老人·家

SENIOR HOUSING

养老建筑项目设计

李宏/编　李婵/译

辽宁科学技术出版社

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CONTENTS
目录

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Preface
序言

Due to healthcare improvement, economic growth, and the long-time generally peaceful environment, human lifespan has been greatly extended. Consequently, one of the most challenging issues we face in the 21st century is the aging population.

In the second decade of the 21st century, when the rapid, over-20-years lasting progress finally reached the 'New Normal Economy', China started stepping in to the era of aging society. Typical characteristics of this phenomenon began to appear nationwide, while some regions and cities were suffering from particularly serious problems in consequence of the imbalanced development in China. Problems are differed in regions, which require tailored solutions for both prosperous and lagging regions.

After World War II, developed countries in Europe and America came to a period of fast economic development and the baby boom in the 1950s and 1960s. However, with the improvement of living standards, aging became a growing problem. In Germany, for instance, the aged population accounted for more than 10% at that time; till 1990s, for the first time the aging population accounted for more percentage than the adolescent. According to estimation by the Federal Statistics Department, from 2020 to 2025, adults population (20 to 60 years old) will continue to decrease to have a percentage less than 50%, while the elderly population will exceed 30% for the first time.

What should be the way of urban development in an aging society? What about the strategy for real estate development or architectural design? It is a comprehensive subject that shall be treated in an all-around way. In China, in an early stage of the aging society, it's better to learn from the experience in Europe and America, and hopefully some valuable insights and inspirations could be provided to the Chinese peers.

An aging society brings great opportunities as well as big challenges to real estate developers and architects. In urban development, there's

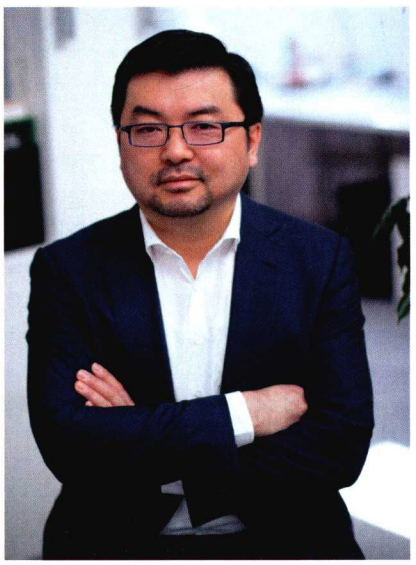
医疗水平的提升和经济的发展以及长期的总体和平，使人的寿命大大延长，21世纪人类面临的主要问题之一就是老龄化。

随着20多年的高速发展阶段转入“新常态”，进入21世纪第二个十年的中国也正在逐渐步入老龄社会。当总体人口结构呈现老龄化特征时，由于地区发展的不均衡，有些地区和城市的老龄化问题甚至已经比较严重，也由于地区发展的差异，经济发达地区和较落后贫穷地区面临的问题及其解决之道也应是差异化的。

欧美发达国家在二战后迎来了50、60年代的经济快速发展和婴儿潮，但是伴随着生活水平的上升，老龄化问题也渐趋严重。以德国为例，不仅老龄人口的比例远超10%，到了20世纪90年代，甚至人口中青少年和老年的占比也首次发生了反转，即人口结构中老龄人口占比超过了青少年。根据联邦统计部门的预计，在2020年至2025年前后，20至60岁的青壮年人口将进一步下降到50%以下，而老龄人口将首次超过30%。

老龄化社会的城市发展是怎样的？相应的物业开发策略、建筑设计又是怎样？这是一个综合性全方位的课题，在中国开始进入老龄社会的时候，借鉴一些欧美先进的经验，必定可以为中国同行的工作提供一些有价值的启迪。

老龄化给不动产开发和建筑设计带来的是充满挑战的巨大机遇。一个趋于老龄化的社会，在城市环境方面，对无障碍设施、环境识别性，乃至公共环境的众多细节上的安全性和舒适性的要求；在功能布局上，居住、生产、文化、医疗、服务、购物、餐饮、娱乐休闲等不同功能的位置关系、距离，乃至面积比例；



Dr. LI Hong
李宏博士

more requirement for accessibility facilities, identifiability of places, and safety and comfortability in details of the public realm. In urban planning, different programmes related to living, manufacturing, culture, healthcare, services, shopping, dining and entertainment should be well sited with appropriate distance and area proportion. Laws and regulations would be updated, and different demands should be noticed, concerning real estate development and operation, funding, model and rate of reward, and training of human resources for management, running and services. Based on these problems, architecture for the aging population came into being as a special field.

Design of the architecture for the aging population should be focused on establishing a lifestyle in the third and fourth phase of our life, aiming to maintain life quality of different groups of the elderly as far as social and economical conditions allow. Compared with young adults, the elderly suffer from deterioration of physiological and psychological functions as well as decline in action and cognitive abilities, which happen in a long process of aging till the end of life and may vary from each individual. Well-designed architecture for the elderly should be based on the physical and mental characteristics of such an age group to guarantee their safety and comfortability.

Such architecture can be categorised according to the physical and mental health conditions of old people: housing for generally healthy old men (those who can live an independent life); housing with different kinds of nursing and health services; and housing with special nursing services for those who suffer from senile diseases such as Alzheimer's. Different development and operation modes offer another way of categorisation: housing with home-based care; self-organised aging communities; nursing homes or apartments invested and run by private institutions and enterprises; nursing homes funded or sponsored by the public sector, churches, or foundations; and nursing centres particularly established for aged patients and operated like hospitals.

In Germany, there are mainly two reasons behind such categorisation. On

在相关法律规范的设置方面；在不动产开发和运营模式、资金来源、回报率和回报模式，乃至所需的相应管理、运营、服务人力资源的培训等，都提出了不同的要求。围绕这些问题，逐渐形成了老龄建筑设计的专业课题。

老龄建筑的设计应当围绕怎样塑造人生的第三和第四阶段的生活，目标是在社会经济条件许可的前提下，最大限度地保证各类老年人的生命质量。相对于青壮年阶段，伴随着年老到来的，是生理机能和心理机能的衰退，行动能力和认知能力的下降。值得注意的是，这是一个伴随年龄增长的因人而异的可变的过程，时快时慢直至生命终结。精心设计的老龄建筑应针对老年人的生理和心理特点，从硬件上确保安全性，提高舒适性。

因此，老龄建筑可以根据使用主体的特点，按老年人生理和心理健康程度进行分类：分为一般健康老人（生活可完全自理）的居住物业；需要不同程度护理和健康管理的物业；有某种程度老年病，尤其是阿尔茨海默症病患的护理型物业。也可按照开发运营模式分类，可分为一般居家养老；自发自组的老年居住共同体；私人机构或企业投资运营的养老公寓或养老院；公共投资或教会及一些基金会投资或资助的养老院；以及专门的以医院模式运行的老年疾病护理院。

在德国，这样的分类方式一方面是针对使用对象的不同而产生的需求在设计上的反映，更主要的是投资和经营模式的不同，以及获取公共补贴、保险公司支付的要求。例如一般居家养老，主体是有家庭，有一定经济能力的健康老年人，适度的针对老年人特点的改造措施由业主自行承担。但是，往往伴随年龄的增长和老年病的发生，一些进一步的针对性改造措施可获得保险赔付。合住式的

one hand, it is based on requirements towards design aimed at different user groups and their needs. On the other hand, and most importantly, these facilities differ in investment and operation mode, and have different demand for public subsidies and insurance payments. For example, housing facilities with home-based care are mainly for those healthy old men living with their family with certain economic capacity. Simple renovation for aging adaptation is generally paid by the clients, but as they grow older and probability of senile diseases occurrence increases, further specific reconstructions would be required and paid by insurance companies. Senior communities for group living are accessible to both healthy senior citizens (communal flats) and geriatrics, especially those with Alzheimer's (nursing flats). Investment fund mainly comes via two ways: self-purporting construction and private investment, both with government subsidies. Key factors of such facilities, such as size of each flat, overall scale and living area per capita, are determined by scale and workload of the nursing staff, subsidy use efficiency, operating costs and rate of return.

With the advance of the aging progress in recent years, in order to relieve pressure from public nursing institutions and make efficient use of social resources, various policies have been issued in many federal states in Germany. For instance, in Baden-Württemberg and Bayern, the governments give out special subsidies to encourage home-based care and nursing. Even more allowances go to self-organised group living communities, nursing apartments and aging care facilities run by private investors. Such supporting policies further facilitate development of senior housing facilities.

Before 1980s, funds for senior housing in Germany mainly came from churches and foundations, which have gained a great deal of experience in long-time developing and operating nursing homes. Meanwhile, since there were stringent rules about fund use, particular design and construction modes were established. Hence in this period, senior housing featured professional developers – often acting as operators as well – and specific user targets – senior patients and solitary elders without family. Till 1990s, especially after mid-90s, dramatic changes occurred. Due to the increase of the aged population, simple home-based care was difficult to sustain in a large amount of families. Consequently the demand for care services and nursing facilities was on the rise, and government subsidies attracted more private enterprises to the development and operation of senior housing. In this period, senior housing was characterised by diversification of investors, professionalisation of operators, and popularisation of users (the target user group became healthy seniors). With improvement in education and health conditions, nowadays the targets of senior housing in Germany are also changing: for the group aged from 78-85, the 'Betreuung+Service' facilities predominate, supported with certain community healthcare services; the 85-95 age group is the main users of nursing homes.

German senior housing development offers great value for reference for China. Due to the one-child policy, the generation(s) now adding to the aging population in China generally enjoys greatly better health and education conditions as well as life expectancy, and their next generation is mainly made up of individuals of single-child in each

老年居住共同体则既有健康老人的集体公寓，也有专收病患特别是阿尔茨海默症病患的护理公寓。投资方式以自助建设政府补贴和私人投资政府补贴为主。此类物业就由护理人员的合理班组和工作负荷、补贴资金的使用效率以及运营成本及回报率决定了其单元和总体规模、人均面积等指标。

而近些年随着老龄化的程度加深，为了减少公共养老机构的压力，使社会资源更加有效地利用，各州政府都有一些政策措施出台。如巴登－符腾堡州和巴伐利亚州，都有专项政府补贴，来鼓励居家养老和居家护理，对自组的老年合住物业、私人投资的养老公寓以及老年护理机构，更是加大了补贴力度，也进一步促进了此类物业的开发。

从德国养老物业的发展来看，20 世纪 80 年代以前，基本以教会和一些基金会的投入为主，教会和这类基金会因长期投入建设和运营养老院及护理院，积累了大量的经验，同时也由于其资金使用的严格规定，形成了各自严格的自成一体的设计和建设模式。这一阶段的特点是开发主体专业性强，且一般也同时是运营主体，使用主体以“病患”和孤寡老人为主。到 1990 年代尤其是 90 年代中期以后，情况发生了急剧的变化。由于老年人相对数量的增加，对于很多家庭单纯的居家养老的模式难以为继，使得养老看护服务和养老机构的需求大大增加，政府的补贴支持使得更多私人企业进入养老物业的开发和运营。这一阶段开始，投资主体多样化，运营主体专业化，使用主体也更多地是较为健康的老人。而随着人的教育和健康水平的提升，目前德国养老物业使用对象的结构也在发生变化，可以简单概括为：80 岁左右（78–85 岁）人群，以“Betreuung + Service”模式即照料加服务为主，辅以一定的社区医疗服务，85 到 95 岁的人群才是护理机构的主要使用者。

这一发展过程对中国城市的养老产业发展有较高参考意义。中国社会的老龄化伴随的是一胎化政策，目前逐步进入老年的一两代人口，其健康和教育水平大大高于上一代，预期寿命也将有所增长，而其下一代基本为独生子女家庭。这一状况类似德国 90 年代中期的情况，甚至由于独生子女政策，使得养老服务和养老机构的需求更加突出。

SBA 公司的养老和健康关怀设计部门从事了近 40 年的老龄建筑设计和建设，从最初服务于教会和诸如 StiffungAttl 基金会这样的一些业主，到目前的各类公共和私人养老物业开发企业，积累了不少的经验。核心的设计人员，有些也逐渐步入了人生的暮年。这次荣幸地受到辽

family. Such a situation recalls that of the mid-90s in Germany. What's more, because of the one-child policy, requirement for care services and nursing facilities would be more pressing in China.

The senior housing & healthcare design department in SBA International has been devoted to architectural design and construction for the elderly in nearly 40 years, and has experienced a shift of clients from churches and foundations like stiffungAttl at an early stage, to the current various senior housing developers from both the public and private sector. Along with the accumulation in experience, some of the principal architects and designers are stepping into their twilight years. We are greatly honoured to be asked by the publisher, Design Media Publishing (UK) Limited, to select and present a few of our projects. According to the above-mentioned trends and user groups, the selection ranges from 1990s till now, from common senior apartments to special nursing homes for the Alzheimer's. It is hoped that these representative projects, as well as the book, will serve as a platform for professional and constructive exchanges with developers, operators, architects and designers committed to senior housing in China, and bring certain inspirations to the Chinese peers.

Author's Information

Dr. LI Hong

Dr. Li graduated from Tongji University, Shanghai in Architecture, received his Master's Degree in Architecture and Urban Planning from the University of Stuttgart, Germany, and is a registered architect and urban planner in Germany. Dr. Li is a partner of SBA International and managing director at SBA China.

Dr. Li makes intensive research into senior and healthcare architecture, and is quite experienced in practice with many projects, including the Geriatrics Rehabilitation Centre at Universität Ulm, Germany; Alter Town for the Senior and the Handicapped, Germany; Cerebral Palsy Rehabilitation and Therapy Centre, Munich, Germany; Elderly Community in Egling an der Paar, Germany; Konggang International Hospital, Tianjin, China; and Xinting Apartment for the Aged, Shanghai, China.

In recent years Dr. Li took part in research programmes funded by the German government such as Megacity and Morgen Stadt Future City, exploring the future trends of urban development in the background of the new generation information technology, as well as the application of smart city technologies in medical service, healthcare and elderly supporting.

SBA International is an architecture and urban design firm based in Stuttgart, Germany, with branch offices in Munich, Laupheim, and Shanghai. SBA Health Care has been devoting to the planning and design of health care architecture, senior residential complexes, and facilities for the handicapped, with a team of more than 30 experts and experience of over 40 years.

SBA Health Care always pays attention to requirements of the end user. On one hand, health and security of patients, senior citizens and the handicapped are taken into account; on the other hand, they try to produce design that can facilitate work efficiency of the nursing staff and reduce workload. Experts in SBA Health Care are well experienced in establishing a good balance between safety, comfort and nursing efficiency; barrier-free design and architecture planning; requirement on usability and return on investment. Practices for senior architecture include transformation of common housing complexes into senior residences, senior apartments, nursing homes, rehabilitation centres, and activity centres. With different levels of nursing and care provided, the projects tried to help senior citizens live an independent life.

The SBA team in China has been practicing for more than 15 years, with over 30 projects commissioned each year. They look into aging problems in China and the development of architecture for the aged population in the country, and are willing to share the know-how from Germany and their senior architecture concepts in the architecture industry in China.

宁科学技术出版社的邀请，特意从我们诸多项目中，按照上述的时代变化以及针对对象不同的分类，挑选了从 90 年代至今，从普通老年公寓到专业的阿尔茨海默症患者护理院等不同的项目作为代表性的案例，希望能通过此书和中国老龄建筑的开发者、运营者和设计师进行有建设性和专业性的沟通，并给中国的同行带来一定的启发。

作者信息

李宏 博士

毕业于同济大学建筑系，并于德国斯图加特大学获得建筑及城市规划学硕士学位。德国注册建筑师、注册规划师。现任德国 SBA 建筑规划设计公司合伙人，中国分公司董事总经理。

主要专业领域在城市设计、智慧城市的专业研究、健康关怀类的建筑设计工作。SBA 公司慕尼黑老龄健康关怀设计团队负责人之一。

李宏博士对德国及中国的老龄建筑、医疗建筑以及健康关怀相关的特殊建筑有着深入的研究，拥有丰富的经验与实践案例。主要参与的项目包括德国乌尔姆大学老年病康复中心、德国阿尔特老龄及残疾人小镇、德国慕尼黑脑瘫患者康复及治疗中心、德国埃格林老龄社区、中国天津空港国际医院、中国上海馨亭老年公寓等。

近几年主持并参加了德国政府资助的“Megacity”、“Morgen Stadt 未来城市”等大型科研项目。重点研究在新一代信息技术的背景下，城市的未来将如何发展，以及智慧城市技术在诸如医疗、健康、养老等领域中的应用。

德国 SBA 公司是一家从事建筑设计、城市规划的专业设计公司。总部位于德国斯图加特，在慕尼黑、劳普海姆（乌尔姆）及中国上海设有分公司。SBA 的养老和健康关怀设计部门（SBA Health Care）长期专注于医疗建筑、老龄建筑及残障人建筑的建筑设计，拥有 30 多位经验丰富的专家以及超过 40 年的设计经验。

SBA Health Care 的设计尤其重视最终使用者的需求。一方面关注患者、老年人及残障人的身心健康及使用安全，另一方面注重提高护理团队的工作效率，降低工作负荷。SBA 的专家擅长将安全性、舒适性与护理效率充分结合，无障碍设计与建筑设计相结合，使用需求与投资回报相结合。老龄建筑包括普通住宅的老龄化改造、老龄公寓、护理中心、康复中心、活动中心等，根据不同的护理等级，将尽可能地帮助其实现独立自主的生活。

SBA 中国团队，在中国已经有超过 15 年的项目经验，每年承接超过 30 个建设项目。SBA 中国团队特别关注中国养老及老龄建筑发展，乐于将德国先进的经验以及健康养老建筑设计的理念与中国市场分享。

CONTENTS
目录

Senior Housing: Evolution and Development
养老设施的演化与发展

1. Senior Housing in the West
Senior housing in the West originated from religious buildings. The earliest senior living facilities came out in the UK, among which is the time-honoured Holy Cross, Canterbury, Kent founded in 1084.

1.1 Senior Housing in Europe
Large-scale senior living facilities first appeared in 1900 in Copenhagen, Denmark. After World War II, due to shortage of social housing, large quantities of nursing homes were built in The Netherlands to accommodate the elderly, leaving residences to the young. Afterwards, hospitals for the elderly and nursing homes for geriatrics were established, and the aged who can live an independent life lived in homes for senior citizens. In 1948, the National Assistance Act was issued in the UK, which stated that local welfare institutions would be funded to build small-scale homes for the aged. In 1952, 5,200 buildings were developed for the elderly in Copenhagen, Denmark, most of which were low-rise architecture located in the eastern suburb, with nursing services to assist group living. The number of centralised social care facilities decreased, and senior apartments and residences were on the rise. As one of the first aging societies in human history, France has nearly 10,000 registered nursing homes accommodating 650,000 senior citizens, managed by the Ministry of Social Welfare as part of the social security system. In France the senior care facilities are mainly composed of safe retreats, senior apartments, nursing homes and mid- and long-term wards in geriatric hospitals. Apartments, restaurants, clinics and other amenities are concentrated in senior centres, and both residents living in the apartments and old people within the whole community can benefit from the services. Senior serviced apartments, as one of the main solutions to the problem of senior housing in France, have all amenities tailored for the aged group, with far more service staff than hotels or ordinary service apartments. Both long and short stays are possible as needed by the residents. In other countries in Europe, the number of such senior serviced apartments and senior communities is also increasing, with more considerate services and high-quality environments.

1.2 Senior Housing in America
Senior living facilities in America originated from the alms-house, located far from downtown as a cost-effective system of senior housing. Another important type is profit-making facilities operated by social organisations, offering user-oriented environments and mainly inhabited by the old people with incomes. In 1935, President Franklin D. Roosevelt signed the Social Security Act, and privately owned nursing homes providing medical care came into being. As an advanced, user-friendly senior housing system, it soon became popular in all developed countries. In 1954, the national criteria for nursing institutions were issued. When elderly care facilities were taken as part of the community development, retirement communities appeared and then senior communities. In the early stage, senior communities were popular in middle to lower income groups; high-end senior communities didn't come into being until the end of 1950.

2. Senior Housing in the East
In the East, senior housing systems are greatly influenced by traditional culture and the social morality to respect the elders. Many people live with a multi-generation family structure, and the burden of senior welfare expenses is shared by the public institutions and the family. Group living dominates senior housing systems, in the form of residential buildings and apartments.

1. 西方型社会养老设施概述
西方型社会养老设施脱胎于宗教建筑，最早的社会养老设施出现在中世纪英国，其中包括创建于 1084 年在英格兰东南部的坎特伯雷镇的圣十字医院。

（1）欧洲社会养老设施发展概述
大规模集中养老设施的出现最早始于 1900 年的丹麦哥本哈根，而二战后由于住宅短缺，为了给青年人腾出住宅，荷兰大量修建集中式的护理之家。随后，为应对不同身体条件的老年人，老年病医院和护理之家专门收治患有老年病的老年人，仅是身心老化，生活可以自理的老年人则在老年人居住之家生活。1948 年，英国颁布《国民救助法》，出资鼓励地方福利机构建立小型、分散、灵活的老年人之家。1952 年，丹麦哥本哈根市共建造 5200 个老年人建筑单位，这些建筑多为低层的小规模建筑，采取合居模式，有护士服务，大部分分布在东郊，集中式的社会养老设施逐渐减少，向老年公寓、老年住宅转变。作为人类历史上最早进入老龄化社会的法国有合法登记的养老院近一万家，收容了 65 万名老年人。养老院统一由社会福利部管理，并纳入社会安全保障体系。养老设施分为：收容所、老年公寓、护理院和中长期老年医院。法国老年人中心将公寓、餐厅、诊所等服务设施集中在一起，且不仅服务于公寓内的住户，整个社区的老年人都可以成为受益者。特色鲜明的老年酒店式公寓是法国解决老年人住房问题的主要模式。在老年酒店式公寓中，配套设施完全依据老年人的需要设计，服务人员远远多于酒店或酒店式公寓，老年人可以根据自己的需要选择长住或短住。欧洲其他国家也逐渐增加了酒店式老年公寓和老年社区。老年人的安居生活服务日益细化，品质逐步提升。

（2）美国社会养老设施发展概述
贫济院是美国养老设施的最初类型，远离城区，节约成本；另一种养老设施是由社会组织提供的具有营利性质的设施，主要入住者是有收入的老年人，设施环境人性化。1935 年，在美国《社会保障法》背景下诞生了私营的护理之家，提供医疗护理，这种先进的、人性化的护理之家随后风靡所有发达国家；1954 年的《机构养老的老年人标准》为这类养老机构提供了国家规范的支持和指导。在将养老建筑纳入到社区开发的进程中出现了退休社区，而后形成了老年人社区。美国早期入住老年人社区的是中等和中等收入以下的老年人，直到 1950 年末高端老年社区才出现。

2. 东方型社会养老设施发展概述
东方型社会的养老模式源自传统文化与社会公德的传承，敬老爱幼是精神与道德基础，社会主体家庭结构中，多代同堂的大家庭不在少数，并且老年人的福利费用由社会和家庭共同承担。老年住宅的形式多为多层集合式住宅或公寓。

2.1 日本社会养老设施发展概述
1963 年，日本颁布《老年人福利法》，包括

2.1 Senior Housing in Japan

In 1963, Senior Welfare Law was issued in Japan, which mainly consisted of policies on housing welfare and infrastructure welfare. In 1970, Japan officially declared itself as an aging society. In 1995, 4.2% of the aged population in Japan lived in senior care facilities. However, as a typical oriental society, Japan underlines filial respect for the elders as an important moral obligation, and living together as a big family is advocated. As a result, 'common residences' were developed, among which, double-generation houses and nursing homes became the most popular housing systems. Due to the tendency of nuclear families, double-generation houses came into being, and were welcomed because of the separation of lifestyles of the two generations; each generation has their own kitchen, bathroom, living room and bedroom. In response to various needs of different groups, nursing homes in Japan are further categorised into five types: day-care centres, geriatric hospitals, elderly activity communities, hospice care centres, and short-time care centres. With a growing threat from aging problems, more accessible, small-scale care facilities are expected to be the mainstream of senior housing in Japan. Moreover, thanks to popularisation of high-tech automation in Japanese senior housing systems, the cost of labour is greatly reduced in accessibility facilities and serviced apartments.

2.2 Senior Housing in Singapore

Singapore developed into an aging society around the year 2000, but as early as in the 1950s the Singapore government had already looked to the aging problem. In order to encourage adult children to live with their aged parents, the government put forward some effective solutions and policies, such as multi-generation apartment blocks, the Joint Selection Scheme, and providing subsidies for those who live adjacent to their old parents. Unfortunately, investigation showed that the number of seniors who don't live together with their children is increasing. By 2040, every one in four senior citizens in Singapore would be living alone. The Singapore government spared no effort to provide senior community centres, community care services and amenity networks. In March 1998, senior citizen apartments were developed, mostly built in large-scale communities which were inhabited by both senior and nuclear families and well-equipped with existing community and commercial facilities as well as accessible public transport networks. Compared with ordinary residences, such senior citizen apartments are more tailored for the senior inhabitants; the entrance, bathroom, kitchen, interior lighting, domestic installation signage, selection of finishing materials and paving are all specially designed to cater for physical aging and create safe and comfortable living spaces for the elderly.

3. Conclusion

Due to the diversity in culture and lifestyles, different societies have developed their own senior housing systems. In the West, as exemplified by Europe and America, senior citizens can receive necessary care and help and have communication with their mates in the daytime, while at night, they retreat to a place of their own for rest and sleep, in keeping with an independent lifestyle. In the East, senior housing is developed as a community living system. Facilities like double-generation houses and senior citizen apartments provide friendly, familiar environments and the much-desired family communication. In most countries, in an early stage of an aging society, concentrated senior housing systems are developed, and later with the aging progress and social and economical development, privacy and comfortability of senior housing environments will become a priority. Due to considerate services and satisfaction in social life, community care facilities have come to be the mainstream, and tend to be smaller in scale with a higher comfort level.

住宅福利和设施福利政策两部分。1970 年，日本正式进入老年型国家行列，1995 年，4.2% 的日本老人居住在老年人福利设施中。但作为典型的东方型社会，日本的养老模式注重本国孝敬老人的传统，提倡老年人和家人住在一起，因此，通用住宅随之发展起来，主要有两代居、养老院（老年之家）两种居住模式。两代居是日本为适应家庭核心化倾向，采取老少两代在生活上适度分离，而研发建造了一批供老年人与家人同居的新型住宅。这种建筑是在公共住宅里设计的适合于老少多代共居的大型居住空间，对厨房、厕所、门厅和居室分隔功能都作了相应的考虑，对多代人生活方式和生活规律上的差异在室内空间作了相应的处理。而为了满足各类人群的需求，日本社会养老服务机构逐渐细分出了日间照料、老年病院、老年活动社区、临终关怀和暂缓照料五种。随着老龄化问题的日益凸显，更灵活、舒适、便利的小型化、住区化养老设施将会逐渐占据日本养老设施的主流。另外，日本老年住宅的技术和电器化程度很高，很多无障碍设施和有看护性质的设施都是由电器化技术代替，极大缓解了人工成本昂贵带来的压力。

2.2 新加坡养老设施概述

2000 年前后新加坡进入老龄化社会，但是早在 20 世纪 50 年代新加坡政府就着手解决老年人问题。为了鼓励子女与老年父母合住，新加坡政府提出了一些较为有效的办法，如：多代家庭组屋办法、合选组屋办法、与父母邻居补助办法等。但调查显示，不跟子女同住，独居或只与老伴住在一起的情况越来越多。约 2040 年前后，在新加坡每 4 个老人当中，一个是独居者。新加坡政府在提供老人社区活动中心、社区老人服务及设施网络上不遗余力。1998 年 3 月推出“乐龄公寓”，一般在成熟社区中兴建，这些区有乐龄家庭，也有由年轻夫妇组成的家庭，区内有齐全完善的社区及商业设备，而且有便利的公共交通设施。“乐龄公寓”与普通住宅相比，在出入口、厨卫面积、室内照明、室内生活设施标识、室内装饰材料与铺设等方面都做了适老化设计，全面照顾老年人因身体老化带来的不便，提升了老年人居住环境的安全性和便捷性。

3. 结论

不同类型的社会因传统文化和生活习惯的差异，其主要养老设施的侧重点不同，欧美为代表的西方型社会更注重对老年人精神层面的照顾，既能在白天得到必须的帮助、照料，与他人交流，又能在晚上回到自己的家中休息，完全符合独立自主、互不拖累的社会家庭观念。东方型社会偏重于社区养老模式，两代居、乐龄公寓这样的老年居住模式可以为老人提供熟悉的环境和必要的亲情交流。在进入老龄化社会的初期，大多数国家以集中式养老设施为主，随着老龄化程度和社会经济的发展，养老居住环境的私密性和舒适性日益受到重视，社区养老设施在个体照料与群体生活带来的社交情感交流满足感，使其逐渐成为主流，并且社区养老设施的规模逐渐变小，舒适度更强。

AGING TENDENCIES IN CHINA IN THE FUTURE 50 YEARS

中国未来50年老龄化趋势

- The aging population will be one of the critical issues throughout the 21st century.
- By 2051, the aging population will reach its peak at 473 million, twice as the population of children at that time. Senior citizens over 80 years old will account for 21.78% in the total aging population.
- From 2030 to 2050, China will have a tough time suffering from aging problems.
- Such aging problems include: the huge scale of the elderly population; the rapid pace of aging; unbalanced aging proceedings in eastern and western China; a higher ratio of aging population in rural areas than that in urban areas; more female elderly population than male; getting old before getting rich; lack of strength in economy to cope with the aging problems.

- 人口老龄化将伴随 21 世纪始终
- 2051 年达到峰值 4.73 亿，约为当时少年儿童数量的 2 倍，80 岁以上老人占老年人口 21.78%
- 2030 年到 2050 年时中国人口老龄化最严峻的时期
- 规模巨大、发展速度快、东部快于西部、农村老龄化高于城镇、女性多于男性、未富先老、应对老龄化的经济实力弱

Report on Residential Requirements of the Elderly in China
中国老年人居住需求调研分析

ZHOU Yanmin / 周燕珉

In several surveys on dwelling conditions of the elderly in China, we learned quite a few opinions and requirements from the aged population, who described living situations that badly need improvement, as well as visions of future living. When trying to make a summary, we found that many of the problems were caused by improper practices in architectural or interior design. Therefore, we believe a report on this would hopefully facilitate improvement on residential design and be inspiring for architects and interior designers.

Opinions from the elderly in the surveys are classified into four categories, addressing different aspects of requirement on living conditions:
1. Interior physical environment;
2. Layout of rooms;
3. Community landscapes and public space;
4. Location and public service facilities of the community;
In the following four parts each category will be analysed in detail in regard to architectural design practices.

Part 1: Interior Physical Environment
When asked about what kind of a house can be called 'comfortable', many of the aged gave such descriptions as: be neither hot nor cold; be neither humid nor dry; with fresh air and ample daylight ... It's not surprising to find that such aspirations correspond with important measures of interior physical environment: temperature, humidity, light, and ventilation. The elderly, due to the importance attached to physical fitness and decline of body functions, compared with the young and middle-aged, have a higher demand for interior physical environment.

1.1 Indoor Temperature
During the surveys it is found that many seniors have one or even more thermometres in their home to observe change of temperature in every room at any time. It proves that the elderly people generally pay more attention to indoor temperature.

China has an extremely vast territory and regional climates vary greatly. Hence architectural practices in various places can be quite different. Besides, there is an apparent diversity in customs and lifestyles in different regions. All these factors lead to differences in preference and concerns of indoor temperature.

1.1.1 Requirement for Heating in Cold Regions
In cold regions such as the cities of Beijing and Shenyang, the elderly are

在多次针对老年人居住状况的调研中，我们听到了不少老年人对居住条件的需求与看法。这些问题有的是亟待改善的现状，有的是对未来的憧憬。当我们试着将这些问题和需求总结起来时，发现其中很多都是一些建筑设计或室内装修中产生的问题。对这些问题的归纳总结将有助于居住区及住宅的策划与开发，也希望给建筑师、室内设计师一些设计上的启发。

我们把历次调研时听到的意见进行了分类整理，将“老年人对居住条件的需求”细分为如下四个方面：
1. 室内物理环境
2. 房间功能布局
3. 社区景观及公共空间
4. 住处位置及配套设施。
下面我们将针对上述内容分别进行叙述。

一、老年人对室内物理环境的需求
当问到怎样才是舒适的房子时，很多老年人都做出了这样的描述：不冷不热，不潮湿不干燥，空气好，光线好等。这些其实也就对应了住宅室内物理环境的几个衡量指标：温度、湿度、光线、通风。由于老年人对健康的重视和自身身体机能的衰退，较之青年人和中年人而言，老年人对室内物理环境要求更高。

1.1 老年人对室内温度的需求
在调研中我们发现，很多老年人家中都会摆放一个甚至数个温度计，以便随时观测每个房间的温度变化。由此可见，老年人对于室内温度普遍非常关注。

中国幅员辽阔，各地区气候相差很大，具体建筑做法也不尽相同。再加上生活习惯的差异等因素，使得各地区老年人对家中温度的满意度和关注点也存在一定的差异。

1.1.1 寒冷地区的老年人主要关心供暖
在寒冷地区（如北京、沈阳），老年人对于室内夏季温度基本满意，不少老年人表示，自己的家里格外凉快，甚至可