

Elderly Care System Development Forum

A Case Study of Yichang City and International Experience
Exchange
26–28 September 2022



Design Practice and Exploration of Yichang Elderly Care Project

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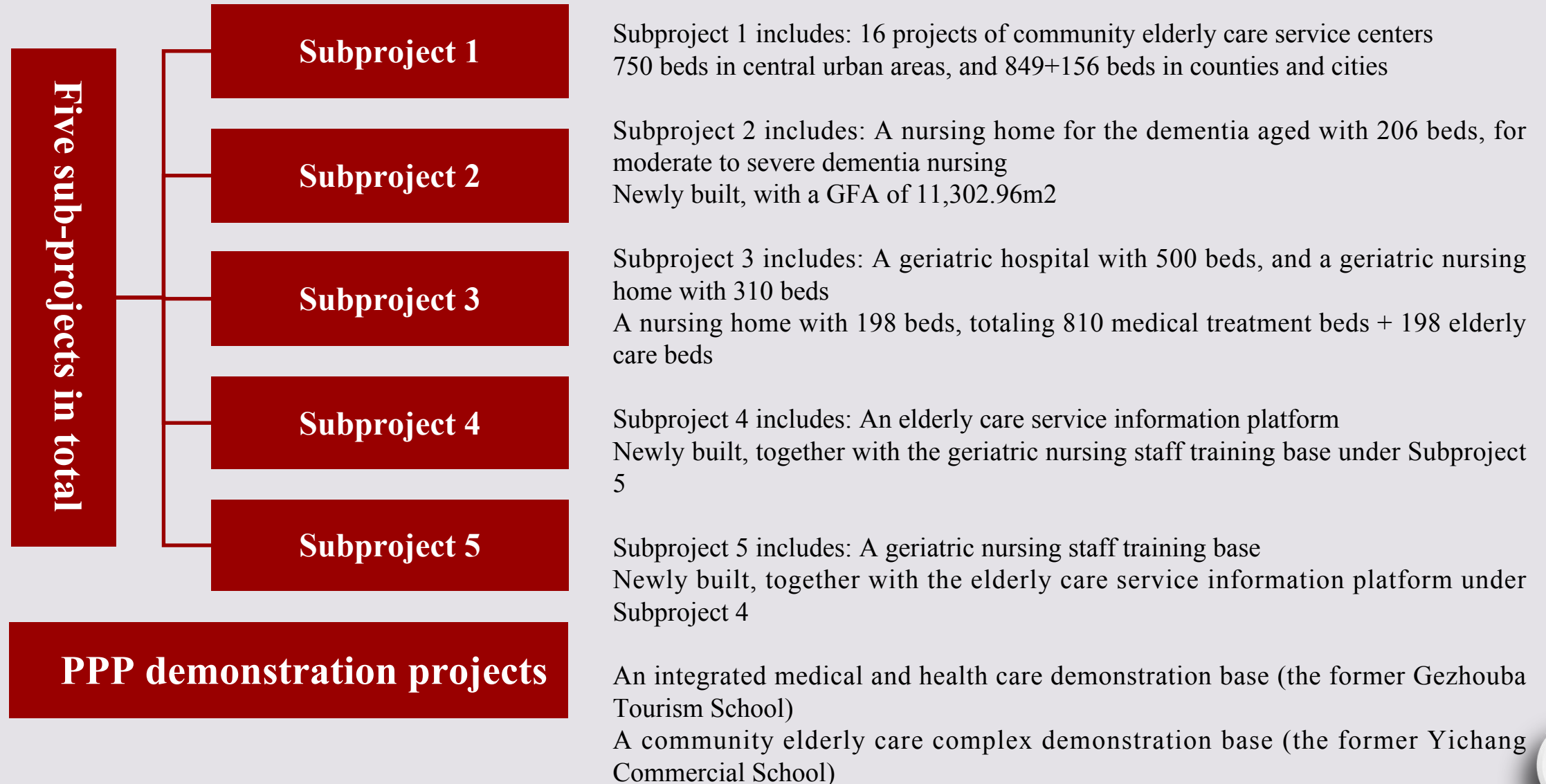


1

Project Overview



Overview of ADB-loaned Yichang projects





Overview of ADB-loaned Yichang projects



★ PPP示范项目

- 1、医养疗综合示范基地 (原葛洲坝旅游学校)
- 2、社区养老综合体示范基地 (原宜昌市商业学校)

★ 养老综合服务示范项目

- 3、西陵区三江园老年服务中心
- 4、西陵区北苑桥老年服务中心 (原西陵区社会福利院)
- 5、西陵区肖家巷老年服务中心 (原西陵区民政幼儿园)
- 6、西陵区儿童公园老年服务中心 (原园林宾馆)
- 7、伍家区上合园老年服务中心
- 8、伍家区中兴广场老年服务中心 (原新世纪培训学校)
- 9、伍家区杨岔路老年服务中心 (原劳动宾馆)
- 10、猇亭区古老背老年服务中心 (原猇亭区民政局)
- 11、猇亭区高家店老年服务中心 (原高家店中学)
- 12、点军区土城老年服务中心
- 13、高新区鑫昌市场老年服务中心
- 14、夷陵区黄金路老年服务中心 (夷陵区民政局院内)
- 15、夷陵区平湖社区老年服务中心 (原夷陵区军休所)
- 16、秭归县老年服务中心
- 17、宜都市老年服务中心
- 18、枝江市老年服务中心
- 19、宜昌市老年病医院 (市二医院肿瘤医院院内)
- 20、宜昌市老年护理医院和老年养护院 (点军区巴王店)
- 21、宜昌市失智老人养护院
- 22、宜昌市智慧养老服务信息化平台 (原儿童福利院)
宜昌市老年护理人员实训基地

Total size: 2,159 elderly care beds
810 medical treatment beds



Overview of ADB-loaned Yichang projects



Create a comprehensive and seamless medical and health care service system integrating medical treatment, rehabilitation nursing and other services





Yichang project implementation progress

1. PPP demonstration projects - Integrated medical and health care demonstration base (the former Gezhouba Tourism School) - The contract negotiation for the second tendering of the construction unit has been completed.
2. PPP demonstration projects - Community elderly care complex demonstration base (the former Yichang Commercial School) - On-site work stoppage and negotiation
3. Xiling District Sanjiangyuan community elderly care service center - Indoor hard decoration under construction
4. Xiling District Beiyuanqiao elderly care service center (former Xiling District Social Welfare Center) - Cancelled, with new site to be further selected
5. Xiling District Xiaojiaxiang elderly care service center (former Xiling District Minzheng Kindergarten) - Cancelled, with new site to be further selected
6. Xiling District Children's Park community elderly care service center - Under construction
7. Wujia District Shangheyuan elderly care service center - Cancelled, with new site to be further selected
8. Former New Century Training School community elderly care service center - The land planning permit has been obtained
9. Former Labor Business Hotel community elderly care service center - Rectification of quality problems before acceptance
10. Former Xiaoting District Civil Affairs Bureau and Xiaoting District Gaojiadian Village Community Elderly Care Service Centers - The merging and new construction of the projects are under adjustment and design
11. Dianjun District Tucheng Village Community Elderly Care Service Center - The plan is revised according to the opinions of the Natural Planning Bureau of Dianjun District
12. Shantou Road community elderly care service center - Civil engineering tendering under review
13. Yiling District Civil Affairs Bureau community elderly care service center - Interior decoration is ending
14. Yiling District Military Cadre Rest Home community elderly care service center - Some 4F steel moulding is newly built
15. Zigui County community elderly care service center - Under acceptance on completion
16. Yidu City community elderly care service center - Outdoor supporting facilities under construction
17. Zhijiang City community elderly care service center - The laying of basement waterproof layer is completed
18. Yichang City nursing homes for the dementia aged - Completion of contract signing, and construction of temporary facilities on the site
19. Special nursing building of a geriatric hospital - Civil engineering under construction
20. Geriatric nursing hospital and elderly nursing home - The plan is adjusted according to the opinions of the planning department of Dianjun District
21. Elderly care service information platform project - The ICT-S02 term of reference is reissued to ADB for review after being revised according to ADB's opinions
22. Elderly care professionals training base project - Negotiating with the winning bidder on supplying equipment

***Half under construction
(marked in red)***

***Completion acceptance
prepared for three
projects***

***Cancellation of three
projects (marked in blue)***

***Site adjustment for six
projects***

***Re-design for two projects
Completion of
construction tendering for
two projects***

***Plan adjustment for one
project***



Yichang project implementation progress



Time	No.	Project name	Project progress
2022 On the morning of July 21	1	Former Labor Business Hotel in Wujiagang District	Most of the interior soft decoration has been completed, and the acceptance is scheduled in August
	2	Xiling District Children's Park	Construction has been carried out, the buildings have been demolished, and and construction waste has been removed
	3	Xiling District Sanjiangyuan	More than half of the interior hard decoration has been completed, and suspended ceiling is under construction
	4	PPP demonstration project of comprehensive elderly care service	More than half of the civil works have been completed
On the afternoon of July 21	5	Yiling District Civil Affairs Bureau Social Welfare Center	More than half of the interior hard installation has been completed, and there are sample rooms.
	6	Elderly care professionals training base	The design plan is under adjustment, and the Children Welfare Center is scheduled to be relocated in August
	7	Geriatric hospital	Pile foundation for the special building and three floors for the special nursing building have been completed, but the construction of the outpatient building has not yet started
On the morning of July 22	8	Zigui County community elderly care service center	The main building has been basically completed, waiting for acceptance
On the afternoon of July 22	9	Sub-projects design & construction symposium	Zhijiang projects: The tower crane installation has been completed, and the excavation of foundation pits, the reinforcement and the construction of foundation piles have started Yidu projects: The civil construction of the main building has been completed, and it is at the indoor/outdoor decoration stage, with mobile furniture being purchased



Field work in Yichang Project





2

Design principles



Design principles of EC Facilities



1. **User-Centered Design Principle**
2. **Community-based Planning and Design Principle**
3. **Working Efficiency Principle**
4. **Inclusive Design Principle**
5. **Non-Institutional Design Principle**
6. **Sustainable Design Principle**
7. The following **three principles** must be observed:
Operations as the core, Cost as the core, and Risk control front



User-Centered Design Principle

Enable the elderly to feel happiness, autonomy, self-esteem, respect and a sense of accomplishment on the basis of physical and mental security. Everything related to the design layout, moving line, material selection, color, environment... is carried out centered at this core.



The operation management shall be centered on the front-line nursing staff, enabling them to feel the family-like love and transmit it to the elderly. The design should also consider the space of the staff.

Focus on autonomy, independence and privacy in daily life...A free life

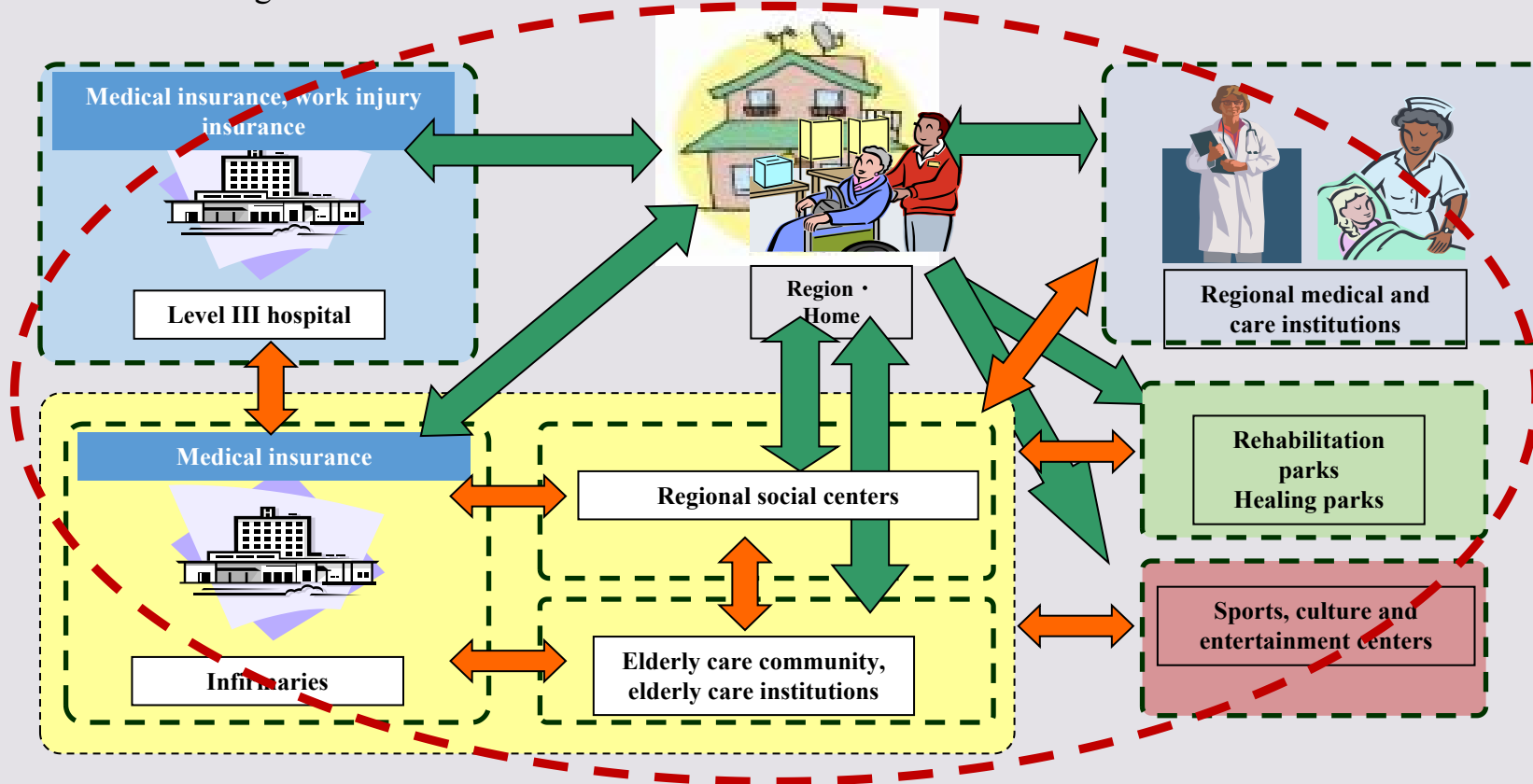
Focus on professional, practical and comfort experience, while reducing costs to improve the cost performance of the project





Community-based Planning and Design Principle

Creating a living environment rich in leisure activities, multi-generational contacts, public spaces and natural participation in services can avoid the negative effects of social isolation.

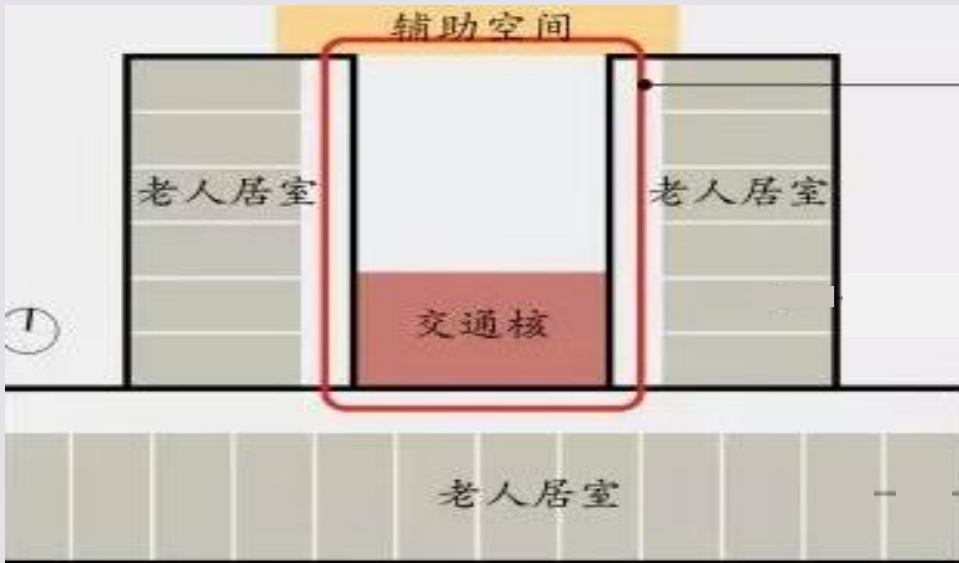


Open and closed design: Apart from necessary closed design, an integrated open design for the surrounding communities to some extent should also be considered.

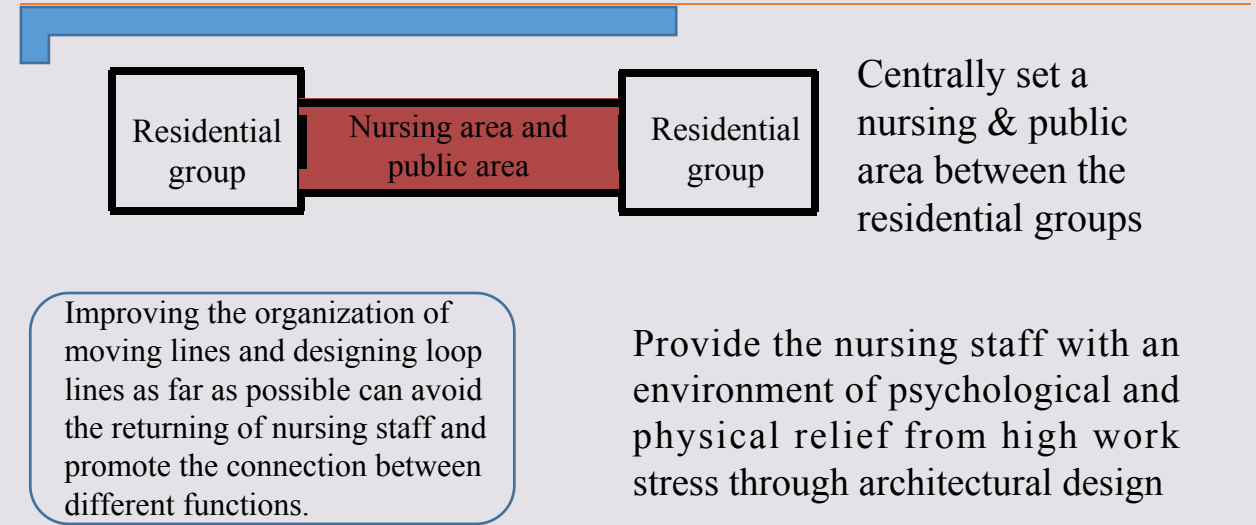
It requires to strive to integrate into the local communities, serve the residents of the surrounding communities, encourage the residents of the surrounding communities to participate in activities. This can not only gain recognition from the surrounding communities, but also create social opportunities for the elderly in the institutions, and increase the profit channels of the institutions.



Working Efficiency Principle



Layout of centralized specialized nursing institutions



Schematic diagram of adjusting the nursing groups according to different duty needs

The concept of service group represents an efficient staffing model, which is conducive to meeting the different requirements at the day and night, as well as creating a home atmosphere



Inclusive Design Principle

Barrier-free design, Universal design, Design for all, Accessible design and Inclusive design have similarities, but different angles and goals.

The application of the “Inclusive design” principle of elderly care facilities can significantly improve the cost effectiveness of using such facilities, and can also create a friendly environment for the elderly from the building to the city.



Canal ramps in Venice, Italy



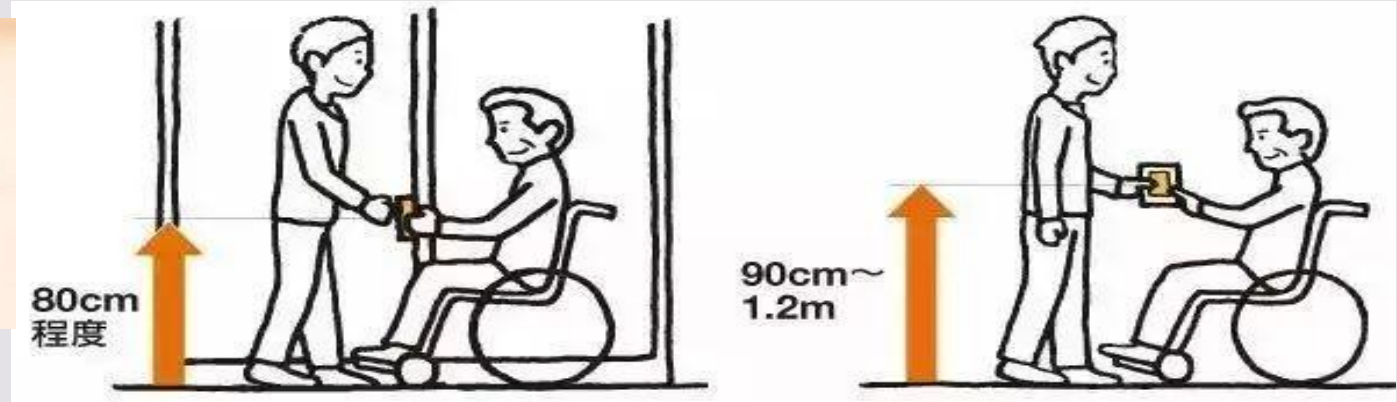
Ramps suitable for disabled wheelchairs and strollers



Inclusive Design Principle



Continuous handrails in corridors and corners



Location of electrical appliances, sockets and switches for the elderly to avoid risks



The design of barrier-free ground and steps adopts the approach of transition section

The application of supporting technologies (ICT) also falls under the category of Inclusive design.

For example: VR (virtual reality), AR (Augmented reality), MR (mixed reality) and other technologies, which are implemented through Internet devices, are used for daily communication, learning, entertainment, professional training, repair and rehabilitation.



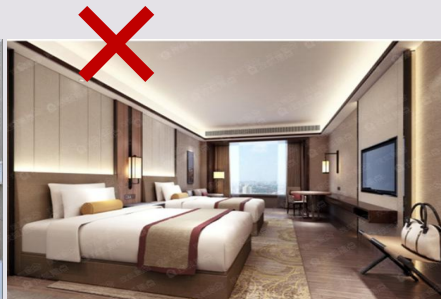
Bathroom safety: Sitting shower, skid resistance, constant-temperature faucets, and intelligent toilets



Non-Institutional Design Principle

The layout, hardware facilities, soft furnishings and decorative colors in elderly care facilities provide a family atmosphere to make the elderly feel relaxed and family-like warmth.

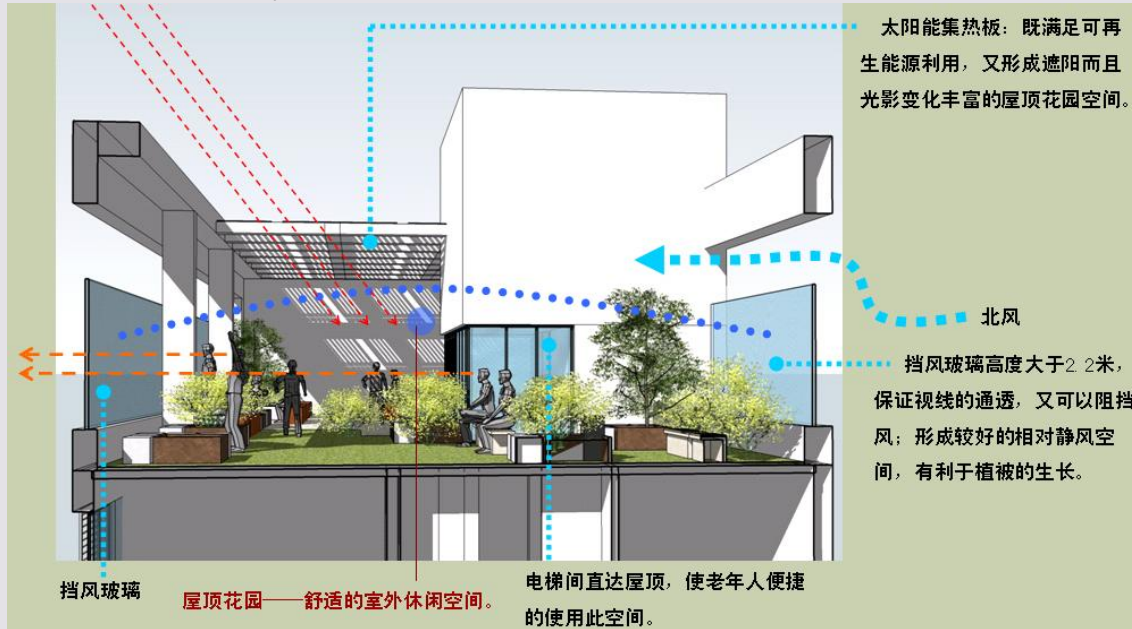
They can have close contact with nature, fully enjoying the sunshine, plants, water, natural ventilation, natural lighting and so on.





Sustainable Design Principle

Sustainability includes four dimensions, i.e., environment, economy, society and culture. The sustainability design of elderly care facilities involves not only the application of technical measures for environmental sustainability, but also all possible solutions for economic and social sustainability.



Over the service life of the buildings,
Reduce the energy consumption and pollution emission
Passive energy-saving measures (layout, appearance, etc.)
Green technologies meeting budget and ROI considerations (e.g., automation control technologies, solar and photovoltaic panels)
Rainwater collecting and reuse systems



Green
Low-carbon
Energy-saving
Comfortable





Operations as the core

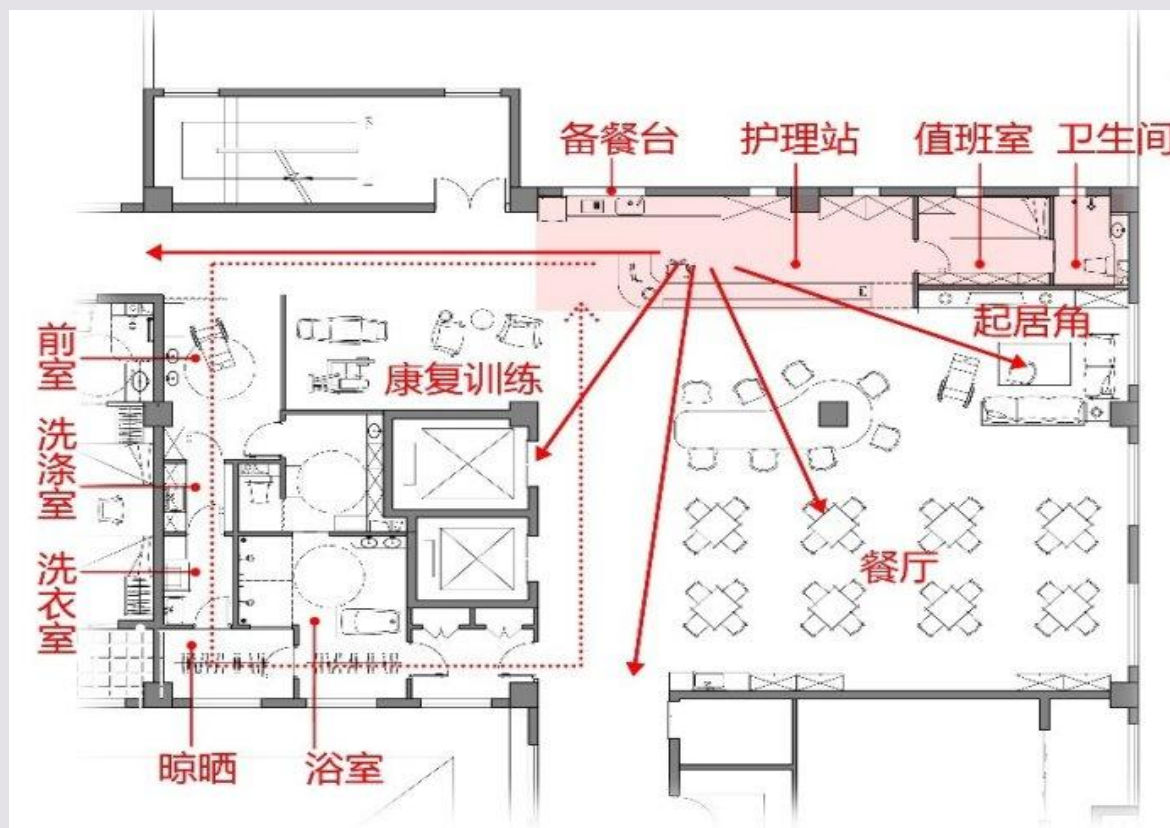
Operations as the core

Meticulous design——**Elderly-friendly** space design based on optimal nursing sight lines and nursing moving lines

Perfect details——“Safe, comfortable, convenient and easy” **elderly-friendly** detail design

Smart technologies——Improve user experience with cutting-edge technology, and **reduce operating costs** with technologies

Elderly-friendly, efficient and safe





Cost as the core

Cost as the core

Construction and installation cost——On the premise of meeting the specification requirements, **reduce the construction and installation cost of the project** through design

Operation cost——**Achieve low operation cost** through low doctor/nurse ratio and sponge space design

Marketing cost——**Achieve low marketing cost** by creating attractiveness with characteristics, science and technology, cutting-edge ideas





Risk control front

Risk control front



Safe vision

Column-free space
+
Soft light
+
Soft ground



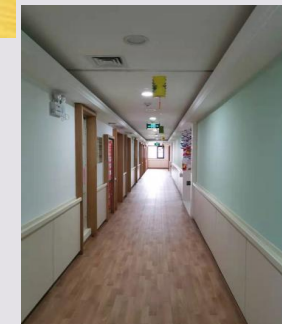
Materials selection

“Dimming glass + operation control”



Aided tool selection

“Invisible handrail + safe shape”





3

Problem assessment



Summary of Common Issues

1

At the time of formally starting project design, there were no design specifications with guiding opinions approved by third parties, which led to repeated modification and adjustment at the project design stage and a lot of futile efforts. There was also a lack of overall planning, positioning and layout for the project, and the design of each sub-project was homogeneous.

2

At the site selection stage before project reconstruction, the assessment of existing buildings was not detailed enough. In addition to the assessment of fire protection and structures, a multi-dimensional, professional and comprehensive assessment of architecture and interior design, equipment and facilities, operation services and so on was also necessary.

3

The transformation appraisal and reinforcement as well as structure and layout transformation of existing buildings were costly, even exceeding the unilateral construction cost of new projects, and were more difficult. The limitations were also larger, with some problems difficult to solve and relatively low cost performance.

4

Operations as the core is stressed, but many operators have not yet been determined, and the operational pressure is great. They need to participate in the whole process of the project as soon as possible. The actual practice experience and business philosophy of the operators are very important for the planning, design, construction and other links of the project.

5

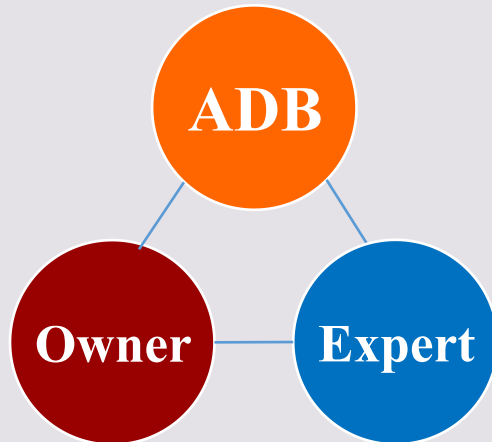
The planning department requires one parking space per 100 square meters, causing a lot of difficulties, but it can be calculated according to the group standard of 0.2 parking space per 100 square meters. In the case of lack of expertise and experience, it is required to strengthen capacity building.



Sub-project problems 1

With guiding opinions approved by the third party

Design specifications



Due to lack of overall planning, positioning and layout for the project, each sub-project is

Homogeneous in design

Charac
teristic





Sub-project problems 2

During the actual construction, it was found that: Some projects were pressing, and the construction was very difficult. There were severe deficiencies that failed to meet fire protection requirements (e.g., no space for firefighting pools). Although it was finally overcome or solved later under the coordination of multiple parties, it did cause great trouble to the construction unit of the project at that time.

During site selection, a multi-dimensional, professional and comprehensive assessment of architecture and interior design, equipment and facilities, and operation services should be added to meet the existing design specifications.





Sub-project problems 3

The transformation appraisal and reinforcement as well as structural transformation and layout transformation of existing buildings were costly, even exceeding the unilateral construction cost of new projects, and were more difficult. The limitations were also larger, with some problems difficult to solve and relatively low cost performance.

Existing buildings were built earlier with different purposes, and now do not meet the requirements of current codes (especially the structure code and the building fire protection code). If conditions permit, new buildings should be built.





Sub-project problems 4

Operations as the core

Cost as the core

Risk control front





Sub-project problems 5

The planning department requires **one parking space per 100 square meters**. Existing buildings were difficult to meet such standard and huge unnecessary waste was caused.

Name of standard:

Guidelines for parking in elderly care community-

Parking site selection and parking ratio

Standard No.: T/LXLY 2-2020

Applicable to: New elderly care communities

Comparison Table of Elderly Care Community
Size and General Motor Vehicle Parking Ratio

Motor vehicle parking ratio	Total beds for elderly care community					
	500 beds		1,000 beds		2,000 beds	
	Lower limit	Upper limit	Lower limit	Upper limit	Lower limit	Upper limit
Vehicles/beds	0.13	0.24	0.12	0.21	0.12	0.20
Vehicle/household	0.20	0.36	0.18	0.32	0.18	0.30
Vehicles/100m2 FAR GFA	0.20	0.35	0.18	0.31	0.17	0.29



General motor vehicle parking ratio
Special motor vehicle parking ratio
Non-motor vehicle parking ratio



团 体 标 准

T/LXLY 2—2020

养老社区停车配建指南 停车空间选址及车位配建指标

Guidelines for parking in elderly care community—
Parking site selection and parking ratio

2020-06-28 发布

2020-07-01 实施



中国老年学和老年医学学会 发布



4

Suggestions for improvement

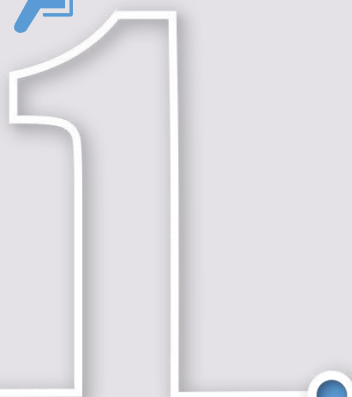


Suggestions for improvement

Before formal design



At the early site selection stage, the assessment of existing buildings needs to be more detailed. In addition to the consideration of fire protection and structures, it is suggested to add a multi-dimensional, professional and comprehensive assessment of design and operation and form practical and feasible design specifications approved by the third party.



Design stage



In addition to meeting the age-appropriate requirements and eliminating obstacles, it is also necessary to realize age-appropriateness, emphasize humanistic care, strengthen capacity building, and improve design quality. When the operators can not be determined, the design experts who understand operation need to participate in the whole process of design guidance.



Construction stage



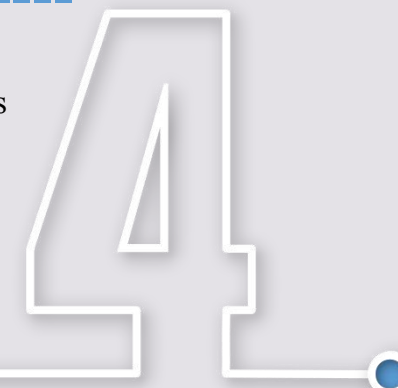
The main reasons leading to local residents' dissatisfaction include: drainage, elevators, noise, garbage disposal, environmental pollution, the perceived resistance to "old age, sickness and death". Prior to the commencement of construction, in-depth communication with local residents must be conducted to minimize disturbances during construction.



Operations as the core



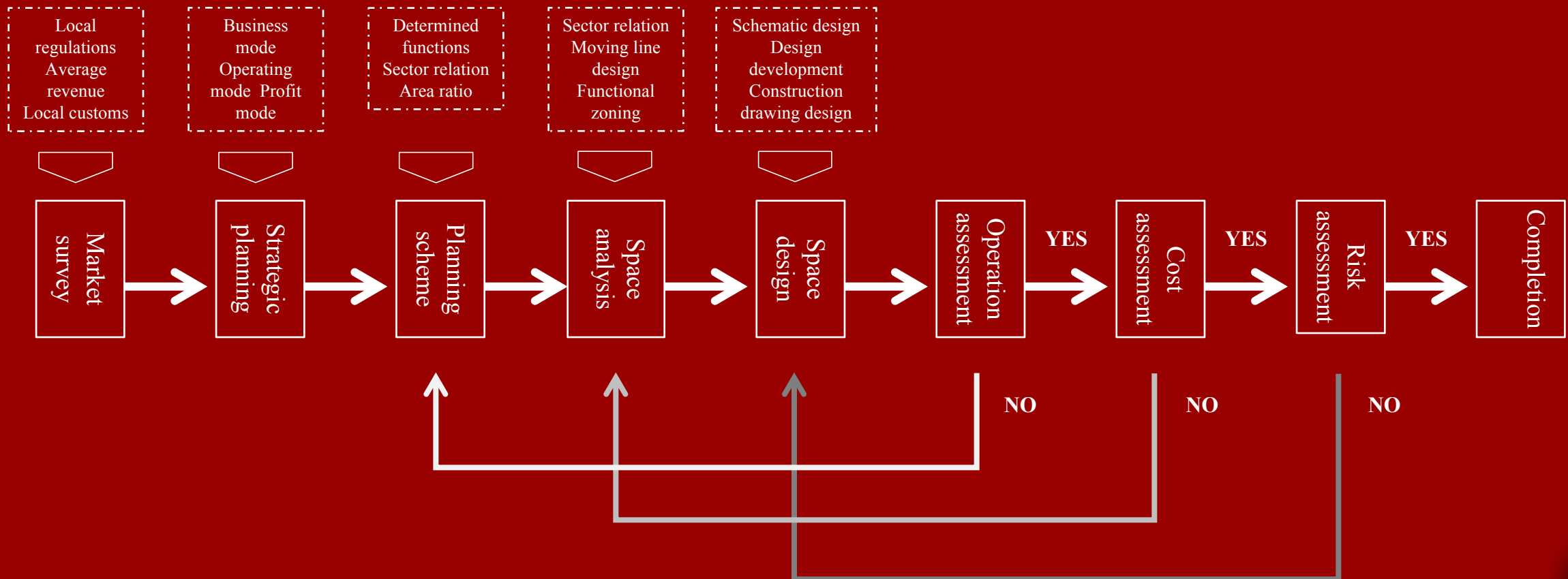
It is suggested that the operators be determined and participate in the whole process of the project as soon as possible. It is also suggested to improve the working process and working methods, specify the responsibilities of all implementing parties, implementation standards and regular work contact lists, and attach importance to the records, meeting minutes, etc.





Design Process for EC Facilities

Different from the general architectural design, three dimensions, i.e., “operation, cost and risk”, must be embedded in the design of elderly care projects.





Elements of EC Facilities Design



Different from the design of hospitals and hotels, “four elements of operational demand” must be considered in the design of elderly care facilities.

- Natural lighting & Sunshine
- Fresh air & Energy conservation
- Storage space & Logistical support
- Social space & Moving line



5

Inductive ascension



Inductive ascension

National Standards

So far, relevant national standards have been issued:

- *Uniform Standard for Design of Civil Buildings* (GB 50352-2019)
- *Codes for Accessibility Design* (GB 50763-2012);
- *Specifications for Fire Protection Design of Building* (GB 50016-2014) (2018)
- *Code for Planning of City and Town Facilities for the Aged* (GB 50437-2007) (2018)

Industrial standards

So far, relevant industrial standards have been issued:

- *Architectural Design Standard for Elderly Care Facilities* (JGJ 450-2018)
- *Standard for the Construction of Community Day Care Centers for the Elderly* (JB 143-2010)
- *Construction Standard for Elderly Nursing Homes* (JB 144-2010)

Local standards

So far, relevant local standards have been issued:

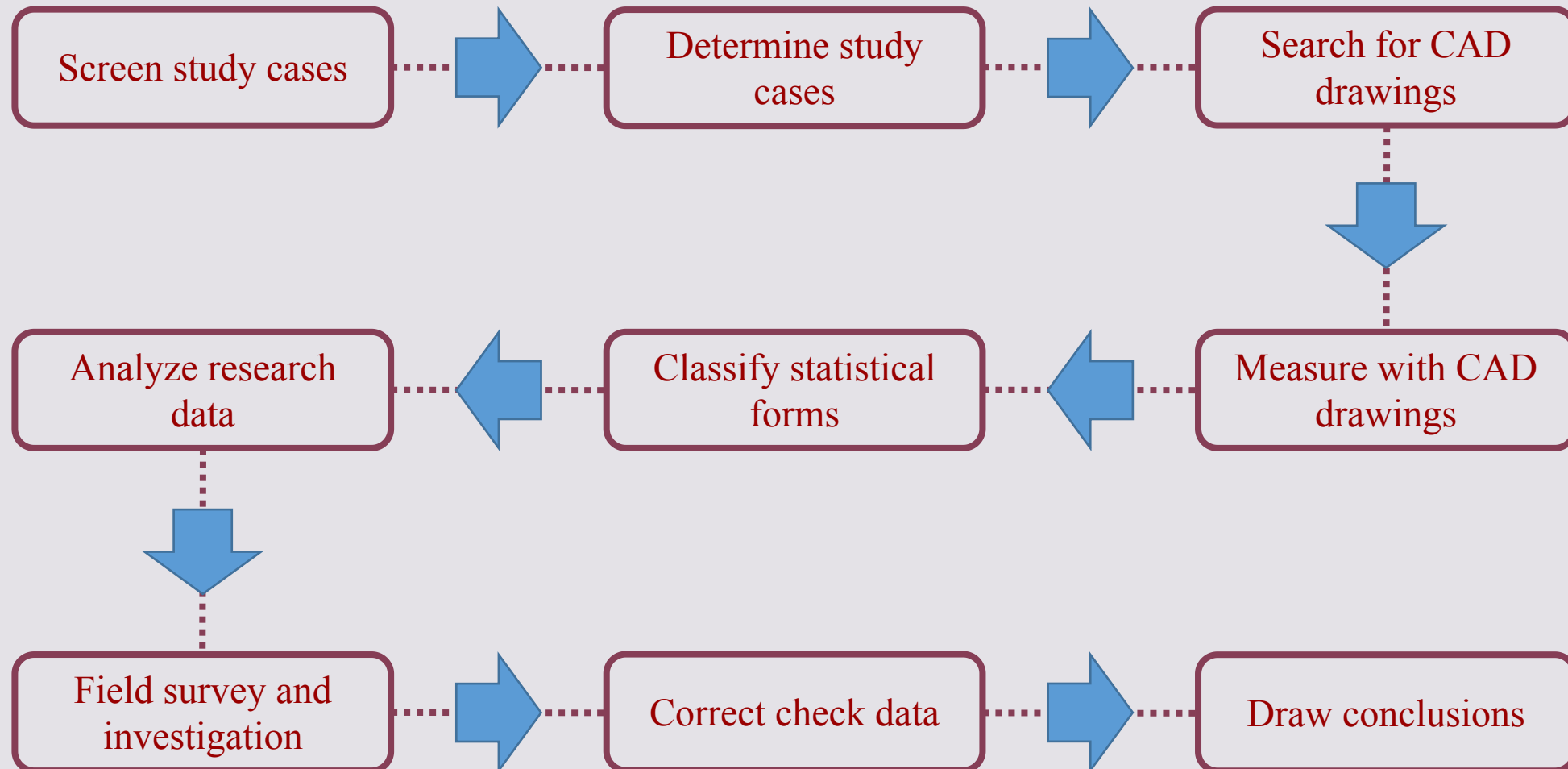
- *Facility Design and Service Standard for Community Elderly Care Service Stations of Beijing (Trial)* (JMFF [2016] No. 392)
- *Latest Edition of the Architectural Design Standard for Elderly Care Facilities in Shanghai* (DG/TJ 08-82-2020)
- *Requirements for Facilities and Services of Elderly Care Institutions in Shanghai* (DB31/T 685-2019)
- *Service Specifications for Convalescent Nursing Homes in Guangxi Zhuang Autonomous Region* (DB45/T1878-2018)
- *Construction Code for Elderly Care Facilities in Chengdu* (DB510100/T211-2016)
- *Code for Architectural Design of Nursing Homes in Sichuan Province* (DBJ51/052-2015)

Group standards



Inductive ascension

Technical roadmap for standard research





Inductive ascension

Guideline: Basis for identifying direction, and criterion for guiding actions.

Guidance: Requirement for the completing method, content or form of a task.



Design guideline



Development manual

Drafted according to the existing standard *Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents* (GB/T 1.1 - 2020), indicating the drafter, etc.





Inductive ascension



Chapter 1 Project Site Selection

- Section 1 Living environment and surrounding supporting facilities
- Section 2 Analysis of the surrounding population
- Section 3 Analysis of site selection for new projects
- Section 4 Analysis of site selection for reconstruction projects

Chapter 3 Living Space Design

- Section 1 Nursing group modes
- Section 2 Public living rooms
- Section 3 Nursing stations
- Section 4 Living rooms of the elderly

Chapter 5 Outdoor Environment Design

- Section 1 Overview of outdoor environment design
- Section 2 Key points of outdoor environment design
- Section 3 Roof gardens

Chapter 2 Site Planning and Layout

- Section 1 Site design
- Section 2 Architectural plane layout

Chapter 4 Public Space Design

- Section 1 Hallways
- Section 2 Dining rooms and kitchens
- Section 3 Stairs and elevators
- Section 4 Public corridors
- Section 5 Public washrooms and bathrooms

Key points of building assessment,
Key points related to operations,
Key points of process steps,
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Online, 26 - 28 Sep 2022

THANK YOU



R | K | S | I
ADB-PRC Regional Knowledge Sharing Initiative