

IN THIS ARTICLE

By 2030, almost 1 in 4 in Singapore will be aged 65 and above. Seniors are a heterogeneous group with diverse aspirations, needs and life trajectories. How might housing and care services evolve over time to answer changing needs and support purposeful longevity, while offering choices to seniors?

Drawing from overseas perspectives and examples, this commentary explores potential approaches that Singapore can consider in developing future-ready housing and care typologies for seniors.



Source: shawnanggg

Towards Future Seniors' Housing and Care Models

Ageing-in-place in Singapore today

Currently, 17.6% of the population in Singapore are aged 65 and above. By 2030, this will increase to about 23.6%.¹

Where and how people live as they age are important determinants of their physical, mental, and social well-being. With an increasing need for personal and medical care as we age, a study predicted that the number of seniors

in Singapore requiring assistance for Activities of Daily Living (ADLs) will rise to more than 82,000 in 2030.² Seniors are also at greater risk of social isolation and loneliness, which reduce the quality of life, increase the risk of metabolic and mental diseases, and impact life expectancy.³ Well-designed housing typologies can support seniors' physical needs, engender social participation and engagement, as well as add to the sense of security and stability for the older population.

Responding to the latest Housing & Development Board (HDB) Sample Household Survey in 2018, 86% of seniors said they intended to continue living in their flats.⁴ If they were to require help with daily life, more than half preferred to stay in their own homes, with caregiving support from family or others.⁵ In addition, the trend of shrinking household sizes has increased demands on caregivers. A 2021 review on the prevalence of caregiver burden found that caregiving had adverse effects on the

Stakeholders should focus not just on housing as spaces, but consider the **place experiences** of residents.

well-being of 23% to 59% of caregivers in Singapore and the prevalence of caregivers' burden is expected to increase with Singapore's ageing population.⁶

The key to sustainably support seniors' desire to age in their own homes lies in developing the right mix of housing typologies that offer a range of care services that are affordable and easy to access and navigate. Over the years, different models of senior housing and services have been explored in Singapore, by both the public and private sectors. An overview of these typologies can be found in Annex A.

Are we future-ready?

Even as we explore new approaches to senior housing, it is worthwhile to study whether current and upcoming typologies adequately address the needs, aspirations, and well-being of the seniors of the future.

Future seniors are likely to enjoy more active years, have higher levels of education, be more tech-savvy, and desire to remain engaged with their surrounding community.⁷ We also know that seniors are a heterogeneous group, with different needs and life trajectories. How might housing and care services evolve over time to answer changing needs and support seniors' desire for purposeful ageing?

In thinking about the housing and care needs of future seniors, providing options to middle-income households, who may not qualify for subsidies but still not be able to afford private non-subsidised options, should be of concern. Cost-effective delivery models for housing and services are important to ensure financial affordability for seniors and operational sustainability for service providers, while mitigating the growing healthcare expenditure for the government.

Housing and services do not occur in a vacuum but are linked to other external considerations. For example, there are limited opportunities for greenfield developments in land-scarce Singapore. Hence, how do we balance supporting the diverse needs of seniors and optimising land-use for other purposes and future generations, while keeping costs manageable?

Insights from housing and ageing experts: an international perspective

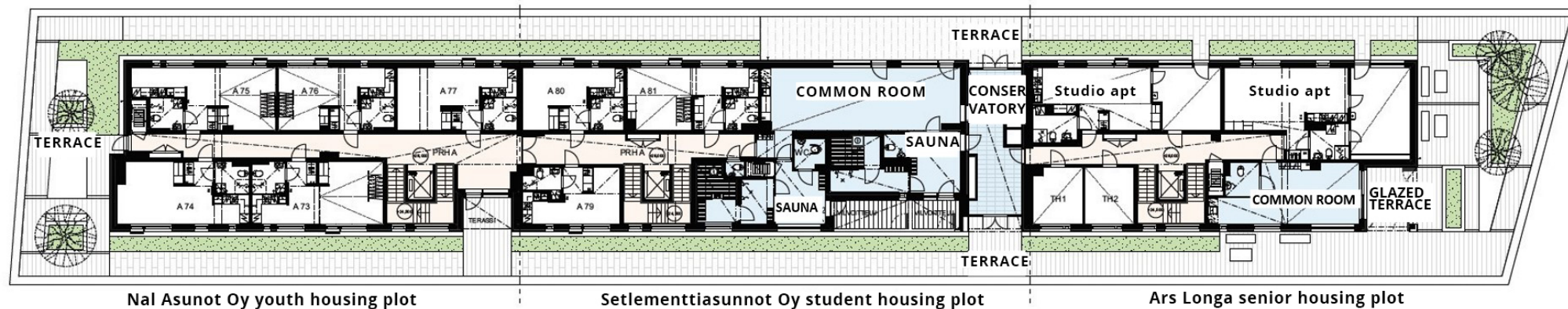
To explore how we can be future-ready in our development and provision of housing and care options, the Centre for Liveable Cities (CLC) and Urban Redevelopment Authority (URA) convened an expert round-table in September 2021 to discuss current thinking on senior housing typologies globally.⁸ Experts highlighted various emergent typologies and discussed important aspects to consider for senior housing typologies in Singapore. Several key themes emerged across the conversation:

1. Human-centric design and planning are key in creating experiences that promote well-being

Experts emphasised that housing and care typologies must be studied, designed and developed from the perspective of senior residents in a human-centric approach. Housing for seniors should serve seniors, and cater to their unique physical, cognitive and sensorial abilities, life experiences, socio-economic backgrounds and cultures.

To support this, stakeholders involved in housing for seniors should focus not just on housing as spaces, but consider the **place experiences** of residents. It is important to be intentional about creating experiences which promote well-being, starting from the upstream planning process.

Experts noted that even small spaces can be engineered to effectively shape experiences. *Ars Longa*, a senior housing development in Finland, is one such example.⁹ Based on the residents' shared professional identity as designers, *Ars Longa* was designed by the residents to support their lifestyles. For example, as many of these senior residents continued to work after their retirement, the flats were designed to provide flexible combinations of living and working spaces. At the same time, the residents worked with developers of adjacent plots of youth and student housing to co-design and optimise common spaces and develop shared service models, to create a supportive community experience.



The top floor of Ars Longa and the adjacent student and youth housing plots are connected. Shared amenities such as rooftop terraces and saunas encourage intergenerational interactions. The studio apartments are for rent for five years at a time and include workspaces. *Source: Adapted from <https://arslongatalo.fi>*

Technology can further unlock new experiences. Adoption of technology does not always require high-tech solutions; low-tech simple solutions can also be valuable. An example is the use of the Nagasaki Moving Telephone Box to ferry people from the bottom of a hill to the top, thus overcoming barriers to mobility and social participation. Other tools such as ramps and automatic wheelchairs are also essential to help the seniors move around their homes and neighbourhoods, to engage with the surrounding community.



Nagasaki Moving Telephone Box. Source: Dr Toshio Otsuki

While we recognise the importance of human-centric design and its positive impact on seniors and the surrounding community, we also need to acknowledge that designing meaningful experiences for seniors can be highly subjective, and approaches should differ across geographic boundaries, cultures, value systems, and over time. It is important to continually seek to understand the needs and aspirations of seniors when planning and designing for them.

Self-organisation by seniors is one potential approach to driving human-centric design

Experts have highlighted how self-organisation by seniors is one way to drive human-centric design. In Intentional Communities, for instance, developments are planned, developed, and operated by the senior residents themselves. The resulting communities are therefore designed to answer their specific needs.

Denmark's Sættedammen, which kick-started the concept of Intentional Communities in 1972, is one example of a successful balance between privacy and social interaction. Homes, in providing privacy for families, are centred around shared facilities and spaces such as shared kitchen and laundry areas to encourage social interaction.

Residents in Intentional Communities also self-organise to share resources and responsibilities, such as cooking, grocery shopping and even caregiving.



Denmark's Sættedammen site plan features a communal green space in the centre, bordered by two rows of private dwellings, built using modular designs to allow interior walls to move according to living needs. Source: Adapted from Schemata Workshop



Example of a communal space in Sættedammen. Source: Schemata Workshop

Thus, Intentional Communities empower purposeful and active ageing. They may also mitigate the impact of shrinking household sizes and reduce the reliance on more formal support systems and services—some of which may be less adaptable to changing needs or struggle to reach out across different populations.

A model of self-organisation is *Ibasha*, where senior residents take the lead in managing and participating in various activities. The *Ibasha* model has been proven to help change narratives about ageing and improve seniors' efficacy, friendship network and sense of belonging.¹⁰ *Ibasha* is a programme with relatively low physical infrastructure needs, often leveraging existing spaces such as community centres or meeting spaces.

By involving seniors as active participants throughout the design and planning of spaces, as well as in the procurement and provision of services, self-organisation is a potential approach to achieving a human-centric design that results in experiences supporting the well-being of seniors.

2. "Ageing-in-place" is far from a monolithic concept

Options and choices for the resident should underpin "ageing-in-place".

Experts at the round-table noted that "ageing-in-place" has different meanings for different people. It can be interpreted as:

- ageing in the same home
- ageing within the same neighbourhood, where the resident may move into appropriate facilities that support different needs that may arise over time, or
- ageing anywhere in a community, that is not an institutional care facility.

It is worth noting that different locations may carry different values for different individuals.¹¹ For example, ageing in

"Ageing-in-place" should be conceived of as a dynamic concept, where people remain in a home of their choice for as long as possible.



Ibasha House in Ofunato, Japan. The scope of operation has expanded from a simple café to include a vegetable garden, ramen noodle shop, children's day care and other multi-generational programmes. Source: *Ibasha*



The Toronto HomeShare Program facilitates ageing-in-place by matching seniors with students.¹³ Source: *Canada Homeshare*

the same home can involve a sense of attachment and connection, not just to the particular house, but also to the community's people and places. For others, ageing in a new home that is close to their existing network of friends and family may be more valuable.

Yet, others may enjoy exploring a new home and community in their latter years. Homeshare has been shown to benefit

older adults' well-being by increasing trust and social capital and reducing social isolation and cognitive decline by facilitating inter-generational interaction whilst enabling seniors to remain in their own homes.¹² For example, the Toronto HomeShare Program addresses the needs of seniors seeking light support and companionship at home, in exchange for offering reduced-rent housing for students. Participants agreed that



The Netherlands' Apartments for Life features an indoor village square at the ground floor that concentrates social and leisure amenities, including a reminiscence museum open to residents and the public. Source: EGM Architects

homesharing programmes could reduce the need to move from their community and the risks of economic and social exclusion for both the young and the old.¹⁴

Thus, “ageing-in-place” might be better conceived of as a dynamic concept, rather than a single location, where **people remain in a home of their choice, for as long as possible**. In planning for housing for future seniors, it is important to provide seniors with options to choose a home and care model that best supports them.

“Ageing-in-place” should support the integration of seniors.

In particular, experts noted that **the planning and design of the neighbourhood directly influences the physical integration of seniors**. For example, while Naturally Occurring Retirement Communities (NORCs)¹⁵ exist in various forms, some NORCs have proven to be healthier due to the focus on improving the neighbourhood’s environmental characteristics, which encourage seniors to be more physically and socially active, rather than the provision of medical or social services with seniors as passive receivers.¹⁶ In England and Sweden, positive health changes were reported in NORCs after simple changes were made to the physical environment, such as closing

alleyways, decreasing the speed and frequency of automobile traffic, and improving recreation facilities.¹⁷ Thus, healthier neighbourhoods encourage healthy behaviours, recreational activities, social interactions, and community involvement whilst reducing safety risks.

Second, **siting amenities for a mix of user demographics will facilitate the social integration of seniors**. While amenities may cater to specific age groups, e.g. playgrounds for children and fitness corners designed for adults, their proximity to other demographic-specific amenities may enhance inclusivity. These intergenerational spaces could enhance social health and increase perceptions of outdoor safety.

Demographic mixing can also occur at the housing level. In the Netherlands’ Apartments for Life, seniors of different functional abilities are mixed across the apartment complexes, and common spaces and services on the first floor are open to other residents in the neighbourhood. The seniors themselves are encouraged to volunteer heavily in the community, ensuring that they stay active and purposeful.

Experts noted that in Singapore, the co-location, co-programming, and co-sharing of spaces are not new concepts. Continued innovation in using such

valuable strategies can further promote informal interactions across residents of all ages.

3. New typologies may not necessarily mean new buildings: How can assisted living become an effective plug-and-play service?

Experts at the round-table expressed that Singapore, with its large existing public housing stock, could layer on modular assisted living services for any housing typology, rather than requiring new dedicated assisted living facilities to be built. This will allow senior residents to age in their current homes, thus minimising disruptions to their lifestyles. Providing assisted living “as-a-service” in areas will give residents continued access to existing multi-generational communities in their neighbourhoods.

Providing assisted living as a “plug-and-play” service at scale will involve the retrofitting of existing housing, and innovation of service models to support residents as they age.

It may be useful to consider Denmark as a case study: with the phasing out of institutional nursing homes since 1987, de-institutionalisation of care became a priority. This led to significant emphasis on empowering senior citizens to remain self-reliant for as long as possible,

allowing them to stay in their own homes, and be supported by a social care system, with visits from home-care nurses, and increasingly, the use of assisted-living technology.¹⁸

Accompanying these are initiatives to support the retrofitting of homes; seniors can access government subsidies for housing modifications to make their homes more senior-friendly.¹⁹

In Singapore, the **retrofitting of individual housing units** towards age-friendliness is already available in the form of the HDB's Enhancement for Active Seniors programme (EASE), which offers the installation of improvement items such as slip-resistant treatment for floors, and grab bars to improve mobility and comfort for senior residents.

A complementary concept is Continuing Care Dwellings, where homes are built to be age-proof, for which the Netherlands' Apartments for Life (A4L) is an example. These apartments are designed to allow residents to remain in the same apartment until death. They can accommodate patient lift equipment, oxygen, and wheelchairs and also include modifiable components such as sinks that can be raised or lowered as needed.²⁰

Innovation in service models to support residents as they age is also critical. This includes new ways to help seniors access existing services. Apps such as SGAssist, which connects volunteers to people looking for help in real time, and Homage, where home care, home nursing, teleconsultation and medication deliveries can be requested are examples of this. However, the user interface should be simple and the navigation should be streamlined to facilitate accessibility as not all seniors prefer to or can use digital solutions.

In such cases, a trusted service coordinator embedded within the community may act as a go-to navigator for effective service provision. Service

As new service models are innovated, we should ensure that the navigation of services remains simple and streamlined, to facilitate accessibility.

coordinators who link seniors to supportive services and community resources to promote independent living have been shown to help older adults cope with challenges, such as obtaining food and medication during the COVID-19 pandemic.²¹

Service model innovation can also include the re-thinking of service provision, particularly for seniors who choose to remain in their own homes or adopt co-living instead of institutionalisation. For example, in Singapore, Red Crowns Senior Living matches seniors to apartments and provides assisted living services in existing HDB housing or private apartments. Depending on the service package, residents have access to services such as 24/7 caregiving and supervision, hygiene and personal care, daily meals, housekeeping, and access to emergency-response programmes.²²

The provision of assisted living “as-a-service”, supported by retrofitting, could potentially result in cost savings to the social and healthcare systems—savings which could be reinvested into communities. If done well at scale, the expansion of assisted living services as a mainstream model with affordable pricing could encourage more older people in the middle-class majority to age-in-place through support from assisted living services. This will provide individuals with more choices beyond the conventional options, such as depending on a caregiver, hiring a foreign domestic helper, or moving into a nursing home, which may be more costly and/or require more adjustments to daily habits and routines.²³

What these themes mean for Singapore

The above insights from the expert round-table pose several interesting considerations for housing and care models in Singapore.

Firstly, with the dynamism of ageing-in-place, it is critical for us to develop a more fine-grained understanding of the needs and aspirations of current and future seniors. While surveys indicate that the majority of older residents want to age-in-place, they may have different interpretations of the concept, influenced by currently available options. Typologies thus need to include flexible options in terms of hardware and service provisions that are adaptable to diverse yet changing needs. We must understand where people wish to age, if unbound by current options and assured of available support, and their reasons as to why.

Correspondingly, we may need to refresh our assumptions of ageing-in-place based on people's perspectives, using qualitative research methods. Future studies to assess the effectiveness of ageing-in-place initiatives can include self-reported metrics and indicators of individual and small group satisfaction. Methods such as focus group discussions can be critical to understanding seniors' experiences.

Secondly, a shift in thinking from “space” to “place experience” means that housing and services are ideally planned for and assessed beyond space provision and allocation. This means developing a person-centric appreciation and

CLC and URA are currently scoping a proposed grant call for a comparative, longitudinal research evaluation on senior housing typologies in Singapore, one which bridges typologies with well-being outcomes.

understanding of the experiences that are important for residents' well-being and autonomy. We should also consider ways to bring senior residents into the upstream planning and design processes more proactively, so that they may actively shape their experiences.

Thirdly, we should explore enablers which encourage self-organisation among the seniors. Referencing international models, service coordinators play an active role in developing trust within communities, with skills to help the seniors negotiate and mitigate the challenges of ageing within communities. These roles facilitate independent living, while supporting the cost-effective delivery of services. Concurrently, the government's role in supporting active civic engagement coordinated by senior residents needs to be deliberated upon to achieve a balance between the bottom-up and top-down approaches.

Fourthly, the effectiveness of different typologies in terms of ensuring resident well-being while balancing costs to the residents, building owners and operators, and care providers needs to be assessed. This will involve identifying elements of housing and care services that best contribute to seniors' well-being.

Call to action

It is important to develop a holistic, multi-disciplinary tool to assess the impact of different types of senior housing models on the physical, social, and mental well-being of seniors over time, and also from the perspective of systems-level outcomes, including costs. Whilst not simple, such evaluation and measurement will provide clarity on what works well and why, as well as identify areas for improvement and innovation.

There are many toolkits today that evaluate the age-friendliness of the physical and built environment. However, while they purport to tell us what works, they do not quantitatively or qualitatively measure the extent to which they do successfully deliver on the desired outcomes. Furthermore, toolkits developed elsewhere may not be suitable to assess our seniors' needs, as our land-scarce and multi-cultural context is unique. We need a tool for the Singapore context, one which bridges housing typologies with well-being outcomes, and is easy to apply to the planning and design of future typologies. To support this, the CLC and URA are currently scoping a grant call for a comparative, longitudinal research evaluation on current housing typologies for seniors in Singapore.

Given Singapore's heterogenous ageing population and unique culture, simply extrapolating international typologies directly onto the Singapore context may not suffice. It is important for city planners to understand what ageing-in-place means for local residents, to address their needs by adapting existing typologies or creating new ones, and to provide sufficient diversity and options over time. As each generation of seniors will have different aspirations and lifestyle choices, there is a need to continually understand the aspirations and needs of future seniors, and to connect these with possible housing, service and business models both from the public and private sectors. Only then can each generation of seniors continue to have access to a range of viable, affordable and quality housing and care options, and the empowerment of choice, in the golden (or silver) years of their life.

NOTES

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⁸ The round-table was moderated by Dr Emi Kiyota, founder of Ibasho and Visiting Fellow for the Centre for Liveable Cities. The Expert Panel consisted of 1. Dr Angelique Chan, Associate Professor and Executive Director, Centre for Ageing Research & Education, Duke-NUS Medical School, 2. Dr Jennifer Molinsky, Project Director, Housing an Ageing Society Program, Joint Center for Housing Studies of Harvard University, 3. Dr Robyn Stone, Senior Vice President for Research, LeadingAge, and 4. Dr Toshio Otsuki, Professor, Department of Architecture, Graduate School of Engineering, University of Tokyo.

⁹ Artists' House Ars Longa. <https://arslongatalo.fi/>

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Annex A: An Overview of Senior Housing Typologies

Typology	Description of Typology	Description of Home Space	Description of Neighbourhood Space	How Care is Provided	Level of Support on-site ²⁴	Senior as a driver ²⁵	Examples ²⁶
Multi-generational Dwellings	Larger homes or flats designed to encourage multi-generational living. Some layouts may preserve privacy. Where seniors remain in their own homes and have spare rooms, programmes may match tenants to these seniors.	Homes or flats have sufficient bedrooms and toilets to cater for the larger household. Retrofitting for senior friendly features may be included.	Varies, depends on the existing neighbourhood.	No formal provision, care services are to be navigated and accessed independently by the resident and/or caregivers.	Minimal	Passive	1. 3-gen HDB (Singapore) 2. Homeshare (Europe, America, Canada)
				Well-being: ²⁷ Social			
Senior-friendly Dwellings	New-built or retrofitted, often smaller, apartments with senior friendly features. Financing options such as flexible leases may also be available to support financial affordability for seniors.	Senior-friendly features, e.g. non-slip flooring and grab bars. Technology such as fall alarms may be incorporated.	Varies, depends on the existing neighbourhood.	No formal provision, care services are to be navigated and accessed independently by the resident and/or caregivers.	Minimal	Passive	1. 2-room Flexi HDB (Singapore) 2. Aktiivikoti (Finland)
				Well-being: Physical			

²⁴ This describes the level of care that can be provided at the dwelling as part of the typology (excluding exceptional arrangements that may be available to those who can afford it):

- **"Minimal"** support includes coordination of social activities and help for Instrumental Activities of Daily Living (IADLs) such as grocery shopping.
- **"Moderate"** support includes some assistance for Activities of Daily Living (ADLs) such as toileting and mobility.
- **"Maximum"** support includes the need for 24/7 supervision, maximal (e.g. 2 pax assistance, specialist lift equipment) assistance for ADLs, frequent medical and nursing care, up to the end of life.

²⁵ This describes how active or passive the senior resident is, along a continuum, in **shaping** his/her environment and/or the **design** of care services and programmes:

- **More active seniors** are their own resource, or partner other stakeholders, in developing housing and care services and programmes suitable for their needs. As the consumer, resident-led innovation may solve unmet and unknown residential needs, such as the more value-laden desires for autonomy and dignity.
- **More passive seniors** are consumers of available options without involvement in the design of their environment or design of care services. They rely on expert-provided solutions that may be more value-neutral in terms of the more pragmatic emphasis on function and medical care.

²⁶ For more details on the examples, please contact the authors from the Centre for Liveable Cities.

²⁷ "Well-being" identifies the type of well-being that the typology largely focuses on. Whilst physical, mental and social well-being are inter-related, the housing typologies tend to promote well-being by focusing on the physical (e.g. ensuring safety, promoting activity) and/or the social (e.g. encouraging interaction).

Typology	Description of Typology	Description of Home Space	Description of Neighbourhood Space	How Care is Provided	Level of Support on-site	Senior as a driver	Examples
Senior-friendly Communities	Communities with a high concentration of older residents, because seniors tend to either remain in or move to these communities when they retire.	The homes exist in various forms including apartments and single-family houses.	Varies, depends on the existing neighbourhood. Healthier communities have physical and social environments that facilitate activity and interactions.	No formal provision, care services are to be navigated and accessed independently by the resident and/or caregivers.	Minimal	Passive	<ol style="list-style-type: none"> Naturally Occurring Retirement Communities (America) Integrated Development—Kampung Admiralty (Singapore)
				Well-being: Physical, Social			
Service-bundled Housing	Housing that comes with a range of service initiatives to support seniors as they age.	Existing homes are often retrofitted, and new-built homes designed with senior-friendly features.	Varies, depends on the existing neighbourhood. New-built apartment blocks may include communal spaces to encourage resident interaction. Co-location, connectivity, and barrier-free access to amenities are also common themes.	Services are compulsory and delivered to the home. The type of services that are included varies.	Minimal, Moderate	Passive	<ol style="list-style-type: none"> Bukit Batok Community Care Apartments (Singapore) Private assisted living (Singapore) Red Crown co-living concierge (Singapore) Service-enriched housing (America)
				Well-being: Physical (In some cases, Social Well-being is also a focus)			
Intentional Communities / Cohousing	<p>Developments planned, developed and operated by residents themselves.</p> <p>Seniors come together to create their own retirement communities, often around common values, e.g. environmental sustainability.</p>	<p>Homes exist in various forms including shared homes to “pocket neighbourhoods”.</p> <p>The homes are designed to cater to residents’ needs and interests, such as the inclusion of workspaces.</p>	<p>Depending on the size of the community, a variety of common spaces allow for socialising of residents. Common amenities are contextual to the location, such as saunas in Sweden.</p>	Members share resources and responsibilities. Residents look after each other, e.g. cooking, caregiving. Residents may work with adjacent developments to organise common spaces and services, which could facilitate intergenerational interaction.	Minimal, Moderate	Very active	<ol style="list-style-type: none"> Sættedammen (Denmark) Ars Longa (Finland) Färdknäppen (Sweden)
				Well-being: Physical, Social			

Typology	Description of Typology	Description of Home Space	Description of Neighbourhood Space	How Care is Provided	Level of Support on-site	Senior as a driver	Examples
Continuing Care Dwellings	These homes are built to accommodate changes in the residents' needs, and cater for increasing care provisions until death.	Homes and fixtures are designed to maximise residents' independence across a range of mobility functions and associated aids, such as patient-lift equipment, wheelchairs and adjustable sink units which can be raised/ lowered, etc.	The spaces aim to integrate public and residential life and may include neighbourhood friendly services such as restaurants to encourage interaction across residents and the public.	Varies, depends on the operator. Where there is very active volunteering by the residents and the community, seniors are able to enjoy self-actualisation and a sense of purpose, and can become active drivers in meeting their own needs.	Minimal, Moderate, Maximum	Varies	1. Apartments for Life (Levensloopbestendige) (Netherlands)
				Well-being: Physical, Social			
Continuing Care Communities	A range of senior living spaces (e.g. independent living, assisted living apartments, nursing home spaces) allow for transitions of care and assistance within the same community.	Varies, depending on the living space. The homes could be organised in the form of sprawling horizontal facilities or vertical facilities.	Varies, depends on whether the development is new-built or in an existing neighbourhood. New-built developments may organise living spaces such that those that offer higher levels of assistance and care are located centrally.	Determined by the living space. For example, nursing home spaces provide nursing care. Other care and other services are built within geographical reach for on-demand use.	Varies, depends on living space	Passive	1. Continuing Care Retirement Community (America) 2. Virkkula Senior Village (Finland)
				Well-being: Physical			