culture, economy and politics. Ci surrounds by mountains in east north and west, three directions; a river runs in the south; and a lake lies on the north. Both the natural and artificial environments determine the formation of the town. Ancient ramparts of Ci are shaped by the edges of nature. Road systems inside strictly arrange in grid squire. The style of buildings follows the local culture and habitude. Native government office and great families’ clan temples dominate the rest dwellings. For now, Ci still maintains the traditional form and space patterns, but in poor condition. The renew design is urgent for the historical town before further corruption from natural and social environments.

Fig. 5-42 Location, Geography Condition and Ancient Map of Ci Town
Source: Author, *Cichengzhi*

Fig. 5-41 Ci Town Syntheses /Source: Author

Fig. 5-44 Location of Site /Source: Author

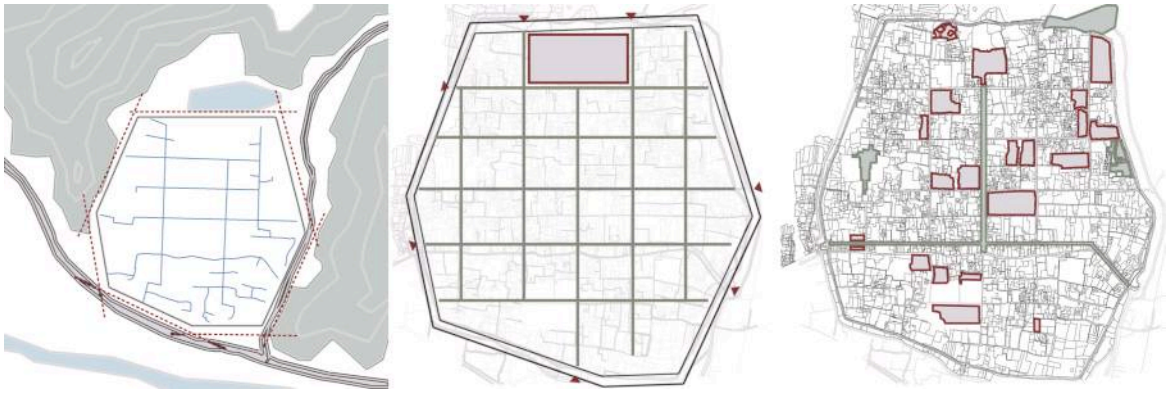

Fig. 5-43 Nature (left), Politics (middle) and Culture (right) Infectors / Source: Author

5.4.1. Guidelines

According to the notion of renew design, the guidelines should be set at the beginning before the concrete measures, which ensure the renew design process in proper direction and extent. Any error in the start would lead to the failure of whole activity at the end. The guidelines are indispensable.

In view of time/ history, the renew design aims at exploring the values in the past and reviving them in contemporary environment. In view of space/ urban, the renew design aims at maintaining the diversity of urban component and citizen activity. Further more, traditional building complexes possess values in monument, history, times, ecology and other aspects. All views above imply the importance of the original and conserving measures. So, the renew design should maximally conserve the original parts in all levels, from planning, structure, scarfskin, and details.

In view of energy/ entropy, the renew design aims at reduce the lost of both energy and function in time. In physical, proper reinforcement and replacement of existing components would be enough. While, in function, an overall organizing and self-adjustment system could create flexible and tolerant spaces, which could contain more potential functions or spaces and extend the service life of buildings.

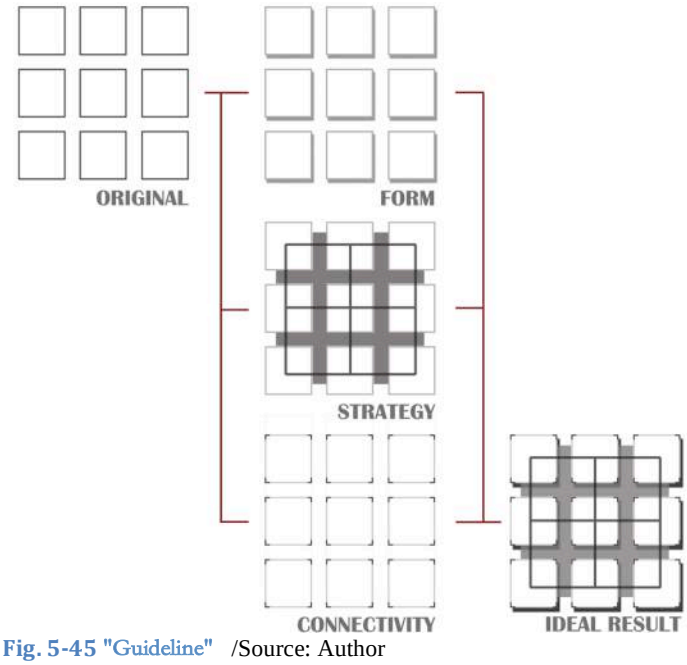

Fig. 5-45 "Guideline" /Source: Author

In general, the renew design should balance the values from the past and the application in future. Conflicts in between during the renew process should be resolved in multiple levels. Briefly, the designing system should control the whole project, which could radically improve the poor organizing condition in the traditional building complex; the conserving measures work on the partial and details in order to maintain the precious information. And also some other ways could apply in renew process. The idea guideline is to conserve the existing values and introduce the organizing strategies for further application.

The guidelines indicate the basic task and principle in concept design process. Essentially, it is a kind of balanced relationship between new and old, conservation and development applying in concept design of Ci Town.

First, conserve the “old” form and value. For one thing, the form is the specific strategies and wisdom of local citizen in answering the social and natural environments. The shape of Ci answers for the national landscape. The center and symmetry arrangement and grid road-system imply the political status. The public buildings and open-spaces prove the economy and culture development in the town. The residence, which possesses the most area in the town, combines the Chinese traditional philosophy and art thoughts within courtyard form. For another, values are deep-level wealth of traditional built environments. Usually, values grow during the long-term evolution of buildings, and their existence attaches on the whole or concrete parts of buildings. Different from form, values are irreproducible. So, in the renew design process, the specific measures should be cautious in treating traditional building complexes, from the whole to detail components, because it concerns with the information, logic and values attaching on the physical level of traditional building complexes.

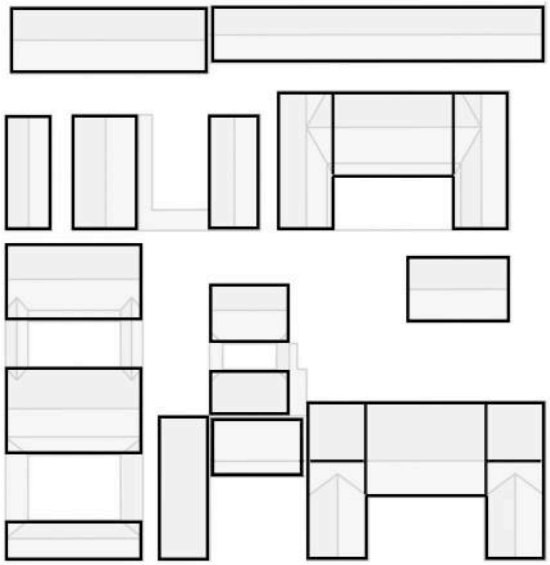

Fig. 5-46 Renewed Content: Isolated Space /Source: Author

Second, introduce the “new” space-organization system. According to the previous analysis on function, we realized that the isolated, inflexible and narrow spaces in traditional buildings are the main reason for their decline. The space limits containing the new functions. Hence, a flexible,

tolerant and self-adjusting space-organizing system should be introduced into the existing building complex to accommodate new functions and possible alternations, which would greatly extend the duration of building. Only existence survives the information, logic and values attaching on traditional buildings.

Overall, the renew design in Ci town should balance the weight of old and new, and modulate the conflicts in concrete levels to reach the maximal benefit for whole and future.

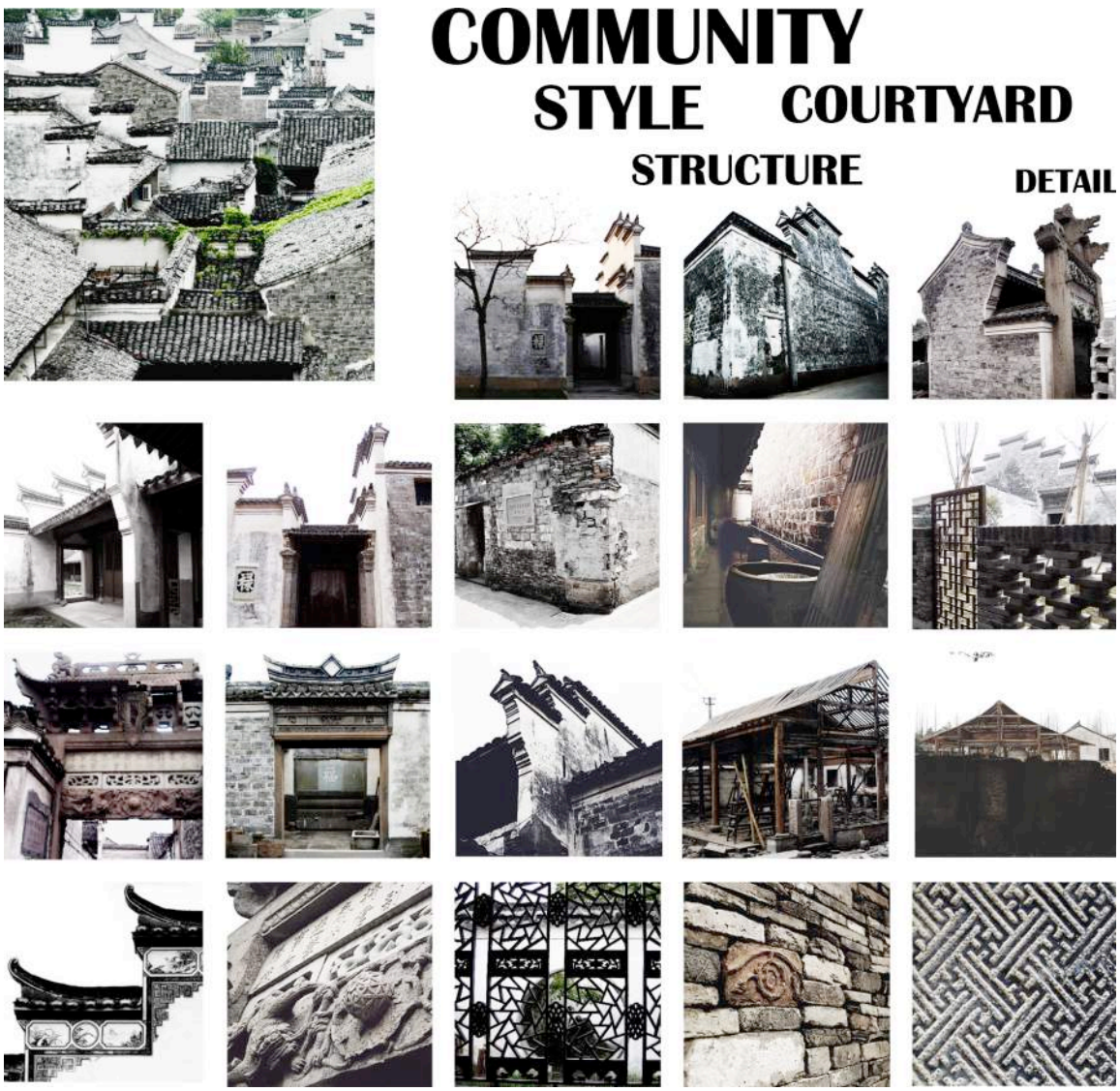

Fig. 5-47 Conservation Content /Source: Author

5.4.2. Integration: an Holistic View

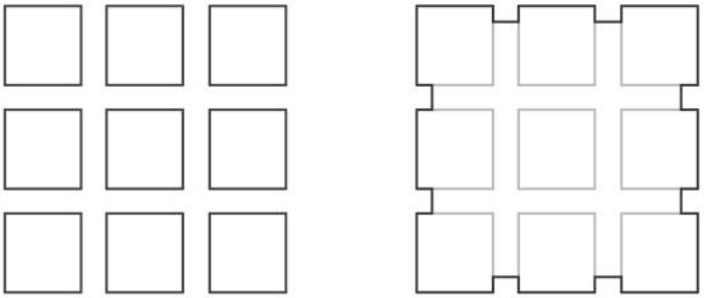

Fig. 5-48 Integration / Source: Author

Why integration? Integrating the built environment in the selected site base on the consideration in three aspects, including both the guideline and mat strategies.

1. Be beneficial to the conservation of traditional built environment. According to the *Convention Concerning the Protection of World Cultural and Natural Heritage*[1], the traditional built environment as a whole union possesses significant values in maintaining historical cultural. The integration would conserve the built environment from the overall view, and reduce the damages in connection points and oversights. The integration improves the whole values of the traditional communities.

2. Be beneficial to the re-using of existing buildings. According to the previous research, the integration of existing built environment, including both buildings and open spaces, could gather enough space to contain more flexible and tolerant platform for new functions and spaces.

3. Be beneficial to introduce the mat strategies. One of the essential characters of mat-building is operation and regulation on the building. The integration combines the buildings in horizontal, which constructs the platform for mat strategies.

Then, the outcome of the integration, or the platform, should possess several characters, which match the mat strategies.

1. Horizontal extension. From normal mat buildings, the integrated built environment, or platform, should possess the proper scale in horizontal dimensionalities, such as the scales of community or block. And the scales in horizontal direction should be much more than the vertical scales, in other words low rise and high density.

2. Homogeneity. The components of the integrated built environment, or platform, should be in the same or similar qualities. In the selected site, the components are dwelling gardens. Both the buildings and courtyards are in the similar scale, function and arrangements.

3. Continuity & Openness. The integrated built environment should be continuous, without huge obstruction or cracks, and open to around, without isolated or closed individuals.

All the three aspects combine the existing built environments into a united platform. The platform is the foundation for the mat designing strategies.

So far, the integration is the transformation in form and, with great significant, in cognition. It's a preparation stage in cognition for further renew design. In this stage, the integration remains in blueprints and cognition level. It's not a one-off action roughly carrying out. It's only a preparation in concept. All the practical alternation would submit to the strategies and renew rules following. And the operation carries out following in levels, steps and strategies, minimizing the negative influence on existing built environments.

[1] UNESCO. Convention Concerning the protection of the World Cultural and Natural Heritage. Paris. 1972

Fig. 5-49 Building Integration in Ci Town
Source: Author

Infrastructure: the development of modern science and social life greatly promote the advancement in built environment, which profits in diverse facilities, such as electricity, water and Internet. The facilities become an indispensible in modern life. While, decays ago, the facilities are the novelties.

Fig. 5-50 Infrastructure Integration: Original (left) and Integrated (right) /Source: Author

In the integration stage, the renew design should consider the arrangement of both essential and potential infrastructures. The central arrangement and proper reservation of infrastructure could reduce the damages to the existing buildings. The arrangement breaks the limits of original units and evenly distributes in the site. Pipelines hide underground and signals broadcast without lines. Parking lots also arrange underground or outside the town.

The measures minimize the negative influence to the existing buildings, and guarantee the high quality space still available.

Fig. 5-51 Parking Solution /Source: Author

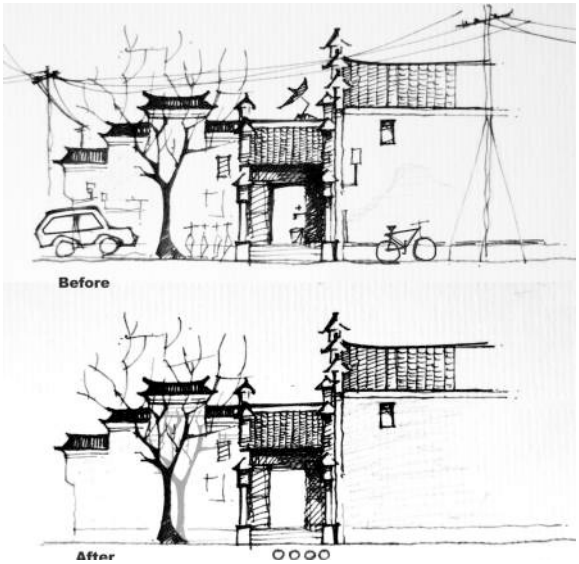

Fig. 5-52 Comparison /Source: Author

5.4.3. Strategies:

The original organization strategies, namely planning rules and garden skills, exist in the site for hundreds years. The two, separated by courtyard walls, regulate space in either side. The kind of space partition and regulation matched the traditional social culture for a long time until today. The walls become the obstacle for accommodating new newborn stuffs. The integration reduces the restriction of walls, and forms a platform in the site for new organizing strategies.

The new strategies acquired form the cases of mat-building. The strategies focus on the designing problems in diverse levels, from community to unit. In the research, the strategies would applied in the renew design process separately, and combine the outcome in levels. “Mat” focuses on the logic in form. “Network” organizes the components with strategy and relation network. “Matrix” provides a new accommodating mode. “Urban” concerns about the experience and activity in the building complex.

MAT

Mat is the designing strategy according to the form logic. A “mat” building possesses following characters: low rise and high density, or horizontality; specific form regulars; extension or growing. In mat-building, the mat strategy shapes the mat-building, such as Amsterdam Orphanage by Aldo van Eyck.

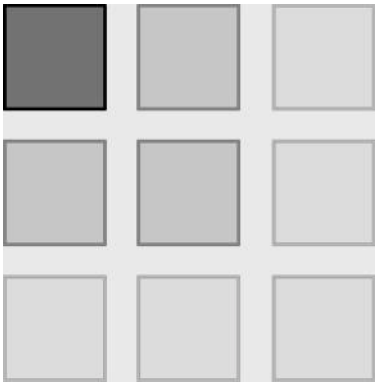

Fig. 5-53 "Mat": Horizontality +Texture +Unit
Source: Author

While, in renew design, the mat strategy matches the characters of traditional building complexes. According to the previous research on traditional buildings, traditional building complexes compose of homogeneity dwellings densely arranged in horizontal direction. The courtyard dwellings follow the garden skills in construction, and also comply with the urban planning rules in arrangement. With the double restriction of planning rule and garden skill, traditional building complexes express some specific texture and rules. In the historical town or district, the traditional buildings hold the large area. The extension and growing mean that the renew process could spread from the selected site to around covering the whole historical town and also provide the reference for the new built historical communities.

The form similarity of both mat-building and traditional building complex brings to the possibility in reviving the traditional communities.

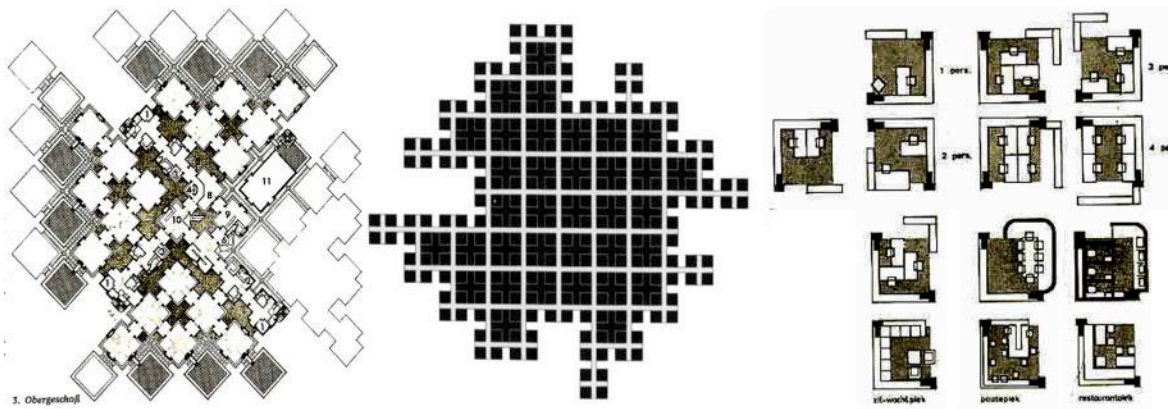

Fig. 5-54 Amsterdam Orphanage: Horizontality (left)+ Texture (middle) +Unit (right)

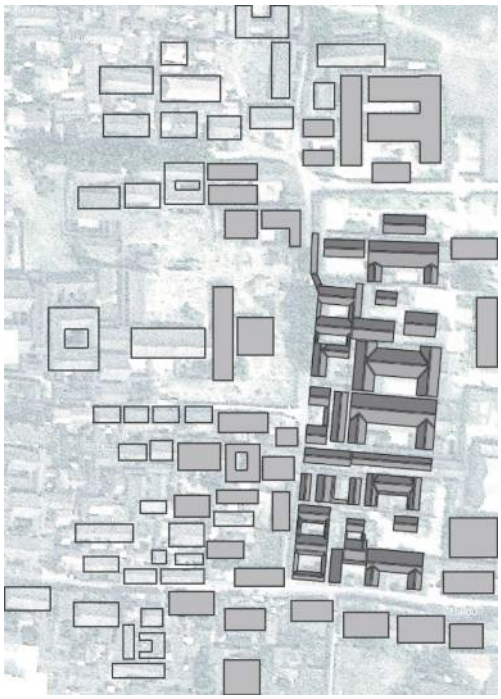

Fig. 5-55 Mat-Horizontality: Traditional Buildings extending in horizontal directions, like a mat covering on the ground in low-rise and high-density /Source: Author

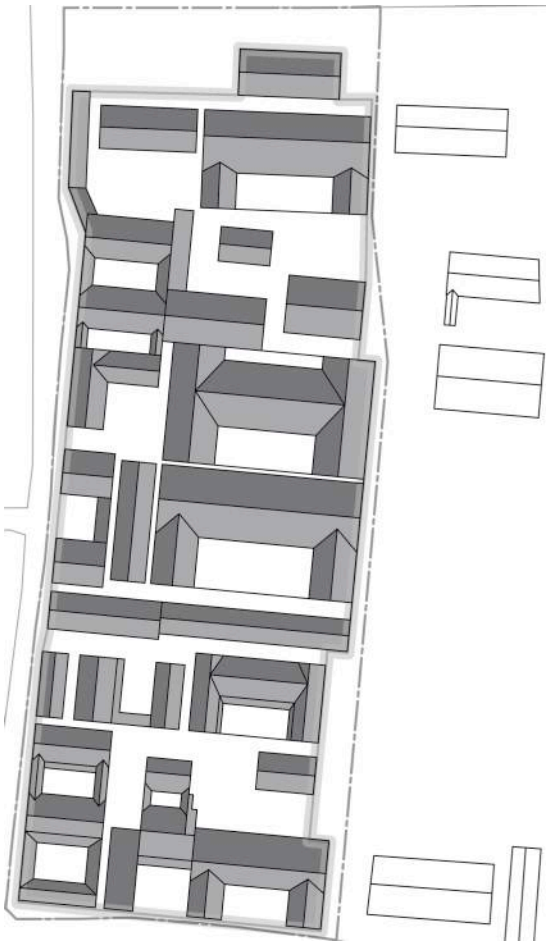

Fig. 5-56 Mat-Texture: Specific form of traditional buildings and spatial order construct the texture or fabric /Source: Author

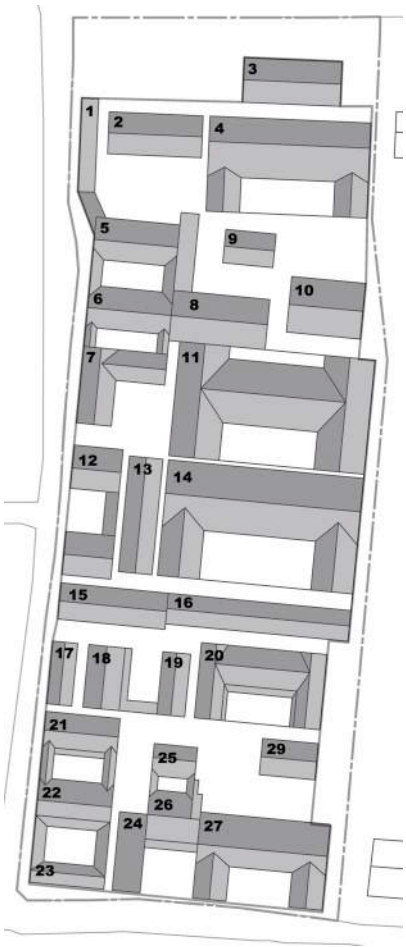

Fig. 5-57 Mat-Unit: Traditional building complex is composed of similar units / Source: Author

NETWORK

Network is the organizing framework in mat-building. It claims to break the strict correspondence between function and form, and establish the flexible network among the composing elements. The network demands proper scale in horizontality to create the field and inspire the occurrence of events. The Berlin Free University is the classic case of the network.

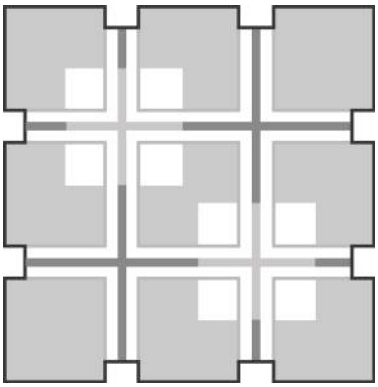

Fig. 5-58 Network
Source: Author

Network is kind of elastic framework. The framework contains both centralized organizing orders and local flexible arrangement. The centralized organizing orders govern the whole building in the same or similar space characters. The local flexible arrangement enables the network with flexible adjustability. In the flexible network, architects and users jointly create the buildings. The architects establish the centralized organizing orders. The users get the further explanation to the local components.

Fig. 5-59 Network: Road System (black) and Activity Trace (gray)
Source: Author

In traditional building communities, the planning rules, garden skills and garden walls shaped the order in the historical area. The order is definite and fixed, which means the less tolerance for the new functions and events. When original functions were out of the date, the rules and structures became the restraint of the time. Unfortunately, the rules in traditional buildings are without any adjusting and elastic abilities.

The introduction of mat network in the integrated platform could break the original restraint in the field. The new organizing measures could redistribute the existing space in the site with more tolerance and flexible modes, which would promote the reuse of the traditional areas.

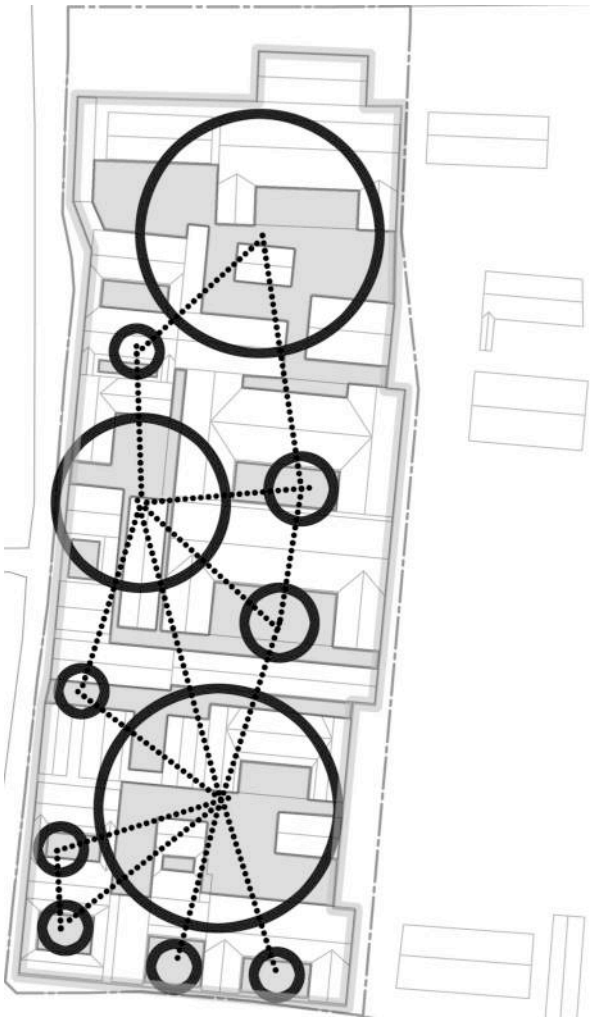

Fig. 5-60 Network: Open Space System
Source: Author

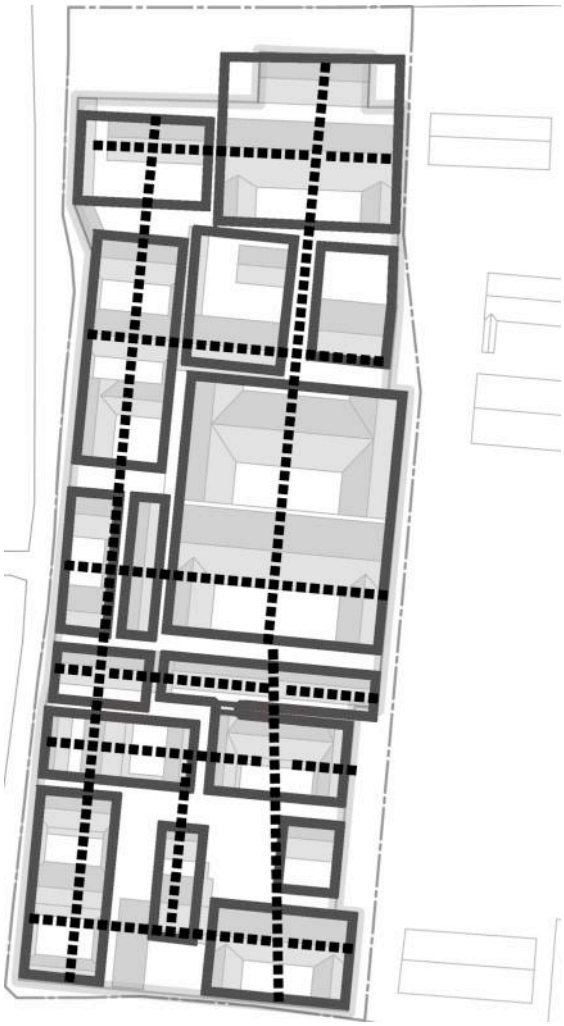

Fig. 5-61 Network: Courtyard System
Source: Author

MATRIX

Matrix originated from landscape designing, and then introduced into the mat-building designing. It describes some similar formal characters in both fields. Concretely, matrix indicates the specific part occupying the maximum radio and influence in the site, and also possessing the connectivity and porosity in form. Matrix gets a great tolerance for the diverse space and function. It allows the evolvement, growth and substitution, and reaches a stable dynamic balance, such as the Rolex Learning Center by SANNA.

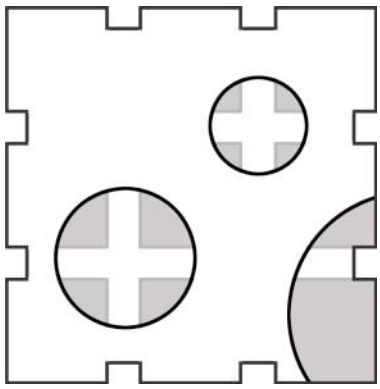

Fig. 5-62 Matrix
Source: Author

While in design strategies, matrix expresses a new "mat". Connectivity of matrix establishes the well-connected buildings with large area in horizontal. The large horizontal scale of building reduces the influence of form of individual building or unit. Porosity creates tolerable and convertible heterotopia. The new created space, heterotopia, increases the tolerance of space for the diversity of function and space; reduces the boundary of interior and exterior space, the function levels and the correspondence of form and function; and the intermediate spaces among units activate incidental events.

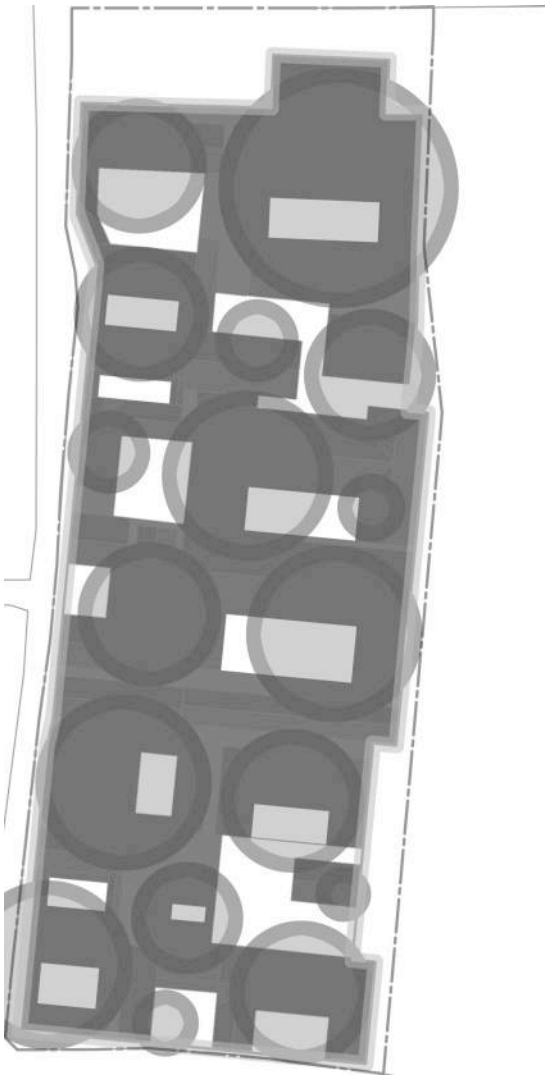

Fig. 5-63 Matrix: Huge, constant and porous roof (dark gray) and possible activities under (circles) / Source: Author

Matrix plays it own roles in the renew design process. First, matrix creates the loose containing mode. Traditional room or building is replaced by field, which means the original close-knit connection between space and function substituted for a loose one. Second, matrix accommodates heterotopia. The connectivity and porosity enable the building complex system with more governable space and more flexible structure framework to contain the heterotopia, or potential alternation. Third, intermediate spaces activate incidental events. In traditional building complex, walls of garden and building strictly limit the function and activities. Matrix strategy removes the boundaries in the site, which means reducing the distinction between positive and negative space, function levels. New events and experience would be promoted in the open area. Fourth, dynamic balance comes into being. In the open field, the fresh experience and function would be constantly created to replace the original ones, and the building is also in the self-improvement process. The dynamic balance implies the vital force in traditional communities.

URBAN

The emergence and development of mat-building get a close relationship with the evolution of modern urban. The status and problem in cities shape the designing solution in mat. The experience and activities in urban became the main content in designing, and the mat-building impacts the evolution of urban with its specific form, organization and even energy stream.

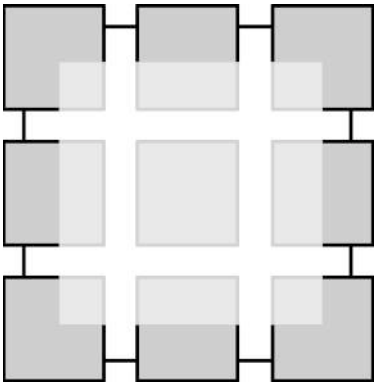

Fig. 5-64 Urban: from one point to the around area
Source: Author

With the attention on complicity and growth of urban, modern mat architects realize the limitation of urban and architecture design. Hence, in contemporary mat-building, architects provide the rules or orders for the buildings to follow in evolution process, then both the urban environment and users cultivate the building for further enrichment and progress, which is differ from the overall control designing in the past. The modern mat-buildings focus on the activities and experience. The strategies frame the general orders on the site, and take concrete measures on the local part. The activities and experience are made as part of designing strategies to activise the communication between urban and building.

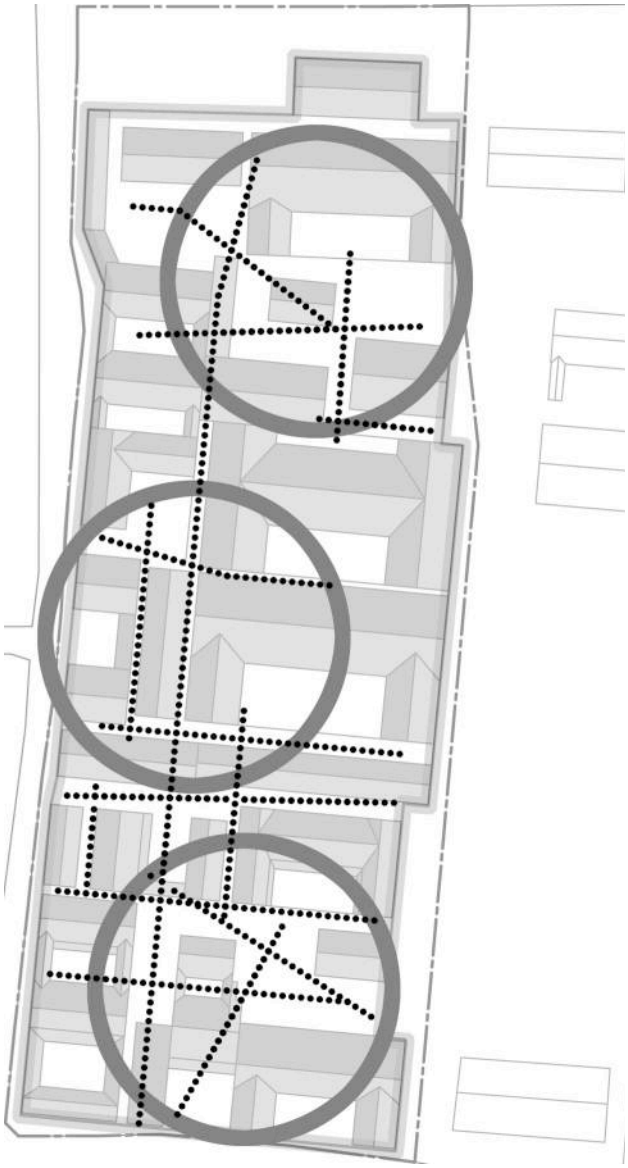

Fig. 5-65 Urban: special points activate the around areas / Source: Author

The urban strategy applies to preserve the space for evolution and enrich activities and experience in traditional building complex. Urban strategy claims to preserve enough space for the potential evolution. In other words, the architects no longer design specific space or rooms for each function or activity, but the field. The urban and users could re-organize and enrich the contents. In traditional communities, the walls organize the rule in urban and family with strict confines. The urban strategy opens the field to promote the activities in communication in the area and also allows the redesign or potential alternation in the field. The local parts are the crucial points in improving the whole area.

In all, the strategies mentioned above do not isolated affect on the site. Generally, several strategies combines to create more comprehensive and effective result in renew design process. They share the same foundation and operate in diverse effects. The open field, for example, matches the matrix, urban strategies.

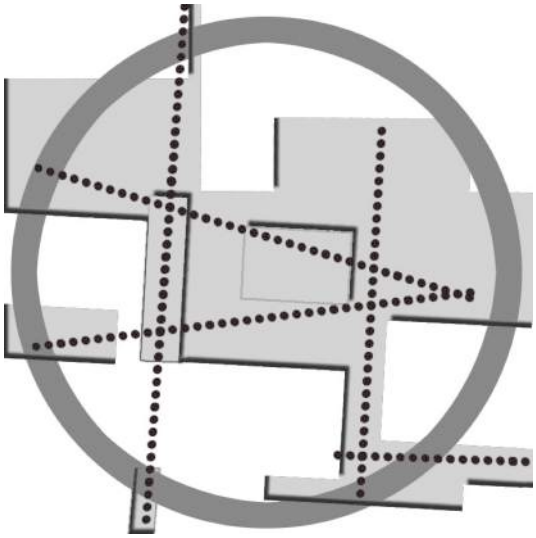

Fig. 5-67 Urban: Public and Activities
Source: Author

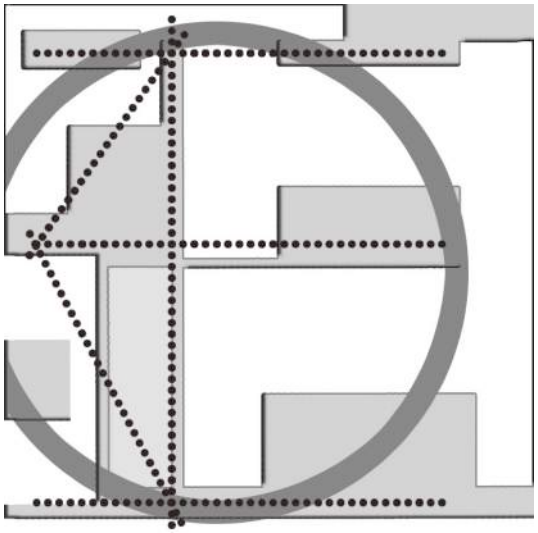

Fig. 5-66 Urban: Public and Activities
Source: Author

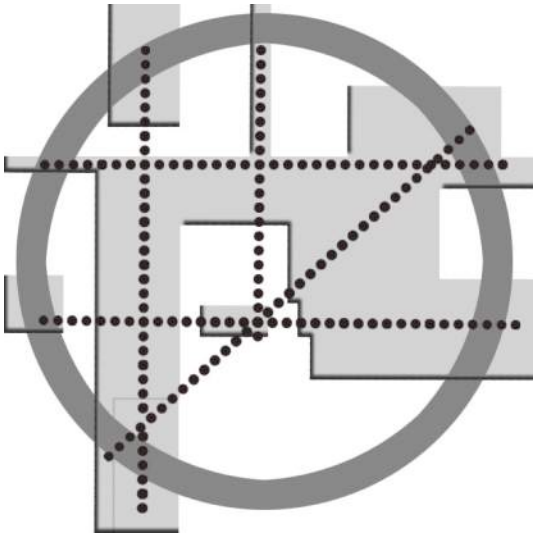

Fig. 5-68 Urban: Public and Activities
Source: Author

5.4.4. Unit:

The integration and strategy briefly introduce the mat-organizing framework of the traditional building complex. So far, all the measures remain in general level. While, in unit stage, the measures of renew design put forward into the unit, individual buildings, which would radically promote the affect of renew design.

Hu, the unit of family, was the basic component or unit of traditional society. And the courtyard dwelling, which was designed for containing the activities of a family, became the essential composing unit of traditional districts or communities. The characters of courtyard dwellings directly influence the characters of the districts. Especially in contemporary, the decline of the traditional dwellings leads the comedown in function and activity of the district， and the negative influence constantly extends.

In early mat buildings, the unit was the formal expression of organizing structures. And till the end of last century, the unit reduces and even escapes from the limitation of physical structure. The form of “unit” weakens, while the concept of “field” rises. While, both the original open and flexible unit and the recent containing mode, field, express the positive influence on traditional building communities in separate levels.

Inside the individual building, reduce the limitation of room. In traditional buildings, each room corresponds to the specific function. The perfectly match refuses the new functions. The structure of traditional buildings, wooden structures, allows the breakout of walls inside the room and replaces some components in wooden framework. The measure could extend the areas of existing rooms to that of individual buildings, two or three times larger. The measure should well considered the physical condition of existing wooden structures and special details with art or historic values.

Between the building and yard, reduce the division from interior to exterior. Walls, once as the ambits between building and environment, proved the restrict limitation on the existing spaces. With the development of the building materials and structure technology, the physical condition of original exterior space could be well controlled as that of interior. The walls lost their original meanings. While, remaining the walls with special values and meanings, the renew design measures could remove the normal walls. For special details in the wall, the renew measures could take the authenticity space modes to conserve as the original way. For normal walls, the renew measures could express with the hermeneutics methods. The light materials, such as steel and glasses, could full or half cover the exterior space, to create the confortable built environment. The combination of the interior and exterior spaces could extend the utilizable space, and enrich the space experience in the built environment. The measures match the essential concept of mat building, especially for the matrix, creating a large area of field to contain diverse activities.

Between the buildings, reduce the limits in the site and combine the units with diverse modes. Base on previous two measures, the renew design could further increase the connection and reduce the limitation among buildings and yards, which means the essential components, buildings and yards, could establish free combination. In other words, according to the diverse activities or functions, the buildings and yards in the site could form divers combination, and the diverse combination could alter with time without altering the existing locations. The details could apply both the authenticity and hermeneutics methods to deal with the both remain and remove parts. The combination of the individual units, or dwelling buildings and courtyards, is flexible and staggered transformation. According to the specific activities or function, the units in the tradition buildings complexes could combine to form the proper space to match the function. When the function or activities alter, the existing combination could change according to the new ones, dividing into several small parts or combining to form larger ones. Hence, the demands on containable space and

activities or function reduce. The traditional building complex reaches a dynamic balance that the activities or function change all the time, but the complex keeps an active state.

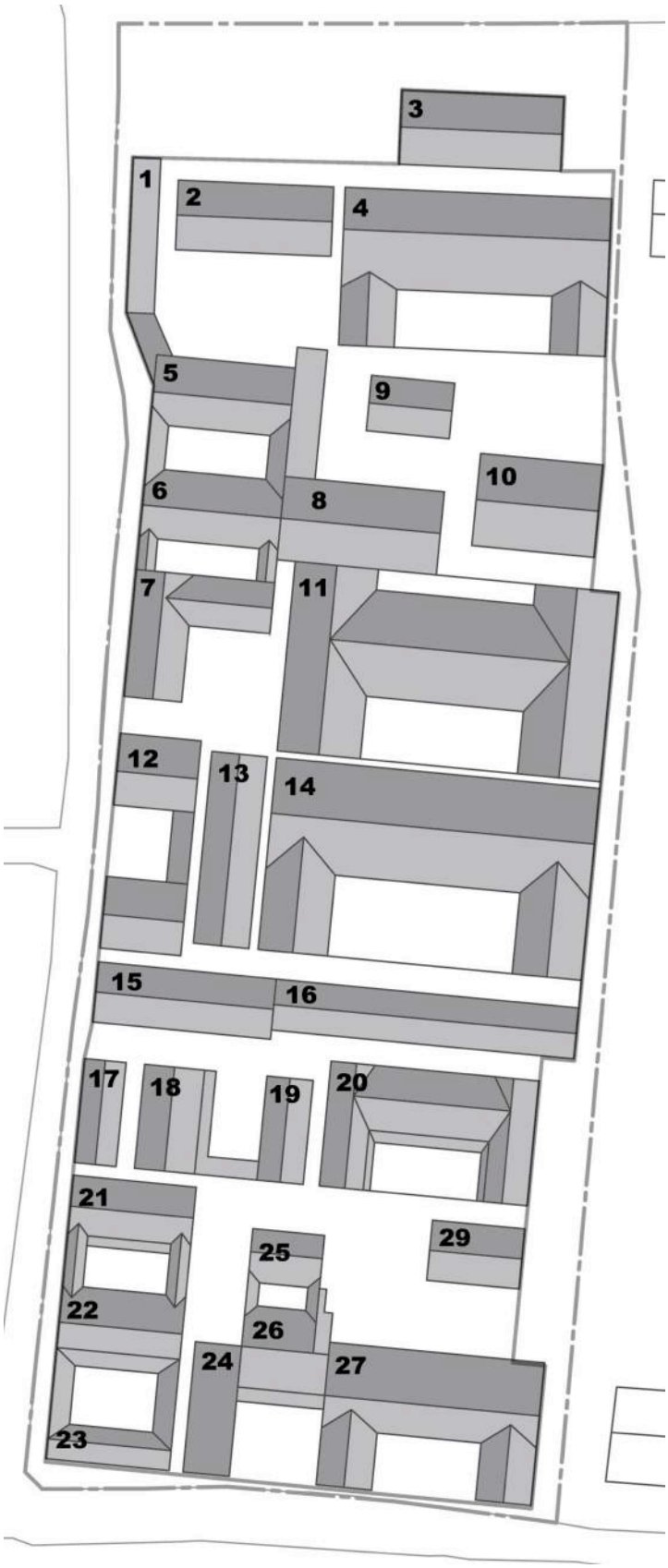

Fig. 5-69 Unit: Number all the buildings in the site
Source: Author

Further, in some condition, the unit could extend in vertical direction. The limit of the floor height is a problem of the traditional building complex. In most condition, most traditional dwelling buildings are only one floor, others two or three. The limit in the height turns down some activities or function. While, in condition of maintaining the physical condition wooden structure, the unit of traditional building complex could extend in vertical direction, which means making effective use of roof and underground space. The roof could be renewing designed as the platform in the air, with light building materials such as steel, wood and glass. The air platform provides a special view observing the traditional community and a nice relax space. The construction of platform should consider the light condition on the ground floor. The underground space could improve the height under roof, enrich the activities inside and reduce the influence on the appearance of existing community. The underground space could assist to create the small theater, workshop, and other creative spaces.

Above all, the open, flexible and changeful units could combine to establish a tolerant and active union.

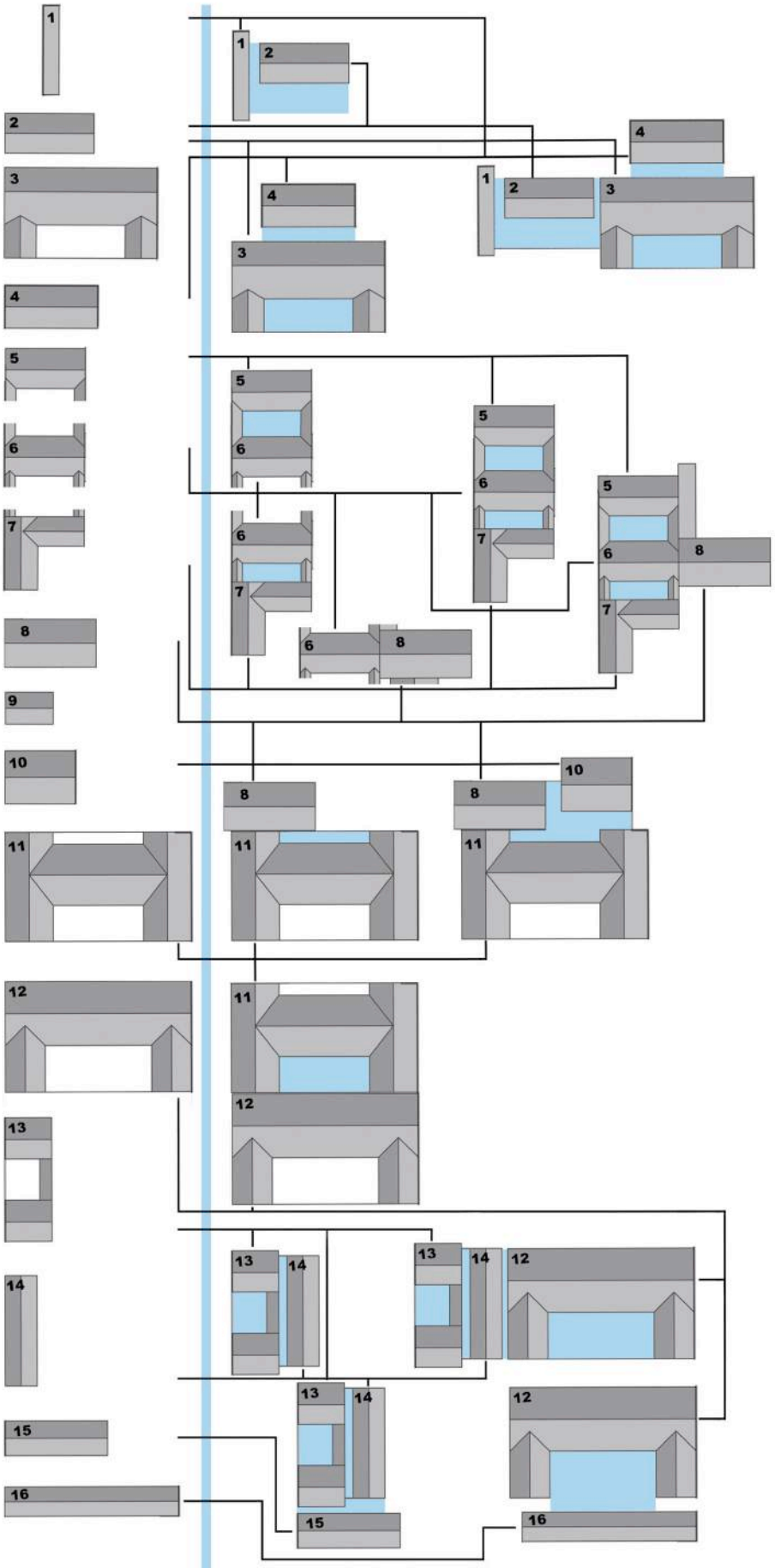

Fig. 5-70 Unit: list the possible combinations of existing buildings. part 1

Source: Author

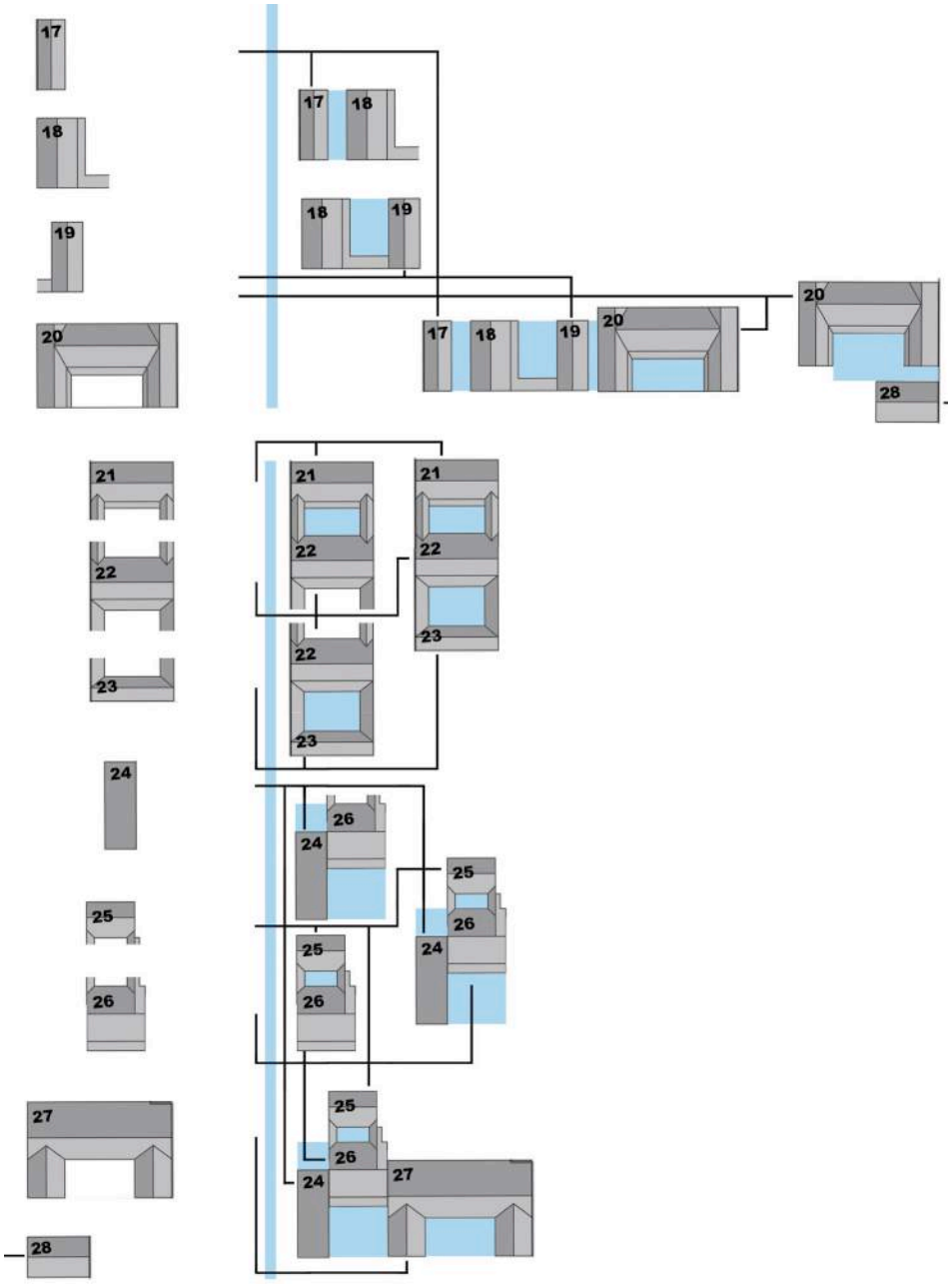

Fig. 5-71 Unit: list the possible combinations of existing buildings. part 2 / Source: Author

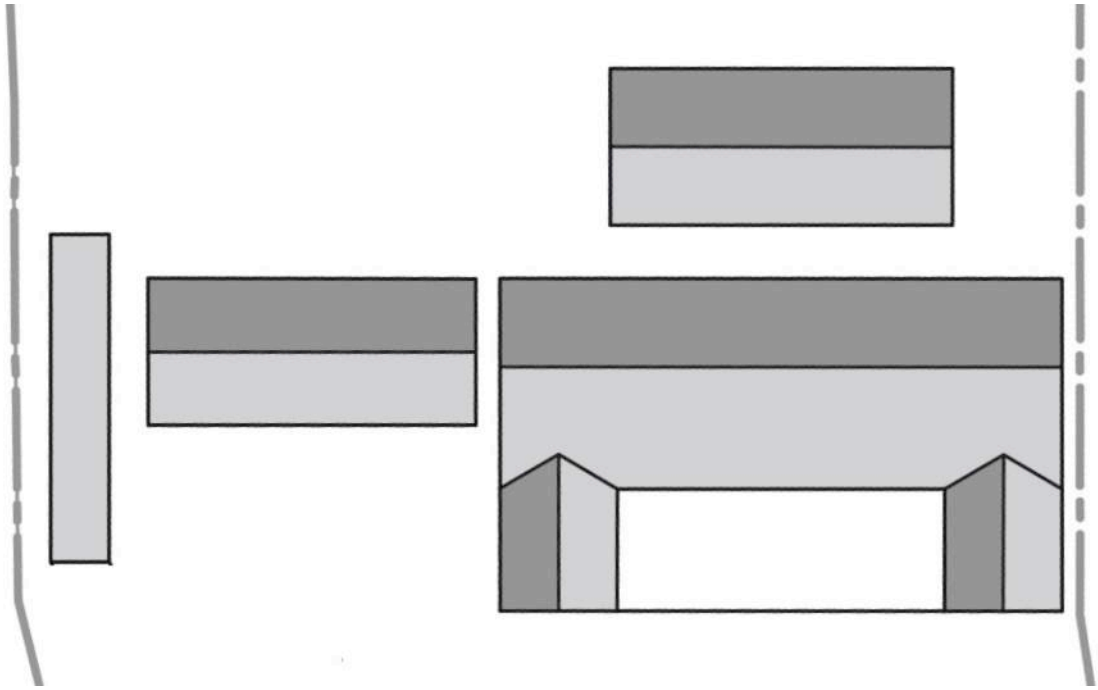

Fig. 5-73 Unit: Original Buildings Arrangement
Source: Author

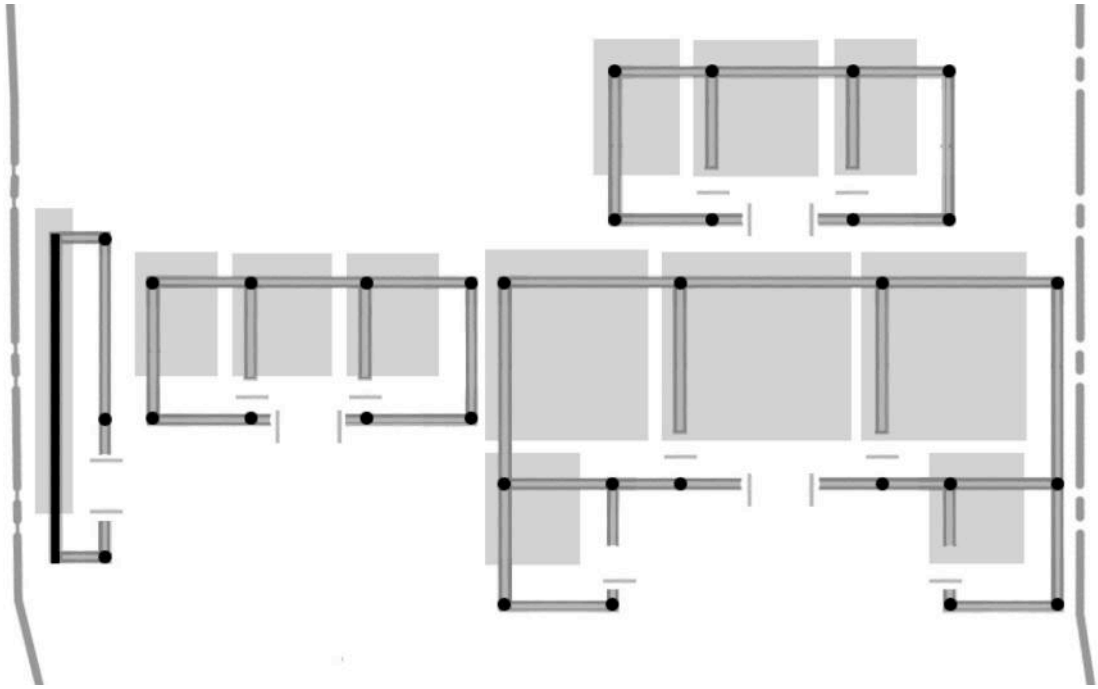

Fig. 5-72 Unit: Original Structure and Space
Source: Author

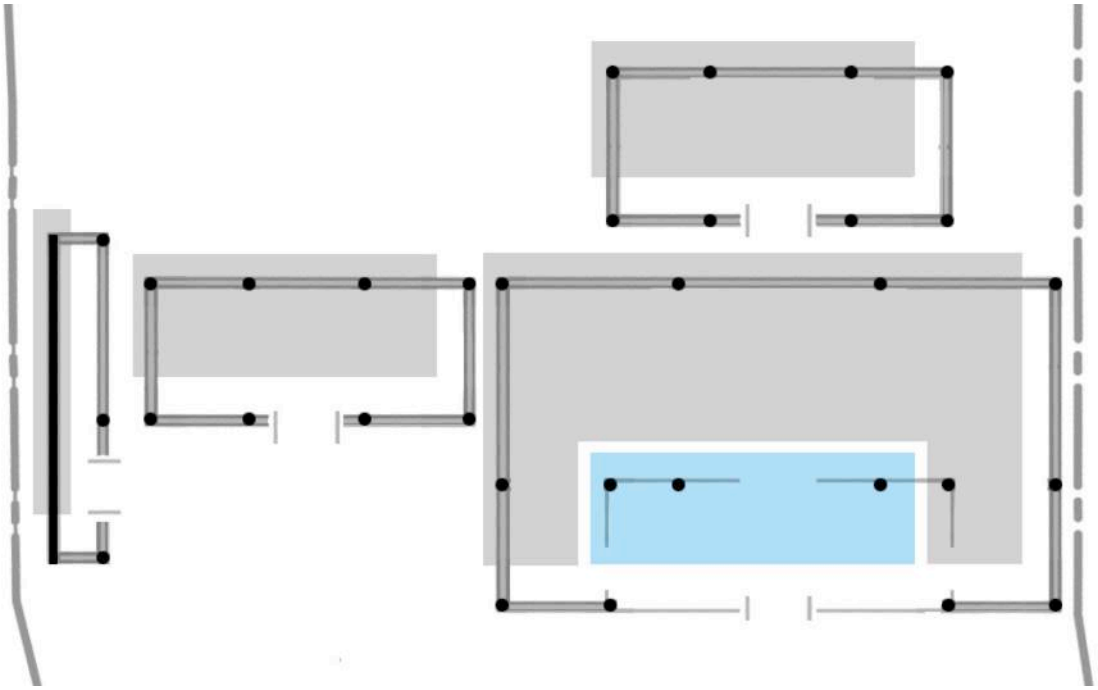

Fig. 5-75 Unit: Remove the over limited walls and combine the available spaces of each single building
Source: Author

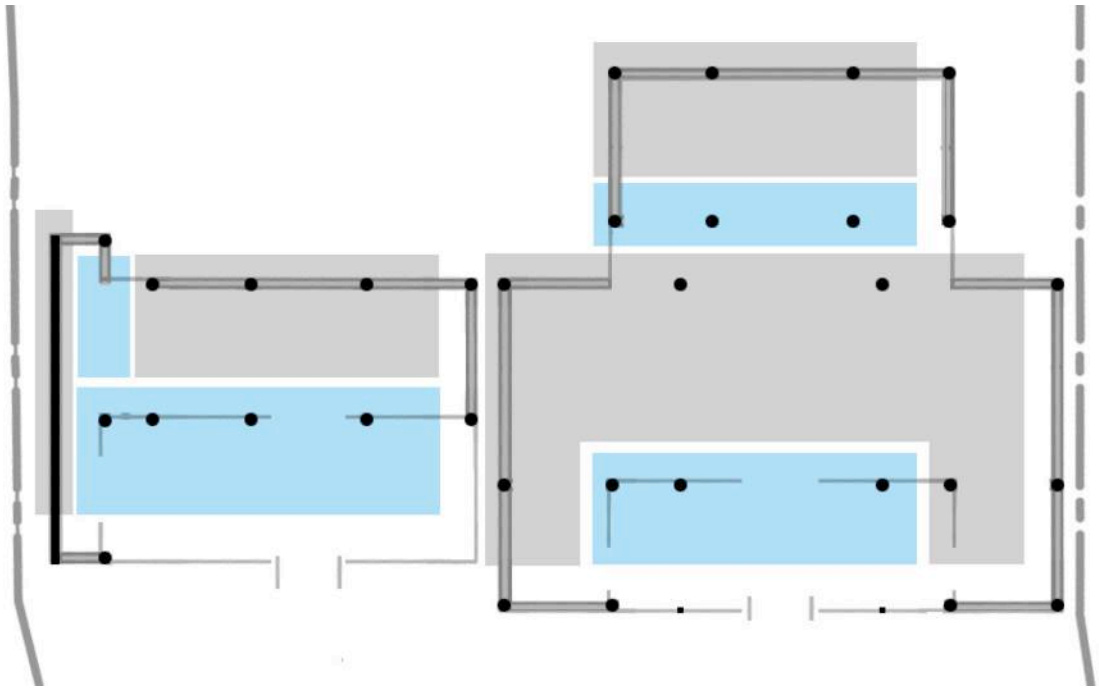

Fig. 5-74 Unit: Combine the close two buildings to enlarge the available space
Source: Author

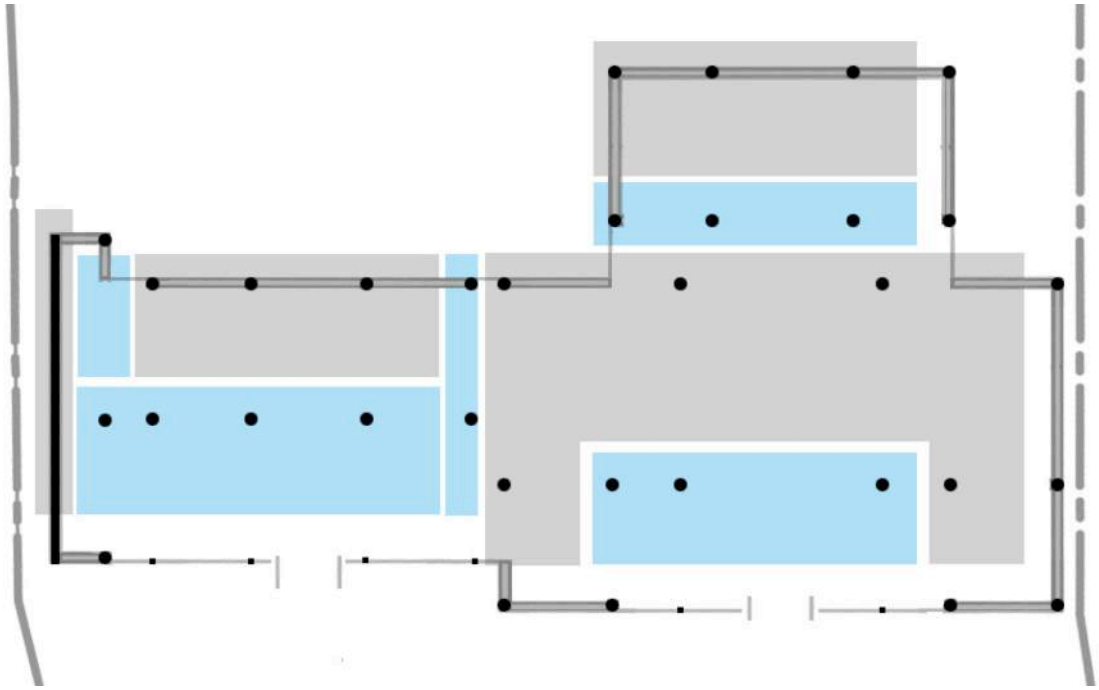

Fig. 5-77 Unit: Combine all four buildings and the spaces around
Source: Author

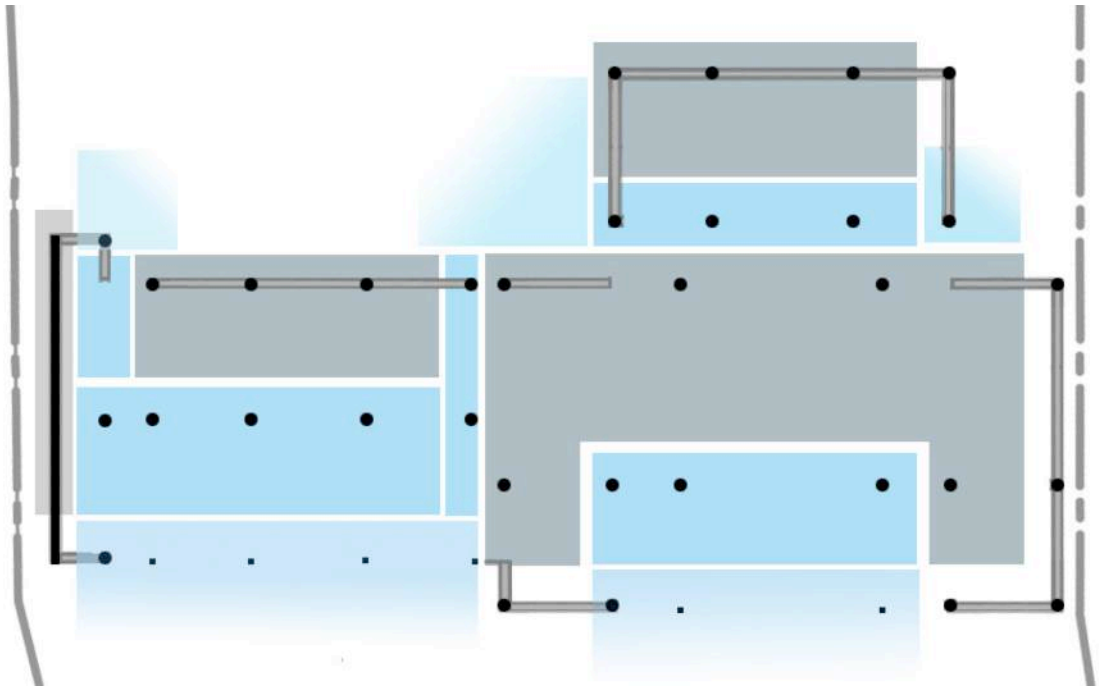

Fig. 5-76 Unit: Influence and infiltrate the space around
Source: Author

5.4.5. Detail Improvement

After the strategy introduction and unit reconstruction, the mat-renew design is close to the end, just some detail to improve. The measures above are base on the mat strategies, while the conserving parts acquire less attention. So in detail part, the content would lean to improve the condition of the parts with special meaning or values.

With the influence of mat strategies, the contents of traditional buildings change greatly from previous, such as the form of activities and the mode of containing. So, the parts with special meaning and values should be conserved or remained. The conserving parts apply the authenticity mode to conserve the component just as before, without any change or alternation. While, for some components, which values only on its location or form, the hermeneutics methods should apply to replace the original one to create more tolerant space. The ideal status is applying the conserving components as part in art way, just as the Magistero University Building, Urbino, by Giancarlo de Carlo. Or, the conserving parts arrange as the islands in the mat-strategies. The tolerance of mat-strategies could well cooperate with the points without affecting on the final outcome.

The tolerance of mat-strategies could well contain and transform the details in traditional building complex.

5.5. Evaluation

The evaluation of the renew design of traditional building complexes objectively reviews renew designing process, discovering the improvement and the limitation of the renew design, and also constructs the possible guiding direction for the renew design in the similar conditions. The evaluation mainly involves the content and standard, which should include the endeavors in this attempt and also the expectation for the further renew designs. And the result of the evaluation would influence the further renew design, providing the reference and warning. The content of the evaluation should comprehensively include the renewal designing targets and general lines; while, the standard should be objective and justice.

According to the theme and targets of the renew design process, the evaluation contents select the cognition concepts (2.3 the Cognition of the Historical Building), conservation concepts (3.3 the Value of Historical Building) and attempt process three aspects, and try to include the comprehensive and objective view in evaluation.

5.5.1. Cognition

The contents of cognition of the historical buildings include the essential demands of the `contemporary` society for the renew design of historical buildings. The contents include the diverse views of time, space, energy and general conditions. And the evaluation in this part reflects the relationship of the renewal designed historical buildings with the history, the urban and community, life circle etc.

In the **view of time** (2.3.1), it includes the relationships with the past, `contemporary` and evolution process.

First, in the view of time distant, the renew design reduce the distant in time of the traditional buildings since been built to the present. Through the understanding and annotation of the concept of time, the renew design strategy reduced the difference caused by the transformation of the times, and combines the action pattern and spaces both in the tradition and present. The traditional information acquires new meanings in the renew process with contemporary material and technologies, in other words the traditional building complex acquires the modern annotation. The annotation provides the access to understand the historical information about the value, society, culture and so on. In the renewed complex, users get the facility to reach the ancient information.

Second, the `contemporary` values of the traditional building complexes are sufficiently explored in the renew design process. With the help of the designing strategy of the mat building, the renew design process, from the angle of organizing strategy of space and action pattern, re-explores the traditional building complex in its pattern of form, space, planning systems and so on. The strategy of mat building endows the traditional buildings with new characters: flexibility and toleration, which allow the traditional building complexes greatly replying to the constantly alternation of the social environments. The flexible and tolerant spaces in the renewal-designed buildings reduce the limitation of the introducing functions or spaces. In other words, the renewed traditional building complexes, with the help of the strategy of mat building, perfectly match the demands of contemporary society and also acquire the ability to adjust themselves to the `contemporary` social demands in a comparatively long time.

Third, in view of the whole history, in order to meet the demands of the alteration in the ages, buildings usually adopt themselves with transformation to survive the dynasty of been eliminated. So the transformation and addition parts of the buildings record the improving process of buildings in history. The renew design of the traditional building complexes express the advancement evolution. The transformation evolution possesses

multiplex values. In Adam Yédid view, any building, possessing the unique and special evolution processes, hold the real history.

In the **view of space** (2.3.2), the renewal designed traditional building complexes play the important roles in controlling the urban developing speed, enriching the urban composition, and maintaining the collective memory in the urban.

First, the maintaining of the traditional building complexes in the modern urban objectively controls the development of the urban, restraining the overspeed and blind development trend and also subjectively promoting the rational and sustainable urban development. Further more, the renew design leads to the efficient application of the land, releasing the stress of land shortage in the modern urban.

Second, the maintaining of the traditional building complexes in the modern society objectively enriches the activity in the community. The traditional building complexes provide the characteristic action patterns and space experience, which, coming with other kinds of buildings, create a multiform community or city. While in this research, the result of the renew design not only riches the urban composing, but also produces the complex combination. According to the renew design, the historical and traditional space and activity combining with the modern ones engendering the complex patterns, which would alter with time. The complex patterns create persistent and active energy for the community or the whole urban.

Third, the traditional building complex in the modern urban is the container of the collective memory. As mentioned before (3.2.2), the traditional buildings are the physical carrier of the collective memory of citizens. The integrality of the appearance of the traditional building complexes directly determines the conservational condition of the collective memory. While, in the renew design, the appearance, including the façades and roofs, are perfectly conserved; even the alternation parts, such as some walls or path, also record the original location and shape with hermeneutic measures, such as landscape furniture. The original information is well conserved. Further more, the combination of the traditional or historical information with the contemporary information would get a well connection between the existing and growing memory. The collective memory grows and the emotion to the urban grows as well.

In the **view of energy (2.3.3)**, the transformation and the conversion of energy in the buildings would engender the influence to the building. And the analysis about the influence is positive or negative. The main contents are the transformation and conversion of the energy flowing, in other words, the effective of the energy transformation and the conversion.

First law of thermodynamics tells us the exterior energy enters the original building systems, and transforms into the interior energy as part of function and structure systems. The renew design introduces the new space experience and strengths the structure systems. The renewal designed traditional building complex would be made well in a comparative long period.

Second law of thermodynamics tells us, although all buildings goes to ruin, the renew design process decelerate the traditional buildings to the ruin. Further more, the renew design endow the traditional building complex with proper self-adjusting ability, which could meet the alteration demands in society and work in a comparative long period.

5.5.2. Conservation

According to the essential understanding of the architectural conservation (Chapter 2) and the value traditional building (Chapter 3, Part 2), the standard lines in this part inspect the renew design of the traditional building complex from the values attaching on the

traditional building complex, including monument value, historic value, ages value and ecology value.

Monument value, as mentioned, remains in the appearance and integration of the objects. For general traditional building complexes, the monument values does not engendered since been built, but the monuments values attaching on them while in use. That is to say, the monument values in general traditional building complexes are the collective memory. The physical environments, in which the monument value survives, are well conserved.

Historic value, for general traditional building complex, are the information about the architecture, society, culture and others in history. In the renew design, the wooden structure are perfectly conserved and strengthened, and also are some important walls, both of which mean the traditional architectural information are conserved. The location of the roofs records the information about the context and social stratification. And some component and parts record the information about the culture and art. All the information mentioned above according to the importance and value taking diverse measures to conserve. Hence, the historic value of the traditional building complex is well preserved.

Ages value, as mentioned in the `attention points` part (5.3.4), is on the traces of the natural and artificial force. Modern technology and materials apply to strength the original objects, while reduce covering the original information as possible.

Ecology value means the cost of the energy and natural source. In the renew design, the renewal designed traditional building complex acquires new function and self-adjusting ability, while extend the period of being in use. While comparing with the total new construction, the renew design greatly reduced the cost of source and energy.

5.5.3. Attempt

The renew design process is a great attempt to apply the western architectural design strategy in solving Chinese traditional building problems, and follows the relative demands of the architectural conservation. The renew design experience the preparation stage, design stage and evaluation stage. The preparation stage analyses the possibility or foundation, the meaning or improvement, and attention points of the renew design. In the design stage, the design carries out in taking the mat building designing strategies reorganizing the space experience in traditional building complex in different level, and finally special conservational measures list to maintain the special original characters and information. The last stage, evaluation, gathers all target and rules in the renew design for reviewing the whole process.

Architectural renew design involves multiple subjects and parts in society. It is not an easy architectural designing trick, but a social strategy. Only a comprehensive consideration could lead the positive direction. Any tiny mistakes would lead to the disasters for the traditional buildings.

I hope the strategy application process and the renew design process would provide useful reference for the relative designs.

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