

Research on the Productive Green Renovation Strategies of Existing Communities

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Organisers:



International Co-owners:





Research Background



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International Co-owners:



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1 | Research Background |



Environmental pollution

Resources depletion

Fast urban development

It is imperative to renovate the existing urban communities with green strategies.



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Green Renovation of Existing Communities



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2 | Green Renovation of Existing Communities |

Basic functions improvement



Energy efficient retrofit for buildings
(e.g., Increasing insulation in the ceiling
and walls)

Installing barrier-free facilities

Building stereoscopic garage

Installing energy saving devices



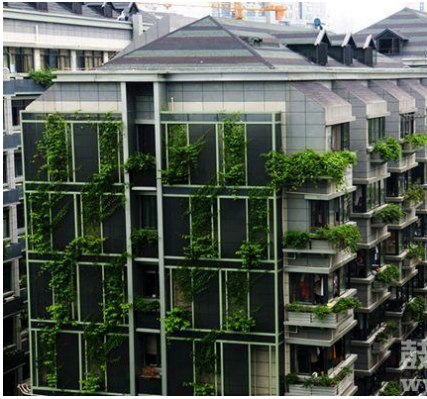
Meeting the basic living demand

Reducing energy consumption

Reasonable layout of buildings,
transportation and facilities

2 | Green Renovation of Existing Communities

Environment improvement



- Land and lakes management
- Plants selection and planting
- Ecological infrastructure planning



- Minimizing the use of chemicals and irrigation systems
- Increasing the green proportion
- Improving micro-climate

2 | Green Renovation of Existing Communities |

Renewable energy utilization

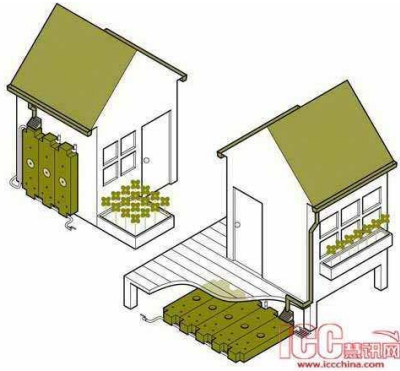


- Solar power
- Wind turbines
- Geothermal heating and cooling
- Bio-energy

- Making the full use of renewable energy
- Minimizing the external supplies

2 | Green Renovation of Existing Communities |

Resources recycling utilization



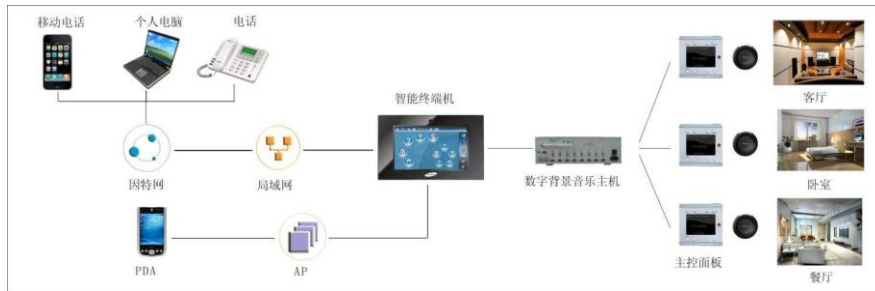
Rainwater collection
Grey water recycle and reuse
Materials reuse
Waste sorting and disposal



Minimizing the environmental impact
Promoting the circular economy
Raising the reuse rate of materials

2 | Green Renovation of Existing Communities |

Intelligent service system



Green transportation
Dynamic supervision database
Intelligent medical services or logistics systems



Creating comfortable life
Improving the transportation efficiency



Concept of Productive City



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- ▶ Emphasizing the application of single technique and lacking adequate consideration of the community integrity.
- ▶ focusing on material conditions improvement and lacking research and concern about social humanity.



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3 | Concept of Productive City



Productive city

is defined as a multi-level urban system with the green production as its main character, which also integrated with the functions of agriculture production, energy production and social & cultural capital preservation and redevelopment. With the purpose of promoting green production in a proactive way, the strategies of productive city includes not only reducing energy consumption but also increasing energy production within the minimum scope of each level. It aims at achieving the goal of self-sufficiency and sustainable development of each city as much as possible.



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3 | Productive Green Renovation of Existing Communities



Productive Green Renovation

It aims at reducing energy consumption, improving the community environment and achieving the goal of self-sufficient. Based on the existing community buildings, roads and landscapes, the community spaces which used for agriculture production, solar and wind energy production are reconstructed or constructed.

4

Productive Green Renovation Strategies of Existing Communities



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4 | Productive Green Renovation Strategies of Existing Communities |

Reserving the existing productive space

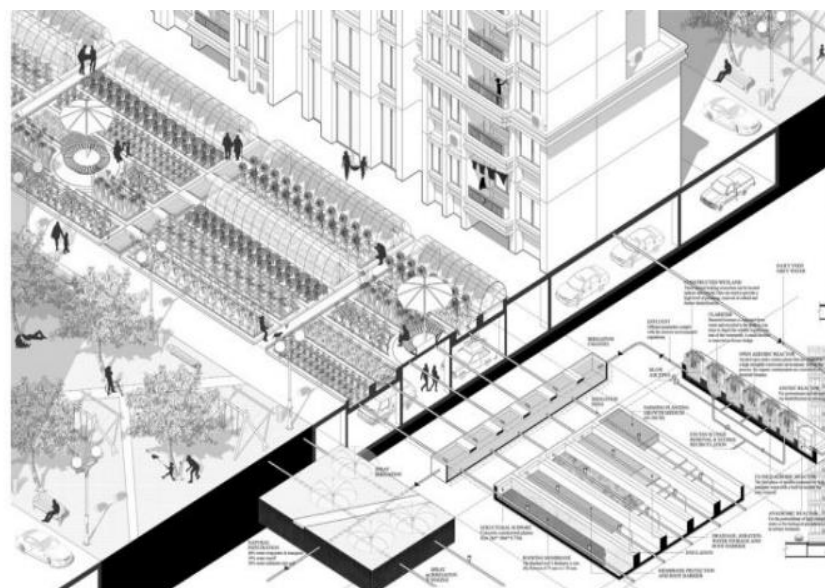


Although the production function is not considered before community construction, there are still some productive planting activities in existing communities, such as community gardens, balcony agriculture and back gardens

During the renovation, the existing productive spaces are reserved and some of the public agriculture spaces are open to residents.

4 | Productive Green Renovation Strategies of Existing Communities |

Replacing the ornamental landscaping



Artificial lawn and ornamental garden-based community landscape is easy to produce pesticide pollution, burdening the community with a high maintenance cost.

Productive community renovation changes this paradigm and replaces the original landscape with productive plantings.

4 | Productive Green Renovation Strategies of Existing Communities |

Fulfilling the unused space



Plenty of unused spaces of existing communities are reasonably fulfilled by production function.

For example, building roofs, which have little influence on residents, are reconstructed in parallel to community infrastructure transformation, thus providing a convenient way for residents to reach the roof garden

4 | Productive Green Renovation Strategies of Existing Communities |

Overlaying the single function space

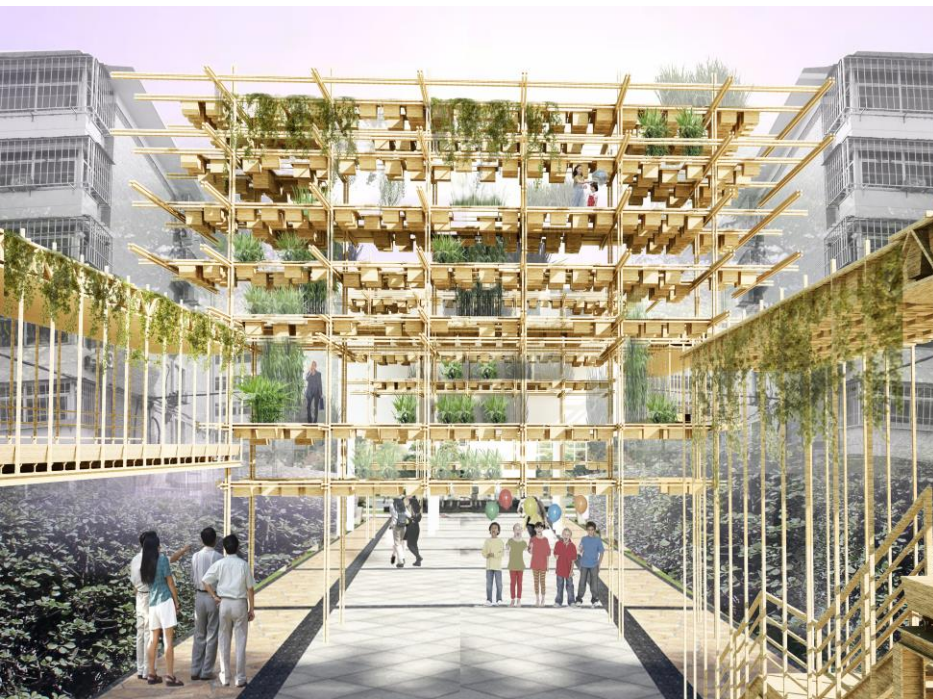


Plenty of unused spaces of existing communities are reasonably fulfilled by production function.



4 | Productive Green Renovation Strategies of Existing Communities |

Overlaying the single function space



Community productive spacial system reconstruction includes two aspects, one is physical space reconstruction, the other is social & cultural space reconstruction. The former means that more space can be reused for raising the production rate.

For example, the space between gables can be designed as a living and productive complex.



CASE STUDY - Different Productive Green Renovation Types of Existing Communities



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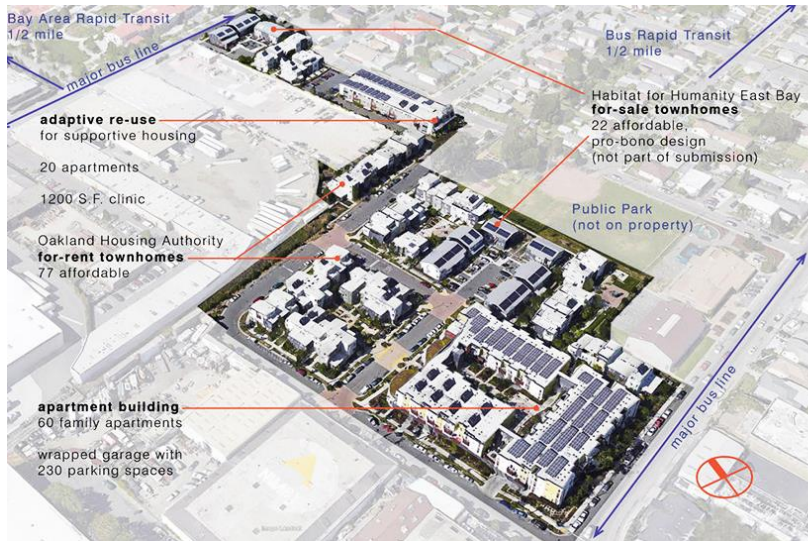
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Case study of agriculture-based productive green renovation



In 2008, Atelier d'architecture autogérée (aaa) initiated a program called R-urban, which is a bottom-up framework aiming to help the city residents to transform their neighborhoods to face the challenges of the future.

Case study of energy-based productive green renovation



In 2005, the Oakland Housing Authority made a new plan for this decrepit brownfield site, aiming at providing high-density, accessible, energy-efficient units for low residents.



Case study of multi-productive functions green renovation



The second nature: Country Garden Eco-reconstruction of Terrace Forest City














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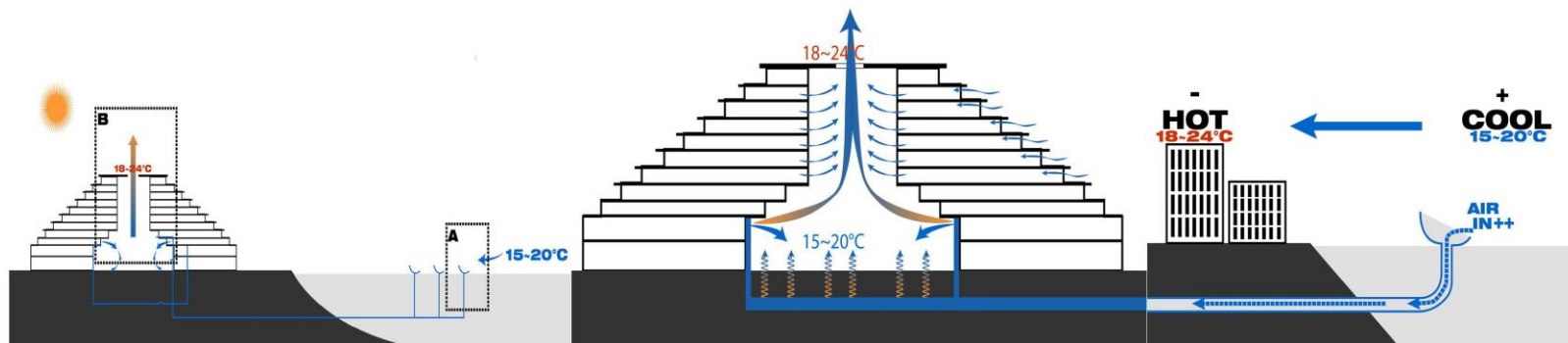
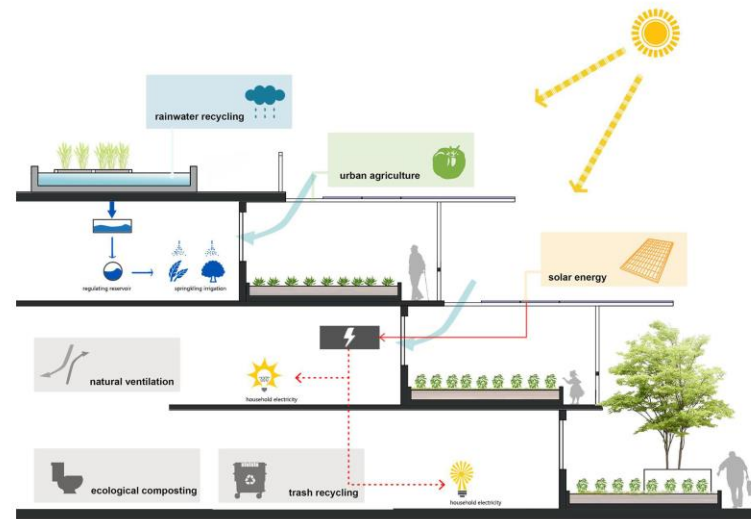


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Case study of multi-productive functions green renovation

Planting Type	Vegetable Type	Planting height
Planting Box 	Low-growing Vegetable 	>7layer
Planting Box 	Medium growing Vegetable 	7-10layer
Vertical Farming 	Vines vegetable 	4-6layer
Water Planting 	Aquatic vegetable 	>10layer
Field Planting 	Cash crop 	1-3layer
	Fruit tree 	1-3layer



Thank you



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