

SESSION 5: Urban Mental Health/Supportive Environment

**Design
& Health**
International Academy for Design and Health

Milano, Italy 11-14 April 2024

Design & Health

13TH WORLD CONGRESS & EXHIBITION

REVITALIZING HEALTH BY SALUTOGENIC DESIGN

Healthy environment / Healthy people

SALUTOGENIC DESIGN FOR INTERGENERATIONAL THERAPEUTIC GARDEN IN A VERTICAL CITY

Dr. Calvin W Luk

*Project Manager, Leader of Spatial Team, Jockey Club Design Institute for Social Innovation,
The Hong Kong Polytechnic University*



**POLITECNICO
MILANO 1863**

DIPARTIMENTO DI ARCHITETTURA,
INGEGNERIA DELLE COSTRUZIONI
E AMBIENTE COSTRUITO

MEDIA PARTNER

**Progettare
per la Sanità**
Organizzazione, tecnologia, architettura

edra | SANITÀ 33

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TECNICO
OPERATIVO



Salutogenic design for intergenerational therapeutic garden in a vertical city

Smart Neighbourhood & Community: Connecting All Without Boundaries

Dr. Calvin W LUK

*Project Manager, Leader of Spatial Team,
Jockey Club Design Institute for Social Innovation,
The Hong Kong Polytechnic University*



Jockey Club Design Institute for Social Innovation



 PolyU Design

Vision

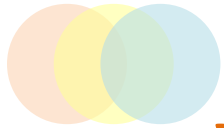
To become a leading institute to **trigger social innovation** in all dimensions of the society to improve the **well-being** of the community and people

Function in PolyU

1. University Social Responsibility - providing a **platform** to nurture and empower community members to become social innovators to tackle society's 'wicked problems'
2. Create opportunities to extend PolyU's **academic, social and knowledge impact** by making use of the departments' **applied researches**

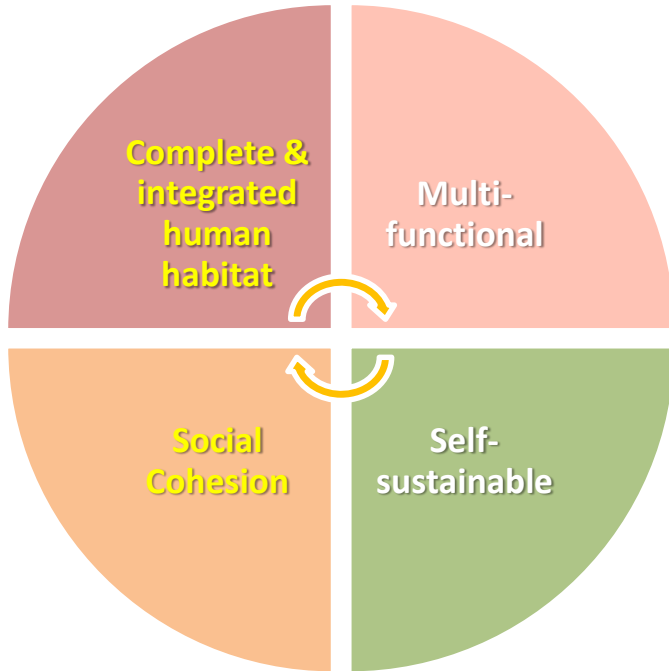
2018-2021 Strategic focus - “Double Ageing”

Research & Practice areas - Social Design, Urban Planning, **Environmental Design, Design for Elderly, Universal Design, Accessible / Inclusive Design**, Design Thinking Education, Good Seed (Social Innovators Incubation).....



VERTICAL CITY

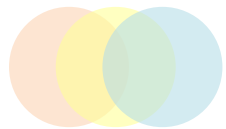
共生 • Symbiosis



Kampung Admiralty (WOHA)



Vertical Village (OMA)



INTERGENERATION (IG) & INCLUSIVE COMMUNITY

跨代

多元文化、共融社區

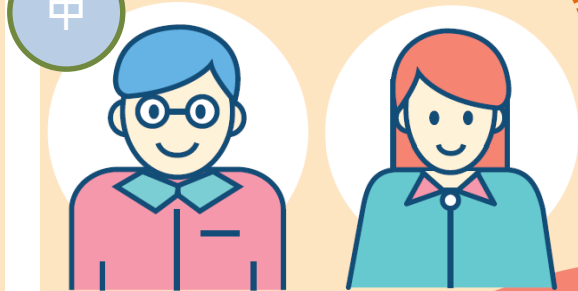
aged

長



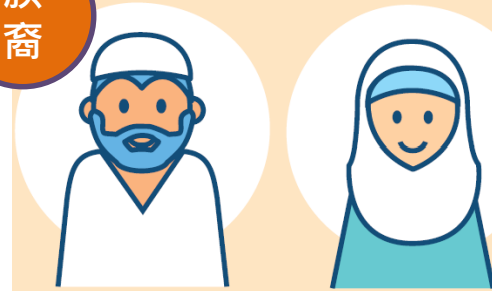
adult

中



族裔

ethnicities



children

幼



youth

青



能力

diverse abilities





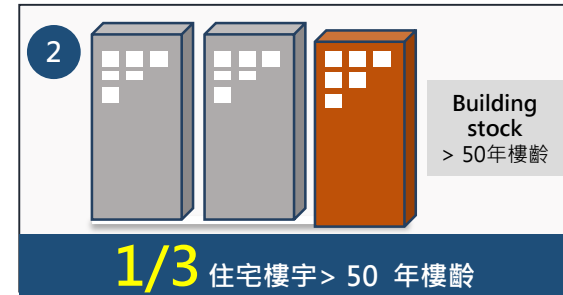
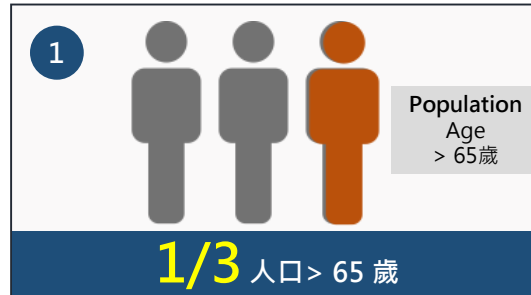
香港「雙老化」趨勢 “DOUBLE AGEING”

Combined outlook on population and building ageing in Hong Kong

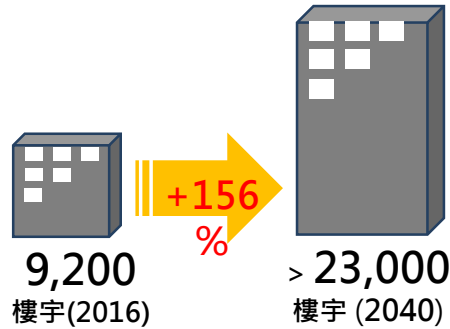


Year

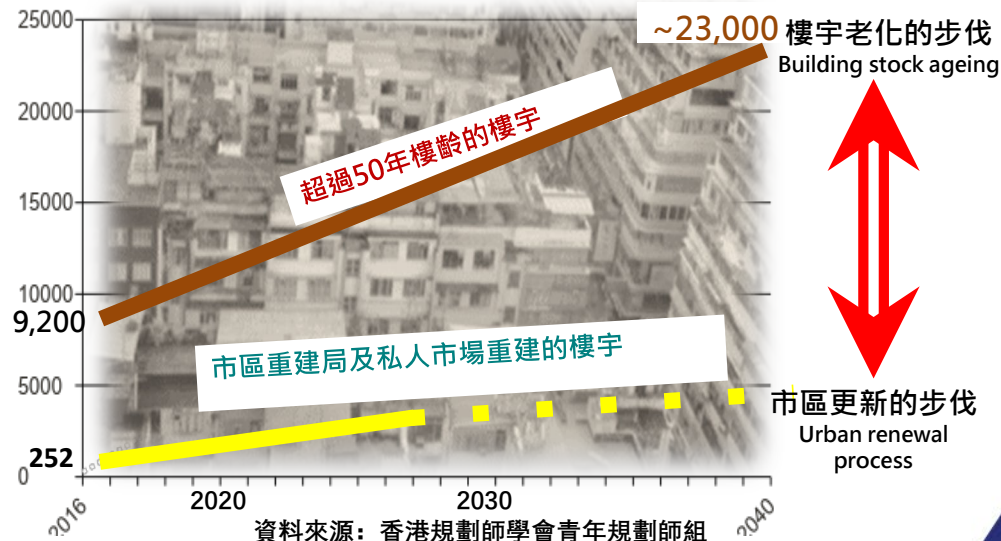
2040年 =

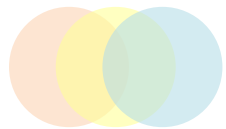


+



(Urban Renewal Authority 市區重建局, 2017)





Cross-discipline + Cross-sector collaboration

跨學科+跨界別合作



Student
Service Learning



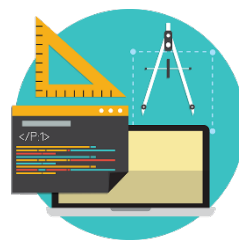
Clinical Trials
& Research



Knowledge
Translation



Project Lead



Design Partner



Care Home
Operator



香港房屋委員會
Hong Kong Housing Authority



Property
Owners



School of
Nursing



康復治療科學系
Department of Rehabilitation Sciences



賽馬會
社會創新設計院

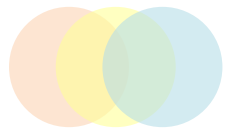


One Bite
Design Studio



Gracious Alliance

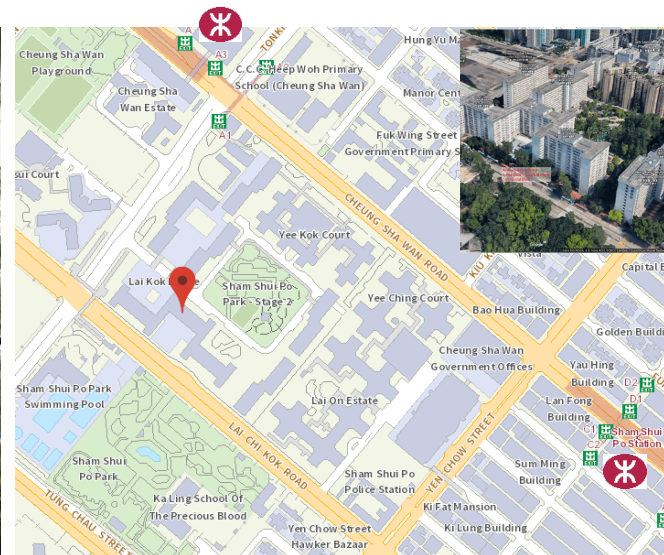
PolyU Academic Departments



ACTION PROJECT: LAI KOK ESTATE

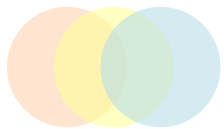
行動項目：麗閣邨

Lai Kok Estate, Cheung Sha Wan, Kowloon



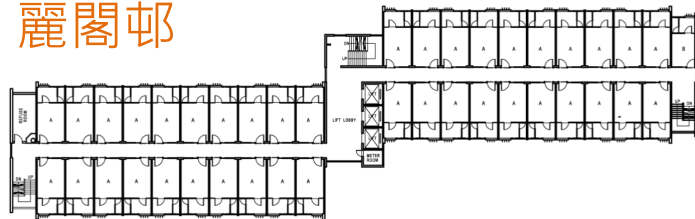
Type of Estate:	Public Rental Housing
Year of Intake:	1981
No. of Blocks:	8
No. of Rental Flats:	3 000
Flat Size (m ²):	11.2 - 39.4
No. of Households:	2 800
Authorized Population:	6 500

(All figures as at 30.6.2020)

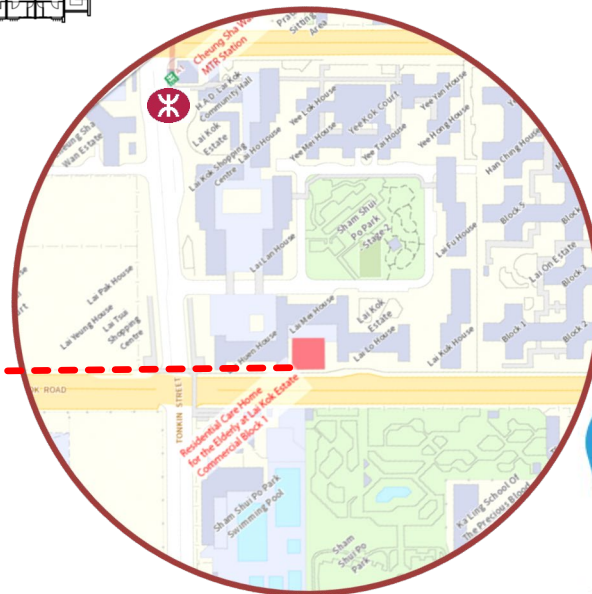
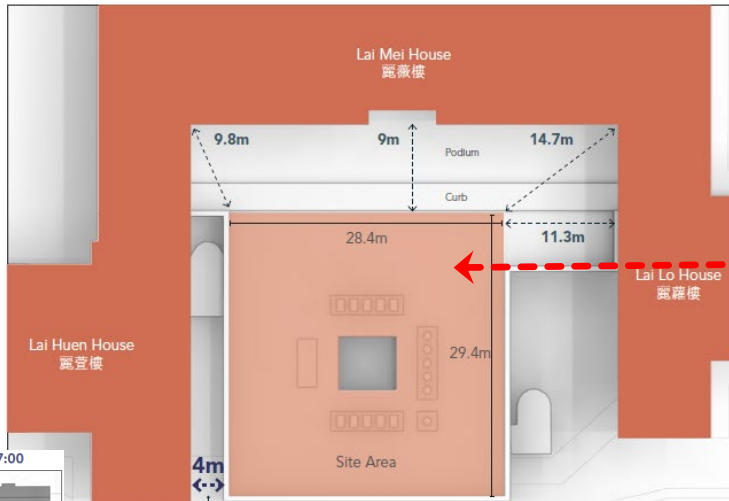


ACTION PROJECT: LAI KOK ESTATE

行動項目：麗閣邨



10:00 15:00 17:00

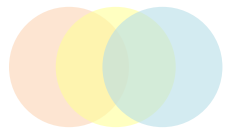


Close proximity to Lai Huen House

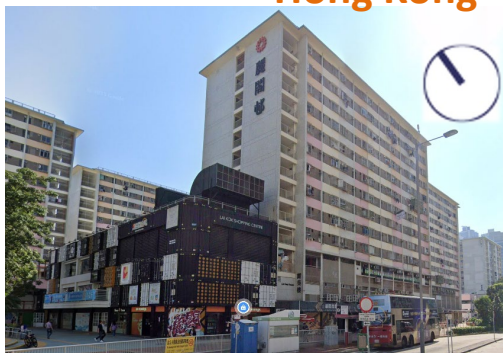


Site Area: 28.4m x 29.4m = 835m²

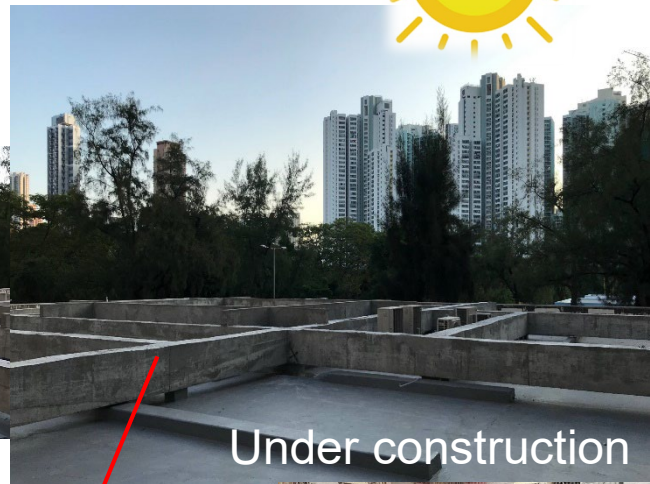
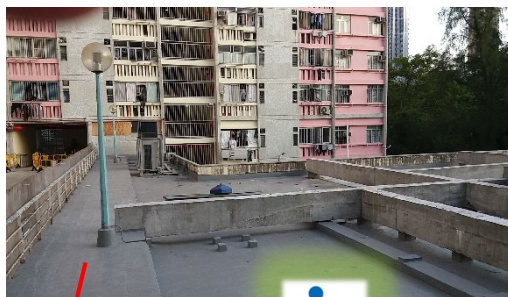
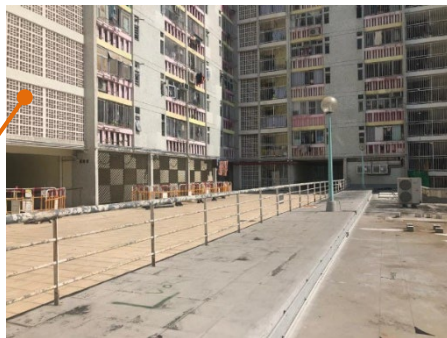
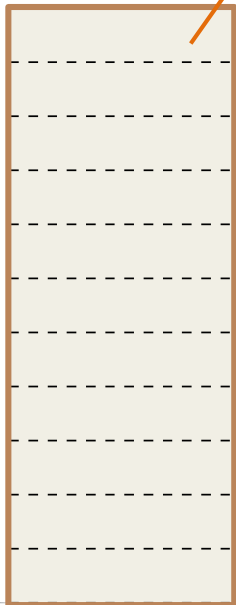




LAI KOK ESTATE, Cheung Sa Wan, Hong Kong



LAI HUEN HOUSE



Under construction



NGO SOCIAL SERVICES &
PRE-SCHOOL CENTRE

COMMERCIAL COMPLEX
(Including shops and
wet market)



COMMUNITY MEDICAL CENTRE



SOCIAL SERVICES TRAINING CENTRE



INTERGENERATIONAL THERAPY GARDEN

PODIUM

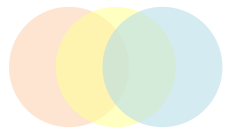
OPEN
LIGHT
WELL

Podium Level

1/F

G/F Street Level





SALUTOGENIC DESIGN FOR INTERGENERATIONAL THERAPY GARDEN IN VERTICAL CITY

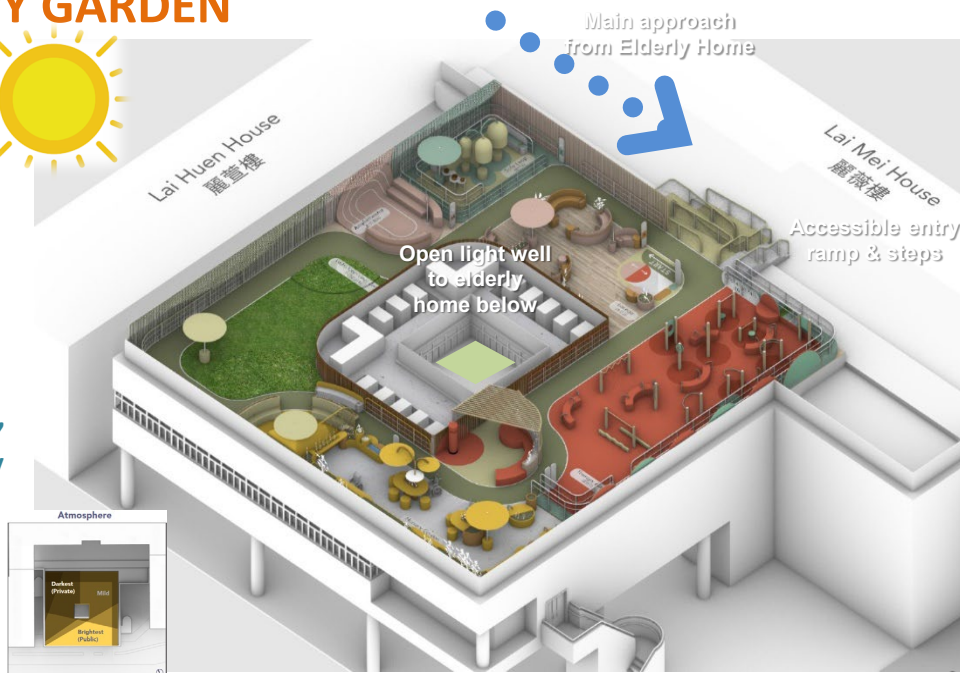
Objectives

1. Transform an idling podium common space in vertical city to promote **social connection** – create community cohesion & symbiosis
2. Foster meaningful **intergenerational interactions** of residents, families, care givers, other estate users (kindergartens, community service centres, disabilities/ethnic groups).

Design approach

Holistic Environmental Design – a *continuum of human-centric design consideration* across all ages, abilities and culture, encompassing Design for Elderly, Inclusive/Universal Design, **Salutogenic Design**, Evidence/Reserach Based Healthcare Design such as Design for Dementia. ¹

¹ Luk C.W. (2019) Guide for Vertical Building Design for the Elderly in Hong Kong · [J] 《South Architecture》. South China University of Technology School of Architecture Journal 2019, v190(2):13-18 <https://www.polyu.edu.hk/disi/-/media/department/disi/publication/luk-2019-guide-for-vertical-building-design-for-the-elderly-in-hong-kong.pdf>



Continuum of human-centric design from “barrier free access” to “health promoting design”



表 1 人本设计理念模范转移 (Paradigm shift)

Paradigm Shift of Human-centric design

Paradigm Shift	Human-centric design ideology	Founder	Target environment	Humanity spectrum	Health & well-being (WHO 1984)		
					Physical (Physiological)	Mental (Psychological)	Social (Cohesion)
Medical model of disability	Design for Disabled	Selwyn Goldsmith 1963 (UK)	Enabling environment	Mobility, sensory	√		
Social model of disability	Universal Design	Ronald Mace 1973 (US)	Inclusive / equitable environment	Rights, dignity	√		√
Design & Health	Evidence/research Based Design	Roger Ulrich 1984 (US)	Healing / therapeutic environment (non-pharmaceutical intervention for Dementia)	Neuroscience, behavioral, environmental psychology	√	√	
	Environmental Intervention /Design	John Zeisel 2003 (US) Mary Marshall 2001 (Scotland)				√	√
Psychosocial support	Salutogenesis	Alan Dilani 2006 (Sweden)	Health promoting environment	Psychosocial- sense of cohesion, stress coping		√	√

Comprehensibility

知

Manageability

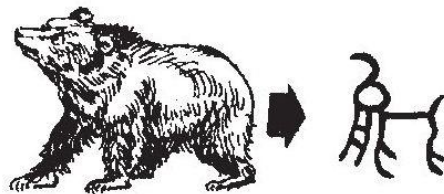
能

Meaningfulness

意

能 néng

〔附〕熊 xióng



“能”是“熊”的本字。金文的字形像一只熊的样子。《左传》：“今梦黄能入于寝门。”后来“能”字多用于“才能”、“贤能”、“能够”等义，于是另造“熊”字以表本义。

甲骨文

甲骨文

金文

金文

小篆

小篆

隶书

隶书

楷书

楷书

草书

草书

行书

行书

简化字

简化字

Figure 1. Cultural references of sense of coherence with Chinese scripts

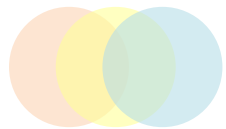
Continuum of design principles for Dementia 1,2

Salutogenic Design (Dilani) - Sense of Coherence	UNCRPD (United Nations) - Equal rights	Universal Design (Mace-Goldsmith) - Aesthetic & usable by all	Ziesel approach - Environment-Behavior	Fleming-Bennett principles - Small homelike.... engage in everyday life	Vision driven design features at Laikok (Dignity Manifesto of Design 1) - Dignified way of life: cultural, human dignity, self-identity, social relationship
Comprehensible	Non-discrimination, Equal opportunity, Gender equity	3. Simple & intuitive	Exit control, Outdoor access, Walking path	2. Provide a human scale 6. Support movement & engagement	知 = “knowing one-self”/self-identity is essential to look out and perceive the world - Taosim <i>Smart entrance, well defined pathway, quiet lounge, safe loop, intimate story corners</i>
		4. Perceptible information	Sensory comprehension Home like	3. Allow to see and be seen 7. Create a familiar place	<i>Direct visual link to all zones, , sensory wall, music cocoon</i> <i>Familiar destinations with memorable street furniture – loop path, story corners</i>
		1. Equitable use; 2. Flexibility in use; 5. Tolerance for error; 6. Low physical effort; 7. Size & space for approach/use	Independence support Common spaces	1. Unobstrusively reduce risk 4.Reduce unhelpful stimuli 5. Optimise helpful stimuli	能 = strength of bear + agility of deer <i>Step free, double handrails, raised planter beds, fitness zone/challenge trail</i> <i>Camouflaged perimeter fencing, acoustic/sun-shading screen</i> <i>Floor & eye level graphics/ pictogram</i>
Manageable	Accessibility, individual autonomy	8. Social integration; 9. Cultural appropriateness	Privacy	8. Opportunities to be alone or with others 9. Link to community 10. Response to vision to way of life	意 = will of mind / way of life <i>Quiet lounge, loop path, entry plaza, story corners</i> <i>Entry plaza, raised planter beds, fitness zone, lawn space Story corners</i>
Meaningful	Dignity, respect, Full participation & inclusion				

¹ Alzheimer’s Disease International. (2020) World Alzheimer Report 2020. pp31-37 www.alzint.org/resource/world-alzheimer-report-2020/

² Luk C.W. (2019) Guide for Vertical Building Design for the Elderly in Hong Kong, [J] South Architecture. South China University of Technology School of Architecture Journal.

《南方建築》華南理工大學建築學院期刊 2019, v190(2):13-18 www.polyu.edu.hk/disi/-/media/department/disi/publication/luk-2019-guide-for-vertical-building-design-for-the-elderly-in-hong-kong.pdf



INTERGENERATIONAL THERAPY GARDEN in a vertical city

Zoning



Multigenerational roof garden users



✓ Residents of care home



✓ Family members of residents

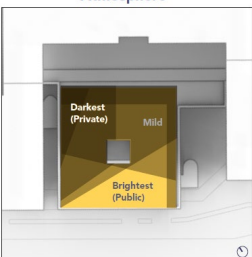


✓ Caregivers and staff

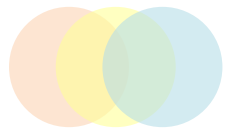


✓ Neighbours at Lai Kok Estate

Atmosphere



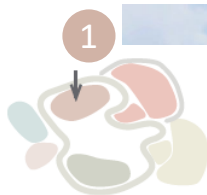
MULTIFUNCTIONAL ZONE



INTERGENERATIONAL THERAPY GARDEN in a vertical city

ENTRANCE PLAZA

- Barrier-free **Accessible** entrance with ramp & double handrail
- Start of the wandering path
- **Colourful floor graphics** to welcome visitors and provide a better sense of direction and orientation for elderly users
- **Eye level signage with pictograms** to demarcate each zone



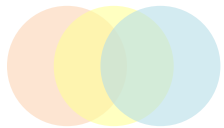
Eye level pictogram



1. QUIET LOUNGE

- **Variety of space for different level of social interaction** – family/small groups to intimate/personal.
- **Inward-facing seating** to encourage communication
- Seating with higher **back rest and handles**
- **Feature planting** to prompt conversations





INTERGENERATIONAL THERAPY GARDEN in a vertical city

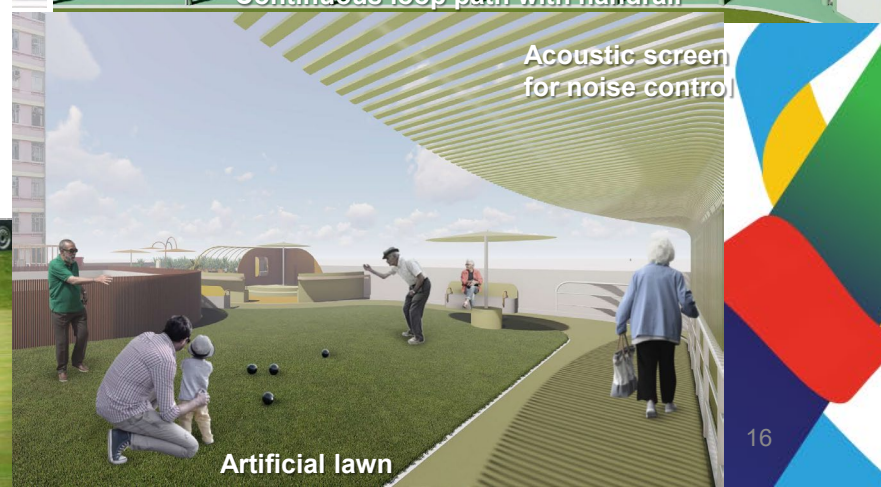
2. SAFE LOOP

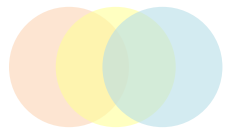
- **Continuous loop path** w/multiple sensory restoration elements incl. water, scent, flowering plants and other tactile features.
- **Sound therapy stations** with lighting and sound player installed inside collapsible cocoon
- Continuous handrails
- Detachable parasols for shading



3. GAME / SPORTS ZONE

- **Artificial lawn** for a wide variety of games & sports facilities to provide interaction opportunities **across generations**
- **Acoustic screen** to safeguard against noise as well as privacy to the adjacent/overlooking residential blocks.



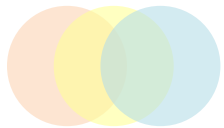


INTERGENERATIONAL THERAPY GARDEN in a vertical city

4. NURSERY GARDEN

- **Communal table** for group activities
- **Planters with different heights** for children and people with different abilities (e.g. wheelchair users)

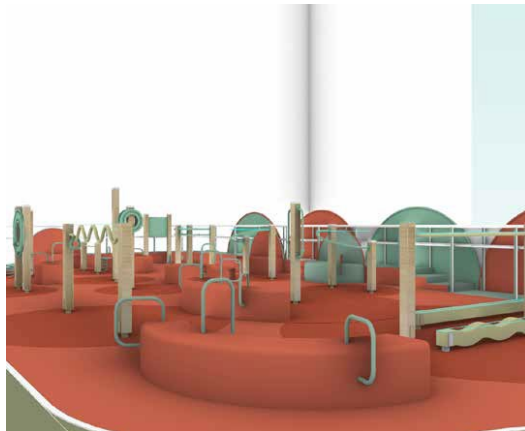


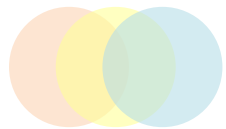


INTERGENERATIONAL THERAPY GARDEN in a vertical city

5. FITNESS ZONE & CHALLENGE TRAIL

- **Therapy equipment & program**
- **Bench with handles of varying height**
- **Modular blocks** that can be changed to create different courses/training





INTERGENERATIONAL THERAPY GARDEN in a vertical city

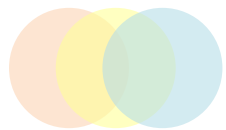
STORY CORNERS

- **Inclusive / Universal Design** seating for spontaneous interaction across generation.
- **Reminiscent objects & settings (seasonal)** to encourage story-telling and sharing of histories.

LOOP OF STORYTELLERS

A wandering path that encourages
SHARING OF STORIES to friends and
families through reminiscent objects.





SMART ROOF GARDEN

智慧屋頂花園

SIGNAGE AND WAYFINDING



Front

RFID sensor
Tap your resident card or Fitbit to start recording your activity in the zone!

Speaker
with motion sensor broadcasts name of zone to help elderly with sight disability



Back

Screen
Displays your activity data when you finish and leave.

onebite One Bite Design Studio

INCORPORATING IoT AND TECHNOLOGY

1



Start

Users tap their RFID resident card or Fitbit on the signage of each zone to activate the sensors within the area to record their activity data.

2



Activity

Users' activity will be logged by various sensors in each zone. For the therapy zone, screens on each individual machine will display their workout data.

3



Leaving

Users can tap their card on the signage again when leaving the zone and the tracked data will be visualized and displayed on the screen on the signage.

4



Network of users

The screen behind the signage will display the top 3 performers who logged the most activity in a month (with their consent). Users will be able to enter into a competition with monthly awards to the most active user.

THANK YOU!

calvin.luk@polyu.edu.hk

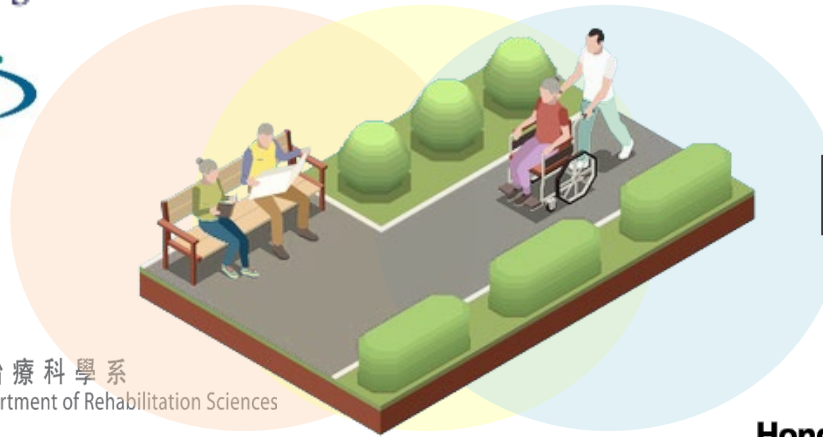
Ar. Sarah Mui

onebite One Bite Design Studio



Associate Professor
Dr. Cheung Kin

Associate Dean &
Professor
Dr. Kenneth Fong



Ms. Rebecca Chau



香港房屋委員會
Hong Kong Housing Authority

Let's create innovative intergenerational space in our vertical city!